



wwPDB EM Validation Summary Report ⓘ

Aug 8, 2023 – 12:50 PM JST

PDB ID : 7YMI
EMDB ID : EMD-33929
Title : PSII-Pcb Dimer of Acaryochloris Marina
Authors : Shen, L.L.; Gao, Y.Z.; Wang, W.D.; Zhang, X.; Shen, J.R.; Wang, P.Y.; Han, G.Y.
Deposited on : 2022-07-28
Resolution : 3.30 Å(reported)

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

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

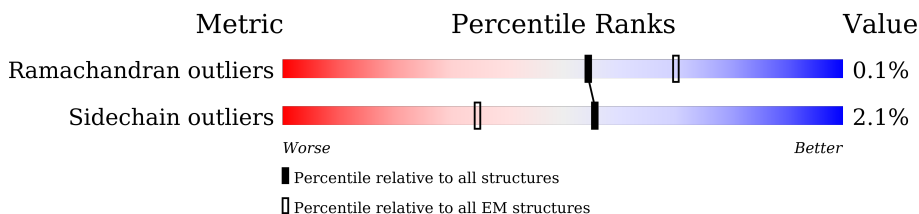
EMDB validation analysis : 0.0.1.dev50
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.35

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 3.30 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	A	360	
1	a	360	
2	B	506	
2	b	506	
3	C	490	
3	c	490	
4	D	351	
4	d	351	
5	E	83	

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Mol	Chain	Length	Quality of chain
5	e	83	47% 77% 22%
6	F	99	6% 30% 70%
6	f	99	6% 30% 70%
7	H	71	20% 94% ..
7	h	71	20% 94% ..
8	I	34	12% 97% .
8	i	34	12% 97% .
9	K	45	51% 80% 18%
9	k	45	51% 80% 18%
10	L	38	11% 95% 5%
10	l	38	11% 95% 5%
11	M	34	24% 91% 9%
11	m	34	24% 91% 9%
12	T	46	20% 61% 39%
12	t	46	20% 61% 39%
13	X	40	48% 88% 12%
13	x	40	48% 88% 12%
14	Y	39	59% 56% 41%
14	y	39	59% 56% 41%
15	Z	62	90% 94% 5%
15	z	62	90% 94% 5%
16	2	352	14% 97% ..
16	6	352	14% 97% ..
17	G	41	22% 100%
17	g	41	22% 100%

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Mol	Chain	Length	Quality of chain
18	1	356	
18	5	356	
19	3	349	
19	7	349	
20	4	353	
20	8	353	

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
21	CL7	1	402	X	-	-	-
21	CL7	1	403	X	-	-	-
21	CL7	1	404	X	-	-	-
21	CL7	1	405	X	-	-	-
21	CL7	1	406	X	-	-	-
21	CL7	1	407	X	-	-	-
21	CL7	1	408	X	-	-	-
21	CL7	1	409	X	-	-	-
21	CL7	1	410	X	-	-	-
21	CL7	1	411	X	-	-	-
21	CL7	1	412	X	-	-	-
21	CL7	1	413	X	-	-	-
21	CL7	1	414	X	-	-	-
21	CL7	1	415	X	-	-	-
21	CL7	1	416	X	-	-	-
21	CL7	1	417	X	-	-	-
21	CL7	1	418	X	-	-	-
21	CL7	1	419	X	-	-	-
21	CL7	1	420	X	-	-	-
21	CL7	2	501	X	-	-	-
21	CL7	2	502	X	-	-	-
21	CL7	2	503	X	-	-	-
21	CL7	2	504	X	-	-	-
21	CL7	2	505	X	-	-	-
21	CL7	2	506	X	-	-	-
21	CL7	2	507	X	-	-	-
21	CL7	2	508	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
21	CL7	2	509	X	-	-	-
21	CL7	2	510	X	-	-	-
21	CL7	2	511	X	-	-	-
21	CL7	2	512	X	-	-	-
21	CL7	2	513	X	-	-	-
21	CL7	2	514	X	-	-	-
21	CL7	2	515	X	-	-	-
21	CL7	2	516	X	-	-	-
21	CL7	2	517	X	-	-	-
21	CL7	2	518	X	-	-	-
21	CL7	3	501	X	-	-	-
21	CL7	3	502	X	-	-	-
21	CL7	3	503	X	-	-	-
21	CL7	3	504	X	-	-	-
21	CL7	3	505	X	-	-	-
21	CL7	3	506	X	-	-	-
21	CL7	3	507	X	-	-	-
21	CL7	3	508	X	-	-	-
21	CL7	3	509	X	-	-	-
21	CL7	3	510	X	-	-	-
21	CL7	3	511	X	-	-	-
21	CL7	3	512	X	-	-	-
21	CL7	3	513	X	-	-	-
21	CL7	3	514	X	-	-	-
21	CL7	3	515	X	-	-	-
21	CL7	3	516	X	-	-	-
21	CL7	3	517	X	-	-	-
21	CL7	3	518	X	-	-	-
21	CL7	4	404	X	-	-	-
21	CL7	4	405	X	-	-	-
21	CL7	4	406	X	-	-	-
21	CL7	4	407	X	-	-	-
21	CL7	4	408	X	-	-	-
21	CL7	4	409	X	-	-	-
21	CL7	4	410	X	-	-	-
21	CL7	4	411	X	-	-	-
21	CL7	4	412	X	-	-	-
21	CL7	4	413	X	-	-	-
21	CL7	4	414	X	-	-	-
21	CL7	4	415	X	-	-	-
21	CL7	4	416	X	-	-	-
21	CL7	4	417	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
21	CL7	5	402	X	-	-	-
21	CL7	5	403	X	-	-	-
21	CL7	5	404	X	-	-	-
21	CL7	5	405	X	-	-	-
21	CL7	5	406	X	-	-	-
21	CL7	5	407	X	-	-	-
21	CL7	5	408	X	-	-	-
21	CL7	5	409	X	-	-	-
21	CL7	5	410	X	-	-	-
21	CL7	5	411	X	-	-	-
21	CL7	5	412	X	-	-	-
21	CL7	5	413	X	-	-	-
21	CL7	5	414	X	-	-	-
21	CL7	5	415	X	-	-	-
21	CL7	5	416	X	-	-	-
21	CL7	5	417	X	-	-	-
21	CL7	5	418	X	-	-	-
21	CL7	5	419	X	-	-	-
21	CL7	5	420	X	-	-	-
21	CL7	6	501	X	-	-	-
21	CL7	6	502	X	-	-	-
21	CL7	6	503	X	-	-	-
21	CL7	6	504	X	-	-	-
21	CL7	6	505	X	-	-	-
21	CL7	6	506	X	-	-	-
21	CL7	6	507	X	-	-	-
21	CL7	6	508	X	-	-	-
21	CL7	6	509	X	-	-	-
21	CL7	6	510	X	-	-	-
21	CL7	6	511	X	-	-	-
21	CL7	6	512	X	-	-	-
21	CL7	6	513	X	-	-	-
21	CL7	6	514	X	-	-	-
21	CL7	6	515	X	-	-	-
21	CL7	6	516	X	-	-	-
21	CL7	6	517	X	-	-	-
21	CL7	6	518	X	-	-	-
21	CL7	7	501	X	-	-	-
21	CL7	7	502	X	-	-	-
21	CL7	7	503	X	-	-	-
21	CL7	7	504	X	-	-	-
21	CL7	7	505	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
21	CL7	7	506	X	-	-	-
21	CL7	7	507	X	-	-	-
21	CL7	7	508	X	-	-	-
21	CL7	7	509	X	-	-	-
21	CL7	7	510	X	-	-	-
21	CL7	7	511	X	-	-	-
21	CL7	7	512	X	-	-	-
21	CL7	7	513	X	-	-	-
21	CL7	7	514	X	-	-	-
21	CL7	7	515	X	-	-	-
21	CL7	7	516	X	-	-	-
21	CL7	7	517	X	-	-	-
21	CL7	7	518	X	-	-	-
21	CL7	8	404	X	-	-	-
21	CL7	8	405	X	-	-	-
21	CL7	8	406	X	-	-	-
21	CL7	8	407	X	-	-	-
21	CL7	8	408	X	-	-	-
21	CL7	8	409	X	-	-	-
21	CL7	8	410	X	-	-	-
21	CL7	8	411	X	-	-	-
21	CL7	8	412	X	-	-	-
21	CL7	8	413	X	-	-	-
21	CL7	8	414	X	-	-	-
21	CL7	8	415	X	-	-	-
21	CL7	8	416	X	-	-	-
21	CL7	8	417	X	-	-	-
21	CL7	A	401	X	-	-	-
21	CL7	A	403	X	-	-	-
21	CL7	A	406	X	-	-	-
21	CL7	B	601	X	-	-	-
21	CL7	B	602	X	-	-	-
21	CL7	B	603	X	-	-	-
21	CL7	B	604	X	-	-	-
21	CL7	B	605	X	-	-	-
21	CL7	B	606	X	-	-	-
21	CL7	B	607	X	-	-	-
21	CL7	B	608	X	-	-	-
21	CL7	B	609	X	-	-	-
21	CL7	B	610	X	-	-	-
21	CL7	B	611	X	-	-	-
21	CL7	B	612	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
21	CL7	B	613	X	-	-	-
21	CL7	B	614	X	-	-	-
21	CL7	B	615	X	-	-	-
21	CL7	B	616	X	-	-	-
21	CL7	B	622	X	-	-	-
21	CL7	C	502	X	-	-	-
21	CL7	C	503	X	-	-	-
21	CL7	C	504	X	-	-	-
21	CL7	C	505	X	-	-	-
21	CL7	C	506	X	-	-	-
21	CL7	C	507	X	-	-	-
21	CL7	C	508	X	-	-	-
21	CL7	C	509	X	-	-	-
21	CL7	C	510	X	-	-	-
21	CL7	C	511	X	-	-	-
21	CL7	C	512	X	-	-	-
21	CL7	C	513	X	-	-	-
21	CL7	C	514	X	-	-	-
21	CL7	C	518	X	-	-	-
21	CL7	D	402	X	-	-	-
21	CL7	D	404	X	-	-	-
21	CL7	D	405	X	-	-	-
21	CL7	a	401	X	-	-	-
21	CL7	a	403	X	-	-	-
21	CL7	a	405	X	-	-	-
21	CL7	b	602	X	-	-	-
21	CL7	b	603	X	-	-	-
21	CL7	b	604	X	-	-	-
21	CL7	b	605	X	-	-	-
21	CL7	b	606	X	-	-	-
21	CL7	b	607	X	-	-	-
21	CL7	b	608	X	-	-	-
21	CL7	b	609	X	-	-	-
21	CL7	b	610	X	-	-	-
21	CL7	b	611	X	-	-	-
21	CL7	b	612	X	-	-	-
21	CL7	b	613	X	-	-	-
21	CL7	b	614	X	-	-	-
21	CL7	b	615	X	-	-	-
21	CL7	b	616	X	-	-	-
21	CL7	b	617	X	-	-	-
21	CL7	b	623	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
21	CL7	c	502	X	-	-	-
21	CL7	c	503	X	-	-	-
21	CL7	c	504	X	-	-	-
21	CL7	c	505	X	-	-	-
21	CL7	c	506	X	-	-	-
21	CL7	c	507	X	-	-	-
21	CL7	c	508	X	-	-	-
21	CL7	c	509	X	-	-	-
21	CL7	c	510	X	-	-	-
21	CL7	c	511	X	-	-	-
21	CL7	c	512	X	-	-	-
21	CL7	c	513	X	-	-	-
21	CL7	c	514	X	-	-	-
21	CL7	c	518	X	-	-	-
21	CL7	d	402	X	-	-	-
21	CL7	d	404	X	-	-	-
21	CL7	d	405	X	-	-	-

2 Entry composition [i](#)

There are 32 unique types of molecules in this entry. The entry contains 68428 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called Photosystem II protein D1 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	284	Total	C	N	O	S	0	0
			2209	1450	361	381	17		
1	a	284	Total	C	N	O	S	0	0
			2209	1450	361	381	17		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	479	Total	C	N	O	S	0	0
			3794	2472	637	671	14		
2	b	479	Total	C	N	O	S	0	0
			3794	2472	637	671	14		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	420	Total	C	N	O	S	0	0
			3313	2173	556	570	14		
3	c	420	Total	C	N	O	S	0	0
			3313	2173	556	570	14		

- Molecule 4 is a protein called Photosystem II D2 protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	323	Total	C	N	O	S	0	0
			2583	1713	420	439	11		
4	d	323	Total	C	N	O	S	0	0
			2583	1713	420	439	11		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
5	E	65	Total	C	N	O	S	0	0
			538	354	87	96	1		
5	e	65	Total	C	N	O	S	0	0
			538	354	87	96	1		

- Molecule 6 is a protein called Photosystem II protein Y.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	F	30	Total	C	N	O	S	0	0
			242	166	39	36	1		
6	f	30	Total	C	N	O	S	0	0
			242	166	39	36	1		

- Molecule 7 is a protein called Photosystem II 10 kDa phosphoprotein PsbH.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	H	68	Total	C	N	O	S	0	0
			519	342	83	91	3		
7	h	68	Total	C	N	O	S	0	0
			519	342	83	91	3		

- Molecule 8 is a protein called Photosystem II protein PsbI.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	I	34	Total	C	N	O	S	0	0
			281	194	41	45	1		
8	i	34	Total	C	N	O	S	0	0
			281	194	41	45	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
9	K	37	Total	C	N	O	S	0	0
			292	205	41	45	1		
9	k	37	Total	C	N	O	S	0	0
			292	205	41	45	1		

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

Mol	Chain	Residues	Atoms				AltConf	Trace
10	L	36	Total	C	N	O	0	0
			288	194	45	49		

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Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
10	l	36	288	194	45	49	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	M	31	232	156	36	39	1	0	0
11	m	31	232	156	36	39	1	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	T	28	231	163	32	34	2	0	0
12	t	28	231	163	32	34	2	0	0

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

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
13	X	35	269	185	39	45	0	0
13	x	35	269	185	39	45	0	0

- Molecule 14 is a protein called Photosystem II reaction center protein Ycf12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	Y	23	164	111	27	25	1	0	0
14	y	23	164	111	27	25	1	0	0

- Molecule 15 is a protein called Photosystem II reaction center protein Z.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	Z	59	429	290	64	73	2	0	0
15	z	59	429	290	64	73	2	0	0

- Molecule 16 is a protein called High light inducible protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	2	349	Total	C	N	O	S	0	0
			2734	1811	442	473	8		
16	6	349	Total	C	N	O	S	0	0
			2734	1811	442	473	8		

- Molecule 17 is a protein called Unknown protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
17	G	41	Total	C	N	O	0	0
			205	123	41	41		
17	g	41	Total	C	N	O	0	0
			205	123	41	41		

- Molecule 18 is a protein called High light inducible protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	1	329	Total	C	N	O	S	0	0
			2567	1715	400	445	7		
18	5	329	Total	C	N	O	S	0	0
			2567	1715	400	445	7		

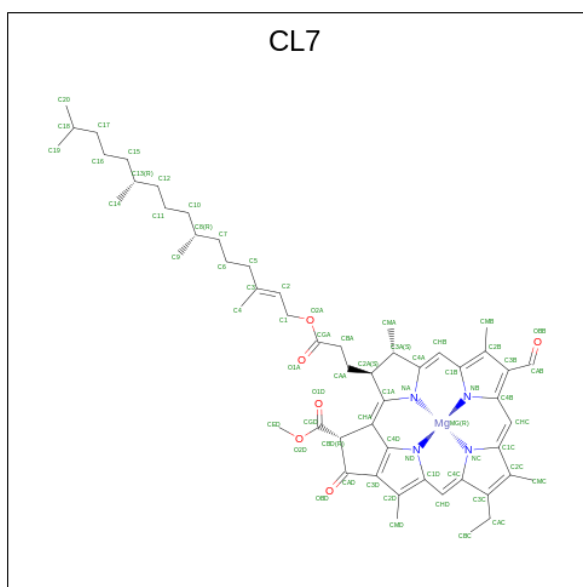
- Molecule 19 is a protein called High light inducible protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	3	344	Total	C	N	O	S	0	0
			2715	1794	444	468	9		
19	7	344	Total	C	N	O	S	0	0
			2715	1794	444	468	9		

- Molecule 20 is a protein called High light inducible protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	4	331	Total	C	N	O	S	0	0
			2514	1638	412	448	16		
20	8	331	Total	C	N	O	S	0	0
			2514	1638	412	448	16		

- Molecule 21 is CHLOROPHYLL D (three-letter code: CL7) (formula: $C_{54}H_{70}MgN_4O_6$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				AltConf	
			Total	C	Mg	N		O
21	A	1	65	54	1	4	6	0
21	A	1	55	44	1	4	6	0
21	A	1	65	54	1	4	6	0
21	B	1	41	32	1	4	4	0
21	B	1	60	49	1	4	6	0
21	B	1	65	54	1	4	6	0
21	B	1	65	54	1	4	6	0
21	B	1	65	54	1	4	6	0
21	B	1	55	44	1	4	6	0
21	B	1	60	49	1	4	6	0
21	B	1	65	54	1	4	6	0
21	B	1	65	54	1	4	6	0
21	B	1	65	54	1	4	6	0
21	B	1	65	54	1	4	6	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
21	B	1	65	54	1	4	6	0
21	B	1	55	44	1	4	6	0
21	B	1	60	49	1	4	6	0
21	B	1	50	39	1	4	6	0
21	B	1	45	34	1	4	6	0
21	B	1	45	34	1	4	6	0
21	C	1	65	54	1	4	6	0
21	C	1	60	49	1	4	6	0
21	C	1	65	54	1	4	6	0
21	C	1	55	44	1	4	6	0
21	C	1	65	54	1	4	6	0
21	C	1	60	49	1	4	6	0
21	C	1	65	54	1	4	6	0
21	C	1	65	54	1	4	6	0
21	C	1	65	54	1	4	6	0
21	C	1	42	33	1	4	4	0
21	C	1	41	32	1	4	4	0
21	C	1	45	34	1	4	6	0
21	C	1	41	32	1	4	4	0
21	D	1	50	39	1	4	6	0

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Mol	Chain	Residues	Atoms				AltConf	
21	D	1	Total	C	Mg	N	O	0
			58	47	1	4	6	
21	D	1	Total	C	Mg	N	O	0
			45	34	1	4	6	
21	2	1	Total	C	Mg	N	O	0
			65	54	1	4	6	
21	2	1	Total	C	Mg	N	O	0
			65	54	1	4	6	
21	2	1	Total	C	Mg	N	O	0
			65	54	1	4	6	
21	2	1	Total	C	Mg	N	O	0
			45	34	1	4	6	
21	2	1	Total	C	Mg	N	O	0
			65	54	1	4	6	
21	2	1	Total	C	Mg	N	O	0
			65	54	1	4	6	
21	2	1	Total	C	Mg	N	O	0
			45	34	1	4	6	
21	2	1	Total	C	Mg	N	O	0
			65	54	1	4	6	
21	2	1	Total	C	Mg	N	O	0
			65	54	1	4	6	
21	2	1	Total	C	Mg	N	O	0
			60	49	1	4	6	
21	2	1	Total	C	Mg	N	O	0
			65	54	1	4	6	
21	2	1	Total	C	Mg	N	O	0
			45	34	1	4	6	
21	2	1	Total	C	Mg	N	O	0
			45	34	1	4	6	
21	2	1	Total	C	Mg	N	O	0
			45	34	1	4	6	
21	2	1	Total	C	Mg	N	O	0
			65	54	1	4	6	
21	2	1	Total	C	Mg	N	O	0
			65	54	1	4	6	
21	2	1	Total	C	Mg	N	O	0
			65	54	1	4	6	
21	1	1	Total	C	Mg	N	O	0
			60	49	1	4	6	

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
21	1	1	60	49	1	4	6	0
21	1	1	65	54	1	4	6	0
21	1	1	45	34	1	4	6	0
21	1	1	62	51	1	4	6	0
21	1	1	41	32	1	4	4	0
21	1	1	65	54	1	4	6	0
21	1	1	45	34	1	4	6	0
21	1	1	65	54	1	4	6	0
21	1	1	45	34	1	4	6	0
21	1	1	45	34	1	4	6	0
21	1	1	41	32	1	4	4	0
21	1	1	41	32	1	4	4	0
21	1	1	41	32	1	4	4	0
21	1	1	41	32	1	4	4	0
21	1	1	55	44	1	4	6	0
21	1	1	65	54	1	4	6	0
21	1	1	45	34	1	4	6	0
21	1	1	45	34	1	4	6	0
21	3	1	65	54	1	4	6	0
21	3	1	58	47	1	4	6	0
21	3	1	65	54	1	4	6	0

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Mol	Chain	Residues	Atoms				AltConf	
			Total	C	Mg	N		O
21	3	1	65	54	1	4	6	0
21	3	1	65	54	1	4	6	0
21	3	1	45	34	1	4	6	0
21	3	1	65	54	1	4	6	0
21	3	1	65	54	1	4	6	0
21	3	1	65	54	1	4	6	0
21	3	1	65	54	1	4	6	0
21	3	1	65	54	1	4	6	0
21	3	1	55	44	1	4	6	0
21	3	1	45	34	1	4	6	0
21	3	1	45	34	1	4	6	0
21	3	1	41	32	1	4	4	0
21	3	1	55	44	1	4	6	0
21	3	1	50	39	1	4	6	0
21	3	1	45	34	1	4	6	0
21	4	1	65	54	1	4	6	0
21	4	1	65	54	1	4	6	0
21	4	1	65	54	1	4	6	0
21	4	1	41	32	1	4	4	0
21	4	1	45	34	1	4	6	0
21	4	1	60	49	1	4	6	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
21	4	1	45	34	1	4	6	0
21	4	1	65	54	1	4	6	0
21	4	1	65	54	1	4	6	0
21	4	1	60	49	1	4	6	0
21	4	1	53	42	1	4	6	0
21	4	1	45	34	1	4	6	0
21	4	1	41	32	1	4	4	0
21	4	1	42	33	1	4	4	0
21	a	1	65	54	1	4	6	0
21	a	1	55	44	1	4	6	0
21	a	1	65	54	1	4	6	0
21	b	1	41	32	1	4	4	0
21	b	1	60	49	1	4	6	0
21	b	1	65	54	1	4	6	0
21	b	1	65	54	1	4	6	0
21	b	1	55	44	1	4	6	0
21	b	1	60	49	1	4	6	0
21	b	1	65	54	1	4	6	0
21	b	1	65	54	1	4	6	0
21	b	1	65	54	1	4	6	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
21	b	1	65	54	1	4	6	0
21	b	1	65	54	1	4	6	0
21	b	1	55	44	1	4	6	0
21	b	1	60	49	1	4	6	0
21	b	1	50	39	1	4	6	0
21	b	1	45	34	1	4	6	0
21	b	1	45	34	1	4	6	0
21	c	1	65	54	1	4	6	0
21	c	1	60	49	1	4	6	0
21	c	1	65	54	1	4	6	0
21	c	1	55	44	1	4	6	0
21	c	1	65	54	1	4	6	0
21	c	1	60	49	1	4	6	0
21	c	1	65	54	1	4	6	0
21	c	1	65	54	1	4	6	0
21	c	1	65	54	1	4	6	0
21	c	1	65	54	1	4	6	0
21	c	1	42	33	1	4	4	0
21	c	1	41	32	1	4	4	0
21	c	1	45	34	1	4	6	0
21	c	1	41	32	1	4	4	0

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Mol	Chain	Residues	Atoms				AltConf	
			Total	C	Mg	N		O
21	d	1	50	39	1	4	6	0
21	d	1	58	47	1	4	6	0
21	d	1	45	34	1	4	6	0
21	6	1	65	54	1	4	6	0
21	6	1	65	54	1	4	6	0
21	6	1	65	54	1	4	6	0
21	6	1	45	34	1	4	6	0
21	6	1	65	54	1	4	6	0
21	6	1	65	54	1	4	6	0
21	6	1	65	54	1	4	6	0
21	6	1	65	54	1	4	6	0
21	6	1	60	49	1	4	6	0
21	6	1	65	54	1	4	6	0
21	6	1	45	34	1	4	6	0
21	6	1	45	34	1	4	6	0
21	6	1	45	34	1	4	6	0
21	6	1	65	54	1	4	6	0
21	6	1	65	54	1	4	6	0
21	6	1	65	54	1	4	6	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
21	5	1	60	49	1	4	6	0
21	5	1	60	49	1	4	6	0
21	5	1	65	54	1	4	6	0
21	5	1	45	34	1	4	6	0
21	5	1	62	51	1	4	6	0
21	5	1	41	32	1	4	4	0
21	5	1	65	54	1	4	6	0
21	5	1	45	34	1	4	6	0
21	5	1	65	54	1	4	6	0
21	5	1	45	34	1	4	6	0
21	5	1	45	34	1	4	6	0
21	5	1	41	32	1	4	4	0
21	5	1	41	32	1	4	4	0
21	5	1	41	32	1	4	4	0
21	5	1	41	32	1	4	4	0
21	5	1	55	44	1	4	6	0
21	5	1	65	54	1	4	6	0
21	5	1	45	34	1	4	6	0
21	5	1	45	34	1	4	6	0
21	7	1	65	54	1	4	6	0
21	7	1	58	47	1	4	6	0

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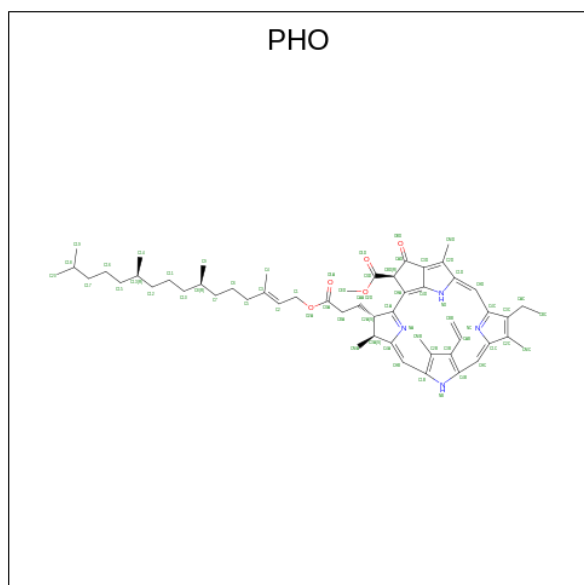
Mol	Chain	Residues	Atoms				AltConf	
			Total	C	Mg	N		O
21	7	1	65	54	1	4	6	0
21	7	1	65	54	1	4	6	0
21	7	1	65	54	1	4	6	0
21	7	1	45	34	1	4	6	0
21	7	1	65	54	1	4	6	0
21	7	1	65	54	1	4	6	0
21	7	1	65	54	1	4	6	0
21	7	1	65	54	1	4	6	0
21	7	1	65	54	1	4	6	0
21	7	1	55	44	1	4	6	0
21	7	1	45	34	1	4	6	0
21	7	1	45	34	1	4	6	0
21	7	1	41	32	1	4	4	0
21	7	1	55	44	1	4	6	0
21	7	1	50	39	1	4	6	0
21	7	1	45	34	1	4	6	0
21	8	1	65	54	1	4	6	0
21	8	1	65	54	1	4	6	0
21	8	1	65	54	1	4	6	0
21	8	1	41	32	1	4	4	0
21	8	1	45	34	1	4	6	0

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Mol	Chain	Residues	Atoms					AltConf
21	8	1	Total	C	Mg	N	O	0
			60	49	1	4	6	
21	8	1	Total	C	Mg	N	O	0
			45	34	1	4	6	
21	8	1	Total	C	Mg	N	O	0
			65	54	1	4	6	
21	8	1	Total	C	Mg	N	O	0
			65	54	1	4	6	
21	8	1	Total	C	Mg	N	O	0
			60	49	1	4	6	
21	8	1	Total	C	Mg	N	O	0
			53	42	1	4	6	
21	8	1	Total	C	Mg	N	O	0
			45	34	1	4	6	
21	8	1	Total	C	Mg	N	O	0
			41	32	1	4	4	
21	8	1	Total	C	Mg	N	O	0
			42	33	1	4	4	

- Molecule 22 is PHEOPHYTIN A (three-letter code: PHO) (formula: $C_{55}H_{74}N_4O_5$) (labeled as "Ligand of Interest" by depositor).



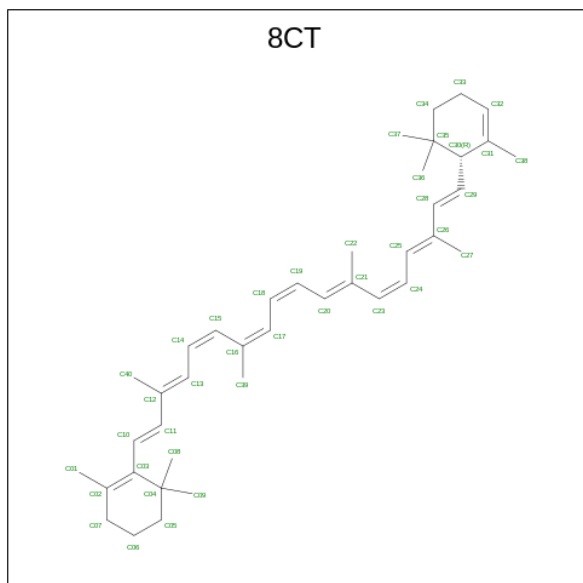
Mol	Chain	Residues	Atoms			AltConf	
22	A	1	Total	C	N	O	0
			64	55	4	5	
22	D	1	Total	C	N	O	0
			64	55	4	5	

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Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
22	a	1	64	55	4	5	0
22	d	1	64	55	4	5	0

- Molecule 23 is (6'R,11cis,11'cis,13cis,15cis)-4',5'-didehydro-5',6'-dihydro-beta,beta-carotene (three-letter code: 8CT) (formula: C₄₀H₅₆) (labeled as "Ligand of Interest" by depositor).



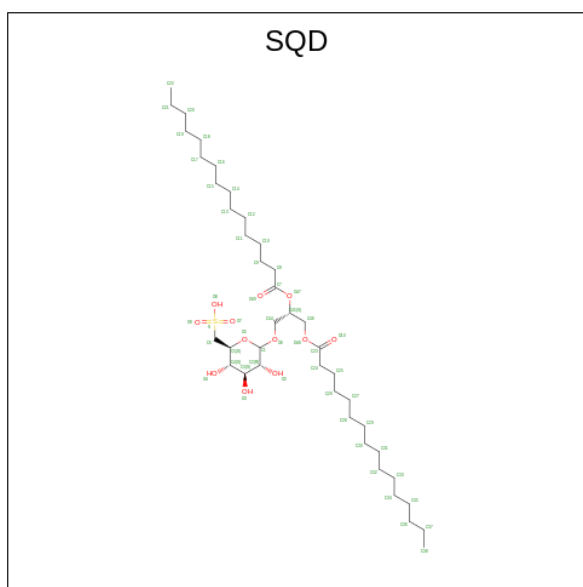
Mol	Chain	Residues	Atoms		AltConf
23	A	1	Total	C	0
			40	40	
23	B	1	Total	C	0
			40	40	
23	B	1	Total	C	0
			40	40	
23	B	1	Total	C	0
			40	40	
23	B	1	Total	C	0
			40	40	
23	C	1	Total	C	0
			40	40	
23	C	1	Total	C	0
			40	40	
23	C	1	Total	C	0
			40	40	
23	D	1	Total	C	0
			40	40	

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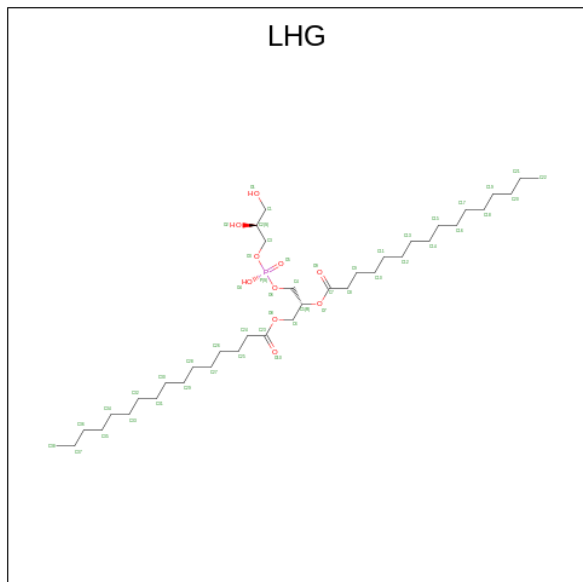
Mol	Chain	Residues	Atoms	AltConf
23	K	1	Total C 40 40	0
23	4	1	Total C 40 40	0
23	a	1	Total C 40 40	0
23	b	1	Total C 40 40	0
23	b	1	Total C 40 40	0
23	b	1	Total C 40 40	0
23	b	1	Total C 40 40	0
23	c	1	Total C 40 40	0
23	c	1	Total C 40 40	0
23	c	1	Total C 40 40	0
23	d	1	Total C 40 40	0
23	k	1	Total C 40 40	0
23	8	1	Total C 40 40	0

- Molecule 24 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).



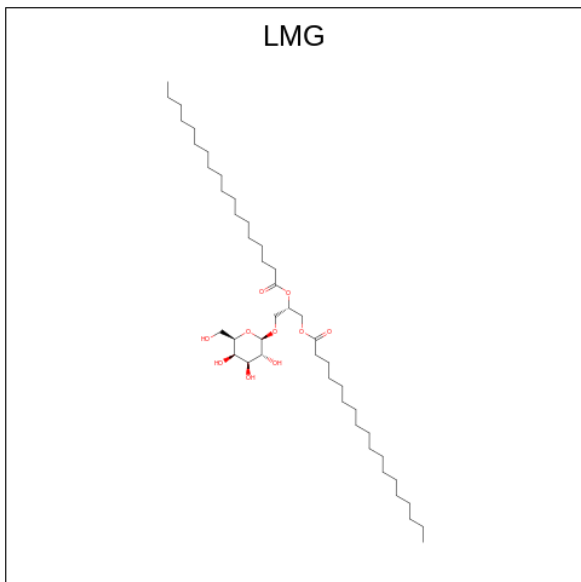
Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	S	
24	A	1	34	21	12	1	0
24	B	1	54	41	12	1	0
24	B	1	34	21	12	1	0
24	2	1	50	37	12	1	0
24	2	1	41	28	12	1	0
24	1	1	32	19	12	1	0
24	3	1	46	33	12	1	0
24	3	1	50	37	12	1	0
24	b	1	54	41	12	1	0
24	6	1	50	37	12	1	0
24	6	1	41	28	12	1	0
24	5	1	32	19	12	1	0
24	7	1	46	33	12	1	0
24	7	1	50	37	12	1	0

- Molecule 25 is 1,2-DIPALMITOYL-PHOSPHATIDYL-GLYCEROLE (three-letter code: LHG) (formula: $C_{38}H_{75}O_{10}P$) (labeled as "Ligand of Interest" by depositor).



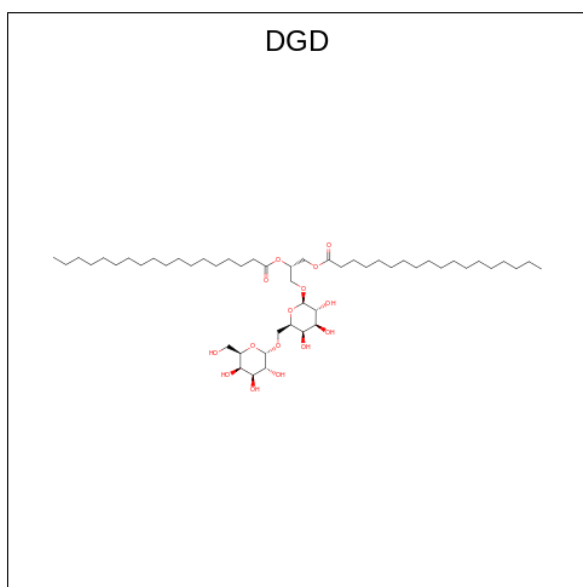
Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
25	A	1	Total	C	O	P	0
			46	35	10	1	
25	B	1	Total	C	O	P	0
			45	34	10	1	
25	B	1	Total	C	O	P	0
			49	38	10	1	
25	D	1	Total	C	O	P	0
			49	38	10	1	
25	3	1	Total	C	O	P	0
			36	25	10	1	
25	4	1	Total	C	O	P	0
			49	38	10	1	
25	a	1	Total	C	O	P	0
			46	35	10	1	
25	b	1	Total	C	O	P	0
			45	34	10	1	
25	b	1	Total	C	O	P	0
			49	38	10	1	
25	d	1	Total	C	O	P	0
			49	38	10	1	
25	7	1	Total	C	O	P	0
			36	25	10	1	
25	8	1	Total	C	O	P	0
			49	38	10	1	

- Molecule 26 is 1,2-DISTEAROYL-MONOGALACTOSYL-DIGLYCERIDE (three-letter code: LMG) (formula: $C_{45}H_{86}O_{10}$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
26	B	1	51	41	10	0
26	C	1	50	40	10	0
26	D	1	33	23	10	0
26	1	1	51	41	10	0
26	b	1	51	41	10	0
26	c	1	50	40	10	0
26	d	1	33	23	10	0
26	5	1	51	41	10	0

- Molecule 27 is DIGALACTOSYL DIACYL GLYCEROL (DGDG) (three-letter code: DGD) (formula: $C_{51}H_{96}O_{15}$) (labeled as "Ligand of Interest" by depositor).

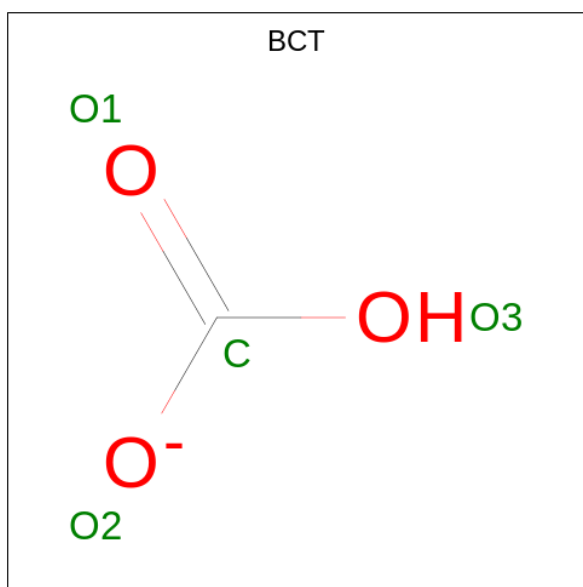


Mol	Chain	Residues	Atoms			AltConf
27	B	1	Total	C	O	0
			62	47	15	
27	C	1	Total	C	O	0
			62	47	15	
27	b	1	Total	C	O	0
			62	47	15	
27	c	1	Total	C	O	0
			62	47	15	

- Molecule 28 is FE (II) ION (three-letter code: FE2) (formula: Fe) (labeled as "Ligand of Interest" by depositor).

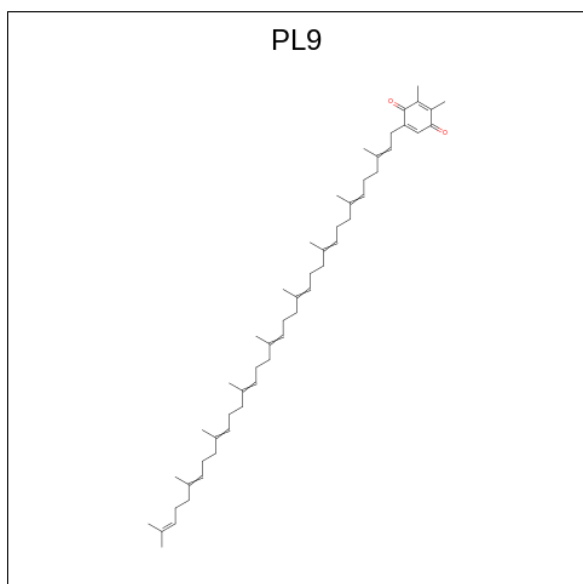
Mol	Chain	Residues	Atoms		AltConf
28	D	1	Total	Fe	0
			1	1	
28	d	1	Total	Fe	0
			1	1	

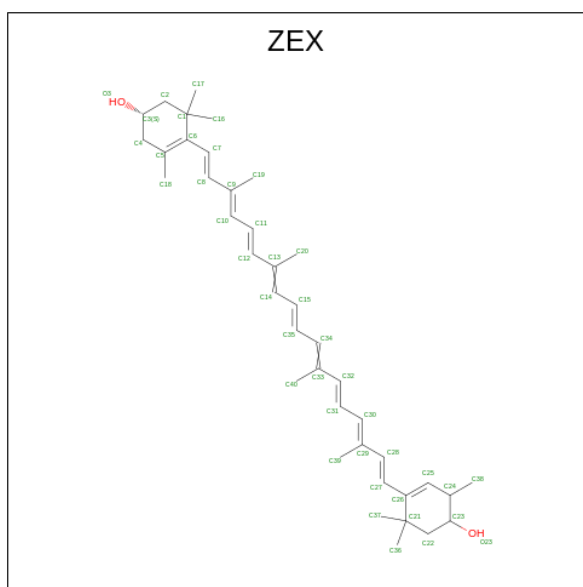
- Molecule 29 is BICARBONATE ION (three-letter code: BCT) (formula: CHO₃) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			AltConf
29	D	1	Total	C	O	0
			4	1	3	
29	d	1	Total	C	O	0
			4	1	3	

- Molecule 30 is 2,3-DIMETHYL-5-(3,7,11,15,19,23,27,31,35-NONAMETHYL-2,6,10,14,18,22,26,30,34-HEXATRIACONTANONAENYL-2,5-CYCLOHEXADIENE-1,4-DIONE-2,3-DIMETHYL-5-SOLANESYL-1,4-BENZOQUINONE (three-letter code: PL9) (formula: C₅₃H₈₀O₂) (labeled as "Ligand of Interest" by depositor).



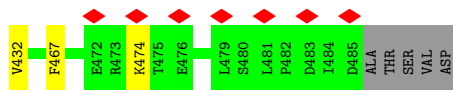


Mol	Chain	Residues	Atoms			AltConf
32	2	1	Total	C	O	0
			42	40	2	
32	2	1	Total	C	O	0
			42	40	2	
32	2	1	Total	C	O	0
			42	40	2	
32	2	1	Total	C	O	0
			42	40	2	
32	1	1	Total	C	O	0
			42	40	2	
32	1	1	Total	C	O	0
			42	40	2	
32	3	1	Total	C	O	0
			42	40	2	
32	3	1	Total	C	O	0
			42	40	2	
32	3	1	Total	C	O	0
			42	40	2	
32	4	1	Total	C	O	0
			42	40	2	
32	4	1	Total	C	O	0
			42	40	2	
32	4	1	Total	C	O	0
			42	40	2	

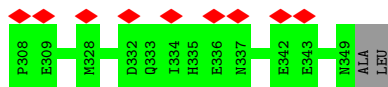
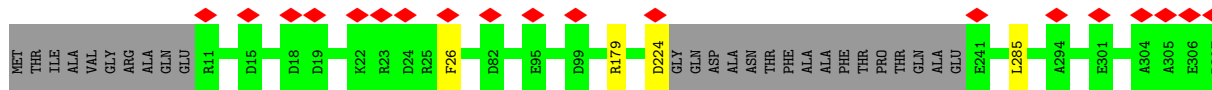
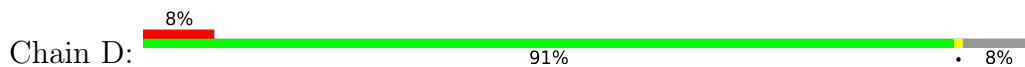
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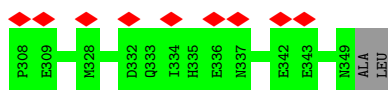
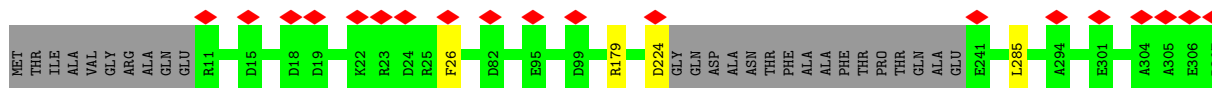
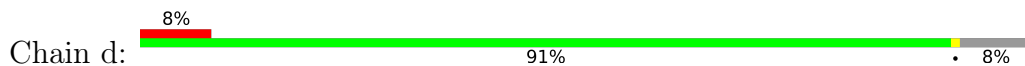
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
32	4	1	Total 42	C 40	O 2	0
32	6	1	Total 42	C 40	O 2	0
32	6	1	Total 42	C 40	O 2	0
32	6	1	Total 42	C 40	O 2	0
32	6	1	Total 42	C 40	O 2	0
32	5	1	Total 42	C 40	O 2	0
32	5	1	Total 42	C 40	O 2	0
32	7	1	Total 42	C 40	O 2	0
32	7	1	Total 42	C 40	O 2	0
32	7	1	Total 42	C 40	O 2	0
32	8	1	Total 42	C 40	O 2	0
32	8	1	Total 42	C 40	O 2	0
32	8	1	Total 42	C 40	O 2	0
32	8	1	Total 42	C 40	O 2	0



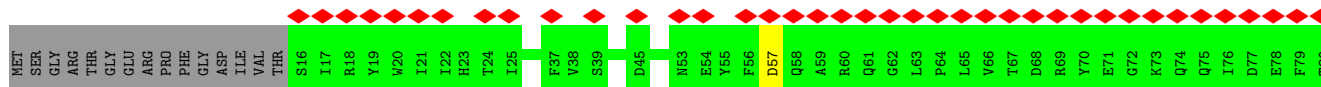
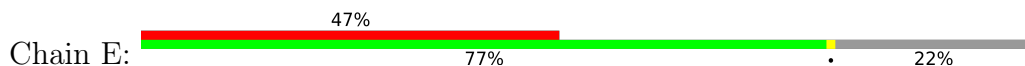
• Molecule 4: Photosystem II D2 protein 1



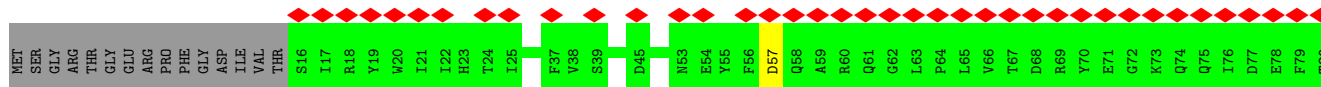
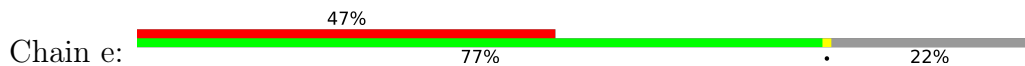
• Molecule 4: Photosystem II D2 protein 1



• Molecule 5: Cytochrome b559 subunit alpha

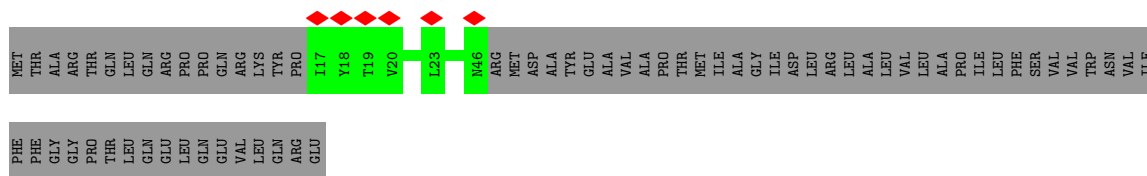


• Molecule 5: Cytochrome b559 subunit alpha

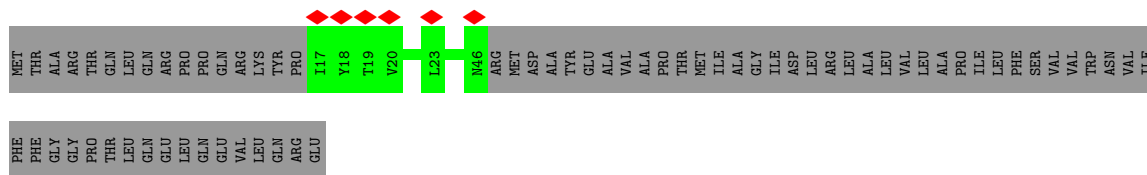


• Molecule 6: Photosystem II protein Y

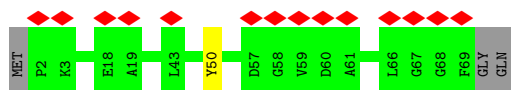




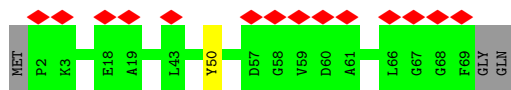
• Molecule 6: Photosystem II protein Y



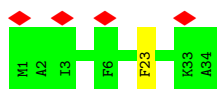
• Molecule 7: Photosystem II 10 kDa phosphoprotein PsbH



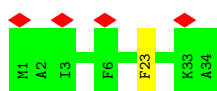
• Molecule 7: Photosystem II 10 kDa phosphoprotein PsbH



• Molecule 8: Photosystem II protein PsbI

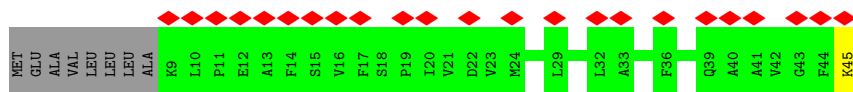


• Molecule 8: Photosystem II protein PsbI

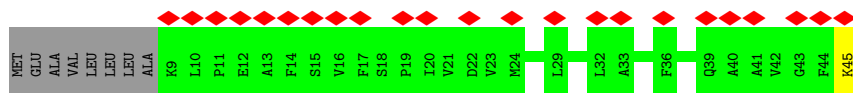
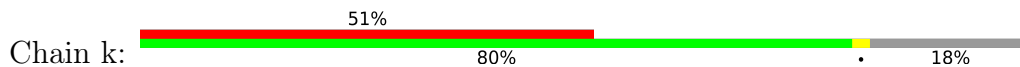


• Molecule 9: Photosystem II reaction center protein K





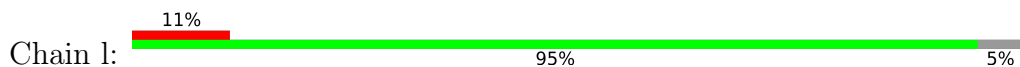
• Molecule 9: Photosystem II reaction center protein K



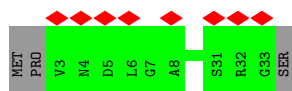
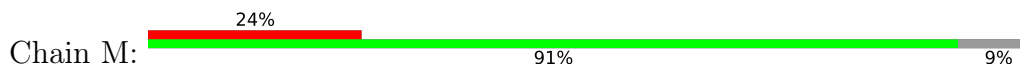
• Molecule 10: Photosystem II reaction center protein L



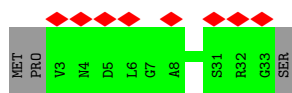
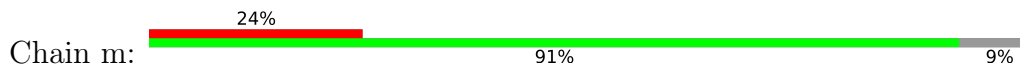
• Molecule 10: Photosystem II reaction center protein L



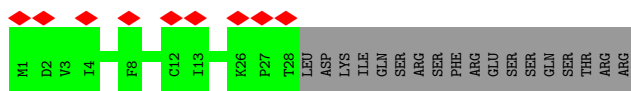
• Molecule 11: Photosystem II reaction center protein M



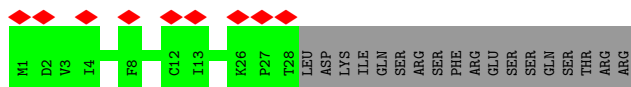
• Molecule 11: Photosystem II reaction center protein M



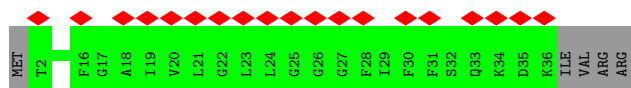
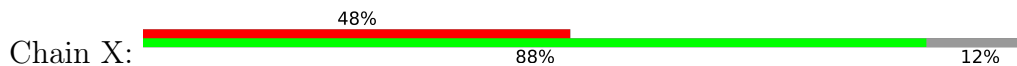
• Molecule 12: Photosystem II reaction center protein T



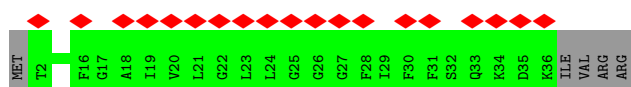
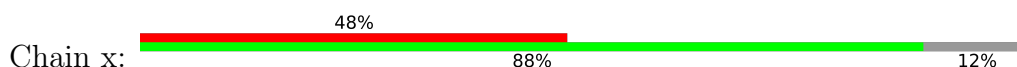
• Molecule 12: Photosystem II reaction center protein T



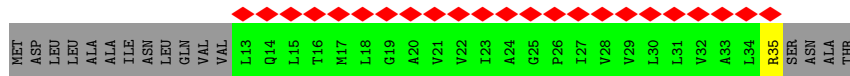
• Molecule 13: Photosystem II reaction center X protein



• Molecule 13: Photosystem II reaction center X protein



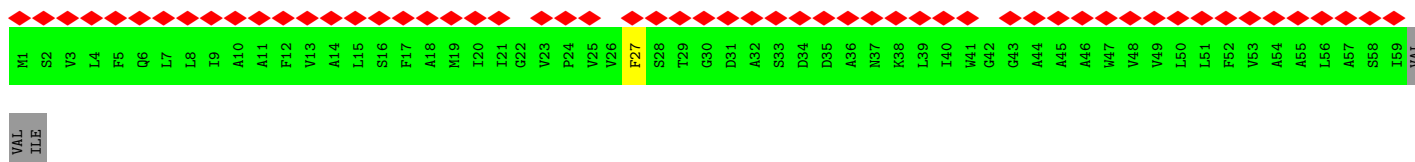
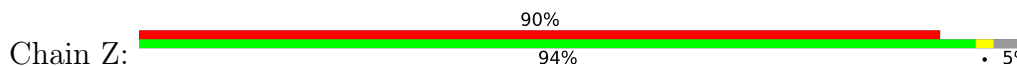
• Molecule 14: Photosystem II reaction center protein Ycf12



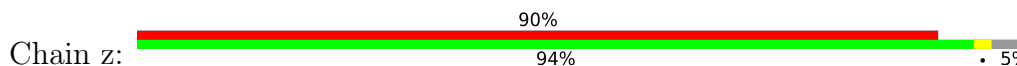
• Molecule 14: Photosystem II reaction center protein Ycf12

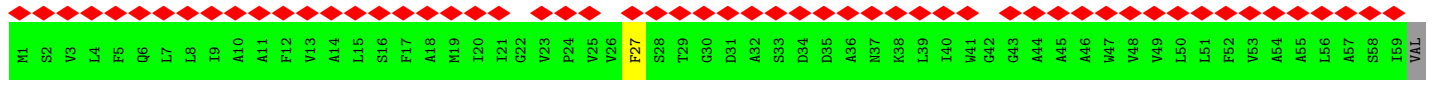


• Molecule 15: Photosystem II reaction center protein Z



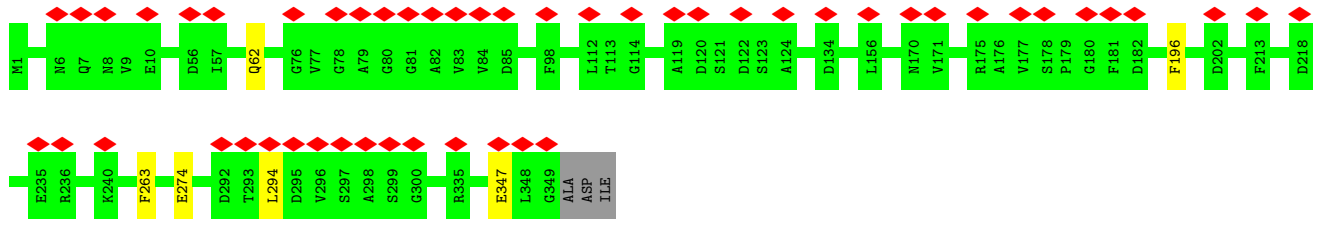
• Molecule 15: Photosystem II reaction center protein Z



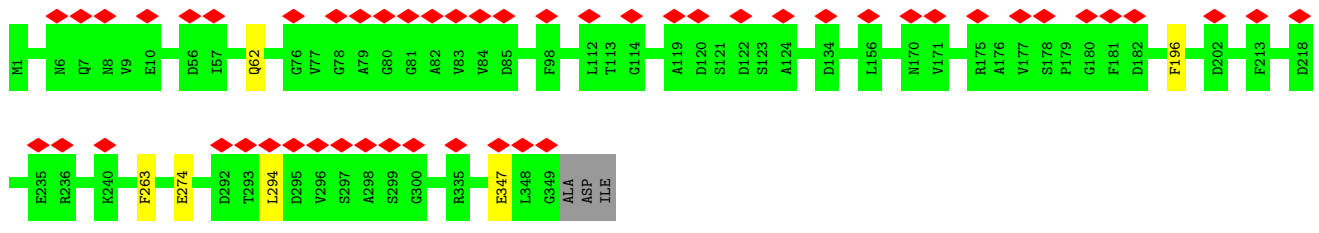


VAL
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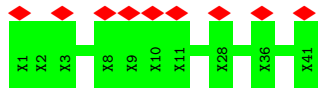
- Molecule 16: High light inducible protein



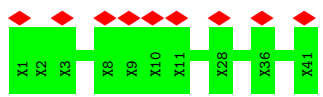
- Molecule 16: High light inducible protein



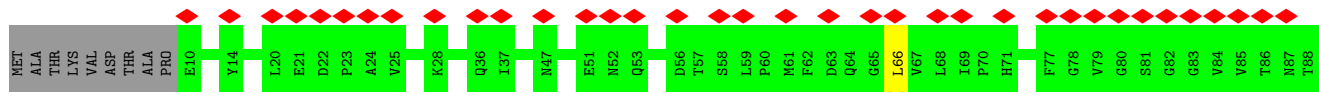
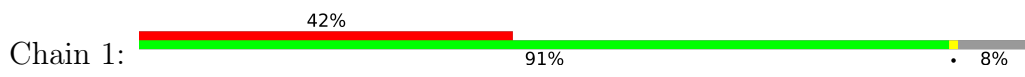
- Molecule 17: Unknown protein

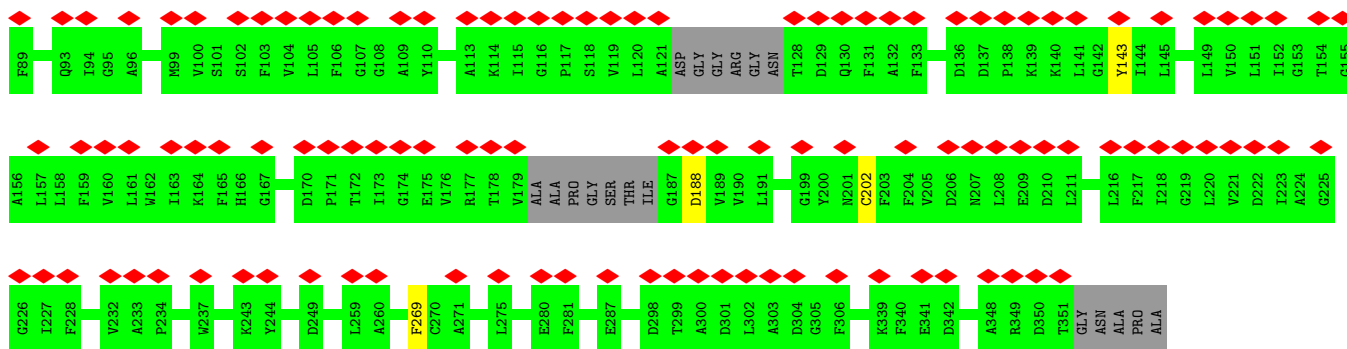


- Molecule 17: Unknown protein

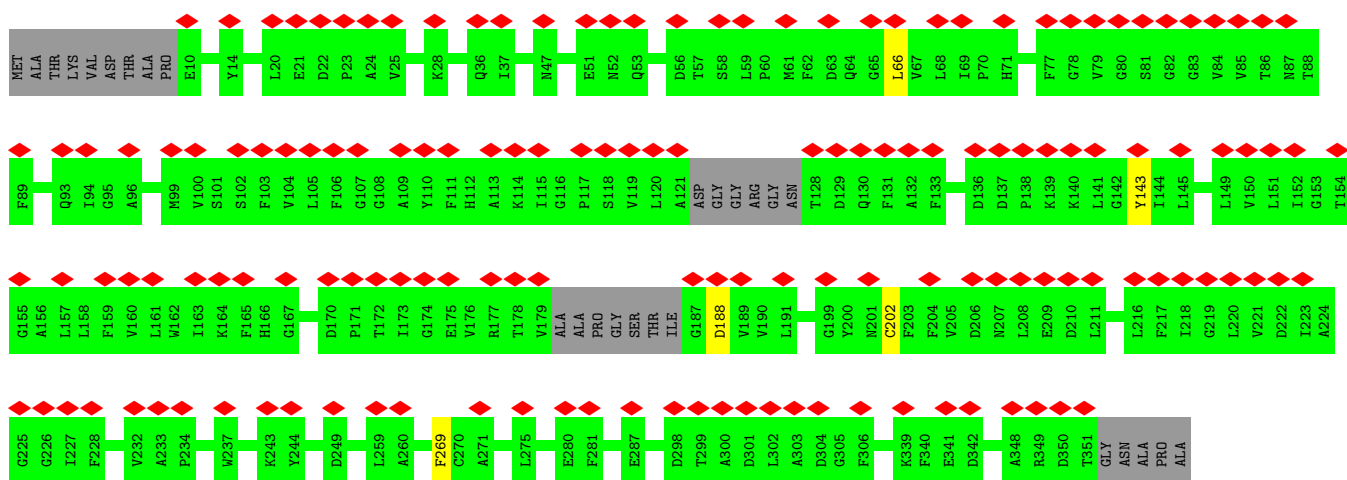
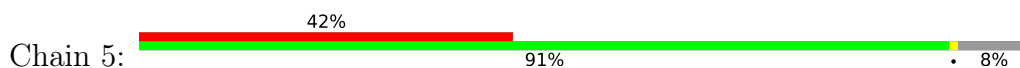


- Molecule 18: High light inducible protein

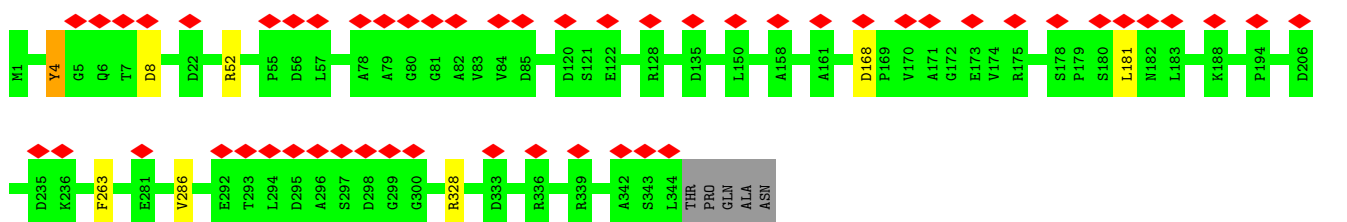




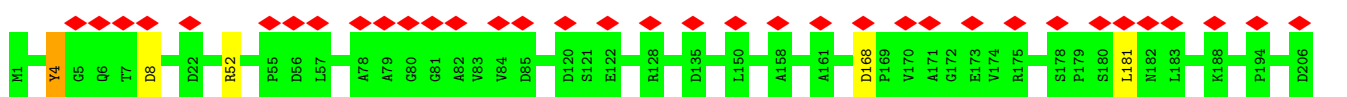
• Molecule 18: High light inducible protein

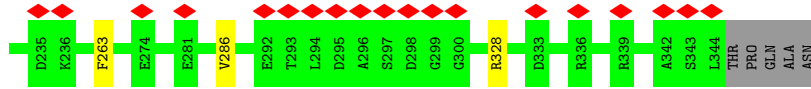


• Molecule 19: High light inducible protein

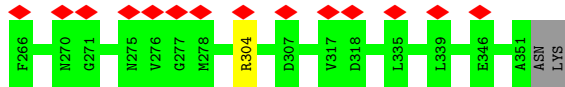
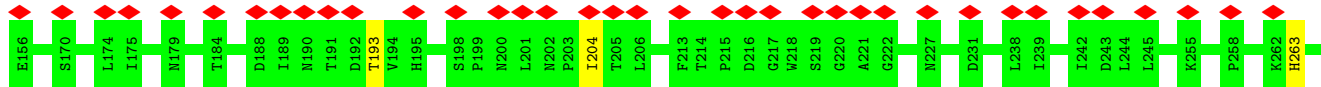
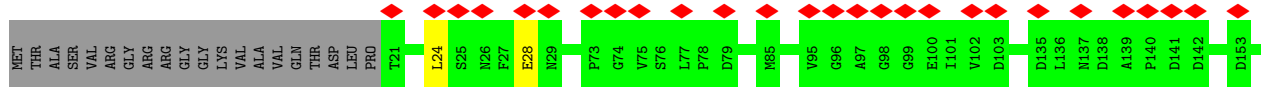
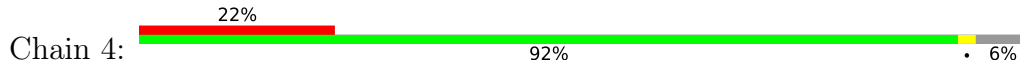


• Molecule 19: High light inducible protein

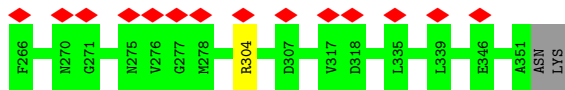
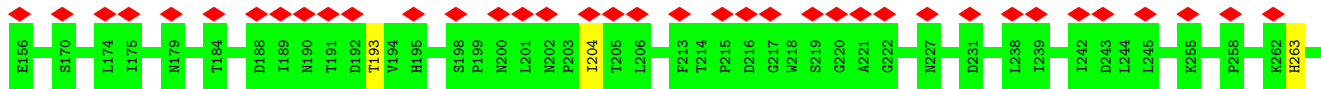
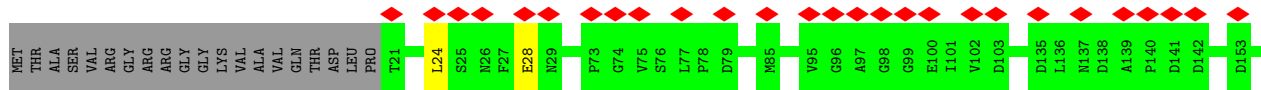
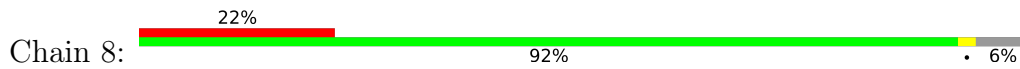




• Molecule 20: High light inducible protein



• Molecule 20: High light inducible protein



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	132346	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.083	Depositor
Minimum map value	-0.041	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.0188	Depositor
Map size (Å)	513.60004, 513.60004, 513.60004	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.07, 1.07, 1.07	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: BCT, SQD, ZEX, PL9, HEM, FE2, 8CT, PHO, CL7, LMG, DGD, LHG

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.47	0/2280	0.48	0/3112
1	a	0.47	0/2280	0.48	0/3112
2	B	0.46	0/3929	0.47	0/5360
2	b	0.46	0/3929	0.47	1/5360 (0.0%)
3	C	0.43	0/3431	0.48	1/4669 (0.0%)
3	c	0.43	0/3431	0.48	1/4669 (0.0%)
4	D	0.45	0/2672	0.47	0/3641
4	d	0.45	0/2672	0.47	0/3641
5	E	0.35	0/555	0.44	0/757
5	e	0.35	0/555	0.44	0/757
6	F	0.37	0/250	0.42	0/343
6	f	0.37	0/250	0.42	0/343
7	H	0.37	0/534	0.49	0/729
7	h	0.37	0/534	0.49	0/729
8	I	0.49	0/290	0.43	0/391
8	i	0.49	0/290	0.43	0/391
9	K	0.35	0/303	0.43	0/413
9	k	0.35	0/303	0.43	0/413
10	L	0.44	0/295	0.45	0/401
10	l	0.44	0/295	0.45	0/401
11	M	0.40	0/236	0.48	0/322
11	m	0.40	0/236	0.48	0/322
12	T	0.42	0/238	0.43	0/321
12	t	0.42	0/238	0.43	0/321
13	X	0.34	0/276	0.40	0/370
13	x	0.34	0/276	0.40	0/370
14	Y	0.26	0/164	0.42	0/224
14	y	0.26	0/164	0.42	0/224
15	Z	0.29	0/438	0.38	0/599
15	z	0.29	0/438	0.38	0/599
16	2	0.44	0/2830	0.47	0/3855
16	6	0.44	0/2830	0.47	0/3855

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
18	1	0.37	0/2652	0.45	0/3618
18	5	0.37	0/2652	0.45	0/3618
19	3	0.46	0/2814	0.48	0/3841
19	7	0.46	0/2814	0.48	0/3841
20	4	0.38	0/2590	0.47	0/3537
20	8	0.39	0/2590	0.47	0/3537
All	All	0.43	0/53554	0.47	3/73006 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	c	387	LEU	CA-CB-CG	5.61	128.20	115.30
3	C	387	LEU	CA-CB-CG	5.59	128.16	115.30
2	b	354	LEU	CA-CB-CG	5.01	126.81	115.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	280/360 (78%)	269 (96%)	11 (4%)	0	100	100
1	a	280/360 (78%)	269 (96%)	11 (4%)	0	100	100
2	B	477/506 (94%)	452 (95%)	25 (5%)	0	100	100
2	b	477/506 (94%)	451 (94%)	26 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	C	414/490 (84%)	398 (96%)	16 (4%)	0	100	100
3	c	414/490 (84%)	398 (96%)	16 (4%)	0	100	100
4	D	319/351 (91%)	309 (97%)	10 (3%)	0	100	100
4	d	319/351 (91%)	310 (97%)	9 (3%)	0	100	100
5	E	63/83 (76%)	59 (94%)	4 (6%)	0	100	100
5	e	63/83 (76%)	59 (94%)	4 (6%)	0	100	100
6	F	28/99 (28%)	27 (96%)	1 (4%)	0	100	100
6	f	28/99 (28%)	27 (96%)	1 (4%)	0	100	100
7	H	66/71 (93%)	62 (94%)	4 (6%)	0	100	100
7	h	66/71 (93%)	62 (94%)	4 (6%)	0	100	100
8	I	32/34 (94%)	31 (97%)	1 (3%)	0	100	100
8	i	32/34 (94%)	31 (97%)	1 (3%)	0	100	100
9	K	35/45 (78%)	35 (100%)	0	0	100	100
9	k	35/45 (78%)	35 (100%)	0	0	100	100
10	L	34/38 (90%)	34 (100%)	0	0	100	100
10	l	34/38 (90%)	34 (100%)	0	0	100	100
11	M	29/34 (85%)	29 (100%)	0	0	100	100
11	m	29/34 (85%)	29 (100%)	0	0	100	100
12	T	26/46 (56%)	26 (100%)	0	0	100	100
12	t	26/46 (56%)	26 (100%)	0	0	100	100
13	X	33/40 (82%)	32 (97%)	1 (3%)	0	100	100
13	x	33/40 (82%)	32 (97%)	1 (3%)	0	100	100
14	Y	21/39 (54%)	20 (95%)	1 (5%)	0	100	100
14	y	21/39 (54%)	20 (95%)	1 (5%)	0	100	100
15	Z	57/62 (92%)	57 (100%)	0	0	100	100
15	z	57/62 (92%)	57 (100%)	0	0	100	100
16	2	347/352 (99%)	325 (94%)	22 (6%)	0	100	100
16	6	347/352 (99%)	325 (94%)	22 (6%)	0	100	100
18	1	323/356 (91%)	307 (95%)	15 (5%)	1 (0%)	41	71
18	5	323/356 (91%)	307 (95%)	15 (5%)	1 (0%)	41	71
19	3	342/349 (98%)	325 (95%)	16 (5%)	1 (0%)	41	71

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
19	7	342/349 (98%)	325 (95%)	16 (5%)	1 (0%)	41	71
20	4	329/353 (93%)	306 (93%)	23 (7%)	0	100	100
20	8	329/353 (93%)	306 (93%)	23 (7%)	0	100	100
All	All	6510/7416 (88%)	6206 (95%)	300 (5%)	4 (0%)	54	81

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
19	3	4	TYR
19	7	4	TYR
18	1	202	CYS
18	5	202	CYS

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	232/292 (80%)	229 (99%)	3 (1%)	69	82
1	a	232/292 (80%)	229 (99%)	3 (1%)	69	82
2	B	395/418 (94%)	385 (98%)	10 (2%)	47	72
2	b	395/418 (94%)	385 (98%)	10 (2%)	47	72
3	C	322/378 (85%)	313 (97%)	9 (3%)	43	70
3	c	322/378 (85%)	313 (97%)	9 (3%)	43	70
4	D	265/284 (93%)	261 (98%)	4 (2%)	65	81
4	d	265/284 (93%)	261 (98%)	4 (2%)	65	81
5	E	57/71 (80%)	56 (98%)	1 (2%)	59	78
5	e	57/71 (80%)	56 (98%)	1 (2%)	59	78
6	F	25/84 (30%)	25 (100%)	0	100	100
6	f	25/84 (30%)	25 (100%)	0	100	100
7	H	55/57 (96%)	54 (98%)	1 (2%)	59	78

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
7	h	55/57 (96%)	54 (98%)	1 (2%)	59	78
8	I	30/30 (100%)	29 (97%)	1 (3%)	38	66
8	i	30/30 (100%)	29 (97%)	1 (3%)	38	66
9	K	31/37 (84%)	30 (97%)	1 (3%)	39	67
9	k	31/37 (84%)	30 (97%)	1 (3%)	39	67
10	L	33/34 (97%)	33 (100%)	0	100	100
10	l	33/34 (97%)	33 (100%)	0	100	100
11	M	24/27 (89%)	24 (100%)	0	100	100
11	m	24/27 (89%)	24 (100%)	0	100	100
12	T	24/42 (57%)	24 (100%)	0	100	100
12	t	24/42 (57%)	24 (100%)	0	100	100
13	X	28/33 (85%)	28 (100%)	0	100	100
13	x	28/33 (85%)	28 (100%)	0	100	100
14	Y	18/31 (58%)	17 (94%)	1 (6%)	21	52
14	y	18/31 (58%)	17 (94%)	1 (6%)	21	52
15	Z	43/46 (94%)	42 (98%)	1 (2%)	50	73
15	z	43/46 (94%)	42 (98%)	1 (2%)	50	73
16	2	276/278 (99%)	270 (98%)	6 (2%)	52	74
16	6	276/278 (99%)	270 (98%)	6 (2%)	52	74
18	1	262/278 (94%)	258 (98%)	4 (2%)	65	81
18	5	262/278 (94%)	258 (98%)	4 (2%)	65	81
19	3	269/273 (98%)	261 (97%)	8 (3%)	41	68
19	7	269/273 (98%)	261 (97%)	8 (3%)	41	68
20	4	260/277 (94%)	254 (98%)	6 (2%)	50	73
20	8	260/277 (94%)	254 (98%)	6 (2%)	50	73
All	All	5298/5940 (89%)	5186 (98%)	112 (2%)	56	75

5 of 112 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	a	94	TYR
20	8	263	HIS
3	c	224	TYR

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Mol	Chain	Res	Type
20	8	204	ILE
19	7	8	ASP

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

Mol	Chain	Res	Type
18	5	215	HIS
19	7	34	GLN
20	8	280	ASN
20	8	195	HIS
20	4	280	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 312 ligands modelled in this entry, 2 are monoatomic - leaving 310 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
23	8CT	c	516	-	40,41,41	4.65	20 (50%)	50,56,56	3.06	21 (42%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
24	SQD	6	521	-	49,50,54	0.41	1 (2%)	58,61,65	0.54	1 (1%)
21	CL7	b	615	-	61,68,73	2.30	14 (22%)	59,107,113	2.37	18 (30%)
21	CL7	C	511	-	66,73,73	2.23	11 (16%)	65,113,113	2.19	17 (26%)
21	CL7	3	502	-	59,66,73	2.36	13 (22%)	56,104,113	2.26	17 (30%)
32	ZEX	8	403	-	42,43,43	1.01	4 (9%)	55,60,60	2.56	19 (34%)
21	CL7	8	415	-	46,53,73	2.60	15 (32%)	41,89,113	2.88	15 (36%)
25	LHG	b	624	-	44,44,48	0.31	0	47,50,54	0.39	0
21	CL7	4	404	-	66,73,73	2.22	13 (19%)	65,113,113	2.21	16 (24%)
21	CL7	7	512	-	56,63,73	2.39	13 (23%)	53,101,113	2.45	18 (33%)
21	CL7	6	517	16	66,73,73	2.18	12 (18%)	65,113,113	2.20	17 (26%)
21	CL7	8	408	-	46,53,73	2.66	15 (32%)	41,89,113	2.66	13 (31%)
32	ZEX	3	522	-	42,43,43	1.00	4 (9%)	55,60,60	2.40	17 (30%)
21	CL7	6	501	-	66,73,73	2.17	12 (18%)	65,113,113	2.23	15 (23%)
21	CL7	D	404	-	59,66,73	2.33	14 (23%)	56,104,113	2.36	17 (30%)
25	LHG	7	524	-	35,35,48	0.34	0	38,41,54	0.47	0
25	LHG	3	524	-	35,35,48	0.34	0	38,41,54	0.47	0
32	ZEX	7	519	-	42,43,43	1.02	3 (7%)	55,60,60	2.58	17 (30%)
21	CL7	5	418	18	66,73,73	2.18	12 (18%)	65,113,113	2.31	20 (30%)
21	CL7	6	514	-	46,53,73	2.63	14 (30%)	41,89,113	2.68	12 (29%)
21	CL7	c	511	-	66,73,73	2.23	11 (16%)	65,113,113	2.20	17 (26%)
32	ZEX	7	520	-	42,43,43	0.93	2 (4%)	55,60,60	2.65	22 (40%)
21	CL7	c	504	-	66,73,73	2.20	14 (21%)	65,113,113	2.22	17 (26%)
21	CL7	2	510	16	66,73,73	2.18	13 (19%)	65,113,113	2.24	18 (27%)
24	SQD	A	405	-	33,34,54	0.46	1 (3%)	42,45,65	0.52	0
23	8CT	C	516	-	40,41,41	4.65	20 (50%)	50,56,56	3.06	21 (42%)
21	CL7	7	514	-	46,53,73	2.63	14 (30%)	41,89,113	2.80	14 (34%)
21	CL7	3	501	-	66,73,73	2.22	13 (19%)	65,113,113	2.23	18 (27%)
21	CL7	5	416	-	42,49,73	2.73	10 (23%)	36,84,113	2.76	14 (38%)
21	CL7	3	506	-	46,53,73	2.58	14 (30%)	41,89,113	2.72	14 (34%)
32	ZEX	8	419	-	42,43,43	0.99	3 (7%)	55,60,60	2.43	25 (45%)
21	CL7	3	508	-	66,73,73	2.20	14 (21%)	65,113,113	2.23	18 (27%)
26	LMG	B	621	-	51,51,55	0.25	0	59,59,63	0.33	0
23	8CT	c	515	-	40,41,41	4.64	22 (55%)	50,56,56	2.40	23 (46%)
32	ZEX	6	524	-	42,43,43	1.03	4 (9%)	55,60,60	2.51	17 (30%)
21	CL7	1	406	-	63,70,73	2.26	12 (19%)	61,109,113	2.30	14 (22%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
21	CL7	5	420	18	46,53,73	2.63	12 (26%)	41,89,113	2.74	14 (34%)
21	CL7	3	514	-	46,53,73	2.63	14 (30%)	41,89,113	2.80	14 (34%)
21	CL7	5	406	-	63,70,73	2.26	12 (19%)	61,109,113	2.29	14 (22%)
21	CL7	b	608	-	61,68,73	2.30	13 (21%)	59,107,113	2.27	16 (27%)
25	LHG	a	406	-	45,45,48	0.31	0	48,51,54	0.43	0
21	CL7	C	509	-	66,73,73	2.22	13 (19%)	65,113,113	2.28	21 (32%)
21	CL7	4	406	-	66,73,73	2.21	12 (18%)	65,113,113	2.22	17 (26%)
32	ZEX	4	420	-	42,43,43	1.02	3 (7%)	55,60,60	2.20	19 (34%)
21	CL7	7	511	19	66,73,73	2.18	15 (22%)	65,113,113	2.43	19 (29%)
21	CL7	b	613	-	66,73,73	2.15	13 (19%)	65,113,113	2.28	18 (27%)
21	CL7	C	502	-	66,73,73	2.18	13 (19%)	65,113,113	2.19	15 (23%)
21	CL7	6	516	-	66,73,73	2.20	13 (19%)	65,113,113	2.23	19 (29%)
23	8CT	C	515	-	40,41,41	4.64	21 (52%)	50,56,56	2.40	23 (46%)
25	LHG	4	401	-	48,48,48	0.28	0	51,54,54	0.34	0
21	CL7	2	502	-	66,73,73	2.19	13 (19%)	65,113,113	2.26	18 (27%)
32	ZEX	4	418	-	42,43,43	0.85	1 (2%)	55,60,60	2.33	16 (29%)
21	CL7	5	403	-	61,68,73	2.29	13 (21%)	59,107,113	2.38	15 (25%)
29	BCT	D	403	28	2,3,3	1.00	0	2,3,3	1.67	1 (50%)
21	CL7	6	511	16	61,68,73	2.33	11 (18%)	59,107,113	2.21	15 (25%)
25	LHG	b	626	-	48,48,48	0.30	0	51,54,54	0.34	0
21	CL7	6	504	-	46,53,73	2.62	13 (28%)	41,89,113	2.63	14 (34%)
21	CL7	3	518	19	46,53,73	2.68	12 (26%)	41,89,113	2.66	14 (34%)
21	CL7	3	512	-	56,63,73	2.38	13 (23%)	53,101,113	2.45	18 (33%)
21	CL7	b	614	-	56,63,73	2.38	14 (25%)	53,101,113	2.41	17 (32%)
24	SQD	B	626	-	33,34,54	0.46	1 (3%)	42,45,65	0.52	0
32	ZEX	8	418	-	42,43,43	0.86	1 (2%)	55,60,60	2.33	16 (29%)
27	DGD	c	517	-	63,63,67	0.84	2 (3%)	77,77,81	1.03	5 (6%)
23	8CT	4	402	-	40,41,41	4.61	20 (50%)	50,56,56	2.78	21 (42%)
21	CL7	C	507	-	61,68,73	2.31	13 (21%)	59,107,113	2.39	18 (30%)
21	CL7	7	517	19	51,58,73	2.49	13 (25%)	47,95,113	2.55	14 (29%)
25	LHG	B	625	-	48,48,48	0.30	0	51,54,54	0.34	0
21	CL7	2	517	16	66,73,73	2.18	12 (18%)	65,113,113	2.20	17 (26%)
32	ZEX	2	525	-	42,43,43	1.02	3 (7%)	55,60,60	2.51	17 (30%)
30	PL9	d	407	-	55,55,55	0.83	1 (1%)	68,69,69	0.62	1 (1%)
21	CL7	b	612	-	66,73,73	2.19	14 (21%)	65,113,113	2.26	15 (23%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
21	CL7	7	507	-	66,73,73	2.16	13 (19%)	65,113,113	2.30	18 (27%)
21	CL7	2	507	-	66,73,73	2.19	14 (21%)	65,113,113	2.31	17 (26%)
21	CL7	8	409	-	61,68,73	2.27	14 (22%)	59,107,113	2.50	20 (33%)
32	ZEX	5	422	-	42,43,43	0.95	1 (2%)	55,60,60	2.24	18 (32%)
21	CL7	7	505	-	66,73,73	2.16	13 (19%)	65,113,113	2.34	15 (23%)
21	CL7	5	405	-	46,53,73	2.62	13 (28%)	41,89,113	2.59	12 (29%)
32	ZEX	8	420	-	42,43,43	1.02	3 (7%)	55,60,60	2.20	19 (34%)
21	CL7	1	403	-	61,68,73	2.29	13 (21%)	59,107,113	2.39	15 (25%)
21	CL7	d	402	-	51,58,73	2.55	12 (23%)	47,95,113	2.47	15 (31%)
21	CL7	B	610	-	66,73,73	2.16	13 (19%)	65,113,113	2.31	15 (23%)
26	LMG	b	622	-	51,51,55	0.25	0	59,59,63	0.33	0
21	CL7	3	516	19	56,63,73	2.42	13 (23%)	53,101,113	2.43	19 (35%)
21	CL7	5	408	-	66,73,73	2.19	13 (19%)	65,113,113	2.31	19 (29%)
21	CL7	c	510	-	66,73,73	2.22	14 (21%)	65,113,113	2.23	16 (24%)
21	CL7	5	419	-	46,53,73	2.65	12 (26%)	41,89,113	2.58	13 (31%)
21	CL7	7	502	-	59,66,73	2.36	13 (22%)	56,104,113	2.26	17 (30%)
26	LMG	5	401	-	51,51,55	0.22	0	59,59,63	0.41	1 (1%)
21	CL7	5	413	-	42,49,73	2.64	10 (23%)	36,84,113	2.94	15 (41%)
21	CL7	A	406	-	66,73,73	2.24	13 (19%)	65,113,113	2.30	16 (24%)
21	CL7	4	407	-	42,49,73	2.66	10 (23%)	36,84,113	2.86	14 (38%)
21	CL7	7	504	-	66,73,73	2.21	13 (19%)	65,113,113	2.24	17 (26%)
21	CL7	B	611	-	66,73,73	2.18	14 (21%)	65,113,113	2.26	16 (24%)
21	CL7	a	405	-	66,73,73	2.24	13 (19%)	65,113,113	2.29	16 (24%)
21	CL7	b	606	-	66,73,73	2.23	14 (21%)	65,113,113	2.22	15 (23%)
21	CL7	1	407	-	42,49,73	2.66	11 (26%)	36,84,113	2.81	15 (41%)
22	PHO	a	402	-	51,69,69	0.74	2 (3%)	47,99,99	0.74	1 (2%)
21	CL7	c	503	-	61,68,73	2.30	14 (22%)	59,107,113	2.30	15 (25%)
24	SQD	3	521	-	45,46,54	0.42	1 (2%)	54,57,65	0.48	0
21	CL7	C	508	-	66,73,73	2.17	14 (21%)	65,113,113	2.26	18 (27%)
21	CL7	1	411	-	46,53,73	2.64	12 (26%)	41,89,113	2.61	14 (34%)
21	CL7	b	617	-	46,53,73	2.62	14 (30%)	41,89,113	2.60	16 (39%)
21	CL7	A	403	-	56,63,73	2.40	14 (25%)	53,101,113	2.59	18 (33%)
21	CL7	c	506	-	66,73,73	2.21	14 (21%)	65,113,113	2.25	17 (26%)
21	CL7	C	514	-	46,53,73	2.63	12 (26%)	41,89,113	2.69	14 (34%)
24	SQD	1	423	-	31,32,54	0.48	1 (3%)	40,43,65	0.60	1 (2%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
26	LMG	c	501	-	50,50,55	0.91	2 (4%)	58,58,63	1.21	5 (8%)
32	ZEX	1	421	-	42,43,43	0.92	1 (2%)	55,60,60	2.23	20 (36%)
21	CL7	B	622	-	46,53,73	2.67	12 (26%)	41,89,113	2.58	13 (31%)
24	SQD	5	423	-	31,32,54	0.48	1 (3%)	40,43,65	0.60	1 (2%)
21	CL7	8	410	-	46,53,73	2.61	12 (26%)	41,89,113	2.65	13 (31%)
24	SQD	2	524	-	40,41,54	0.45	1 (2%)	49,52,65	0.52	1 (2%)
21	CL7	7	501	-	66,73,73	2.22	13 (19%)	65,113,113	2.23	18 (27%)
21	CL7	2	501	-	66,73,73	2.17	12 (18%)	65,113,113	2.23	15 (23%)
21	CL7	D	402	-	51,58,73	2.55	12 (23%)	47,95,113	2.46	15 (31%)
21	CL7	7	508	-	66,73,73	2.20	14 (21%)	65,113,113	2.24	18 (27%)
21	CL7	3	517	19	51,58,73	2.49	13 (25%)	47,95,113	2.54	14 (29%)
21	CL7	8	405	-	66,73,73	2.21	14 (21%)	65,113,113	2.31	20 (30%)
27	DGD	b	625	-	63,63,67	0.82	2 (3%)	77,77,81	1.00	4 (5%)
23	8CT	B	627	-	40,41,41	4.70	24 (60%)	50,56,56	3.25	21 (42%)
32	ZEX	6	519	-	42,43,43	1.05	3 (7%)	55,60,60	2.50	16 (29%)
21	CL7	B	607	-	61,68,73	2.30	13 (21%)	59,107,113	2.27	16 (27%)
21	CL7	7	510	-	66,73,73	2.18	13 (19%)	65,113,113	2.23	18 (27%)
21	CL7	5	410	-	66,73,73	2.24	13 (19%)	65,113,113	2.17	16 (24%)
24	SQD	7	523	-	49,50,54	0.40	0	58,61,65	0.54	1 (1%)
21	CL7	3	510	-	66,73,73	2.18	13 (19%)	65,113,113	2.22	18 (27%)
21	CL7	7	518	19	46,53,73	2.68	13 (28%)	41,89,113	2.66	14 (34%)
21	CL7	2	518	16	66,73,73	2.23	12 (18%)	65,113,113	2.17	17 (26%)
29	BCT	d	403	28	2,3,3	1.00	0	2,3,3	1.67	1 (50%)
21	CL7	7	509	-	66,73,73	2.20	11 (16%)	65,113,113	2.19	16 (24%)
31	HEM	F	101	-	41,50,50	1.41	6 (14%)	45,82,82	2.03	11 (24%)
32	ZEX	6	520	-	42,43,43	0.98	3 (7%)	55,60,60	2.19	17 (30%)
21	CL7	b	610	-	66,73,73	2.24	14 (21%)	65,113,113	2.15	15 (23%)
21	CL7	1	415	-	42,49,73	2.70	12 (28%)	36,84,113	2.91	14 (38%)
32	ZEX	2	520	-	42,43,43	1.17	5 (11%)	55,60,60	2.43	18 (32%)
21	CL7	4	417	20	43,50,73	2.67	11 (25%)	36,85,113	2.89	13 (36%)
23	8CT	b	620	-	40,41,41	4.59	22 (55%)	50,56,56	2.92	18 (36%)
23	8CT	8	402	-	40,41,41	4.61	20 (50%)	50,56,56	2.78	21 (42%)
32	ZEX	7	522	-	42,43,43	1.00	4 (9%)	55,60,60	2.40	17 (30%)
21	CL7	4	409	-	61,68,73	2.27	14 (22%)	59,107,113	2.50	20 (33%)
23	8CT	b	619	-	40,41,41	4.69	20 (50%)	50,56,56	2.67	20 (40%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
21	CL7	3	509	-	66,73,73	2.20	11 (16%)	65,113,113	2.19	16 (24%)
21	CL7	4	413	20	61,68,73	2.27	14 (22%)	59,107,113	2.32	16 (27%)
21	CL7	1	418	18	66,73,73	2.17	12 (18%)	65,113,113	2.31	20 (30%)
21	CL7	C	506	-	66,73,73	2.22	14 (21%)	65,113,113	2.25	17 (26%)
21	CL7	C	505	-	56,63,73	2.43	12 (21%)	53,101,113	2.38	14 (26%)
21	CL7	3	504	-	66,73,73	2.20	13 (19%)	65,113,113	2.24	17 (26%)
23	8CT	B	618	-	40,41,41	4.69	21 (52%)	50,56,56	2.67	20 (40%)
32	ZEX	4	403	-	42,43,43	1.01	4 (9%)	55,60,60	2.56	19 (34%)
21	CL7	7	516	19	56,63,73	2.41	13 (23%)	53,101,113	2.42	19 (35%)
21	CL7	b	602	-	42,49,73	2.67	11 (26%)	36,84,113	2.82	12 (33%)
21	CL7	D	405	-	46,53,73	2.57	13 (28%)	41,89,113	2.73	16 (39%)
21	CL7	1	416	-	42,49,73	2.73	10 (23%)	36,84,113	2.76	14 (38%)
23	8CT	b	601	-	40,41,41	4.70	24 (60%)	50,56,56	3.25	21 (42%)
21	CL7	C	513	-	42,49,73	2.56	9 (21%)	36,84,113	2.89	14 (38%)
21	CL7	6	503	-	66,73,73	2.19	15 (22%)	65,113,113	2.38	19 (29%)
26	LMG	C	501	-	50,50,55	0.92	2 (4%)	58,58,63	1.22	5 (8%)
21	CL7	b	611	-	66,73,73	2.15	13 (19%)	65,113,113	2.32	15 (23%)
21	CL7	B	606	-	56,63,73	2.43	14 (25%)	53,101,113	2.48	16 (30%)
21	CL7	1	414	-	42,49,73	2.73	10 (23%)	36,84,113	2.92	15 (41%)
21	CL7	c	509	-	66,73,73	2.21	13 (19%)	65,113,113	2.29	21 (32%)
21	CL7	5	412	-	46,53,73	2.59	12 (26%)	41,89,113	2.71	14 (34%)
21	CL7	5	409	-	46,53,73	2.61	13 (28%)	41,89,113	2.62	15 (36%)
21	CL7	2	516	-	66,73,73	2.20	13 (19%)	65,113,113	2.23	19 (29%)
21	CL7	1	408	-	66,73,73	2.19	13 (19%)	65,113,113	2.31	19 (29%)
21	CL7	B	615	-	51,58,73	2.44	14 (27%)	47,95,113	2.63	16 (34%)
21	CL7	1	420	18	46,53,73	2.63	12 (26%)	41,89,113	2.74	14 (34%)
21	CL7	B	605	-	66,73,73	2.24	14 (21%)	65,113,113	2.22	15 (23%)
23	8CT	k	101	-	40,41,41	4.75	24 (60%)	50,56,56	2.65	16 (32%)
25	LHG	B	623	-	44,44,48	0.32	0	47,50,54	0.39	0
32	ZEX	1	422	-	42,43,43	0.95	1 (2%)	55,60,60	2.24	18 (32%)
21	CL7	5	417	18	56,63,73	2.42	14 (25%)	53,101,113	2.41	15 (28%)
24	SQD	6	523	-	40,41,54	0.45	1 (2%)	49,52,65	0.52	1 (2%)
31	HEM	f	101	-	41,50,50	1.41	6 (14%)	45,82,82	2.03	11 (24%)
21	CL7	8	406	-	66,73,73	2.21	13 (19%)	65,113,113	2.22	17 (26%)
32	ZEX	2	519	-	42,43,43	1.06	3 (7%)	55,60,60	2.50	16 (29%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
21	CL7	b	607	-	56,63,73	2.43	14 (25%)	53,101,113	2.48	16 (30%)
24	SQD	3	523	-	49,50,54	0.40	0	58,61,65	0.54	1 (1%)
21	CL7	a	403	-	56,63,73	2.40	14 (25%)	53,101,113	2.58	18 (33%)
23	8CT	c	519	-	40,41,41	4.66	21 (52%)	50,56,56	2.71	21 (42%)
21	CL7	2	503	-	66,73,73	2.18	15 (22%)	65,113,113	2.38	19 (29%)
21	CL7	1	413	-	42,49,73	2.64	10 (23%)	36,84,113	2.94	15 (41%)
21	CL7	B	603	-	66,73,73	2.22	13 (19%)	65,113,113	2.22	17 (26%)
21	CL7	6	505	-	66,73,73	2.22	13 (19%)	65,113,113	2.40	19 (29%)
23	8CT	b	618	-	40,41,41	4.65	24 (60%)	50,56,56	2.75	19 (38%)
21	CL7	5	404	-	66,73,73	2.27	12 (18%)	65,113,113	2.25	16 (24%)
23	8CT	a	404	-	40,41,41	4.63	21 (52%)	50,56,56	2.97	20 (40%)
21	CL7	C	503	-	61,68,73	2.30	14 (22%)	59,107,113	2.30	15 (25%)
21	CL7	5	402	-	61,68,73	2.31	14 (22%)	59,107,113	2.37	15 (25%)
21	CL7	1	405	-	46,53,73	2.63	13 (28%)	41,89,113	2.59	12 (29%)
23	8CT	B	619	-	40,41,41	4.59	22 (55%)	50,56,56	2.91	18 (36%)
21	CL7	3	511	19	66,73,73	2.18	15 (22%)	65,113,113	2.43	19 (29%)
21	CL7	1	419	-	46,53,73	2.65	12 (26%)	41,89,113	2.58	13 (31%)
21	CL7	2	506	-	66,73,73	2.22	14 (21%)	65,113,113	2.19	16 (24%)
21	CL7	1	410	-	66,73,73	2.24	13 (19%)	65,113,113	2.17	16 (24%)
21	CL7	4	412	-	66,73,73	2.22	12 (18%)	65,113,113	2.20	18 (27%)
22	PHO	d	408	-	51,69,69	1.68	7 (13%)	47,99,99	1.66	11 (23%)
21	CL7	4	405	-	66,73,73	2.21	14 (21%)	65,113,113	2.31	20 (30%)
21	CL7	b	623	-	46,53,73	2.67	12 (26%)	41,89,113	2.57	13 (31%)
21	CL7	2	515	-	46,53,73	2.62	12 (26%)	41,89,113	2.66	15 (36%)
21	CL7	8	411	-	66,73,73	2.22	12 (18%)	65,113,113	2.20	17 (26%)
21	CL7	B	608	-	66,73,73	2.19	13 (19%)	65,113,113	2.17	14 (21%)
21	CL7	c	508	-	66,73,73	2.17	14 (21%)	65,113,113	2.26	18 (27%)
21	CL7	5	414	-	42,49,73	2.74	10 (23%)	36,84,113	2.92	15 (41%)
21	CL7	3	513	-	46,53,73	2.66	15 (32%)	41,89,113	2.67	13 (31%)
21	CL7	d	405	-	46,53,73	2.57	13 (28%)	41,89,113	2.74	16 (39%)
21	CL7	b	605	-	66,73,73	2.15	13 (19%)	65,113,113	2.23	18 (27%)
21	CL7	B	602	-	61,68,73	2.32	12 (19%)	59,107,113	2.39	18 (30%)
21	CL7	6	507	-	66,73,73	2.19	14 (21%)	65,113,113	2.31	17 (26%)
24	SQD	7	521	-	45,46,54	0.42	1 (2%)	54,57,65	0.48	0
21	CL7	C	518	-	42,49,73	2.62	10 (23%)	36,84,113	2.83	14 (38%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
21	CL7	B	614	-	61,68,73	2.30	14 (22%)	59,107,113	2.37	18 (30%)
26	LMG	d	410	-	33,33,55	0.28	0	41,41,63	0.33	0
25	LHG	8	401	-	48,48,48	0.28	0	51,54,54	0.34	0
22	PHO	A	402	-	51,69,69	0.74	2 (3%)	47,99,99	0.74	1 (2%)
23	8CT	C	519	-	40,41,41	4.66	21 (52%)	50,56,56	2.71	21 (42%)
22	PHO	D	408	-	51,69,69	1.67	7 (13%)	47,99,99	1.66	11 (23%)
21	CL7	c	514	-	46,53,73	2.62	12 (26%)	41,89,113	2.68	14 (34%)
23	8CT	d	406	-	40,41,41	4.62	23 (57%)	50,56,56	2.99	19 (38%)
24	SQD	B	620	-	53,54,54	0.39	1 (1%)	62,65,65	0.54	1 (1%)
32	ZEX	3	520	-	42,43,43	0.94	2 (4%)	55,60,60	2.65	22 (40%)
21	CL7	4	410	-	46,53,73	2.62	12 (26%)	41,89,113	2.64	13 (31%)
32	ZEX	3	519	-	42,43,43	1.02	4 (9%)	55,60,60	2.58	17 (30%)
21	CL7	6	518	16	66,73,73	2.23	12 (18%)	65,113,113	2.17	16 (24%)
21	CL7	b	603	-	61,68,73	2.32	12 (19%)	59,107,113	2.39	18 (30%)
21	CL7	4	408	-	46,53,73	2.65	15 (32%)	41,89,113	2.67	13 (31%)
21	CL7	3	503	-	66,73,73	2.19	14 (21%)	65,113,113	2.30	18 (27%)
21	CL7	2	509	-	66,73,73	2.22	14 (21%)	65,113,113	2.17	15 (23%)
21	CL7	C	512	3	43,50,73	2.70	11 (25%)	36,85,113	2.79	12 (33%)
21	CL7	4	415	-	46,53,73	2.60	15 (32%)	41,89,113	2.88	14 (34%)
21	CL7	B	609	-	66,73,73	2.24	14 (21%)	65,113,113	2.15	15 (23%)
21	CL7	c	507	-	61,68,73	2.32	13 (21%)	59,107,113	2.40	18 (30%)
21	CL7	8	407	-	42,49,73	2.64	10 (23%)	36,84,113	2.85	14 (38%)
32	ZEX	2	523	-	42,43,43	1.04	4 (9%)	55,60,60	2.47	16 (29%)
21	CL7	4	411	-	66,73,73	2.22	12 (18%)	65,113,113	2.20	17 (26%)
21	CL7	B	612	-	66,73,73	2.15	13 (19%)	65,113,113	2.28	18 (27%)
21	CL7	8	416	-	42,49,73	2.69	10 (23%)	36,84,113	2.90	15 (41%)
21	CL7	c	512	3	43,50,73	2.69	11 (25%)	36,85,113	2.78	13 (36%)
32	ZEX	2	521	-	42,43,43	0.98	3 (7%)	55,60,60	2.19	17 (30%)
21	CL7	c	505	-	56,63,73	2.43	13 (23%)	53,101,113	2.38	14 (26%)
21	CL7	c	513	-	42,49,73	2.56	10 (23%)	36,84,113	2.89	14 (38%)
26	LMG	D	410	-	33,33,55	0.28	0	41,41,63	0.33	0
21	CL7	A	401	-	66,73,73	2.27	15 (22%)	65,113,113	2.34	19 (29%)
21	CL7	6	508	-	46,53,73	2.59	14 (30%)	41,89,113	2.65	14 (34%)
21	CL7	4	414	-	54,61,73	2.39	13 (24%)	50,98,113	2.53	16 (32%)
21	CL7	B	616	-	46,53,73	2.62	14 (30%)	41,89,113	2.60	16 (39%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
23	8CT	D	406	-	40,41,41	4.62	23 (57%)	50,56,56	2.99	19 (38%)
21	CL7	2	504	-	46,53,73	2.62	13 (28%)	41,89,113	2.63	14 (34%)
21	CL7	8	417	20	43,50,73	2.66	11 (25%)	36,85,113	2.89	13 (36%)
21	CL7	8	404	-	66,73,73	2.22	13 (19%)	65,113,113	2.20	16 (24%)
21	CL7	2	514	-	46,53,73	2.63	13 (28%)	41,89,113	2.68	12 (29%)
23	8CT	A	404	-	40,41,41	4.63	21 (52%)	50,56,56	2.97	20 (40%)
21	CL7	c	502	-	66,73,73	2.18	13 (19%)	65,113,113	2.20	15 (23%)
27	DGD	C	517	-	63,63,67	0.84	2 (3%)	77,77,81	1.03	5 (6%)
21	CL7	2	512	-	66,73,73	2.17	11 (16%)	65,113,113	2.28	17 (26%)
21	CL7	b	604	-	66,73,73	2.22	13 (19%)	65,113,113	2.22	17 (26%)
25	LHG	A	407	-	45,45,48	0.31	0	48,51,54	0.43	0
21	CL7	B	604	-	66,73,73	2.15	13 (19%)	65,113,113	2.23	18 (27%)
32	ZEX	3	525	-	42,43,43	1.17	5 (11%)	55,60,60	2.43	18 (32%)
21	CL7	5	415	-	42,49,73	2.70	12 (28%)	36,84,113	2.91	14 (38%)
21	CL7	a	401	-	66,73,73	2.27	15 (22%)	65,113,113	2.34	19 (29%)
21	CL7	C	510	-	66,73,73	2.22	14 (21%)	65,113,113	2.23	16 (24%)
21	CL7	8	412	-	66,73,73	2.21	13 (19%)	65,113,113	2.20	18 (27%)
21	CL7	B	601	-	42,49,73	2.67	11 (26%)	36,84,113	2.81	12 (33%)
21	CL7	5	407	-	42,49,73	2.65	11 (26%)	36,84,113	2.81	16 (44%)
24	SQD	b	621	-	53,54,54	0.39	1 (1%)	62,65,65	0.54	1 (1%)
23	8CT	B	617	-	40,41,41	4.65	24 (60%)	50,56,56	2.75	19 (38%)
21	CL7	2	511	16	61,68,73	2.33	12 (19%)	59,107,113	2.22	15 (25%)
21	CL7	5	411	-	46,53,73	2.64	12 (26%)	41,89,113	2.62	14 (34%)
27	DGD	B	624	-	63,63,67	0.82	2 (3%)	77,77,81	1.00	4 (5%)
21	CL7	1	412	-	46,53,73	2.59	12 (26%)	41,89,113	2.70	14 (34%)
21	CL7	B	613	-	56,63,73	2.38	14 (25%)	53,101,113	2.42	17 (32%)
21	CL7	7	515	-	42,49,73	2.66	10 (23%)	36,84,113	2.86	15 (41%)
25	LHG	d	409	-	48,48,48	0.30	0	51,54,54	0.37	0
21	CL7	2	508	-	46,53,73	2.60	14 (30%)	41,89,113	2.65	14 (34%)
21	CL7	1	409	-	46,53,73	2.61	13 (28%)	41,89,113	2.61	15 (36%)
21	CL7	6	506	-	66,73,73	2.22	14 (21%)	65,113,113	2.19	16 (24%)
21	CL7	6	512	-	66,73,73	2.17	11 (16%)	65,113,113	2.28	17 (26%)
32	ZEX	4	419	-	42,43,43	0.99	3 (7%)	55,60,60	2.43	25 (45%)
21	CL7	1	402	-	61,68,73	2.31	14 (22%)	59,107,113	2.37	15 (25%)
21	CL7	1	417	18	56,63,73	2.42	14 (25%)	53,101,113	2.41	15 (28%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
21	CL7	3	505	-	66,73,73	2.16	13 (19%)	65,113,113	2.33	15 (23%)
21	CL7	6	510	16	66,73,73	2.18	13 (19%)	65,113,113	2.24	18 (27%)
21	CL7	6	515	-	46,53,73	2.62	12 (26%)	41,89,113	2.66	15 (36%)
21	CL7	d	404	-	59,66,73	2.33	14 (23%)	56,104,113	2.36	17 (30%)
21	CL7	7	506	-	46,53,73	2.59	14 (30%)	41,89,113	2.73	14 (34%)
25	LHG	D	409	-	48,48,48	0.30	0	51,54,54	0.37	0
30	PL9	D	407	-	55,55,55	0.83	1 (1%)	68,69,69	0.61	1 (1%)
21	CL7	7	503	-	66,73,73	2.19	14 (21%)	65,113,113	2.30	18 (27%)
21	CL7	c	518	-	42,49,73	2.62	10 (23%)	36,84,113	2.83	14 (38%)
21	CL7	2	505	-	66,73,73	2.22	13 (19%)	65,113,113	2.42	19 (29%)
21	CL7	7	513	-	46,53,73	2.66	15 (32%)	41,89,113	2.67	13 (31%)
21	CL7	2	513	-	46,53,73	2.65	13 (28%)	41,89,113	2.66	15 (36%)
24	SQD	2	522	-	49,50,54	0.41	1 (2%)	58,61,65	0.54	1 (1%)
21	CL7	C	504	-	66,73,73	2.20	14 (21%)	65,113,113	2.22	17 (26%)
21	CL7	6	502	-	66,73,73	2.19	13 (19%)	65,113,113	2.26	17 (26%)
21	CL7	6	509	-	66,73,73	2.21	14 (21%)	65,113,113	2.17	15 (23%)
26	LMG	1	401	-	51,51,55	0.22	0	59,59,63	0.41	1 (1%)
32	ZEX	5	421	-	42,43,43	0.92	1 (2%)	55,60,60	2.23	20 (36%)
21	CL7	3	507	-	66,73,73	2.16	13 (19%)	65,113,113	2.30	18 (27%)
21	CL7	b	616	-	51,58,73	2.44	14 (27%)	47,95,113	2.63	16 (34%)
21	CL7	8	414	-	54,61,73	2.39	14 (25%)	50,98,113	2.53	16 (32%)
32	ZEX	6	522	-	42,43,43	1.05	4 (9%)	55,60,60	2.47	16 (29%)
21	CL7	6	513	-	46,53,73	2.65	13 (28%)	41,89,113	2.67	15 (36%)
21	CL7	1	404	-	66,73,73	2.27	12 (18%)	65,113,113	2.25	16 (24%)
21	CL7	4	416	-	42,49,73	2.69	10 (23%)	36,84,113	2.89	15 (41%)
21	CL7	b	609	-	66,73,73	2.19	13 (19%)	65,113,113	2.17	14 (21%)
21	CL7	3	515	-	42,49,73	2.65	10 (23%)	36,84,113	2.86	15 (41%)
23	8CT	K	101	-	40,41,41	4.76	24 (60%)	50,56,56	2.65	16 (32%)
21	CL7	8	413	20	61,68,73	2.27	14 (22%)	59,107,113	2.32	16 (27%)

