



# wwPDB EM Validation Summary Report ⓘ

Oct 16, 2024 – 12:51 AM JST

PDB ID : 8JZF  
EMDB ID : EMD-36743  
Title : PSI-AcpPCI supercomplex from Symbiodinium  
Authors : Li, X.Y.; Li, Z.H.; Wang, W.D.  
Deposited on : 2023-07-05  
Resolution : 2.70 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](mailto: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 : **FAILED**  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
MolProbity : 4.02b-467  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
MapQ : **FAILED**  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.39

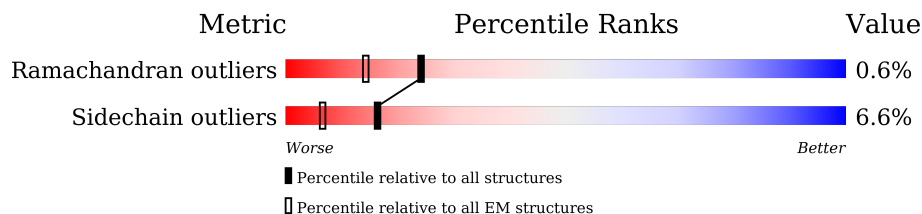
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 2.70 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.



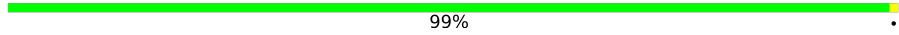
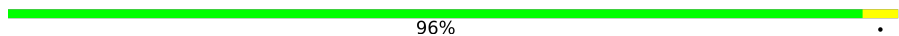


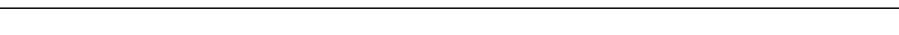

Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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  $\leq 5\%$

Mol	Chain	Length	Quality of chain
1	I	200	96% .
2	K	177	96% .
3	z	78	100%
4	y	131	100%
5	G	224	93% . .
6	A	189	93% 5% .
7	c	86	99% .
8	d	218	99% .
9	e	73	100%
10	f	184	97% .

*Continued on next page...*

Continued from previous page...

Mol	Chain	Length	Quality of chain
11	h	131	 99%
12	i	119	 99%
13	j	98	 96%
14	l	250	 97%
15	m	79	 99%
16	a	670	 97%
17	b	663	 97%
18	B	192	 91% 9%
19	D	165	 82% 15%
20	F	176	 87% 9%
21	H	160	 92% 8%
22	J	220	 92% 8%
23	L	185	 86% 14%
24	M	173	 86% 12%
25	N	160	 74% 21%

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
28	CLA	A	307	X	-	-	-
28	CLA	A	308	X	-	-	-
28	CLA	A	309	X	-	-	-
28	CLA	A	310	X	-	-	-
28	CLA	A	311	X	-	-	-
28	CLA	A	312	X	-	-	-
28	CLA	A	313	X	-	-	-
28	CLA	A	315	X	-	-	-
28	CLA	A	316	X	-	-	-
28	CLA	A	317	X	-	-	-
28	CLA	A	319	X	-	-	-
28	CLA	A	320	X	-	-	-

Continued on next page...

*Continued from previous page...*

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
28	CLA	B	301	X	-	-	-
28	CLA	B	307	X	-	-	-
28	CLA	B	308	X	-	-	-
28	CLA	B	309	X	-	-	-
28	CLA	B	310	X	-	-	-
28	CLA	B	311	X	-	-	-
28	CLA	B	312	X	-	-	-
28	CLA	B	313	X	-	-	-
28	CLA	B	315	X	-	-	-
28	CLA	B	316	X	-	-	-
28	CLA	B	317	X	-	-	-
28	CLA	D	308	X	-	-	-
28	CLA	D	309	X	-	-	-
28	CLA	D	311	X	-	-	-
28	CLA	D	312	X	-	-	-
28	CLA	D	313	X	-	-	-
28	CLA	D	314	X	-	-	-
28	CLA	D	316	X	-	-	-
28	CLA	F	307	X	-	-	-
28	CLA	F	308	X	-	-	-
28	CLA	F	310	X	-	-	-
28	CLA	F	311	X	-	-	-
28	CLA	F	312	X	-	-	-
28	CLA	F	313	X	-	-	-
28	CLA	F	315	X	-	-	-
28	CLA	G	509	X	-	-	-
28	CLA	G	510	X	-	-	-
28	CLA	G	511	X	-	-	-
28	CLA	G	512	X	-	-	-
28	CLA	G	513	X	-	-	-
28	CLA	G	514	X	-	-	-
28	CLA	G	516	X	-	-	-
28	CLA	G	517	X	-	-	-
28	CLA	G	518	X	-	-	-
28	CLA	G	519	X	-	-	-
28	CLA	G	520	X	-	-	-
28	CLA	H	304	X	-	-	-
28	CLA	H	305	X	-	-	-
28	CLA	H	307	X	-	-	-
28	CLA	H	308	X	-	-	-
28	CLA	H	309	X	-	-	-
28	CLA	H	312	X	-	-	-

*Continued on next page...*

*Continued from previous page...*

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
28	CLA	I	306	X	-	-	-
28	CLA	I	307	X	-	-	-
28	CLA	I	308	X	-	-	-
28	CLA	I	309	X	-	-	-
28	CLA	I	310	X	-	-	-
28	CLA	I	311	X	-	-	-
28	CLA	I	312	X	-	-	-
28	CLA	I	313	X	-	-	-
28	CLA	I	315	X	-	-	-
28	CLA	I	316	X	-	-	-
28	CLA	I	319	X	-	-	-
28	CLA	I	321	X	-	-	-
28	CLA	J	301	X	-	-	-
28	CLA	J	306	X	-	-	-
28	CLA	J	307	X	-	-	-
28	CLA	J	308	X	-	-	-
28	CLA	J	309	X	-	-	-
28	CLA	J	310	X	-	-	-
28	CLA	J	311	X	-	-	-
28	CLA	J	312	X	-	-	-
28	CLA	J	314	X	-	-	-
28	CLA	J	315	X	-	-	-
28	CLA	K	306	X	-	-	-
28	CLA	K	307	X	-	-	-
28	CLA	K	308	X	-	-	-
28	CLA	K	309	X	-	-	-
28	CLA	K	310	X	-	-	-
28	CLA	K	311	X	-	-	-
28	CLA	K	312	X	-	-	-
28	CLA	K	313	X	-	-	-
28	CLA	K	315	X	-	-	-
28	CLA	K	316	X	-	-	-
28	CLA	L	308	X	-	-	-
28	CLA	L	309	X	-	-	-
28	CLA	L	310	X	-	-	-
28	CLA	L	311	X	-	-	-
28	CLA	L	312	X	-	-	-
28	CLA	L	313	X	-	-	-
28	CLA	L	314	X	-	-	-
28	CLA	L	316	X	-	-	-
28	CLA	L	317	X	-	-	-
28	CLA	L	318	X	-	-	-

*Continued on next page...*

*Continued from previous page...*

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
28	CLA	M	308	X	-	-	-
28	CLA	M	309	X	-	-	-
28	CLA	M	310	X	-	-	-
28	CLA	M	311	X	-	-	-
28	CLA	M	312	X	-	-	-
28	CLA	M	313	X	-	-	-
28	CLA	M	315	X	-	-	-
28	CLA	M	316	X	-	-	-
28	CLA	M	317	X	-	-	-
28	CLA	M	318	X	-	-	-
28	CLA	N	304	X	-	-	-
28	CLA	N	305	X	-	-	-
28	CLA	N	307	X	-	-	-
28	CLA	N	309	X	-	-	-
28	CLA	N	310	X	-	-	-
28	CLA	a	701	X	-	-	-
28	CLA	a	702	X	-	-	-
28	CLA	a	703	X	-	-	-
28	CLA	a	704	X	-	-	-
28	CLA	a	705	X	-	-	-
28	CLA	a	706	X	-	-	-
28	CLA	a	707	X	-	-	-
28	CLA	a	708	X	-	-	-
28	CLA	a	709	X	-	-	-
28	CLA	a	710	X	-	-	-
28	CLA	a	711	X	-	-	-
28	CLA	a	712	X	-	-	-
28	CLA	a	713	X	-	-	-
28	CLA	a	714	X	-	-	-
28	CLA	a	715	X	-	-	-
28	CLA	a	716	X	-	-	-
28	CLA	a	717	X	-	-	-
28	CLA	a	718	X	-	-	-
28	CLA	a	719	X	-	-	-
28	CLA	a	720	X	-	-	-
28	CLA	a	721	X	-	-	-
28	CLA	a	722	X	-	-	-
28	CLA	a	723	X	-	-	-
28	CLA	a	724	X	-	-	-
28	CLA	a	725	X	-	-	-
28	CLA	a	726	X	-	-	-
28	CLA	a	727	X	-	-	-

*Continued on next page...*

*Continued from previous page...*

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
28	CLA	a	728	X	-	-	-
28	CLA	a	729	X	-	-	-
28	CLA	a	730	X	-	-	-
28	CLA	a	731	X	-	-	-
28	CLA	a	735	X	-	-	-
28	CLA	a	738	X	-	-	-
28	CLA	b	701	X	-	-	-
28	CLA	b	703	X	-	-	-
28	CLA	b	704	X	-	-	-
28	CLA	b	705	X	-	-	-
28	CLA	b	706	X	-	-	-
28	CLA	b	707	X	-	-	-
28	CLA	b	708	X	-	-	-
28	CLA	b	709	X	-	-	-
28	CLA	b	710	X	-	-	-
28	CLA	b	711	X	-	-	-
28	CLA	b	712	X	-	-	-
28	CLA	b	713	X	-	-	-
28	CLA	b	714	X	-	-	-
28	CLA	b	715	X	-	-	-
28	CLA	b	716	X	-	-	-
28	CLA	b	717	X	-	-	-
28	CLA	b	718	X	-	-	-
28	CLA	b	719	X	-	-	-
28	CLA	b	720	X	-	-	-
28	CLA	b	721	X	-	-	-
28	CLA	b	722	X	-	-	-
28	CLA	b	723	X	-	-	-
28	CLA	b	724	X	-	-	-
28	CLA	b	725	X	-	-	-
28	CLA	b	726	X	-	-	-
28	CLA	b	727	X	-	-	-
28	CLA	b	728	X	-	-	-
28	CLA	f	301	X	-	-	-
28	CLA	f	302	X	-	-	-
28	CLA	f	303	X	-	-	-
28	CLA	h	202	X	-	-	-
28	CLA	j	104	X	-	-	-
28	CLA	j	106	X	-	-	-
28	CLA	l	303	X	-	-	-
28	CLA	l	304	X	-	-	-
28	CLA	l	305	X	-	-	-

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Type</b>	<b>Chain</b>	<b>Res</b>	<b>Chirality</b>	<b>Geometry</b>	<b>Clashes</b>	<b>Electron density</b>
28	CLA	l	308	X	-	-	-
28	CLA	l	309	X	-	-	-
28	CLA	l	311	X	-	-	-
28	CLA	l	312	X	-	-	-
28	CLA	l	313	X	-	-	-
28	CLA	m	202	X	-	-	-



## 2 Entry composition [i](#)

There are 37 unique types of molecules in this entry. The entry contains 52237 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 Chlorophyll a-chlorophyll c-peridinin-protein-complex I-7, acpPCI-7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	I	200	1480	961	250	259	10	0	0

- Molecule 2 is a protein called Chlorophyll a-chlorophyll c-peridinin-protein-complex I-6, acpPCI-6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	K	177	1349	872	227	238	12	0	0

- Molecule 3 is a protein called Photosystem I unk.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
3	z	78	390	234	78	78	0	0

- Molecule 4 is a protein called Photosystem I unk.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	y	131	655	393	131	131	0	0

- Molecule 5 is a protein called Chlorophyll a-chlorophyll c-peridinin-protein-complex I-8, acpPCI-8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	G	217	1572	1004	269	289	10	0	0

- Molecule 6 is a protein called Chlorophyll a-chlorophyll c-peridinin-protein-complex I-10, acpPCI-10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	A	186	1346	870	225	242	9	0	0

- Molecule 7 is a protein called Photosystem I PsaC.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	c	86	653	403	109	132	9	0	0

- Molecule 8 is a protein called Photosystem I PsaD.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	d	218	1731	1096	307	315	13	0	0

- Molecule 9 is a protein called Photosystem I PsaE.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
9	e	73	587	384	99	104	0	0

- Molecule 10 is a protein called Photosystem I PsaF.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	f	184	1450	930	252	260	8	0	0

- Molecule 11 is a protein called Photosystem I PsaR.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	h	131	1066	704	165	193	4	0	0

- Molecule 12 is a protein called Photosystem I PsaI.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	i	119	964	620	167	175	2	0	0

- Molecule 13 is a protein called Photosystem I PsaJ.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
13	j	98	783	505	125	153	0	0

- Molecule 14 is a protein called Photosystem I PsaL.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	l	250	1943	1267	312	354	10	0	0

- Molecule 15 is a protein called Photosystem I PsaM.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	m	79	582	373	100	107	2	0	0

- Molecule 16 is a protein called Photosystem I PsaA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	a	670	5194	3393	875	910	16	0	0

- Molecule 17 is a protein called Photosystem I PsaB.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	b	663	5199	3408	851	928	12	0	0

- Molecule 18 is a protein called Chlorophyll a-chlorophyll c-peridinin-protein-complex I-11, acpPCI-11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
18	B	192	1452	934	241	265	12	0	0

- Molecule 19 is a protein called Chlorophyll a-chlorophyll c-peridinin-protein-complex I-9, acpPCI-9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
19	D	160	1158	728	195	228	7	0	0

- Molecule 20 is a protein called Chlorophyll a-chlorophyll c-peridinin-protein-complex I-2,

acpPCI-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
20	F	169	1237	777	209	239	12	0	0

- Molecule 21 is a protein called Chlorophyll a-chlorophyll c-peridinin-protein-complex I-12, acpPCI-12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
21	H	160	1202	769	198	228	7	0	0

- Molecule 22 is a protein called Chlorophyll a-chlorophyll c-peridinin-protein-complex I-3, acpPCI-3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	J	220	1496	938	261	290	7	0	0

- Molecule 23 is a protein called Chlorophyll a-chlorophyll c-peridinin-protein-complex I-5, acpPCI-5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	L	185	1427	924	239	258	6	0	0

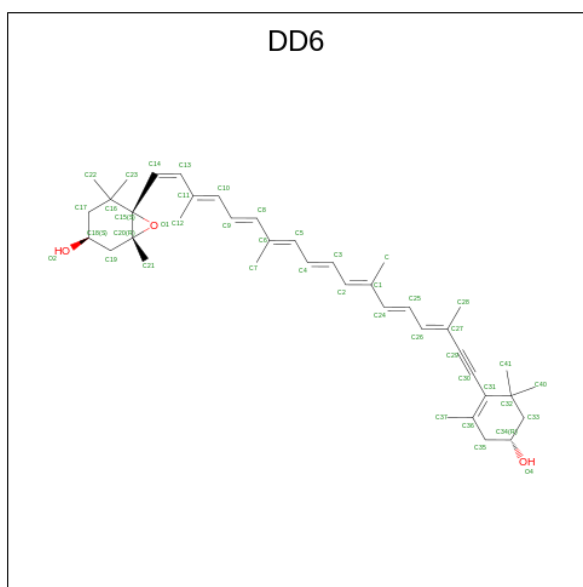
- Molecule 24 is a protein called Chlorophyll a-chlorophyll c-peridinin-protein-complex I-4, acpPCI-4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
24	M	168	1211	773	208	225	5	0	0

- Molecule 25 is a protein called Chlorophyll a-chlorophyll c-peridinin-protein-complex I-13, acpPCI-13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	N	153	993	607	179	202	5	0	0

- Molecule 26 is (3S,3'R,5R,6S,7cis)-7',8'-didehydro-5,6-dihydro-5,6-epoxy-beta,beta-carotene -3,3'-diol (three-letter code: DD6) (formula: C<sub>40</sub>H<sub>54</sub>O<sub>3</sub>) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
26	I	1	43	40	3	0
26	I	1	43	40	3	0
26	I	1	43	40	3	0
26	I	1	43	40	3	0
26	K	1	43	40	3	0
26	K	1	43	40	3	0
26	K	1	43	40	3	0
26	K	1	43	40	3	0
26	K	1	43	40	3	0
26	G	1	43	40	3	0
26	G	1	43	40	3	0
26	G	1	43	40	3	0
26	G	1	43	40	3	0
26	A	1	43	40	3	0

*Continued on next page...*

*Continued from previous page...*

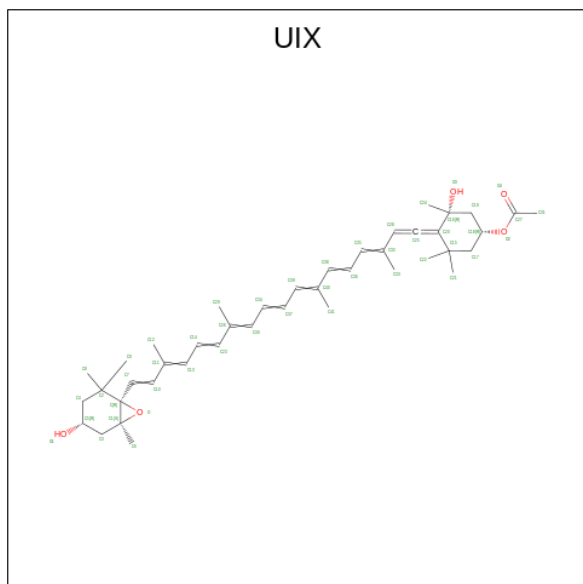
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
26	A	1	43	40	3	0
26	A	1	43	40	3	0
26	A	1	43	40	3	0
26	h	1	43	40	3	0
26	b	1	43	40	3	0
26	B	1	42	39	3	0
26	B	1	43	40	3	0
26	B	1	43	40	3	0
26	B	1	43	40	3	0
26	B	1	43	40	3	0
26	D	1	43	40	3	0
26	F	1	43	40	3	0
26	F	1	43	40	3	0
26	H	1	43	40	3	0
26	J	1	43	40	3	0
26	J	1	43	40	3	0
26	J	1	43	40	3	0
26	L	1	43	40	3	0
26	L	1	43	40	3	0
26	L	1	43	40	3	0
26	L	1	43	40	3	0
26	L	1	43	40	3	0

*Continued on next page...*

Continued from previous page...

Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
26	M	1	43	40	3	0
26	M	1	43	40	3	0
26	M	1	43	40	3	0
26	M	1	43	40	3	0
26	M	1	43	40	3	0
26	N	1	43	40	3	0

- Molecule 27 is [(1 {S},5 {R})-3,3,5-trimethyl-5-oxidanyl-4-[(3 {E},5 {E},7 {E},9 {E},11 {E},13 {E},15 {E},17 {E})-3,7,12,16-tetramethyl-18-[(1 {S},4 {S},6 {R})-2,2,6-trimethyl-4-oxidanyl-7-oxabicyclo[4.1.0]heptan-1-yl]octadeca-1,3,5,7,9,11,13,15,17-nonaenylidene]cyclohexyl] ethanoate (three-letter code: UIX) (formula: C<sub>42</sub>H<sub>58</sub>O<sub>5</sub>) (labeled as "Ligand of Interest" by depositor).



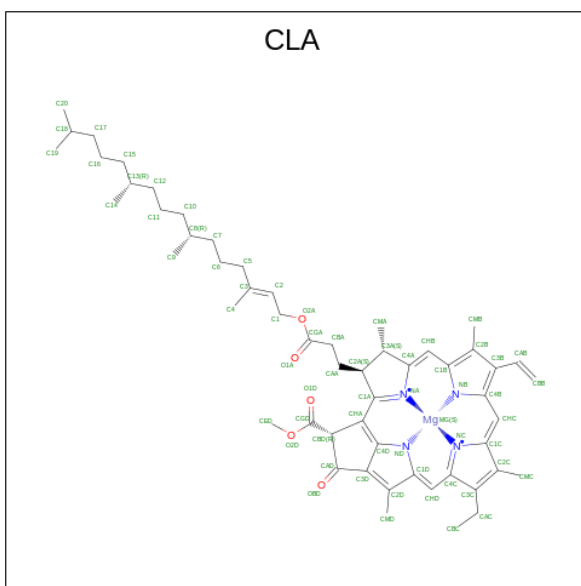
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
27	I	1	47	42	5	0
27	K	1	47	42	5	0
27	G	1	47	42	5	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms			AltConf
27	A	1	Total	C	O	0
			47	42	5	
27	h	1	Total	C	O	0
			47	42	5	
27	B	1	Total	C	O	0
			47	42	5	
27	J	1	Total	C	O	0
			47	42	5	

- Molecule 28 is CHLOROPHYLL A (three-letter code: CLA) (formula:  $C_{55}H_{72}MgN_4O_5$ ) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				AltConf	
28	I	1	Total	C	Mg	N	O	0
			49	39	1	4	5	
28	I	1	Total	C	Mg	N	O	0
			46	36	1	4	5	
28	I	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
28	I	1	Total	C	Mg	N	O	0
			55	45	1	4	5	
28	I	1	Total	C	Mg	N	O	0
			48	38	1	4	5	
28	I	1	Total	C	Mg	N	O	0
			55	45	1	4	5	
28	I	1	Total	C	Mg	N	O	0
			65	55	1	4	5	

Continued on next page...



*Continued from previous page...*

Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
28	I	1	55	45	1	4	5	0
28	I	1	52	42	1	4	5	0
28	I	1	55	45	1	4	5	0
28	I	1	45	35	1	4	5	0
28	I	1	52	42	1	4	5	0
28	K	1	49	39	1	4	5	0
28	K	1	46	36	1	4	5	0
28	K	1	54	44	1	4	5	0
28	K	1	50	40	1	4	5	0
28	K	1	55	45	1	4	5	0
28	K	1	52	42	1	4	5	0
28	K	1	48	38	1	4	5	0
28	K	1	55	45	1	4	5	0
28	K	1	41	33	1	4	3	0
28	K	1	46	36	1	4	5	0
28	G	1	51	41	1	4	5	0
28	G	1	65	55	1	4	5	0
28	G	1	55	45	1	4	5	0
28	G	1	60	50	1	4	5	0
28	G	1	65	55	1	4	5	0
28	G	1	53	43	1	4	5	0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
28	G	1	41	33	1	4	3	0
28	G	1	46	36	1	4	5	0
28	G	1	46	36	1	4	5	0
28	G	1	61	51	1	4	5	0
28	G	1	49	39	1	4	5	0
28	A	1	45	35	1	4	5	0
28	A	1	55	45	1	4	5	0
28	A	1	55	45	1	4	5	0
28	A	1	65	55	1	4	5	0
28	A	1	46	36	1	4	5	0
28	A	1	55	45	1	4	5	0
28	A	1	55	45	1	4	5	0
28	A	1	41	33	1	4	3	0
28	A	1	47	37	1	4	5	0
28	A	1	41	33	1	4	3	0
28	A	1	46	36	1	4	5	0
28	A	1	46	36	1	4	5	0
28	f	1	55	45	1	4	5	0
28	f	1	46	36	1	4	5	0
28	f	1	46	36	1	4	5	0
28	h	1	55	45	1	4	5	0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Residues	Atoms					AltConf
28	j	1	Total	C	Mg	N	O	0
			55	45	1	4	5	
28	j	1	Total	C	Mg	N	O	0
			58	48	1	4	5	
28	l	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
28	l	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
28	l	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
28	l	1	Total	C	Mg	N	O	0
			41	33	1	4	3	
28	l	1	Total	C	Mg	N	O	0
			41	33	1	4	3	
28	l	1	Total	C	N	O		0
			45	36	4	5		
28	l	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
28	l	1	Total	C	Mg	N	O	0
			46	36	1	4	5	
28	l	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
28	m	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
28	a	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
28	a	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
28	a	1	Total	C	Mg	N	O	0
			55	45	1	4	5	
28	a	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
28	a	1	Total	C	Mg	N	O	0
			55	45	1	4	5	
28	a	1	Total	C	Mg	N	O	0
			58	48	1	4	5	
28	a	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
28	a	1	Total	C	Mg	N	O	0
			51	41	1	4	5	
28	a	1	Total	C	Mg	N	O	0
			65	55	1	4	5	

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
28	a	1	55	45	1	4	5	0
28	a	1	45	35	1	4	5	0
28	a	1	60	50	1	4	5	0
28	a	1	60	50	1	4	5	0
28	a	1	45	35	1	4	5	0
28	a	1	45	35	1	4	5	0
28	a	1	47	37	1	4	5	0
28	a	1	57	47	1	4	5	0
28	a	1	46	36	1	4	5	0
28	a	1	47	37	1	4	5	0
28	a	1	62	52	1	4	5	0
28	a	1	65	55	1	4	5	0
28	a	1	58	48	1	4	5	0
28	a	1	65	55	1	4	5	0
28	a	1	65	55	1	4	5	0
28	a	1	61	51	1	4	5	0
28	a	1	65	55	1	4	5	0
28	a	1	46	36	1	4	5	0
28	a	1	55	45	1	4	5	0
28	a	1	56	46	1	4	5	0
28	a	1	65	55	1	4	5	0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
28	a	1	65	55	1	4	5	0
28	a	1	65	55	1	4	5	0
28	a	1	46	36	1	4	5	0
28	b	1	65	55	1	4	5	0
28	b	1	65	55	1	4	5	0
28	b	1	65	55	1	4	5	0
28	b	1	65	55	1	4	5	0
28	b	1	48	38	1	4	5	0
28	b	1	65	55	1	4	5	0
28	b	1	65	55	1	4	5	0
28	b	1	60	50	1	4	5	0
28	b	1	52	42	1	4	5	0
28	b	1	55	45	1	4	5	0
28	b	1	54	44	1	4	5	0
28	b	1	65	55	1	4	5	0
28	b	1	46	36	1	4	5	0
28	b	1	60	50	1	4	5	0
28	b	1	50	40	1	4	5	0
28	b	1	65	55	1	4	5	0
28	b	1	51	41	1	4	5	0
28	b	1	46	36	1	4	5	0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
28	b	1	53	43	1	4	5	0
28	b	1	46	36	1	4	5	0
28	b	1	65	55	1	4	5	0
28	b	1	50	40	1	4	5	0
28	b	1	65	55	1	4	5	0
28	b	1	65	55	1	4	5	0
28	b	1	47	37	1	4	5	0
28	b	1	65	55	1	4	5	0
28	b	1	65	55	1	4	5	0
28	B	1	60	50	1	4	5	0
28	B	1	49	39	1	4	5	0
28	B	1	45	35	1	4	5	0
28	B	1	65	55	1	4	5	0
28	B	1	55	45	1	4	5	0
28	B	1	65	55	1	4	5	0
28	B	1	51	41	1	4	5	0
28	B	1	65	55	1	4	5	0
28	B	1	41	33	1	4	3	0
28	B	1	46	36	1	4	5	0
28	B	1	45	35	1	4	5	0
28	D	1	47	37	1	4	5	0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
28	D	1	46	36	1	4	5	0
28	D	1	46	36	1	4	5	0
28	D	1	46	36	1	4	5	0
28	D	1	45	35	1	4	5	0
28	D	1	46	36	1	4	5	0
28	D	1	41	33	1	4	3	0
28	F	1	46	36	1	4	5	0
28	F	1	46	36	1	4	5	0
28	F	1	46	36	1	4	5	0
28	F	1	46	36	1	4	5	0
28	F	1	46	36	1	4	5	0
28	F	1	46	36	1	4	5	0
28	F	1	41	33	1	4	3	0
28	H	1	47	37	1	4	5	0
28	H	1	65	55	1	4	5	0
28	H	1	51	41	1	4	5	0
28	H	1	46	36	1	4	5	0
28	H	1	47	37	1	4	5	0
28	H	1	41	33	1	4	3	0
28	H	1	46	36	1	4	5	0
28	J	1	60	50	1	4	5	0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
28	J	1	46	36	1	4	5	0
28	J	1	65	55	1	4	5	0
28	J	1	46	36	1	4	5	0
28	J	1	56	46	1	4	5	0
28	J	1	46	36	1	4	5	0
28	J	1	47	37	1	4	5	0
28	J	1	53	43	1	4	5	0
28	J	1	41	33	1	4	3	0
28	J	1	46	36	1	4	5	0
28	J	1	46	36	1	4	5	0
28	L	1	47	39	1	4	3	0
28	L	1	53	43	1	4	5	0
28	L	1	55	45	1	4	5	0
28	L	1	55	45	1	4	5	0
28	L	1	46	36	1	4	5	0
28	L	1	55	45	1	4	5	0
28	L	1	53	43	1	4	5	0
28	L	1	41	33	1	4	3	0
28	L	1	52	42	1	4	5	0
28	L	1	46	36	1	4	5	0
28	M	1	53	43	1	4	5	0

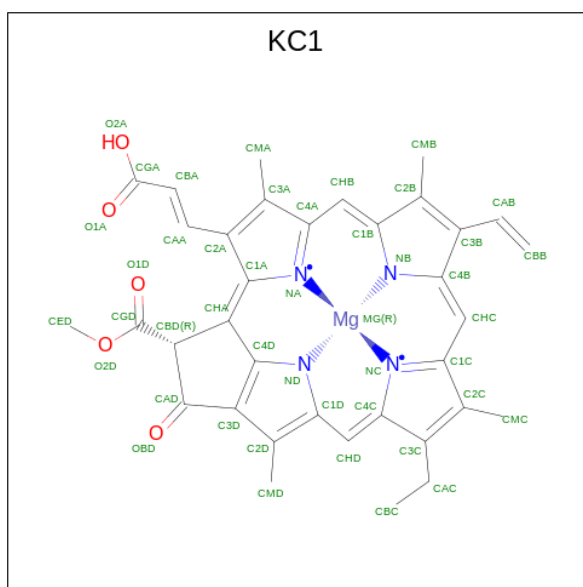
*Continued on next page...*



*Continued from previous page...*

Mol	Chain	Residues	Atoms					AltConf
28	M	1	Total	C	Mg	N	O	0
			55	45	1	4	5	
28	M	1	Total	C	Mg	N	O	0
			48	38	1	4	5	
28	M	1	Total	C	Mg	N	O	0
			46	36	1	4	5	
28	M	1	Total	C	Mg	N	O	0
			48	38	1	4	5	
28	M	1	Total	C	Mg	N	O	0
			46	36	1	4	5	
28	M	1	Total	C	Mg	N	O	0
			41	33	1	4	3	
28	M	1	Total	C	Mg	N	O	0
			52	42	1	4	5	
28	M	1	Total	C	Mg	N	O	0
			46	36	1	4	5	
28	M	1	Total	C	Mg	N	O	0
			46	36	1	4	5	
28	N	1	Total	C	Mg	N	O	0
			47	37	1	4	5	
28	N	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
28	N	1	Total	C	Mg	N	O	0
			51	41	1	4	5	
28	N	1	Total	C	Mg	N	O	0
			46	36	1	4	5	
28	N	1	Total	C	Mg	N	O	0
			47	37	1	4	5	

- Molecule 29 is Chlorophyll c1 (three-letter code: KC1) (formula: C<sub>35</sub>H<sub>30</sub>MgN<sub>4</sub>O<sub>5</sub>) (labeled as "Ligand of Interest" by depositor).



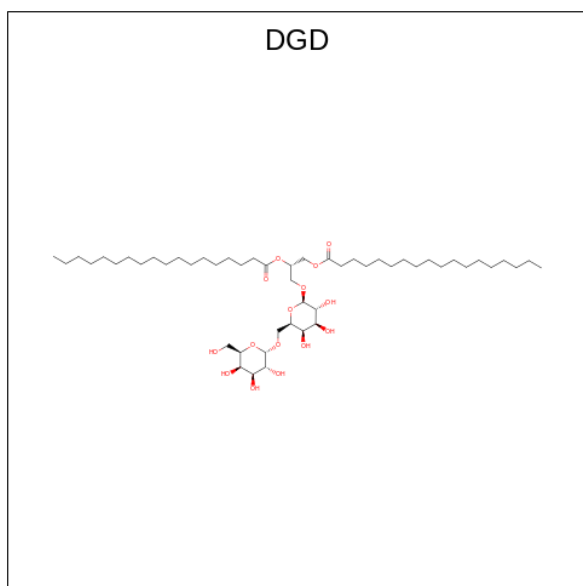
Mol	Chain	Residues	Atoms				AltConf	
			Total	C	Mg	N		O
29	I	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
29	K	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
29	G	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
29	A	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
29	A	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
29	B	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
29	D	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
29	D	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
29	F	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
29	F	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
29	H	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
29	H	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
29	J	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
29	L	1	Total	C	Mg	N	O	0
			45	35	1	4	5	

*Continued on next page...*

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
29	L	1	Total 45	C 35	Mg 1	N 4	O 5	0
29	M	1	Total 45	C 35	Mg 1	N 4	O 5	0
29	M	1	Total 45	C 35	Mg 1	N 4	O 5	0
29	N	1	Total 45	C 35	Mg 1	N 4	O 5	0
29	N	1	Total 45	C 35	Mg 1	N 4	O 5	0
29	N	1	Total 45	C 35	Mg 1	N 4	O 5	0

- Molecule 30 is DIGALACTOSYL DIACYL GLYCEROL (DGDG) (three-letter code: DGD) (formula:  $C_{51}H_{96}O_{15}$ ) (labeled as "Ligand of Interest" by depositor).



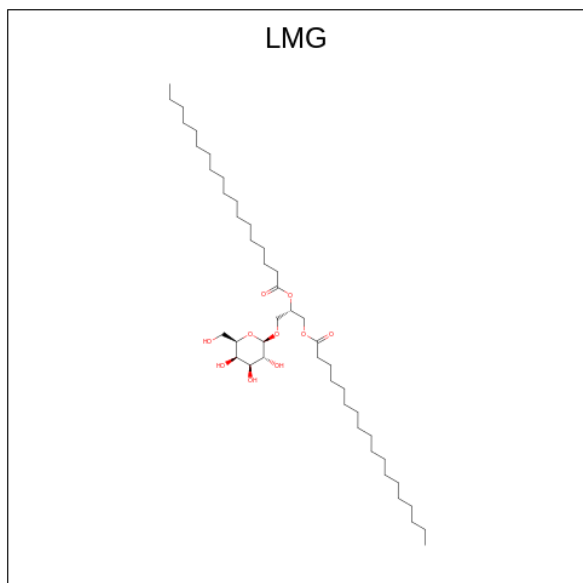
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
30	I	1	Total 39	C 24	O 15	0
30	y	1	Total 54	C 39	O 15	0
30	G	1	Total 45	C 30	O 15	0
30	G	1	Total 44	C 29	O 15	0
30	j	1	Total 41	C 26	O 15	0

Continued on next page...

Continued from previous page...

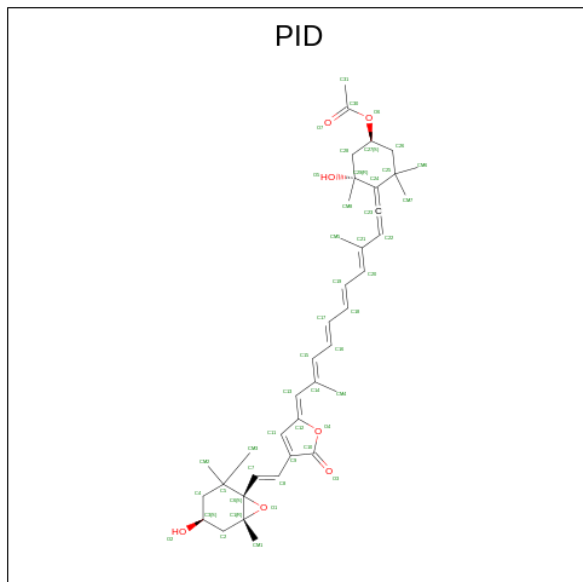
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
30	l	1	50	35	15	0
30	L	1	38	23	15	0

- Molecule 31 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	
31	I	1	36	26	10	0
31	I	1	38	28	10	0
31	K	1	27	17	10	0
31	K	1	43	33	10	0
31	j	1	35	25	10	0
31	b	1	44	34	10	0
31	b	1	31	21	10	0
31	B	1	37	27	10	0
31	D	1	49	39	10	0

- Molecule 32 is PERIDININ (three-letter code: PID) (formula: C<sub>39</sub>H<sub>50</sub>O<sub>7</sub>) (labeled as "Ligand of Interest" by depositor).



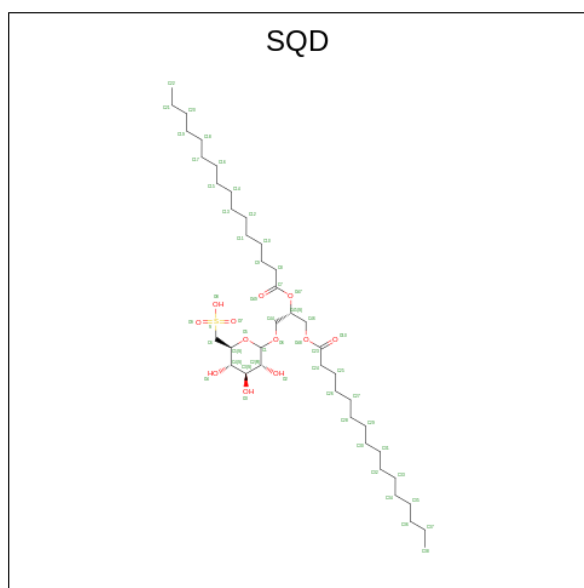
Mol	Chain	Residues	Atoms			AltConf
32	G	1	Total	C	O	0
			46	39	7	
32	G	1	Total	C	O	0
			46	39	7	
32	j	1	Total	C	O	0
			46	39	7	
32	D	1	Total	C	O	0
			46	39	7	
32	D	1	Total	C	O	0
			46	39	7	
32	D	1	Total	C	O	0
			46	39	7	
32	D	1	Total	C	O	0
			46	39	7	
32	D	1	Total	C	O	0
			46	39	7	
32	F	1	Total	C	O	0
			46	39	7	
32	F	1	Total	C	O	0
			46	39	7	
32	F	1	Total	C	O	0
			46	39	7	

*Continued on next page...*

Continued from previous page...

Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
32	F	1	46	39	7	0
32	H	1	46	39	7	0
32	H	1	46	39	7	0
32	M	1	46	39	7	0
32	N	1	46	39	7	0
32	N	1	46	39	7	0

- Molecule 33 is 1,2-DI-O-ACYL-3-O-[6-DEOXY-6-SULFO-ALPHA-D-GLUCOPYRANOSYL]-SN-GLYCEROL (three-letter code: SQD) (formula:  $C_{41}H_{78}O_{12}S$ ) (labeled as "Ligand of Interest" by depositor).



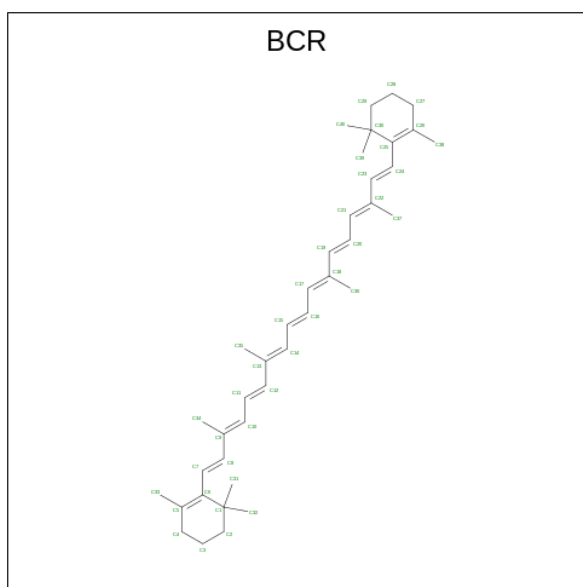
Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	S	
33	A	1	50	37	12	1	0

- Molecule 34 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula:  $Fe_4S_4$ ).



Mol	Chain	Residues	Atoms		AltConf
34	c	1	Total	Fe S	0
			8	4 4	
34	c	1	Total	Fe S	0
			8	4 4	
34	a	1	Total	Fe S	0
			8	4 4	

- Molecule 35 is BETA-CAROTENE (three-letter code: BCR) (formula: C<sub>40</sub>H<sub>56</sub>).



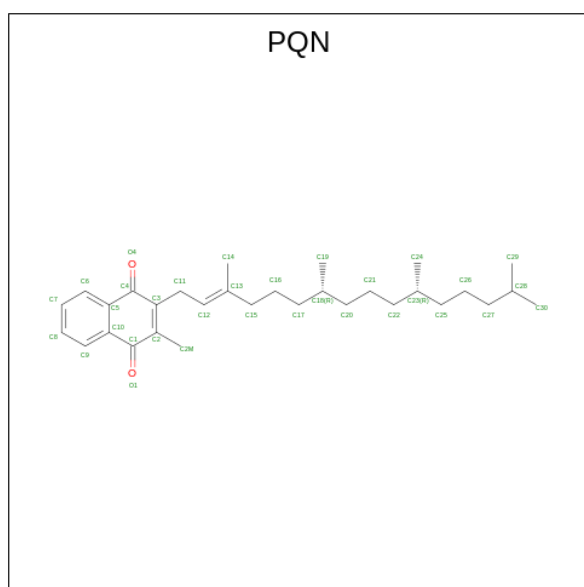
Mol	Chain	Residues	Atoms		AltConf
35	f	1	Total	C	0
			40	40	

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	AltConf
35	i	1	Total C 40 40	0
35	j	1	Total C 40 40	0
35	l	1	Total C 40 40	0
35	l	1	Total C 40 40	0
35	l	1	Total C 40 40	0
35	m	1	Total C 40 40	0
35	a	1	Total C 40 40	0
35	a	1	Total C 40 40	0
35	b	1	Total C 40 40	0
35	b	1	Total C 40 40	0
35	b	1	Total C 40 40	0

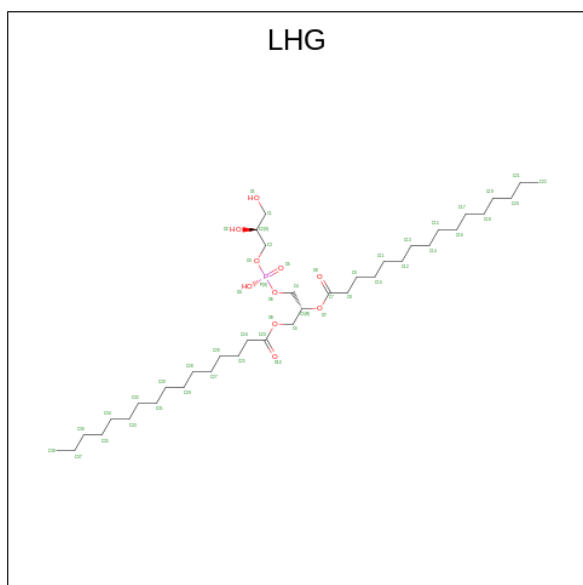
- Molecule 36 is PHYLLOQUINONE (three-letter code: PQN) (formula: C<sub>31</sub>H<sub>46</sub>O<sub>2</sub>).





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

- Molecule 37 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
37	a	1	Total	C	O	P	0
			48	37	10	1	

### 3 Residue-property plots

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

- Molecule 1: Chlorophyll a-chlorophyll c-peridinin-protein-complex I-7, acpPCI-7

Chain I:  96%



- Molecule 2: Chlorophyll a-chlorophyll c-peridinin-protein-complex I-6, acpPCI-6

Chain K:  96%



- Molecule 3: Photosystem I unk

Chain z:  100%

There are no outlier residues recorded for this chain.

- Molecule 4: Photosystem I unk

Chain y:  100%

There are no outlier residues recorded for this chain.

- Molecule 5: Chlorophyll a-chlorophyll c-peridinin-protein-complex I-8, acpPCI-8

Chain G:  93%



- Molecule 6: Chlorophyll a-chlorophyll c-peridinin-protein-complex I-10, acpPCI-10

Chain A:  93%



- Molecule 7: Photosystem I PsuC

Chain c:  99%



- Molecule 8: Photosystem I PsuD

Chain d:  99%



- Molecule 9: Photosystem I PsuE

Chain e:  100%

There are no outlier residues recorded for this chain.

- Molecule 10: Photosystem I PsuF

Chain f:  97%



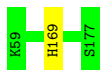
- Molecule 11: Photosystem I PsuR

Chain h:  99%



- Molecule 12: Photosystem I PsuI

Chain i:  99%



- Molecule 13: Photosystem I PsuJ

Chain j:  96%



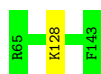
- Molecule 14: Photosystem I PsuL

Chain l:  97%



- Molecule 15: Photosystem I PsaM

Chain m:  99%



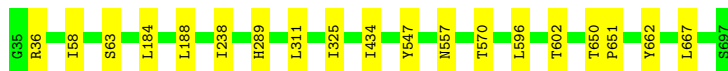
- Molecule 16: Photosystem I PsaA

Chain a:  97%



- Molecule 17: Photosystem I PsaB

Chain b:  97%




- Molecule 18: Chlorophyll a-chlorophyll c-peridinin-protein-complex I-11, acpPCI-11

Chain B:  91% 9%




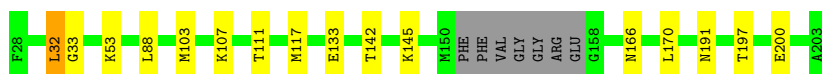
- Molecule 19: Chlorophyll a-chlorophyll c-peridinin-protein-complex I-9, acpPCI-9

Chain D:  82% 15%



- Molecule 20: Chlorophyll a-chlorophyll c-peridinin-protein-complex I-2, acpPCI-2

Chain F:  87% 9%




- Molecule 21: Chlorophyll a-chlorophyll c-peridinin-protein-complex I-12, acpPCI-12

Chain H:  92% 8%




- Molecule 22: Chlorophyll a-chlorophyll c-peridinin-protein-complex I-3, acpPCI-3

Chain J:  92% 8%




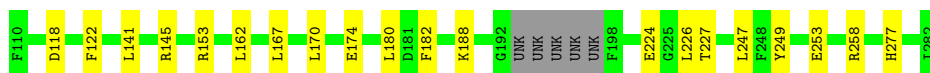
- Molecule 23: Chlorophyll a-chlorophyll c-peridinin-protein-complex I-5, acpPCI-5

Chain L:  86% 14%



- Molecule 24: Chlorophyll a-chlorophyll c-peridinin-protein-complex I-4, acpPCI-4

Chain M:  86% 12%



- Molecule 25: Chlorophyll a-chlorophyll c-peridinin-protein-complex I-13, acpPCI-13

Chain N:  74% 21%



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	216895	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 ( $e^-/\text{\AA}^2$ )	60	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor

## 5 Model quality

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: DD6, SF4, PID, UIX, DGD, PQN, LMG, LHG, CLA, BCR, SQD, KC1

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	I	0.27	0/1484	0.46	0/2019
2	K	0.27	0/1357	0.48	0/1838
5	G	0.32	0/1562	0.48	0/2122
6	A	0.33	0/1276	0.48	0/1725
7	c	0.26	0/663	0.51	0/902
8	d	0.26	0/1767	0.50	0/2375
9	e	0.33	0/608	0.42	0/833
10	f	0.26	0/1489	0.47	0/2016
11	h	0.27	0/1101	0.40	0/1493
12	i	0.26	0/992	0.48	0/1346
13	j	0.26	0/801	0.45	0/1092
14	l	0.28	0/1998	0.45	0/2706
15	m	0.27	0/590	0.48	0/793
16	a	0.31	0/5344	0.47	0/7280
17	b	0.28	0/5362	0.44	0/7335
18	B	0.27	0/1382	0.46	0/1862
19	D	0.30	0/1178	0.50	0/1592
20	F	0.28	0/1263	0.51	0/1708
21	H	0.27	0/1232	0.49	0/1665
22	J	0.27	0/1246	0.44	0/1699
23	L	0.29	0/1462	0.47	0/1985
24	M	0.27	0/1241	0.46	0/1681
25	N	0.27	0/1005	0.53	0/1370
All	All	0.28	0/36403	0.47	0/49437

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts [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	I	191/200 (96%)	164 (86%)	27 (14%)	0	100	100
2	K	171/177 (97%)	160 (94%)	11 (6%)	0	100	100
5	G	204/224 (91%)	176 (86%)	26 (13%)	2 (1%)	13	33
6	A	162/189 (86%)	144 (89%)	14 (9%)	4 (2%)	4	12
7	c	84/86 (98%)	83 (99%)	1 (1%)	0	100	100
8	d	216/218 (99%)	197 (91%)	19 (9%)	0	100	100
9	e	71/73 (97%)	68 (96%)	3 (4%)	0	100	100
10	f	182/184 (99%)	177 (97%)	4 (2%)	1 (0%)	25	49
11	h	129/131 (98%)	120 (93%)	9 (7%)	0	100	100
12	i	117/119 (98%)	105 (90%)	12 (10%)	0	100	100
13	j	96/98 (98%)	89 (93%)	7 (7%)	0	100	100
14	l	248/250 (99%)	235 (95%)	12 (5%)	1 (0%)	30	55
15	m	77/79 (98%)	76 (99%)	1 (1%)	0	100	100
16	a	668/670 (100%)	622 (93%)	43 (6%)	3 (0%)	30	55
17	b	661/663 (100%)	613 (93%)	47 (7%)	1 (0%)	44	68
18	B	171/192 (89%)	153 (90%)	15 (9%)	3 (2%)	7	18
19	D	156/165 (94%)	130 (83%)	23 (15%)	3 (2%)	6	17
20	F	165/176 (94%)	153 (93%)	10 (6%)	2 (1%)	11	28
21	H	158/160 (99%)	140 (89%)	16 (10%)	2 (1%)	10	26
22	J	164/220 (74%)	146 (89%)	17 (10%)	1 (1%)	22	45
23	L	183/185 (99%)	161 (88%)	22 (12%)	0	100	100

*Continued on next page...*



Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
24	M	164/173 (95%)	151 (92%)	13 (8%)	0	100	100
25	N	149/160 (93%)	119 (80%)	24 (16%)	6 (4%)	2	5
All	All	4587/4792 (96%)	4182 (91%)	376 (8%)	29 (1%)	24	45

5 of 29 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
5	G	121	PRO
6	A	85	ALA
14	l	70	PRO
16	a	47	ARG
16	a	218	PRO

### 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	I	139/155 (90%)	132 (95%)	7 (5%)	20	46
2	K	133/138 (96%)	126 (95%)	7 (5%)	19	43
5	G	147/171 (86%)	140 (95%)	7 (5%)	21	48
6	A	122/129 (95%)	116 (95%)	6 (5%)	21	47
7	c	76/76 (100%)	75 (99%)	1 (1%)	65	85
8	d	182/184 (99%)	179 (98%)	3 (2%)	58	82
9	e	63/63 (100%)	63 (100%)	0	100	100
10	f	148/148 (100%)	144 (97%)	4 (3%)	40	69
11	h	112/114 (98%)	111 (99%)	1 (1%)	75	90
12	i	100/101 (99%)	99 (99%)	1 (1%)	73	89
13	j	88/89 (99%)	84 (96%)	4 (4%)	23	50
14	l	199/201 (99%)	192 (96%)	7 (4%)	31	60
15	m	60/63 (95%)	59 (98%)	1 (2%)	56	81
16	a	540/592 (91%)	520 (96%)	20 (4%)	29	58

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
17	b	557/581 (96%)	539 (97%)	18 (3%)	34	63
18	B	142/146 (97%)	128 (90%)	14 (10%)	6	16
19	D	116/123 (94%)	94 (81%)	22 (19%)	1	3
20	F	126/140 (90%)	111 (88%)	15 (12%)	4	10
21	H	123/123 (100%)	113 (92%)	10 (8%)	9	23
22	J	124/136 (91%)	108 (87%)	16 (13%)	3	8
23	L	140/145 (97%)	115 (82%)	25 (18%)	1	4
24	M	106/128 (83%)	86 (81%)	20 (19%)	1	3
25	N	80/124 (64%)	51 (64%)	29 (36%)	0	0
All	All	3623/3870 (94%)	3385 (93%)	238 (7%)	16	33

5 of 238 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
19	D	153	ILE
25	N	73	LEU
21	H	107	LEU
25	N	61	ARG
25	N	184	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 7 such sidechains are listed below:

Mol	Chain	Res	Type
16	a	284	GLN
19	D	55	ASN
23	L	268	GLN
20	F	166	ASN
13	j	72	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 oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

310 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
35	BCR	I	302	-	41,41,41	0.72	0	56,56,56	2.19	21 (37%)
26	DD6	L	305	-	39,45,45	2.00	3 (7%)	52,67,67	1.95	12 (23%)
28	CLA	I	321	28	52,60,73	1.67	5 (9%)	60,97,113	1.60	9 (15%)
28	CLA	J	307	-	65,73,73	1.48	5 (7%)	76,113,113	1.43	6 (7%)
33	SQD	A	318	-	49,50,54	0.40	1 (2%)	58,61,65	0.58	0
26	DD6	J	304	-	39,45,45	2.20	5 (12%)	52,67,67	2.12	18 (34%)
30	DGD	j	103	-	42,42,67	1.05	2 (4%)	56,56,81	1.00	3 (5%)
28	CLA	I	312	-	65,73,73	1.49	6 (9%)	76,113,113	1.34	8 (10%)
28	CLA	A	307	29	45,53,73	1.81	5 (11%)	52,89,113	1.59	6 (11%)
28	CLA	b	710	-	52,60,73	1.69	6 (11%)	60,97,113	1.50	8 (13%)
26	DD6	I	301	-	39,45,45	2.05	2 (5%)	52,67,67	2.20	20 (38%)
28	CLA	F	307	-	46,54,73	1.77	6 (13%)	53,90,113	1.60	7 (13%)
28	CLA	b	722	-	65,73,73	1.51	6 (9%)	76,113,113	1.45	9 (11%)
28	CLA	L	316	-	41,49,73	1.85	5 (12%)	47,84,113	1.64	7 (14%)
26	DD6	M	303	-	39,45,45	2.20	5 (12%)	52,67,67	2.19	19 (36%)
28	CLA	G	511	-	55,63,73	1.63	6 (10%)	64,101,113	1.47	7 (10%)
28	CLA	A	309	-	55,63,73	1.61	5 (9%)	64,101,113	1.48	8 (12%)
28	CLA	a	725	-	61,69,73	1.55	5 (8%)	71,108,113	1.40	9 (12%)
28	CLA	J	312	-	53,61,73	1.64	5 (9%)	61,98,113	1.56	9 (14%)
26	DD6	G	505	-	39,45,45	2.26	4 (10%)	52,67,67	2.31	21 (40%)
26	DD6	I	305	-	39,45,45	2.28	6 (15%)	52,67,67	2.28	17 (32%)
29	KC1	G	515	5	48,53,53	1.49	7 (14%)	55,89,89	1.81	12 (21%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
28	CLA	m	202	-	60,68,73	1.55	5 (8%)	70,107,113	1.49	7 (10%)
29	KC1	K	314	2	48,53,53	1.51	7 (14%)	55,89,89	1.84	10 (18%)
32	PID	F	305	-	41,49,49	1.39	5 (12%)	49,76,76	1.87	9 (18%)
32	PID	N	302	-	41,49,49	1.36	4 (9%)	49,76,76	1.68	9 (18%)
26	DD6	H	303	-	39,45,45	1.97	3 (7%)	52,67,67	1.90	11 (21%)
32	PID	D	306	-	41,49,49	1.34	4 (9%)	49,76,76	1.43	5 (10%)
26	DD6	L	306	-	39,45,45	2.01	3 (7%)	52,67,67	2.03	15 (28%)
31	LMG	K	318	-	43,43,55	0.81	1 (2%)	51,51,63	1.31	6 (11%)
28	CLA	J	314	-	41,49,73	1.85	5 (12%)	47,84,113	1.68	8 (17%)
30	DGD	I	317	-	40,40,67	1.09	2 (5%)	54,54,81	1.02	4 (7%)
28	CLA	L	314	-	53,61,73	1.63	5 (9%)	61,98,113	1.52	9 (14%)
28	CLA	B	312	-	51,59,73	1.68	5 (9%)	59,96,113	1.50	8 (13%)
35	BCR	j	102	-	41,41,41	0.70	0	56,56,56	2.01	16 (28%)
26	DD6	K	319	-	39,45,45	2.02	3 (7%)	52,67,67	2.07	12 (23%)
28	CLA	b	727	-	65,73,73	1.50	6 (9%)	76,113,113	1.37	8 (10%)
32	PID	j	105	-	41,49,49	1.41	4 (9%)	49,76,76	1.49	10 (20%)
28	CLA	N	305	-	65,73,73	1.48	5 (7%)	76,113,113	1.40	8 (10%)
28	CLA	N	304	-	47,55,73	1.76	5 (10%)	54,91,113	1.54	8 (14%)
28	CLA	G	513	5	65,73,73	1.47	6 (9%)	76,113,113	1.42	8 (10%)
28	CLA	I	311	1	55,63,73	1.65	5 (9%)	64,101,113	1.46	9 (14%)
31	LMG	K	317	-	27,27,55	1.00	0	35,35,63	1.19	4 (11%)
32	PID	F	306	-	41,49,49	1.33	4 (9%)	49,76,76	1.49	5 (10%)
28	CLA	h	202	-	55,63,73	1.62	5 (9%)	64,101,113	1.45	8 (12%)
29	KC1	H	310	-	48,53,53	1.49	7 (14%)	55,89,89	1.86	9 (16%)
29	KC1	A	314	6	48,53,53	1.52	7 (14%)	55,89,89	1.87	12 (21%)
28	CLA	a	720	-	62,70,73	1.52	5 (8%)	72,109,113	1.42	8 (11%)
28	CLA	l	311	-	65,73,73	1.50	6 (9%)	76,113,113	1.36	8 (10%)
28	CLA	j	104	-	55,63,73	1.65	5 (9%)	64,101,113	1.42	9 (14%)
28	CLA	H	308	-	46,54,73	1.78	6 (13%)	53,90,113	1.56	6 (11%)
26	DD6	J	302	-	39,45,45	2.02	2 (5%)	52,67,67	2.11	15 (28%)
28	CLA	I	315	-	52,60,73	1.68	5 (9%)	60,97,113	1.50	8 (13%)
28	CLA	A	313	-	55,63,73	1.60	5 (9%)	64,101,113	1.45	9 (14%)
28	CLA	b	718	-	51,59,73	1.72	5 (9%)	59,96,113	1.53	7 (11%)
28	CLA	B	310	-	55,63,73	1.63	5 (9%)	64,101,113	1.45	10 (15%)
28	CLA	b	708	-	65,73,73	1.48	5 (7%)	76,113,113	1.37	8 (10%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
28	CLA	G	516	5	41,49,73	1.87	5 (12%)	47,84,113	1.65	7 (14%)
28	CLA	A	310	-	65,73,73	1.47	6 (9%)	76,113,113	1.43	8 (10%)
26	DD6	M	302	-	39,45,45	2.17	4 (10%)	52,67,67	2.24	16 (30%)
35	BCR	i	201	-	41,41,41	0.83	2 (4%)	56,56,56	2.12	20 (35%)
28	CLA	A	317	-	41,49,73	1.86	5 (12%)	47,84,113	1.65	9 (19%)
28	CLA	b	716	-	50,58,73	1.69	5 (10%)	58,95,113	1.56	8 (13%)
28	CLA	A	320	-	46,54,73	1.79	6 (13%)	53,90,113	1.54	6 (11%)
29	KC1	D	310	-	48,53,53	1.50	7 (14%)	55,89,89	1.88	11 (20%)
28	CLA	a	713	-	60,68,73	1.55	5 (8%)	70,107,113	1.40	9 (12%)
26	DD6	A	301	-	39,45,45	2.00	3 (7%)	52,67,67	2.12	14 (26%)
28	CLA	a	719	-	47,55,73	1.76	7 (14%)	54,91,113	1.51	8 (14%)
26	DD6	F	303	-	39,45,45	2.03	3 (7%)	52,67,67	2.01	14 (26%)
31	LMG	B	318	-	37,37,55	0.85	0	45,45,63	1.33	6 (13%)
31	LMG	j	101	-	35,35,55	0.88	0	43,43,63	1.22	4 (9%)
28	CLA	a	710	16	55,63,73	1.64	6 (10%)	64,101,113	1.46	9 (14%)
28	CLA	f	302	-	46,54,73	1.76	5 (10%)	53,90,113	1.58	7 (13%)
28	CLA	a	724	-	65,73,73	1.50	6 (9%)	76,113,113	1.43	9 (11%)
28	CLA	a	707	-	65,73,73	1.52	6 (9%)	76,113,113	1.33	8 (10%)
28	CLA	a	726	-	65,73,73	1.51	7 (10%)	76,113,113	1.36	9 (11%)
28	CLA	M	315	-	41,49,73	1.83	5 (12%)	47,84,113	1.77	9 (19%)
26	DD6	L	304	-	39,45,45	2.01	3 (7%)	52,67,67	1.82	11 (21%)
28	CLA	a	723	-	65,73,73	1.48	6 (9%)	76,113,113	1.35	8 (10%)
28	CLA	a	702	-	65,73,73	1.47	10 (15%)	76,113,113	1.42	7 (9%)
27	UIX	h	201	-	41,49,49	1.28	3 (7%)	52,74,74	2.48	19 (36%)
28	CLA	j	106	-	58,66,73	1.58	6 (10%)	67,104,113	1.46	8 (11%)
26	DD6	A	302	-	39,45,45	2.02	3 (7%)	52,67,67	2.13	16 (30%)
28	CLA	b	714	-	46,54,73	1.75	5 (10%)	53,90,113	1.60	7 (13%)
28	CLA	b	728	-	65,73,73	1.50	5 (7%)	76,113,113	1.39	8 (10%)
28	CLA	I	308	-	60,68,73	1.57	5 (8%)	70,107,113	1.42	10 (14%)
28	CLA	D	308	-	47,55,73	1.76	5 (10%)	54,91,113	1.51	7 (12%)
28	CLA	L	312	-	46,54,73	1.77	5 (10%)	53,90,113	1.55	7 (13%)
32	PID	F	302	-	41,49,49	1.34	4 (9%)	49,76,76	1.66	6 (12%)
28	CLA	D	313	19	45,53,73	1.77	6 (13%)	52,89,113	1.60	7 (13%)
28	CLA	J	301	-	60,68,73	1.55	5 (8%)	70,107,113	1.40	8 (11%)
35	BCR	b	730	-	41,41,41	0.75	0	56,56,56	2.25	20 (35%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
32	PID	H	301	-	41,49,49	1.33	4 (9%)	49,76,76	1.65	6 (12%)
28	CLA	D	312	19	46,54,73	1.77	5 (10%)	53,90,113	1.51	6 (11%)
28	CLA	l	309	-	41,49,73	1.86	5 (12%)	47,84,113	1.65	8 (17%)
28	CLA	B	315	-	41,49,73	1.84	5 (12%)	47,84,113	1.70	7 (14%)
34	SF4	c	201	7	0,12,12	-	-	-	-	-
28	CLA	b	701	-	65,73,73	1.50	6 (9%)	76,113,113	1.40	8 (10%)
28	CLA	a	712	28	60,68,73	1.55	5 (8%)	70,107,113	1.41	8 (11%)
28	CLA	K	310	-	55,63,73	1.62	5 (9%)	64,101,113	1.46	8 (12%)
35	BCR	m	201	-	41,41,41	0.70	0	56,56,56	2.33	17 (30%)
29	KC1	H	306	-	48,53,53	1.53	7 (14%)	55,89,89	1.87	11 (20%)
28	CLA	l	303	14	65,73,73	1.52	5 (7%)	76,113,113	1.38	9 (11%)
30	DGD	y	201	-	55,55,67	0.92	2 (3%)	69,69,81	0.97	3 (4%)
28	CLA	M	316	-	52,60,73	1.68	6 (11%)	60,97,113	1.48	6 (10%)
26	DD6	I	303	-	39,45,45	2.23	5 (12%)	52,67,67	2.03	16 (30%)
28	CLA	G	514	-	53,61,73	1.64	6 (11%)	61,98,113	1.51	9 (14%)
28	CLA	N	309	25	46,54,73	1.74	7 (15%)	53,90,113	1.58	6 (11%)
28	CLA	G	517	-	46,54,73	1.76	5 (10%)	53,90,113	1.57	7 (13%)
28	CLA	B	307	18	49,57,73	1.74	5 (10%)	55,93,113	1.52	8 (14%)
28	CLA	b	725	-	65,73,73	1.47	6 (9%)	76,113,113	1.37	8 (10%)
28	CLA	a	721	-	65,73,73	1.49	5 (7%)	76,113,113	1.34	9 (11%)
26	DD6	B	306	-	39,45,45	2.03	3 (7%)	52,67,67	1.95	19 (36%)
28	CLA	B	308	-	45,53,73	1.79	5 (11%)	52,89,113	1.61	8 (15%)
28	CLA	b	726	-	47,55,73	1.76	5 (10%)	54,91,113	1.51	8 (14%)
28	CLA	M	309	24	55,63,73	1.62	5 (9%)	64,101,113	1.44	8 (12%)
26	DD6	A	305	29	39,45,45	1.99	2 (5%)	52,67,67	1.96	14 (26%)
28	CLA	I	319	28	45,53,73	1.76	6 (13%)	52,89,113	1.64	7 (13%)
29	KC1	B	314	18	48,53,53	1.51	7 (14%)	55,89,89	1.84	11 (20%)
28	CLA	a	730	-	65,73,73	1.47	6 (9%)	76,113,113	1.40	9 (11%)
28	CLA	D	309	-	46,54,73	1.74	5 (10%)	53,90,113	1.59	7 (13%)
32	PID	M	301	-	41,49,49	1.33	4 (9%)	49,76,76	1.74	8 (16%)
26	DD6	B	304	-	39,45,45	2.00	3 (7%)	52,67,67	1.90	11 (21%)
26	DD6	D	303	-	39,45,45	1.96	2 (5%)	52,67,67	1.88	13 (25%)
28	CLA	B	313	18	65,73,73	1.47	5 (7%)	76,113,113	1.39	7 (9%)
28	CLA	L	308	29	46,55,73	1.76	5 (10%)	55,91,113	1.53	10 (18%)
28	CLA	H	312	-	46,54,73	1.78	6 (13%)	53,90,113	1.56	7 (13%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
28	CLA	I	316	-	55,63,73	1.60	5 (9%)	64,101,113	1.52	9 (14%)
28	CLA	a	738	22	46,54,73	1.77	5 (10%)	53,90,113	1.58	7 (13%)
28	CLA	b	724	-	65,73,73	1.49	6 (9%)	76,113,113	1.32	7 (9%)
32	PID	N	301	-	41,49,49	1.35	4 (9%)	49,76,76	1.51	6 (12%)
30	DGD	G	521	-	45,45,67	1.02	2 (4%)	59,59,81	1.46	8 (13%)
28	CLA	B	311	-	65,73,73	1.49	6 (9%)	76,113,113	1.30	7 (9%)
28	CLA	b	706	-	48,56,73	1.74	5 (10%)	55,92,113	1.58	8 (14%)
26	DD6	F	301	-	39,45,45	1.99	2 (5%)	52,67,67	2.34	17 (32%)
28	CLA	F	315	-	41,49,73	1.84	5 (12%)	47,84,113	1.71	8 (17%)
26	DD6	K	301	-	39,45,45	2.01	3 (7%)	52,67,67	1.90	13 (25%)
28	CLA	l	304	-	60,68,73	1.54	5 (8%)	70,107,113	1.49	6 (8%)
28	CLA	J	311	22	47,55,73	1.73	5 (10%)	54,91,113	1.60	8 (14%)
28	CLA	I	313	-	55,63,73	1.61	6 (10%)	64,101,113	1.49	8 (12%)
29	KC1	N	306	-	48,53,53	1.49	7 (14%)	55,89,89	1.84	11 (20%)
30	DGD	L	301	-	39,39,67	0.95	2 (5%)	53,53,81	0.98	2 (3%)
28	CLA	I	309	-	55,63,73	1.64	5 (9%)	64,101,113	1.45	8 (12%)
28	CLA	K	307	-	46,54,73	1.71	5 (10%)	53,90,113	1.60	6 (11%)
28	CLA	G	520	-	49,57,73	1.69	5 (10%)	55,93,113	1.54	8 (14%)
31	LMG	b	733	-	44,44,55	0.82	1 (2%)	52,52,63	1.30	6 (11%)
29	KC1	L	307	28	48,53,53	1.52	7 (14%)	55,89,89	1.89	14 (25%)
28	CLA	a	728	-	55,63,73	1.60	5 (9%)	64,101,113	1.48	9 (14%)
26	DD6	J	303	-	39,45,45	2.31	4 (10%)	52,67,67	2.44	18 (34%)
28	CLA	b	711	-	55,63,73	1.63	5 (9%)	64,101,113	1.43	8 (12%)
26	DD6	h	203	-	39,45,45	2.03	3 (7%)	52,67,67	1.87	13 (25%)
28	CLA	K	306	2	49,57,73	1.73	5 (10%)	55,93,113	1.55	9 (16%)
28	CLA	G	512	-	60,68,73	1.55	6 (10%)	70,107,113	1.44	8 (11%)
28	CLA	a	717	-	57,65,73	1.60	6 (10%)	66,103,113	1.45	9 (13%)
29	KC1	M	314	24	48,53,53	1.51	7 (14%)	55,89,89	1.87	11 (20%)
28	CLA	F	308	-	46,54,73	1.75	6 (13%)	53,90,113	1.56	7 (13%)
29	KC1	N	308	-	48,53,53	1.52	7 (14%)	55,89,89	2.12	13 (23%)
28	CLA	L	311	-	55,63,73	1.62	5 (9%)	64,101,113	1.48	8 (12%)
27	UIX	I	304	-	41,49,49	1.32	4 (9%)	52,74,74	2.59	14 (26%)
35	BCR	b	732	-	41,41,41	0.80	0	56,56,56	1.88	20 (35%)
28	CLA	K	313	-	55,63,73	1.61	6 (10%)	64,101,113	1.50	8 (12%)
28	CLA	I	307	-	46,54,73	1.76	5 (10%)	53,90,113	1.53	6 (11%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
29	KC1	F	314	20	48,53,53	1.49	7 (14%)	55,89,89	1.88	10 (18%)
26	DD6	A	303	-	39,45,45	1.94	2 (5%)	52,67,67	1.88	13 (25%)
32	PID	F	304	-	41,49,49	1.34	4 (9%)	49,76,76	1.76	7 (14%)
28	CLA	a	709	-	65,73,73	1.50	5 (7%)	76,113,113	1.37	7 (9%)
26	DD6	b	731	28	39,45,45	2.11	3 (7%)	52,67,67	1.96	16 (30%)
35	BCR	f	304	-	41,41,41	0.72	0	56,56,56	2.07	17 (30%)
28	CLA	A	311	6	46,54,73	1.77	5 (10%)	53,90,113	1.56	7 (13%)
28	CLA	b	719	-	46,54,73	1.79	6 (13%)	53,90,113	1.61	7 (13%)
28	CLA	a	703	-	55,63,73	1.56	10 (18%)	64,101,113	1.60	9 (14%)
28	CLA	H	305	-	65,73,73	1.49	5 (7%)	76,113,113	1.42	9 (11%)
28	CLA	F	313	-	46,54,73	1.76	6 (13%)	53,90,113	1.65	7 (13%)
28	CLA	A	312	-	55,63,73	1.62	6 (10%)	64,101,113	1.48	7 (10%)
29	KC1	I	314	1	48,53,53	1.50	7 (14%)	55,89,89	1.87	13 (23%)
29	KC1	M	307	28	48,53,53	1.51	7 (14%)	55,89,89	1.88	12 (21%)
28	CLA	D	316	-	41,49,73	1.86	6 (14%)	47,84,113	1.65	8 (17%)
28	CLA	F	312	-	46,54,73	1.70	10 (21%)	53,90,113	1.51	6 (11%)
31	LMG	I	320	-	38,38,55	0.81	0	46,46,63	1.29	6 (13%)
28	CLA	K	312	-	48,56,73	1.72	7 (14%)	55,92,113	1.53	7 (12%)
28	CLA	J	306	-	46,54,73	1.77	6 (13%)	53,90,113	1.58	6 (11%)
28	CLA	H	304	-	47,55,73	1.76	5 (10%)	54,91,113	1.52	8 (14%)
28	CLA	a	731	-	65,73,73	1.51	6 (9%)	76,113,113	1.36	9 (11%)
28	CLA	J	309	-	56,64,73	1.59	5 (8%)	65,102,113	1.51	9 (13%)
35	BCR	b	702	-	41,41,41	0.73	0	56,56,56	2.17	17 (30%)
28	CLA	b	713	-	65,73,73	1.49	6 (9%)	76,113,113	1.34	8 (10%)
35	BCR	a	736	-	41,41,41	0.74	0	56,56,56	2.03	18 (32%)
28	CLA	B	316	-	46,54,73	1.76	5 (10%)	53,90,113	1.50	7 (13%)
32	PID	D	307	-	41,49,49	1.34	4 (9%)	49,76,76	1.41	5 (10%)
28	CLA	b	707	-	65,73,73	1.50	5 (7%)	76,113,113	1.42	9 (11%)
28	CLA	L	318	-	46,54,73	1.75	7 (15%)	53,90,113	1.57	7 (13%)
31	LMG	D	317	-	48,48,55	0.76	1 (2%)	55,55,63	1.28	5 (9%)
28	CLA	K	316	-	46,54,73	1.78	6 (13%)	53,90,113	1.57	8 (15%)
26	DD6	G	504	-	39,45,45	2.24	5 (12%)	52,67,67	2.19	19 (36%)
28	CLA	M	310	-	48,56,73	1.73	6 (12%)	55,92,113	1.56	8 (14%)
28	CLA	b	712	-	54,62,73	1.69	7 (12%)	67,100,113	1.54	11 (16%)
29	KC1	F	309	20	48,53,53	1.50	7 (14%)	55,89,89	1.92	12 (21%)



Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
28	CLA	H	311	-	41,49,73	1.88	6 (14%)	47,84,113	1.63	8 (17%)
28	CLA	b	717	-	65,73,73	1.50	6 (9%)	76,113,113	1.37	8 (10%)
28	CLA	F	310	-	46,54,73	1.76	5 (10%)	53,90,113	1.63	8 (15%)
28	CLA	N	310	-	47,55,73	1.76	5 (10%)	54,91,113	1.66	8 (14%)
35	BCR	a	734	-	41,41,41	0.71	0	56,56,56	2.07	19 (33%)
26	DD6	K	304	-	39,45,45	2.02	3 (7%)	52,67,67	1.98	15 (28%)
26	DD6	G	502	-	39,45,45	1.99	2 (5%)	52,67,67	1.94	15 (28%)
28	CLA	B	301	-	60,68,73	1.56	5 (8%)	70,107,113	1.38	8 (11%)
32	PID	G	506	-	41,49,49	1.34	4 (9%)	49,76,76	1.39	6 (12%)
28	CLA	a	714	-	45,53,73	1.80	6 (13%)	52,89,113	1.62	7 (13%)
28	CLA	b	704	-	65,73,73	1.44	10 (15%)	76,113,113	1.43	9 (11%)
28	CLA	l	308	-	41,49,73	1.86	5 (12%)	47,84,113	1.63	8 (17%)
27	UIX	B	305	-	41,49,49	1.24	3 (7%)	52,74,74	2.45	16 (30%)
28	CLA	l	305	-	65,73,73	1.50	6 (9%)	76,113,113	1.38	7 (9%)
28	CLA	G	519	-	59,67,73	1.57	5 (8%)	68,105,113	1.45	7 (10%)
28	CLA	G	510	-	65,73,73	1.48	5 (7%)	76,113,113	1.42	8 (10%)
28	CLA	a	735	-	65,73,73	1.51	5 (7%)	76,113,113	1.37	7 (9%)
28	CLA	A	315	-	41,49,73	1.85	6 (14%)	47,84,113	1.65	8 (17%)
28	CLA	I	310	-	48,56,73	1.71	5 (10%)	55,92,113	1.60	7 (12%)
28	CLA	A	319	-	46,54,73	1.77	6 (13%)	53,90,113	1.50	7 (13%)
28	CLA	N	307	-	51,59,73	1.73	6 (11%)	59,96,113	1.52	7 (11%)
27	UIX	A	304	-	41,49,49	1.23	3 (7%)	52,74,74	2.44	20 (38%)
28	CLA	a	727	-	46,54,73	1.78	6 (13%)	53,90,113	1.50	7 (13%)
28	CLA	M	317	-	46,54,73	1.75	6 (13%)	53,90,113	1.58	7 (13%)
28	CLA	H	309	-	47,55,73	1.73	5 (10%)	54,91,113	1.55	8 (14%)
32	PID	D	302	-	41,49,49	1.35	4 (9%)	49,76,76	1.44	7 (14%)
28	CLA	a	711	-	45,53,73	1.77	6 (13%)	52,89,113	1.66	8 (15%)
28	CLA	G	509	5	51,59,73	1.68	5 (9%)	59,96,113	1.51	8 (13%)
26	DD6	B	303	-	39,45,45	2.00	2 (5%)	52,67,67	2.00	17 (32%)
36	PQN	b	729	-	34,34,34	1.55	2 (5%)	42,45,45	1.23	4 (9%)
26	DD6	G	508	-	39,45,45	2.04	3 (7%)	52,67,67	2.02	13 (25%)
29	KC1	J	313	-	48,53,53	1.51	7 (14%)	55,89,89	1.84	9 (16%)
26	DD6	M	305	-	39,45,45	2.01	3 (7%)	52,67,67	1.89	14 (26%)
28	CLA	a	706	16	58,66,73	1.57	6 (10%)	67,104,113	1.47	7 (10%)
30	DGD	l	301	-	51,51,67	0.96	2 (3%)	65,65,81	0.89	2 (3%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
28	CLA	b	705	-	65,73,73	1.48	6 (9%)	76,113,113	1.36	8 (10%)
28	CLA	L	313	-	55,63,73	1.62	5 (9%)	64,101,113	1.45	8 (12%)
30	DGD	G	501	-	46,46,67	1.02	2 (4%)	60,60,81	1.01	3 (5%)
28	CLA	a	722	-	58,66,73	1.58	5 (8%)	67,104,113	1.48	8 (11%)
28	CLA	B	317	-	45,53,73	1.80	6 (13%)	52,89,113	1.59	7 (13%)
31	LMG	b	734	-	31,31,55	0.99	0	39,39,63	1.18	3 (7%)
28	CLA	M	318	-	46,54,73	1.78	5 (10%)	53,90,113	1.51	7 (13%)
28	CLA	a	718	-	46,54,73	1.77	5 (10%)	53,90,113	1.56	7 (13%)
28	CLA	K	311	-	52,60,73	1.68	6 (11%)	60,97,113	1.49	7 (11%)
28	CLA	A	308	-	55,63,73	1.61	5 (9%)	64,101,113	1.48	8 (12%)
28	CLA	a	729	-	56,64,73	1.59	6 (10%)	65,102,113	1.42	8 (12%)
32	PID	H	302	-	41,49,49	1.38	4 (9%)	49,76,76	1.37	6 (12%)
36	PQN	a	732	-	34,34,34	1.57	2 (5%)	42,45,45	1.10	4 (9%)
28	CLA	l	313	14	65,73,73	1.51	5 (7%)	76,113,113	1.40	8 (10%)
29	KC1	A	306	28,26	48,53,53	1.49	7 (14%)	55,89,89	1.81	10 (18%)
26	DD6	B	302	-	38,44,45	2.18	3 (7%)	50,65,67	2.12	20 (40%)
26	DD6	M	304	-	39,45,45	2.05	3 (7%)	52,67,67	1.90	14 (26%)
29	KC1	L	315	-	48,53,53	1.51	7 (14%)	55,89,89	1.90	11 (20%)
28	CLA	K	315	-	41,49,73	1.85	6 (14%)	47,84,113	1.70	9 (19%)
32	PID	D	301	-	41,49,49	1.34	4 (9%)	49,76,76	1.51	6 (12%)
28	CLA	l	312	-	46,54,73	1.76	5 (10%)	53,90,113	1.53	7 (13%)
28	CLA	b	709	-	60,68,73	1.57	6 (10%)	70,107,113	1.43	9 (12%)
28	CLA	J	310	-	46,54,73	1.81	6 (13%)	53,90,113	1.56	6 (11%)
31	LMG	I	318	-	36,36,55	0.91	1 (2%)	44,44,63	1.24	3 (6%)
28	CLA	M	311	-	46,54,73	1.77	5 (10%)	53,90,113	1.54	6 (11%)
28	CLA	b	720	-	53,61,73	1.63	5 (9%)	61,98,113	1.49	8 (13%)
28	CLA	b	721	26	46,54,73	1.77	6 (13%)	53,90,113	1.50	6 (11%)
27	UIX	G	503	-	41,49,49	1.23	3 (7%)	52,74,74	2.34	17 (32%)
28	CLA	M	308	29	53,61,73	1.66	5 (9%)	61,98,113	1.52	8 (13%)
28	CLA	L	310	-	55,63,73	1.61	5 (9%)	64,101,113	1.48	7 (10%)
32	PID	D	305	-	41,49,49	1.35	4 (9%)	49,76,76	1.47	7 (14%)
26	DD6	L	303	-	39,45,45	1.98	2 (5%)	52,67,67	1.99	14 (26%)
28	CLA	J	316	-	46,54,73	1.78	6 (13%)	53,90,113	1.53	7 (13%)
26	DD6	L	302	-	39,45,45	1.94	3 (7%)	52,67,67	2.00	13 (25%)
26	DD6	N	303	-	39,45,45	2.02	3 (7%)	52,67,67	2.09	16 (30%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
26	DD6	I	302	-	39,45,45	2.04	3 (7%)	52,67,67	2.16	18 (34%)
32	PID	G	507	-	41,49,49	1.34	4 (9%)	49,76,76	1.40	7 (14%)
28	CLA	F	311	-	46,54,73	1.77	5 (10%)	53,90,113	1.58	8 (15%)
28	CLA	a	705	28	55,63,73	1.62	5 (9%)	64,101,113	1.53	9 (14%)
29	KC1	N	311	25	48,53,53	1.49	7 (14%)	55,89,89	1.85	11 (20%)
28	CLA	a	701	-	45,53,73	1.78	6 (13%)	52,89,113	1.60	7 (13%)
37	LHG	a	733	-	47,47,48	0.27	0	50,53,54	0.33	0
28	CLA	a	716	-	47,55,73	1.75	5 (10%)	54,91,113	1.53	8 (14%)
28	CLA	b	715	-	60,68,73	1.55	5 (8%)	70,107,113	1.43	8 (11%)
28	CLA	l	310	-	44,50,73	1.88	7 (15%)	48,76,113	1.38	8 (16%)
26	DD6	K	303	-	39,45,45	1.99	3 (7%)	52,67,67	1.69	11 (21%)
28	CLA	B	309	18	65,73,73	1.47	5 (7%)	76,113,113	1.40	8 (10%)
28	CLA	G	518	-	46,54,73	1.79	5 (10%)	53,90,113	1.60	8 (15%)
27	UIX	J	305	-	41,49,49	1.25	3 (7%)	52,74,74	2.47	17 (32%)
28	CLA	K	308	2	54,62,73	1.63	5 (9%)	62,99,113	1.48	8 (12%)
28	CLA	M	313	-	46,54,73	1.78	6 (13%)	53,90,113	1.55	7 (13%)
28	CLA	D	314	-	46,54,73	1.79	6 (13%)	53,90,113	1.59	9 (16%)
28	CLA	I	306	1	49,57,73	1.71	5 (10%)	55,93,113	1.58	8 (14%)
28	CLA	b	703	-	65,73,73	1.49	6 (9%)	76,113,113	1.32	8 (10%)
34	SF4	a	737	16,17	0,12,12	-	-	-	-	-
28	CLA	M	312	-	48,56,73	1.74	5 (10%)	55,92,113	1.56	8 (14%)
28	CLA	L	317	-	52,60,73	1.69	6 (11%)	60,97,113	1.51	9 (15%)
28	CLA	a	715	-	45,53,73	1.77	6 (13%)	52,89,113	1.60	7 (13%)
28	CLA	J	315	-	46,54,73	1.76	5 (10%)	53,90,113	1.56	7 (13%)
28	CLA	f	303	10	46,54,73	1.75	5 (10%)	53,90,113	1.56	7 (13%)
26	DD6	K	305	-	39,45,45	1.98	3 (7%)	52,67,67	1.86	13 (25%)
28	CLA	A	316	-	47,55,73	1.75	6 (12%)	54,91,113	1.53	7 (12%)
28	CLA	a	704	-	65,73,73	1.51	6 (9%)	76,113,113	1.35	6 (7%)
28	CLA	D	311	-	46,54,73	1.75	5 (10%)	53,90,113	1.57	7 (13%)
28	CLA	K	309	-	50,58,73	1.66	5 (10%)	58,95,113	1.57	8 (13%)
28	CLA	H	307	-	51,59,73	1.68	5 (9%)	59,96,113	1.52	8 (13%)
35	BCR	l	307	-	41,41,41	0.72	0	56,56,56	2.01	19 (33%)
28	CLA	J	308	-	46,54,73	1.76	6 (13%)	53,90,113	1.57	7 (13%)
26	DD6	M	306	-	39,45,45	2.17	3 (7%)	52,67,67	2.24	19 (36%)
28	CLA	b	723	-	50,58,73	1.70	5 (10%)	58,95,113	1.51	10 (17%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
34	SF4	c	202	7	0,12,12	-	-	-		
27	UIX	K	302	-	41,49,49	1.27	3 (7%)	52,74,74	2.71	23 (44%)
28	CLA	f	301	-	55,63,73	1.62	5 (9%)	64,101,113	1.44	8 (12%)
28	CLA	a	708	-	51,59,73	1.70	5 (9%)	59,96,113	1.50	8 (13%)
32	PID	D	304	-	41,49,49	1.34	4 (9%)	49,76,76	1.78	7 (14%)
35	BCR	l	306	-	41,41,41	0.72	0	56,56,56	1.92	13 (23%)
28	CLA	L	309	-	53,61,73	1.66	5 (9%)	61,98,113	1.52	9 (14%)
29	KC1	D	315	19	48,53,53	1.49	7 (14%)	55,89,89	1.85	13 (23%)

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. '2' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
35	BCR	l	302	-	-	4/29/63/63	0/2/2/2
28	CLA	I	321	28	1/1/12/20	9/22/100/115	-
28	CLA	J	307	-	1/1/15/20	21/37/115/115	-
26	DD6	L	305	-	-	3/26/80/80	0/3/3/3
33	SQD	A	318	-	-	6/45/65/69	0/1/1/1
26	DD6	J	304	-	-	2/26/80/80	0/3/3/3
30	DGD	j	103	-	-	7/30/70/95	0/2/2/2
28	CLA	I	312	-	1/1/15/20	14/37/115/115	-
28	CLA	A	307	29	1/1/11/20	2/13/91/115	-
28	CLA	b	710	-	1/1/12/20	6/22/100/115	-
26	DD6	I	301	-	-	3/26/80/80	0/3/3/3
28	CLA	F	307	-	1/1/11/20	5/15/93/115	-
28	CLA	b	722	-	1/1/15/20	8/37/115/115	-
28	CLA	L	316	-	1/1/10/20	4/8/86/115	-
26	DD6	M	303	-	-	2/26/80/80	0/3/3/3
28	CLA	G	511	-	1/1/13/20	4/25/103/115	-
28	CLA	A	309	-	1/1/13/20	7/25/103/115	-
28	CLA	a	725	-	1/1/14/20	11/33/111/115	-
28	CLA	J	312	-	1/1/12/20	8/23/101/115	-
26	DD6	G	505	-	-	4/26/80/80	0/3/3/3
26	DD6	I	305	-	-	5/26/80/80	0/3/3/3

Continued on next page...