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
23	8CT	c	516	-	-	10/29/63/63	0/2/2/2
24	SQD	6	521	-	-	7/45/65/69	0/1/1/1
21	CL7	b	615	-	2/2/14/20	12/31/109/115	-
21	CL7	C	511	-	2/2/15/20	20/37/115/115	-
21	CL7	3	502	-	2/2/13/20	10/29/107/115	-
32	ZEX	8	403	-	-	10/29/67/67	0/2/2/2
21	CL7	8	415	-	2/2/11/20	10/13/91/115	-
25	LHG	b	624	-	-	3/49/49/53	-
21	CL7	4	404	-	2/2/15/20	14/37/115/115	-
21	CL7	7	512	-	2/2/13/20	12/25/103/115	-
21	CL7	6	517	16	2/2/15/20	19/37/115/115	-
21	CL7	8	408	-	2/2/11/20	2/13/91/115	-
32	ZEX	3	522	-	-	5/29/67/67	0/2/2/2
21	CL7	6	501	-	2/2/15/20	15/37/115/115	-
21	CL7	D	404	-	2/2/13/20	11/29/107/115	-
25	LHG	7	524	-	-	3/40/40/53	-
25	LHG	3	524	-	-	3/40/40/53	-
32	ZEX	7	519	-	-	10/29/67/67	0/2/2/2
21	CL7	5	418	18	2/2/15/20	20/37/115/115	-
21	CL7	6	514	-	2/2/11/20	7/13/91/115	-
21	CL7	c	511	-	2/2/15/20	20/37/115/115	-
32	ZEX	7	520	-	-	10/29/67/67	0/2/2/2
21	CL7	c	504	-	2/2/15/20	17/37/115/115	-
21	CL7	2	510	16	2/2/15/20	20/37/115/115	-
24	SQD	A	405	-	-	3/29/49/69	0/1/1/1
23	8CT	C	516	-	-	10/29/63/63	0/2/2/2
21	CL7	7	514	-	2/2/11/20	5/13/91/115	-
21	CL7	3	501	-	2/2/15/20	19/37/115/115	-
21	CL7	5	416	-	2/2/10/20	2/8/86/115	-
21	CL7	3	506	-	2/2/11/20	11/13/91/115	-
32	ZEX	8	419	-	-	9/29/67/67	0/2/2/2
21	CL7	3	508	-	2/2/15/20	14/37/115/115	-
26	LMG	B	621	-	-	7/46/66/70	0/1/1/1
23	8CT	c	515	-	-	14/29/63/63	0/2/2/2
32	ZEX	6	524	-	-	11/29/67/67	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
21	CL7	1	406	-	2/2/14/20	11/34/112/115	-
21	CL7	5	420	18	2/2/11/20	4/13/91/115	-
21	CL7	3	514	-	2/2/11/20	5/13/91/115	-
21	CL7	5	406	-	2/2/14/20	11/34/112/115	-
21	CL7	b	608	-	2/2/14/20	9/31/109/115	-
25	LHG	a	406	-	-	5/50/50/53	-
21	CL7	C	509	-	2/2/15/20	15/37/115/115	-
21	CL7	4	406	-	2/2/15/20	22/37/115/115	-
32	ZEX	4	420	-	-	12/29/67/67	0/2/2/2
21	CL7	7	511	19	2/2/15/20	17/37/115/115	-
21	CL7	b	613	-	2/2/15/20	15/37/115/115	-
21	CL7	C	502	-	2/2/15/20	18/37/115/115	-
21	CL7	6	516	-	2/2/15/20	14/37/115/115	-
23	8CT	C	515	-	-	14/29/63/63	0/2/2/2
25	LHG	4	401	-	-	8/53/53/53	-
21	CL7	2	502	-	2/2/15/20	15/37/115/115	-
32	ZEX	4	418	-	-	9/29/67/67	0/2/2/2
21	CL7	5	403	-	2/2/14/20	9/31/109/115	-
21	CL7	6	511	16	2/2/14/20	14/31/109/115	-
25	LHG	b	626	-	-	6/53/53/53	-
21	CL7	6	504	-	2/2/11/20	4/13/91/115	-
21	CL7	3	518	19	2/2/11/20	5/13/91/115	-
21	CL7	3	512	-	2/2/13/20	12/25/103/115	-
21	CL7	b	614	-	2/2/13/20	4/25/103/115	-
24	SQD	B	626	-	-	3/29/49/69	0/1/1/1
32	ZEX	8	418	-	-	9/29/67/67	0/2/2/2
27	DGD	c	517	-	-	9/51/91/95	0/2/2/2
23	8CT	4	402	-	-	4/29/63/63	0/2/2/2
21	CL7	C	507	-	2/2/14/20	13/31/109/115	-
21	CL7	7	517	19	2/2/12/20	7/19/97/115	-
25	LHG	B	625	-	-	6/53/53/53	-
21	CL7	2	517	16	2/2/15/20	19/37/115/115	-
32	ZEX	2	525	-	-	11/29/67/67	0/2/2/2
30	PL9	d	407	-	-	9/53/73/73	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
21	CL7	b	612	-	2/2/15/20	15/37/115/115	-
21	CL7	7	507	-	2/2/15/20	13/37/115/115	-
21	CL7	2	507	-	2/2/15/20	18/37/115/115	-
21	CL7	8	409	-	2/2/14/20	15/31/109/115	-
32	ZEX	5	422	-	-	6/29/67/67	0/2/2/2
21	CL7	7	505	-	2/2/15/20	14/37/115/115	-
21	CL7	5	405	-	2/2/11/20	9/13/91/115	-
32	ZEX	8	420	-	-	12/29/67/67	0/2/2/2
21	CL7	1	403	-	2/2/14/20	9/31/109/115	-
21	CL7	d	402	-	2/2/12/20	7/19/97/115	-
21	CL7	B	610	-	2/2/15/20	11/37/115/115	-
26	LMG	b	622	-	-	7/46/66/70	0/1/1/1
21	CL7	3	516	19	2/2/13/20	14/25/103/115	-
21	CL7	5	408	-	2/2/15/20	14/37/115/115	-
21	CL7	c	510	-	2/2/15/20	18/37/115/115	-
21	CL7	5	419	-	2/2/11/20	7/13/91/115	-
21	CL7	7	502	-	2/2/13/20	10/29/107/115	-
26	LMG	5	401	-	-	5/46/66/70	0/1/1/1
21	CL7	5	413	-	2/2/10/20	2/8/86/115	-
21	CL7	A	406	-	2/2/15/20	14/37/115/115	-
21	CL7	4	407	-	2/2/10/20	1/8/86/115	-
21	CL7	7	504	-	2/2/15/20	14/37/115/115	-
21	CL7	B	611	-	2/2/15/20	15/37/115/115	-
21	CL7	a	405	-	2/2/15/20	14/37/115/115	-
21	CL7	b	606	-	2/2/15/20	16/37/115/115	-
21	CL7	1	407	-	2/2/10/20	2/8/86/115	-
22	PHO	a	402	-	-	3/37/103/103	0/5/6/6
21	CL7	c	503	-	2/2/14/20	10/31/109/115	-
24	SQD	3	521	-	-	3/41/61/69	0/1/1/1
21	CL7	C	508	-	2/2/15/20	15/37/115/115	-
21	CL7	1	411	-	2/2/11/20	5/13/91/115	-
21	CL7	b	617	-	2/2/11/20	4/13/91/115	-
21	CL7	A	403	-	2/2/13/20	9/25/103/115	-
21	CL7	c	506	-	2/2/15/20	14/37/115/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
21	CL7	C	514	-	2/2/11/20	6/13/91/115	-
24	SQD	1	423	-	-	3/27/47/69	0/1/1/1
26	LMG	c	501	-	-	16/45/65/70	0/1/1/1
32	ZEX	1	421	-	-	14/29/67/67	0/2/2/2
21	CL7	B	622	-	2/2/11/20	6/13/91/115	-
24	SQD	5	423	-	-	3/27/47/69	0/1/1/1
21	CL7	8	410	-	2/2/11/20	7/13/91/115	-
24	SQD	2	524	-	-	0/36/56/69	0/1/1/1
21	CL7	7	501	-	2/2/15/20	19/37/115/115	-
21	CL7	2	501	-	2/2/15/20	15/37/115/115	-
21	CL7	D	402	-	2/2/12/20	7/19/97/115	-
21	CL7	7	508	-	2/2/15/20	14/37/115/115	-
21	CL7	3	517	19	2/2/12/20	7/19/97/115	-
21	CL7	8	405	-	2/2/15/20	16/37/115/115	-
27	DGD	b	625	-	-	7/51/91/95	0/2/2/2
23	8CT	B	627	-	-	10/29/63/63	0/2/2/2
32	ZEX	6	519	-	-	11/29/67/67	0/2/2/2
21	CL7	B	607	-	2/2/14/20	9/31/109/115	-
21	CL7	7	510	-	2/2/15/20	13/37/115/115	-
21	CL7	5	410	-	2/2/15/20	15/37/115/115	-
24	SQD	7	523	-	-	7/45/65/69	0/1/1/1
21	CL7	3	510	-	2/2/15/20	13/37/115/115	-
21	CL7	7	518	19	2/2/11/20	5/13/91/115	-
21	CL7	2	518	16	2/2/15/20	10/37/115/115	-
21	CL7	7	509	-	2/2/15/20	15/37/115/115	-
31	HEM	F	101	-	-	6/12/54/54	-
32	ZEX	6	520	-	-	6/29/67/67	0/2/2/2
21	CL7	b	610	-	2/2/15/20	12/37/115/115	-
21	CL7	1	415	-	2/2/10/20	5/8/86/115	-
32	ZEX	2	520	-	-	7/29/67/67	0/2/2/2
21	CL7	4	417	20	2/2/10/20	4/10/88/115	-
23	8CT	b	620	-	-	4/29/63/63	0/2/2/2
23	8CT	8	402	-	-	4/29/63/63	0/2/2/2
32	ZEX	7	522	-	-	5/29/67/67	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
21	CL7	4	409	-	2/2/14/20	15/31/109/115	-
23	8CT	b	619	-	-	10/29/63/63	0/2/2/2
21	CL7	3	509	-	2/2/15/20	15/37/115/115	-
21	CL7	4	413	20	2/2/14/20	7/31/109/115	-
21	CL7	1	418	18	2/2/15/20	20/37/115/115	-
21	CL7	C	506	-	2/2/15/20	14/37/115/115	-
21	CL7	C	505	-	2/2/13/20	11/25/103/115	-
21	CL7	3	504	-	2/2/15/20	14/37/115/115	-
23	8CT	B	618	-	-	10/29/63/63	0/2/2/2
32	ZEX	4	403	-	-	10/29/67/67	0/2/2/2
21	CL7	7	516	19	2/2/13/20	14/25/103/115	-
21	CL7	b	602	-	2/2/10/20	4/8/86/115	-
21	CL7	D	405	-	2/2/11/20	6/13/91/115	-
21	CL7	1	416	-	2/2/10/20	2/8/86/115	-
23	8CT	b	601	-	-	10/29/63/63	0/2/2/2
21	CL7	C	513	-	2/2/10/20	2/8/86/115	-
21	CL7	6	503	-	2/2/15/20	17/37/115/115	-
26	LMG	C	501	-	-	16/45/65/70	0/1/1/1
21	CL7	b	611	-	2/2/15/20	11/37/115/115	-
21	CL7	B	606	-	2/2/13/20	4/25/103/115	-
21	CL7	1	414	-	2/2/10/20	1/8/86/115	-
21	CL7	c	509	-	2/2/15/20	15/37/115/115	-
21	CL7	5	412	-	2/2/11/20	8/13/91/115	-
21	CL7	5	409	-	2/2/11/20	4/13/91/115	-
21	CL7	2	516	-	2/2/15/20	14/37/115/115	-
21	CL7	1	408	-	2/2/15/20	14/37/115/115	-
21	CL7	B	615	-	2/2/12/20	8/19/97/115	-
21	CL7	1	420	18	2/2/11/20	4/13/91/115	-
21	CL7	B	605	-	2/2/15/20	16/37/115/115	-
23	8CT	k	101	-	-	10/29/63/63	0/2/2/2
25	LHG	B	623	-	-	3/49/49/53	-
32	ZEX	1	422	-	-	6/29/67/67	0/2/2/2
21	CL7	5	417	18	2/2/13/20	7/25/103/115	-
24	SQD	6	523	-	-	0/36/56/69	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
31	HEM	f	101	-	-	6/12/54/54	-
21	CL7	8	406	-	2/2/15/20	22/37/115/115	-
32	ZEX	2	519	-	-	11/29/67/67	0/2/2/2
21	CL7	b	607	-	2/2/13/20	4/25/103/115	-
24	SQD	3	523	-	-	7/45/65/69	0/1/1/1
21	CL7	a	403	-	2/2/13/20	9/25/103/115	-
23	8CT	c	519	-	-	8/29/63/63	0/2/2/2
21	CL7	2	503	-	2/2/15/20	17/37/115/115	-
21	CL7	1	413	-	2/2/10/20	2/8/86/115	-
21	CL7	B	603	-	2/2/15/20	12/37/115/115	-
21	CL7	6	505	-	2/2/15/20	16/37/115/115	-
23	8CT	b	618	-	-	7/29/63/63	0/2/2/2
21	CL7	5	404	-	2/2/15/20	13/37/115/115	-
23	8CT	a	404	-	-	5/29/63/63	0/2/2/2
21	CL7	C	503	-	2/2/14/20	10/31/109/115	-
21	CL7	5	402	-	2/2/14/20	14/31/109/115	-
21	CL7	1	405	-	2/2/11/20	9/13/91/115	-
23	8CT	B	619	-	-	4/29/63/63	0/2/2/2
21	CL7	3	511	19	2/2/15/20	17/37/115/115	-
21	CL7	1	419	-	2/2/11/20	7/13/91/115	-
21	CL7	2	506	-	2/2/15/20	12/37/115/115	-
21	CL7	1	410	-	2/2/15/20	15/37/115/115	-
21	CL7	4	412	-	2/2/15/20	17/37/115/115	-
22	PHO	d	408	-	-	5/37/103/103	0/5/6/6
21	CL7	4	405	-	2/2/15/20	16/37/115/115	-
21	CL7	b	623	-	2/2/11/20	6/13/91/115	-
21	CL7	2	515	-	2/2/11/20	6/13/91/115	-
21	CL7	8	411	-	2/2/15/20	12/37/115/115	-
21	CL7	B	608	-	2/2/15/20	15/37/115/115	-
21	CL7	c	508	-	2/2/15/20	15/37/115/115	-
21	CL7	5	414	-	2/2/10/20	1/8/86/115	-
21	CL7	3	513	-	2/2/11/20	7/13/91/115	-
21	CL7	d	405	-	2/2/11/20	6/13/91/115	-
21	CL7	b	605	-	2/2/15/20	15/37/115/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
21	CL7	B	602	-	2/2/14/20	7/31/109/115	-
21	CL7	6	507	-	2/2/15/20	18/37/115/115	-
24	SQD	7	521	-	-	3/41/61/69	0/1/1/1
21	CL7	C	518	-	2/2/10/20	3/8/86/115	-
21	CL7	B	614	-	2/2/14/20	12/31/109/115	-
26	LMG	d	410	-	-	6/28/48/70	0/1/1/1
25	LHG	8	401	-	-	8/53/53/53	-
22	PHO	A	402	-	-	3/37/103/103	0/5/6/6
23	8CT	C	519	-	-	8/29/63/63	0/2/2/2
22	PHO	D	408	-	-	5/37/103/103	0/5/6/6
21	CL7	c	514	-	2/2/11/20	6/13/91/115	-
23	8CT	d	406	-	-	10/29/63/63	0/2/2/2
24	SQD	B	620	-	-	5/49/69/69	0/1/1/1
32	ZEX	3	520	-	-	10/29/67/67	0/2/2/2
21	CL7	4	410	-	2/2/11/20	7/13/91/115	-
32	ZEX	3	519	-	-	10/29/67/67	0/2/2/2
21	CL7	6	518	16	2/2/15/20	10/37/115/115	-
21	CL7	b	603	-	2/2/14/20	7/31/109/115	-
21	CL7	4	408	-	2/2/11/20	2/13/91/115	-
21	CL7	3	503	-	2/2/15/20	18/37/115/115	-
21	CL7	2	509	-	2/2/15/20	14/37/115/115	-
21	CL7	C	512	3	2/2/10/20	3/10/88/115	-
21	CL7	4	415	-	2/2/11/20	10/13/91/115	-
21	CL7	B	609	-	2/2/15/20	12/37/115/115	-
21	CL7	c	507	-	2/2/14/20	13/31/109/115	-
21	CL7	8	407	-	2/2/10/20	1/8/86/115	-
32	ZEX	2	523	-	-	6/29/67/67	0/2/2/2
21	CL7	4	411	-	2/2/15/20	12/37/115/115	-
21	CL7	B	612	-	2/2/15/20	15/37/115/115	-
21	CL7	8	416	-	2/2/10/20	5/8/86/115	-
21	CL7	c	512	3	2/2/10/20	3/10/88/115	-
32	ZEX	2	521	-	-	6/29/67/67	0/2/2/2
21	CL7	c	505	-	2/2/13/20	11/25/103/115	-
21	CL7	c	513	-	2/2/10/20	2/8/86/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
26	LMG	D	410	-	-	6/28/48/70	0/1/1/1
21	CL7	A	401	-	2/2/15/20	16/37/115/115	-
21	CL7	6	508	-	2/2/11/20	3/13/91/115	-
21	CL7	4	414	-	2/2/12/20	6/23/101/115	-
21	CL7	B	616	-	2/2/11/20	4/13/91/115	-
23	8CT	D	406	-	-	10/29/63/63	0/2/2/2
21	CL7	2	504	-	2/2/11/20	4/13/91/115	-
21	CL7	8	417	20	2/2/10/20	4/10/88/115	-
21	CL7	8	404	-	2/2/15/20	14/37/115/115	-
21	CL7	2	514	-	2/2/11/20	7/13/91/115	-
23	8CT	A	404	-	-	5/29/63/63	0/2/2/2
21	CL7	c	502	-	2/2/15/20	18/37/115/115	-
27	DGD	C	517	-	-	9/51/91/95	0/2/2/2
21	CL7	2	512	-	2/2/15/20	16/37/115/115	-
21	CL7	b	604	-	2/2/15/20	12/37/115/115	-
25	LHG	A	407	-	-	5/50/50/53	-
21	CL7	B	604	-	2/2/15/20	15/37/115/115	-
32	ZEX	3	525	-	-	7/29/67/67	0/2/2/2
21	CL7	5	415	-	2/2/10/20	5/8/86/115	-
21	CL7	a	401	-	2/2/15/20	16/37/115/115	-
21	CL7	C	510	-	2/2/15/20	18/37/115/115	-
21	CL7	8	412	-	2/2/15/20	17/37/115/115	-
21	CL7	B	601	-	2/2/10/20	4/8/86/115	-
21	CL7	5	407	-	2/2/10/20	2/8/86/115	-
24	SQD	b	621	-	-	5/49/69/69	0/1/1/1
23	8CT	B	617	-	-	7/29/63/63	0/2/2/2
21	CL7	2	511	16	2/2/14/20	14/31/109/115	-
21	CL7	5	411	-	2/2/11/20	5/13/91/115	-
27	DGD	B	624	-	-	7/51/91/95	0/2/2/2
21	CL7	1	412	-	2/2/11/20	8/13/91/115	-
21	CL7	B	613	-	2/2/13/20	4/25/103/115	-
21	CL7	7	515	-	2/2/10/20	0/8/86/115	-
25	LHG	d	409	-	-	7/53/53/53	-
21	CL7	2	508	-	2/2/11/20	3/13/91/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
21	CL7	1	409	-	2/2/11/20	4/13/91/115	-
21	CL7	6	506	-	2/2/15/20	12/37/115/115	-
21	CL7	6	512	-	2/2/15/20	16/37/115/115	-
32	ZEX	4	419	-	-	9/29/67/67	0/2/2/2
21	CL7	1	402	-	2/2/14/20	14/31/109/115	-
21	CL7	1	417	18	2/2/13/20	7/25/103/115	-
21	CL7	3	505	-	2/2/15/20	14/37/115/115	-
21	CL7	6	510	16	2/2/15/20	20/37/115/115	-
21	CL7	6	515	-	2/2/11/20	6/13/91/115	-
21	CL7	d	404	-	2/2/13/20	11/29/107/115	-
21	CL7	7	506	-	2/2/11/20	11/13/91/115	-
25	LHG	D	409	-	-	7/53/53/53	-
30	PL9	D	407	-	-	9/53/73/73	0/1/1/1
21	CL7	7	503	-	2/2/15/20	18/37/115/115	-
21	CL7	c	518	-	2/2/10/20	3/8/86/115	-
21	CL7	2	505	-	2/2/15/20	16/37/115/115	-
21	CL7	7	513	-	2/2/11/20	7/13/91/115	-
21	CL7	2	513	-	2/2/11/20	6/13/91/115	-
24	SQD	2	522	-	-	7/45/65/69	0/1/1/1
21	CL7	C	504	-	2/2/15/20	17/37/115/115	-
21	CL7	6	502	-	2/2/15/20	15/37/115/115	-
21	CL7	6	509	-	2/2/15/20	14/37/115/115	-
26	LMG	1	401	-	-	5/46/66/70	0/1/1/1
32	ZEX	5	421	-	-	14/29/67/67	0/2/2/2
21	CL7	3	507	-	2/2/15/20	13/37/115/115	-
21	CL7	b	616	-	2/2/12/20	8/19/97/115	-
21	CL7	8	414	-	2/2/12/20	6/23/101/115	-
32	ZEX	6	522	-	-	6/29/67/67	0/2/2/2
21	CL7	6	513	-	2/2/11/20	6/13/91/115	-
21	CL7	1	404	-	2/2/15/20	13/37/115/115	-
21	CL7	4	416	-	2/2/10/20	5/8/86/115	-
21	CL7	b	609	-	2/2/15/20	15/37/115/115	-
21	CL7	3	515	-	2/2/10/20	0/8/86/115	-
23	8CT	K	101	-	-	10/29/63/63	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
21	CL7	8	413	20	2/2/14/20	7/31/109/115	-

The worst 5 of 3338 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
23	B	627	8CT	C02-C03	14.81	1.60	1.34
23	b	601	8CT	C02-C03	14.81	1.60	1.34
23	B	618	8CT	C02-C03	14.76	1.60	1.34
23	b	619	8CT	C02-C03	14.76	1.60	1.34
23	C	519	8CT	C02-C03	14.59	1.59	1.34

The worst 5 of 4416 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
21	A	403	CL7	C3C-C4C-NC	10.55	117.83	110.18
21	a	403	CL7	C3C-C4C-NC	10.50	117.79	110.18
21	7	505	CL7	C3C-C4C-NC	10.29	117.64	110.18
21	3	505	CL7	C3C-C4C-NC	10.28	117.63	110.18
23	8	402	8CT	C33-C32-C31	-10.15	115.12	124.85

5 of 424 chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
21	A	401	CL7	NA
21	A	401	CL7	NC
21	A	403	CL7	NA
21	A	403	CL7	NC
21	A	406	CL7	NA

5 of 2944 torsion outliers are listed below:

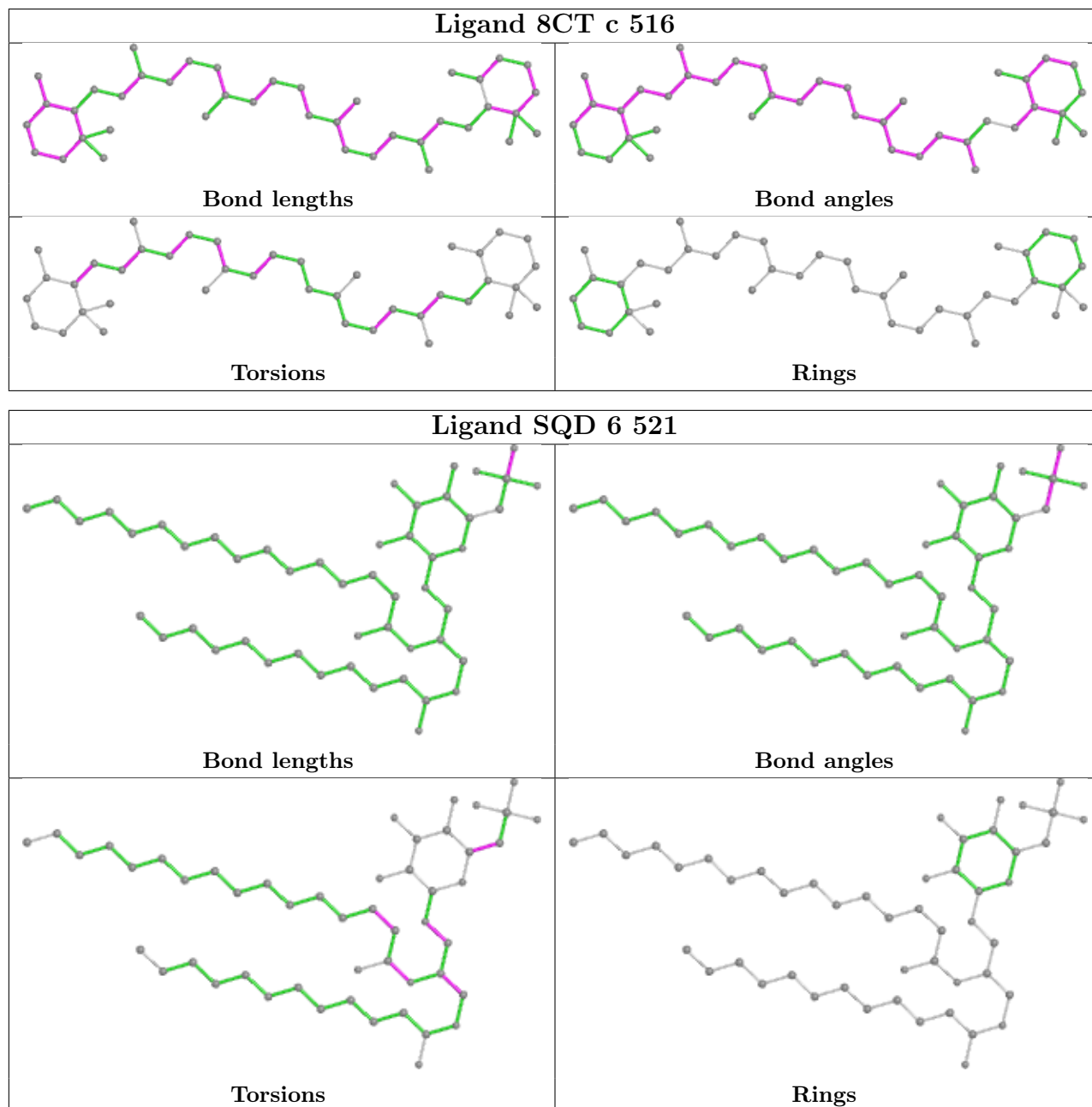
Mol	Chain	Res	Type	Atoms
21	A	403	CL7	O1A-CGA-O2A-C1
21	A	403	CL7	CBA-CGA-O2A-C1
21	A	403	CL7	C1A-C2A-CAA-CBA
21	A	403	CL7	C3A-C2A-CAA-CBA
21	A	406	CL7	C1A-C2A-CAA-CBA

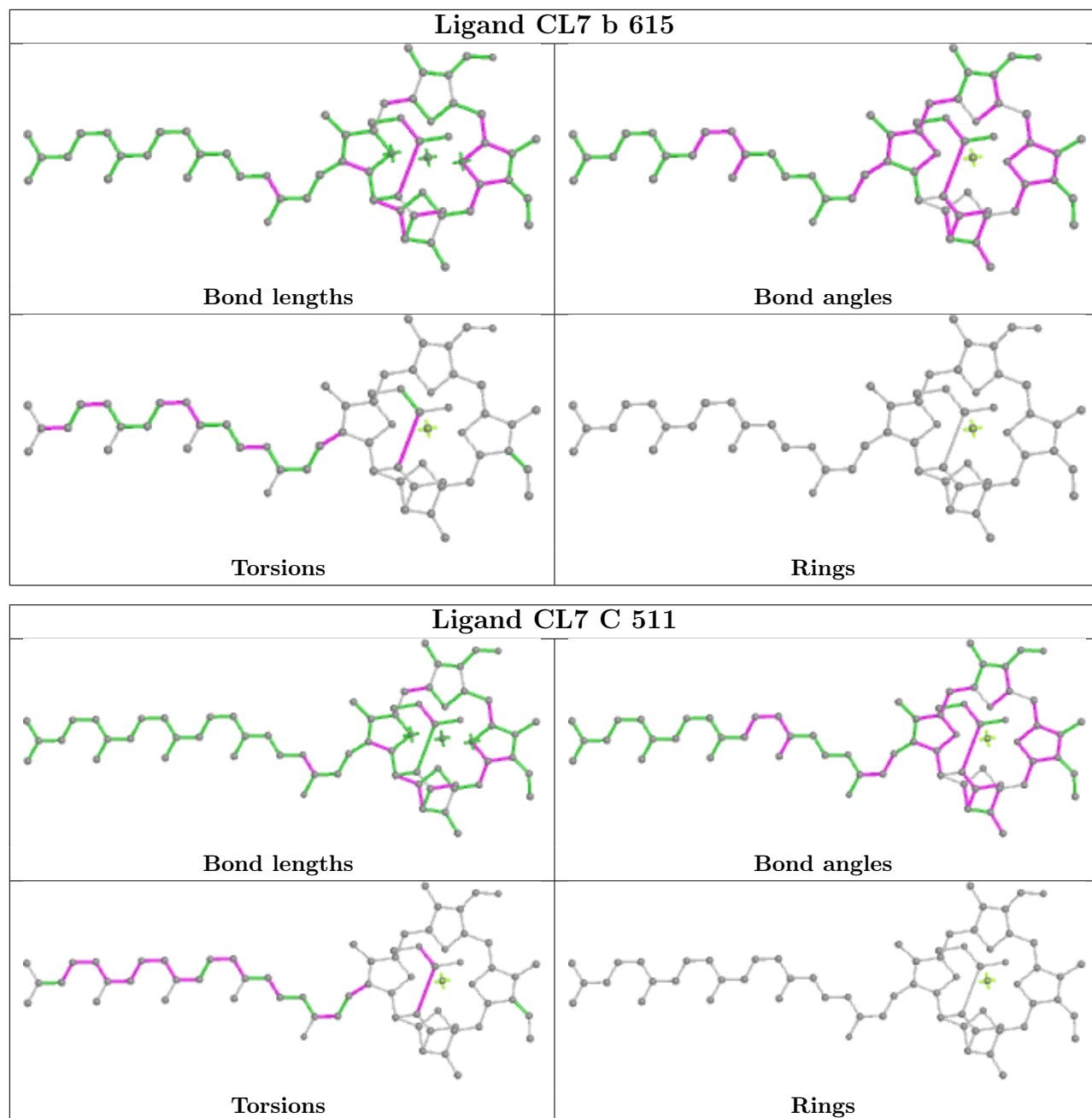
There are no ring outliers.

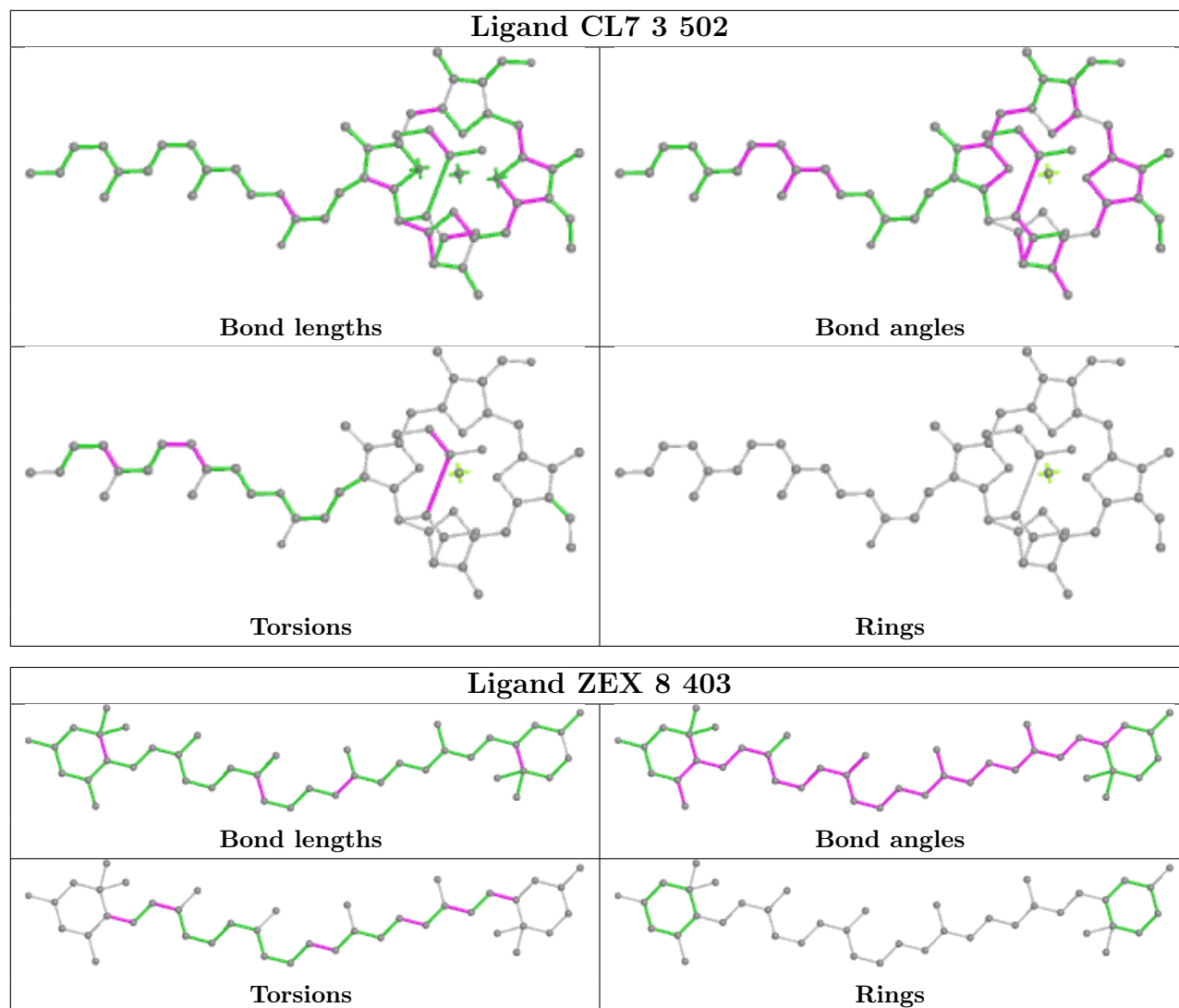
No monomer is involved in short contacts.

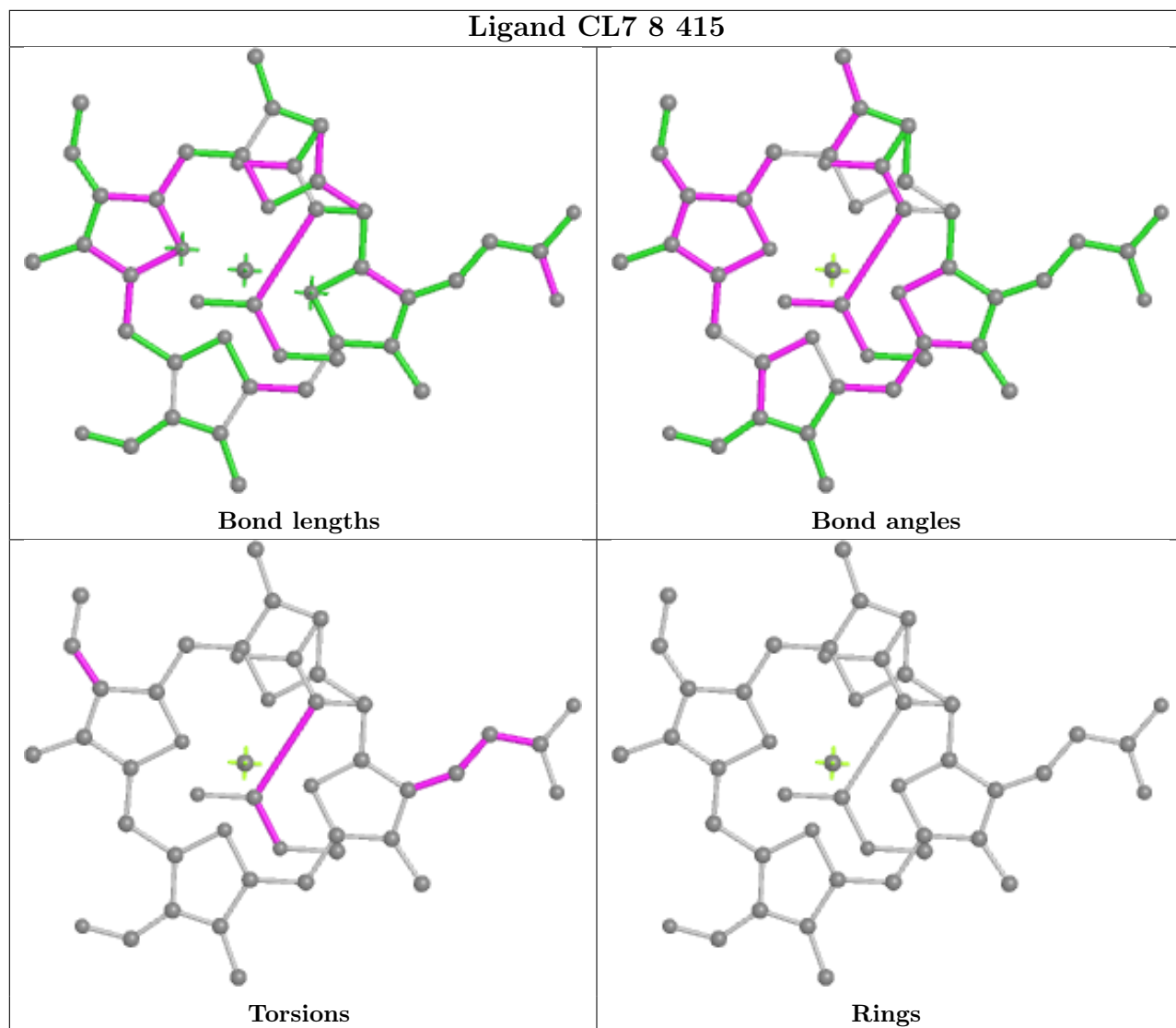
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths,

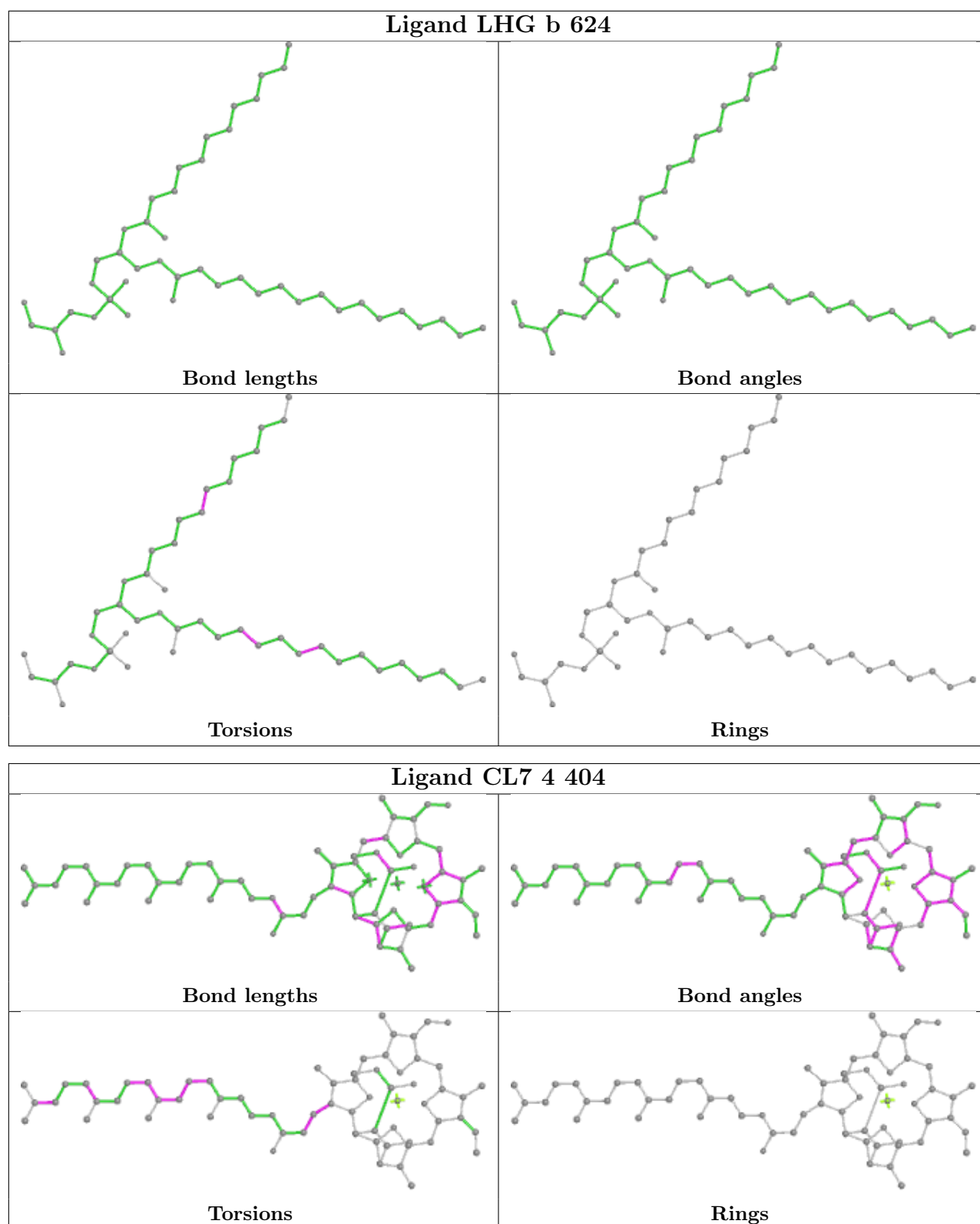
bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 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.

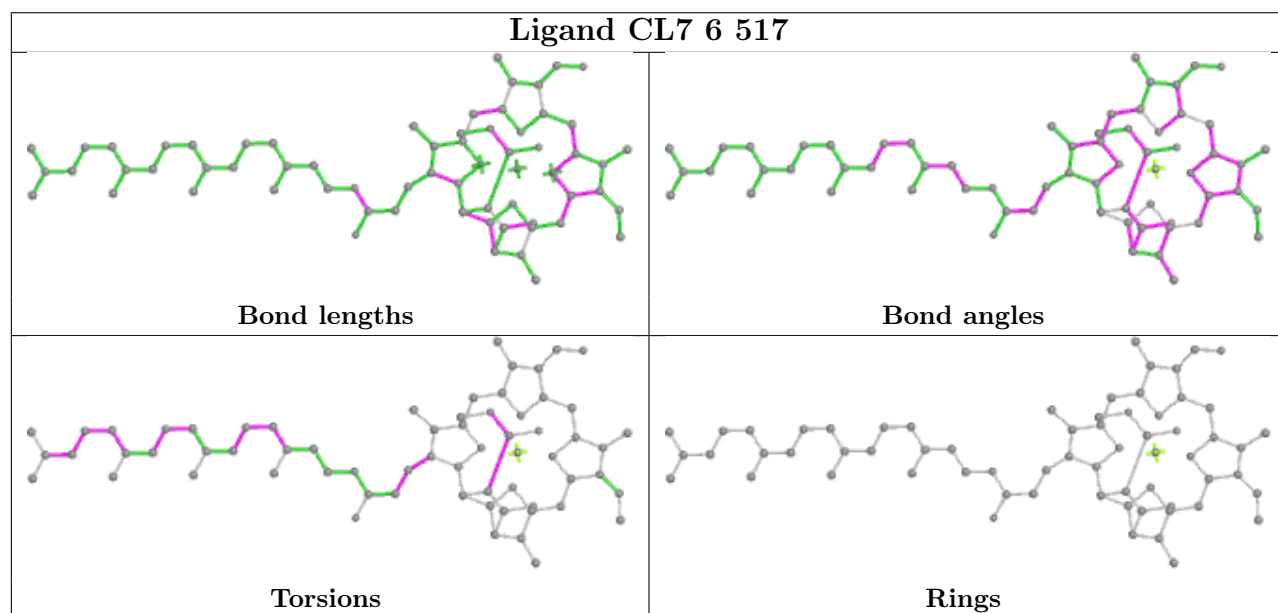
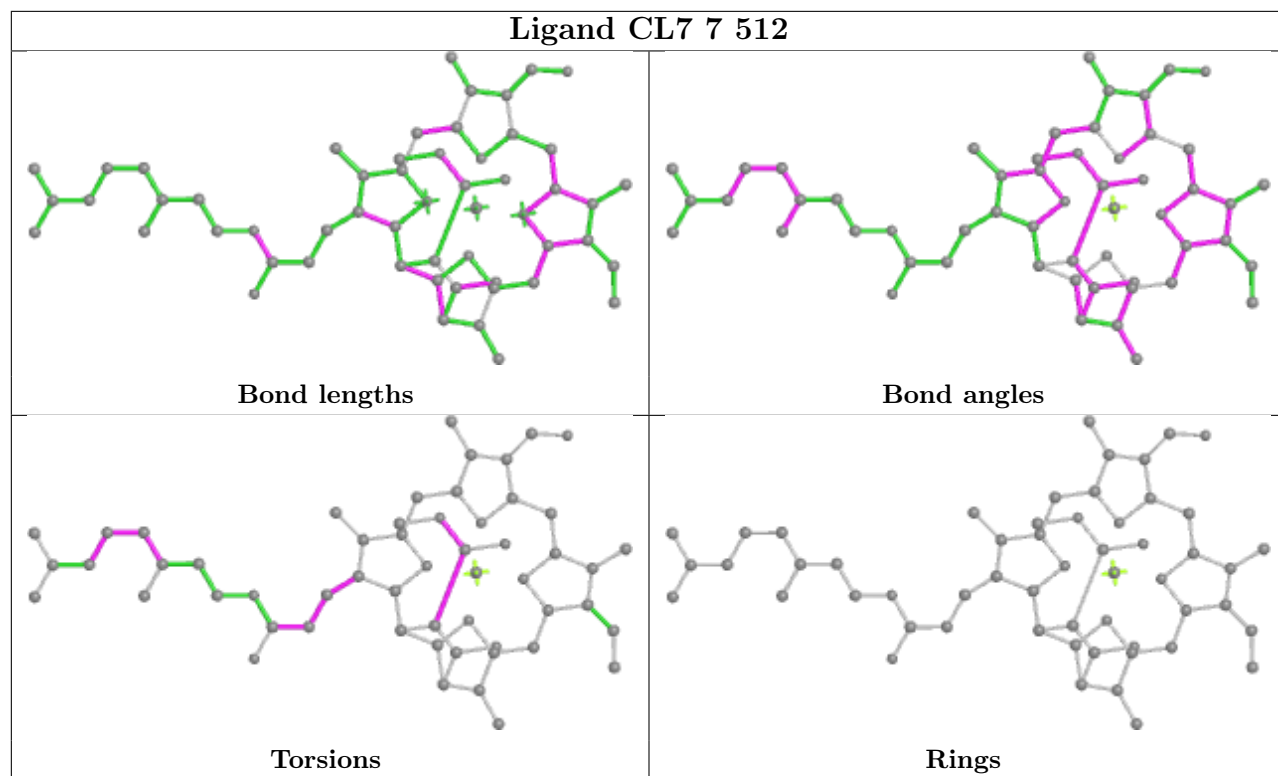


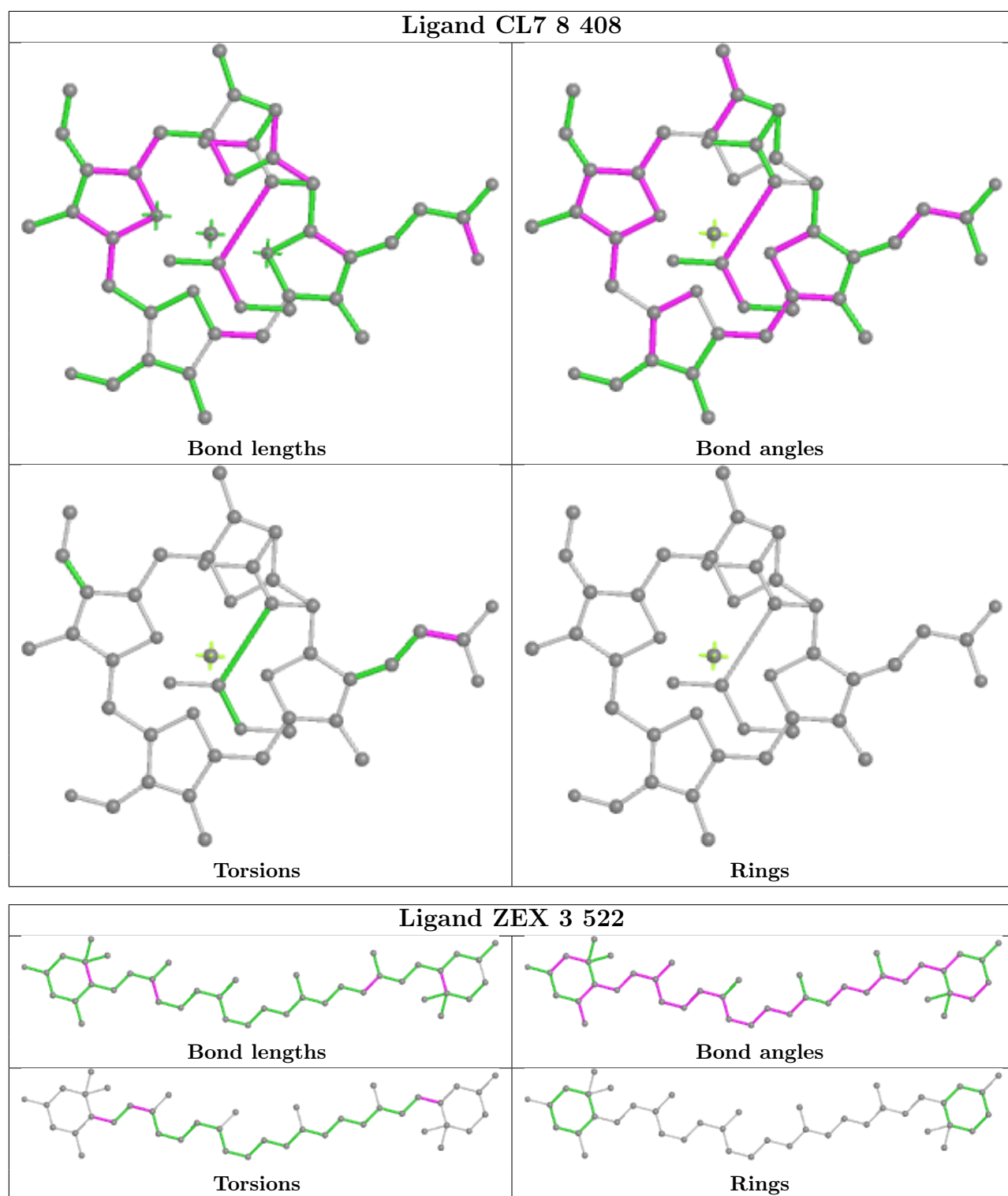


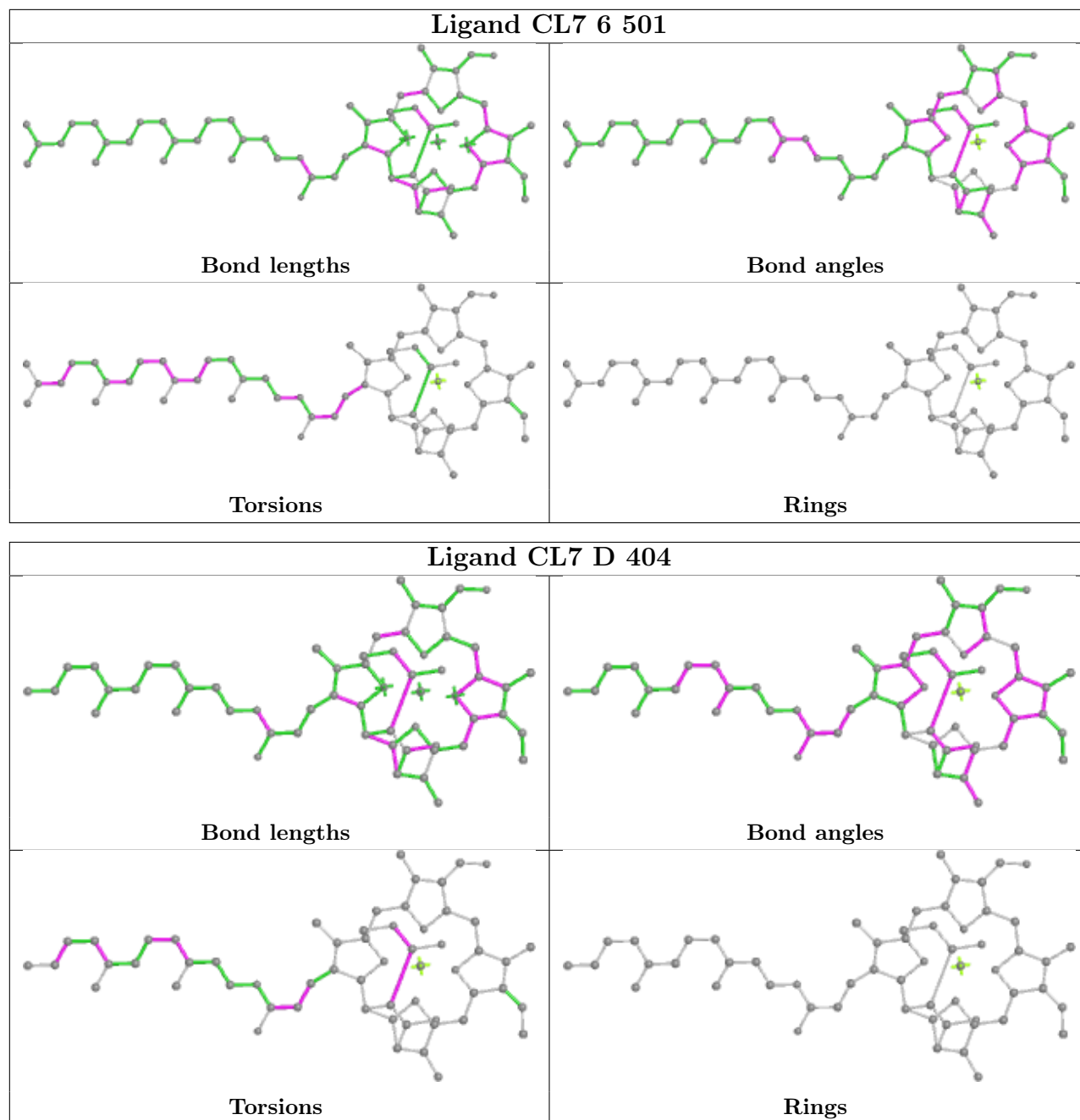


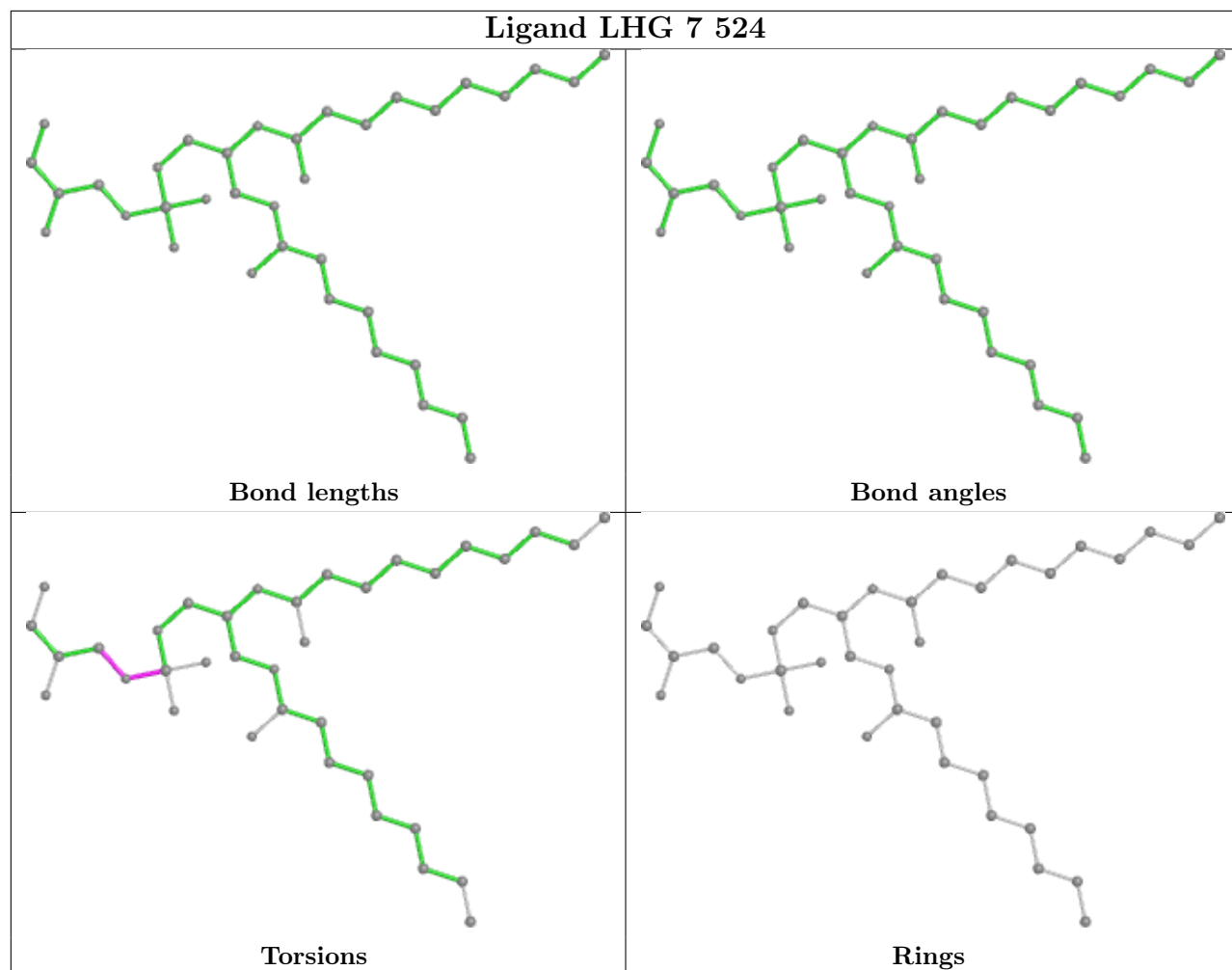


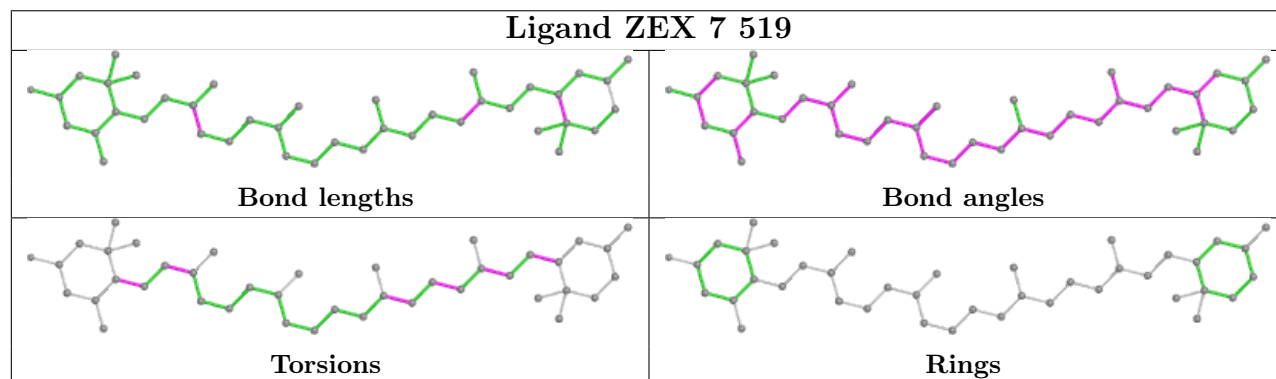
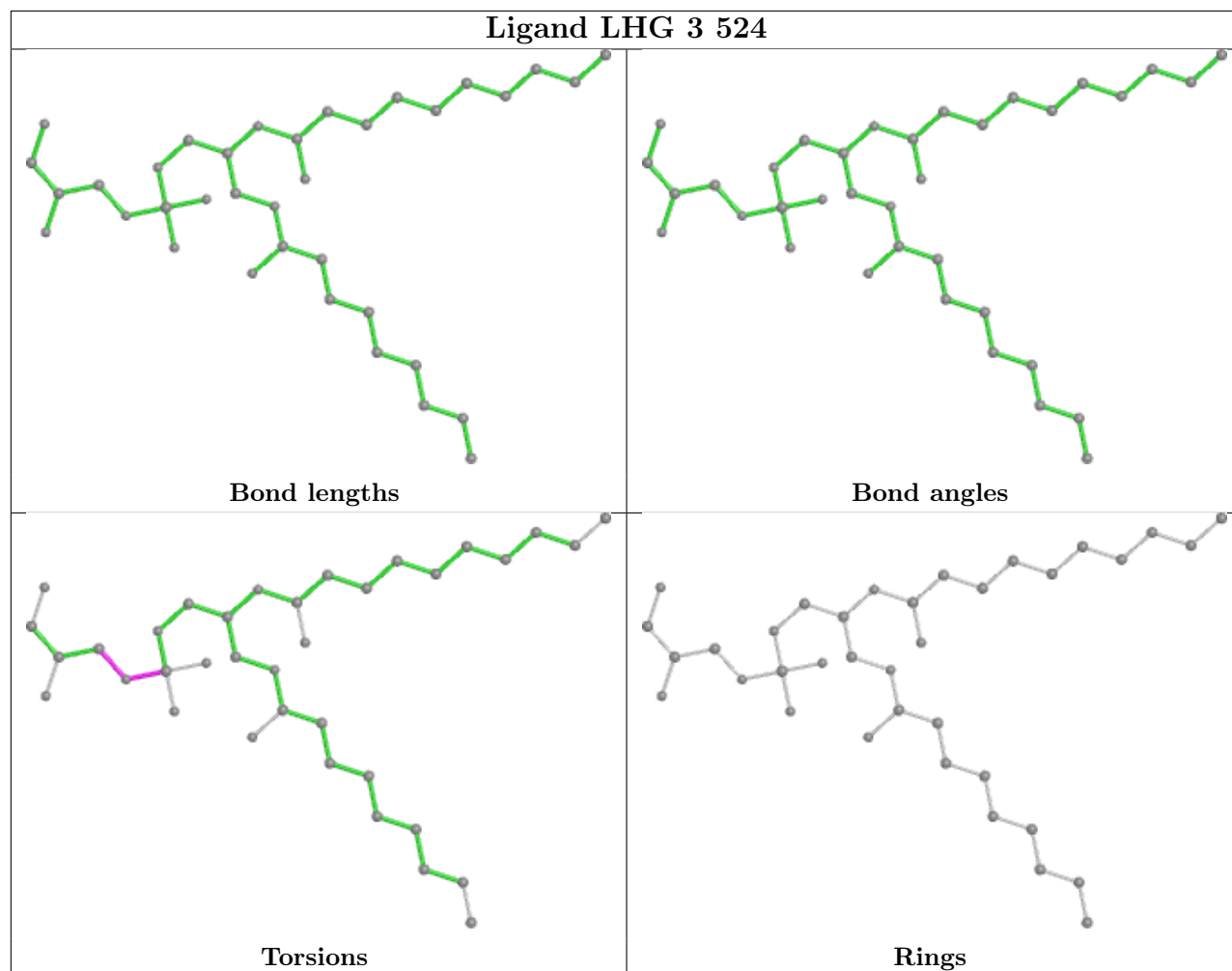


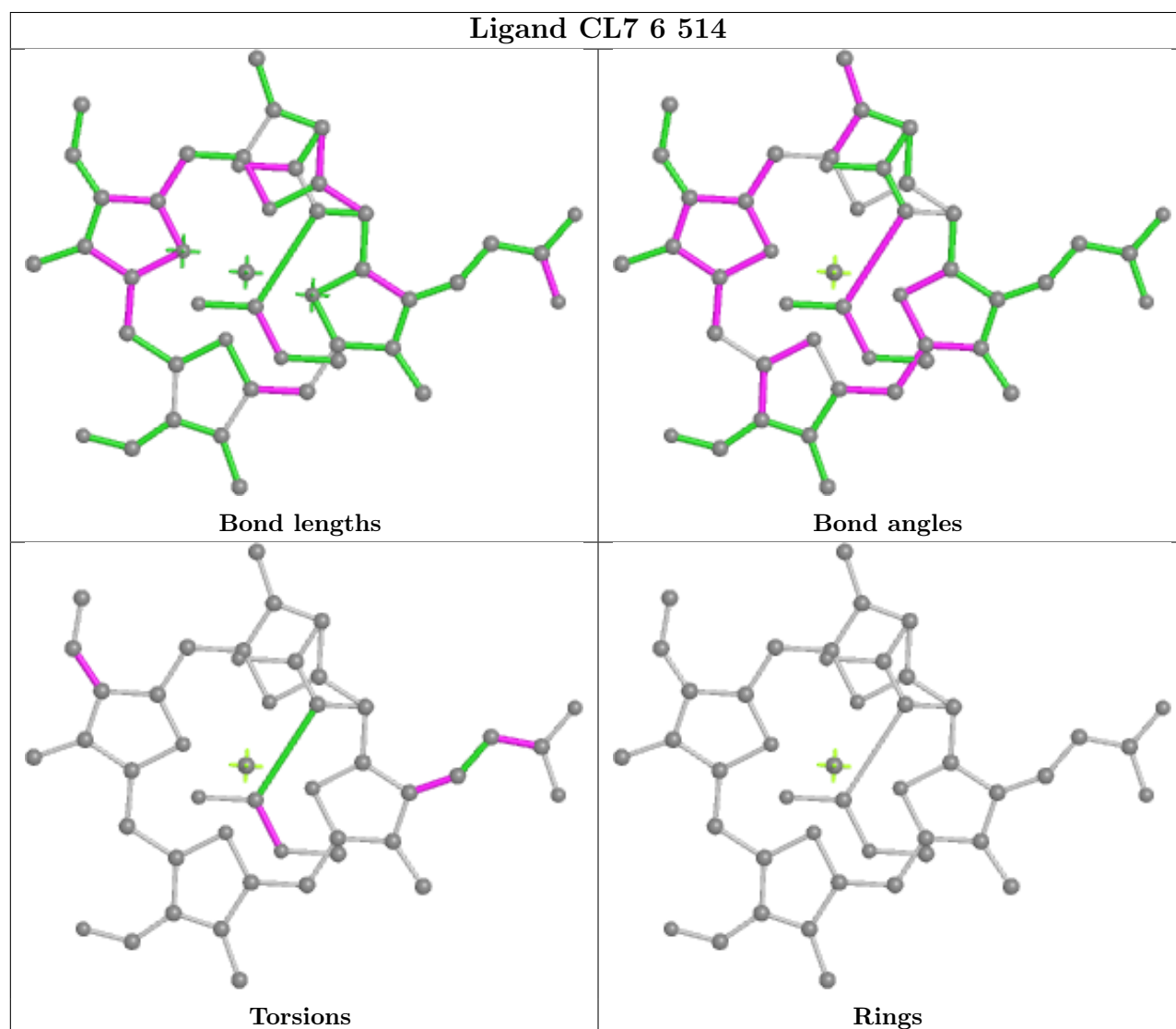
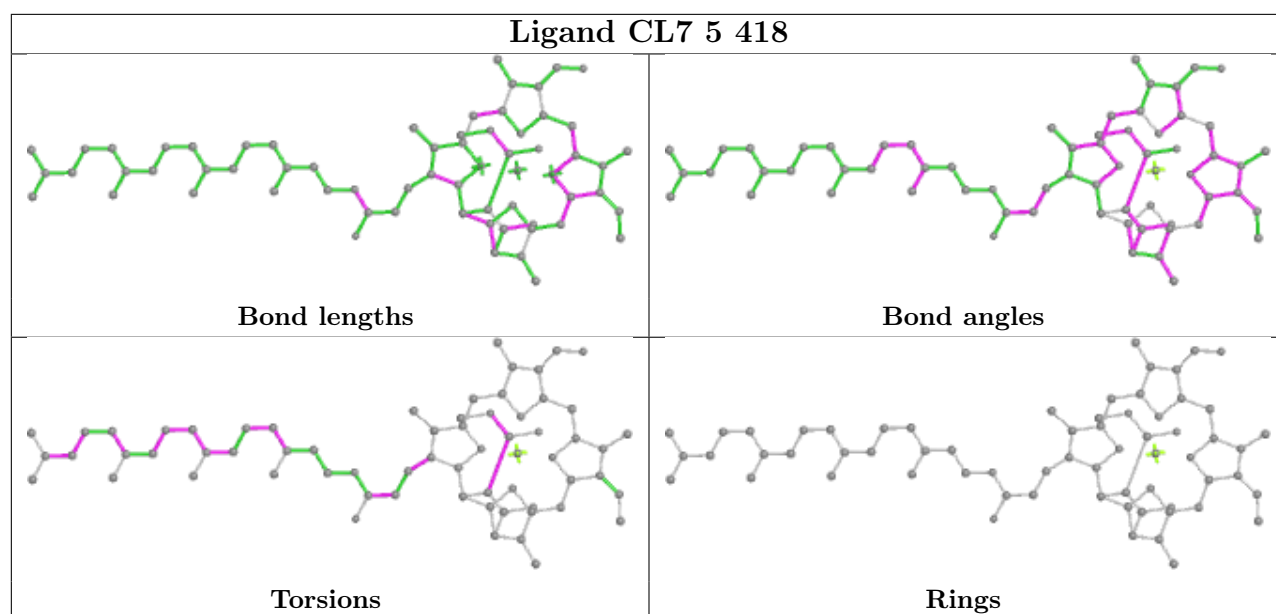


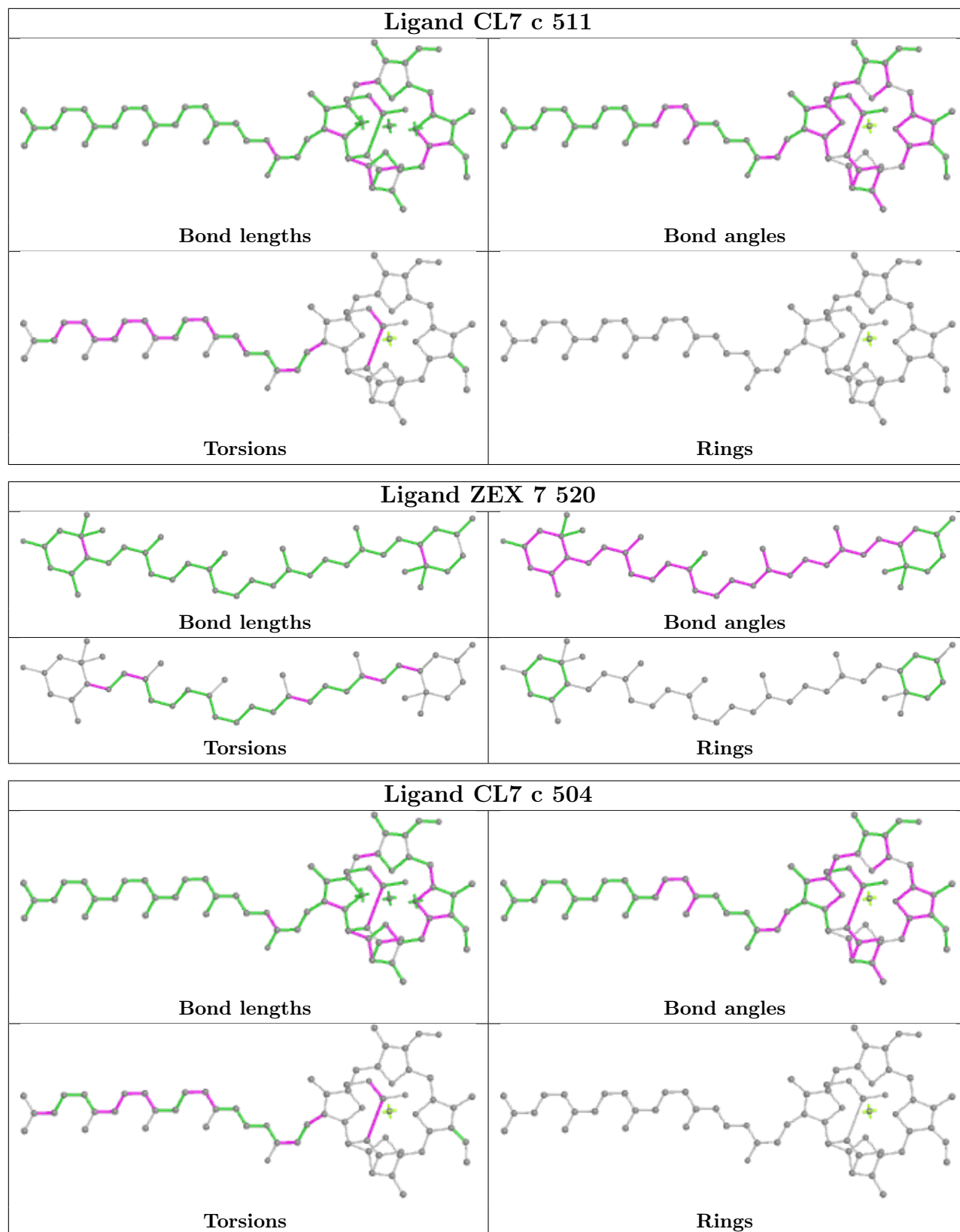


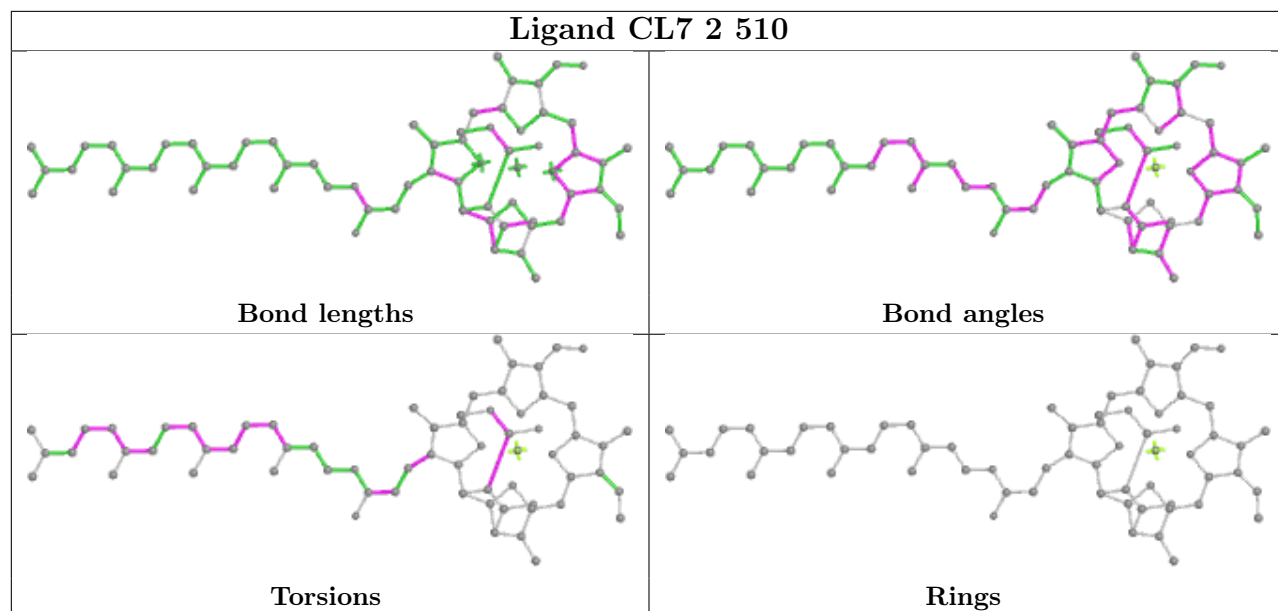


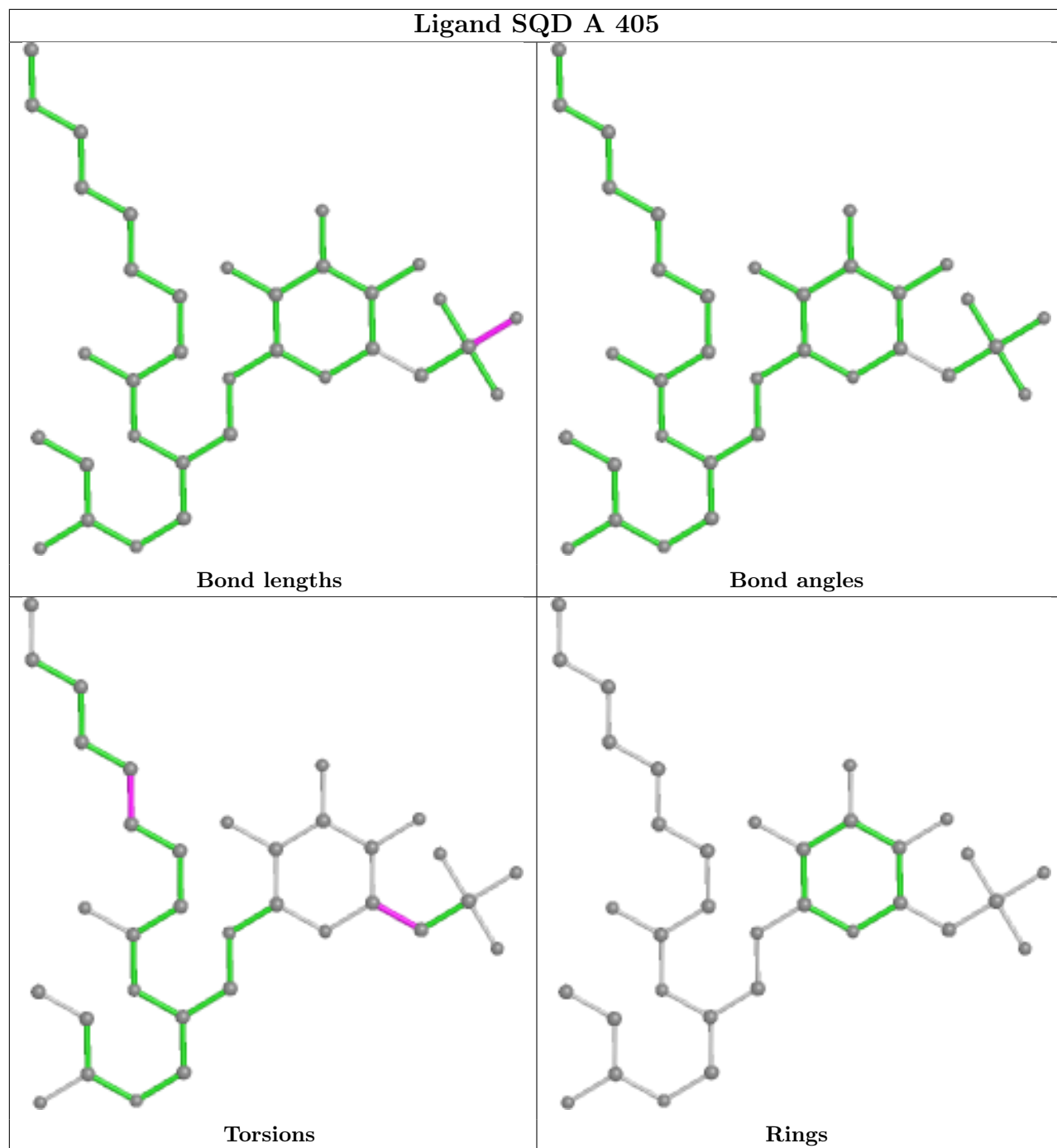


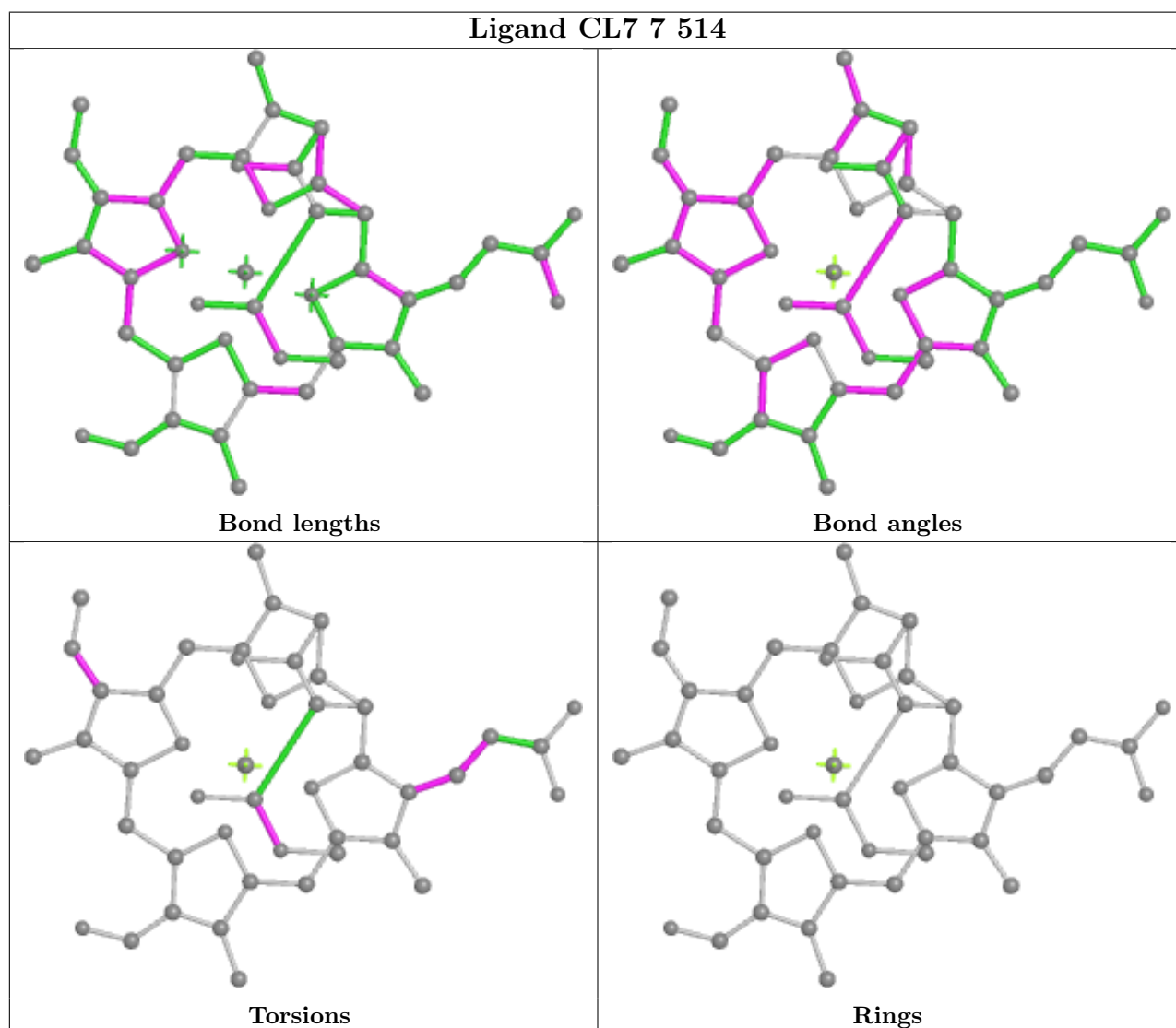
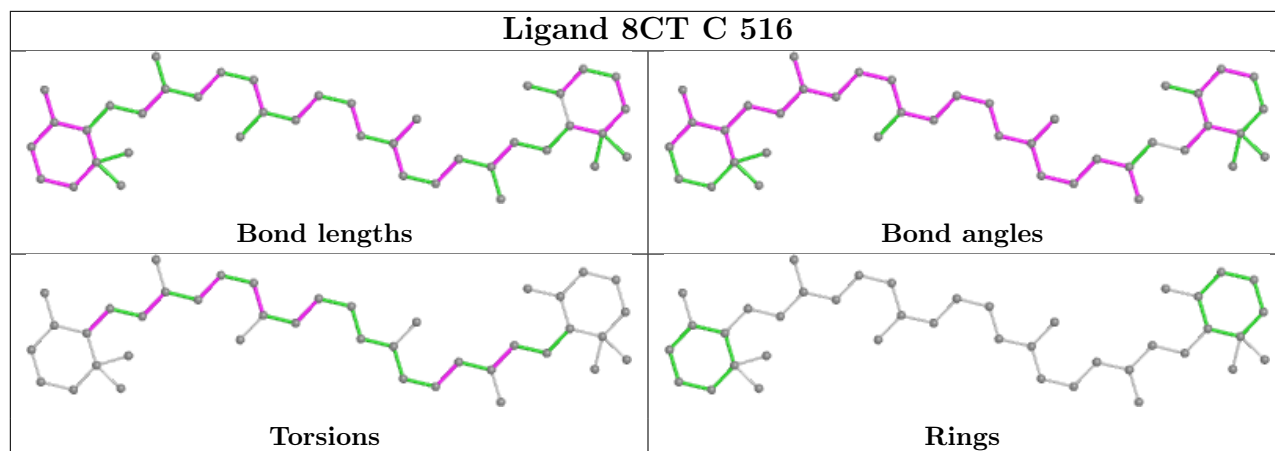


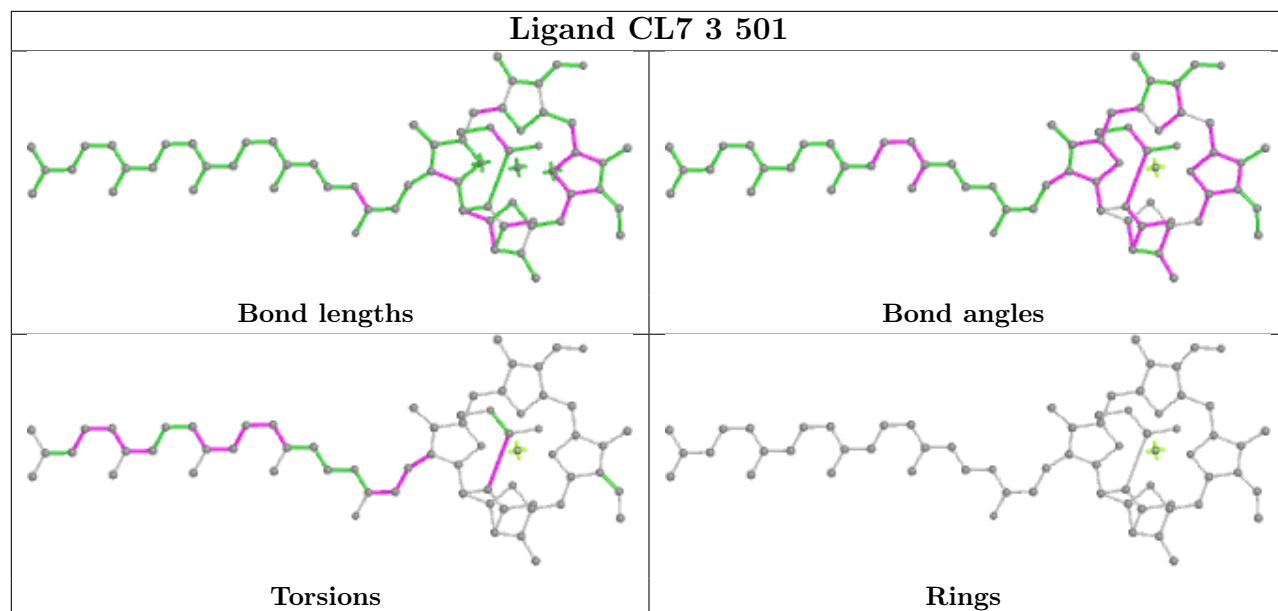


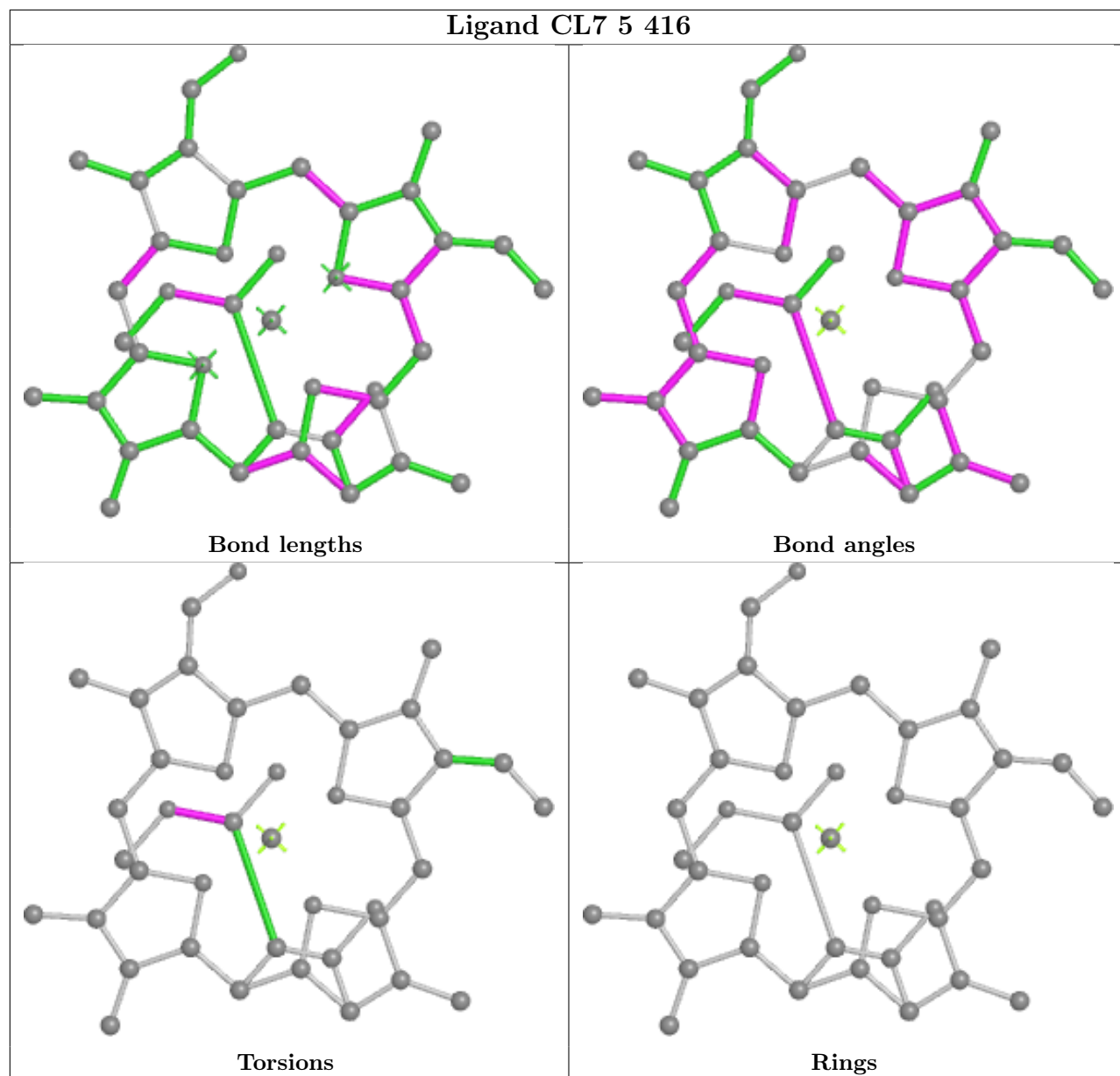


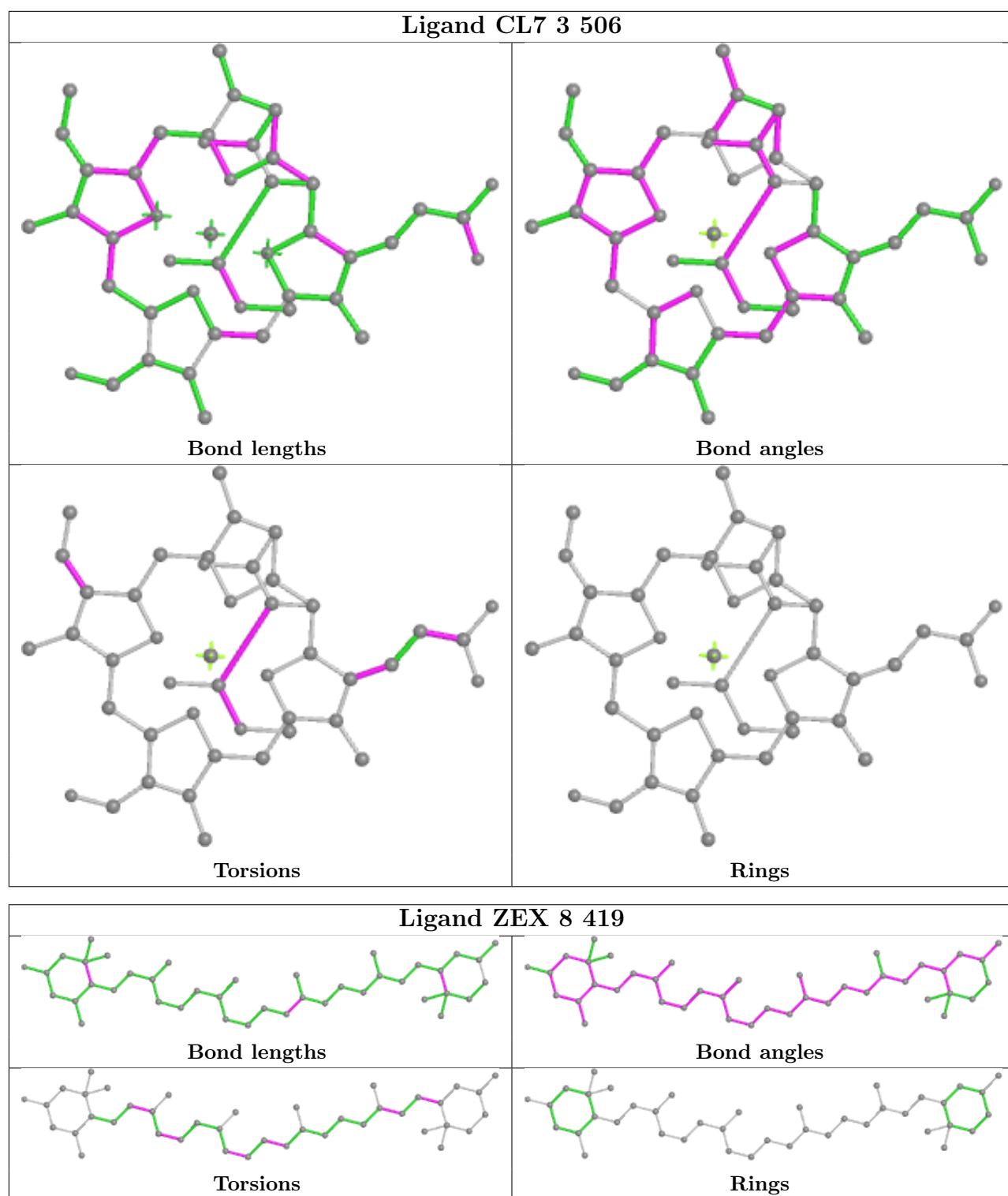


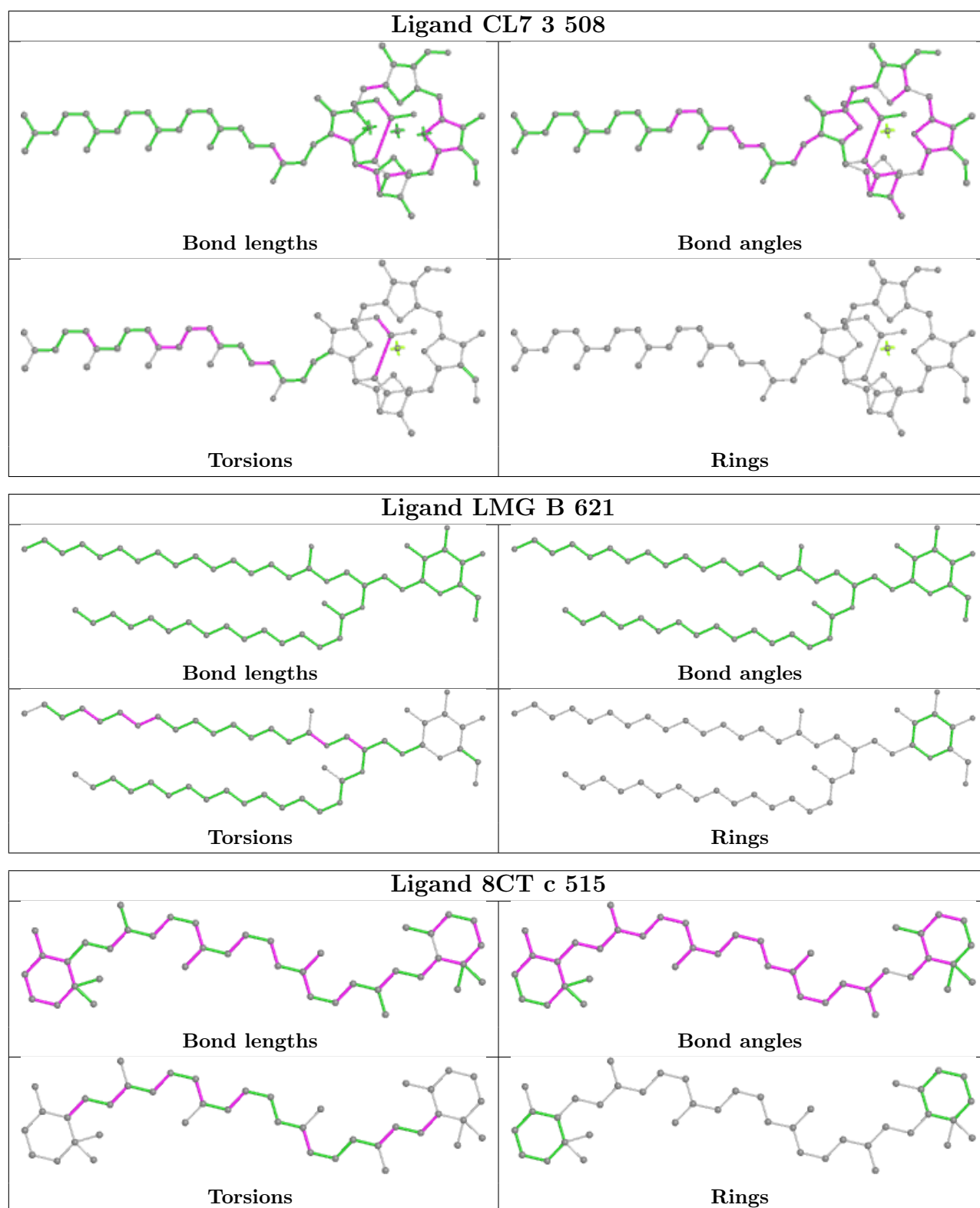


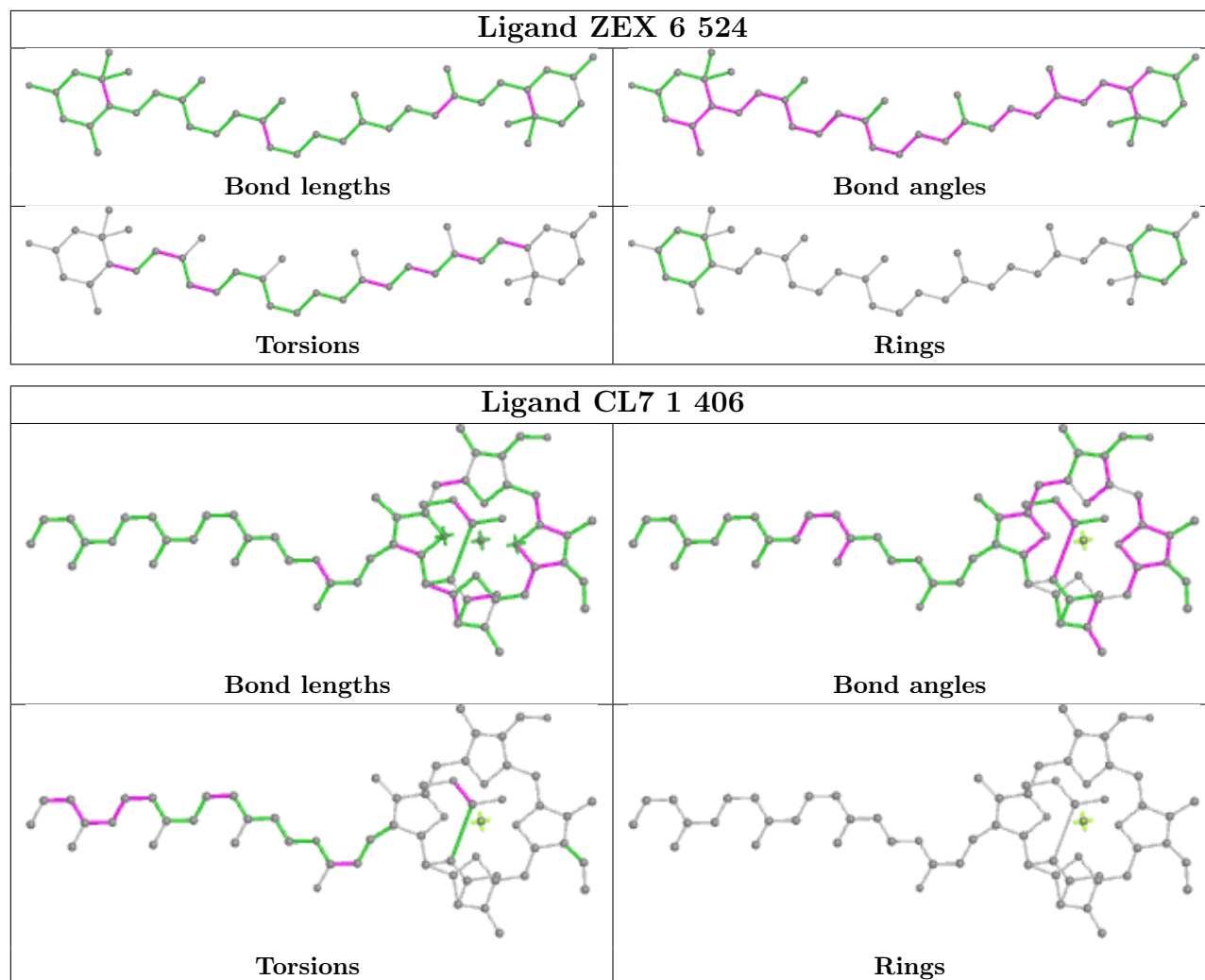


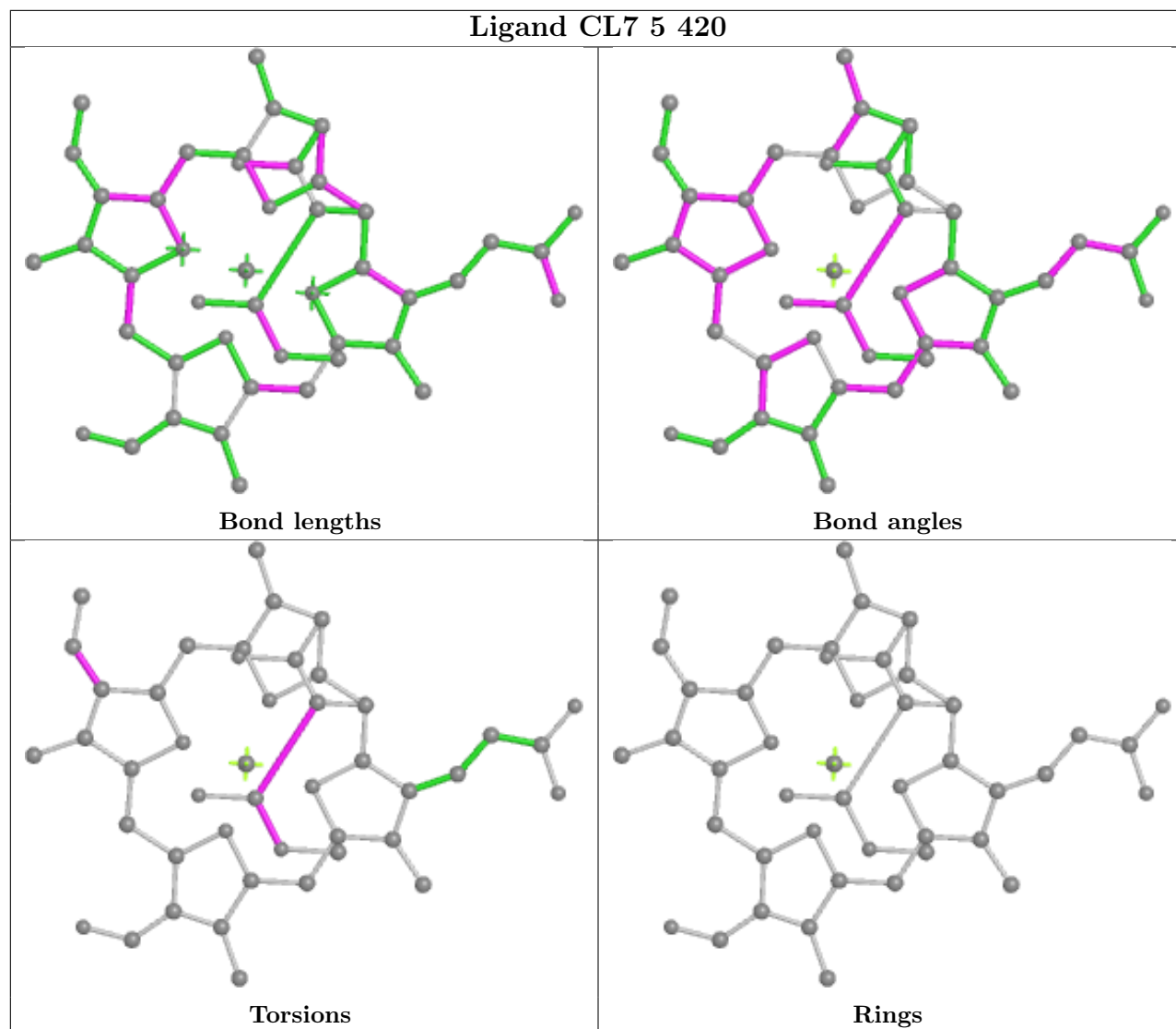


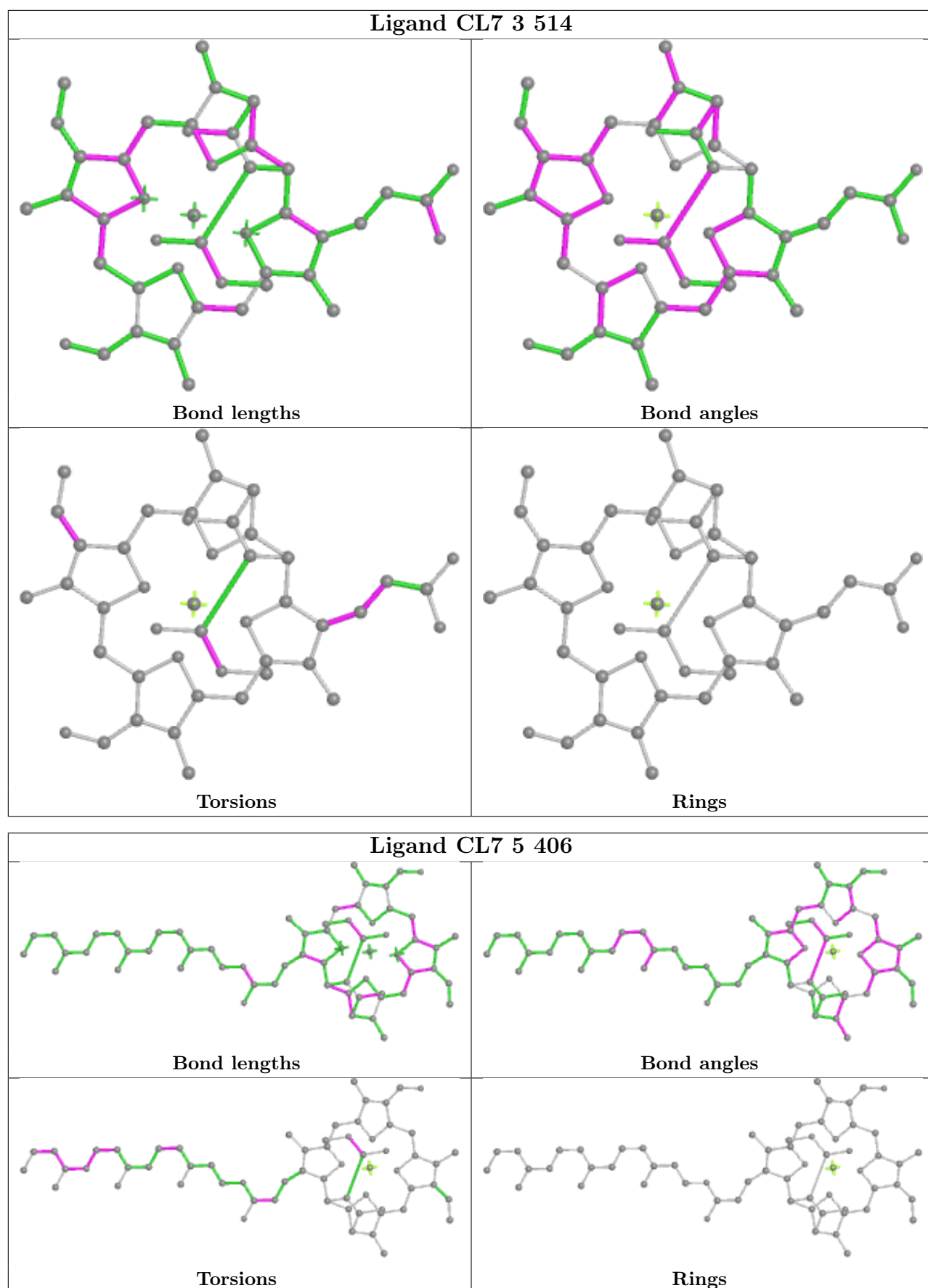


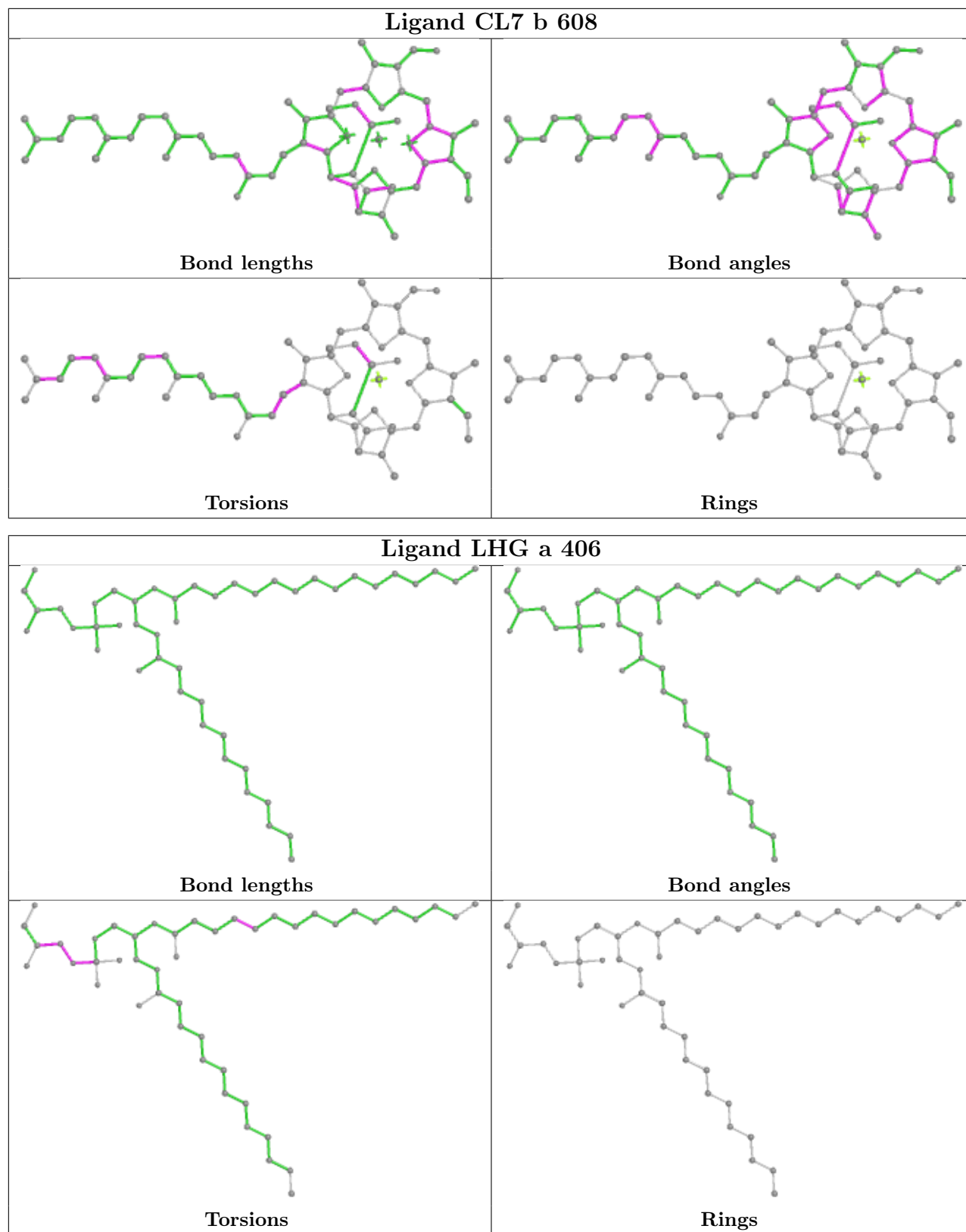


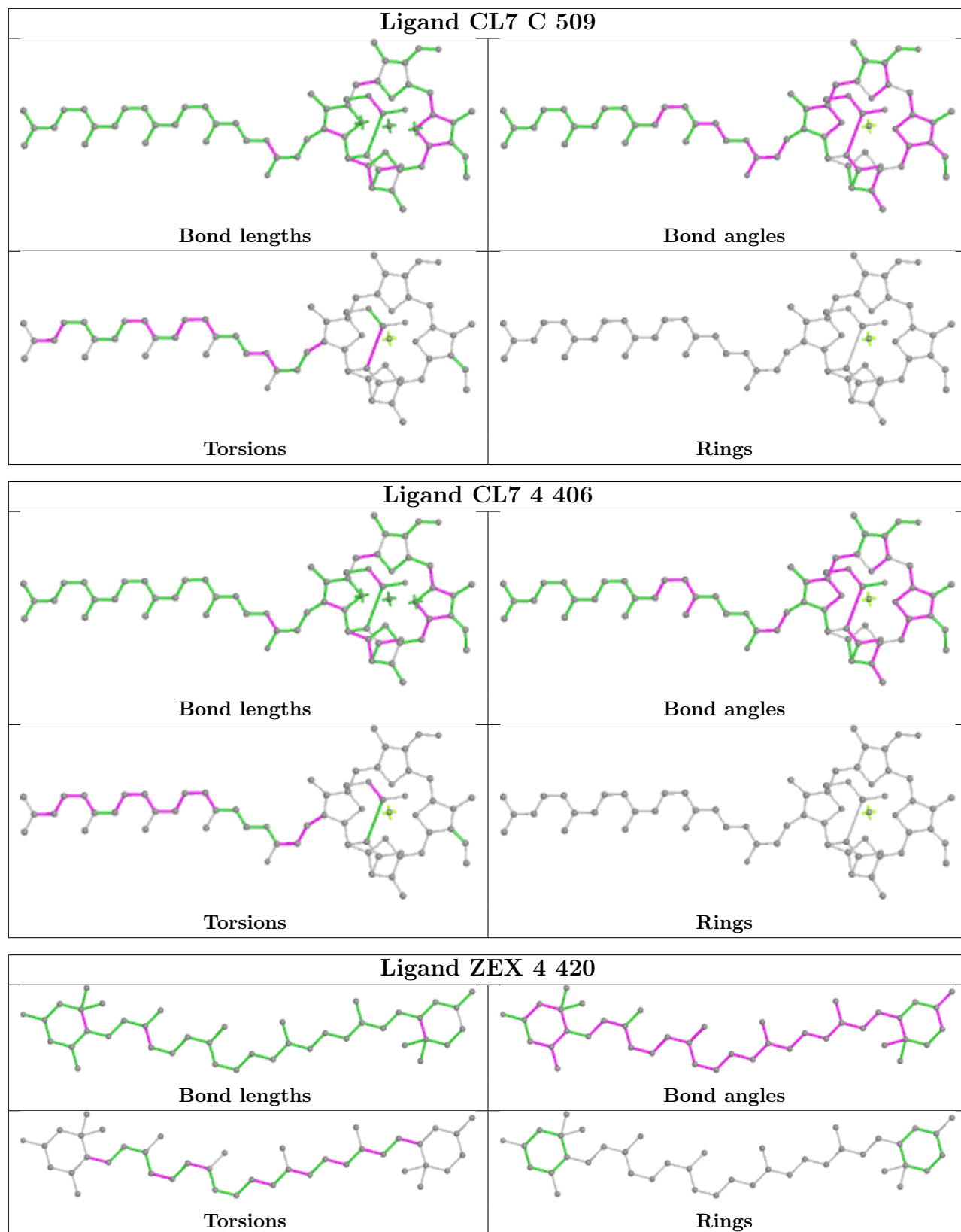


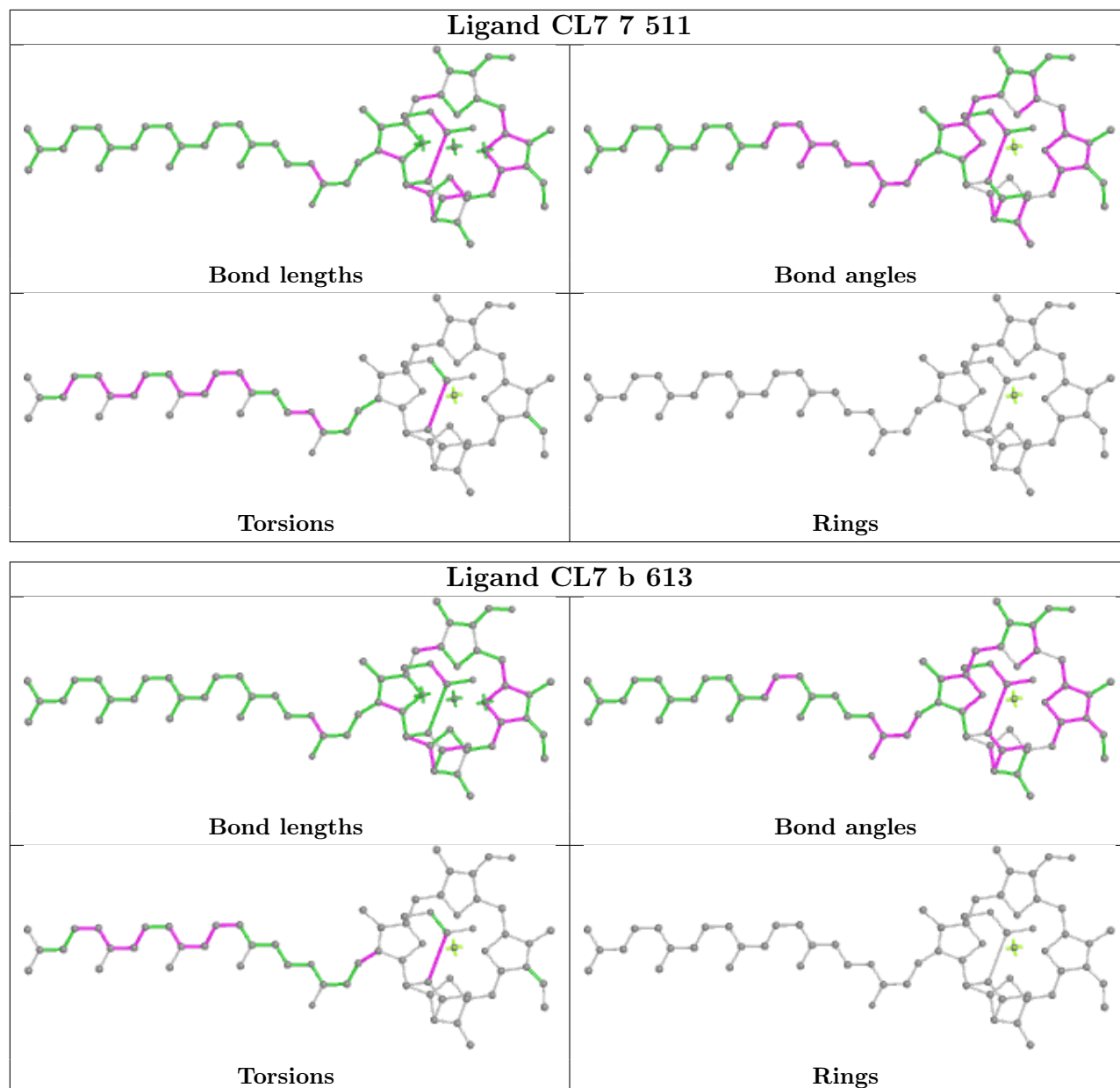


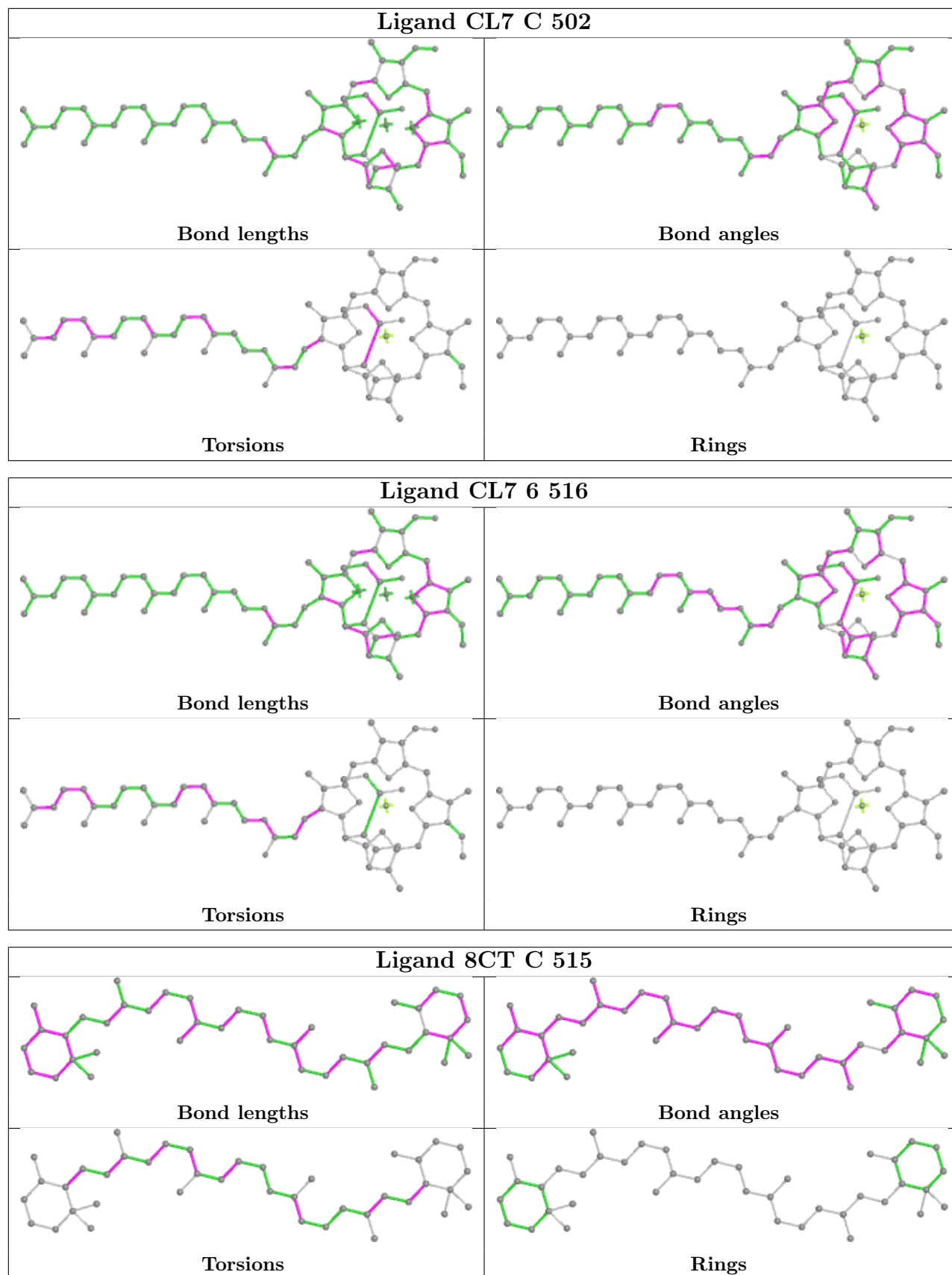


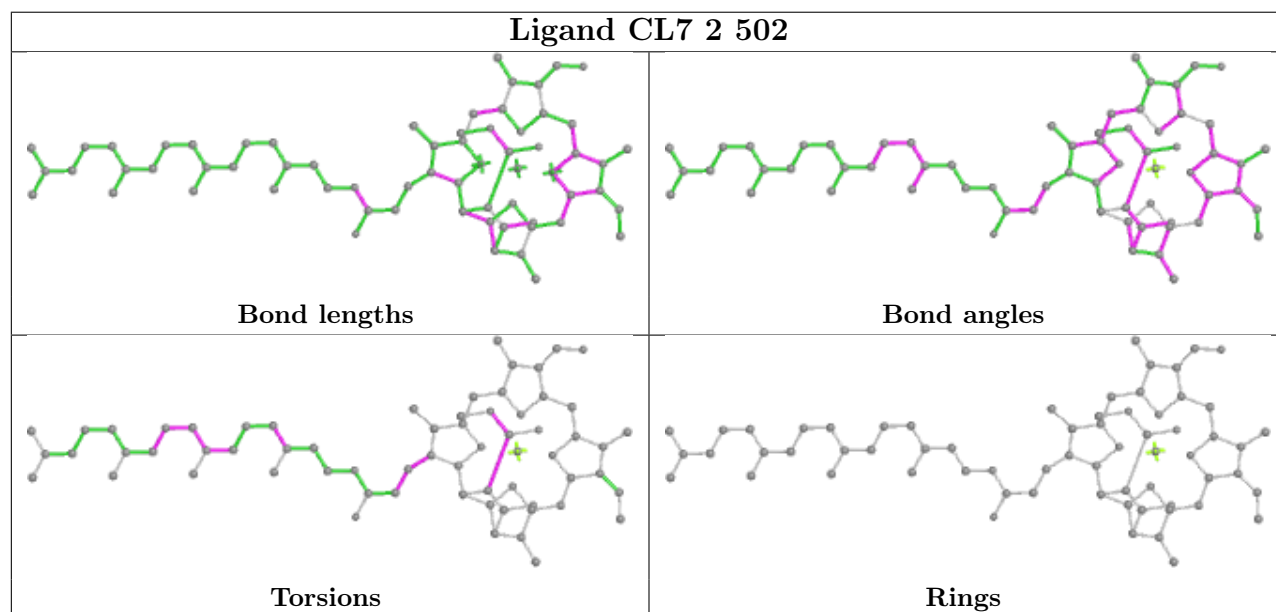
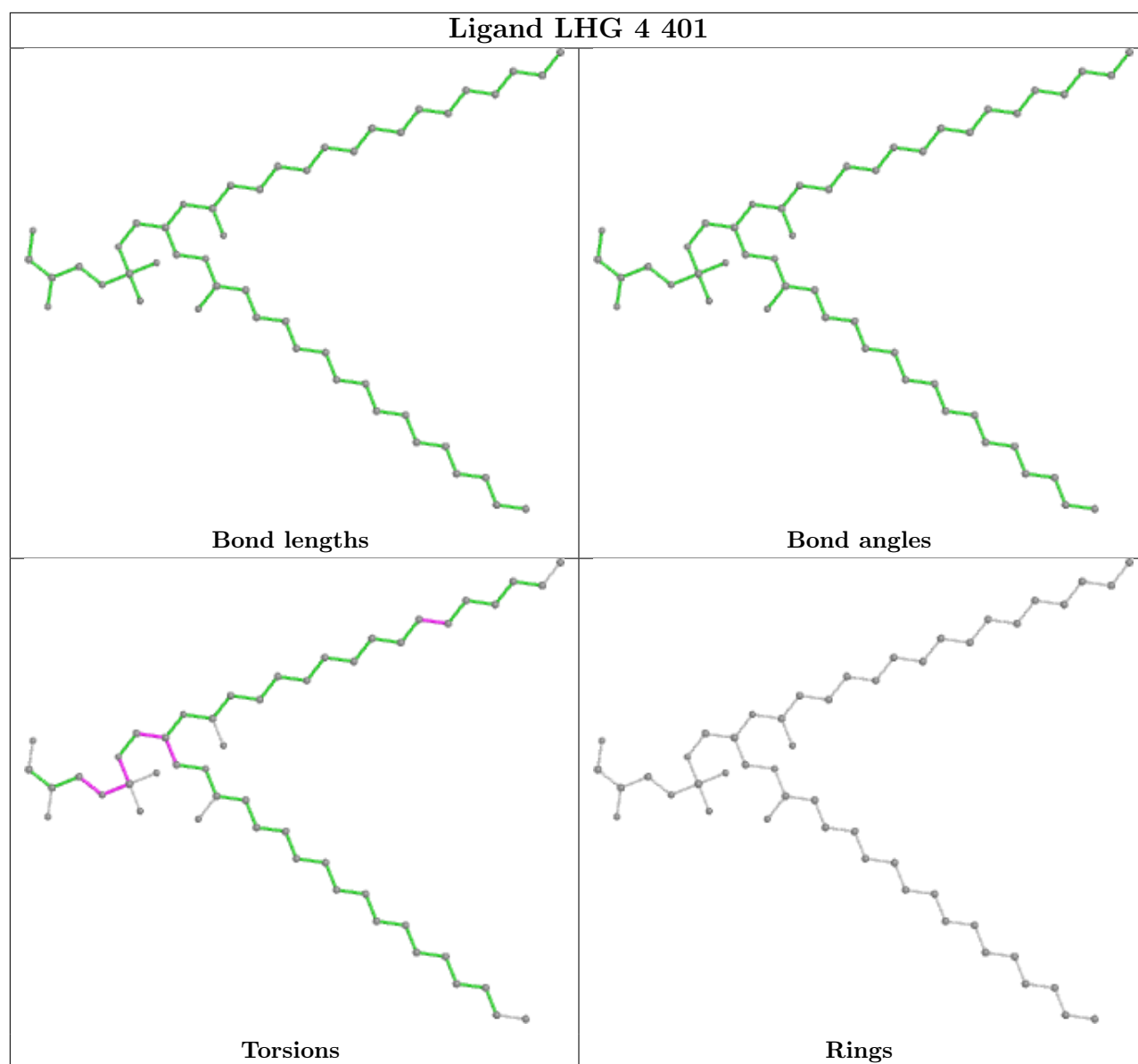


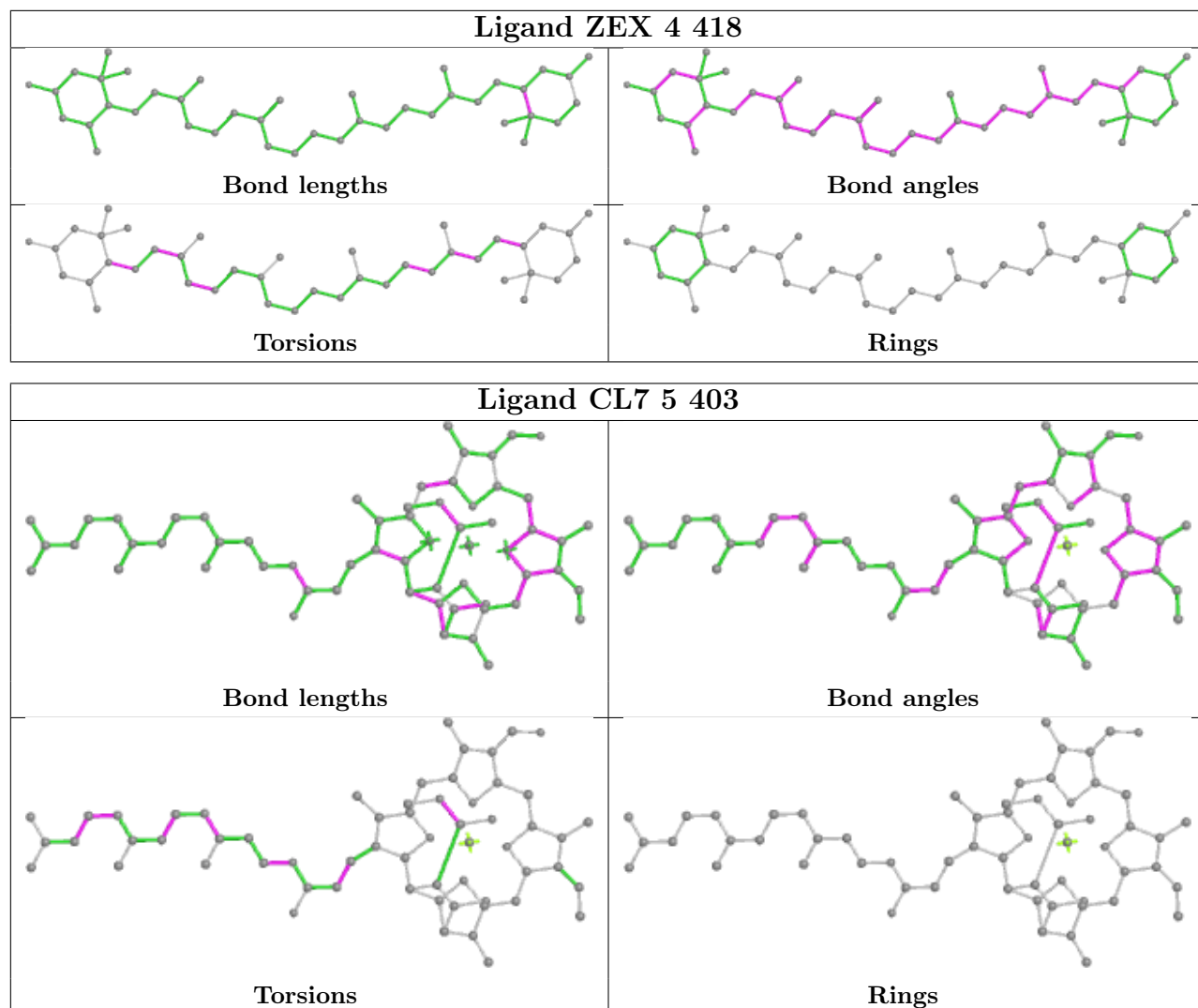


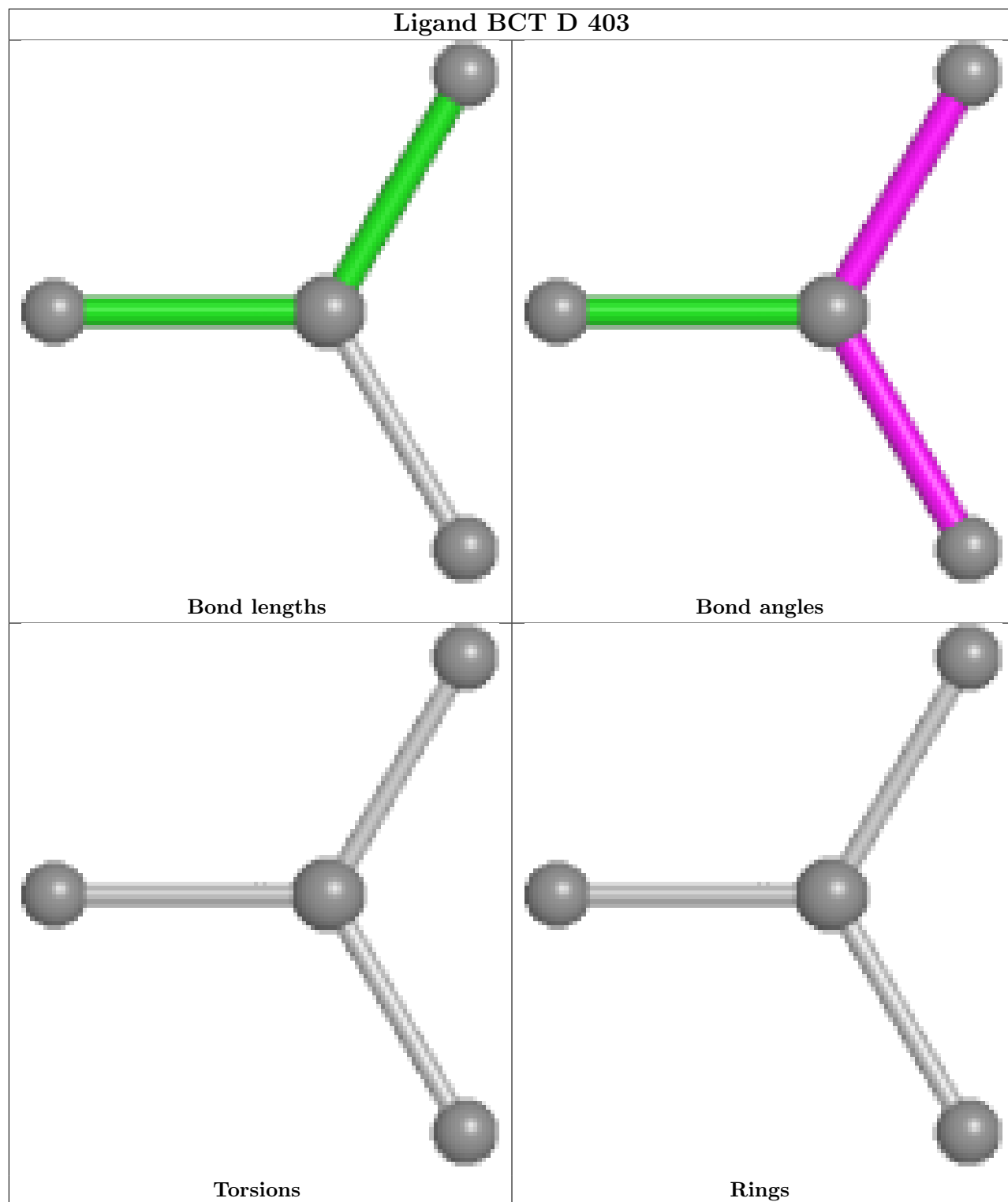


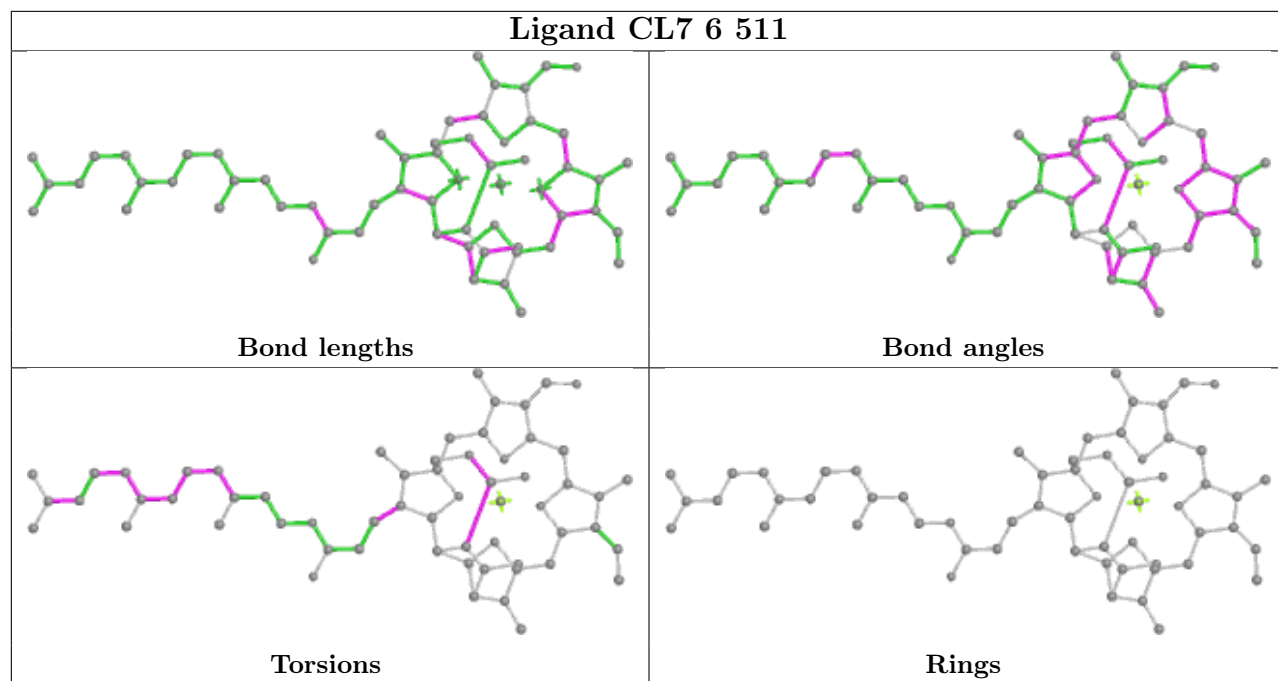


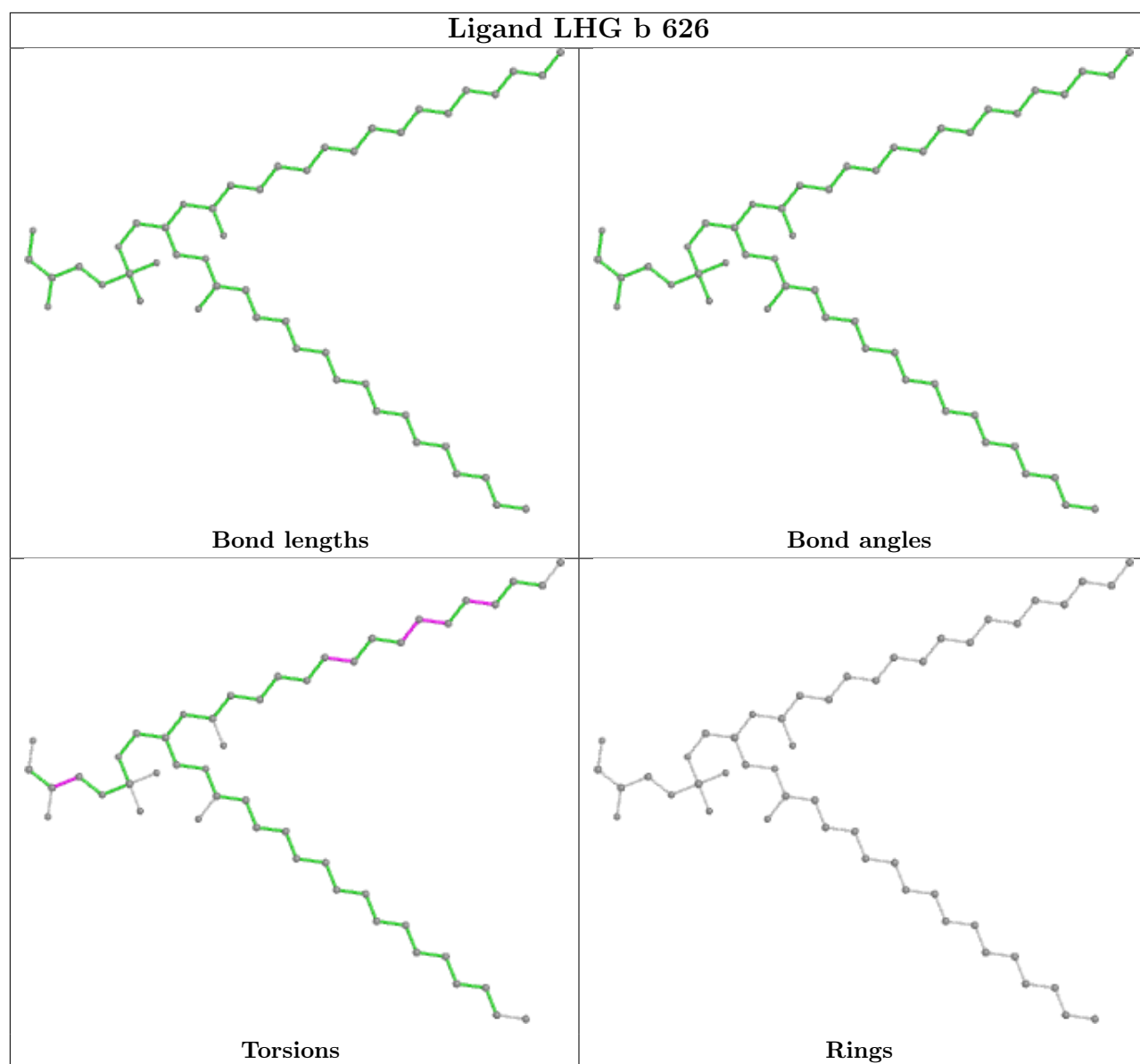


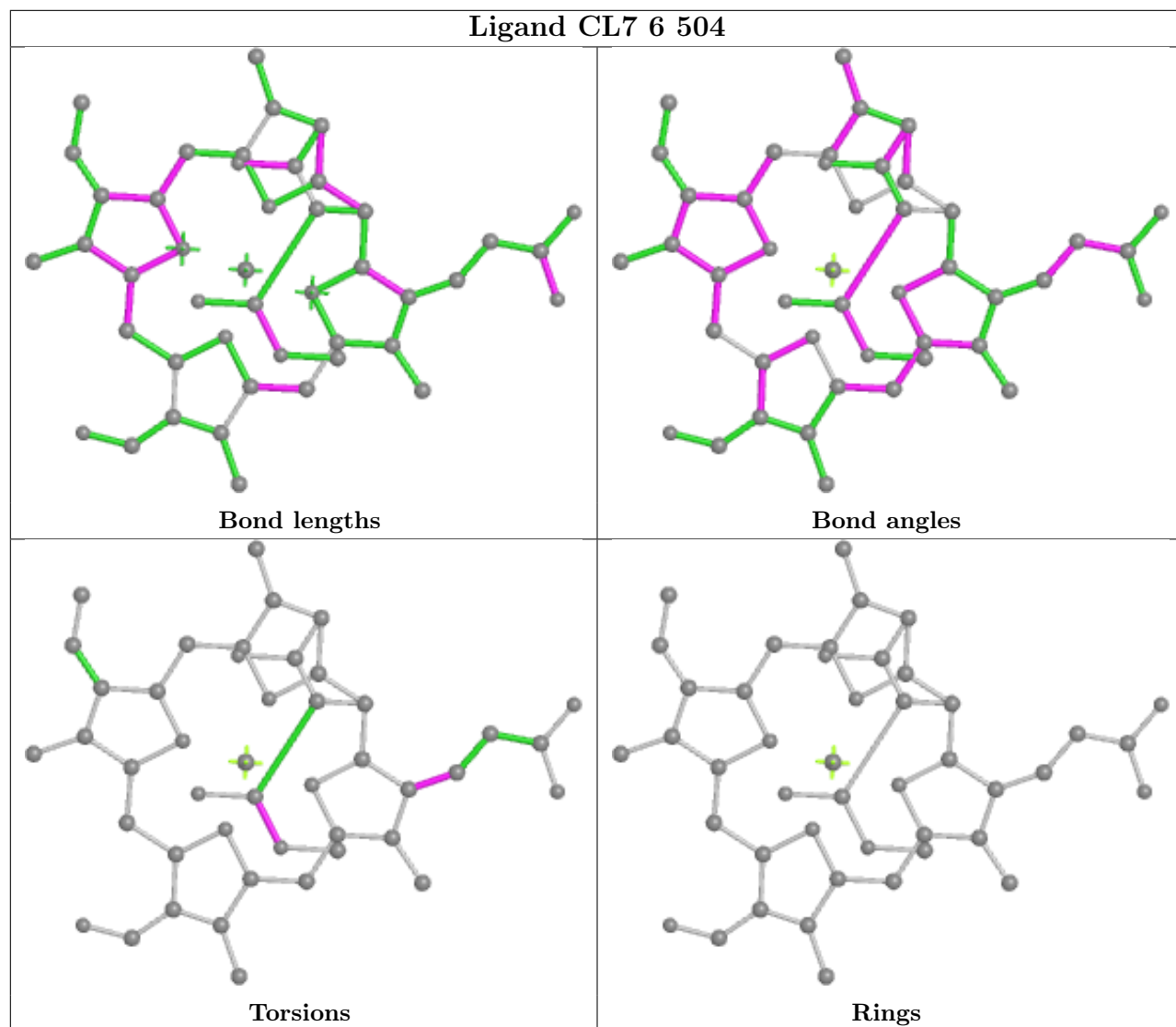


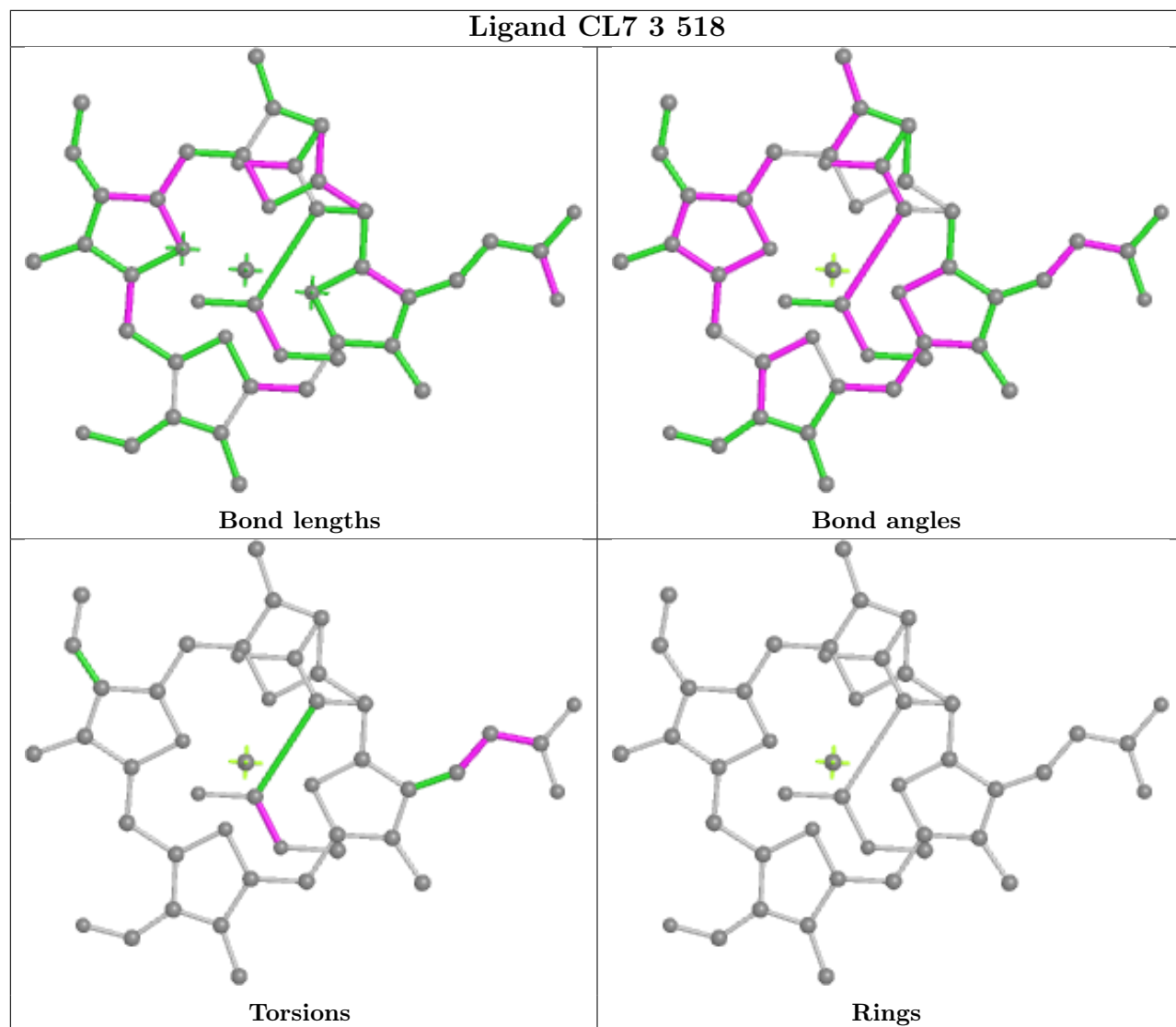


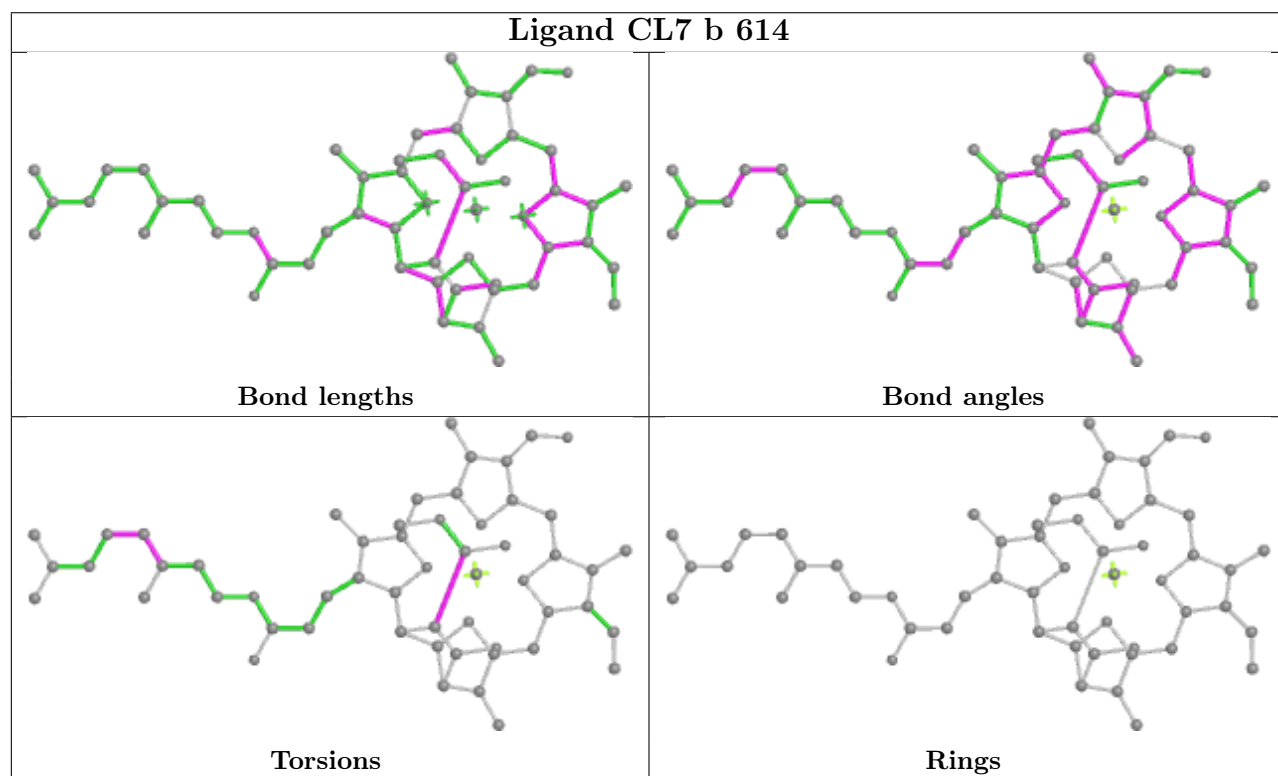
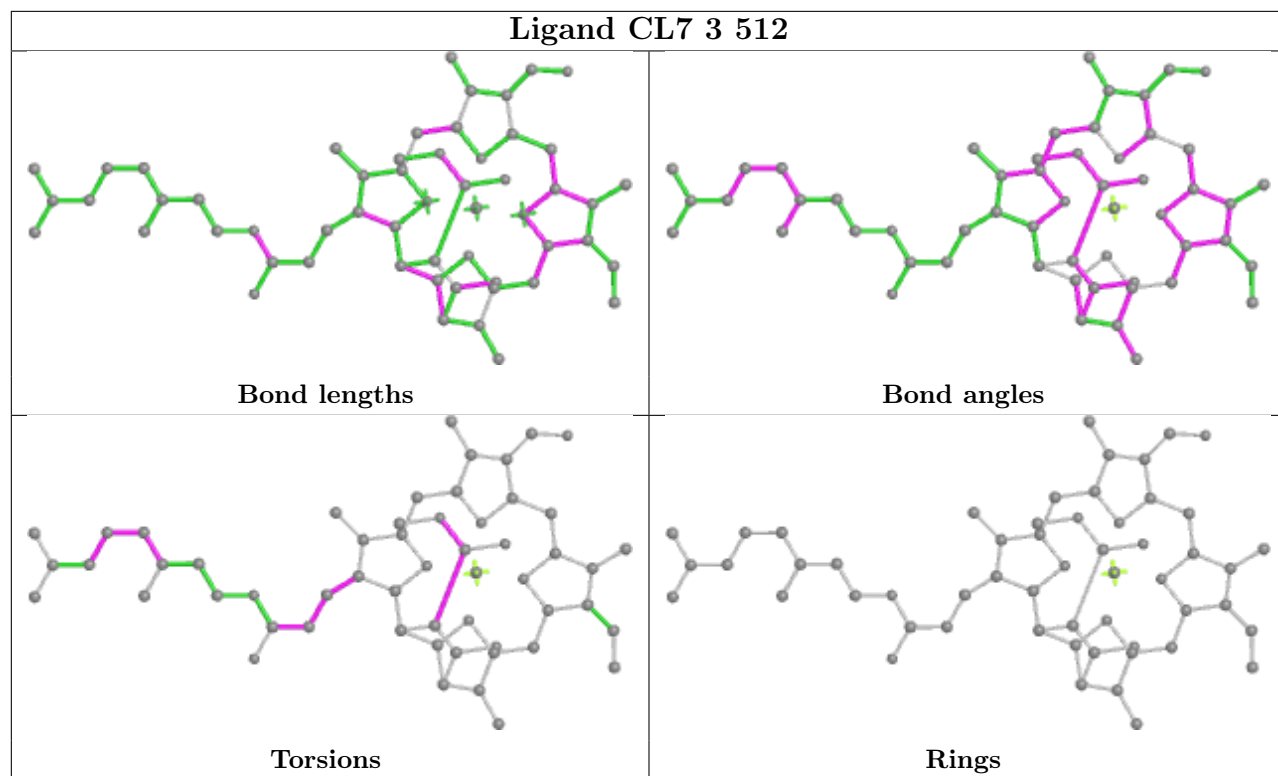


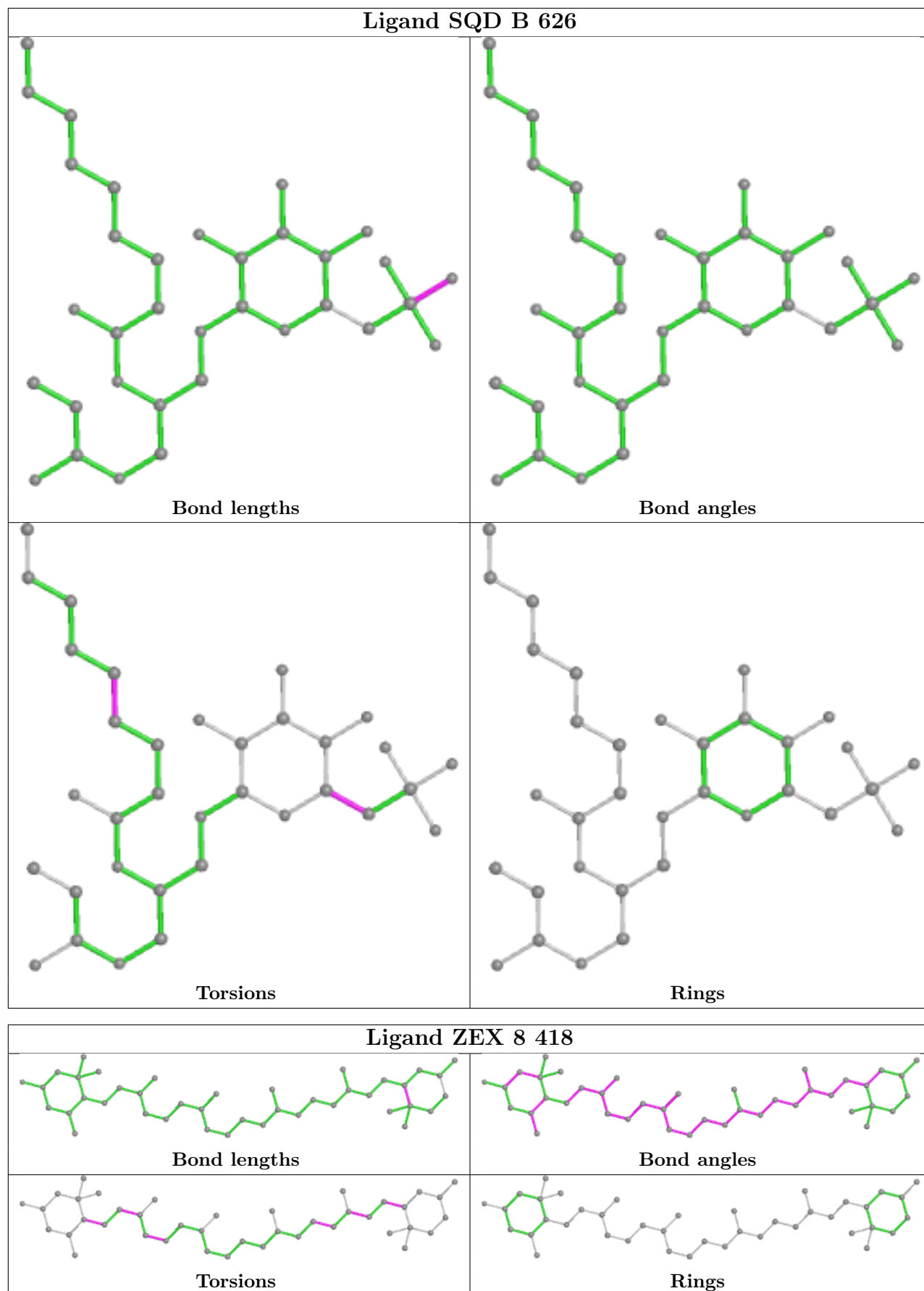


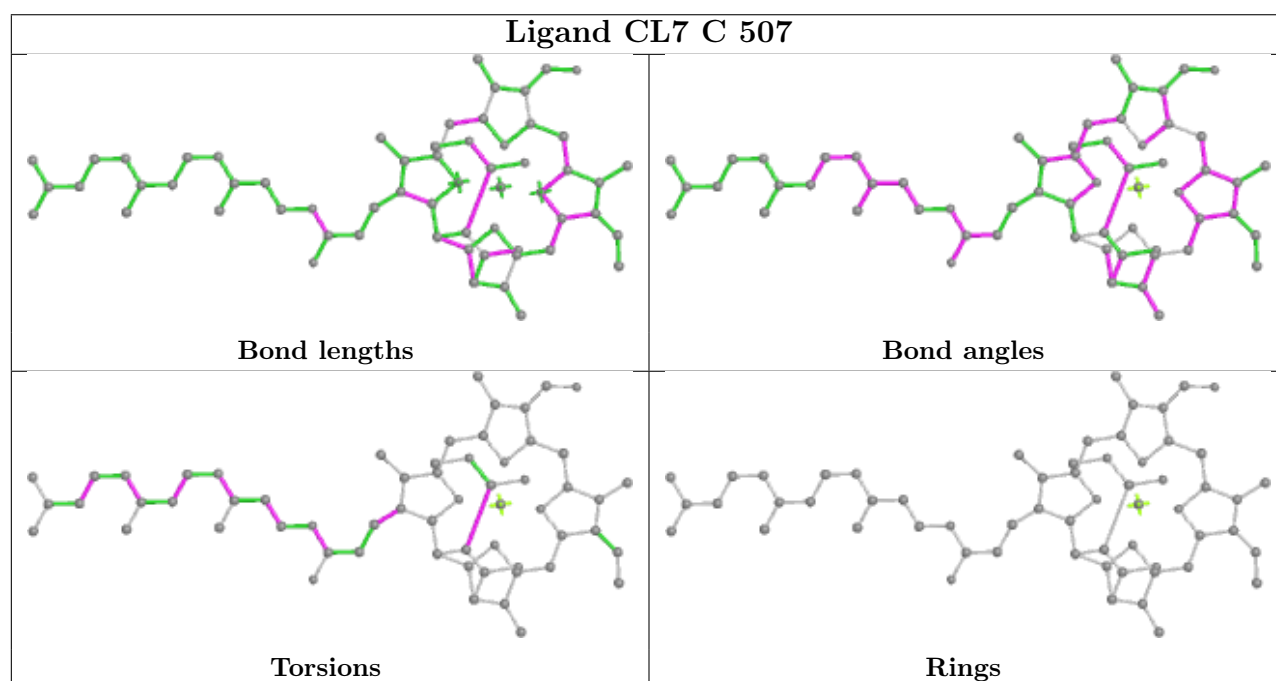
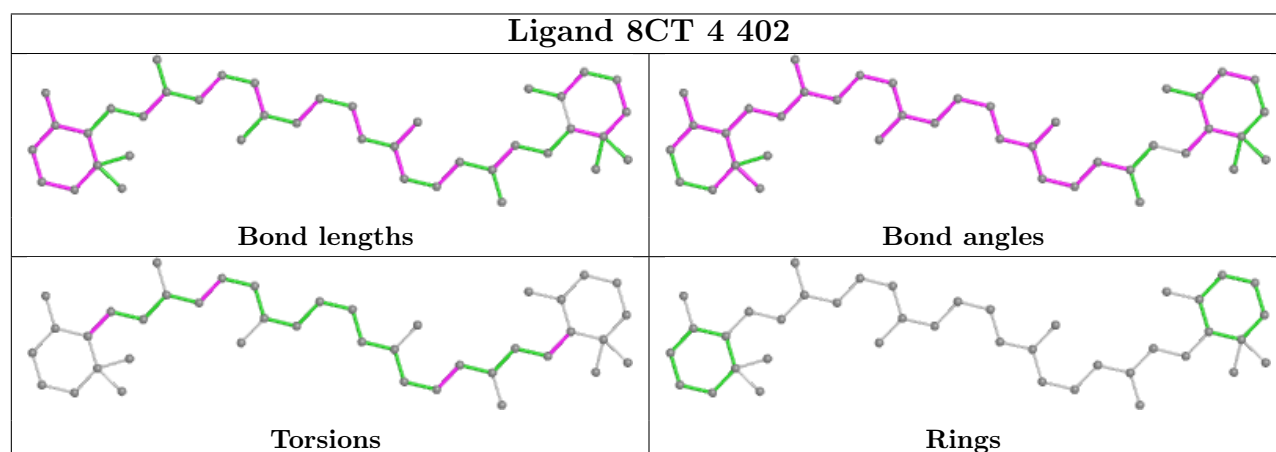
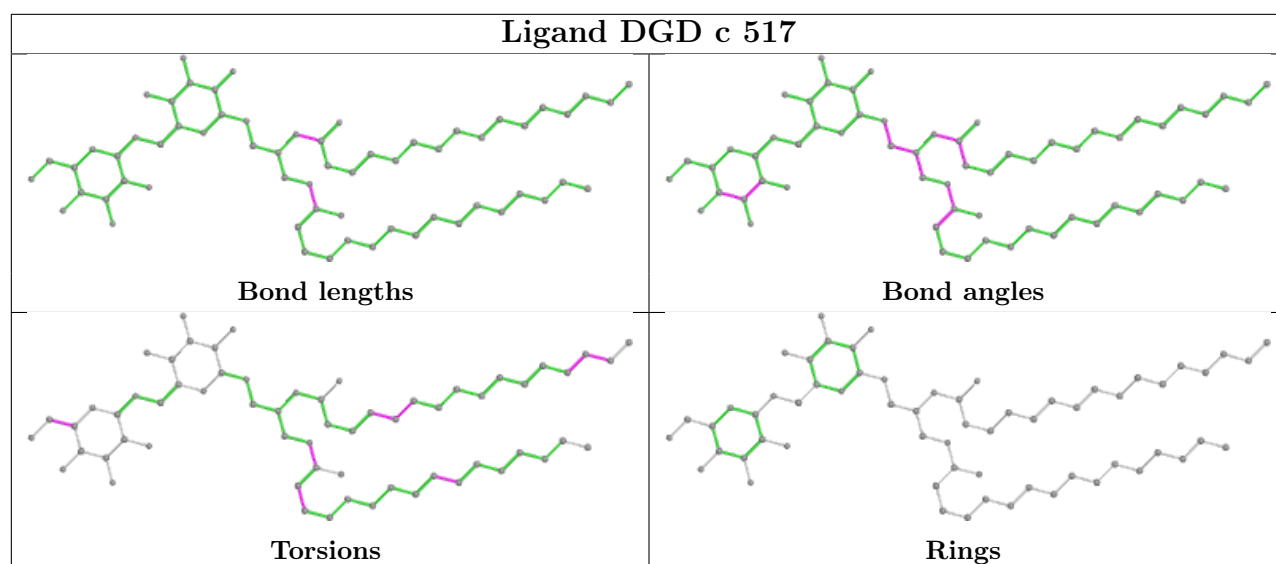


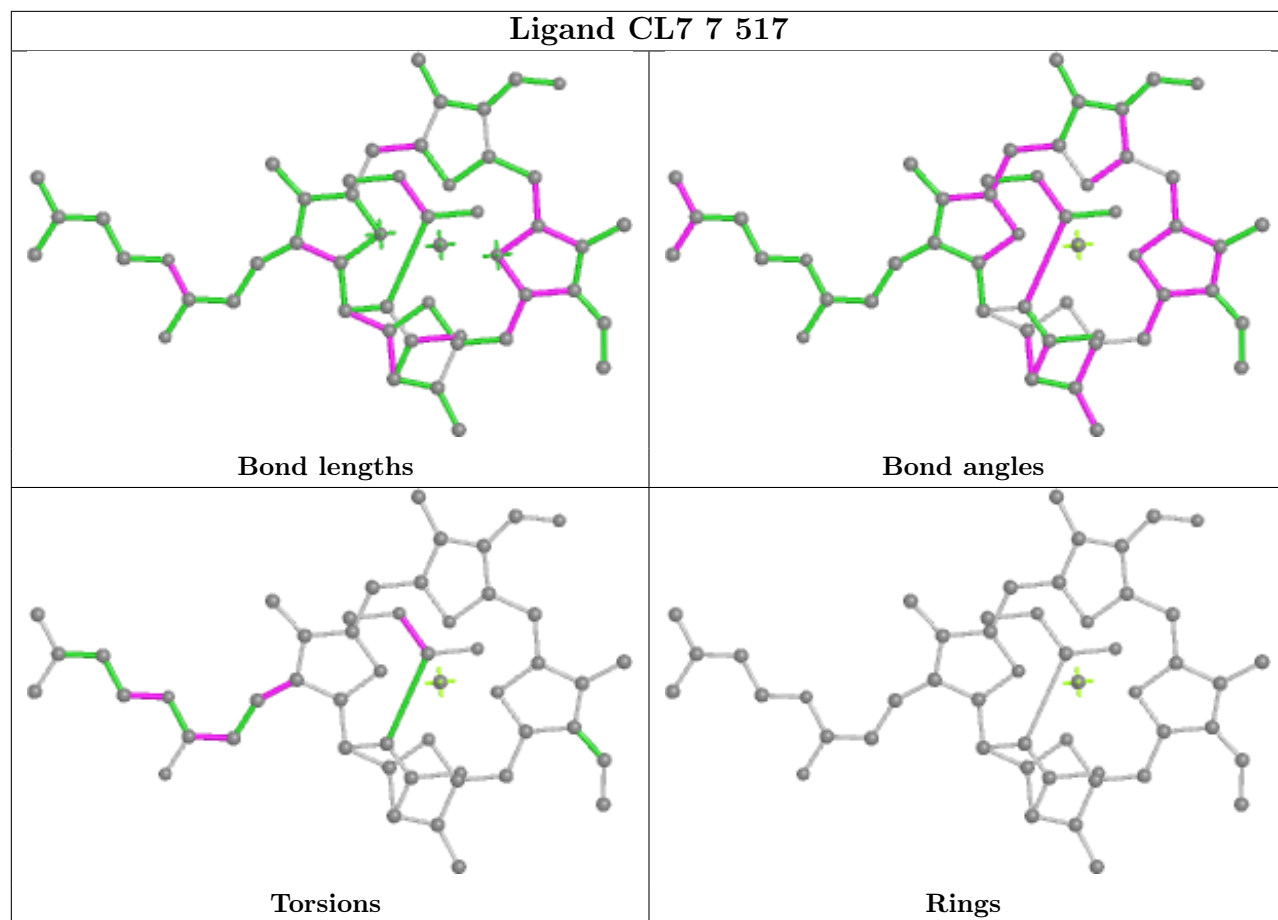


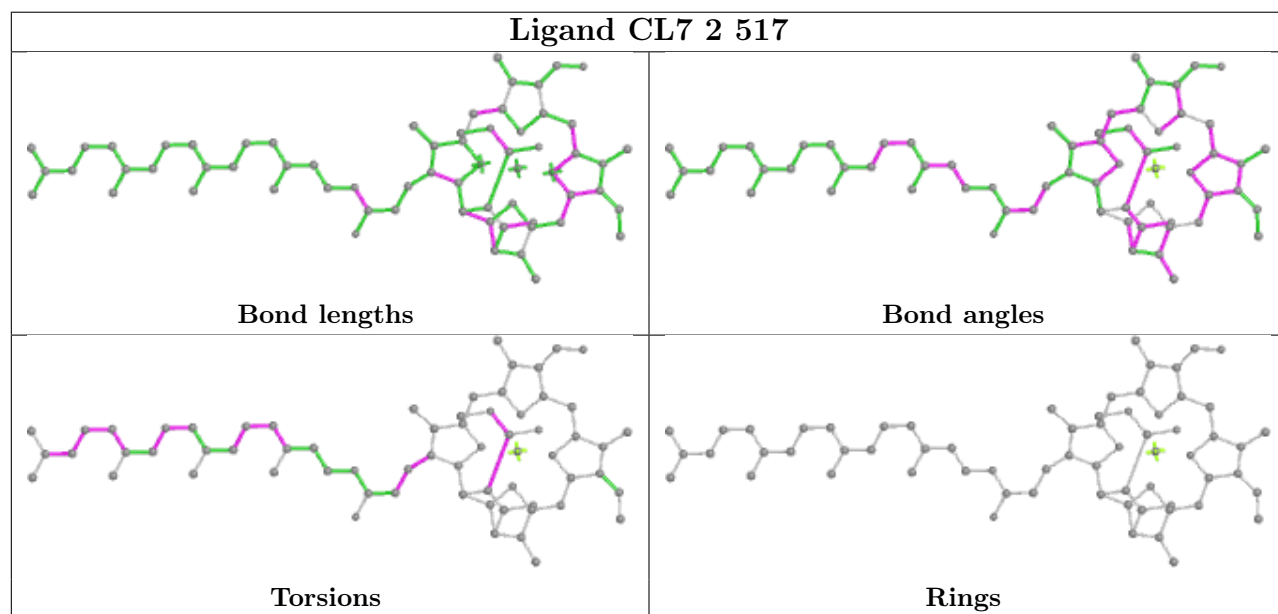
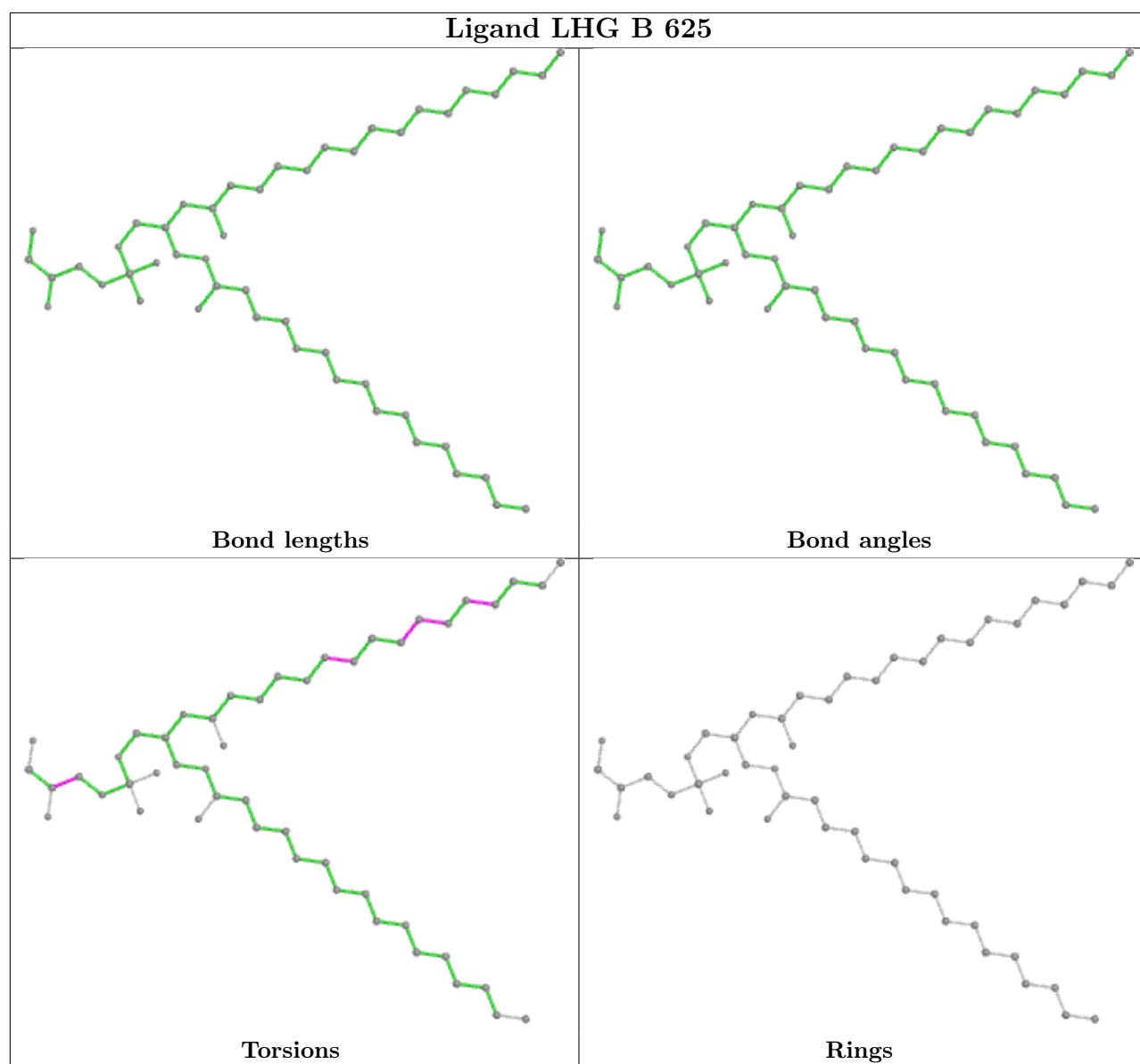


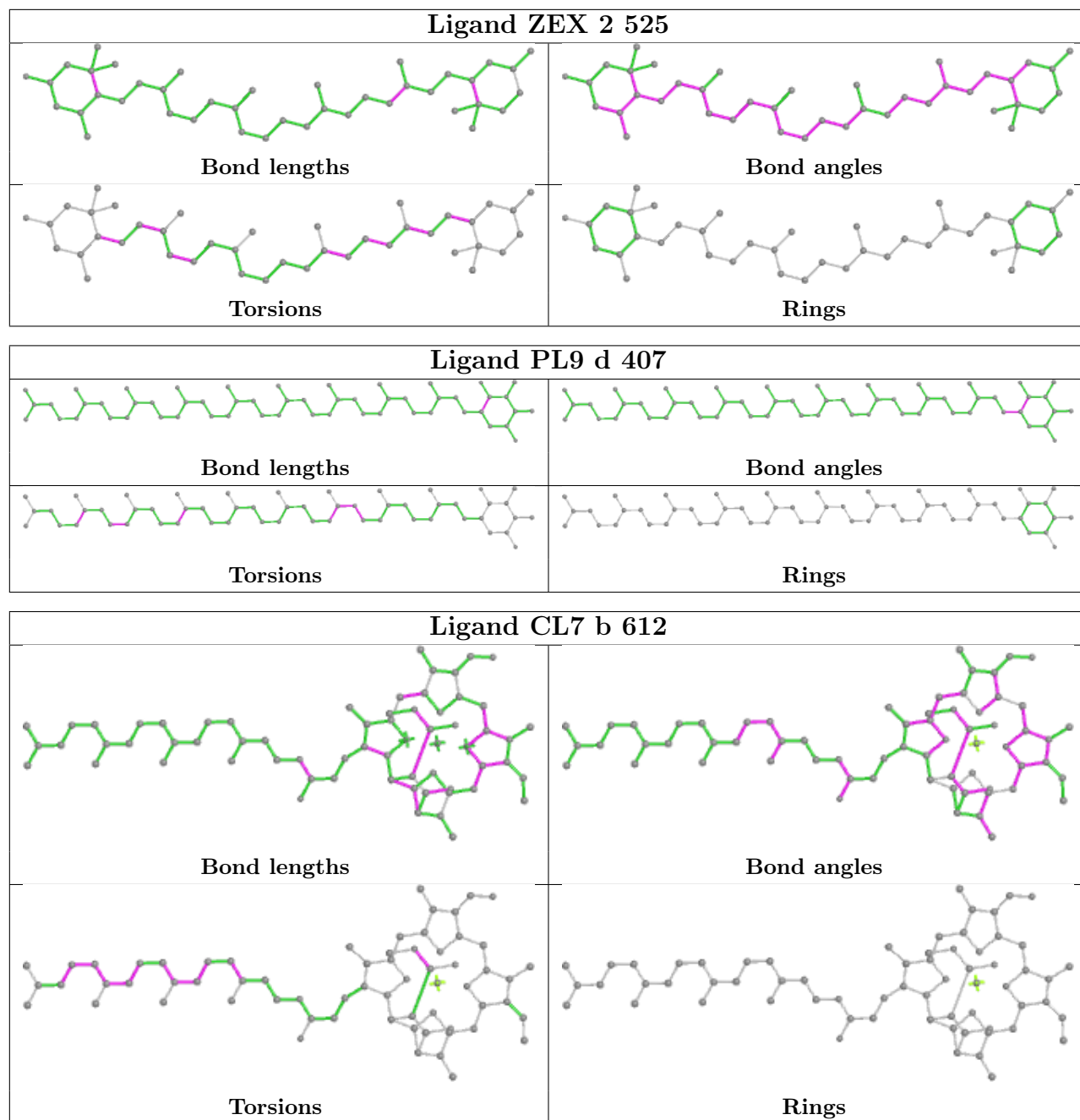


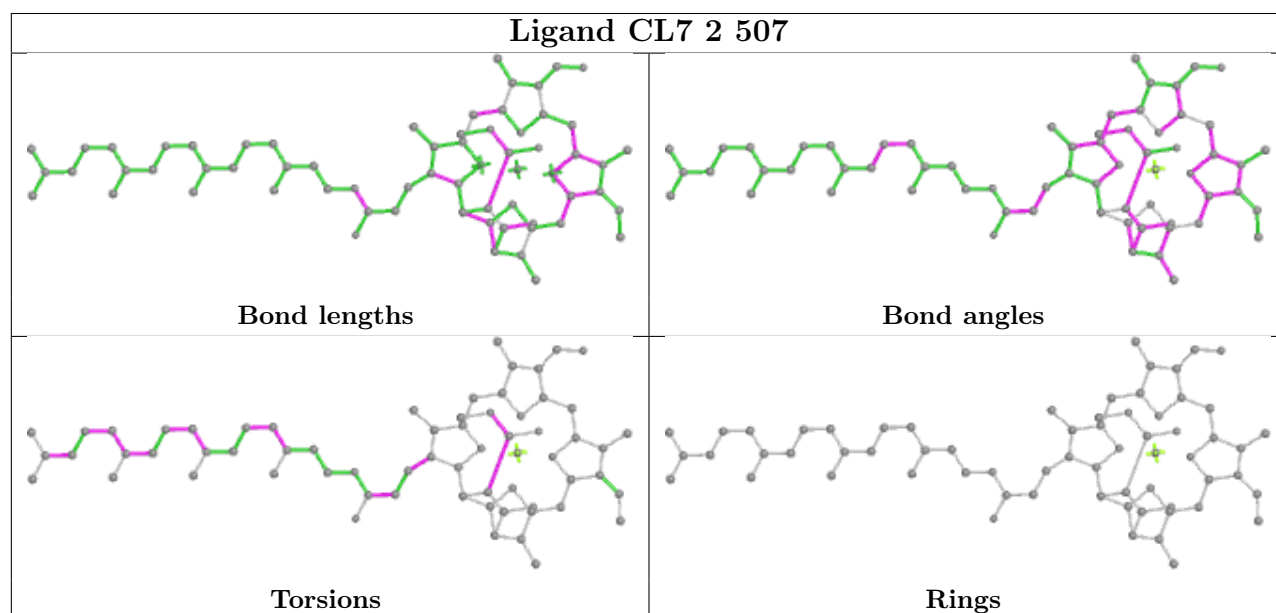
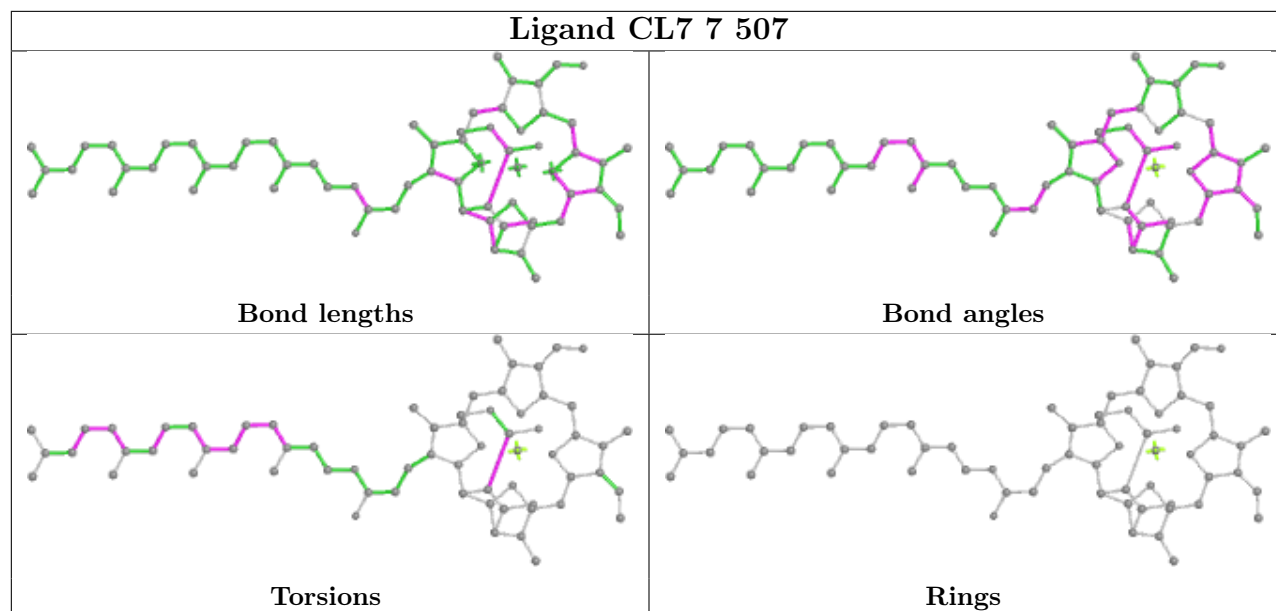


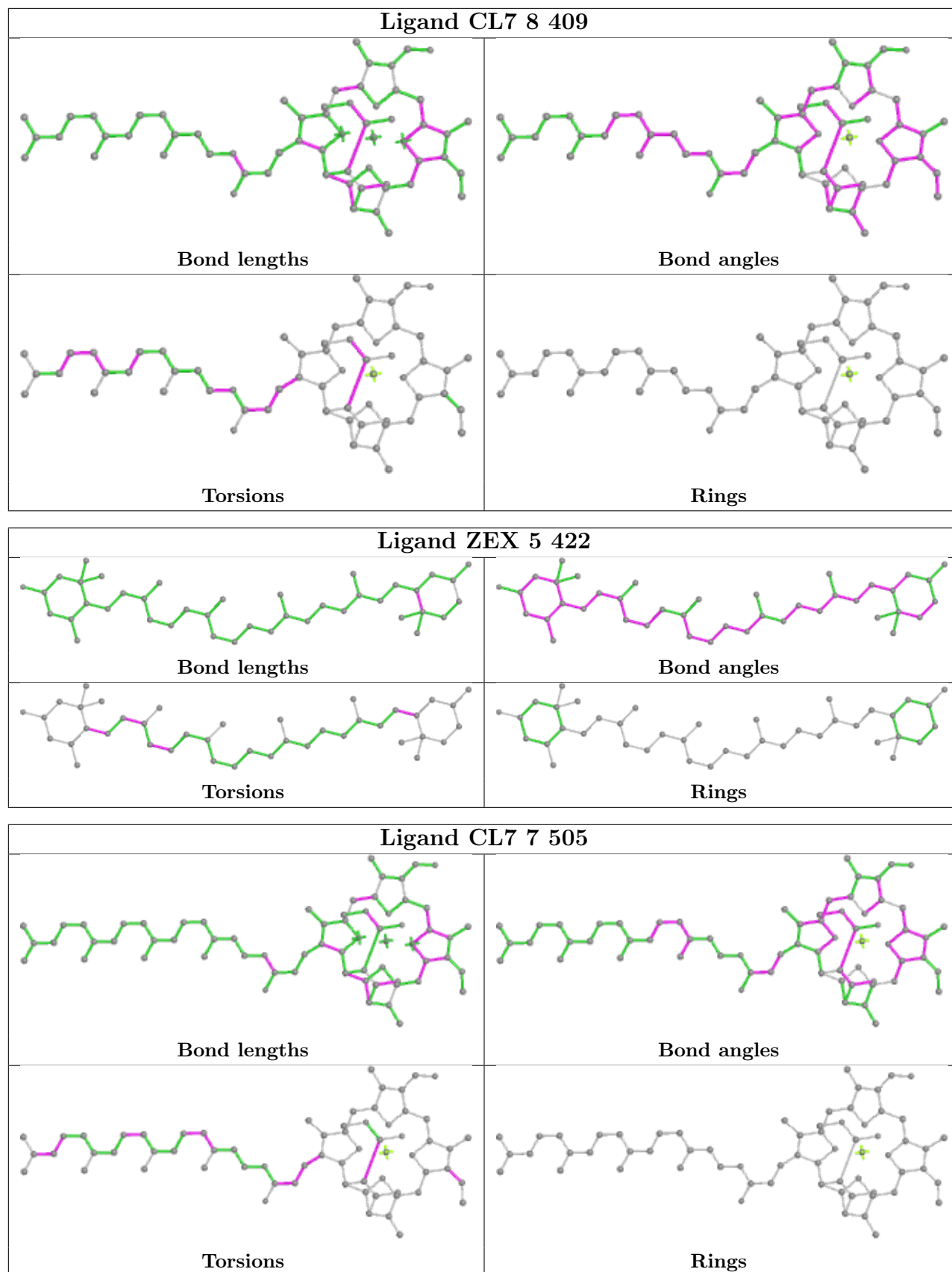


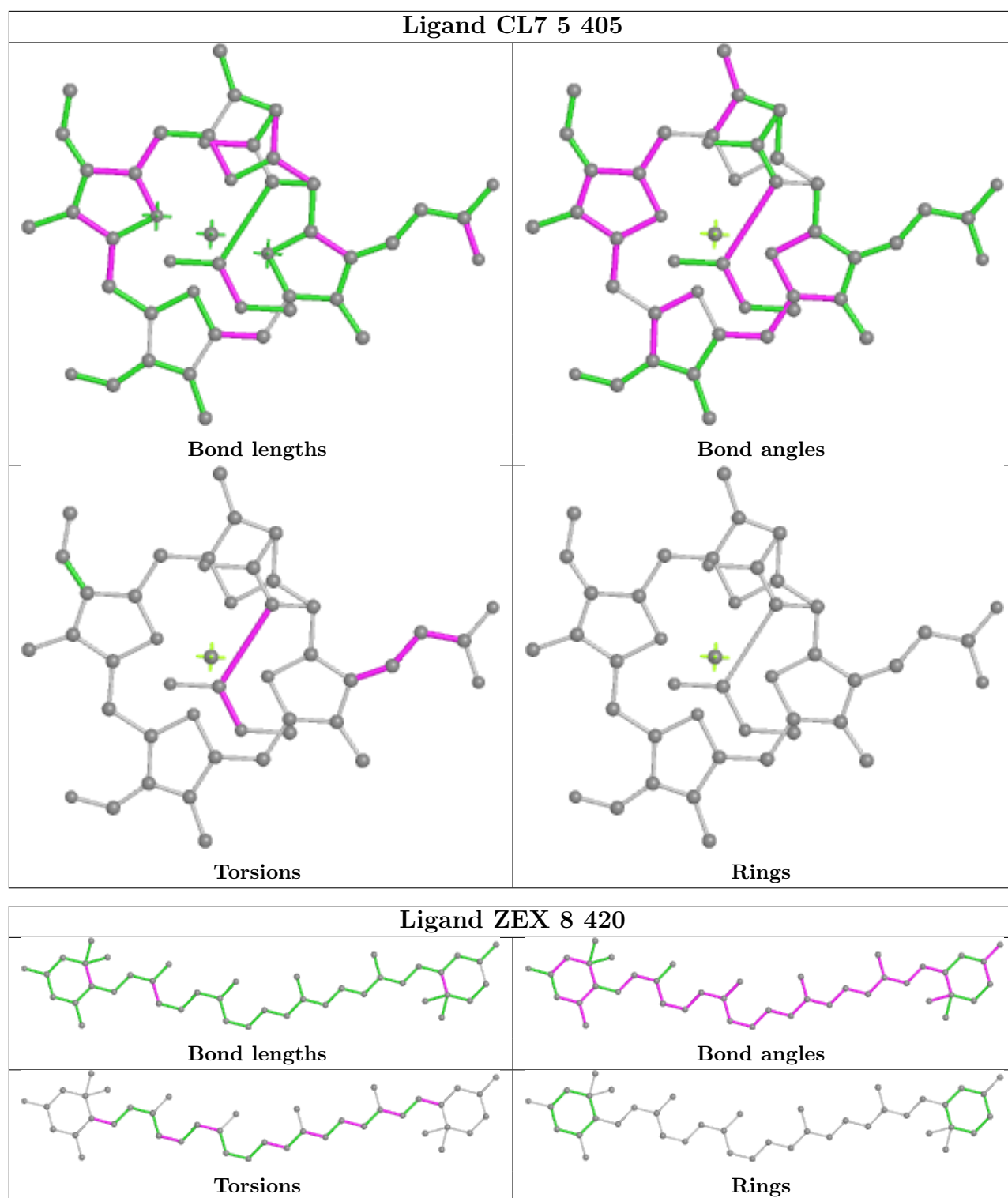


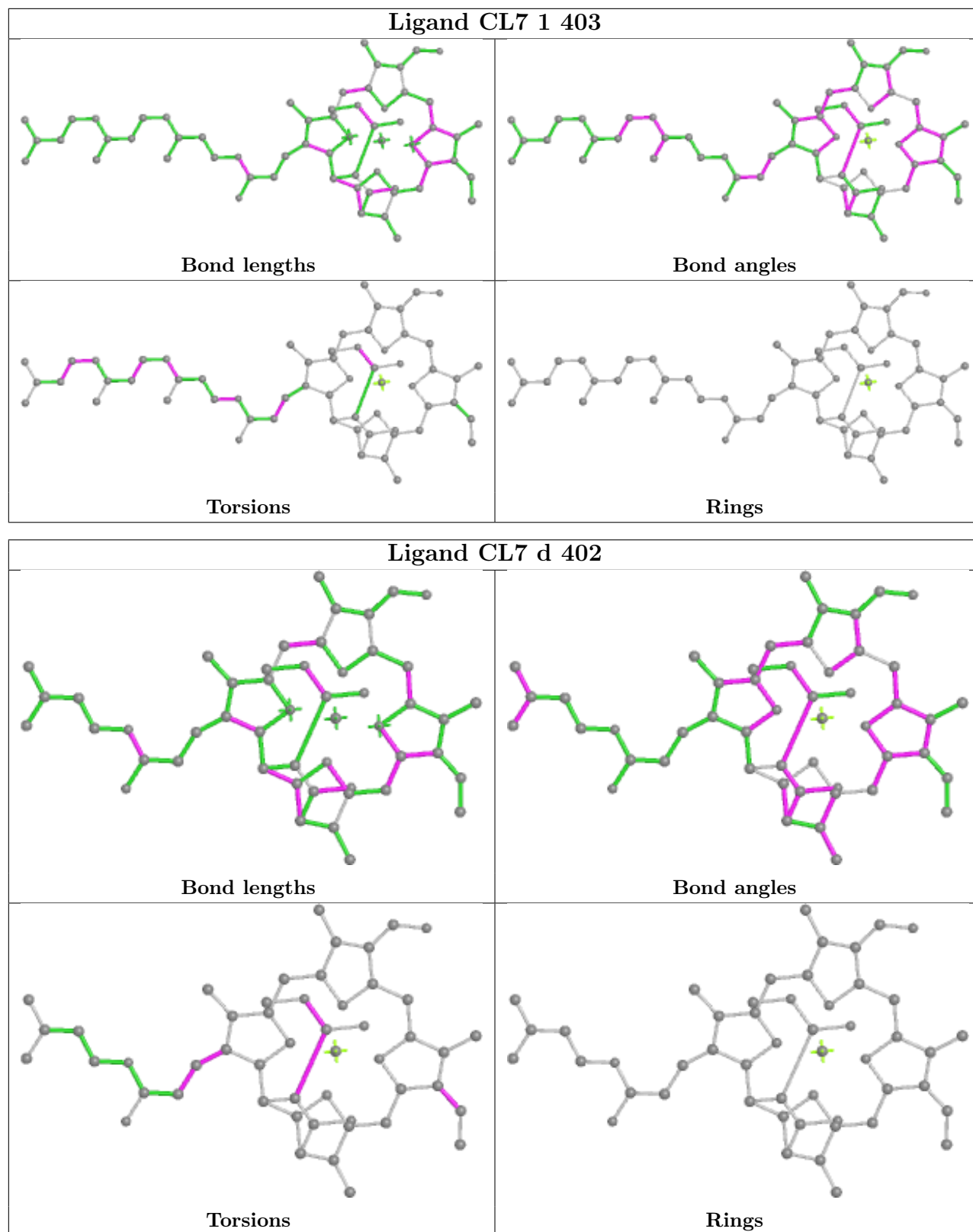


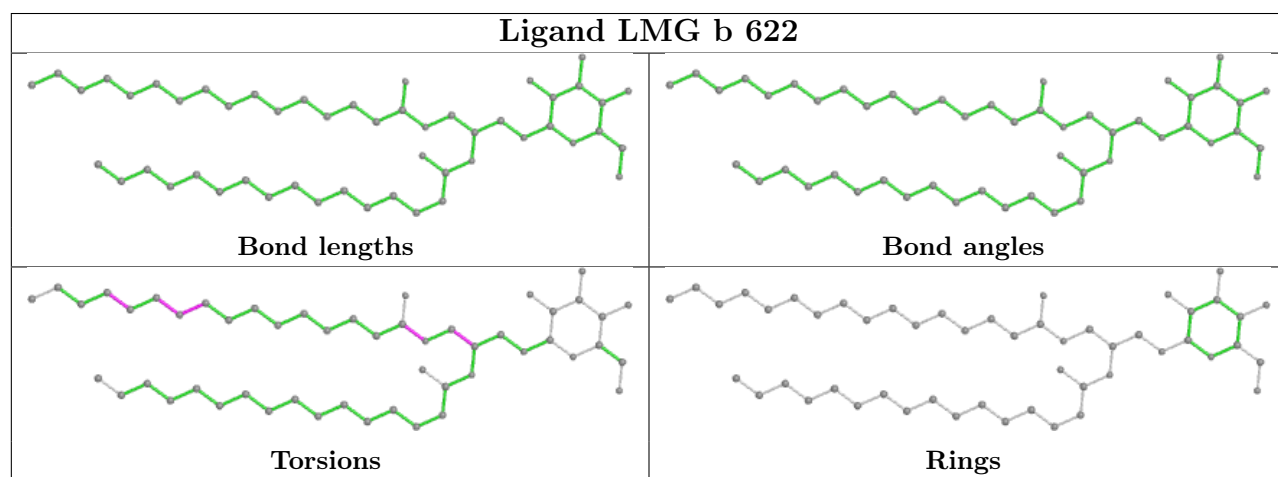
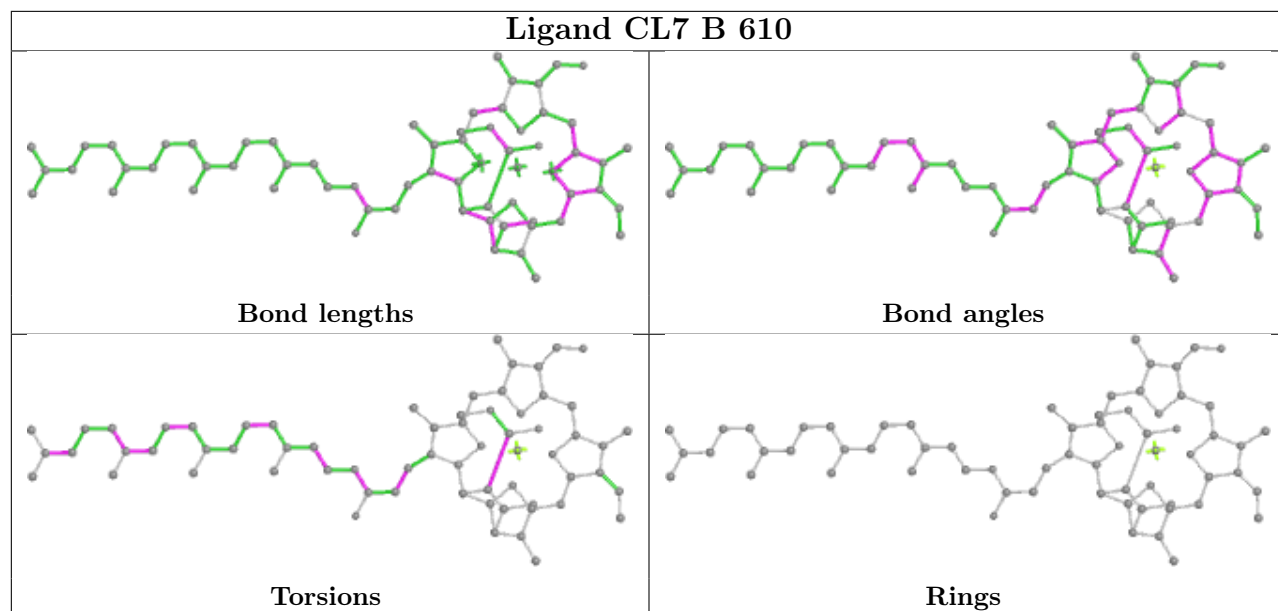


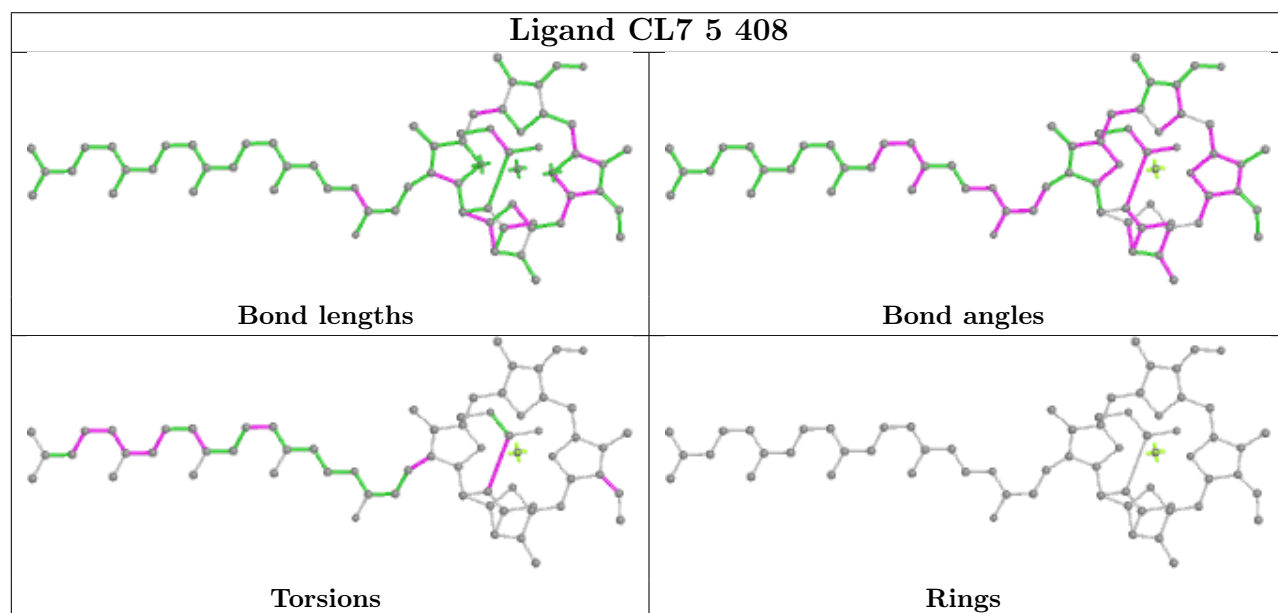
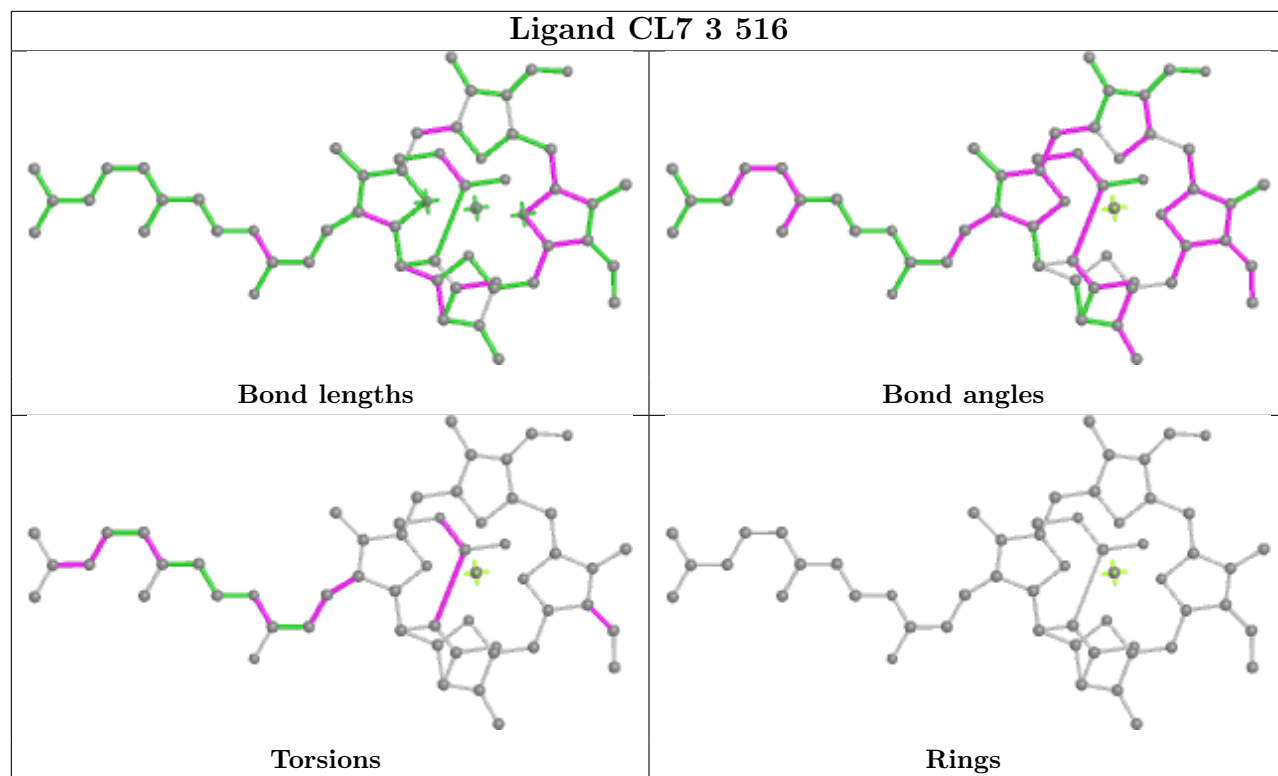


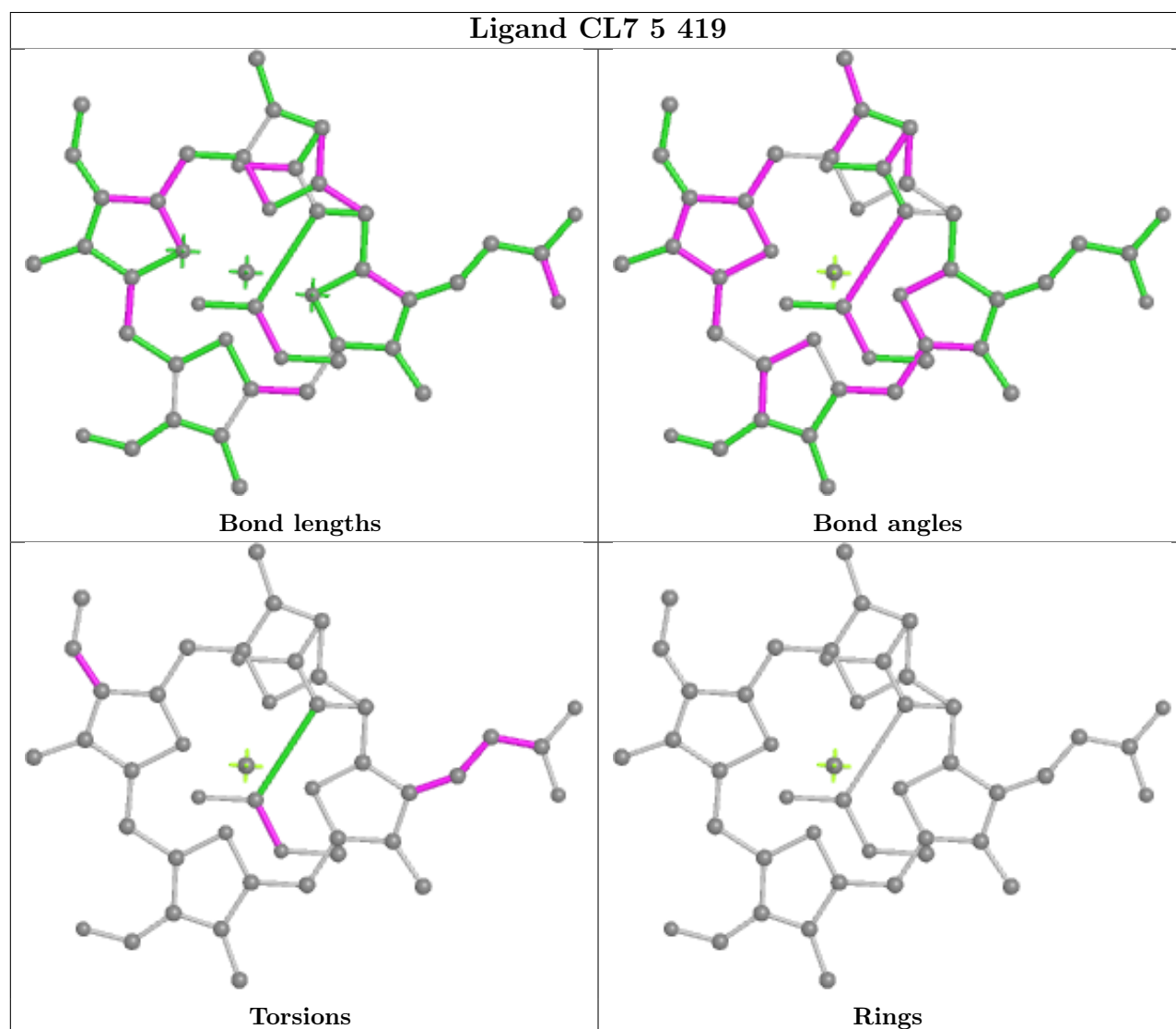
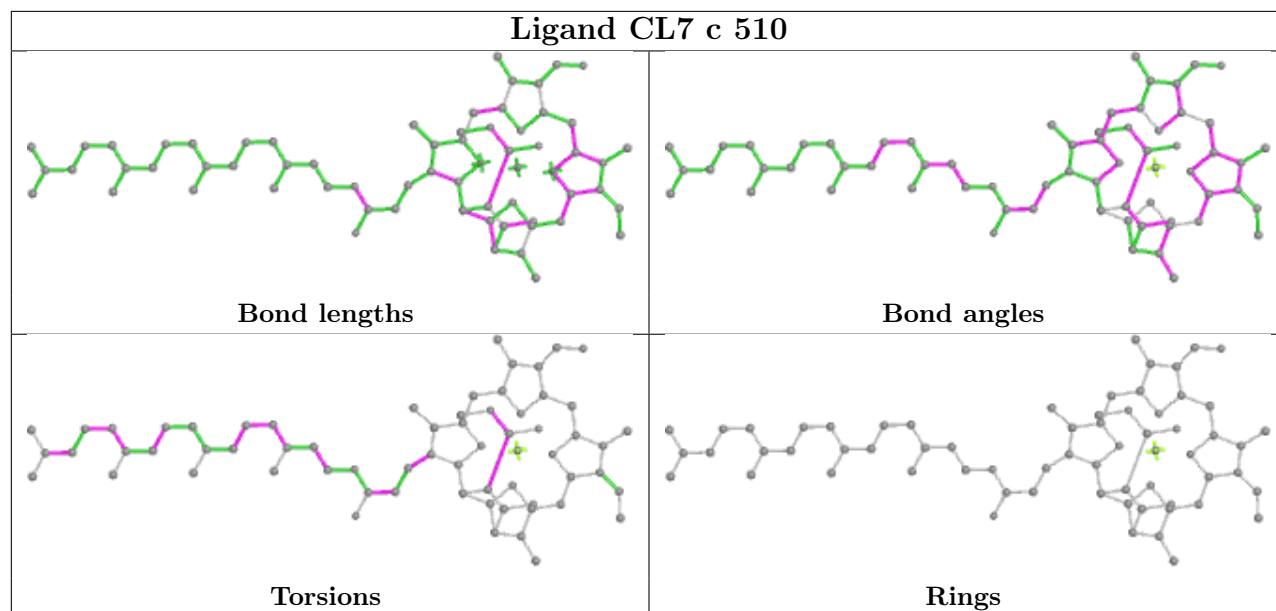


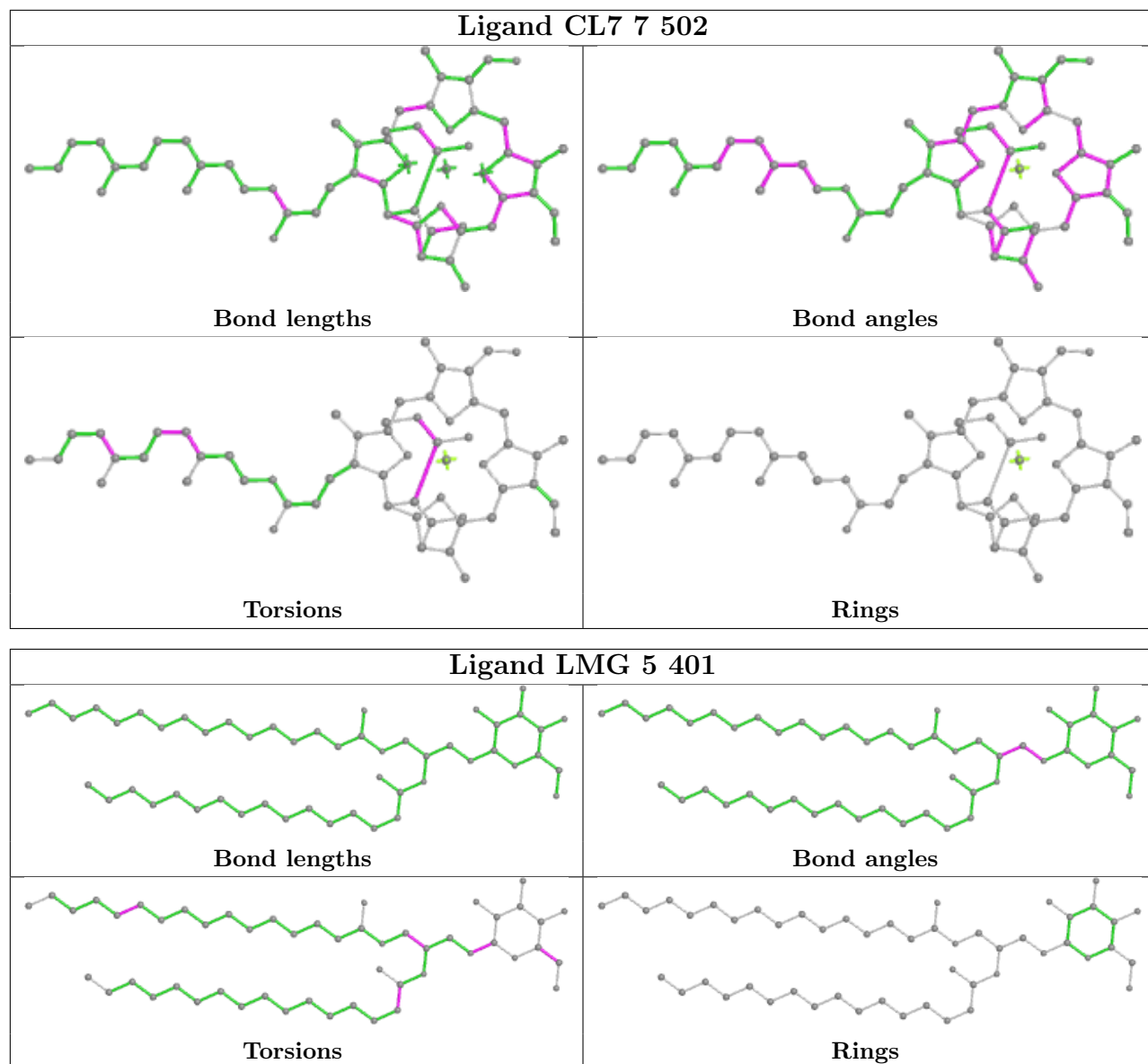




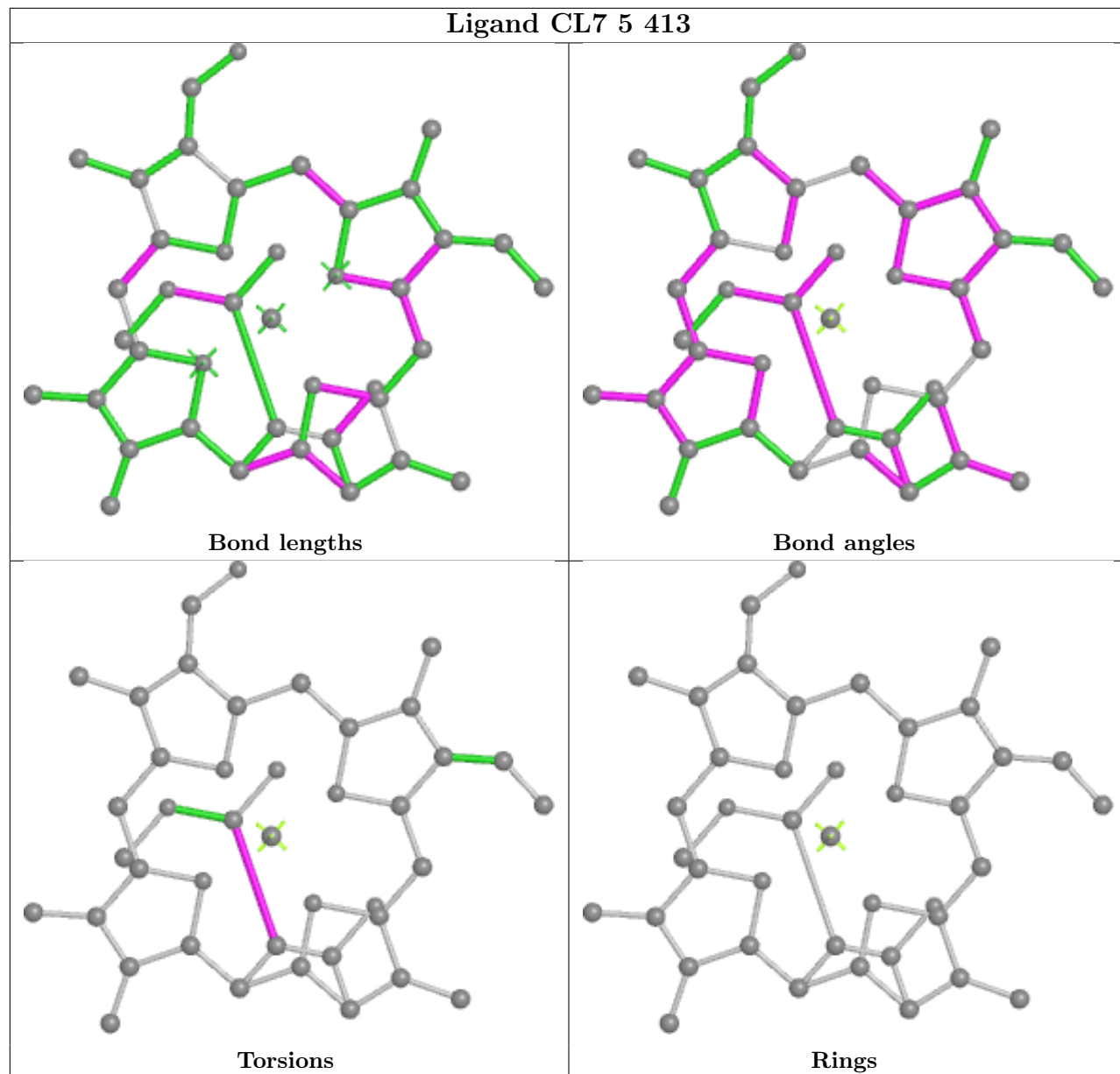


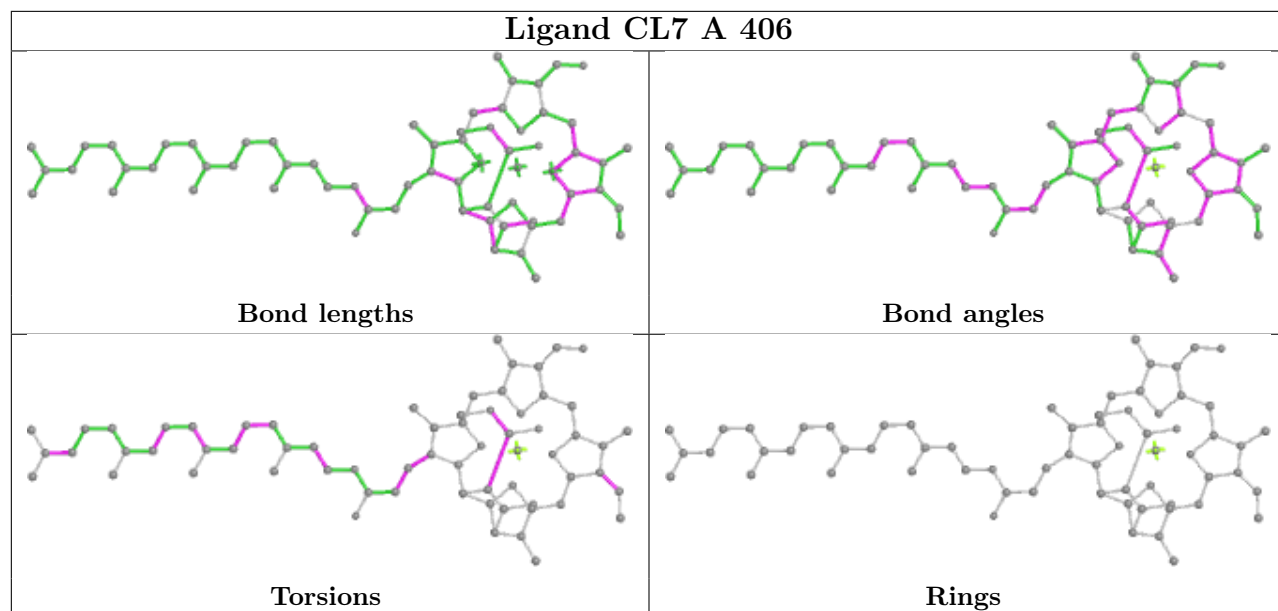


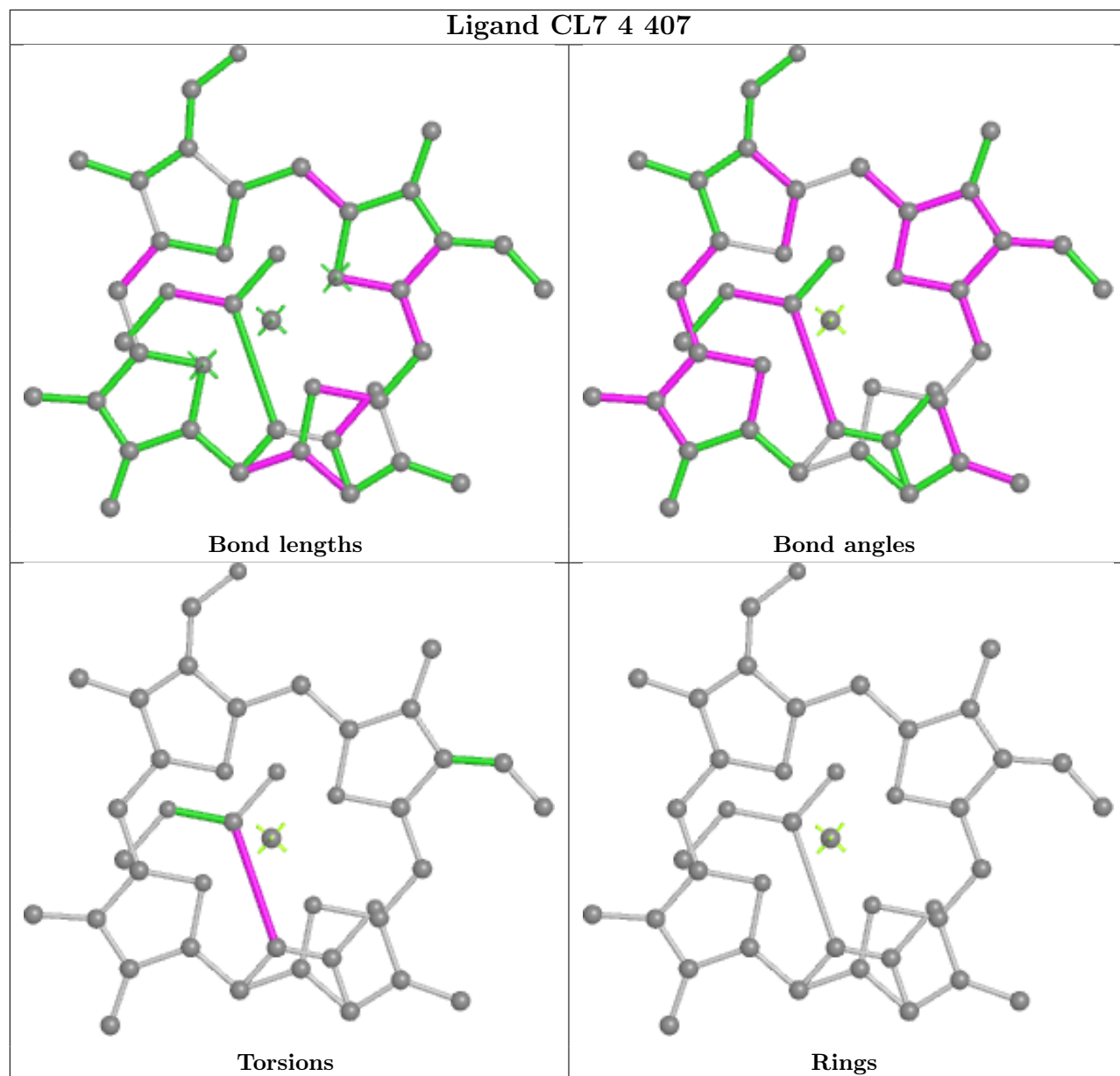


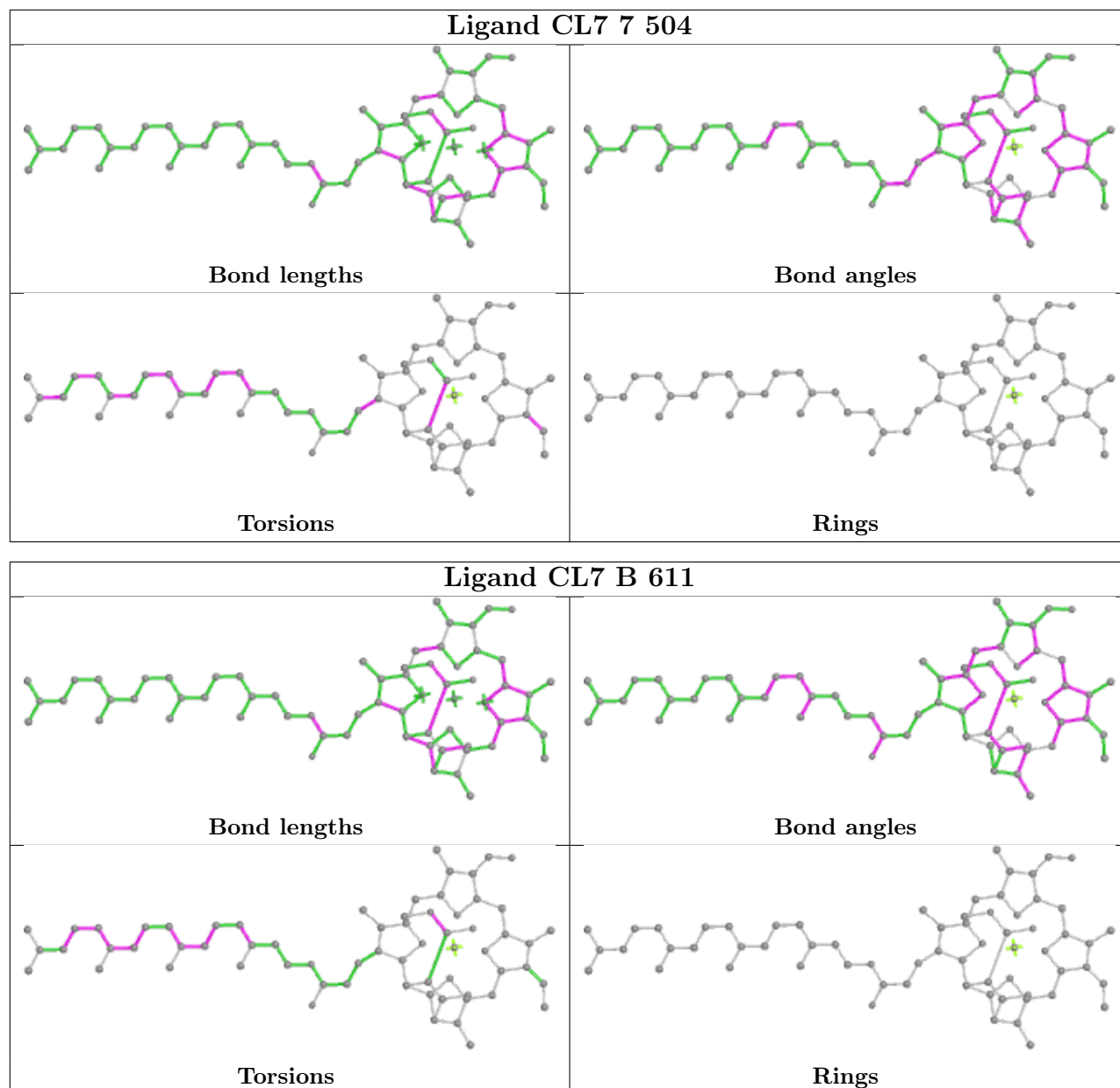


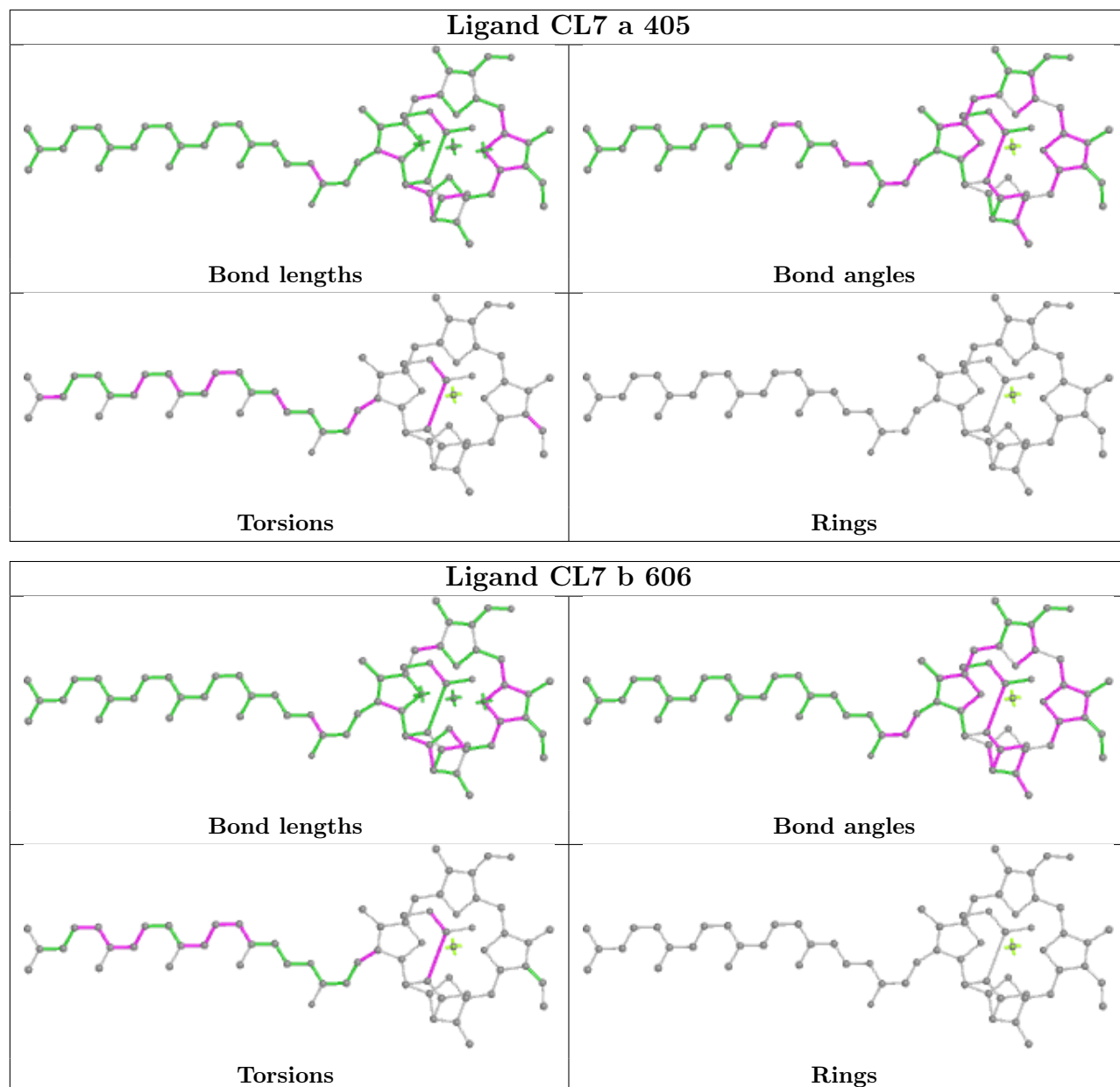
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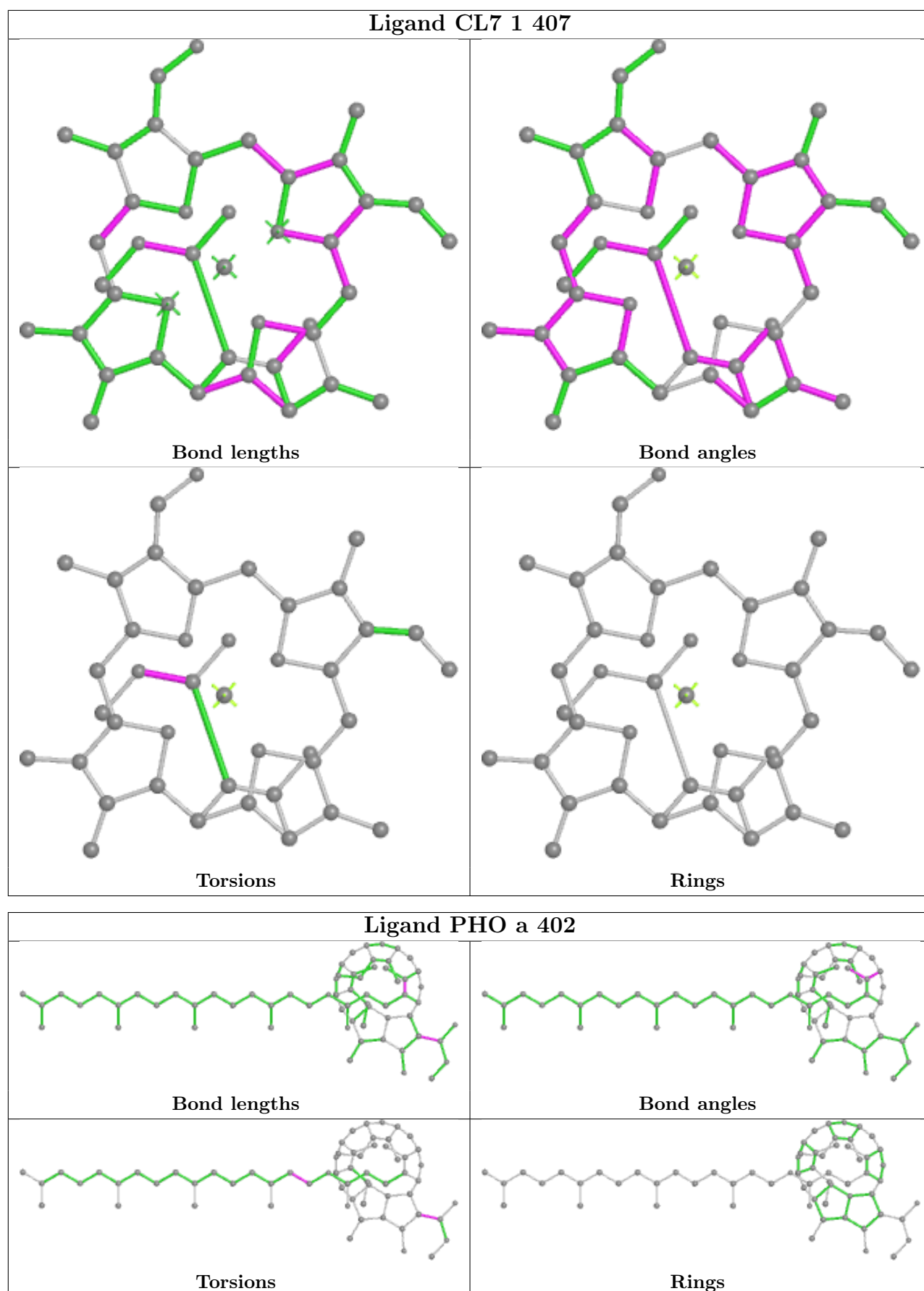