*Continued from previous page...*

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
29	KC1	G	515	5	-	8/15/71/71	-
28	CLA	m	202	-	1/1/14/20	10/31/109/115	-
29	KC1	K	314	2	-	8/15/71/71	-
32	PID	F	305	-	-	8/24/93/93	0/4/4/4
32	PID	N	302	-	-	2/24/93/93	0/4/4/4
26	DD6	H	303	-	-	1/26/80/80	0/3/3/3
32	PID	D	306	-	-	8/24/93/93	0/4/4/4
26	DD6	L	306	-	-	3/26/80/80	0/3/3/3
31	LMG	K	318	-	-	18/38/58/70	0/1/1/1
28	CLA	J	314	-	1/1/10/20	4/8/86/115	-
30	DGD	I	317	-	-	3/28/68/95	0/2/2/2
28	CLA	L	314	-	1/1/12/20	6/23/101/115	-
28	CLA	B	312	-	1/1/12/20	2/21/99/115	-
35	BCR	j	102	-	-	6/29/63/63	0/2/2/2
26	DD6	K	319	-	-	4/26/80/80	0/3/3/3
28	CLA	b	727	-	1/1/15/20	10/37/115/115	-
32	PID	j	105	-	-	4/24/93/93	0/4/4/4
28	CLA	N	305	-	1/1/15/20	11/37/115/115	-
28	CLA	N	304	-	1/1/11/20	3/16/94/115	-
28	CLA	G	513	5	1/1/15/20	10/37/115/115	-
28	CLA	I	311	1	1/1/13/20	10/25/103/115	-
31	LMG	K	317	-	-	8/22/42/70	0/1/1/1
32	PID	F	306	-	-	0/24/93/93	0/4/4/4
28	CLA	h	202	-	1/1/13/20	7/25/103/115	-
29	KC1	H	310	-	-	6/15/71/71	-
29	KC1	A	314	6	-	7/15/71/71	-
28	CLA	a	720	-	1/1/14/20	6/34/112/115	-
28	CLA	l	311	-	1/1/15/20	17/37/115/115	-
28	CLA	j	104	-	1/1/13/20	6/25/103/115	-
28	CLA	H	308	-	1/1/11/20	4/15/93/115	-
26	DD6	J	302	-	-	3/26/80/80	0/3/3/3
28	CLA	I	315	-	1/1/12/20	7/22/100/115	-
28	CLA	A	313	-	1/1/13/20	10/25/103/115	-
28	CLA	b	718	-	1/1/12/20	1/21/99/115	-
28	CLA	B	310	-	1/1/13/20	8/25/103/115	-

*Continued on next page...*

*Continued from previous page...*

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
28	CLA	b	708	-	1/1/15/20	11/37/115/115	-
28	CLA	G	516	5	1/1/10/20	4/8/86/115	-
28	CLA	A	310	-	1/1/15/20	15/37/115/115	-
26	DD6	M	302	-	-	3/26/80/80	0/3/3/3
35	BCR	i	201	-	-	8/29/63/63	0/2/2/2
28	CLA	A	317	-	1/1/10/20	0/8/86/115	-
28	CLA	b	716	-	1/1/12/20	7/19/97/115	-
28	CLA	A	320	-	1/1/11/20	6/15/93/115	-
29	KC1	D	310	-	-	10/15/71/71	-
28	CLA	a	713	-	1/1/14/20	10/31/109/115	-
26	DD6	A	301	-	-	3/26/80/80	0/3/3/3
28	CLA	a	719	-	1/1/11/20	4/16/94/115	-
26	DD6	F	303	-	-	2/26/80/80	0/3/3/3
31	LMG	B	318	-	-	15/32/52/70	0/1/1/1
31	LMG	j	101	-	-	14/30/50/70	0/1/1/1
28	CLA	a	710	16	1/1/13/20	4/25/103/115	-
28	CLA	f	302	-	1/1/11/20	6/15/93/115	-
28	CLA	a	724	-	1/1/15/20	15/37/115/115	-
28	CLA	a	707	-	1/1/15/20	16/37/115/115	-
28	CLA	a	726	-	1/1/15/20	11/37/115/115	-
28	CLA	M	315	-	1/1/10/20	5/8/86/115	-
26	DD6	L	304	-	-	0/26/80/80	0/3/3/3
28	CLA	a	723	-	1/1/15/20	16/37/115/115	-
28	CLA	a	702	-	1/1/15/20	12/37/115/115	-
27	UIX	h	201	-	-	2/31/87/87	0/3/3/3
28	CLA	j	106	-	1/1/13/20	12/29/107/115	-
26	DD6	A	302	-	-	3/26/80/80	0/3/3/3
28	CLA	b	714	-	1/1/11/20	5/15/93/115	-
28	CLA	b	728	-	1/1/15/20	7/37/115/115	-
28	CLA	I	308	-	1/1/14/20	12/31/109/115	-
28	CLA	D	308	-	1/1/11/20	4/16/94/115	-
28	CLA	L	312	-	1/1/11/20	5/15/93/115	-
32	PID	F	302	-	-	2/24/93/93	0/4/4/4
28	CLA	D	313	19	1/1/11/20	3/13/91/115	-

*Continued on next page...*

*Continued from previous page...*

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
28	CLA	J	301	-	1/1/14/20	11/31/109/115	-
35	BCR	b	730	-	-	8/29/63/63	0/2/2/2
32	PID	H	301	-	-	4/24/93/93	0/4/4/4
28	CLA	D	312	19	1/1/11/20	6/15/93/115	-
28	CLA	l	309	-	1/1/10/20	4/8/86/115	-
28	CLA	B	315	-	1/1/10/20	6/8/86/115	-
34	SF4	c	201	7	-	-	0/6/5/5
28	CLA	b	701	-	1/1/15/20	15/37/115/115	-
28	CLA	a	712	28	1/1/14/20	8/31/109/115	-
28	CLA	K	310	-	1/1/13/20	6/25/103/115	-
35	BCR	m	201	-	-	5/29/63/63	0/2/2/2
29	KC1	H	306	-	-	4/15/71/71	-
28	CLA	l	303	14	1/1/15/20	14/37/115/115	-
30	DGD	y	201	-	-	7/43/83/95	0/2/2/2
28	CLA	M	316	-	1/1/12/20	11/22/100/115	-
26	DD6	I	303	-	-	2/26/80/80	0/3/3/3
28	CLA	G	514	-	1/1/12/20	11/23/101/115	-
28	CLA	N	309	25	1/1/11/20	3/15/93/115	-
28	CLA	G	517	-	1/1/11/20	4/15/93/115	-
28	CLA	B	307	18	1/1/11/20	3/18/96/115	-
28	CLA	b	725	-	1/1/15/20	13/37/115/115	-
28	CLA	a	721	-	1/1/15/20	18/37/115/115	-
26	DD6	B	306	-	-	2/26/80/80	0/3/3/3
28	CLA	B	308	-	1/1/11/20	5/13/91/115	-
28	CLA	b	726	-	1/1/11/20	1/16/94/115	-
28	CLA	M	309	24	1/1/13/20	5/25/103/115	-
26	DD6	A	305	29	-	1/26/80/80	0/3/3/3
28	CLA	I	319	28	1/1/11/20	8/13/91/115	-
29	KC1	B	314	18	-	7/15/71/71	-
28	CLA	a	730	-	1/1/15/20	4/37/115/115	-
28	CLA	D	309	-	1/1/11/20	7/15/93/115	-
32	PID	M	301	-	-	1/24/93/93	0/4/4/4
26	DD6	B	304	-	-	0/26/80/80	0/3/3/3
26	DD6	D	303	-	-	6/26/80/80	0/3/3/3
28	CLA	B	313	18	1/1/15/20	11/37/115/115	-

*Continued on next page...*

*Continued from previous page...*

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
28	CLA	L	308	29	1/1/11/20	7/13/91/115	-
28	CLA	H	312	-	1/1/11/20	10/15/93/115	-
28	CLA	I	316	-	1/1/13/20	14/25/103/115	-
28	CLA	a	738	22	1/1/11/20	2/15/93/115	-
28	CLA	b	724	-	1/1/15/20	14/37/115/115	-
32	PID	N	301	-	-	6/24/93/93	0/4/4/4
30	DGD	G	521	-	-	18/33/73/95	0/2/2/2
28	CLA	B	311	-	1/1/15/20	21/37/115/115	-
28	CLA	b	706	-	1/1/11/20	4/17/95/115	-
26	DD6	F	301	-	-	2/26/80/80	0/3/3/3
28	CLA	F	315	-	1/1/10/20	4/8/86/115	-
26	DD6	K	301	-	-	5/26/80/80	0/3/3/3
28	CLA	l	304	-	1/1/14/20	11/31/109/115	-
28	CLA	J	311	22	1/1/11/20	8/16/94/115	-
28	CLA	I	313	-	1/1/13/20	12/25/103/115	-
29	KC1	N	306	-	-	6/15/71/71	-
30	DGD	L	301	-	-	2/26/66/95	0/2/2/2
28	CLA	I	309	-	1/1/13/20	8/25/103/115	-
28	CLA	K	307	-	1/1/11/20	0/15/93/115	-
28	CLA	G	520	-	1/1/11/20	6/18/96/115	-
31	LMG	b	733	-	-	18/39/59/70	0/1/1/1
29	KC1	L	307	28	-	6/15/71/71	-
28	CLA	a	728	-	1/1/13/20	8/25/103/115	-
26	DD6	J	303	-	-	2/26/80/80	0/3/3/3
28	CLA	b	711	-	1/1/13/20	11/25/103/115	-
26	DD6	h	203	-	-	1/26/80/80	0/3/3/3
28	CLA	K	306	2	1/1/11/20	4/18/96/115	-
28	CLA	G	512	-	1/1/14/20	13/31/109/115	-
28	CLA	a	717	-	1/1/13/20	13/28/106/115	-
29	KC1	M	314	24	-	9/15/71/71	-
28	CLA	F	308	-	1/1/11/20	1/15/93/115	-
29	KC1	N	308	-	-	8/15/71/71	-
28	CLA	L	311	-	1/1/13/20	4/25/103/115	-
27	UIX	I	304	-	-	4/31/87/87	0/3/3/3
35	BCR	b	732	-	-	2/29/63/63	0/2/2/2

*Continued on next page...*



*Continued from previous page...*

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
28	CLA	K	313	-	1/1/13/20	7/25/103/115	-
28	CLA	I	307	-	1/1/11/20	6/15/93/115	-
29	KC1	F	314	20	-	8/15/71/71	-
26	DD6	A	303	-	-	1/26/80/80	0/3/3/3
32	PID	F	304	-	-	3/24/93/93	0/4/4/4
28	CLA	a	709	-	1/1/15/20	17/37/115/115	-
26	DD6	b	731	28	-	3/26/80/80	0/3/3/3
35	BCR	f	304	-	-	3/29/63/63	0/2/2/2
28	CLA	A	311	6	1/1/11/20	5/15/93/115	-
28	CLA	b	719	-	1/1/11/20	11/15/93/115	-
28	CLA	a	703	-	1/1/13/20	9/25/103/115	-
28	CLA	H	305	-	1/1/15/20	8/37/115/115	-
28	CLA	F	313	-	1/1/11/20	5/15/93/115	-
28	CLA	A	312	-	1/1/13/20	6/25/103/115	-
29	KC1	I	314	1	-	8/15/71/71	-
29	KC1	M	307	28	-	7/15/71/71	-
28	CLA	D	316	-	1/1/10/20	0/8/86/115	-
28	CLA	F	312	-	1/1/11/20	4/15/93/115	-
31	LMG	I	320	-	-	14/33/53/70	0/1/1/1
28	CLA	K	312	-	1/1/11/20	4/17/95/115	-
28	CLA	J	306	-	1/1/11/20	4/15/93/115	-
28	CLA	H	304	-	1/1/11/20	6/16/94/115	-
28	CLA	a	731	-	1/1/15/20	13/37/115/115	-
28	CLA	J	309	-	1/1/13/20	8/27/105/115	-
35	BCR	b	702	-	-	2/29/63/63	0/2/2/2
28	CLA	b	713	-	1/1/15/20	11/37/115/115	-
35	BCR	a	736	-	-	3/29/63/63	0/2/2/2
28	CLA	B	316	-	1/1/11/20	7/15/93/115	-
32	PID	D	307	-	-	4/24/93/93	0/4/4/4
28	CLA	b	707	-	1/1/15/20	17/37/115/115	-
28	CLA	L	318	-	1/1/11/20	8/15/93/115	-
31	LMG	D	317	-	-	17/41/61/70	0/1/1/1
28	CLA	K	316	-	1/1/11/20	2/15/93/115	-
26	DD6	G	504	-	-	5/26/80/80	0/3/3/3

*Continued on next page...*

*Continued from previous page...*

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
28	CLA	M	310	-	1/1/11/20	7/17/95/115	-
28	CLA	b	712	-	1/1/13/20	9/25/101/115	-
29	KC1	F	309	20	-	8/15/71/71	-
28	CLA	H	311	-	-	6/8/86/115	-
28	CLA	b	717	-	1/1/15/20	18/37/115/115	-
28	CLA	F	310	-	1/1/11/20	8/15/93/115	-
28	CLA	N	310	-	1/1/11/20	9/16/94/115	-
35	BCR	a	734	-	-	4/29/63/63	0/2/2/2
26	DD6	K	304	-	-	1/26/80/80	0/3/3/3
26	DD6	G	502	-	-	6/26/80/80	0/3/3/3
28	CLA	B	301	-	1/1/14/20	11/31/109/115	-
32	PID	G	506	-	-	3/24/93/93	0/4/4/4
28	CLA	a	714	-	1/1/11/20	4/13/91/115	-
28	CLA	b	704	-	1/1/15/20	19/37/115/115	-
28	CLA	l	308	-	1/1/10/20	2/8/86/115	-
27	UIX	B	305	-	-	2/31/87/87	0/3/3/3
28	CLA	l	305	-	1/1/15/20	13/37/115/115	-
28	CLA	G	519	-	1/1/13/20	13/30/108/115	-
28	CLA	G	510	-	1/1/15/20	14/37/115/115	-
28	CLA	a	735	-	1/1/15/20	20/37/115/115	-
28	CLA	A	315	-	1/1/10/20	6/8/86/115	-
28	CLA	I	310	-	1/1/11/20	10/17/95/115	-
28	CLA	A	319	-	1/1/11/20	8/15/93/115	-
28	CLA	N	307	-	1/1/12/20	7/21/99/115	-
27	UIX	A	304	-	-	0/31/87/87	0/3/3/3
28	CLA	a	727	-	1/1/11/20	8/15/93/115	-
28	CLA	M	317	-	1/1/11/20	6/15/93/115	-
28	CLA	H	309	-	1/1/11/20	7/16/94/115	-
32	PID	D	302	-	-	2/24/93/93	0/4/4/4
28	CLA	a	711	-	1/1/11/20	6/13/91/115	-
28	CLA	G	509	5	1/1/12/20	4/21/99/115	-
26	DD6	B	303	-	-	2/26/80/80	0/3/3/3
36	PQN	b	729	-	-	4/23/43/43	0/2/2/2
26	DD6	G	508	-	-	1/26/80/80	0/3/3/3
29	KC1	J	313	-	-	6/15/71/71	-

*Continued on next page...*

*Continued from previous page...*

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
26	DD6	M	305	-	-	1/26/80/80	0/3/3/3
28	CLA	a	706	16	1/1/13/20	17/29/107/115	-
30	DGD	l	301	-	-	7/39/79/95	0/2/2/2
28	CLA	b	705	-	1/1/15/20	14/37/115/115	-
28	CLA	L	313	-	1/1/13/20	11/25/103/115	-
30	DGD	G	501	-	-	10/34/74/95	0/2/2/2
28	CLA	a	722	-	1/1/13/20	10/29/107/115	-
28	CLA	B	317	-	1/1/11/20	5/13/91/115	-
31	LMG	b	734	-	-	12/26/46/70	0/1/1/1
28	CLA	M	318	-	1/1/11/20	9/15/93/115	-
28	CLA	a	718	-	1/1/11/20	8/15/93/115	-
28	CLA	K	311	-	1/1/12/20	9/22/100/115	-
28	CLA	A	308	-	1/1/13/20	4/25/103/115	-
28	CLA	a	729	-	1/1/13/20	9/27/105/115	-
32	PID	H	302	-	-	2/24/93/93	0/4/4/4
36	PQN	a	732	-	-	8/23/43/43	0/2/2/2
28	CLA	l	313	14	1/1/15/20	19/37/115/115	-
29	KC1	A	306	28,26	-	6/15/71/71	-
26	DD6	B	302	-	-	3/24/78/80	0/3/3/3
26	DD6	M	304	-	-	0/26/80/80	0/3/3/3
29	KC1	L	315	-	-	8/15/71/71	-
28	CLA	K	315	-	1/1/10/20	3/8/86/115	-
32	PID	D	301	-	-	2/24/93/93	0/4/4/4
28	CLA	l	312	-	1/1/11/20	8/15/93/115	-
28	CLA	b	709	-	1/1/14/20	8/31/109/115	-
28	CLA	J	310	-	1/1/11/20	6/15/93/115	-
31	LMG	I	318	-	-	21/31/51/70	0/1/1/1
28	CLA	M	311	-	1/1/11/20	6/15/93/115	-
28	CLA	b	720	-	1/1/12/20	9/23/101/115	-
28	CLA	b	721	26	1/1/11/20	5/15/93/115	-
27	UIX	G	503	-	-	4/31/87/87	0/3/3/3
28	CLA	M	308	29	1/1/12/20	8/23/101/115	-
28	CLA	L	310	-	1/1/13/20	2/25/103/115	-
32	PID	D	305	-	-	2/24/93/93	0/4/4/4
26	DD6	L	303	-	-	0/26/80/80	0/3/3/3

*Continued on next page...*

*Continued from previous page...*

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
28	CLA	J	316	-	-	2/15/93/115	-
26	DD6	L	302	-	-	4/26/80/80	0/3/3/3
26	DD6	N	303	-	-	0/26/80/80	0/3/3/3
26	DD6	I	302	-	-	5/26/80/80	0/3/3/3
32	PID	G	507	-	-	0/24/93/93	1/4/4/4
28	CLA	F	311	-	1/1/11/20	4/15/93/115	-
28	CLA	a	705	28	1/1/13/20	9/25/103/115	-
29	KC1	N	311	25	-	7/15/71/71	-
28	CLA	a	701	-	1/1/11/20	0/13/91/115	-
37	LHG	a	733	-	-	18/52/52/53	-
28	CLA	a	716	-	1/1/11/20	4/16/94/115	-
28	CLA	b	715	-	1/1/14/20	14/31/109/115	-
28	CLA	l	310	-	-	9/26/65/115	0/5/5/9
28	CLA	B	309	18	1/1/15/20	22/37/115/115	-
26	DD6	K	303	-	-	0/26/80/80	0/3/3/3
28	CLA	G	518	-	1/1/11/20	7/15/93/115	-
27	UIX	J	305	-	-	11/31/87/87	0/3/3/3
28	CLA	K	308	2	1/1/12/20	13/24/102/115	-
28	CLA	M	313	-	1/1/11/20	4/15/93/115	-
28	CLA	D	314	-	1/1/11/20	6/15/93/115	-
28	CLA	I	306	1	1/1/11/20	7/18/96/115	-
28	CLA	b	703	-	1/1/15/20	12/37/115/115	-
34	SF4	a	737	16,17	-	-	0/6/5/5
28	CLA	M	312	-	1/1/11/20	4/17/95/115	-
28	CLA	L	317	-	1/1/12/20	11/22/100/115	-
28	CLA	a	715	-	1/1/11/20	5/13/91/115	-
28	CLA	J	315	-	1/1/11/20	4/15/93/115	-
28	CLA	f	303	10	1/1/11/20	10/15/93/115	-
26	DD6	K	305	-	-	4/26/80/80	0/3/3/3
28	CLA	A	316	-	1/1/11/20	3/16/94/115	-
28	CLA	a	704	-	1/1/15/20	6/37/115/115	-
28	CLA	D	311	-	1/1/11/20	4/15/93/115	-
28	CLA	K	309	-	1/1/12/20	2/19/97/115	-
28	CLA	H	307	-	1/1/12/20	7/21/99/115	-
35	BCR	l	307	-	-	0/29/63/63	0/2/2/2

*Continued on next page...*

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
28	CLA	J	308	-	1/1/11/20	9/15/93/115	-
26	DD6	M	306	-	-	5/26/80/80	0/3/3/3
28	CLA	b	723	-	1/1/12/20	7/19/97/115	-
34	SF4	c	202	7	-	-	0/6/5/5
27	UIX	K	302	-	-	4/31/87/87	0/3/3/3
28	CLA	f	301	-	1/1/13/20	9/25/103/115	-
28	CLA	a	708	-	1/1/12/20	4/21/99/115	-
32	PID	D	304	-	-	3/24/93/93	0/4/4/4
35	BCR	l	306	-	-	7/29/63/63	0/2/2/2
28	CLA	L	309	-	1/1/12/20	11/23/101/115	-
29	KC1	D	315	19	-	3/15/71/71	-

The worst 5 of 1436 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
28	l	310	CLA	CHC-C1C	9.32	1.42	1.35
26	I	305	DD6	C29-C27	-9.13	1.25	1.42
26	M	303	DD6	C29-C27	-9.08	1.25	1.42
26	J	303	DD6	C29-C27	-9.06	1.25	1.42
26	b	731	DD6	C29-C27	-9.02	1.25	1.42

The worst 5 of 2862 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
27	I	304	UIX	O-C1-C3	9.16	120.27	113.38
27	J	305	UIX	O-C1-C3	8.93	120.09	113.38
27	I	304	UIX	C6-C1-C	-8.90	107.34	122.26
27	B	305	UIX	O-C1-C3	8.31	119.63	113.38
35	m	201	BCR	C7-C8-C9	-8.11	113.98	126.23

5 of 186 chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
28	I	306	CLA	ND
28	I	307	CLA	ND
28	I	308	CLA	ND
28	I	309	CLA	ND
28	I	310	CLA	ND

5 of 2127 torsion outliers are listed below:

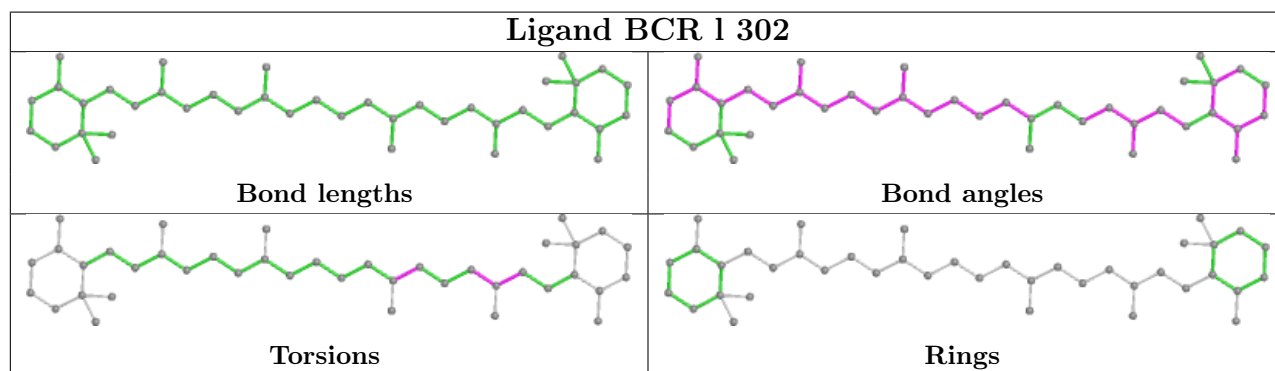
Mol	Chain	Res	Type	Atoms
26	K	301	DD6	C12-C11-C13-C14
26	G	502	DD6	C-C1-C24-C25
26	G	502	DD6	C2-C1-C24-C25
26	G	504	DD6	C10-C11-C13-C14
26	G	504	DD6	C12-C11-C13-C14

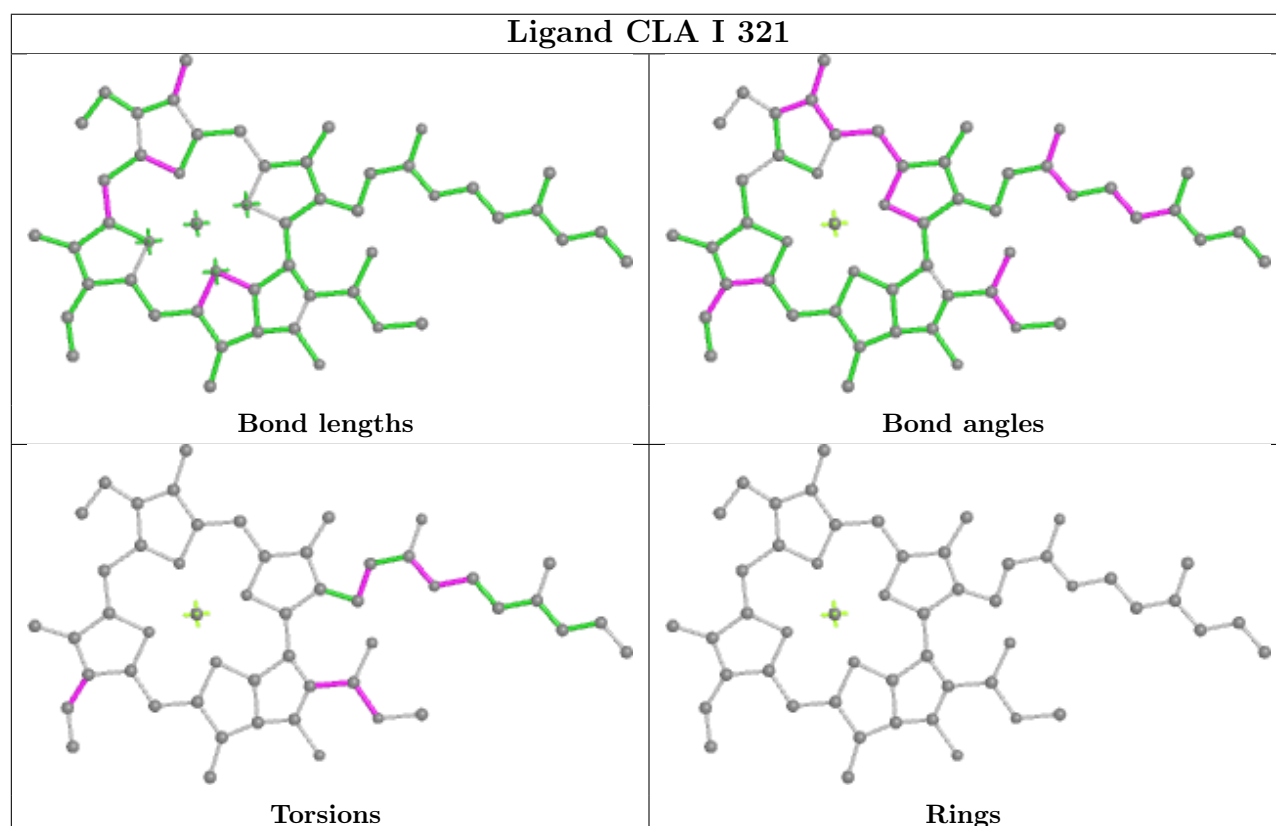
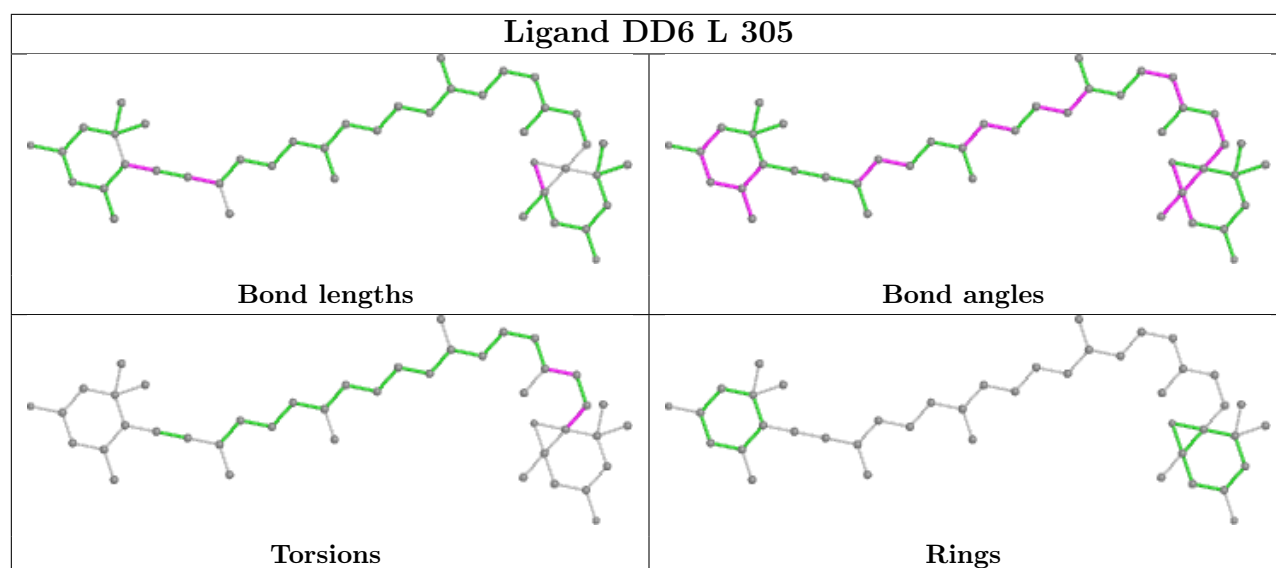
All (1) ring outliers are listed below:

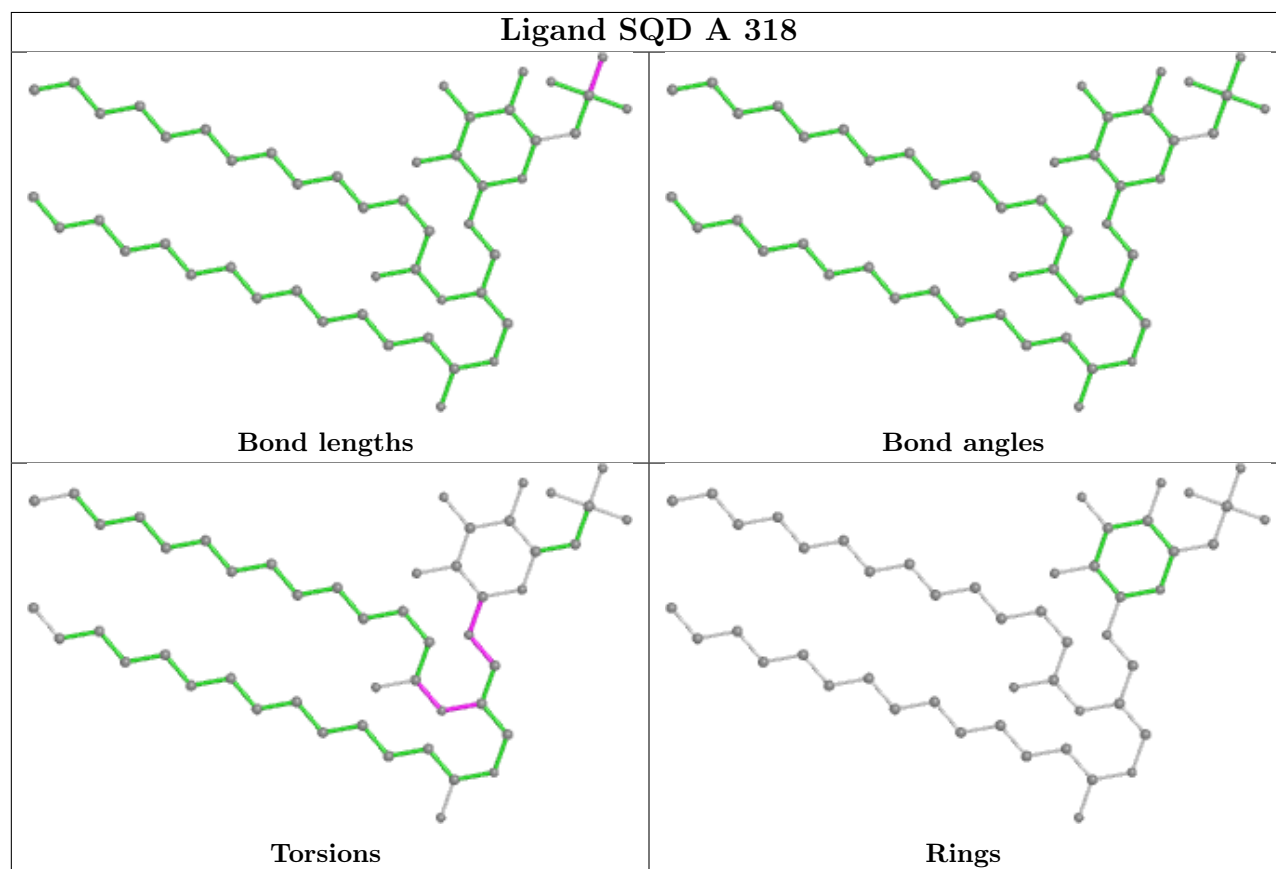
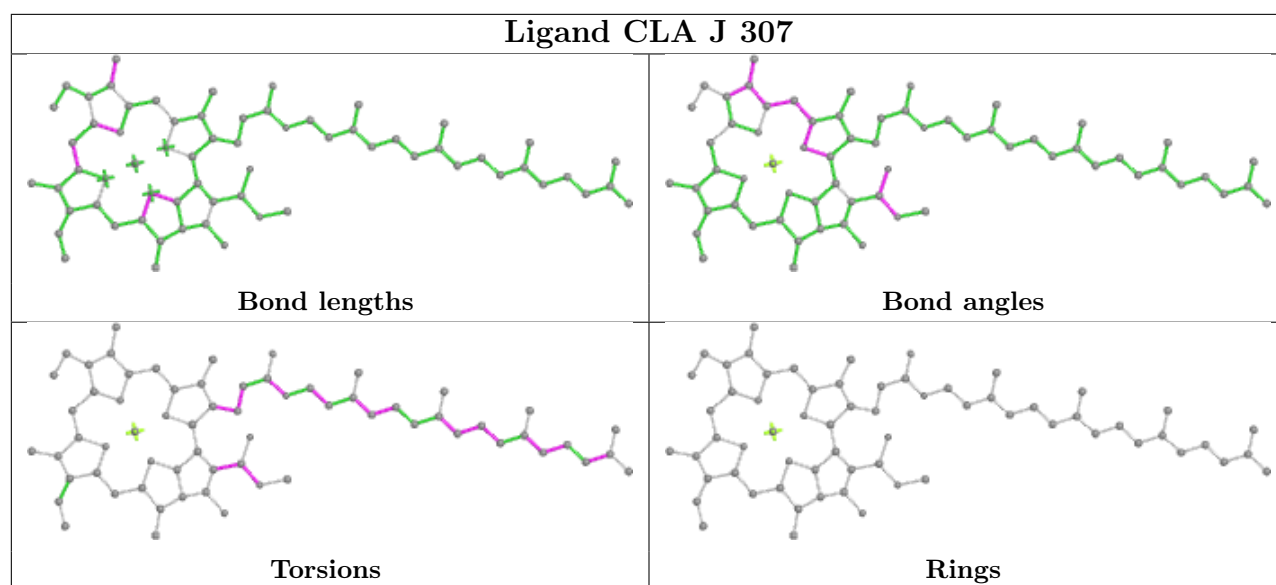
Mol	Chain	Res	Type	Atoms
32	G	507	PID	C24-C25-C26-C27-C28-C29

No monomer is involved in short contacts.

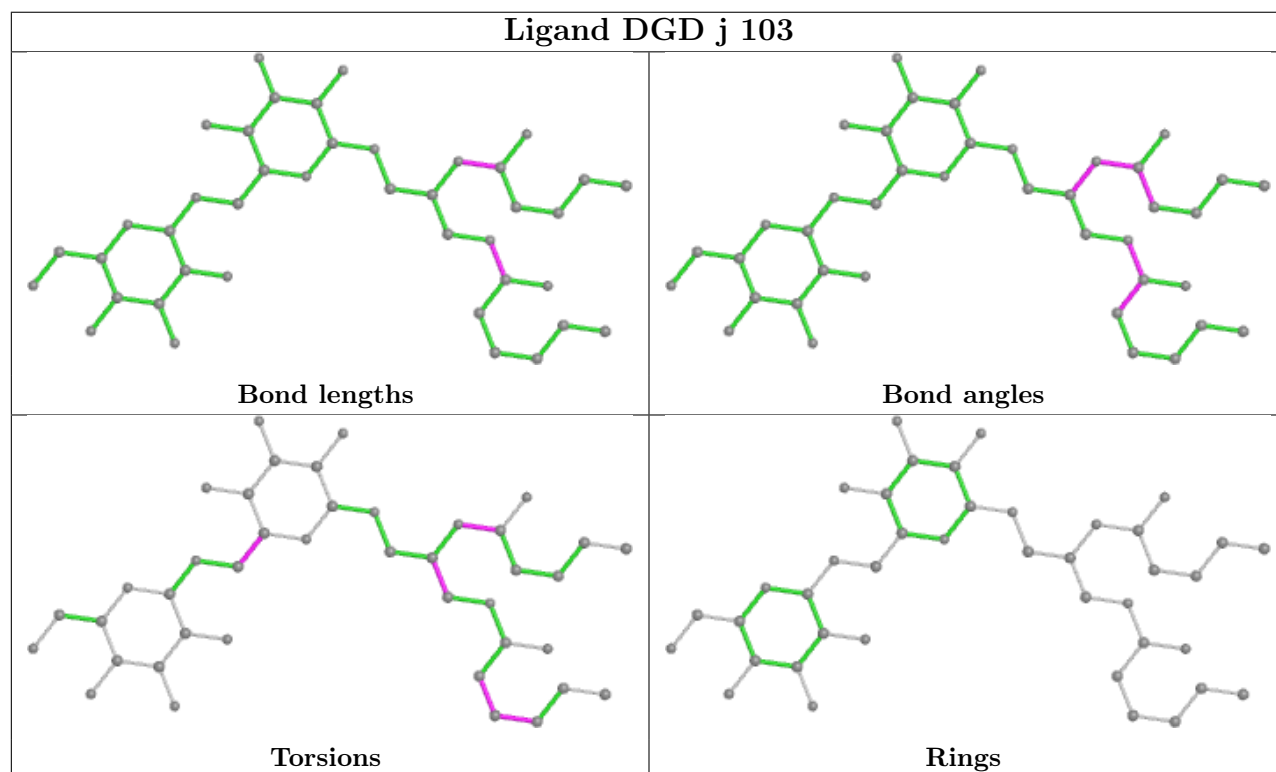
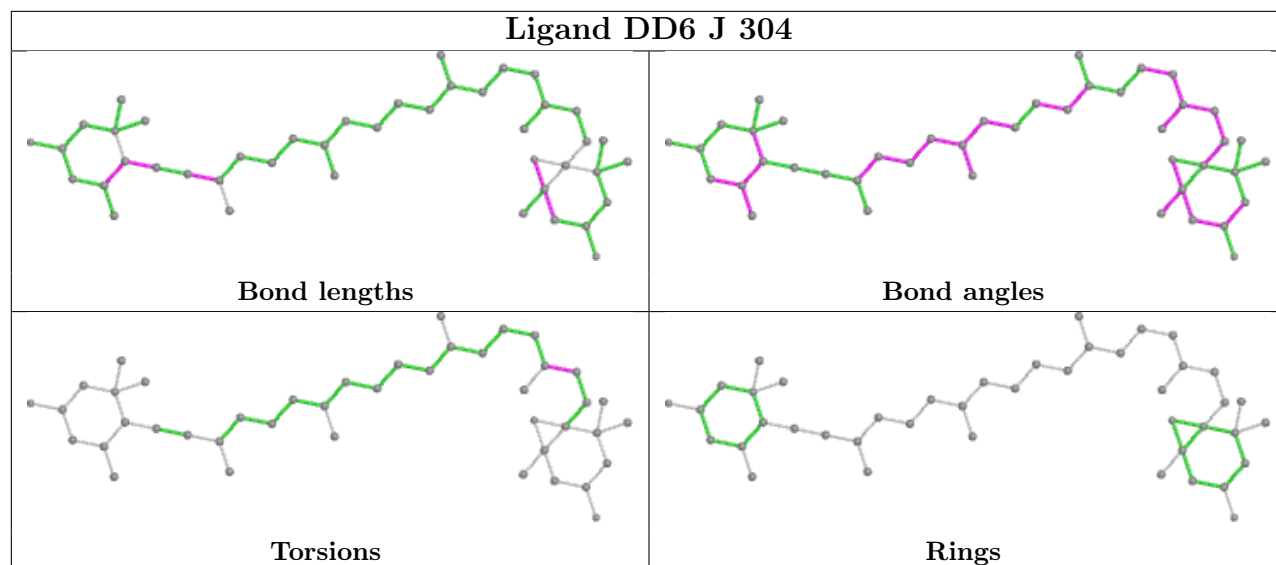
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

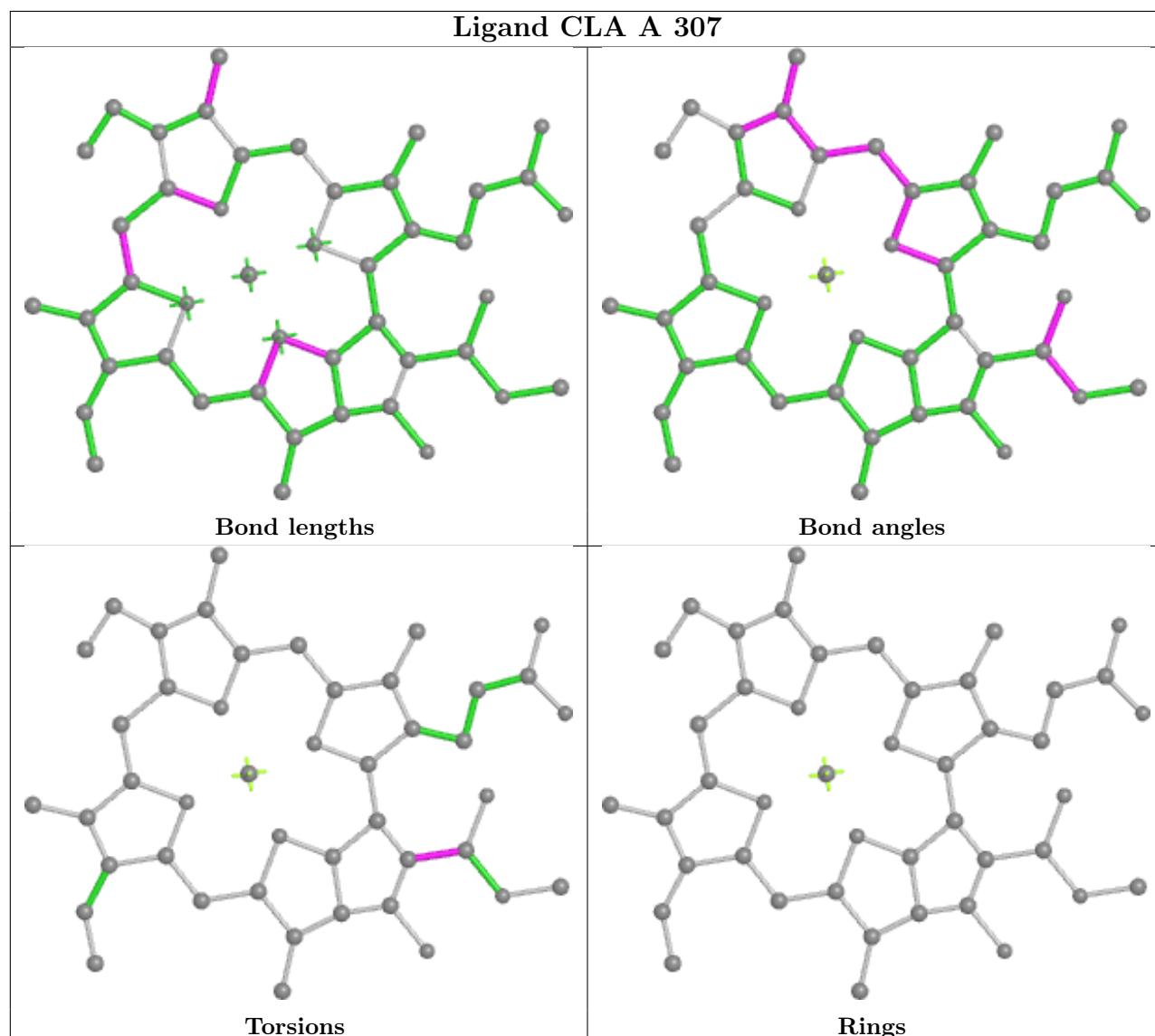
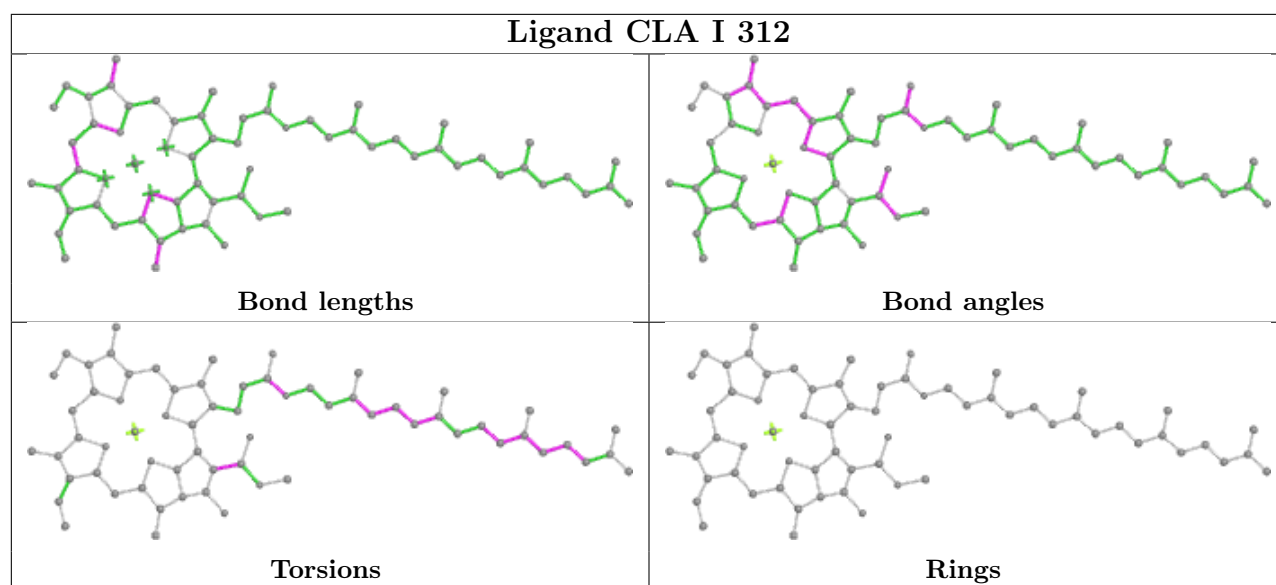


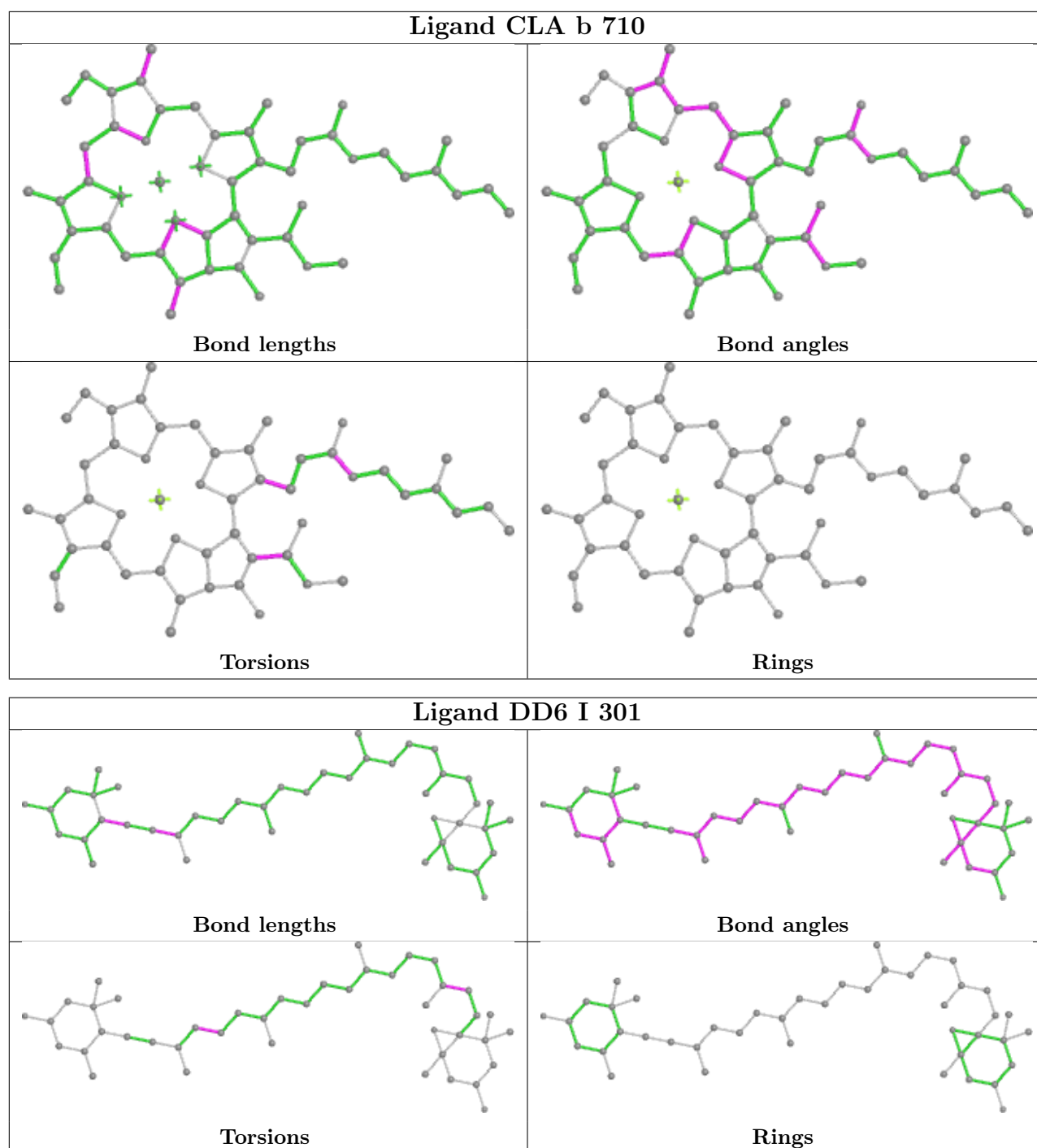


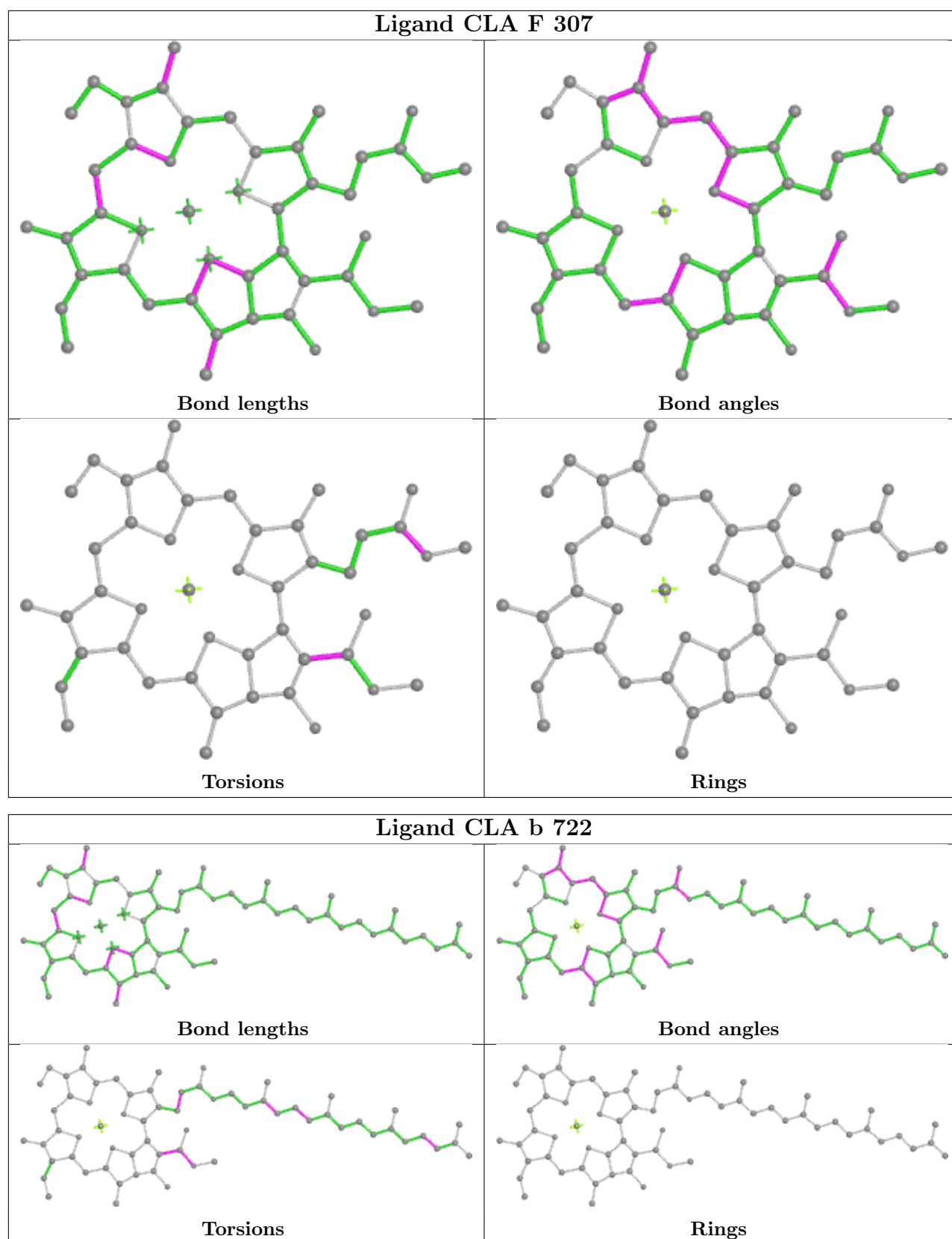


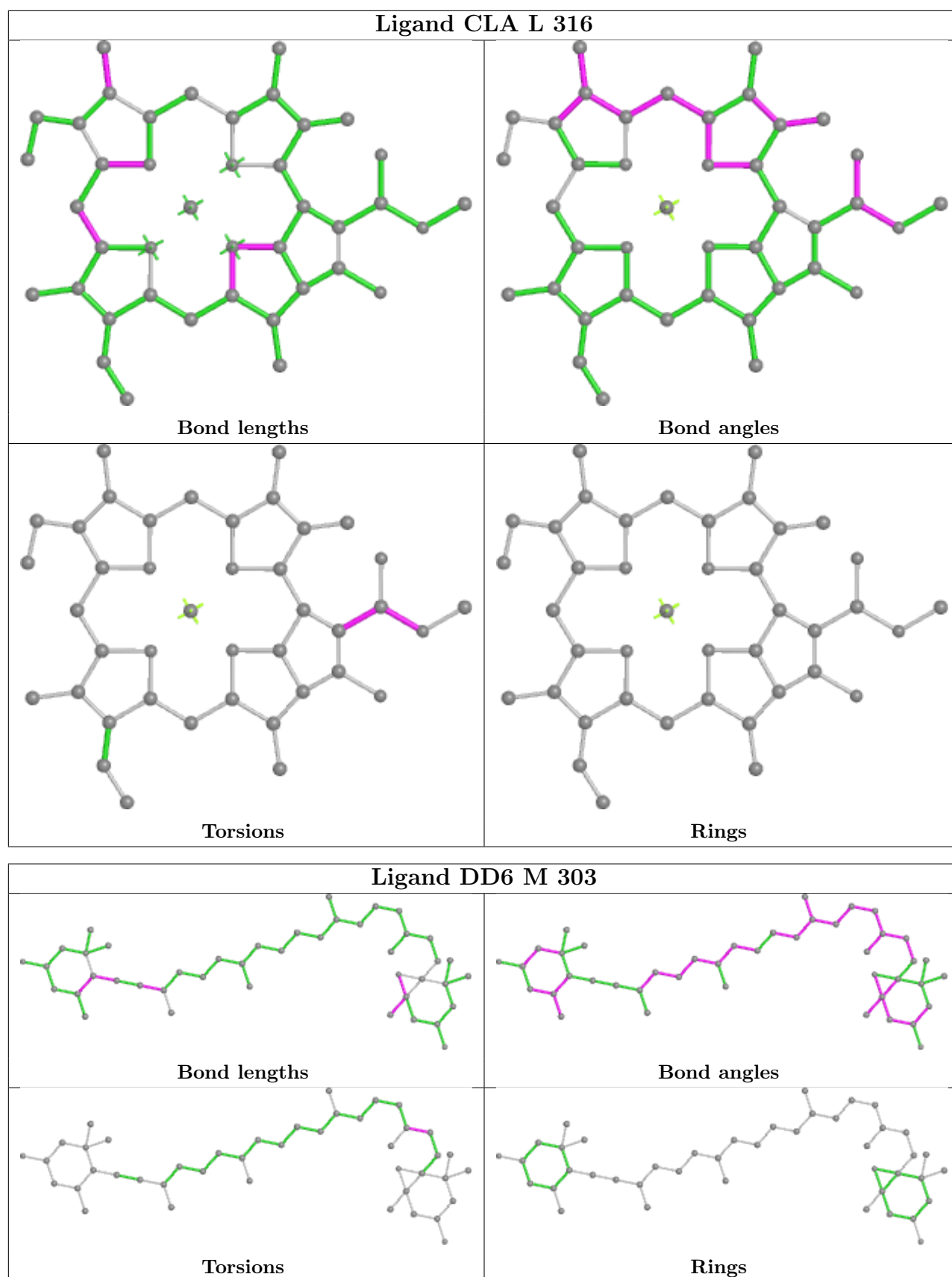


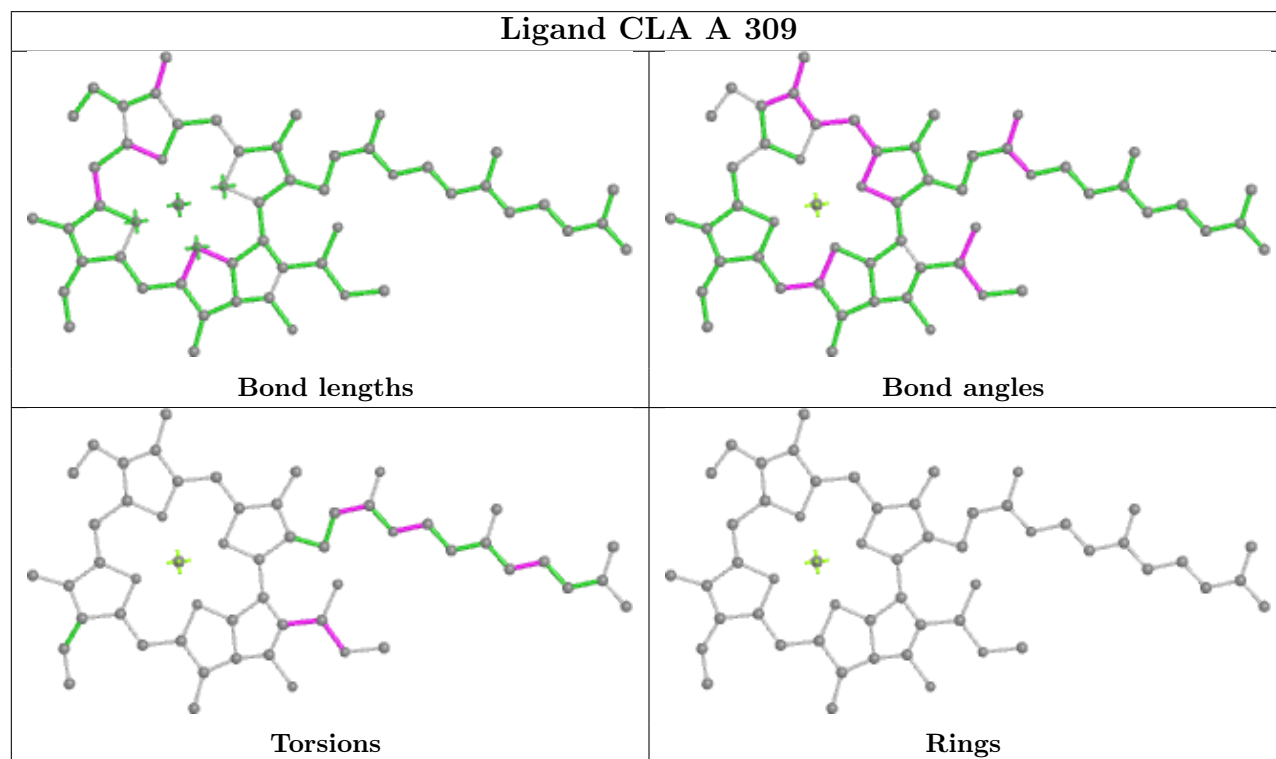
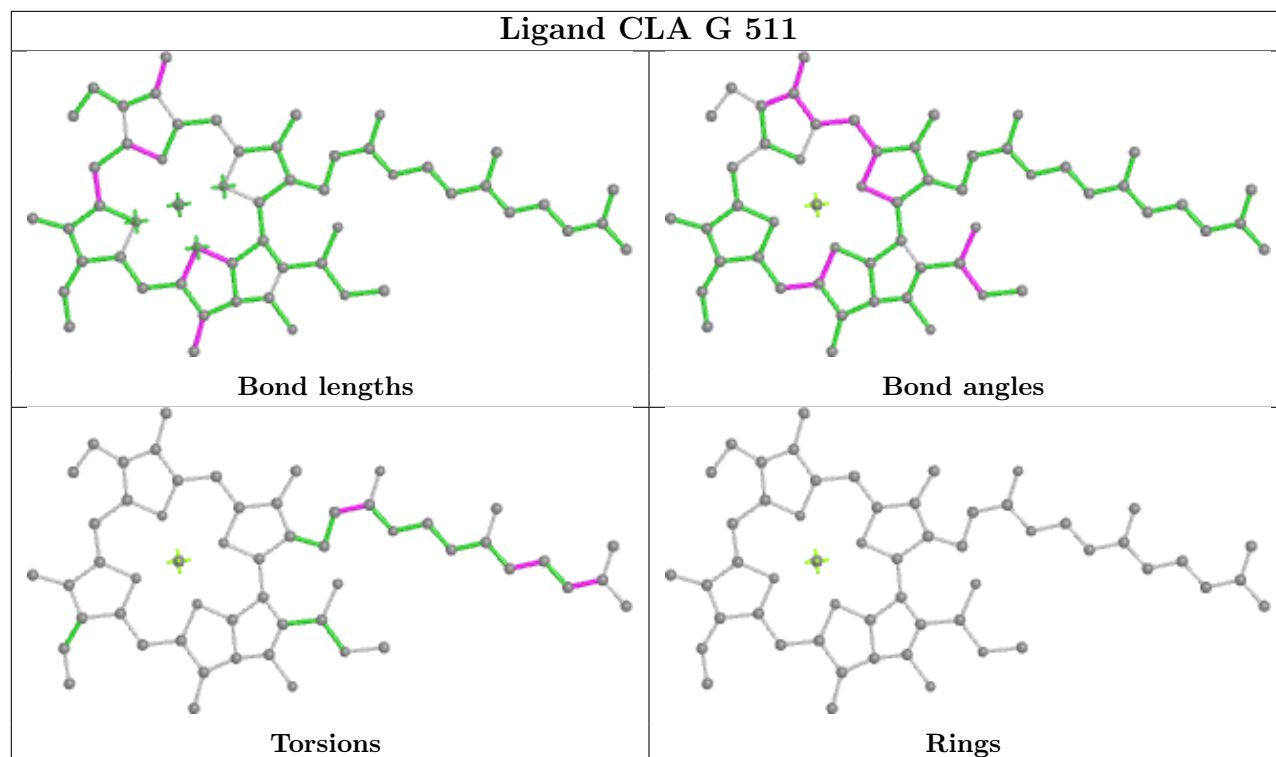


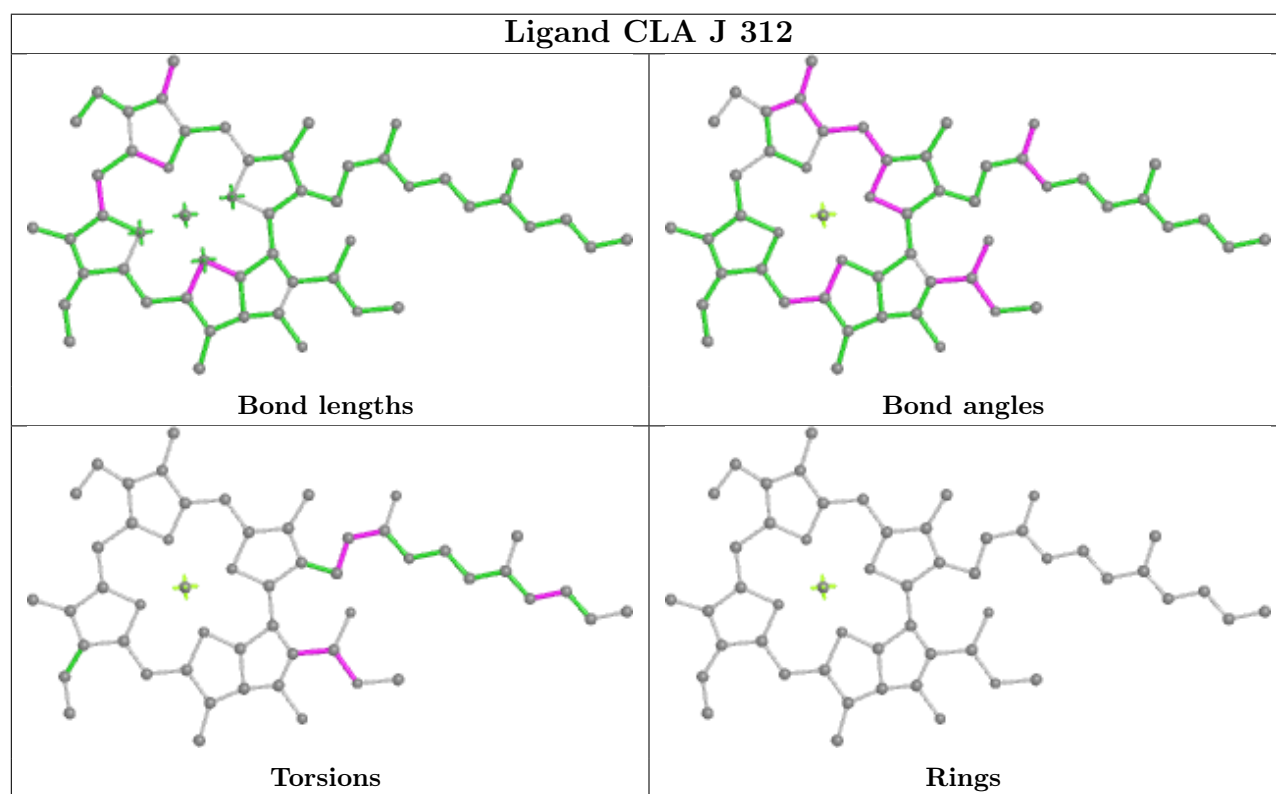
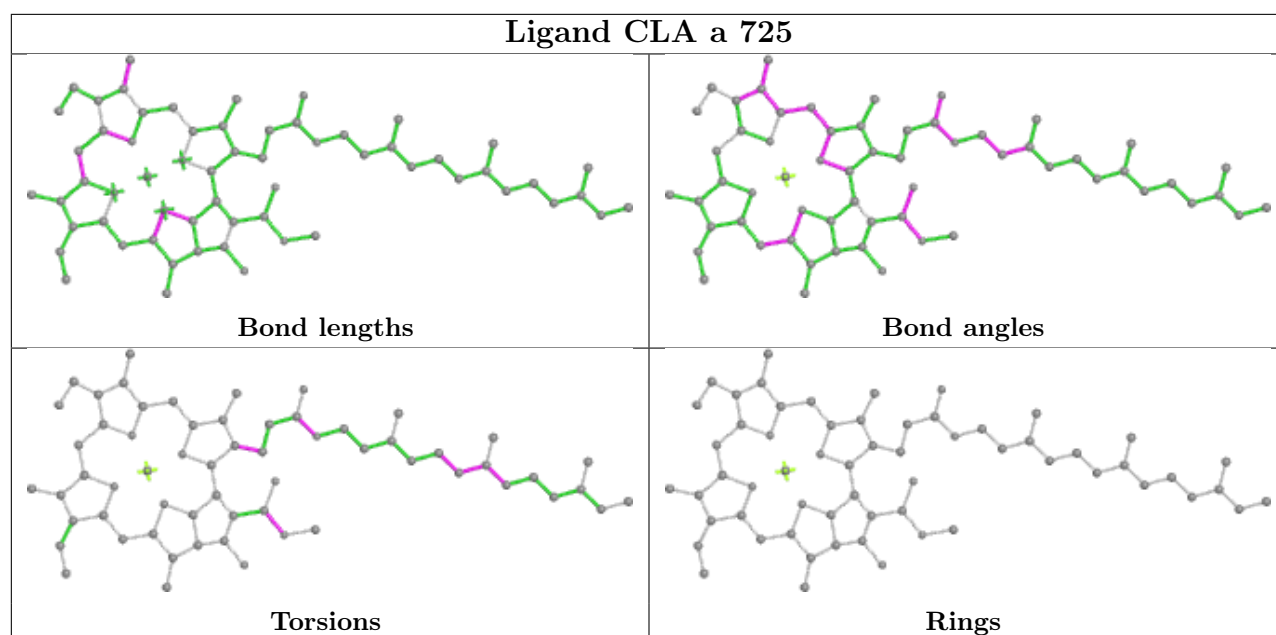


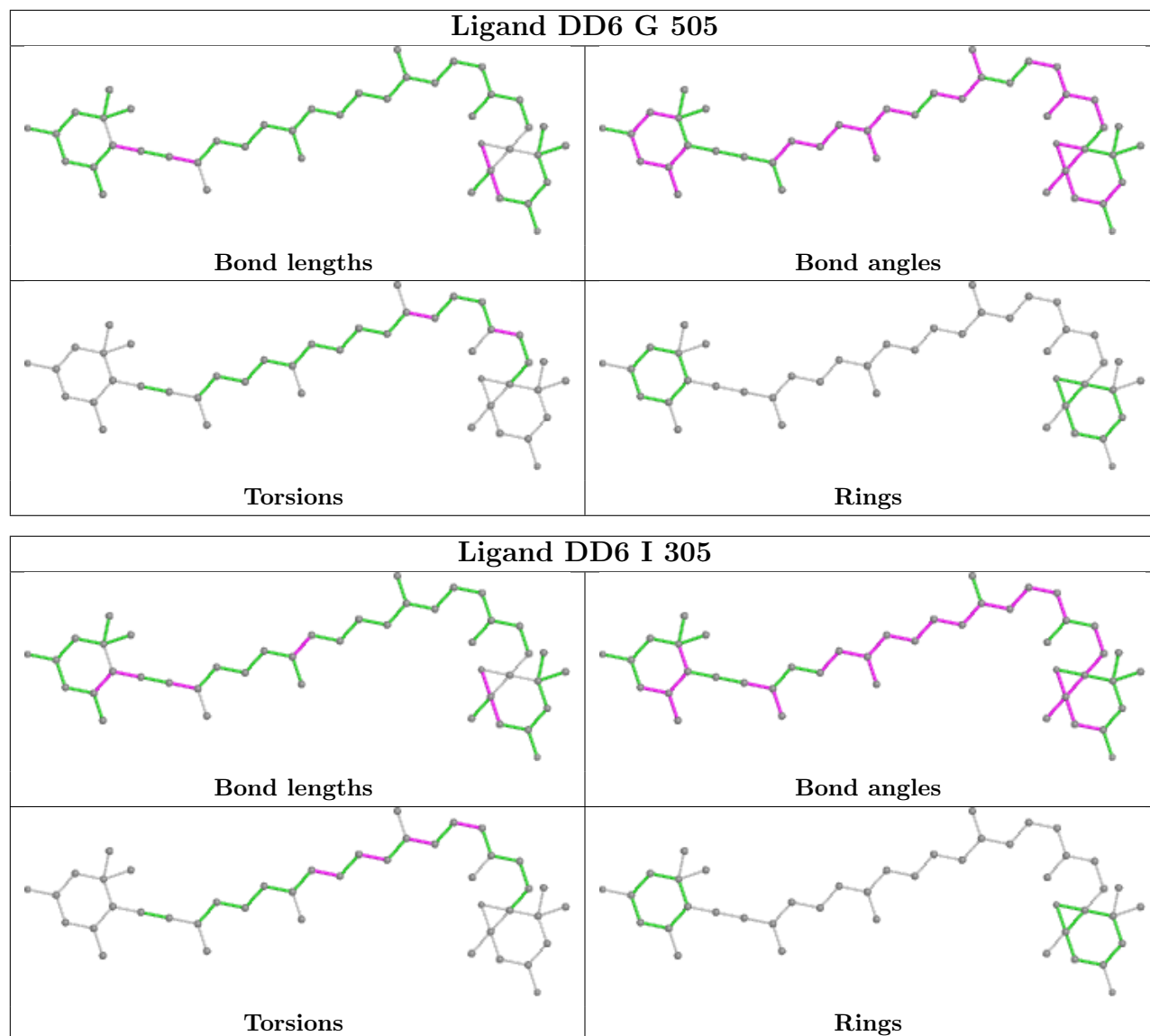




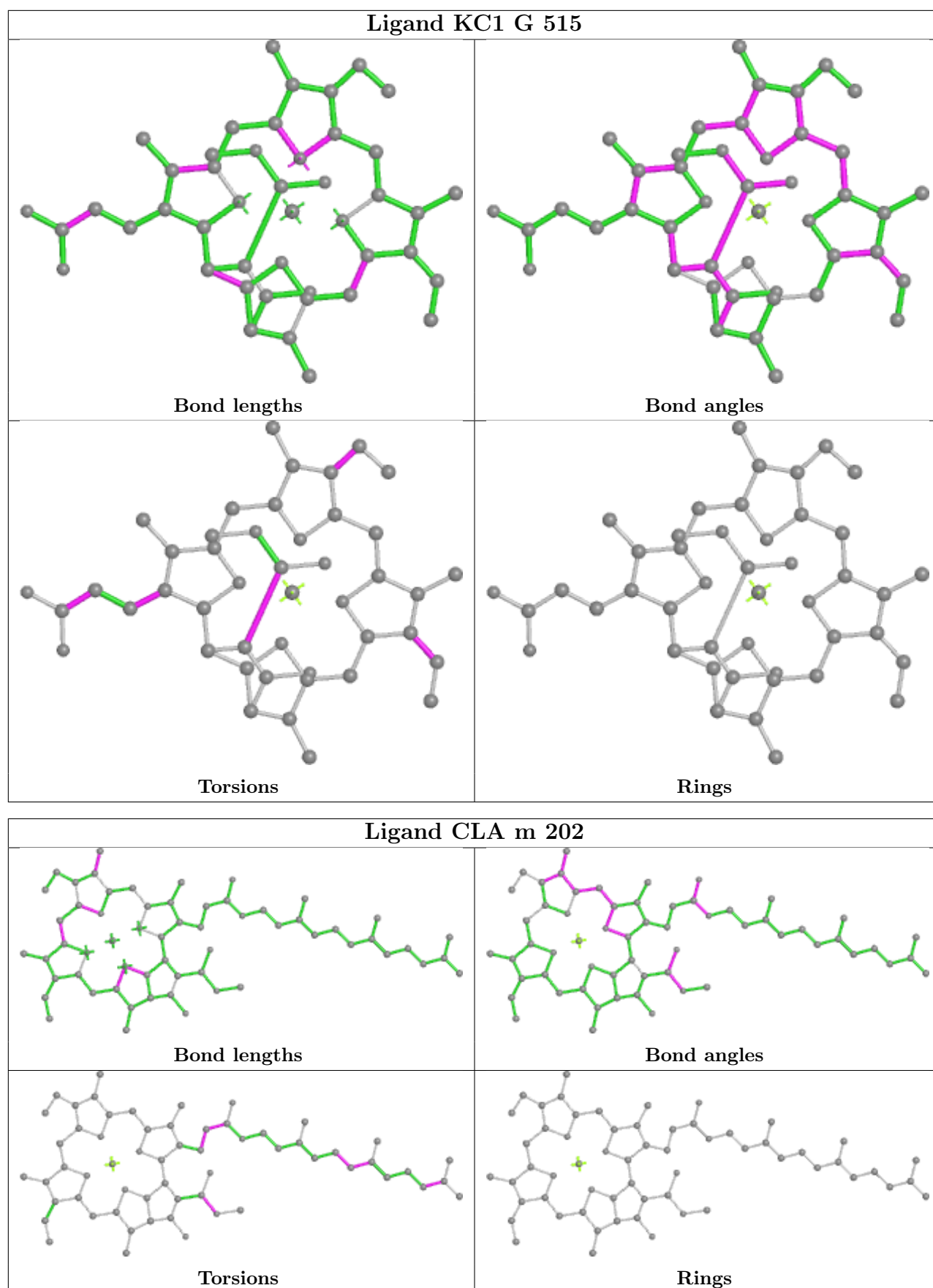


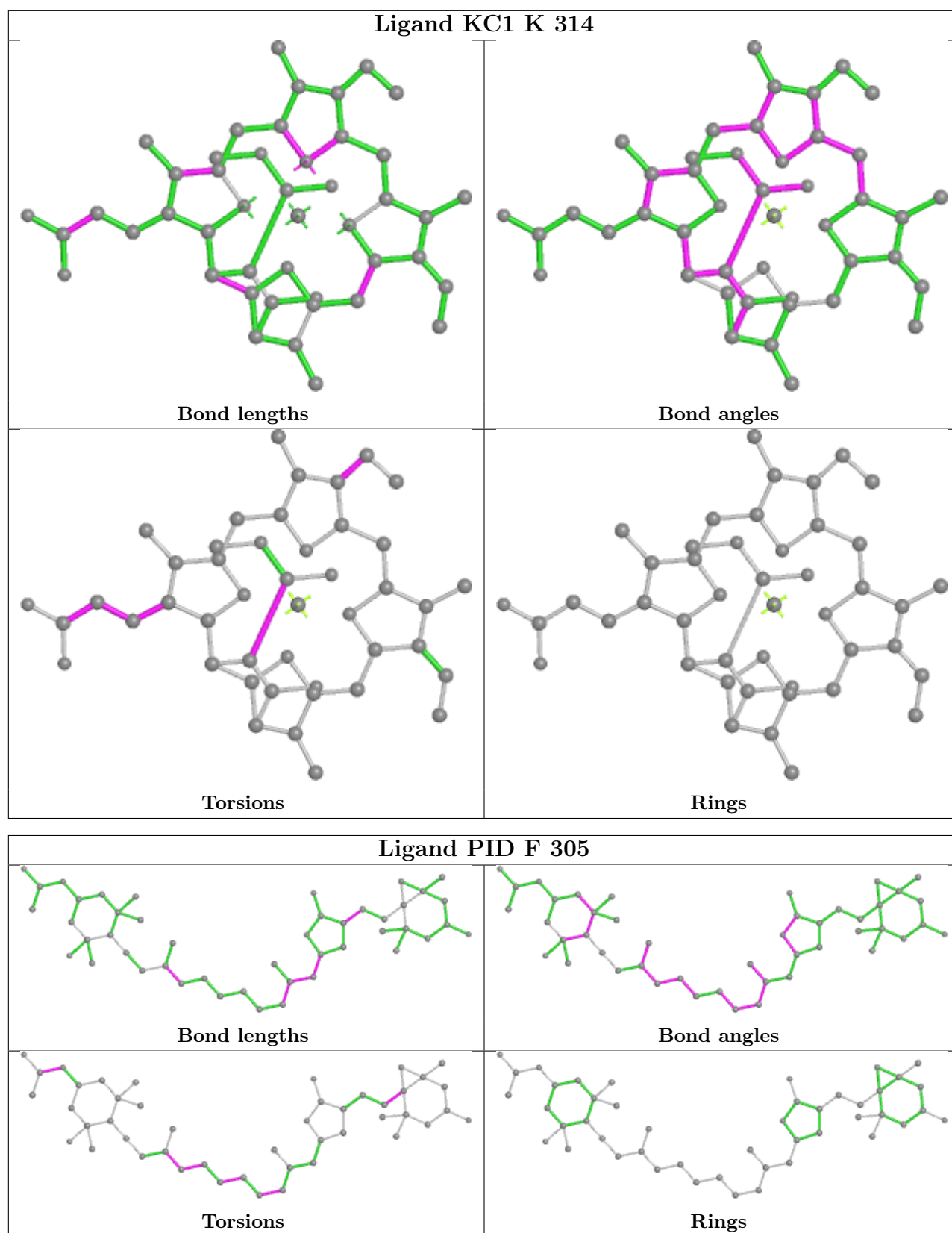


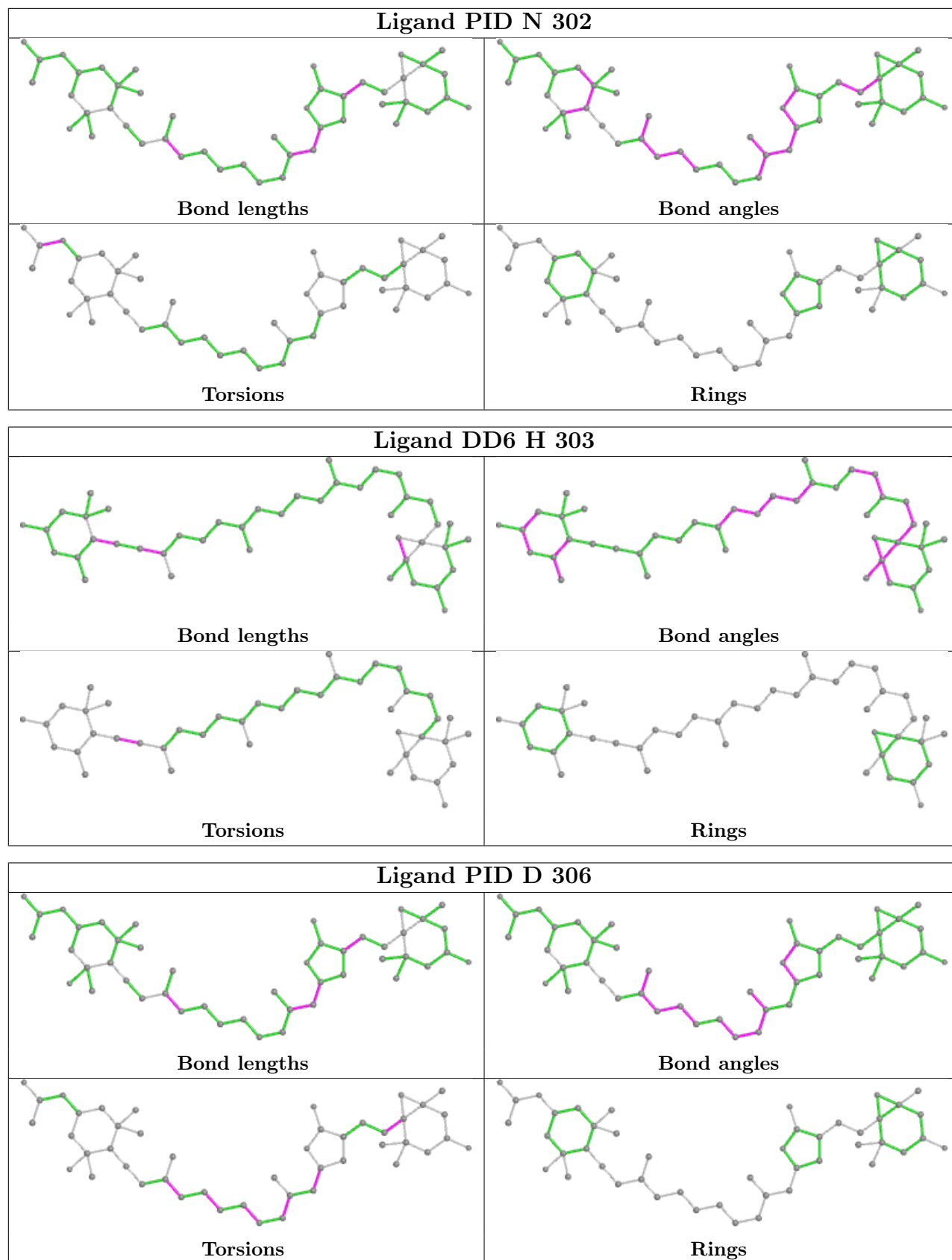


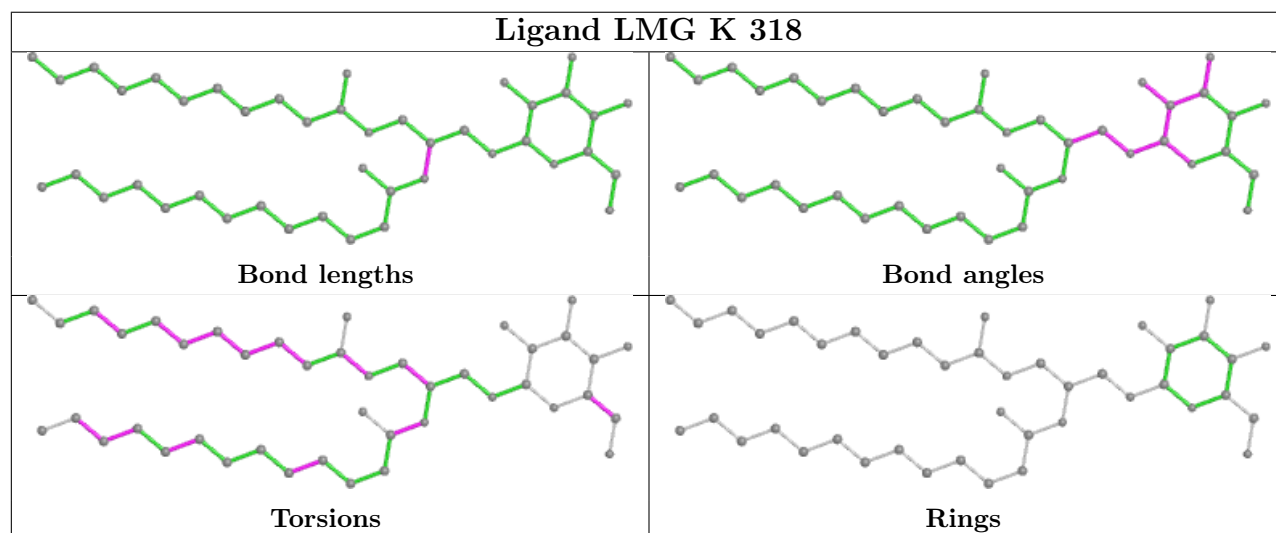
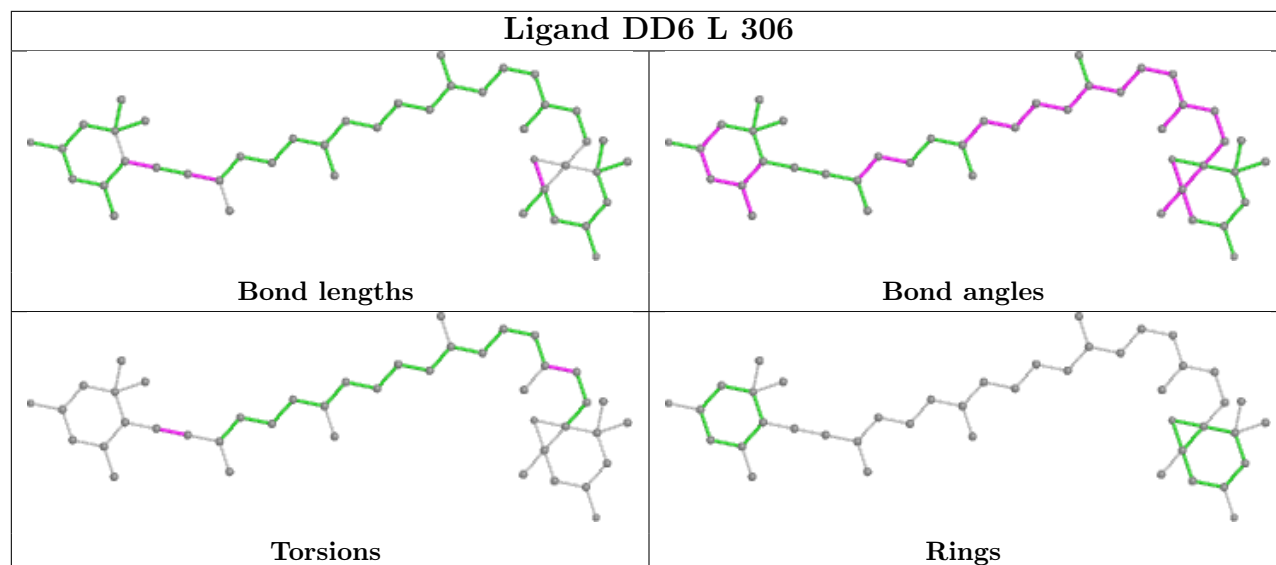