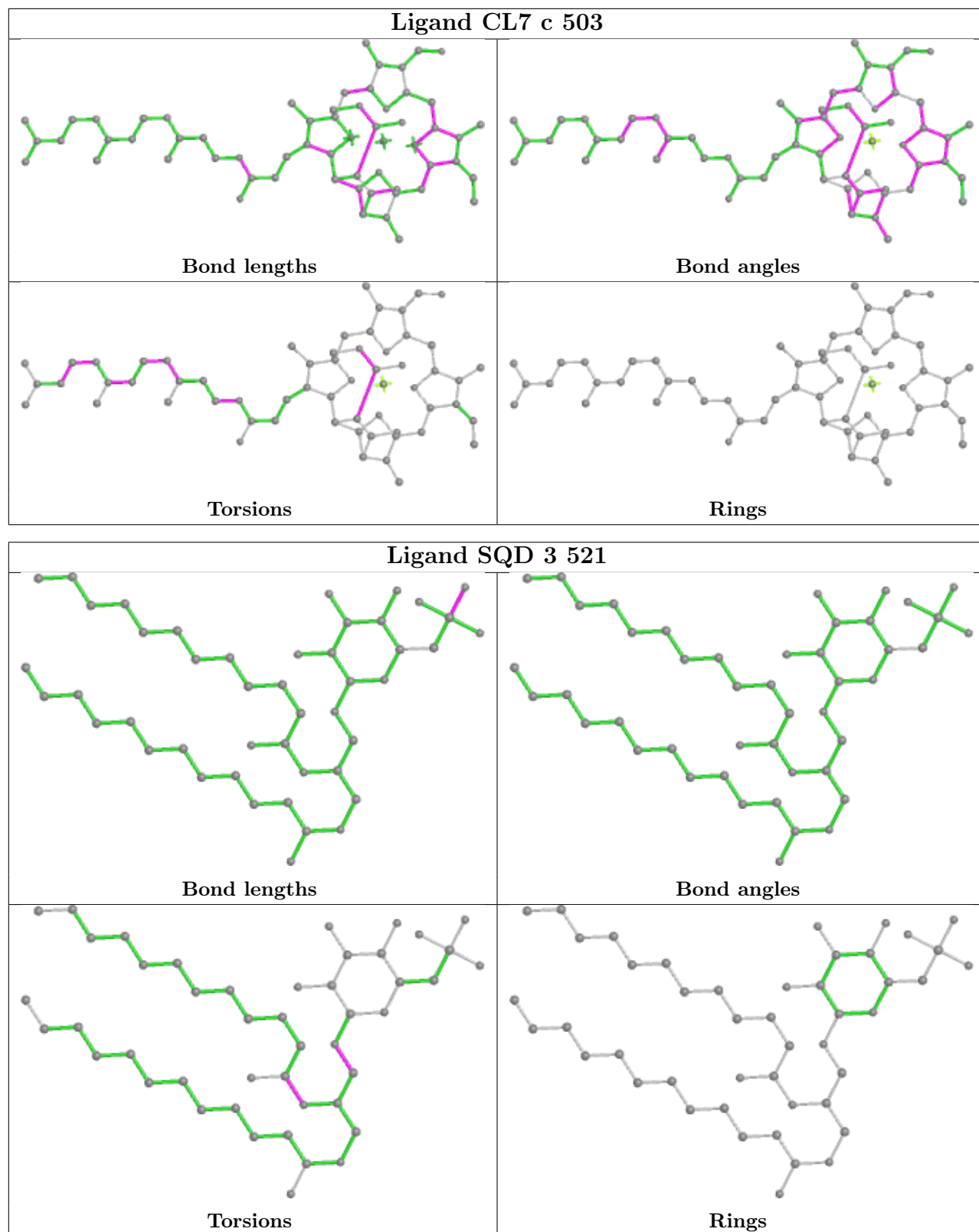


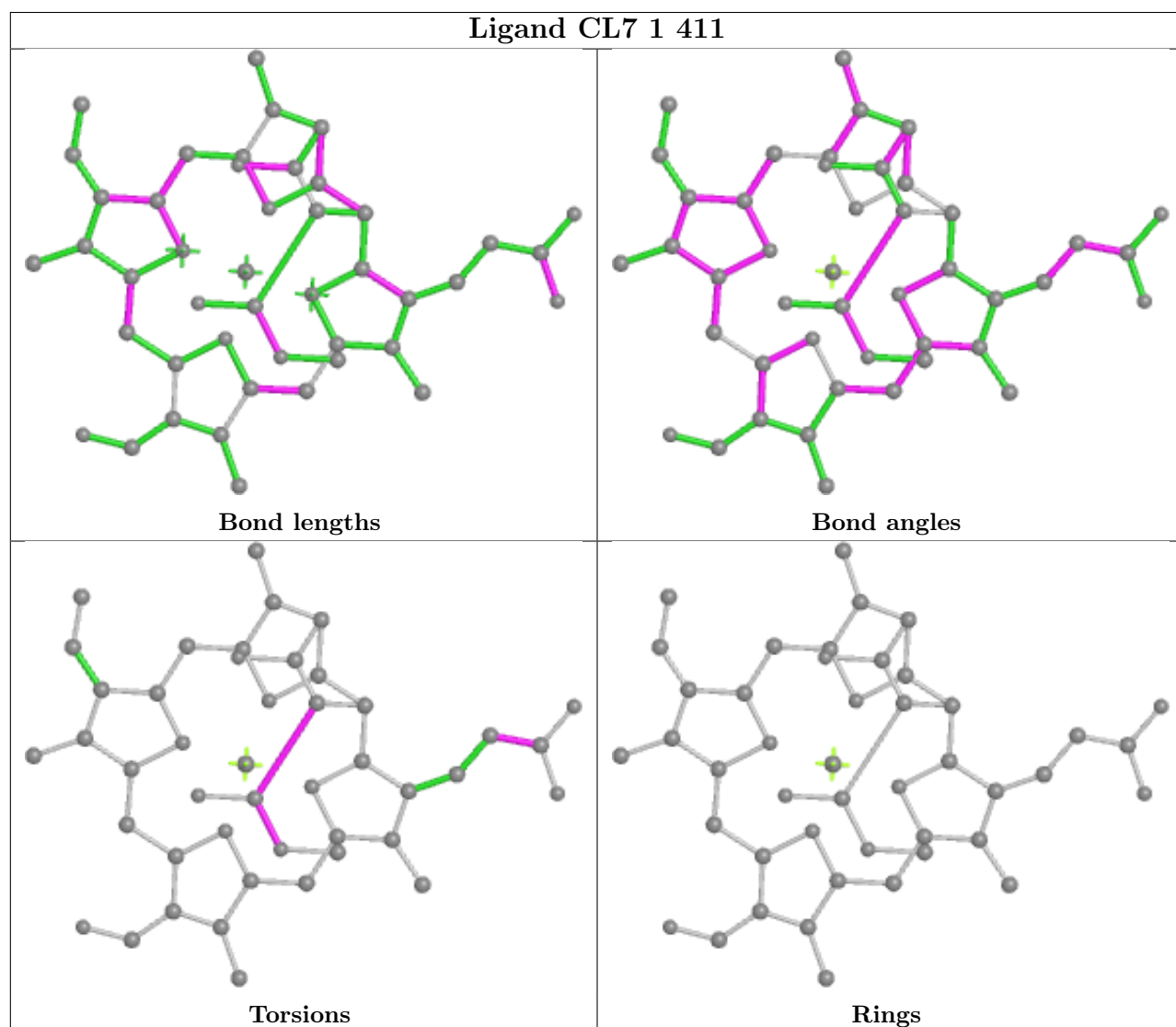
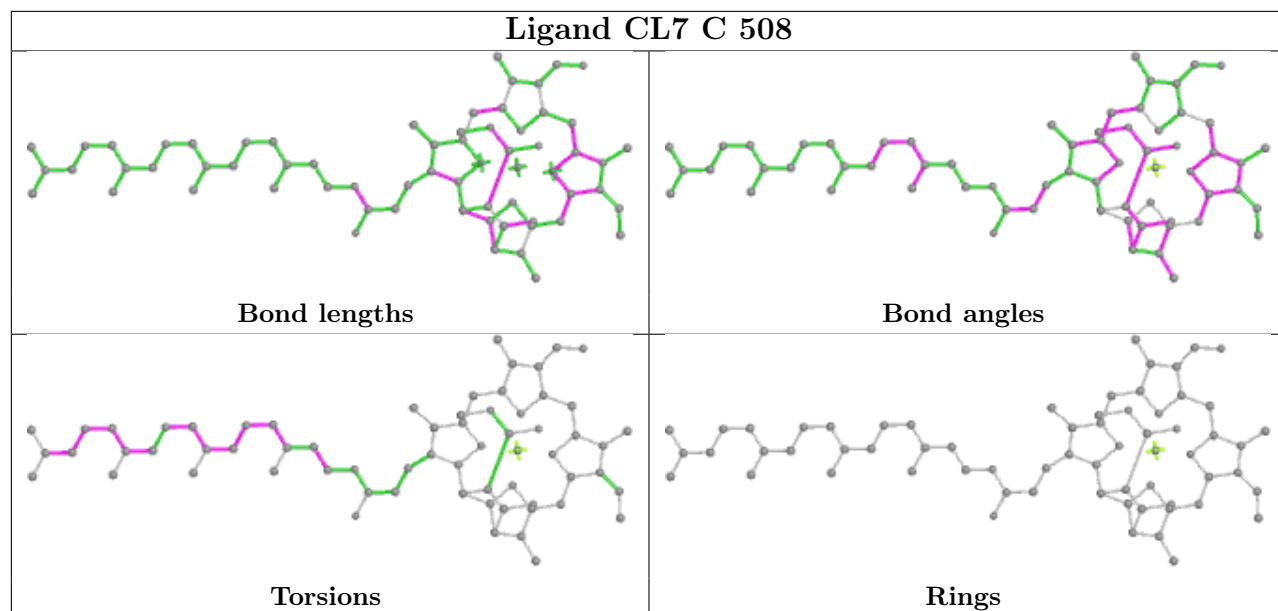


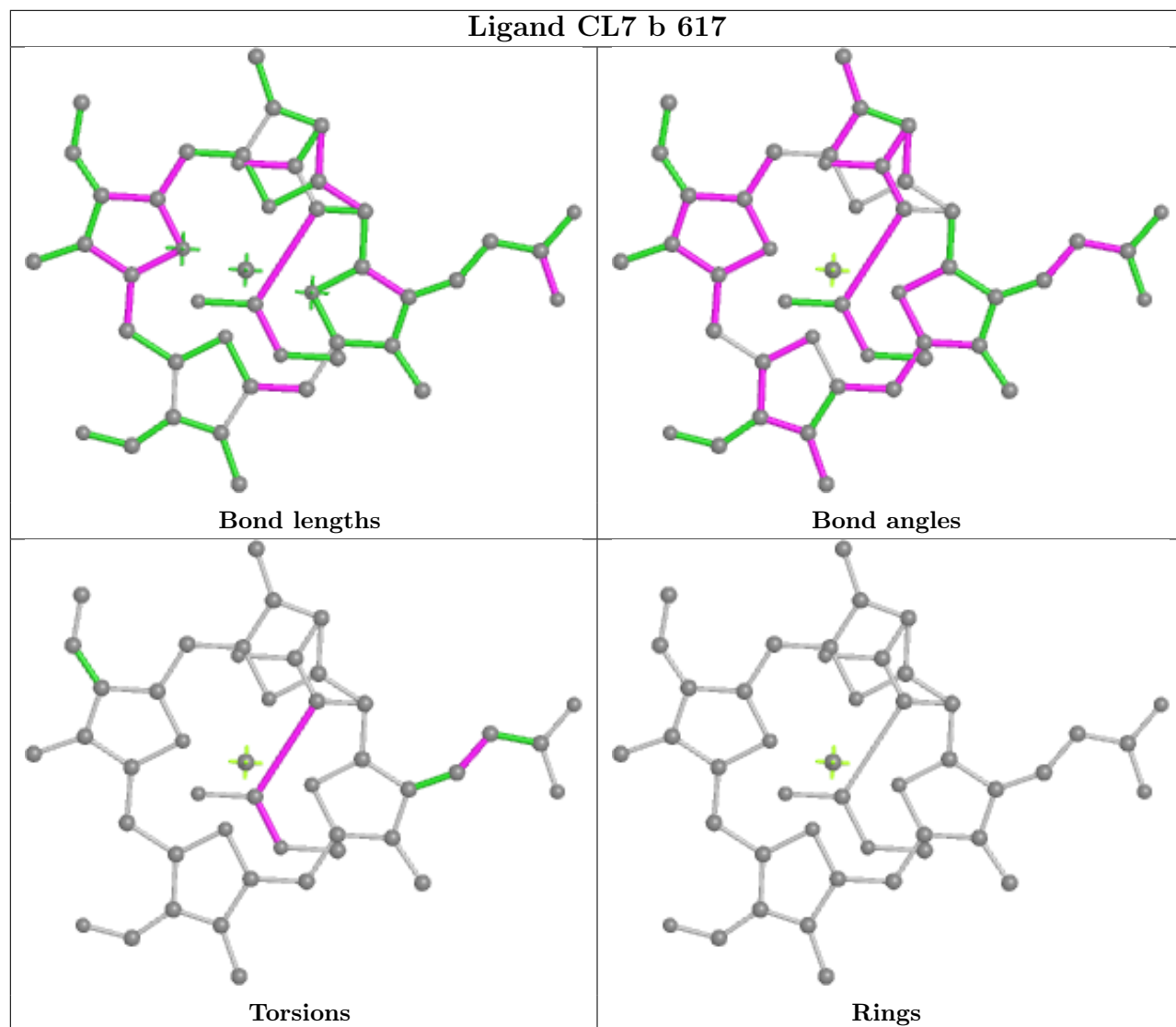


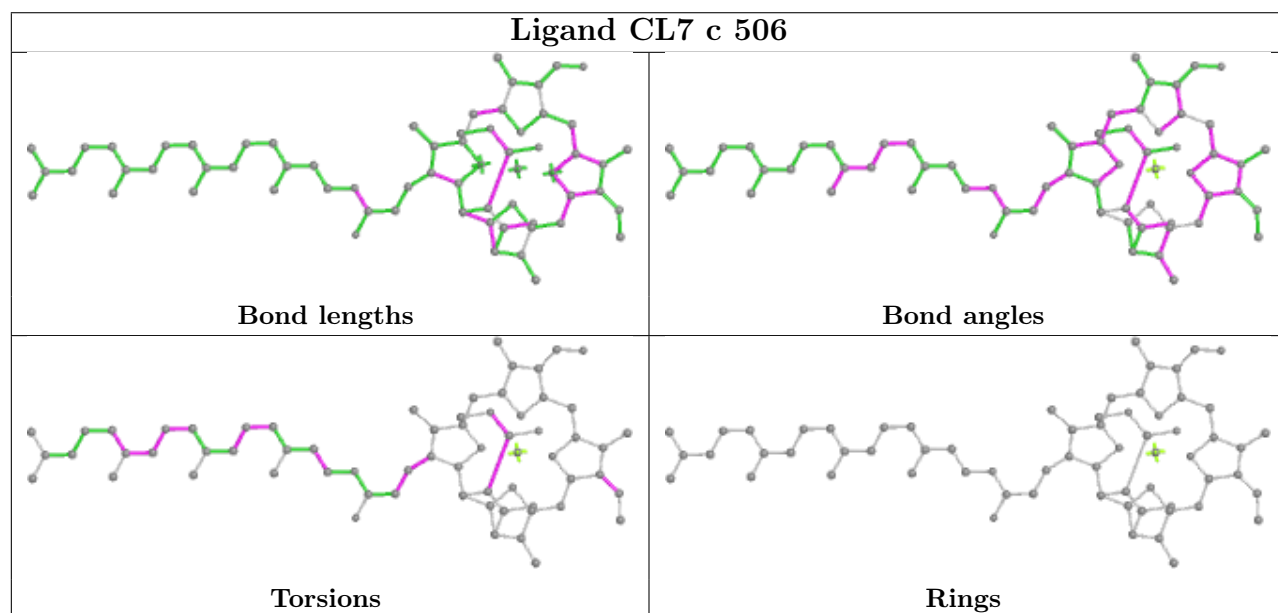
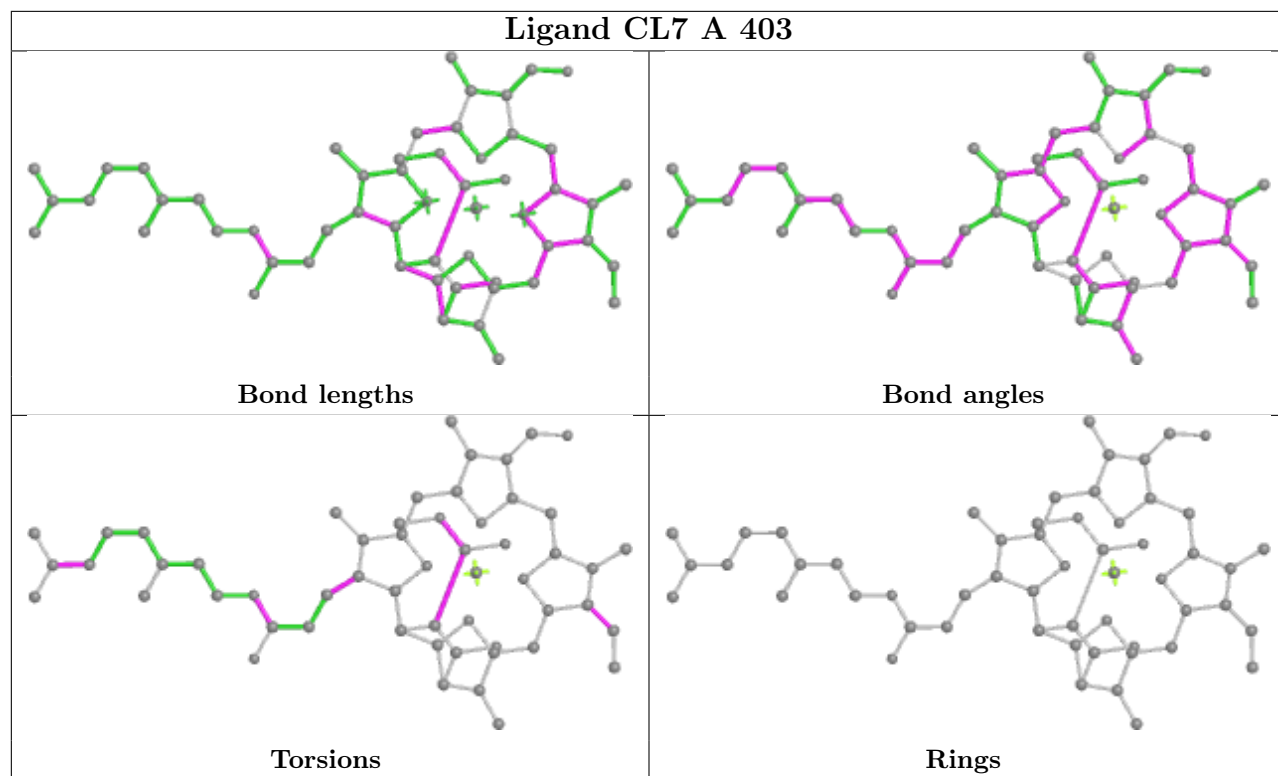


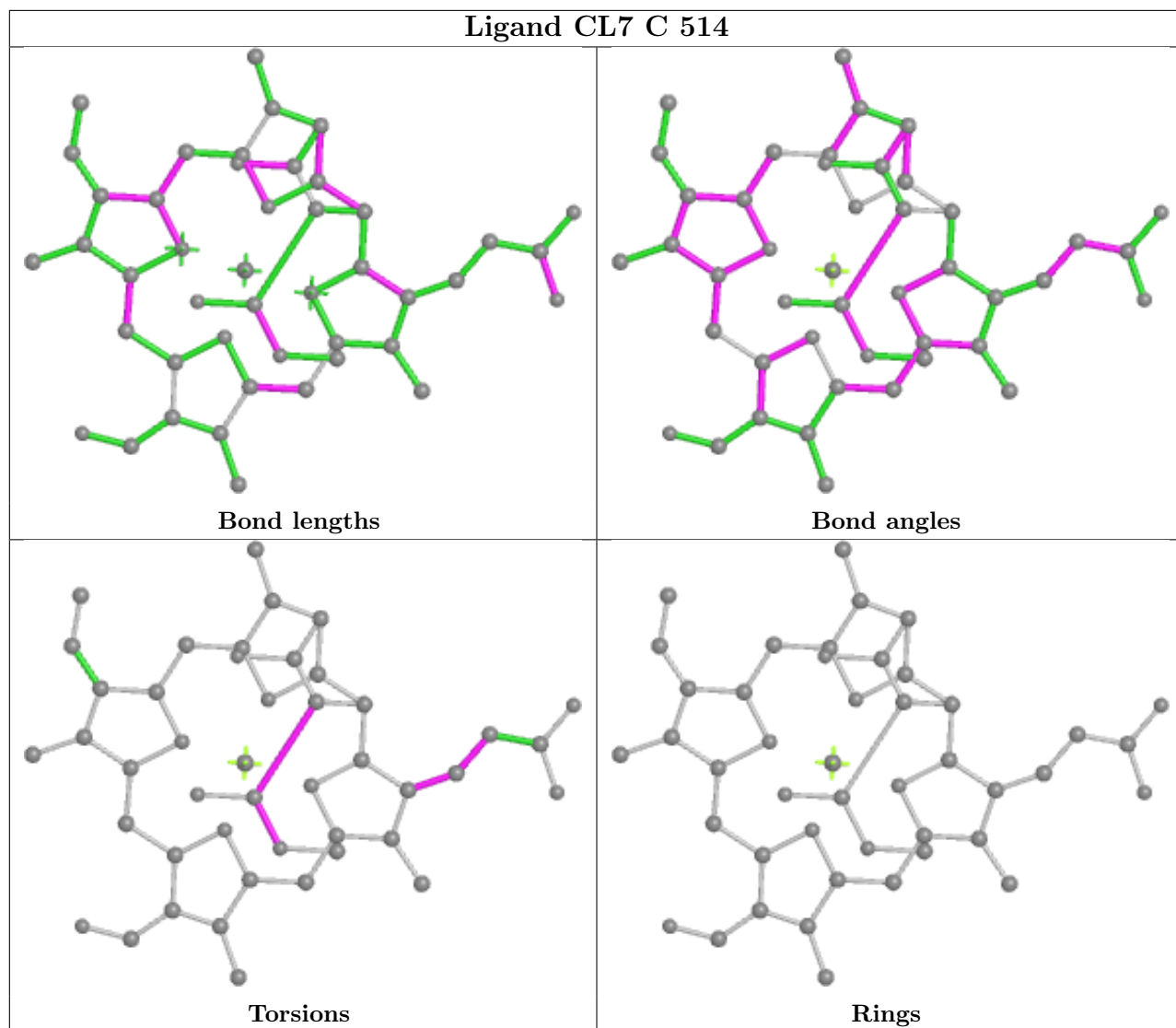


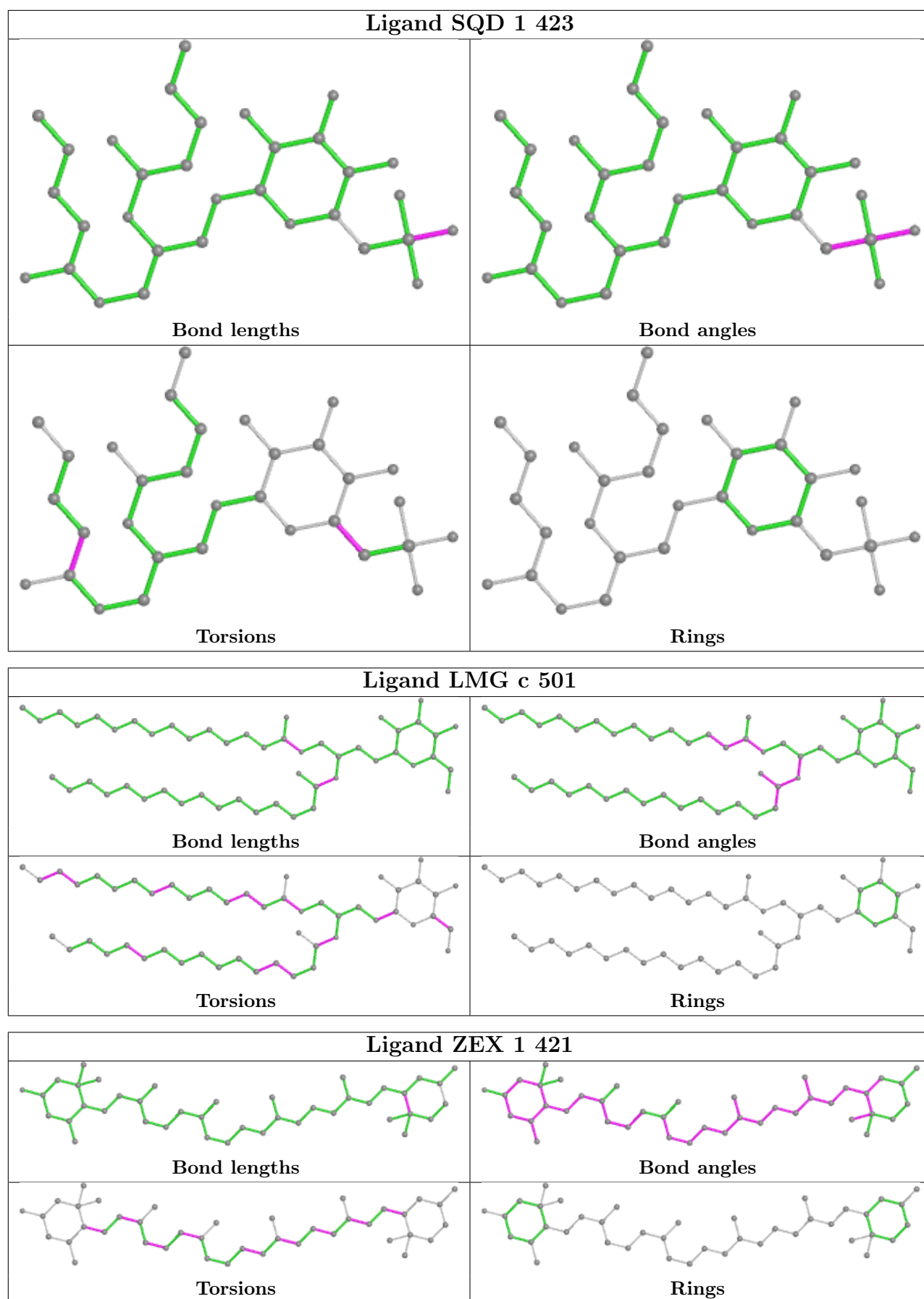


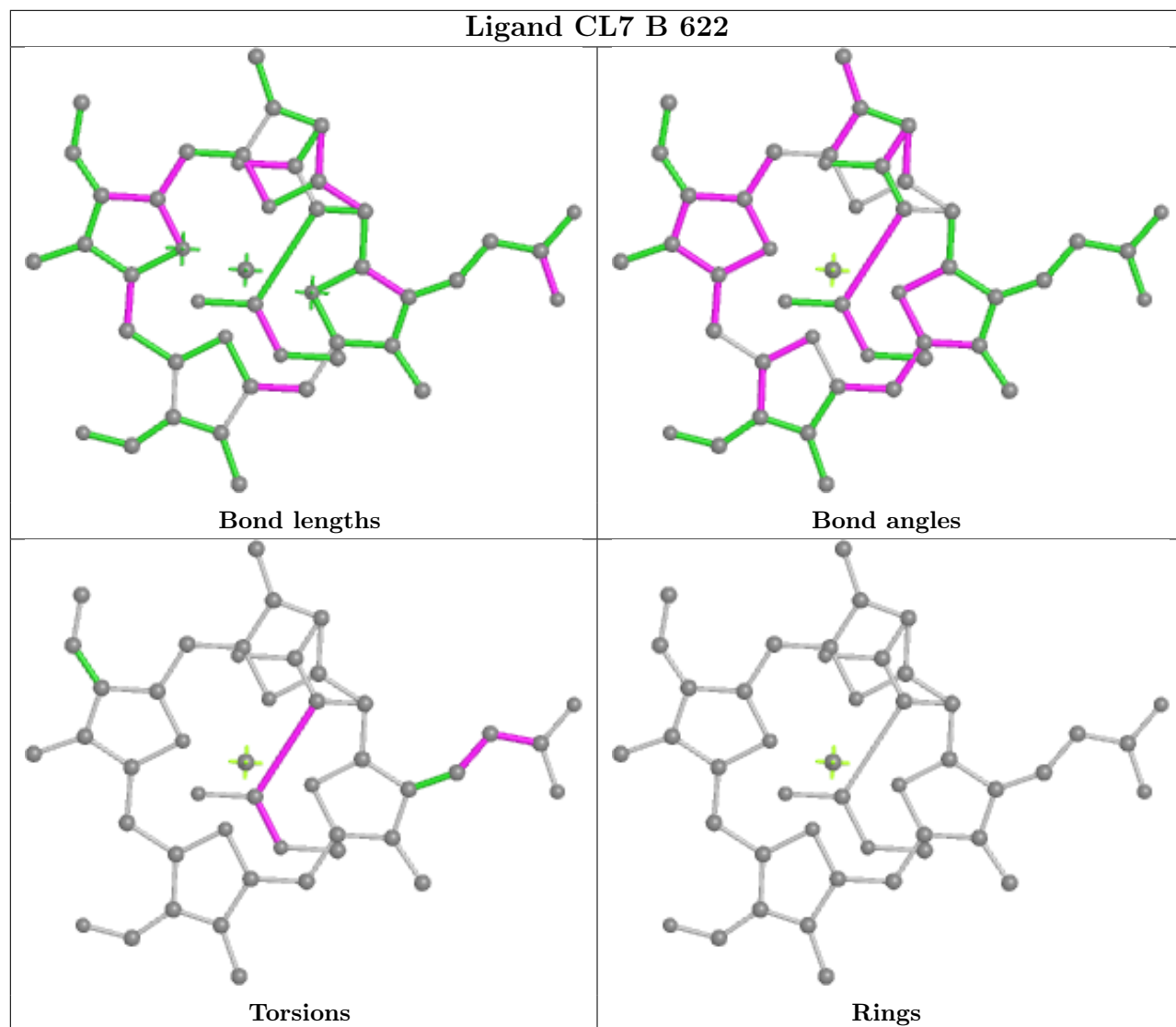


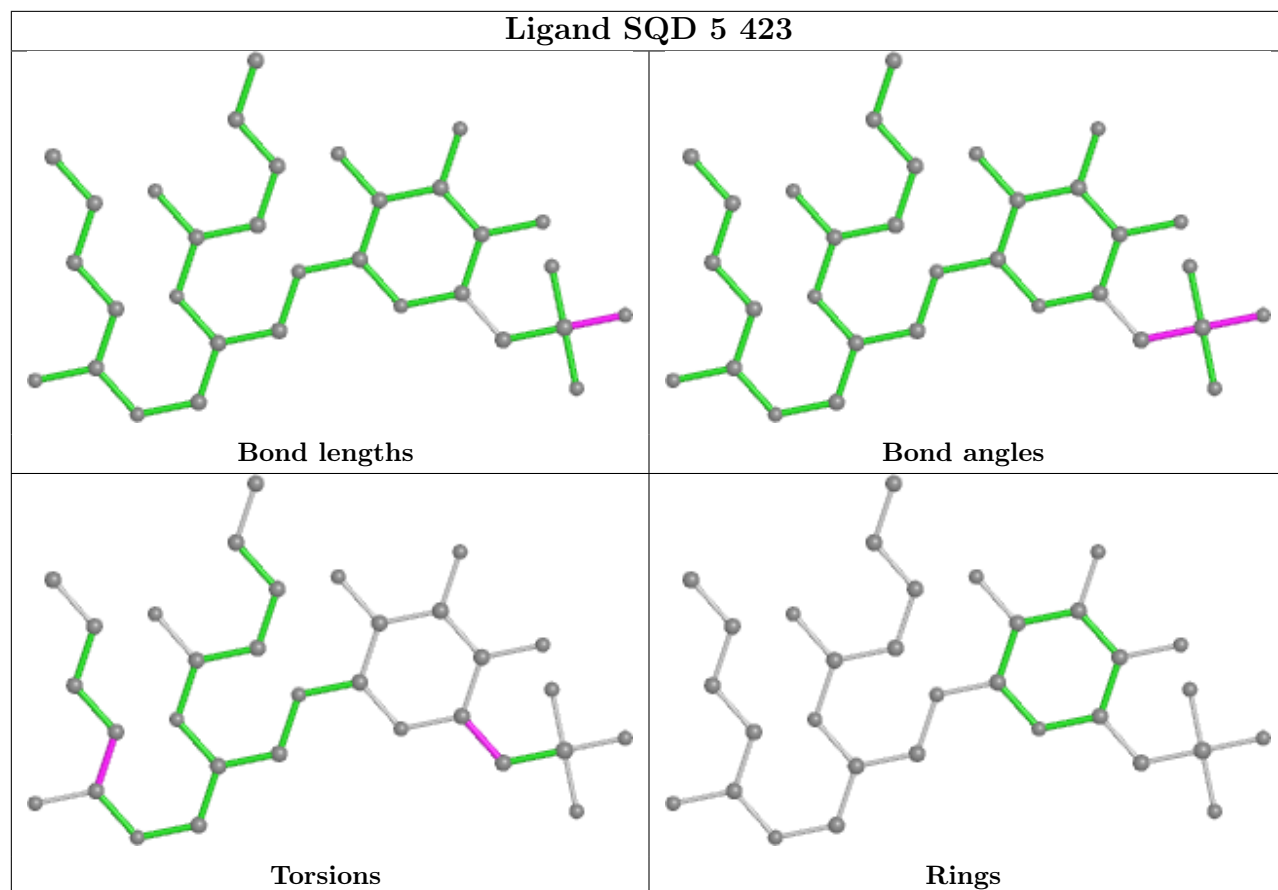


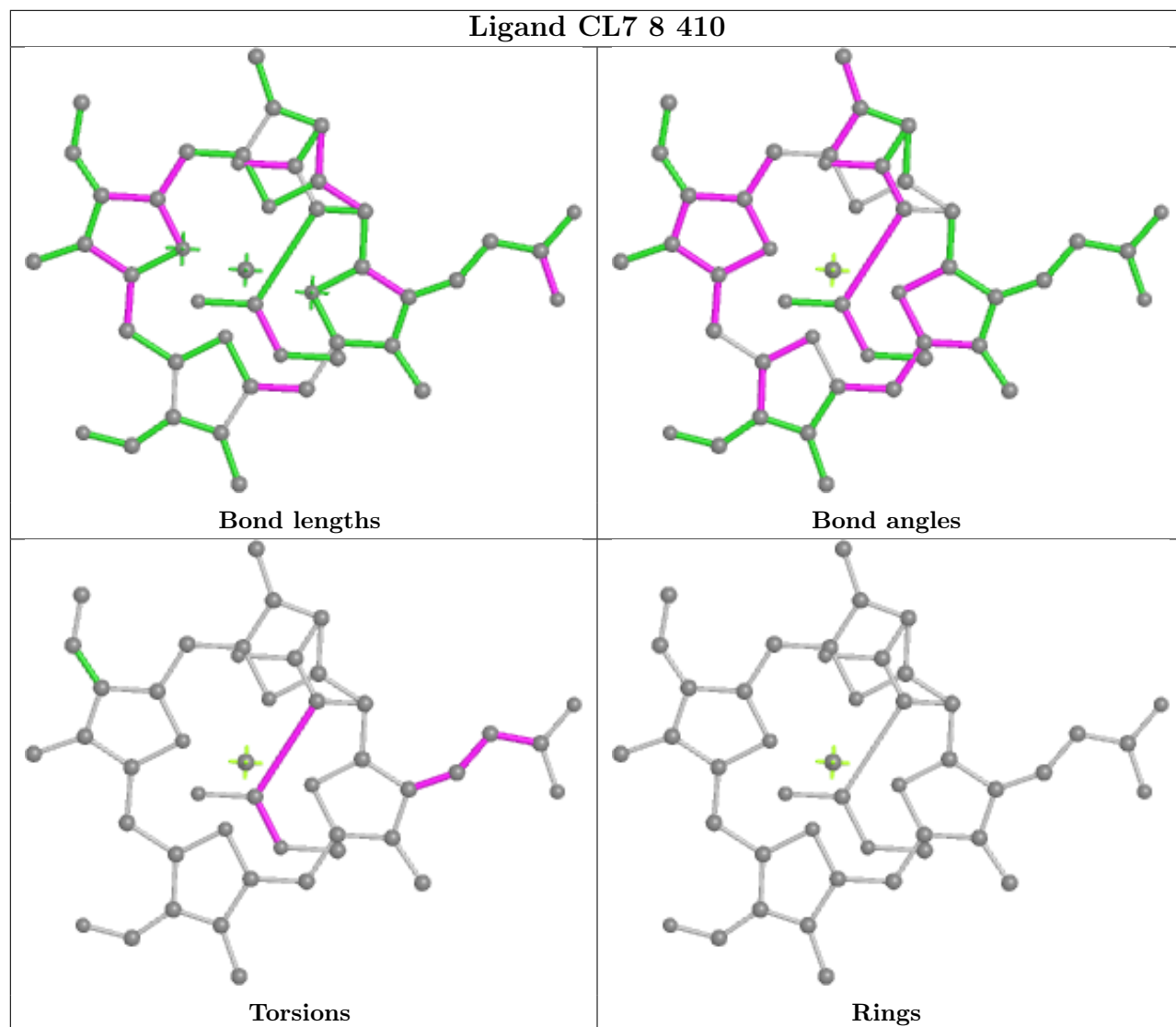


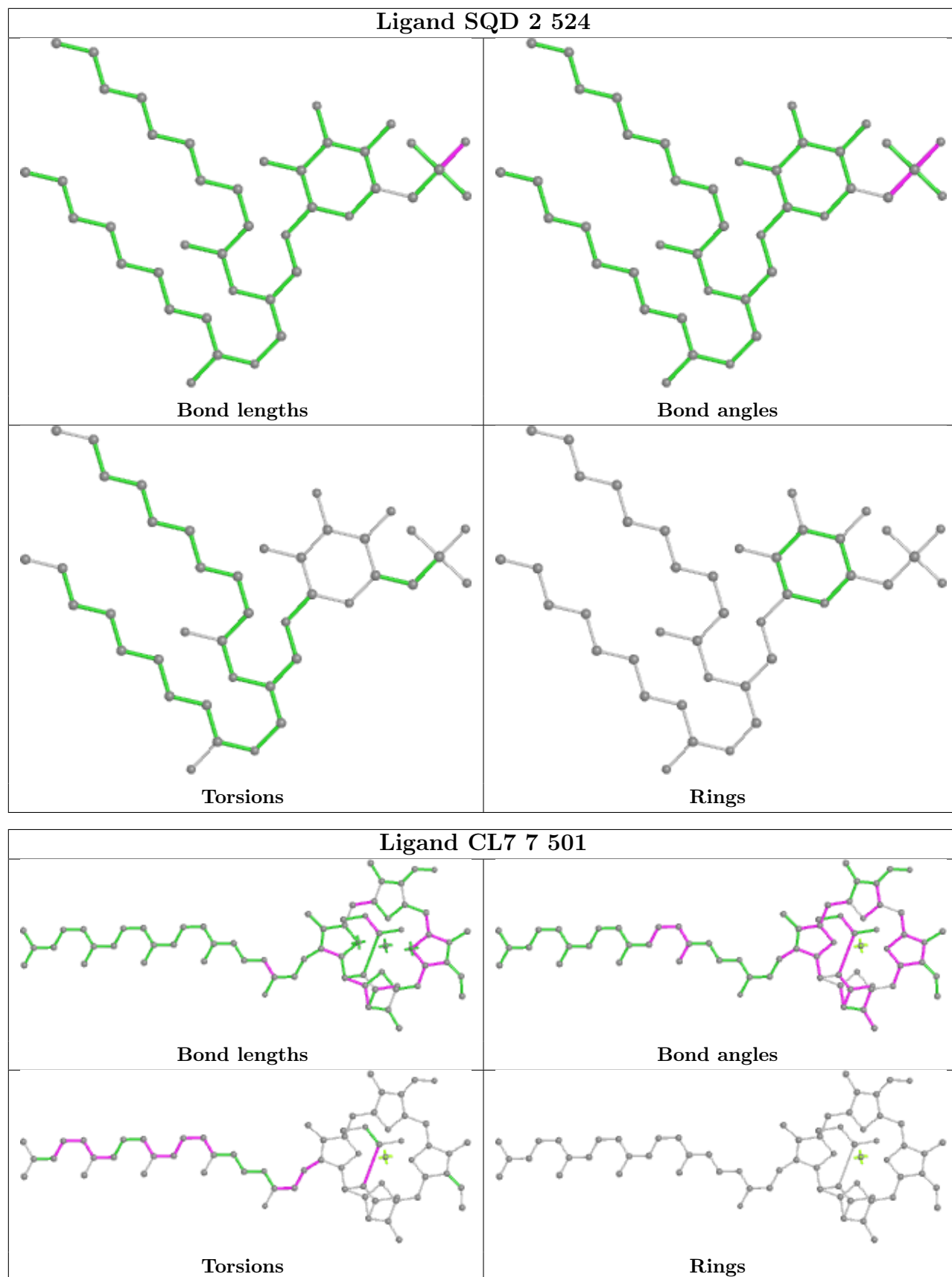


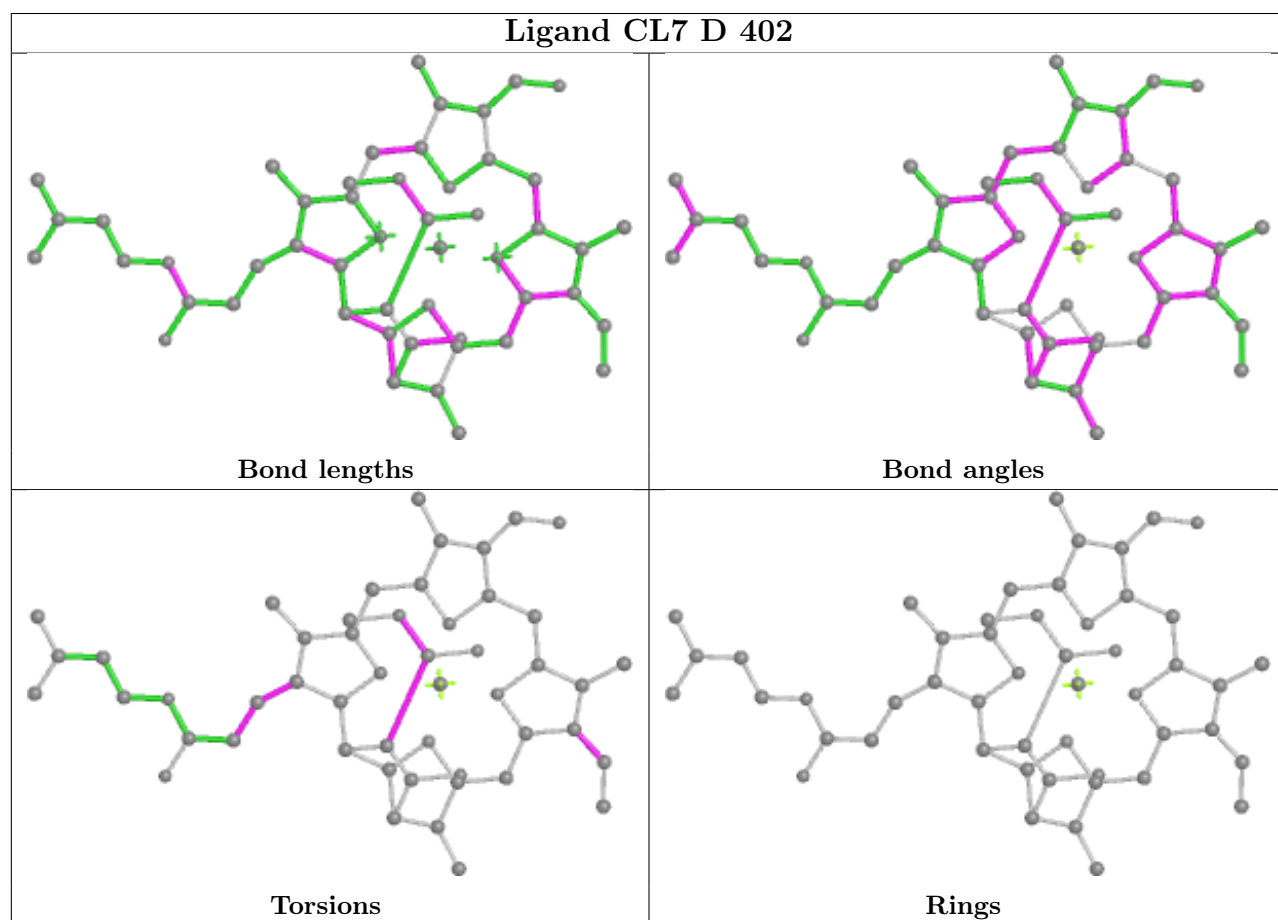
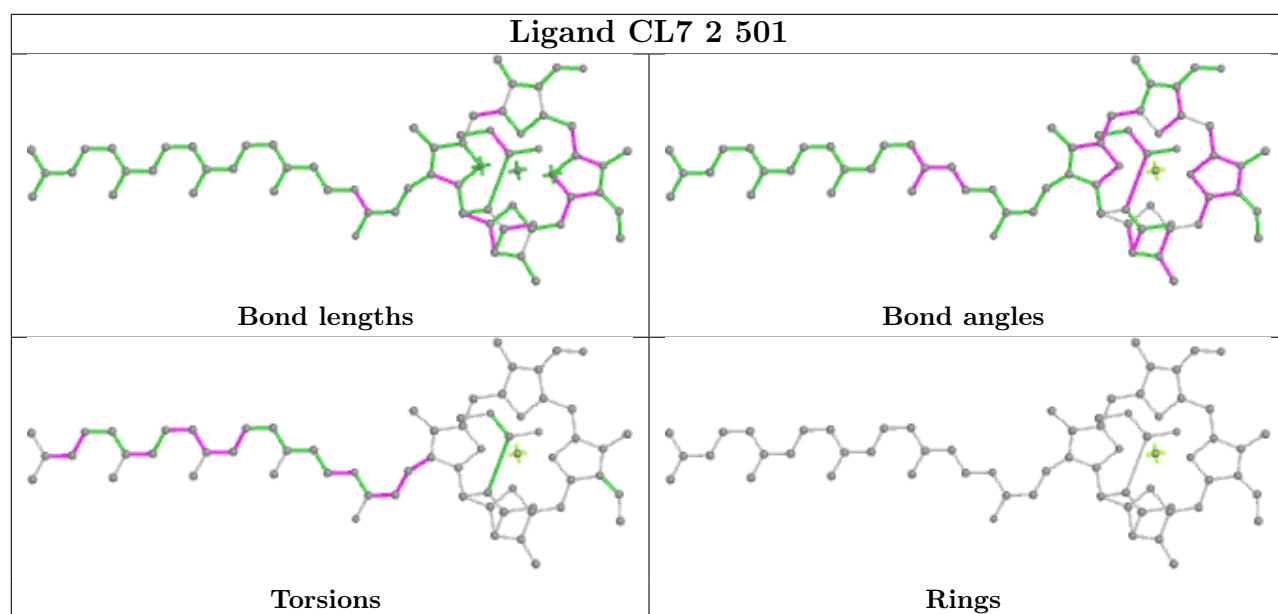


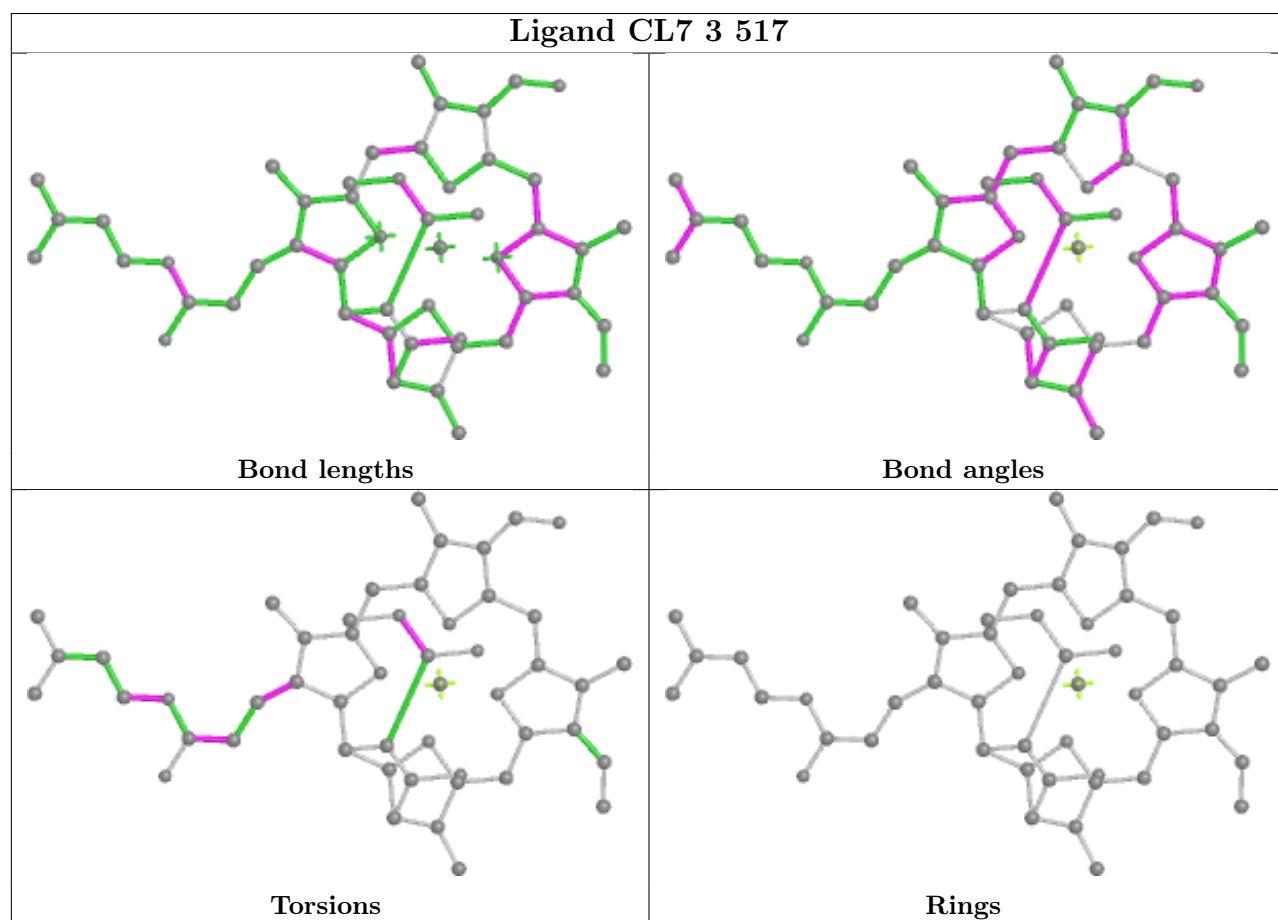
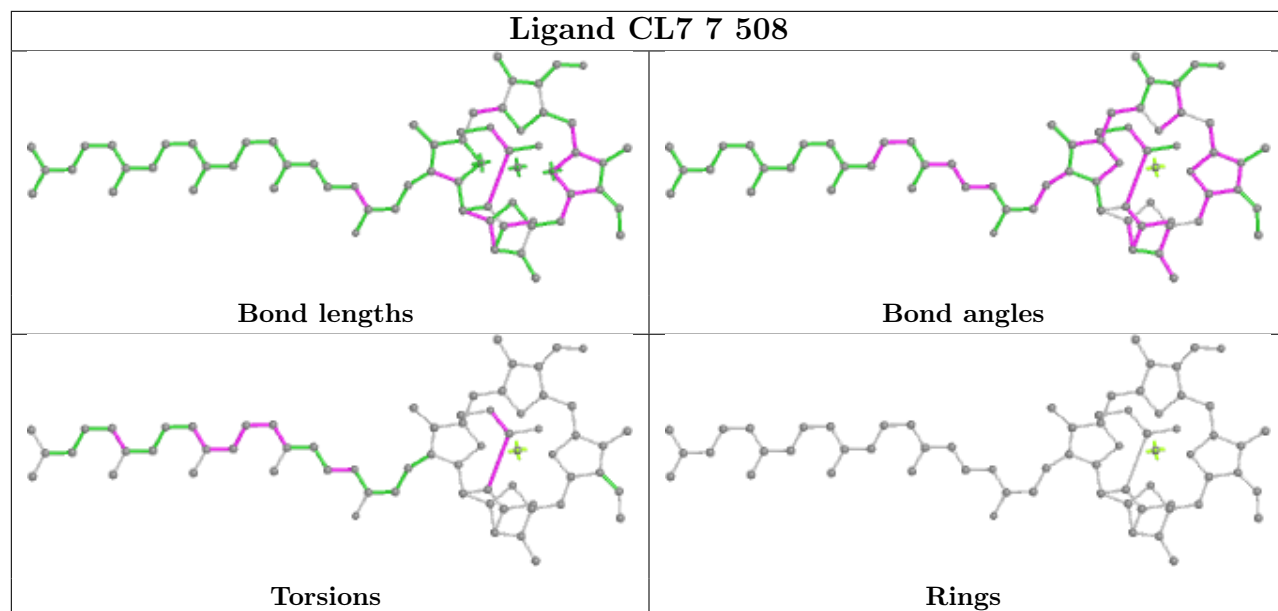


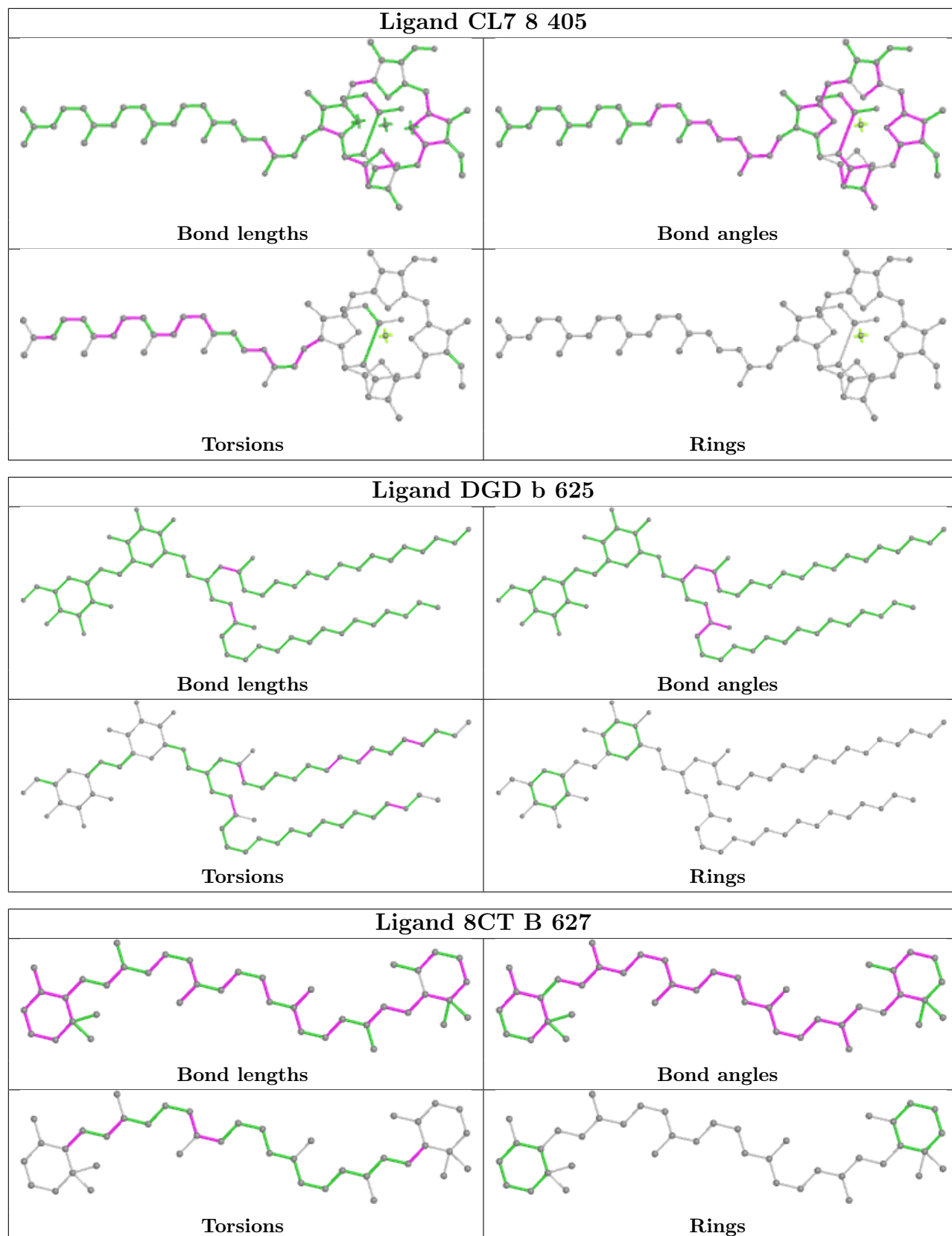


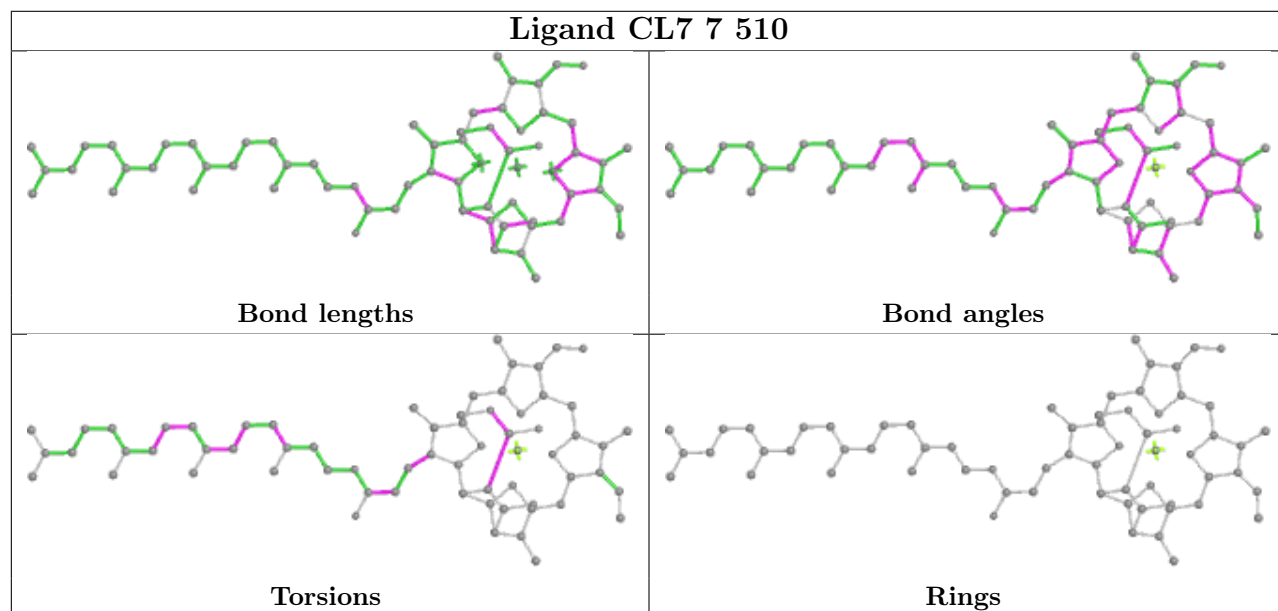
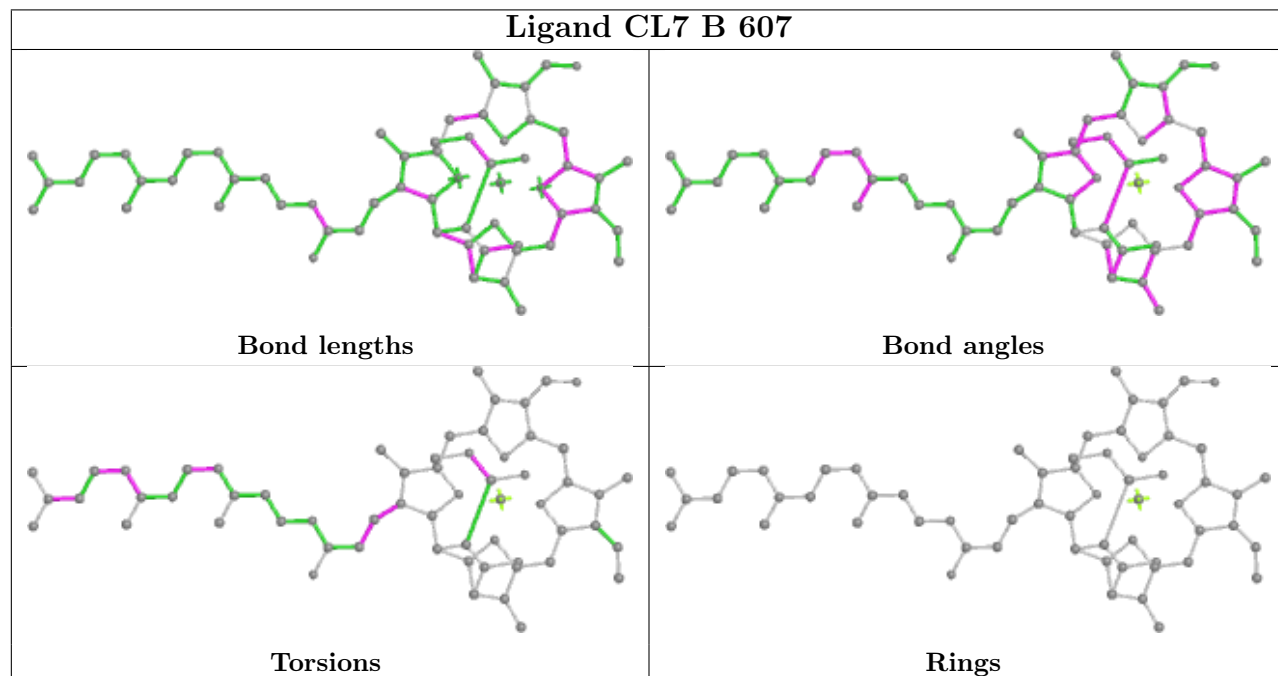
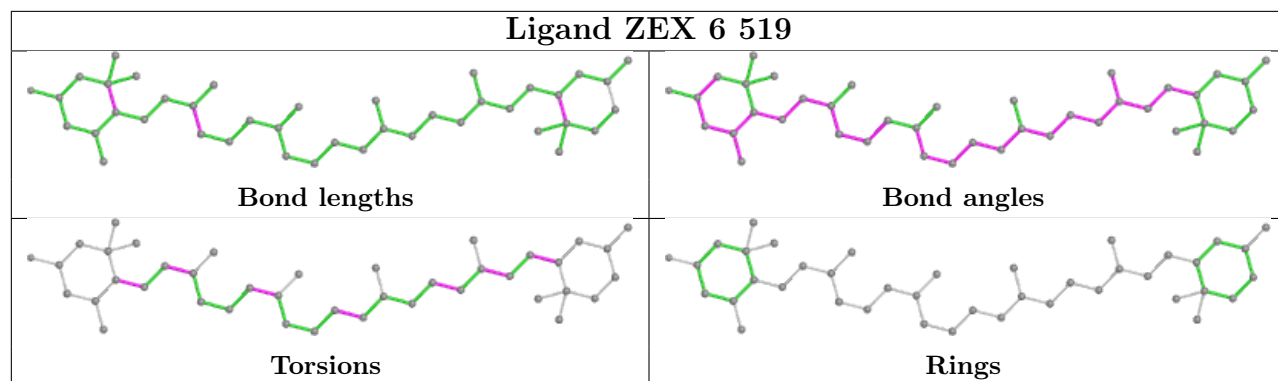


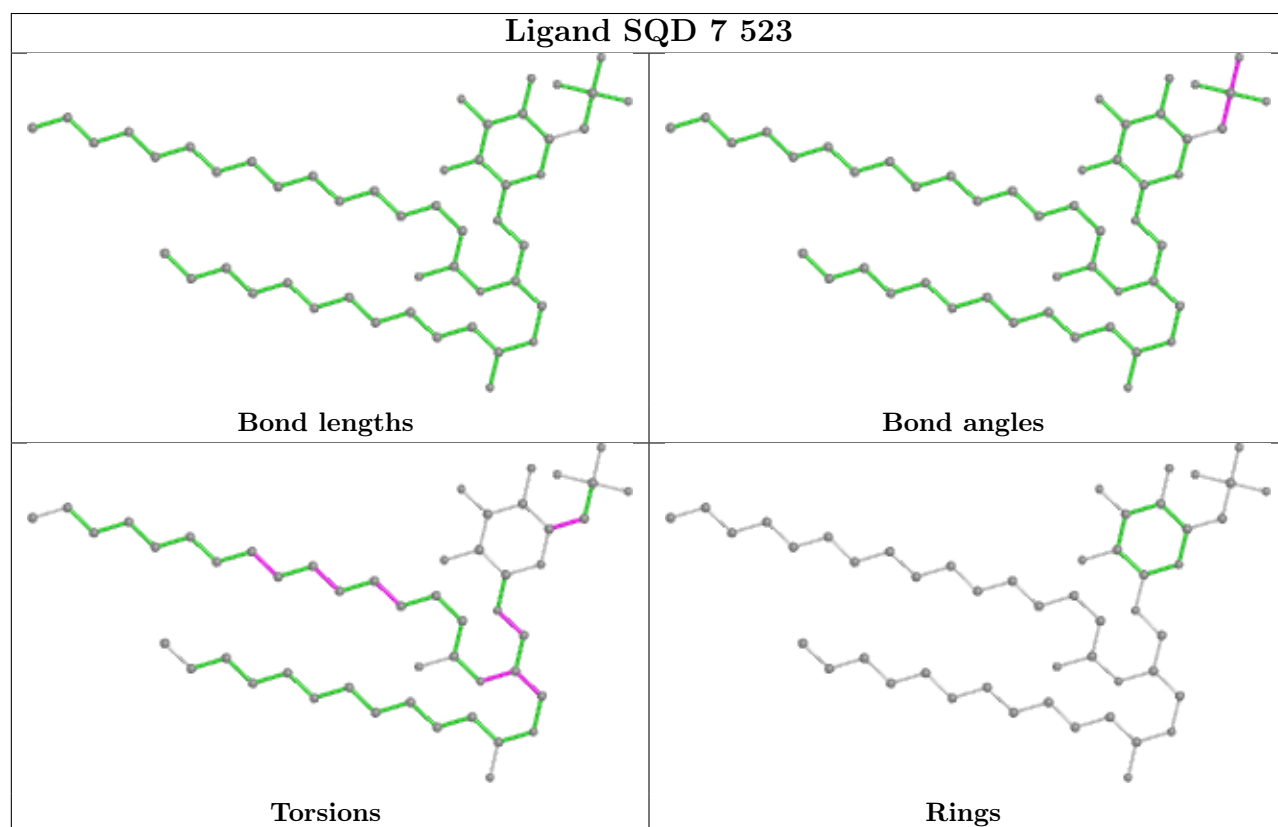
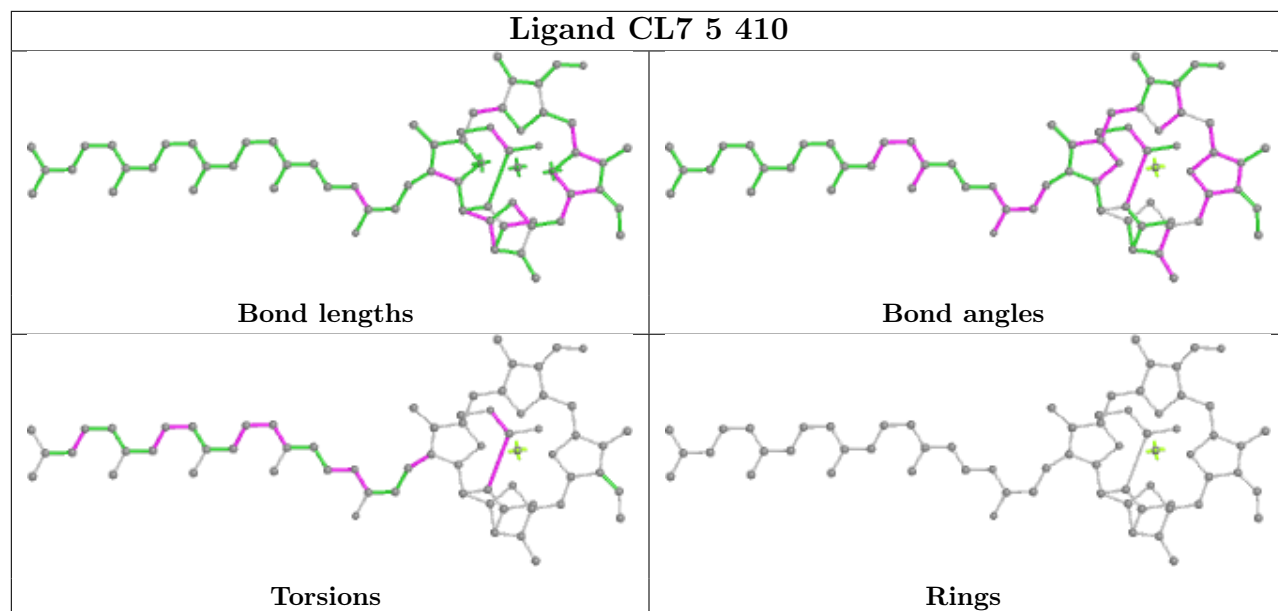


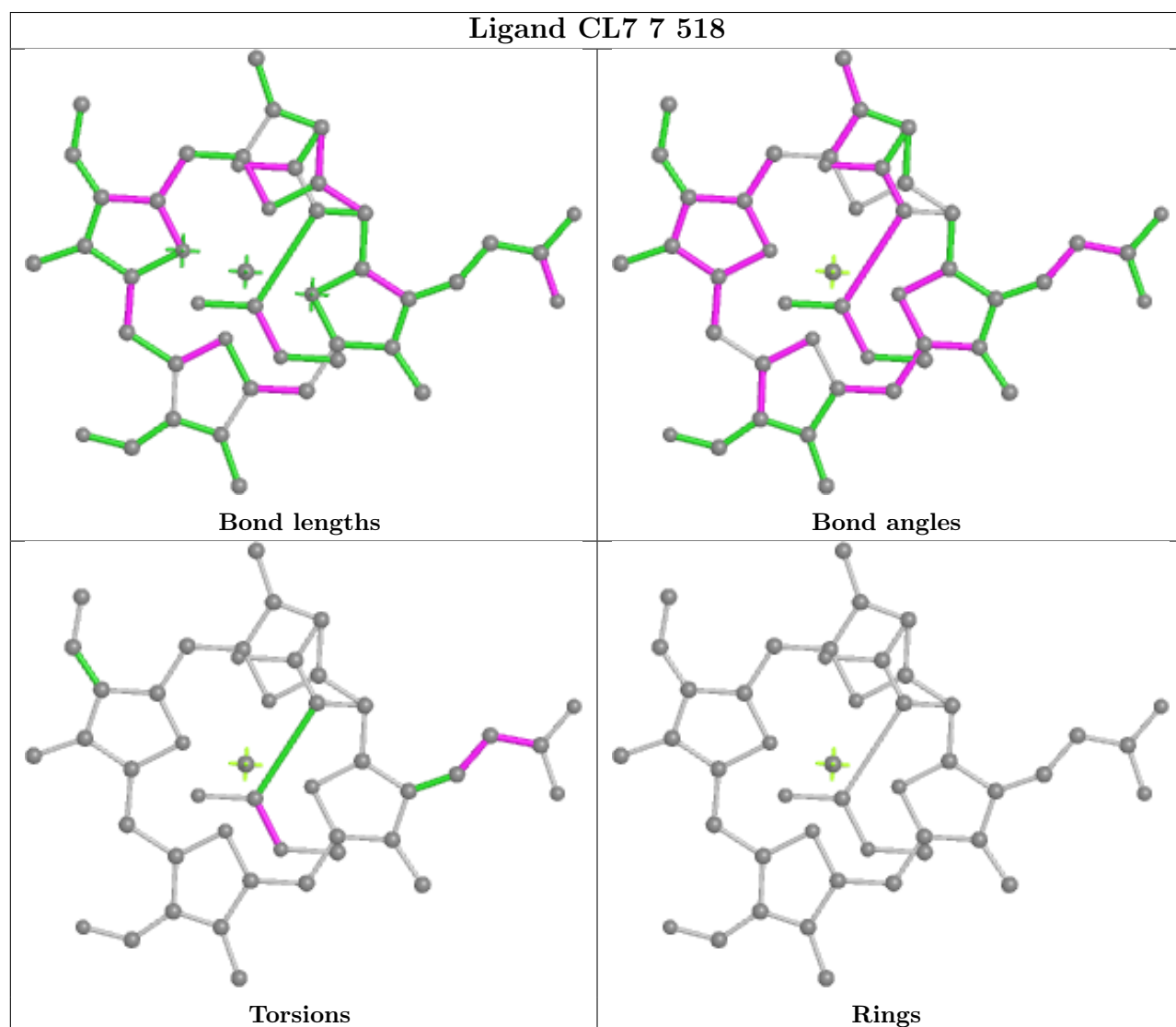
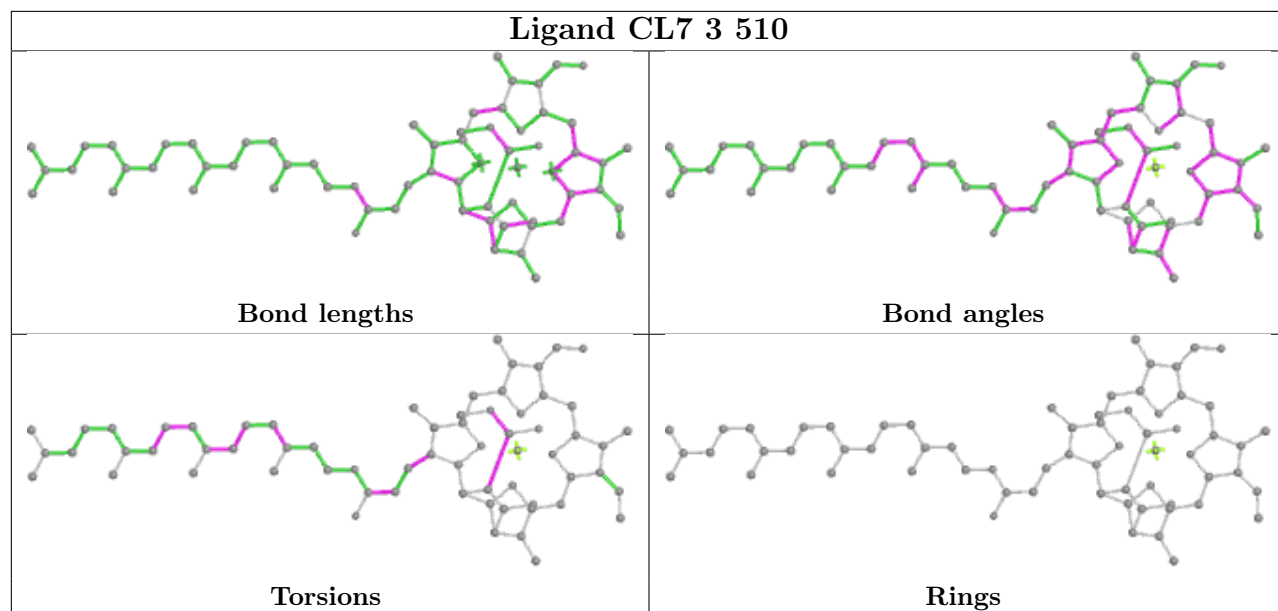


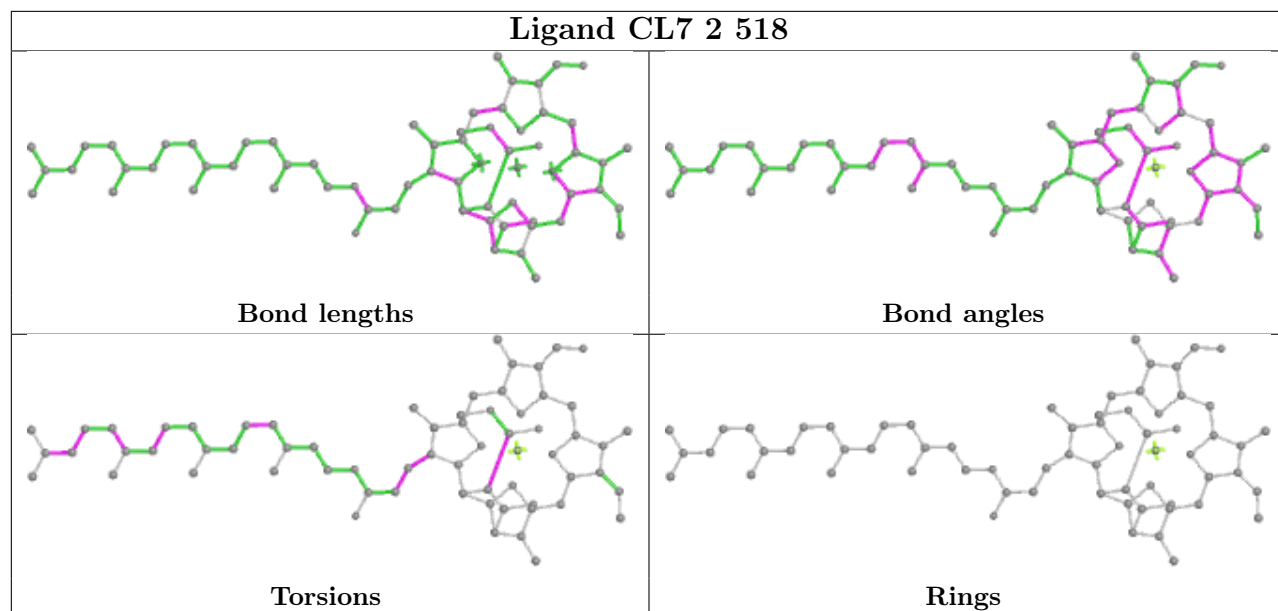


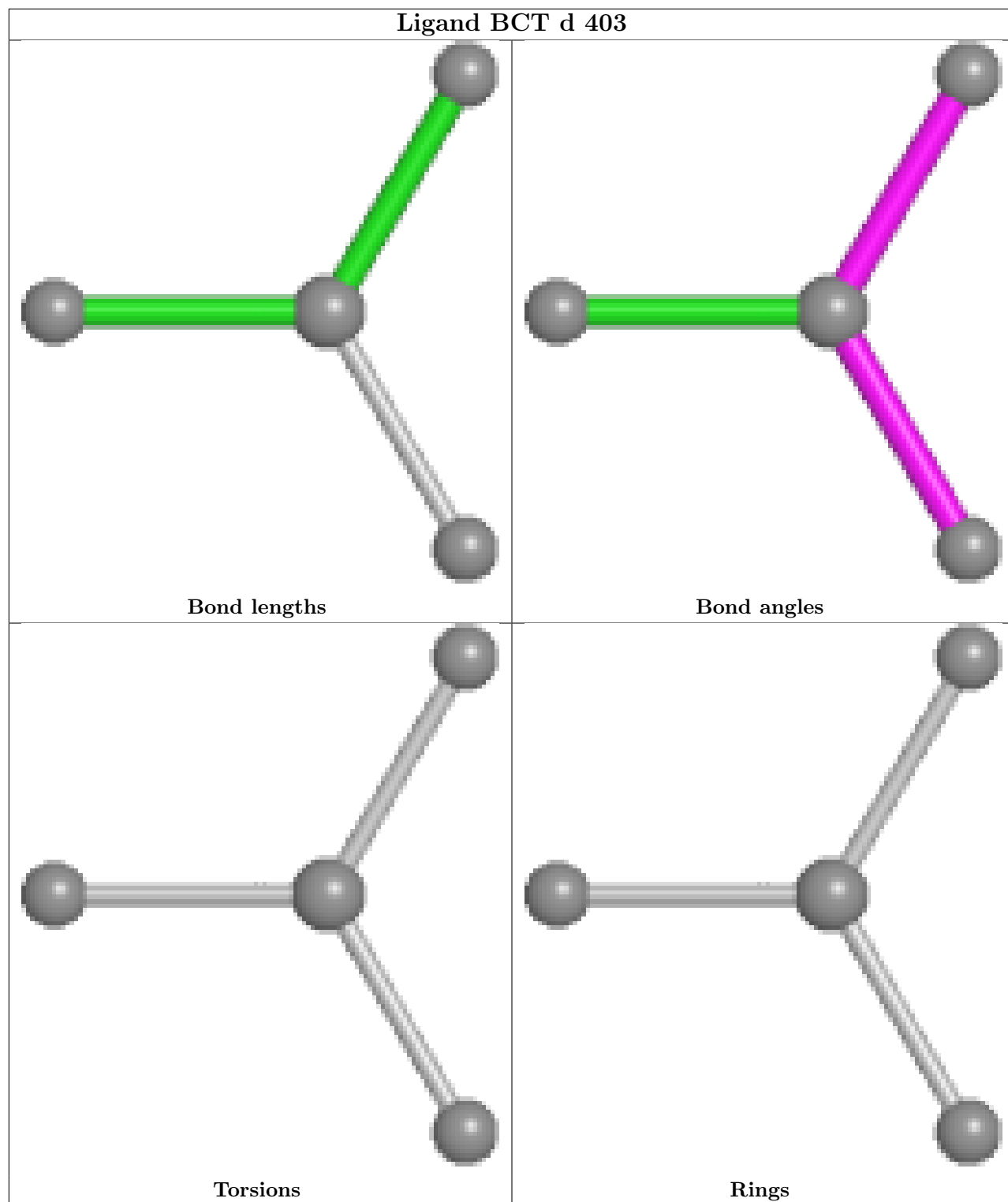


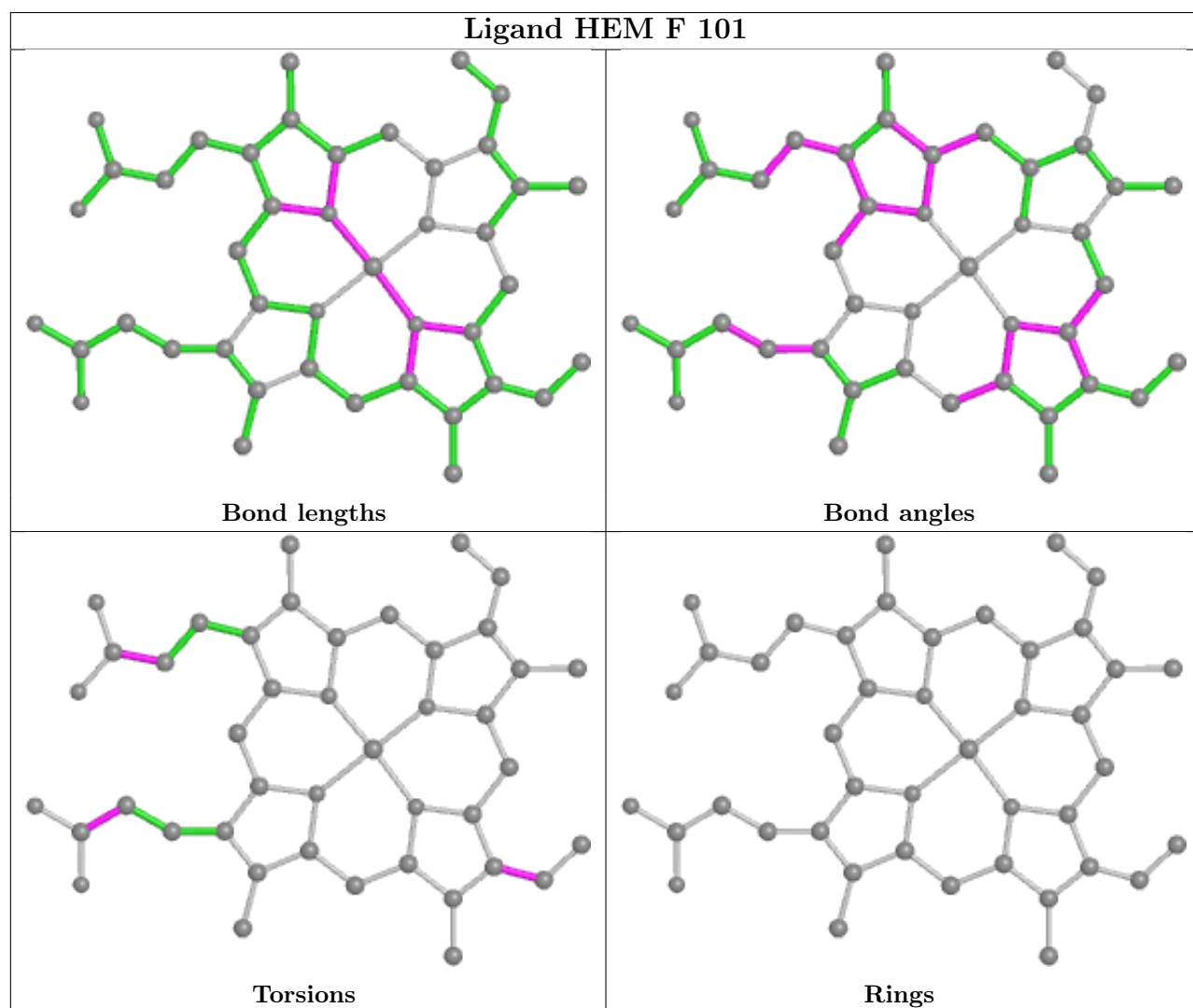
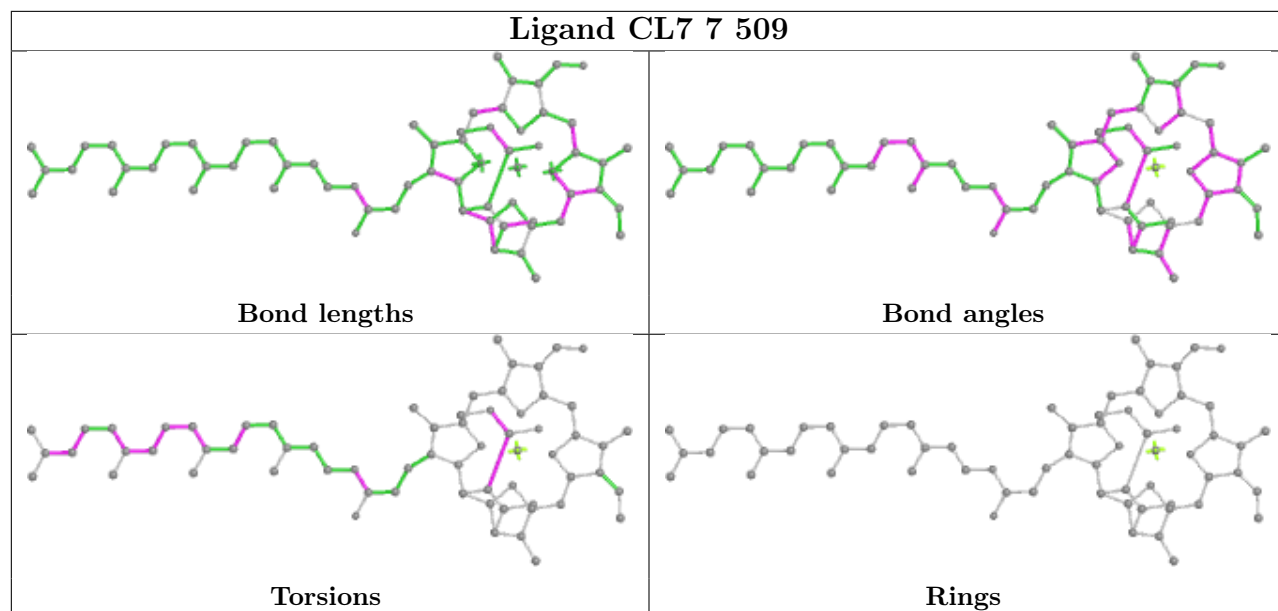


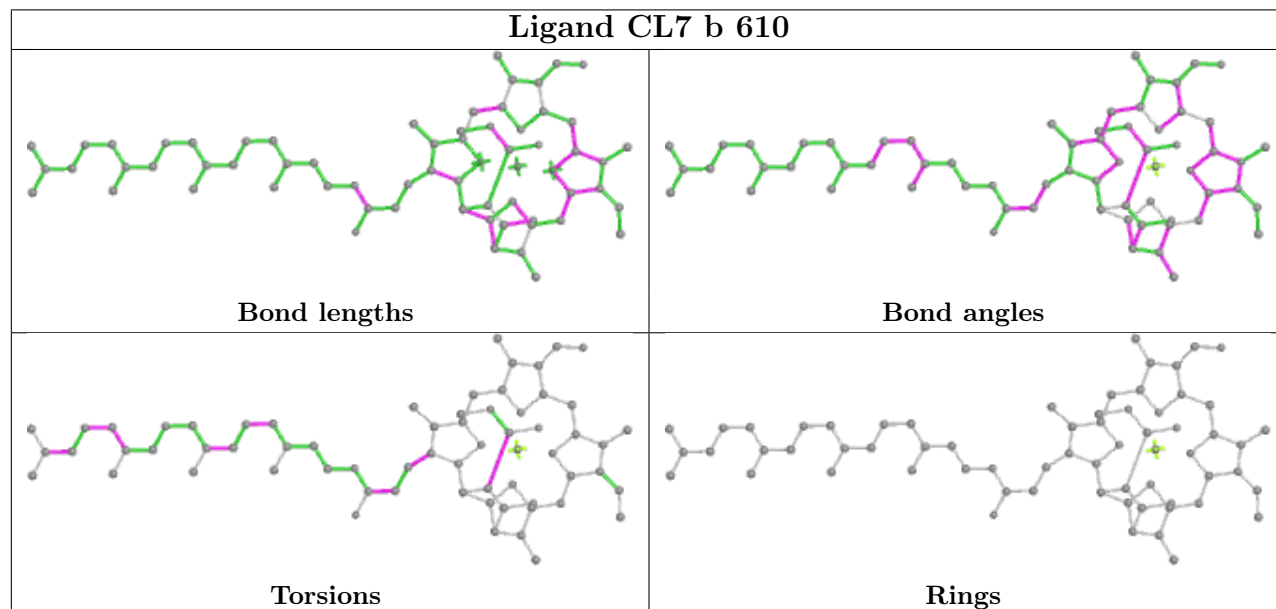
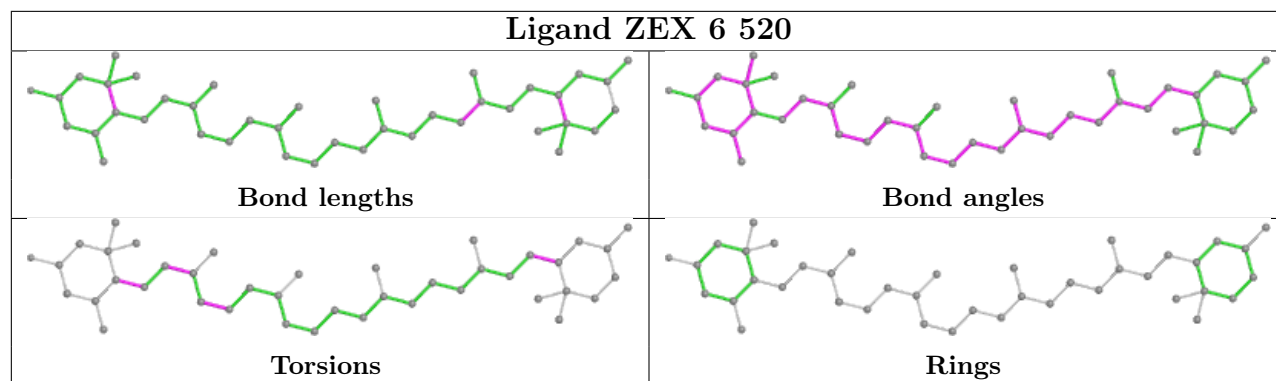


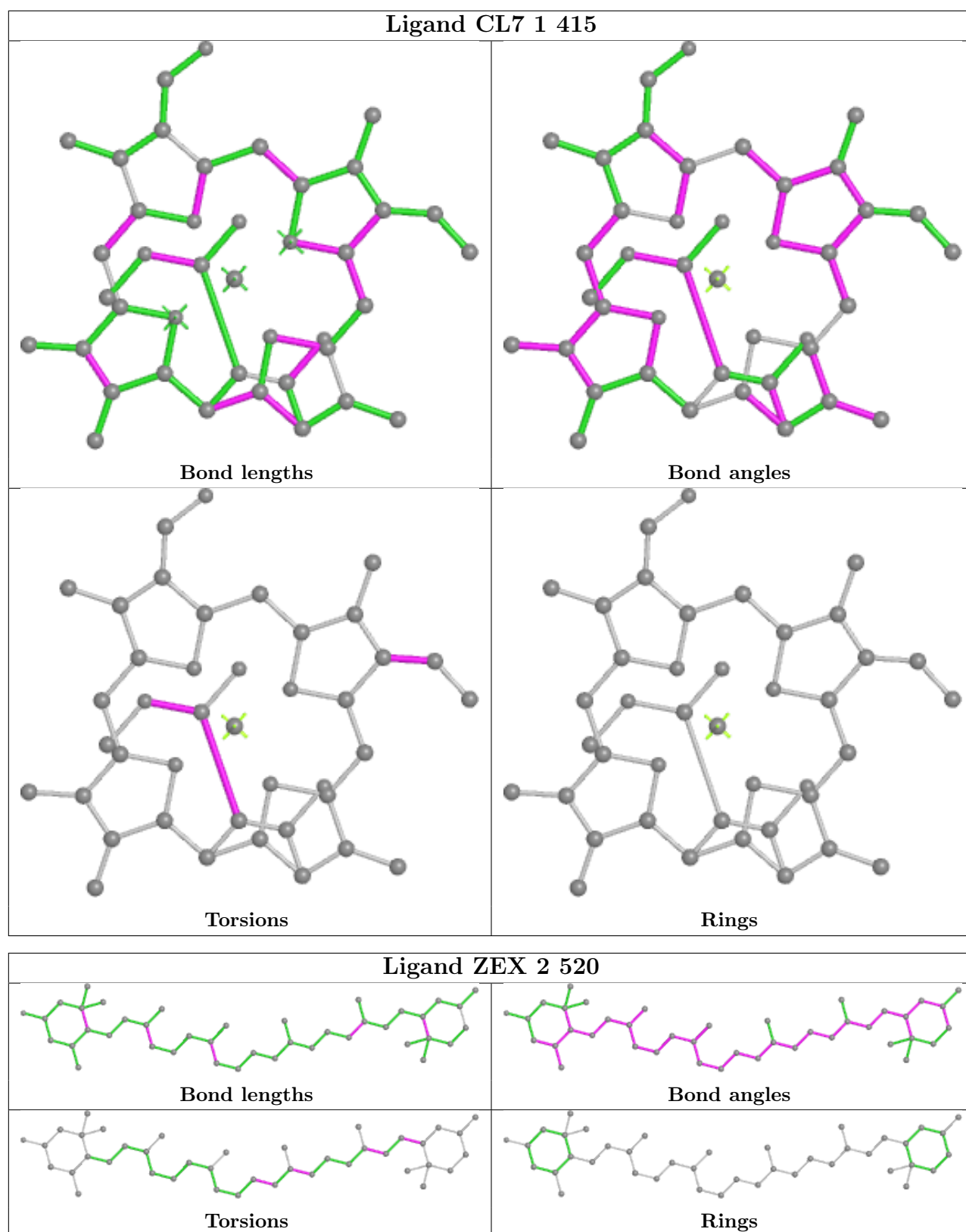


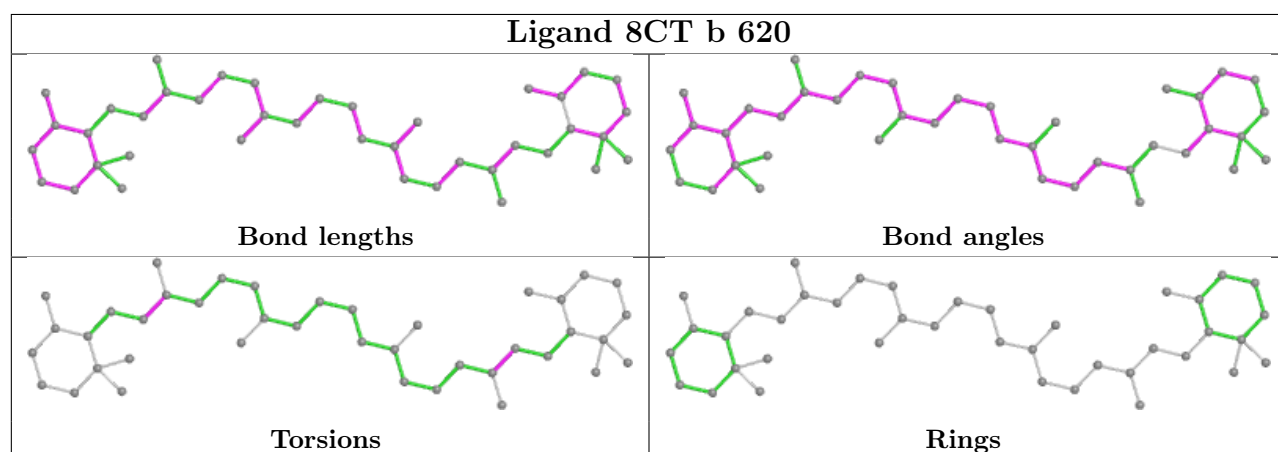
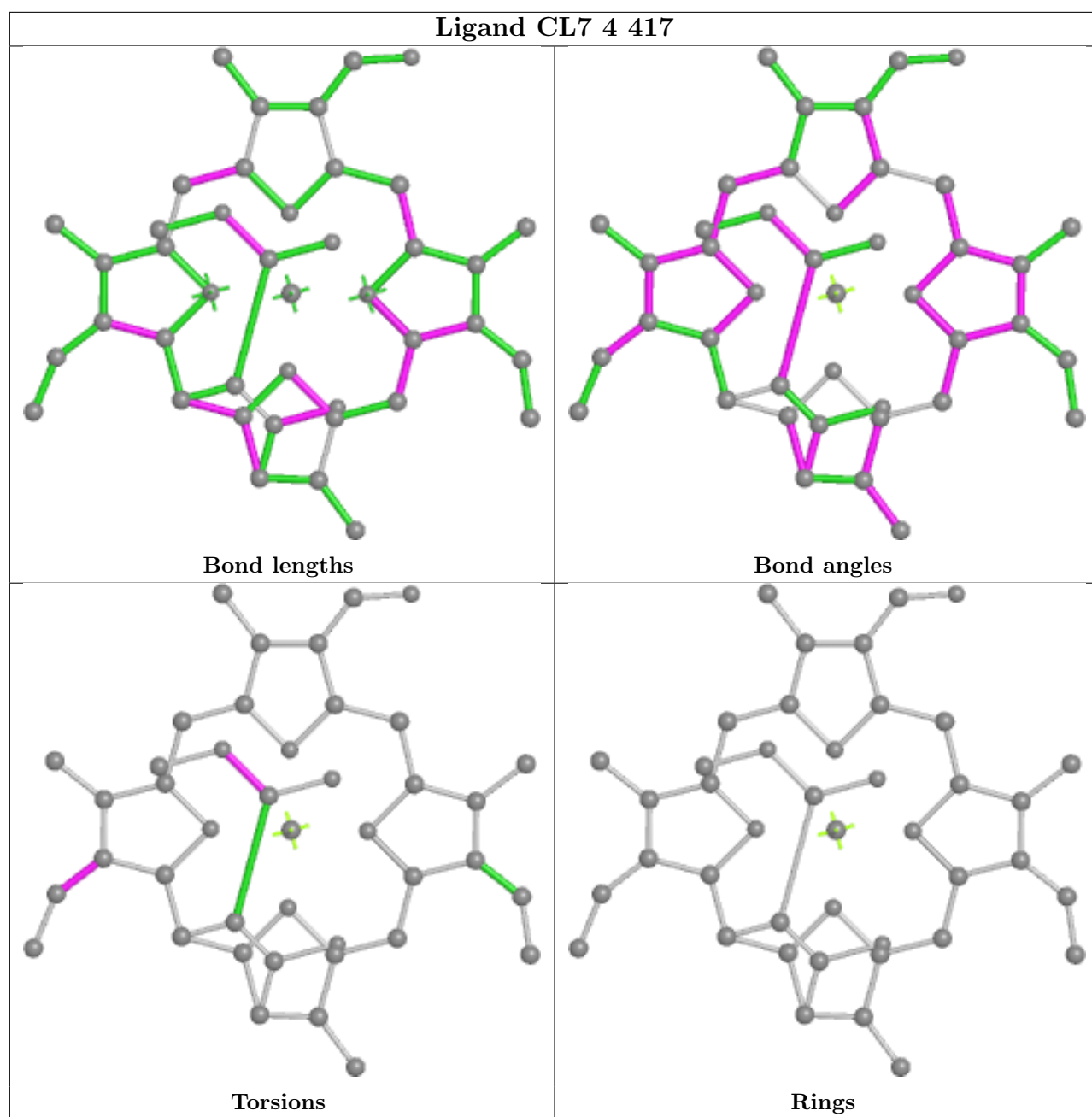


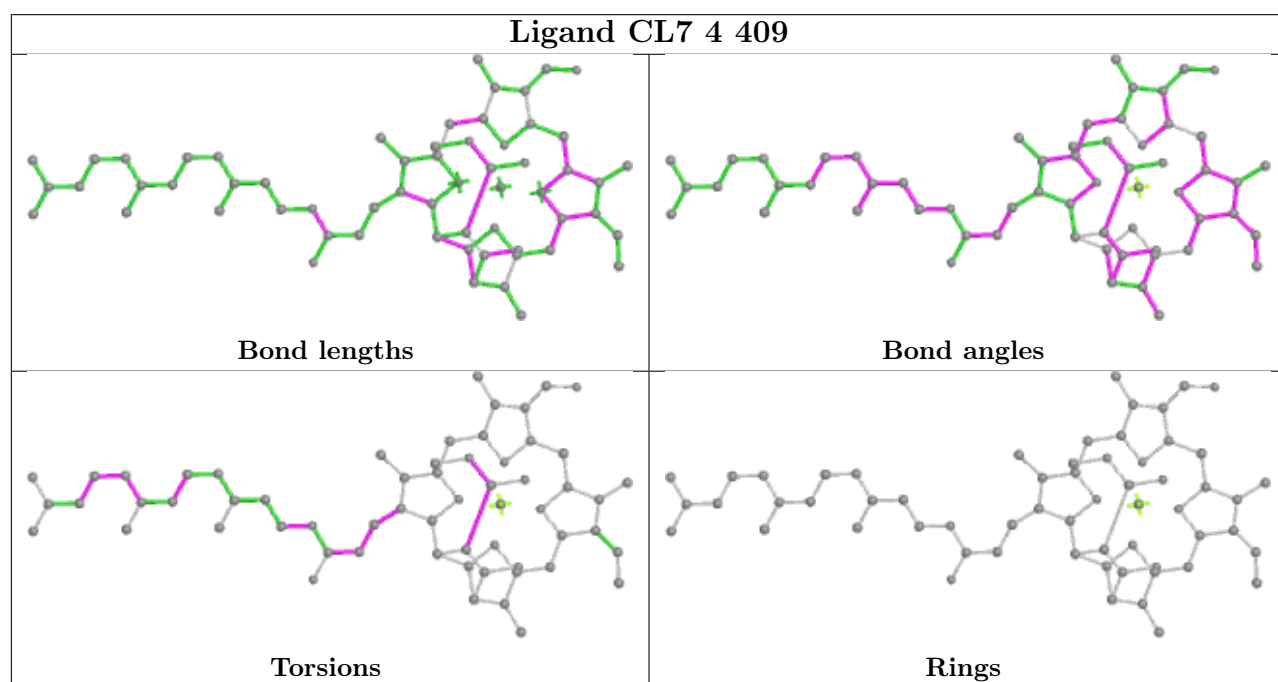
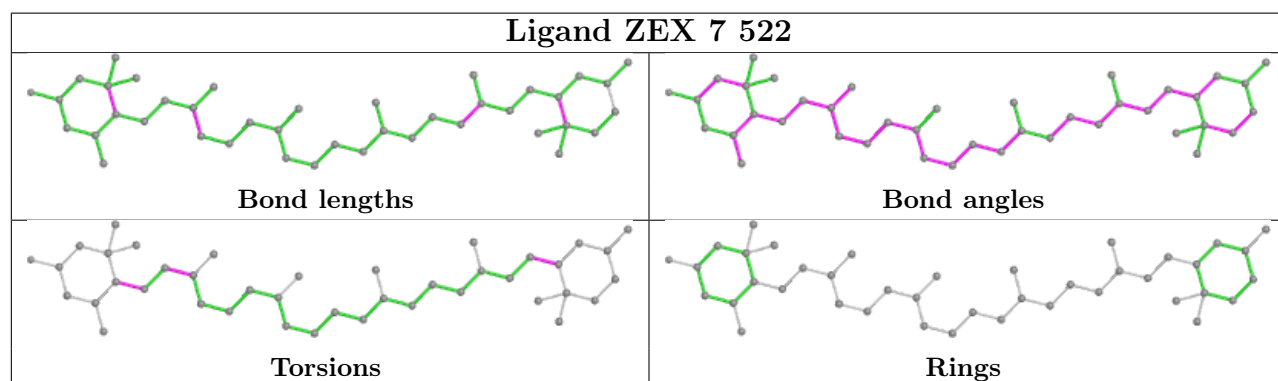
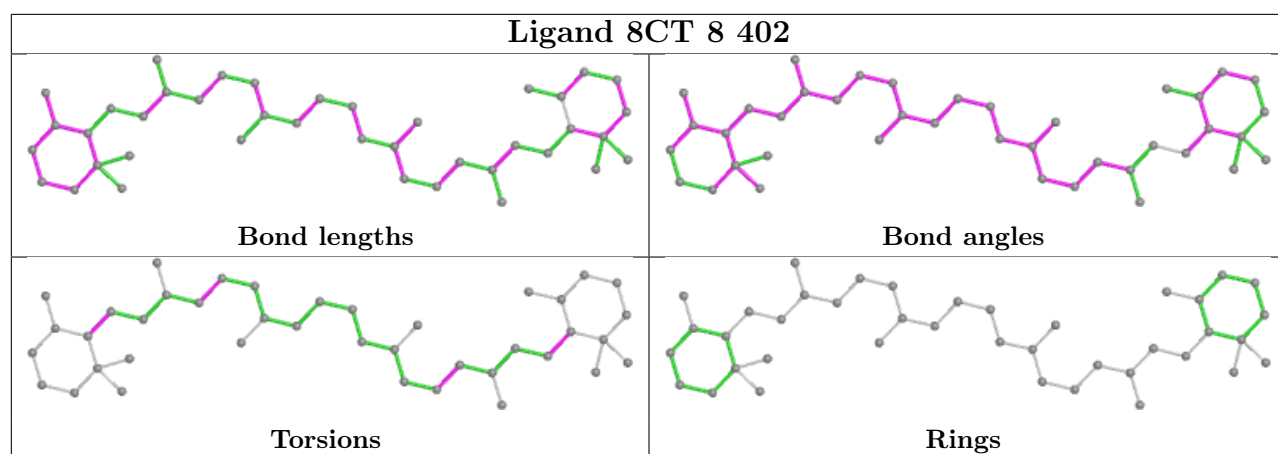


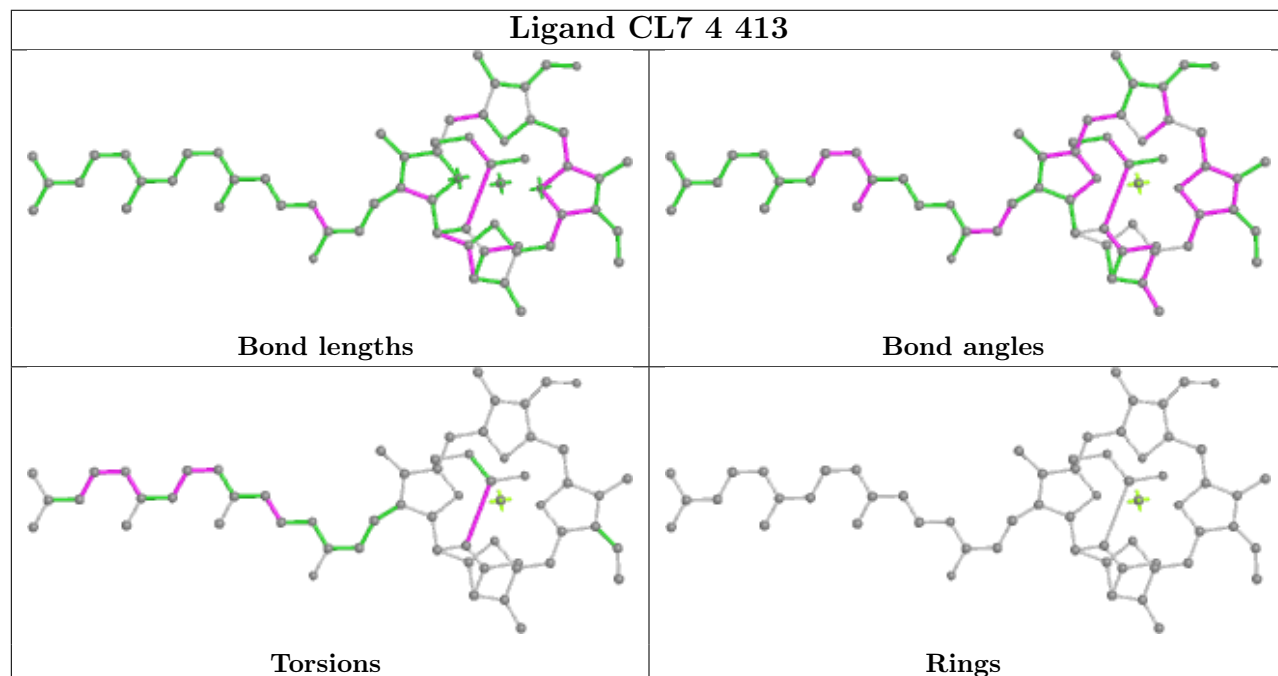
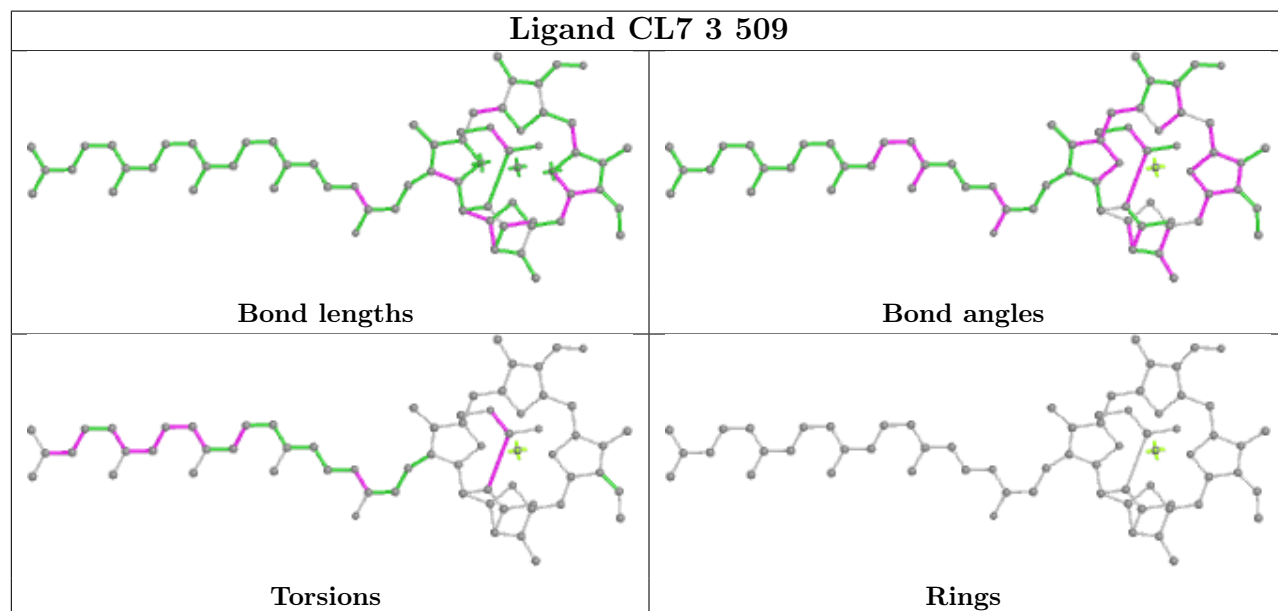
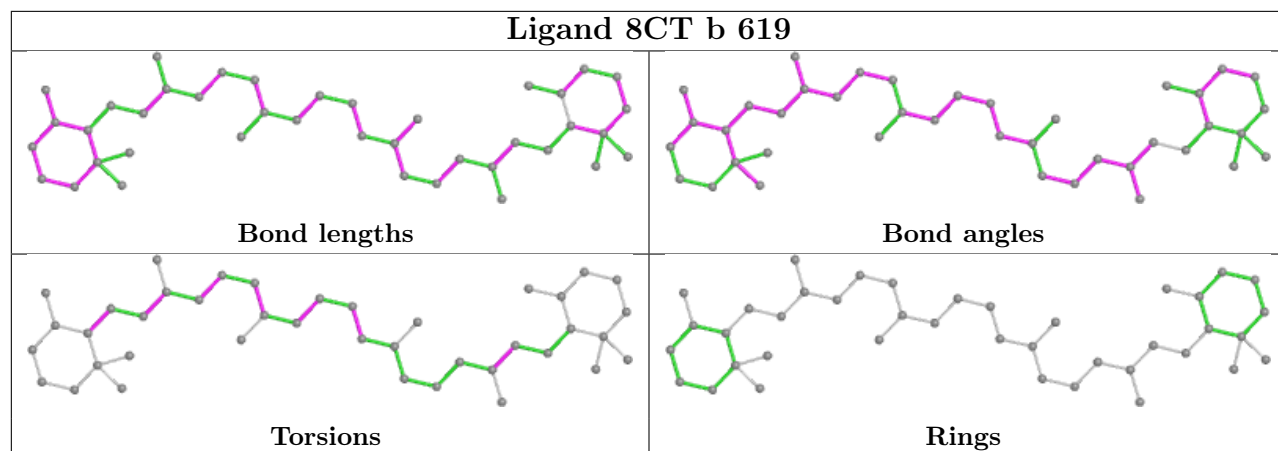