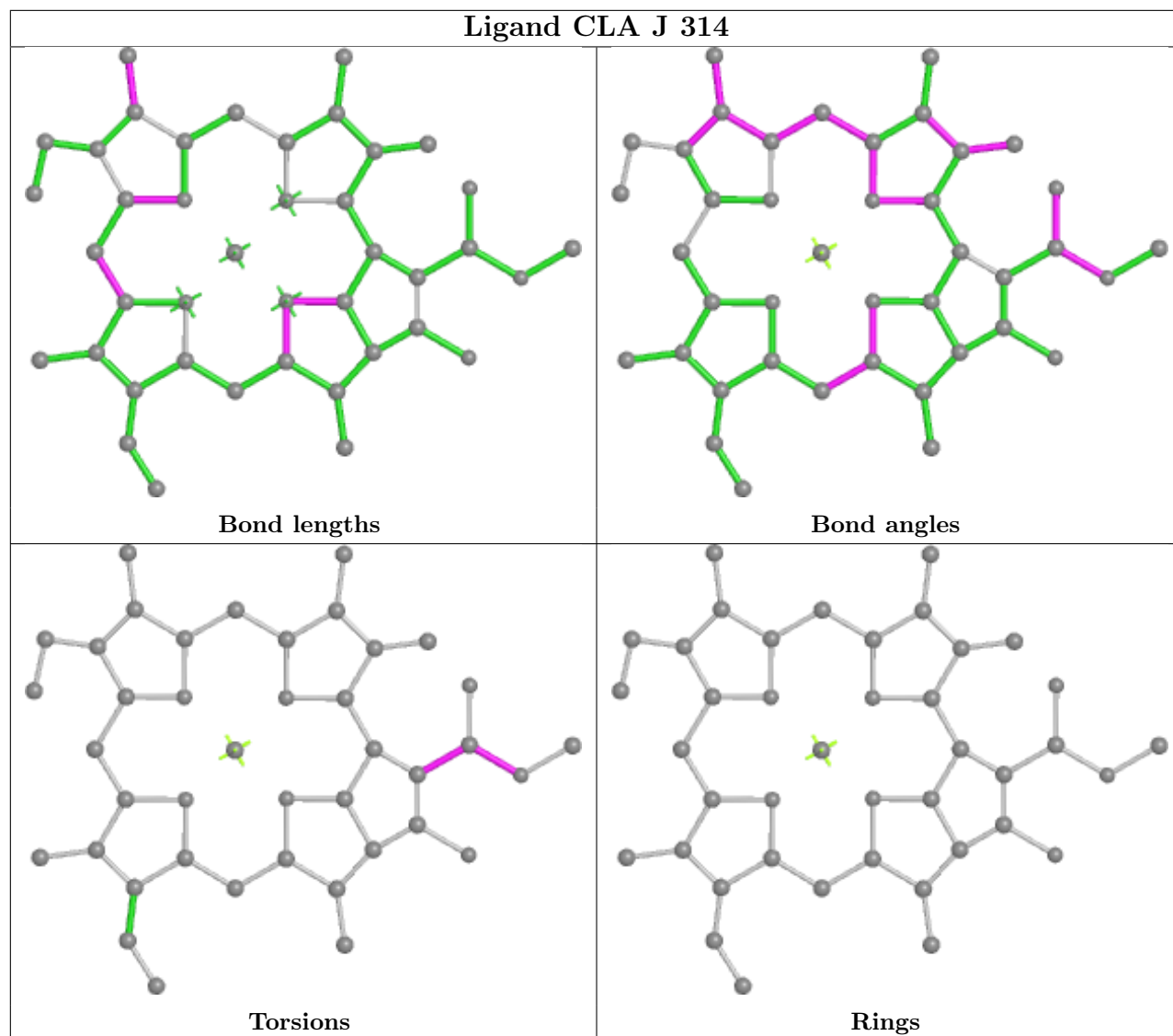


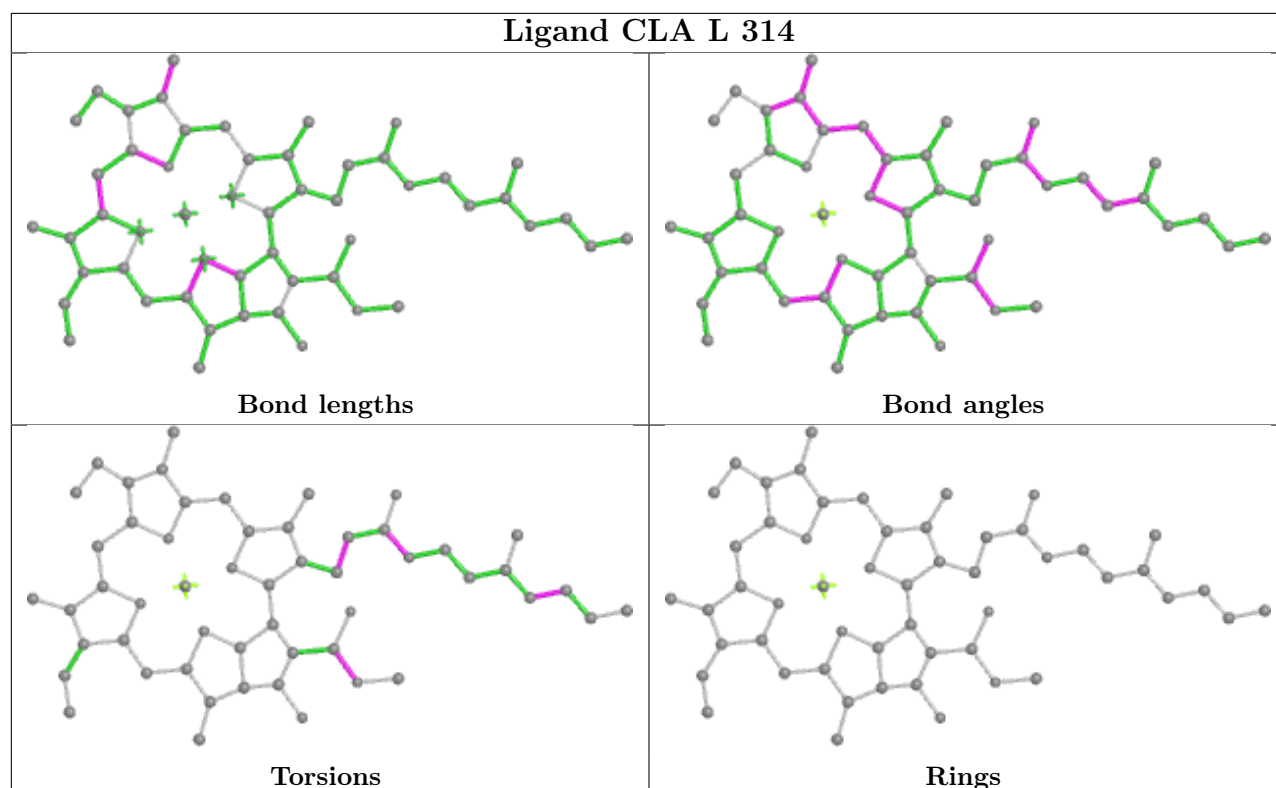
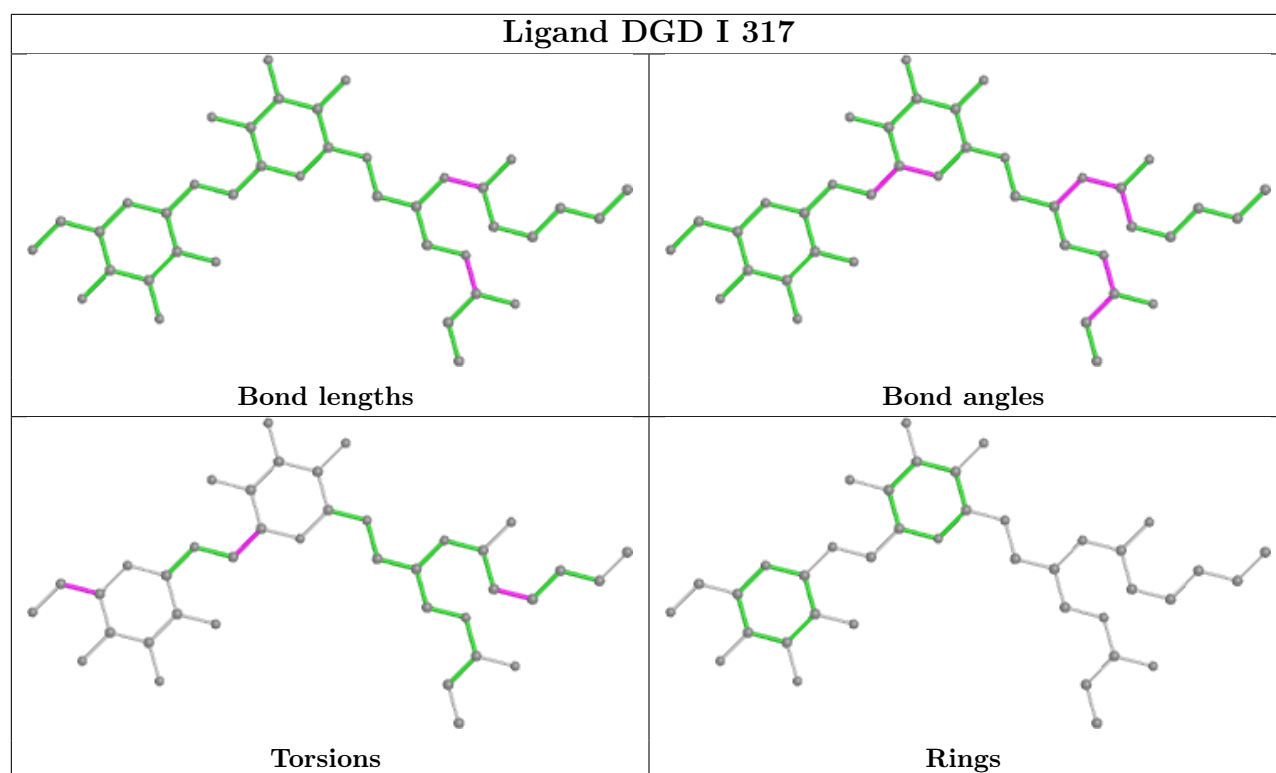


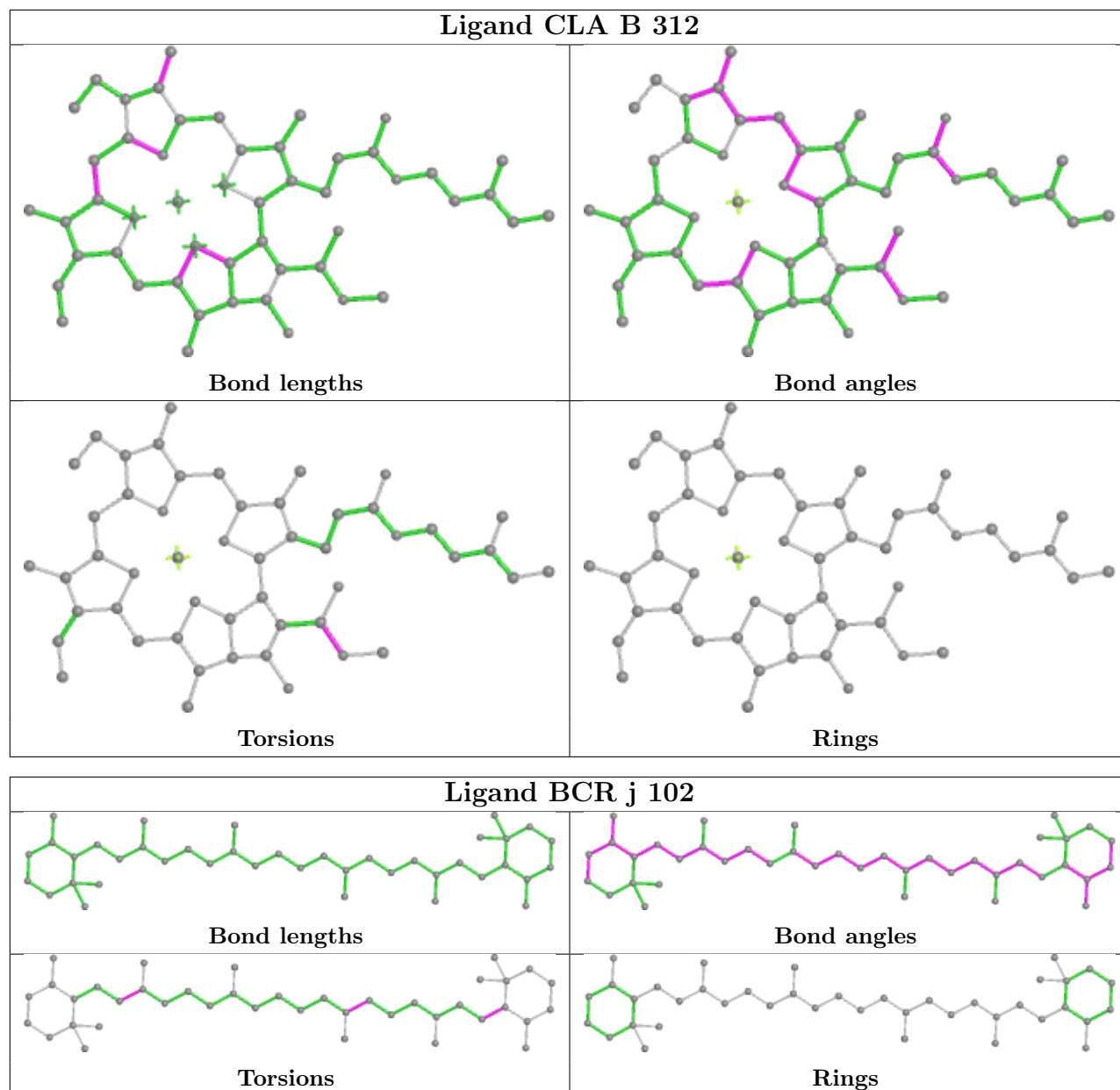


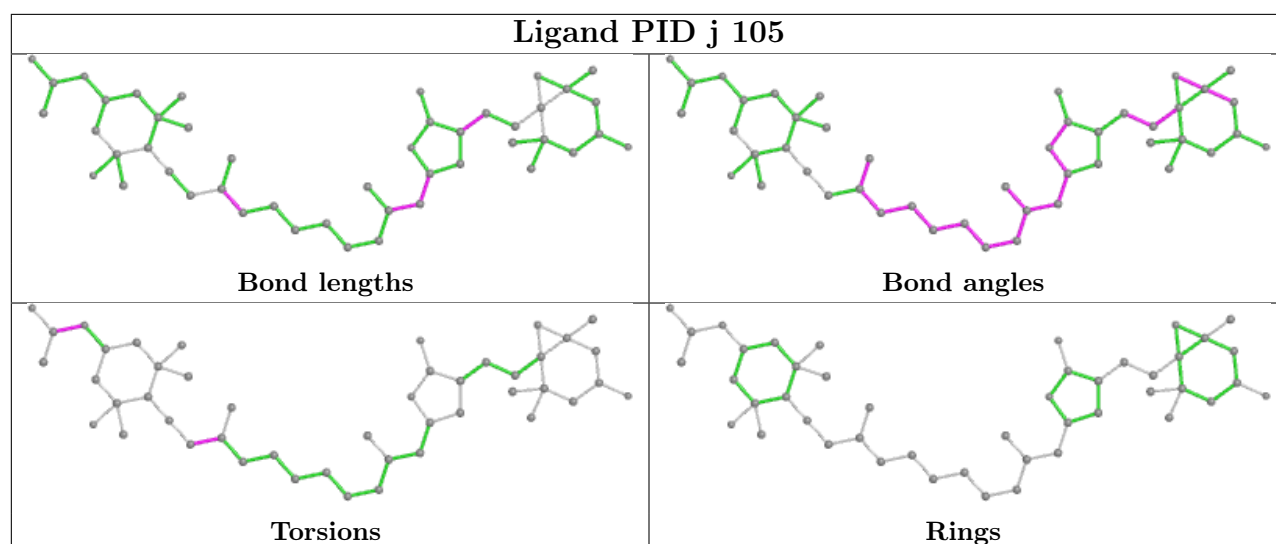
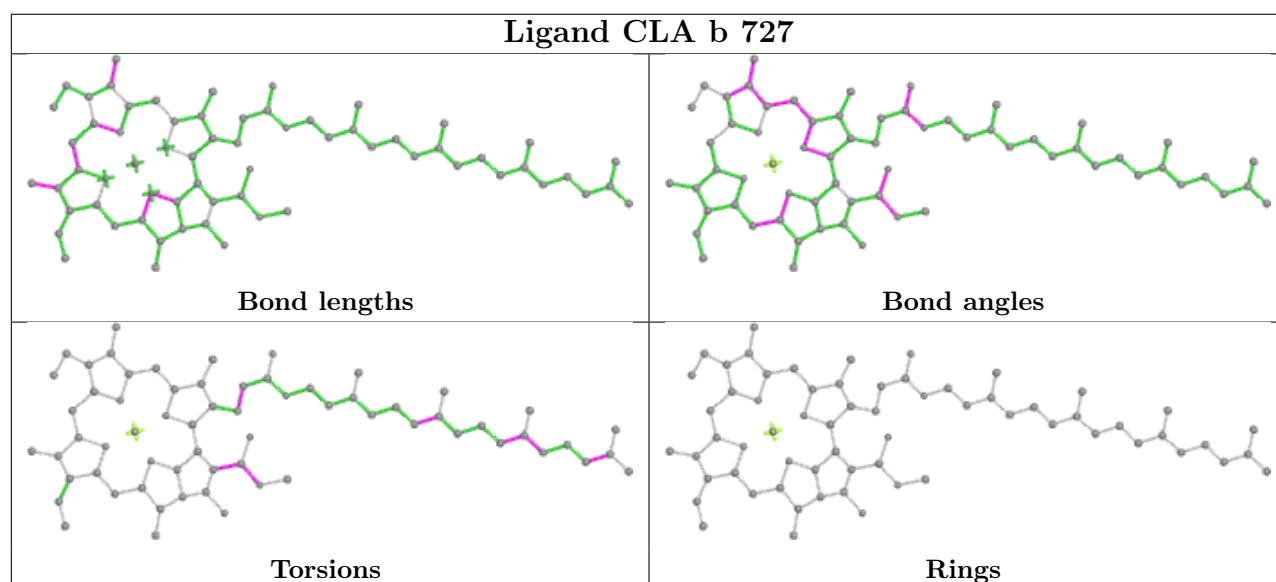
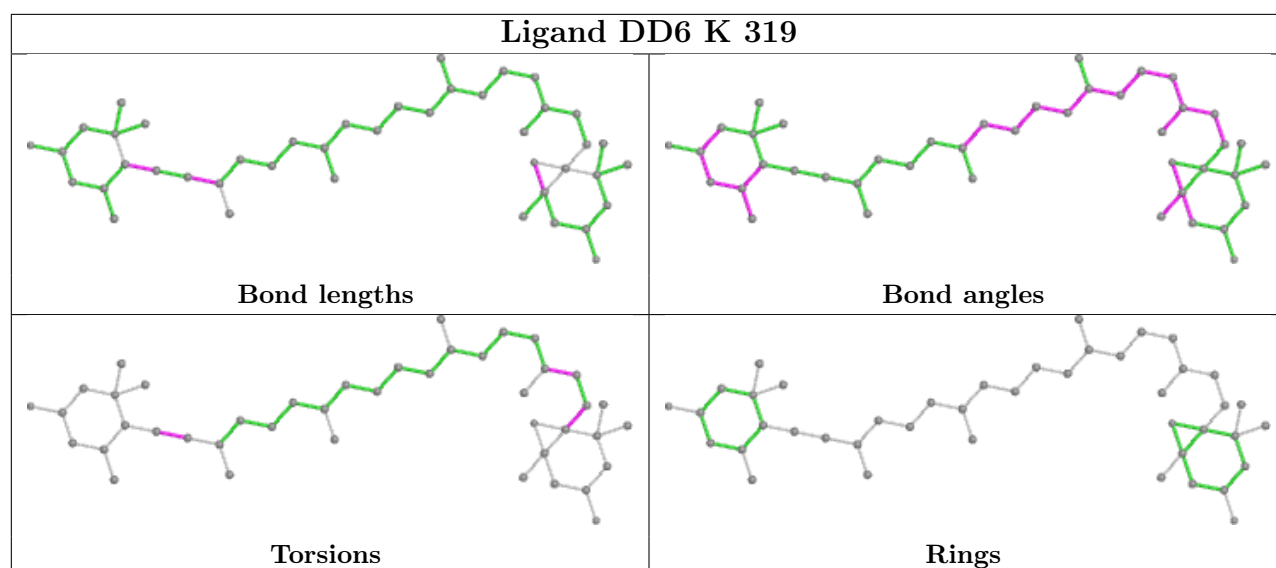




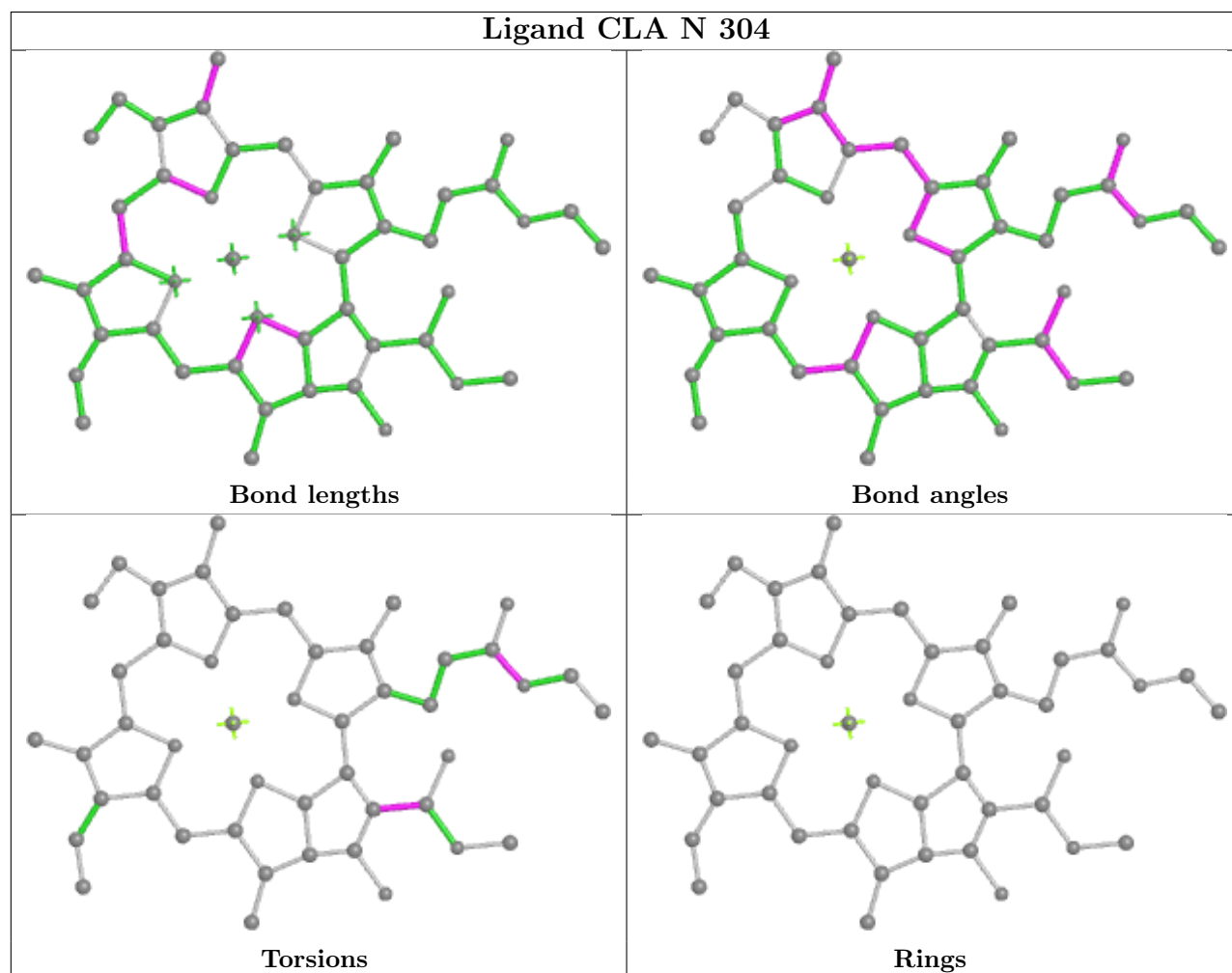
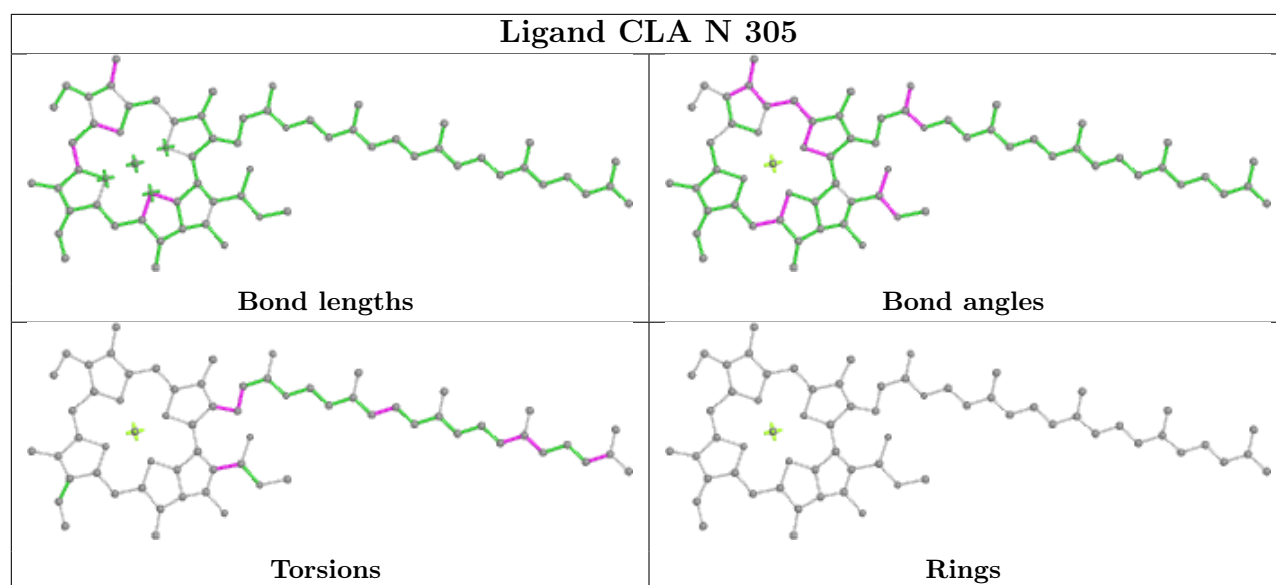


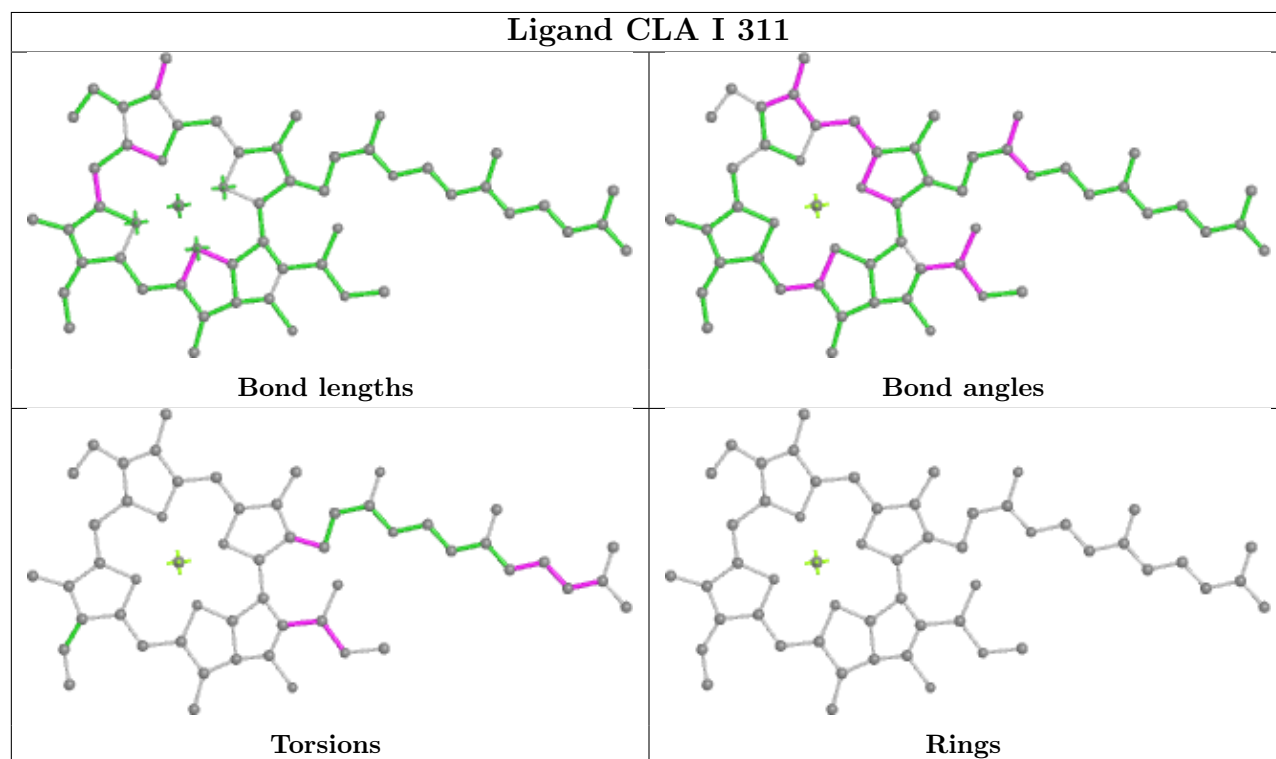
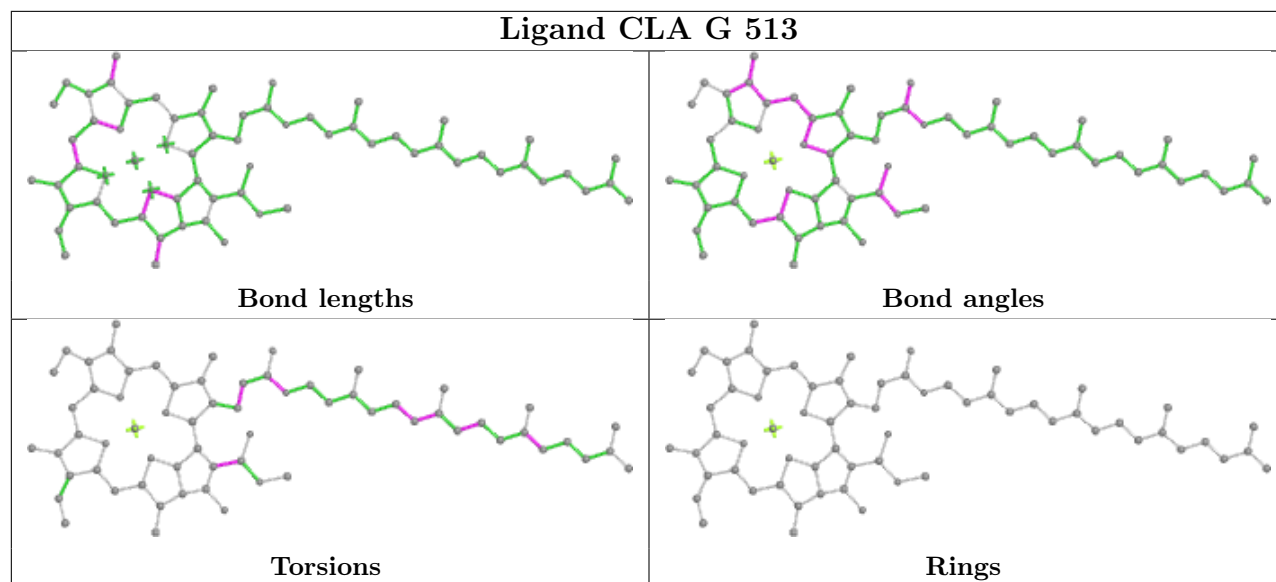


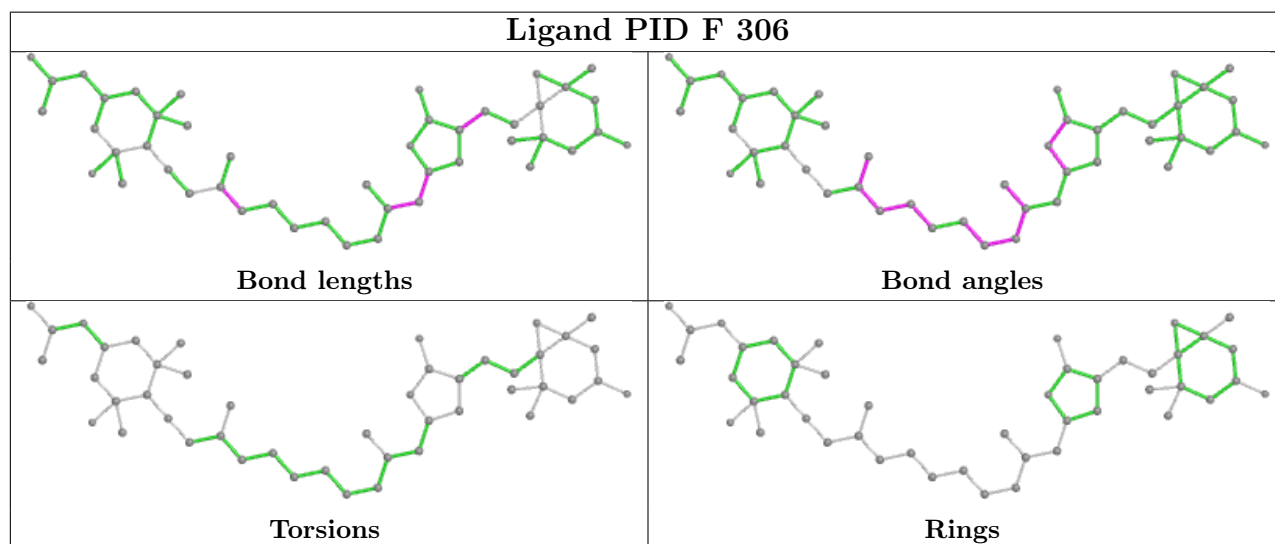
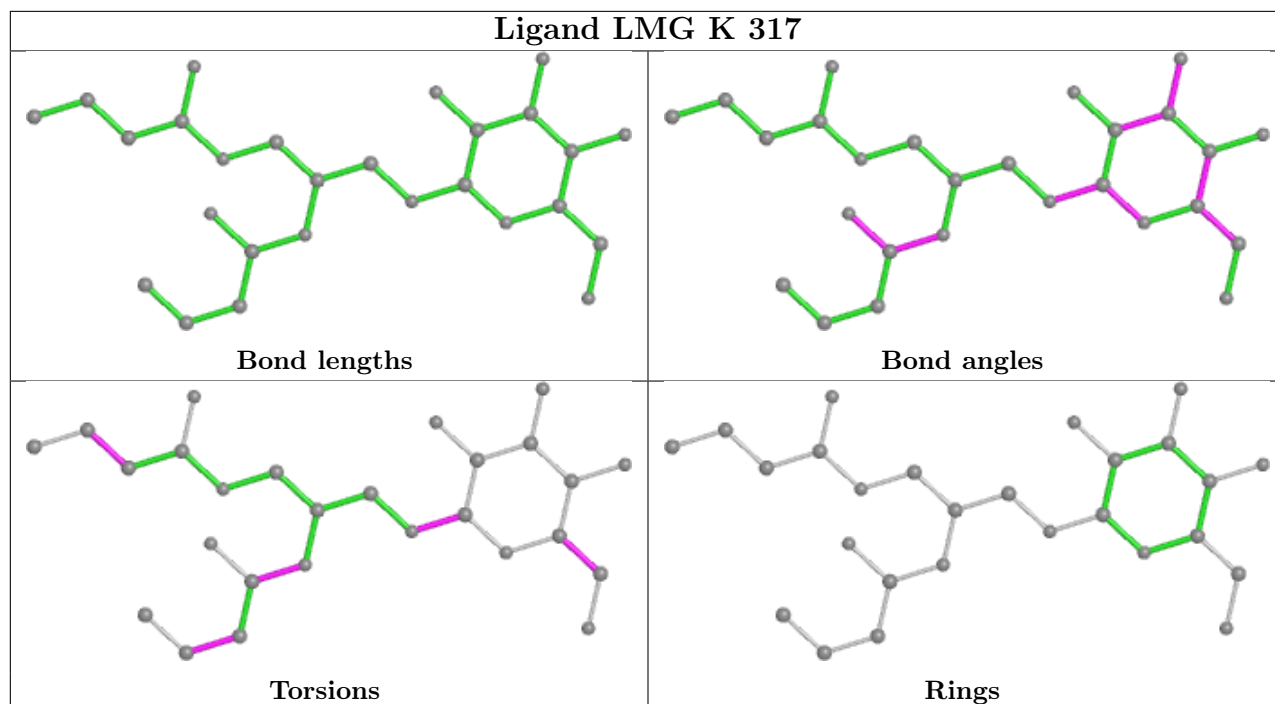


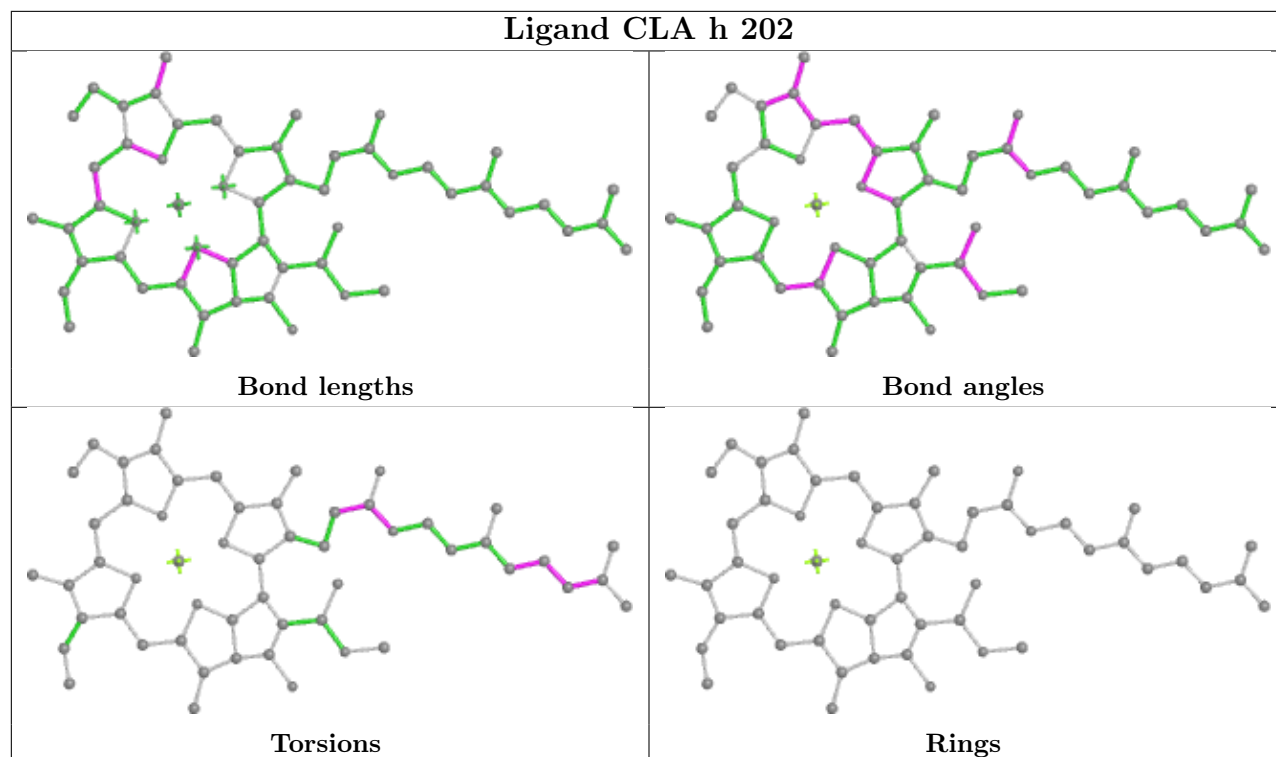


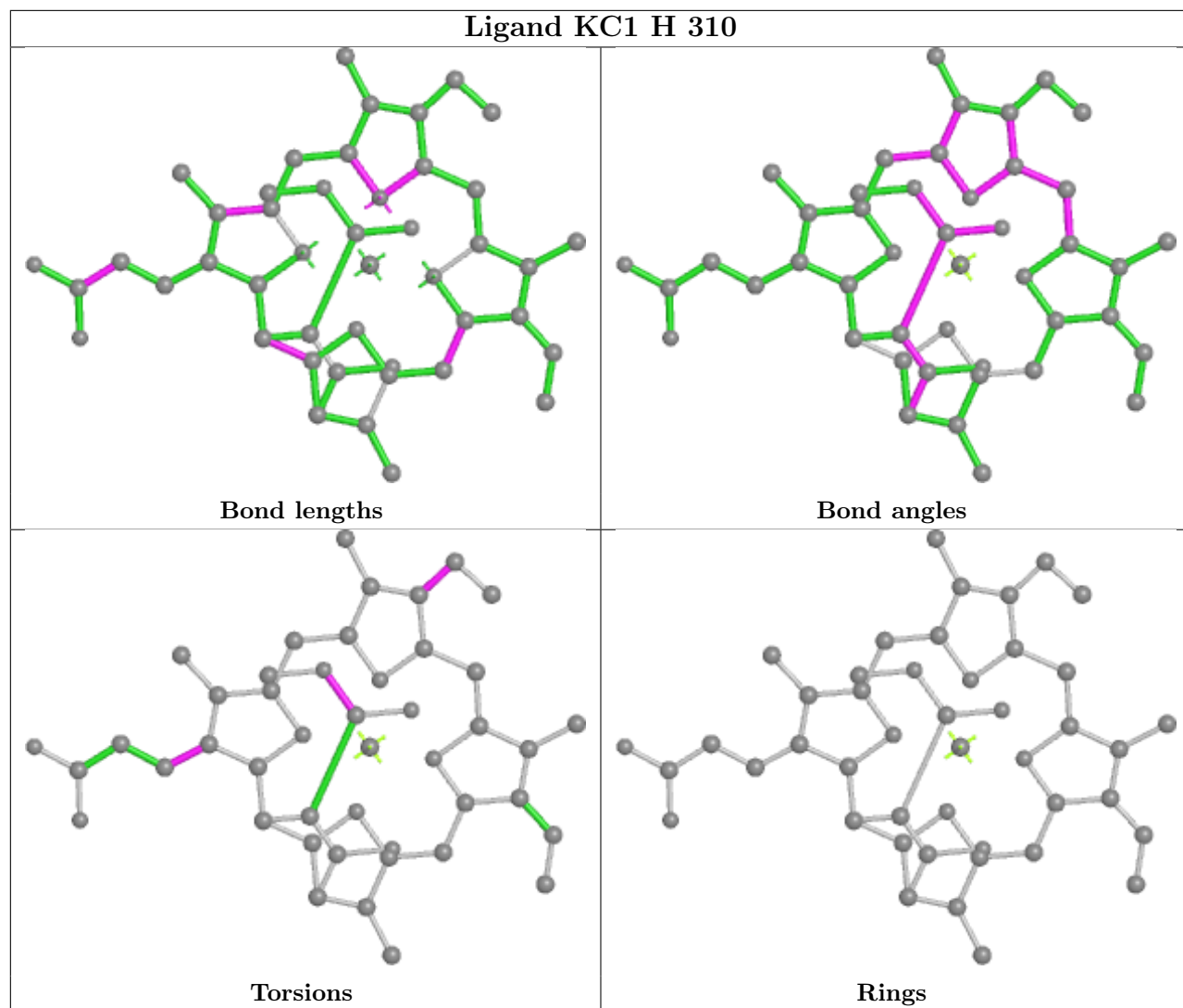


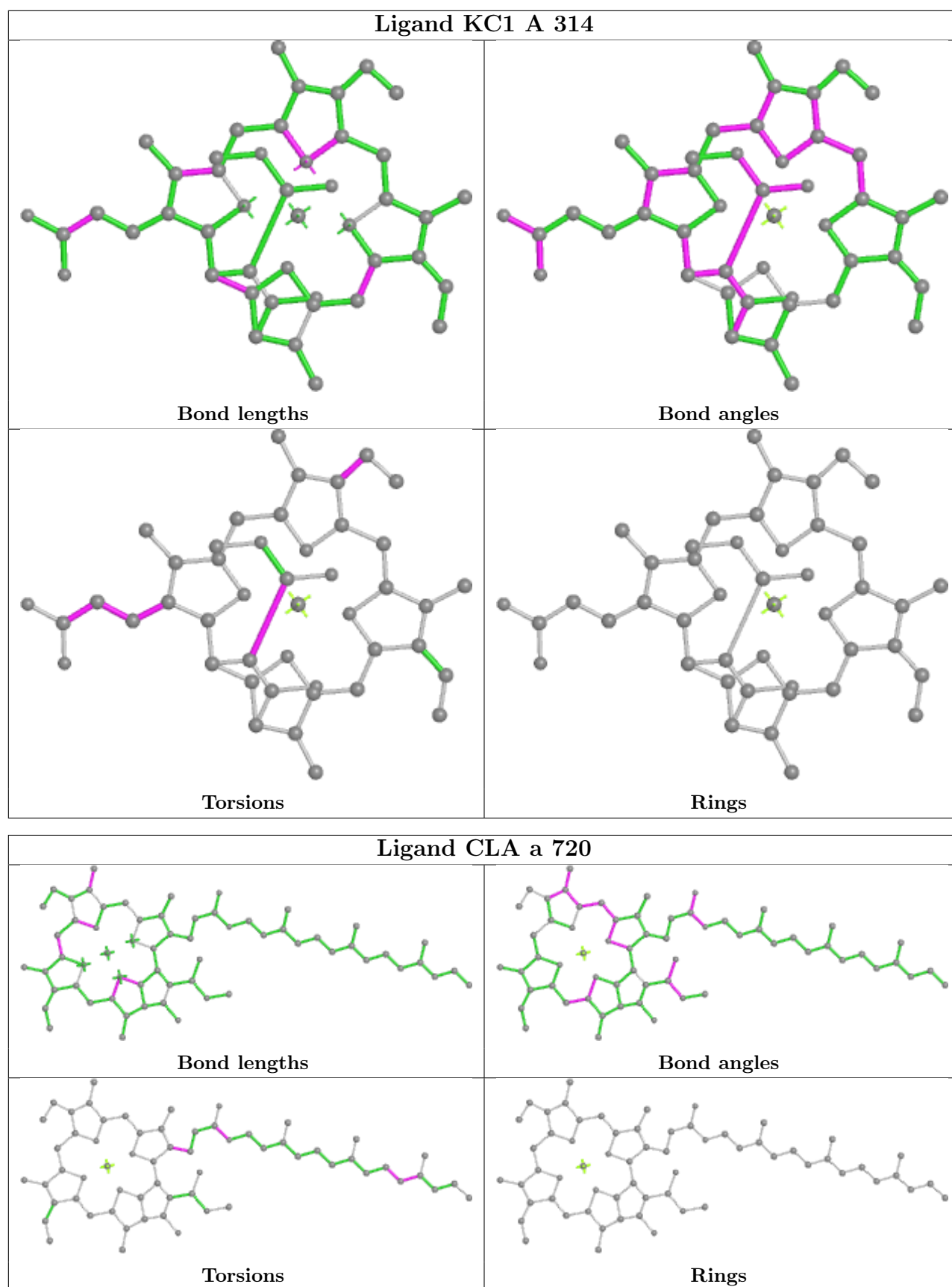


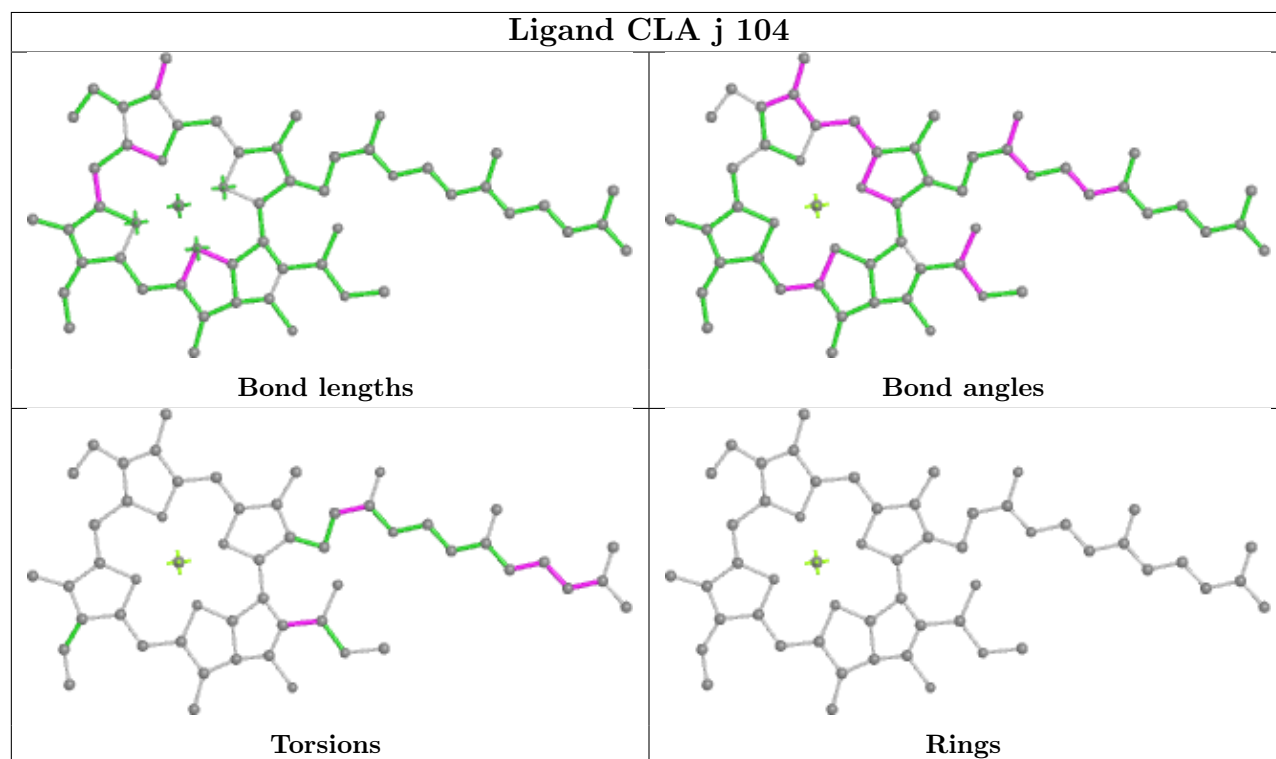
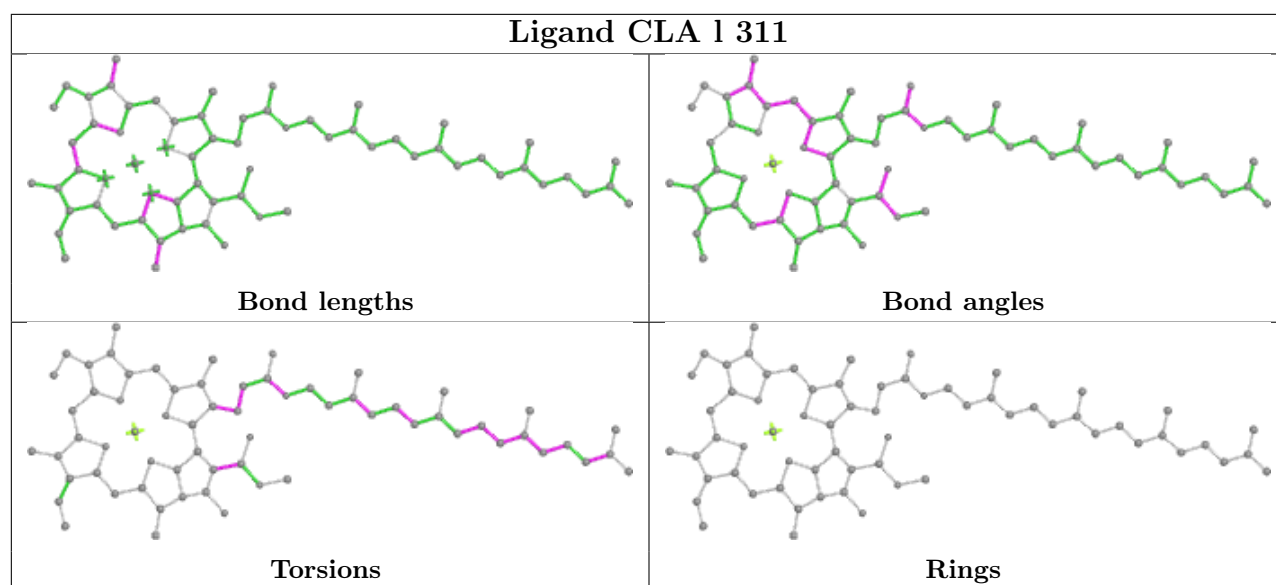


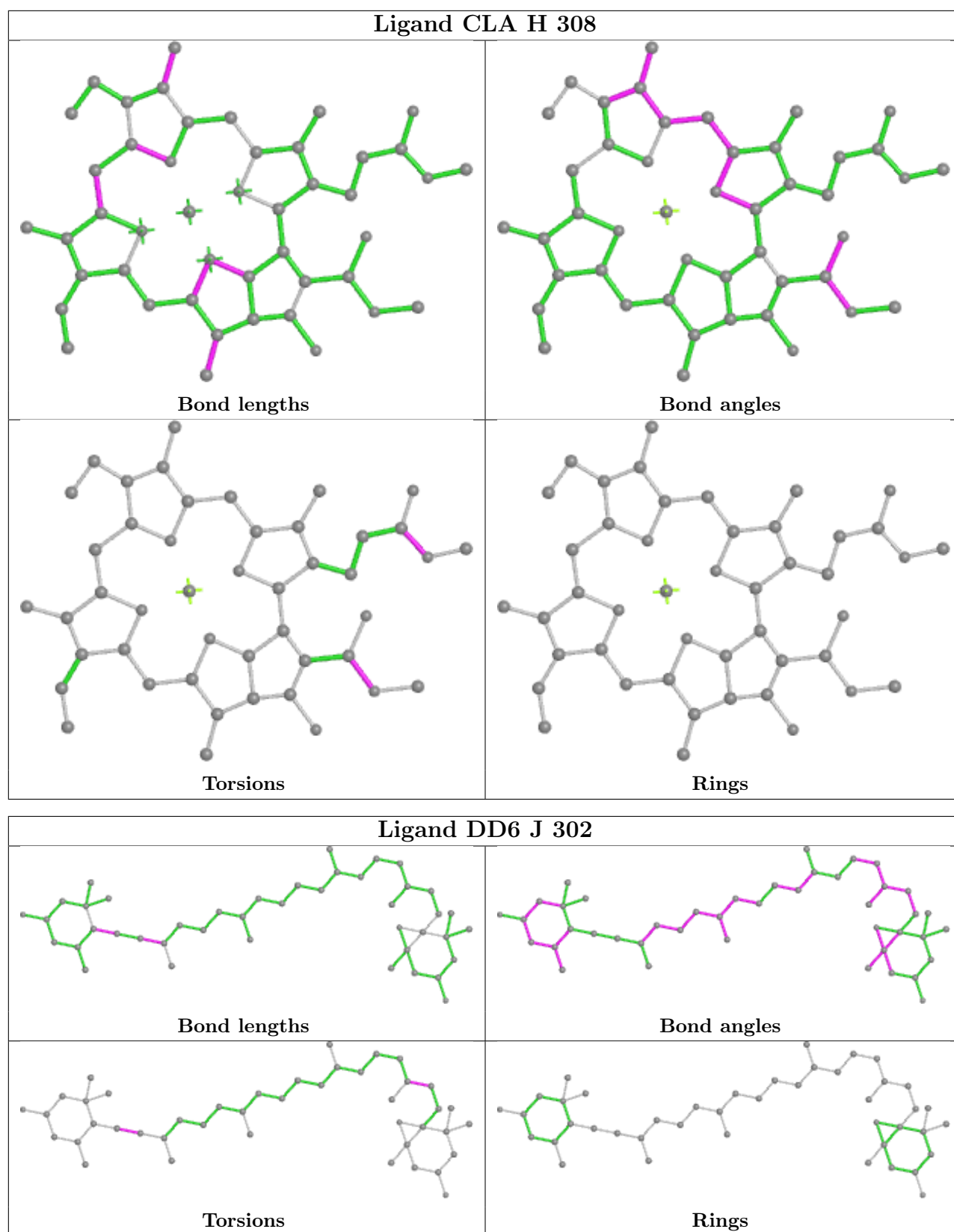




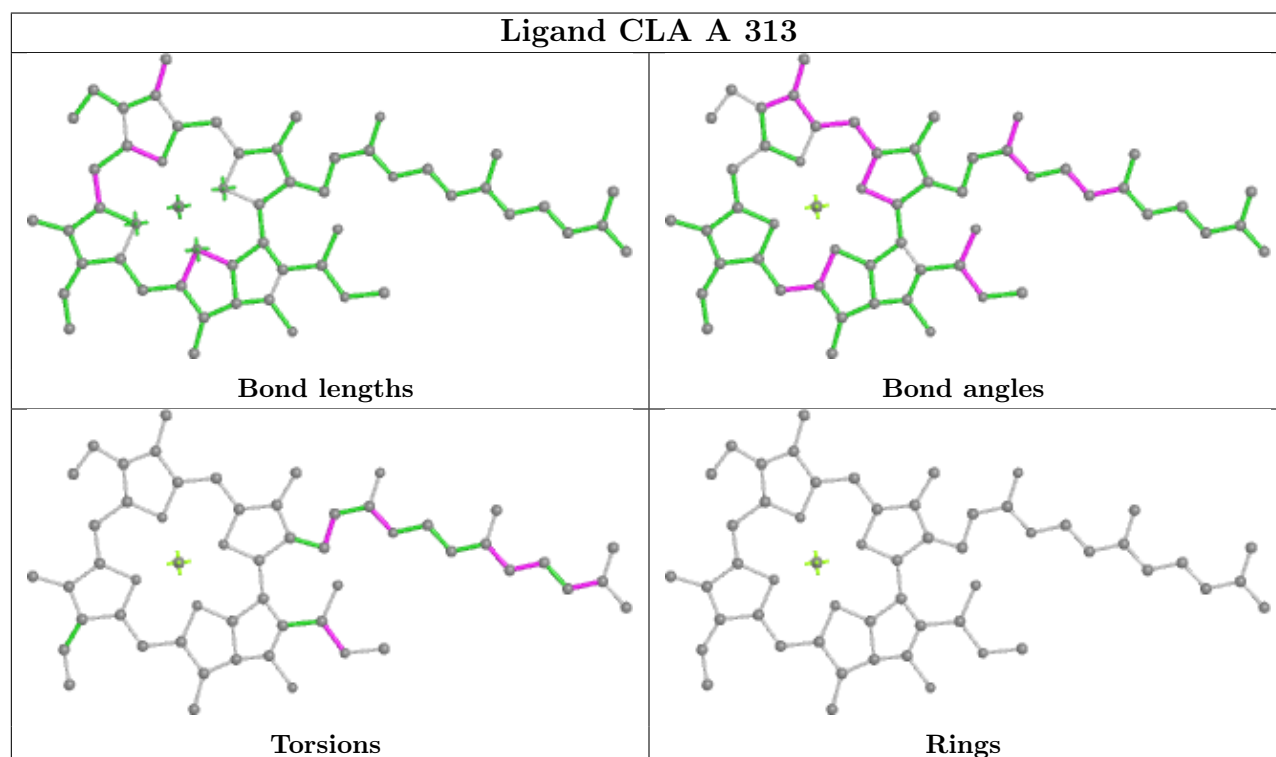
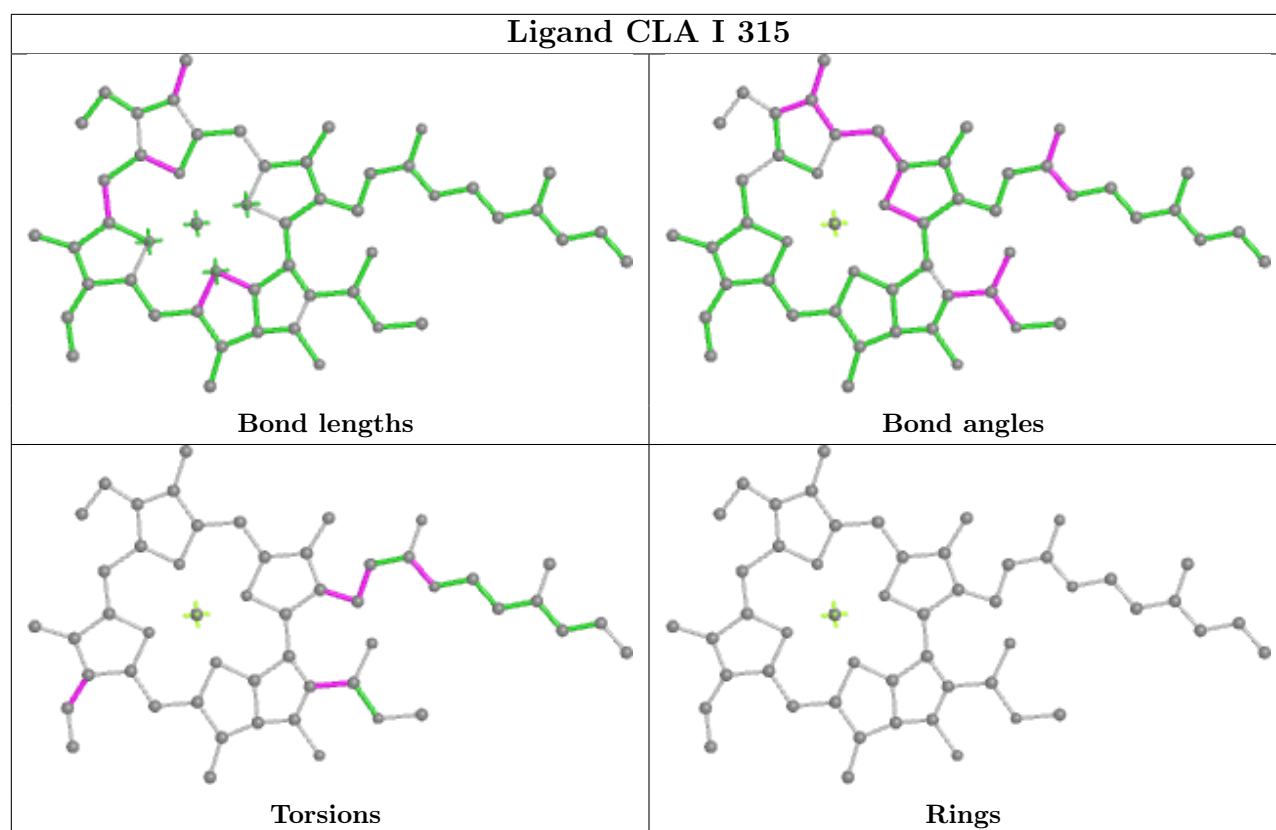


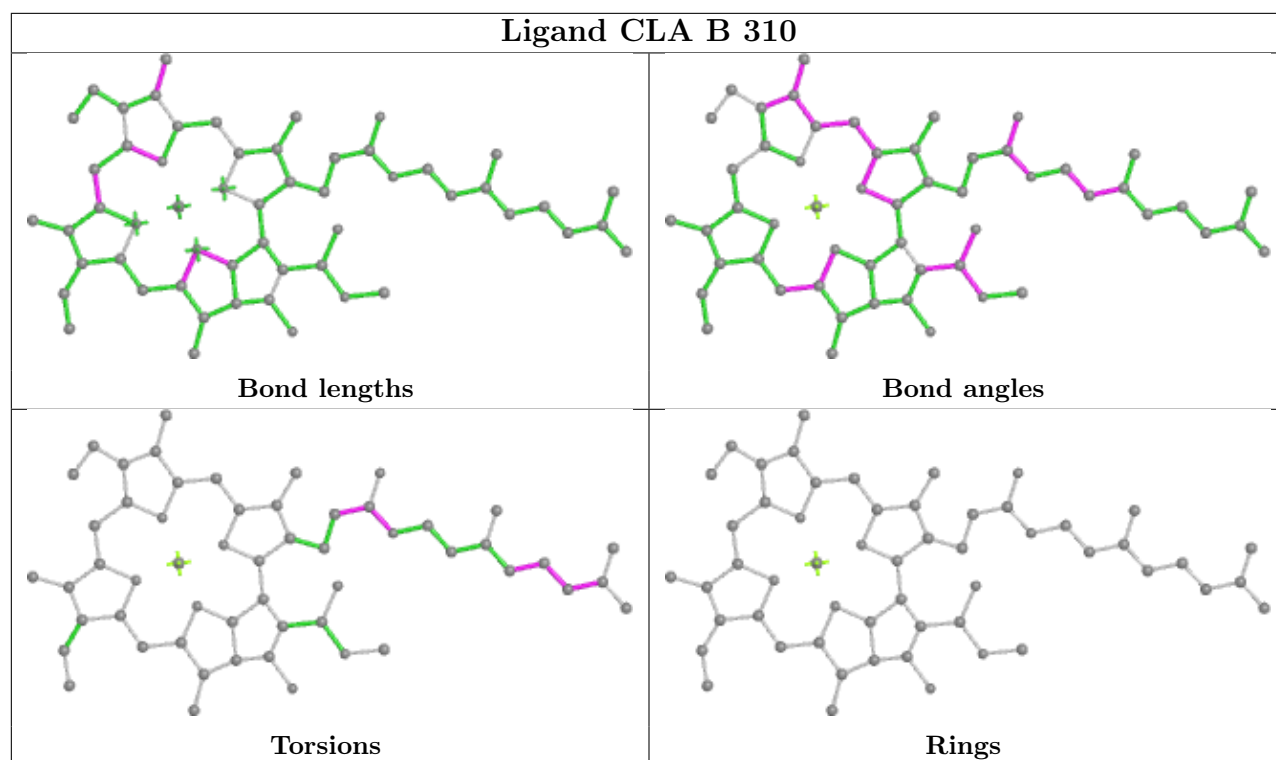
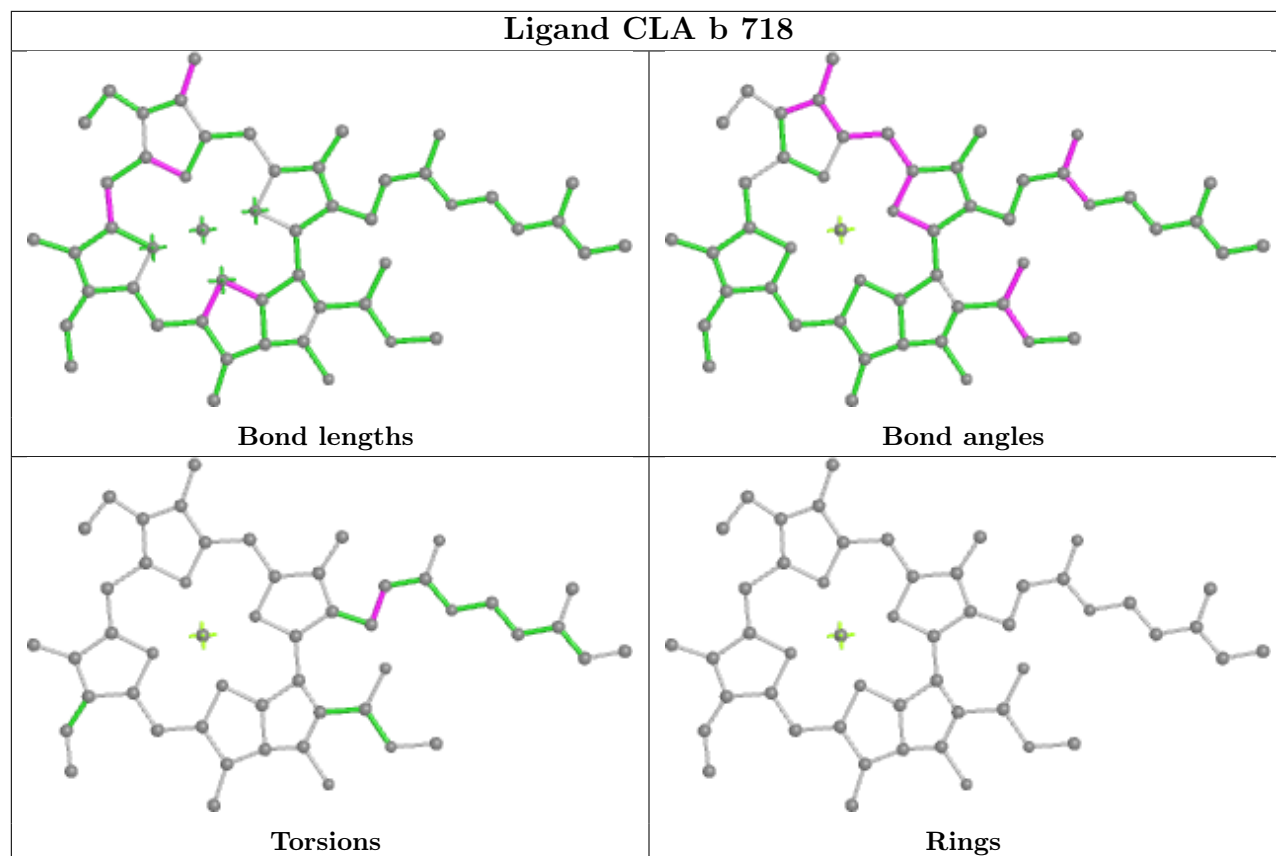


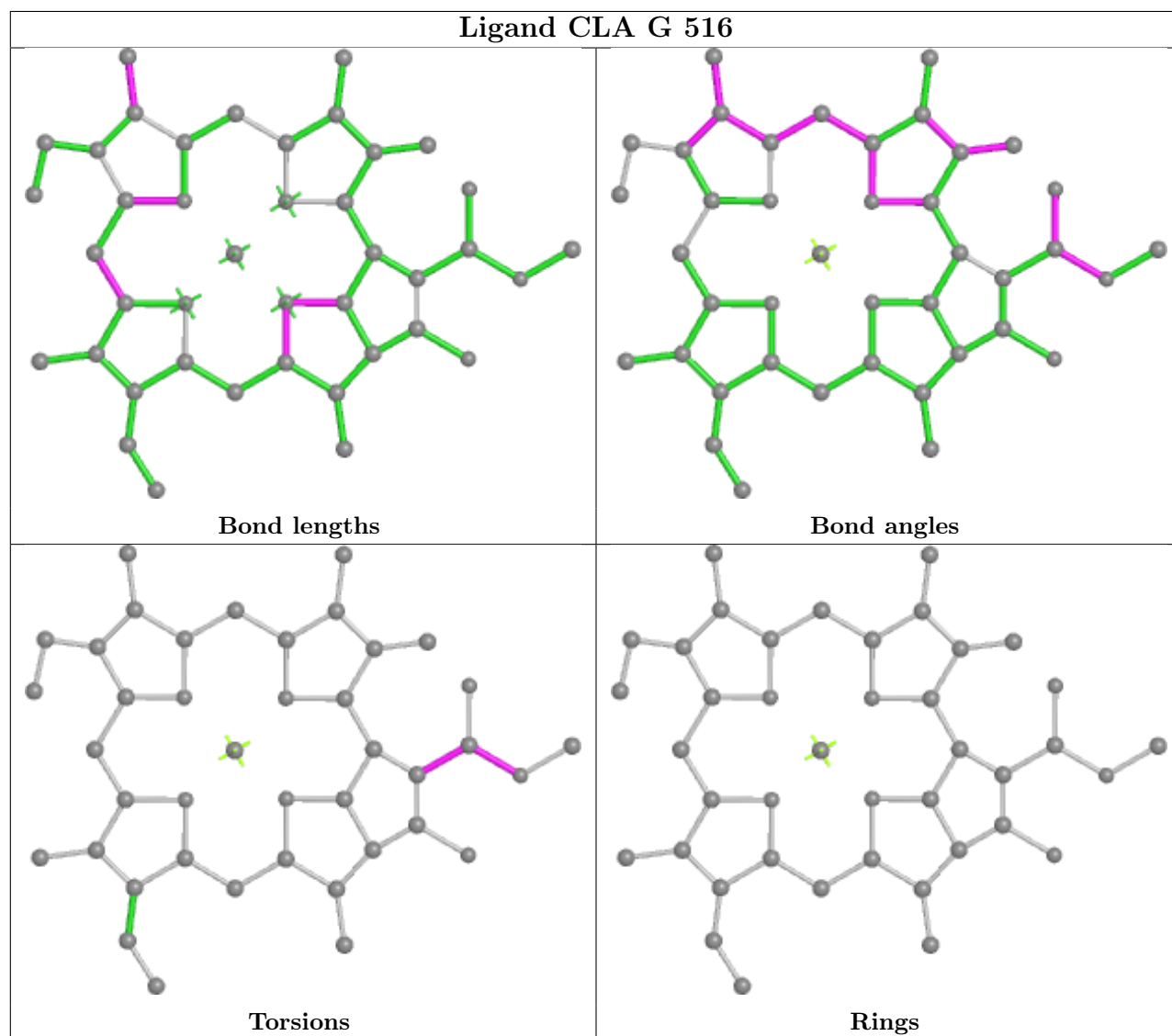
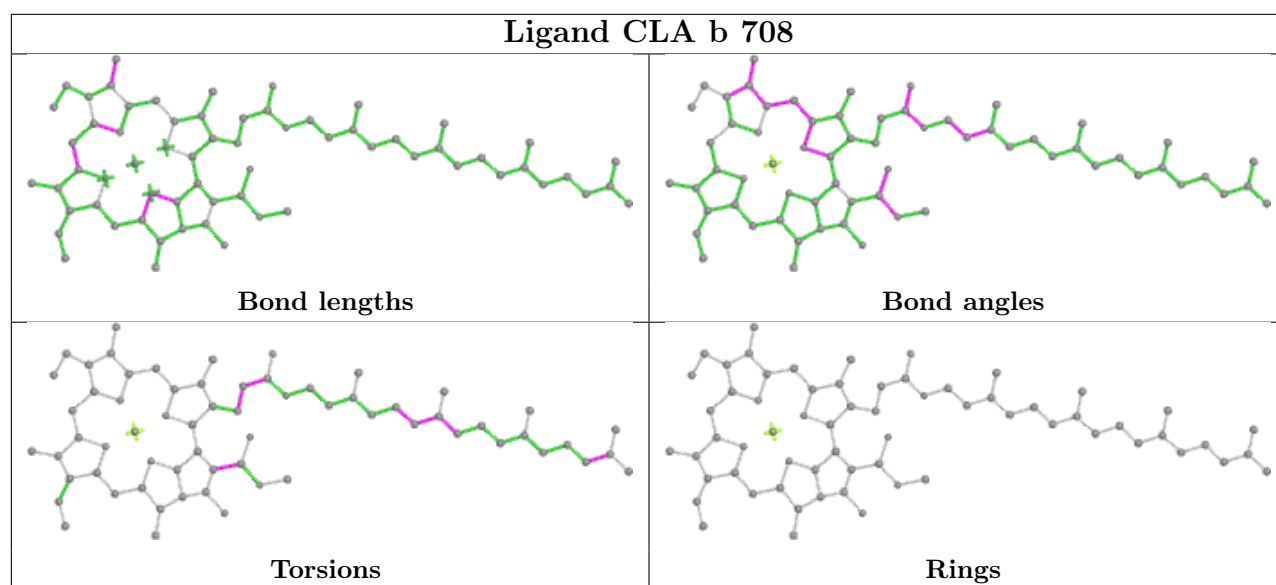


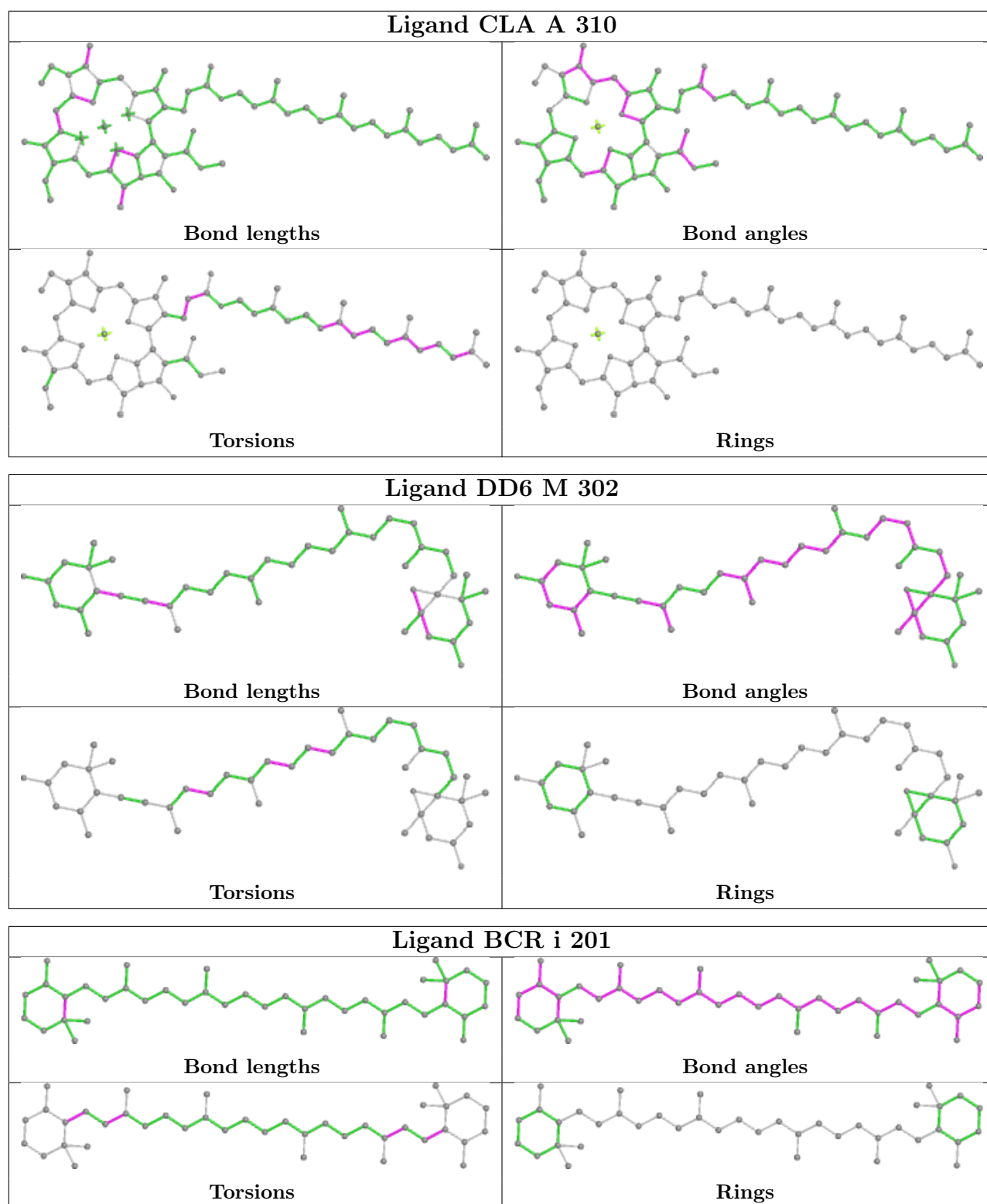


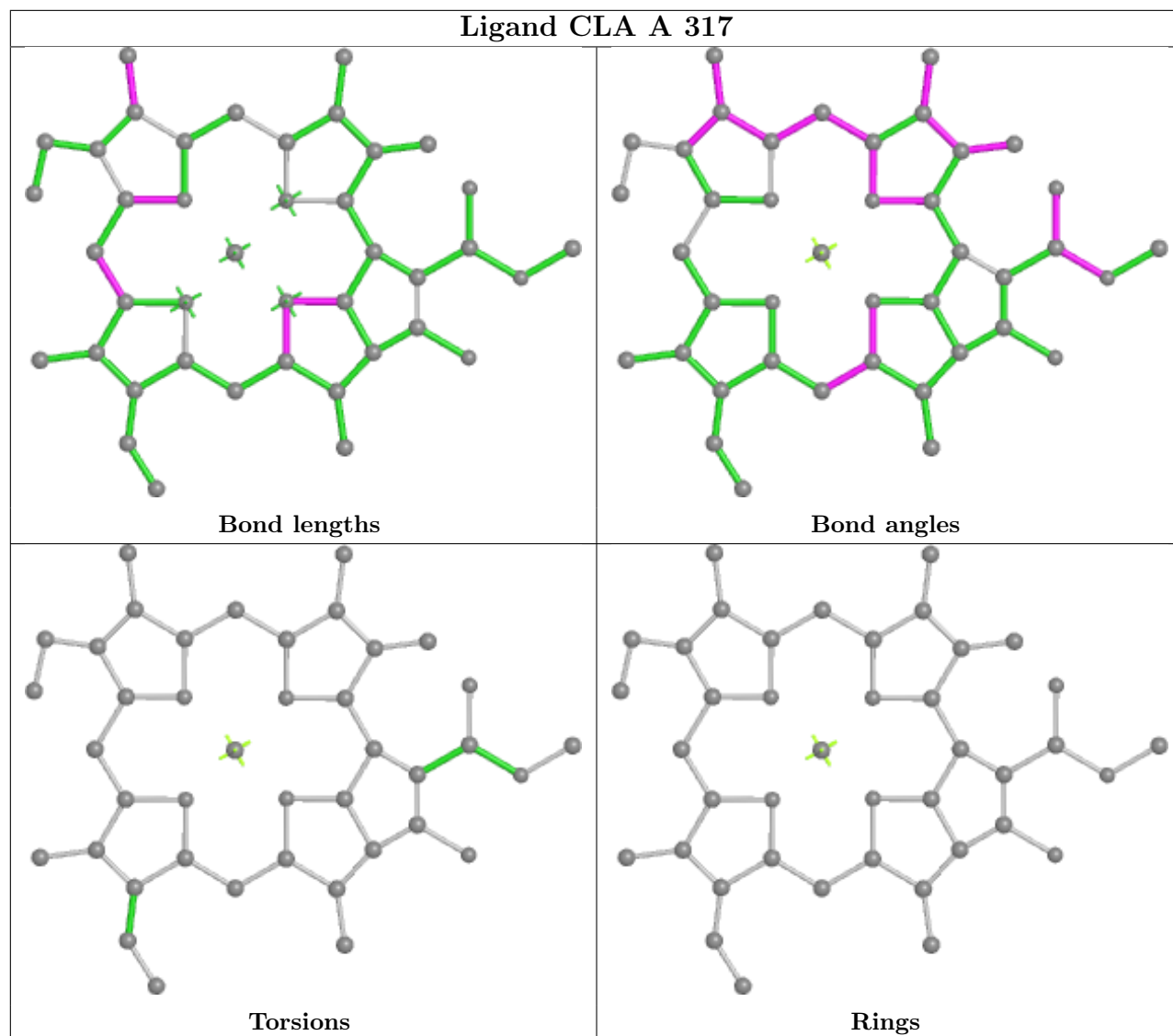


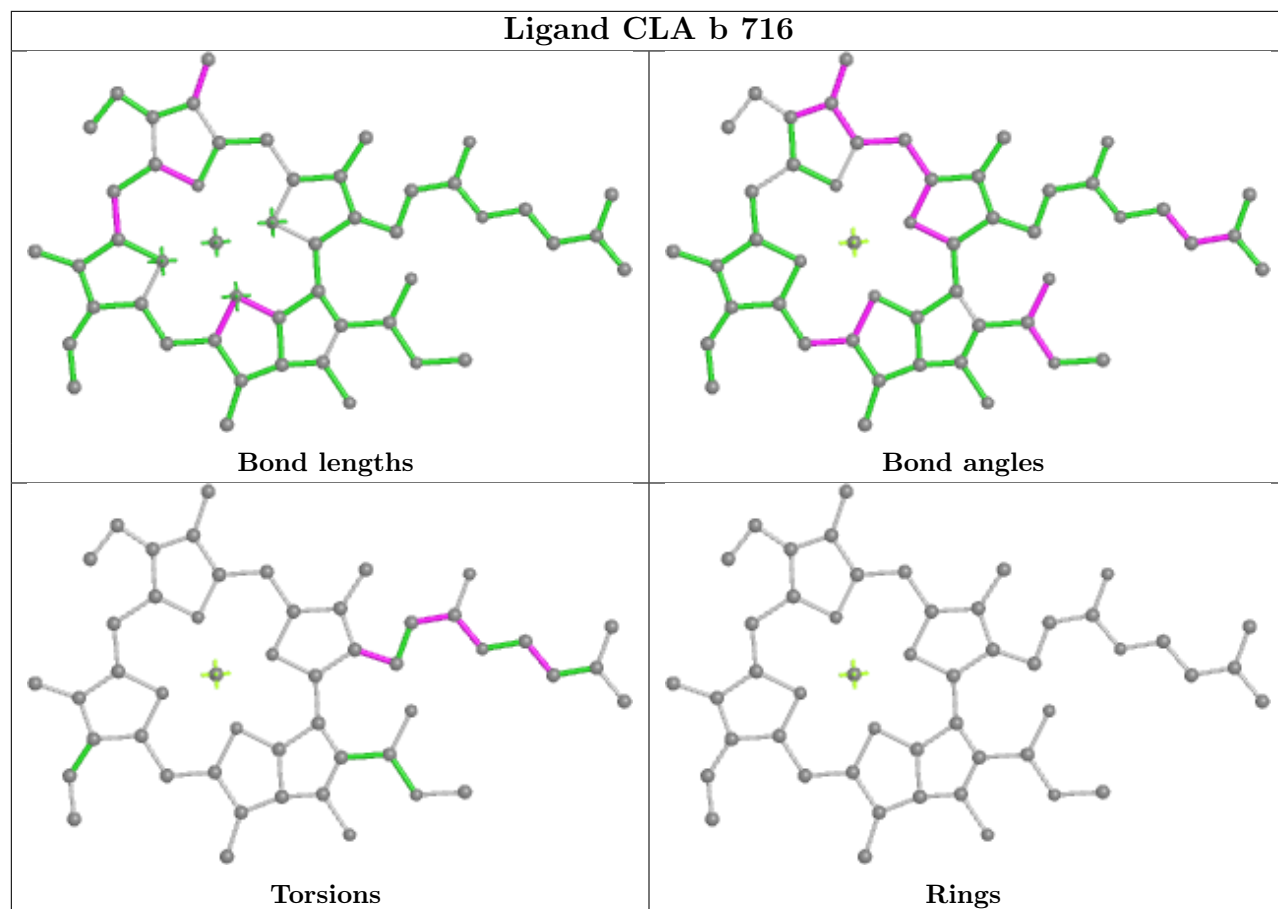


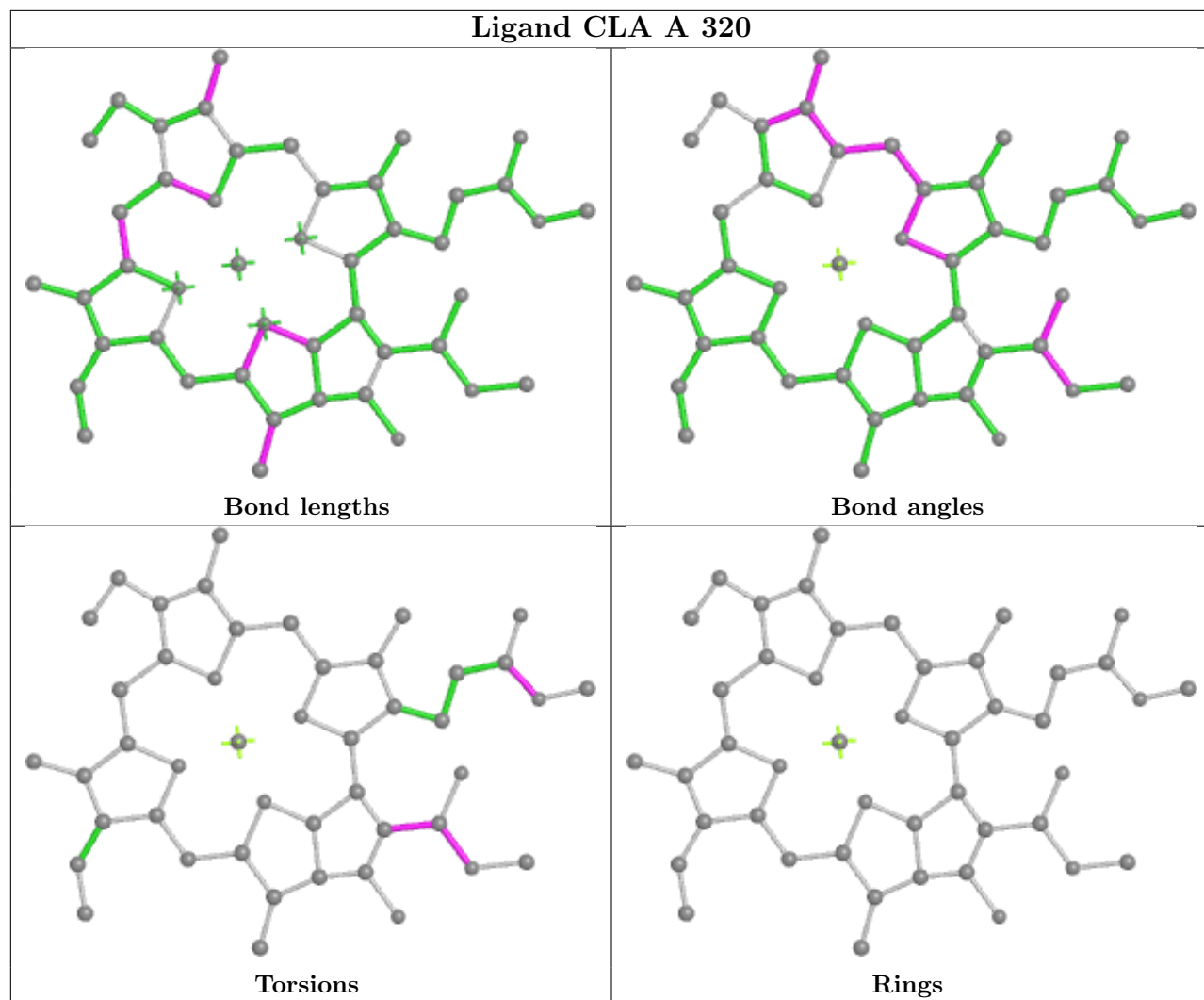


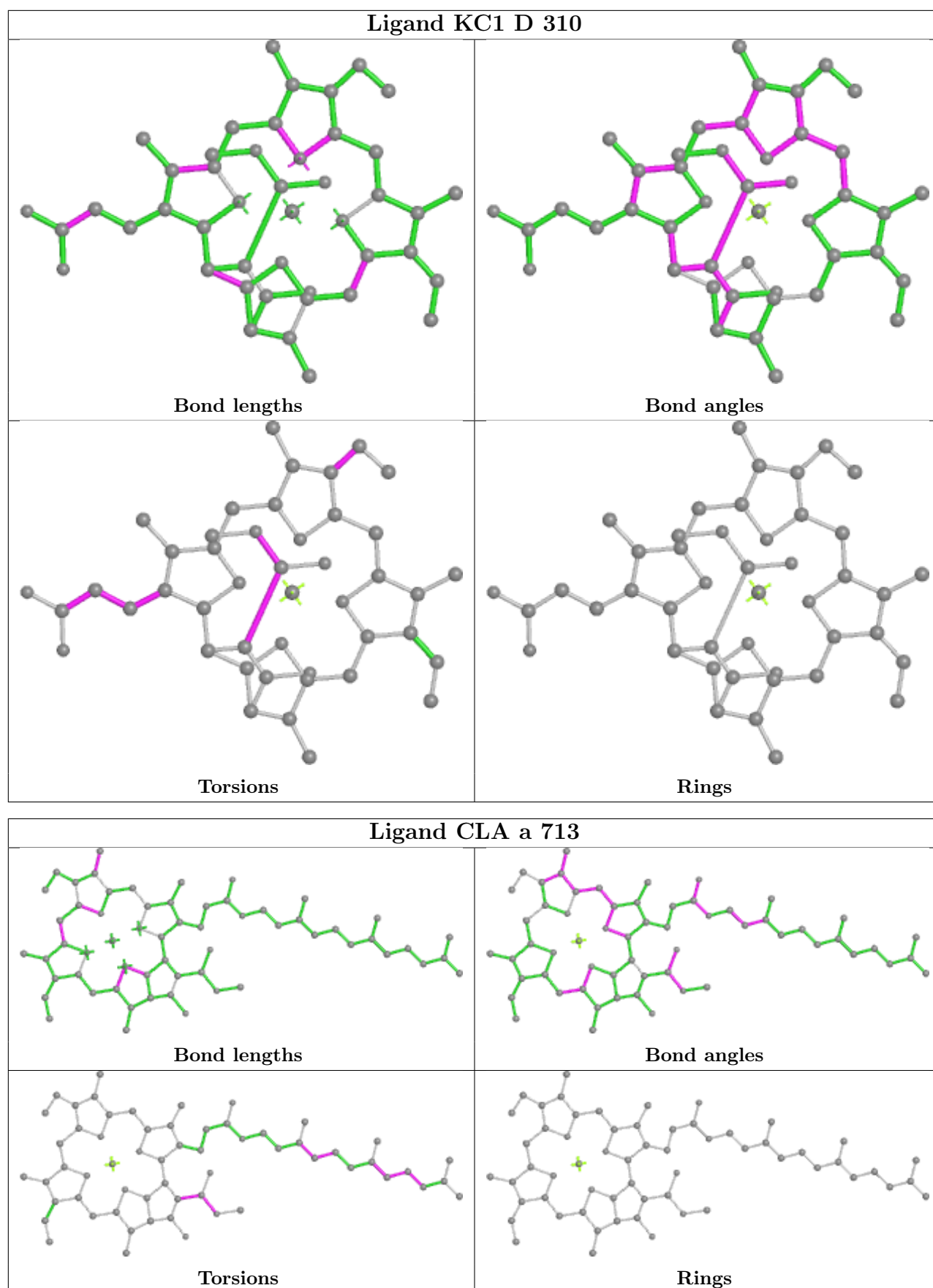




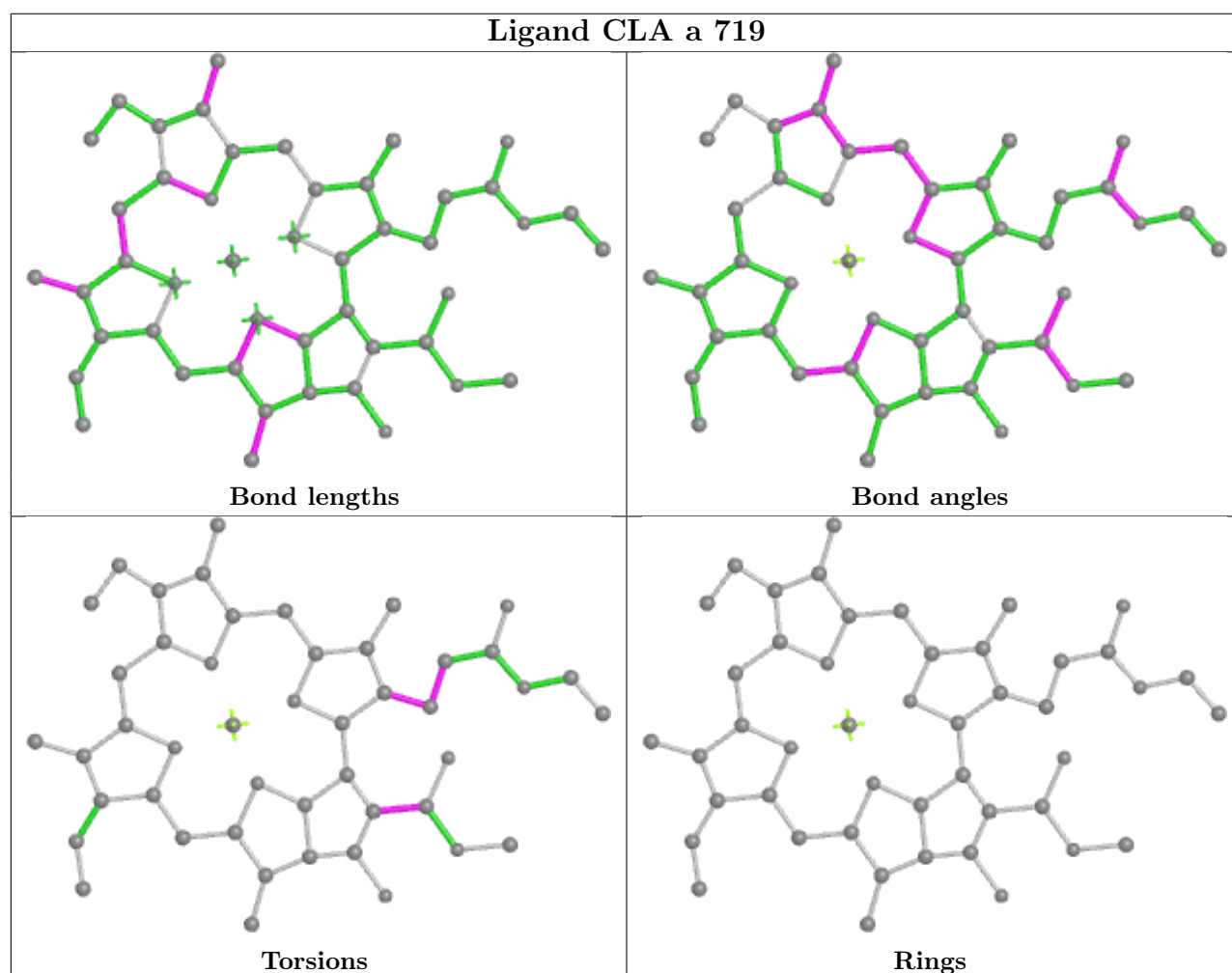
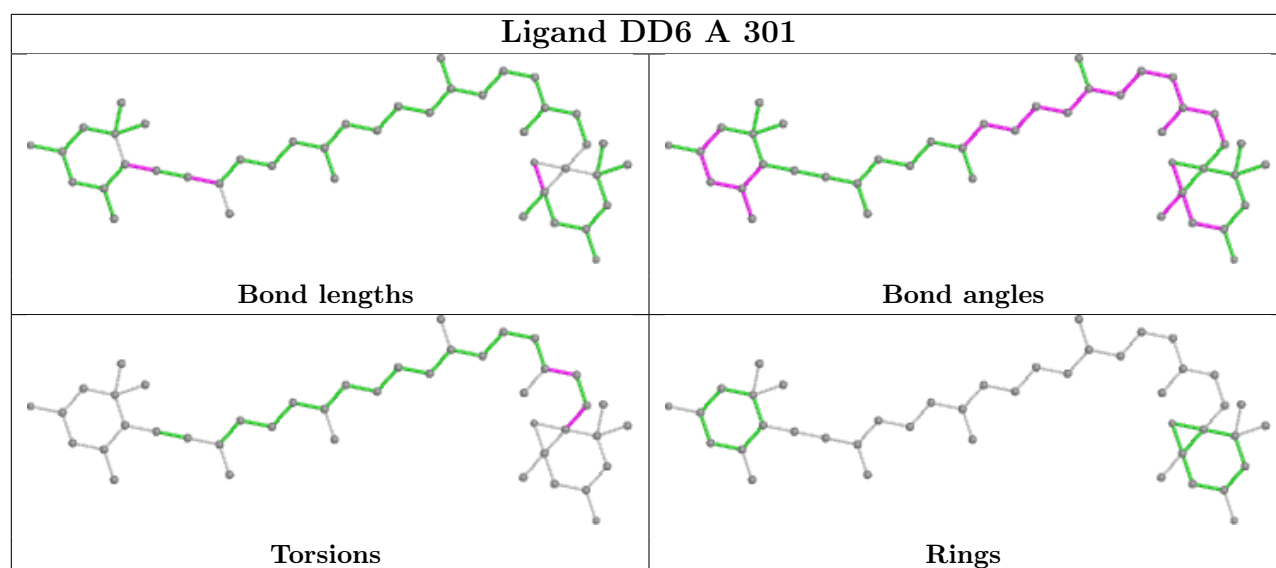


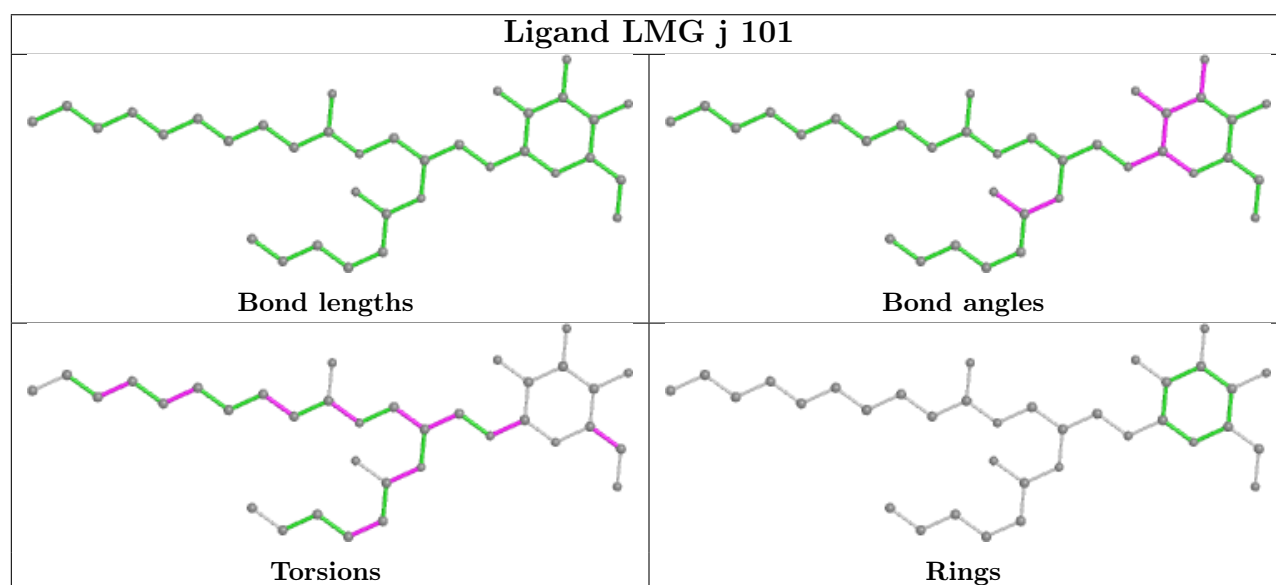
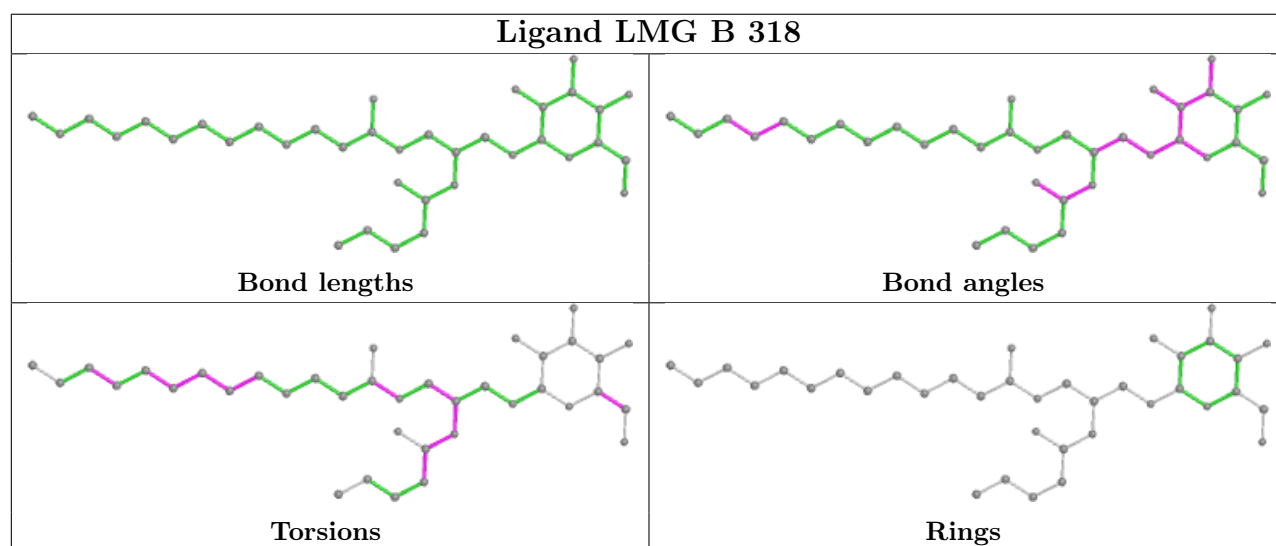
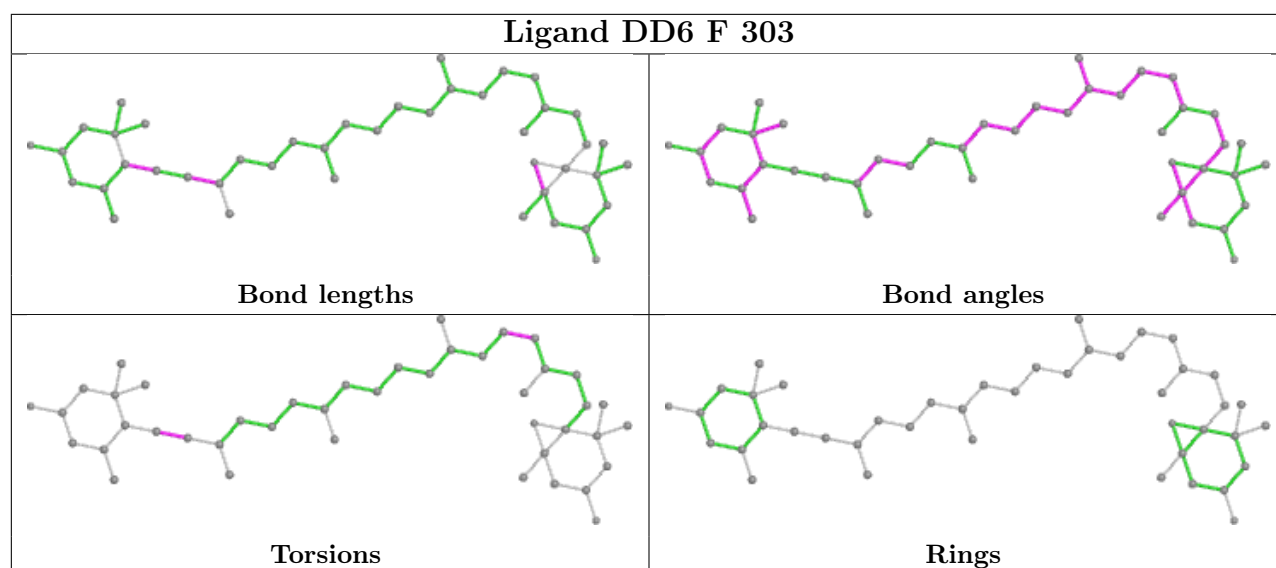


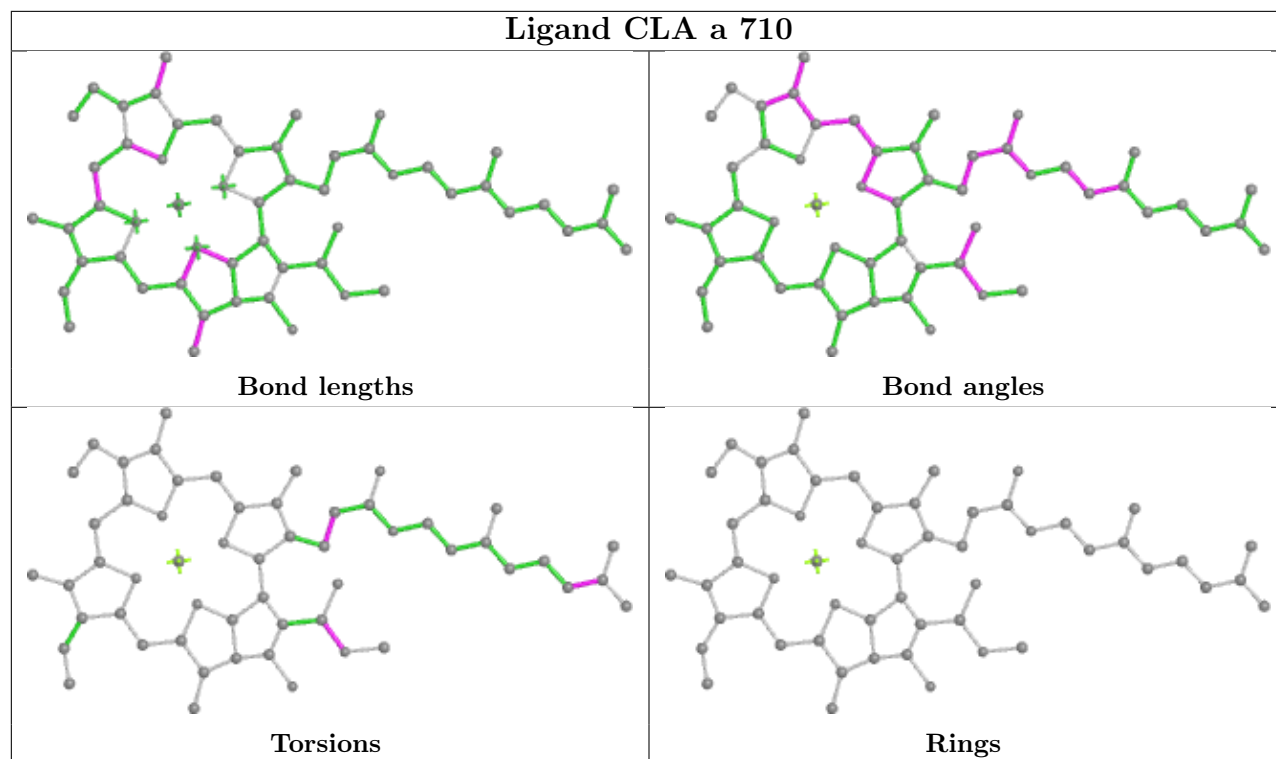


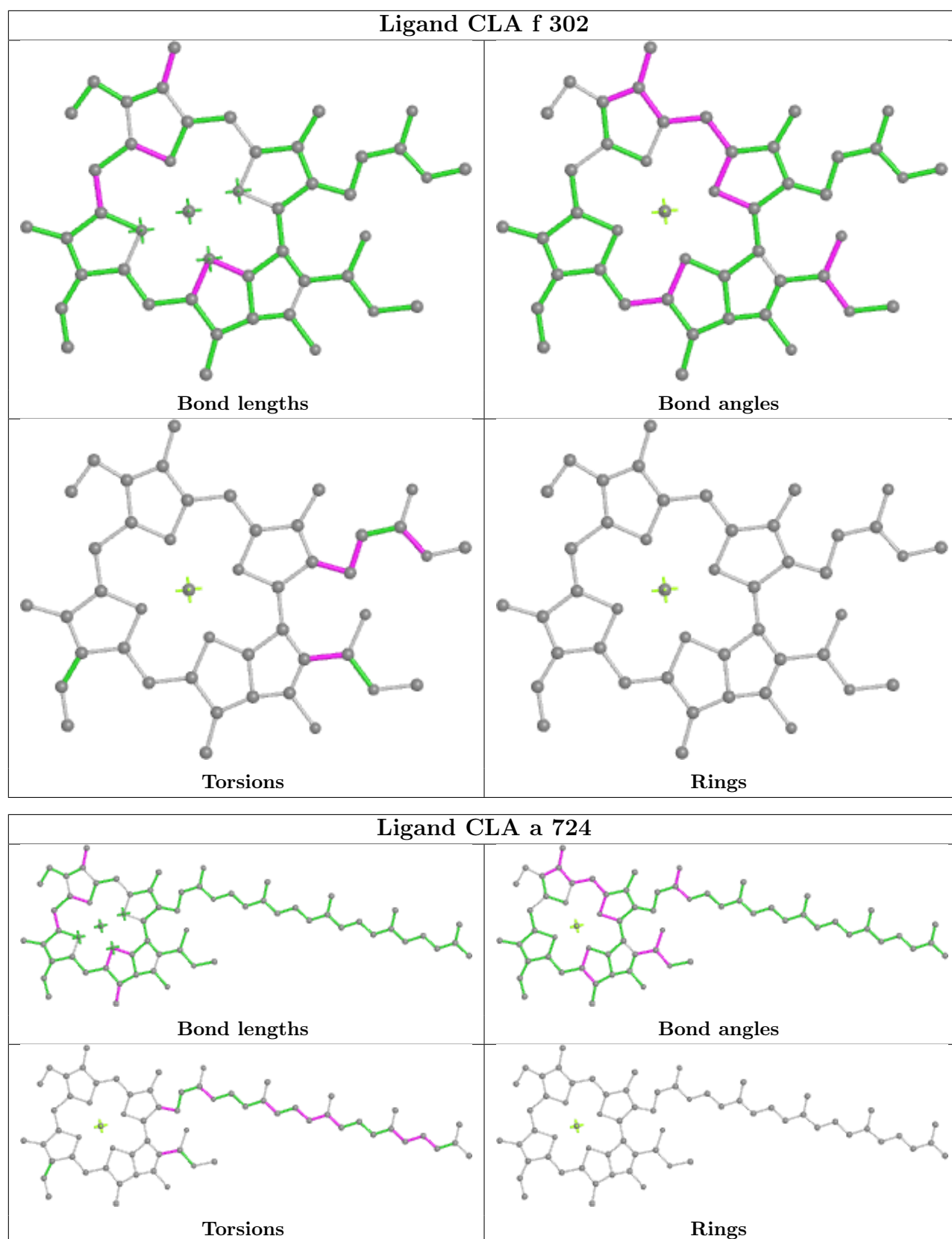


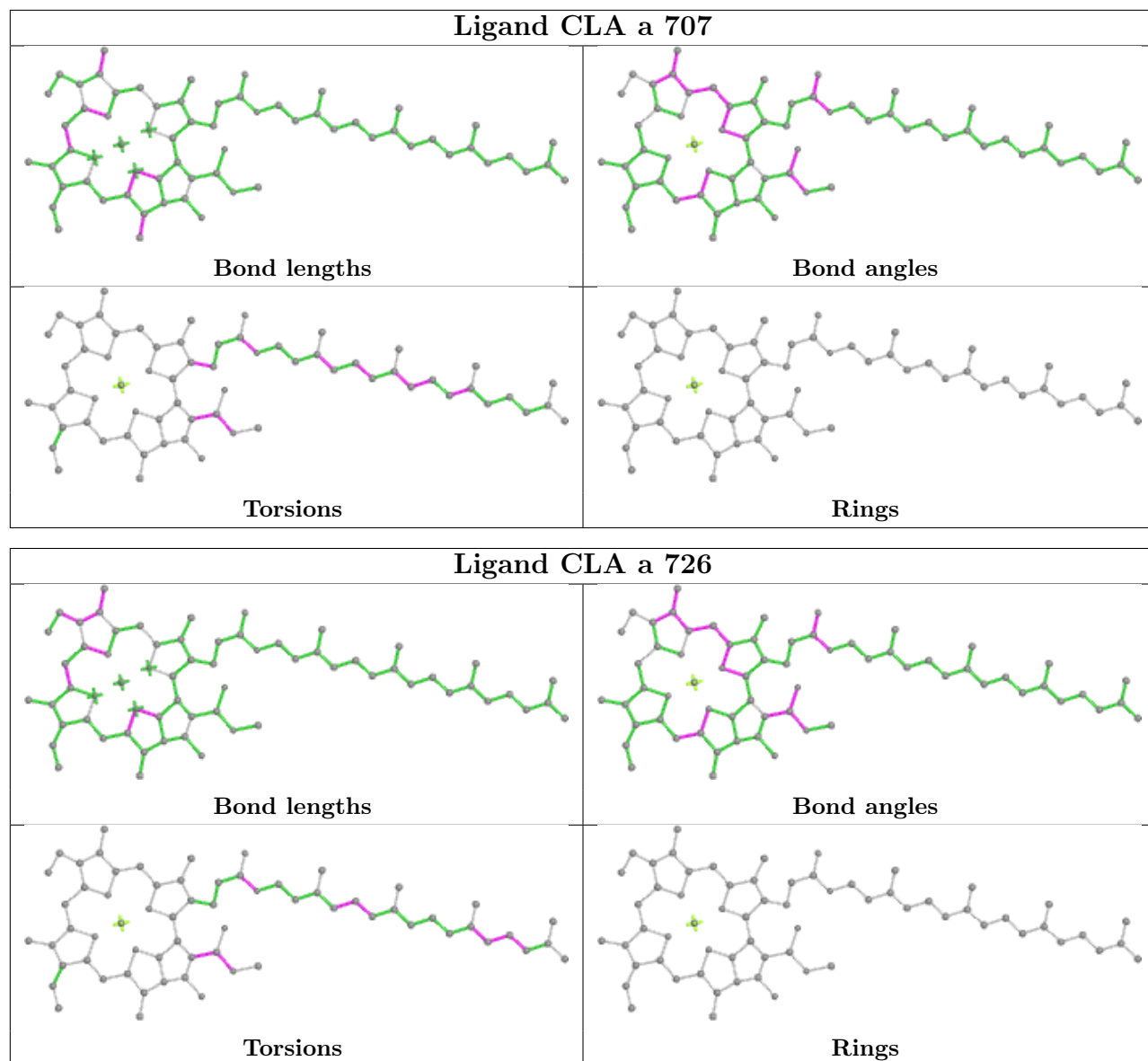


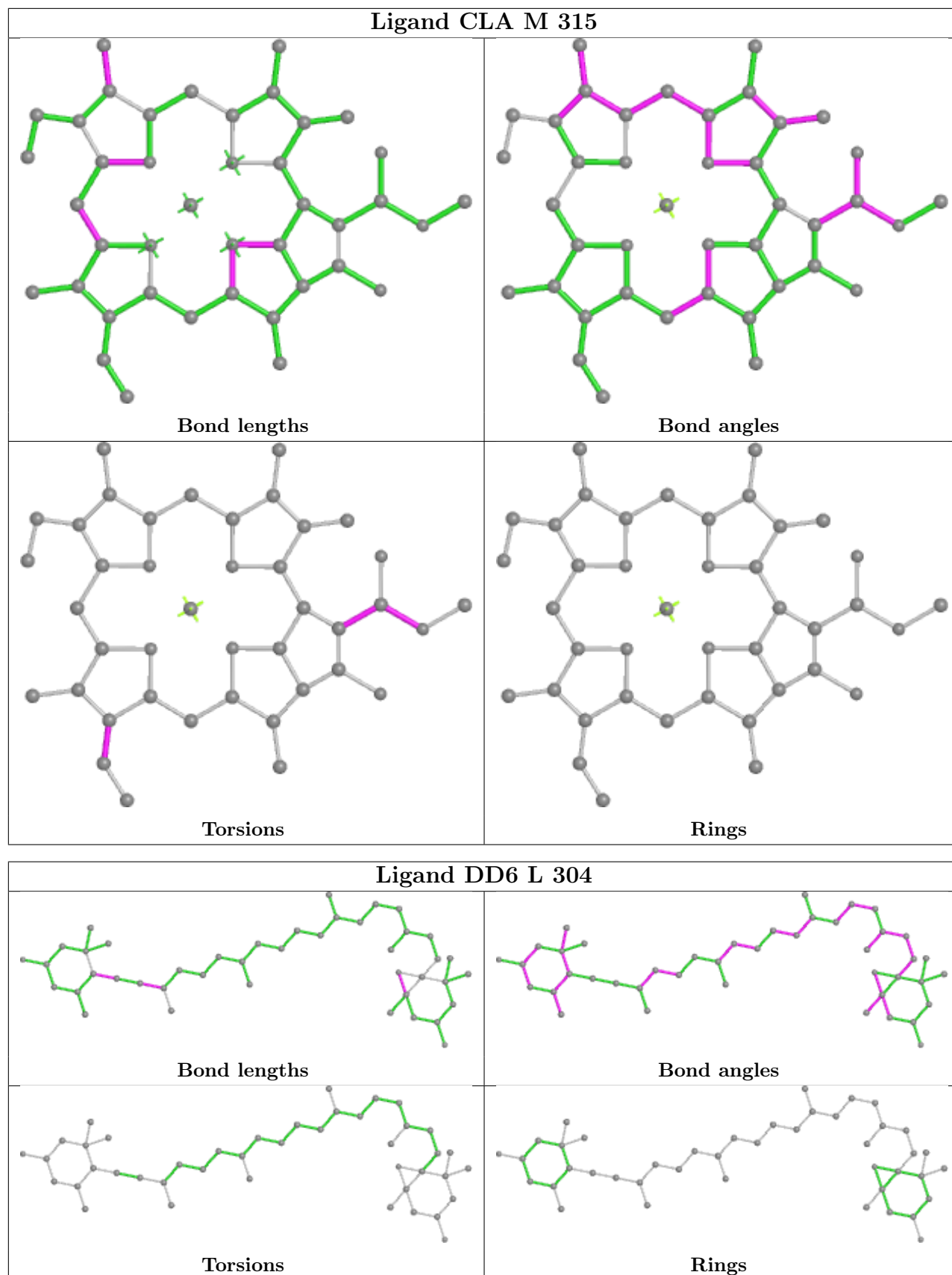


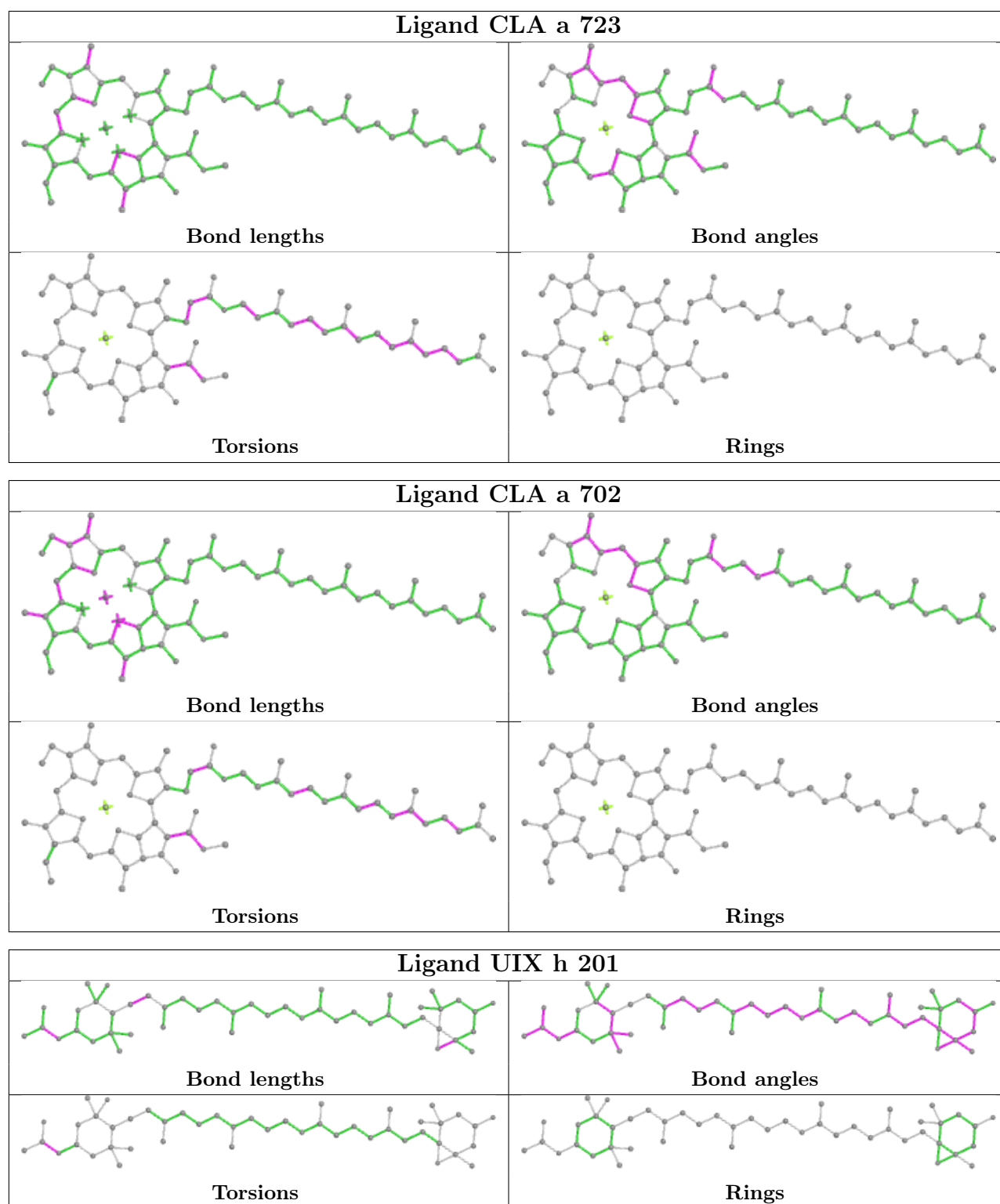


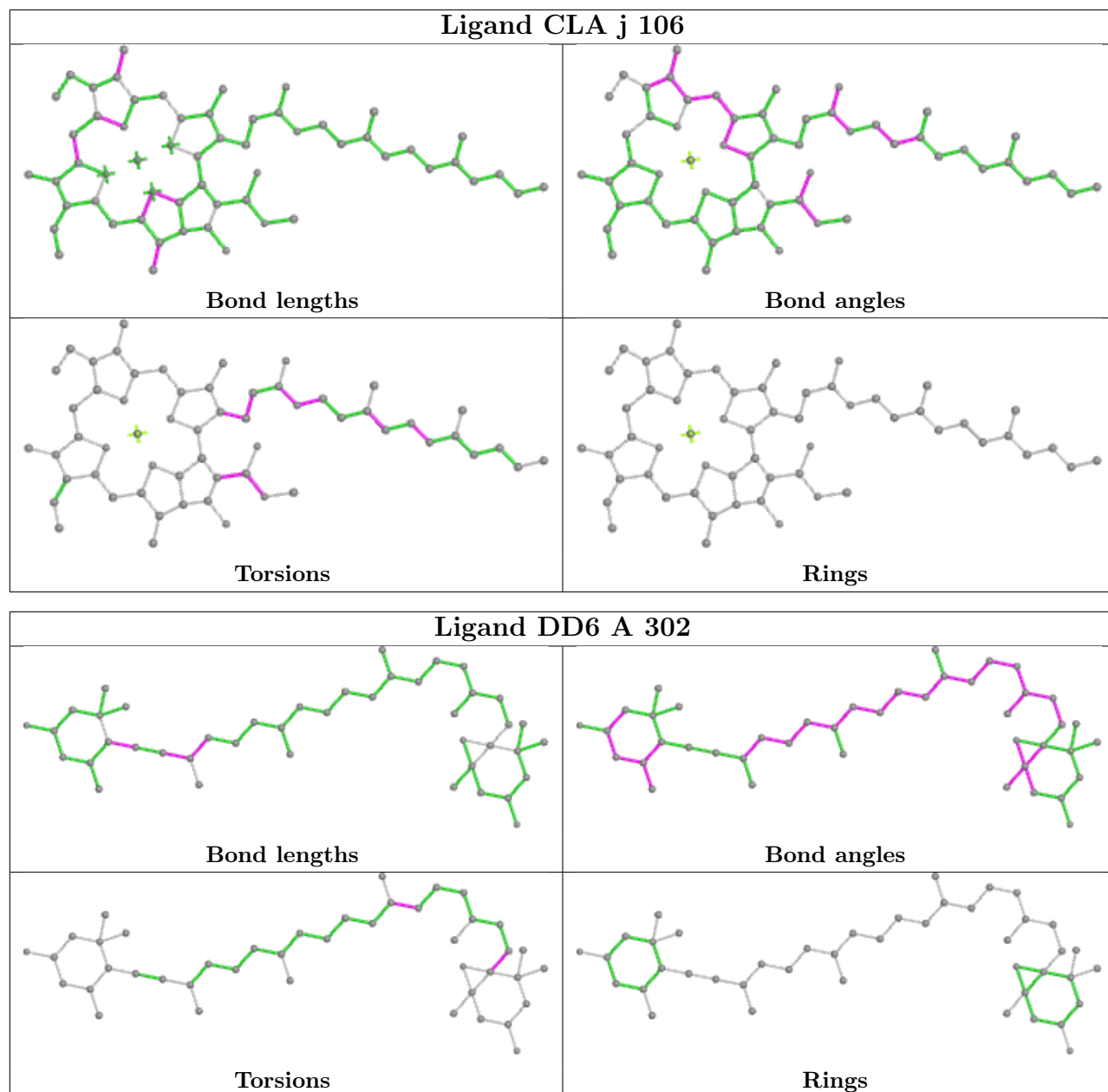




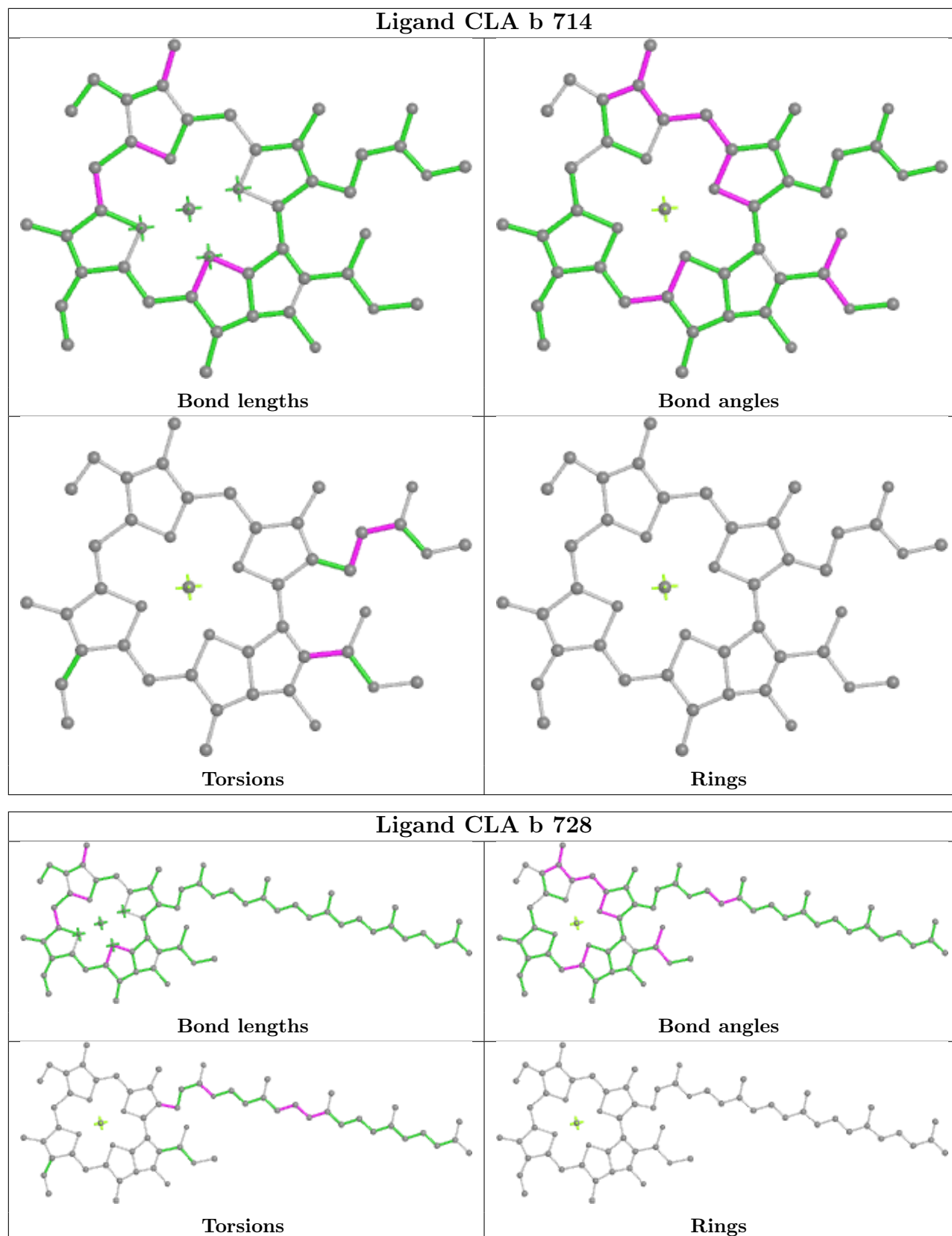


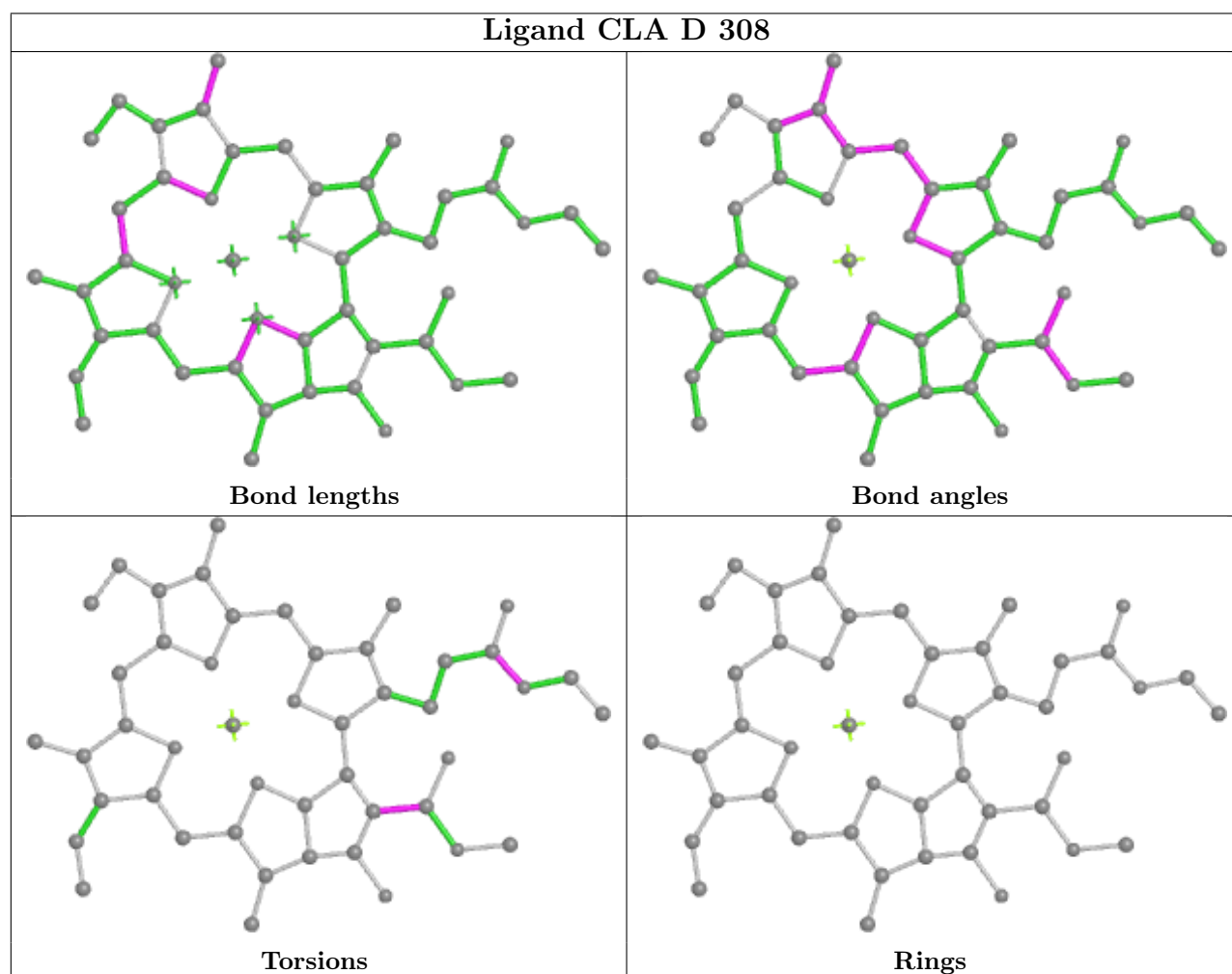
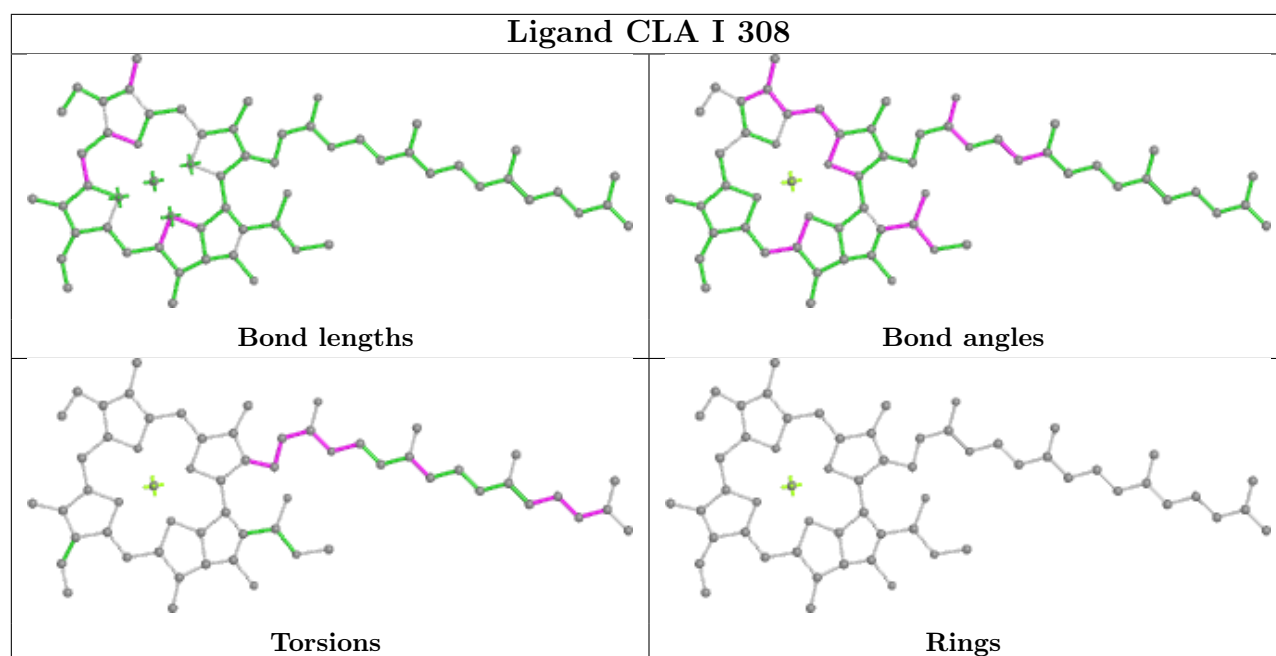


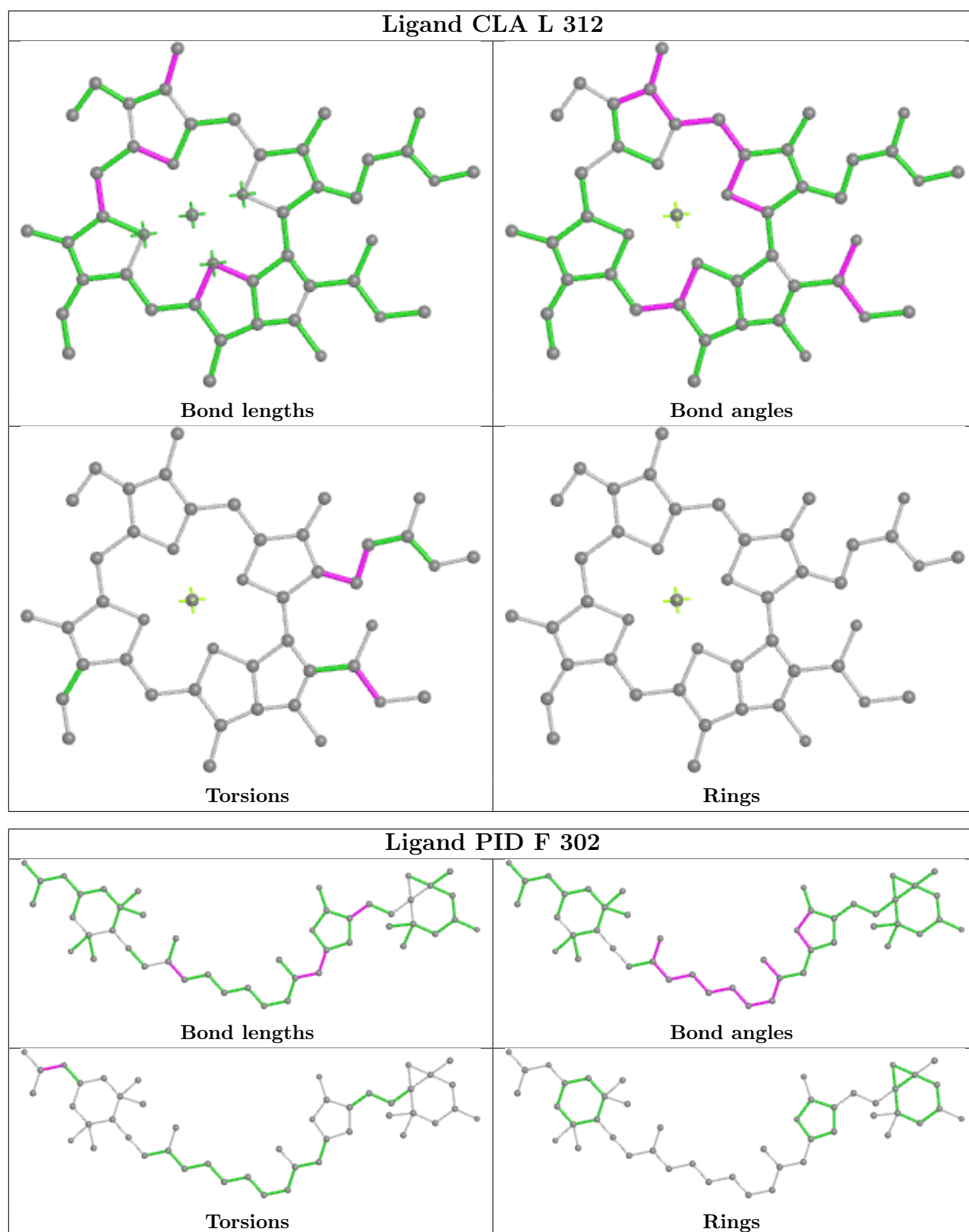


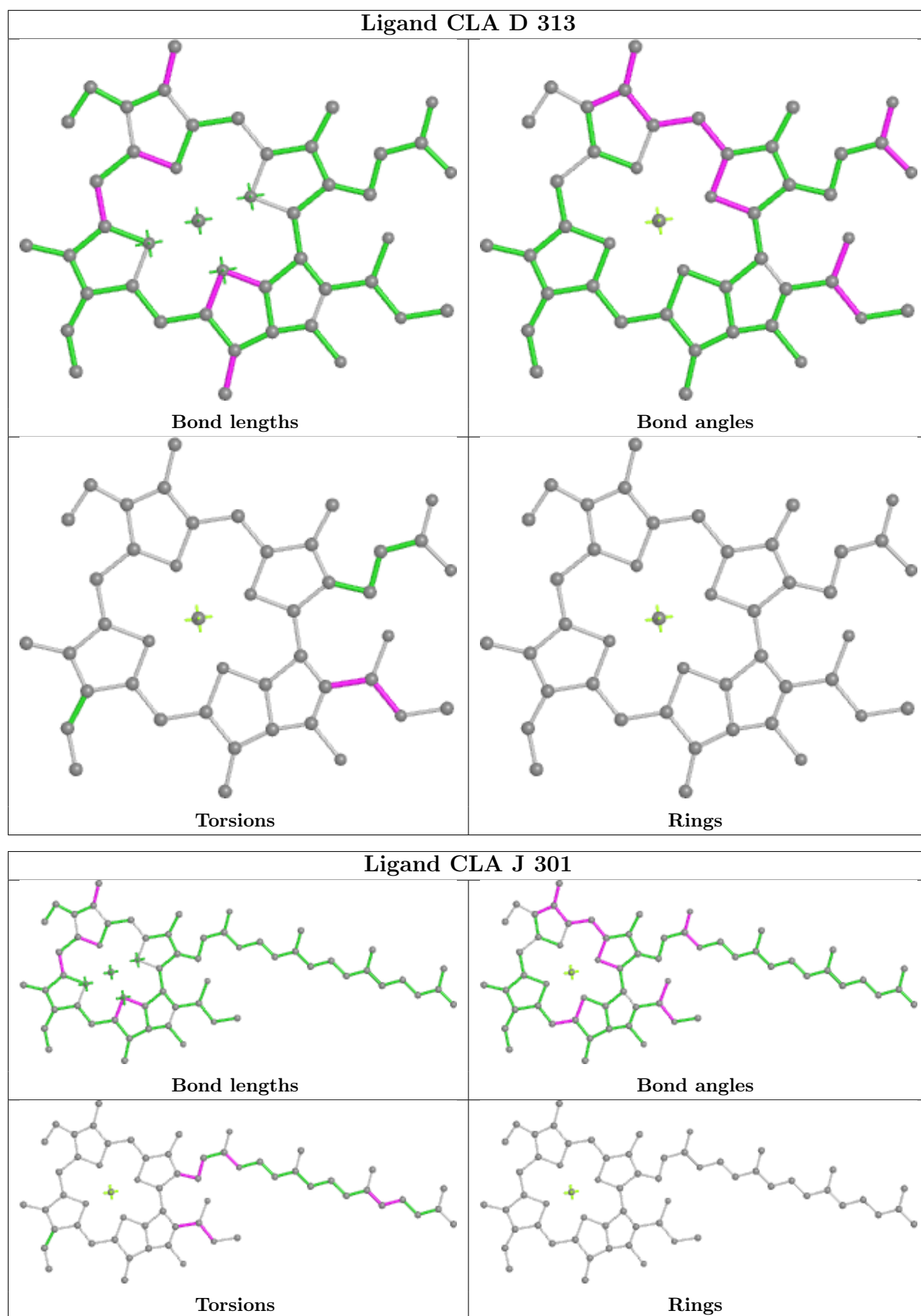


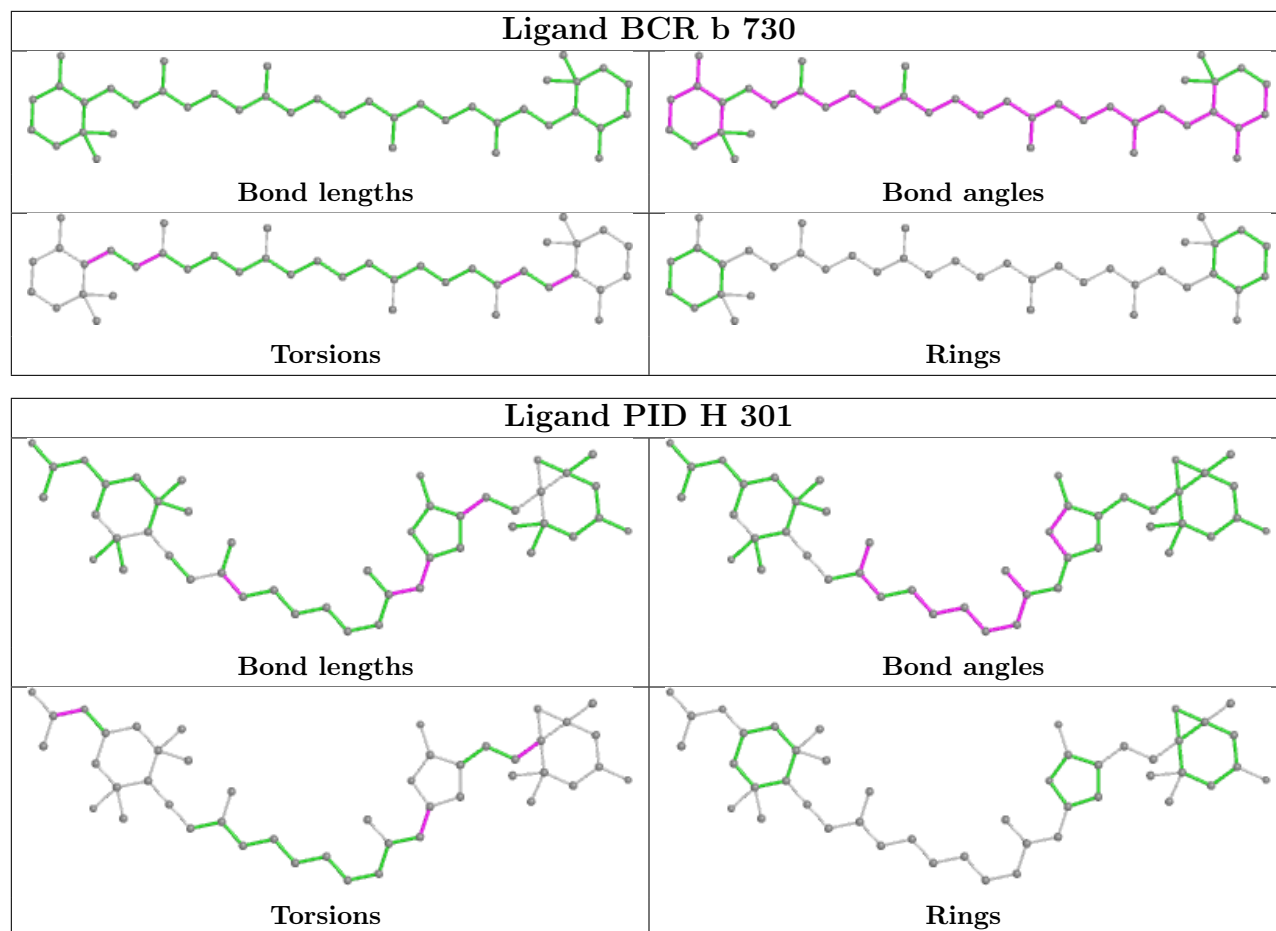


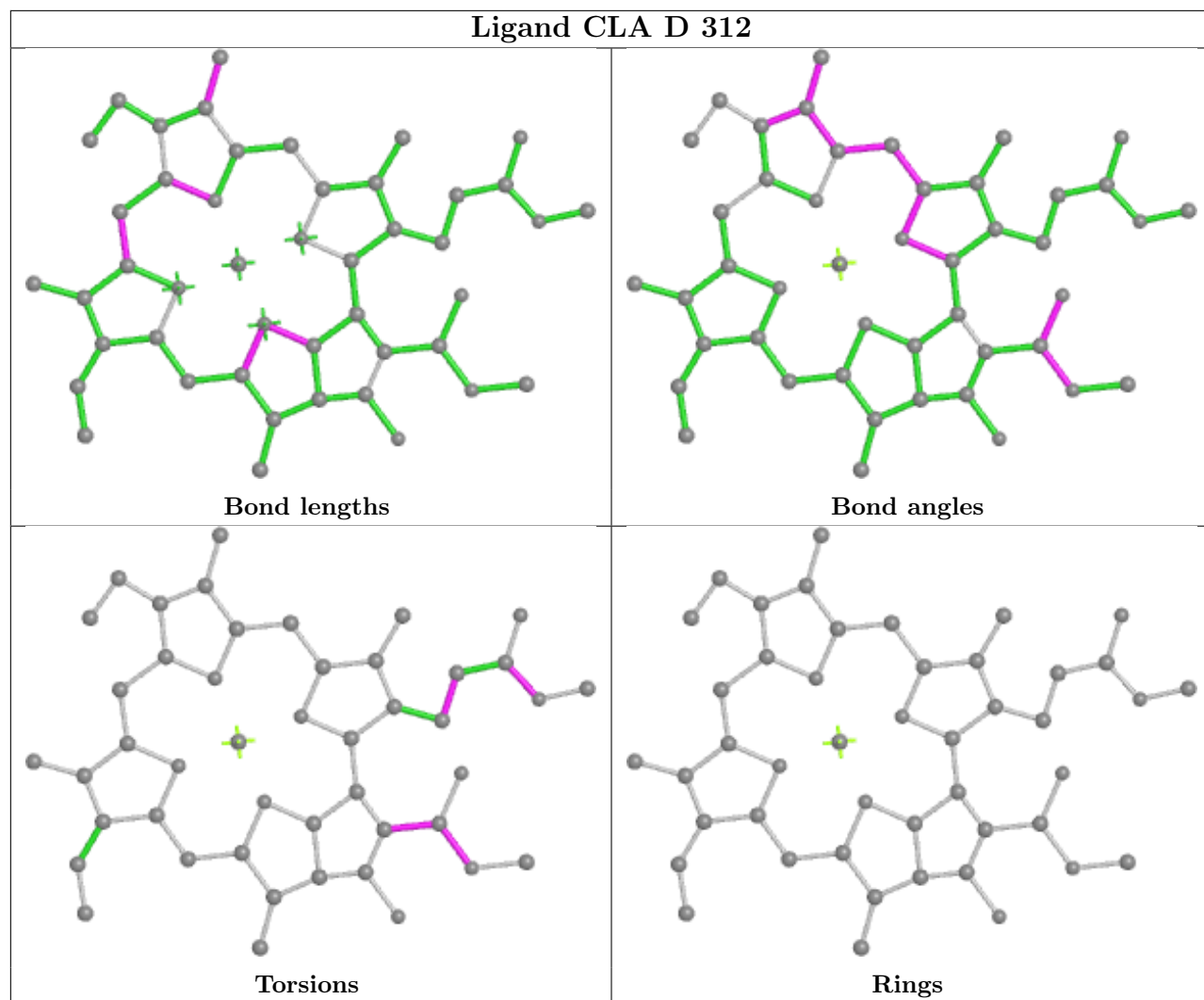


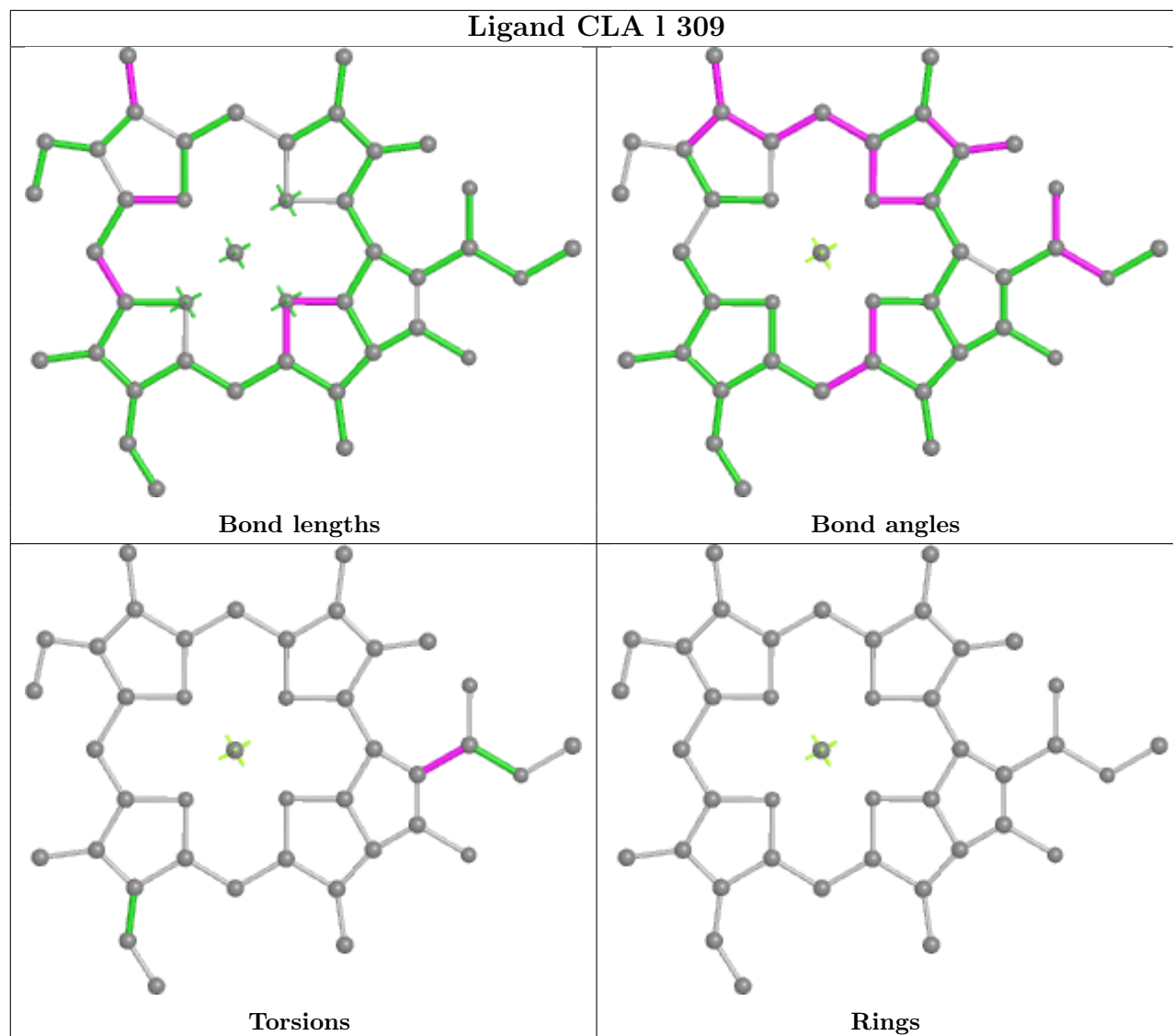


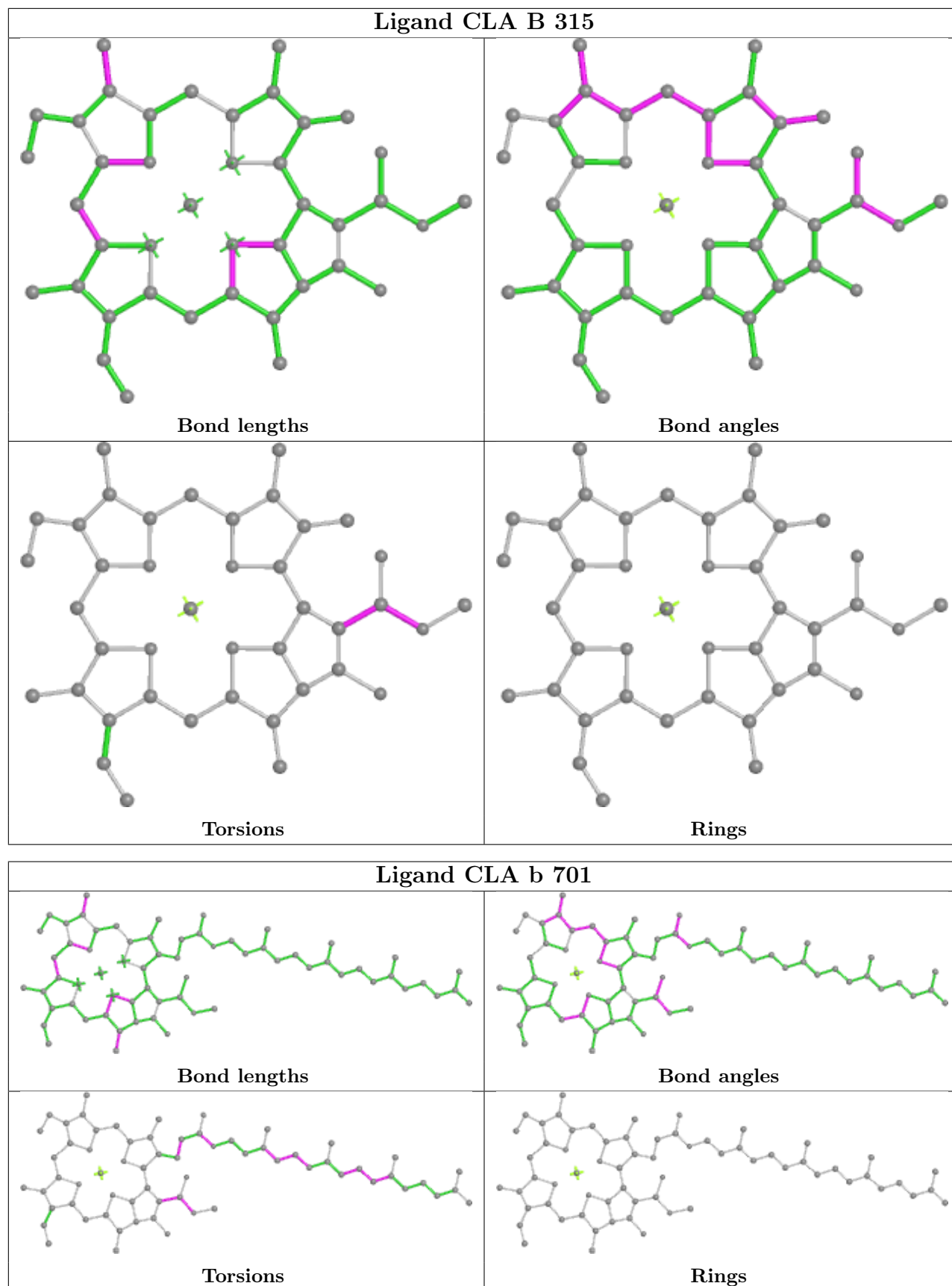




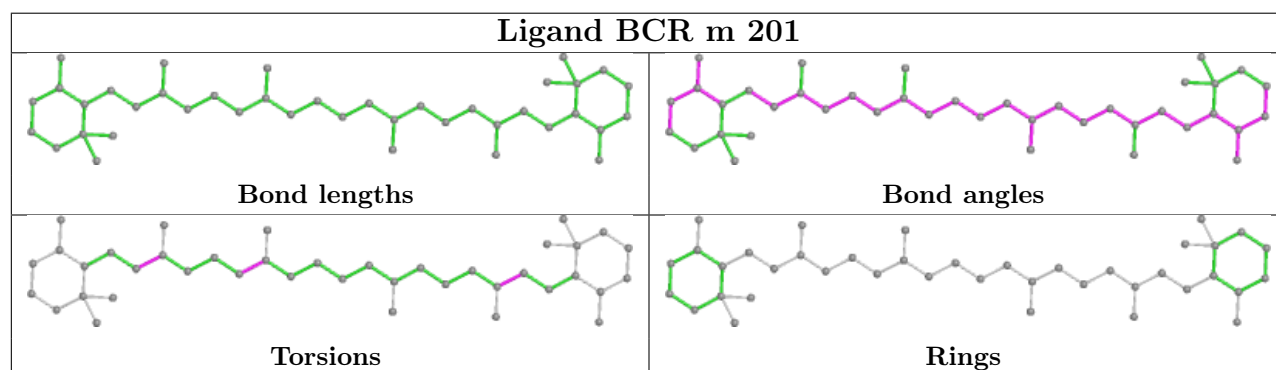
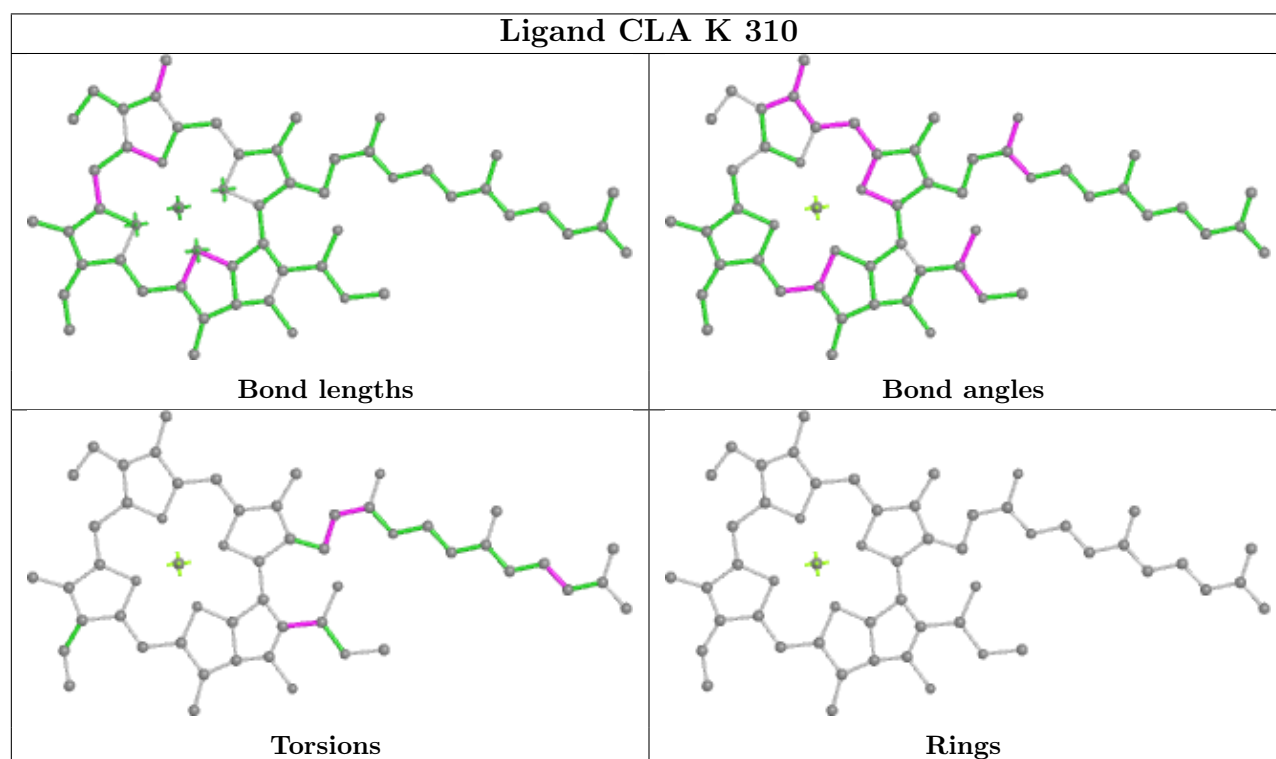
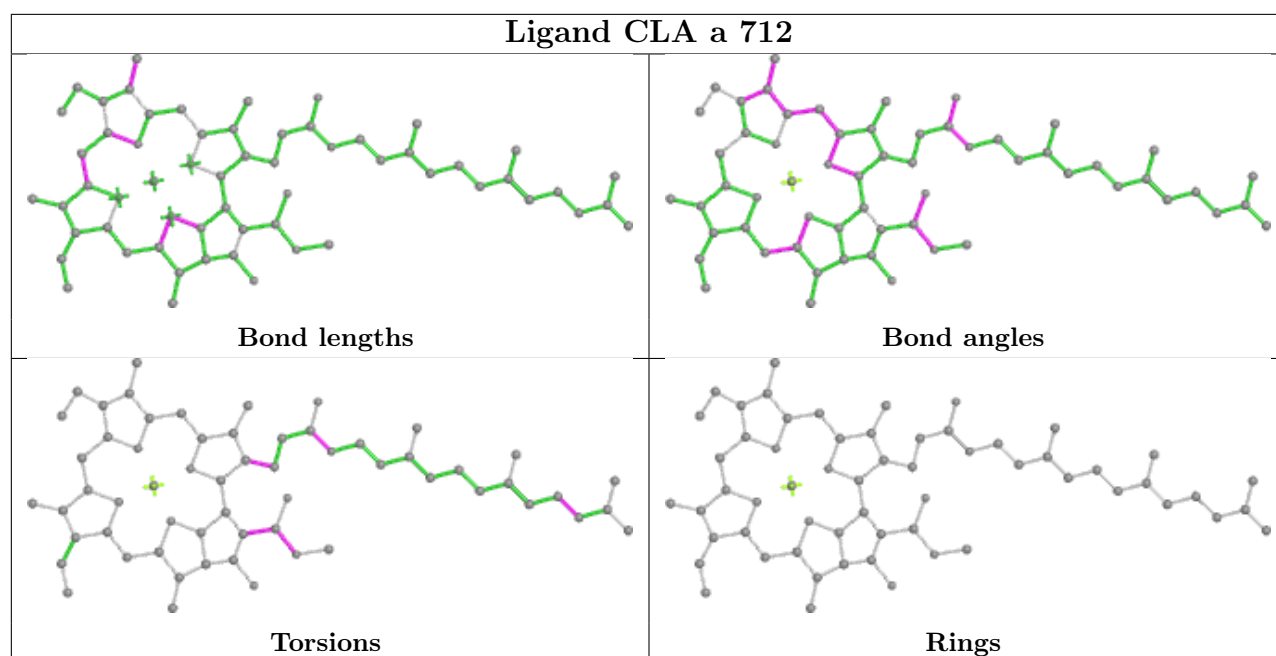