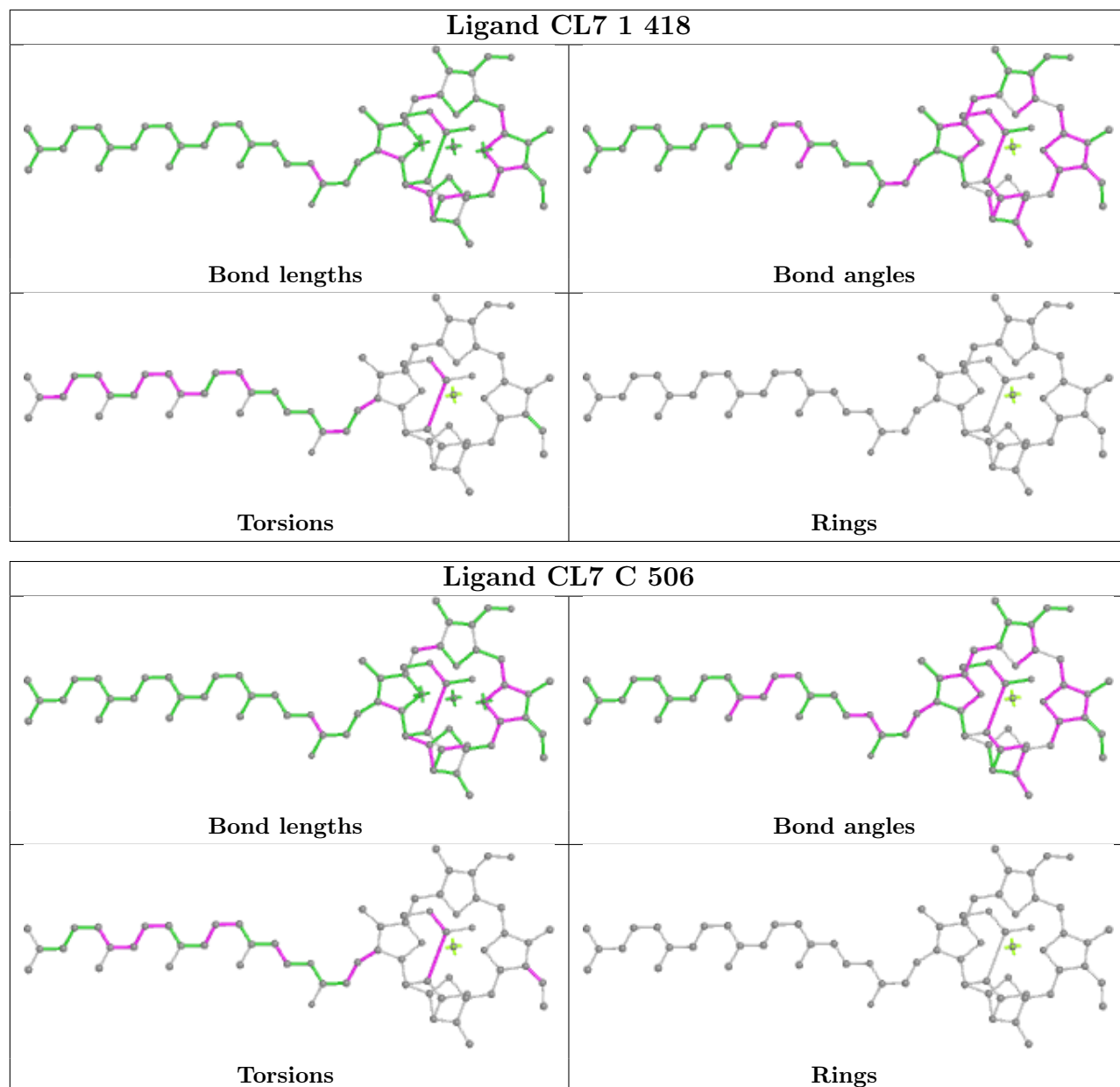


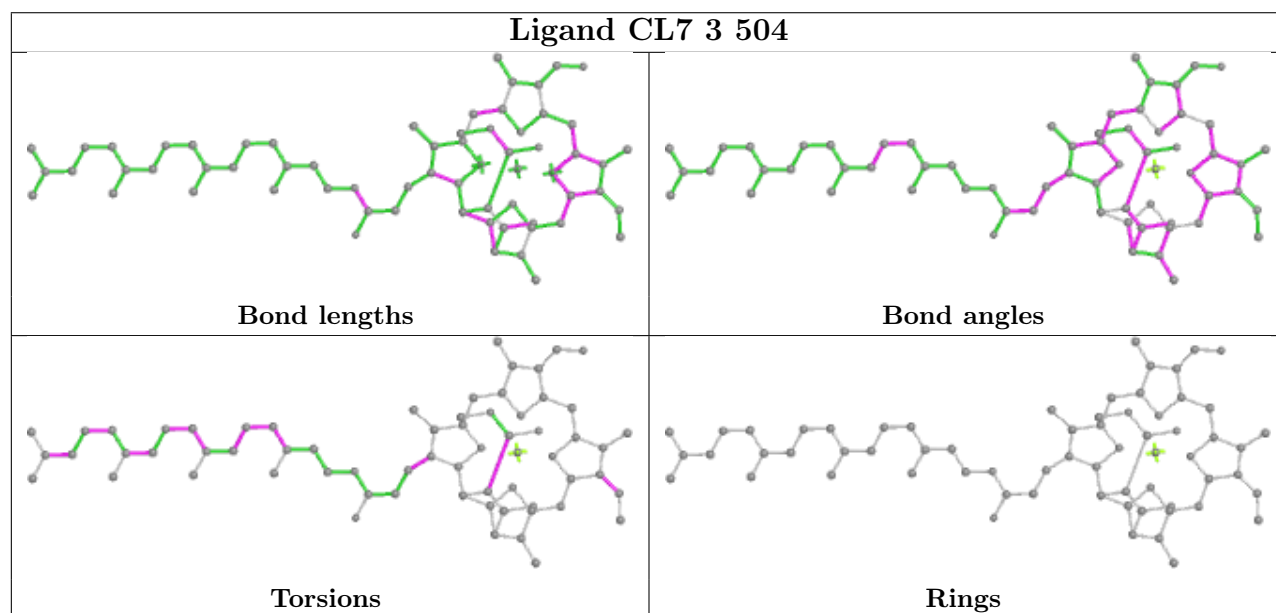
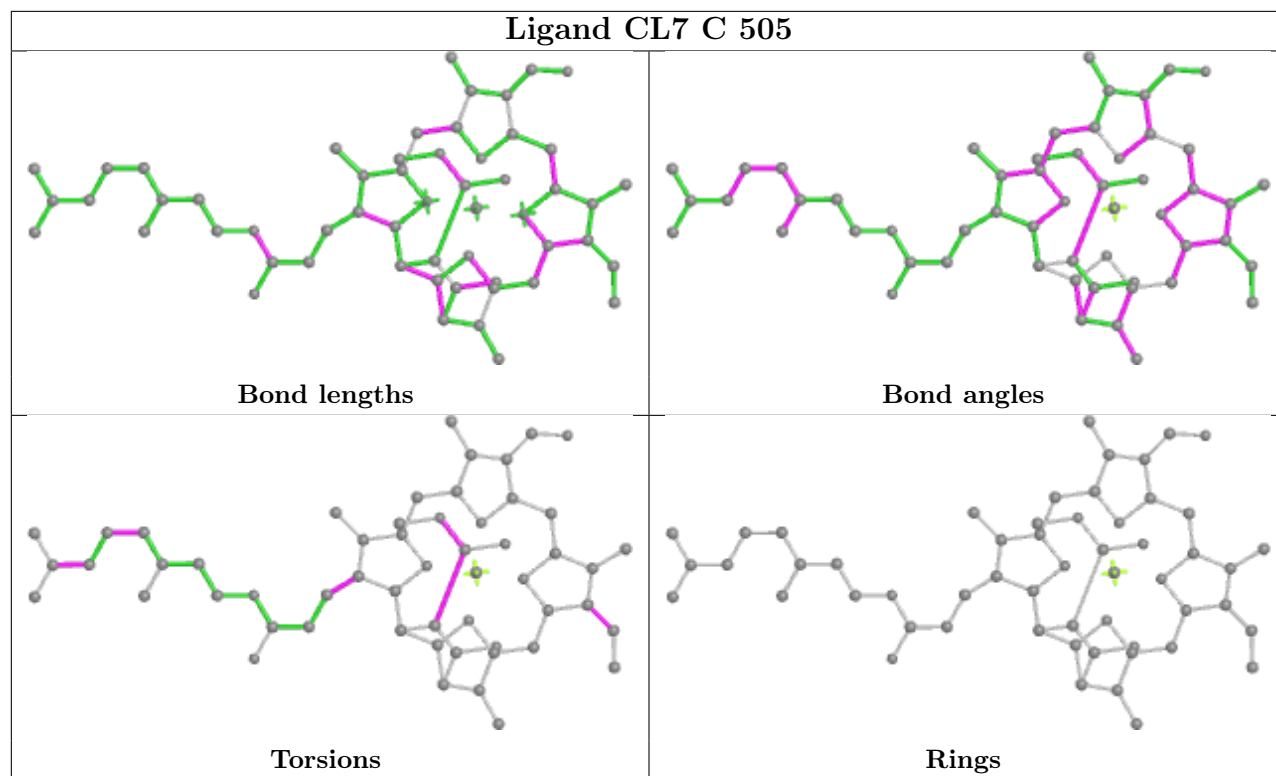


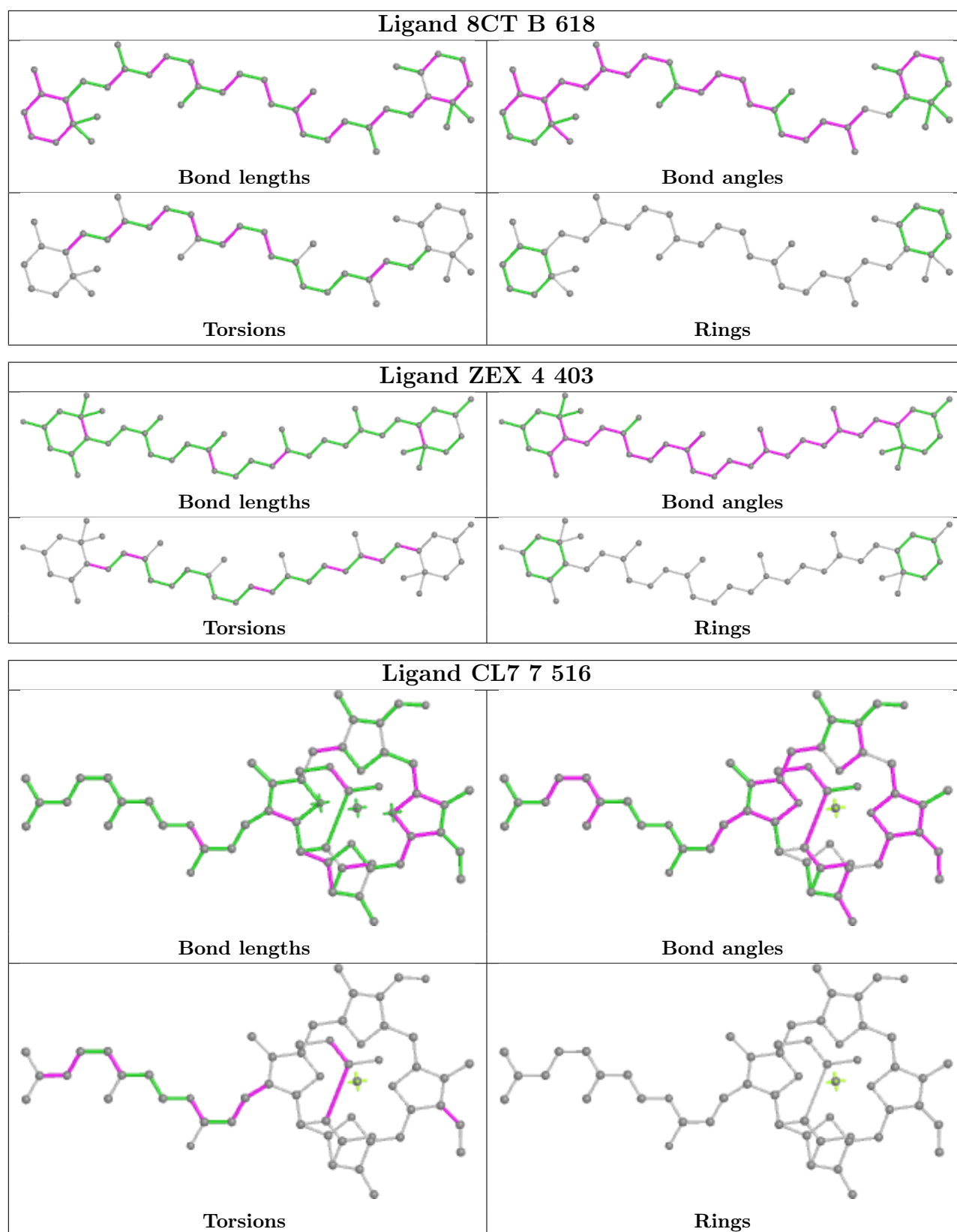


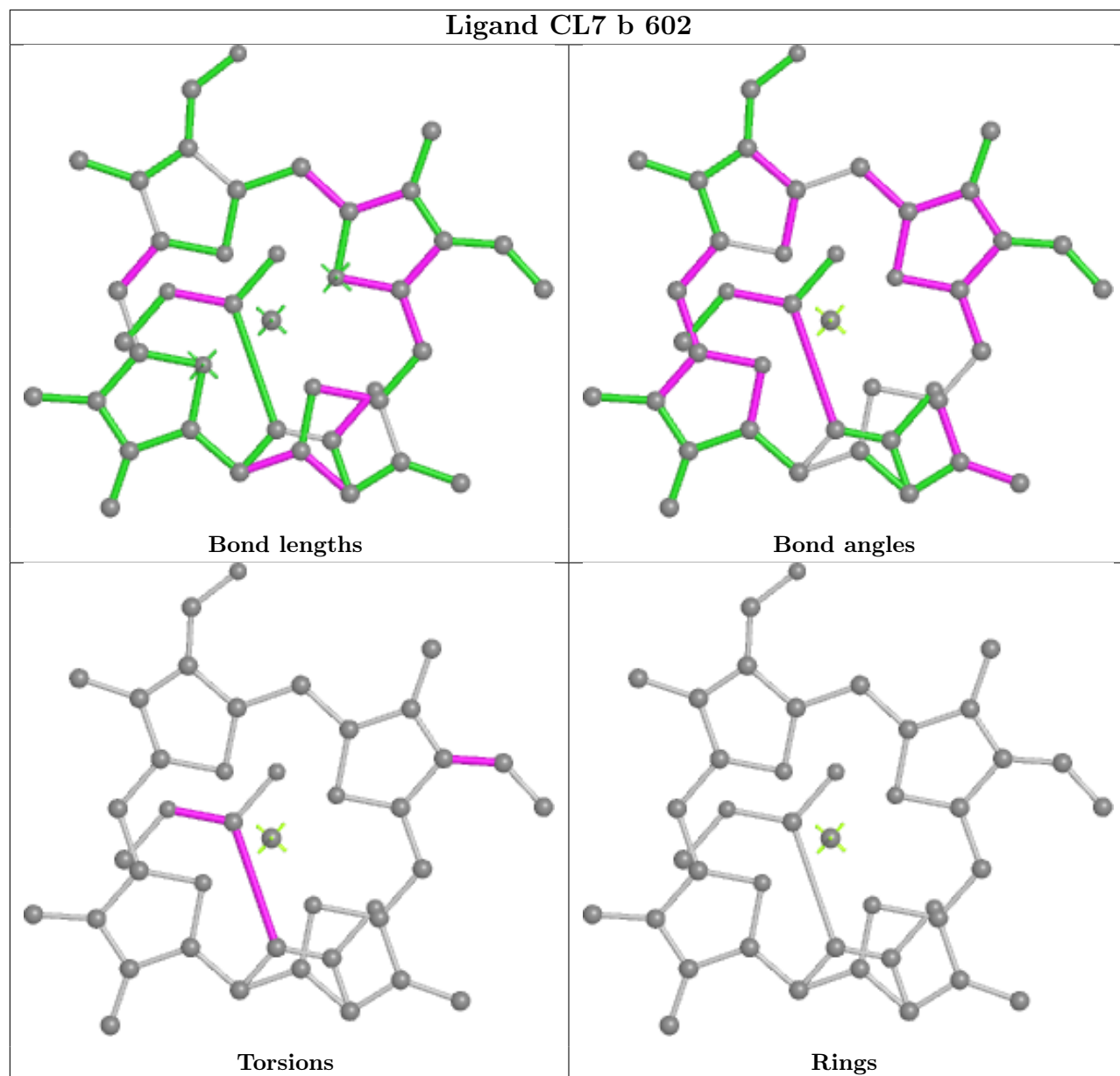


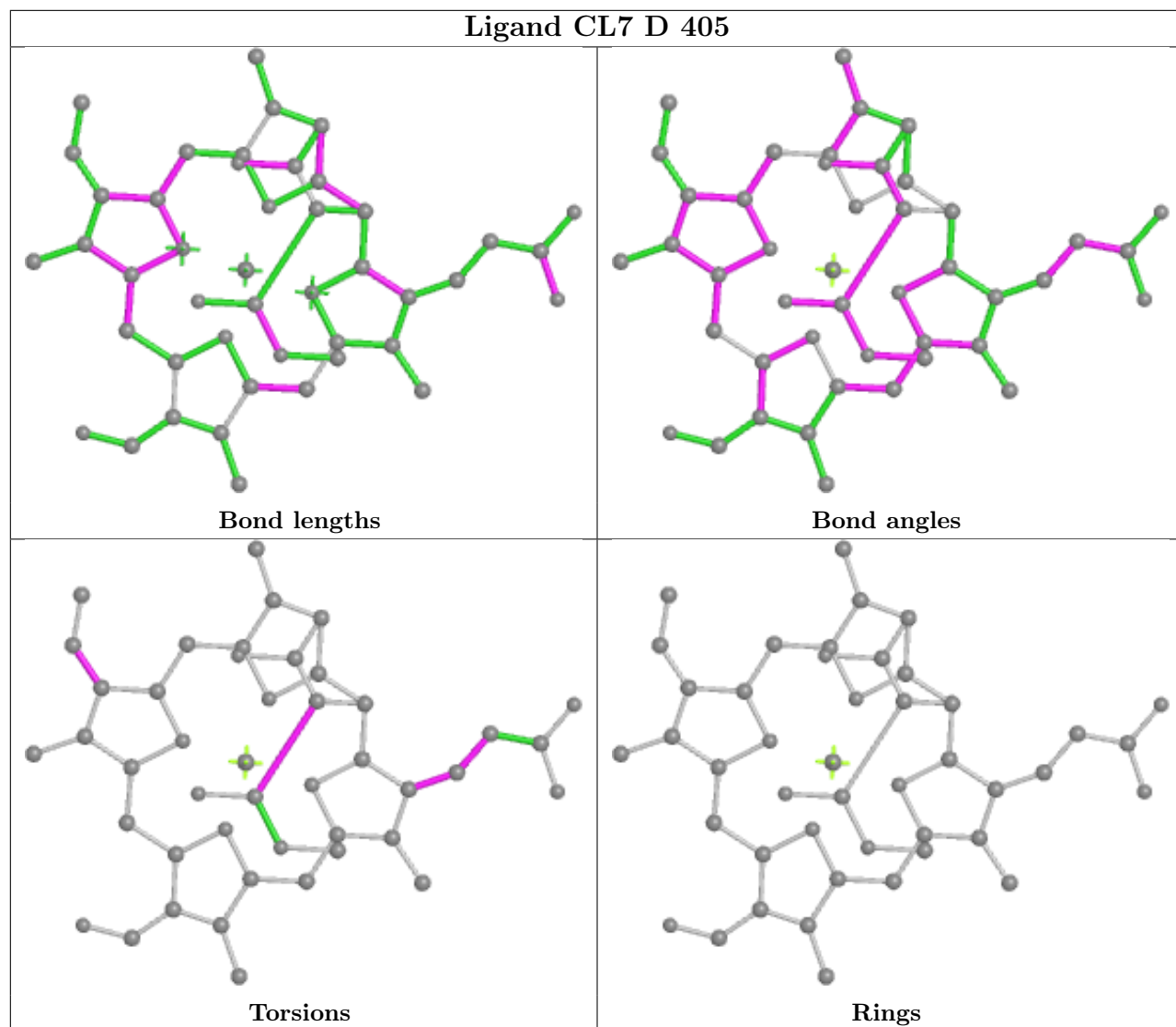


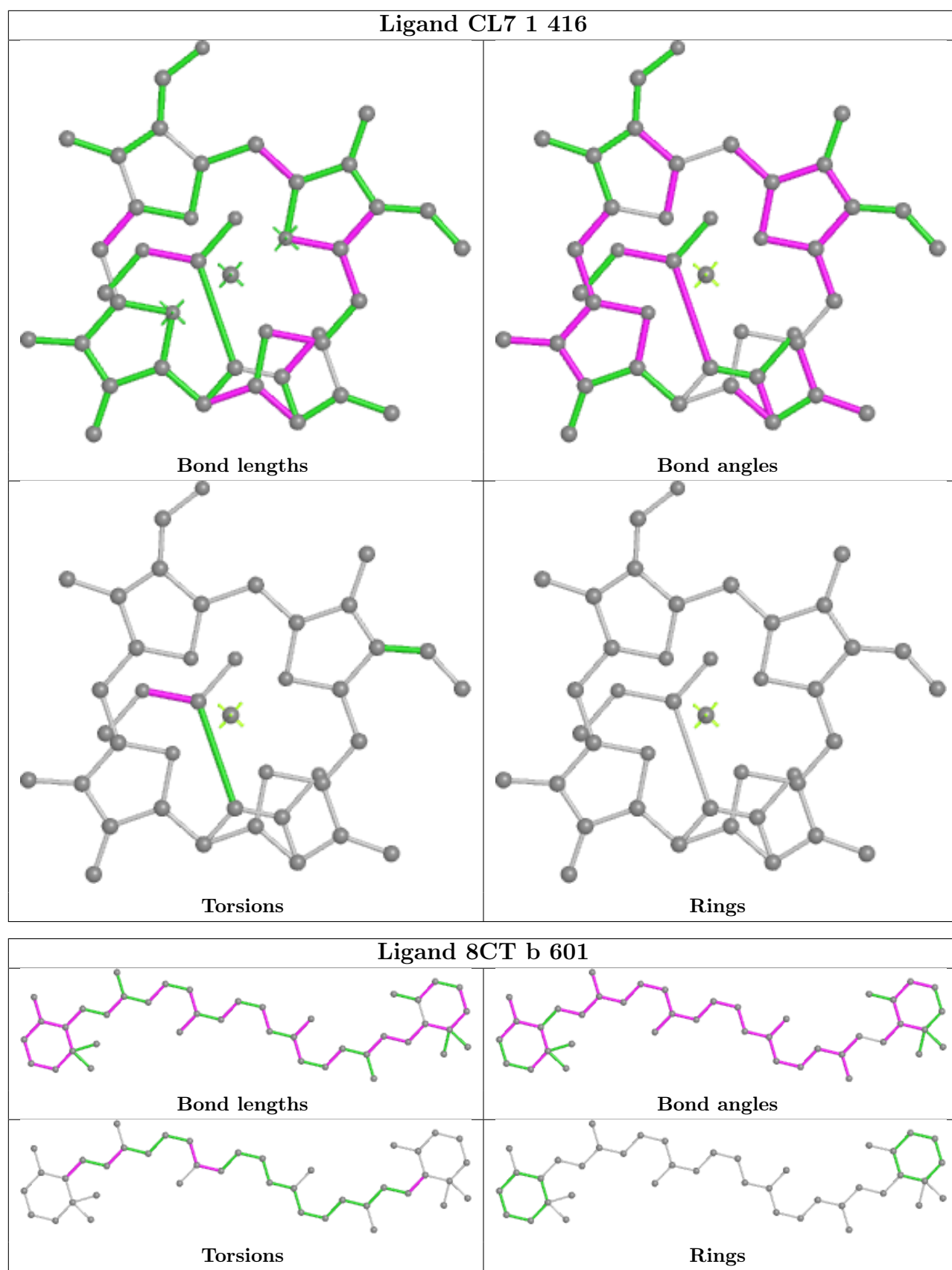


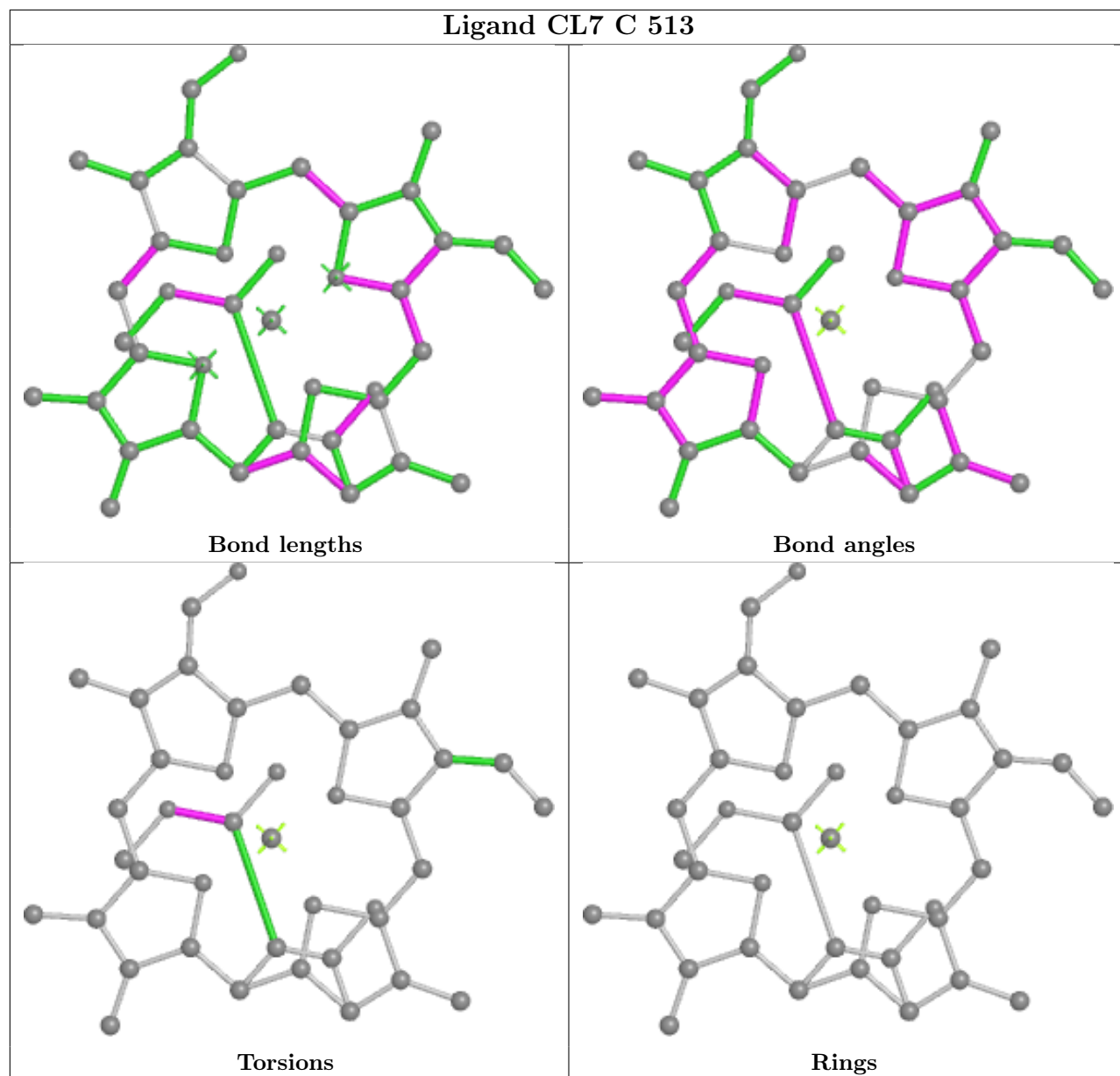


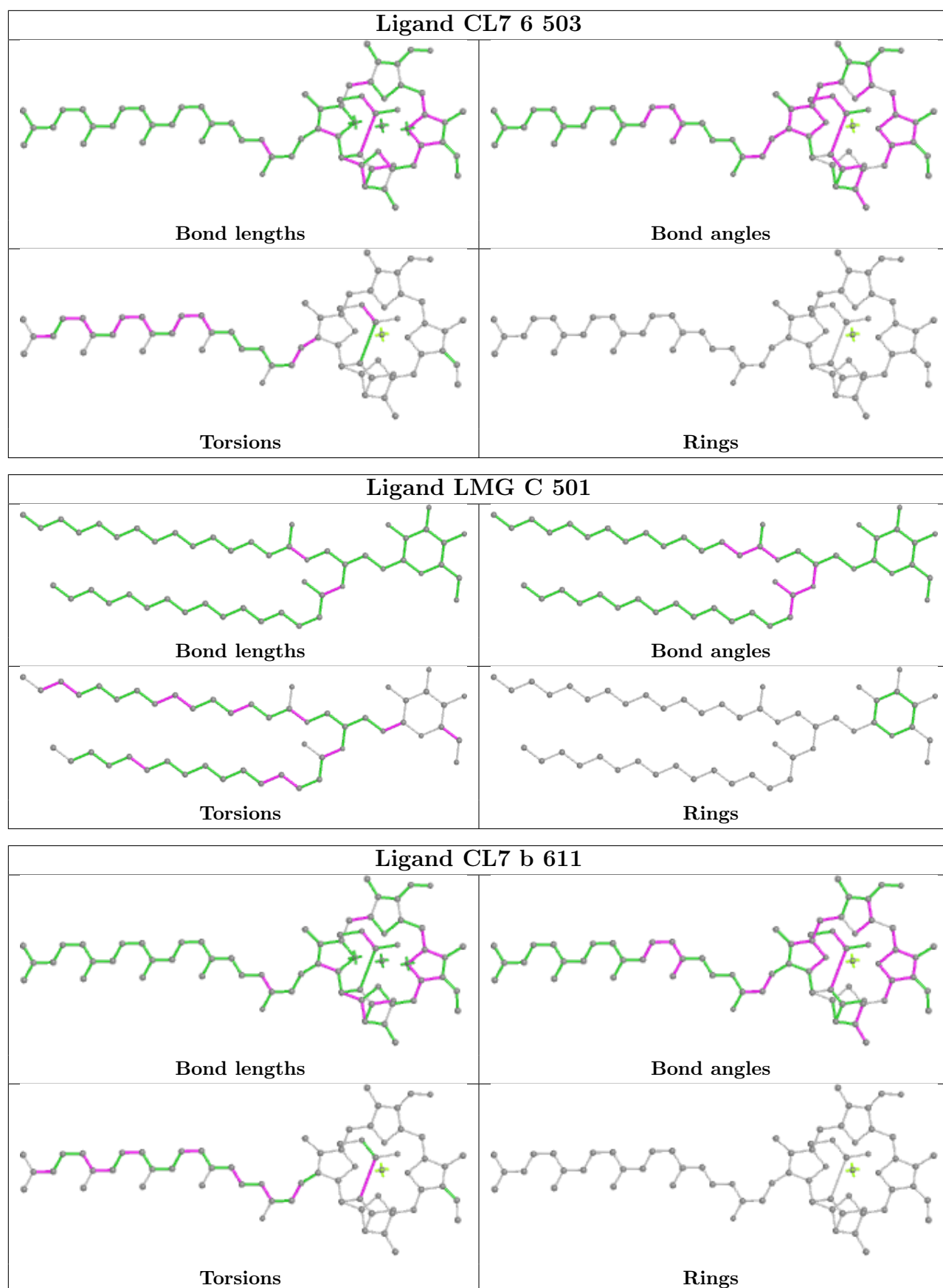


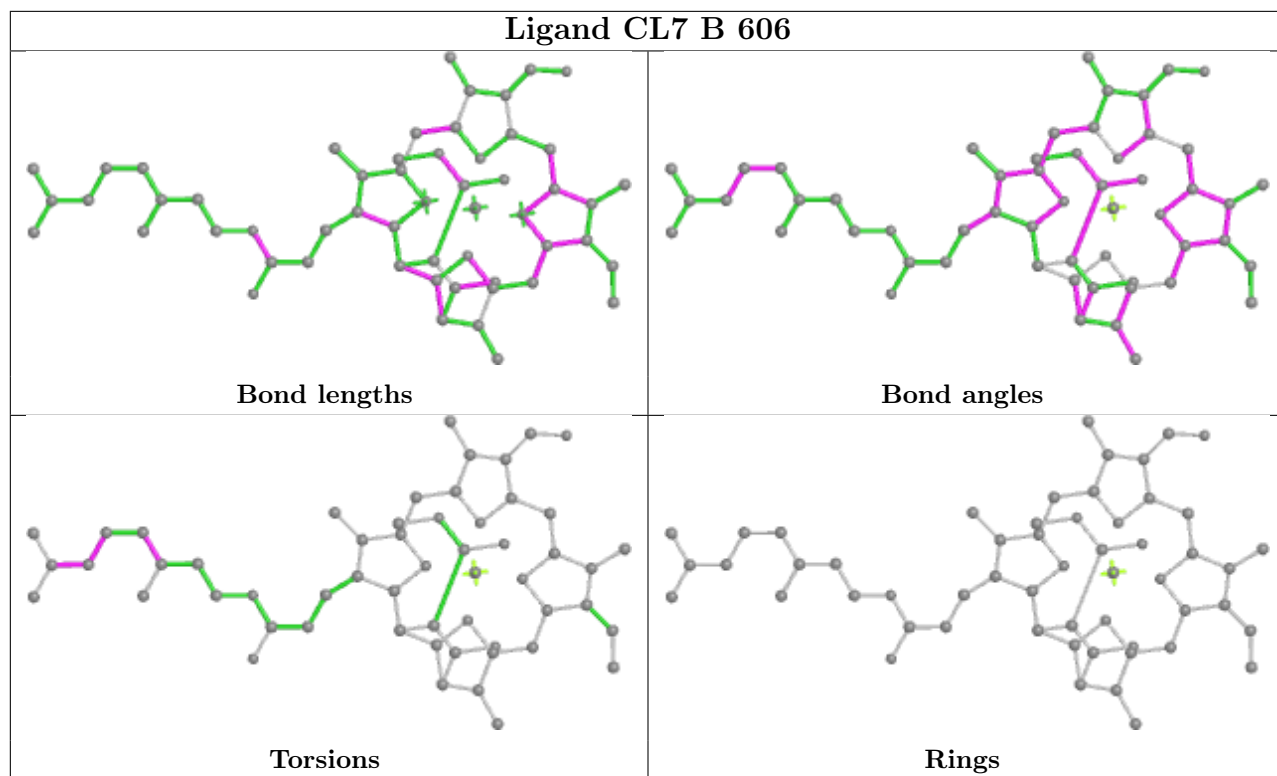


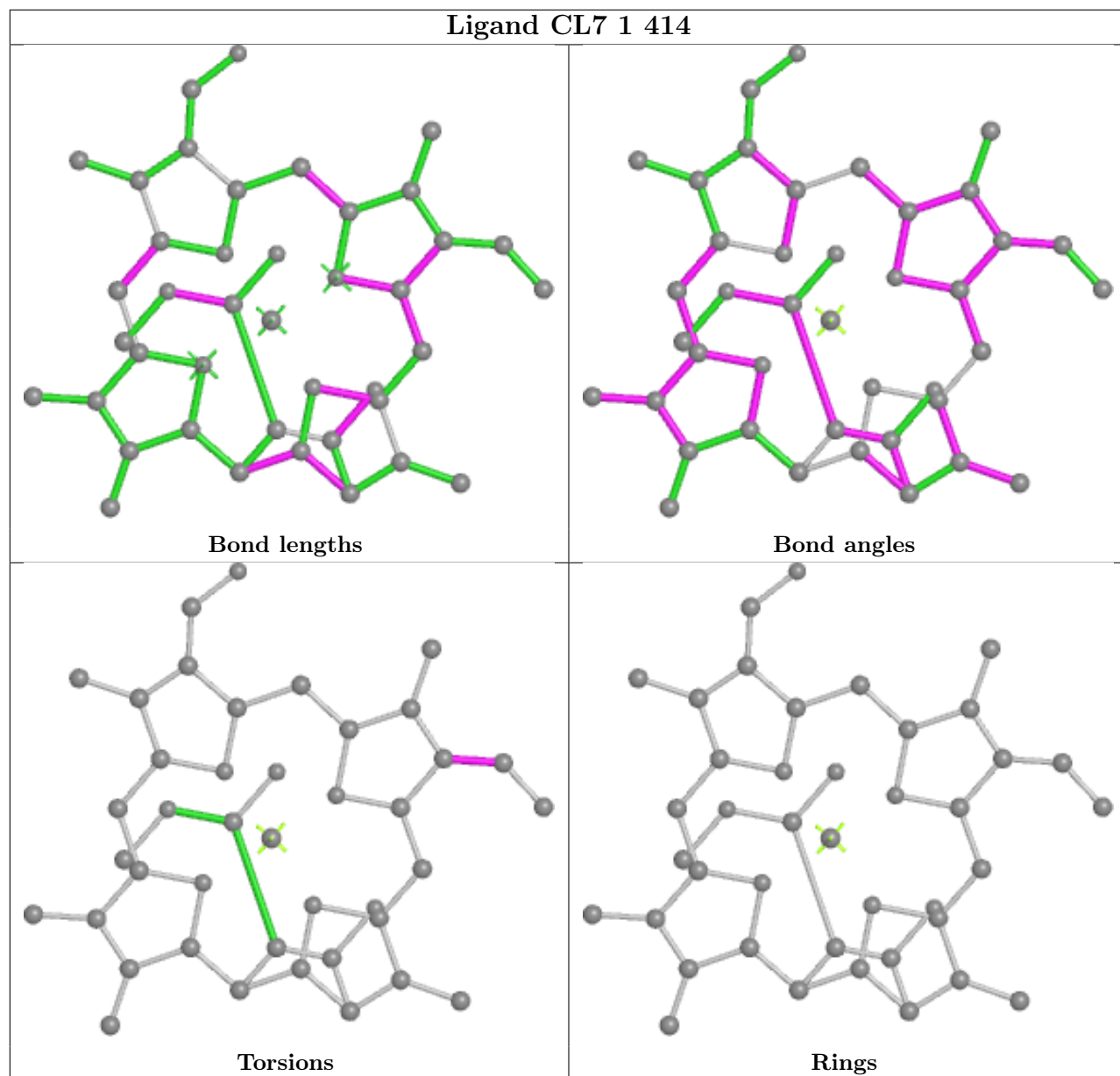


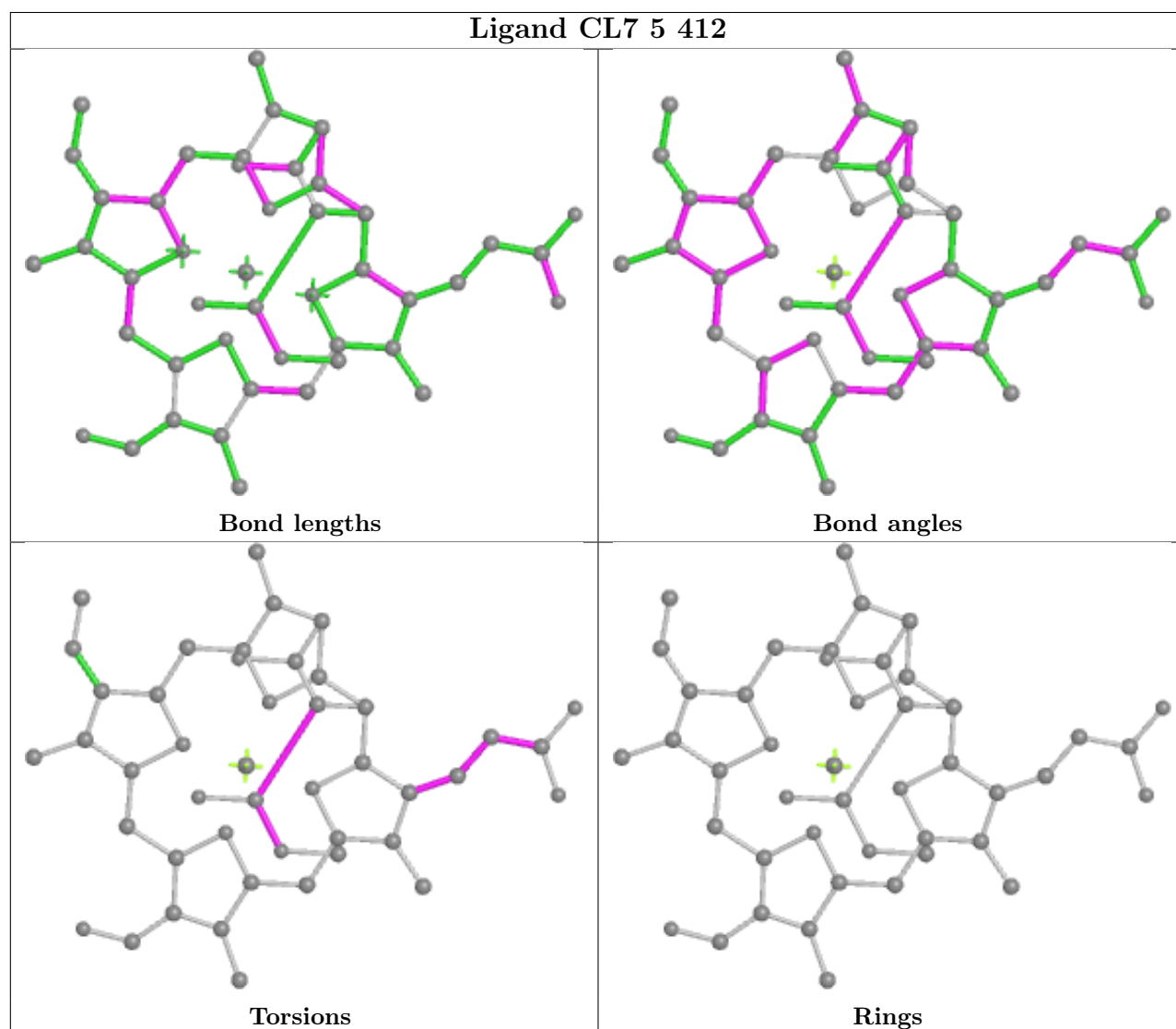
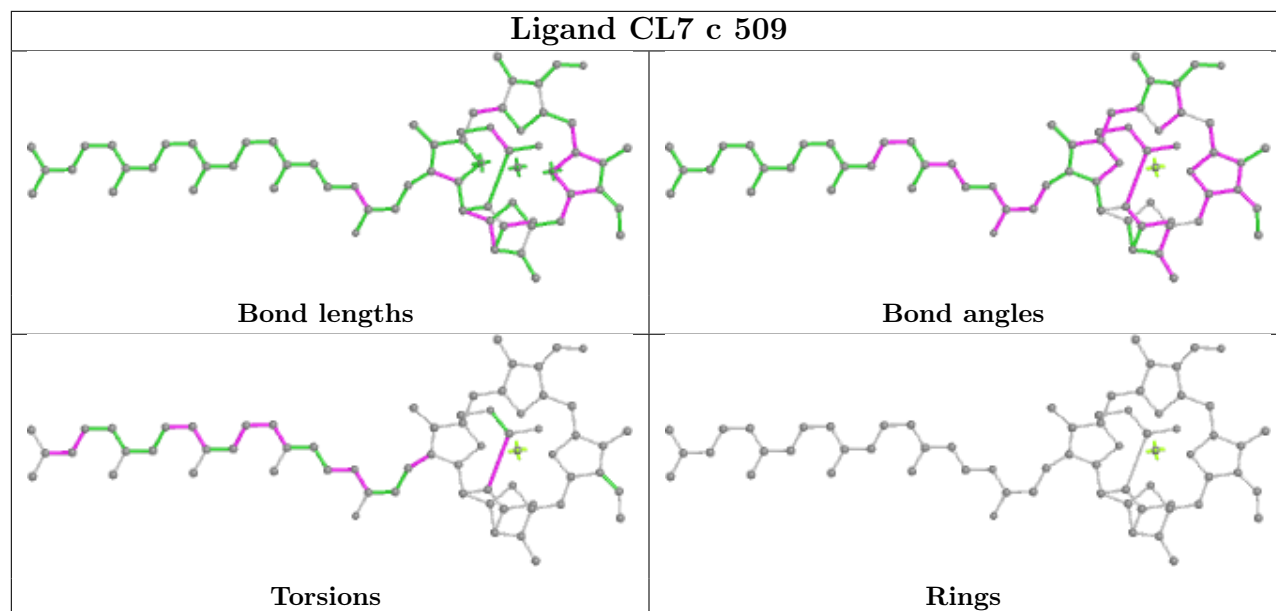


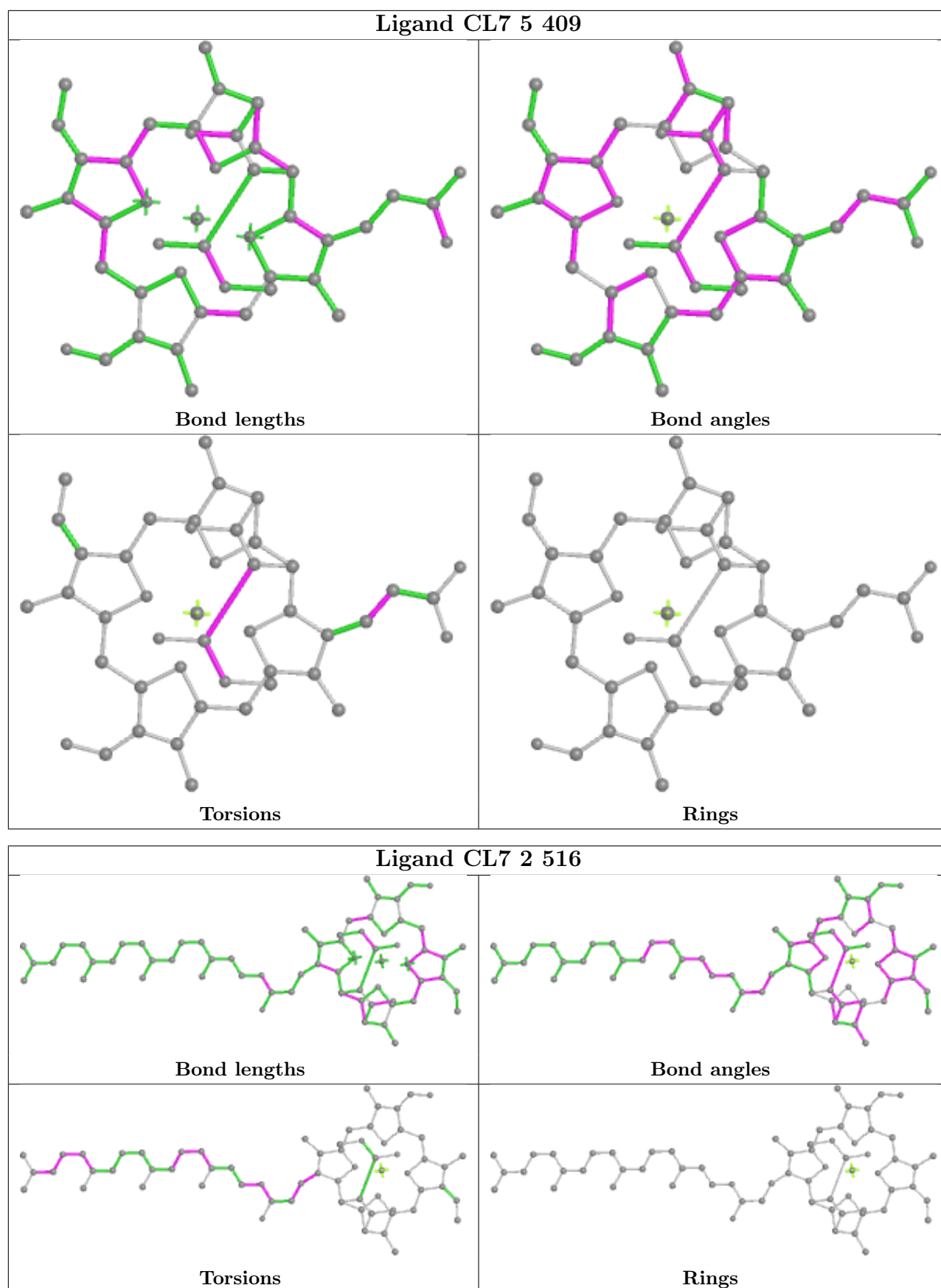


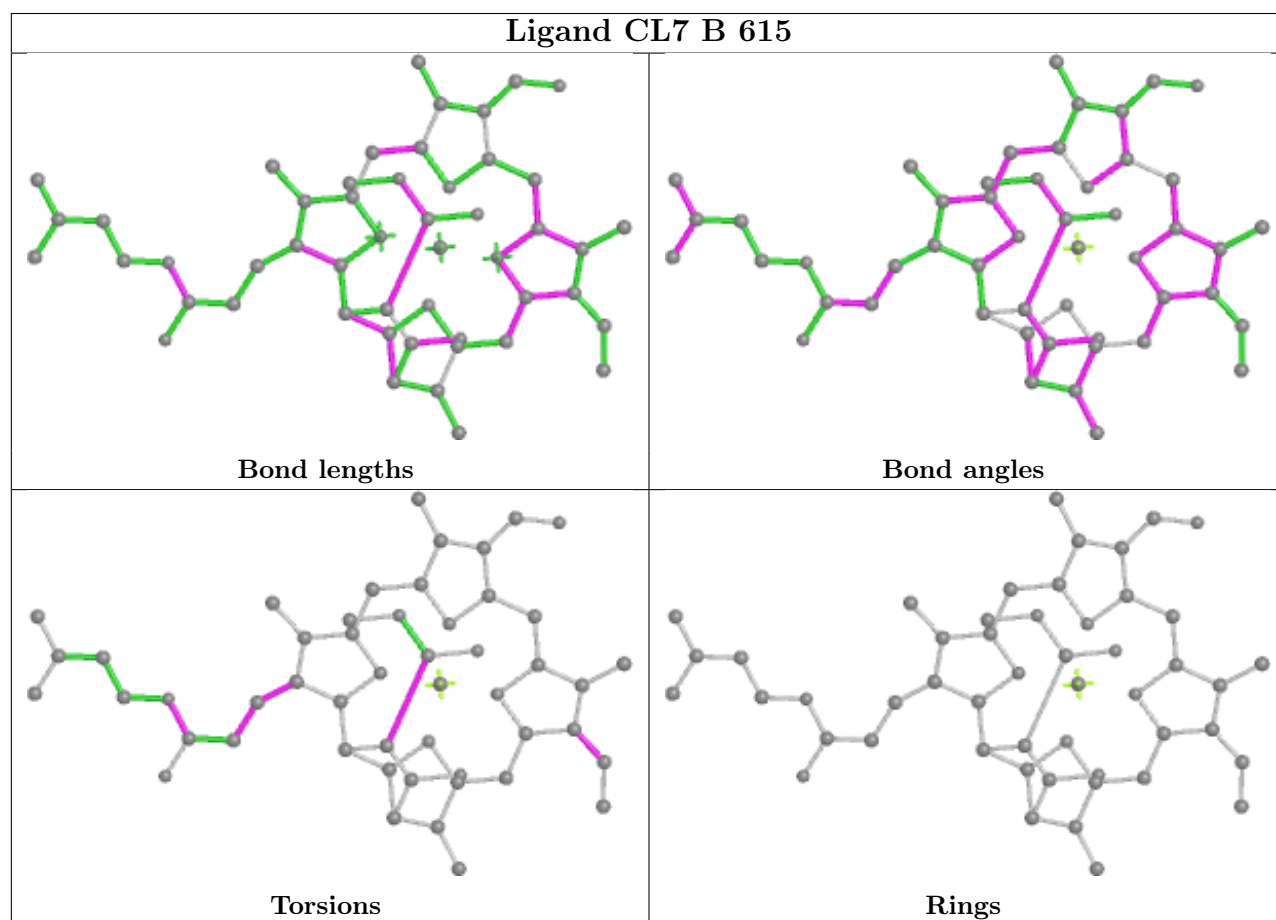
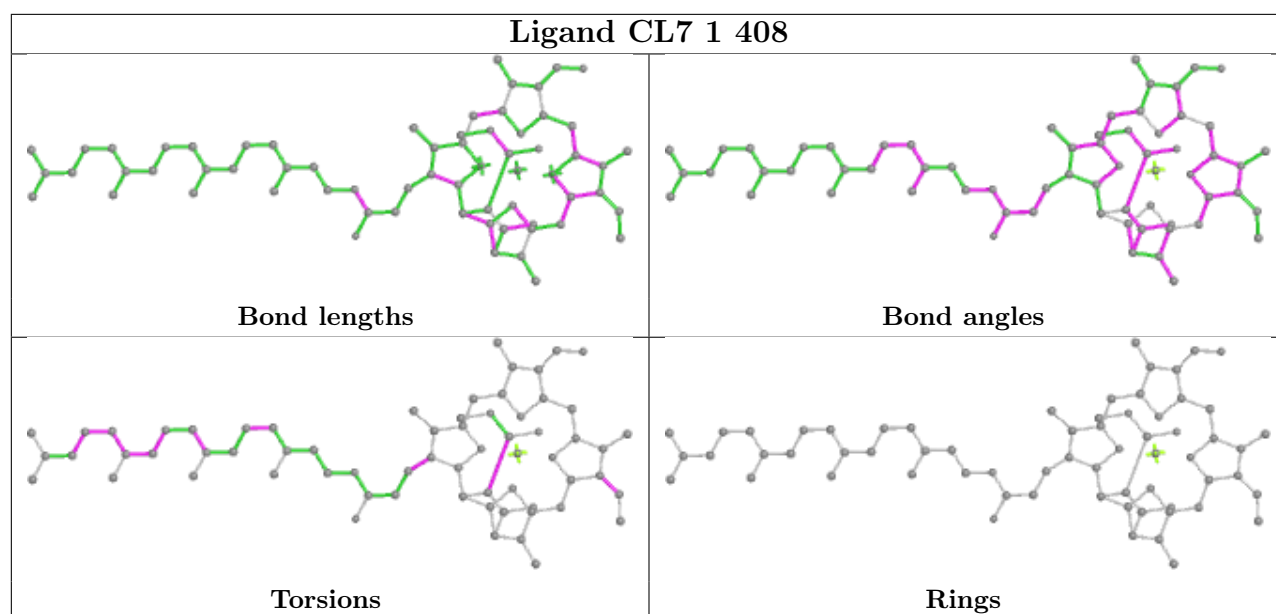


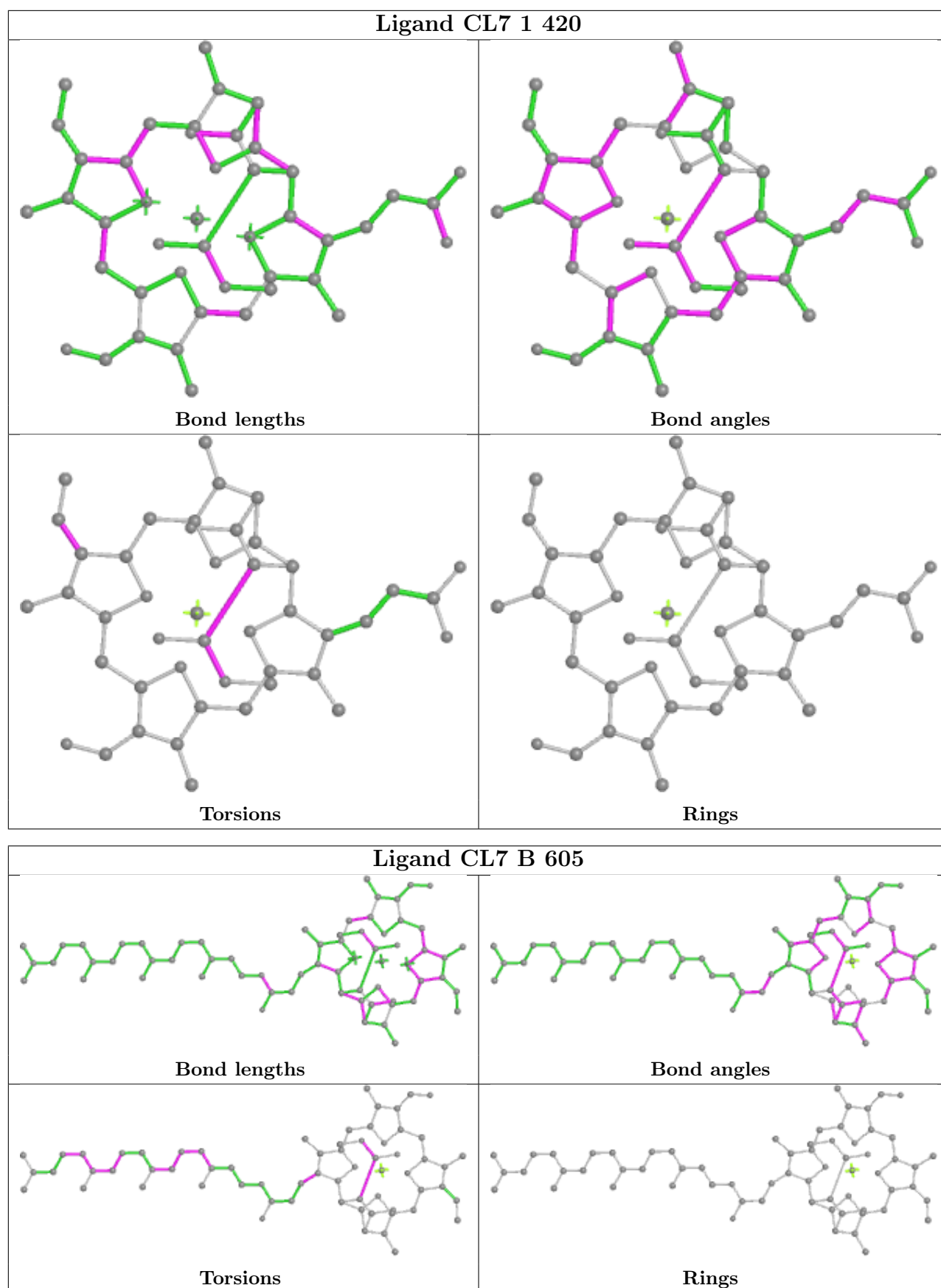


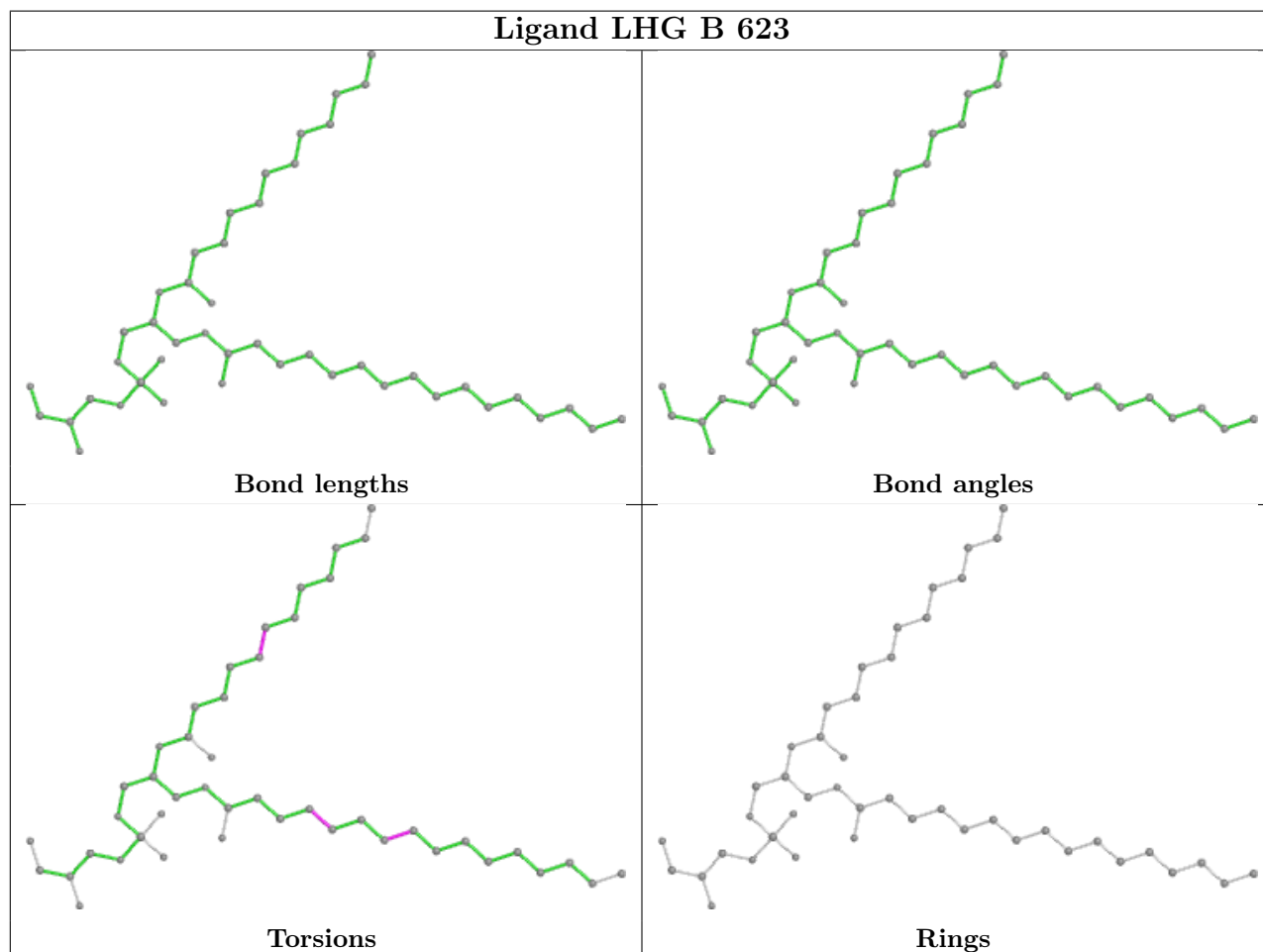
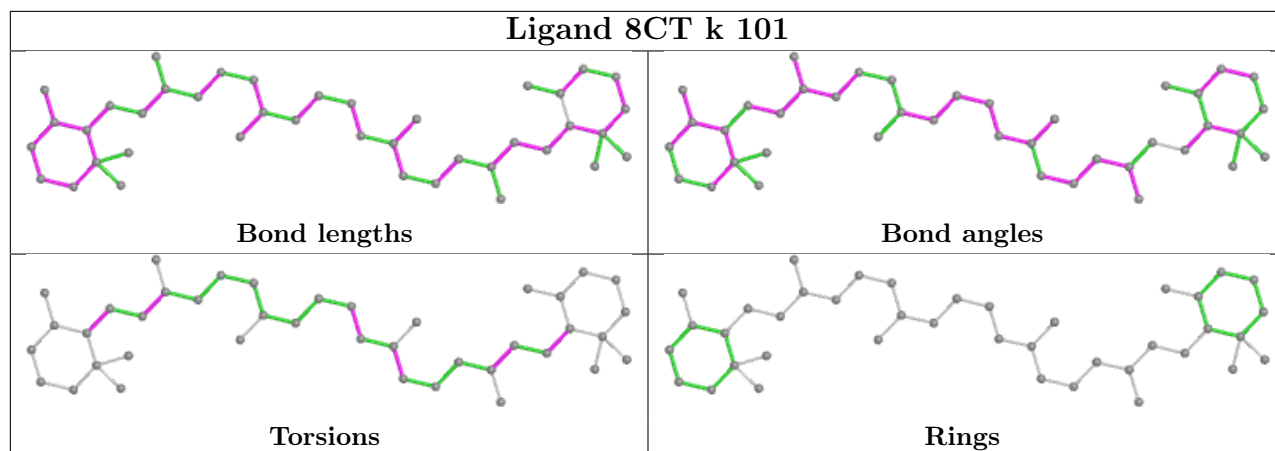


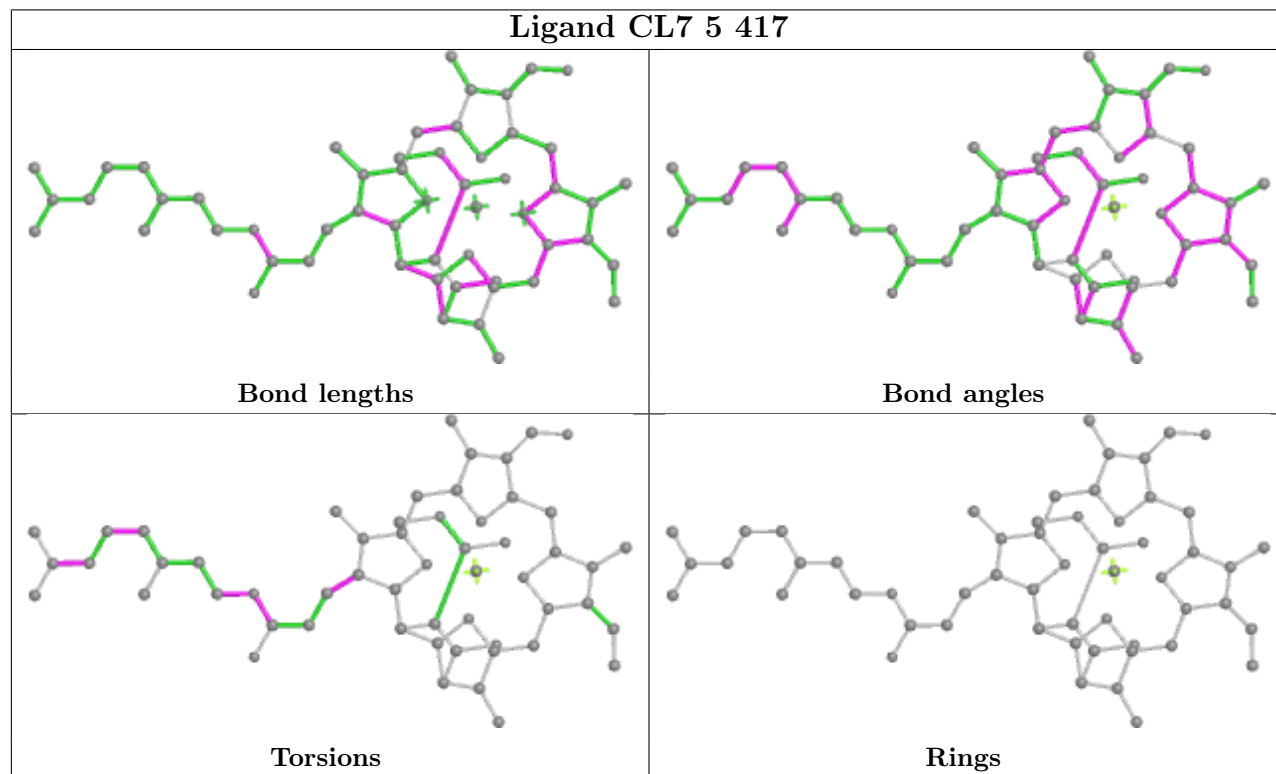
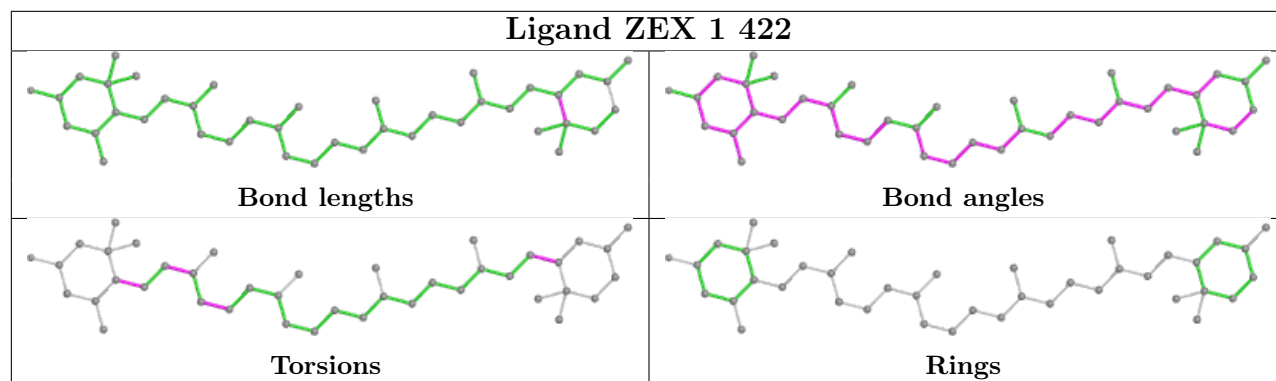


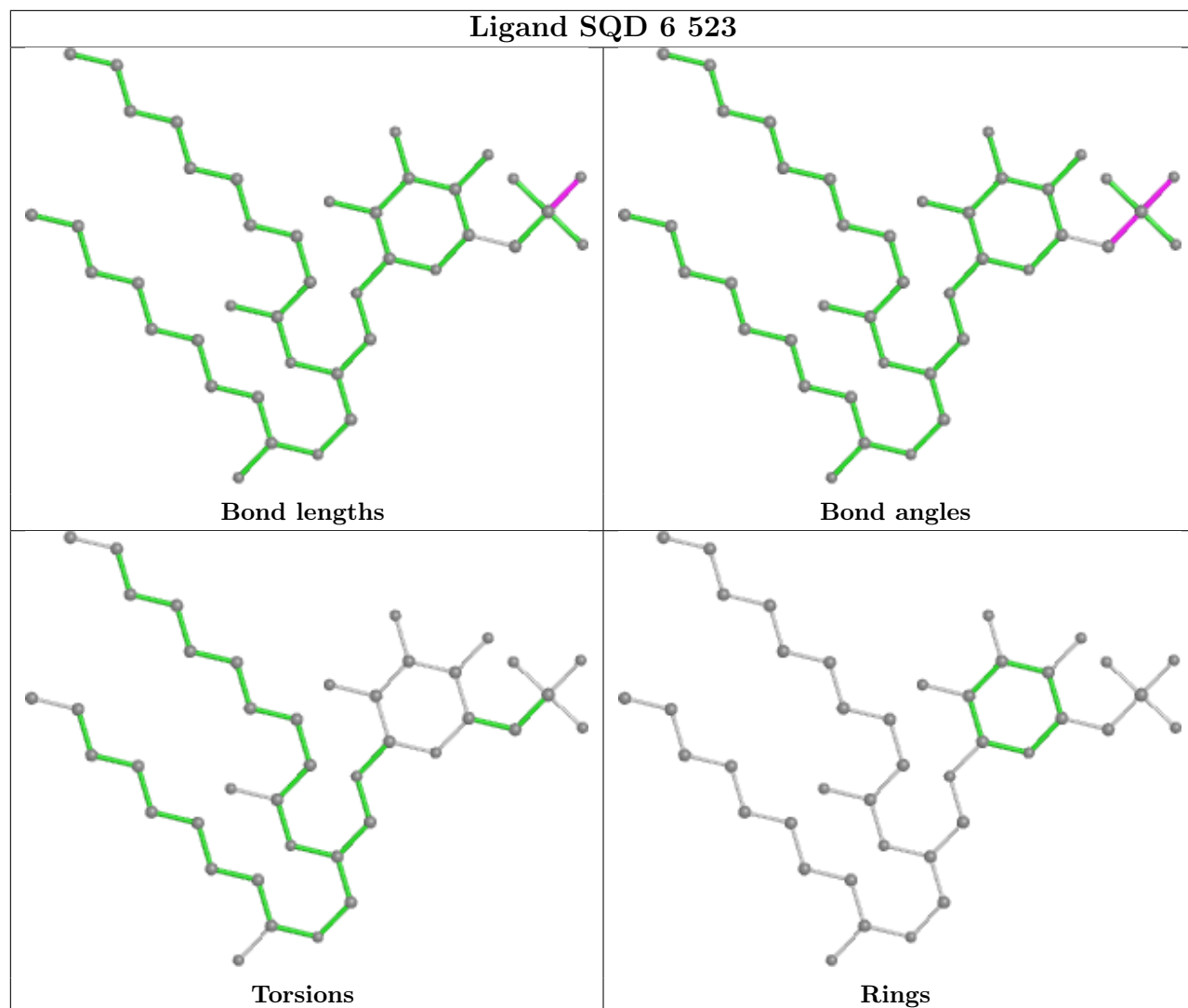


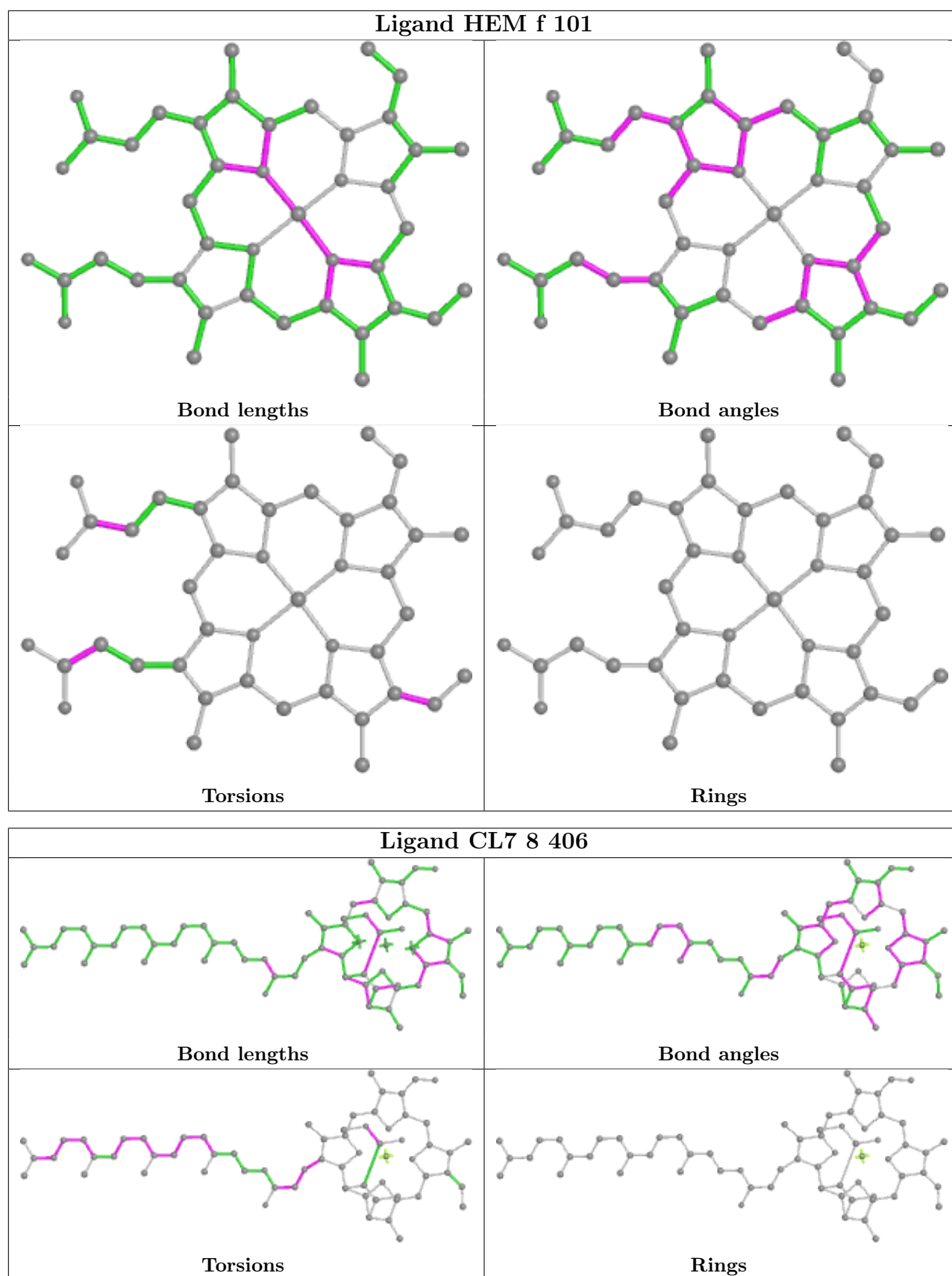


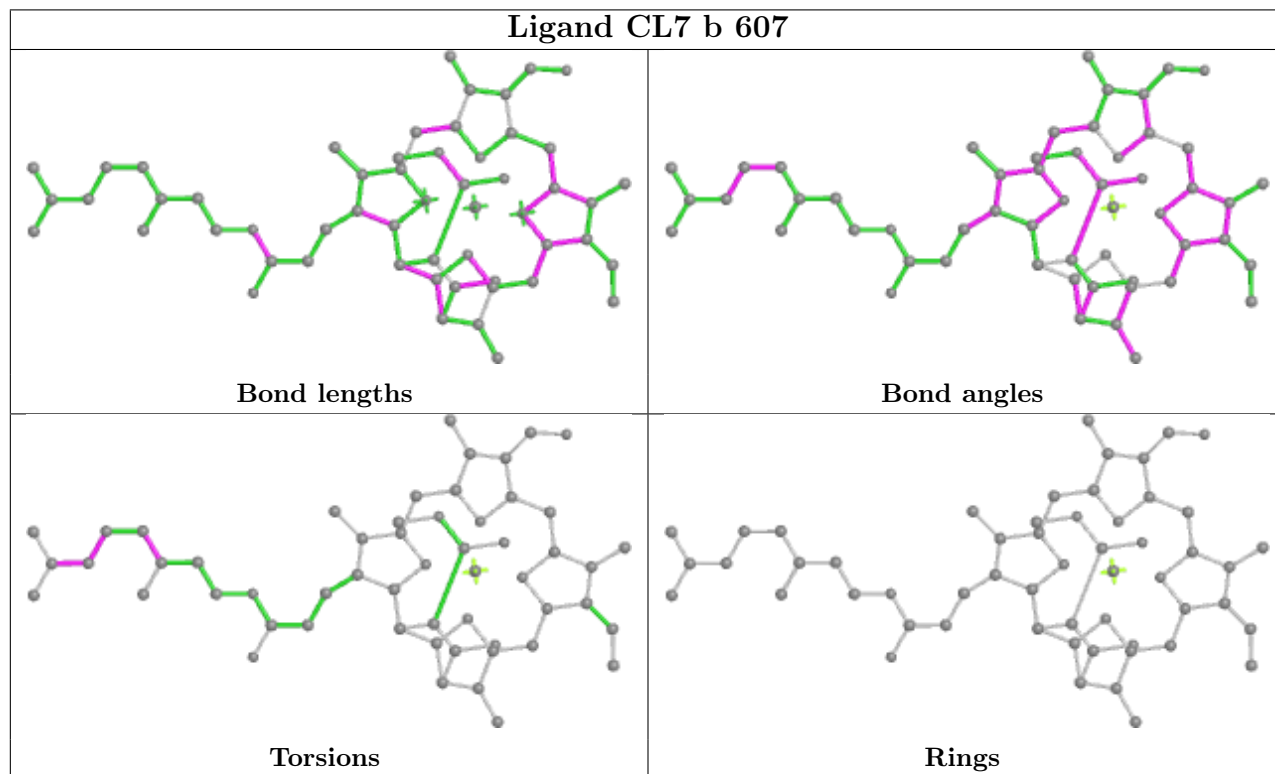
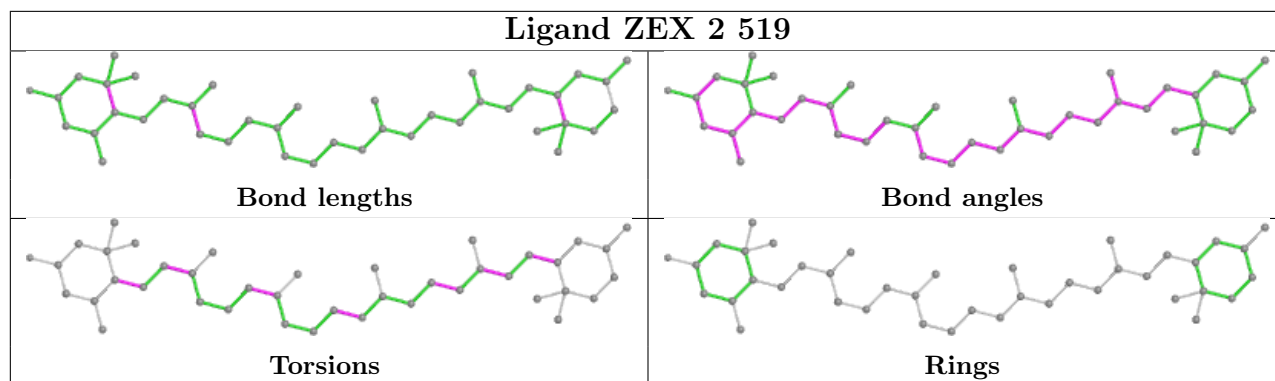


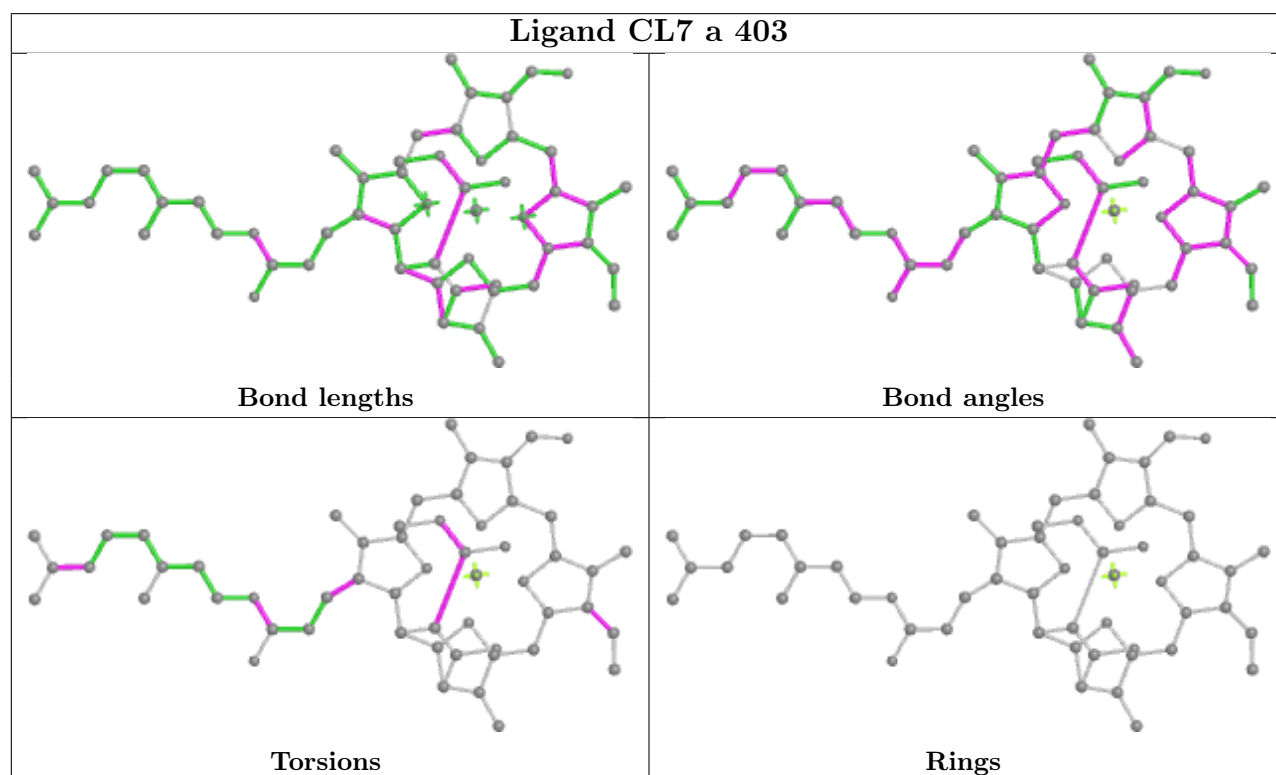
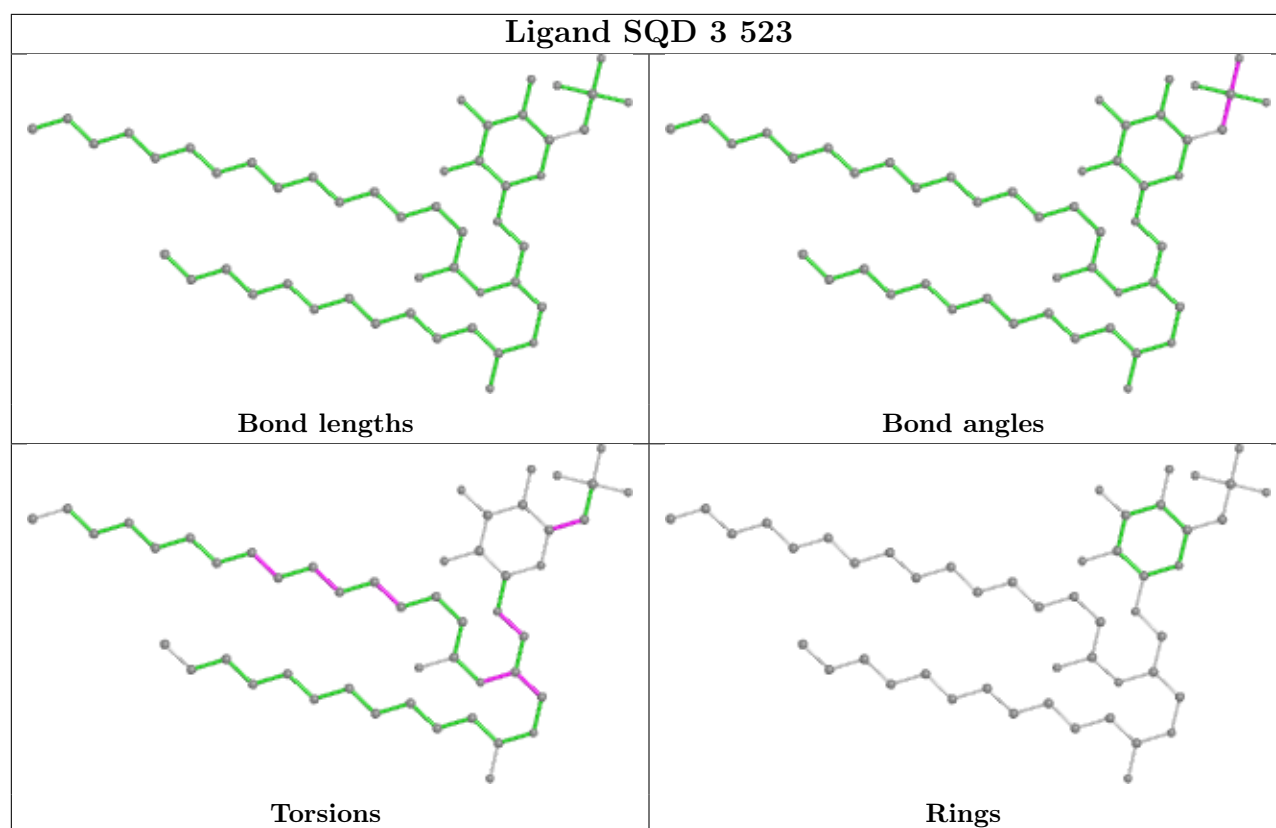


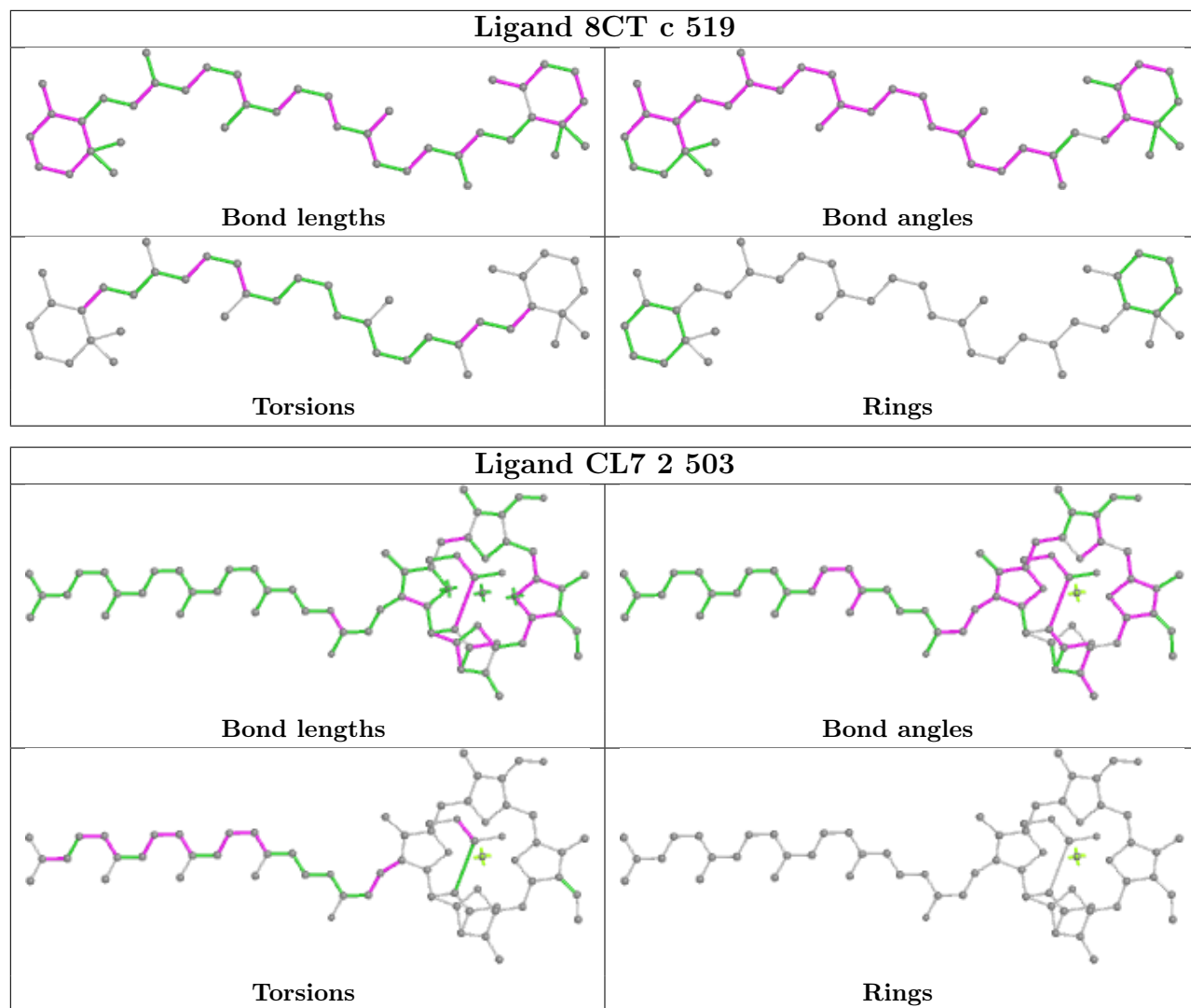


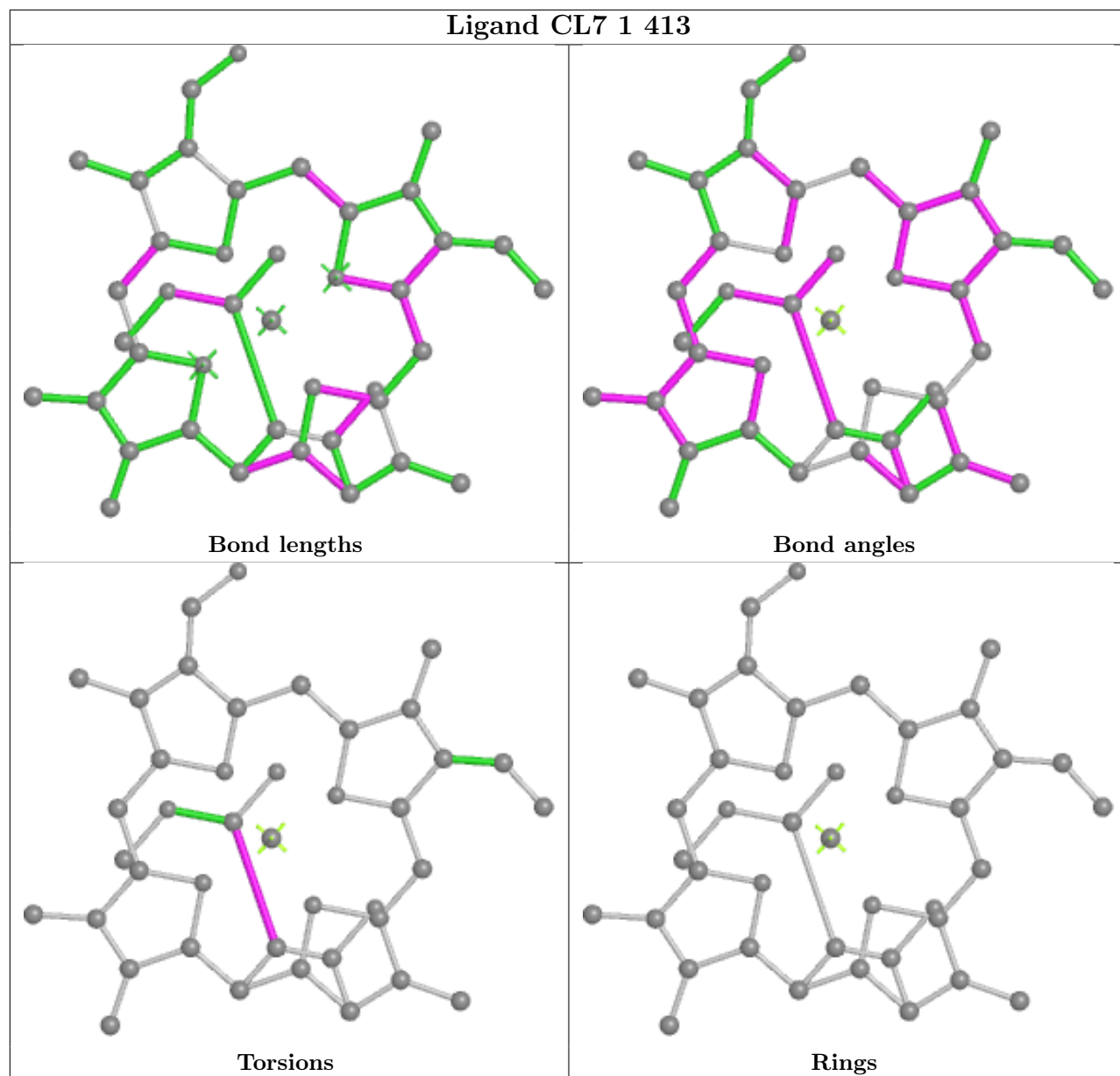


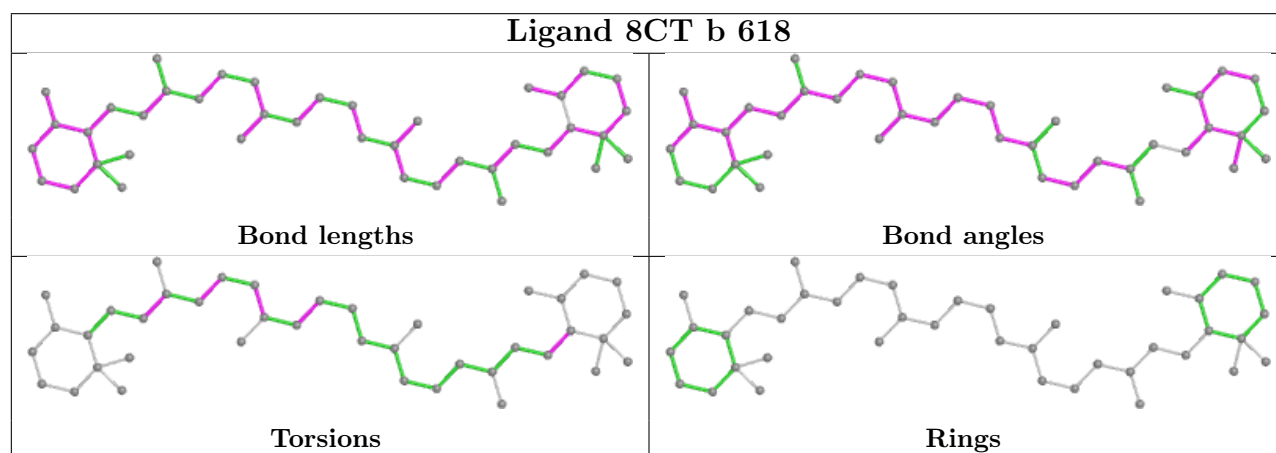
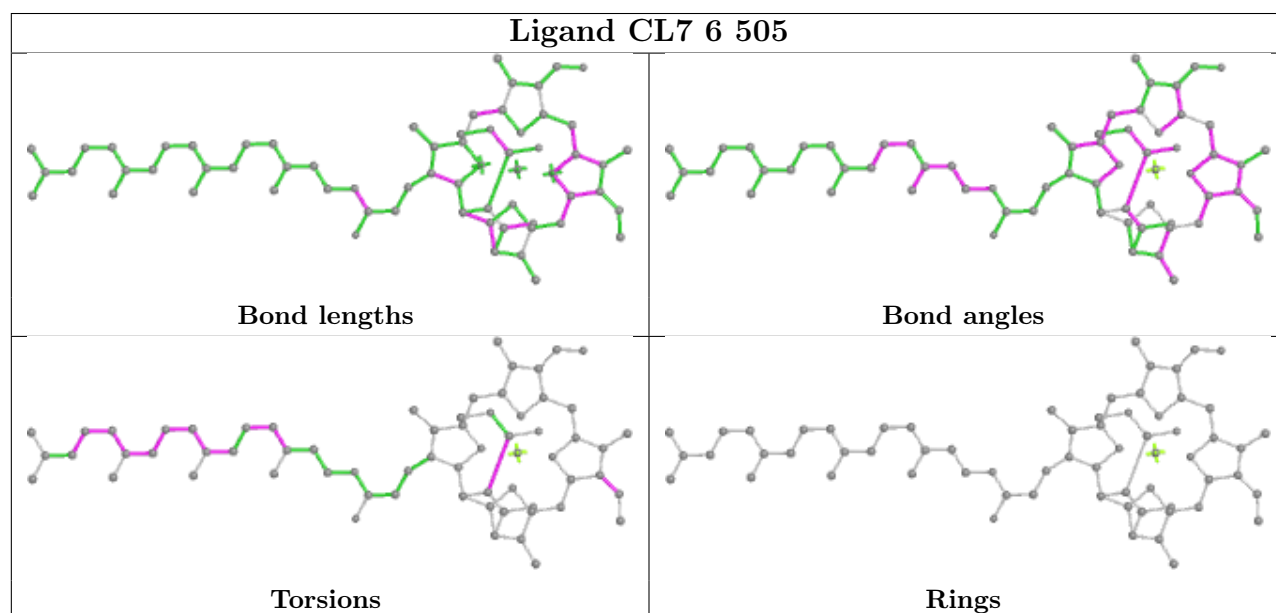
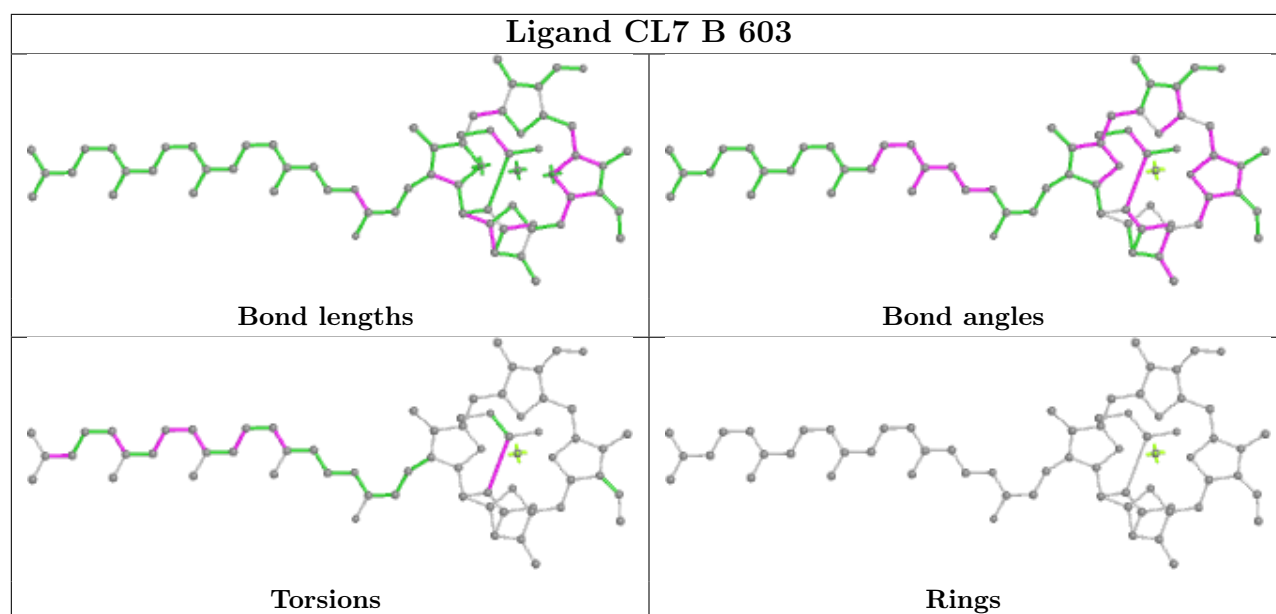


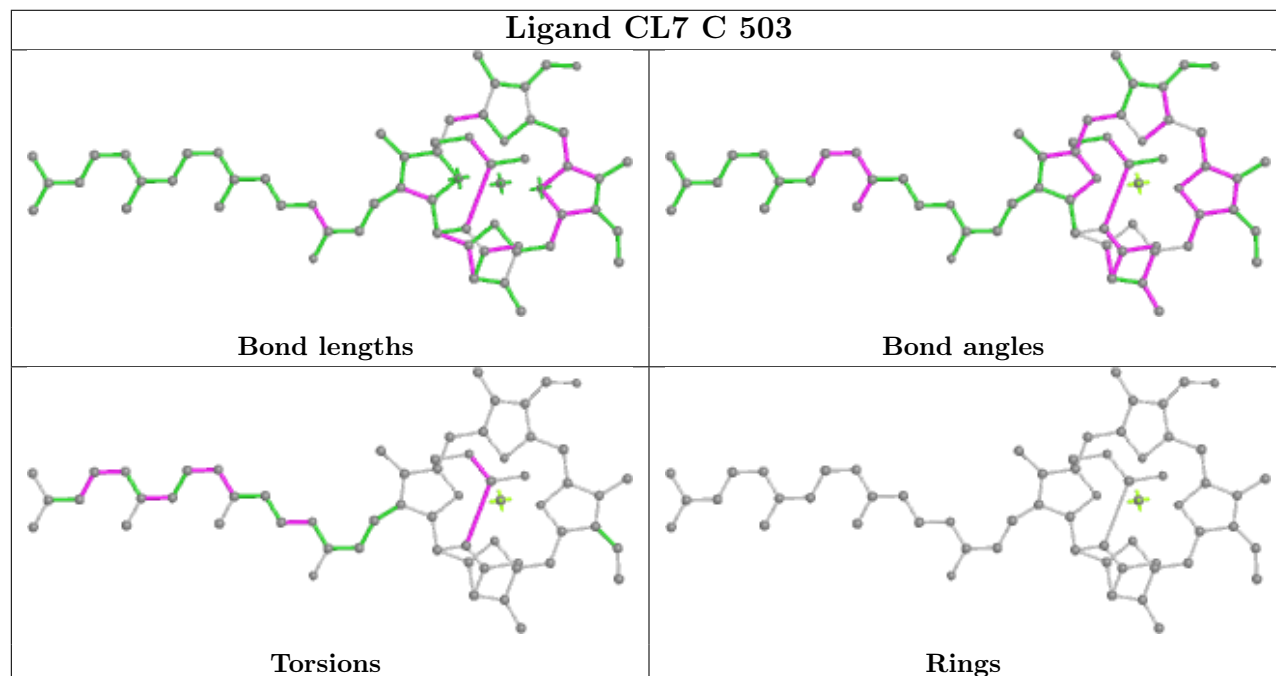
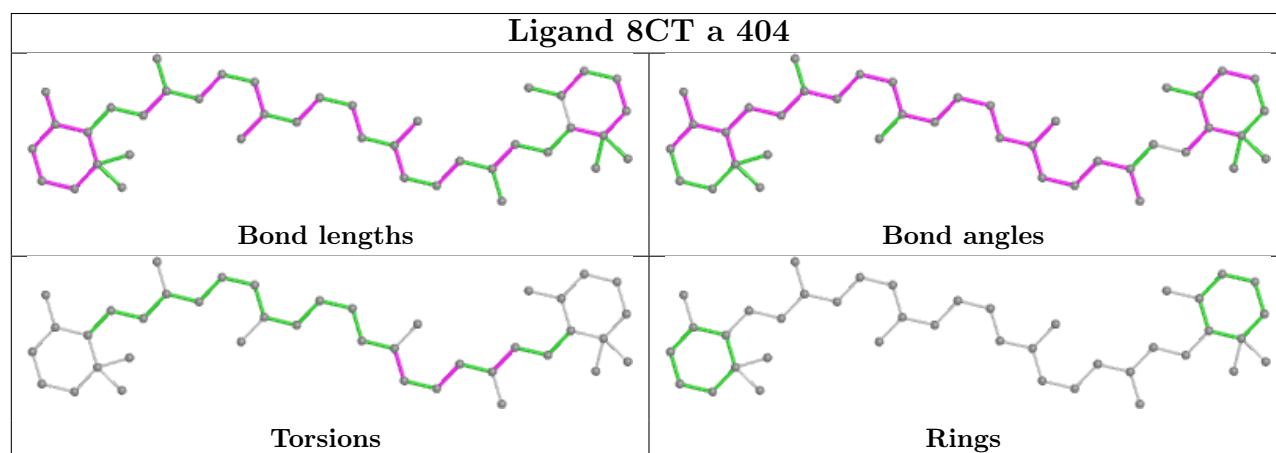
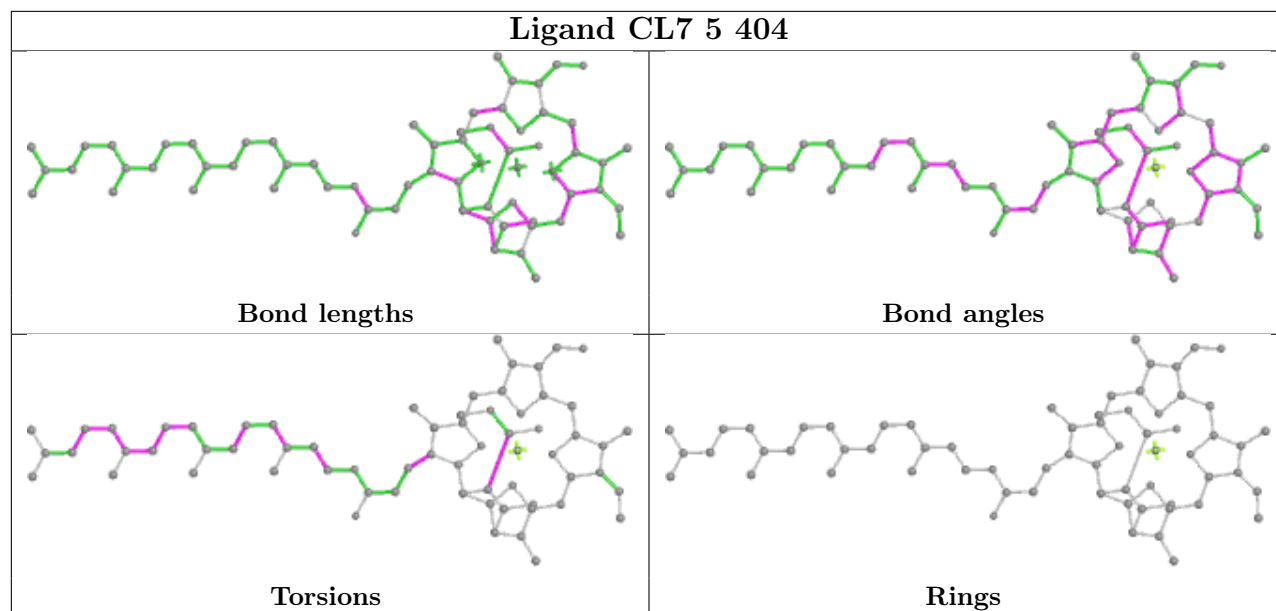


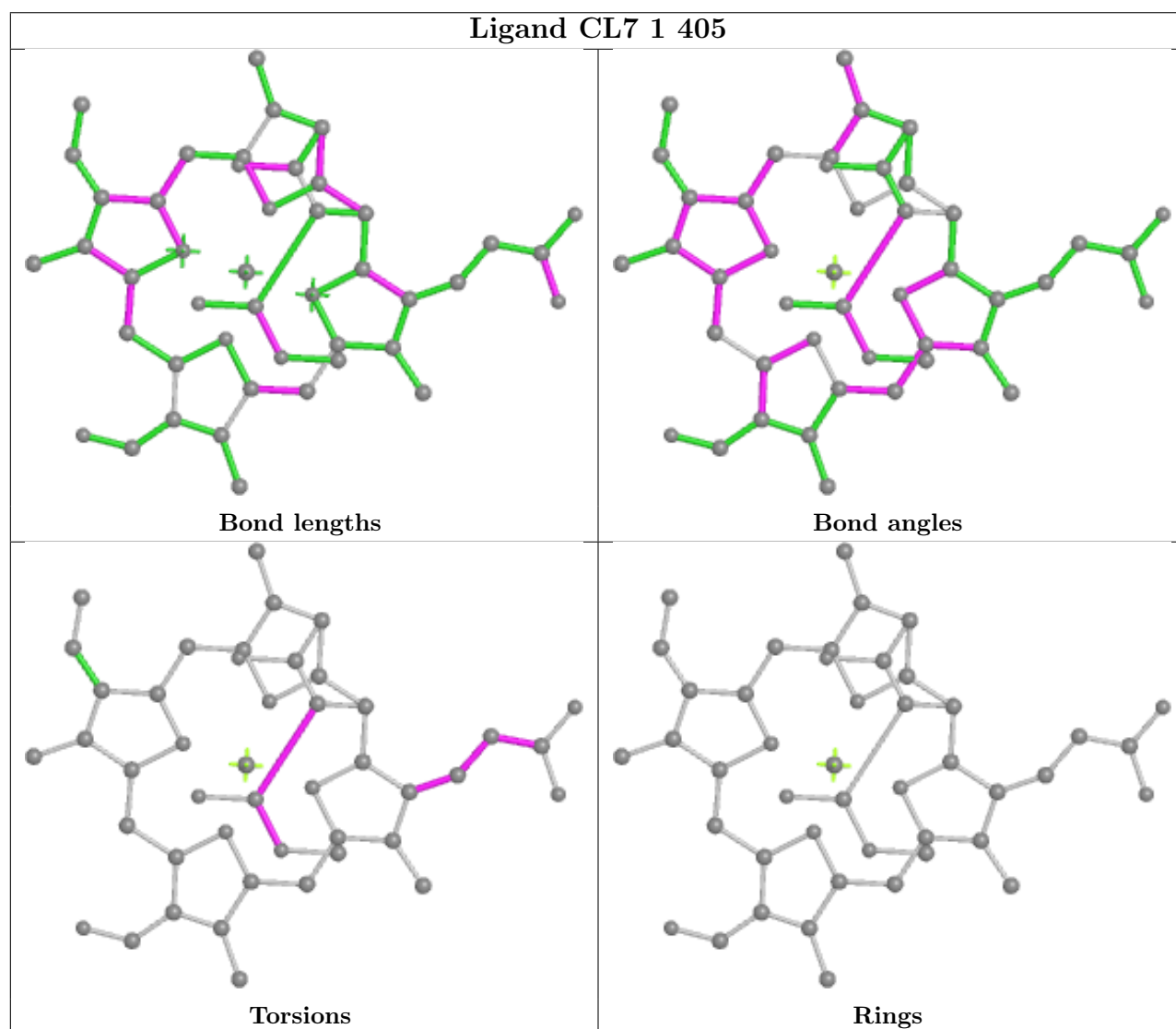
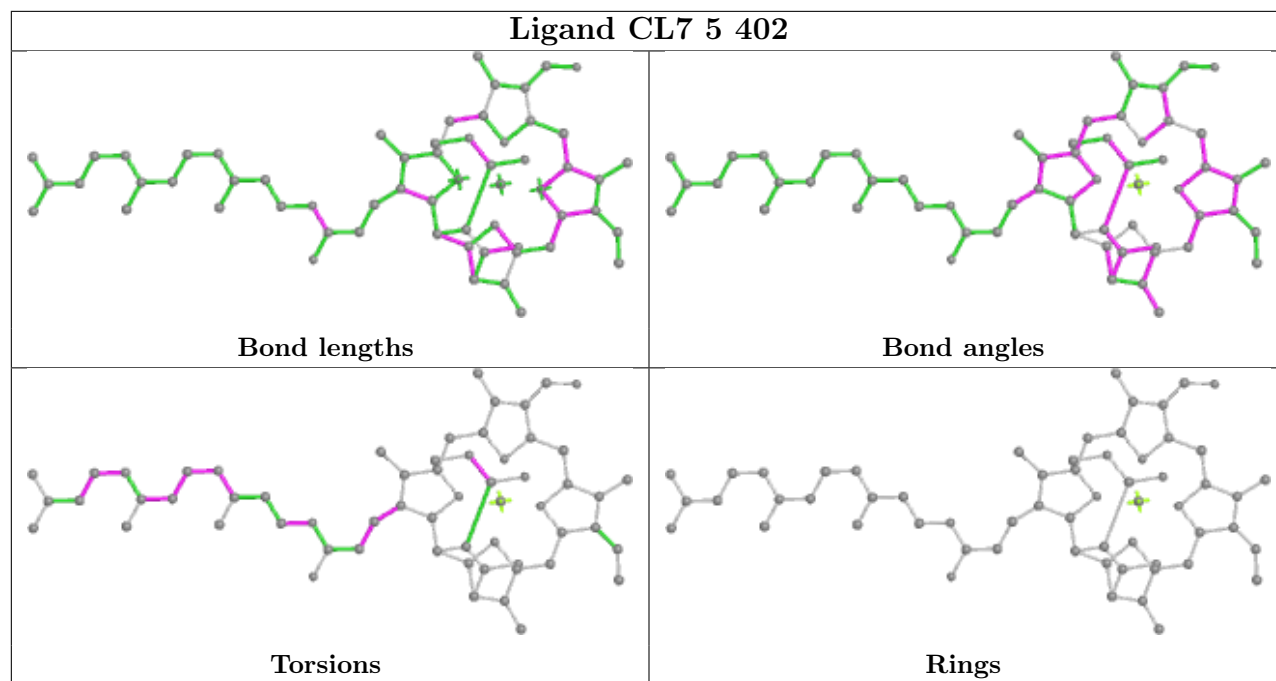