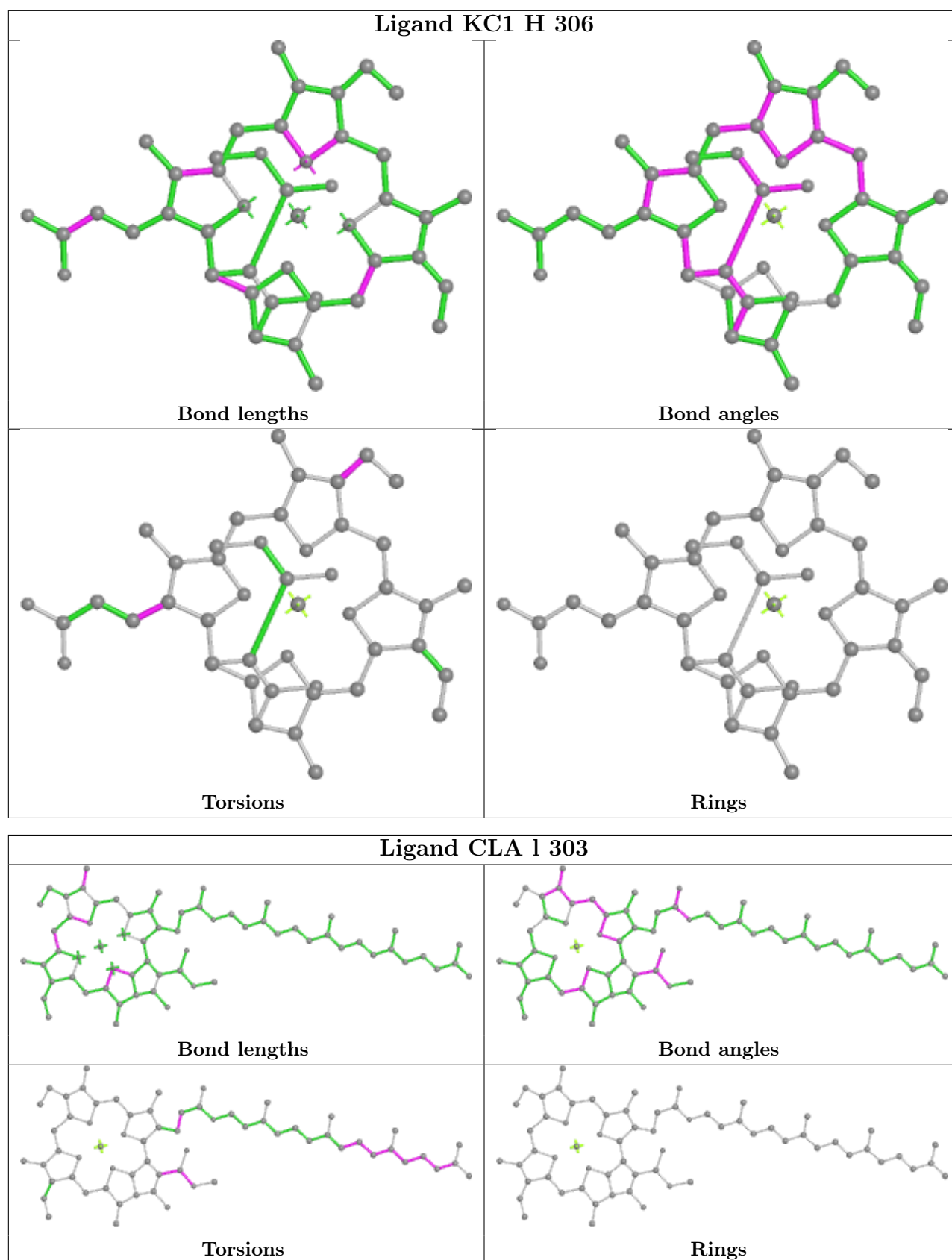


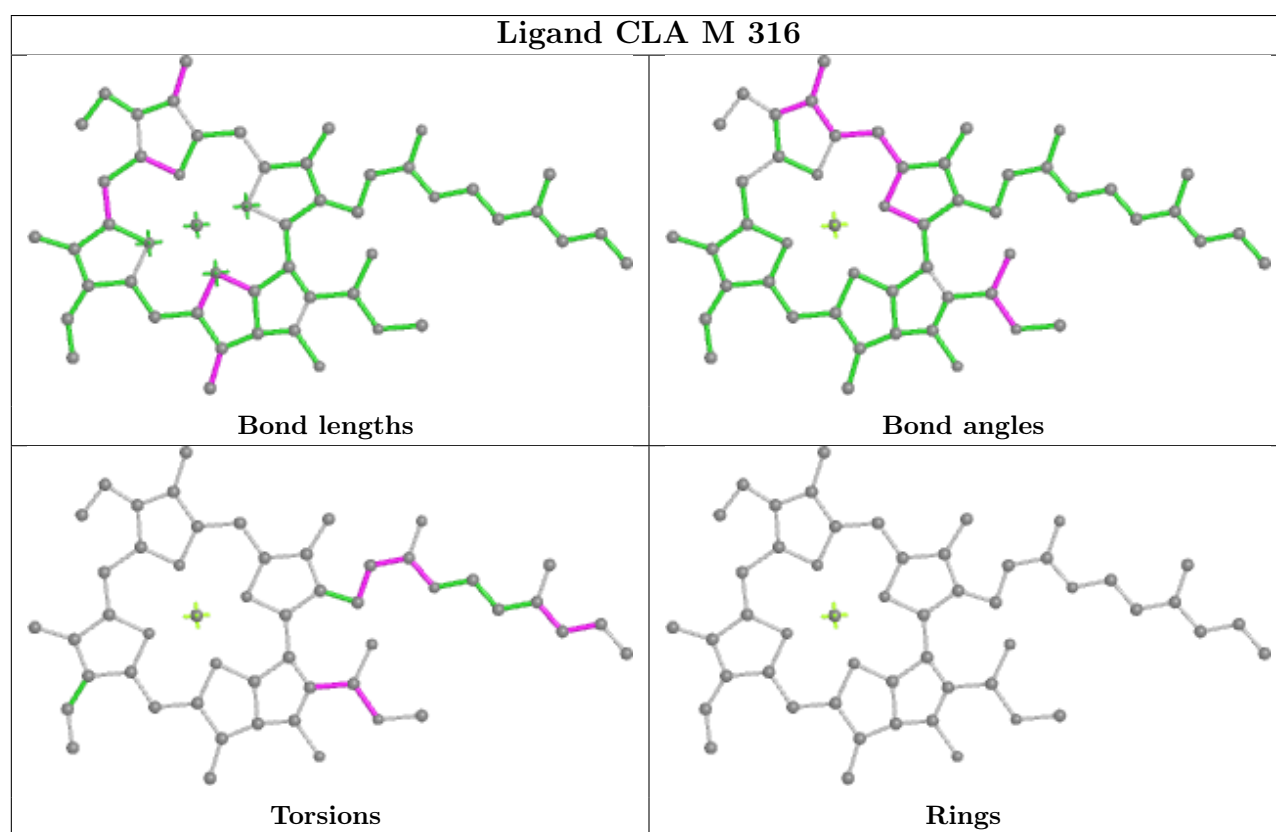
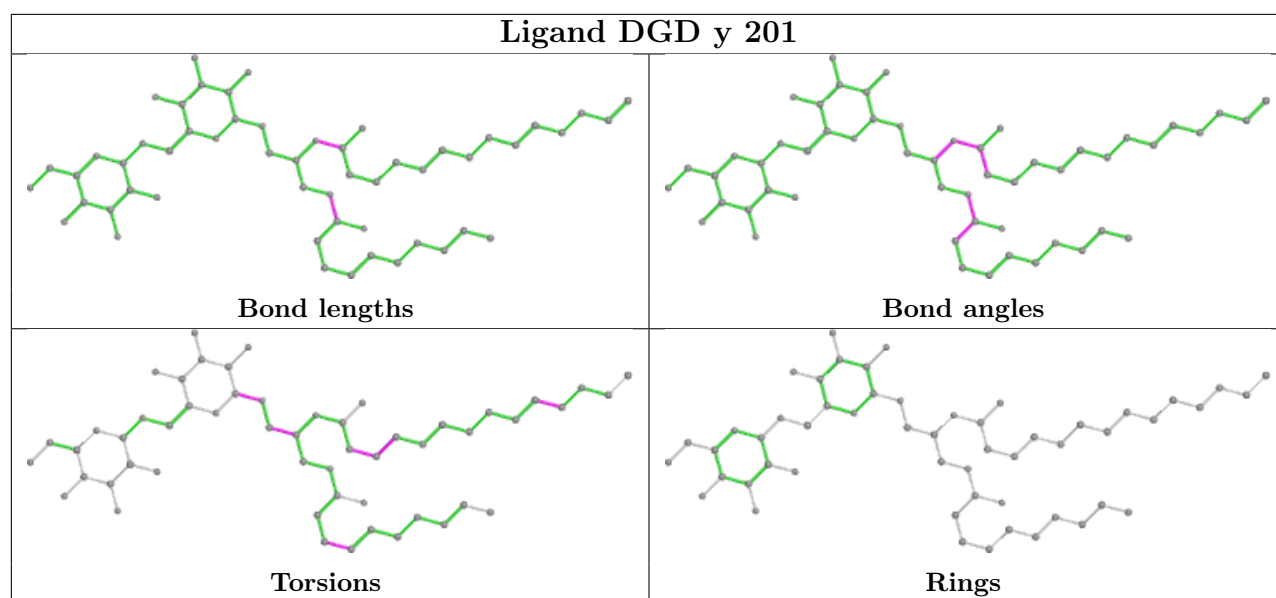


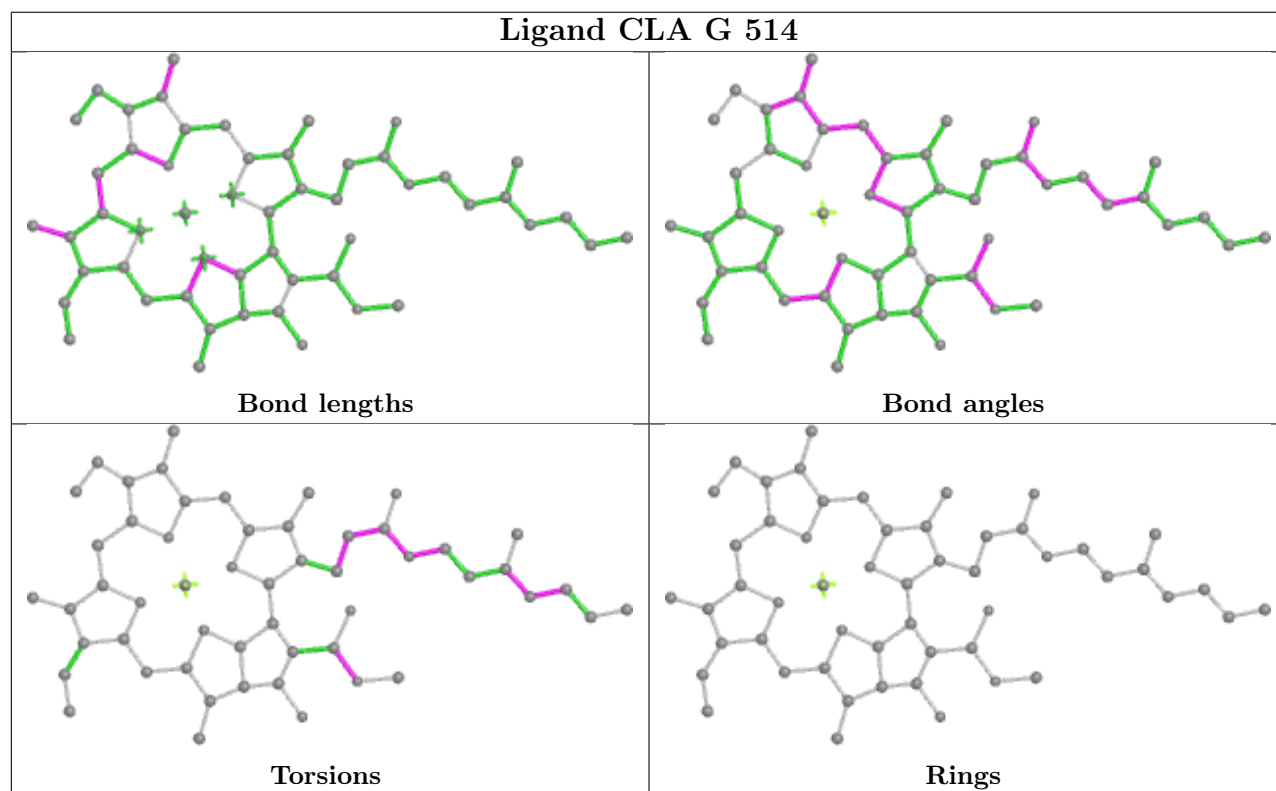
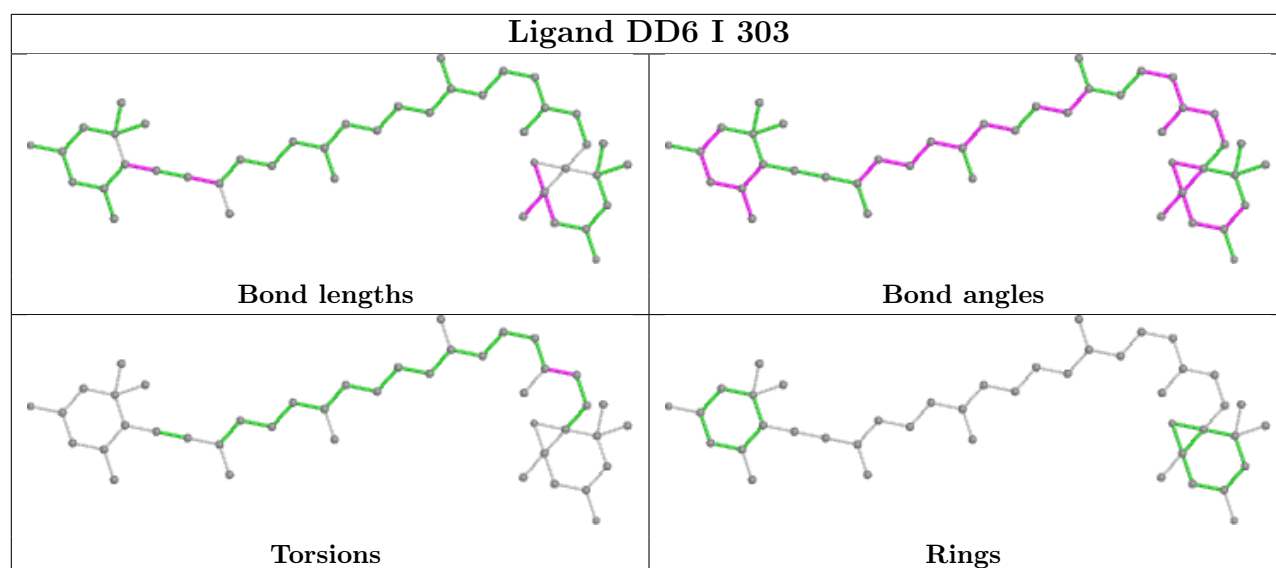


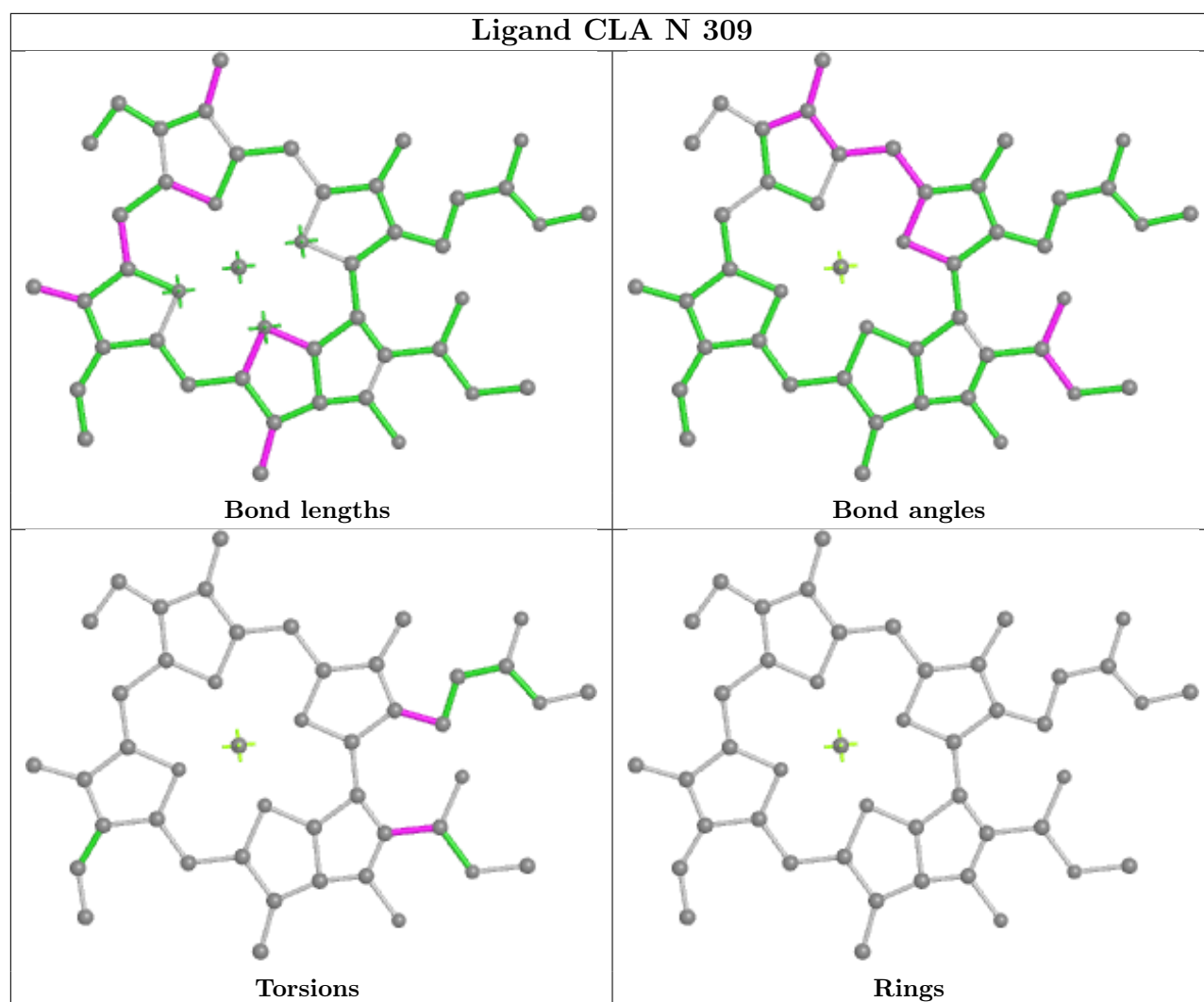


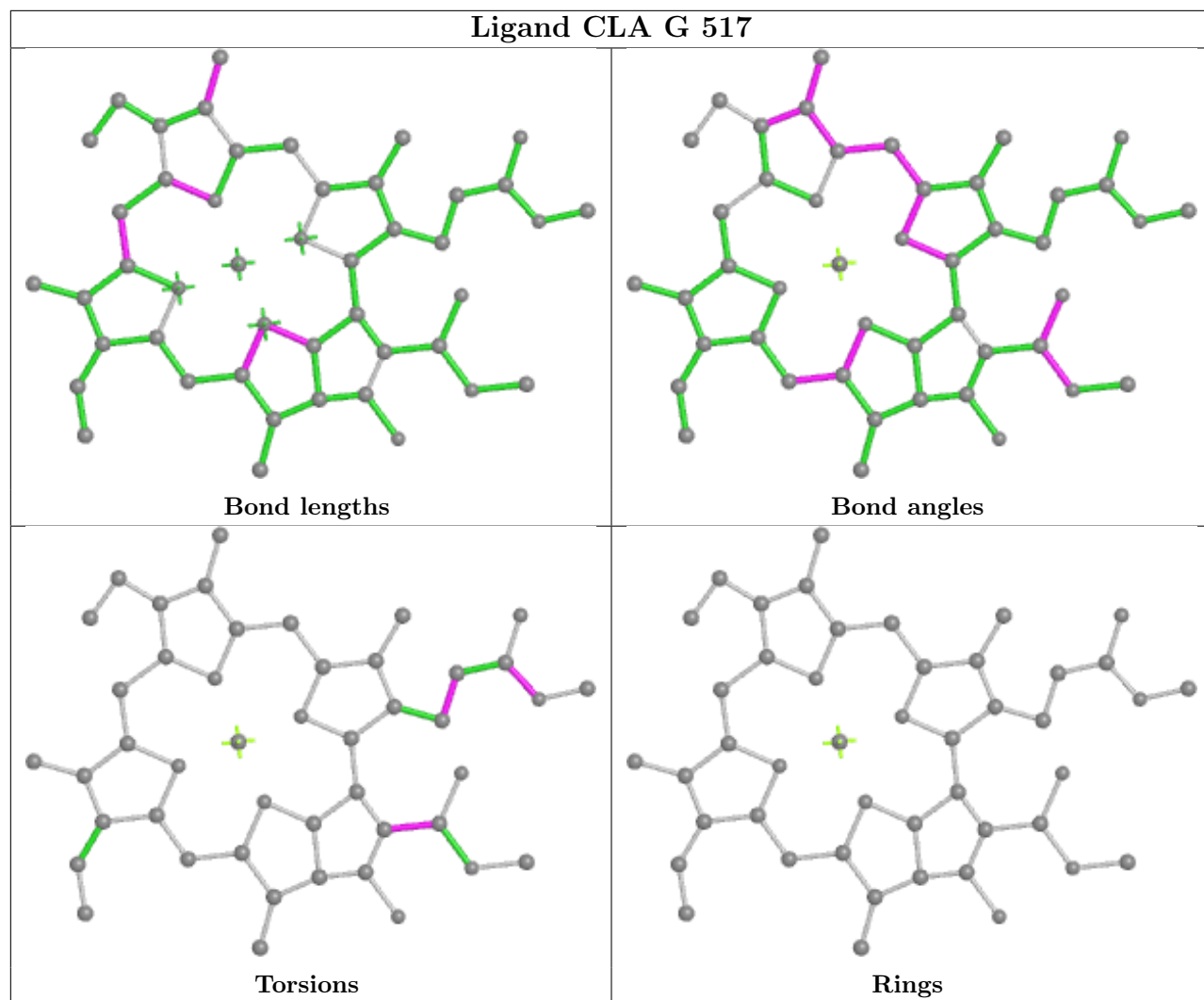


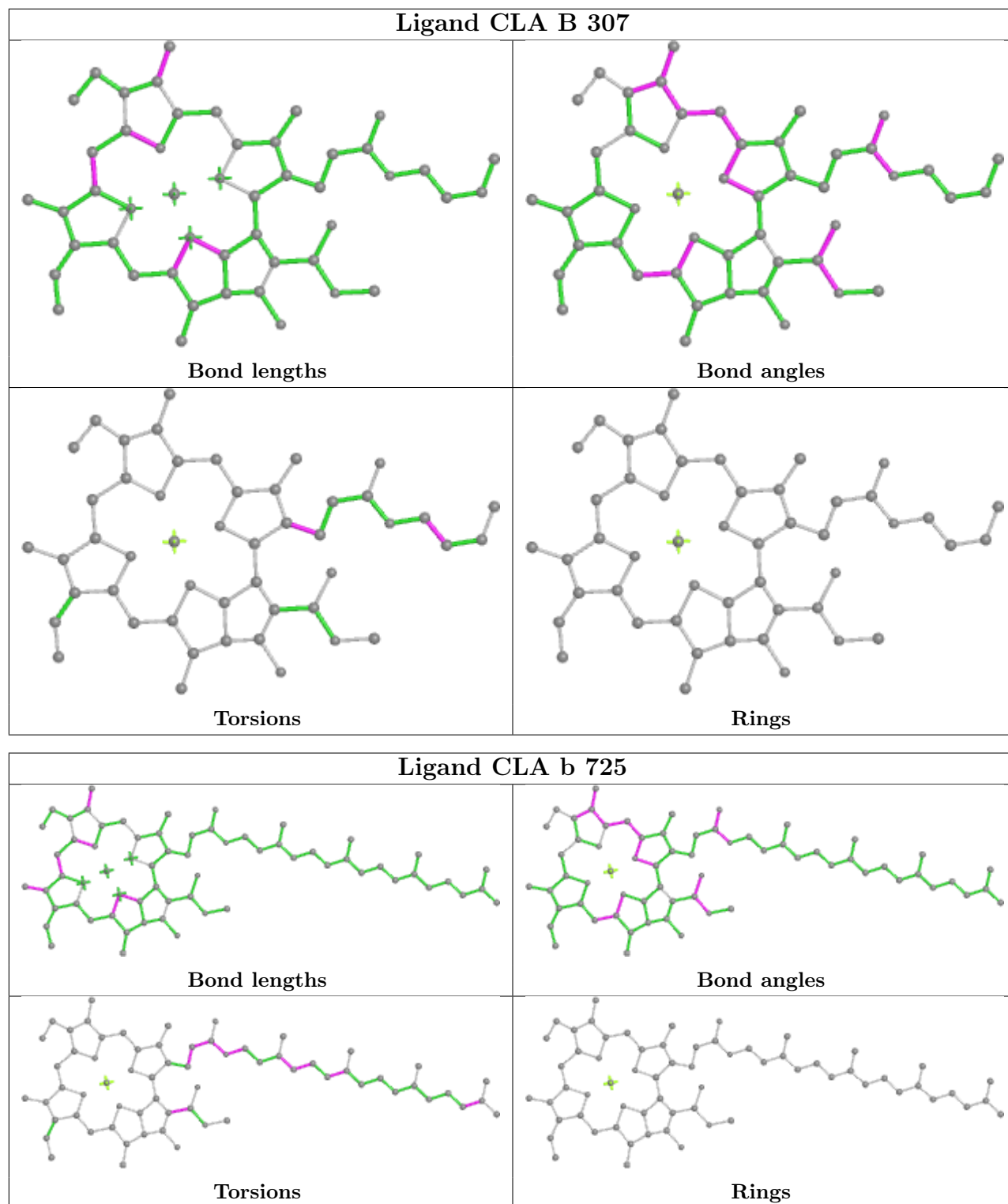


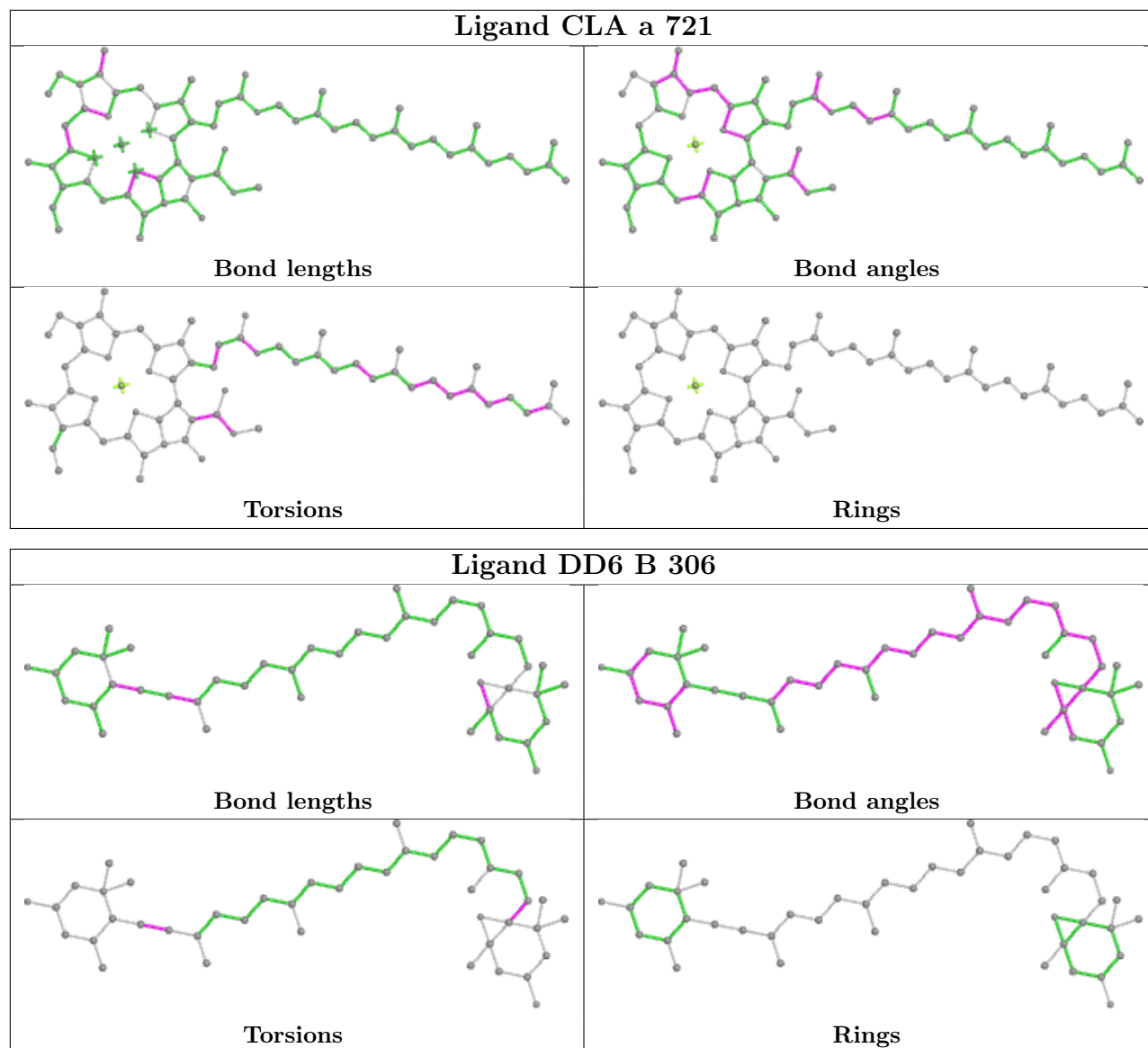




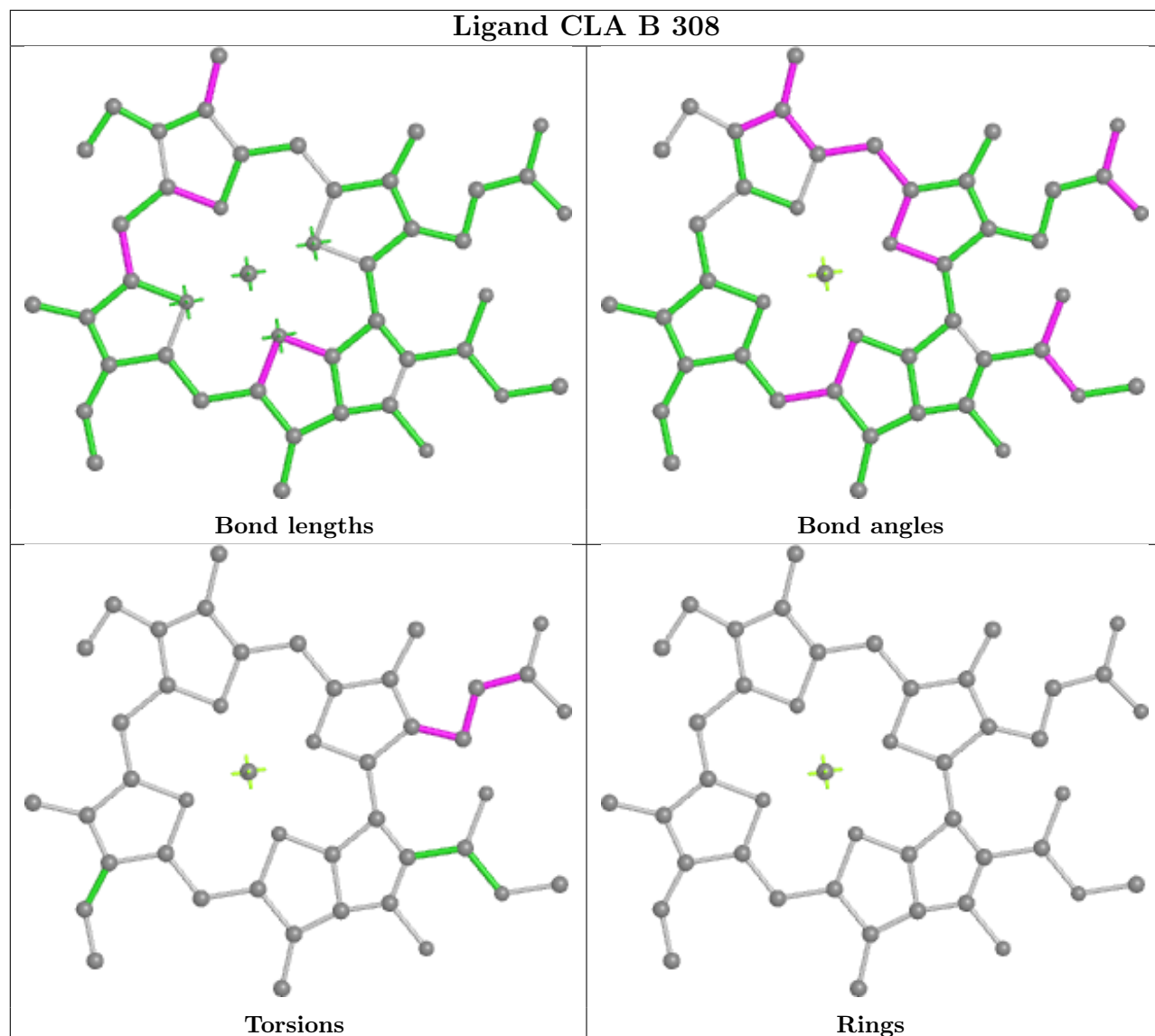


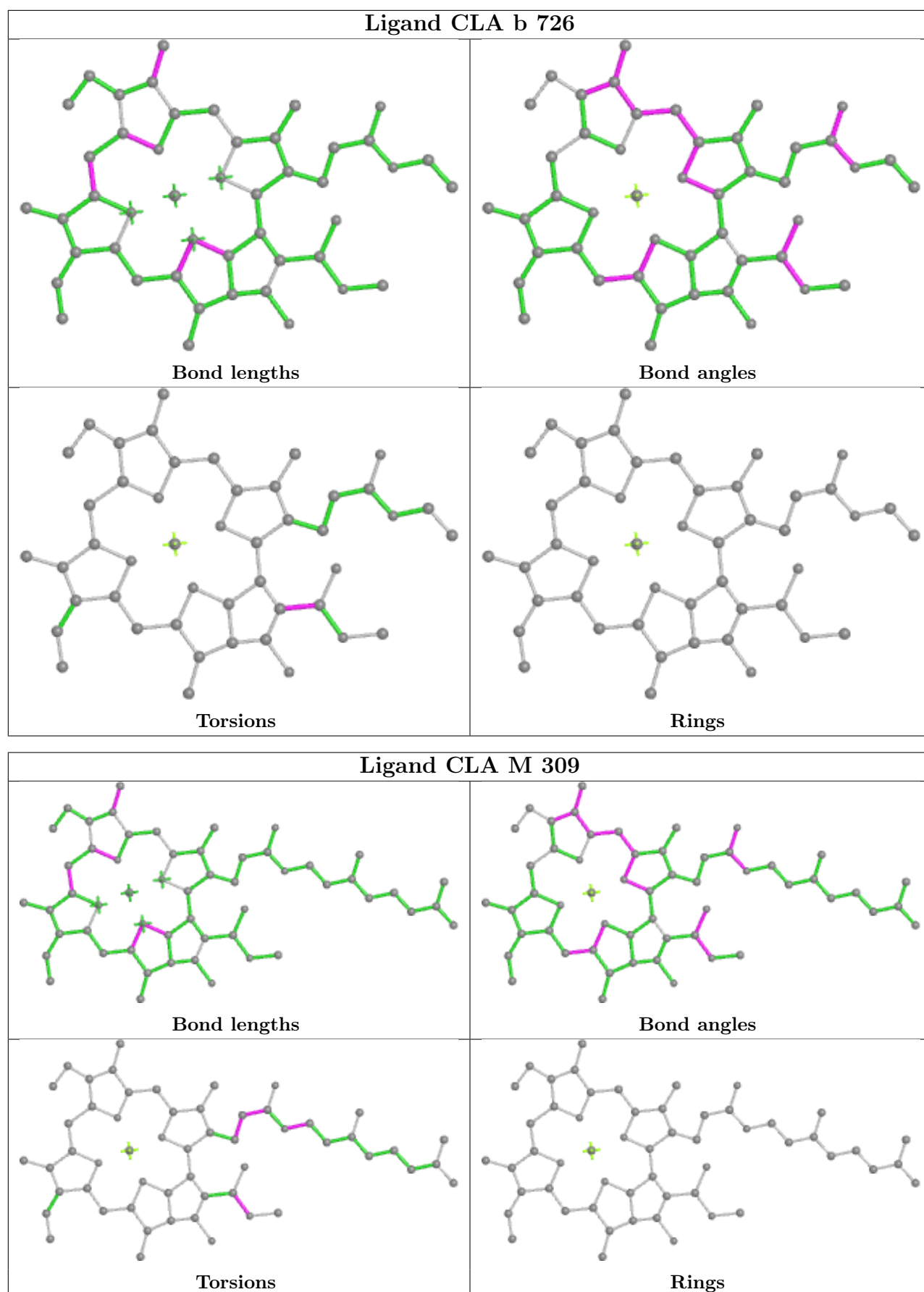


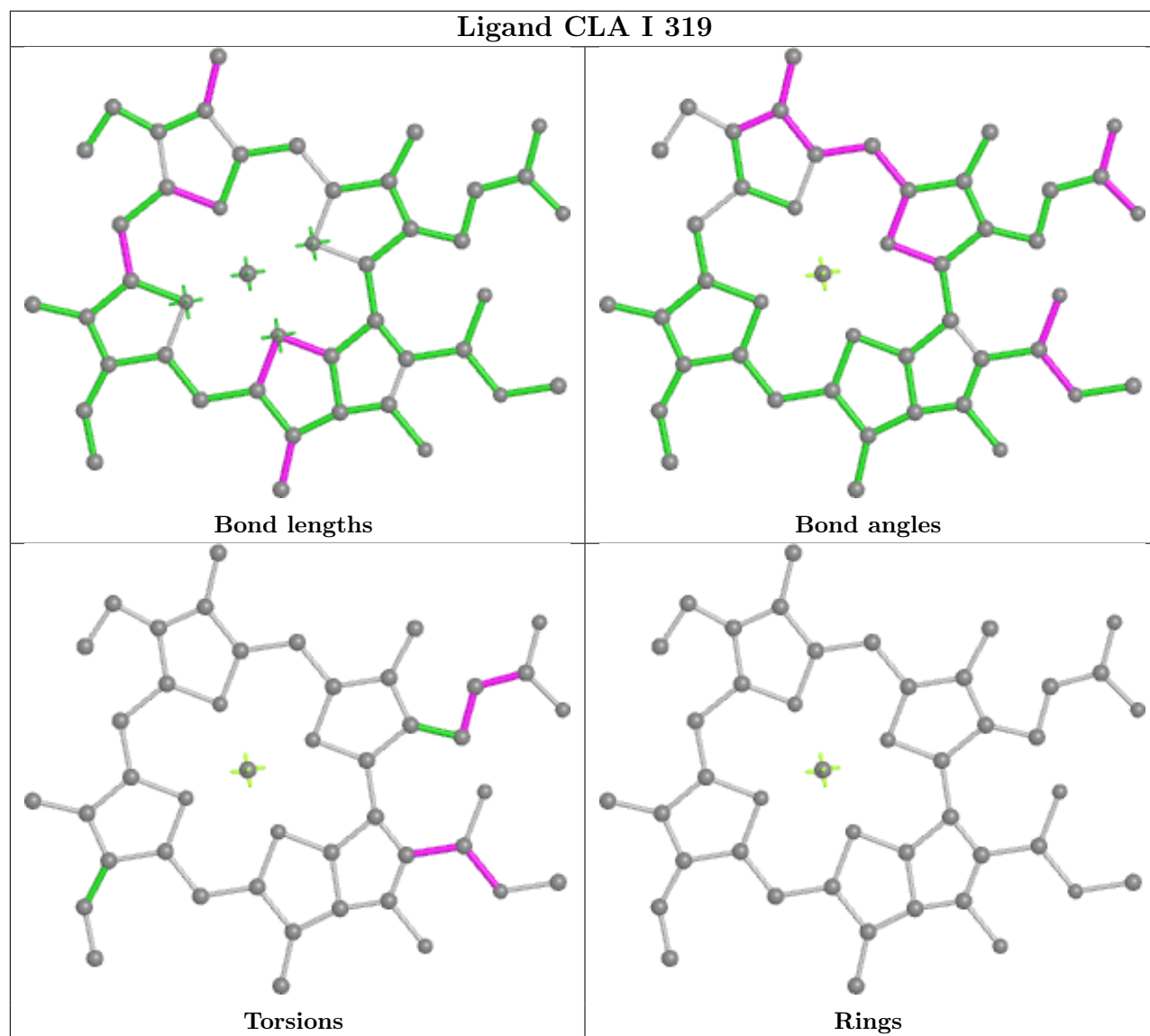
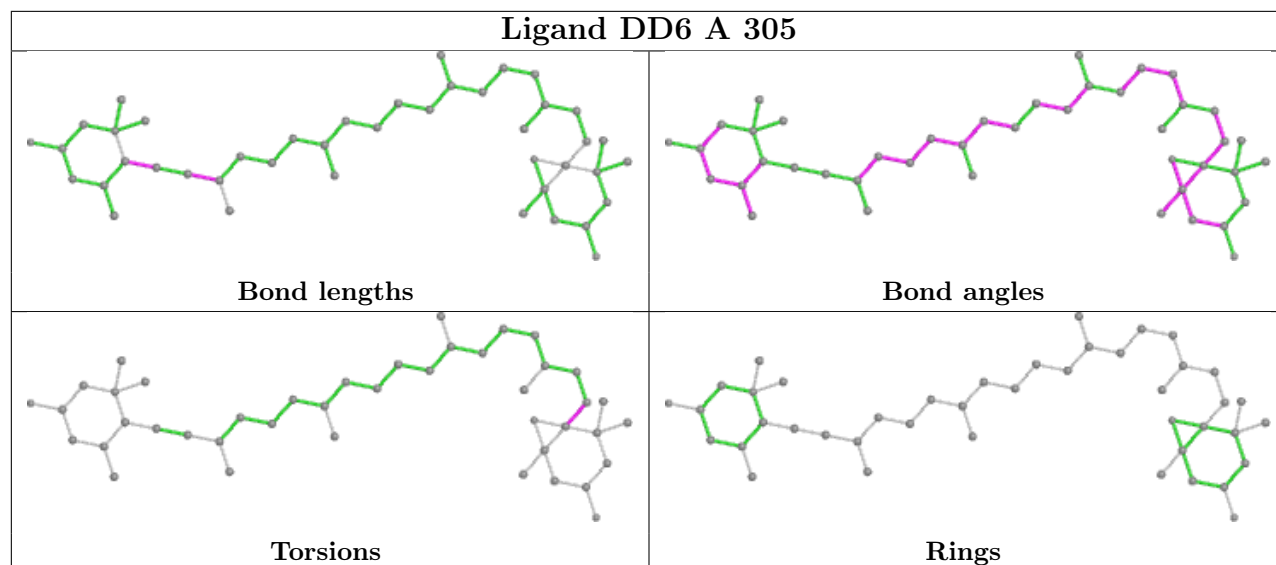


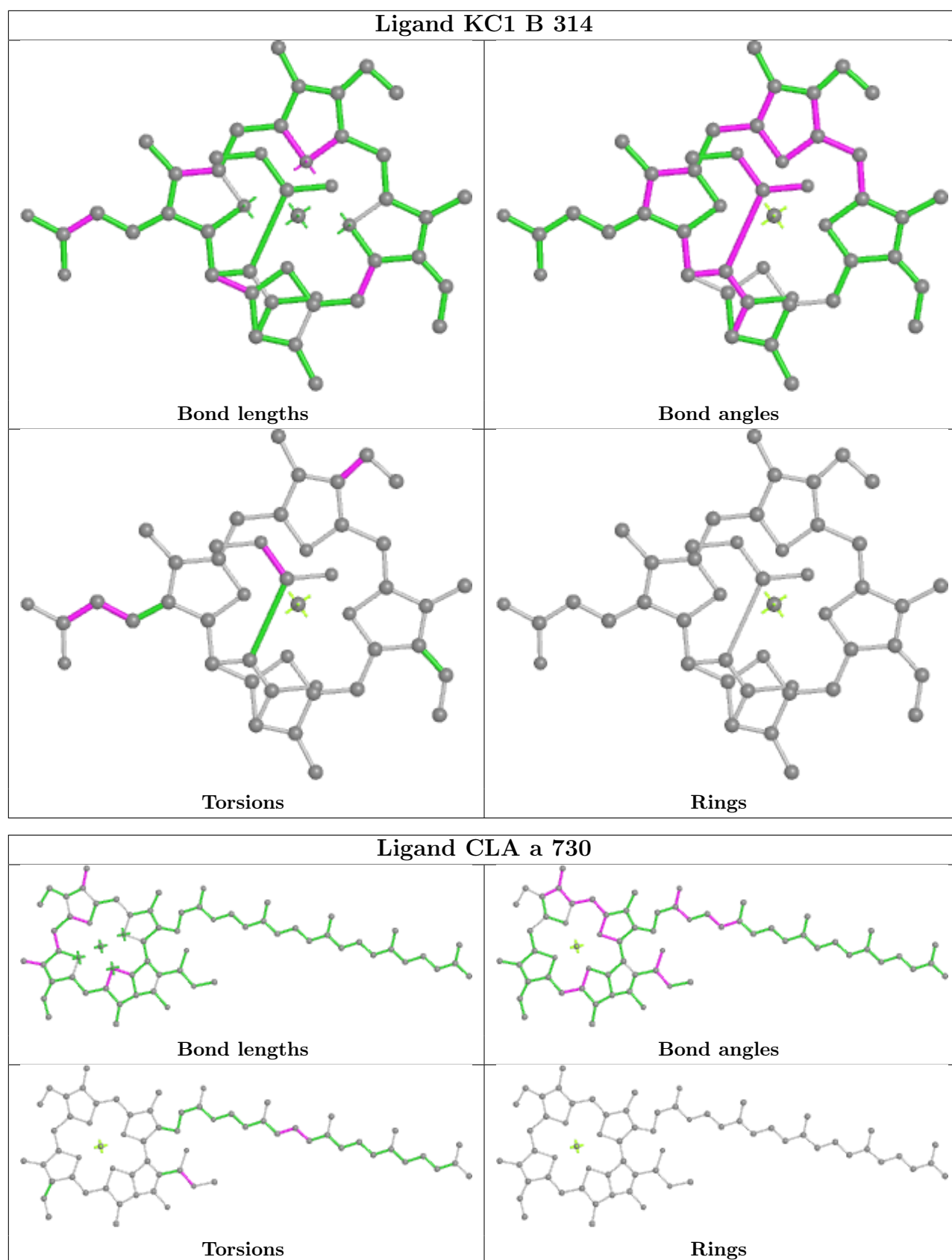


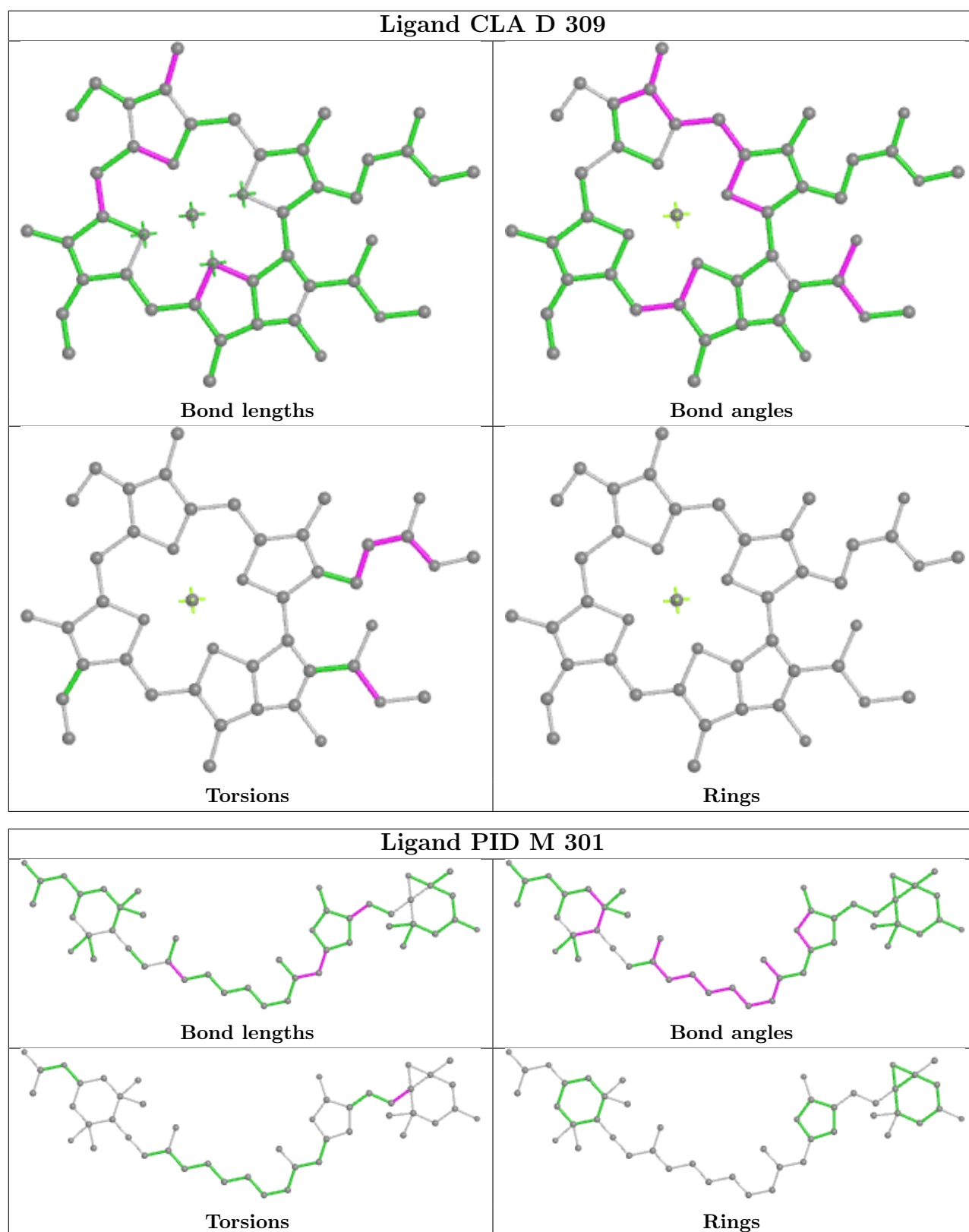


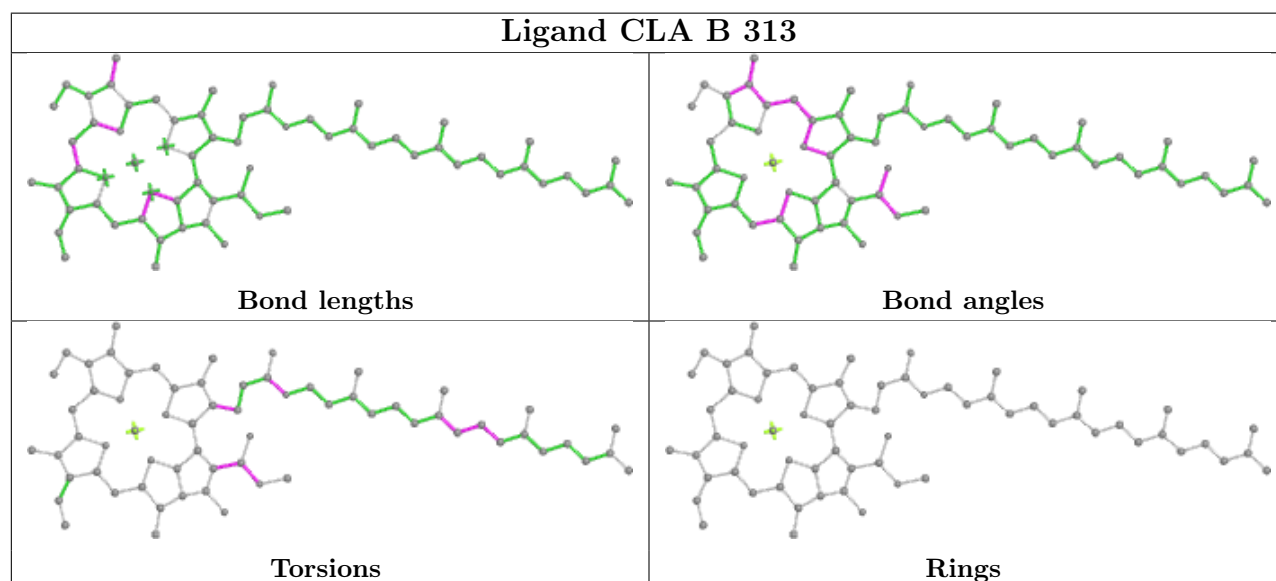
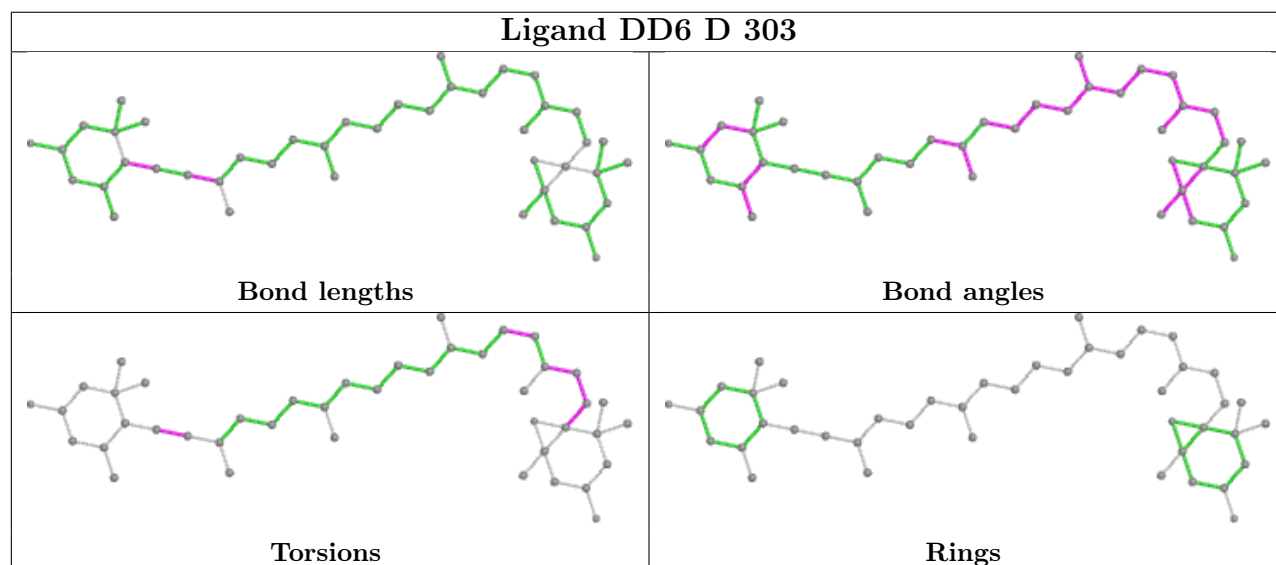
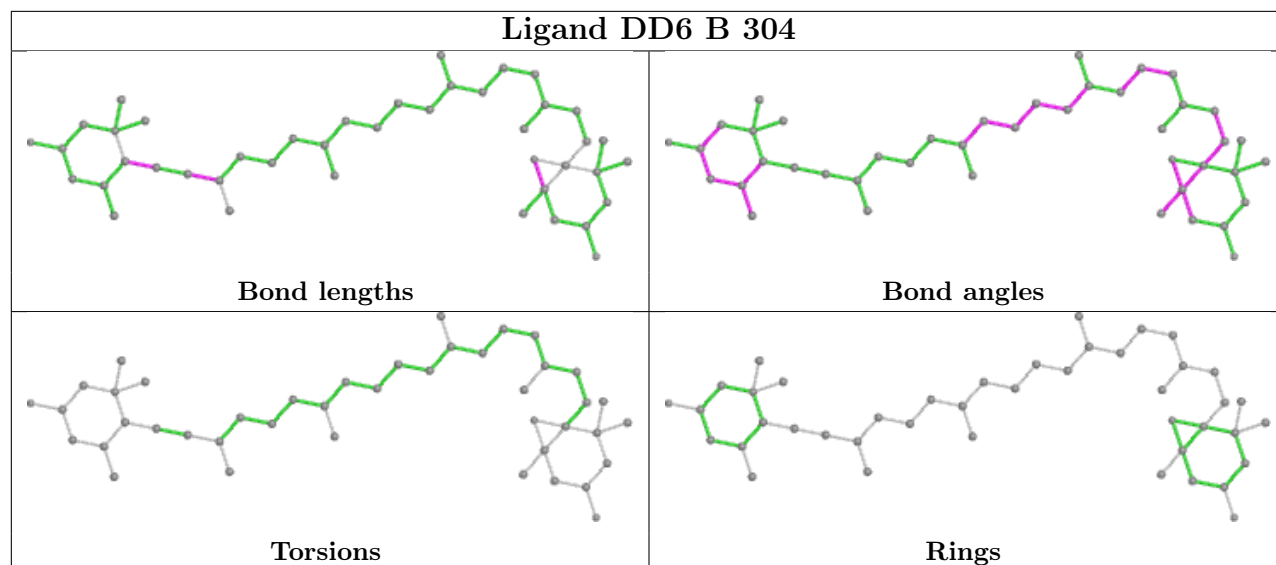


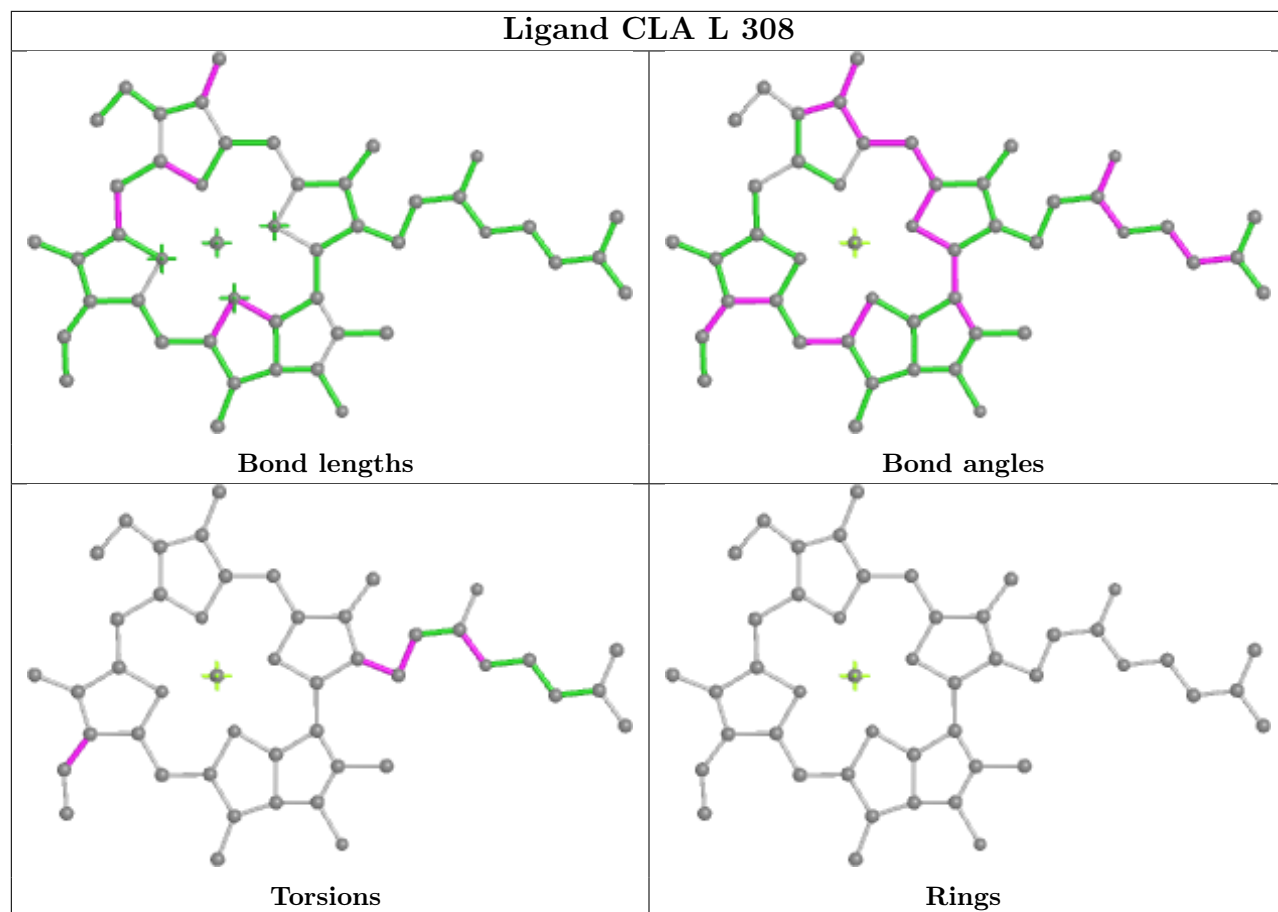


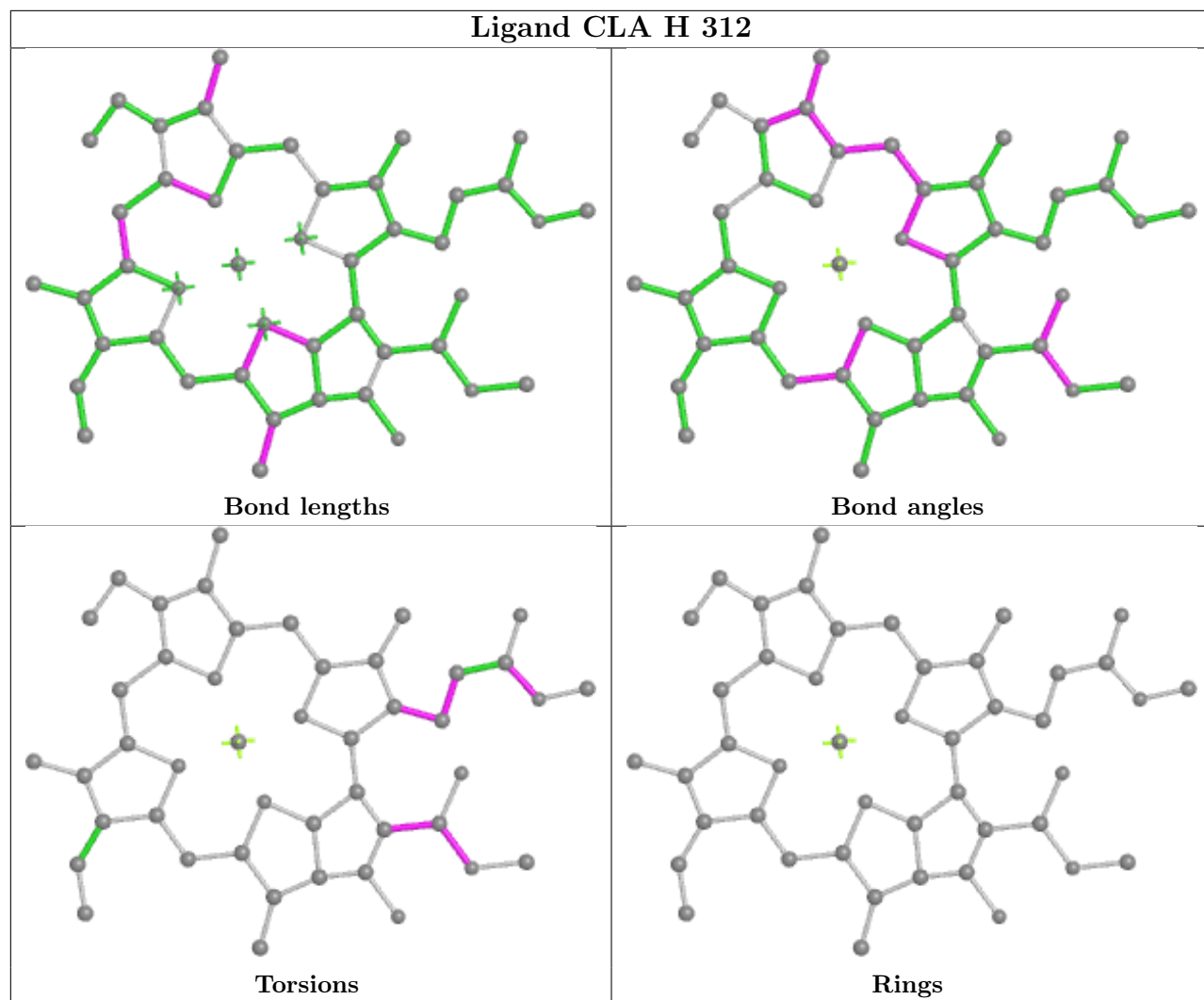




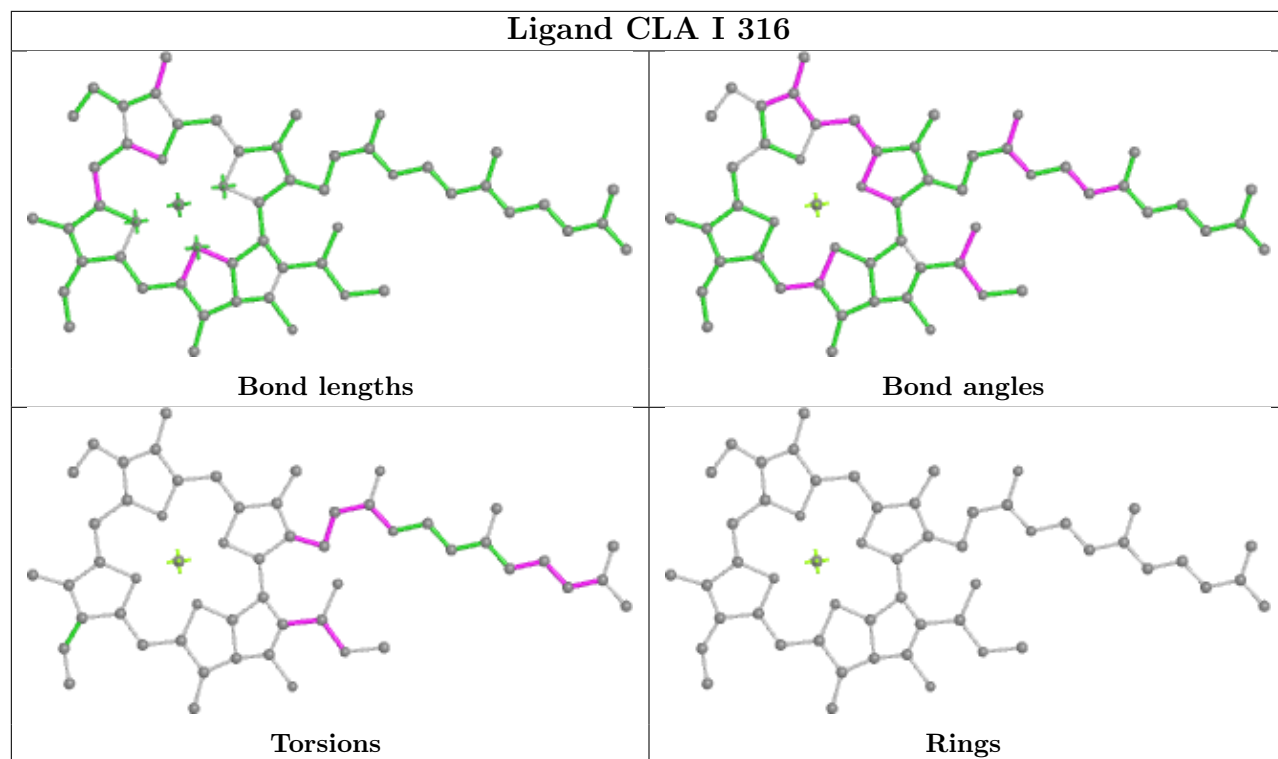


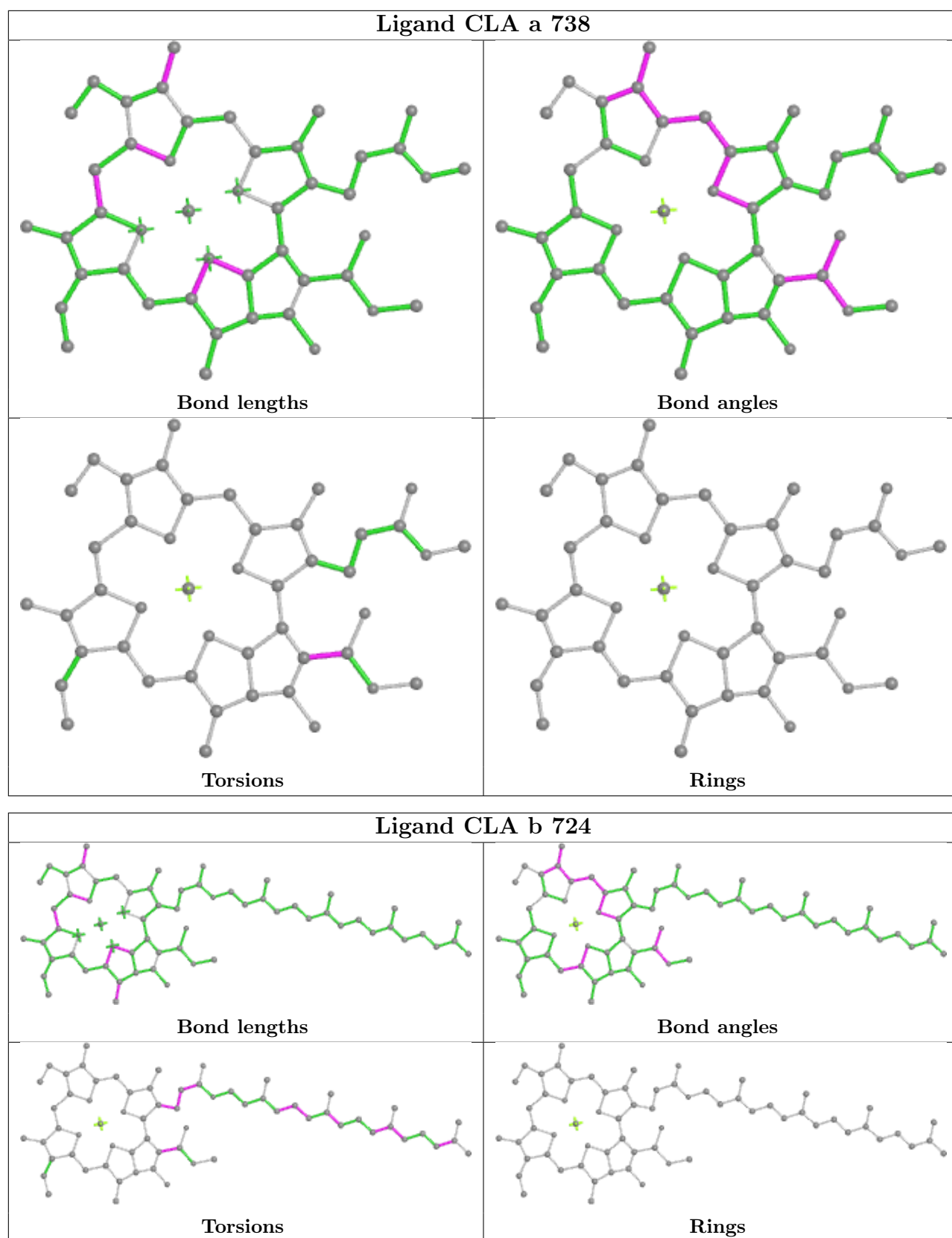


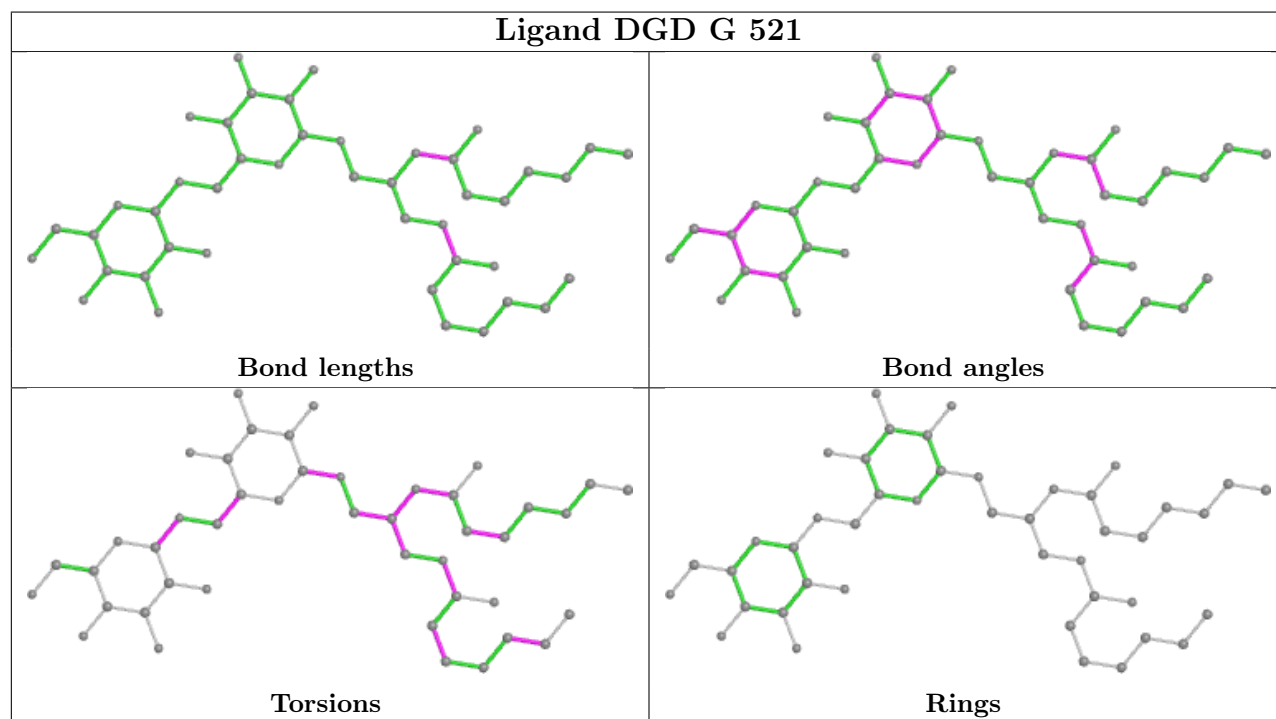
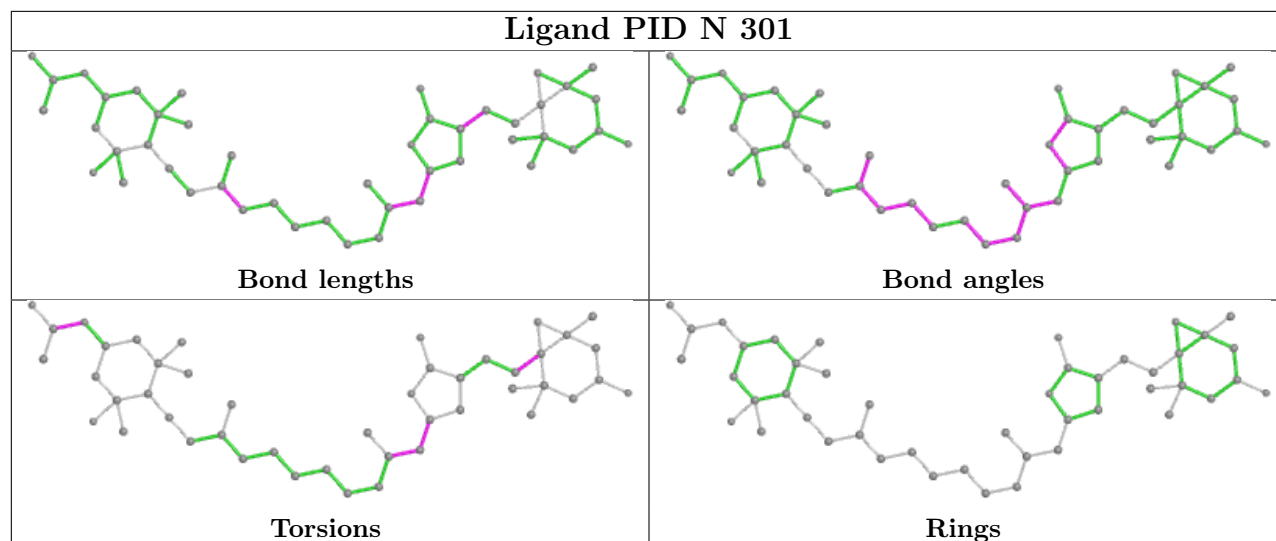


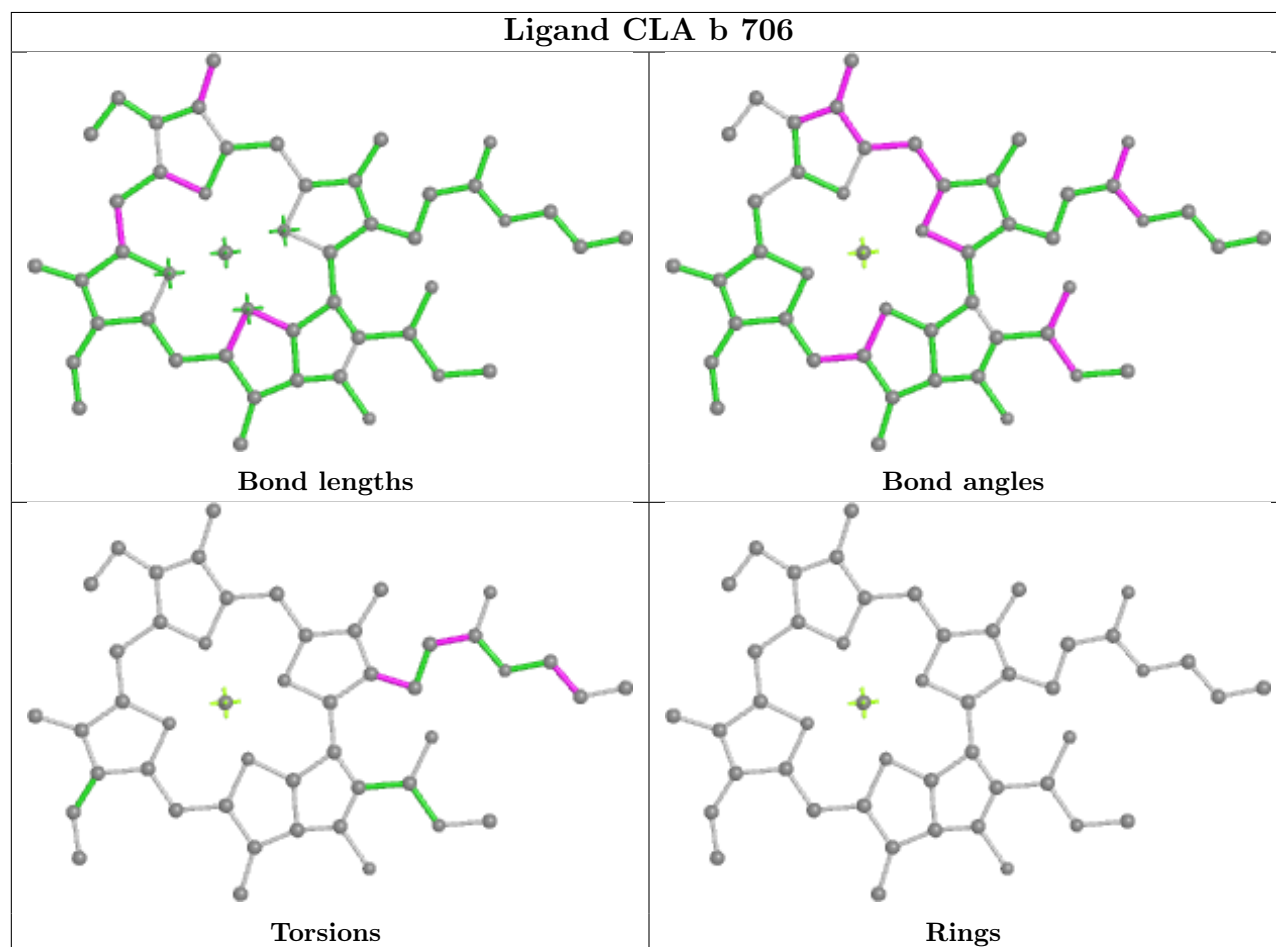
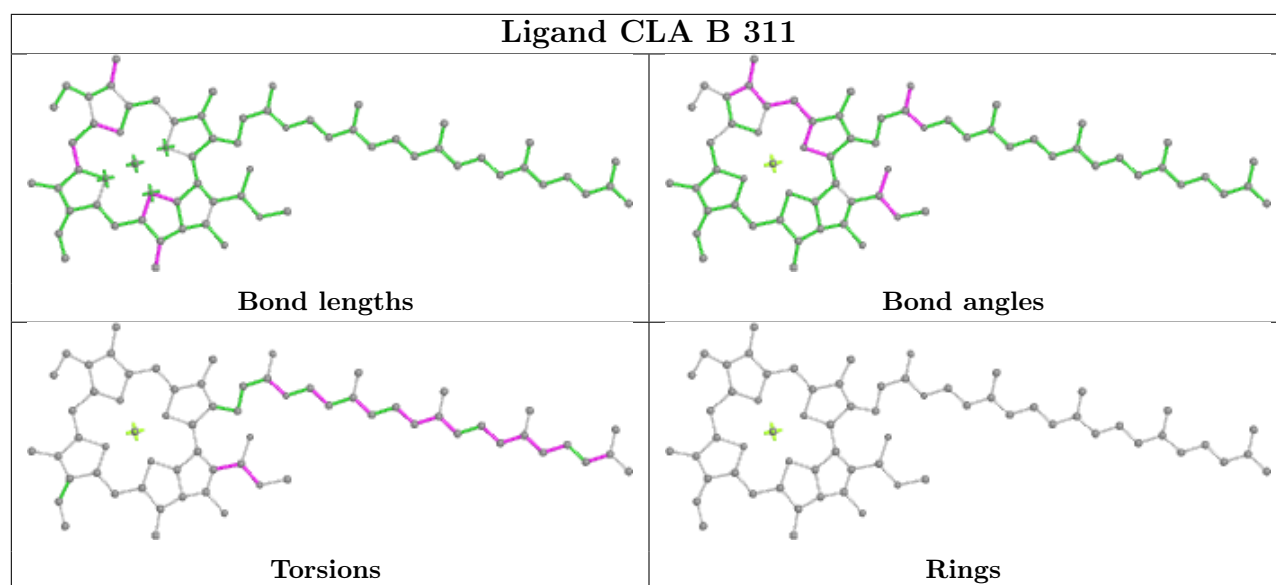


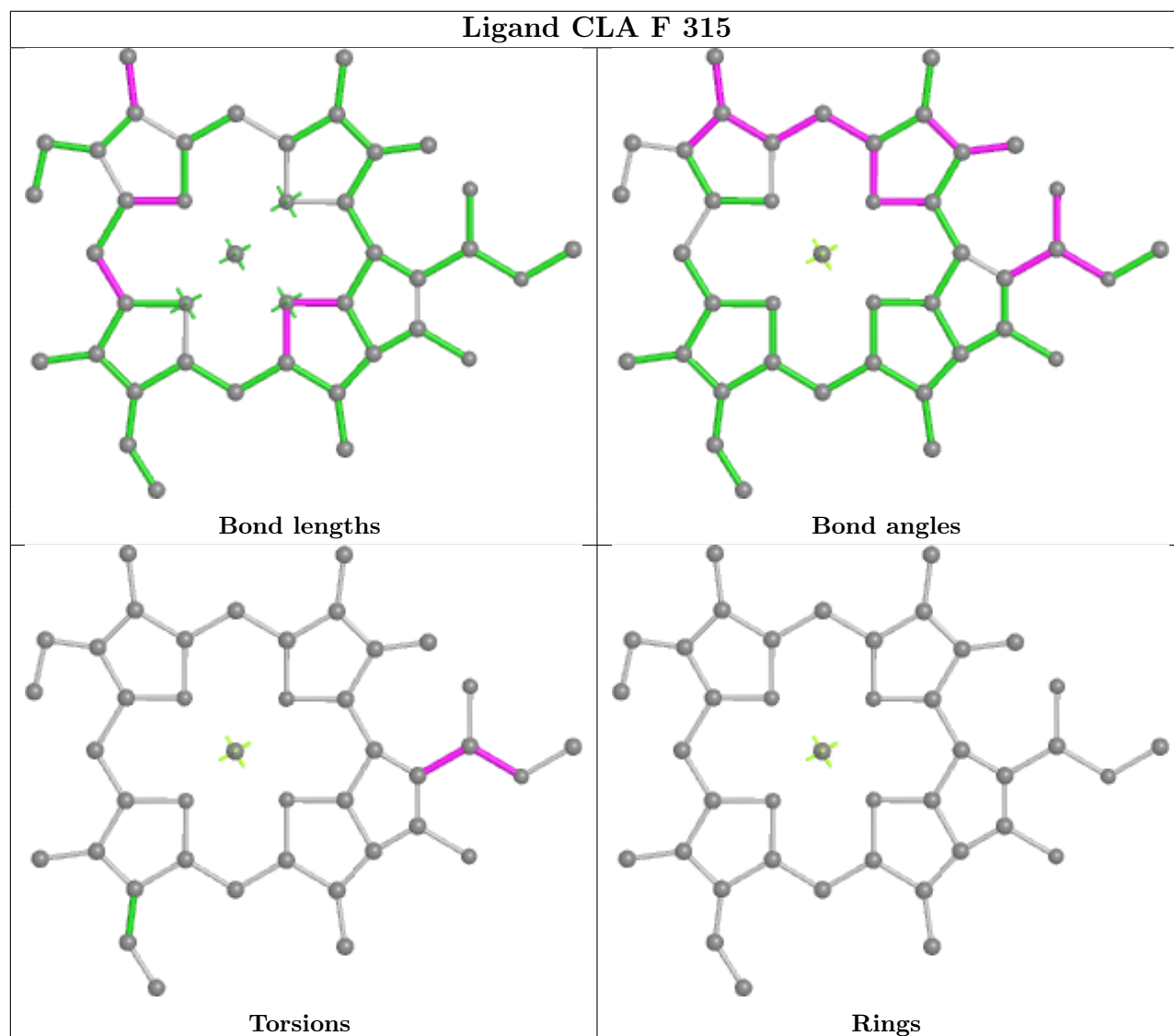
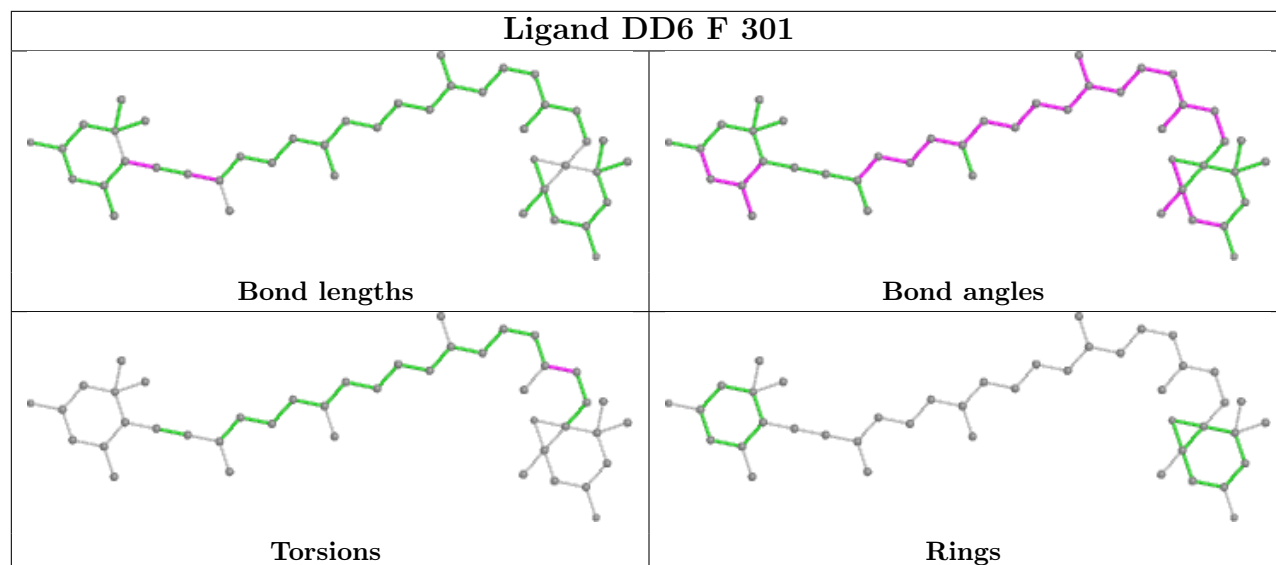


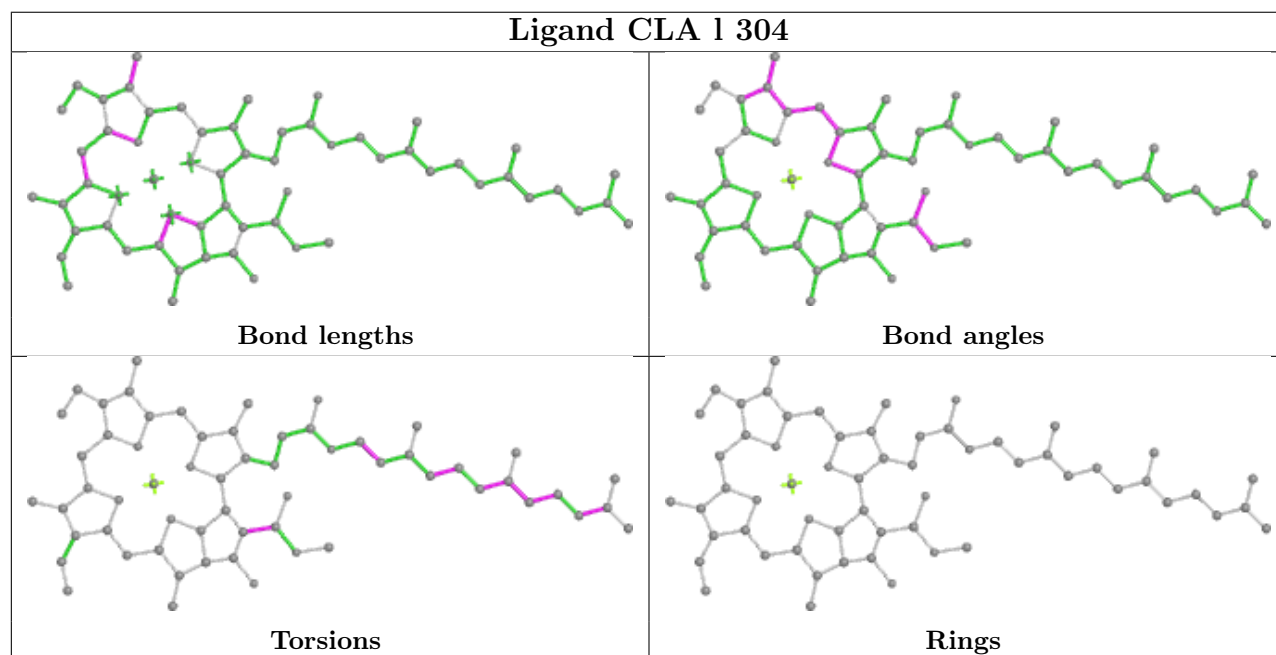
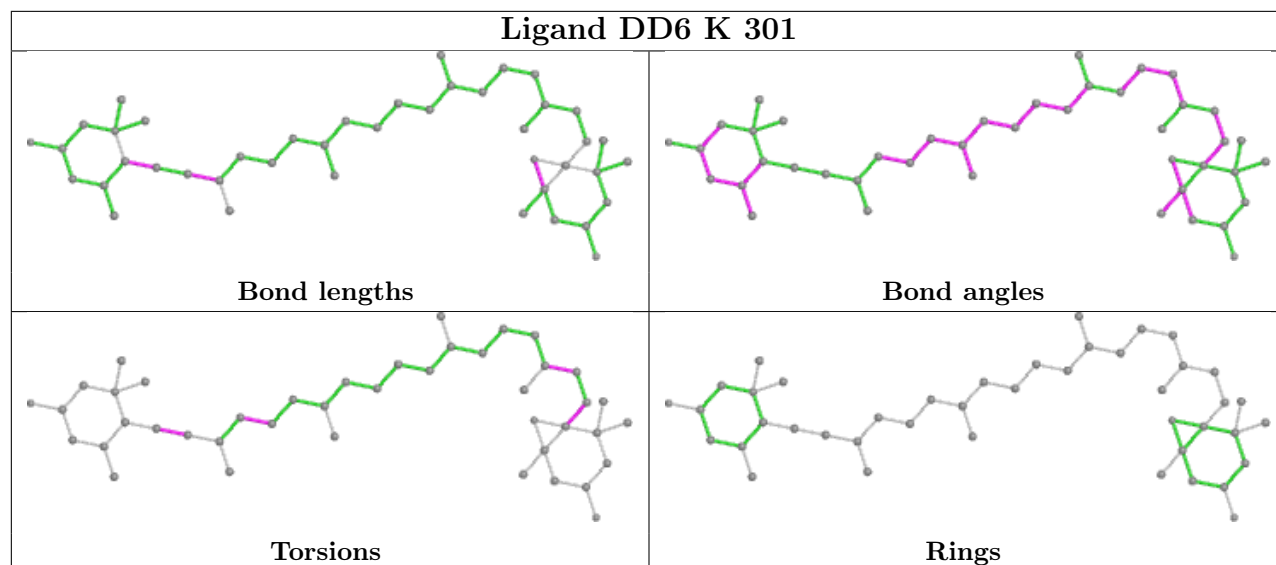


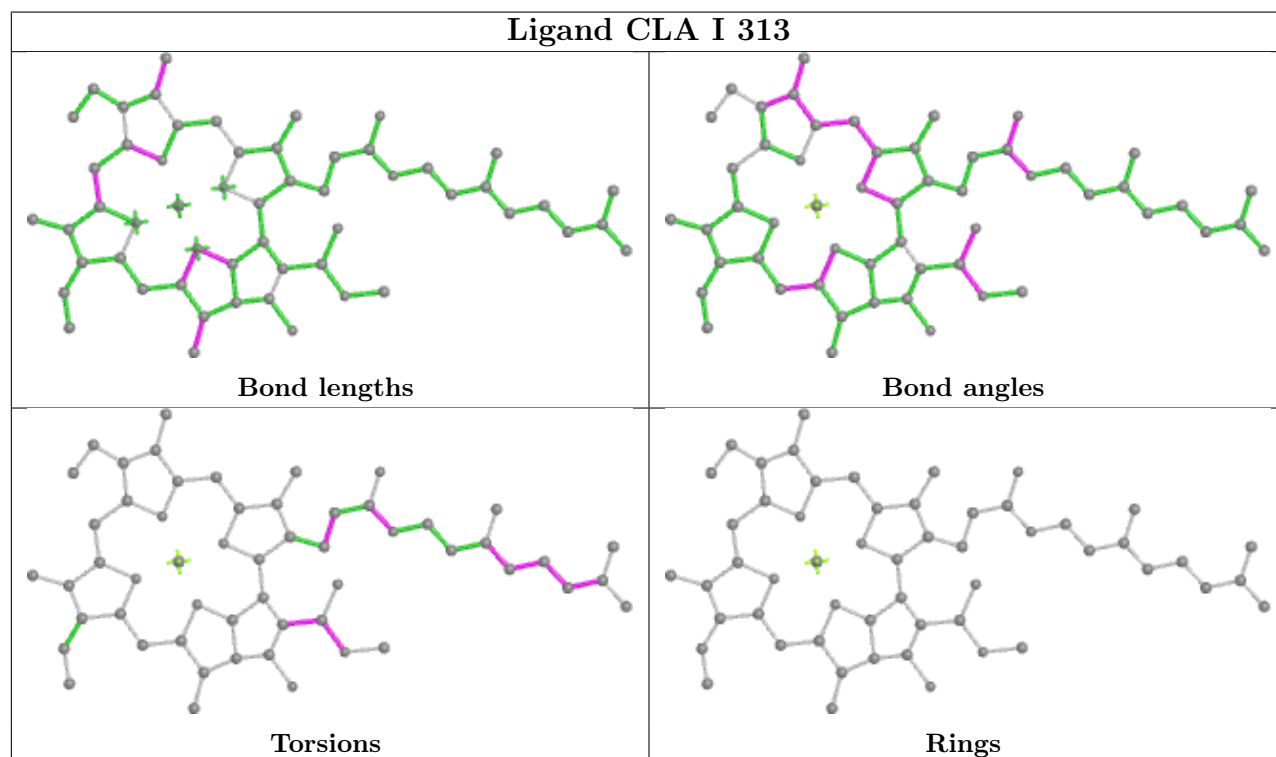
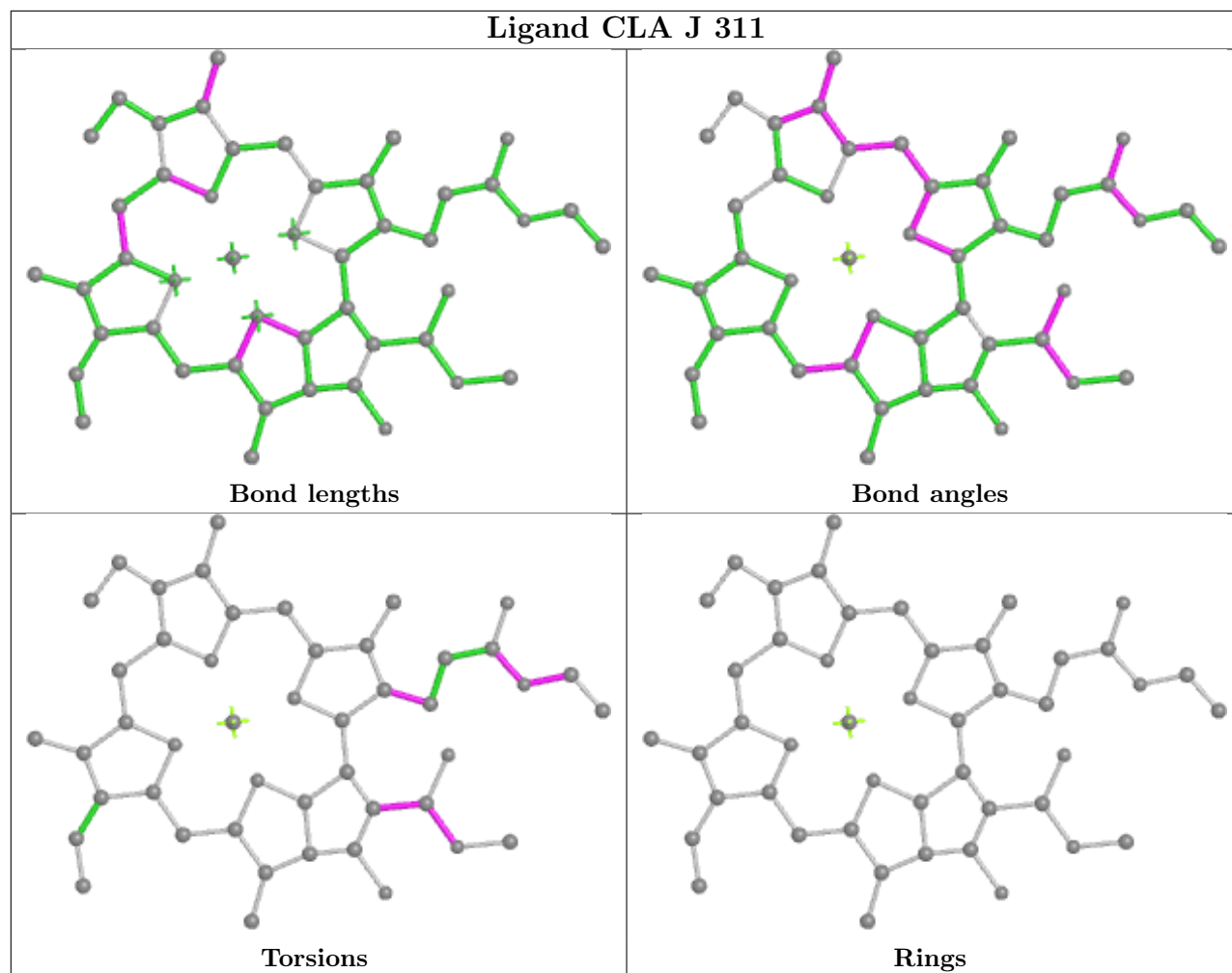


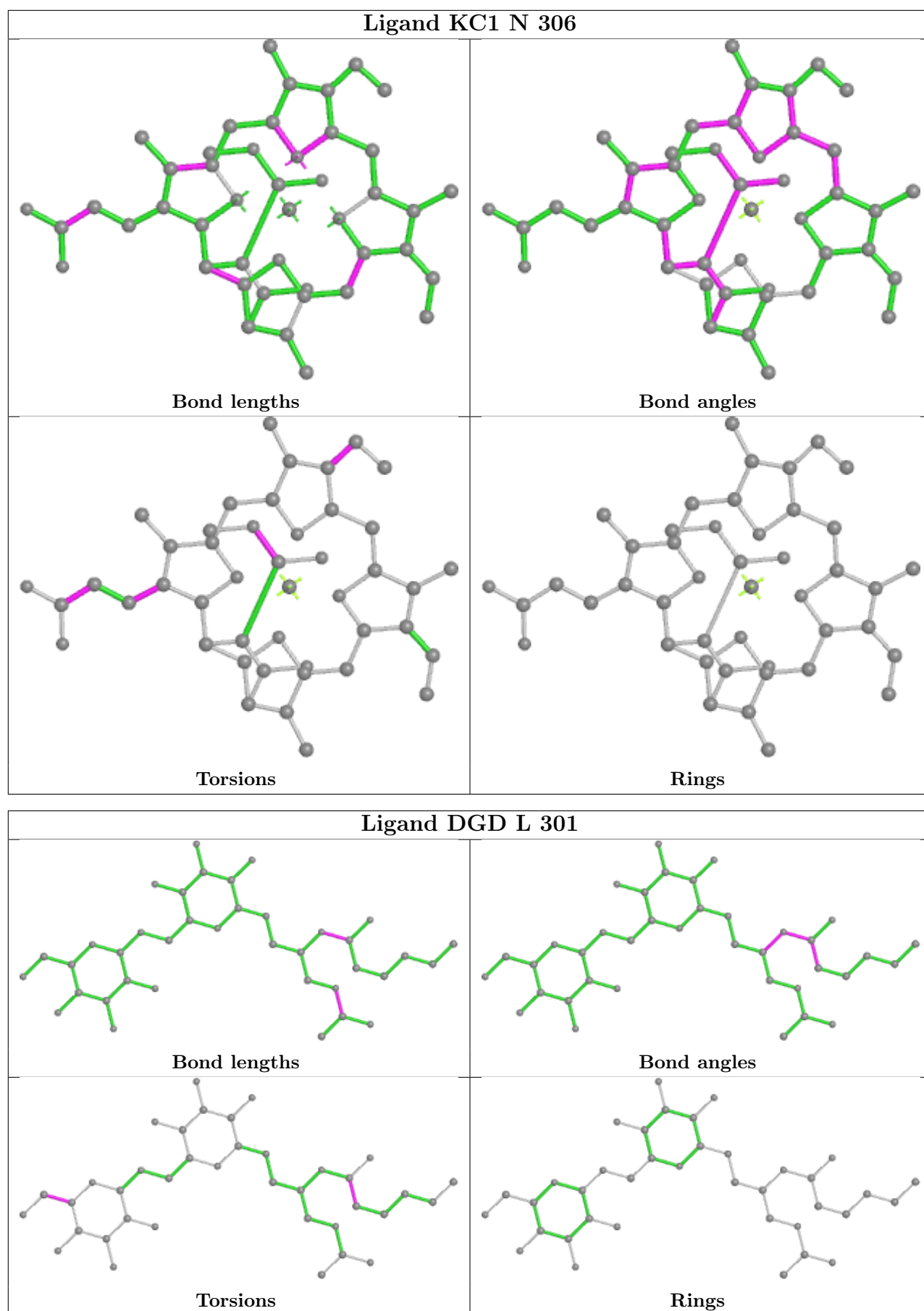




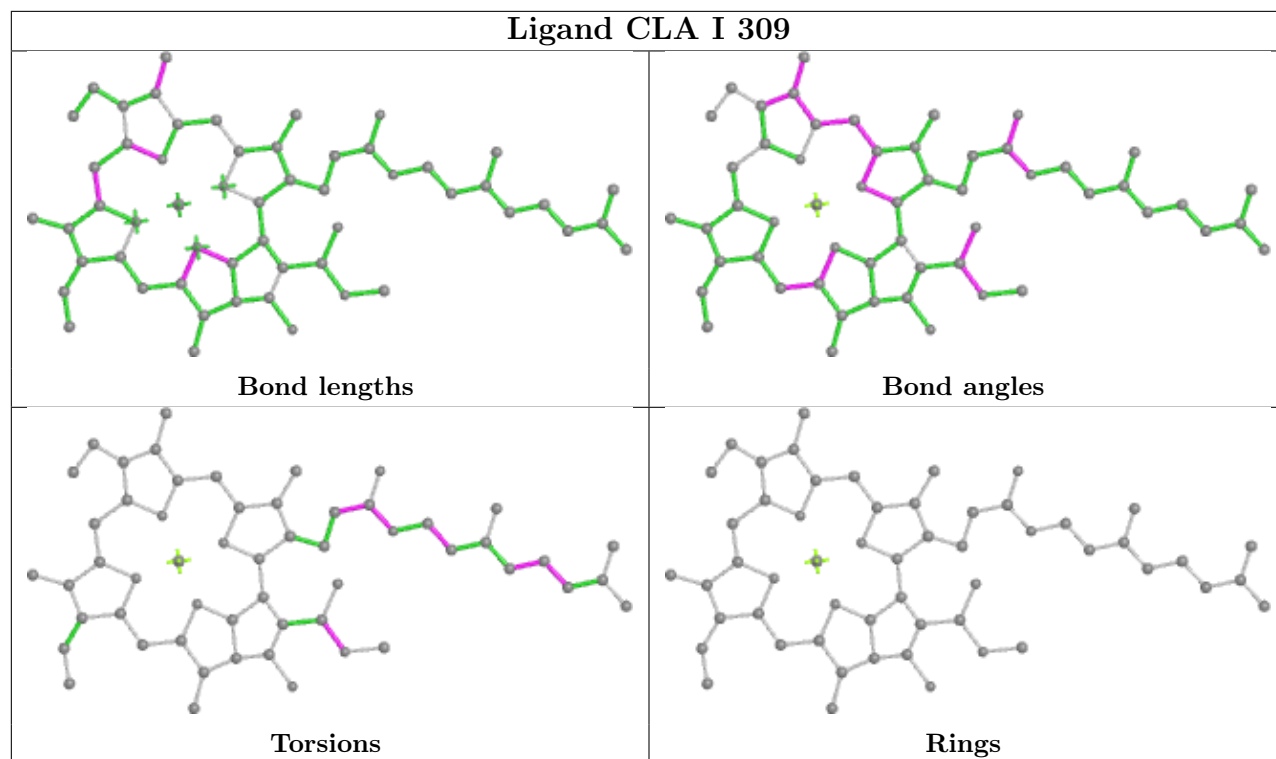


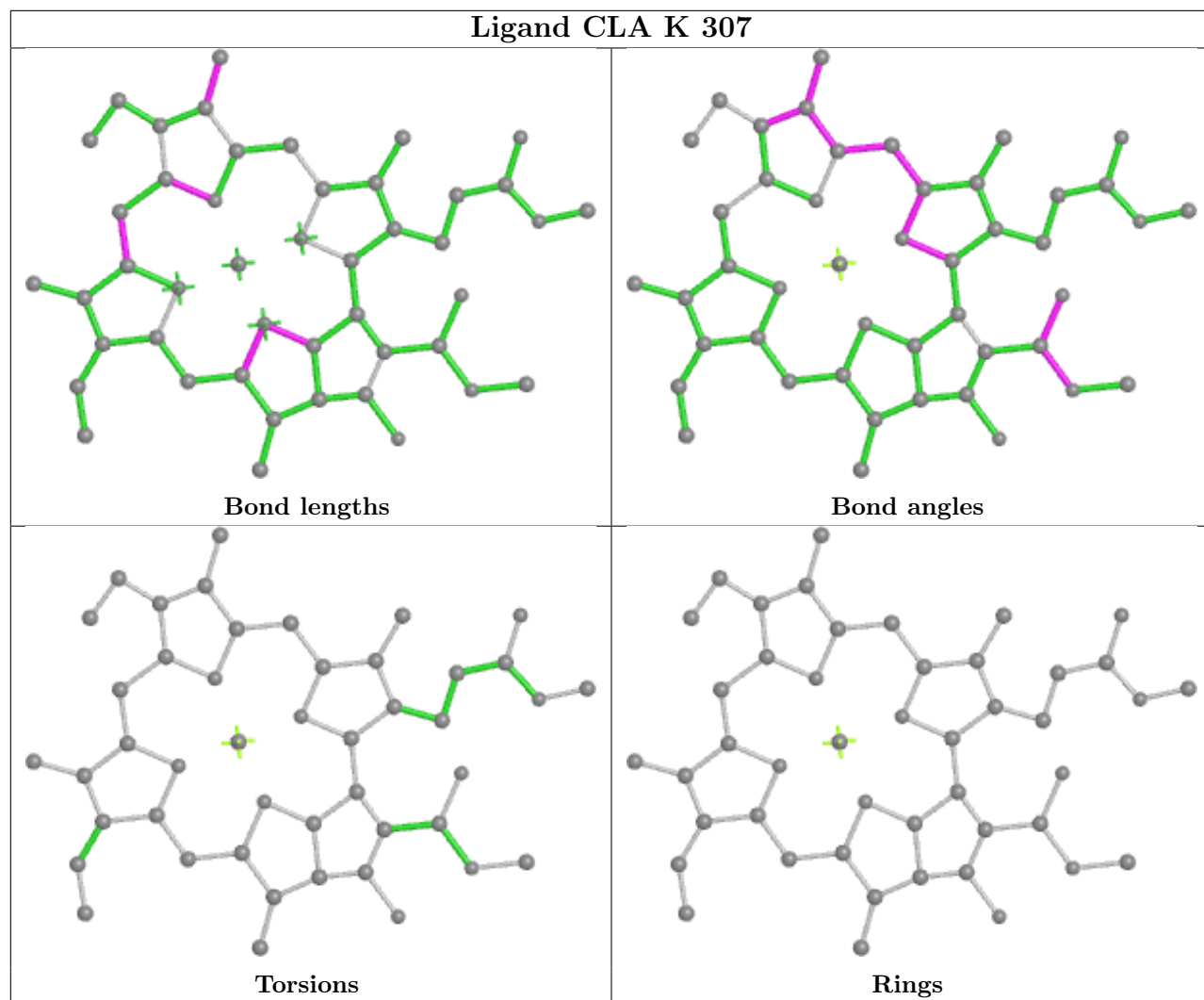


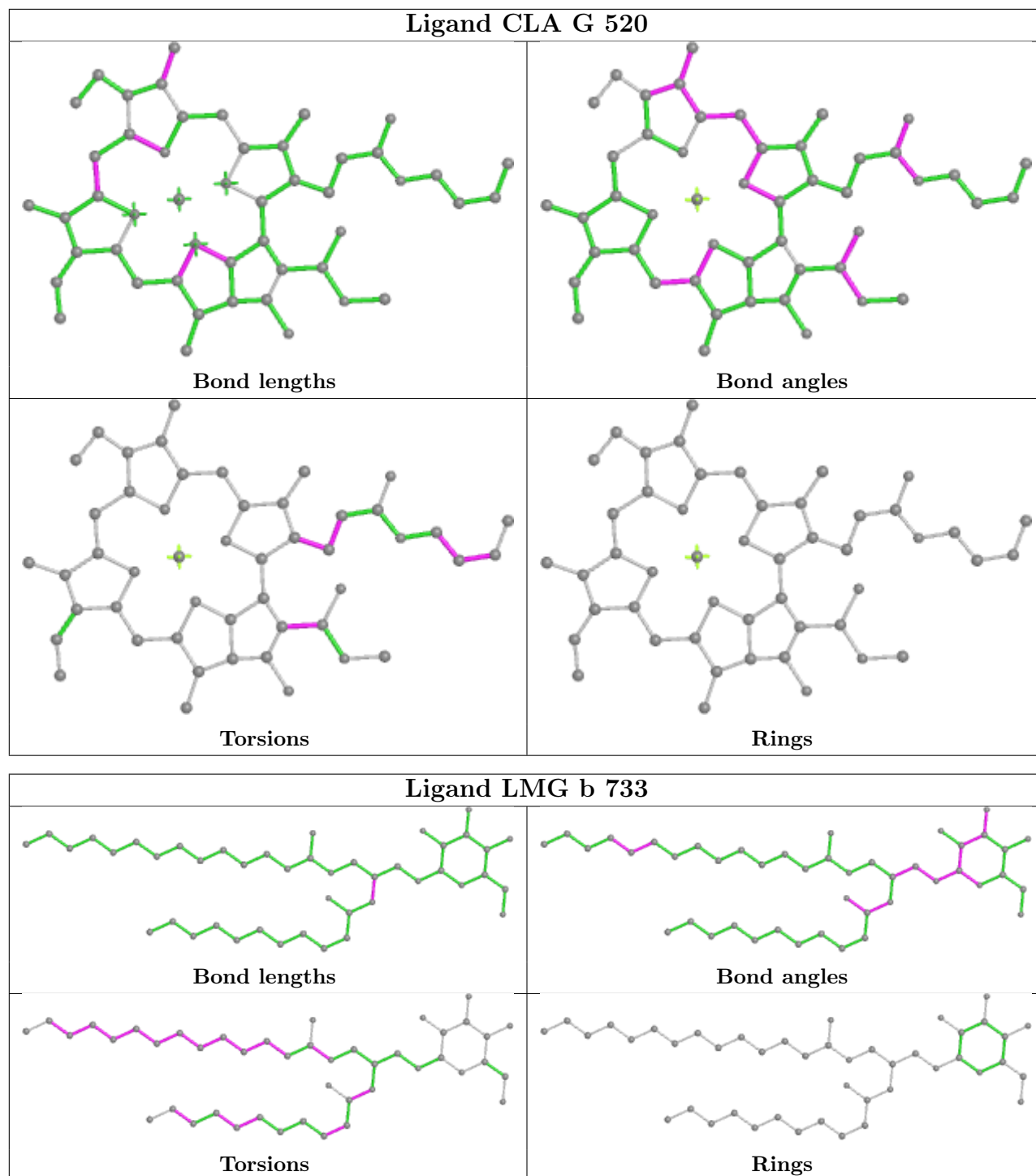


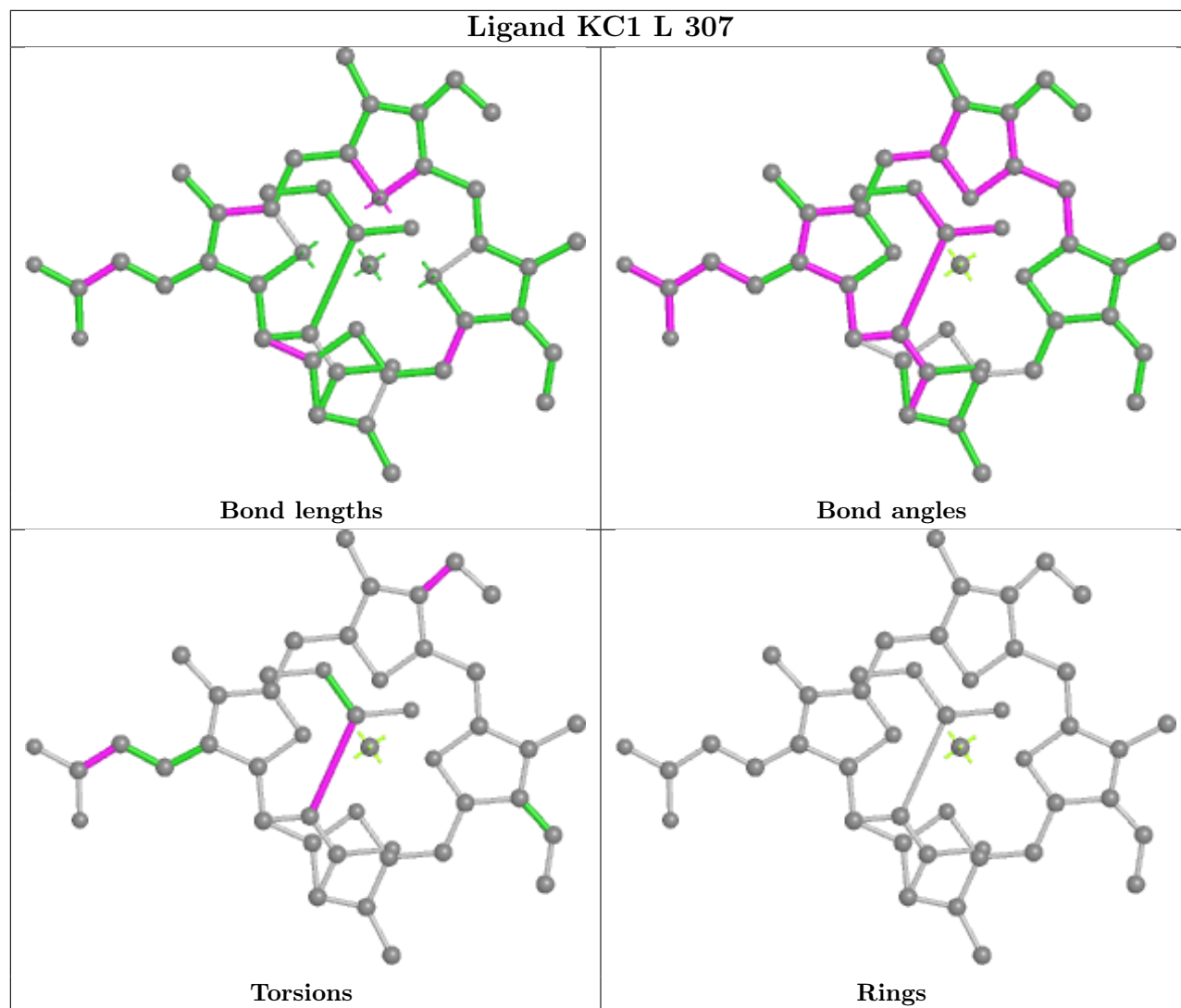


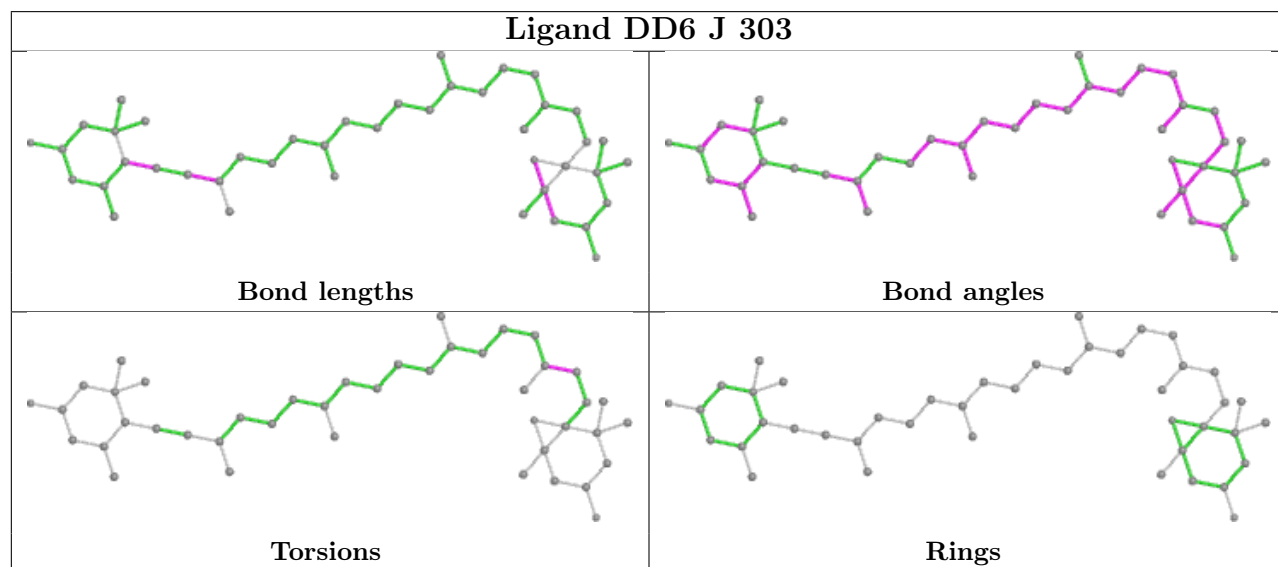
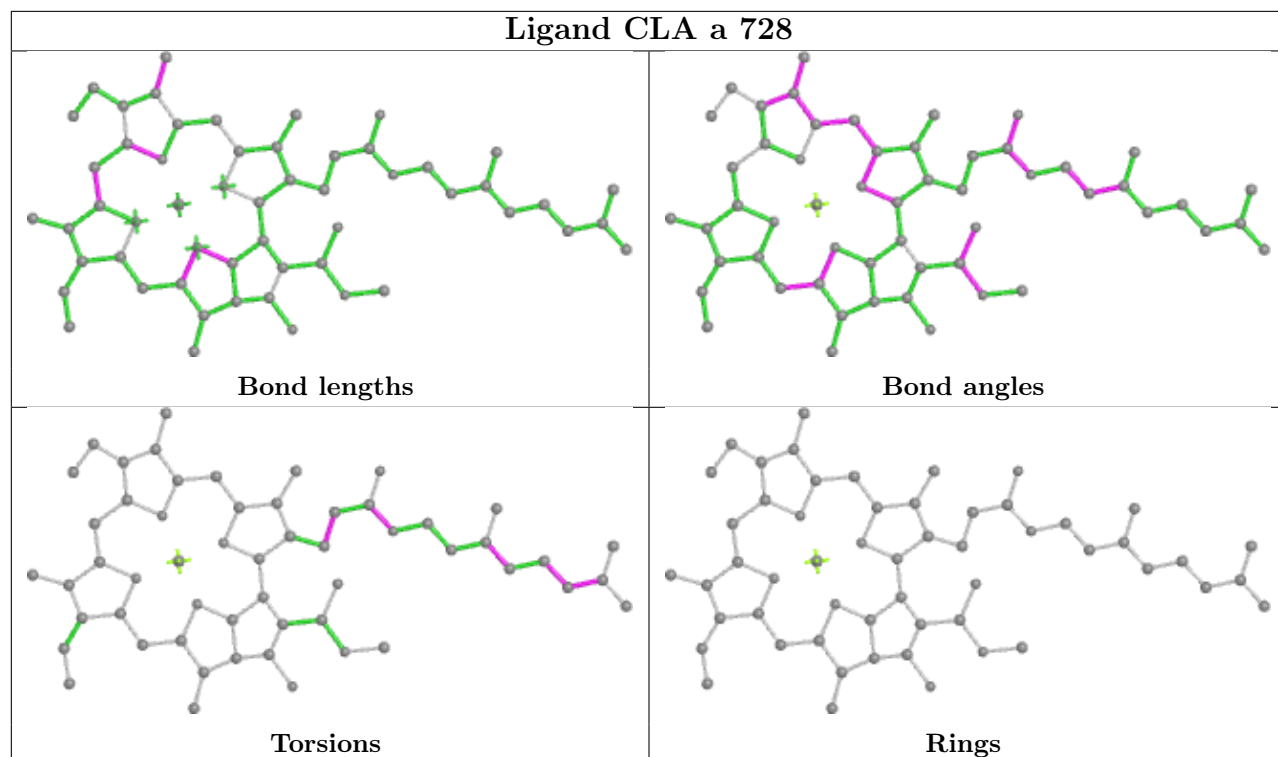


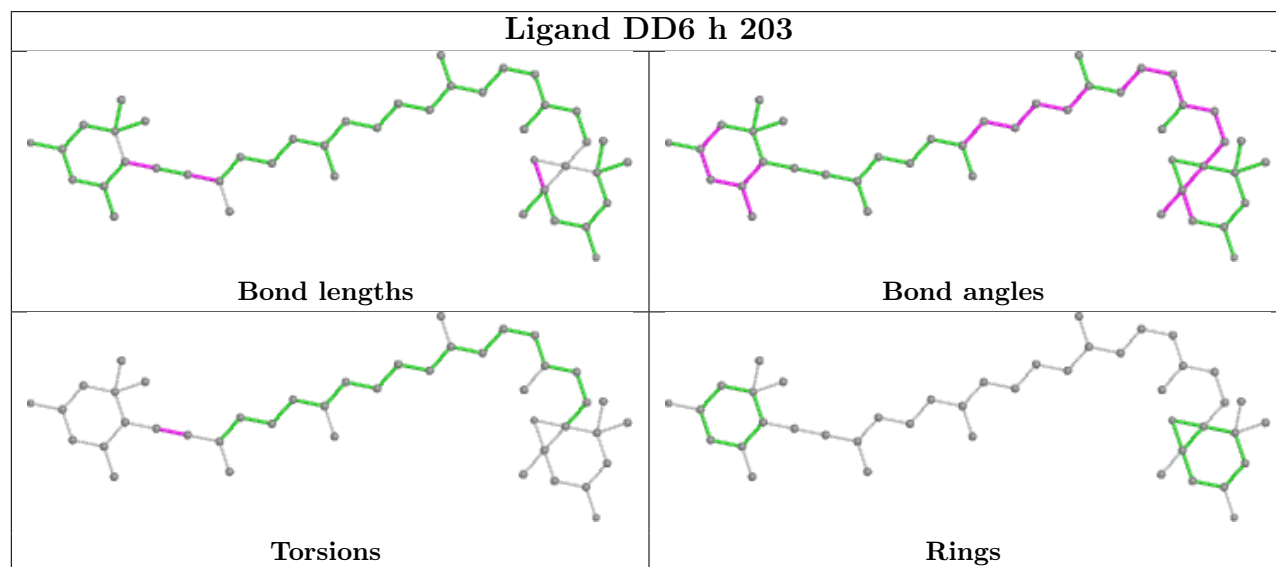
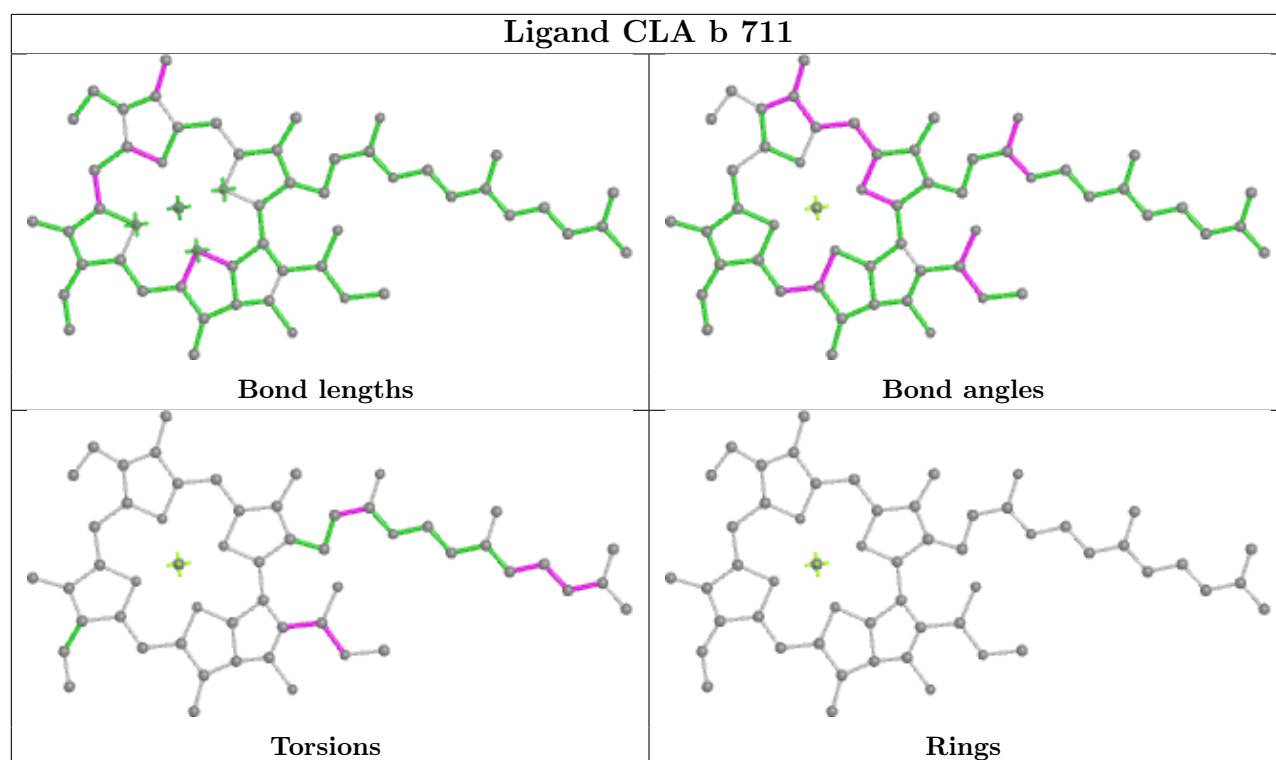


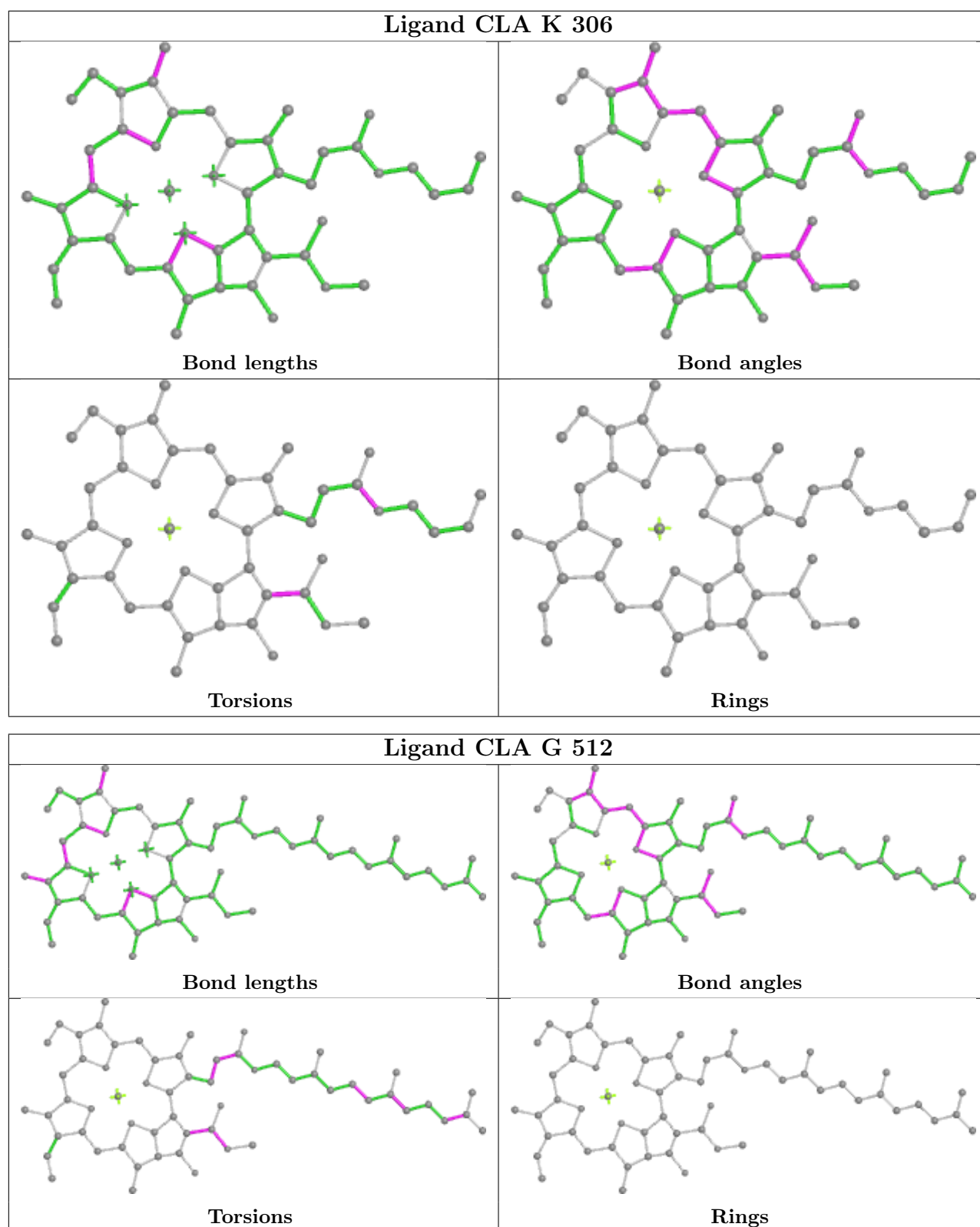


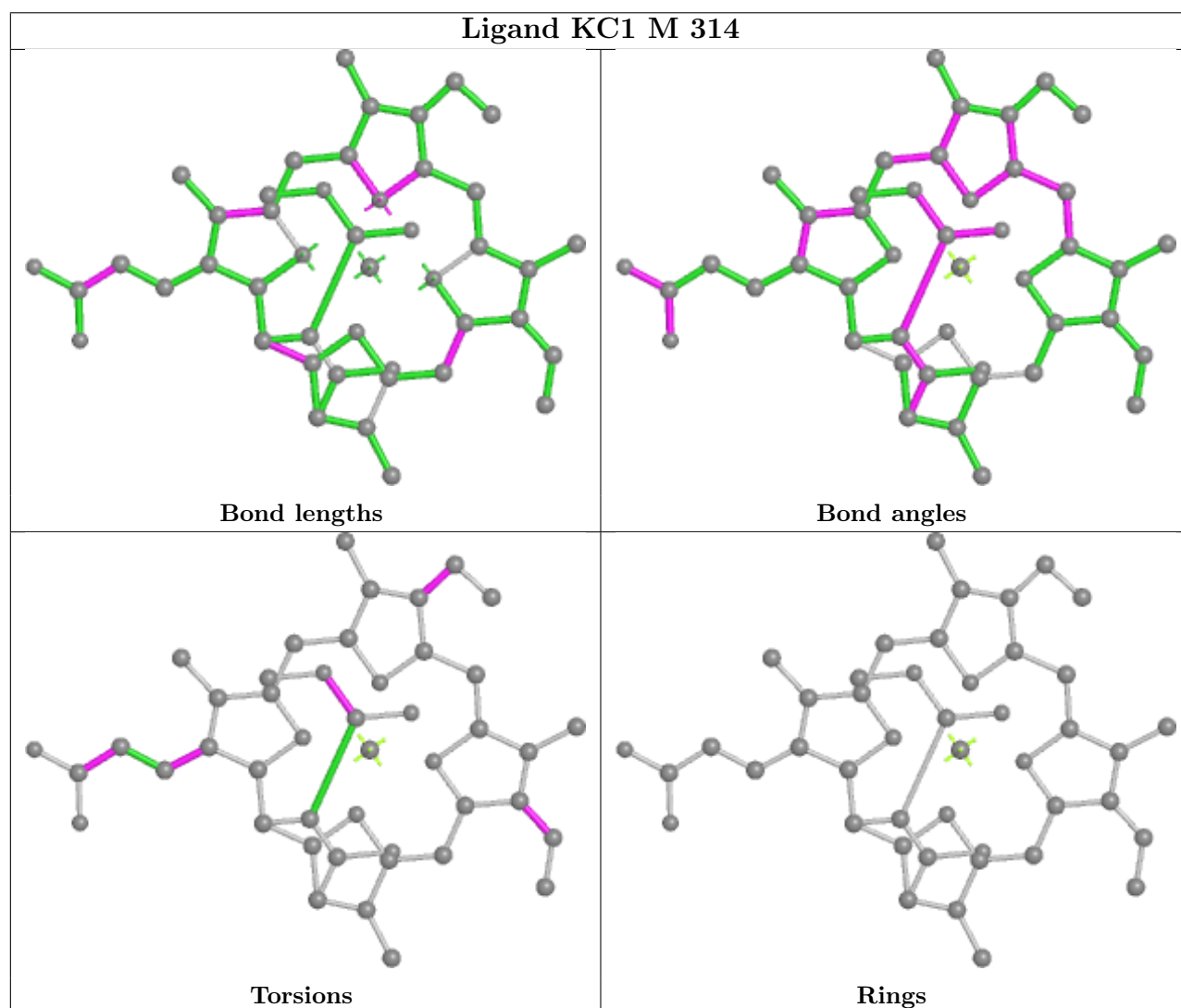
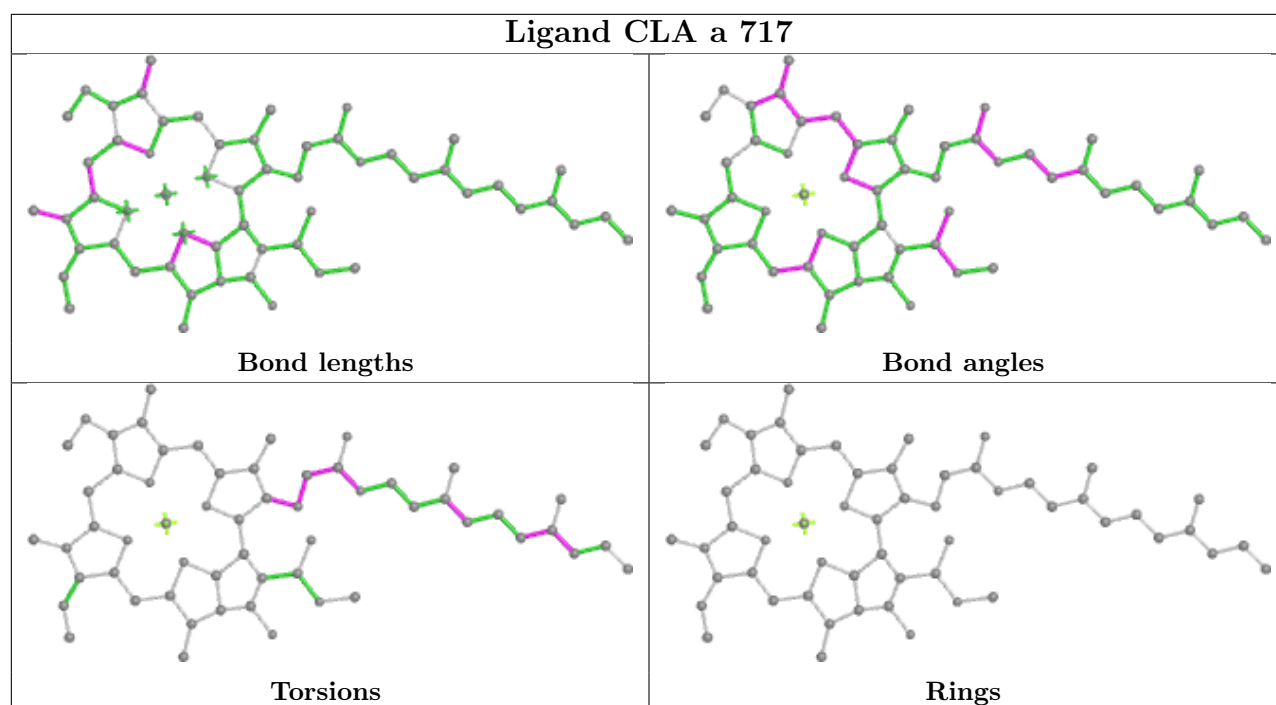




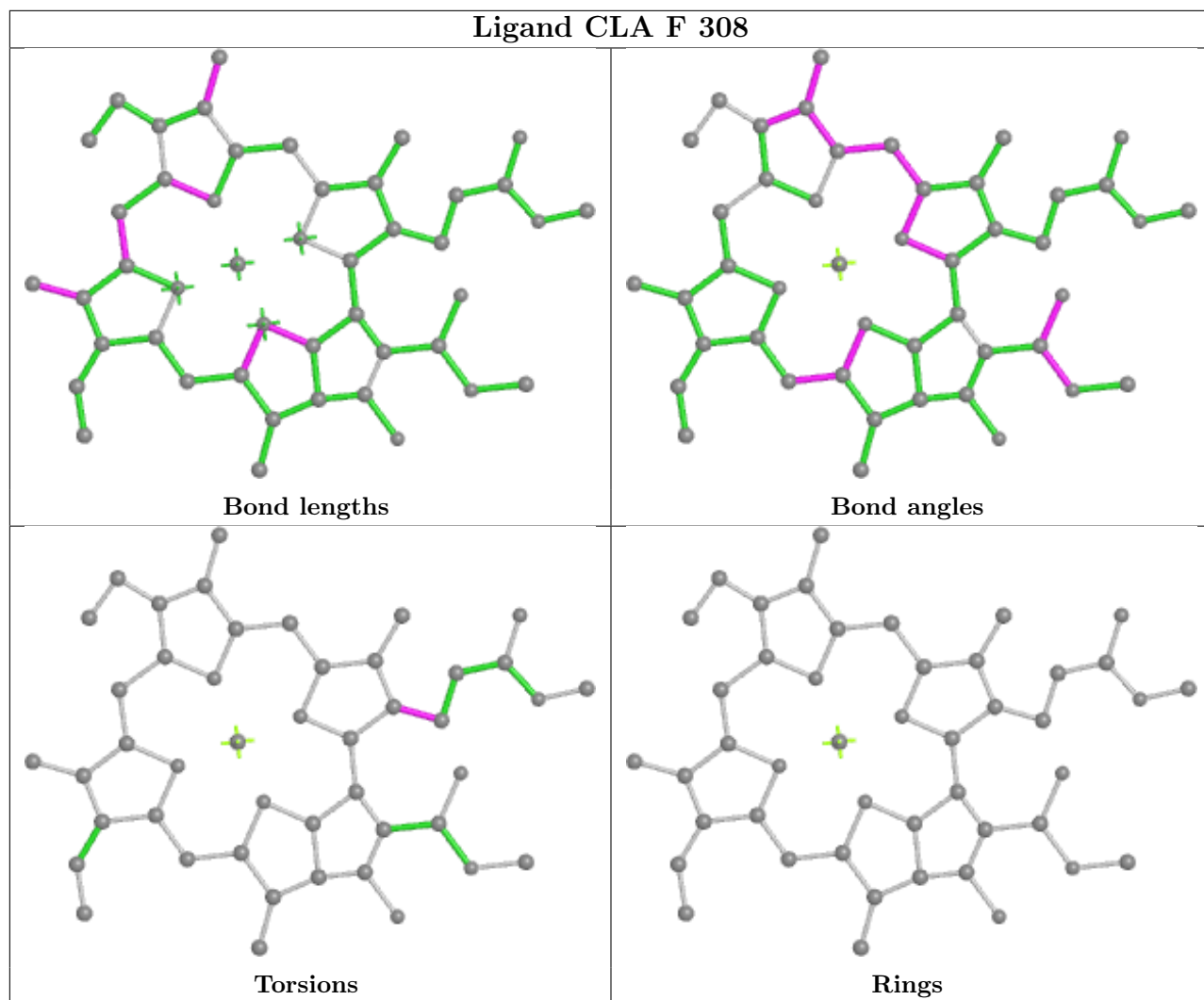


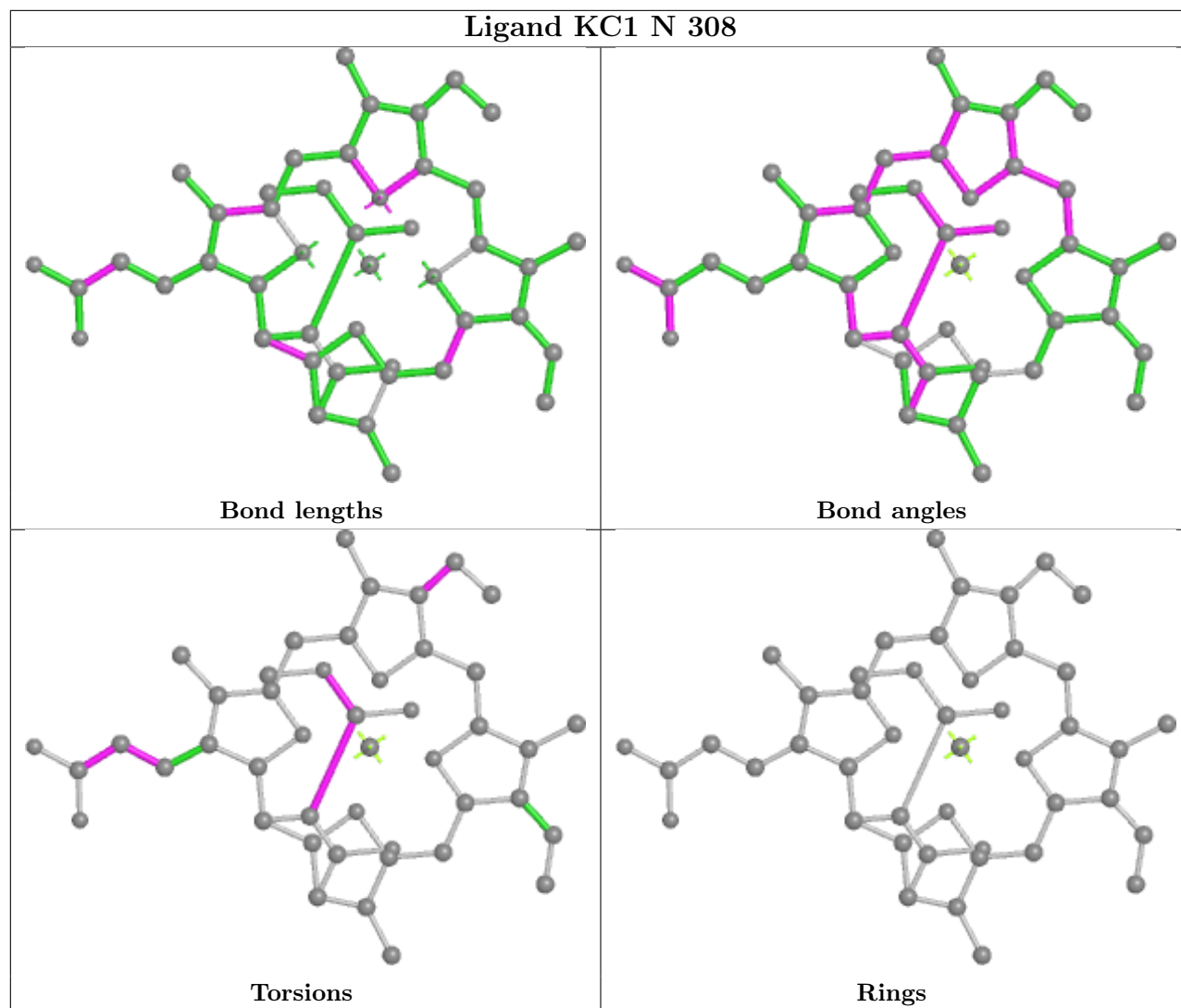


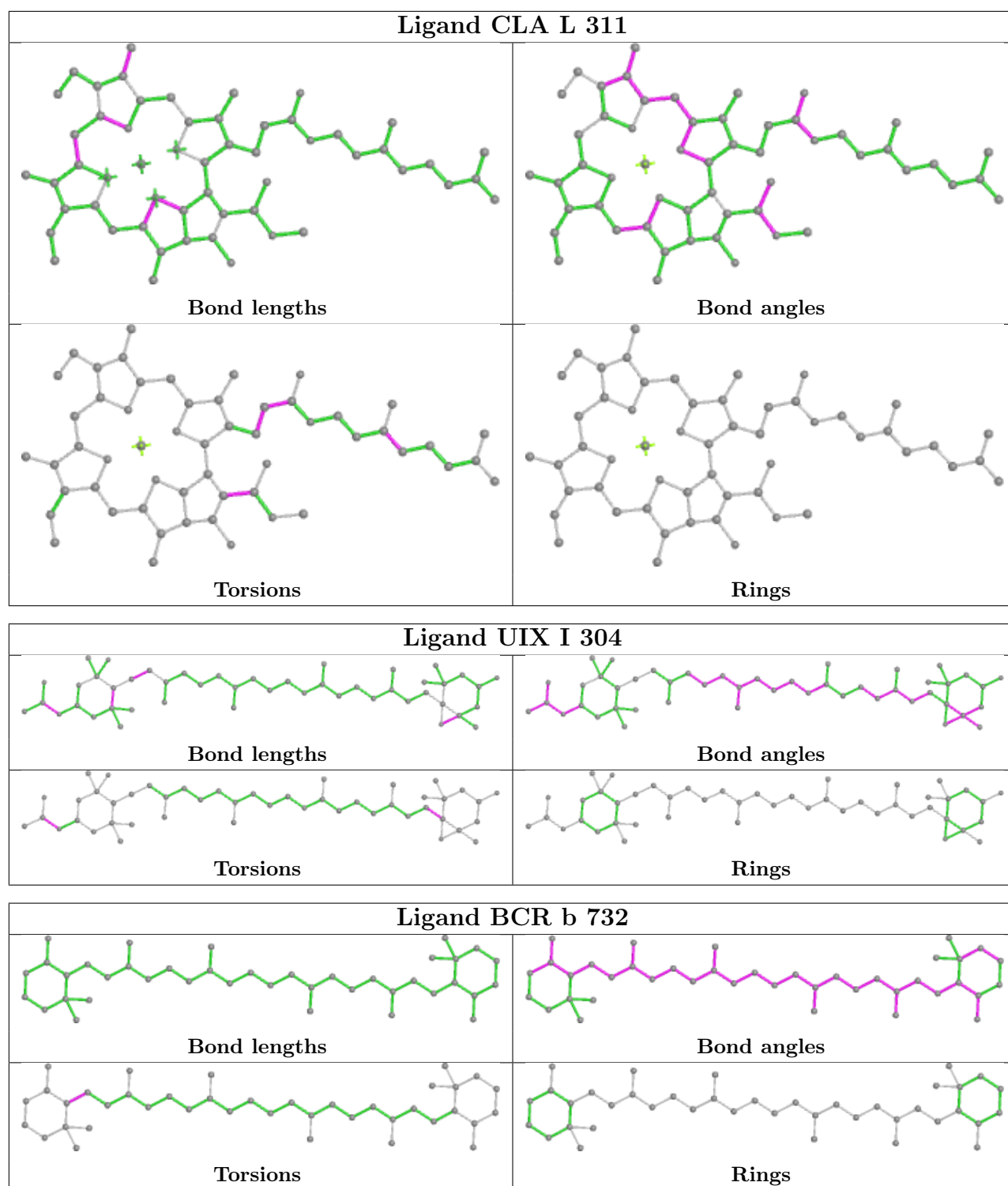


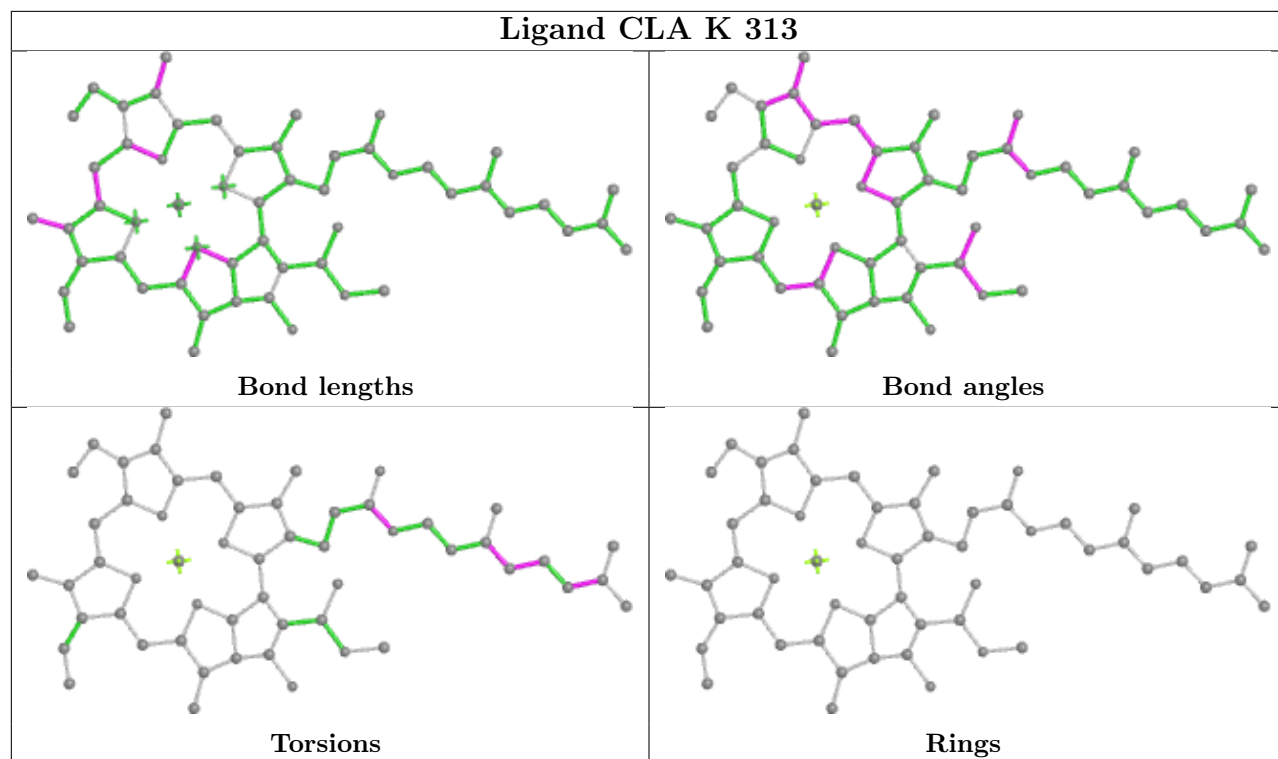


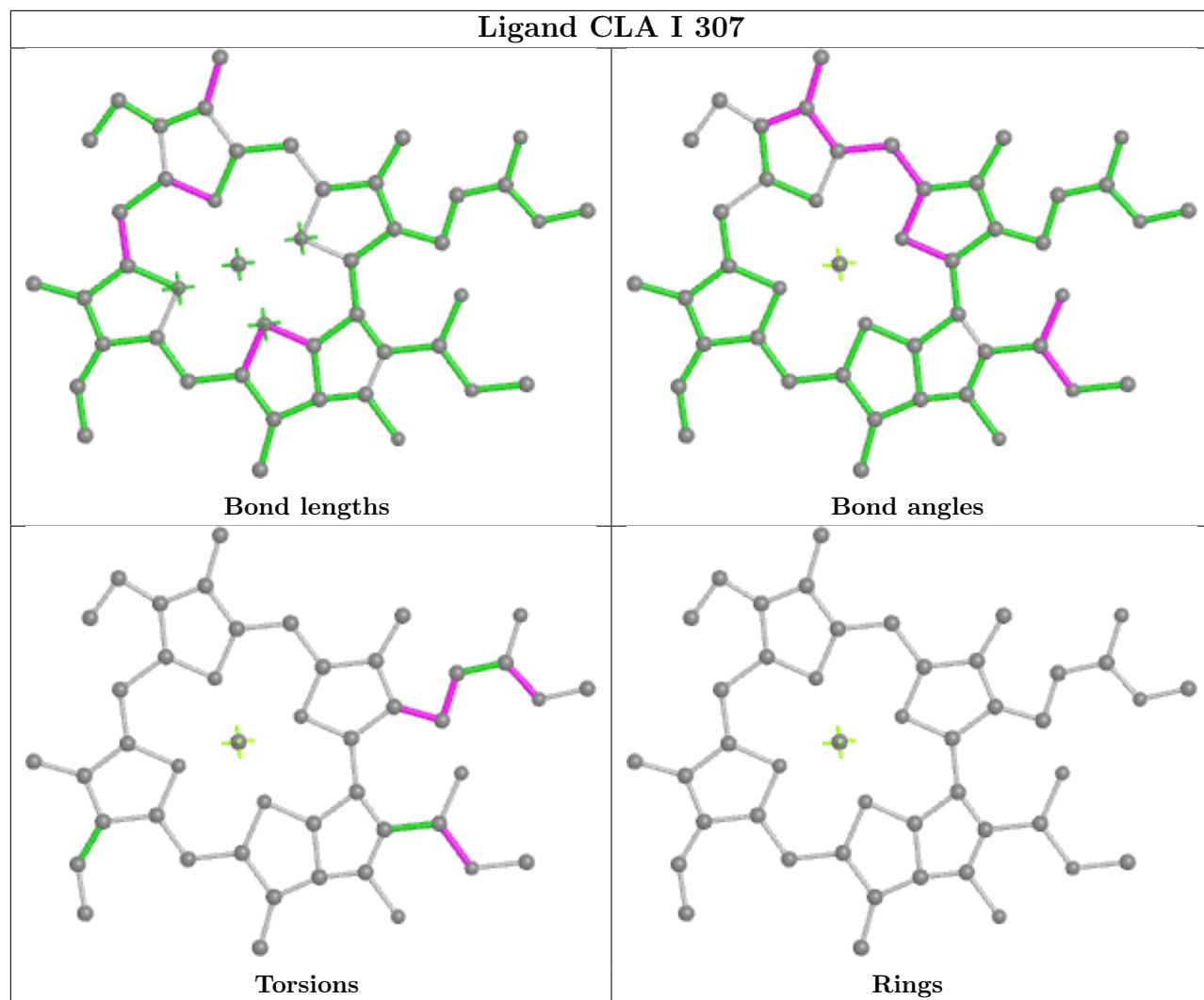


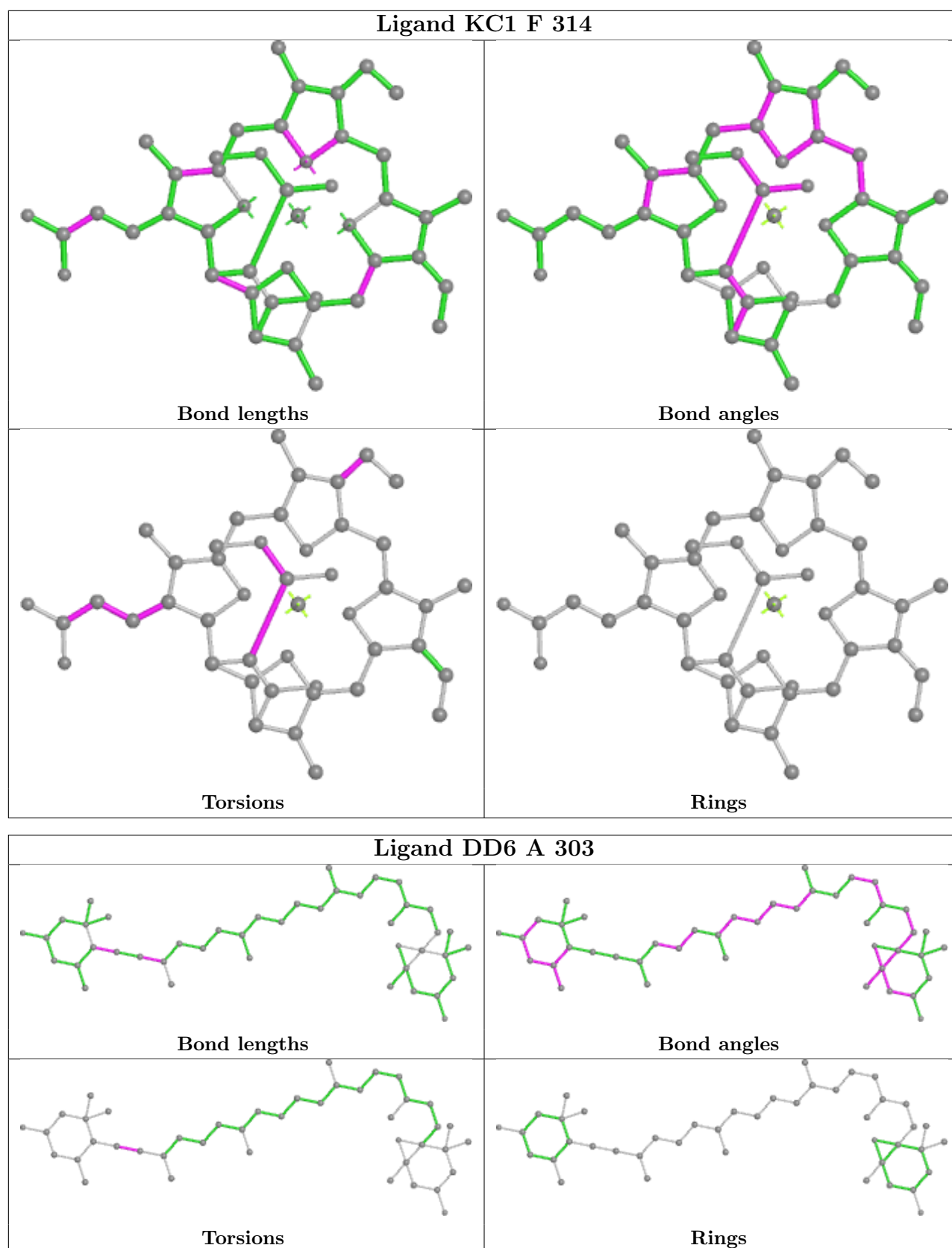


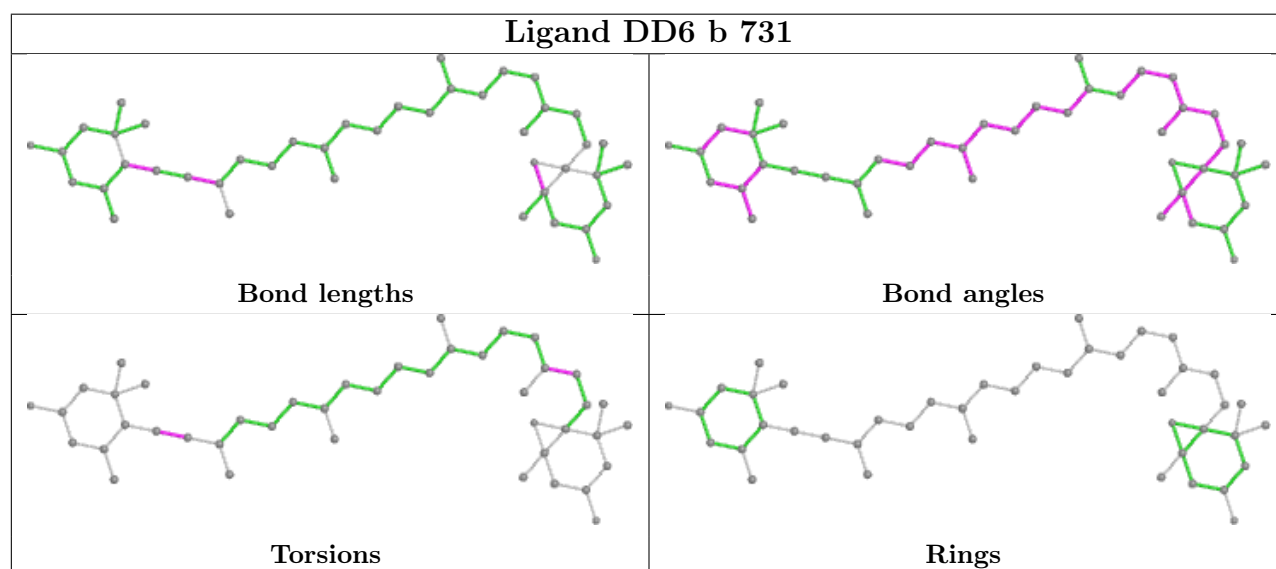
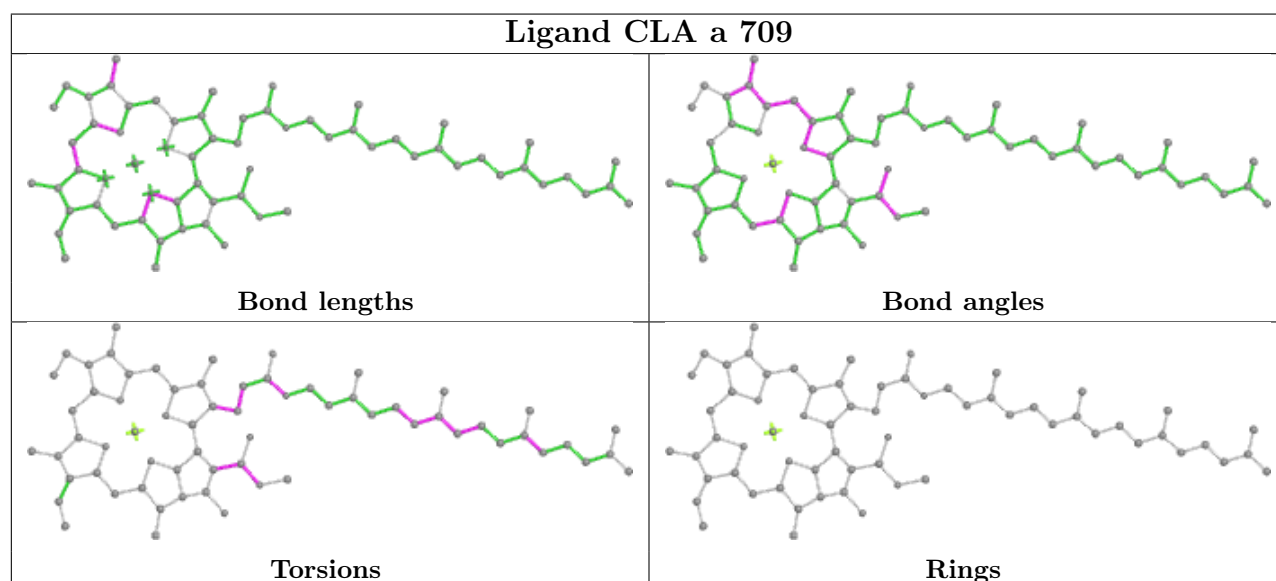
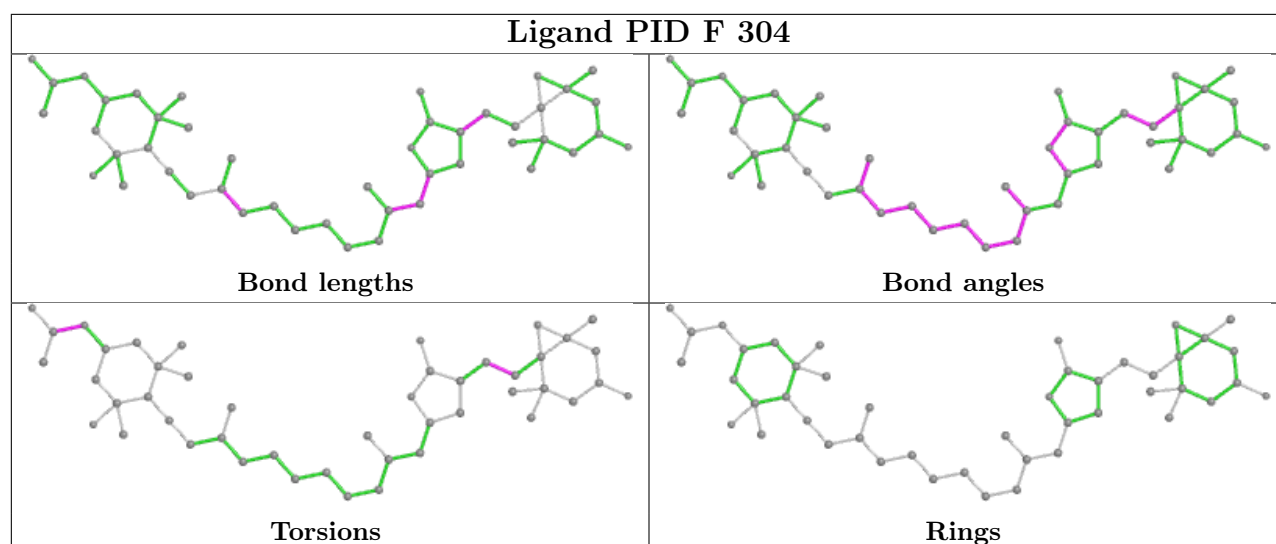


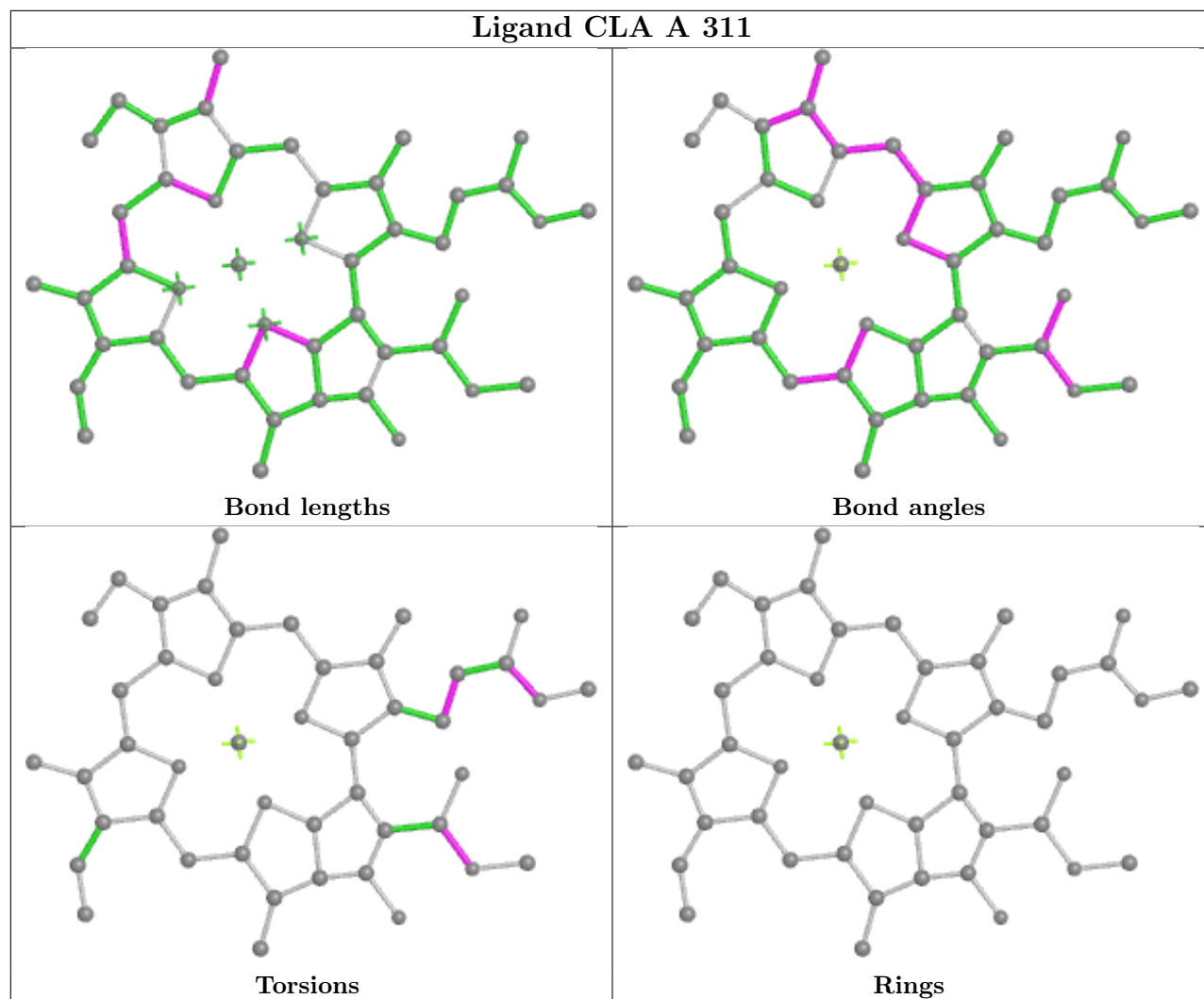
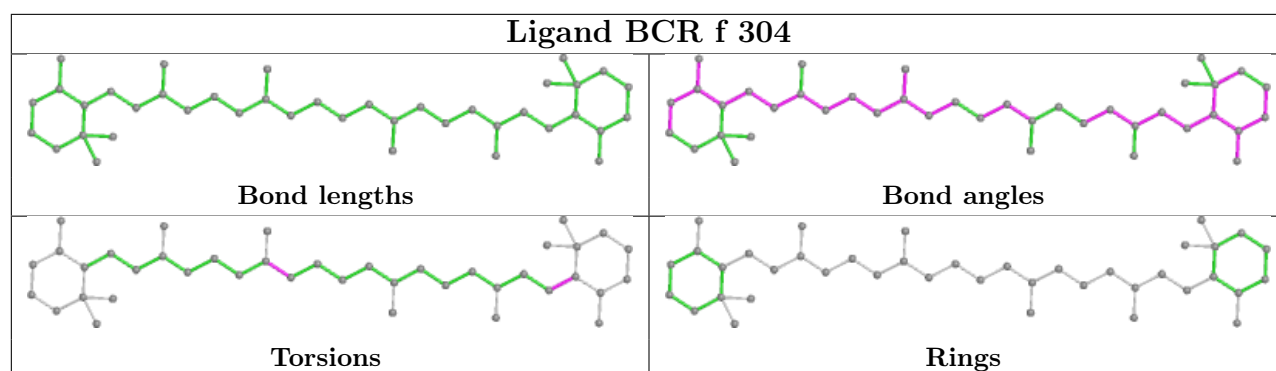