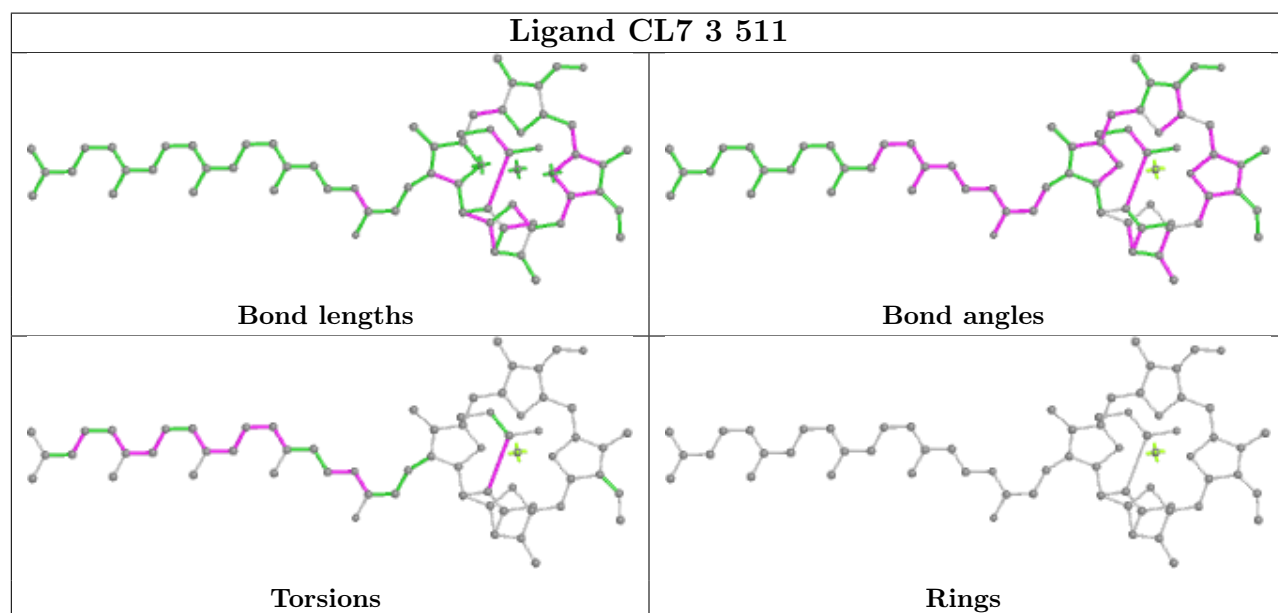
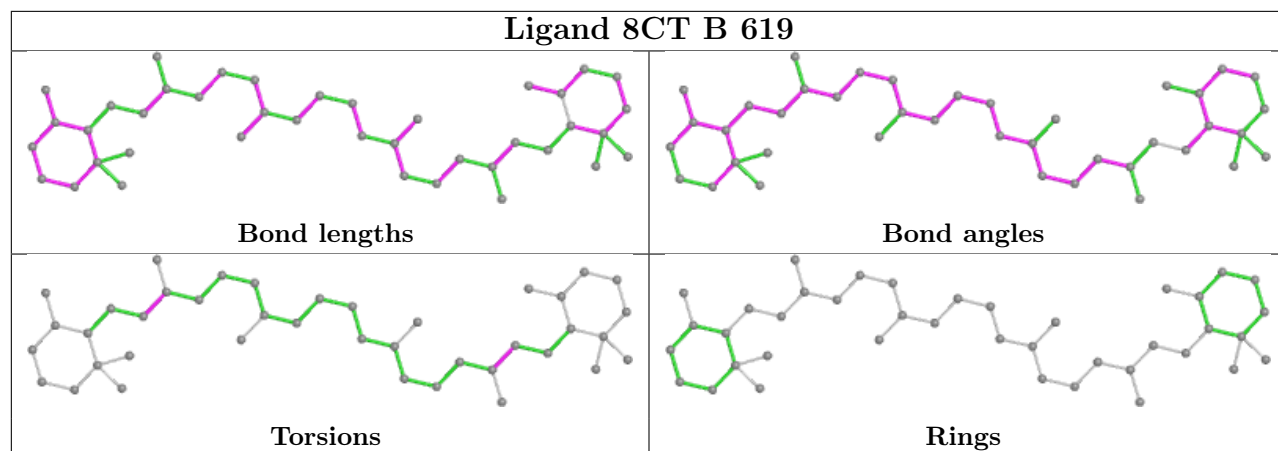


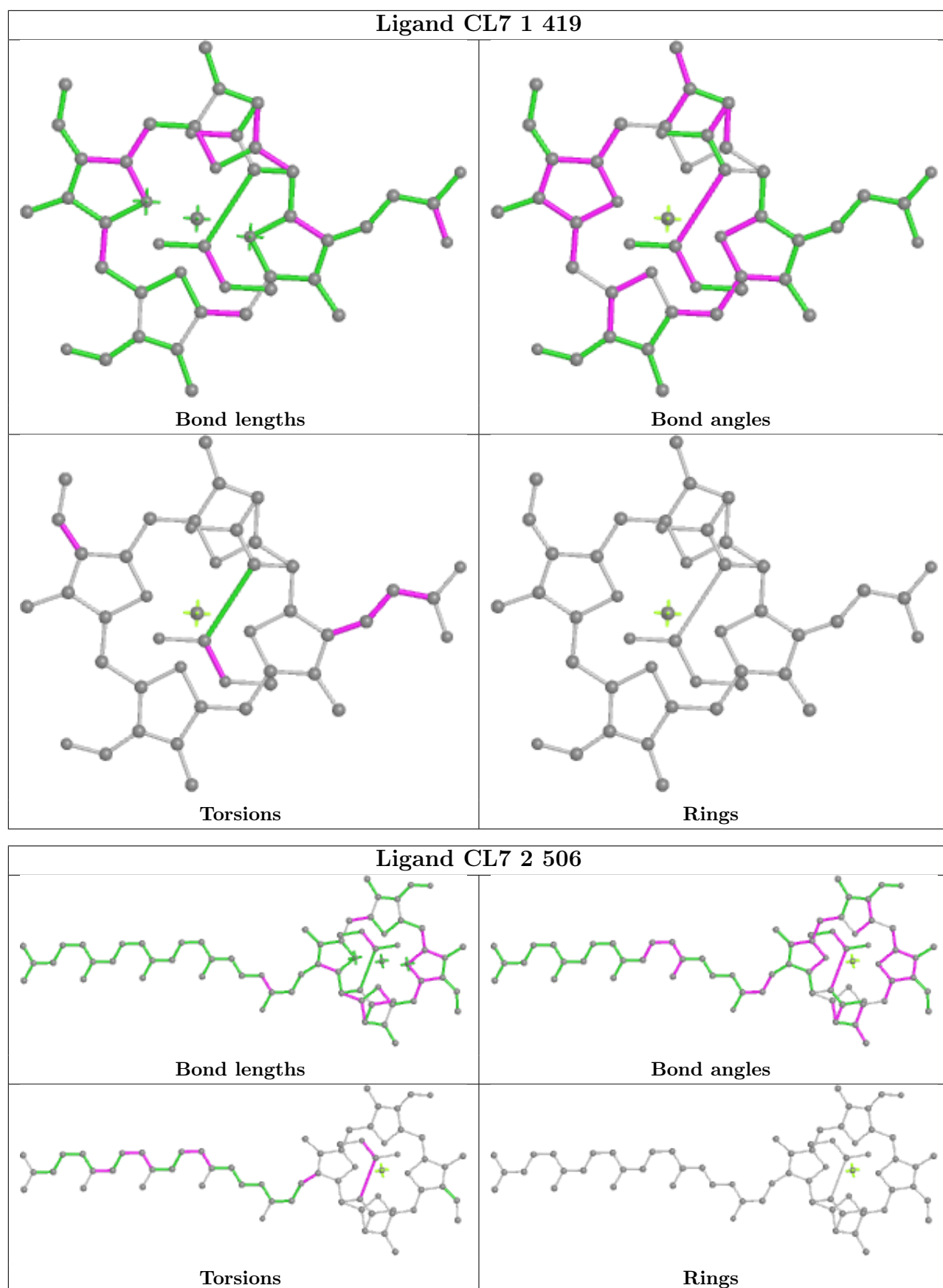


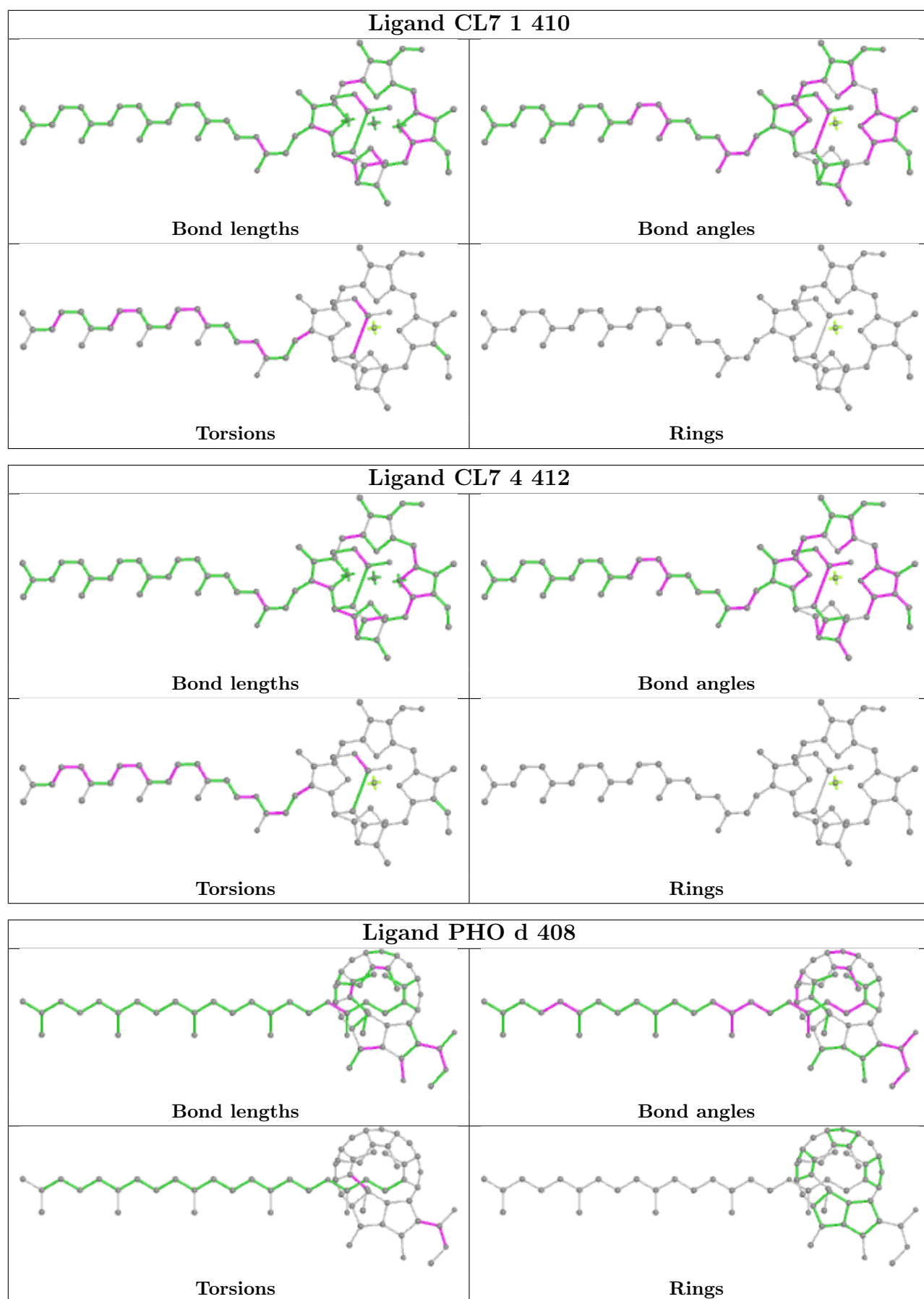


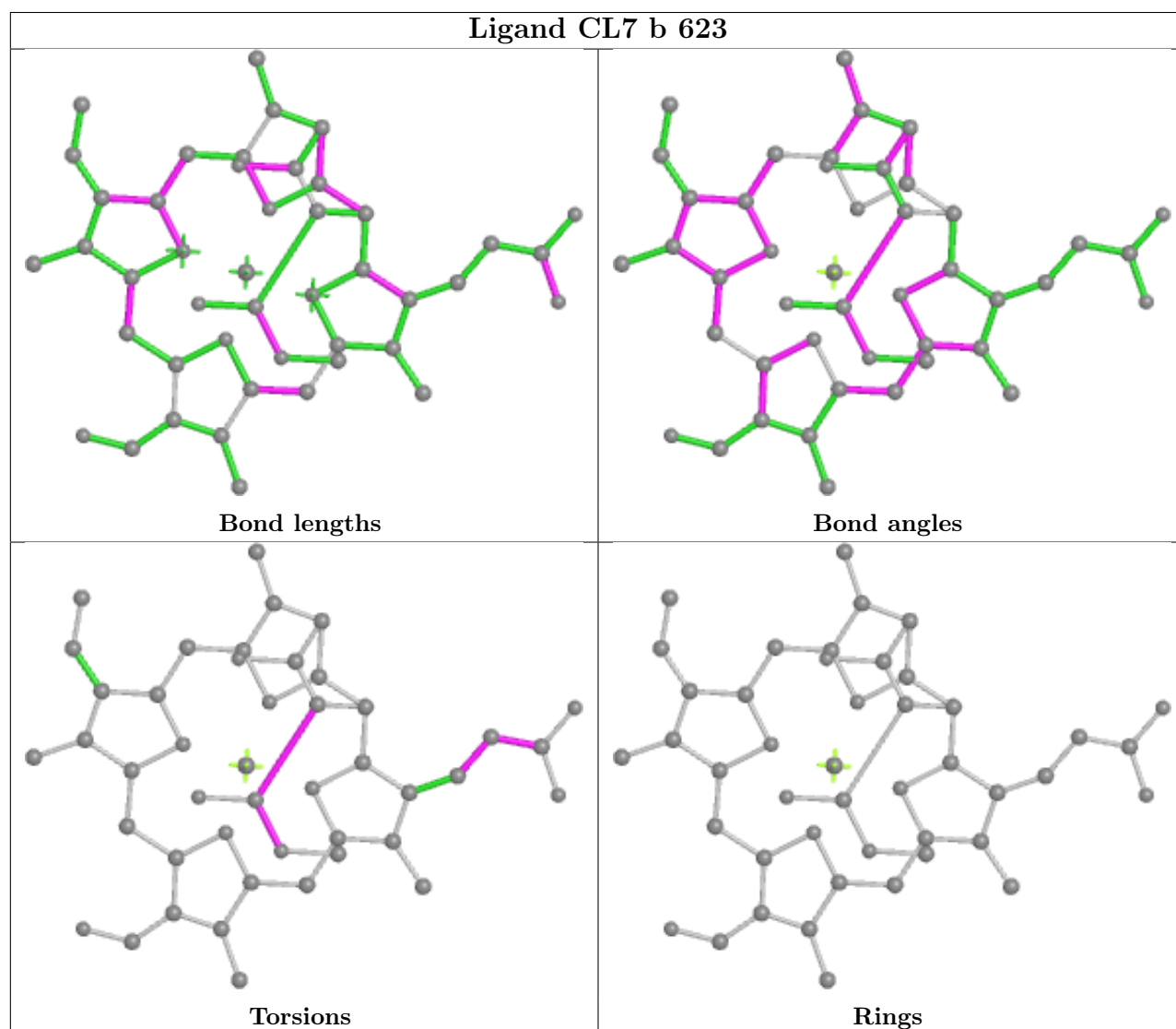
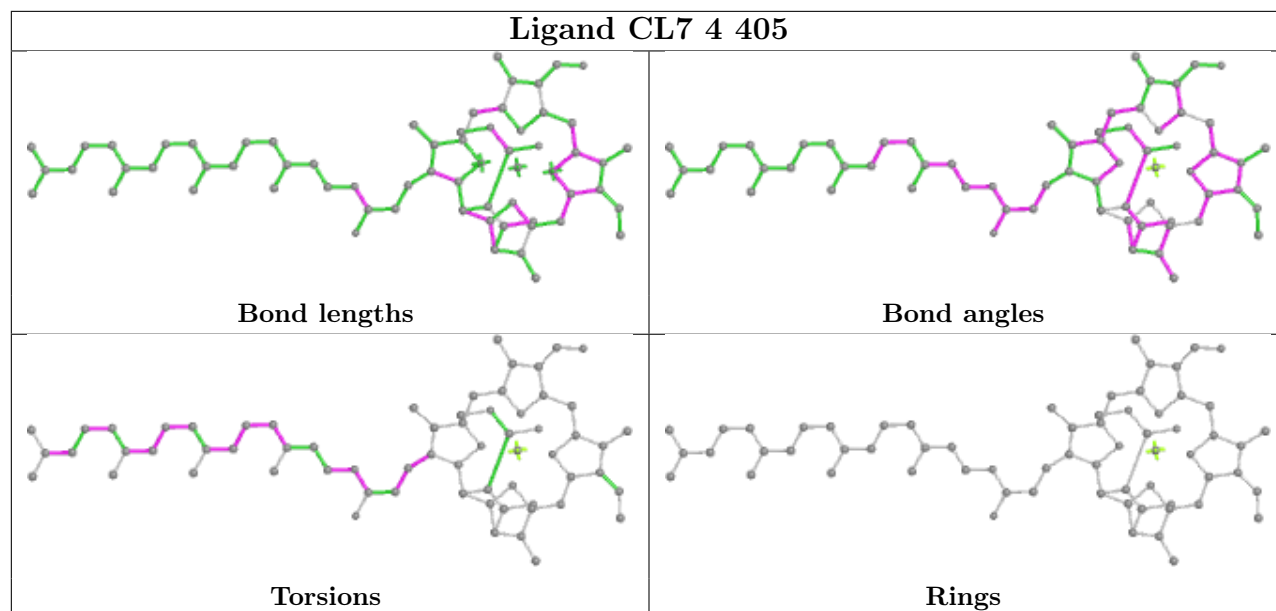


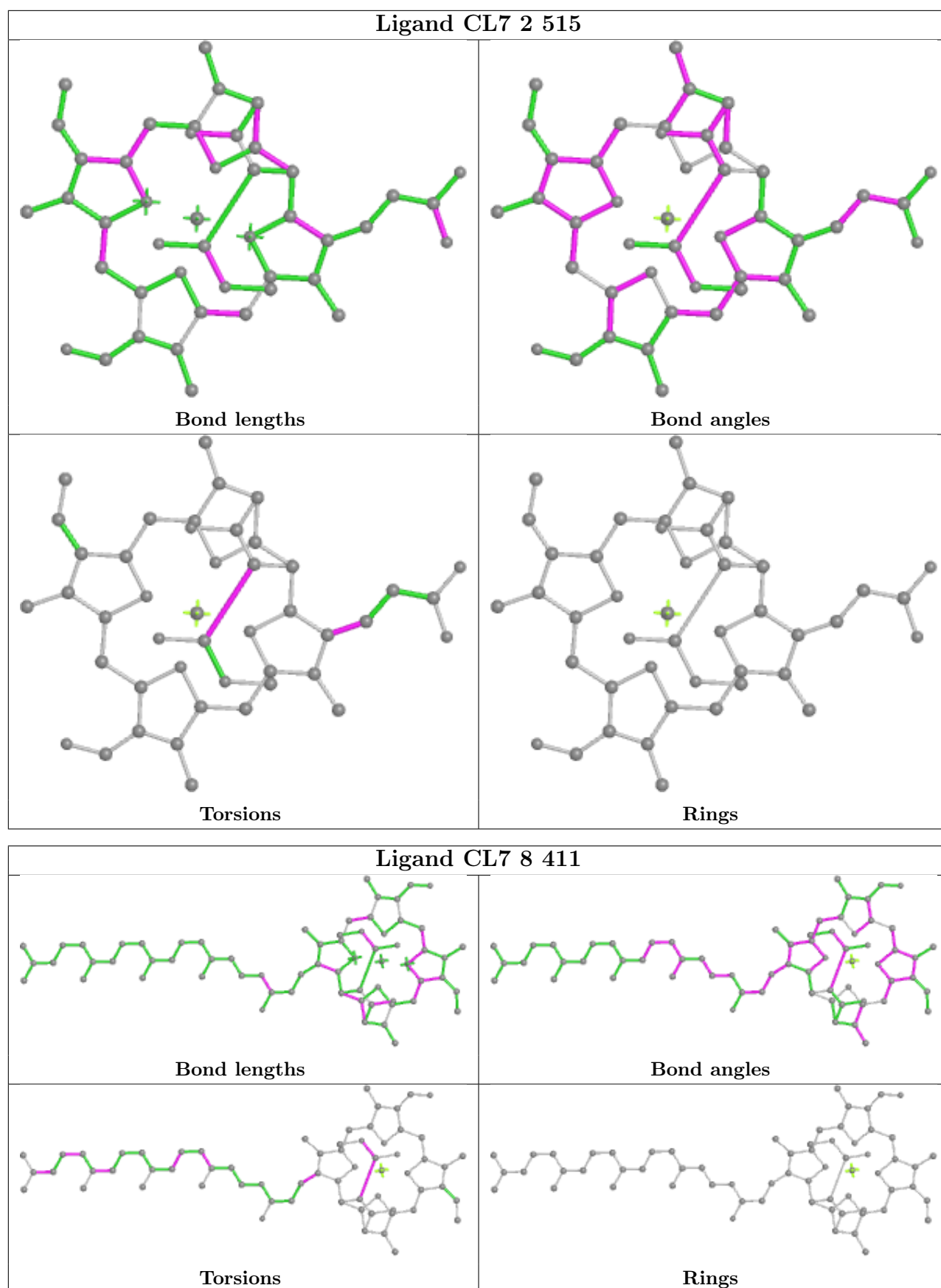


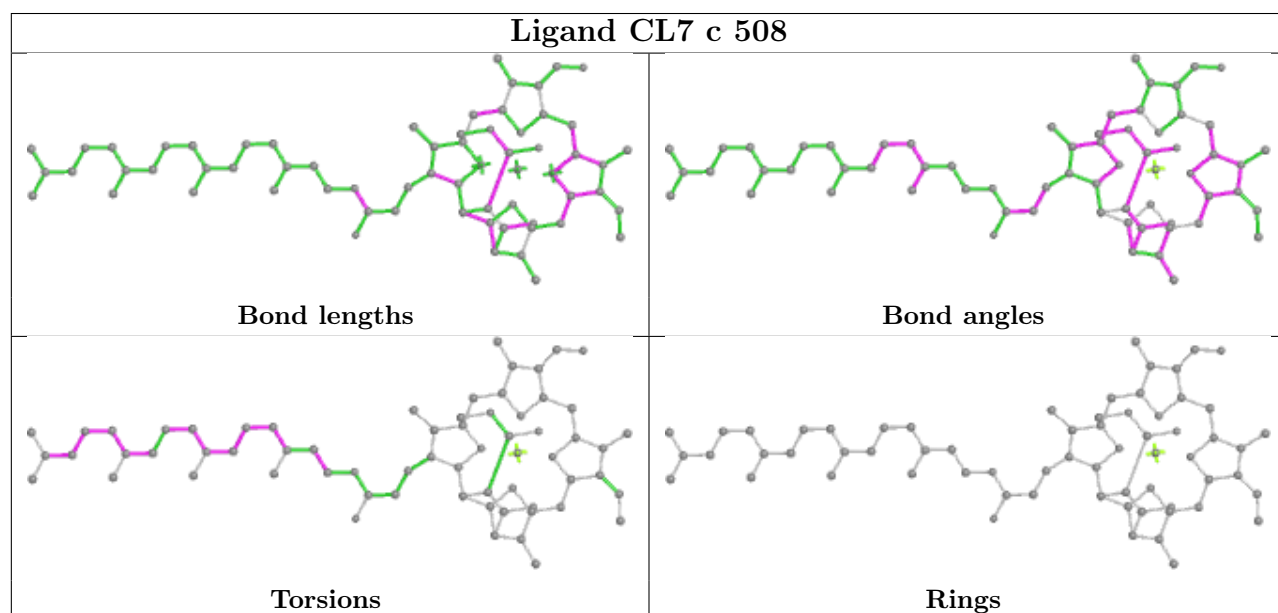
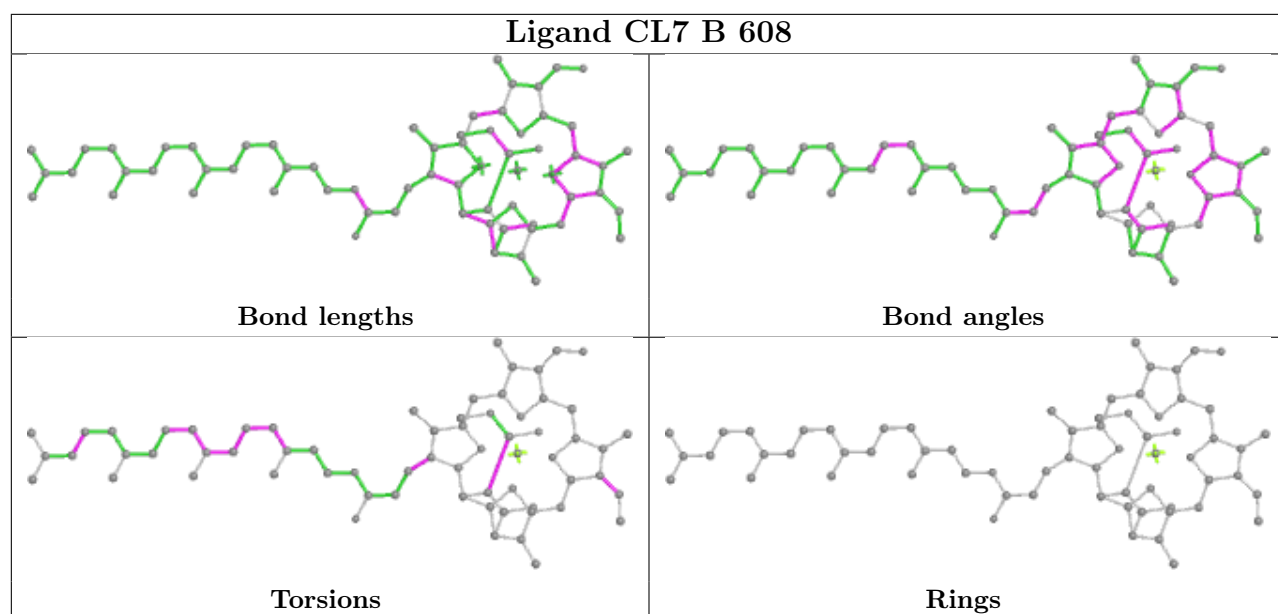


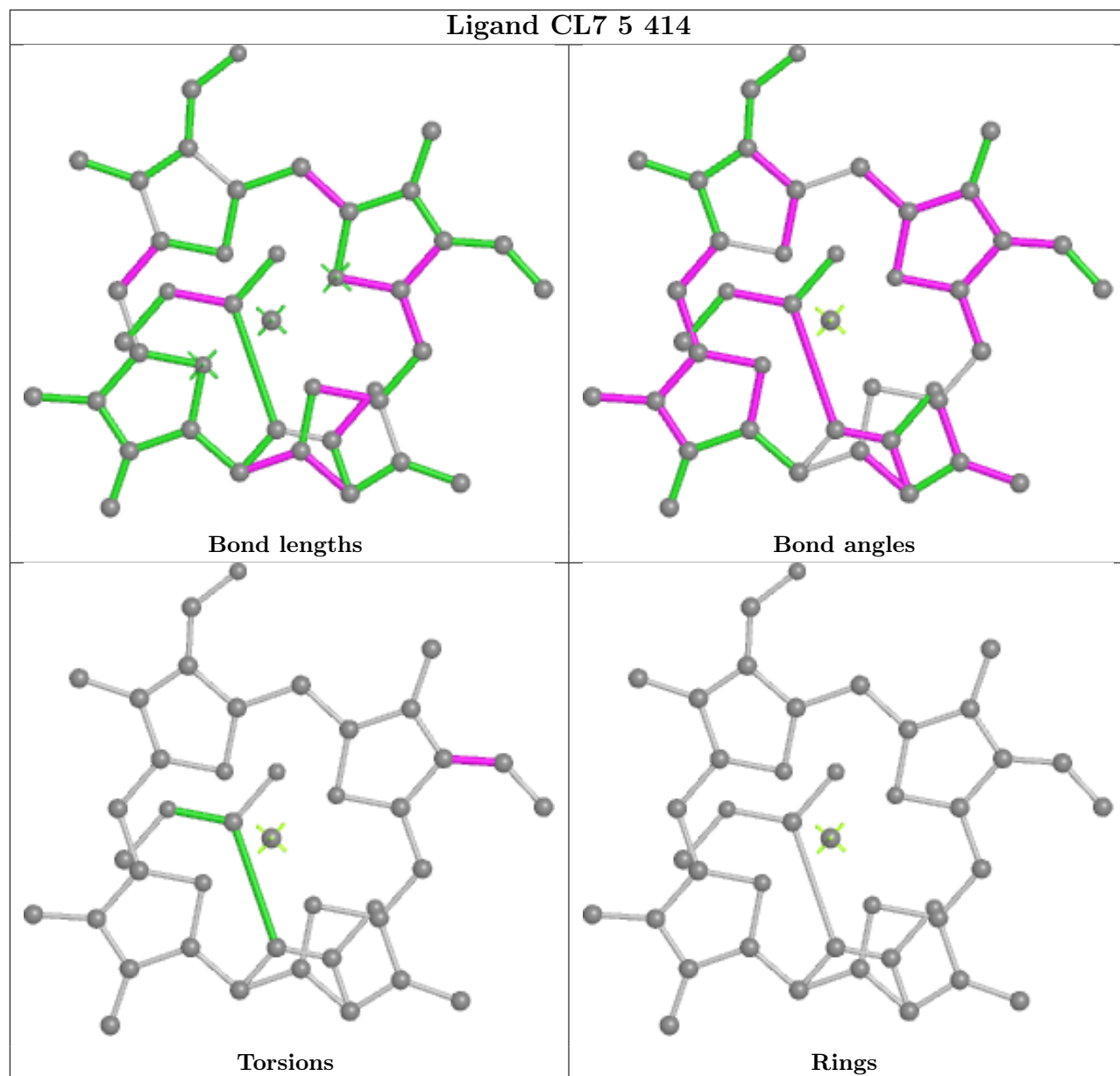


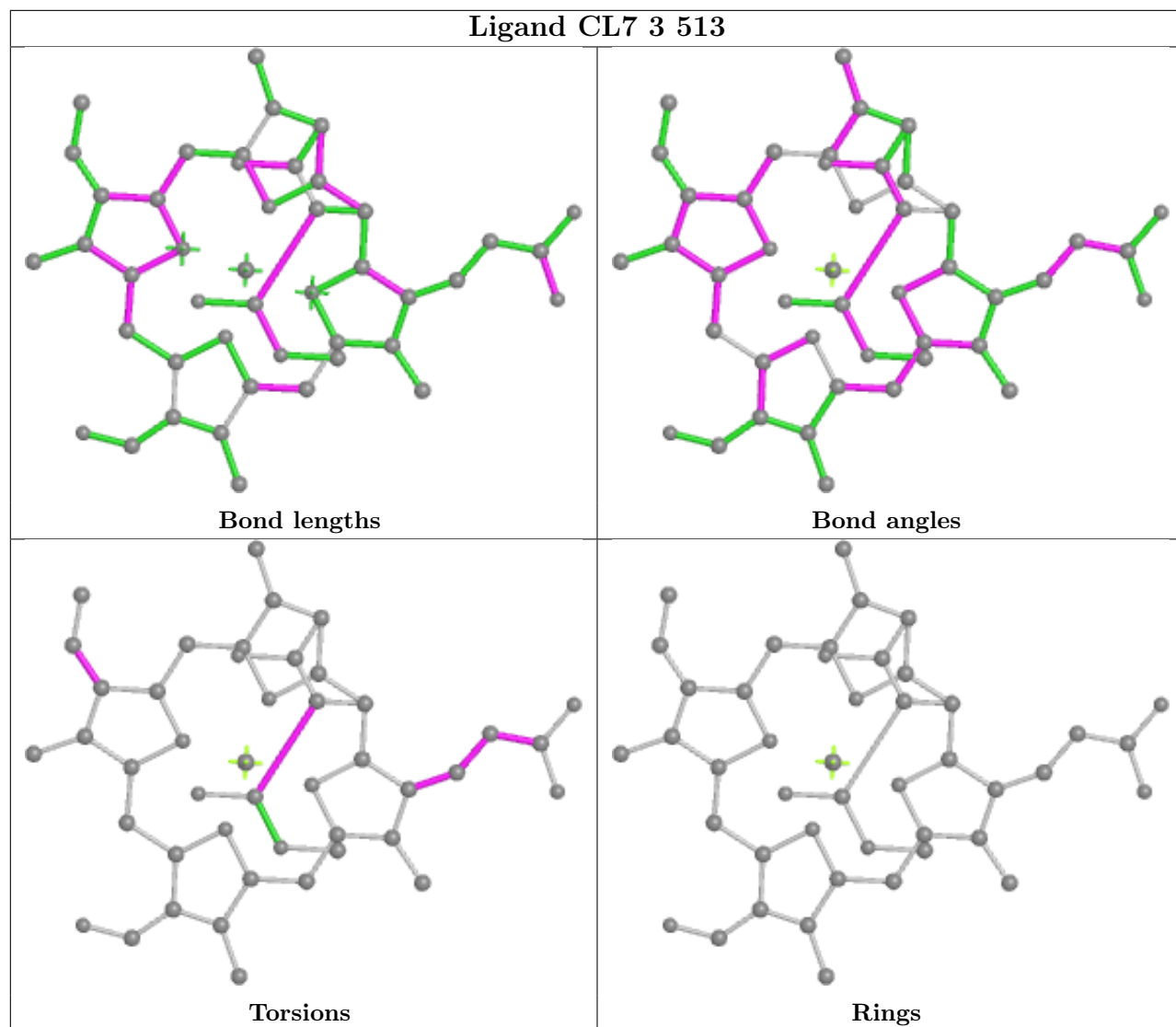


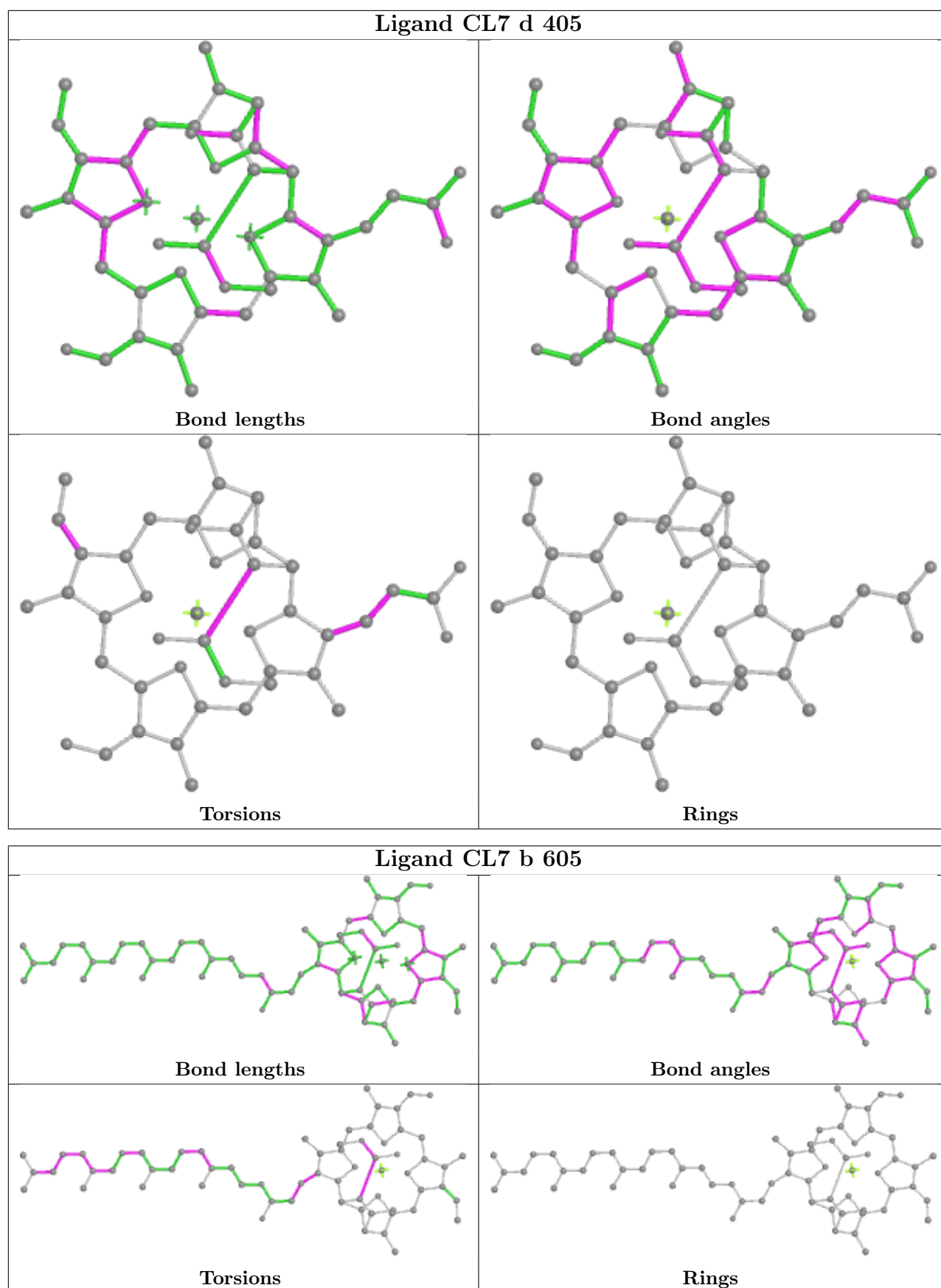


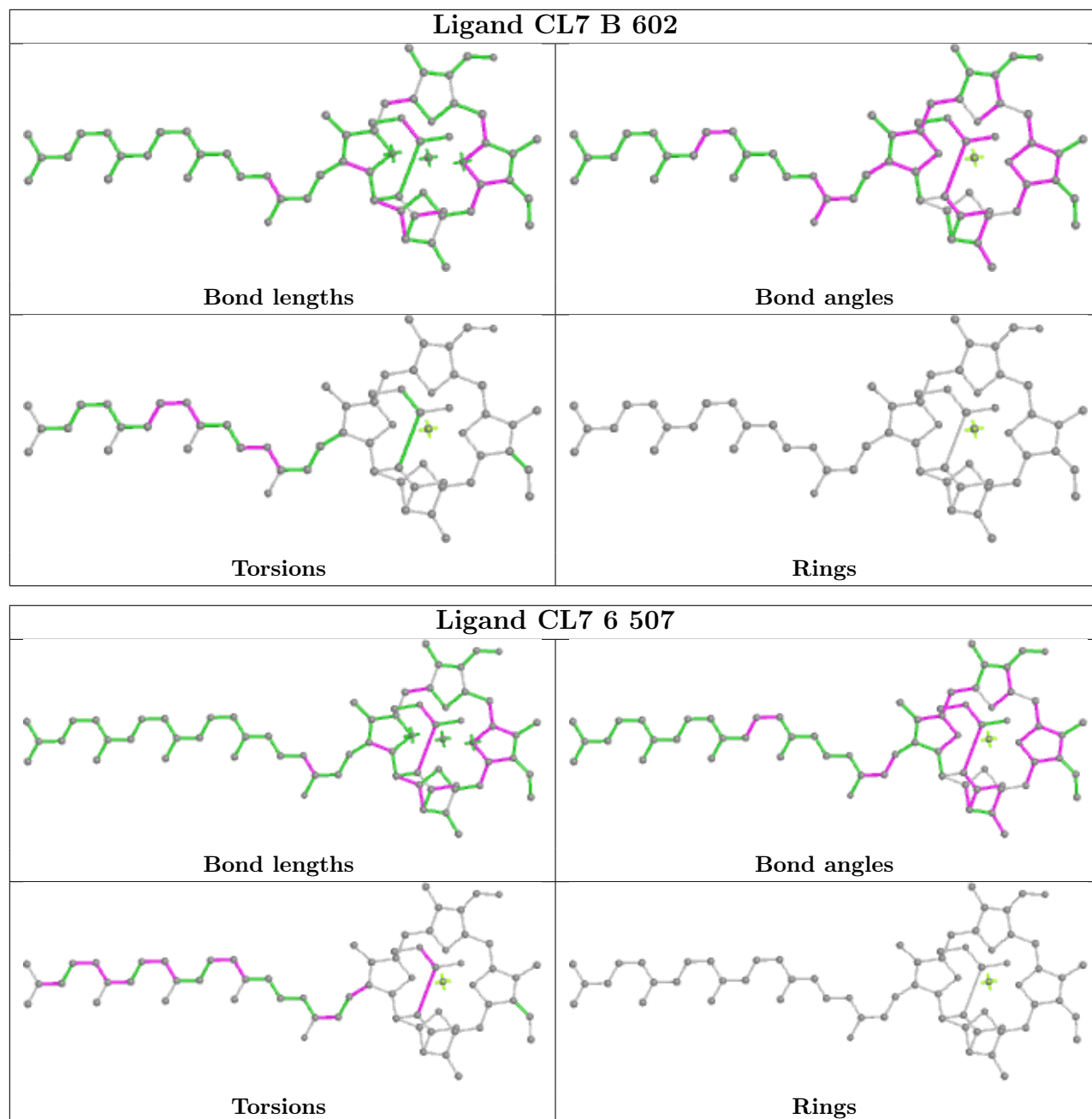


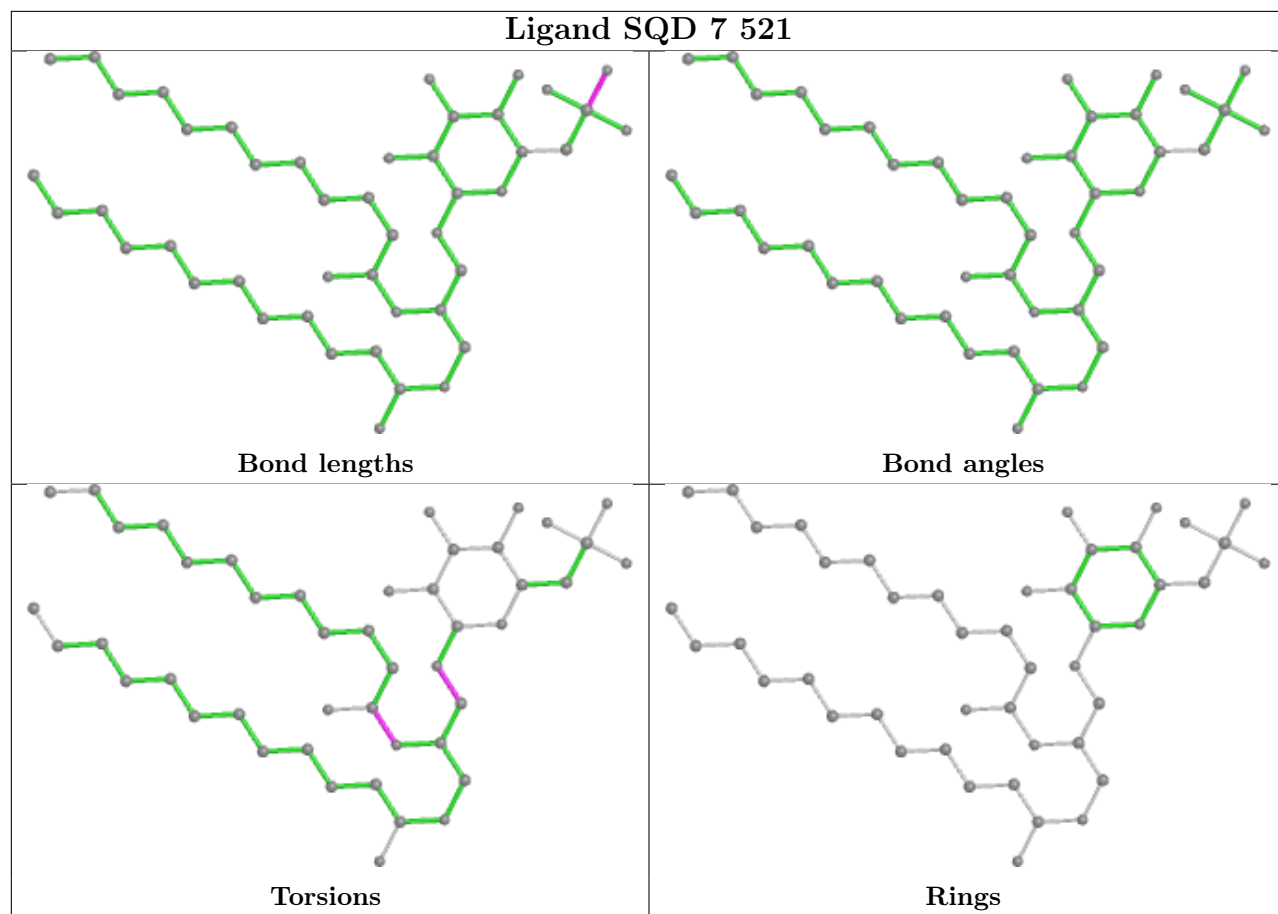


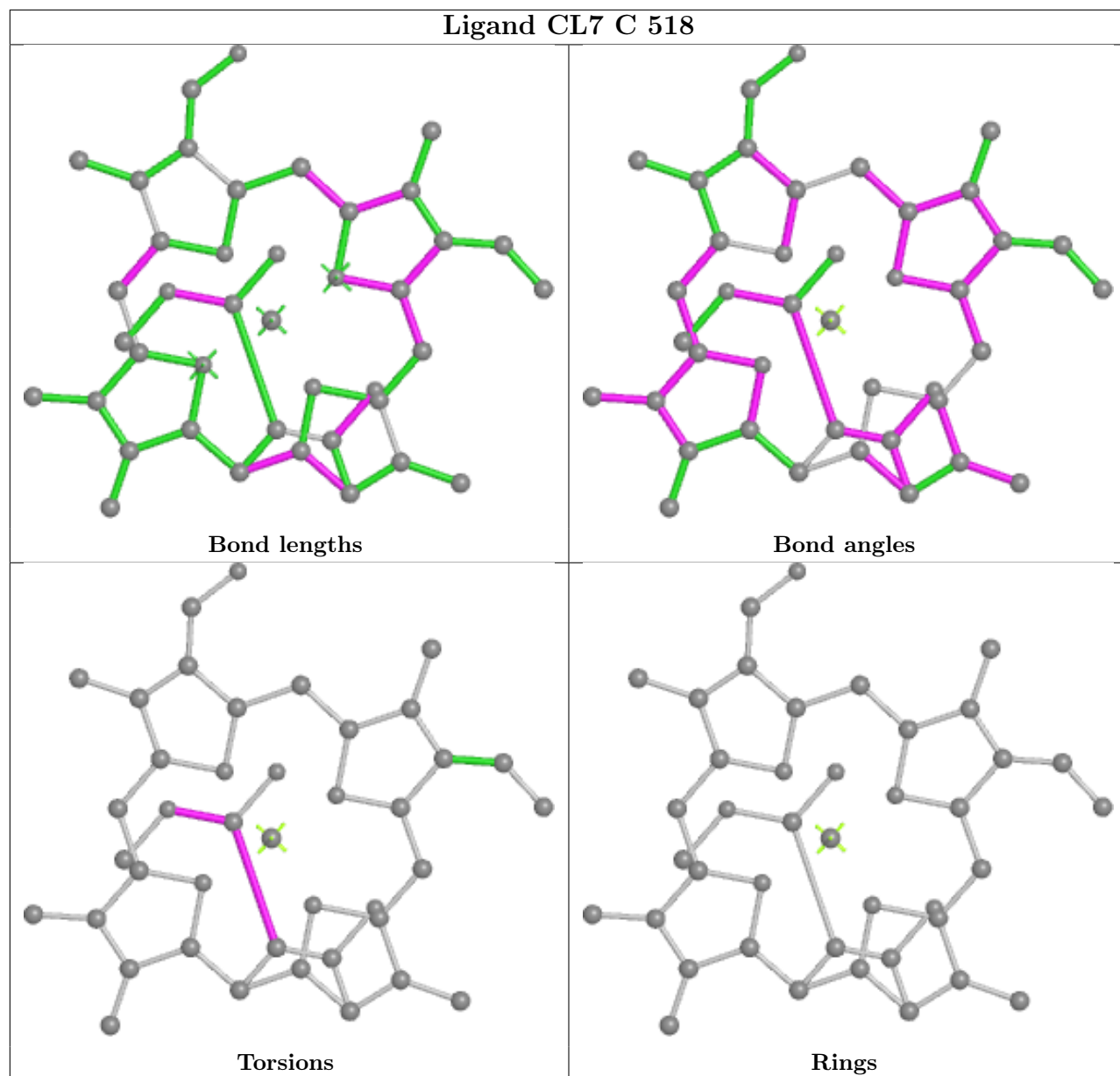


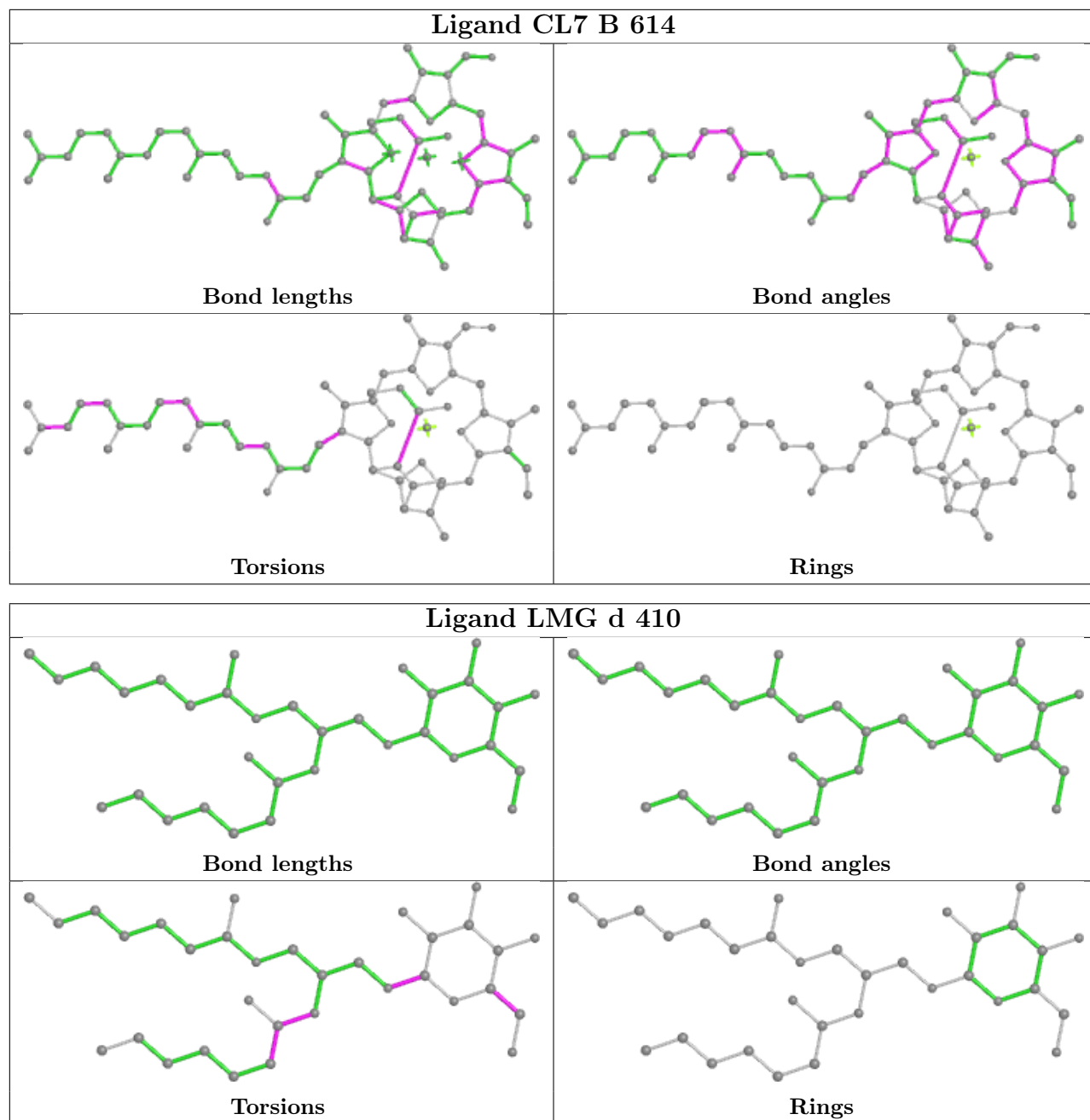


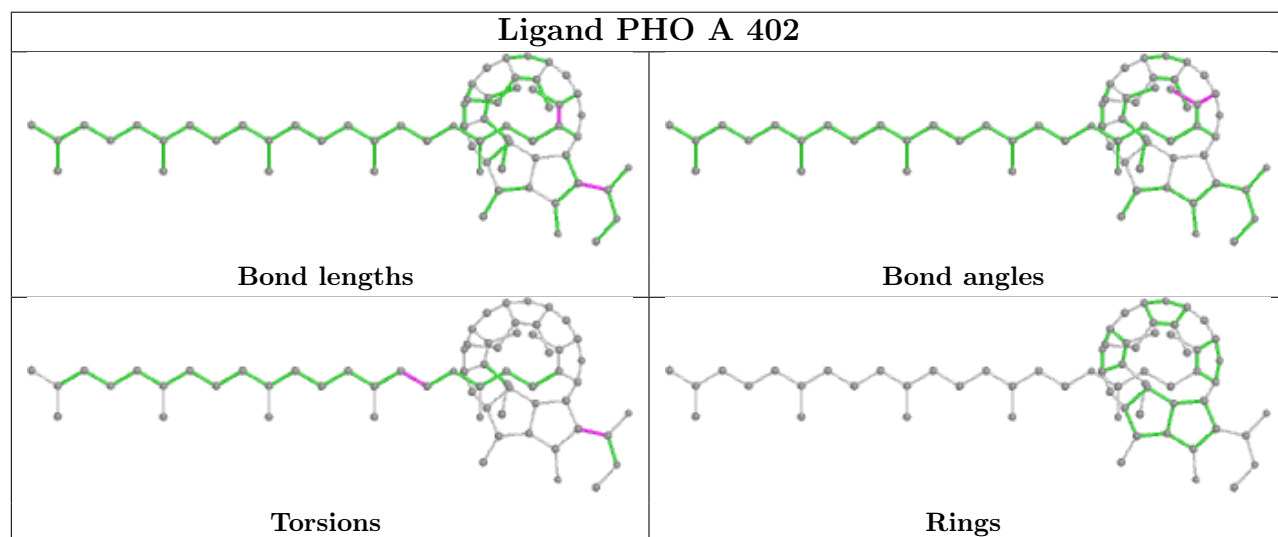
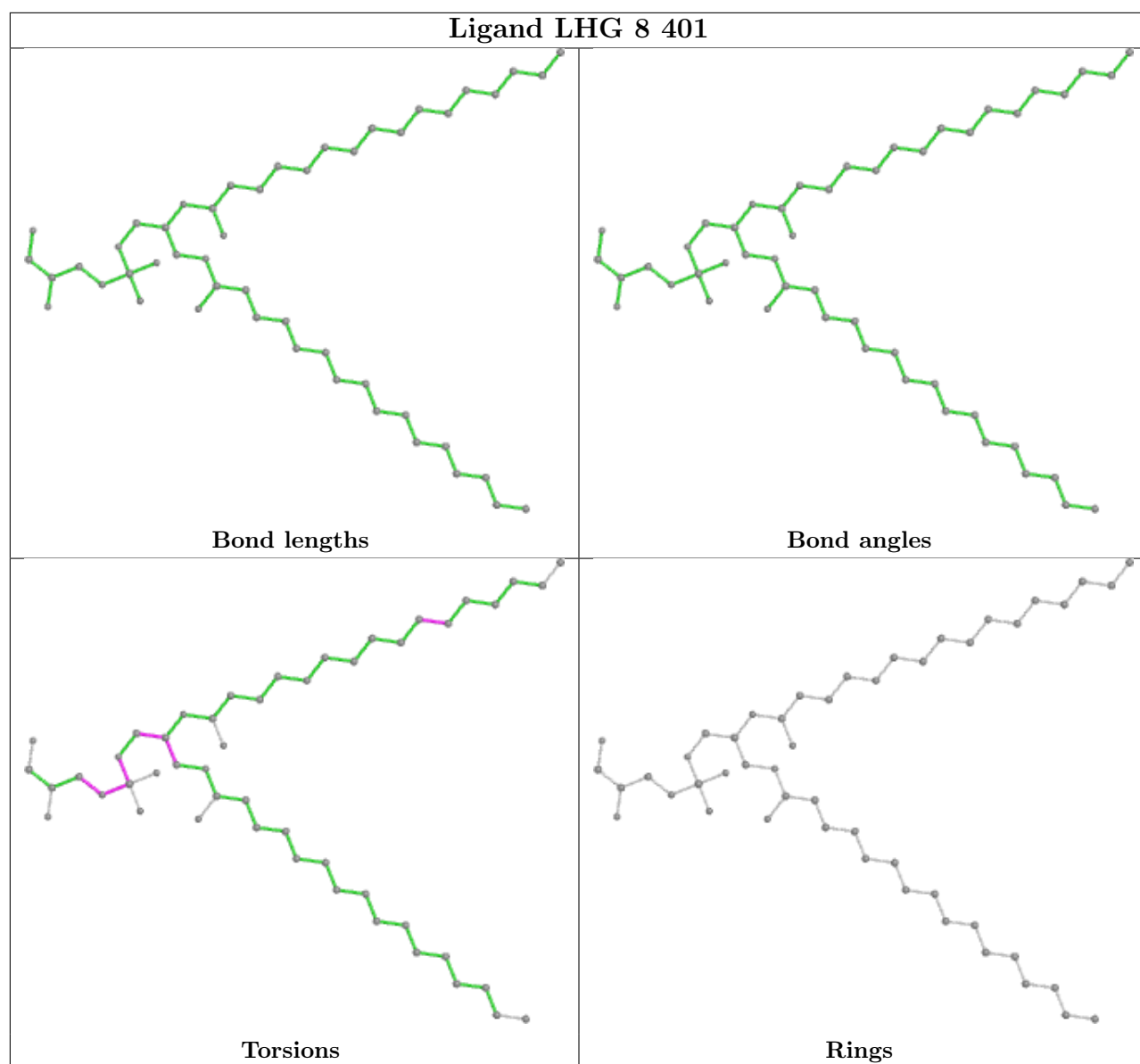


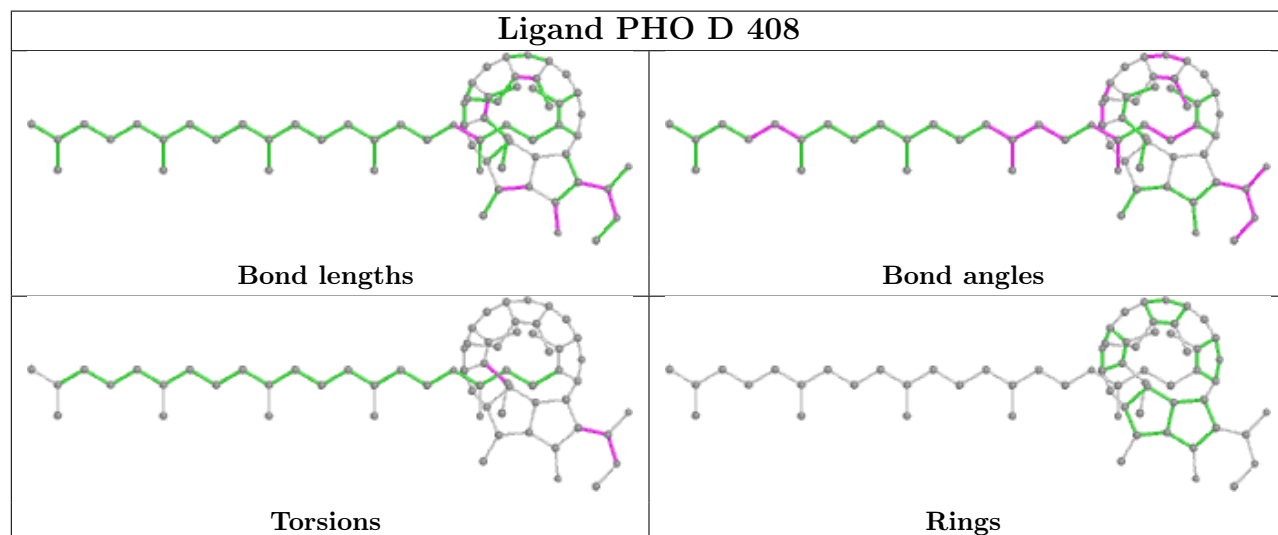
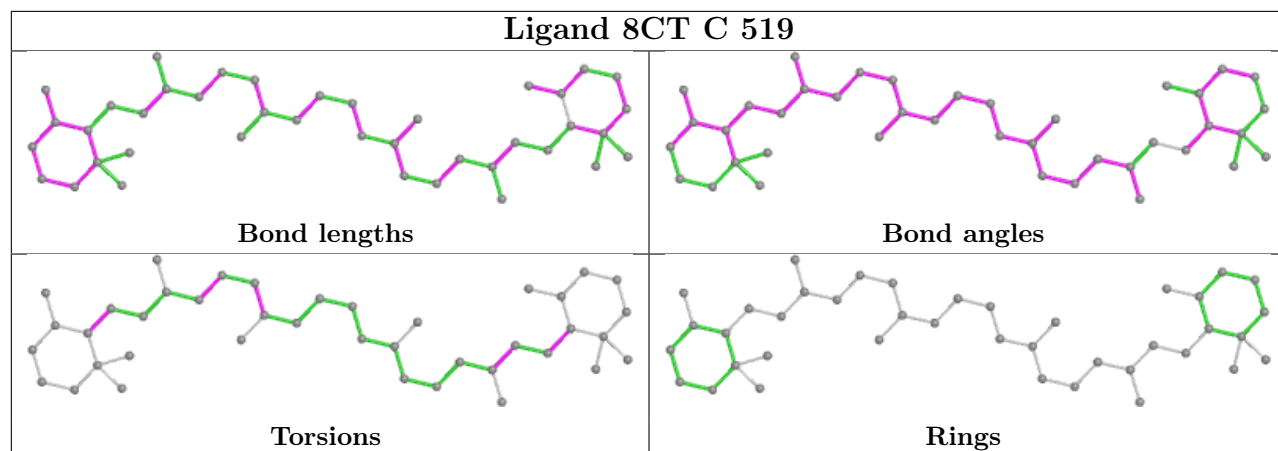


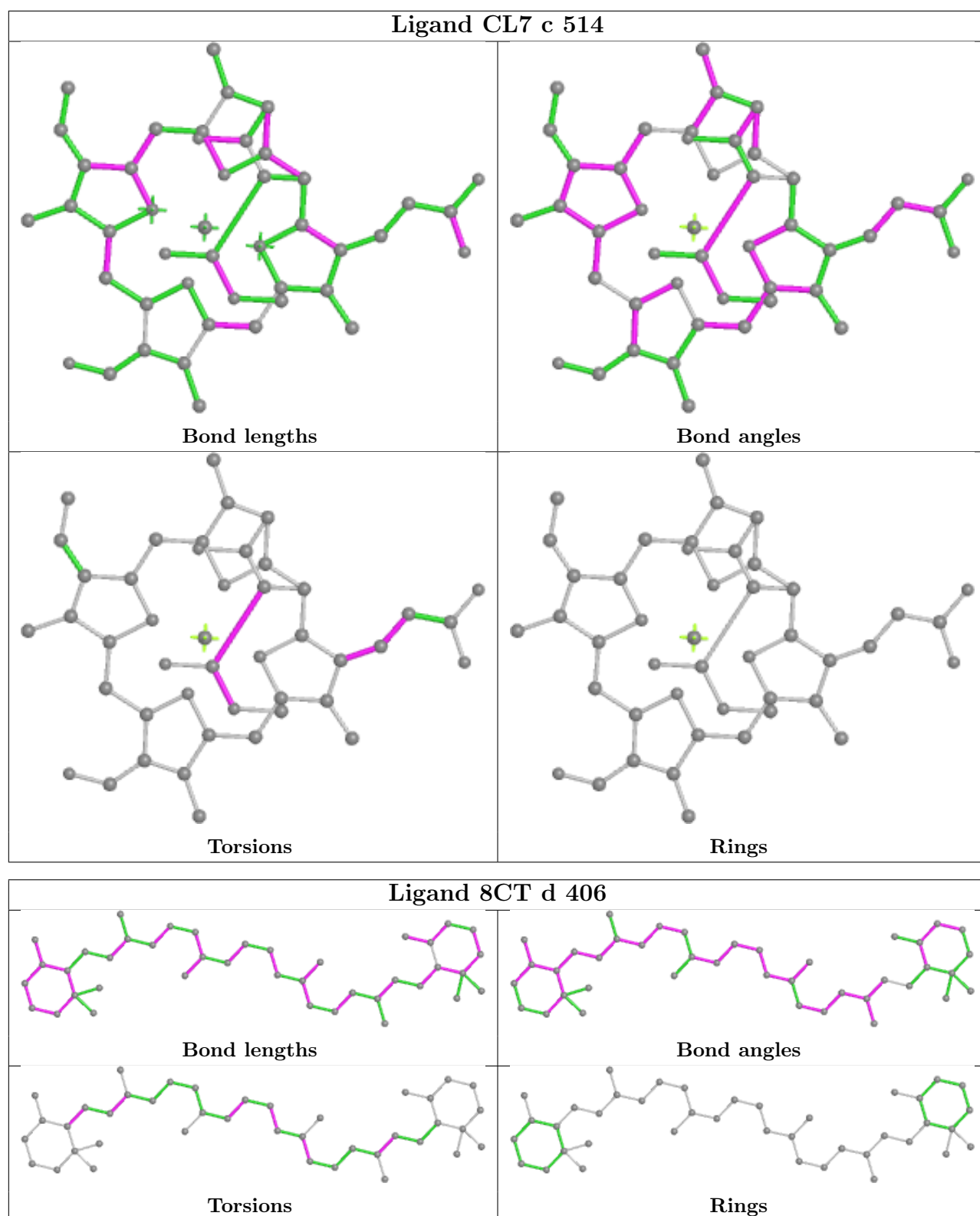


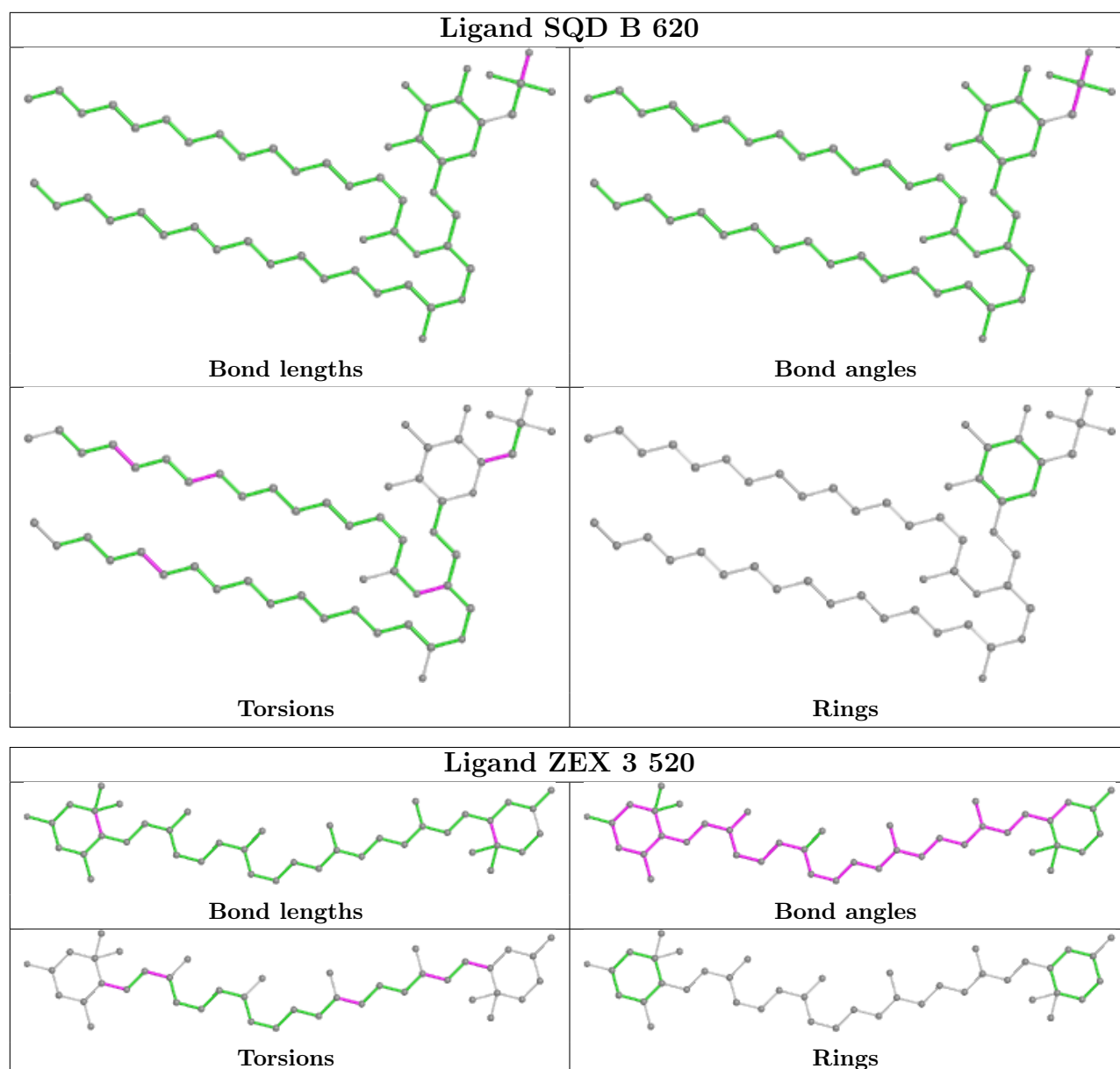


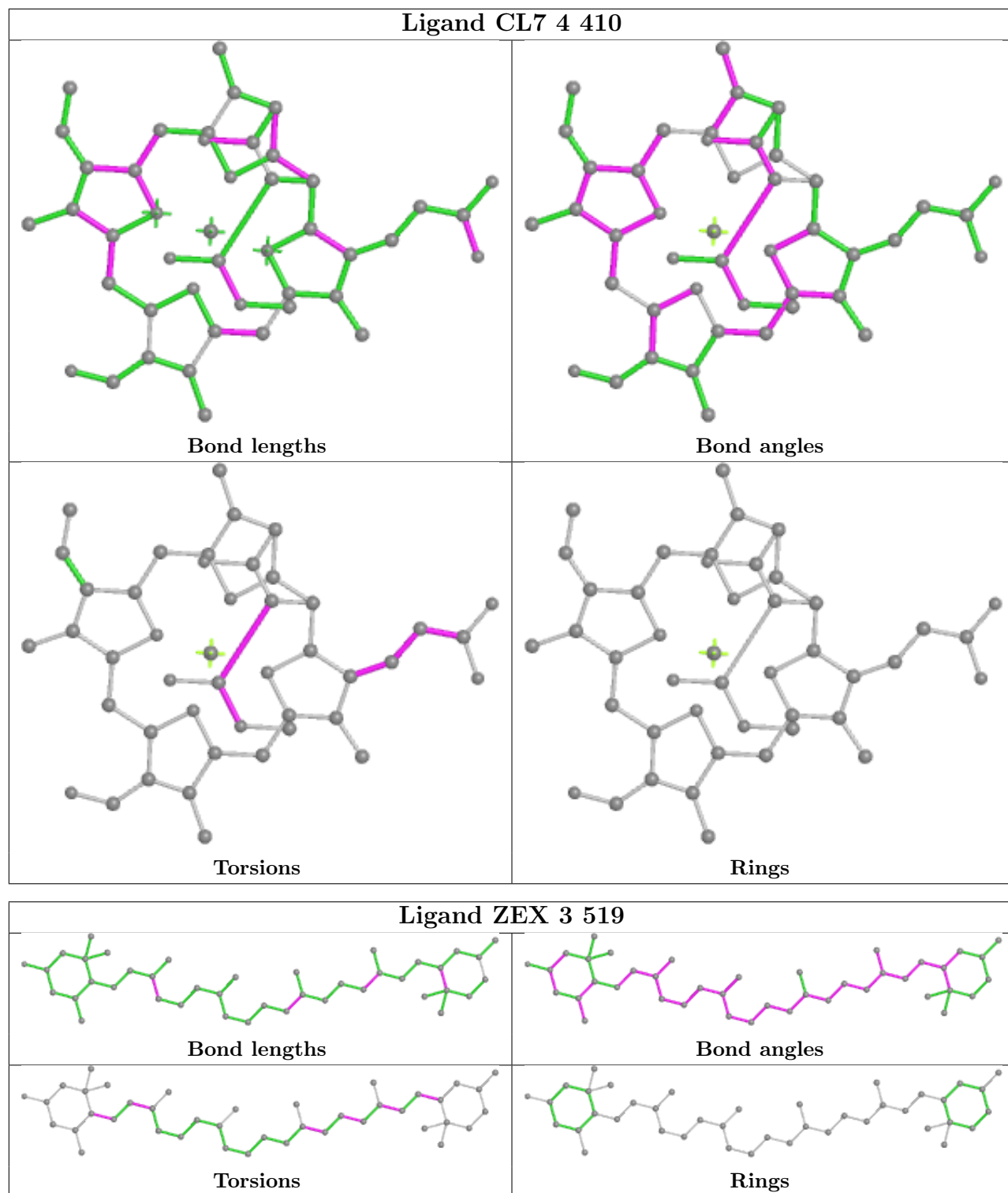


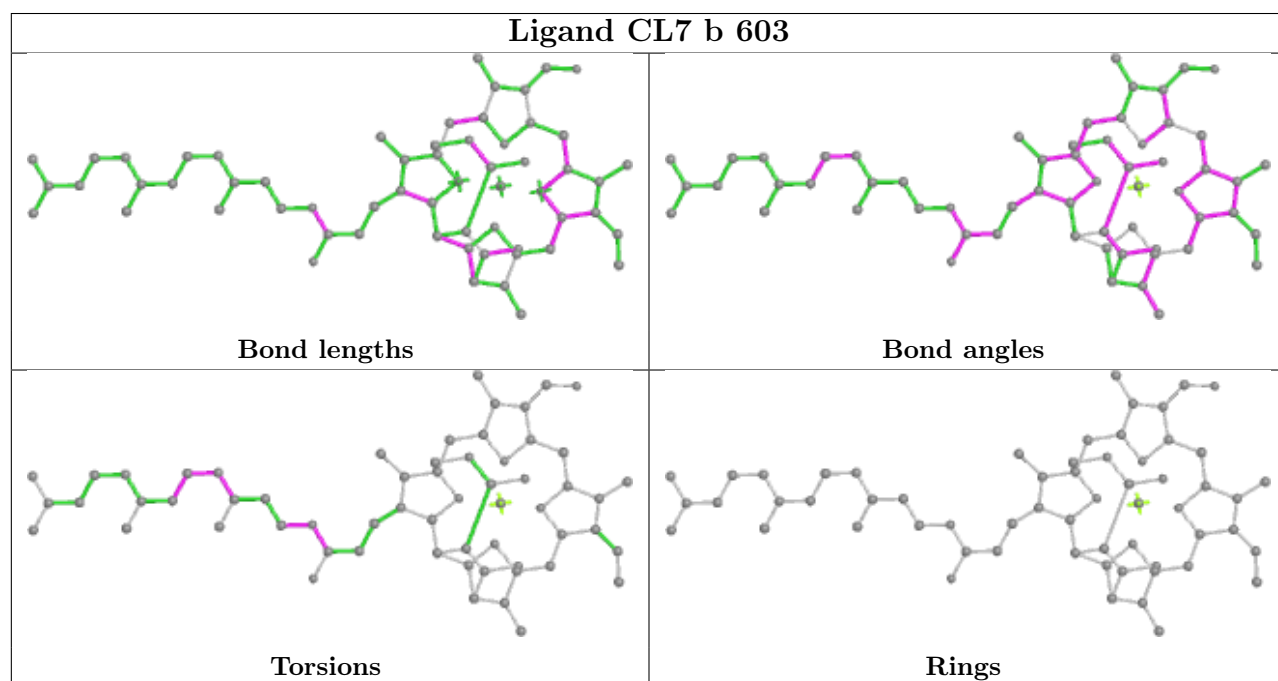
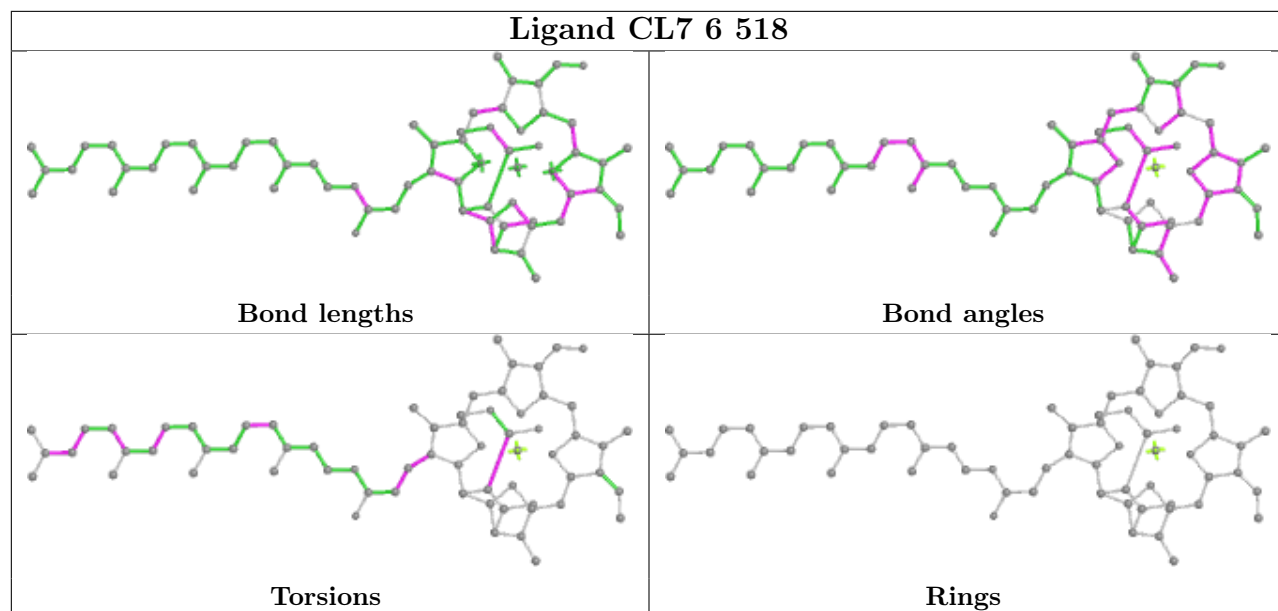


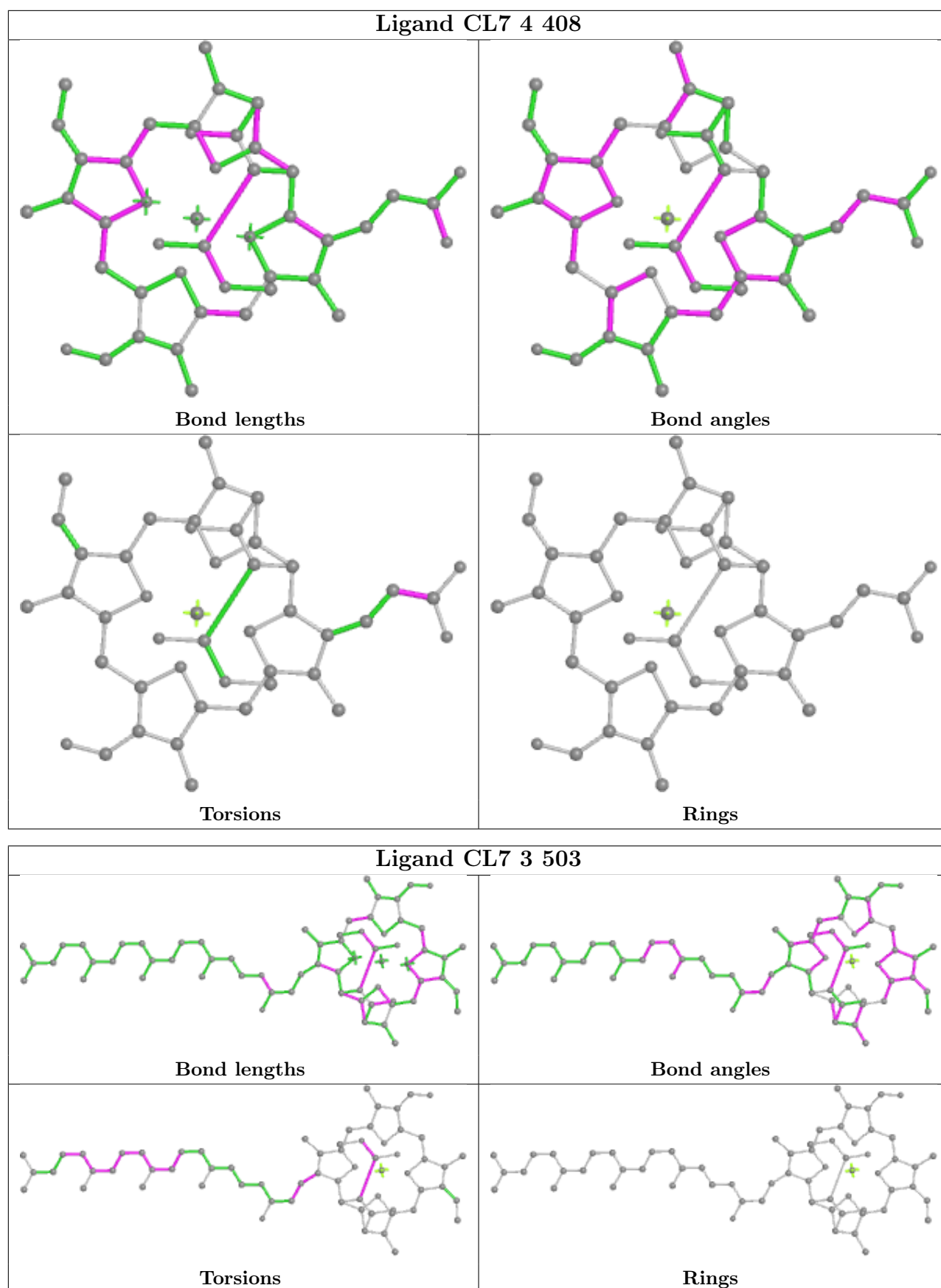


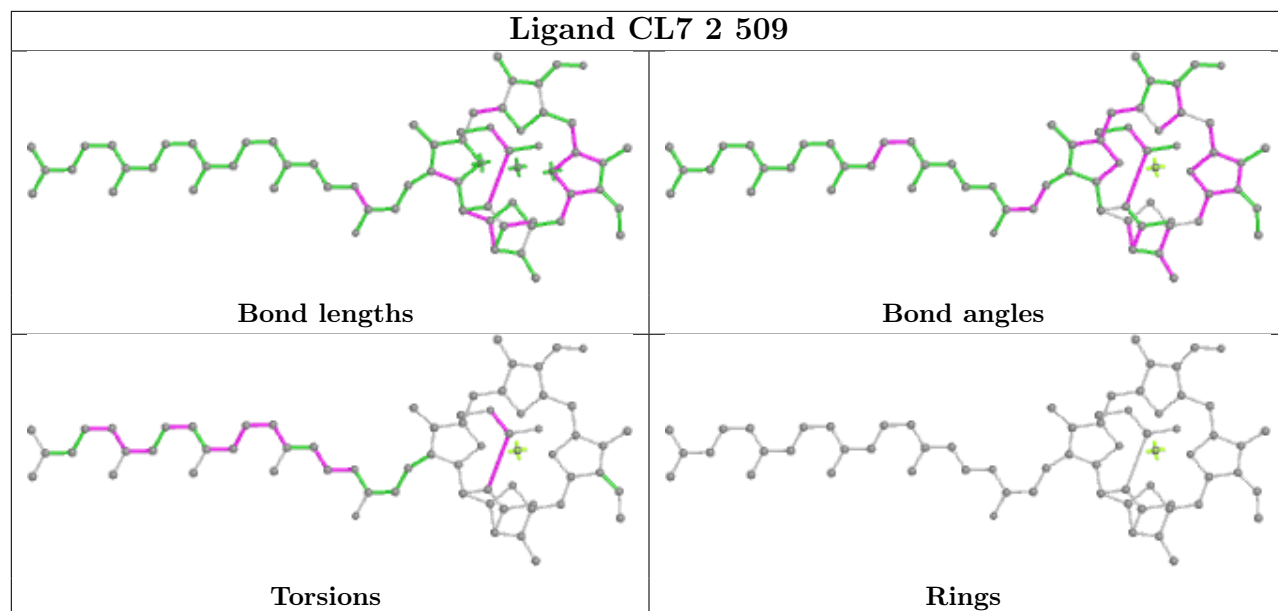


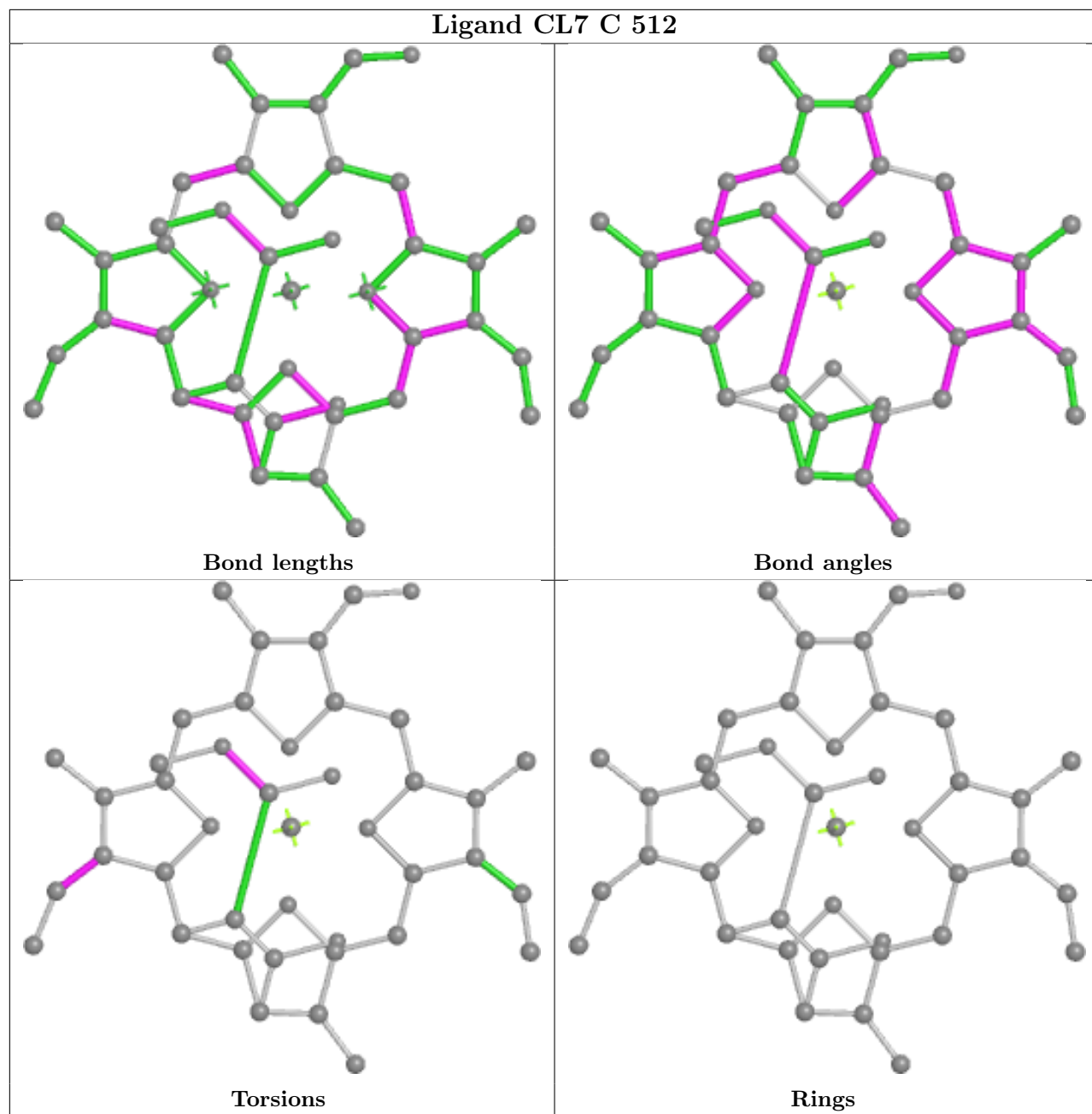


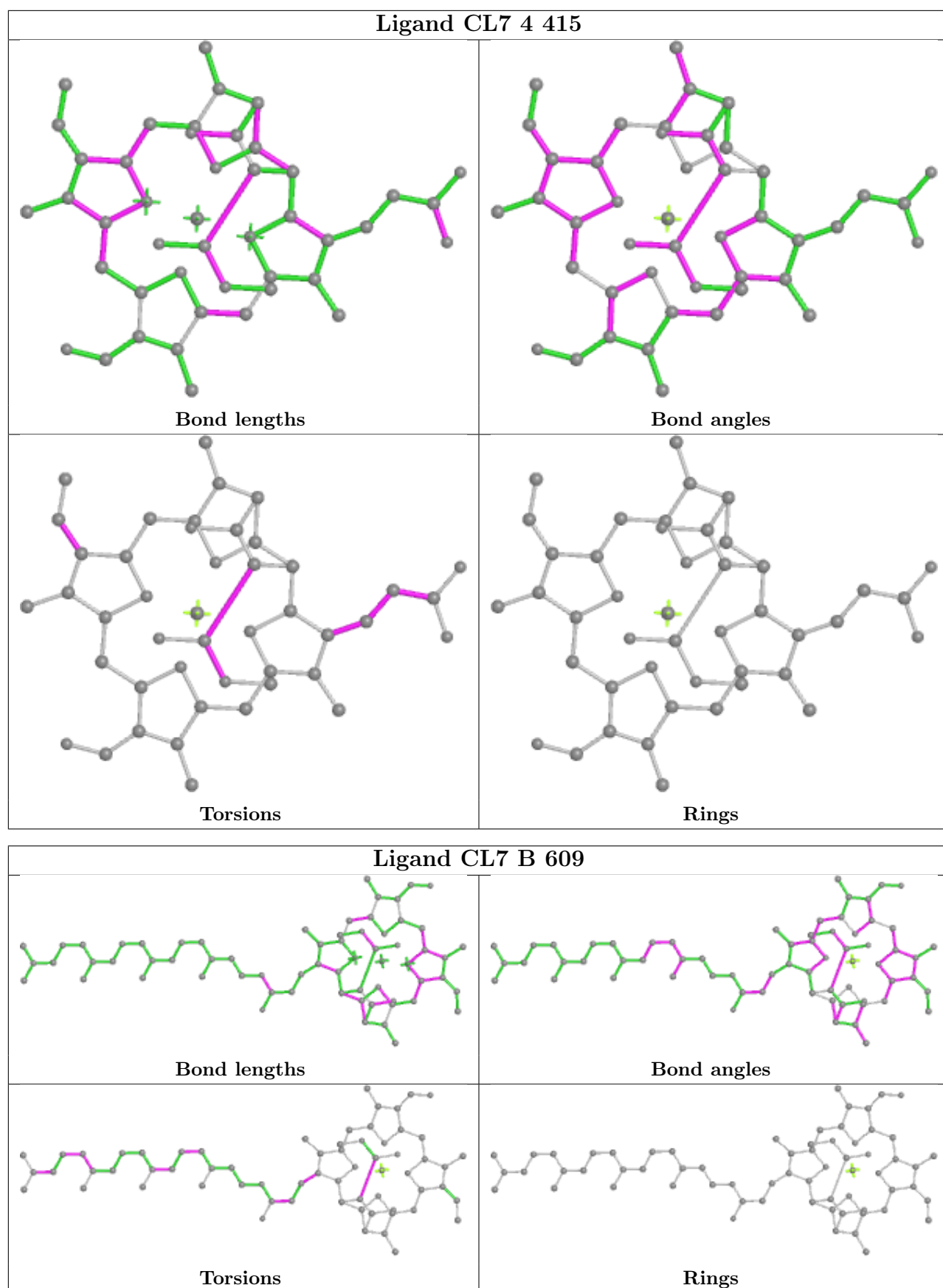


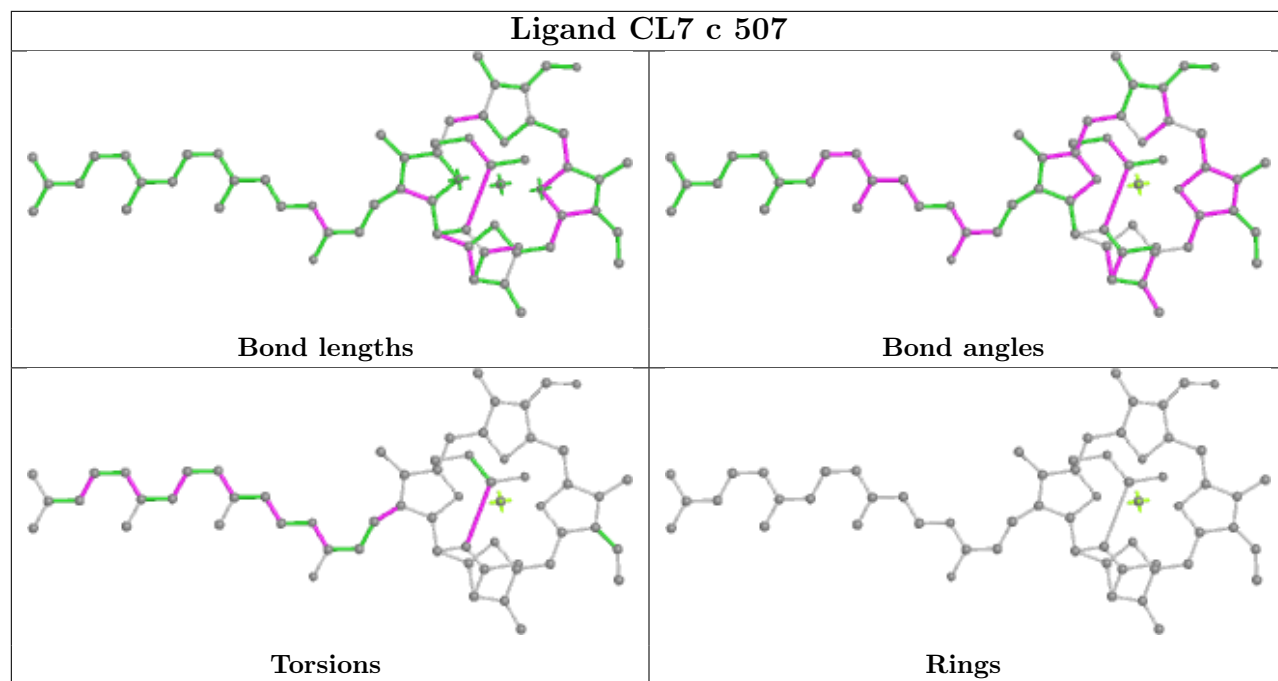


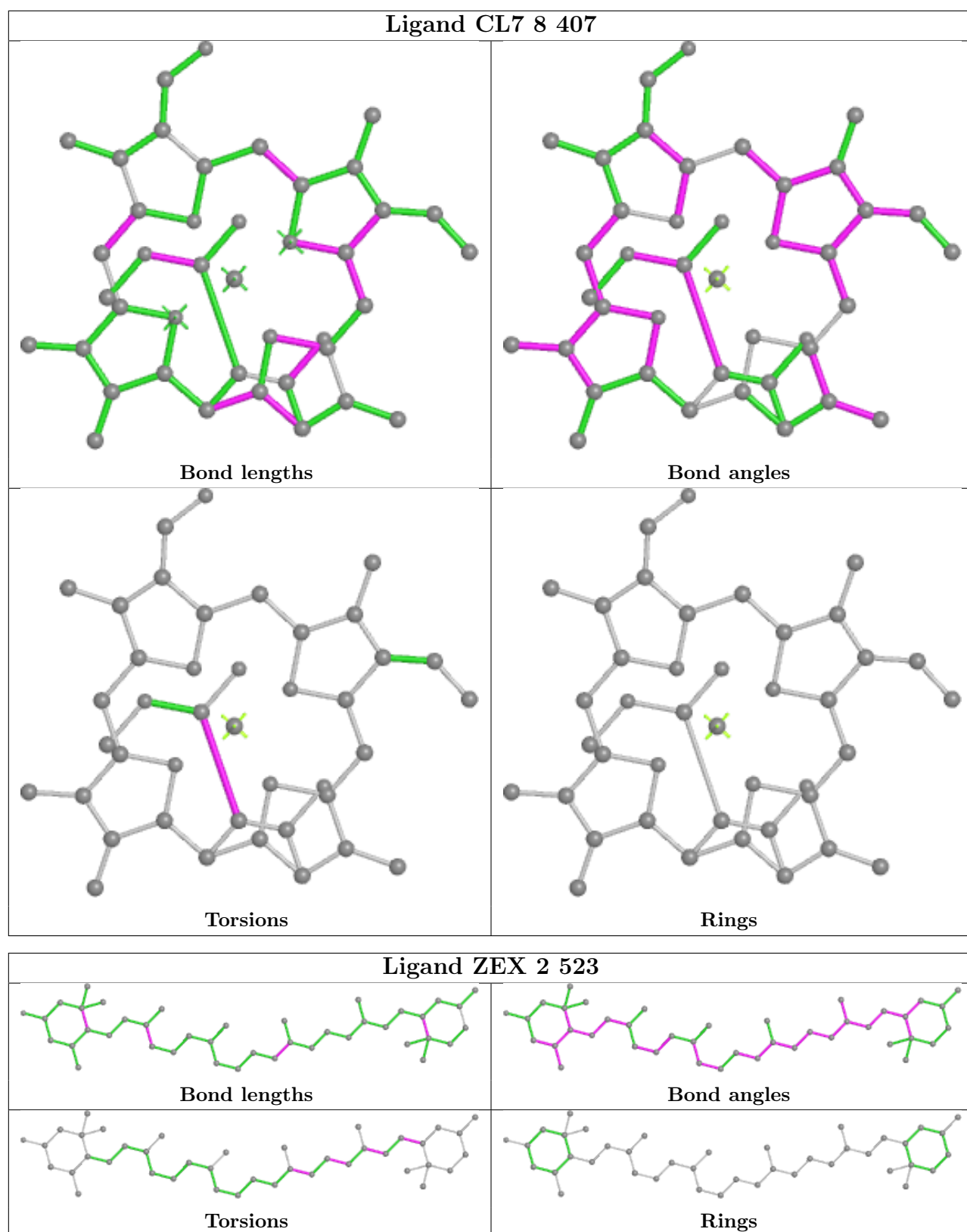


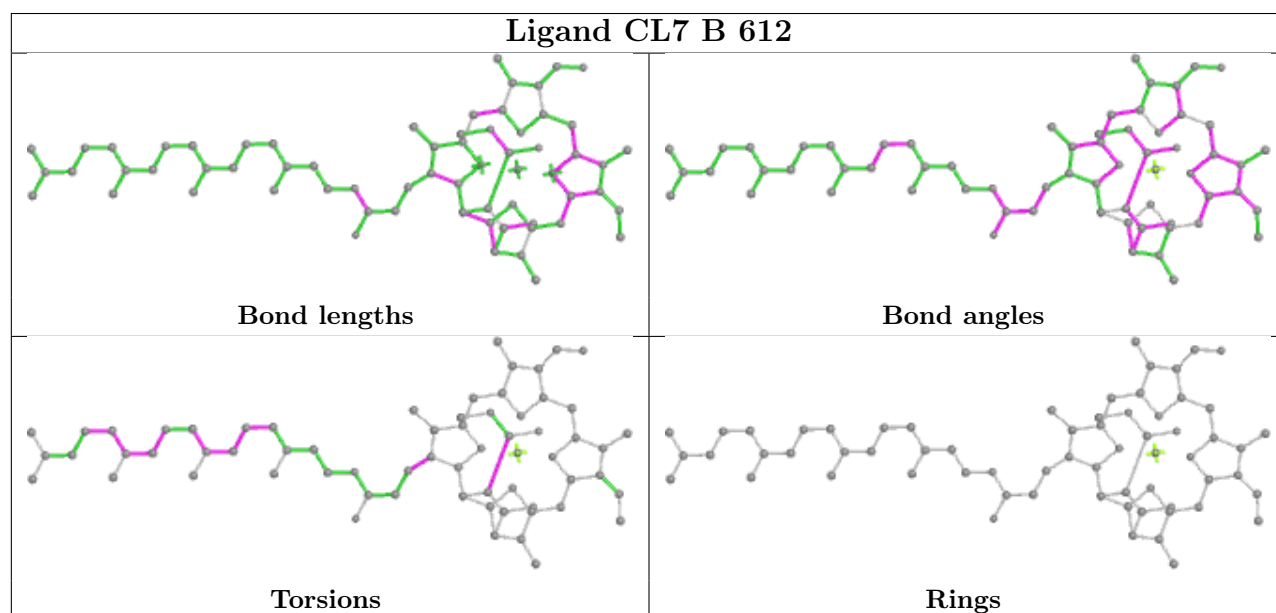
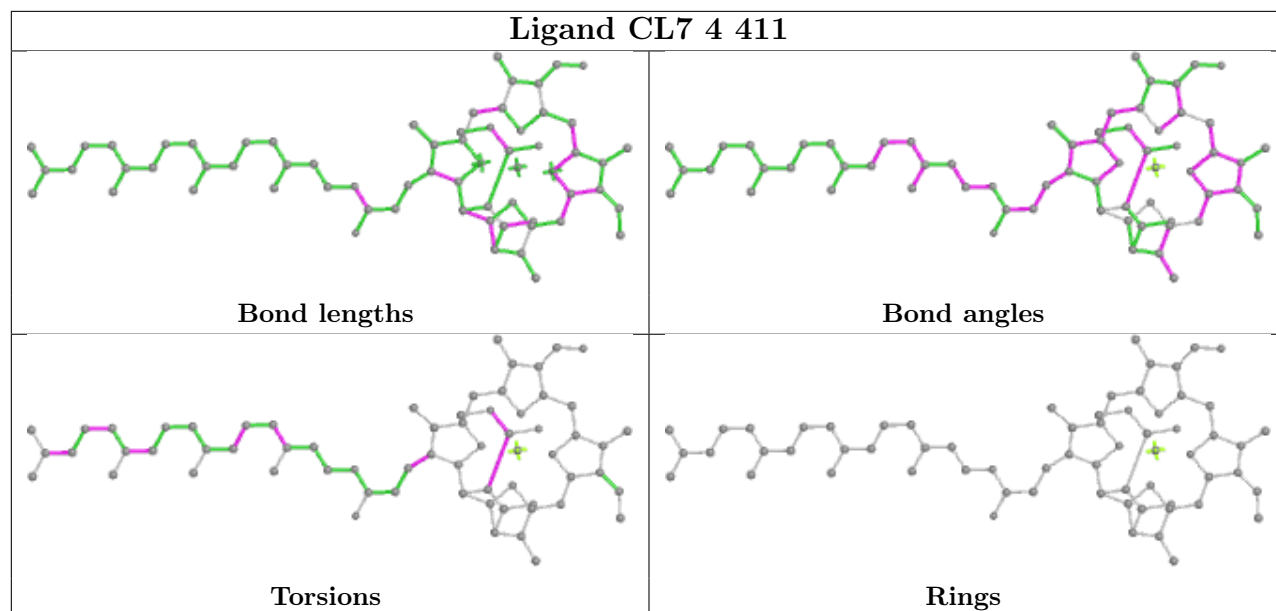


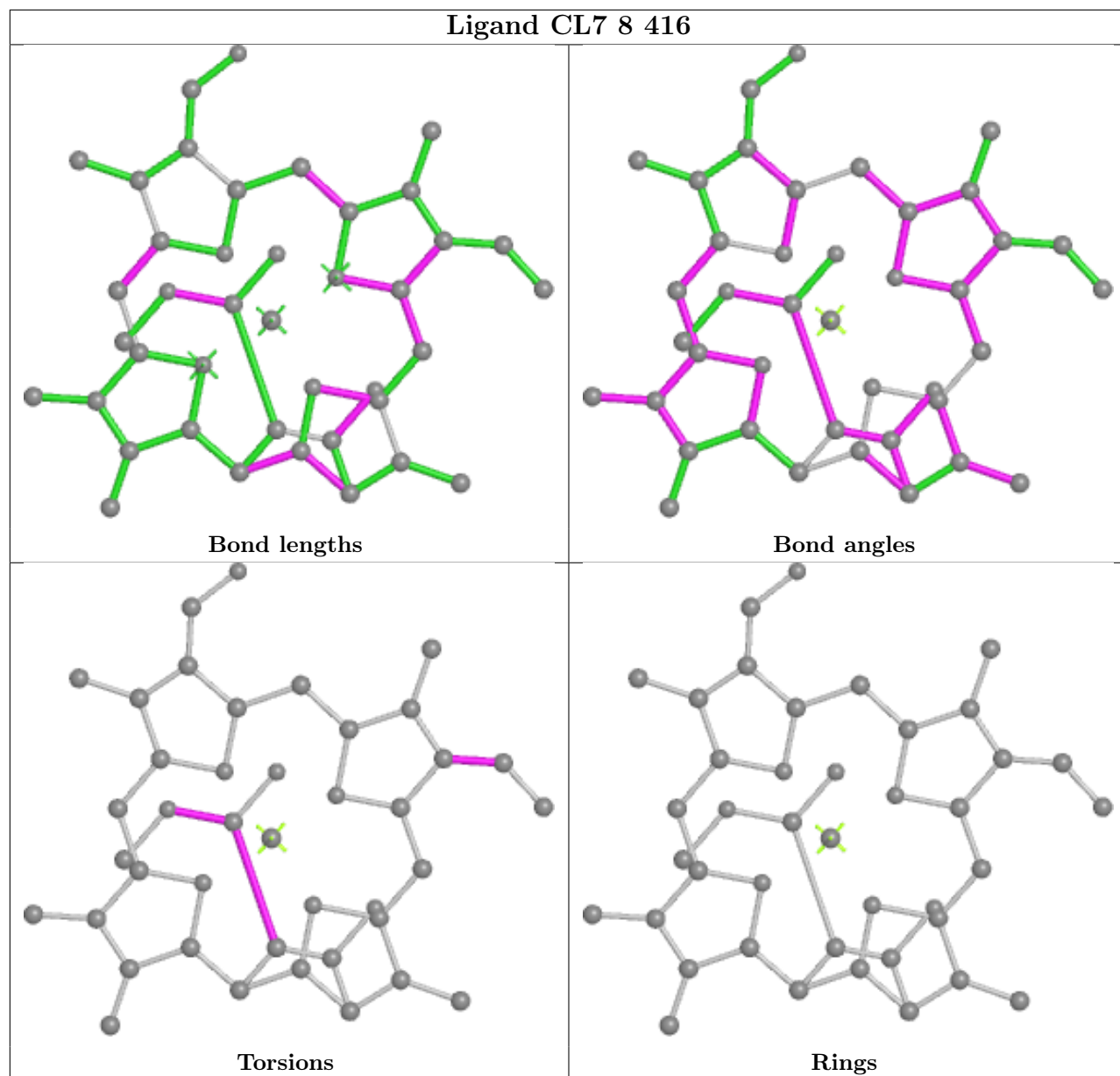


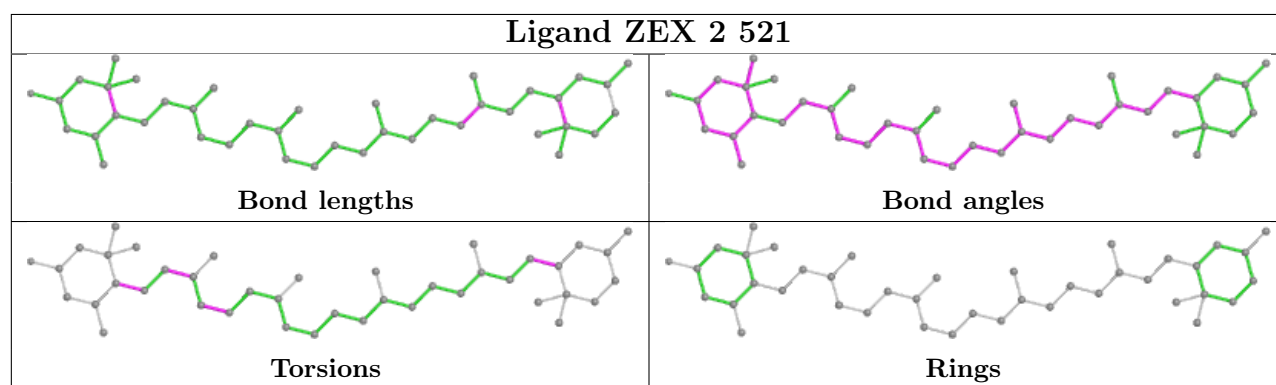
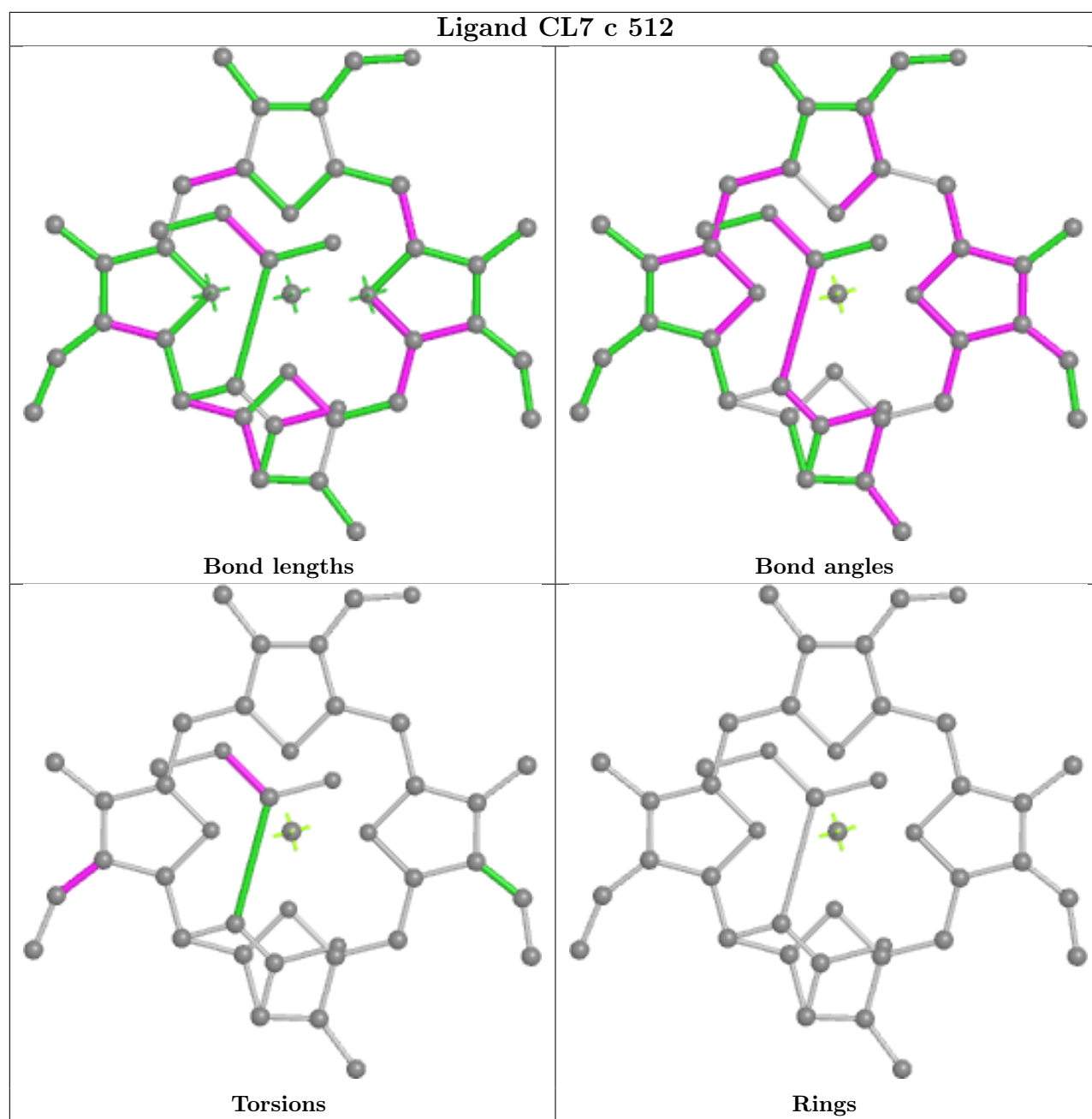