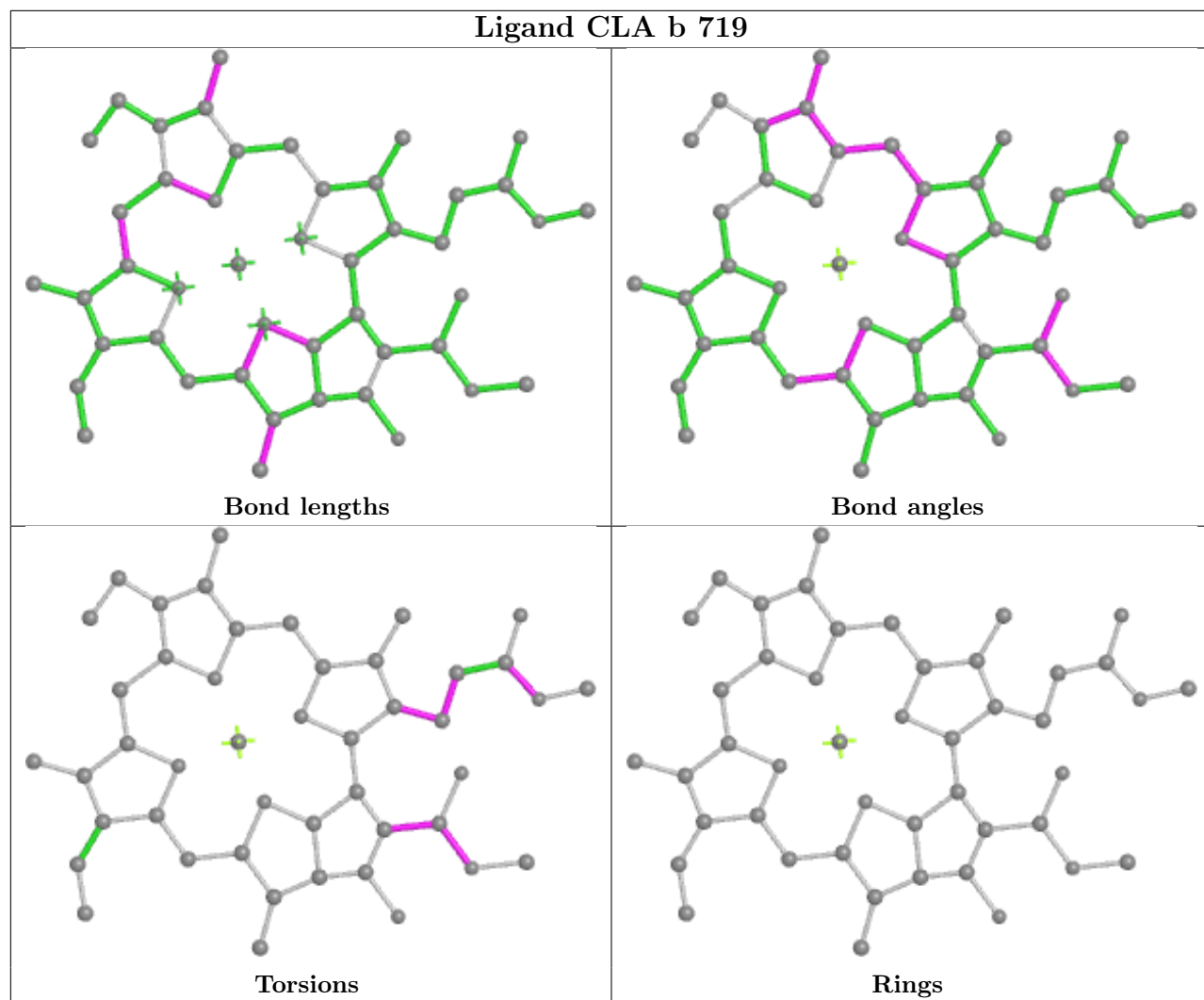


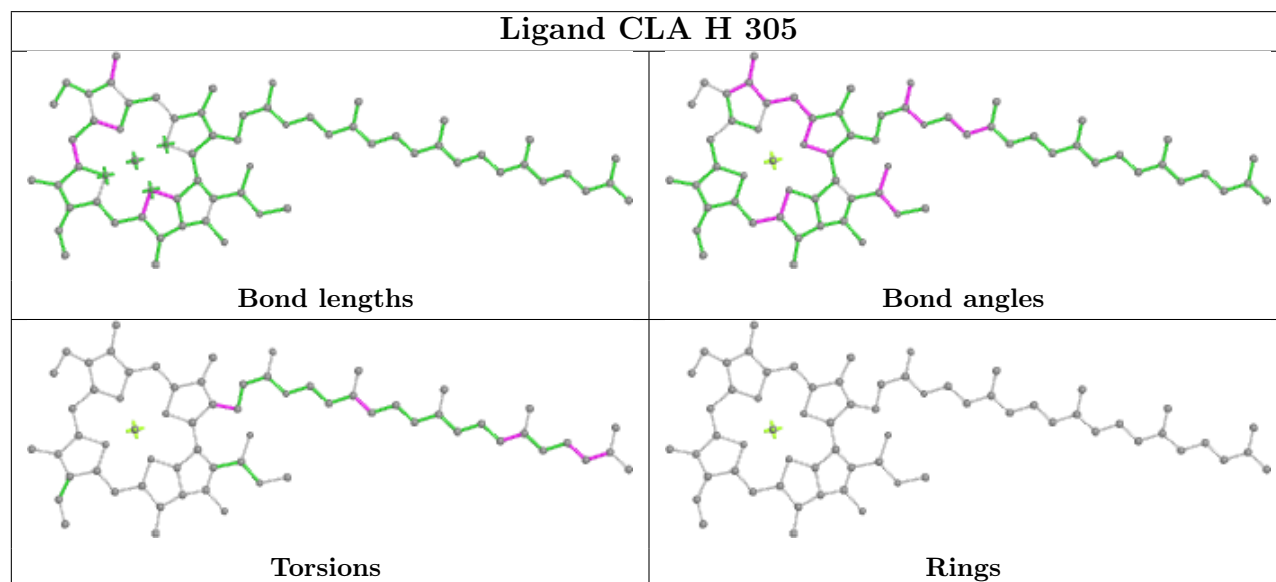
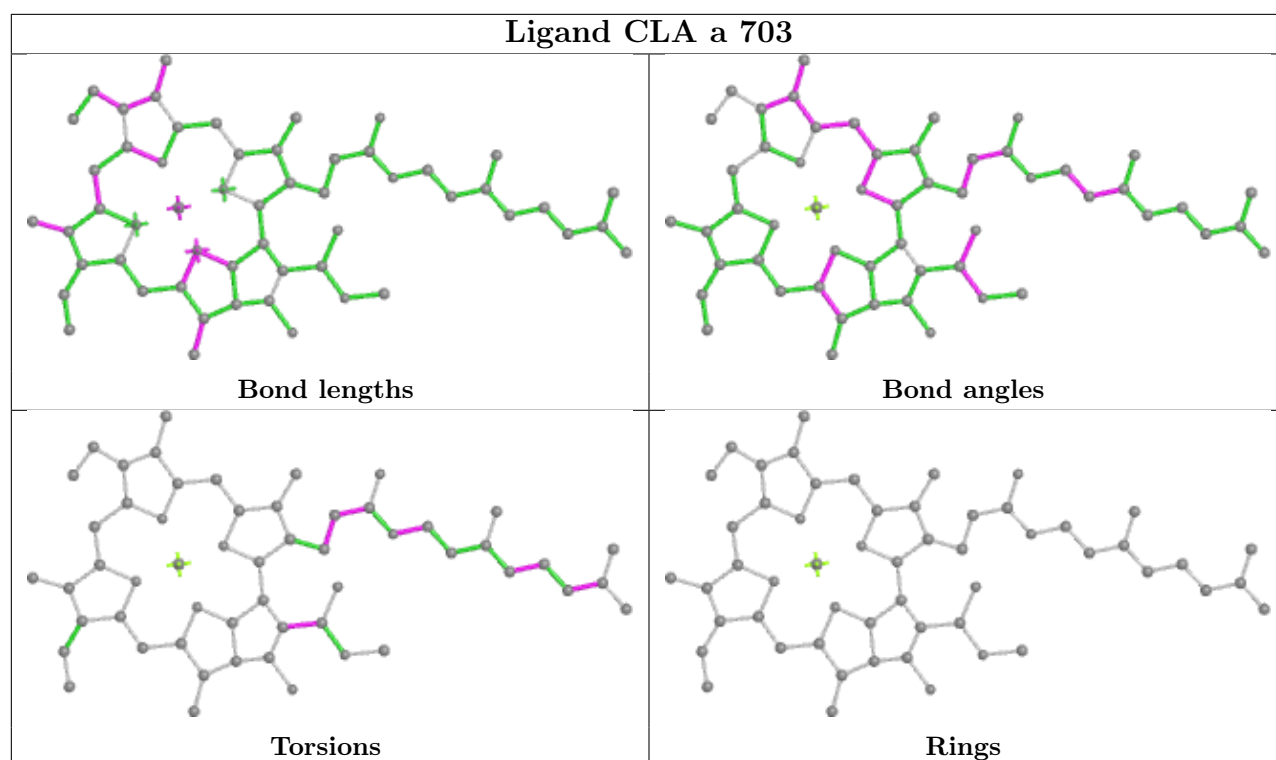


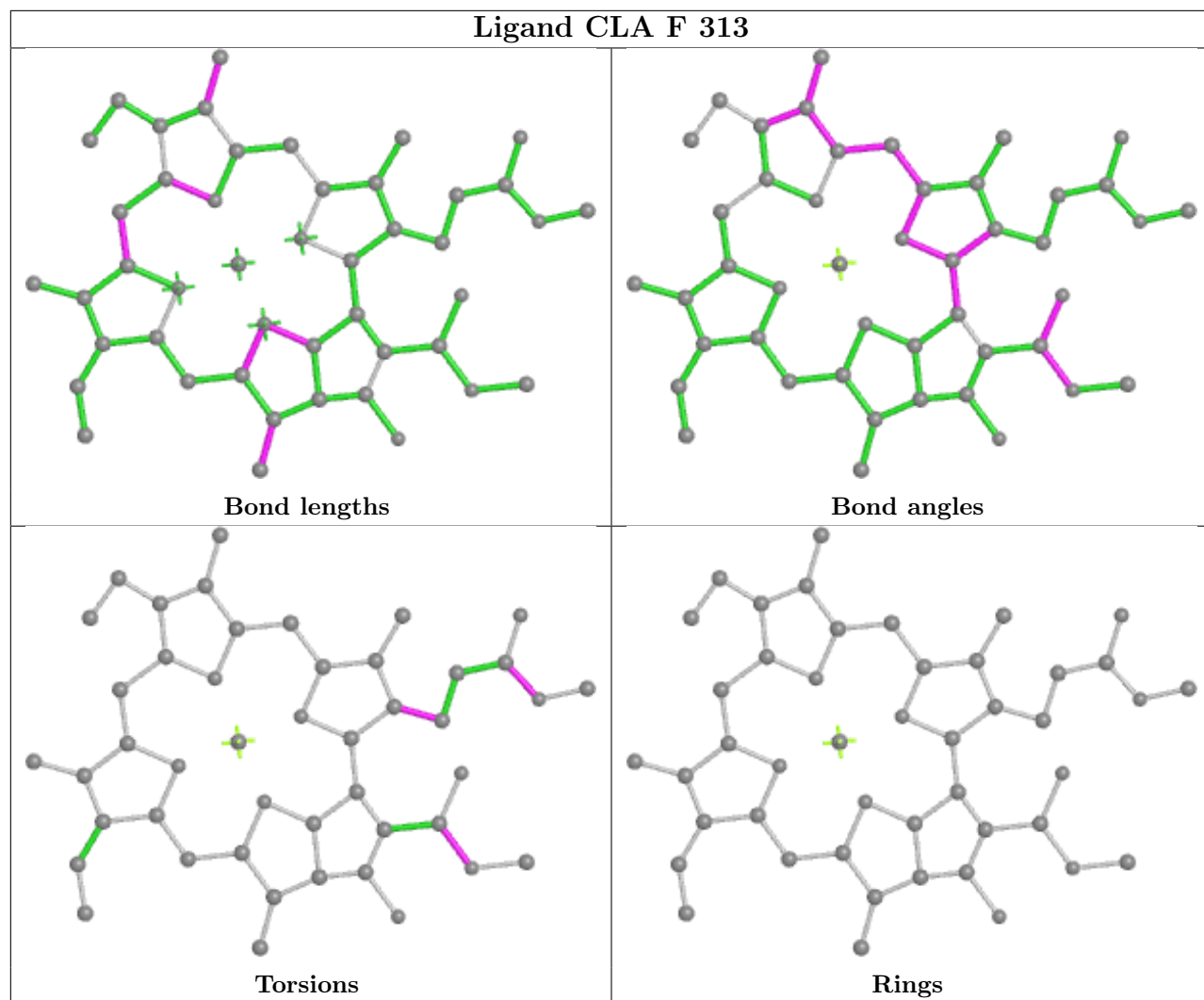


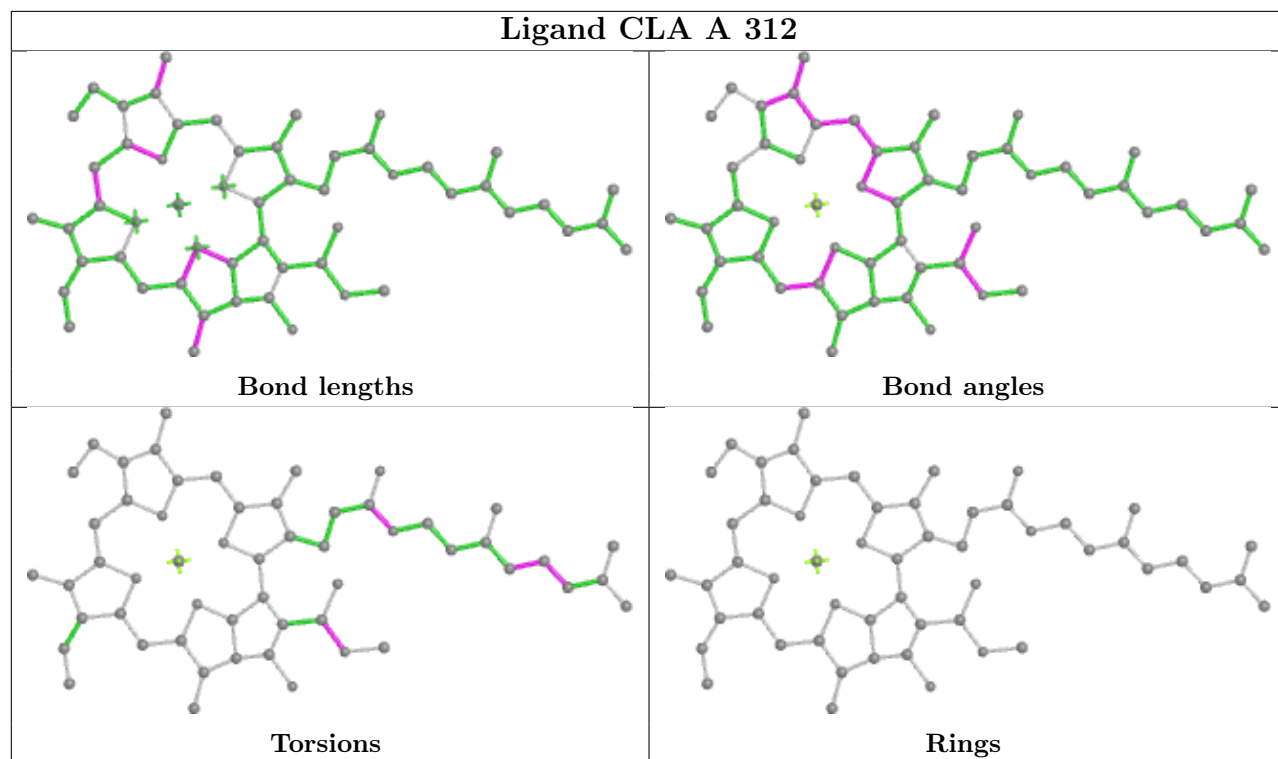


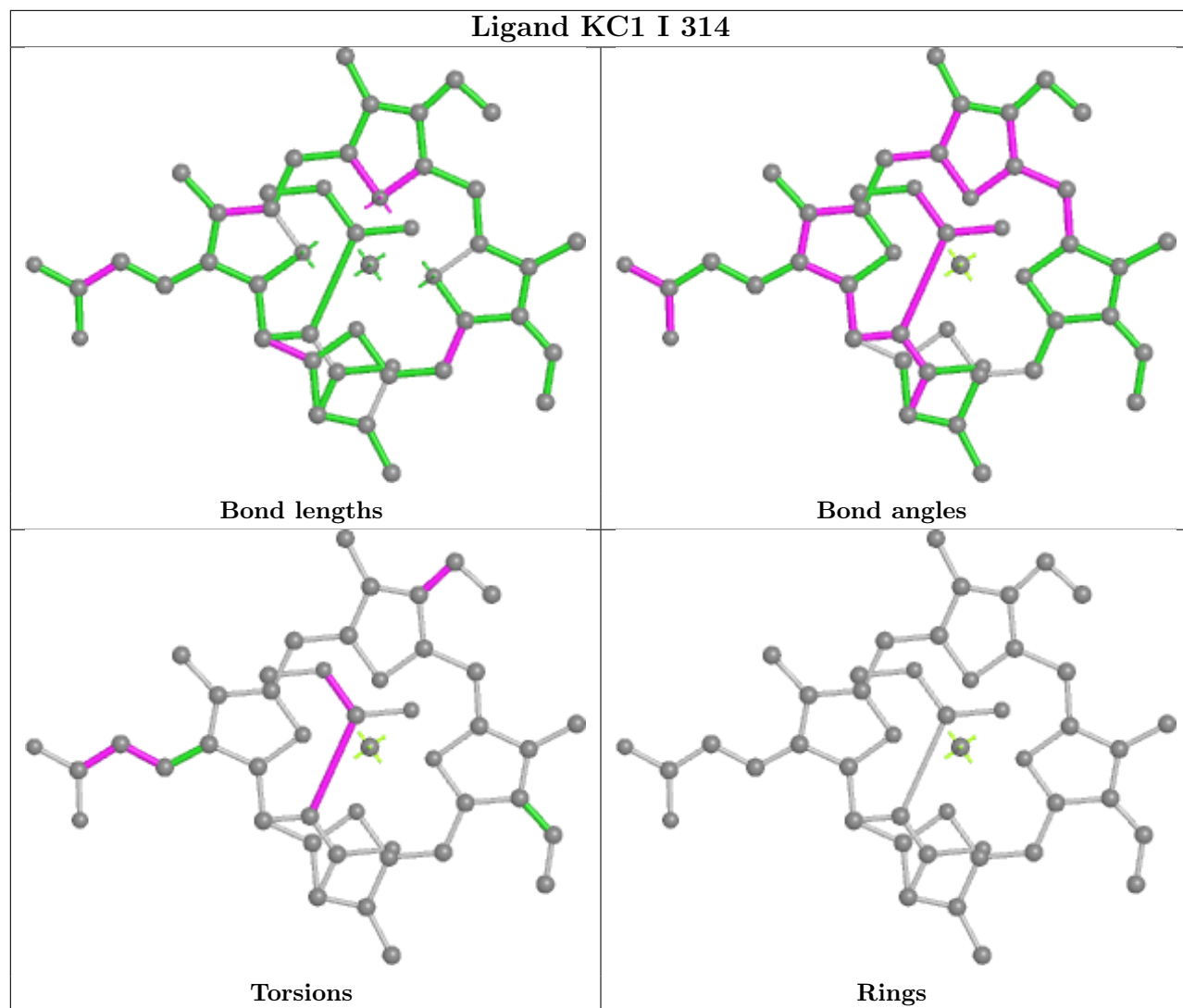


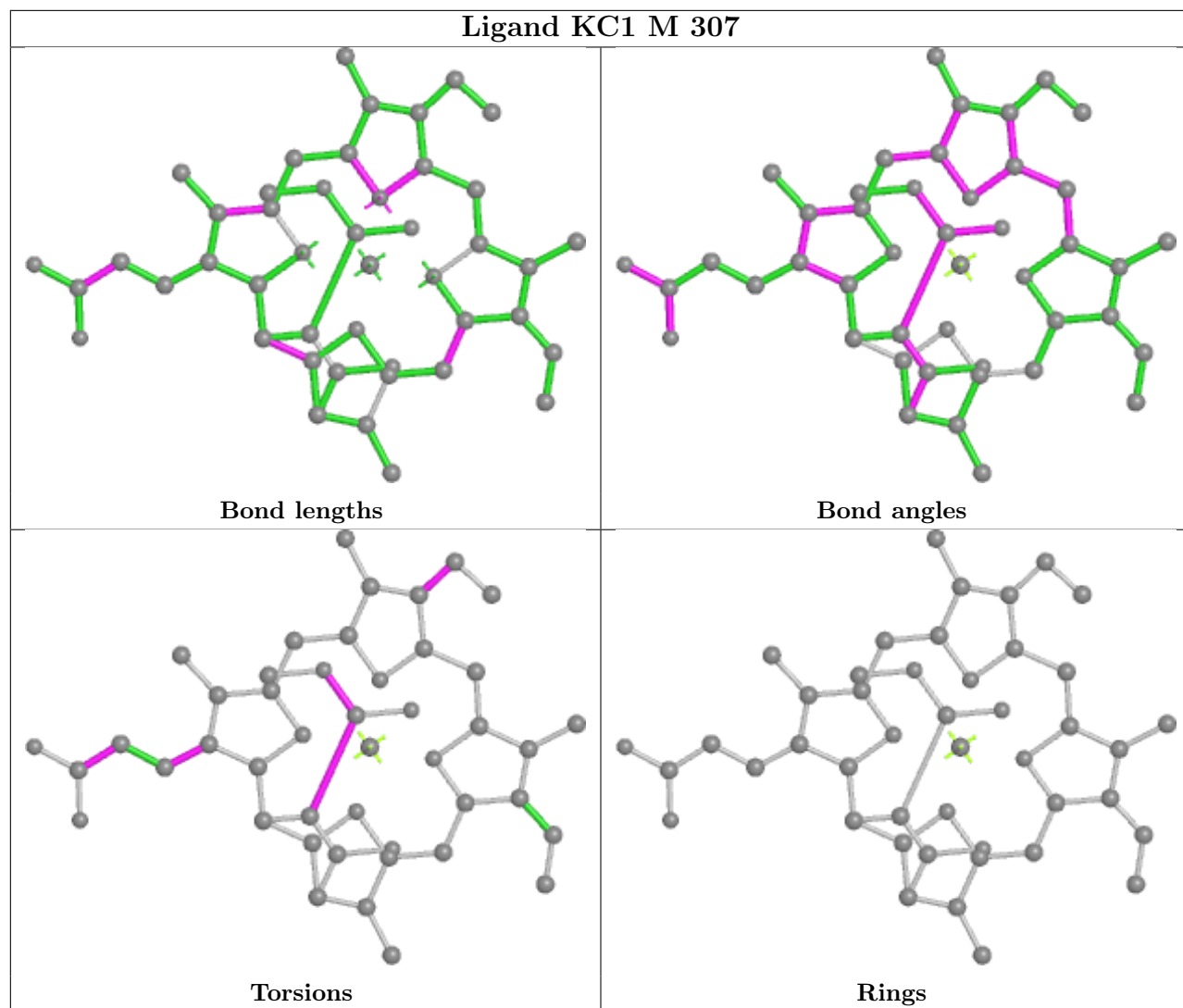


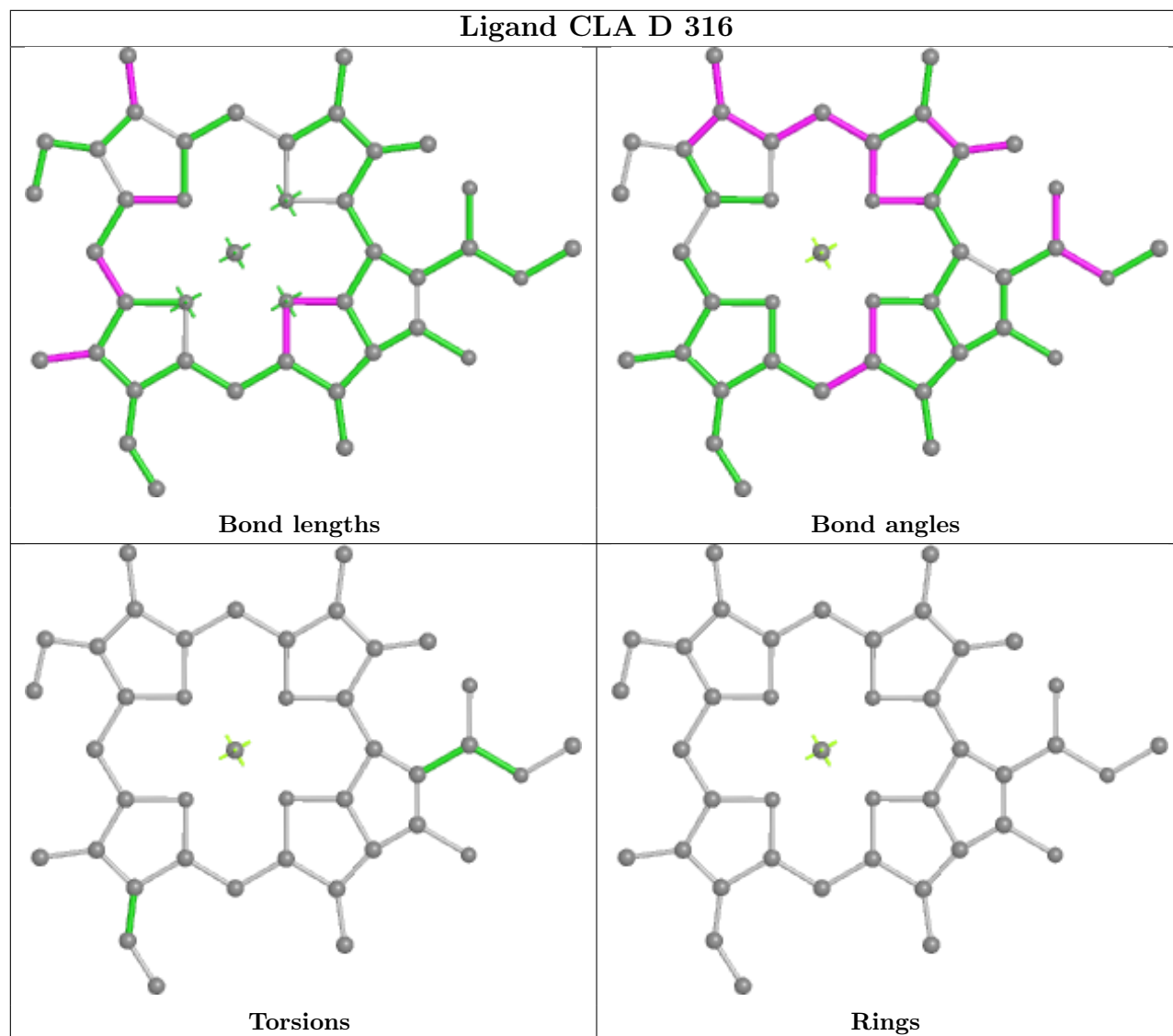


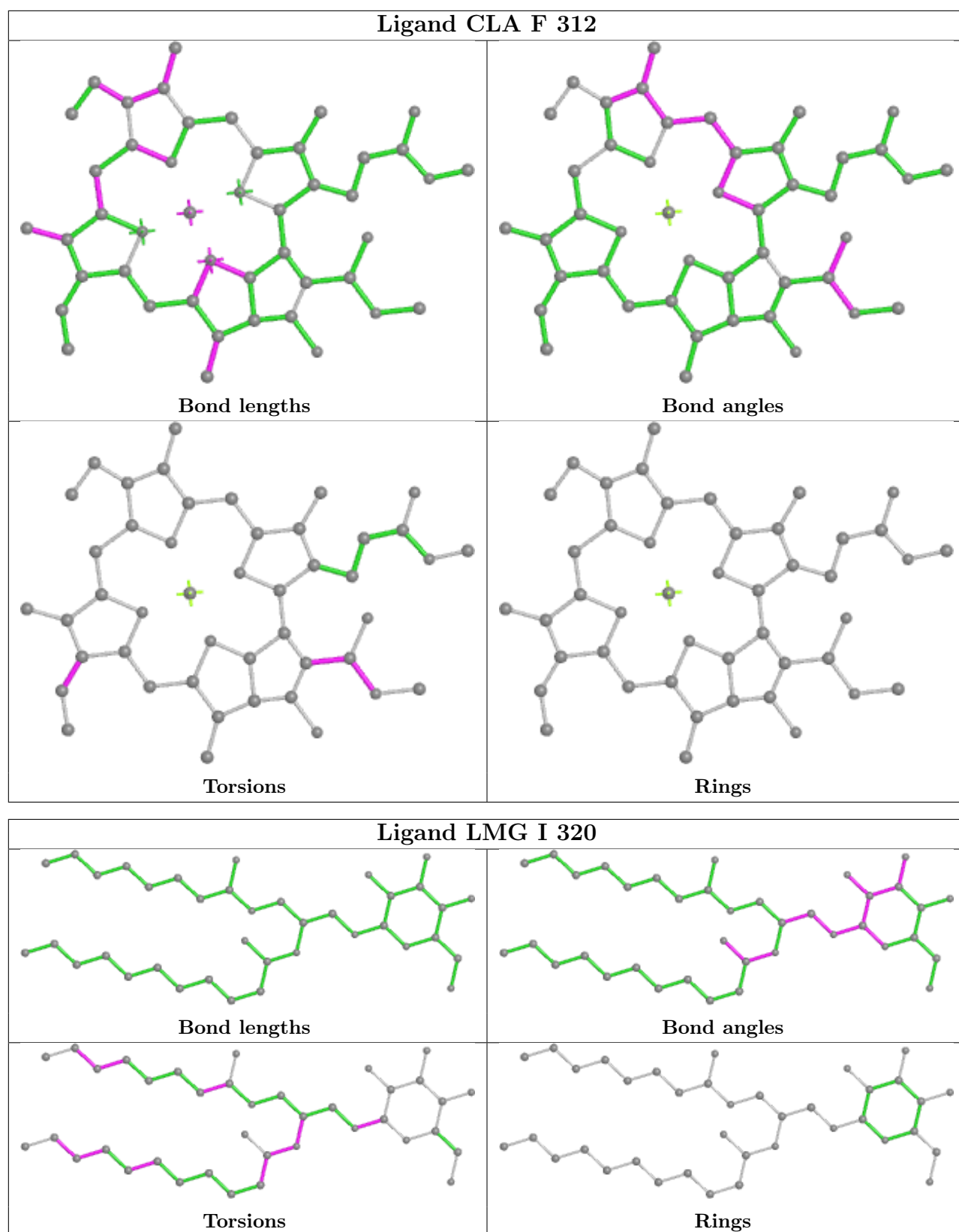




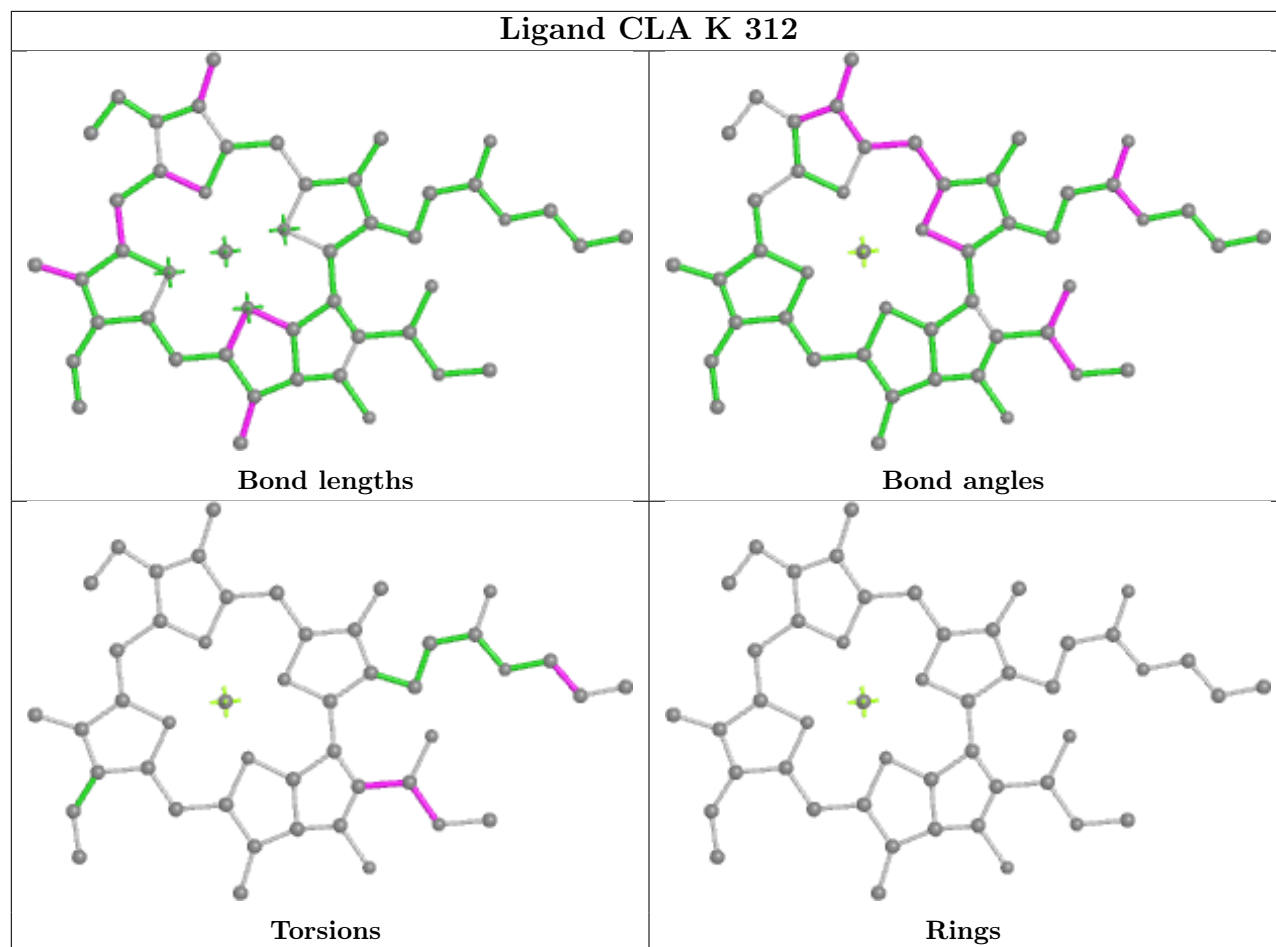


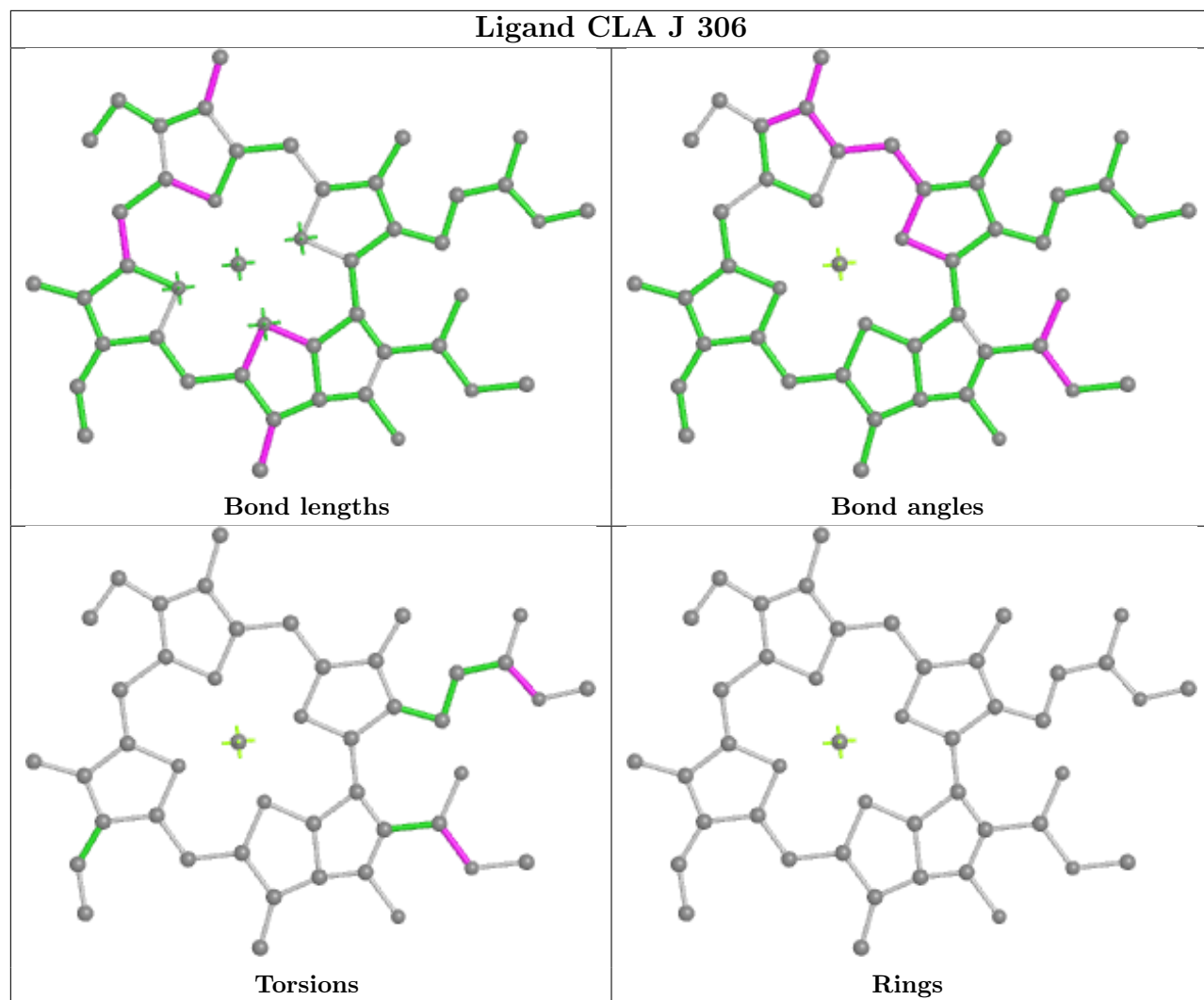


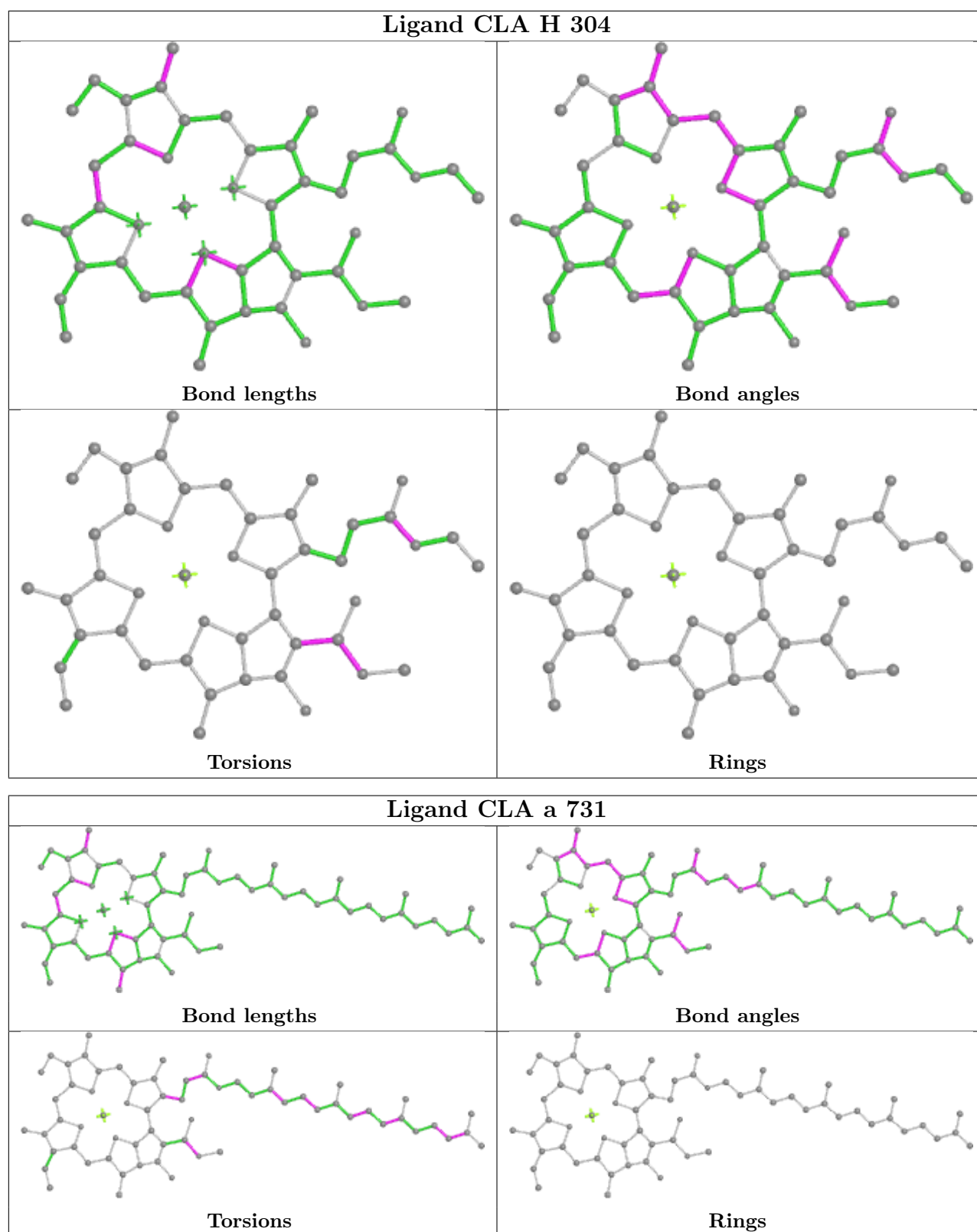


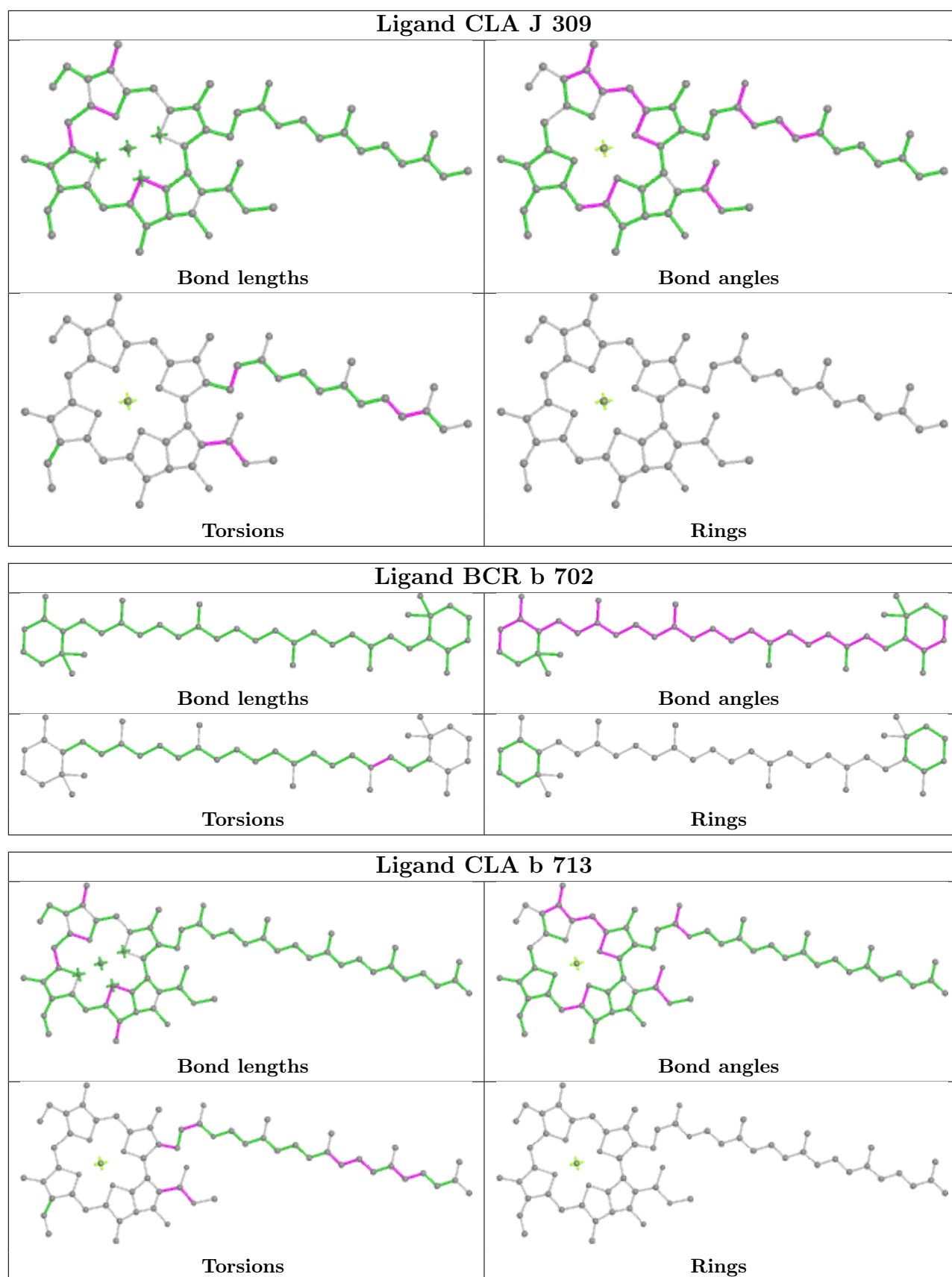


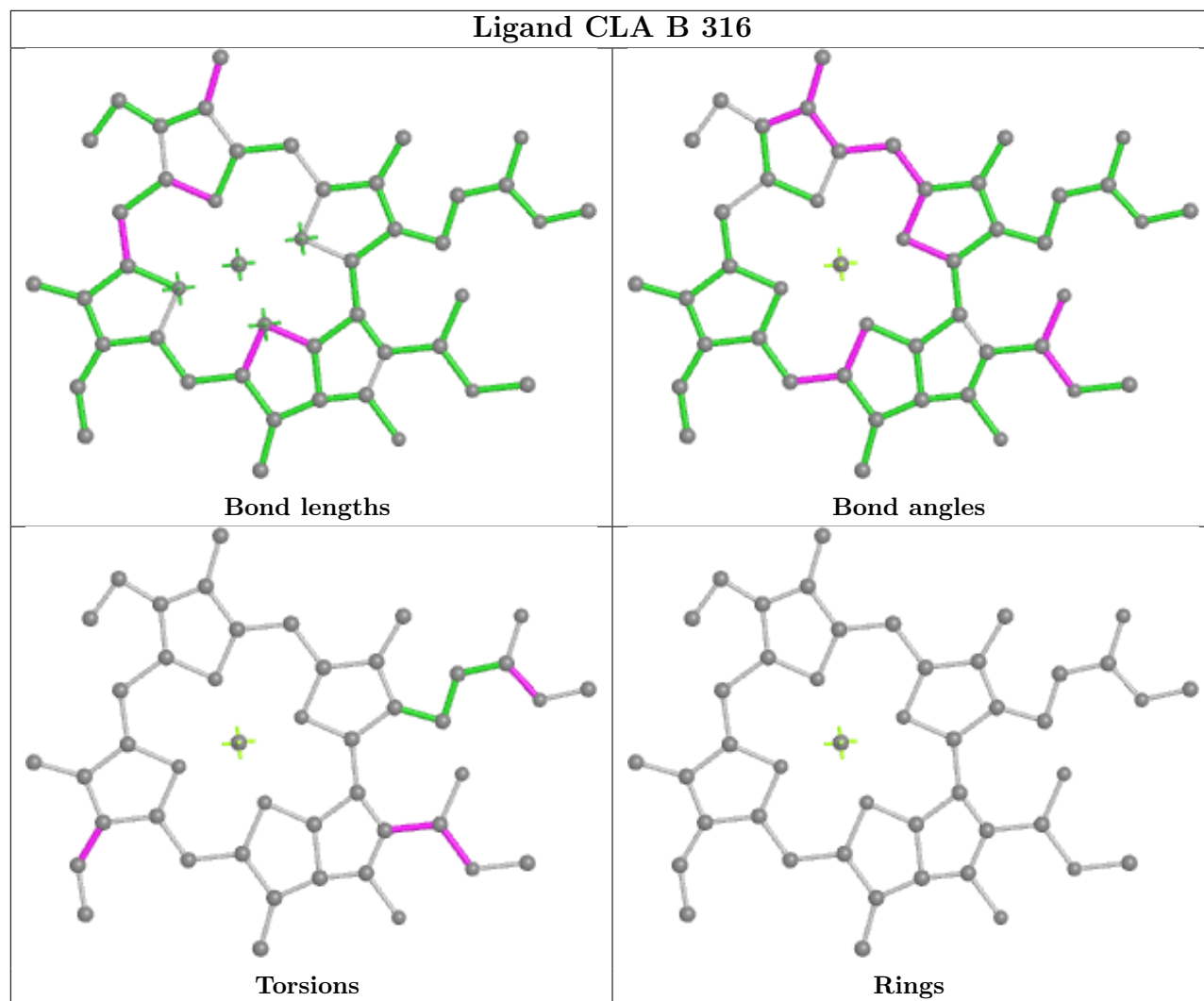
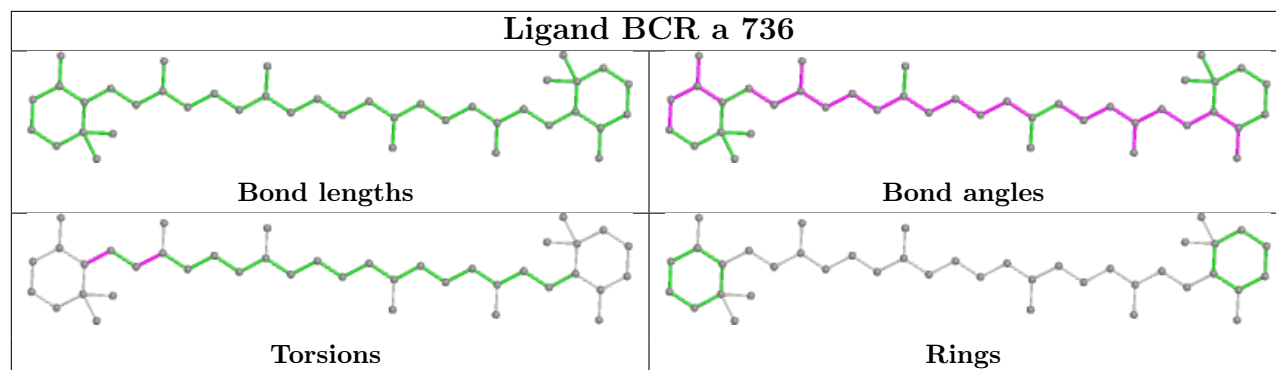


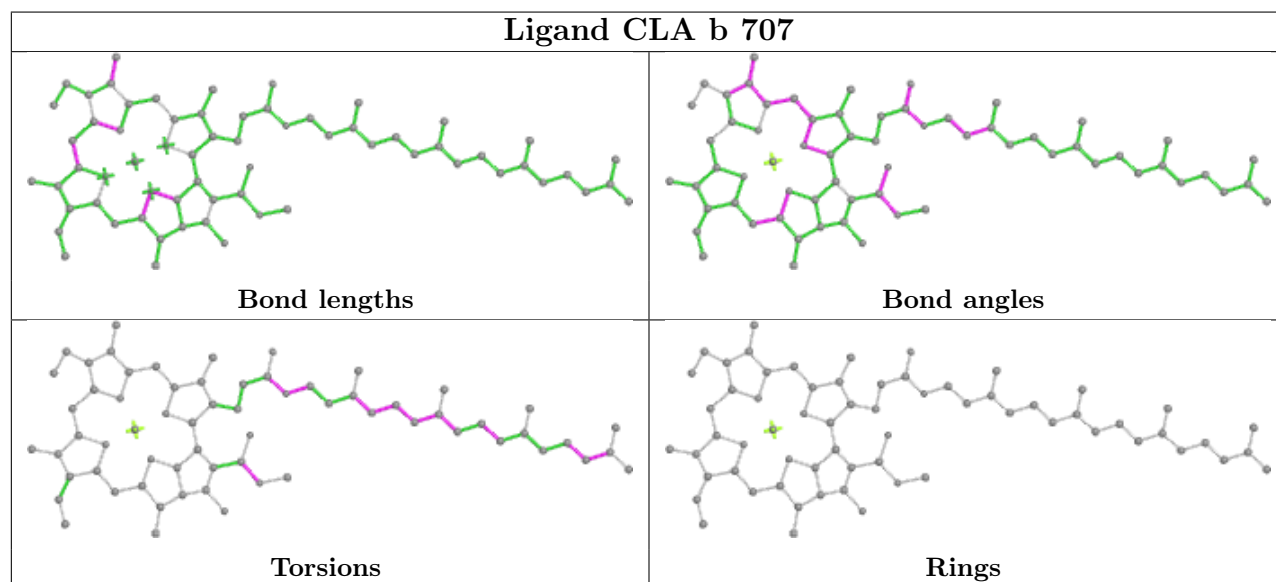
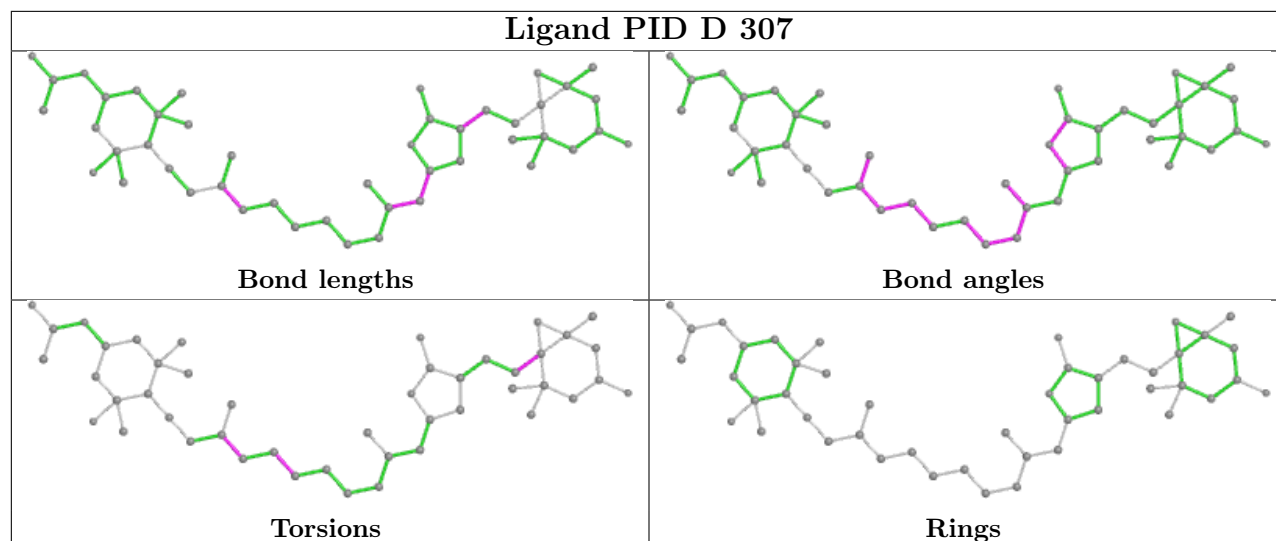


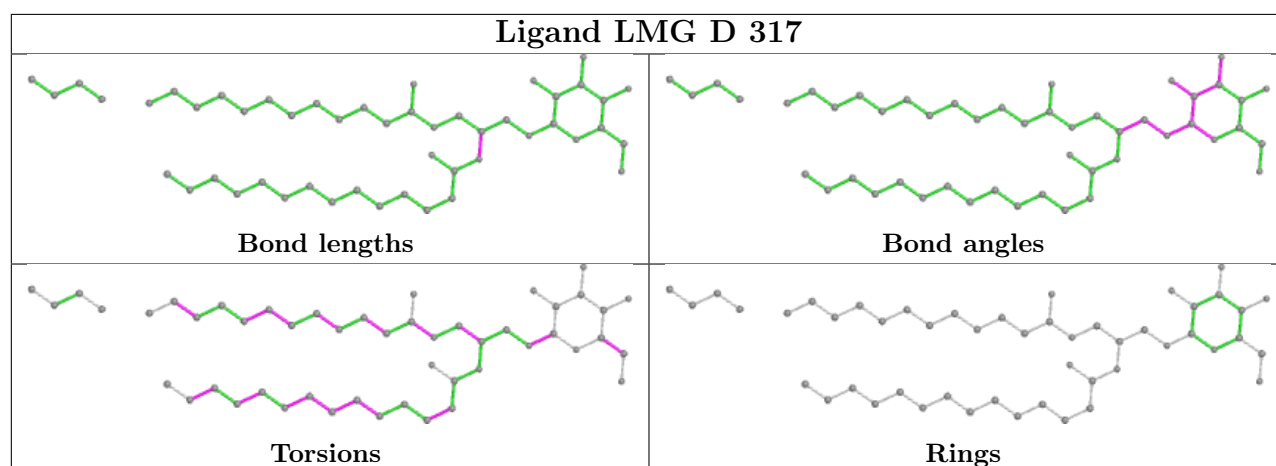
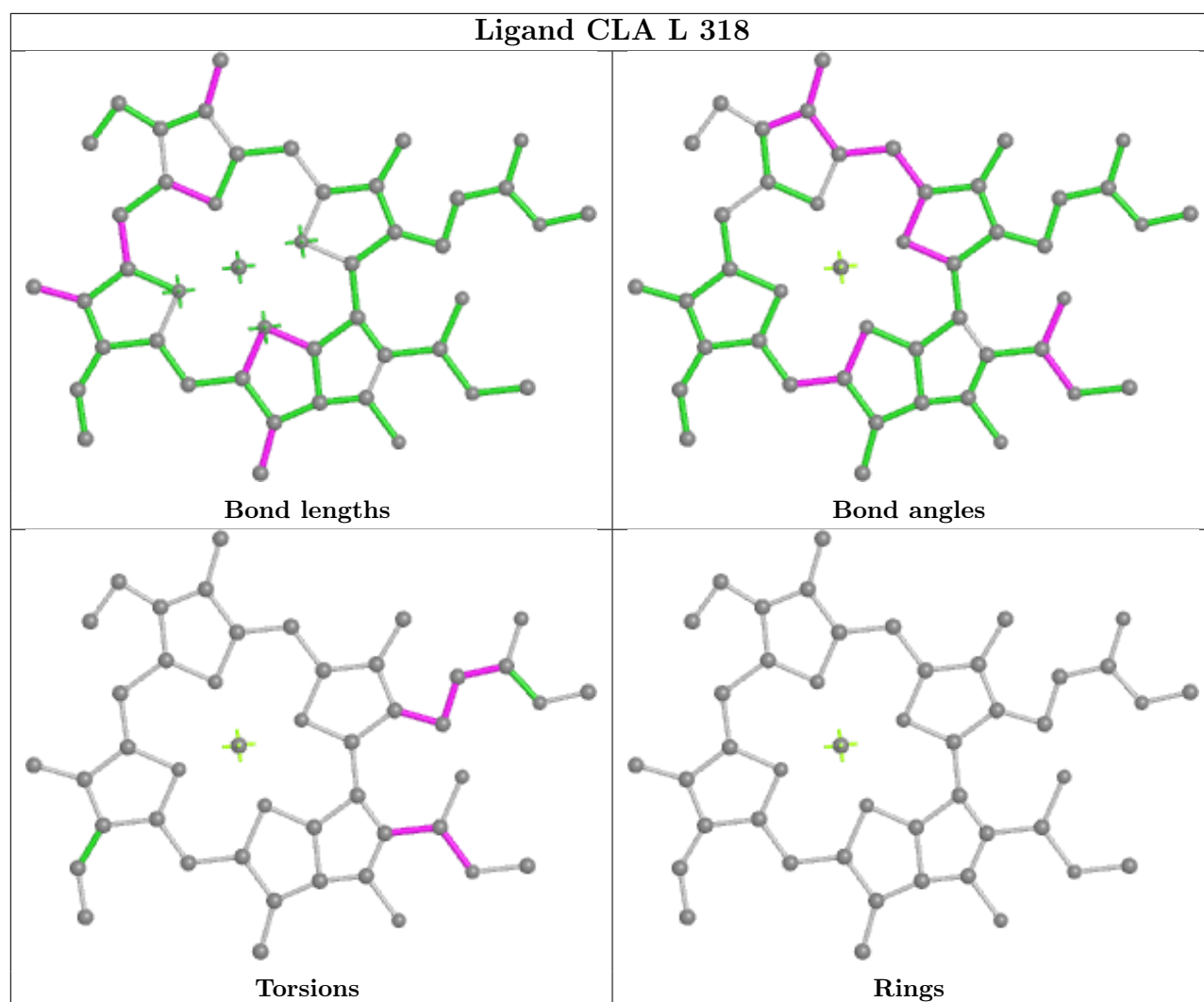


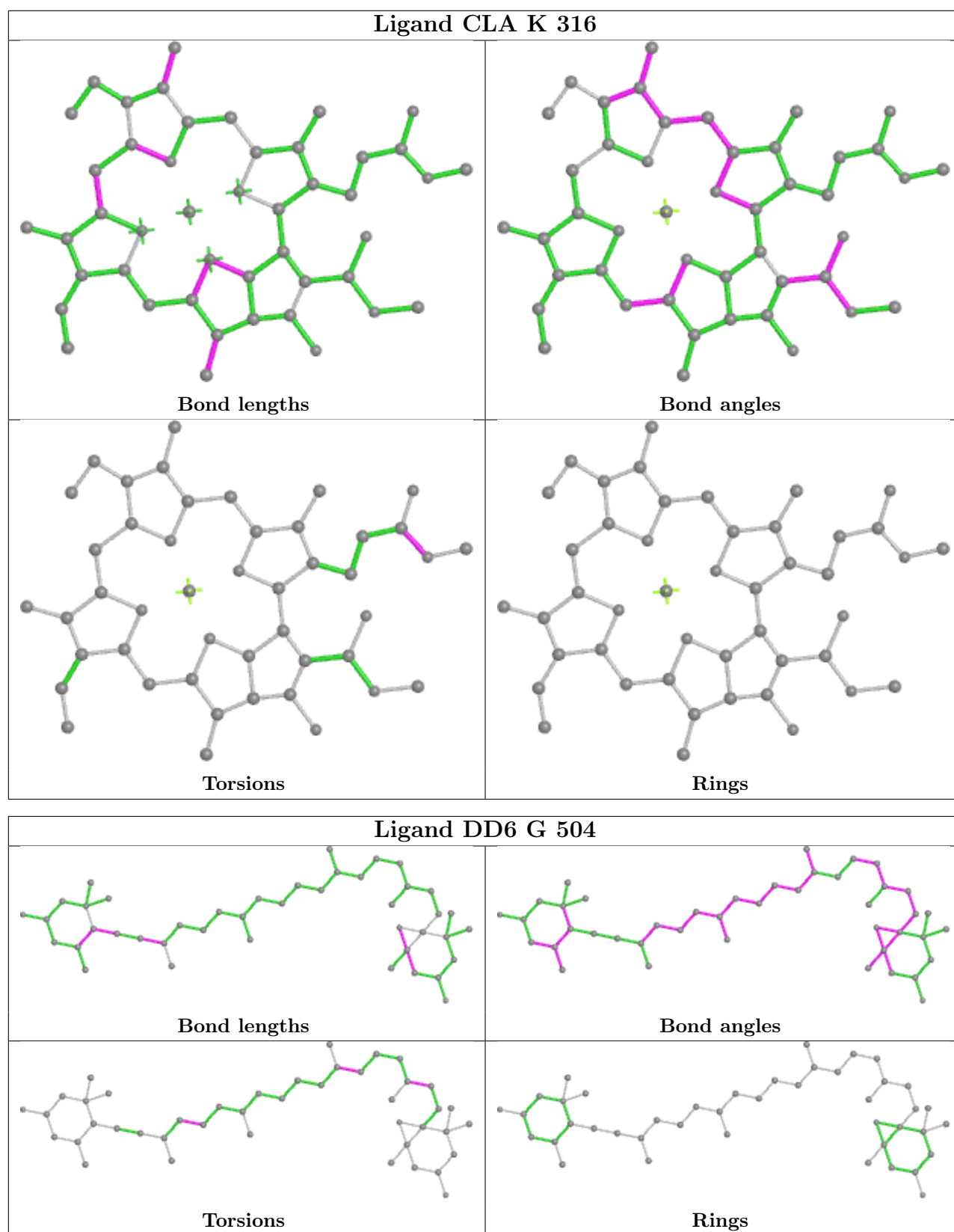




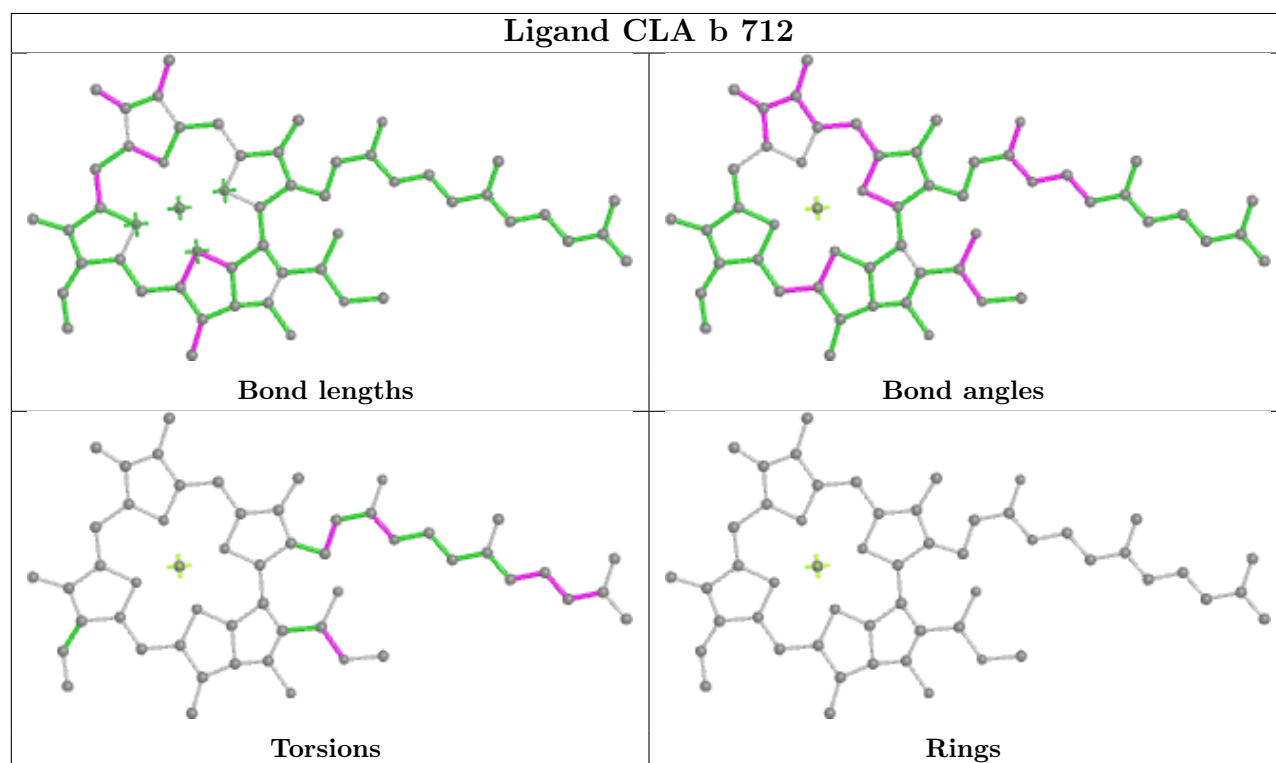
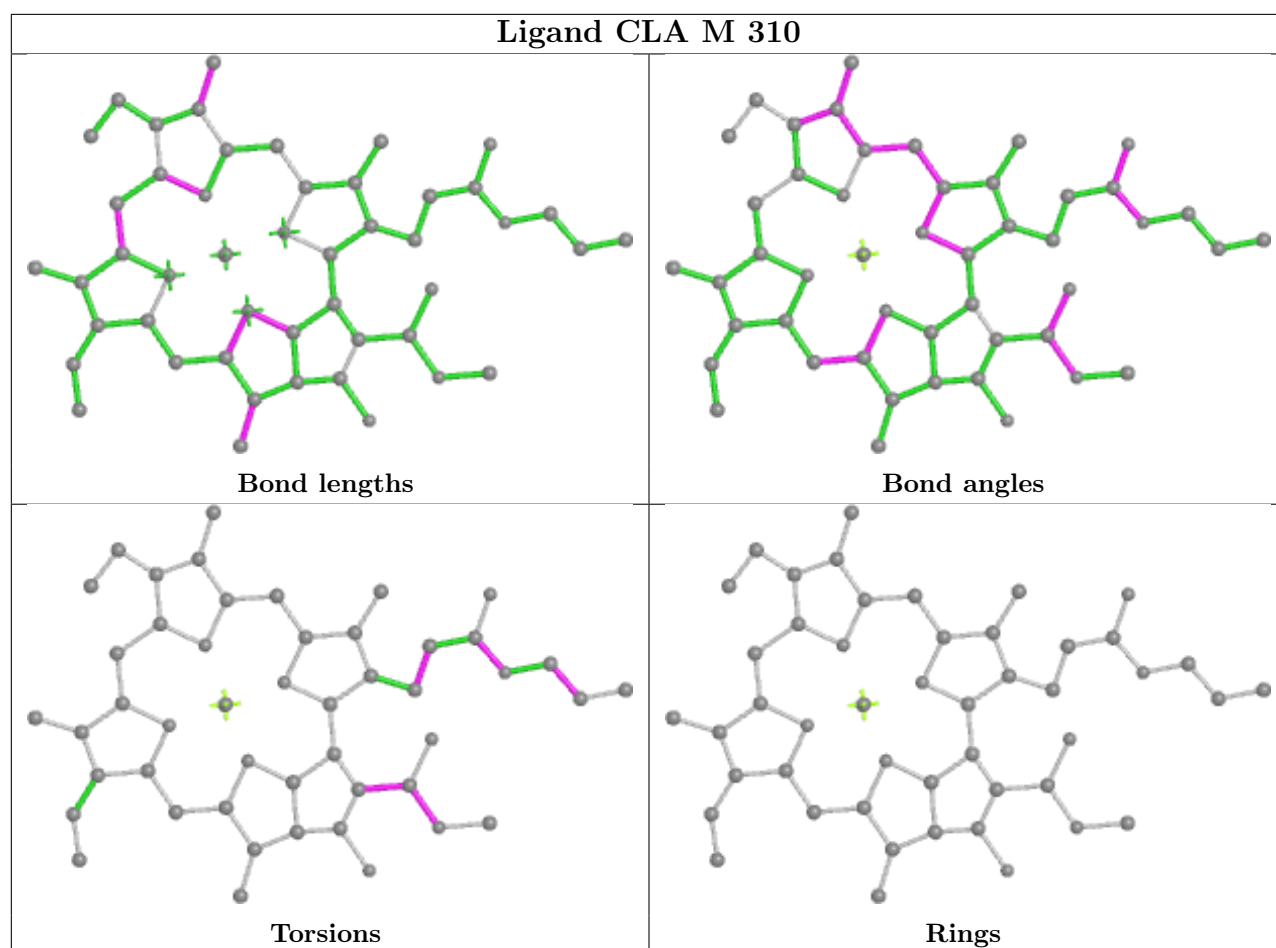


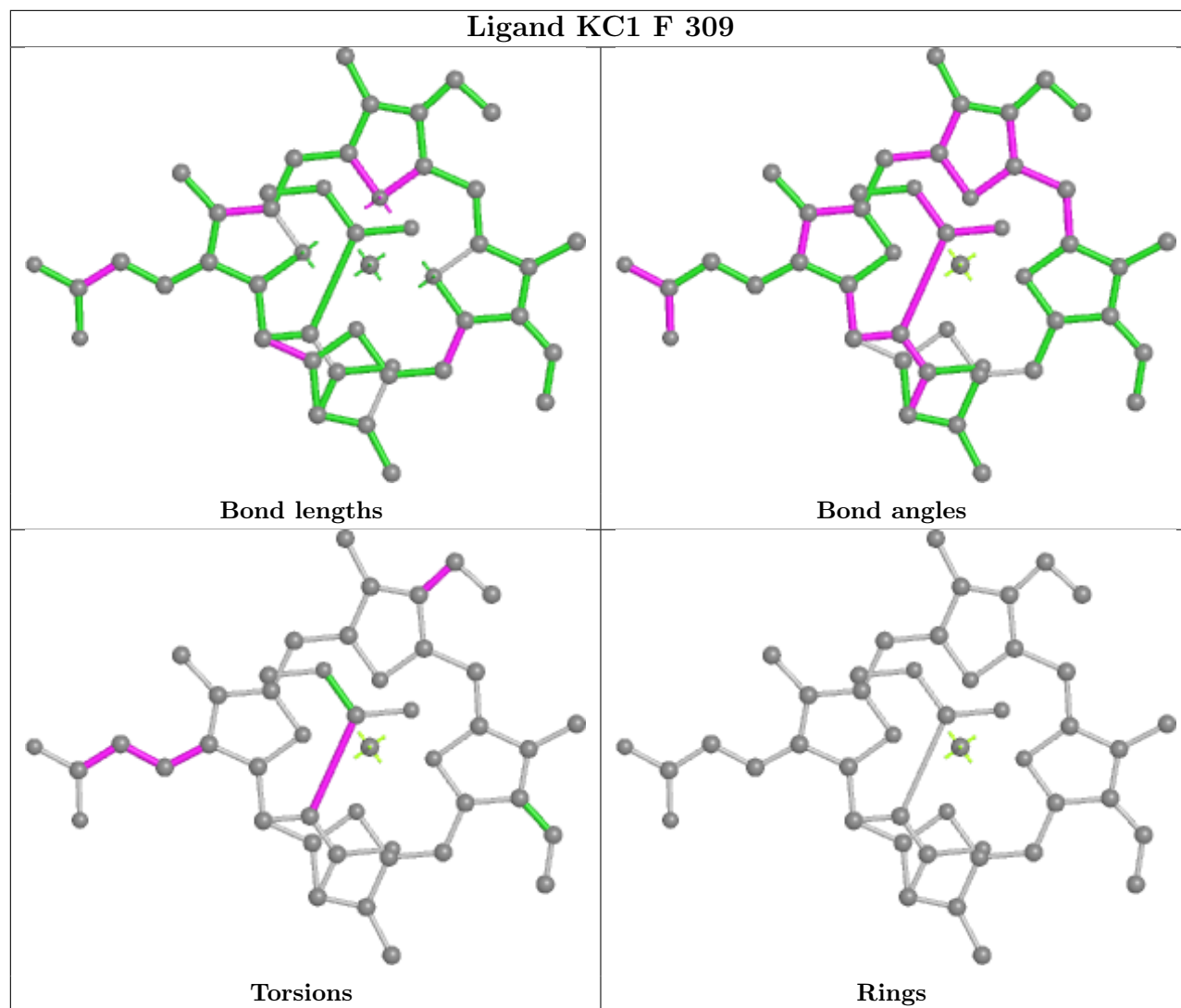


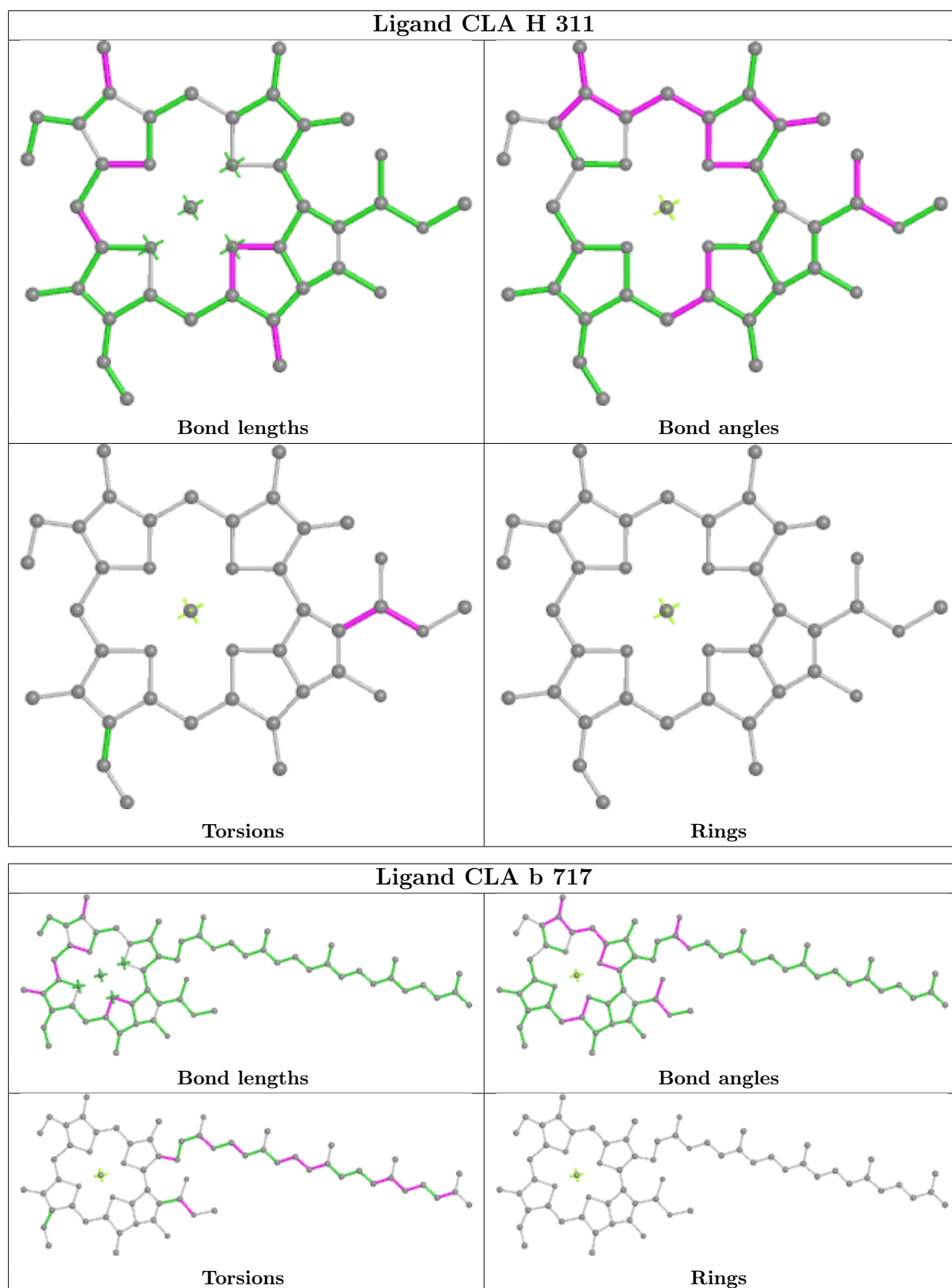


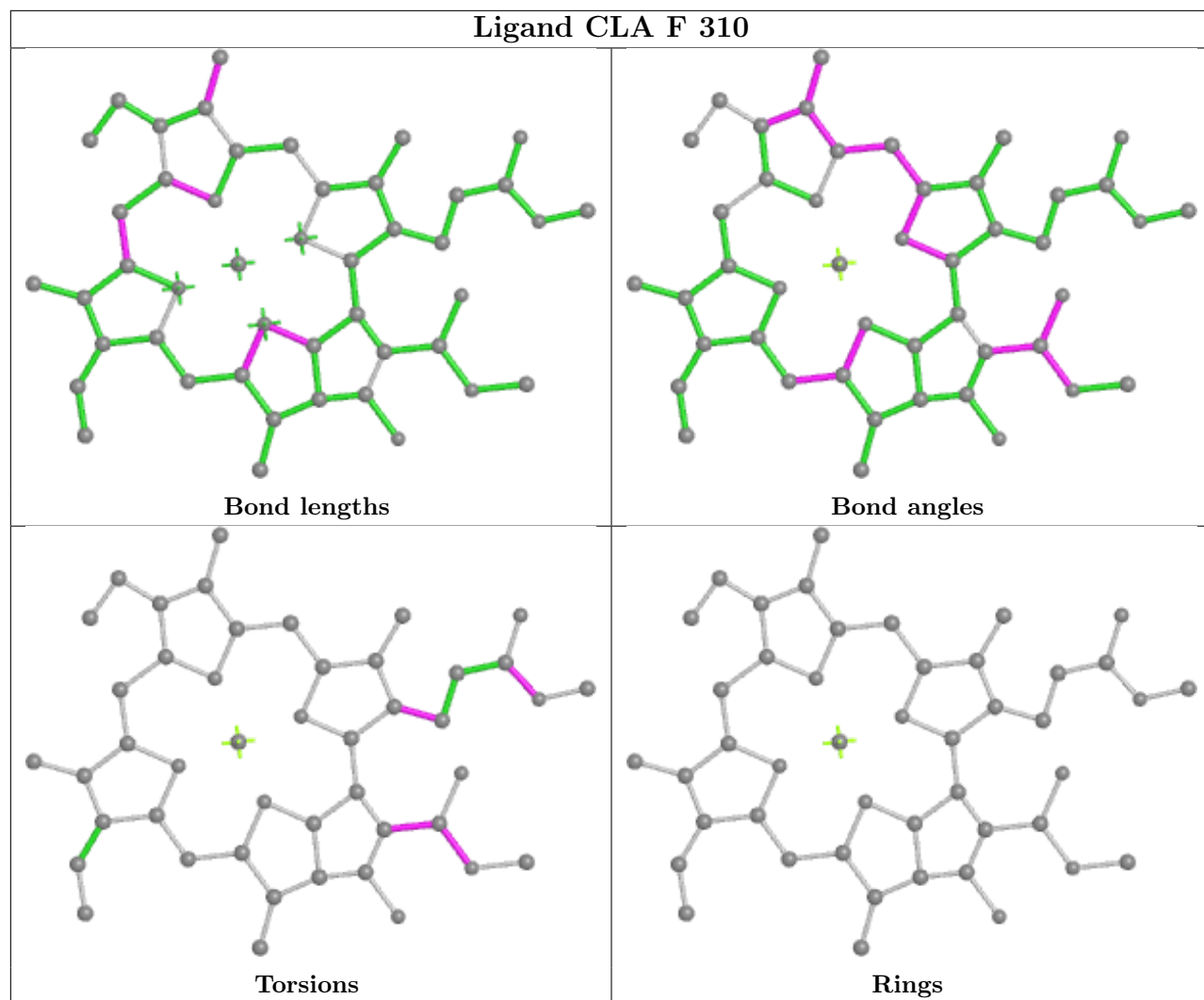


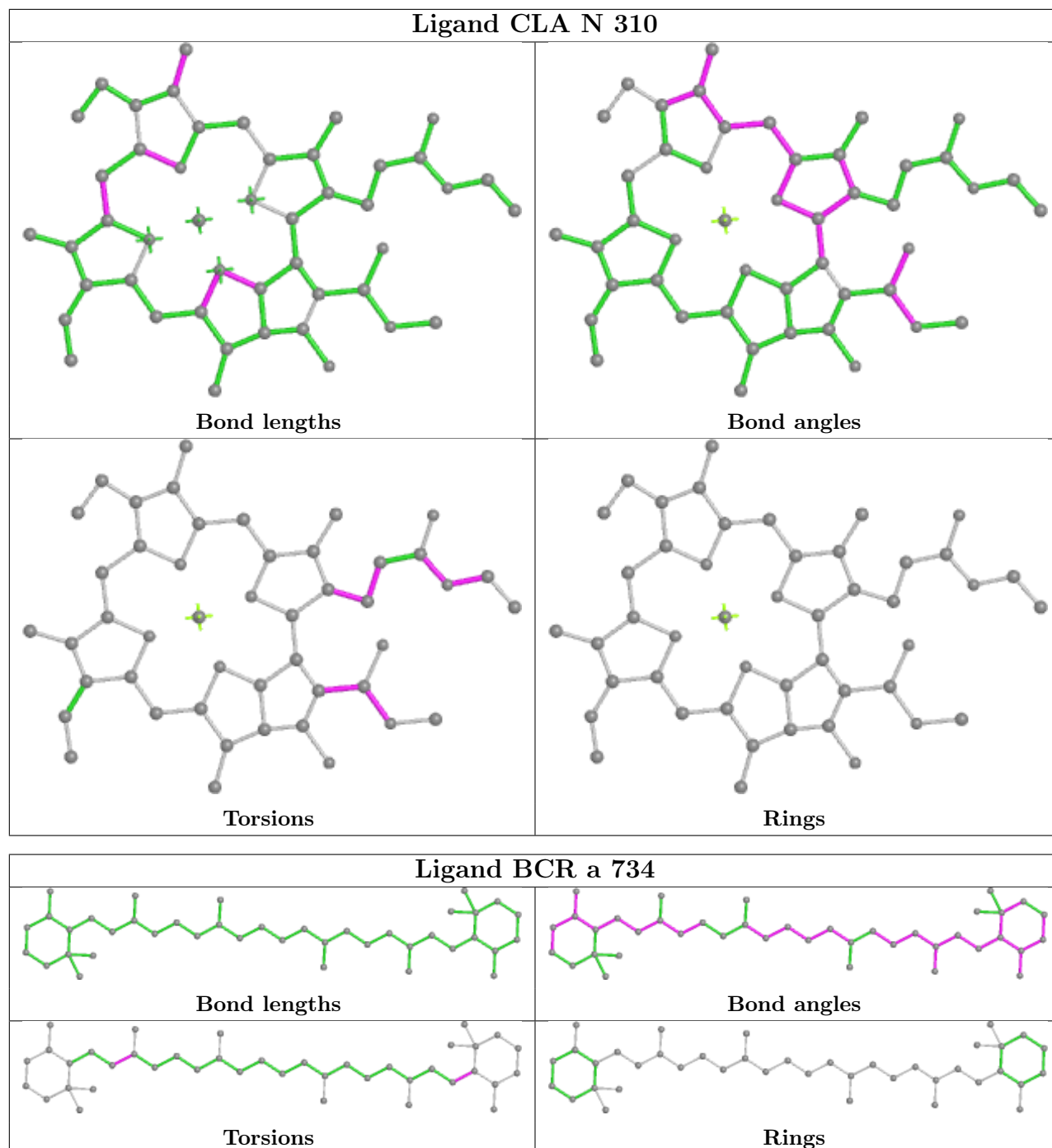


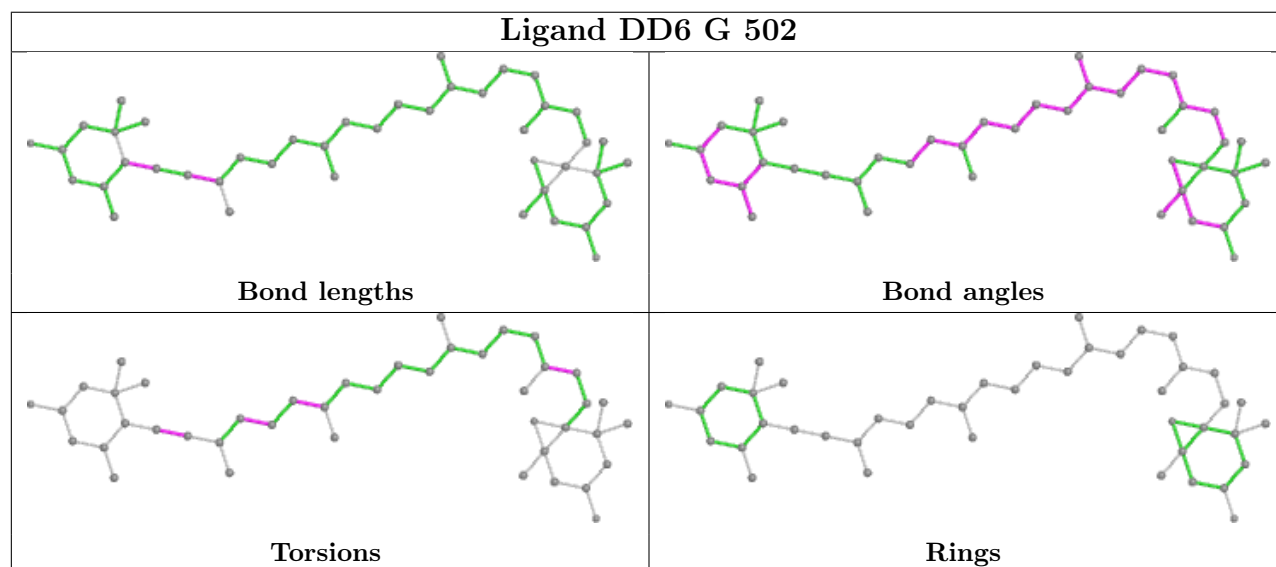
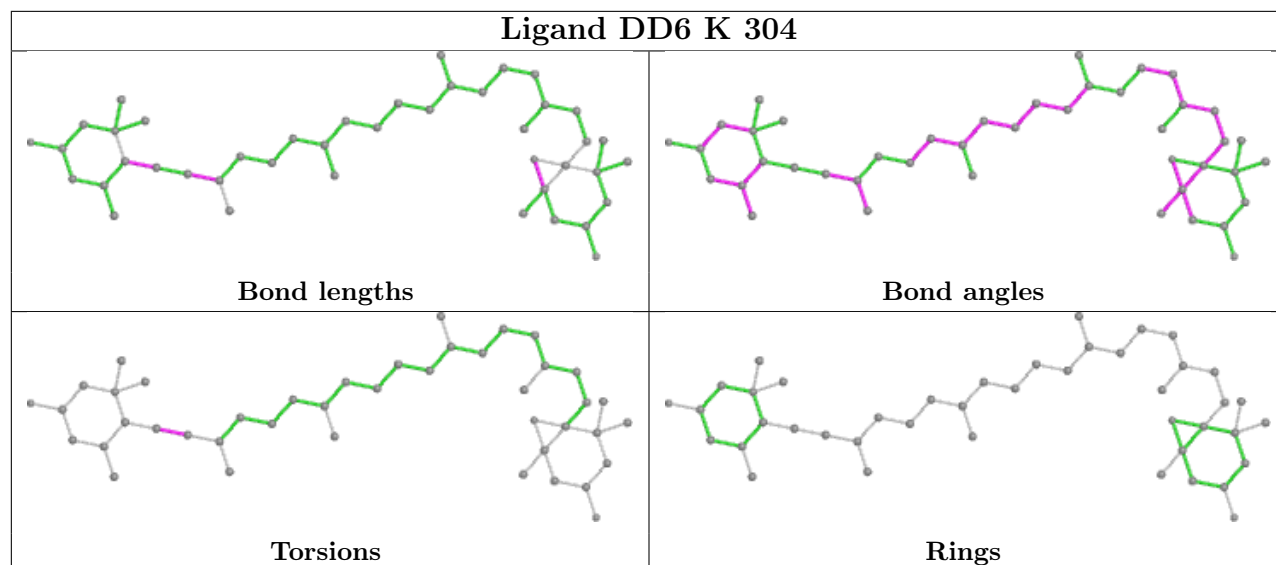