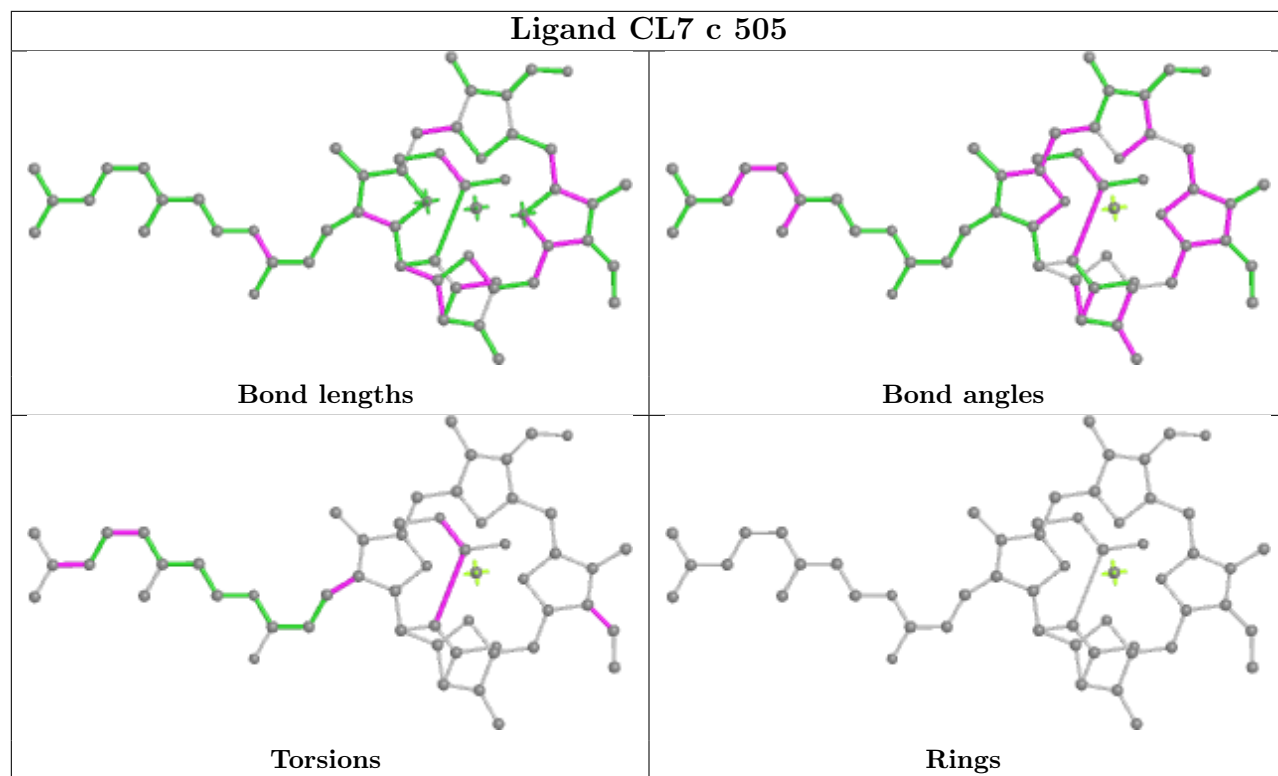


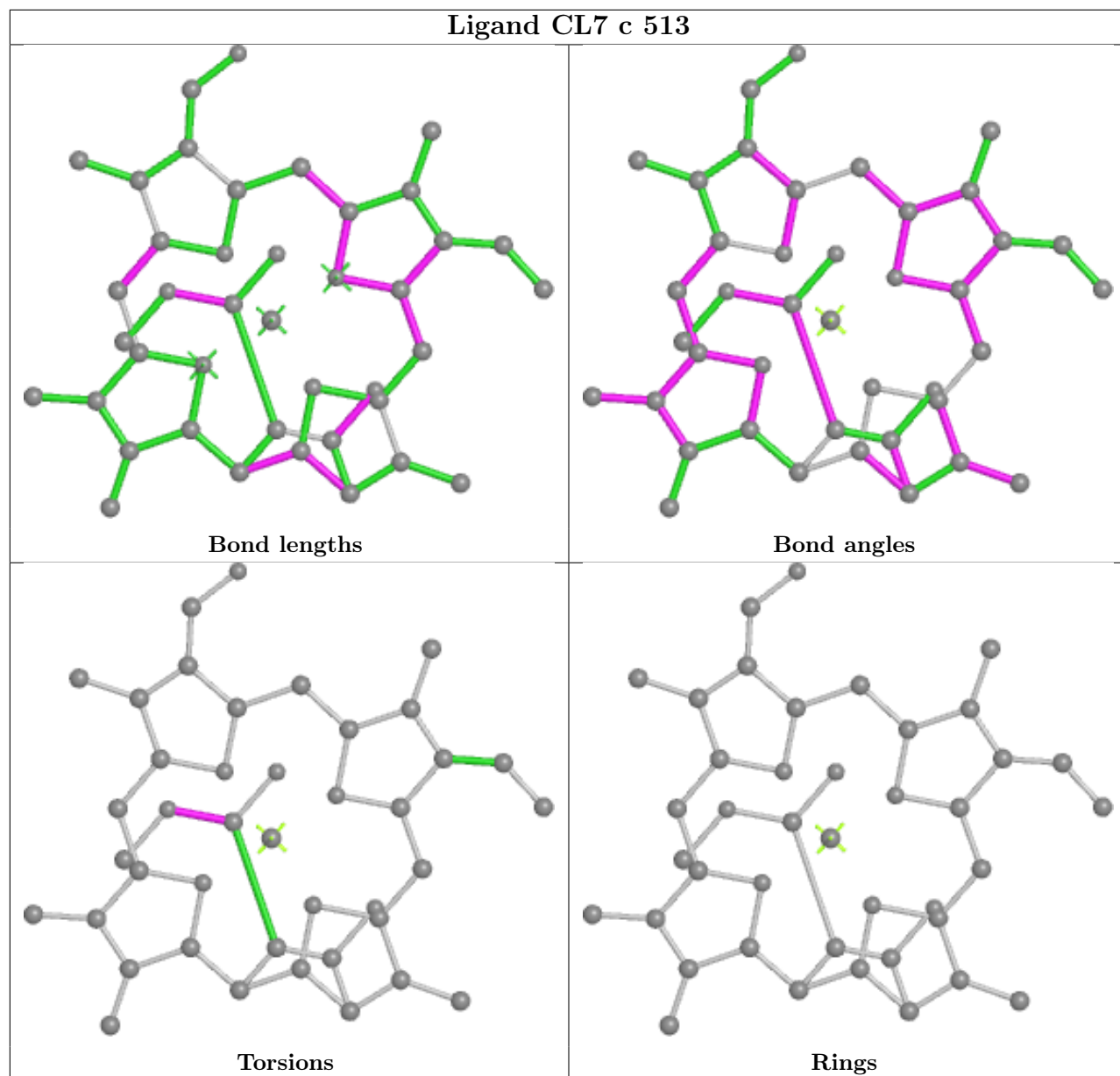


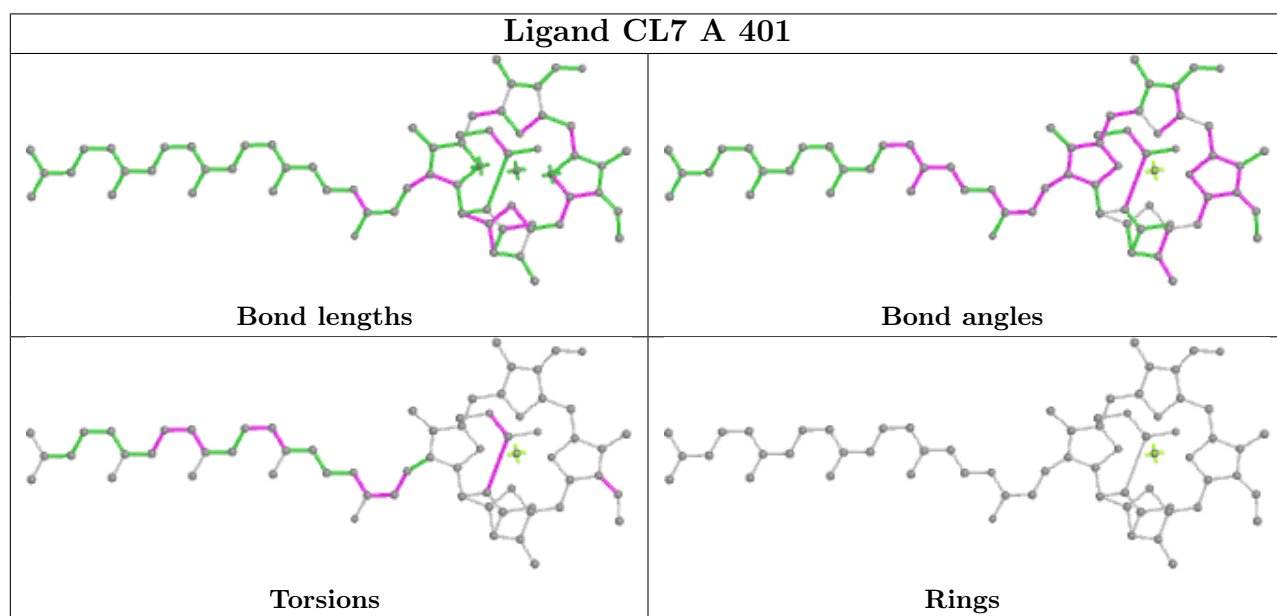
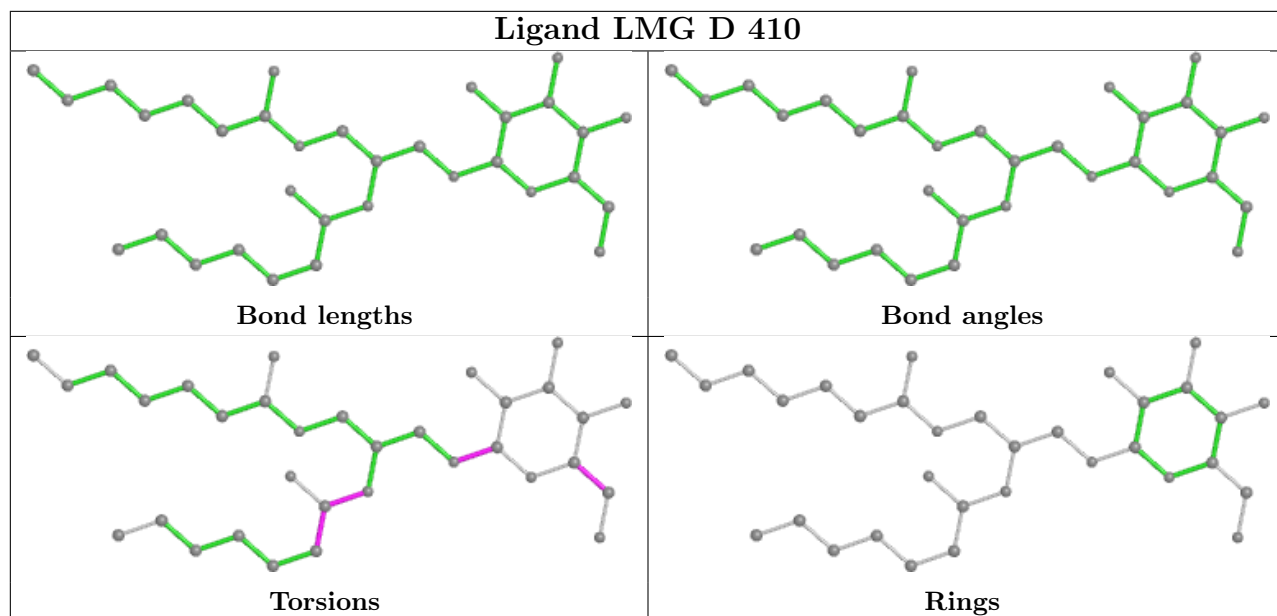


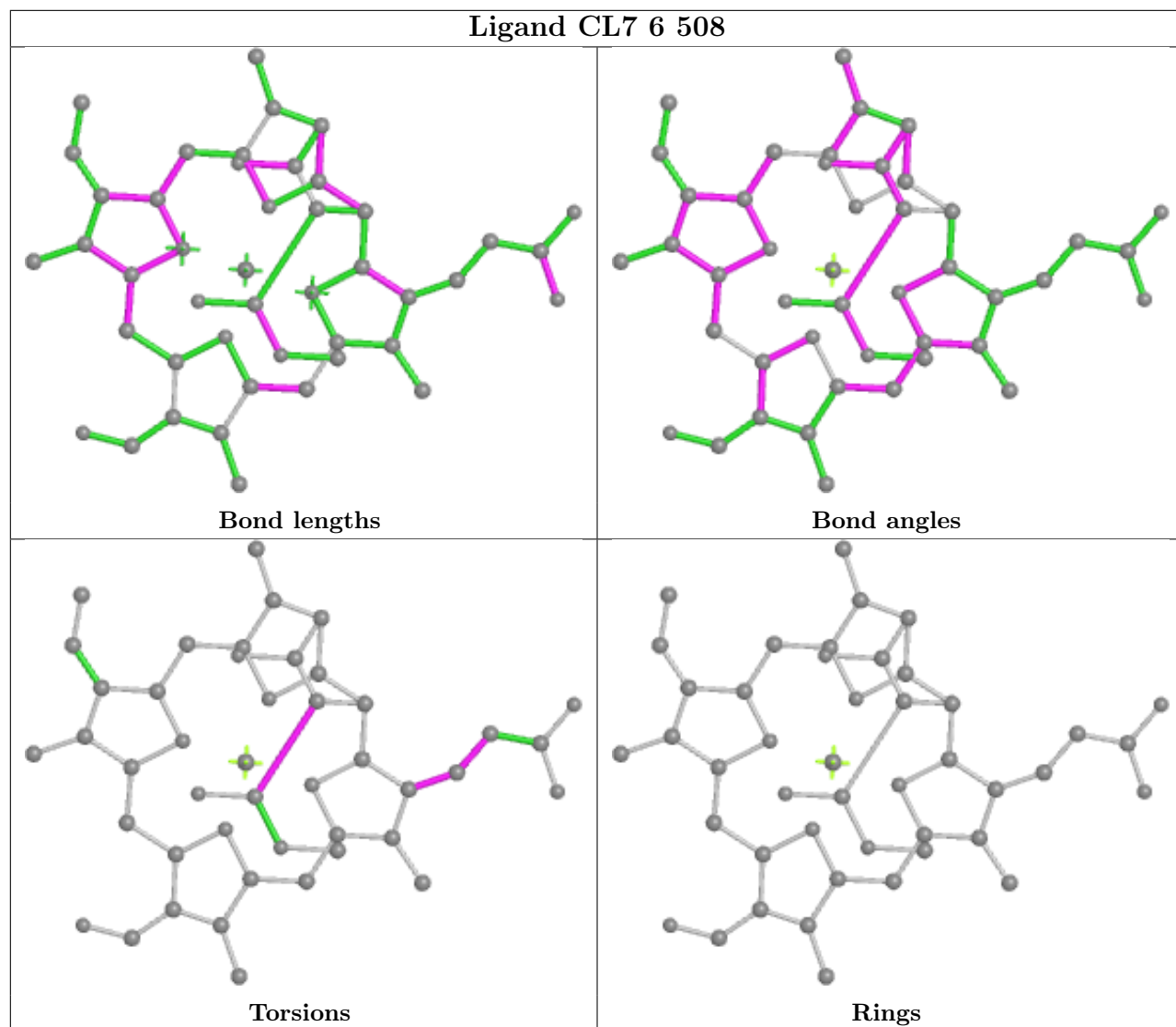


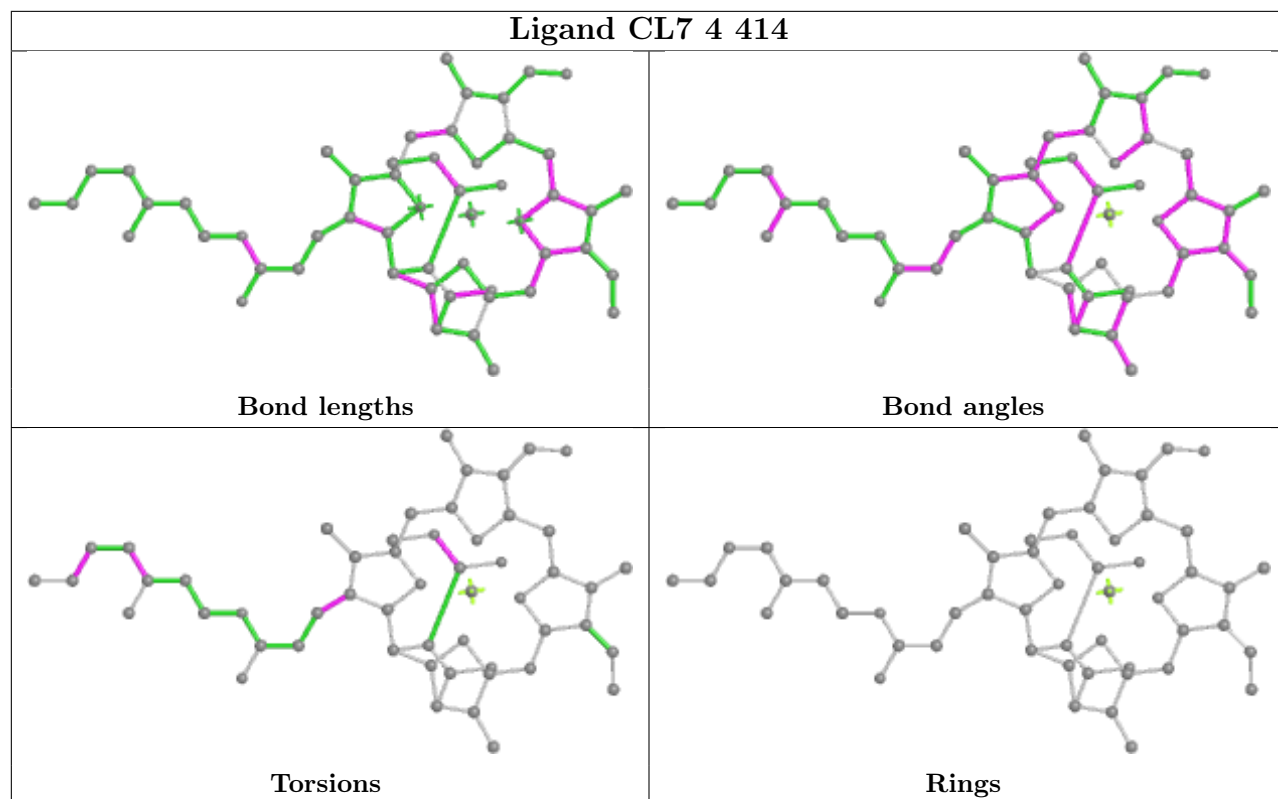


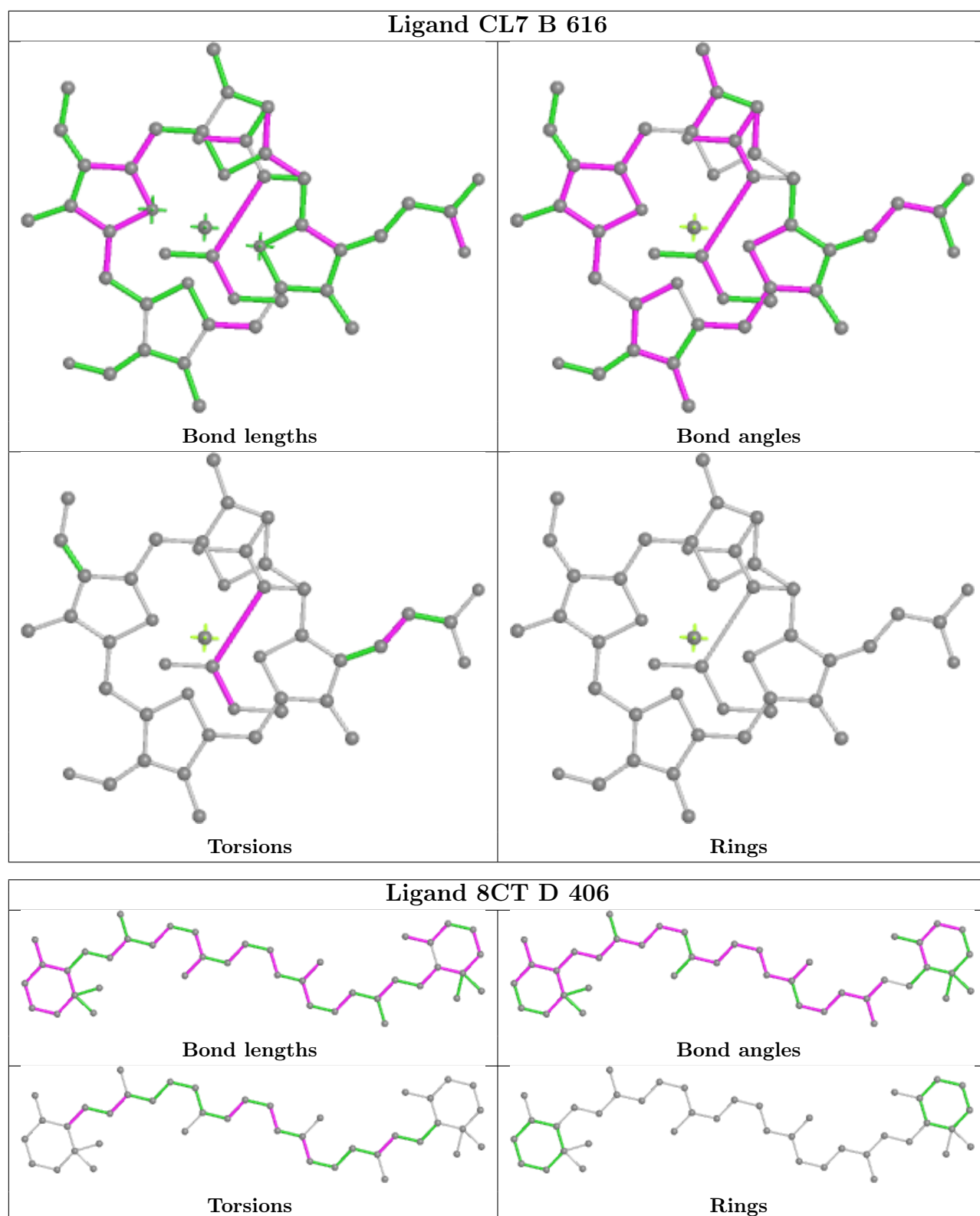


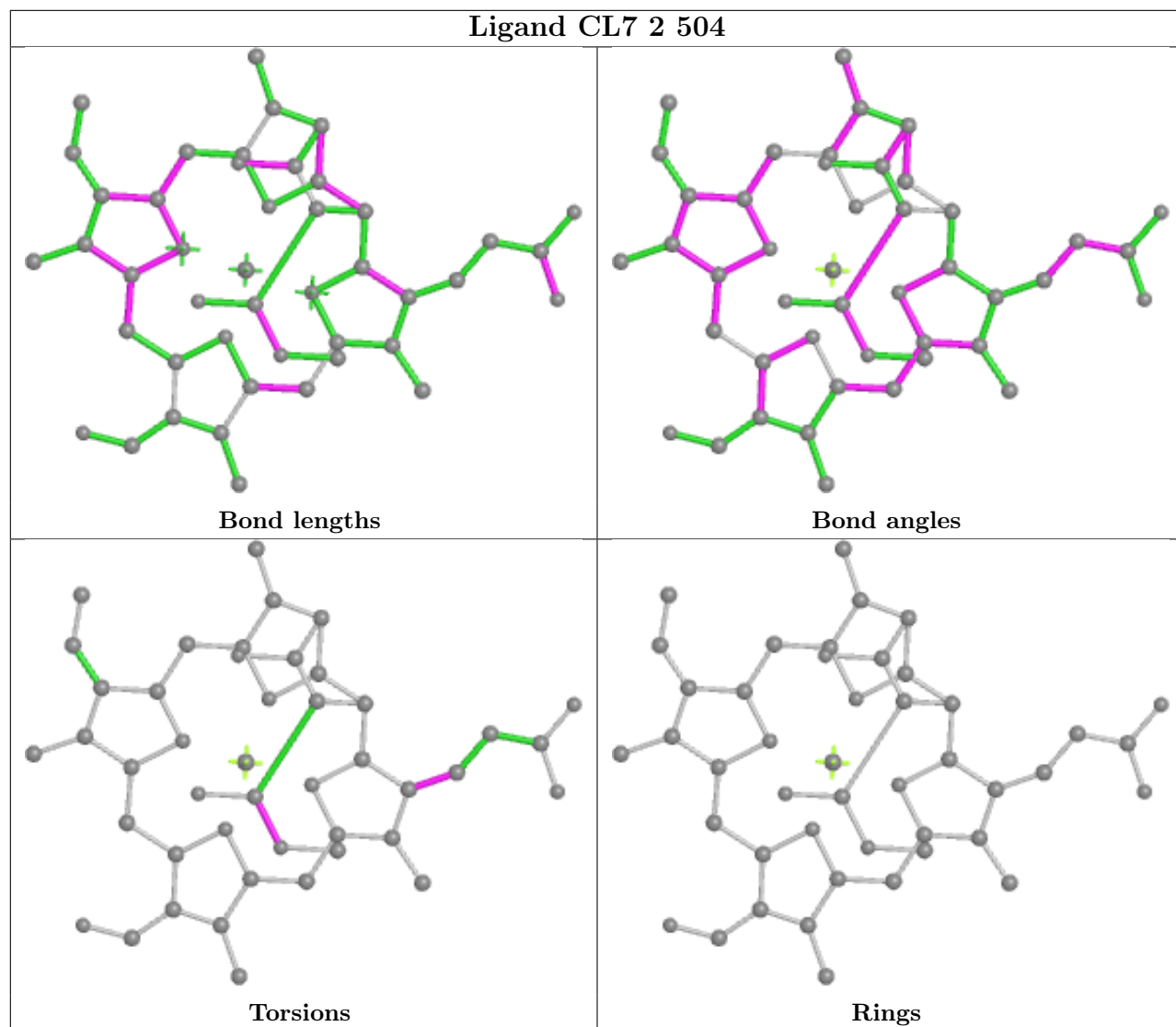


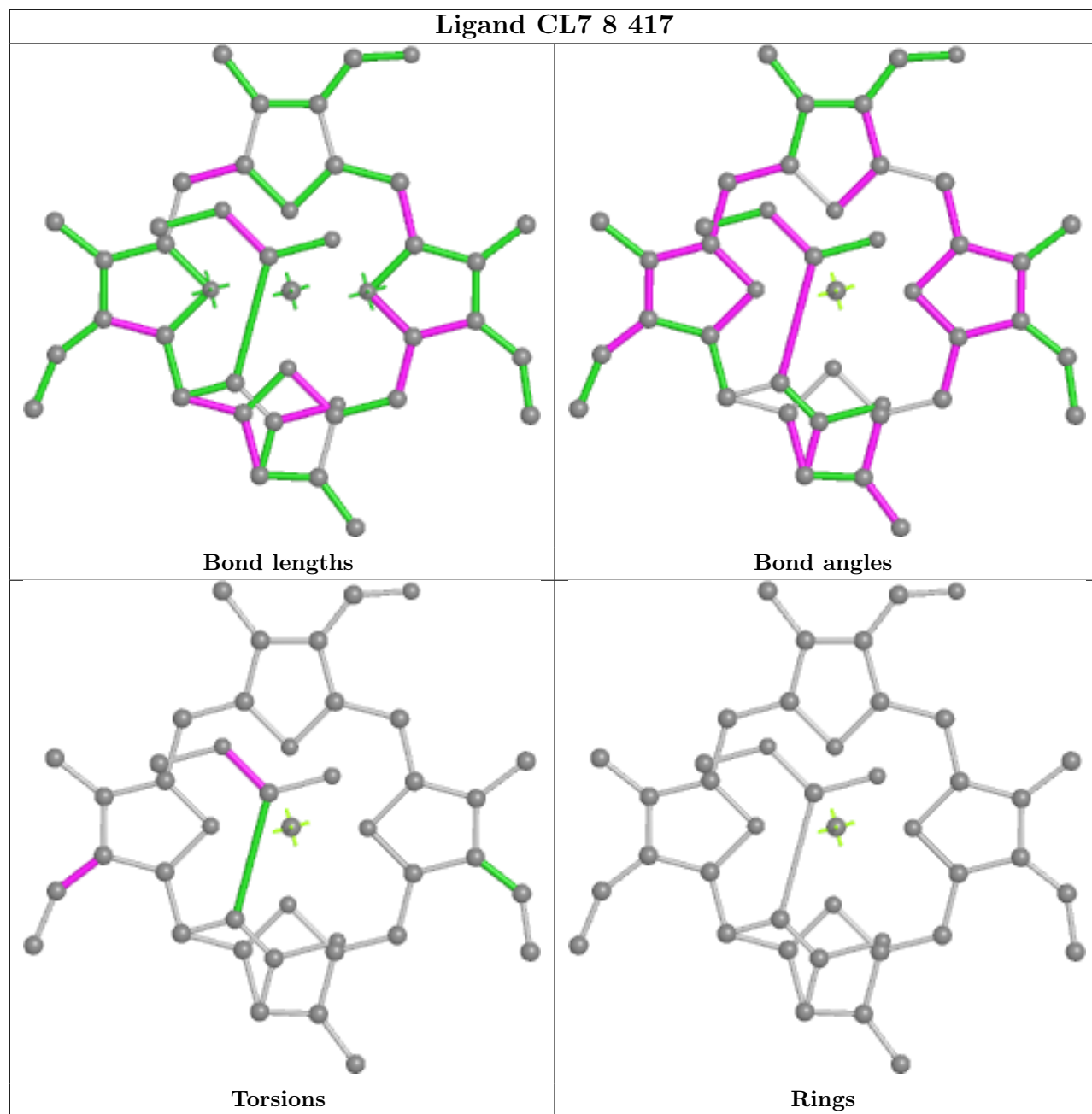


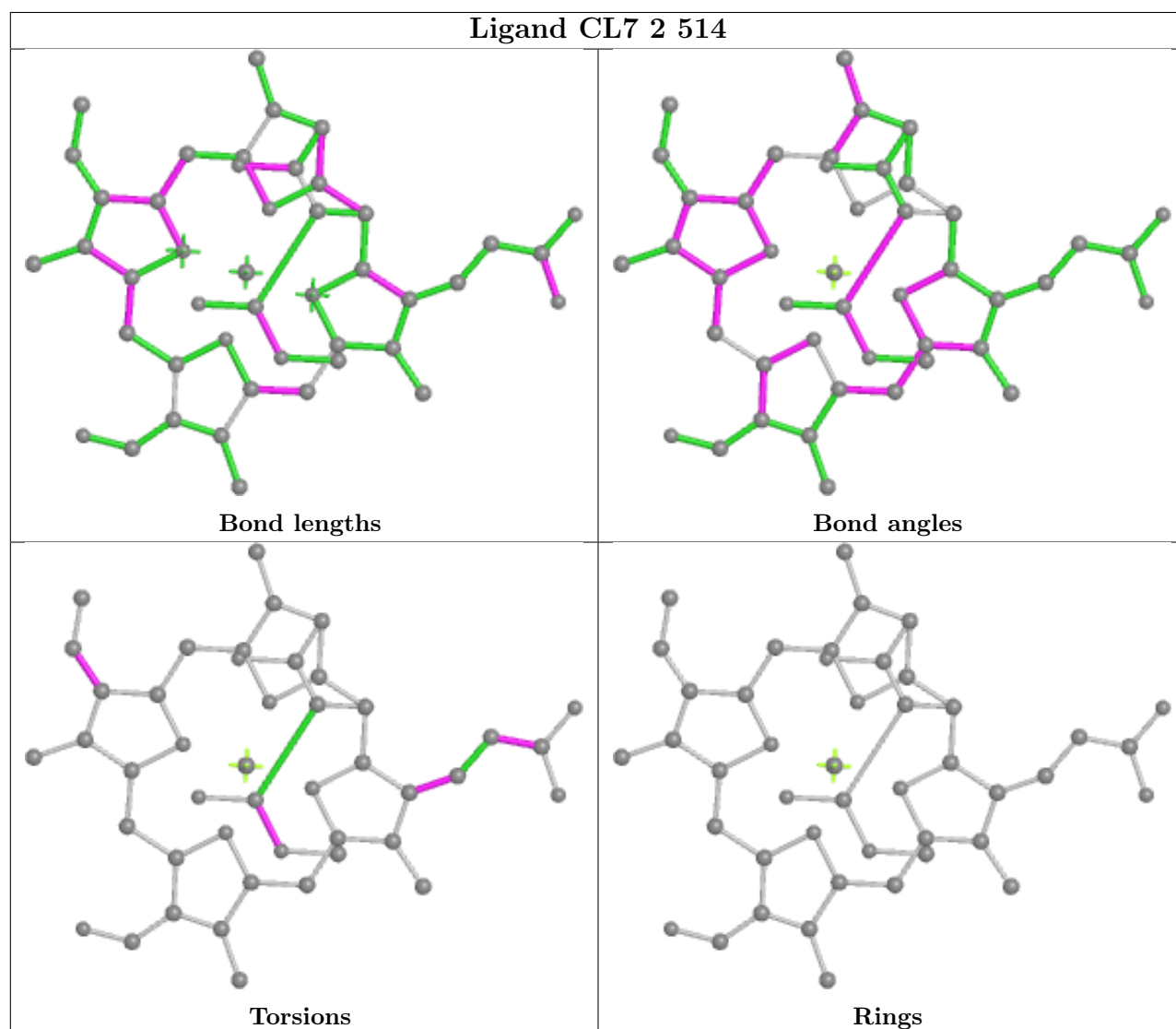
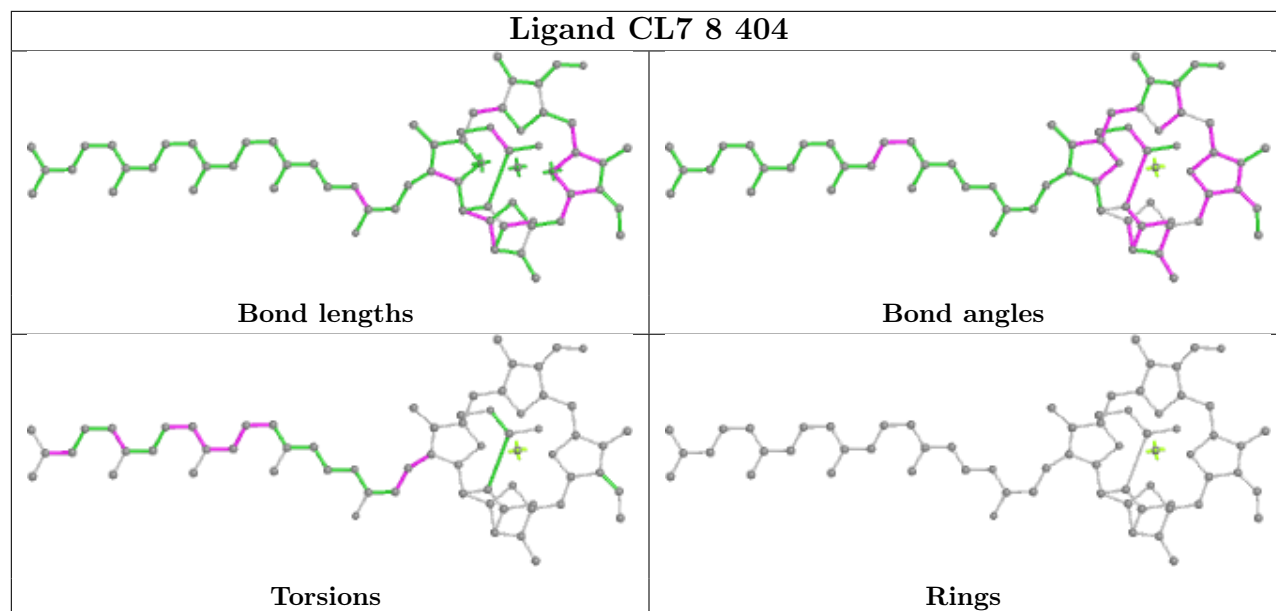


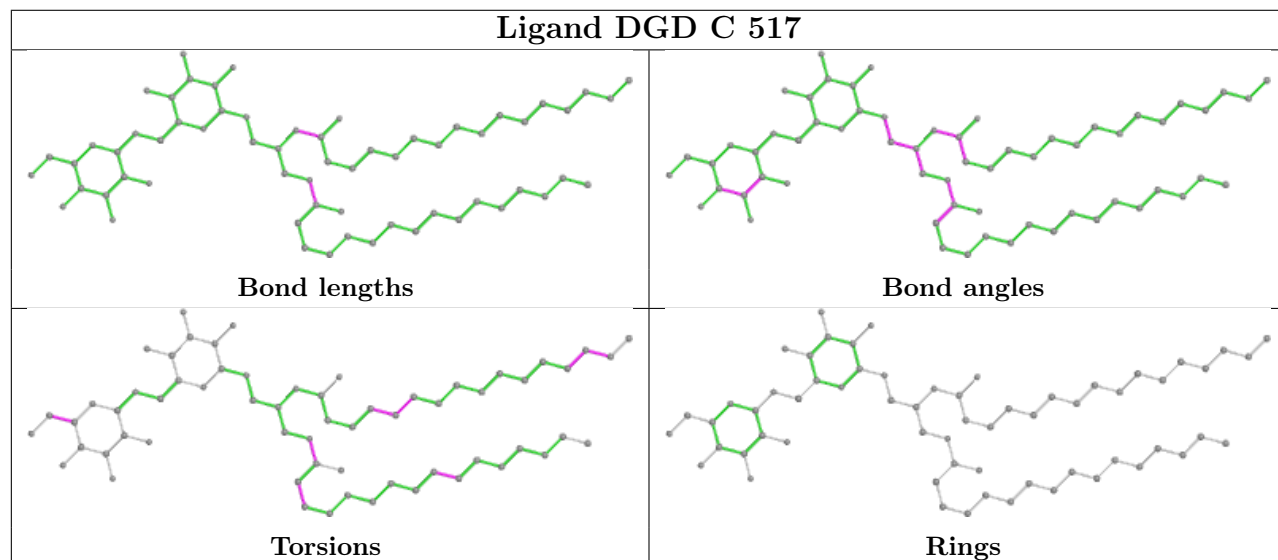
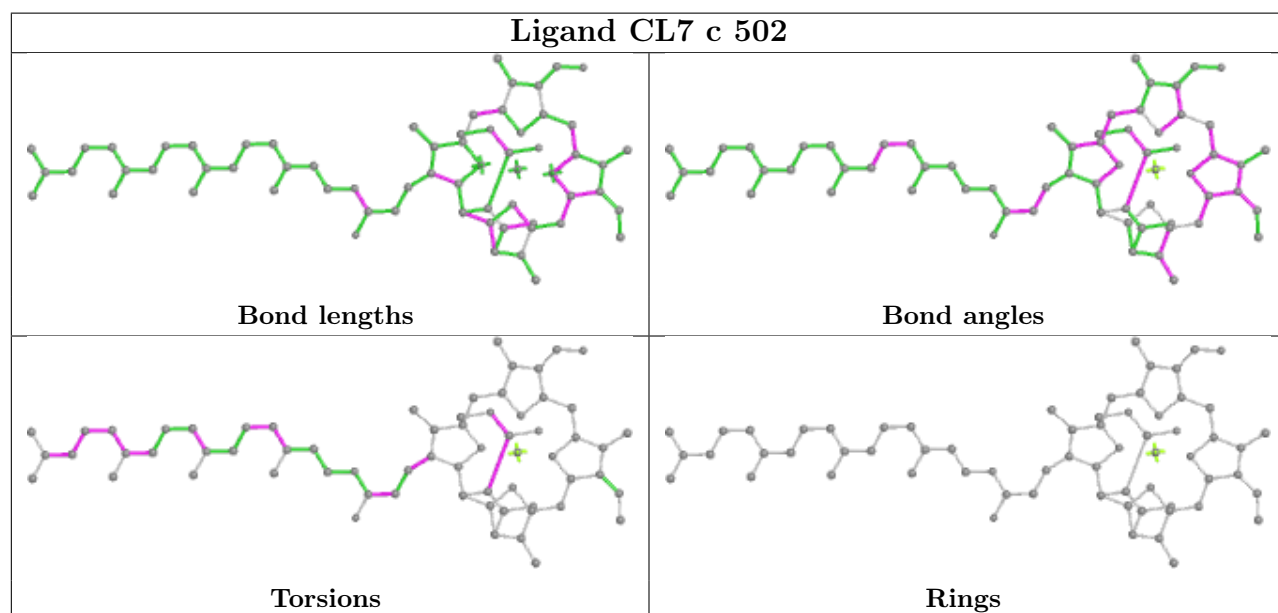
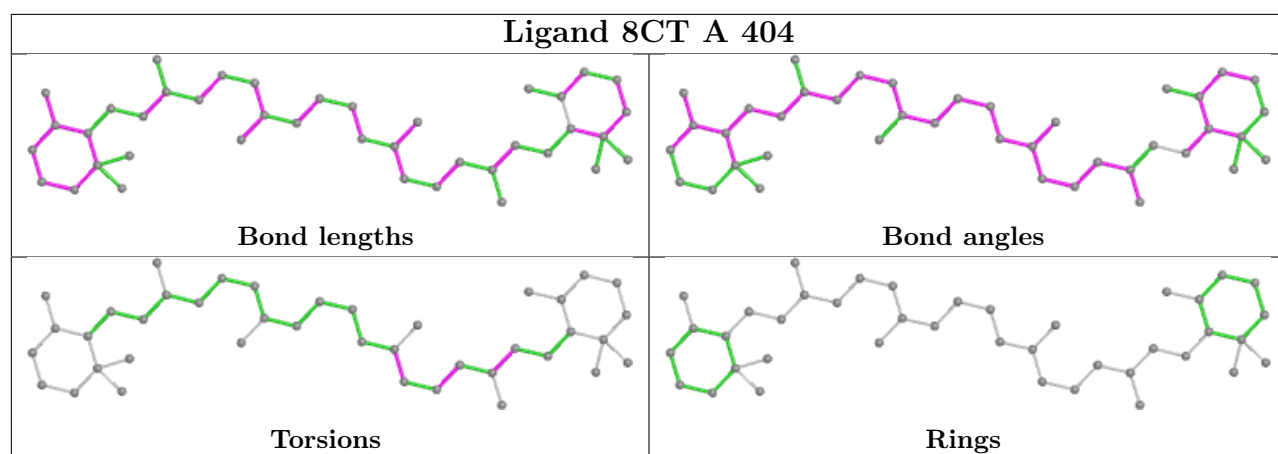


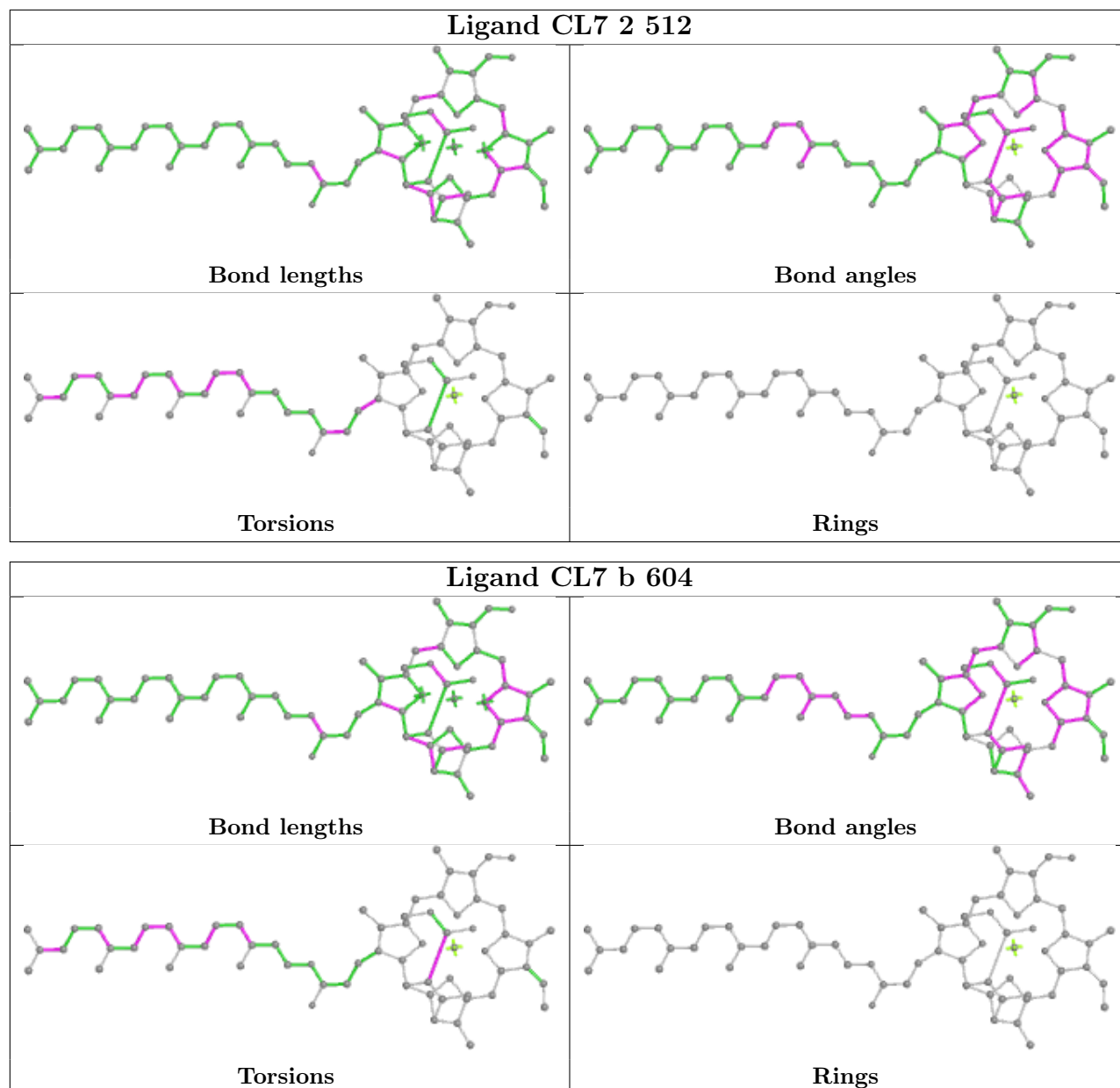


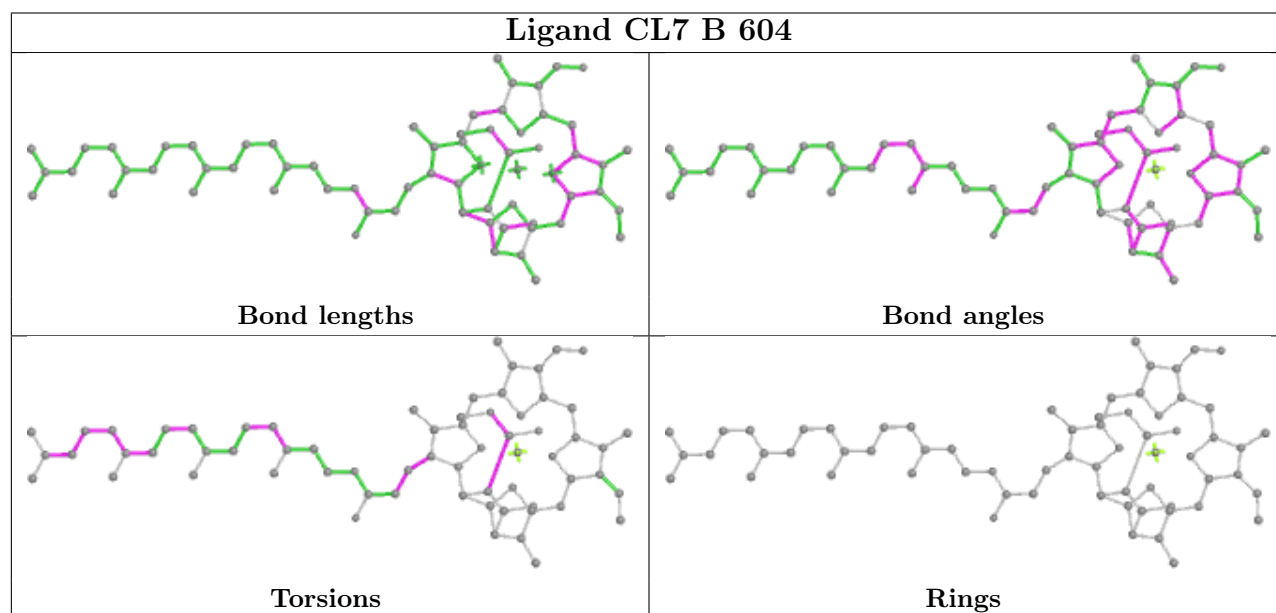
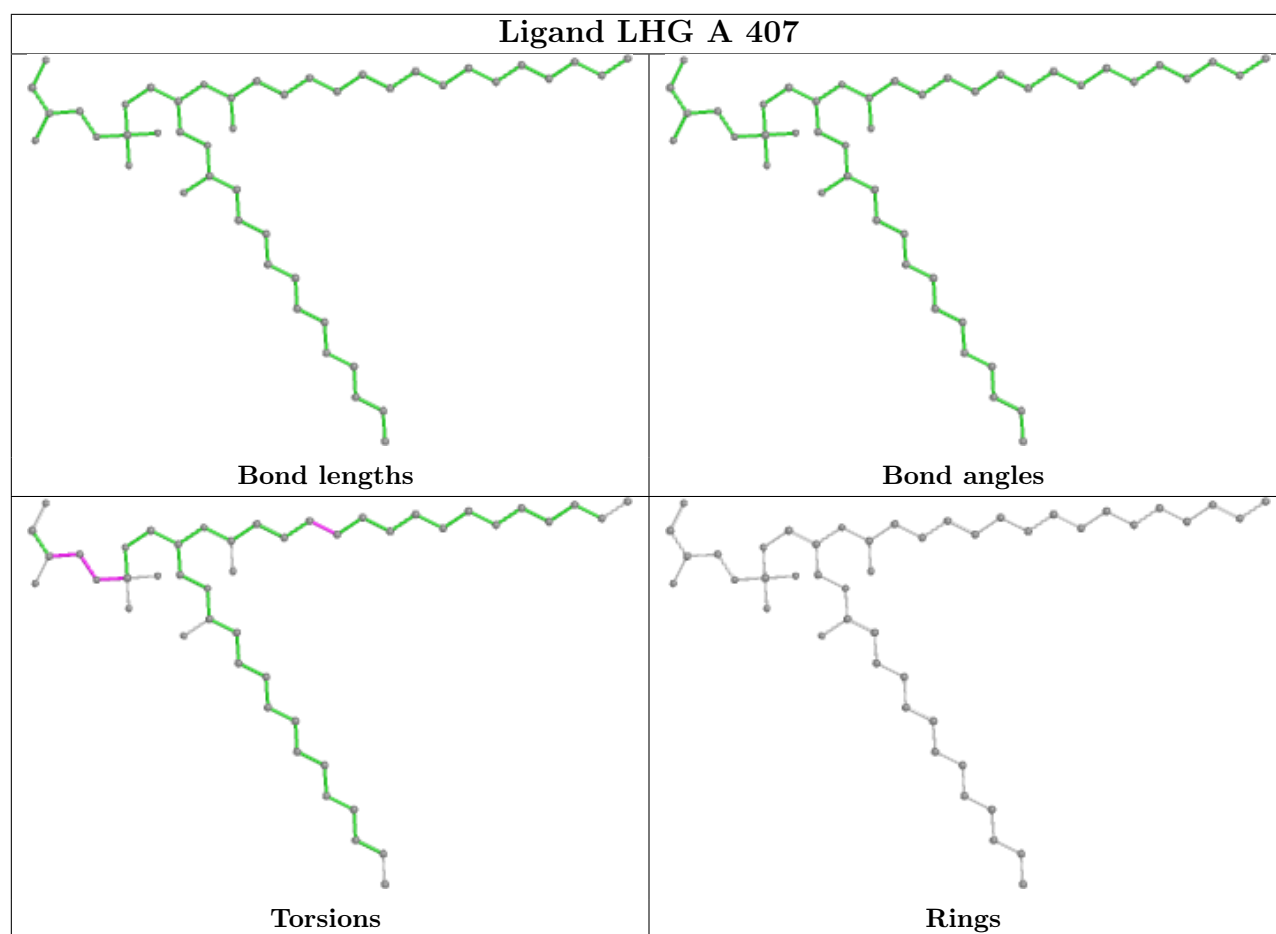


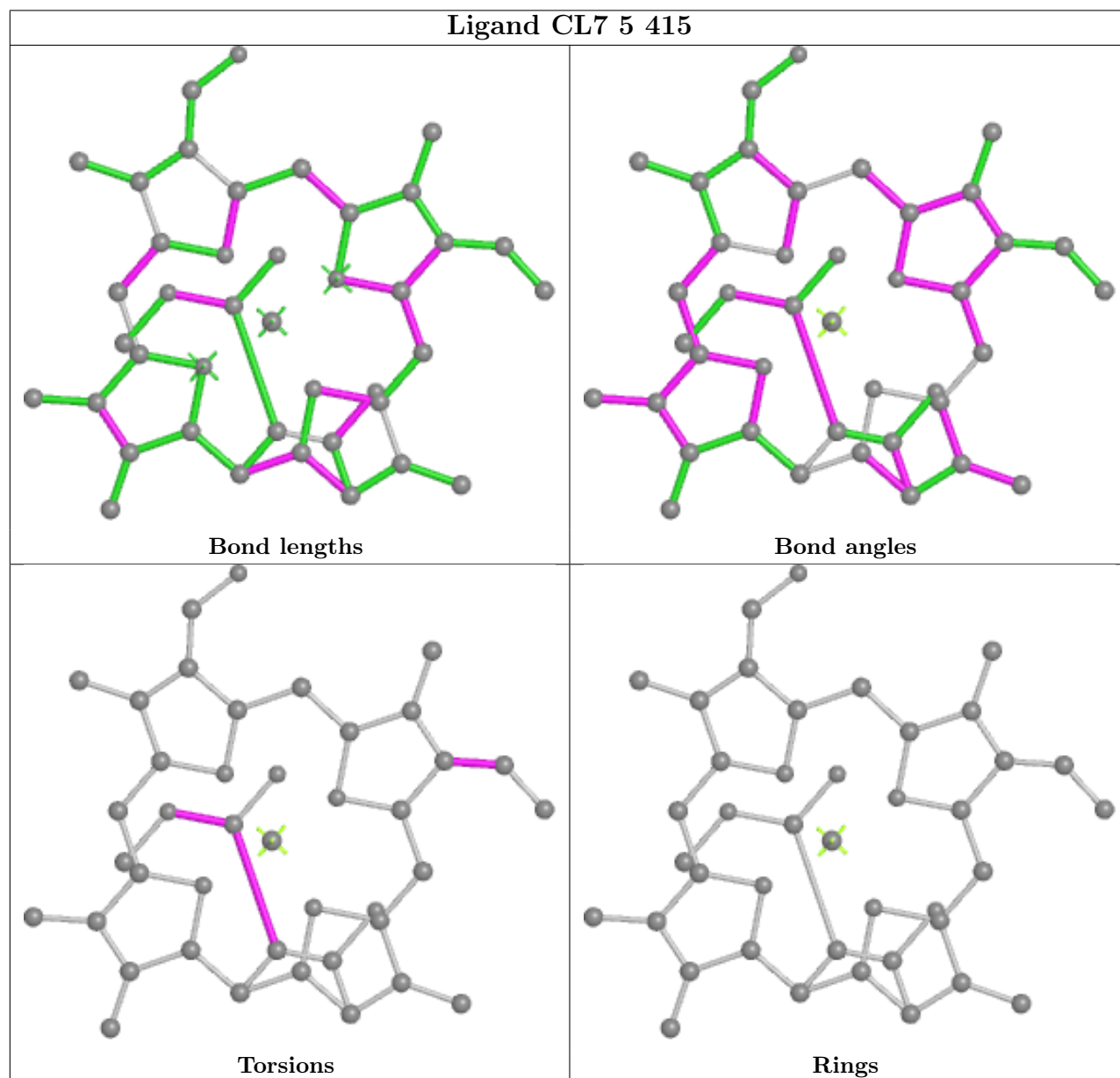
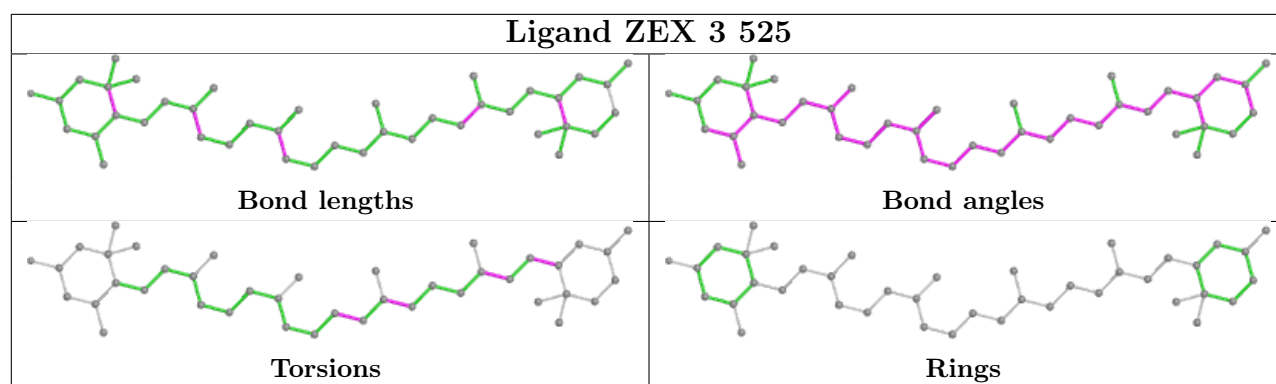


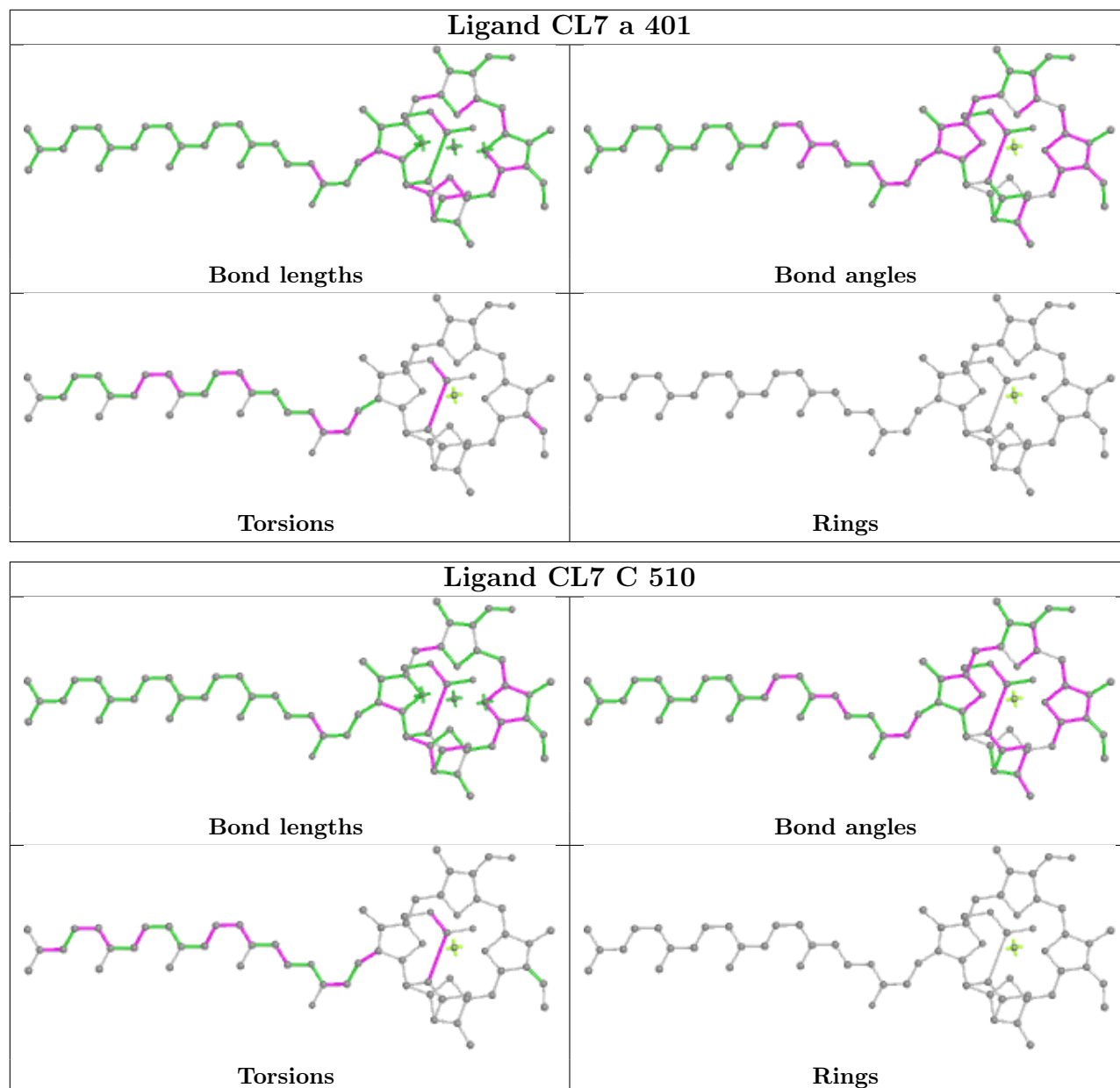


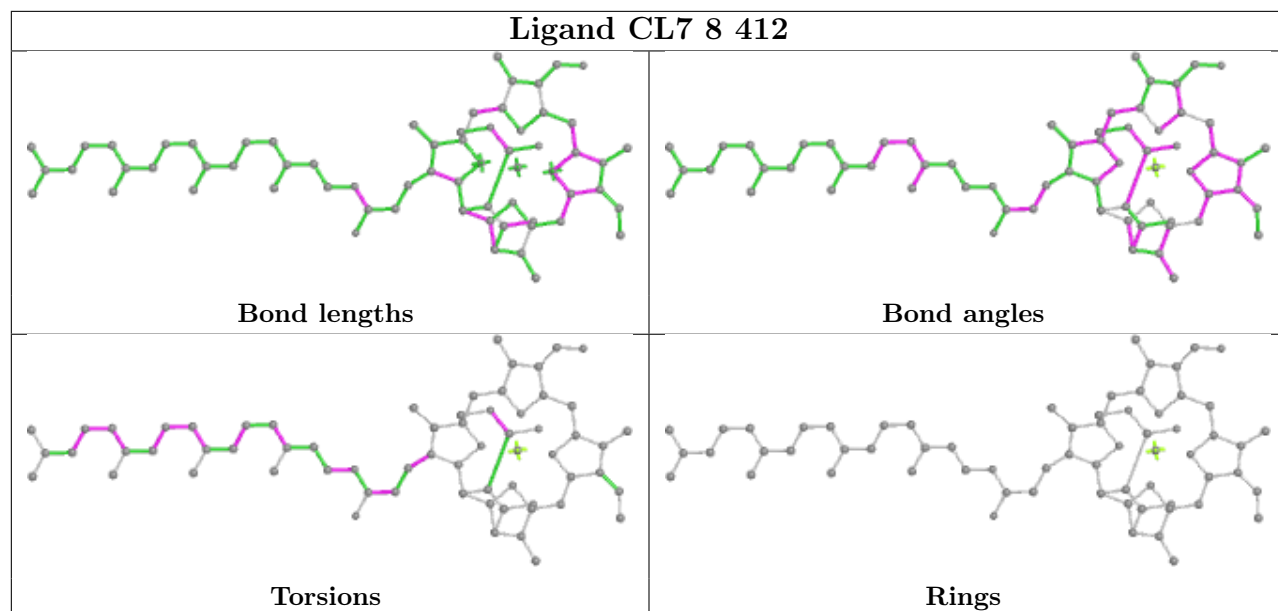


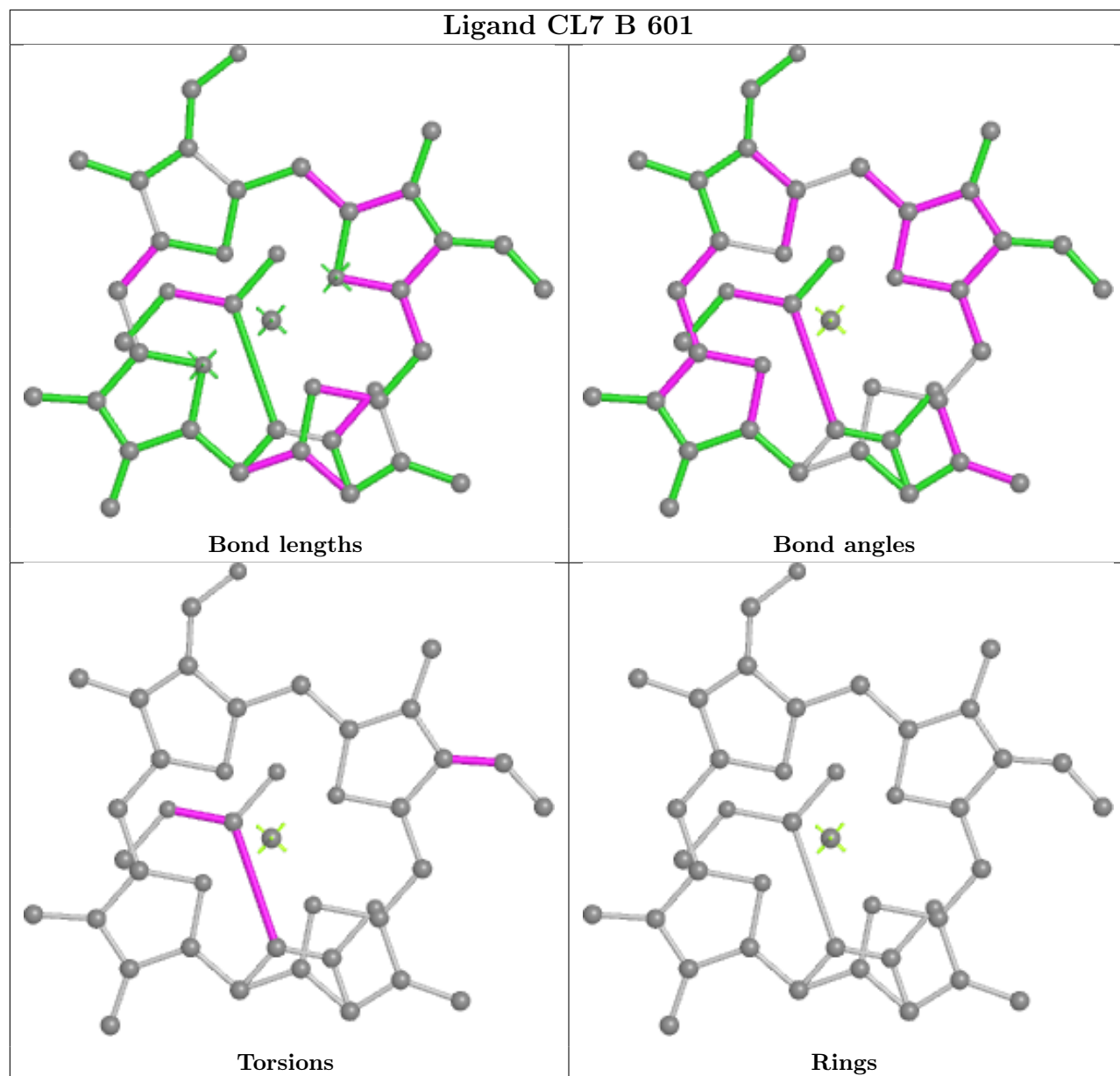


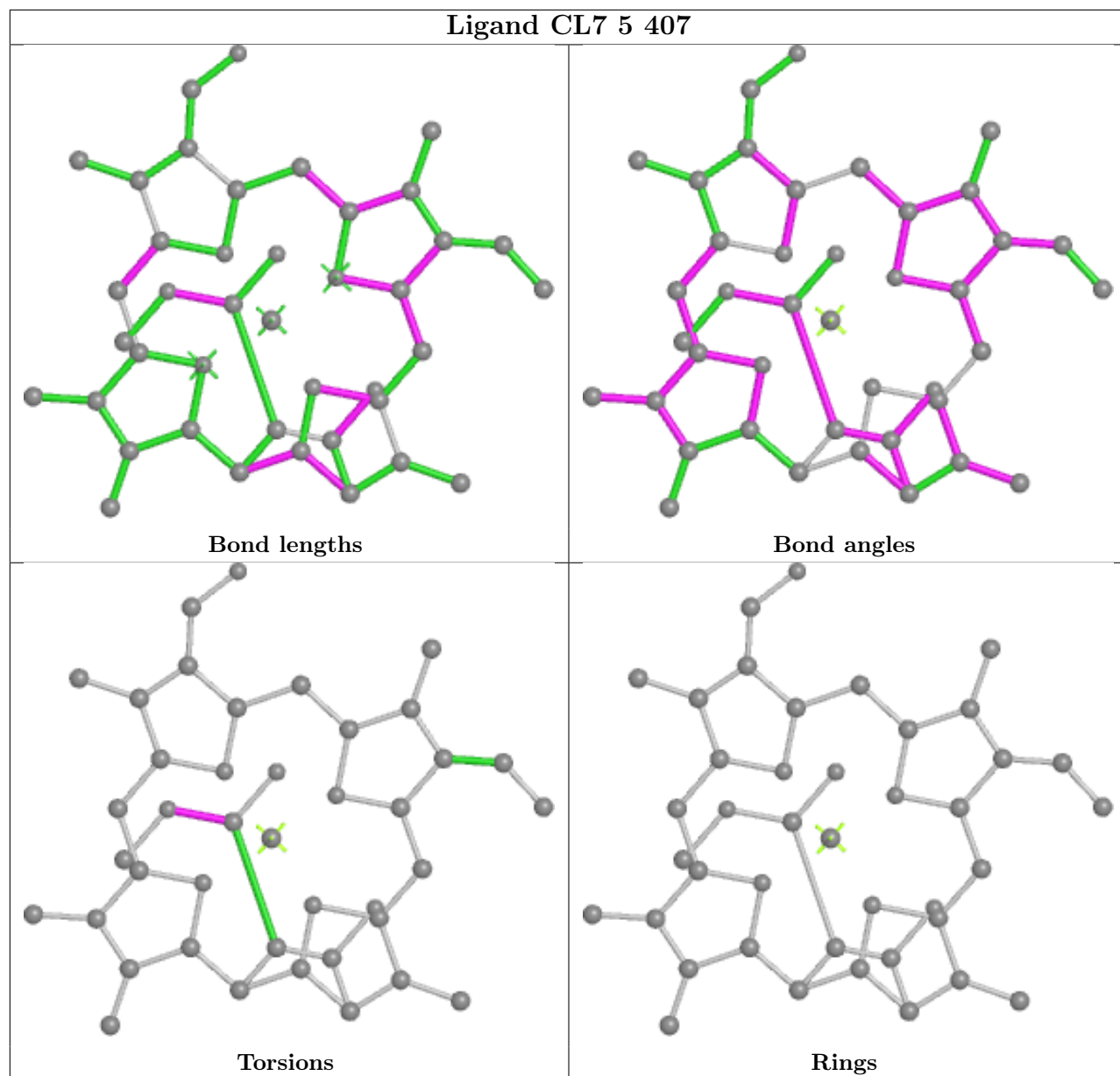


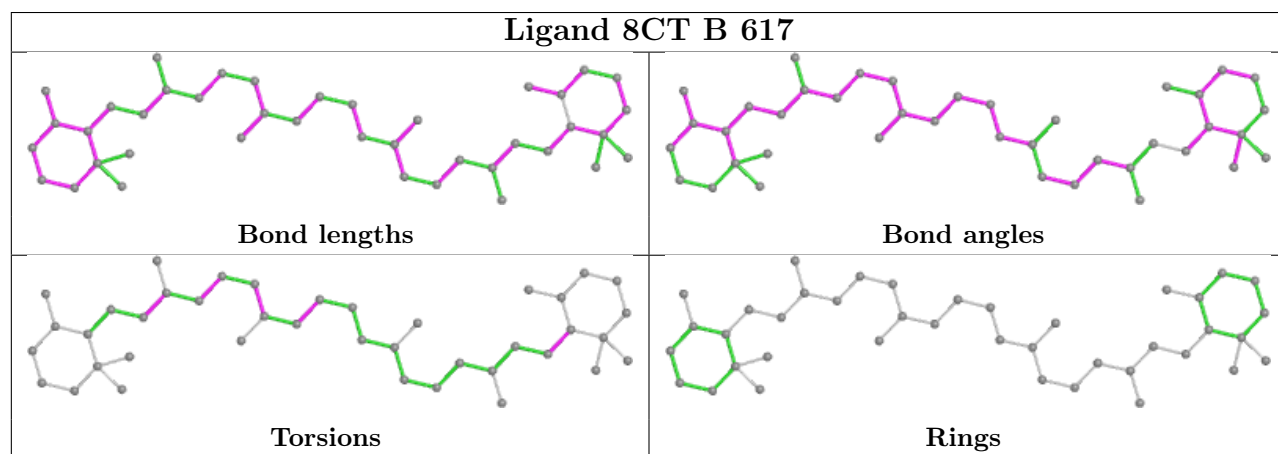
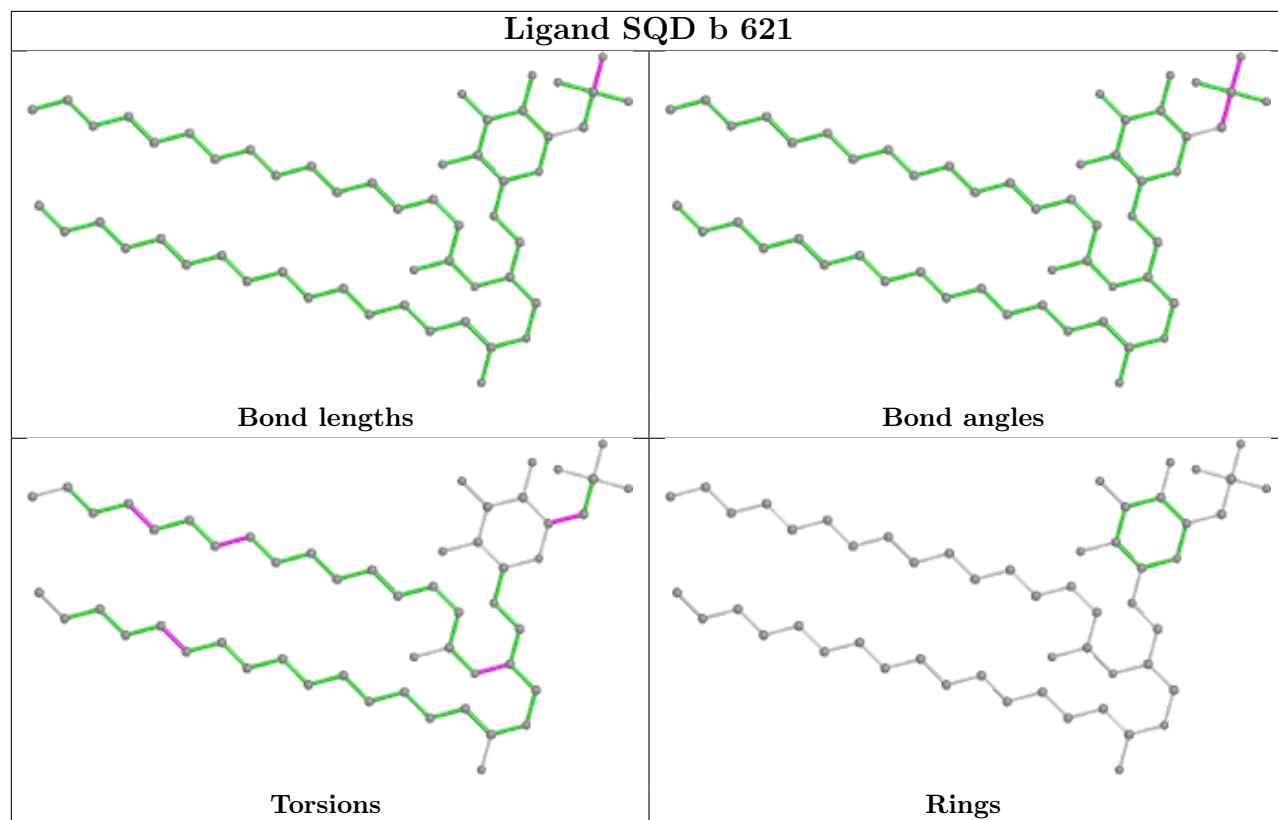


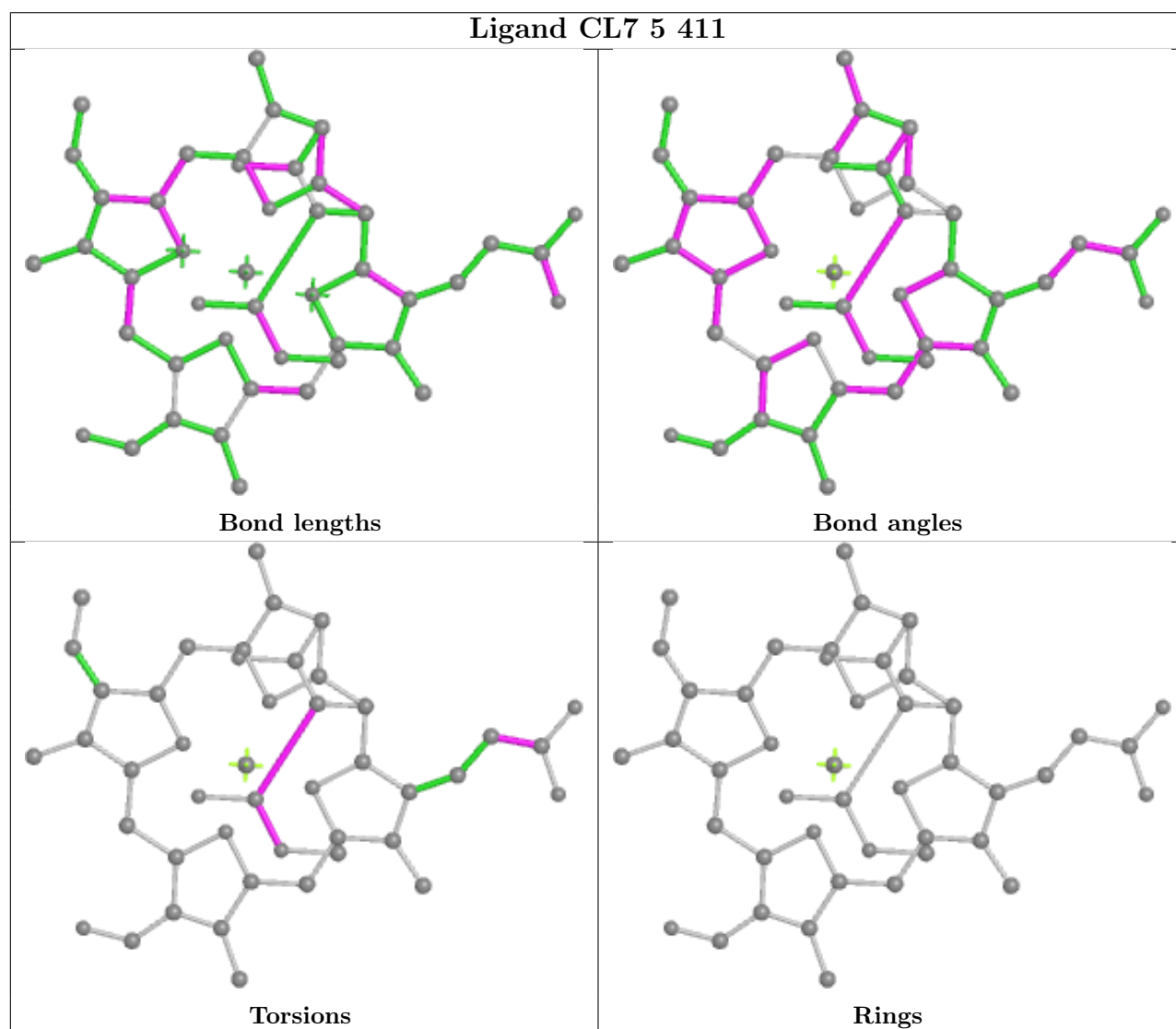
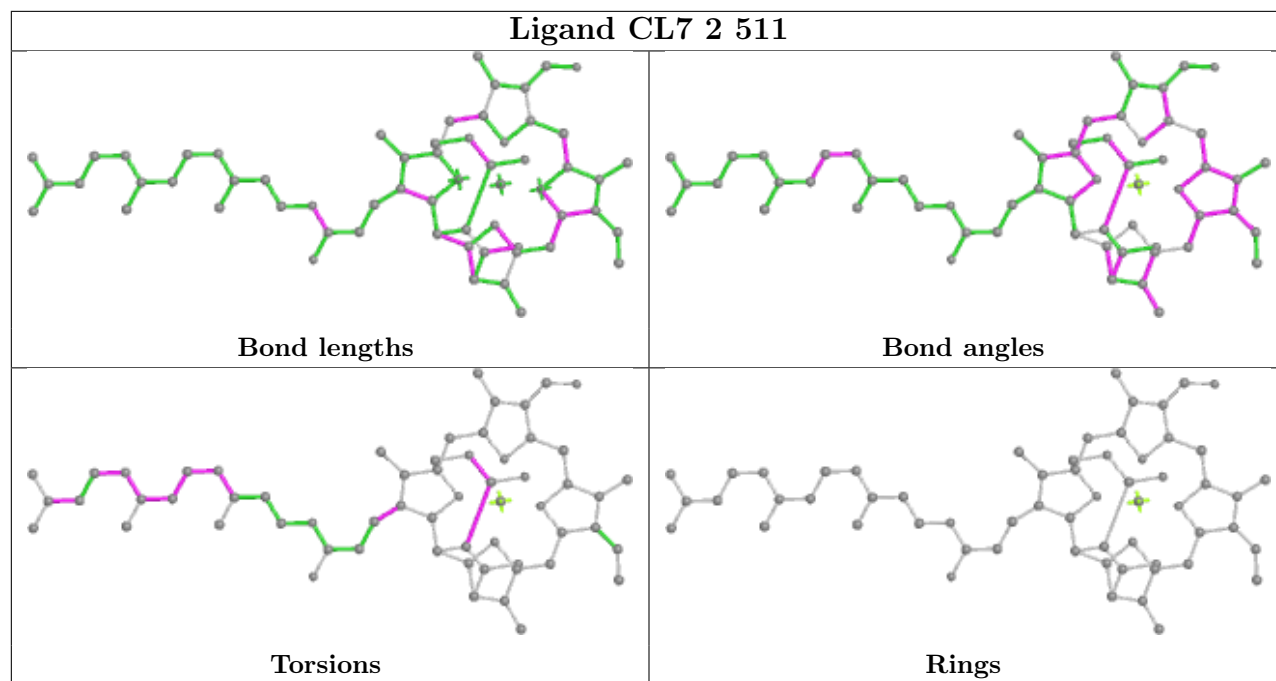


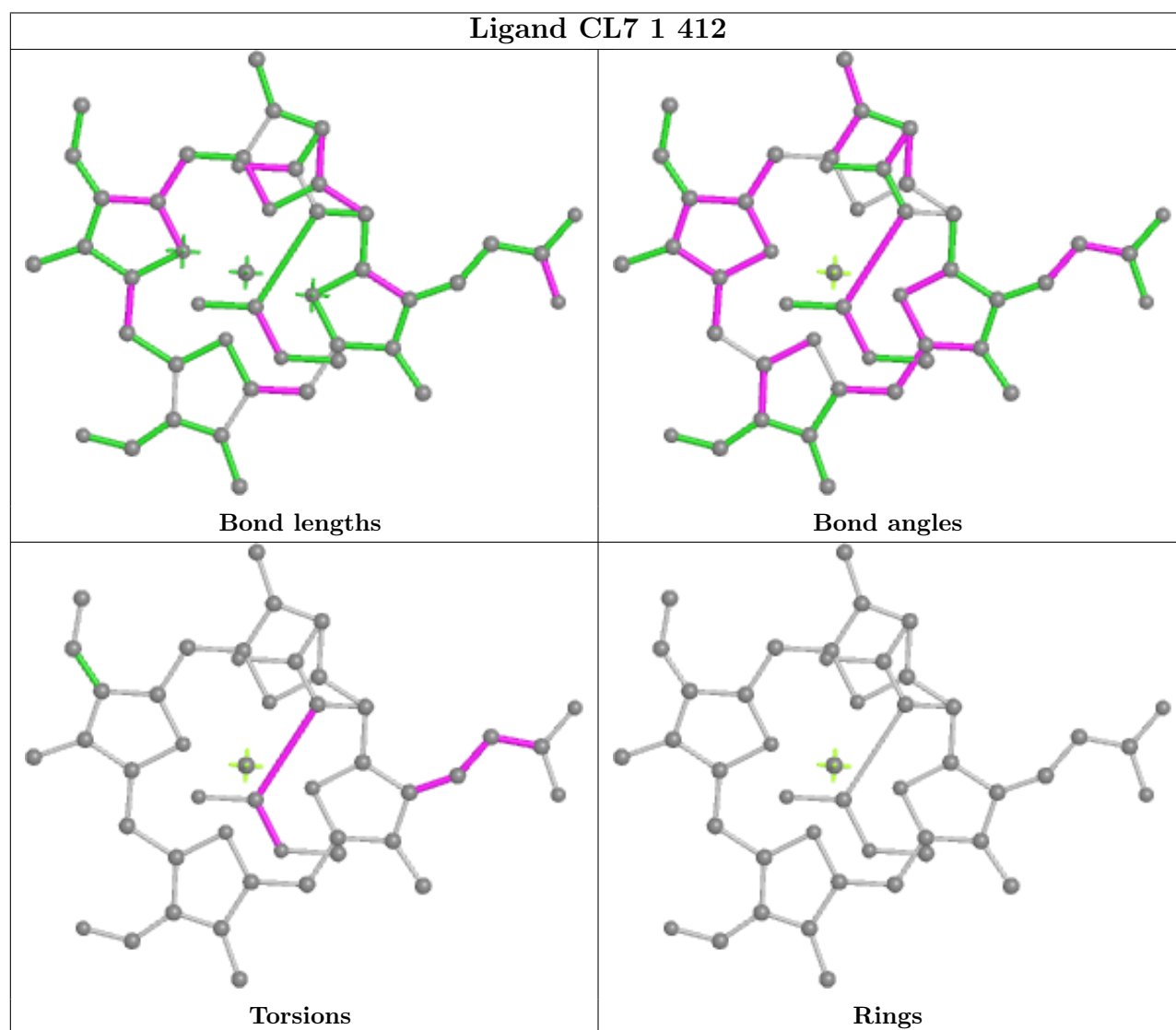
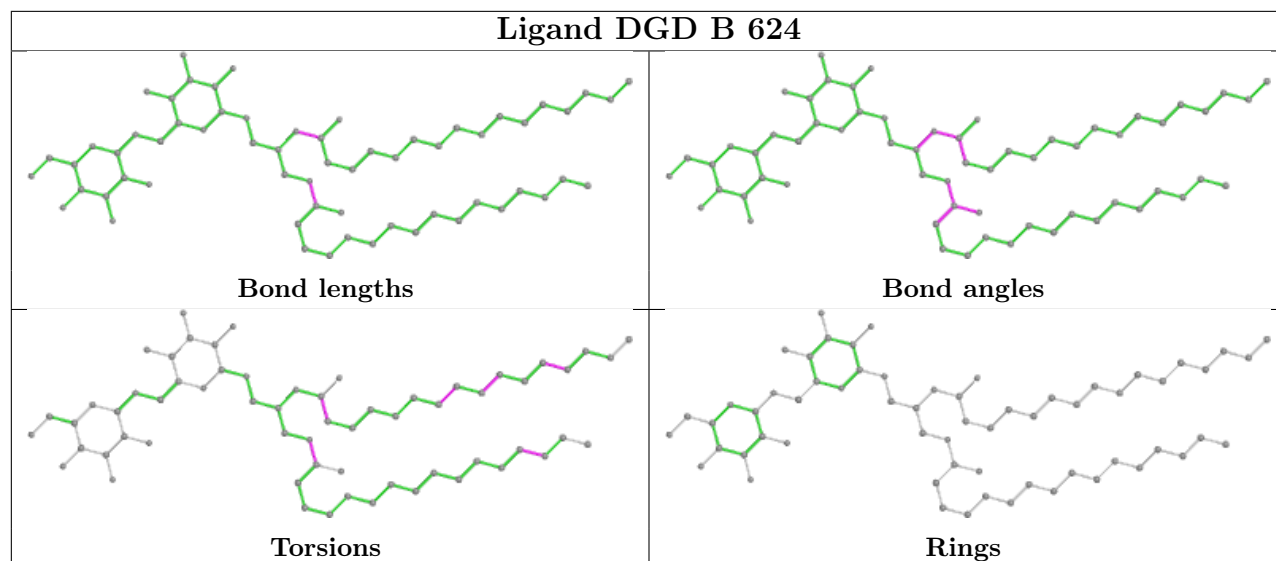


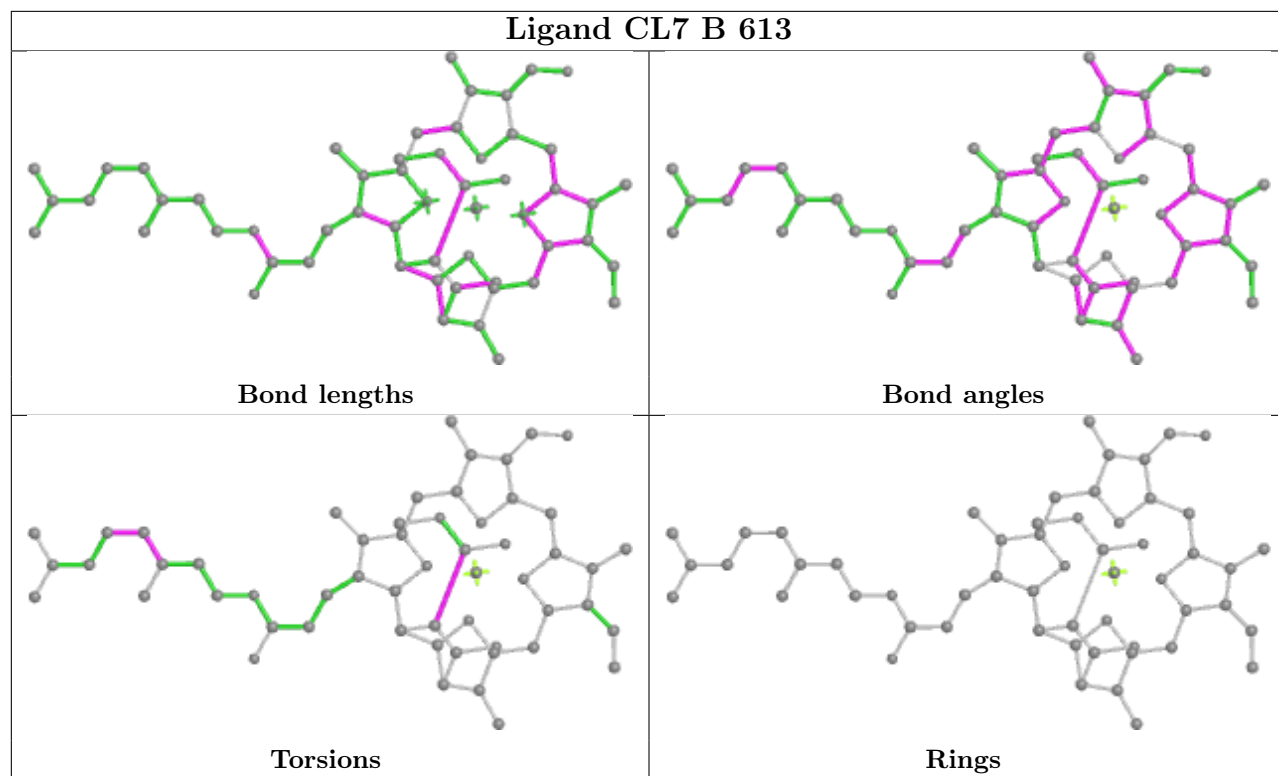


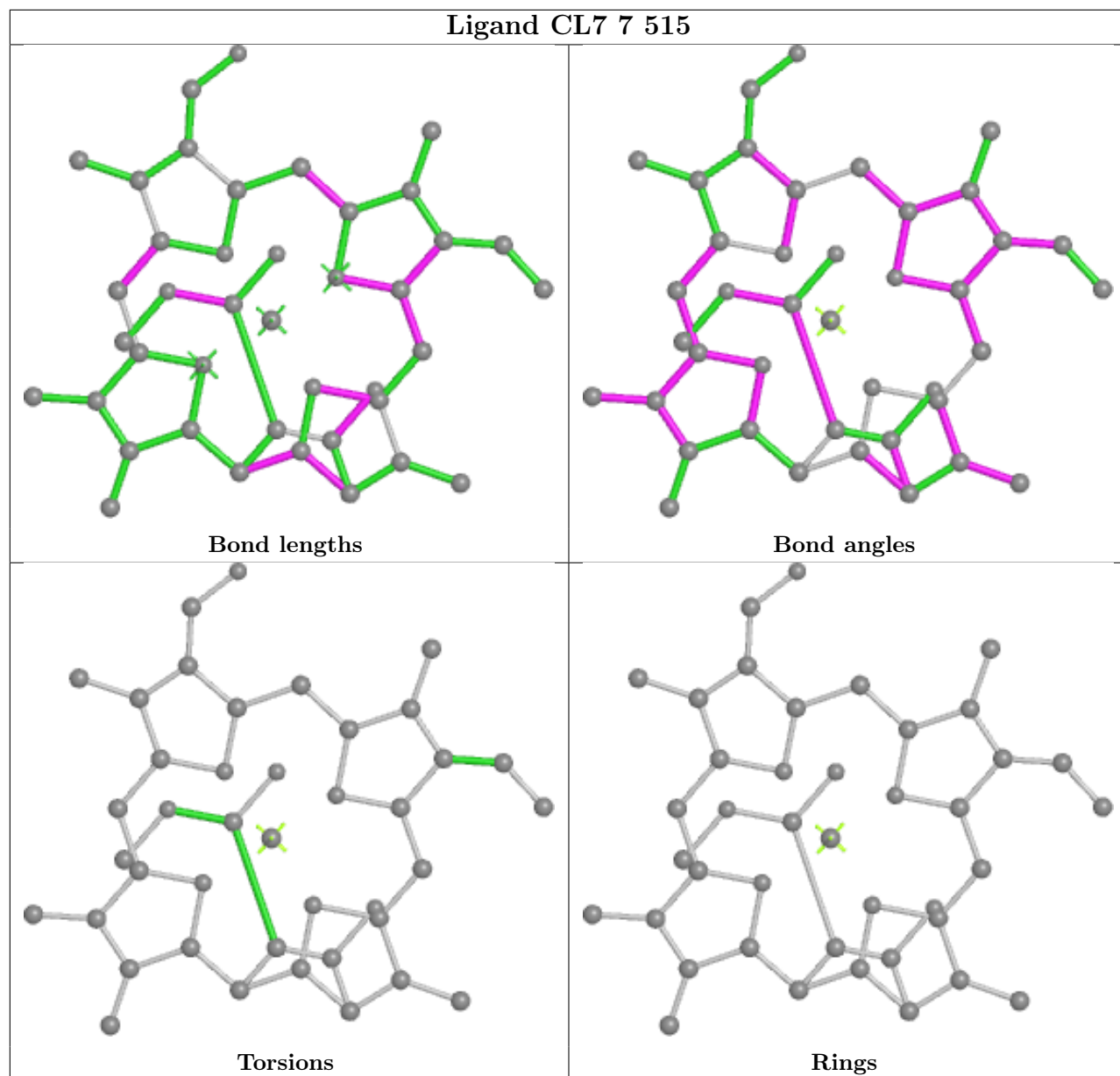


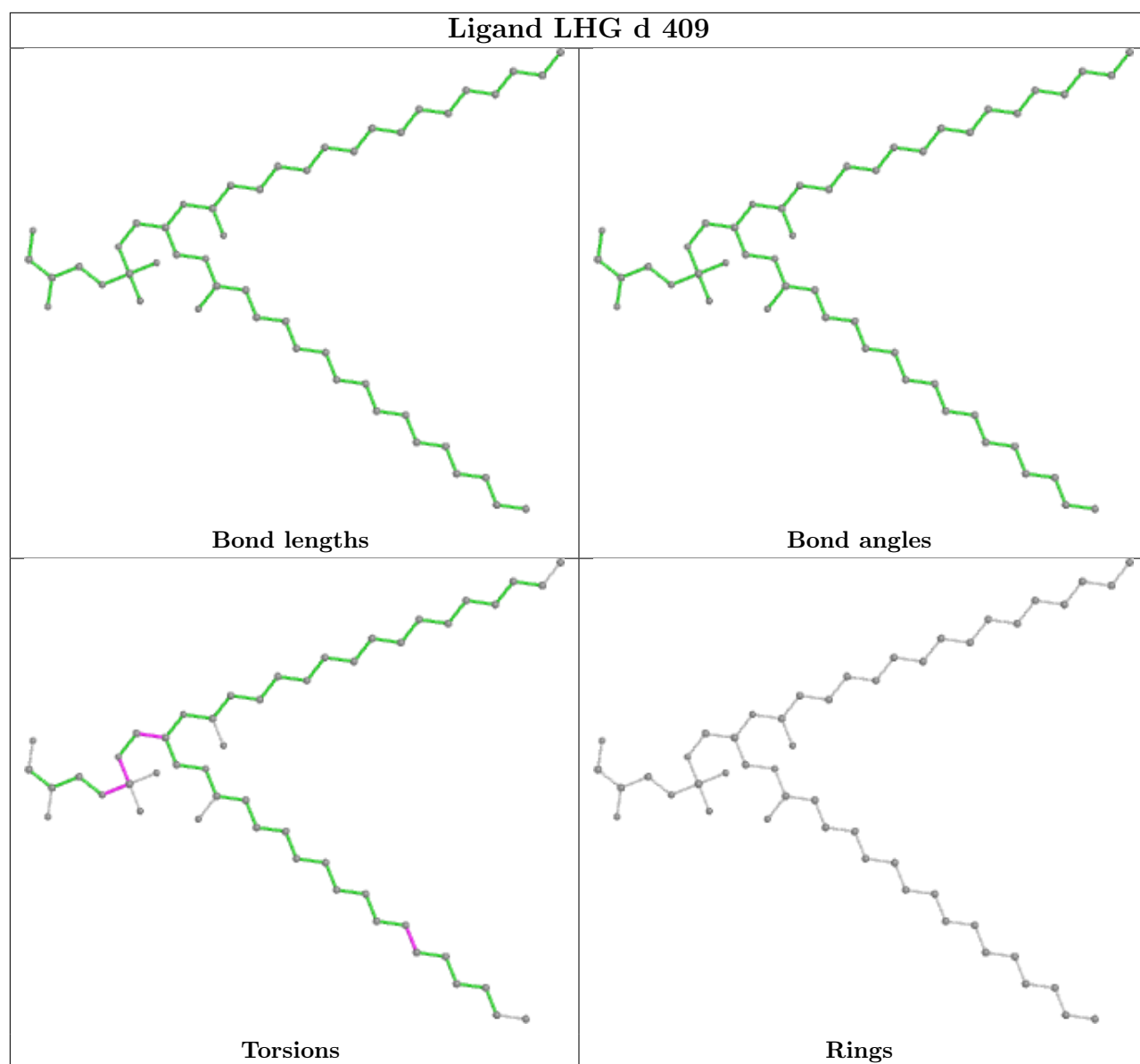


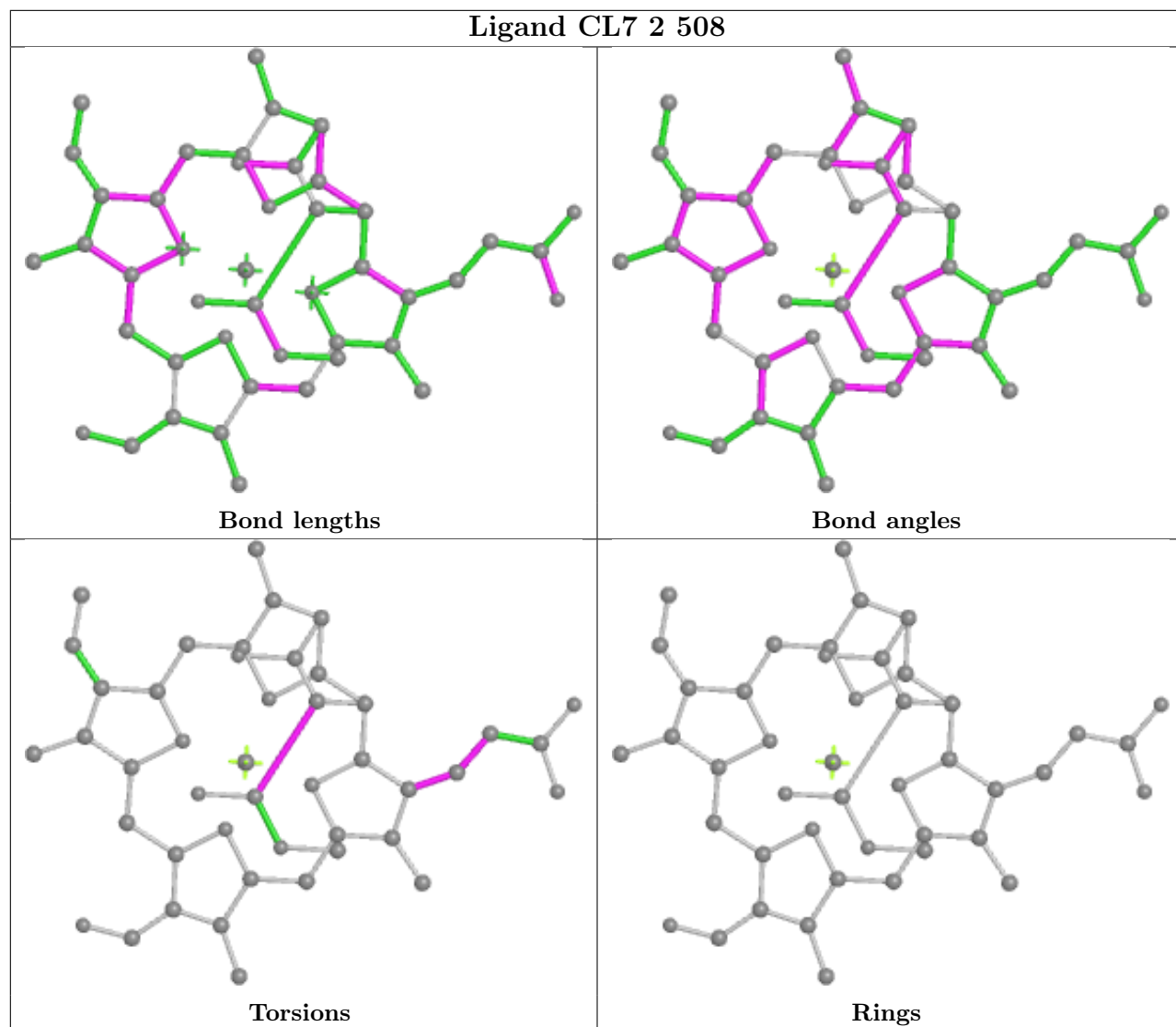


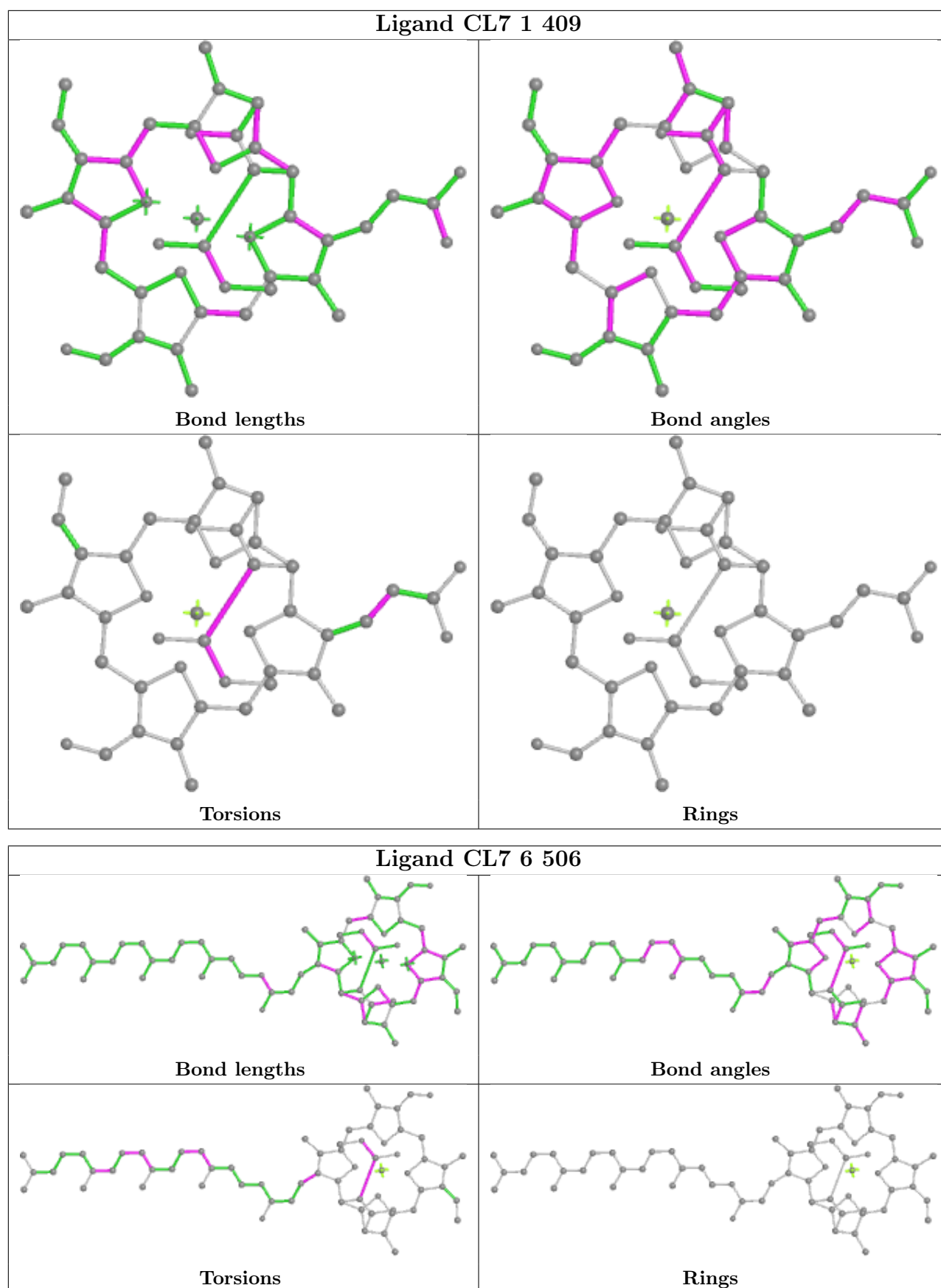


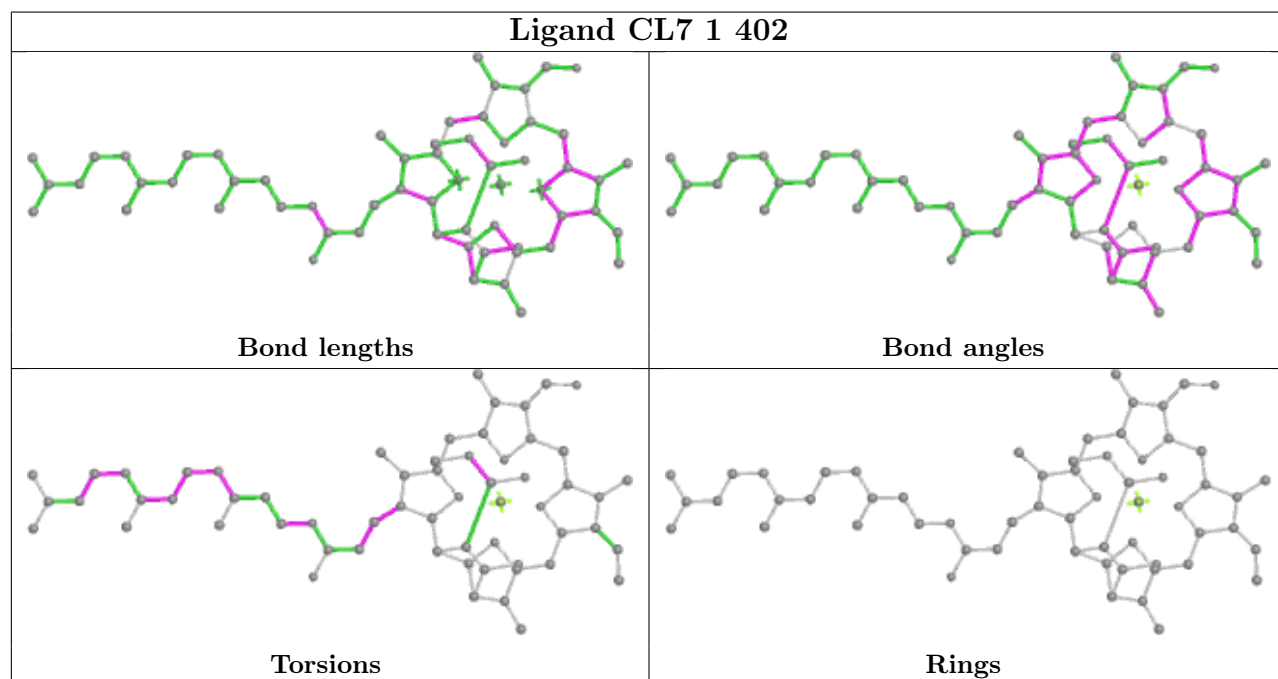
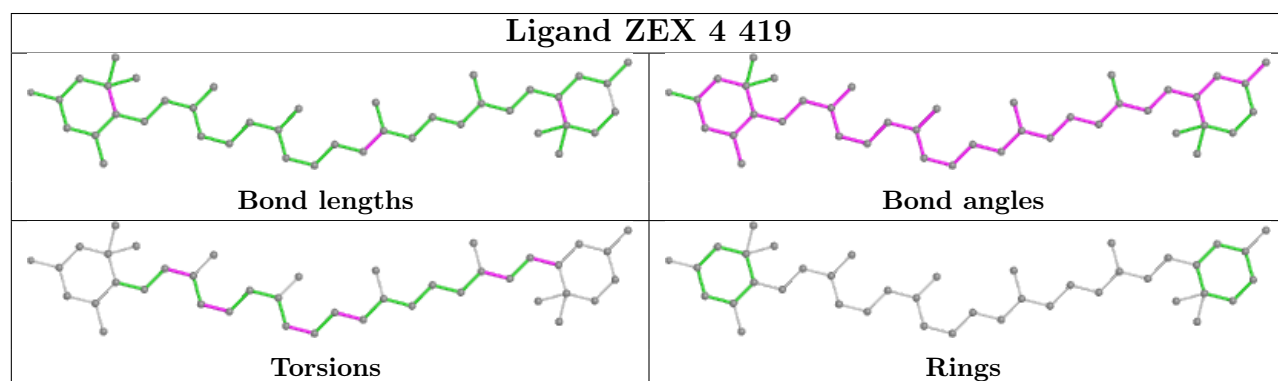
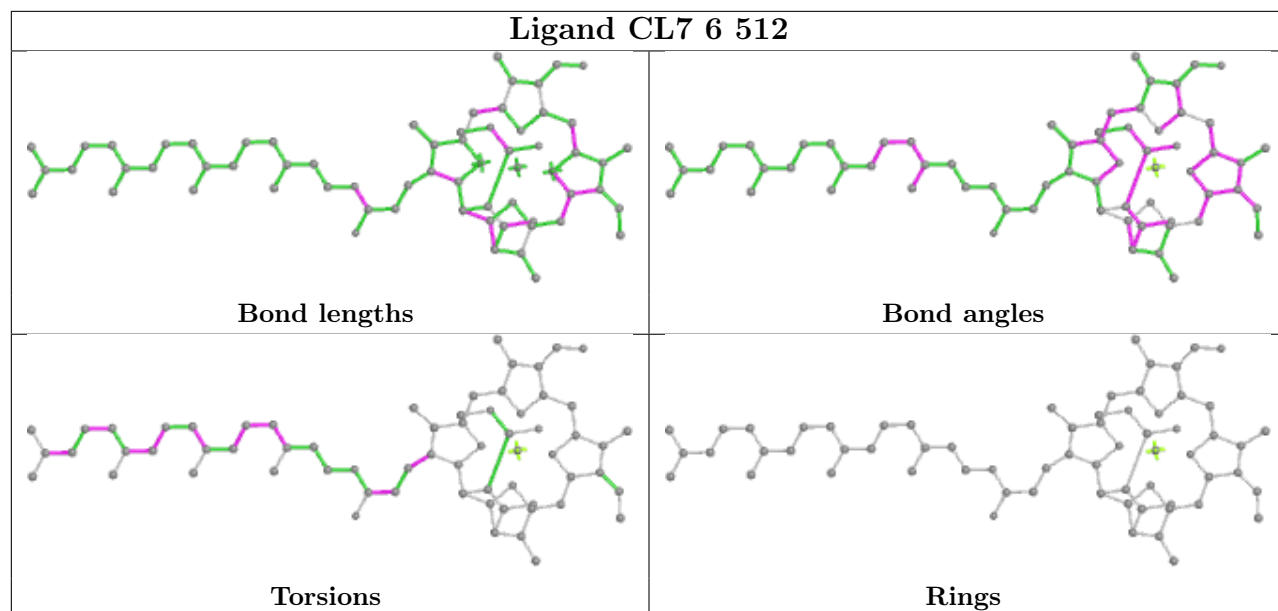


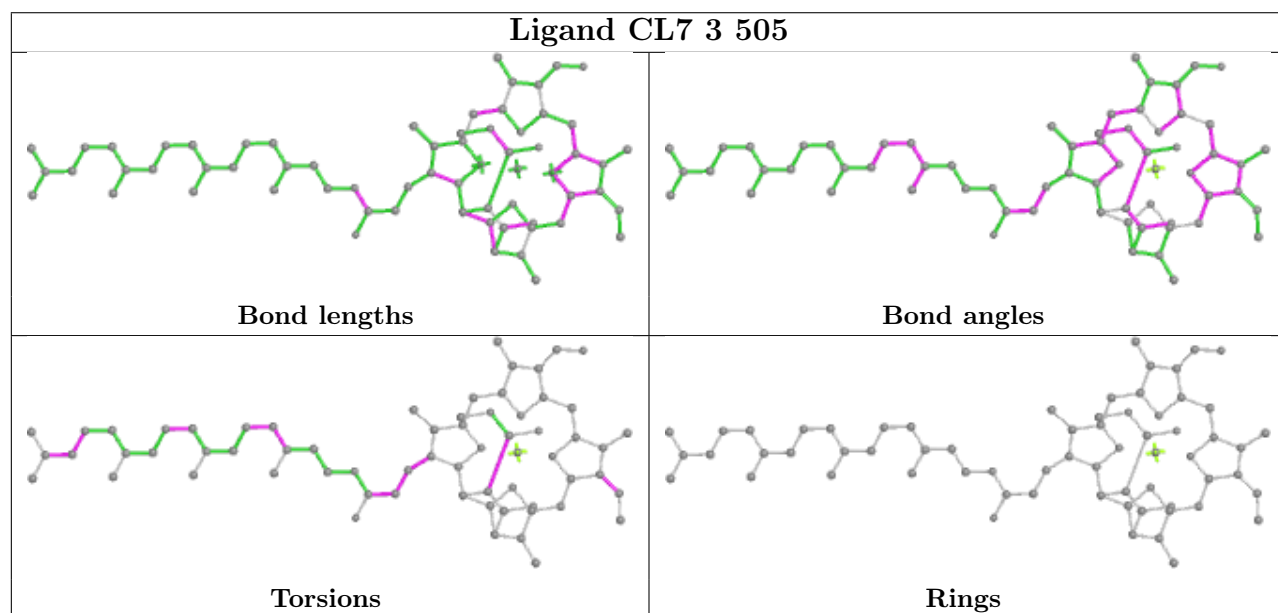
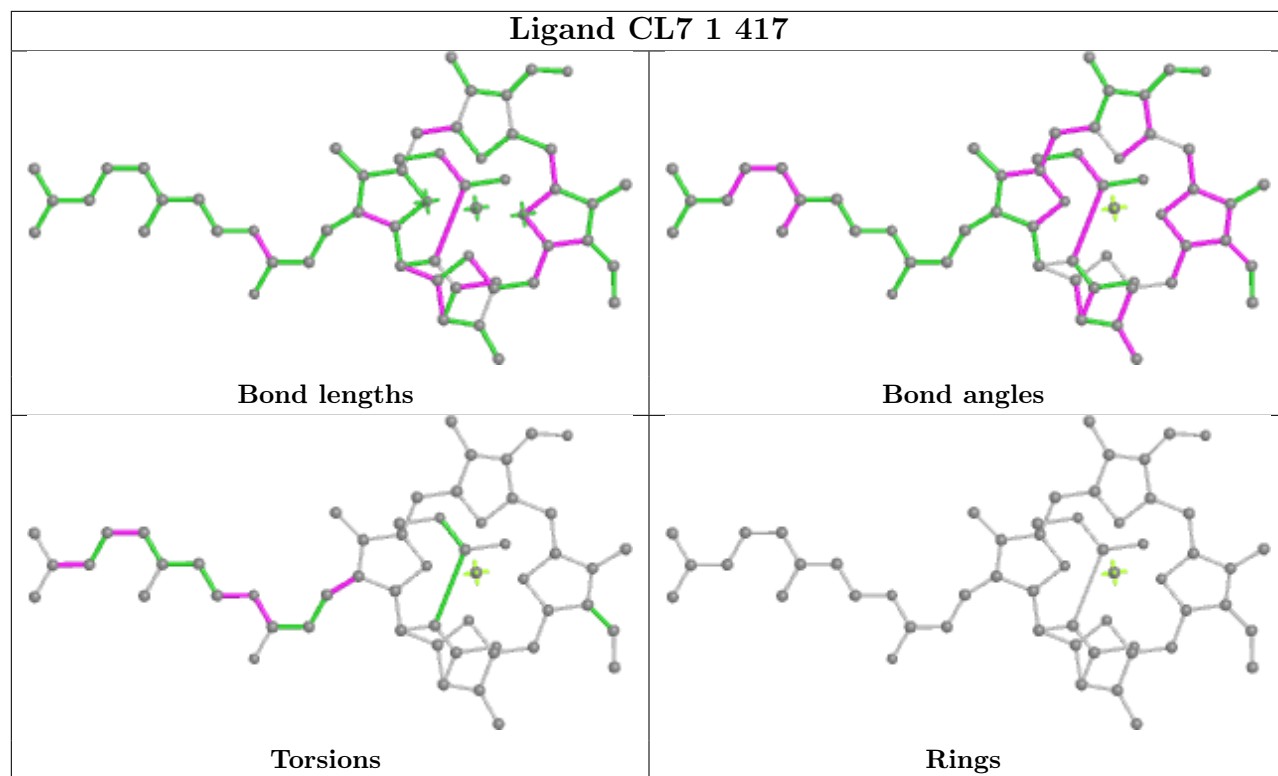


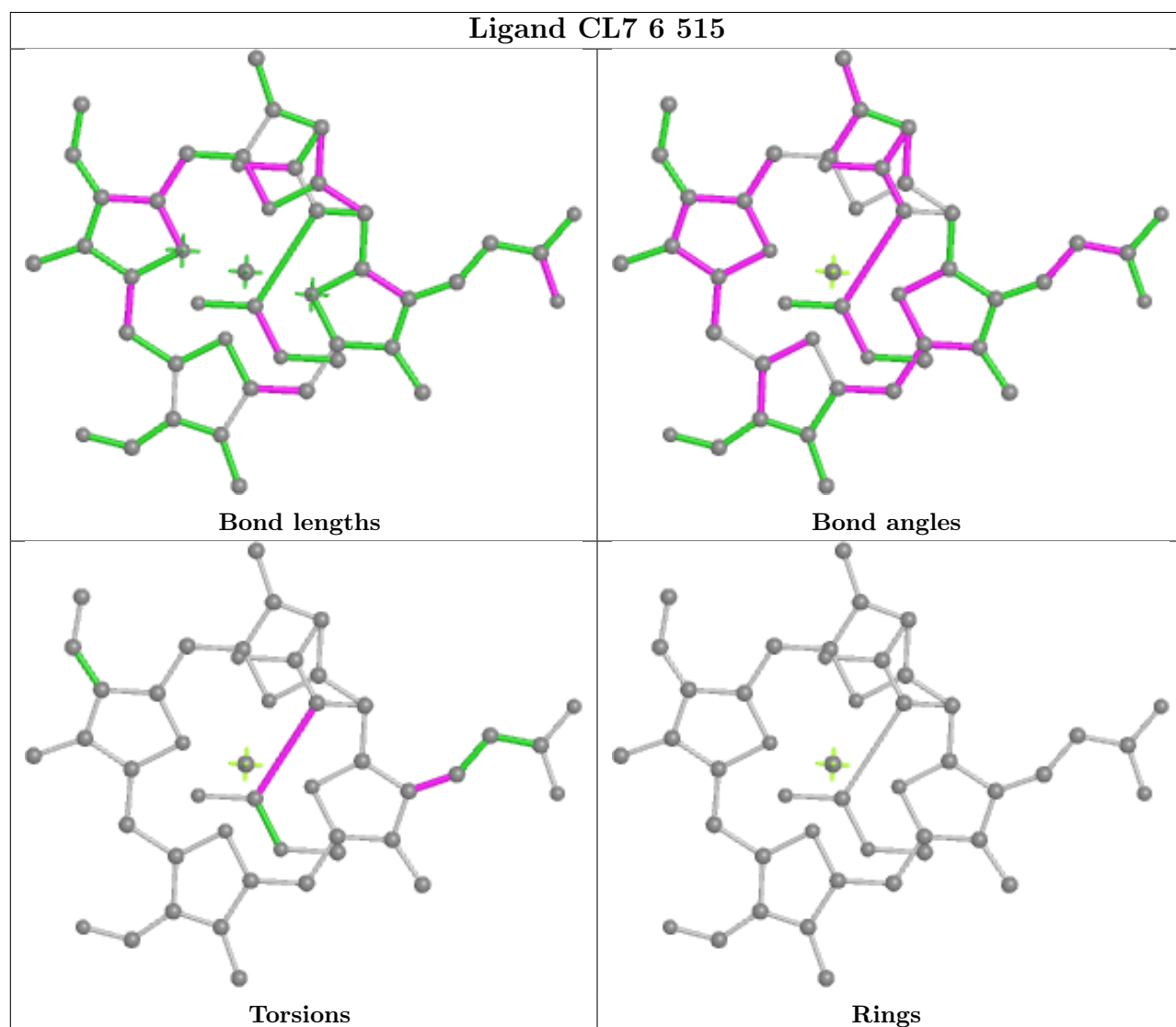
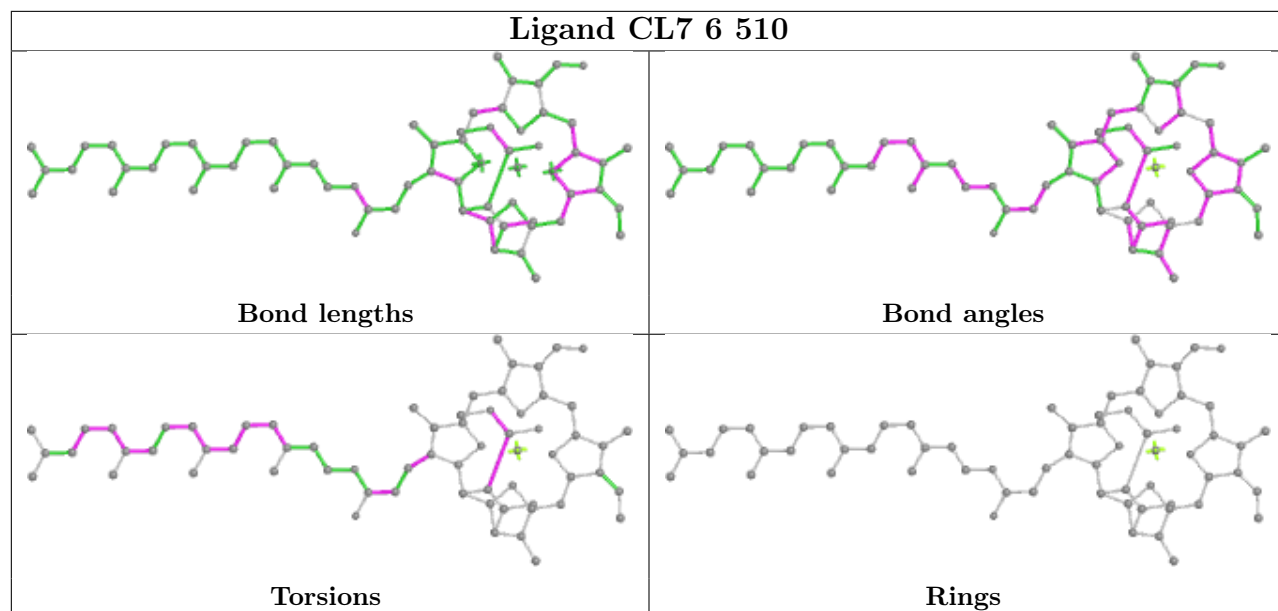


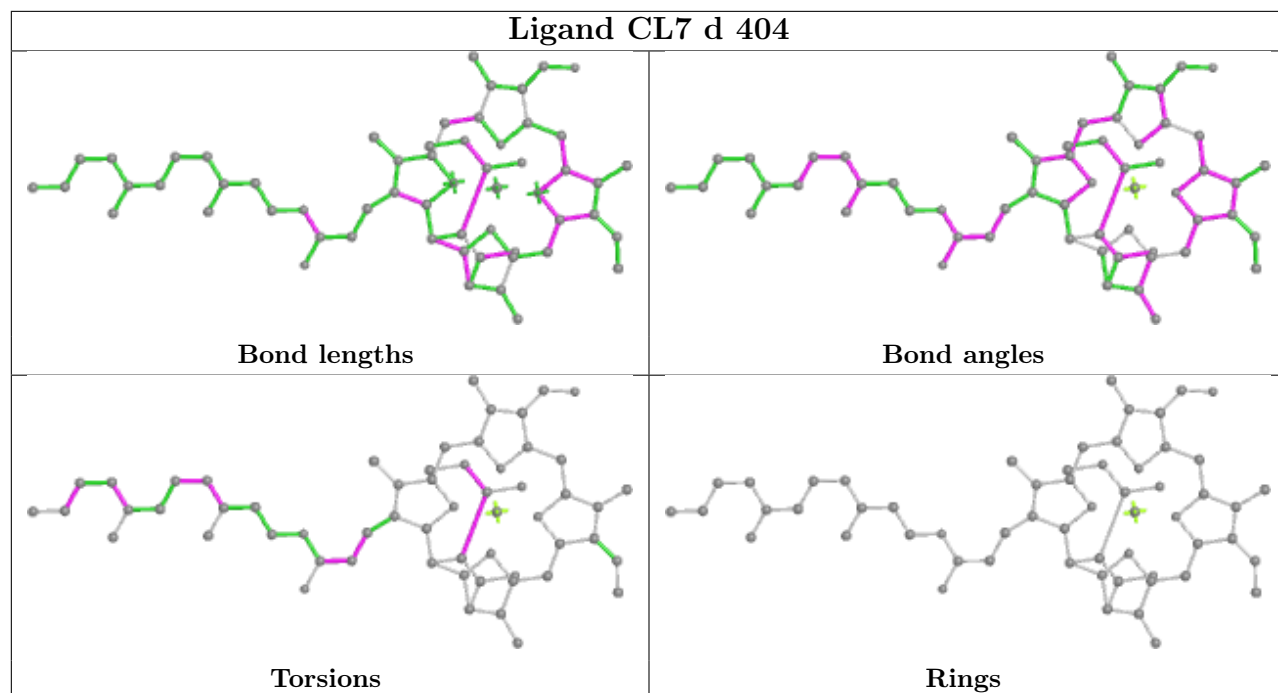


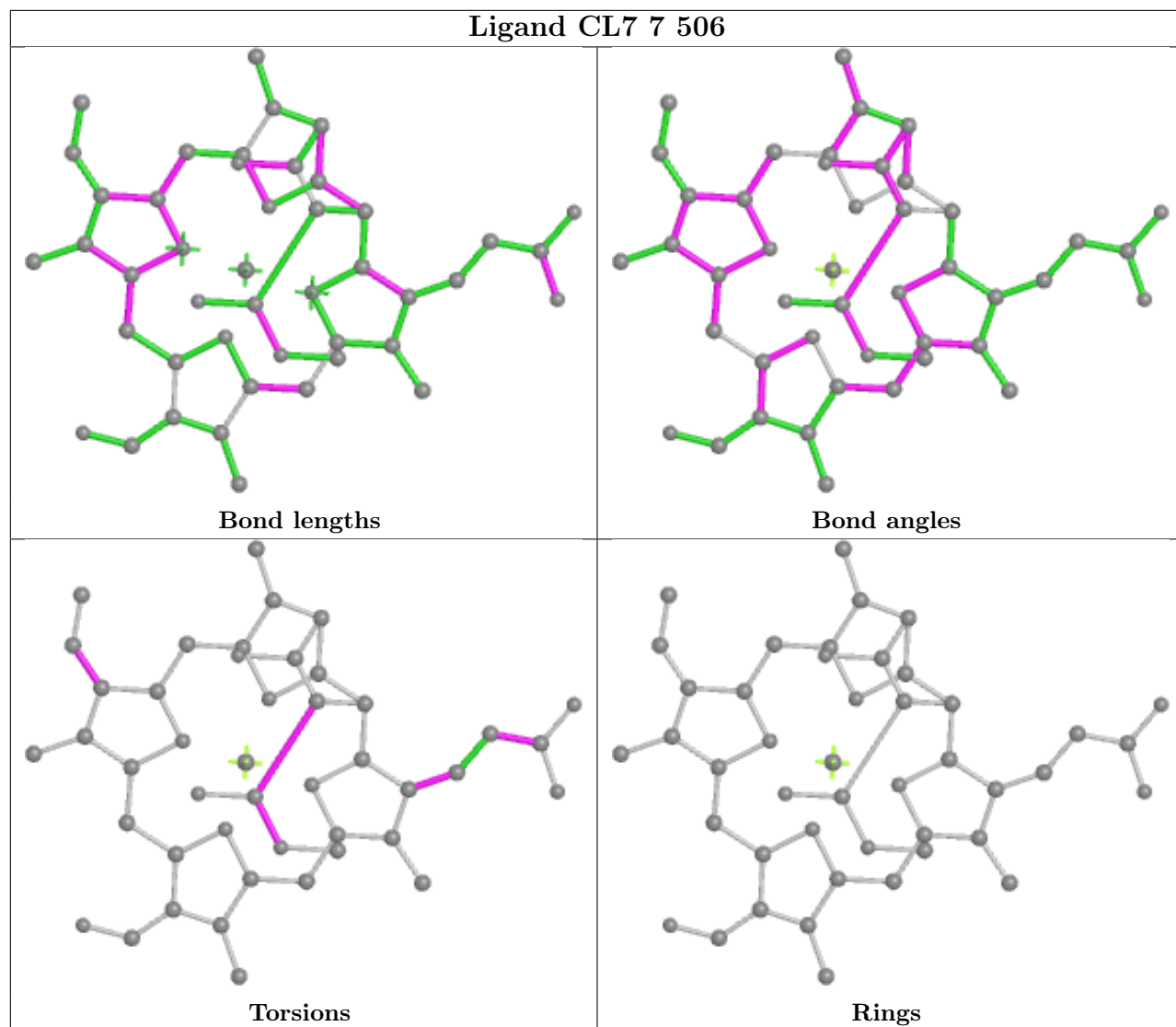


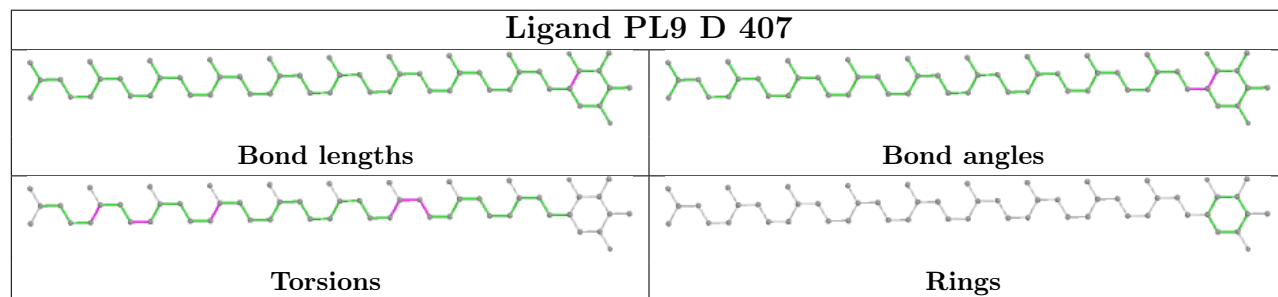
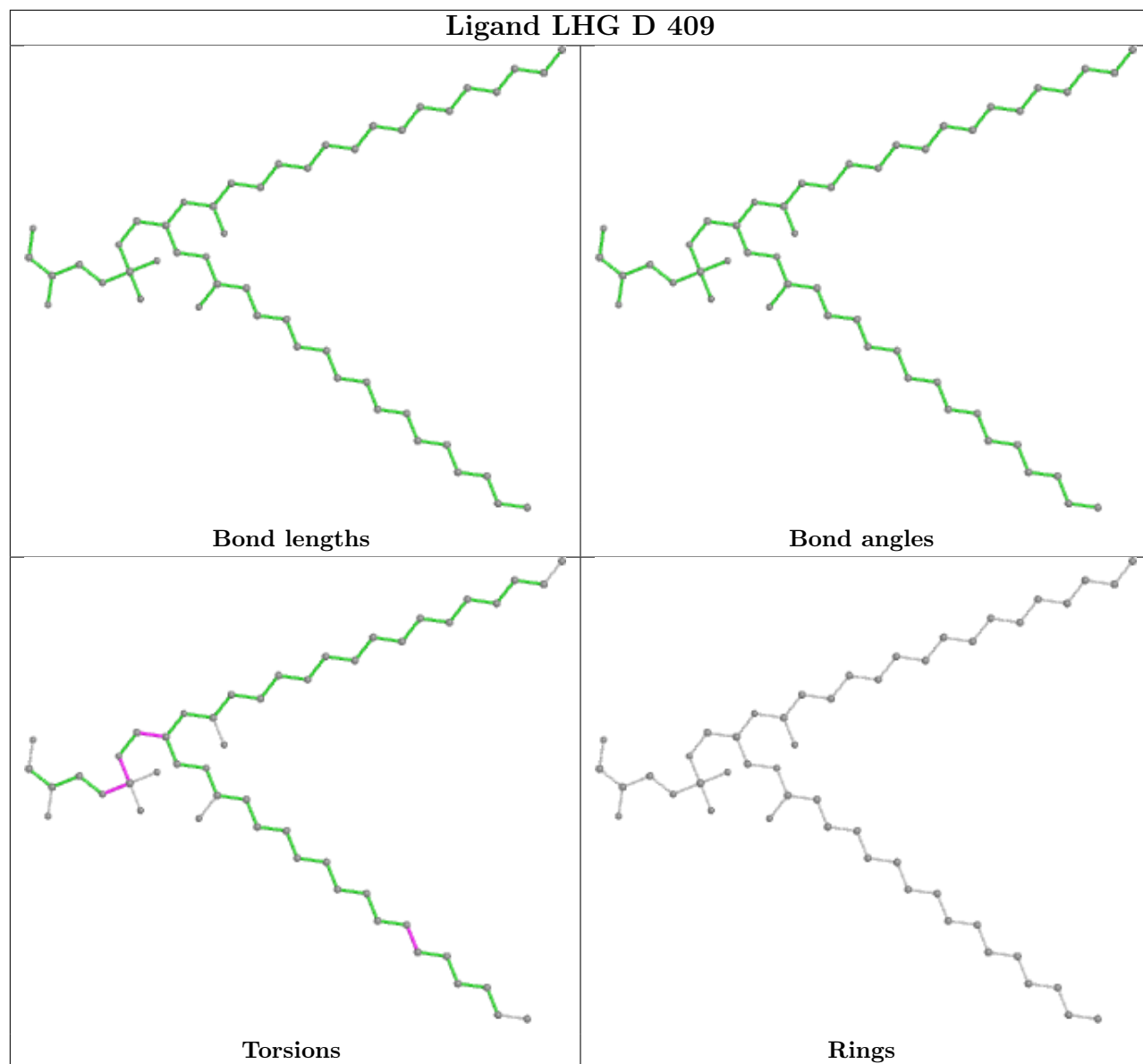


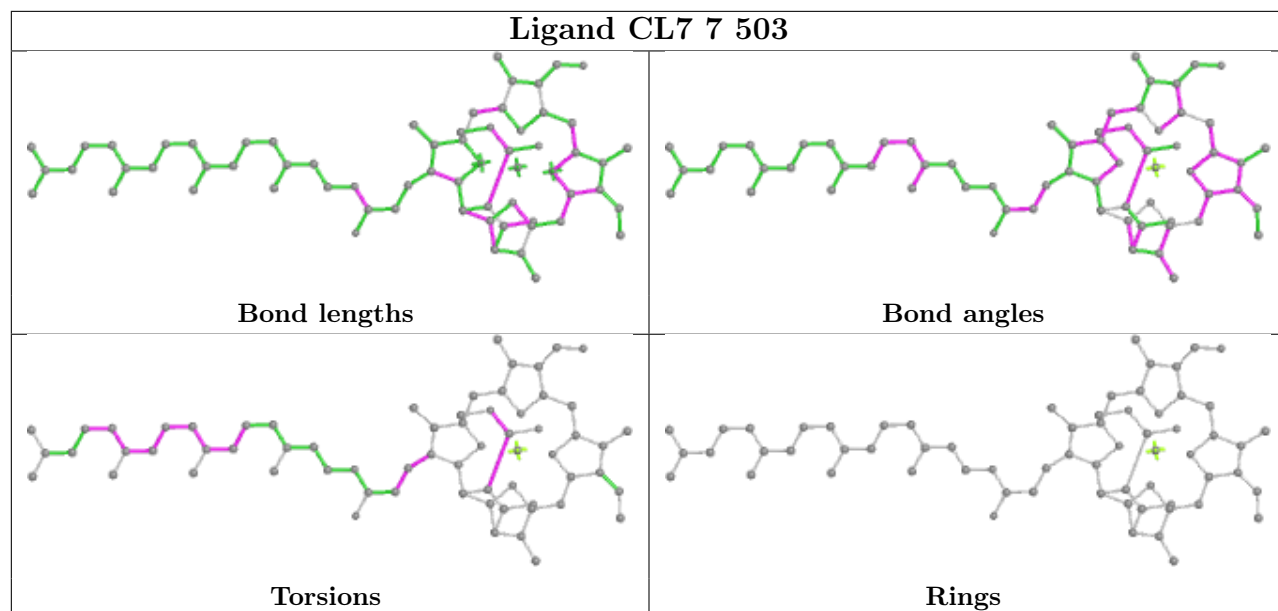


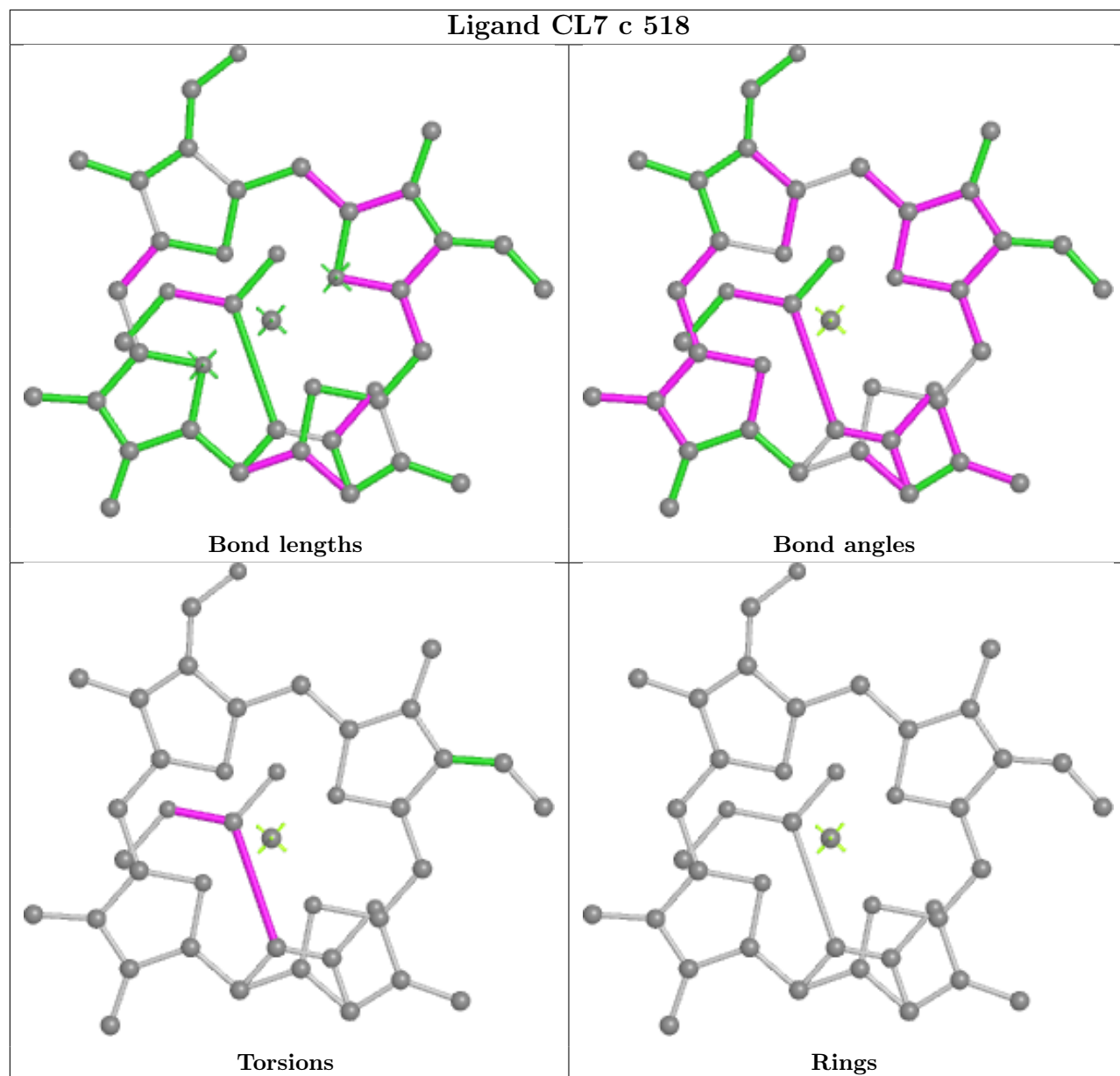


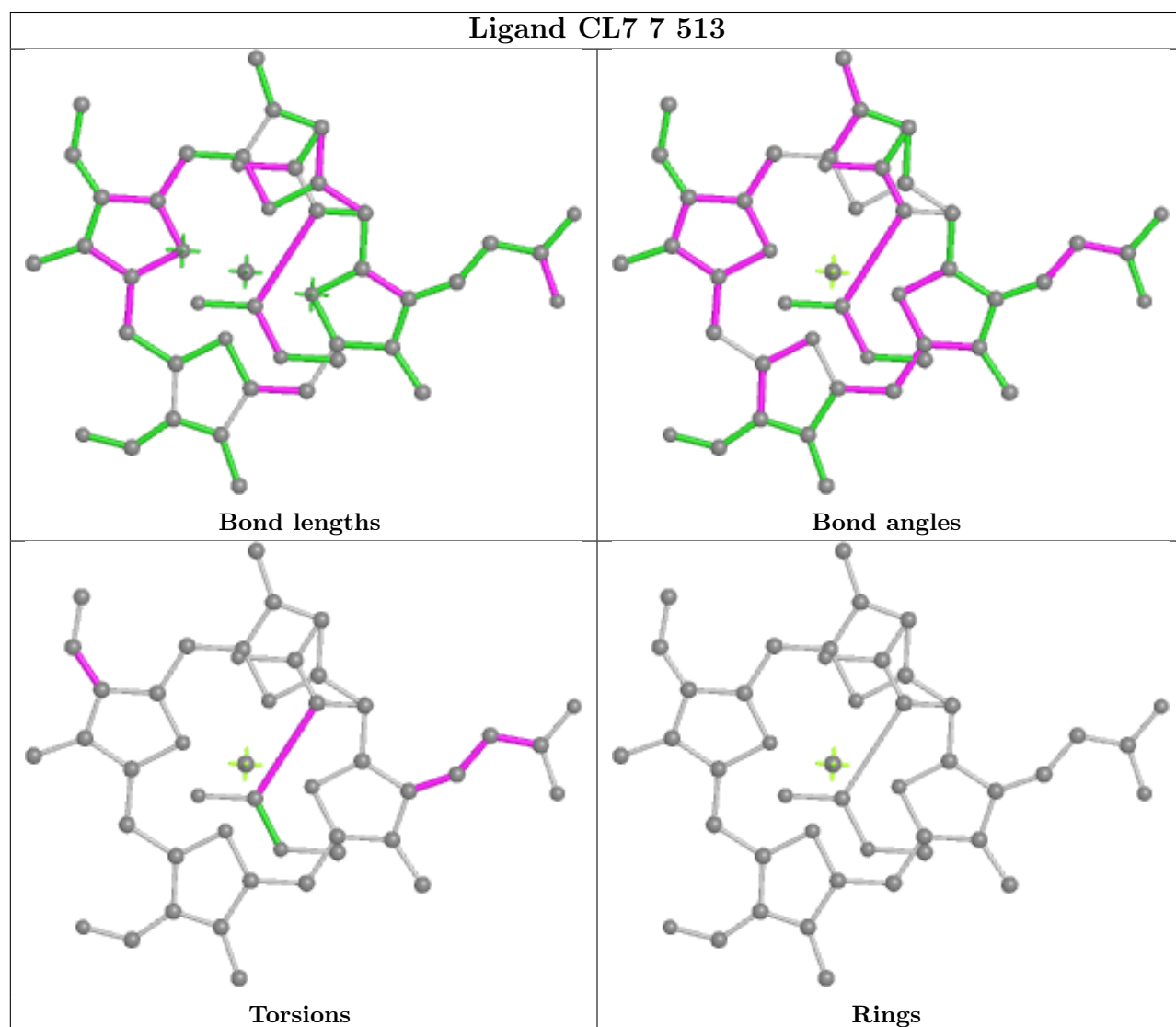
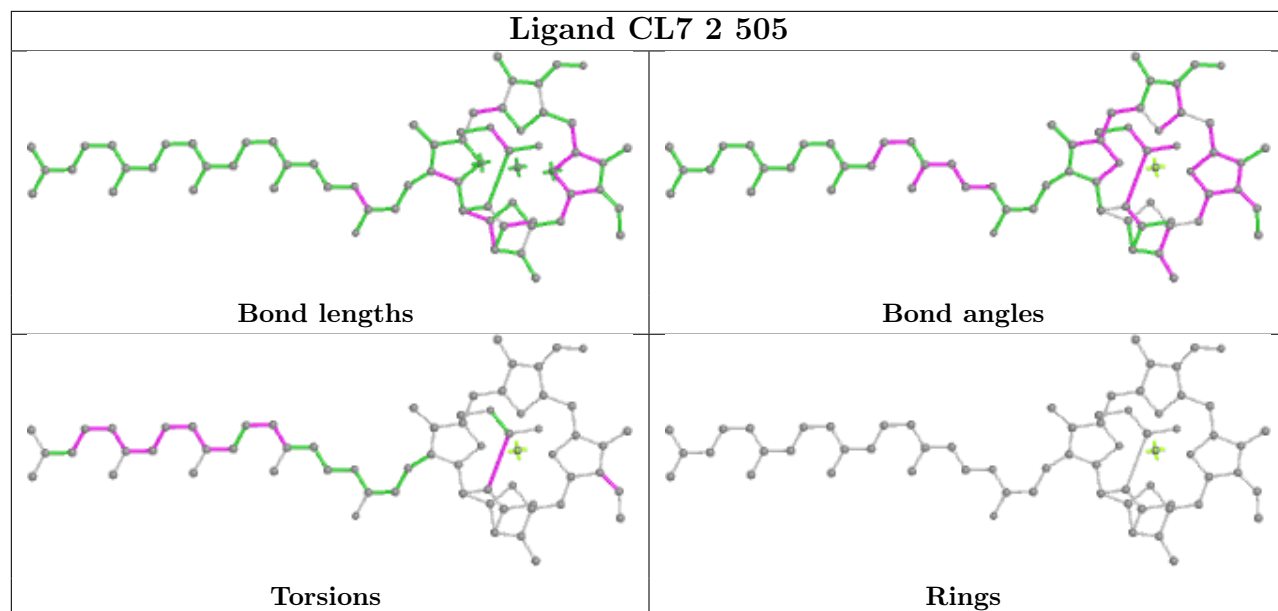


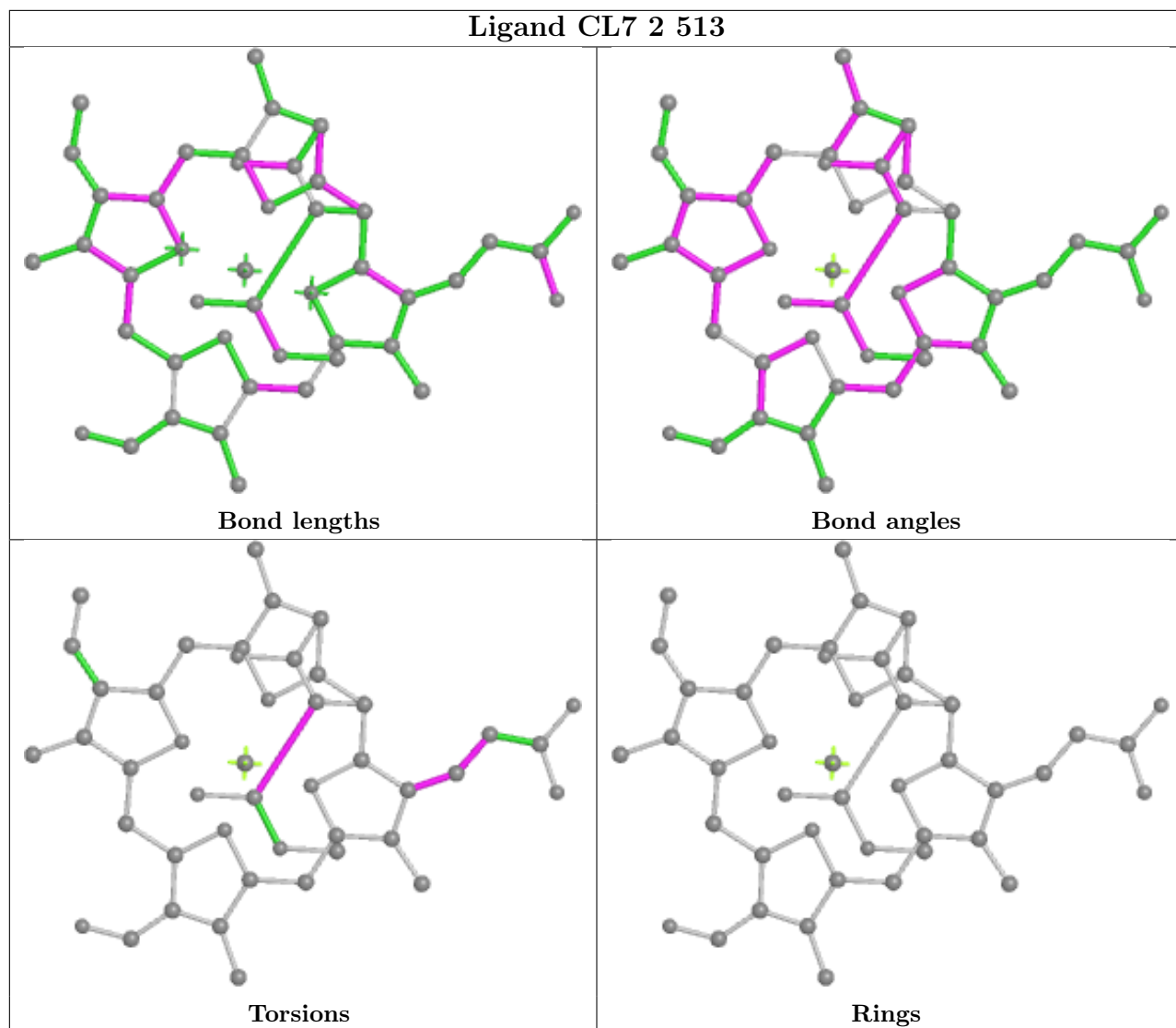


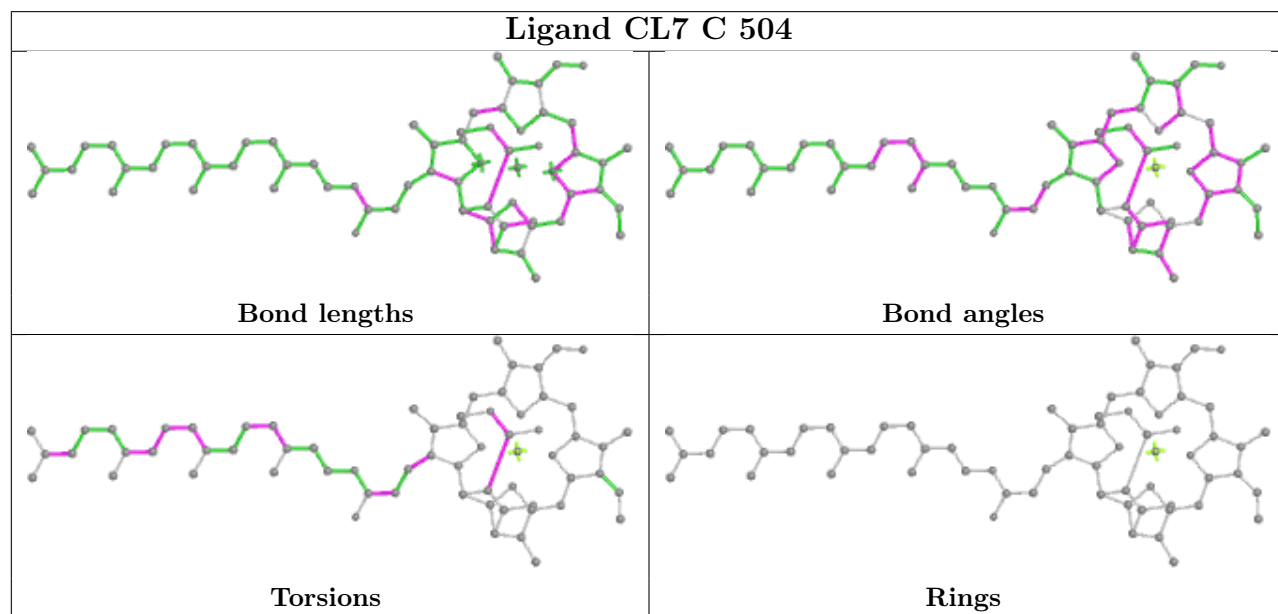
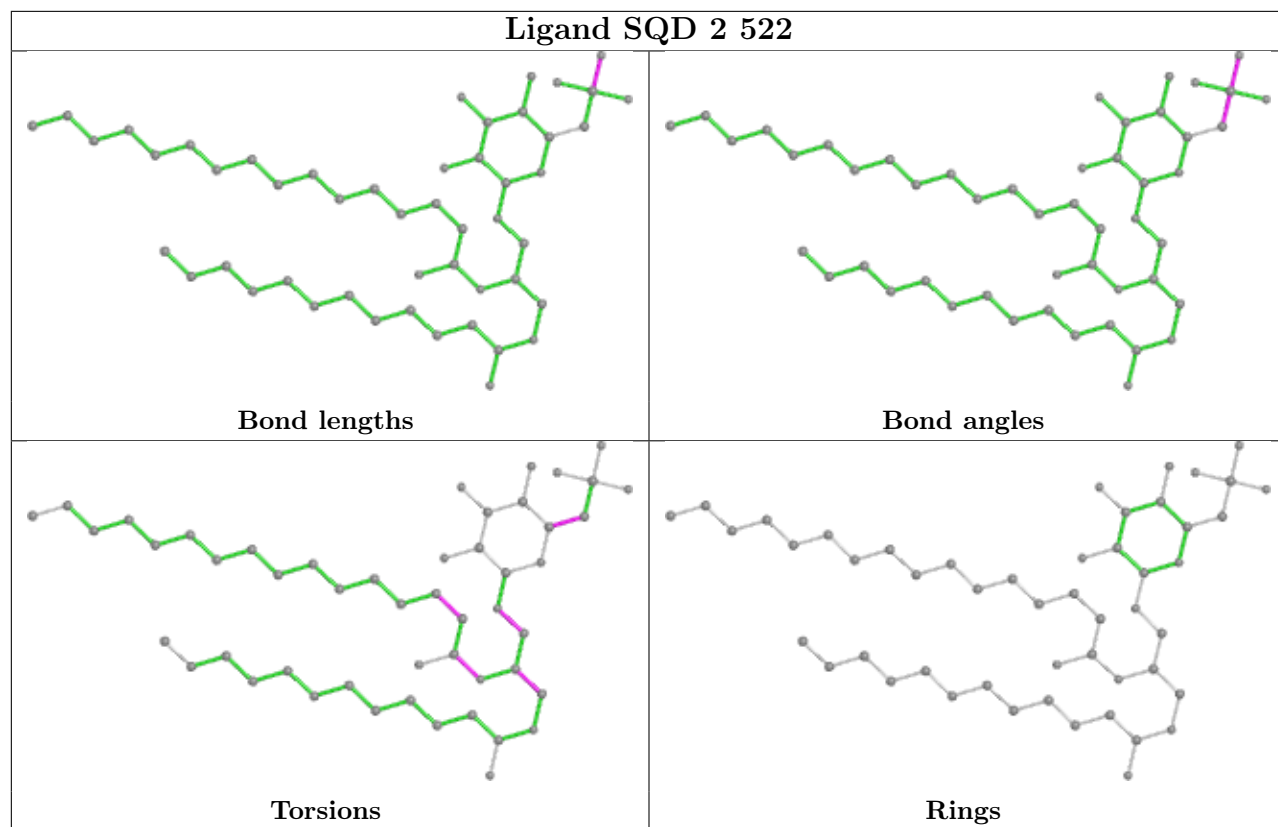


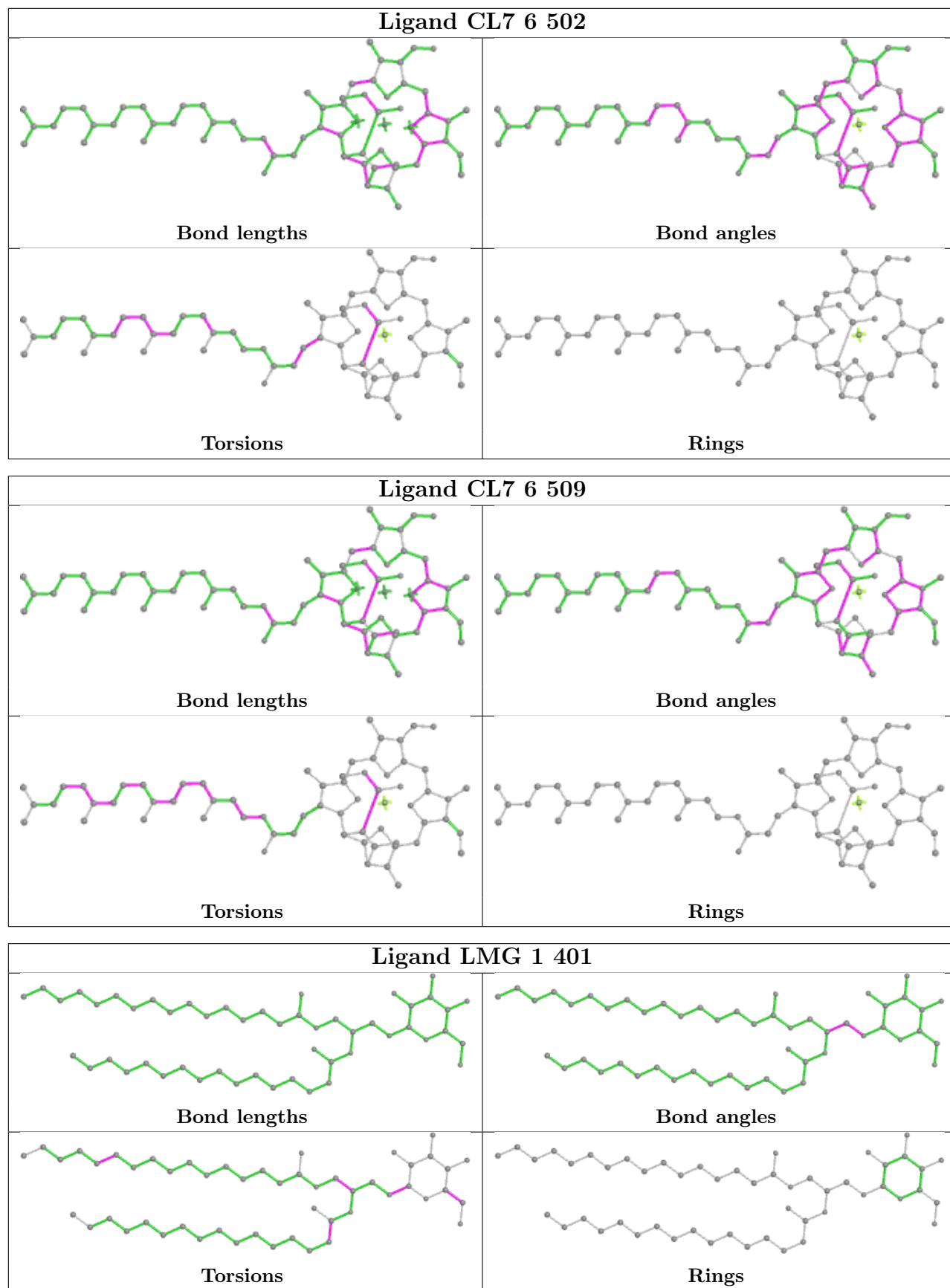


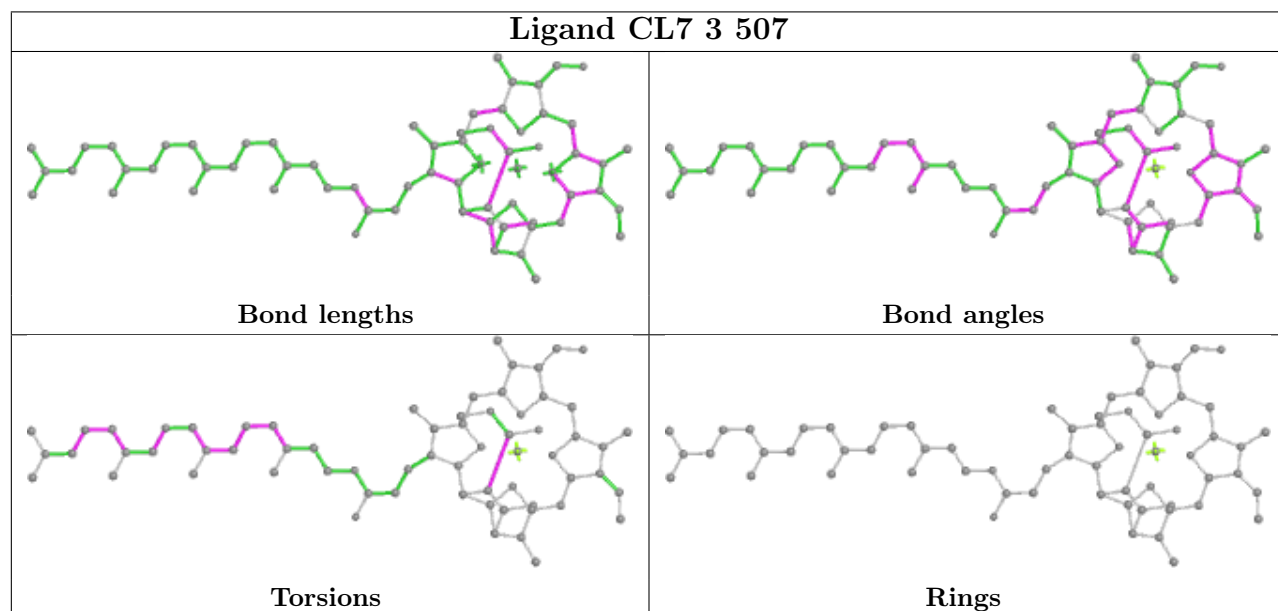
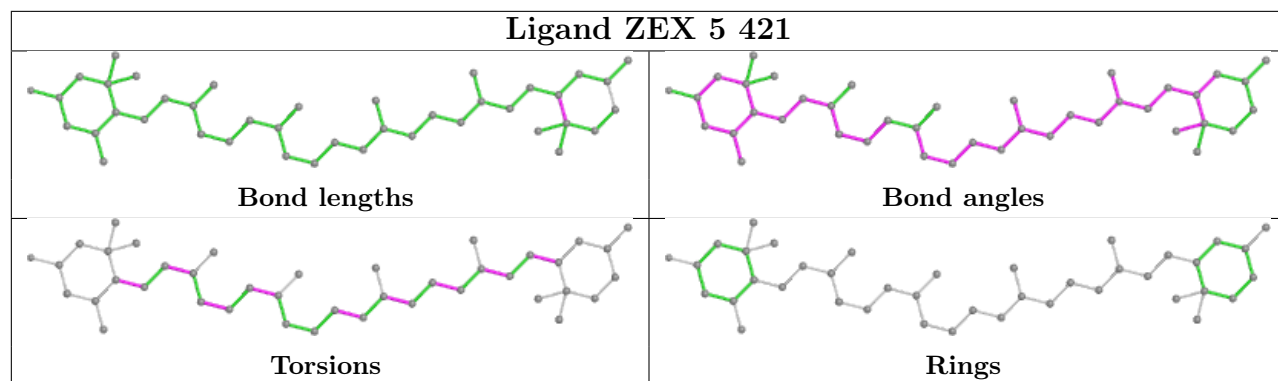


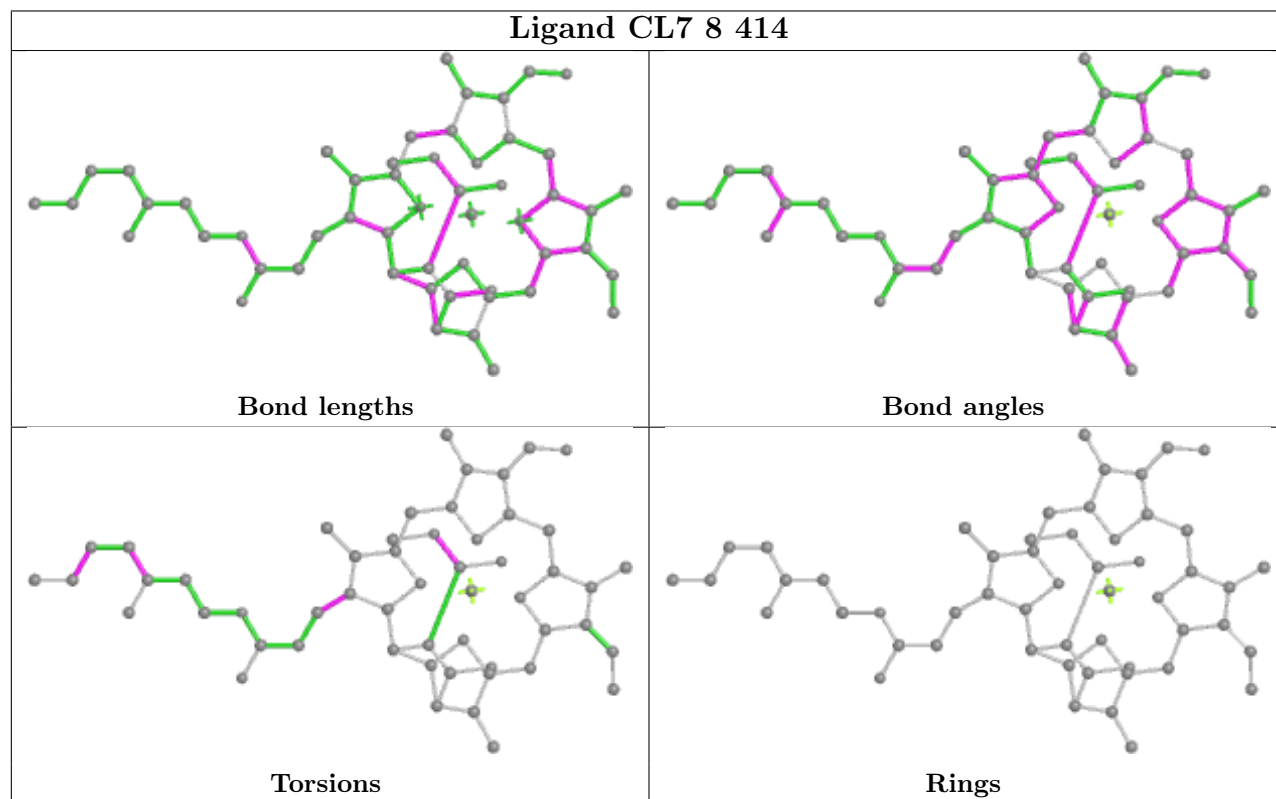
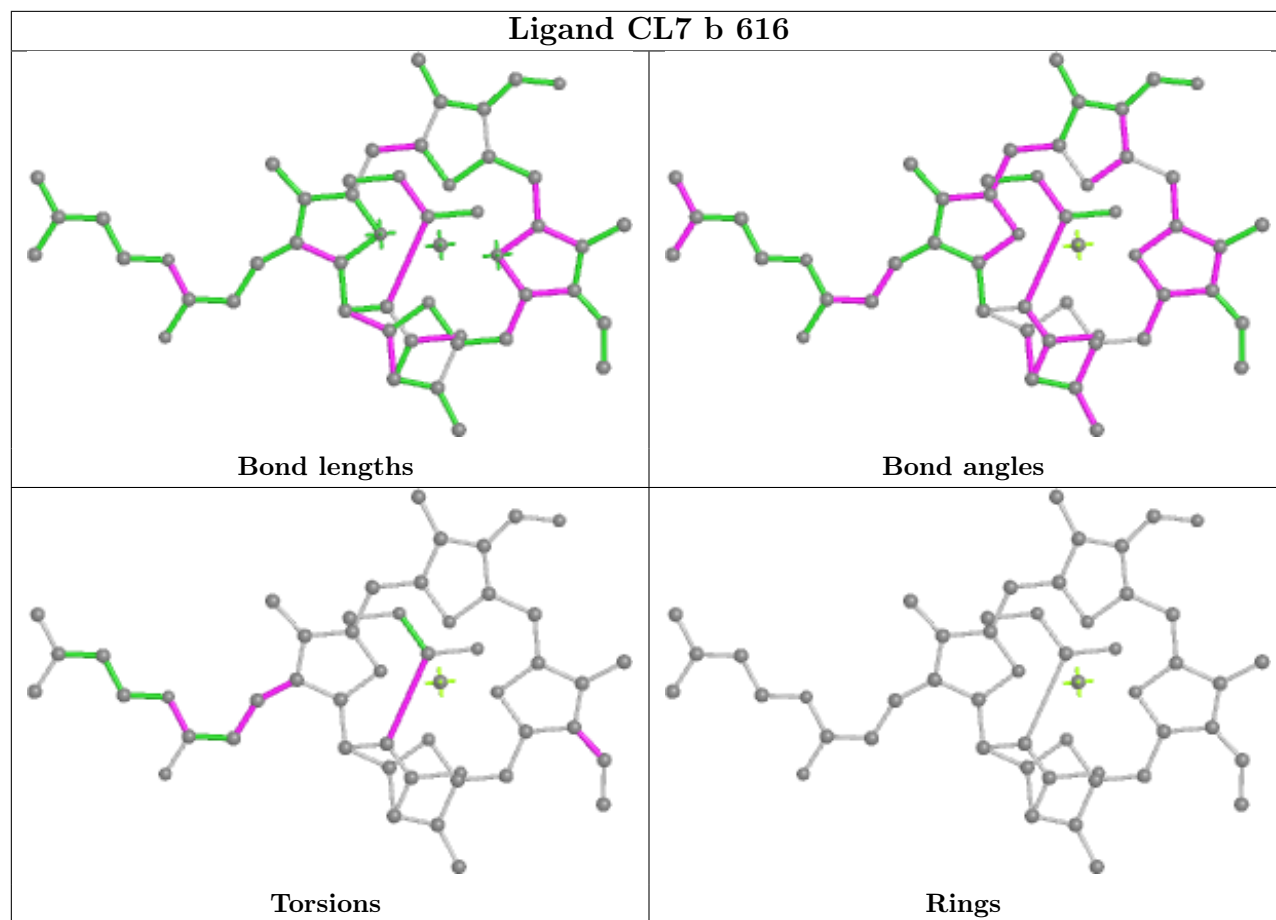


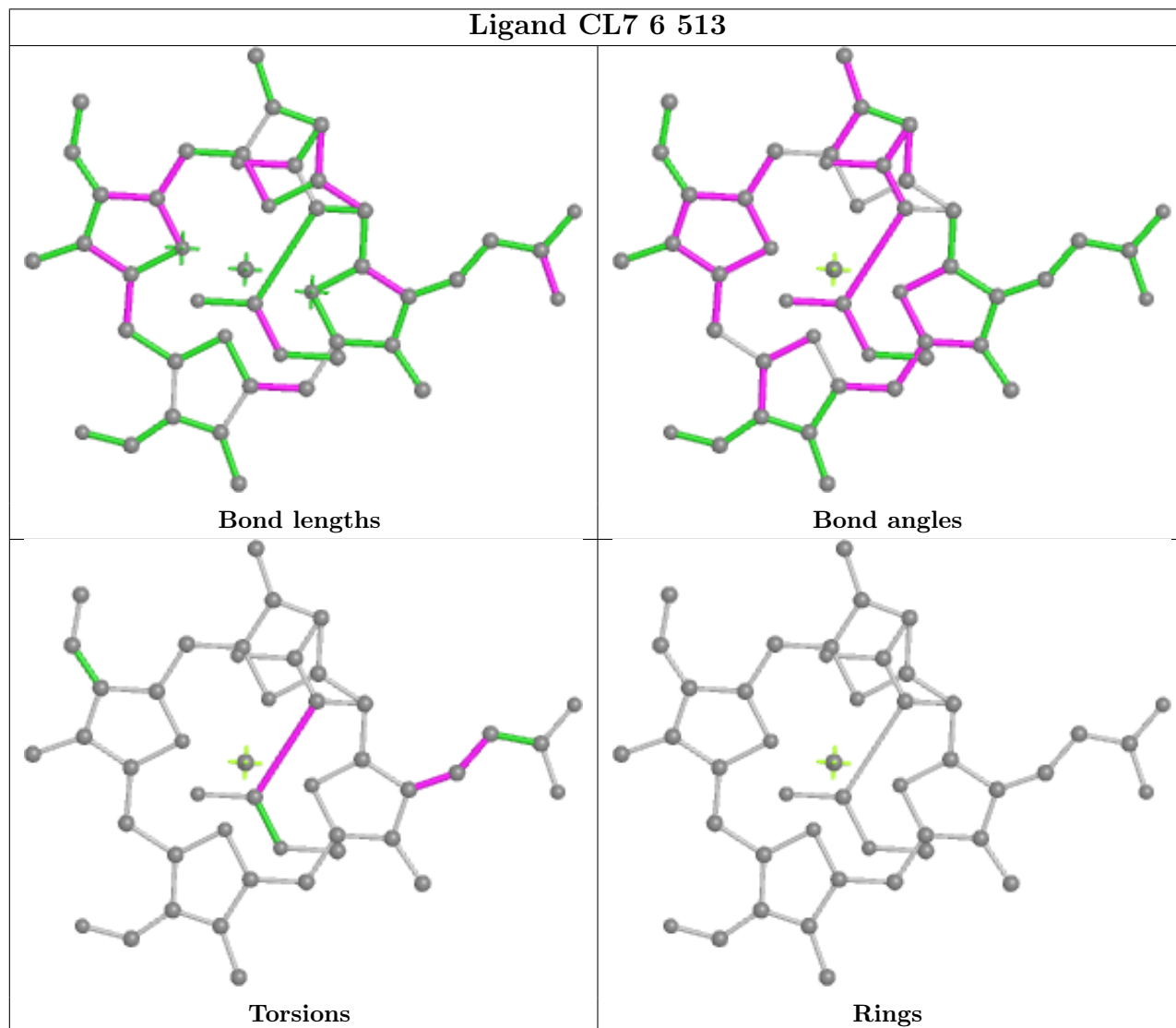
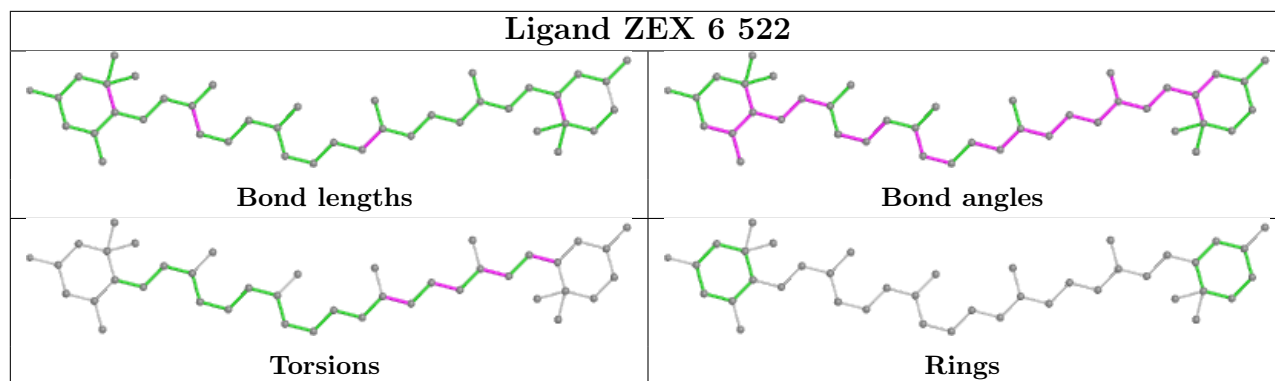


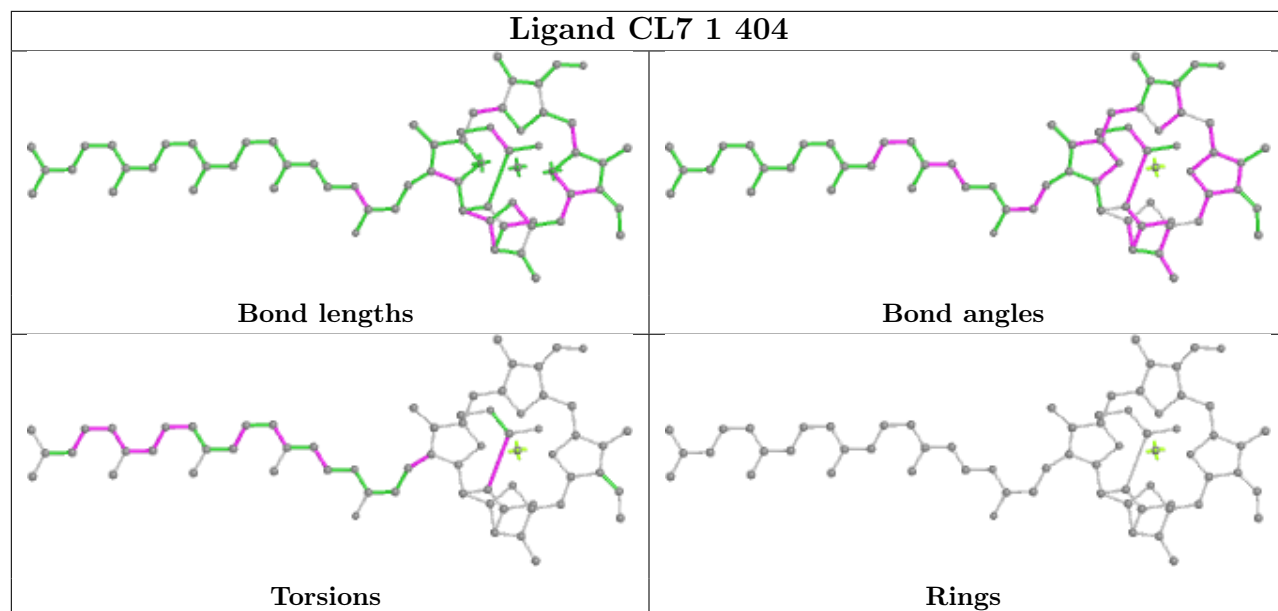


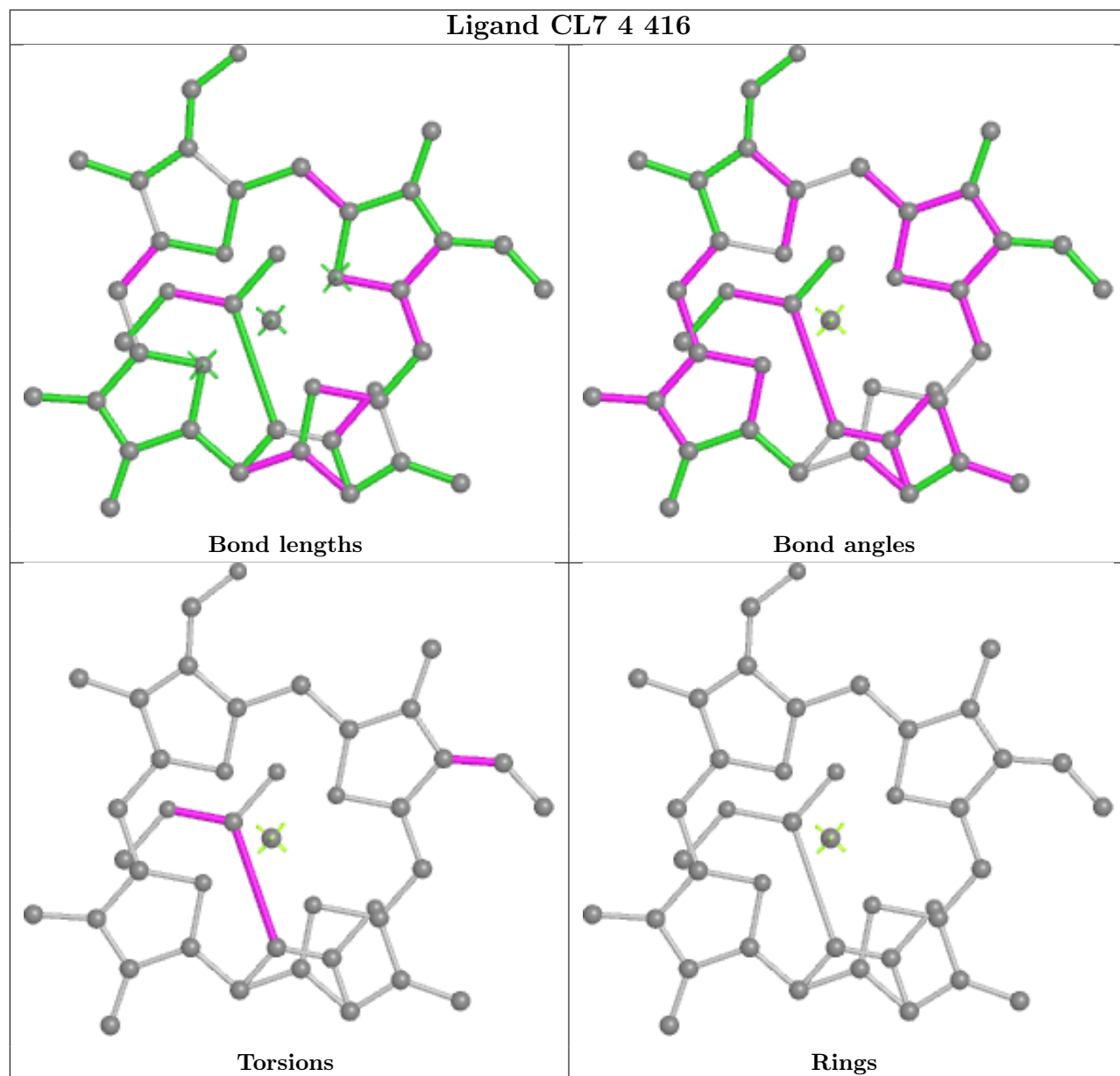


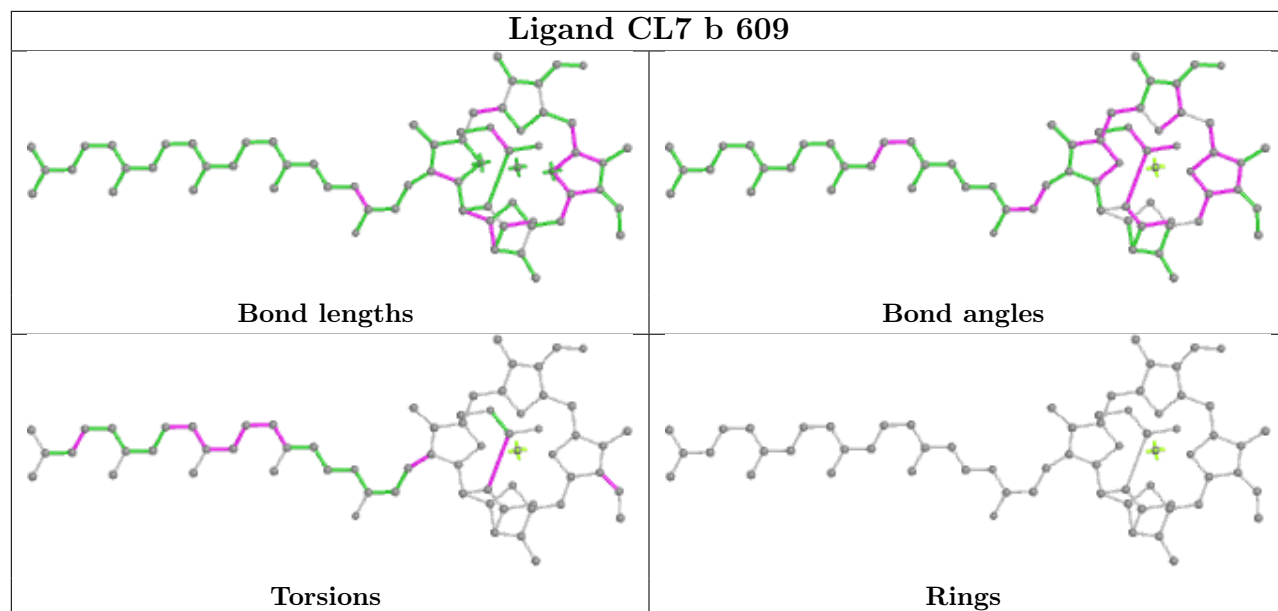


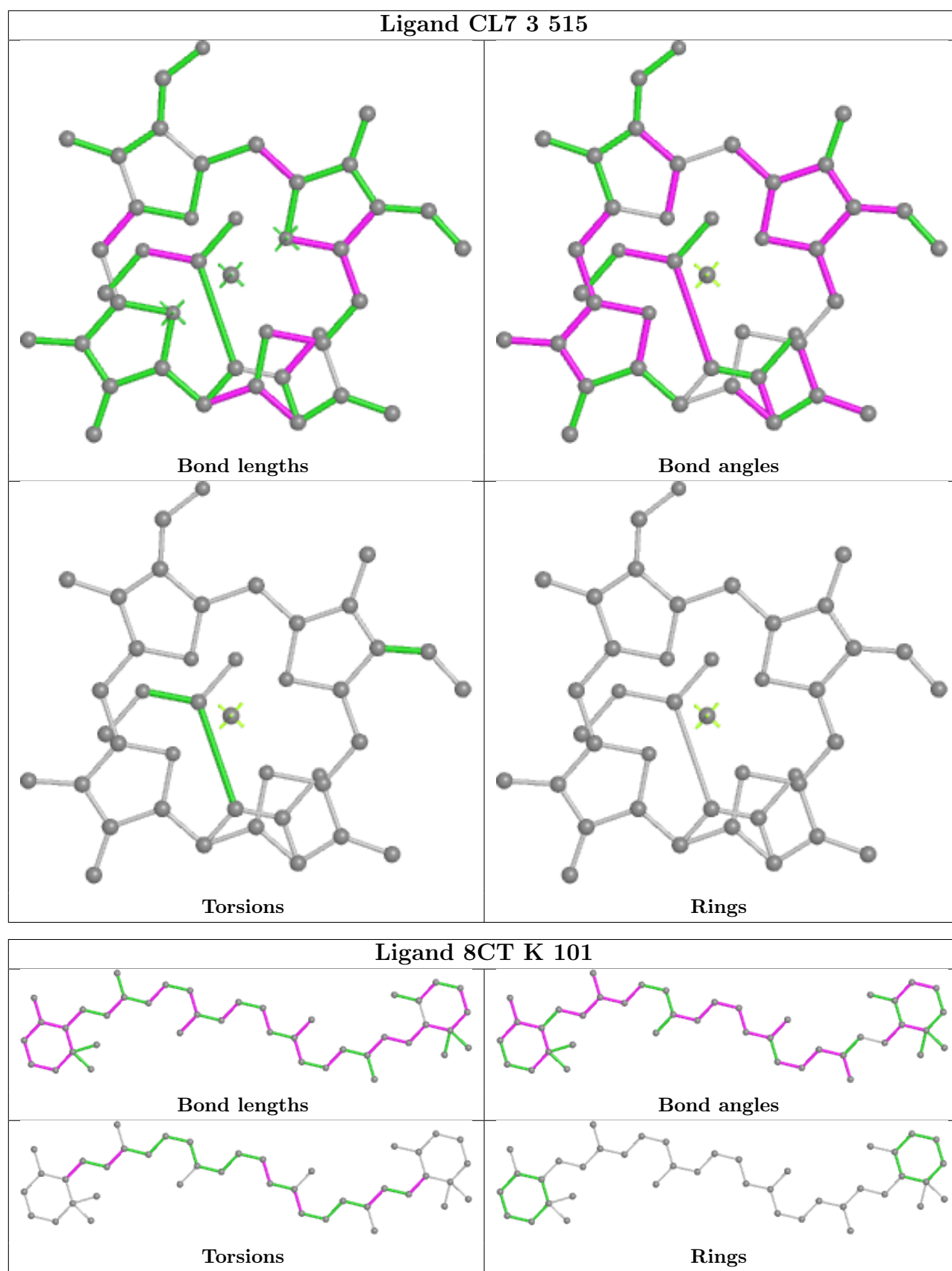


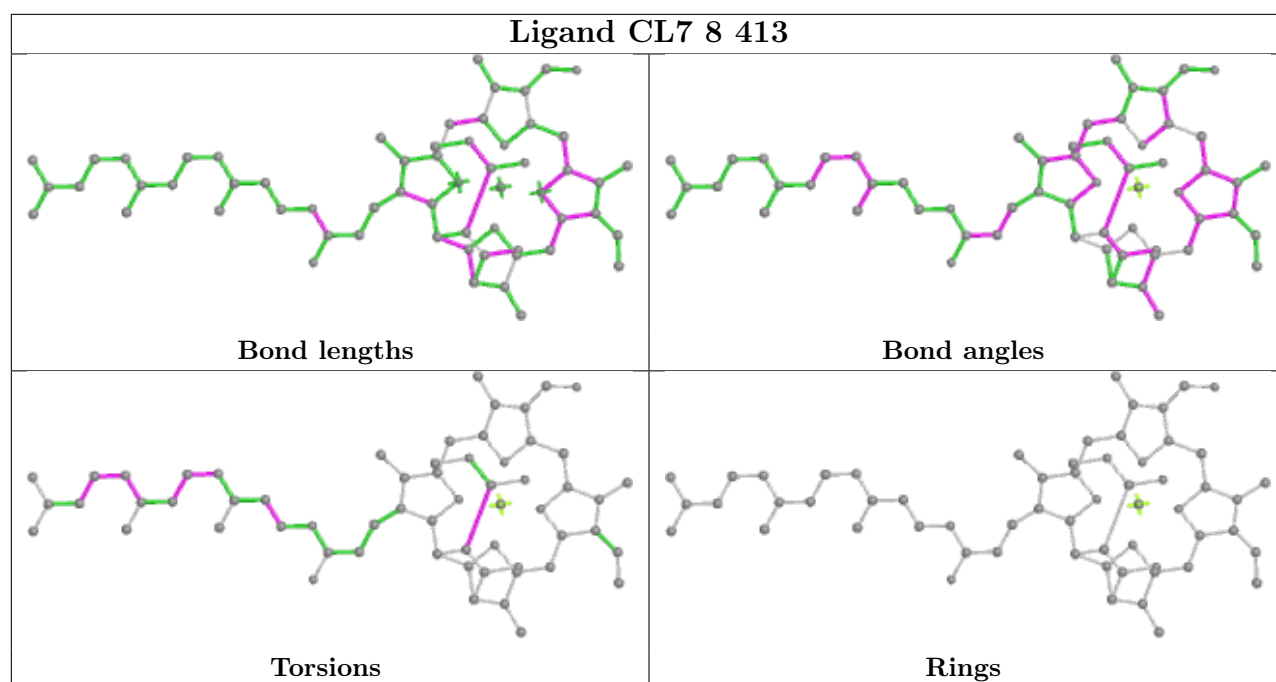












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

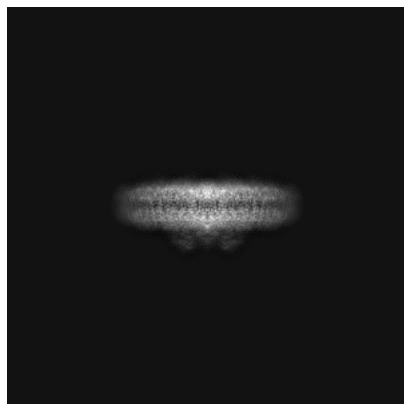
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-33929. These allow visual inspection of the internal detail of the map and identification of artifacts.

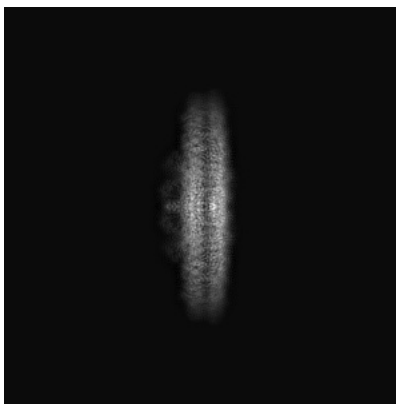
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

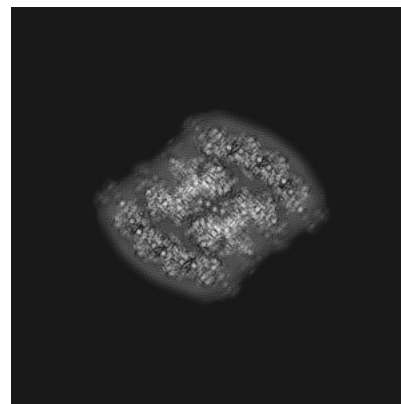
6.1.1 Primary map



X

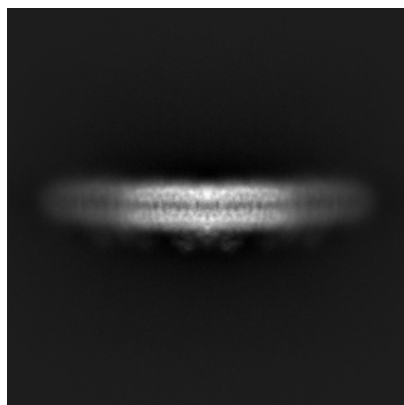


Y

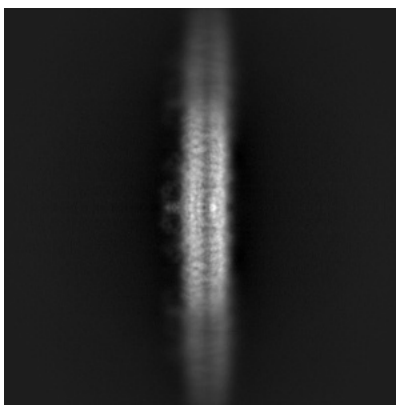


Z

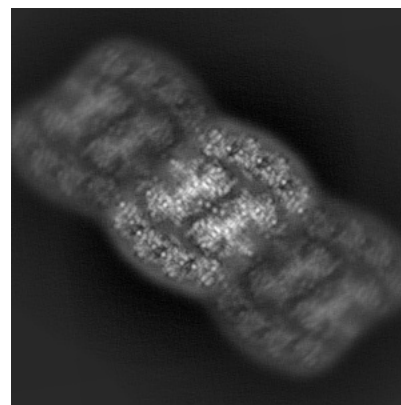
6.1.2 Raw map



X



Y

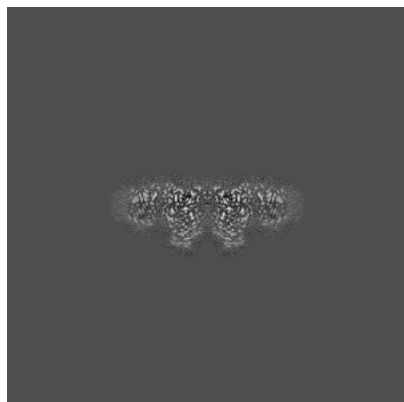


Z

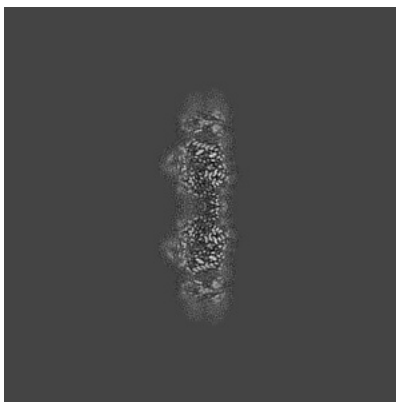
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

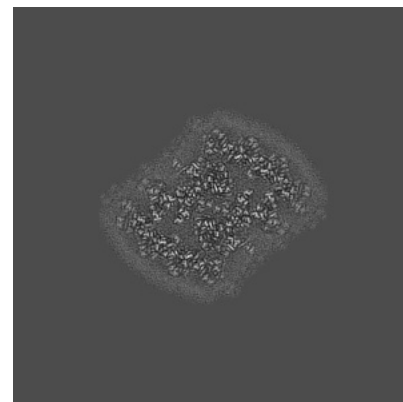
6.2.1 Primary map



X Index: 240

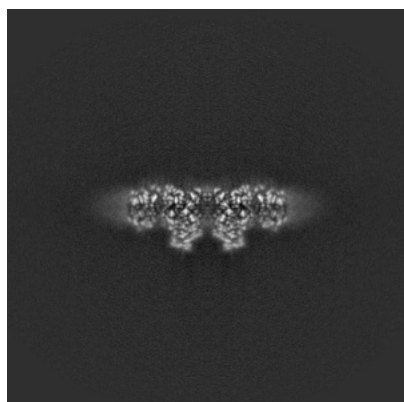


Y Index: 240

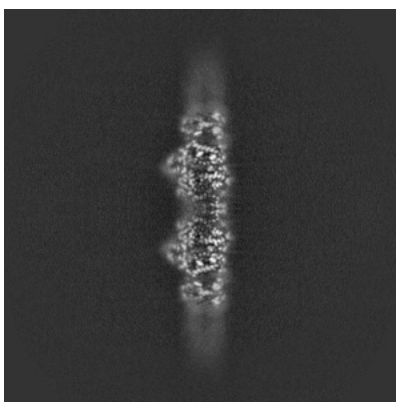


Z Index: 240

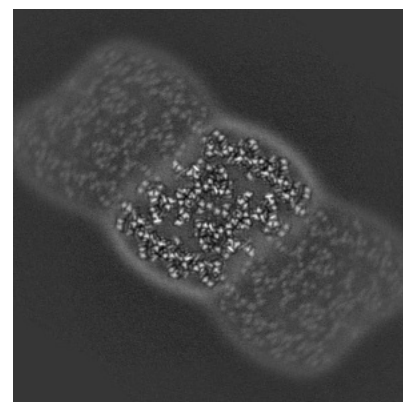
6.2.2 Raw map



X Index: 240



Y Index: 240



Z Index: 240

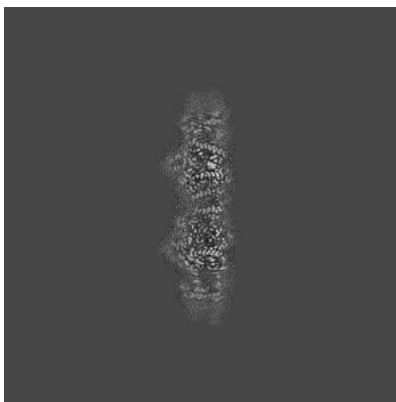
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

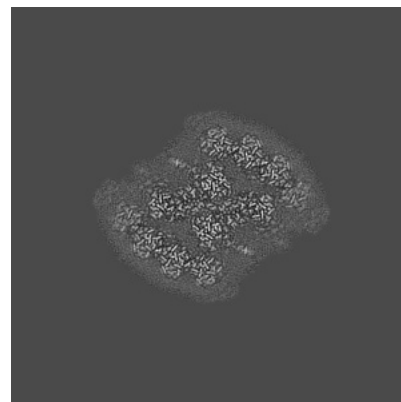
6.3.1 Primary map



X Index: 237



Y Index: 242

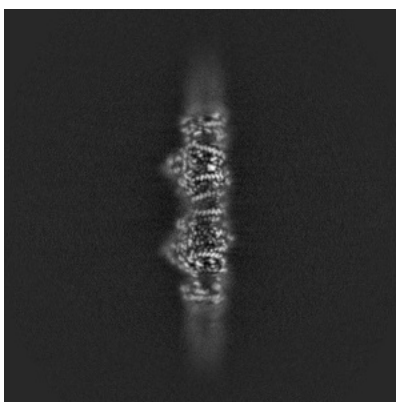


Z Index: 251

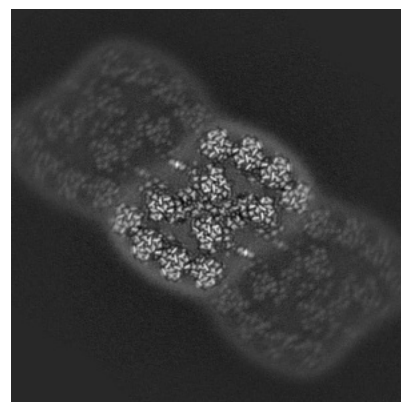
6.3.2 Raw map



X Index: 237



Y Index: 242

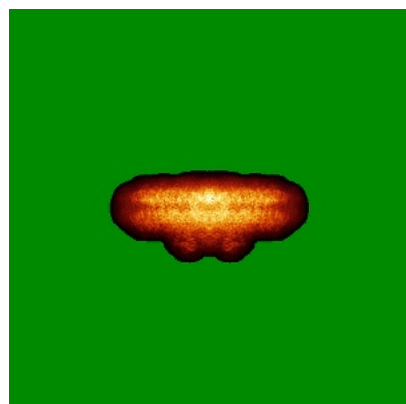


Z Index: 251

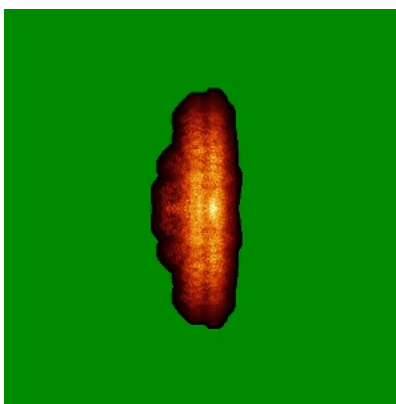
The images above show the largest variance slices of the map in three orthogonal directions.

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

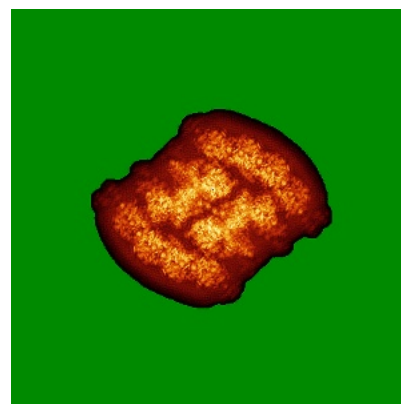
6.4.1 Primary map



X

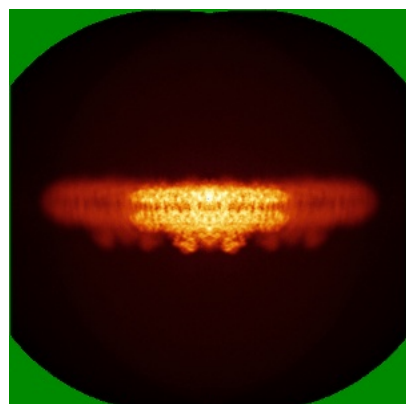


Y

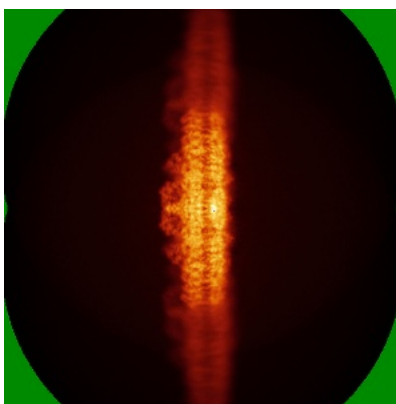


Z

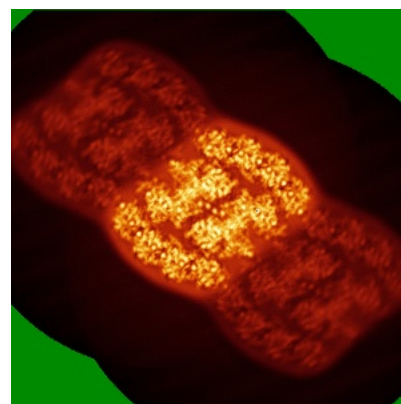
6.4.2 Raw map



X



Y

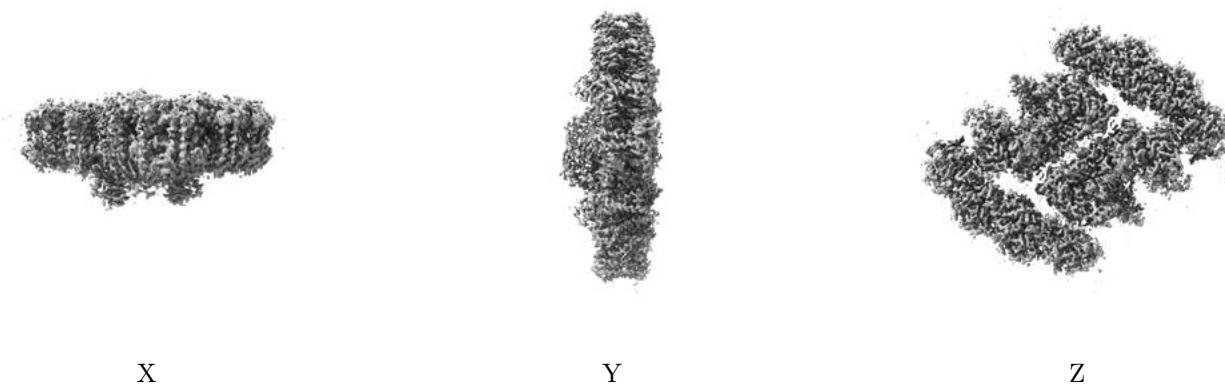


Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.0188. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

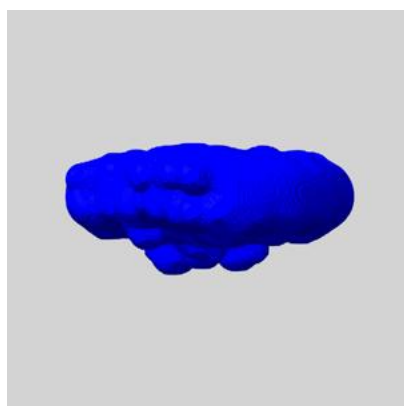
6.6 Mask visualisation [i](#)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

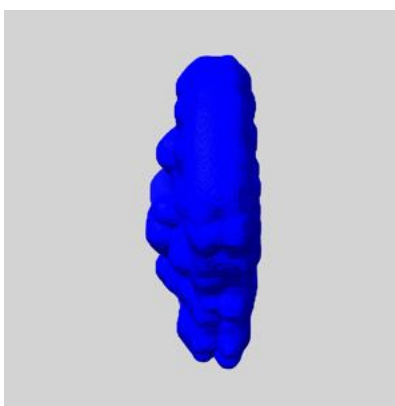
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

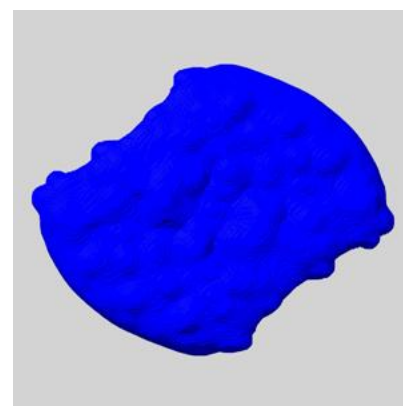
6.6.1 emd_33929_msk_1.map [i](#)



X



Y

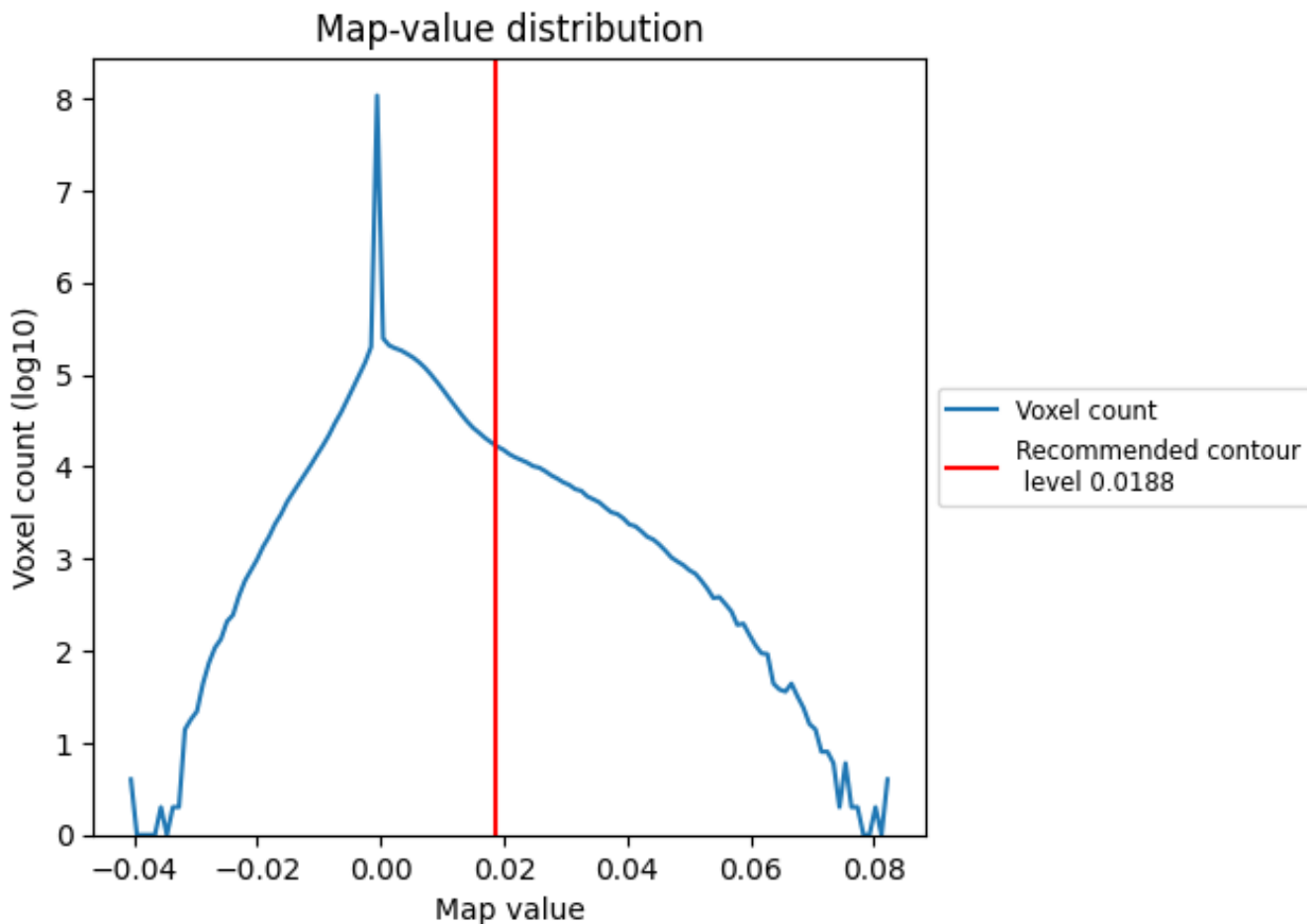


Z

7 Map analysis [i](#)

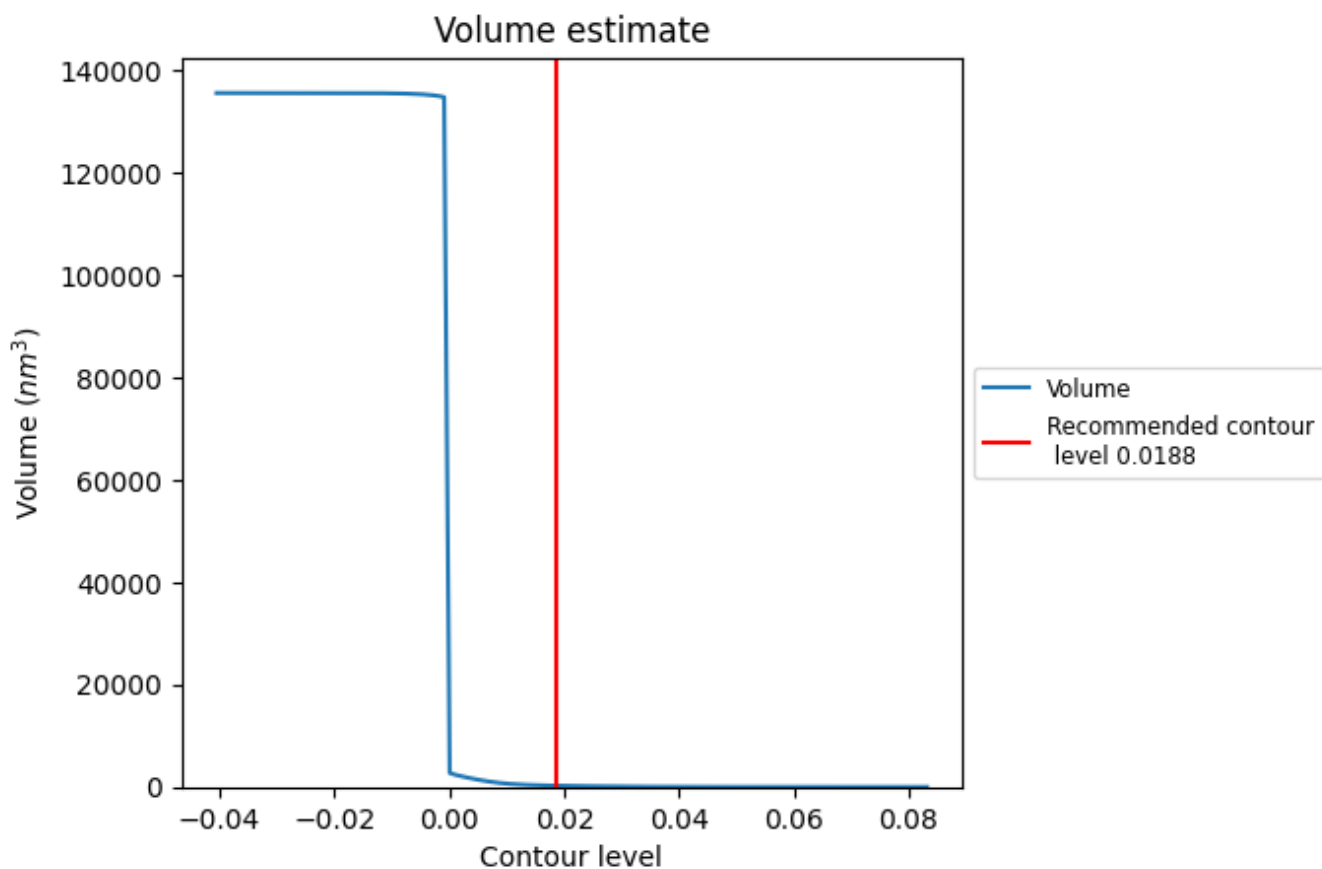
This section contains the results of statistical analysis of the map.

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.

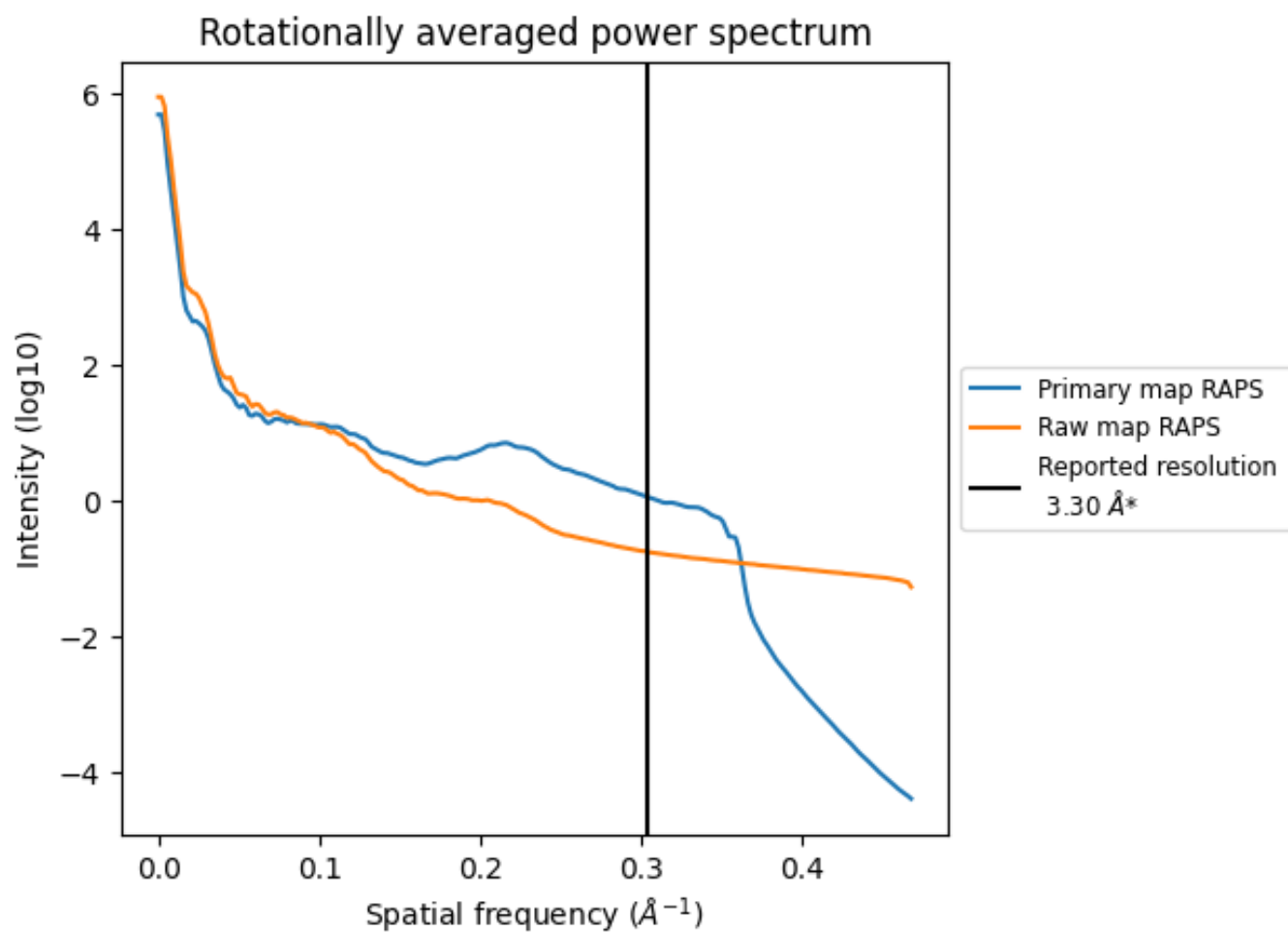
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 243 nm³; this corresponds to an approximate mass of 219 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum [i](#)

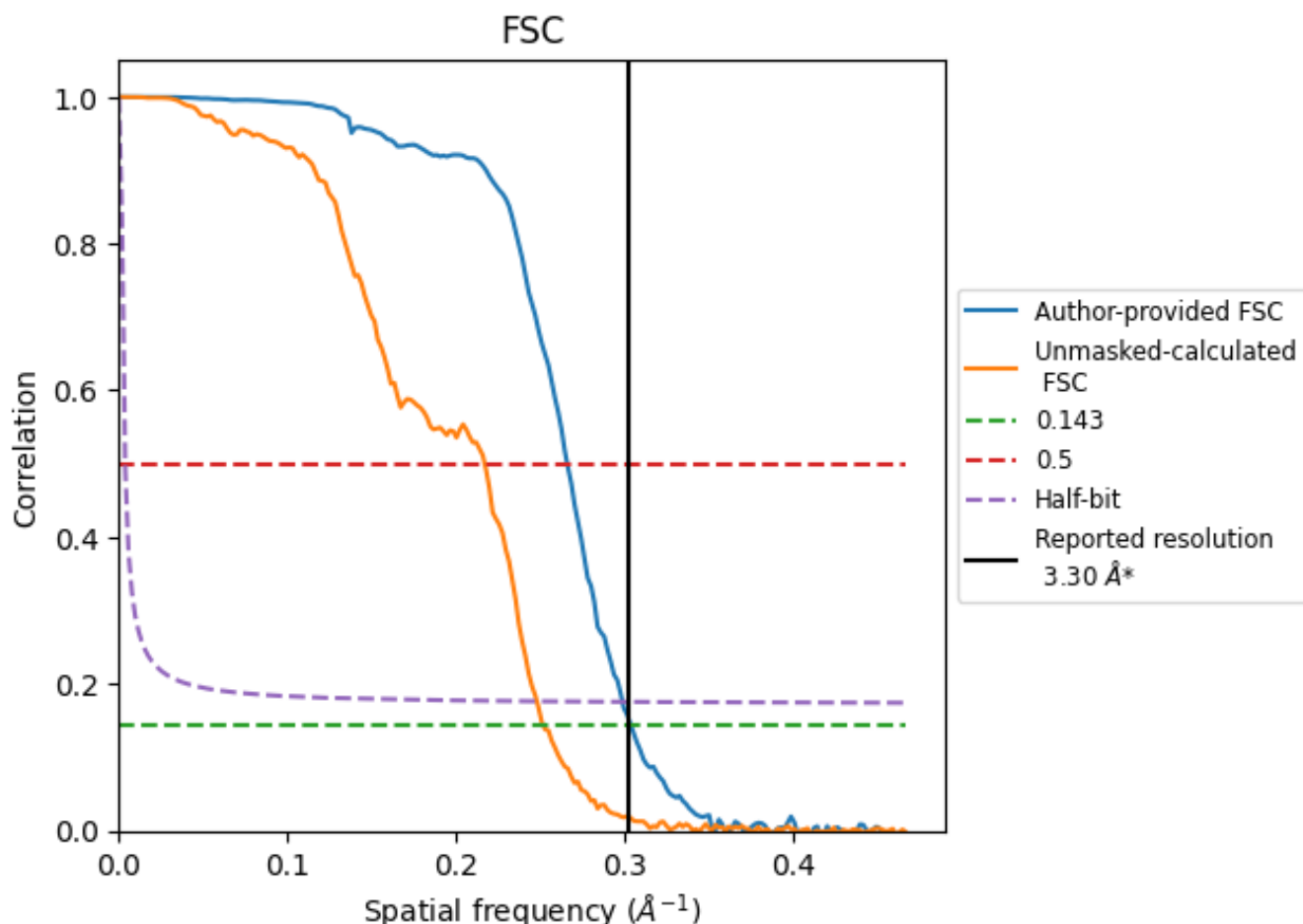


*Reported resolution corresponds to spatial frequency of 0.303 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.303 Å⁻¹

8.2 Resolution estimates [i](#)

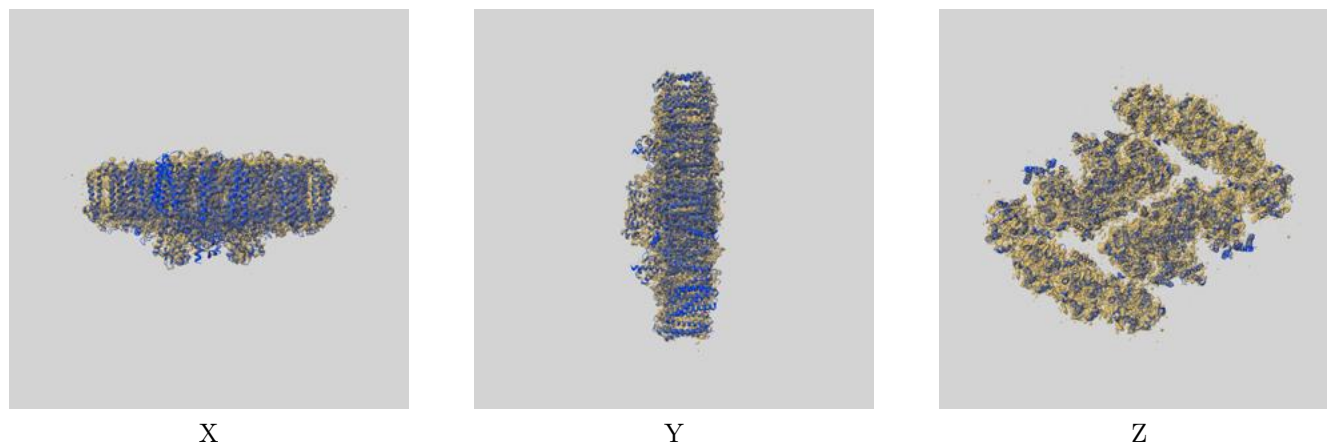
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.30	-	-
Author-provided FSC curve	3.29	3.76	3.34
Unmasked-calculated*	3.97	4.60	4.03

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.97 differs from the reported value 3.3 by more than 10 %

9 Map-model fit [i](#)

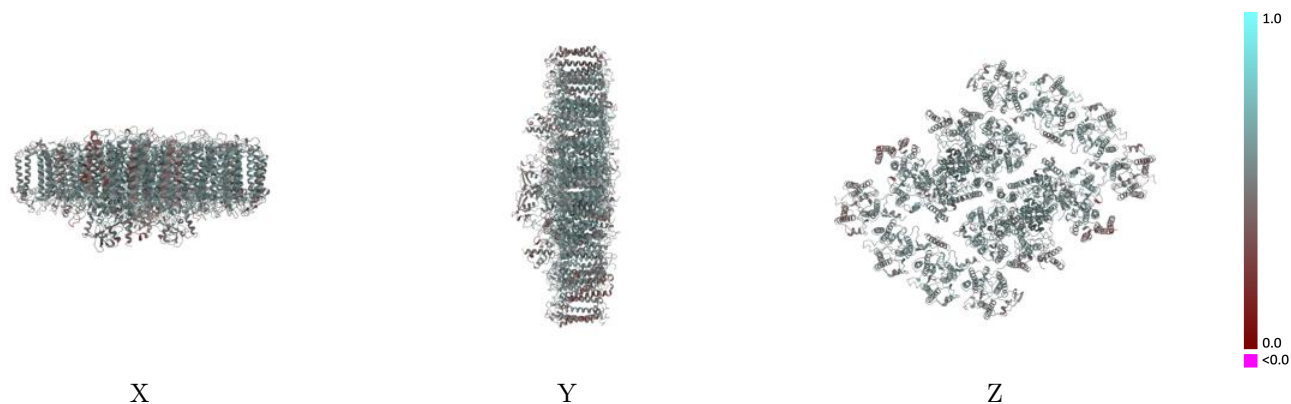
This section contains information regarding the fit between EMDB map EMD-33929 and PDB model 7YMI. Per-residue inclusion information can be found in section 3 on page 35.

9.1 Map-model overlay [i](#)



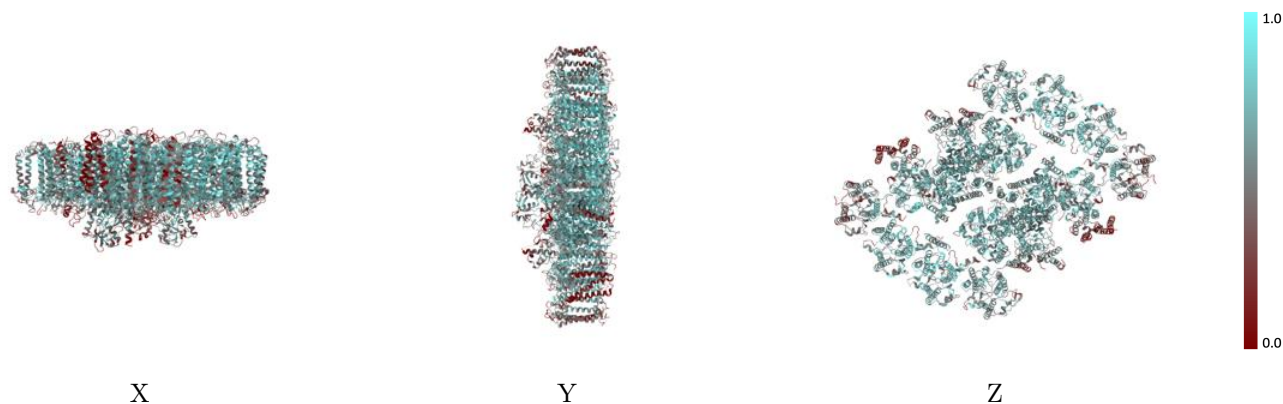
The images above show the 3D surface view of the map at the recommended contour level 0.0188 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



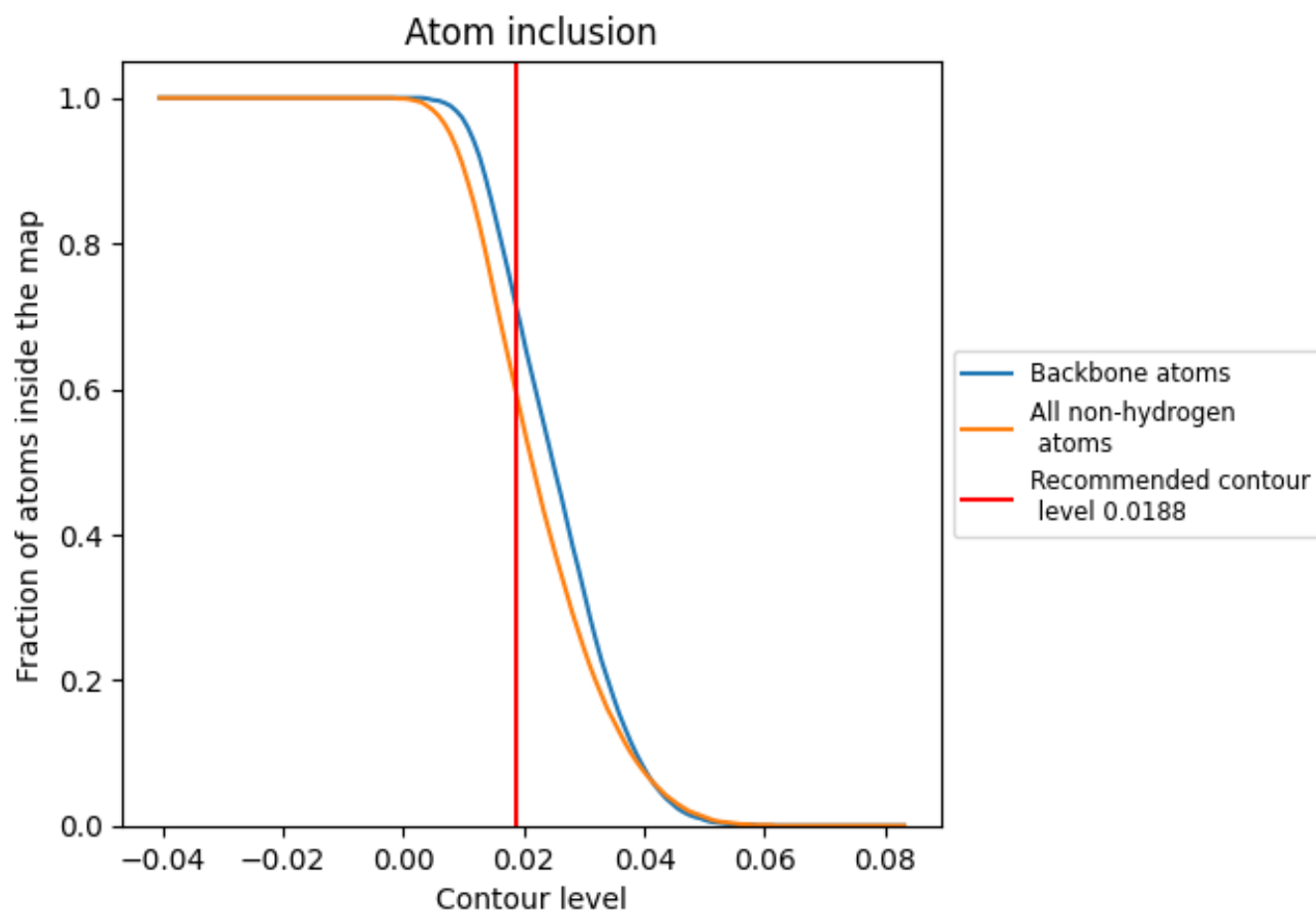
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0188).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 71% of all backbone atoms, 59% 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 (0.0188) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5910	 0.5380
1	 0.4760	 0.5010
2	 0.6300	 0.5500
3	 0.6430	 0.5510
4	 0.5670	 0.5290
5	 0.4770	 0.5000
6	 0.6280	 0.5490
7	 0.6410	 0.5510
8	 0.5670	 0.5310
A	 0.6660	 0.5610
B	 0.6550	 0.5590
C	 0.5910	 0.5410
D	 0.6720	 0.5710
E	 0.3170	 0.4380
F	 0.4820	 0.4780
G	 0.5660	 0.4670
H	 0.5860	 0.5430
I	 0.6350	 0.5470
K	 0.3050	 0.4820
L	 0.6320	 0.5700
M	 0.5240	 0.5200
T	 0.5130	 0.5430
X	 0.3360	 0.4910
Y	 0.0560	 0.4000
Z	 0.1340	 0.3830
a	 0.6740	 0.5610
b	 0.6590	 0.5590
c	 0.5920	 0.5410
d	 0.6720	 0.5700
e	 0.3190	 0.4380
f	 0.4820	 0.4720
g	 0.5660	 0.4590
h	 0.5880	 0.5420
i	 0.6350	 0.5490
k	 0.3050	 0.4810



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Chain	Atom inclusion	Q-score
l	 0.6280	 0.5630
m	 0.5240	 0.5180
t	 0.5130	 0.5400
x	 0.3360	 0.4860
y	 0.0560	 0.3990
z	 0.1340	 0.3810