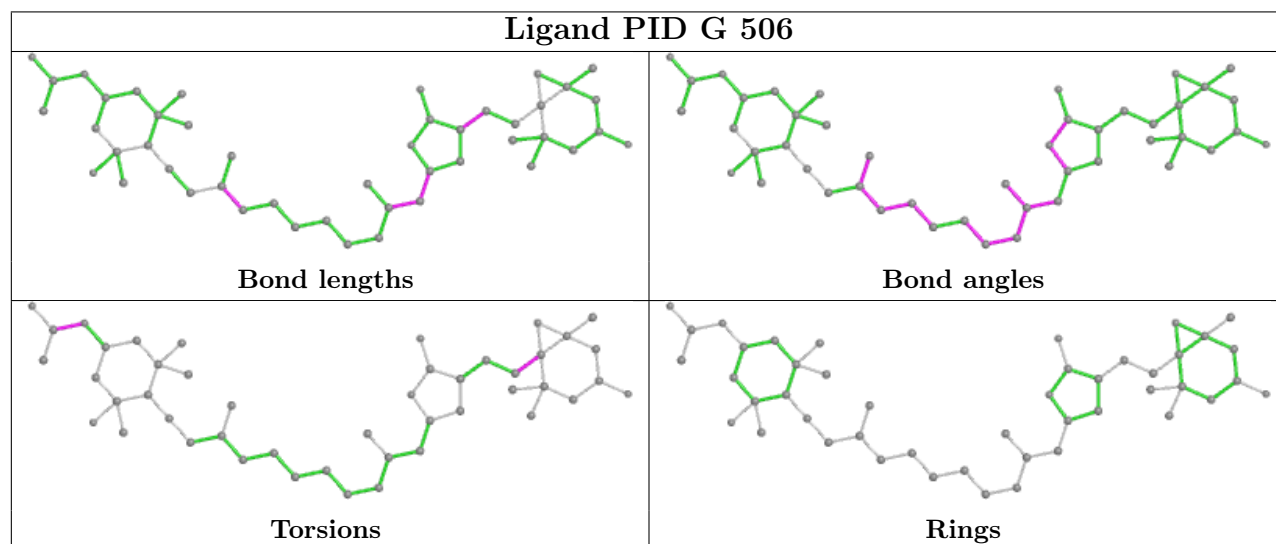
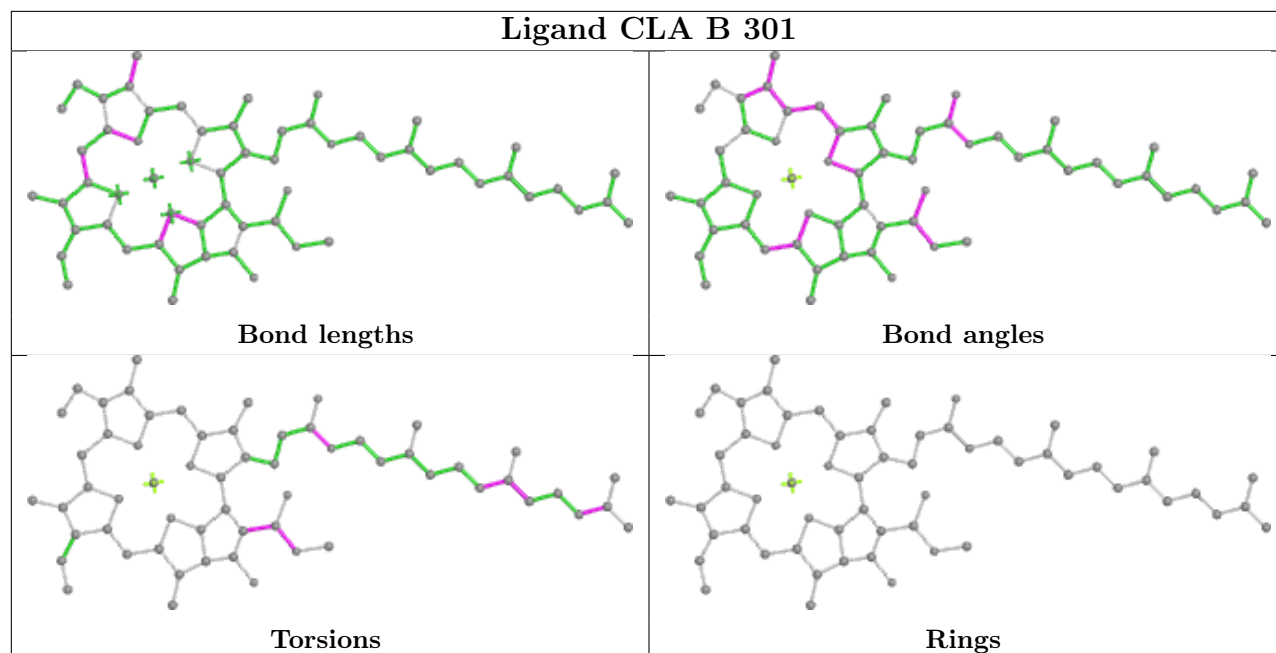


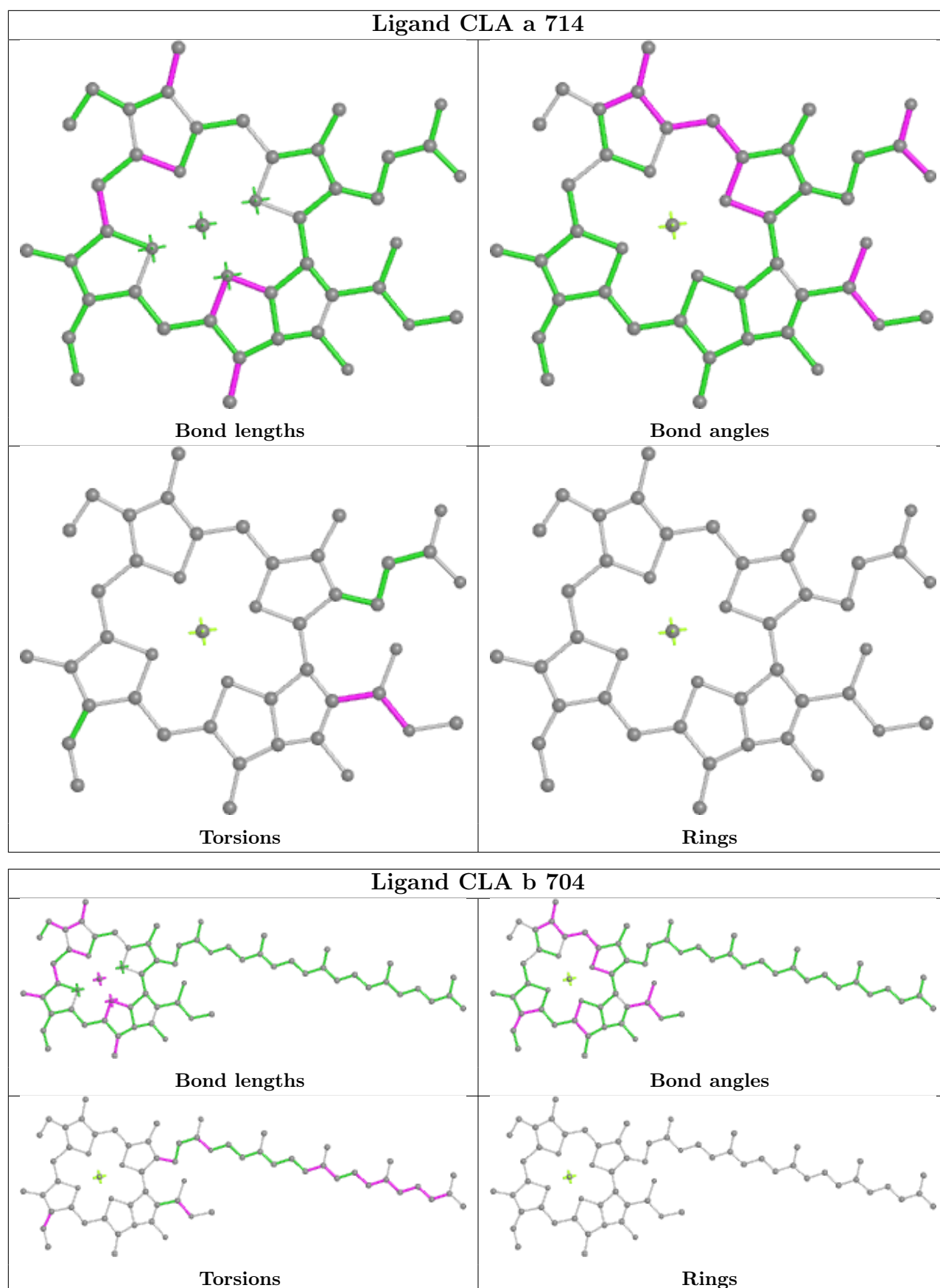




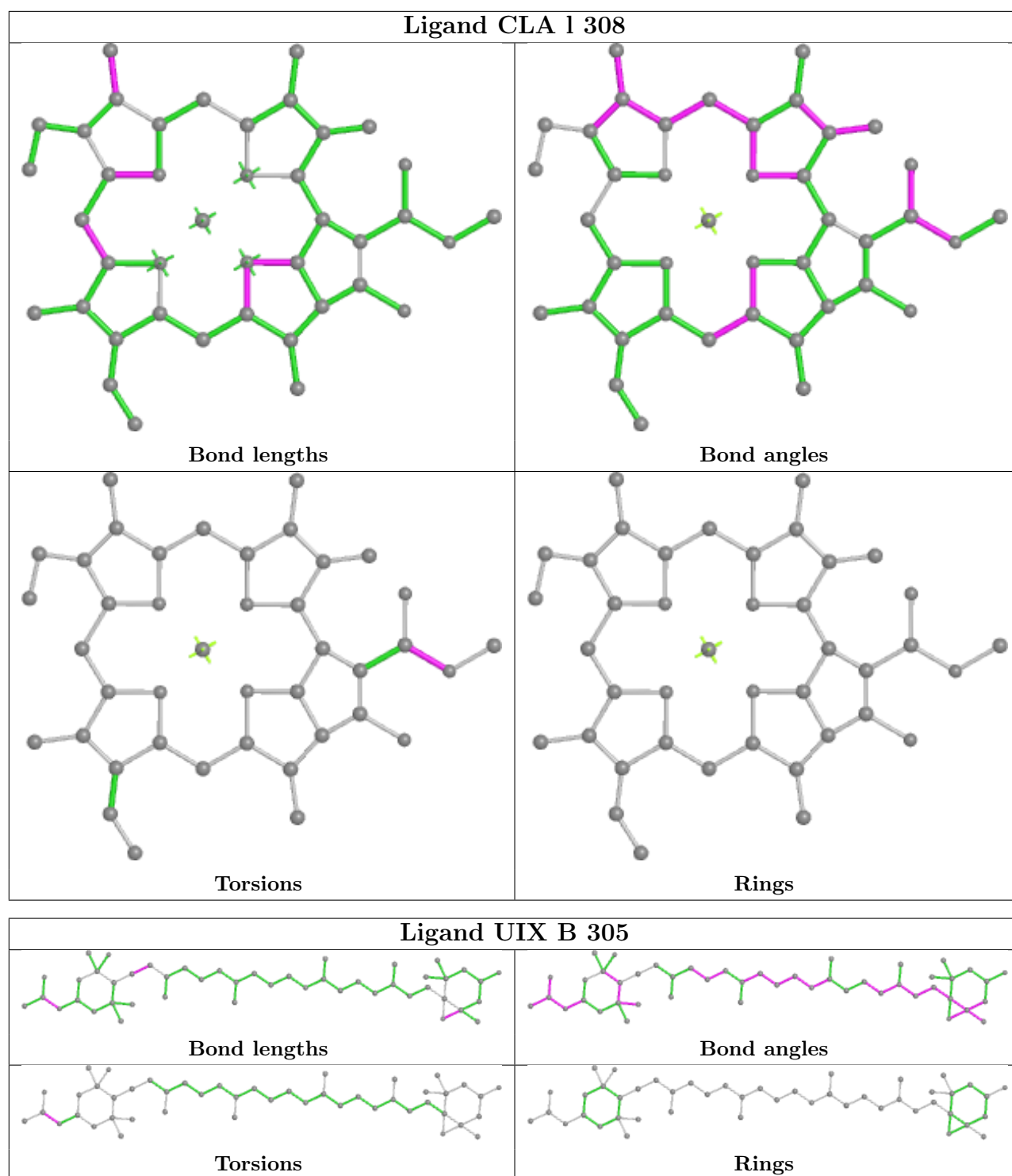


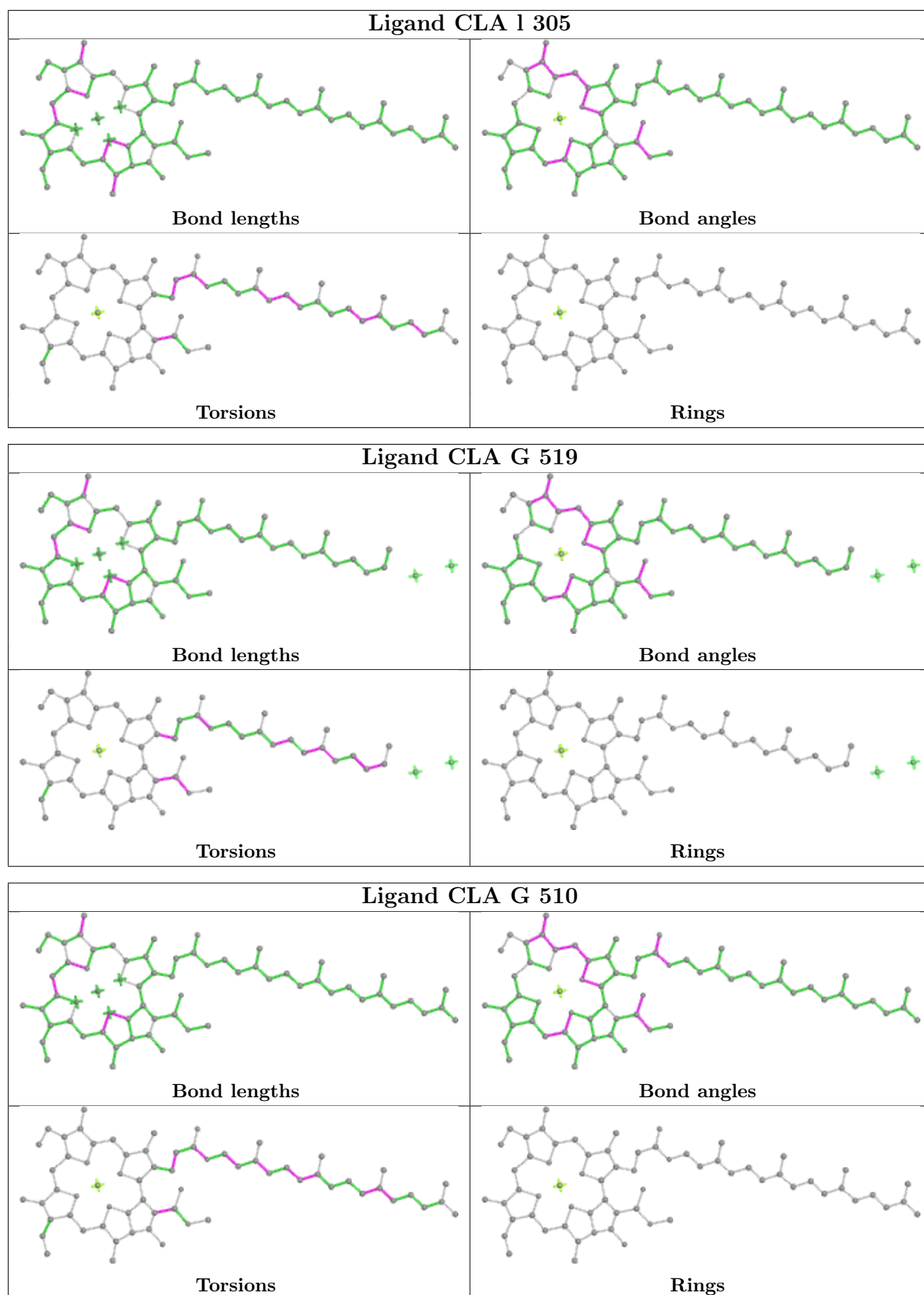


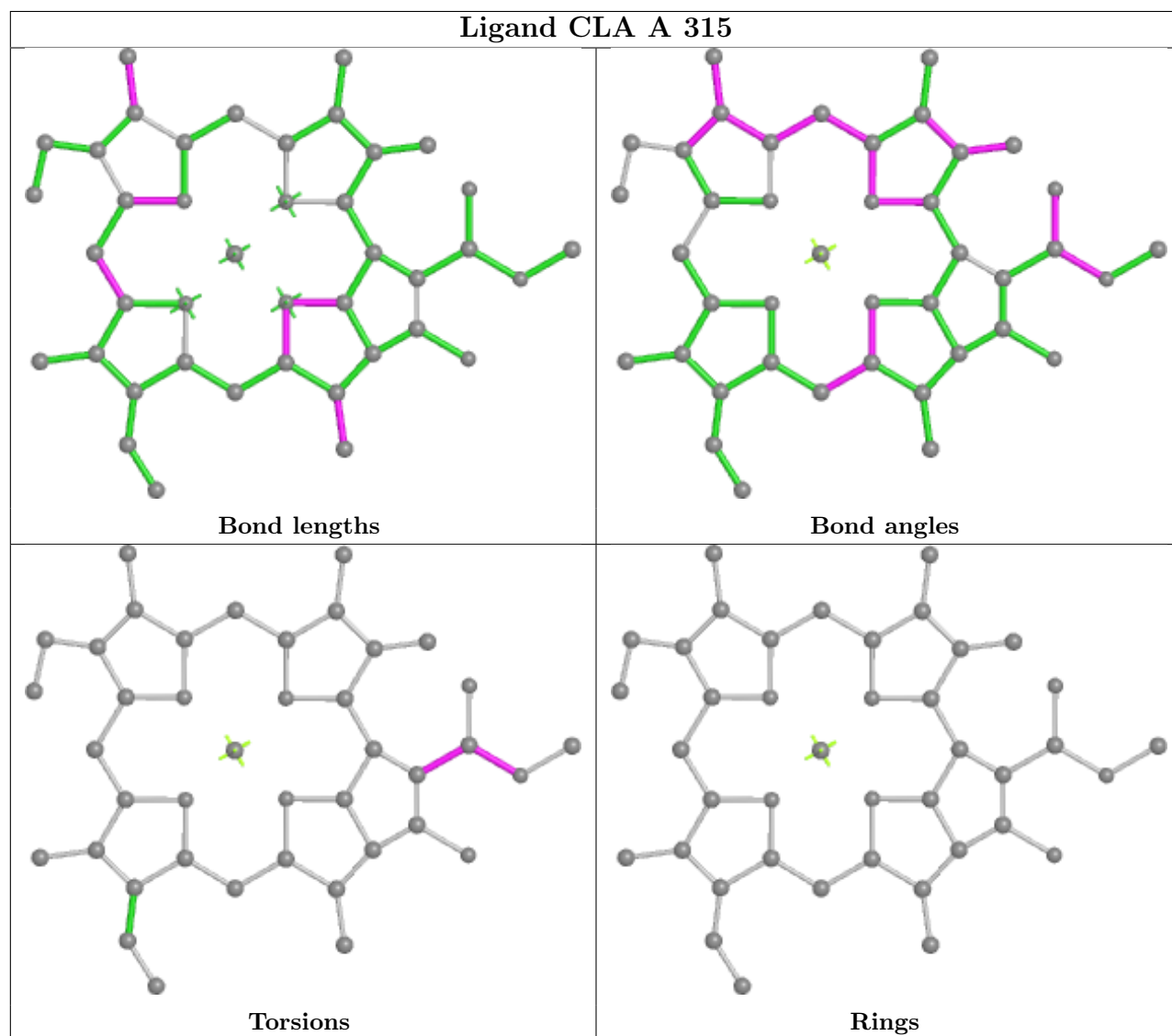
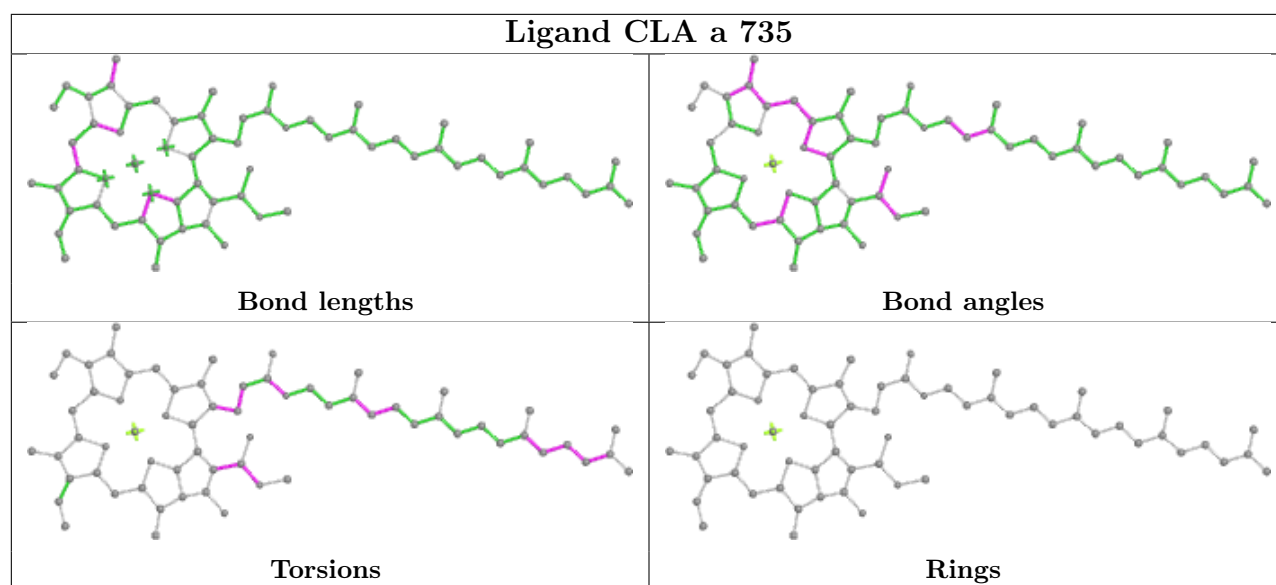


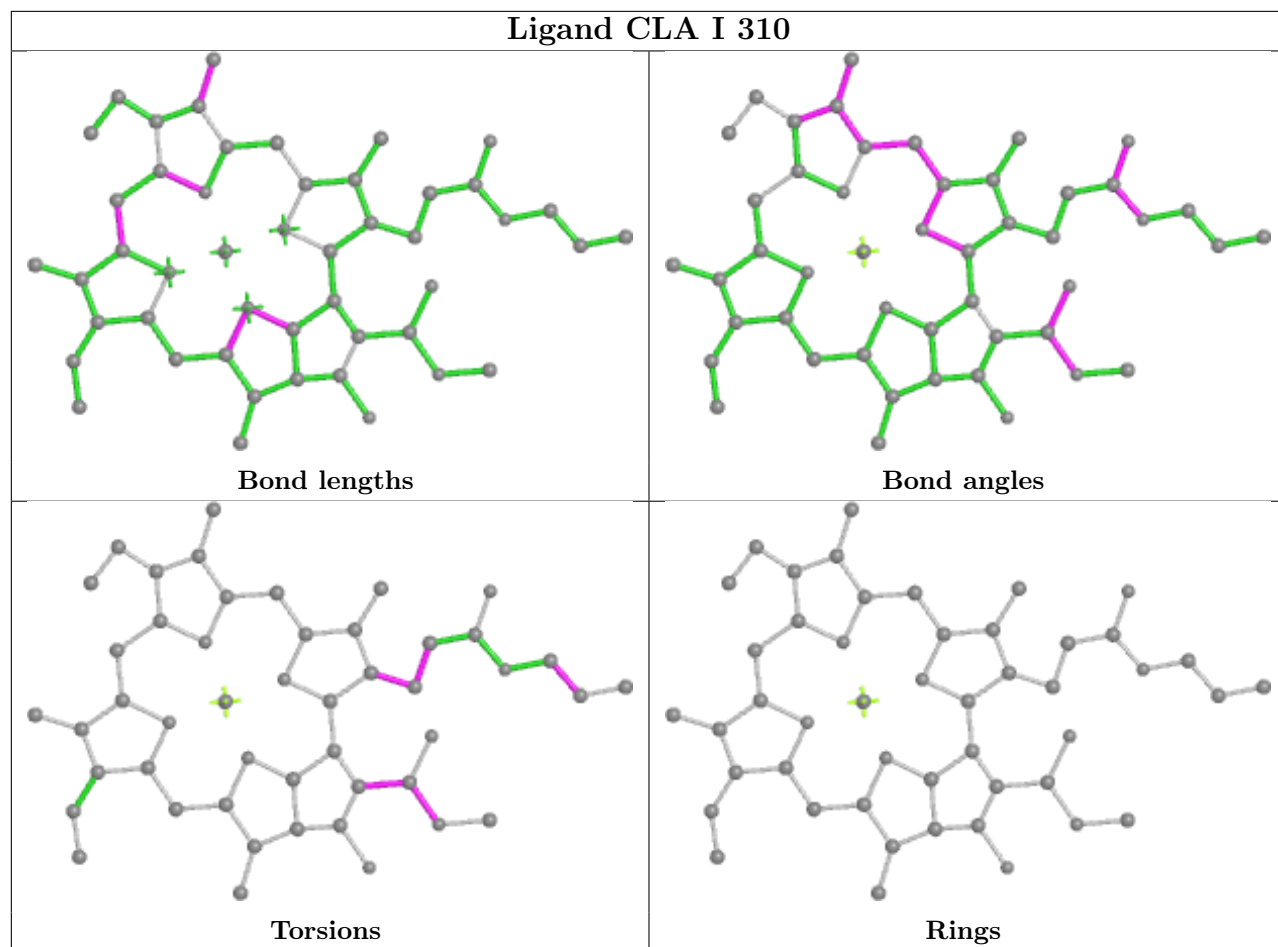


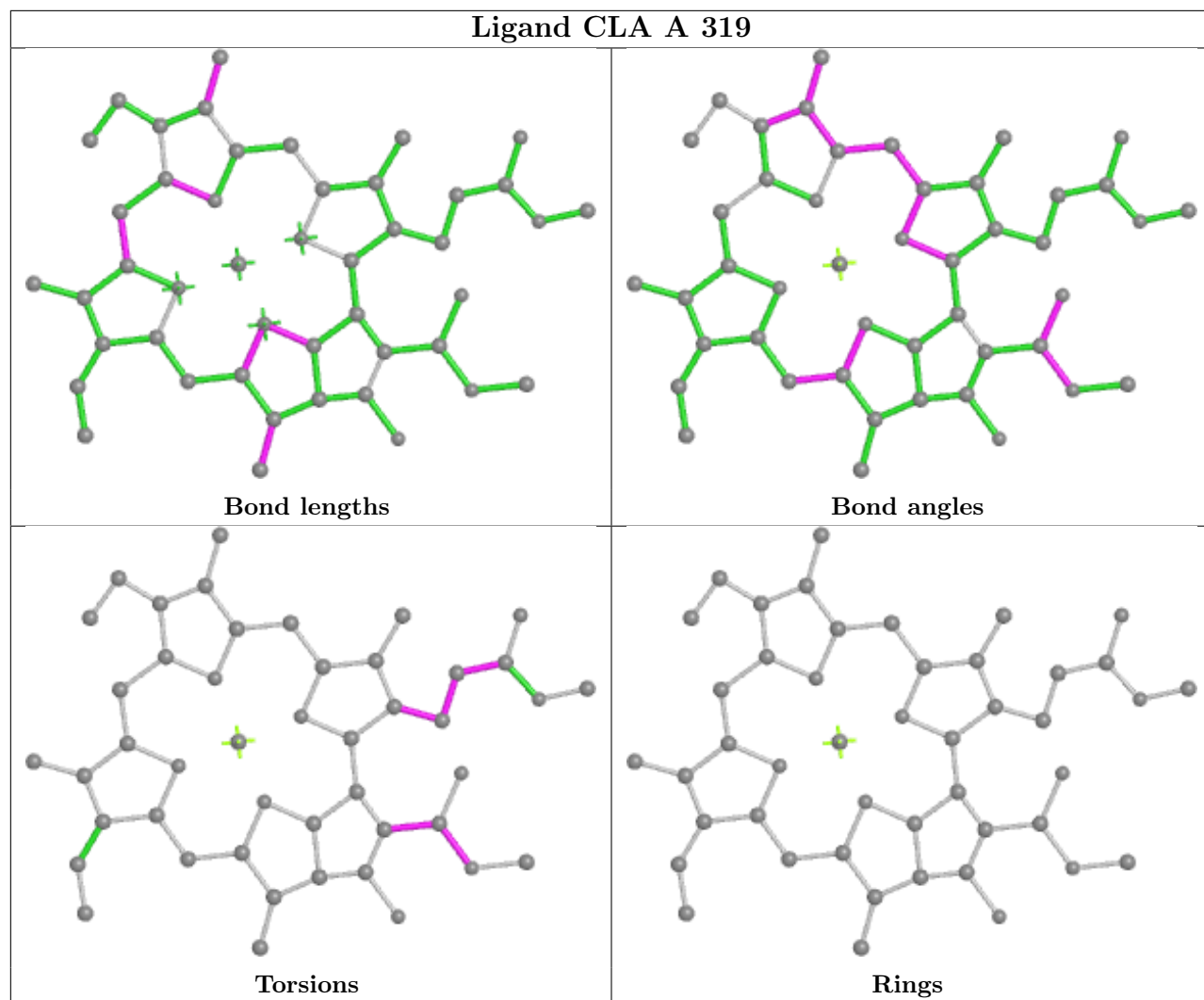


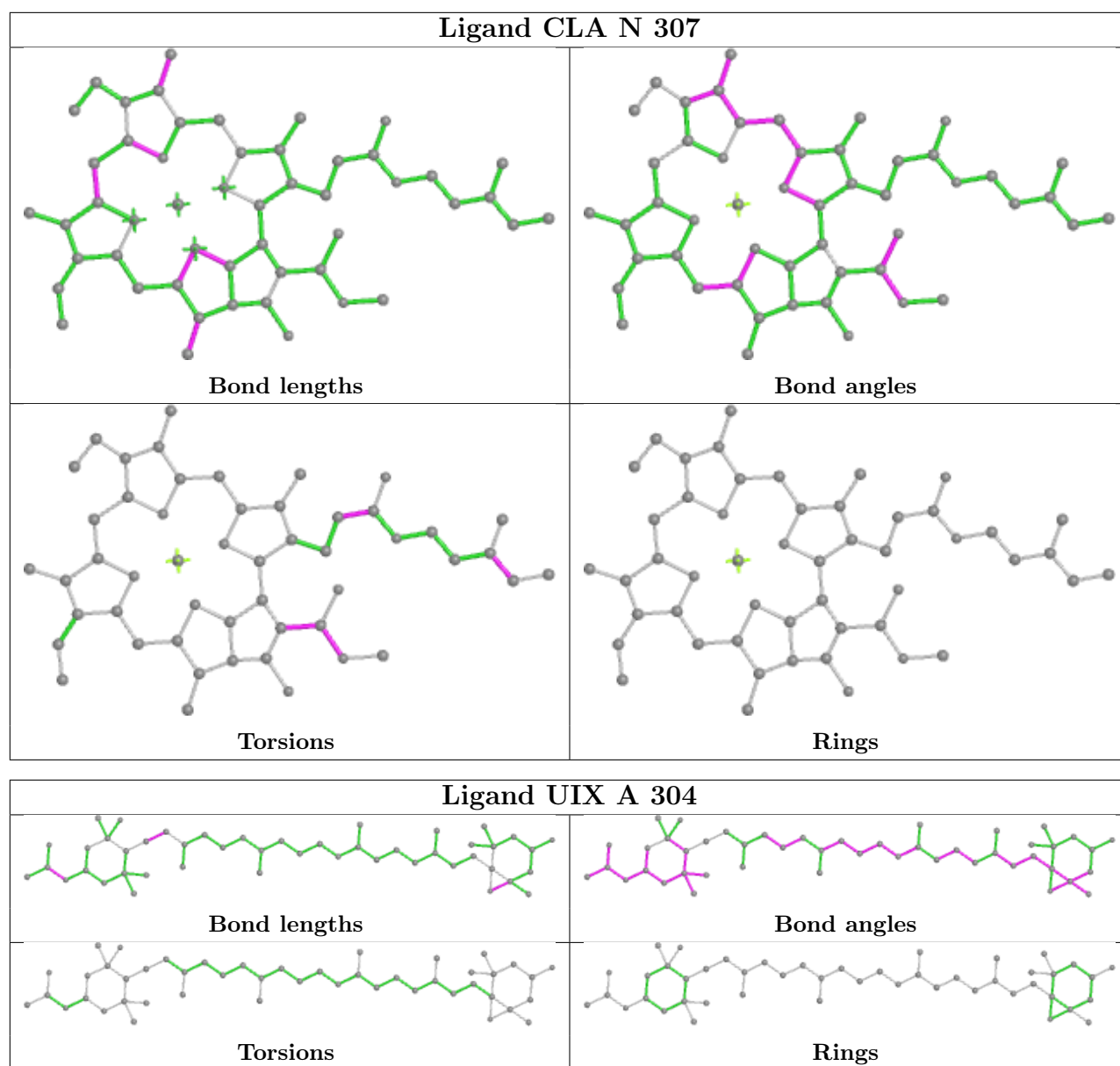


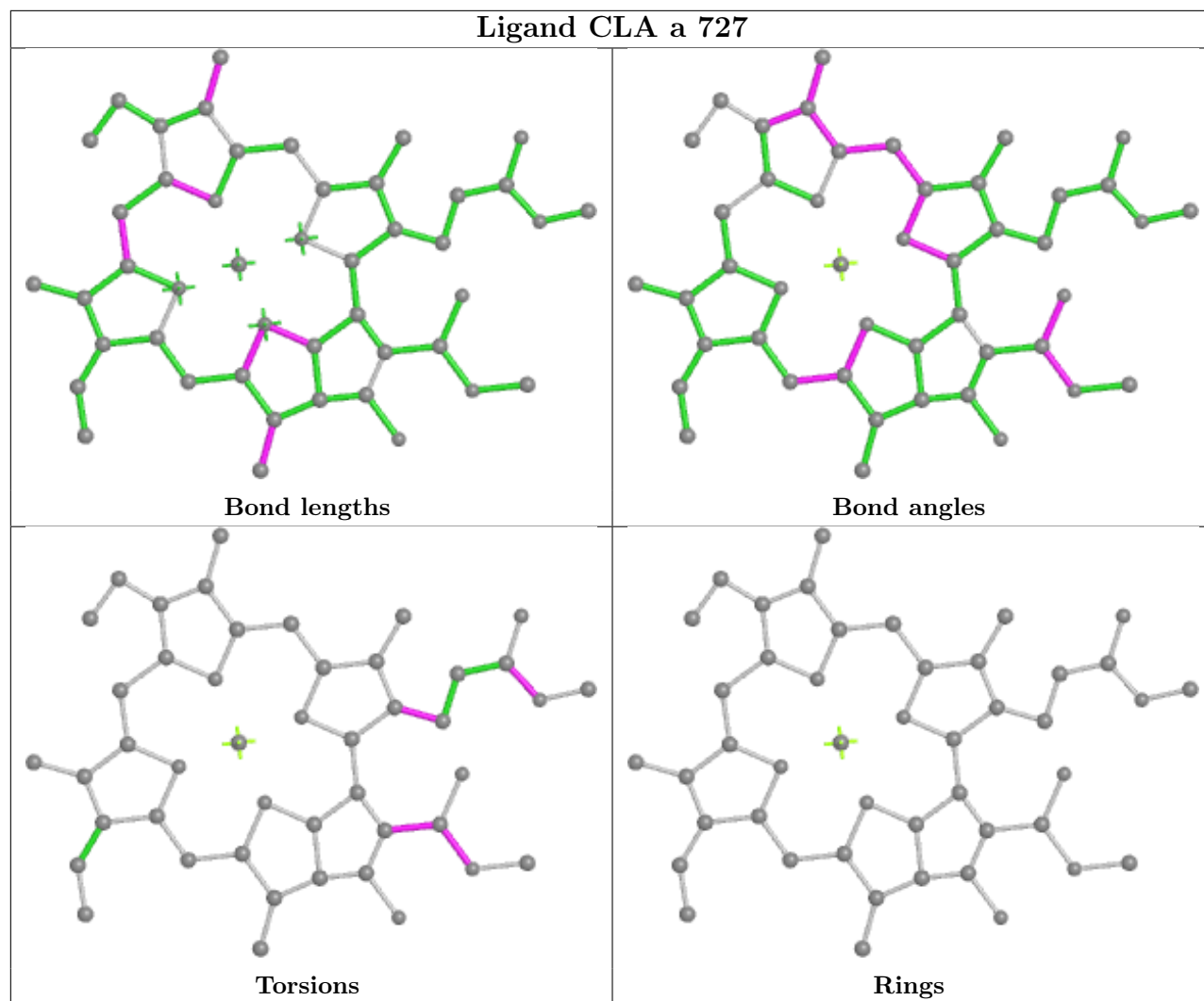


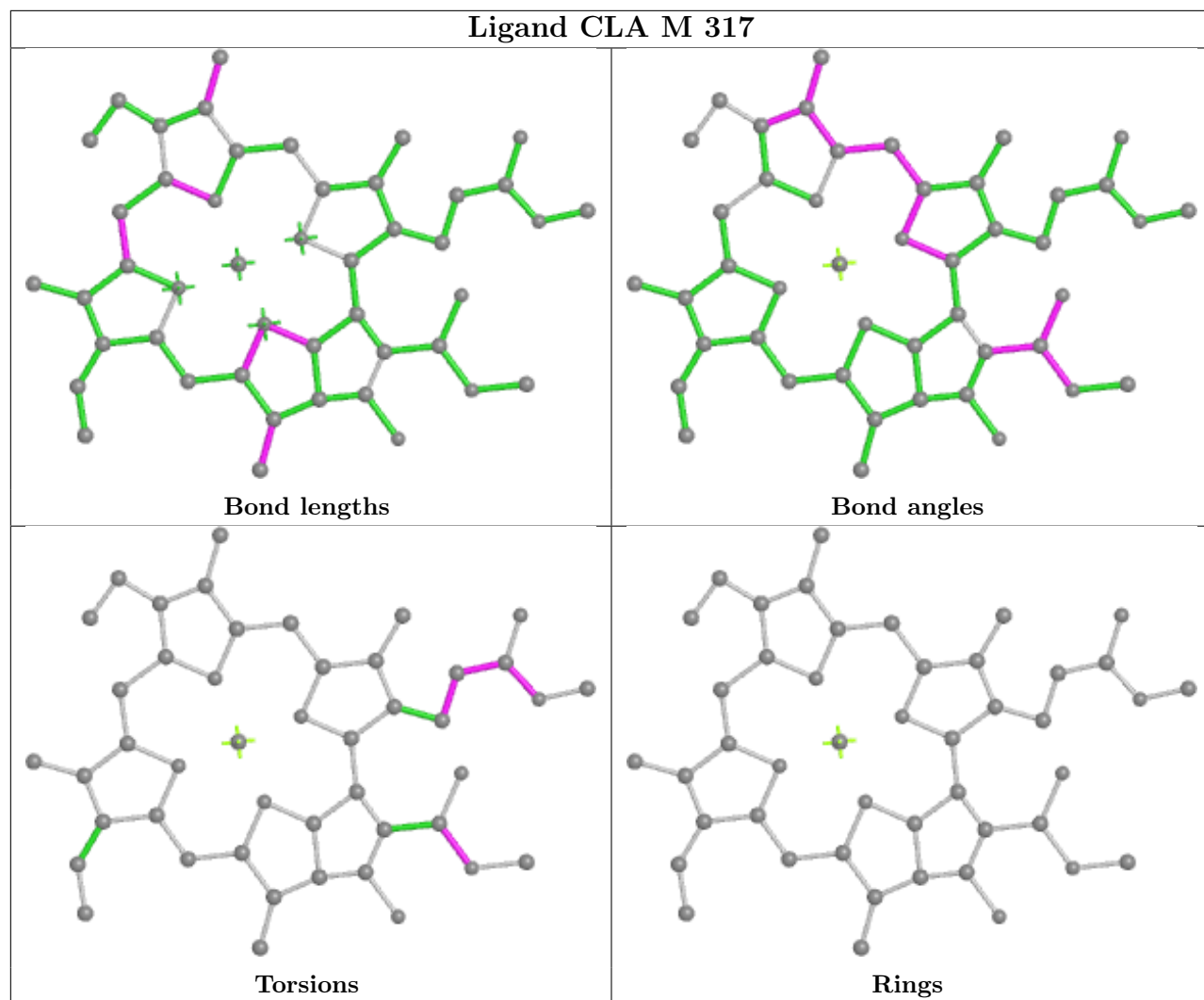




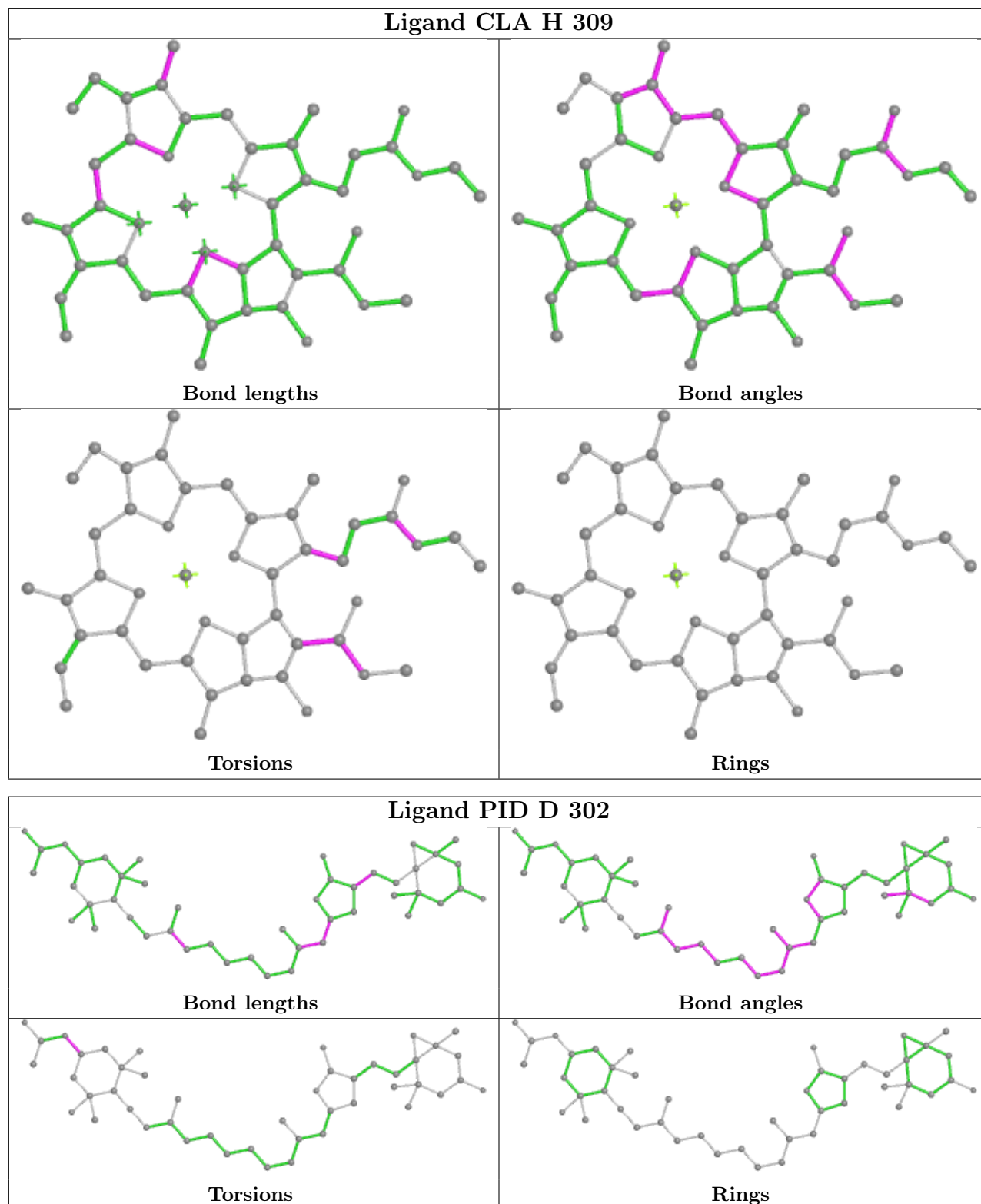


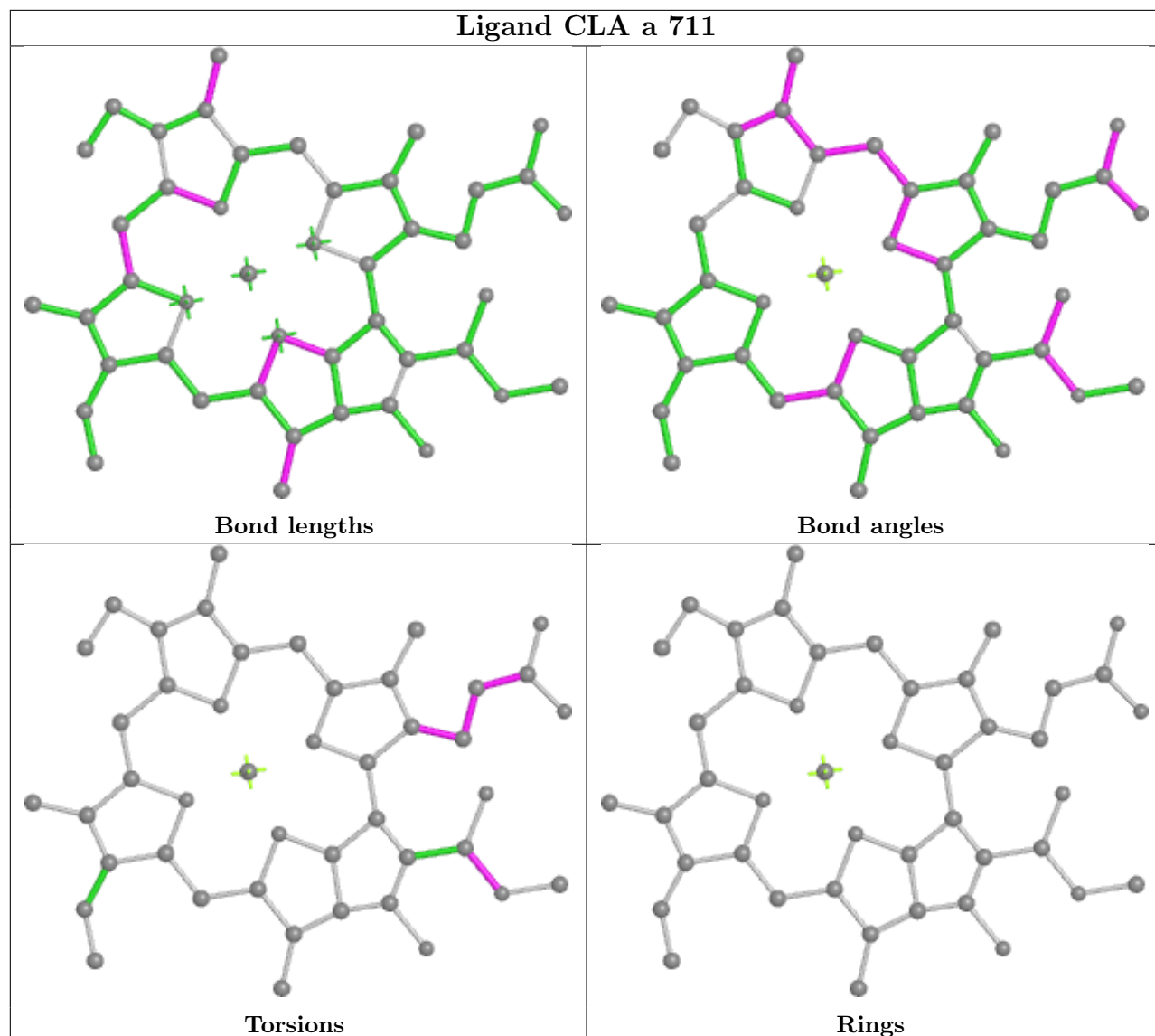


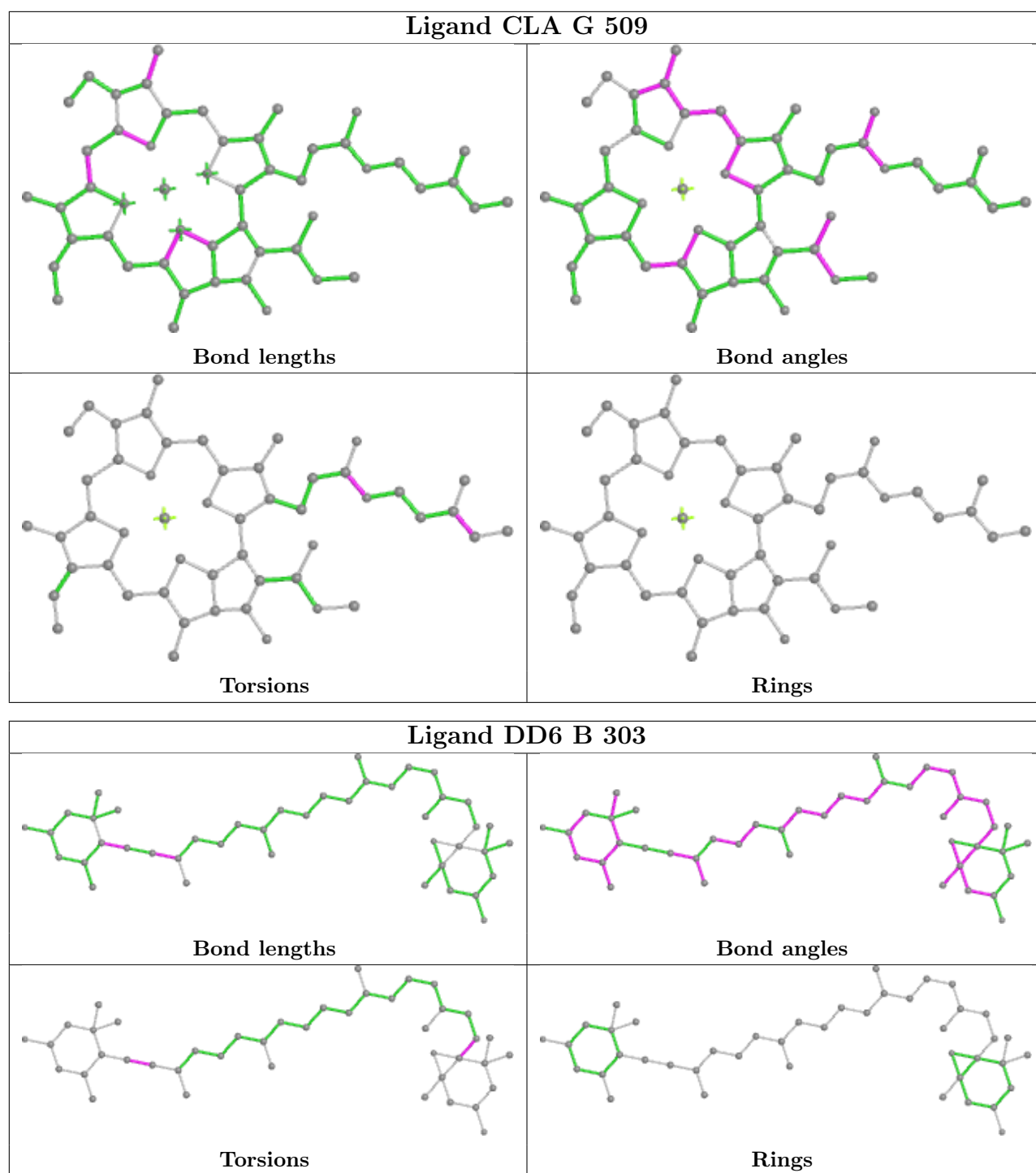


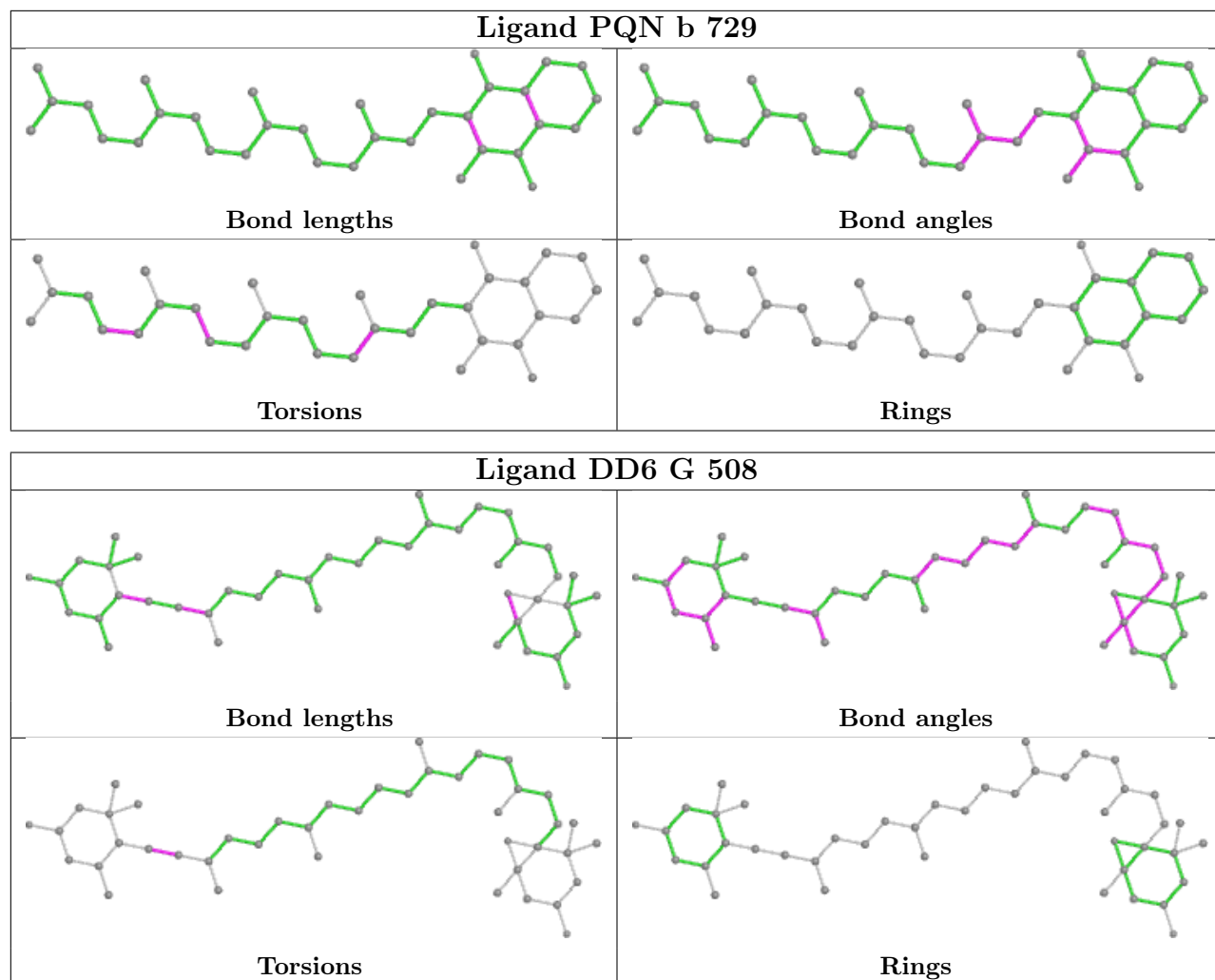


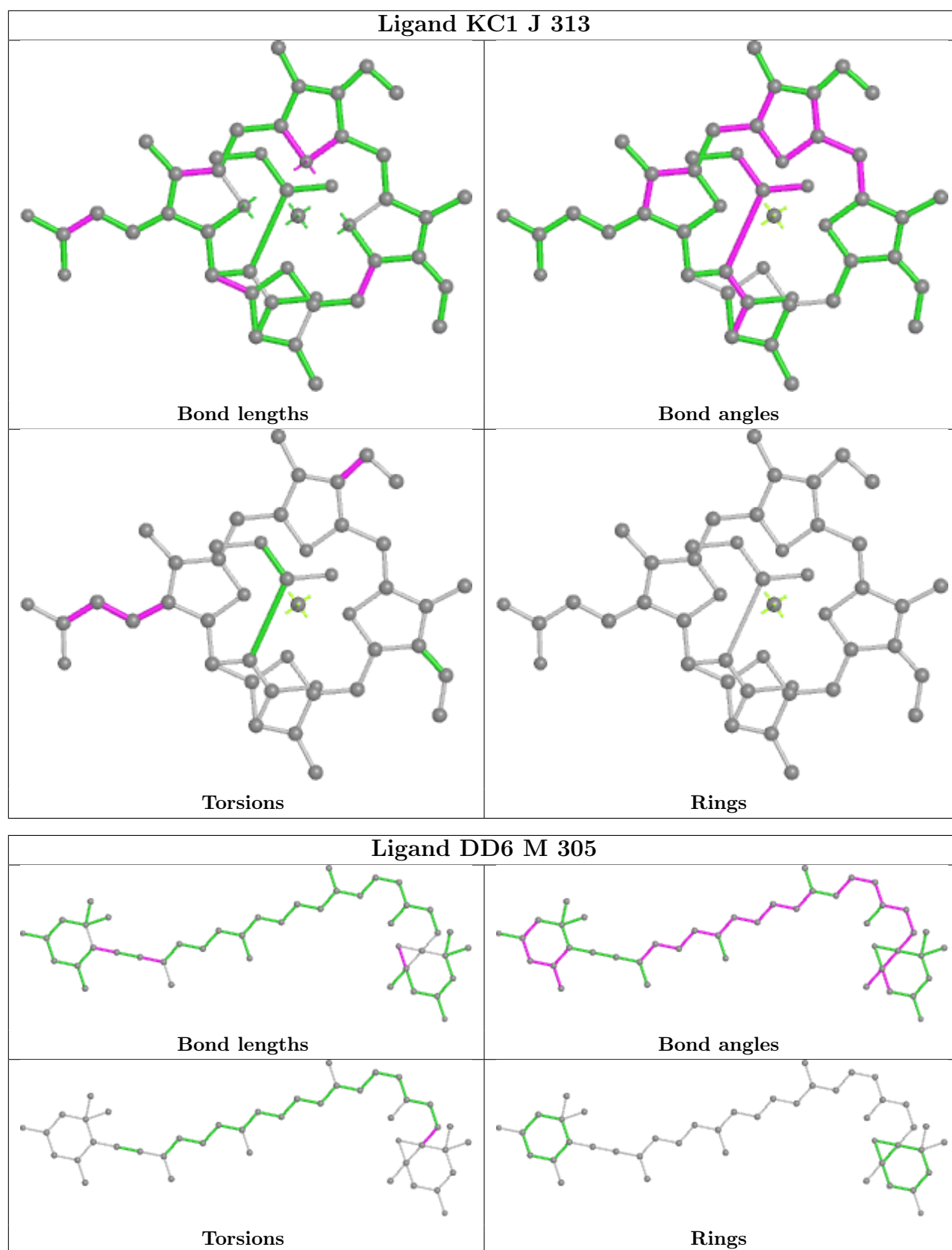


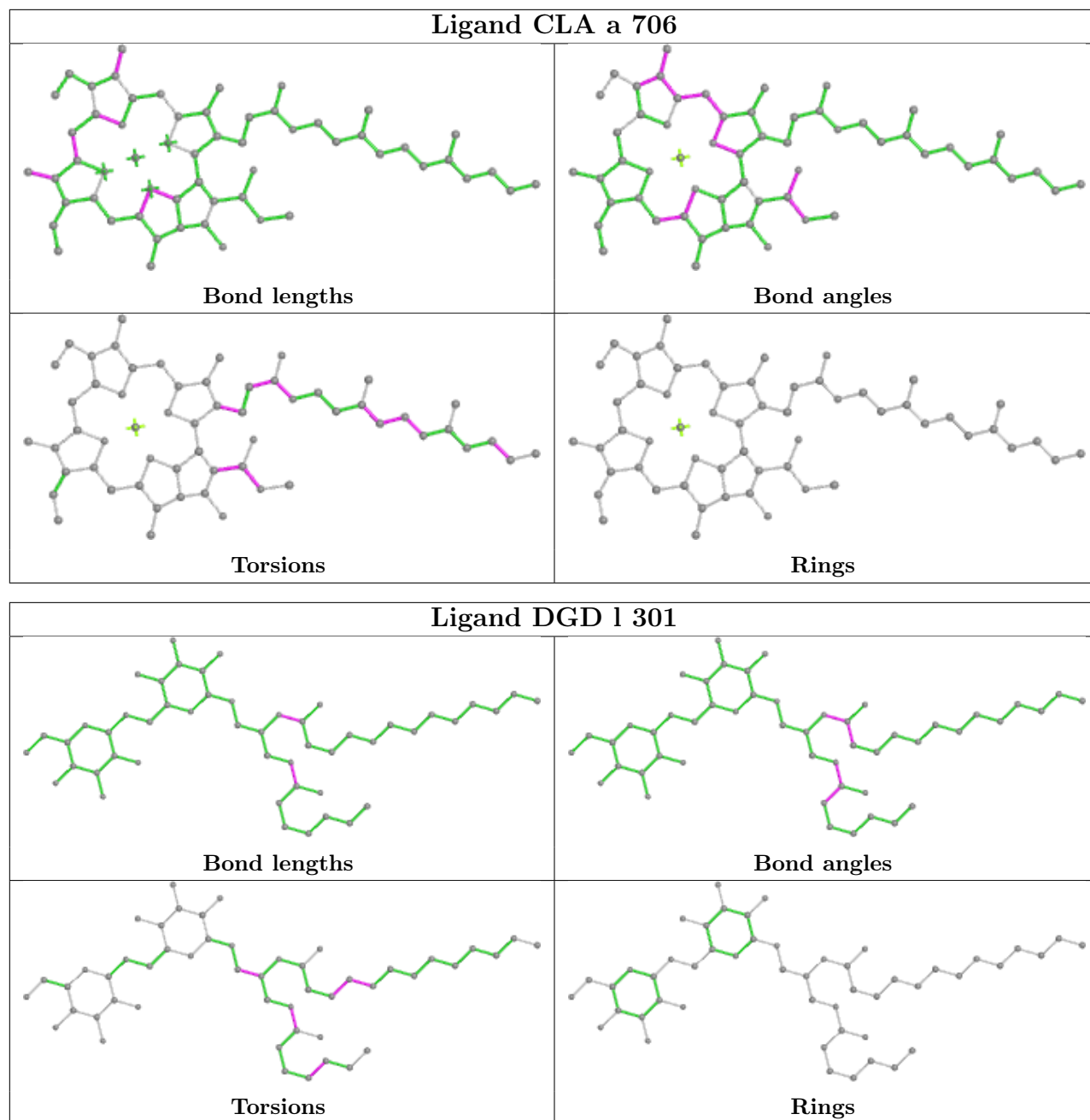


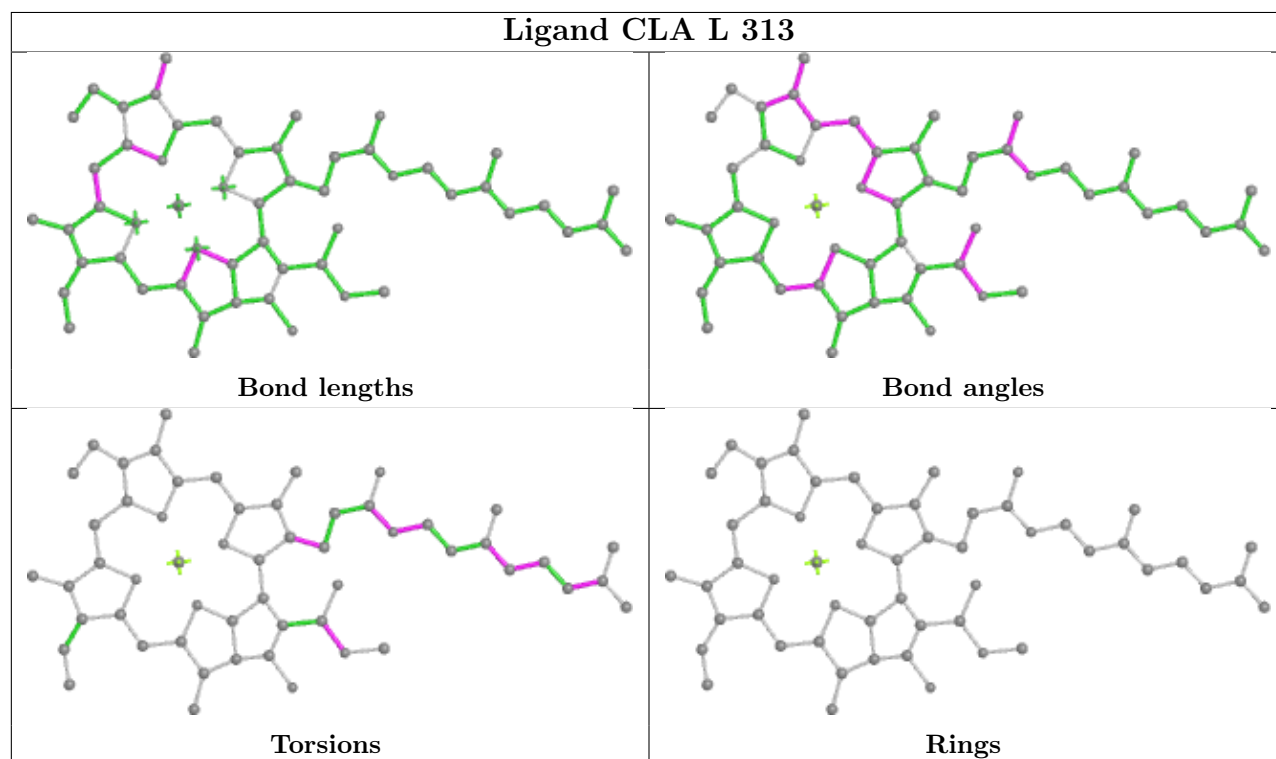
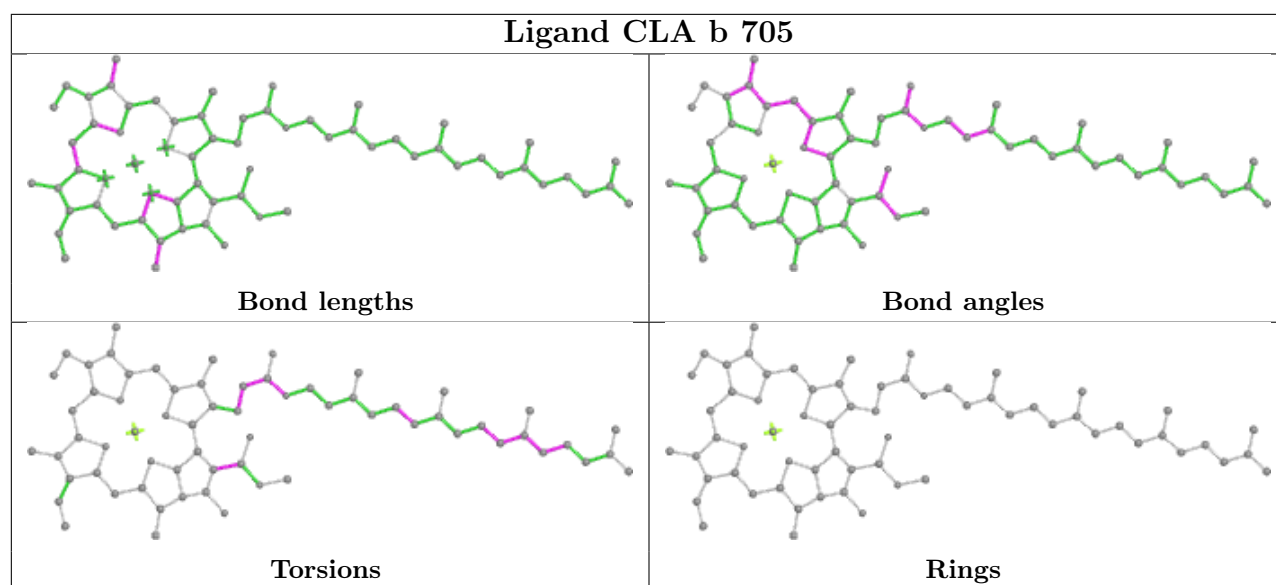


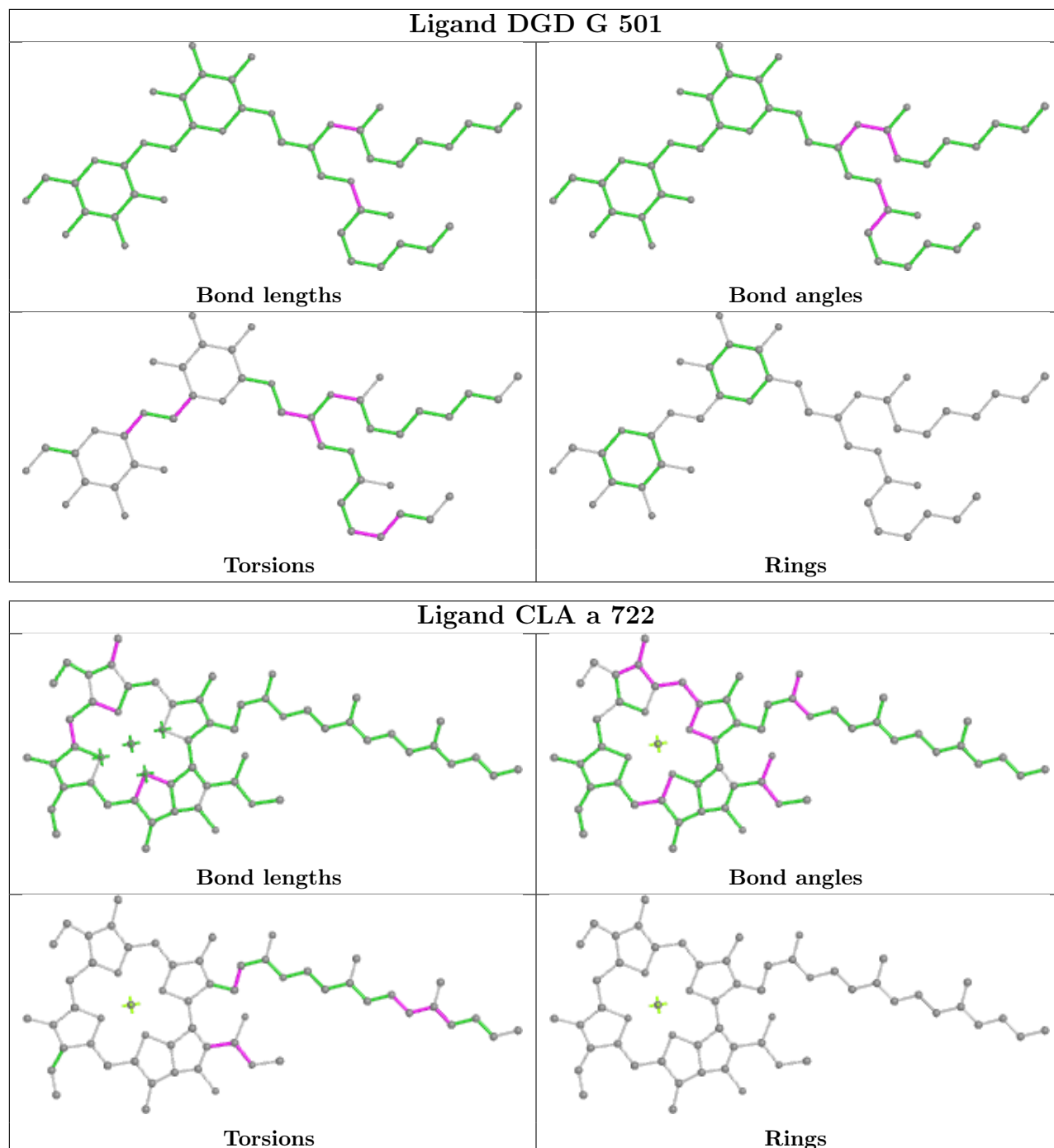




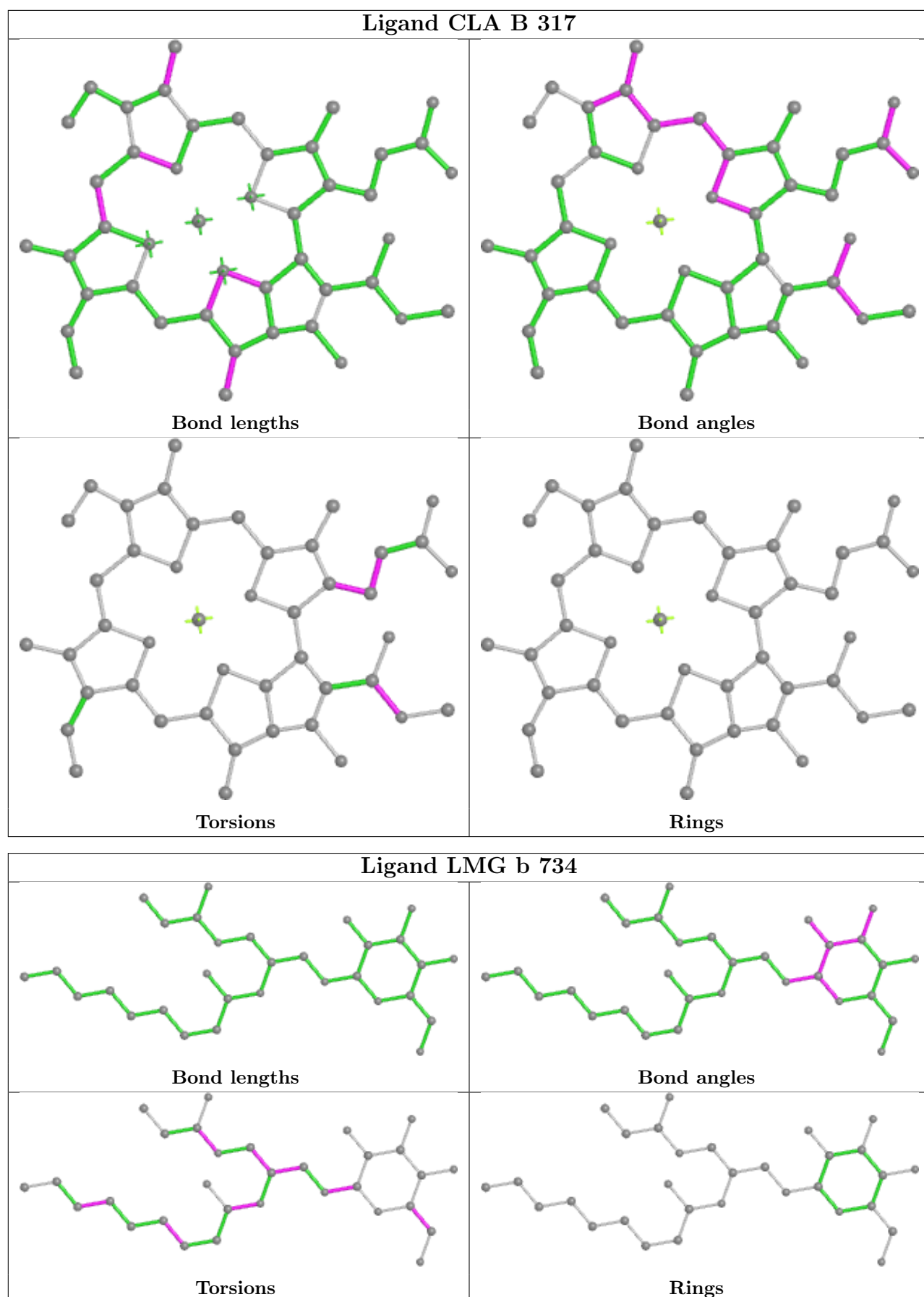


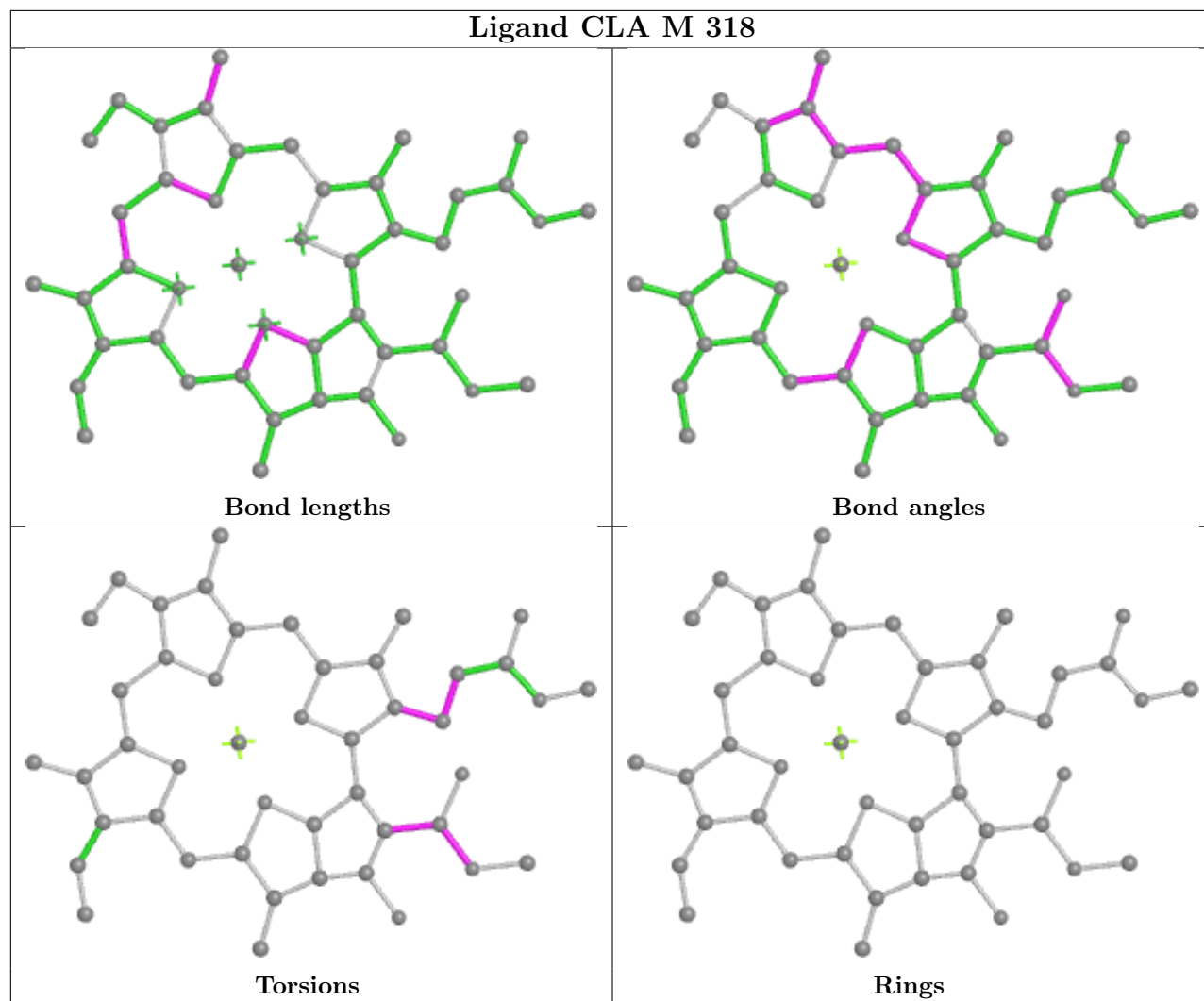


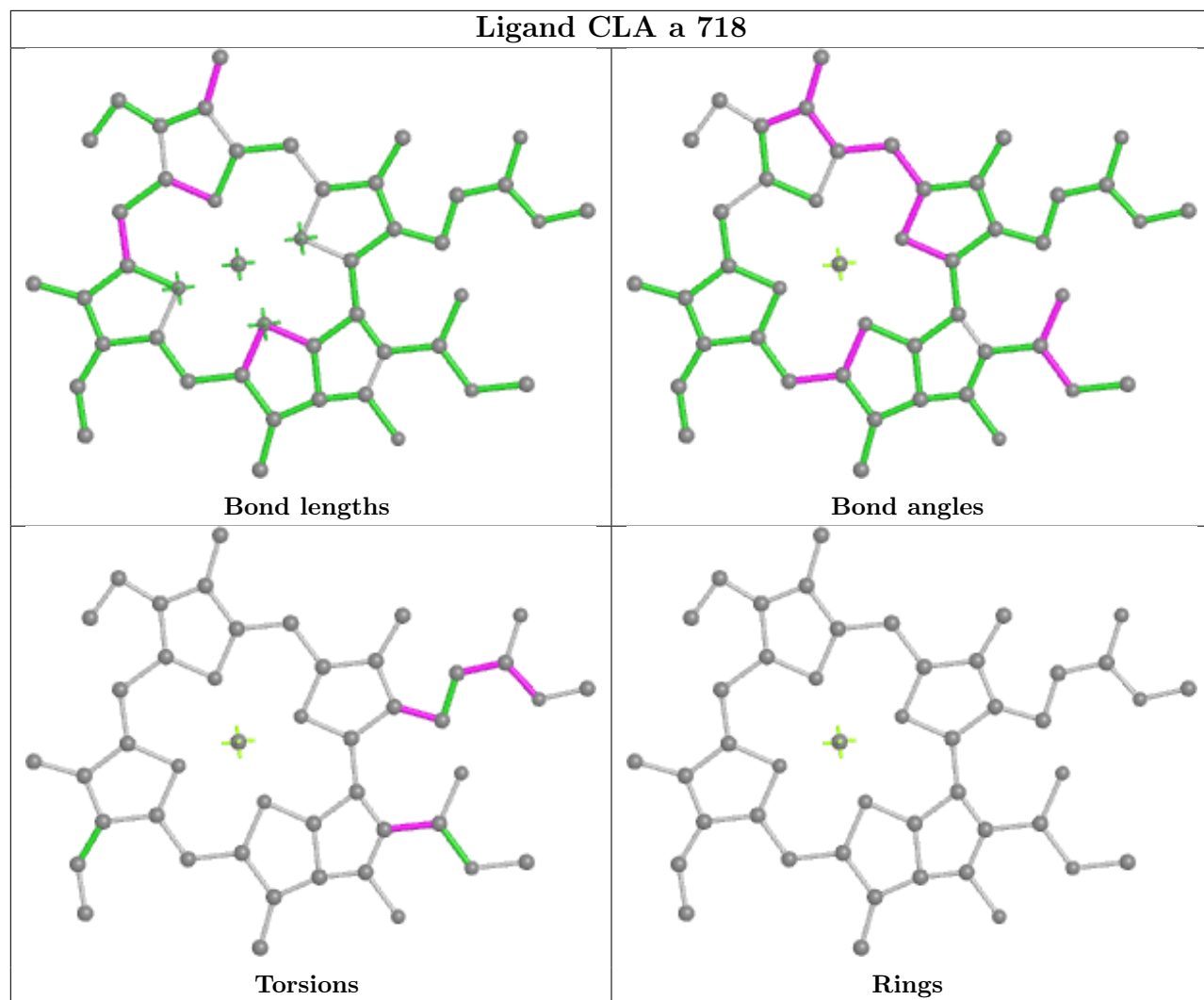


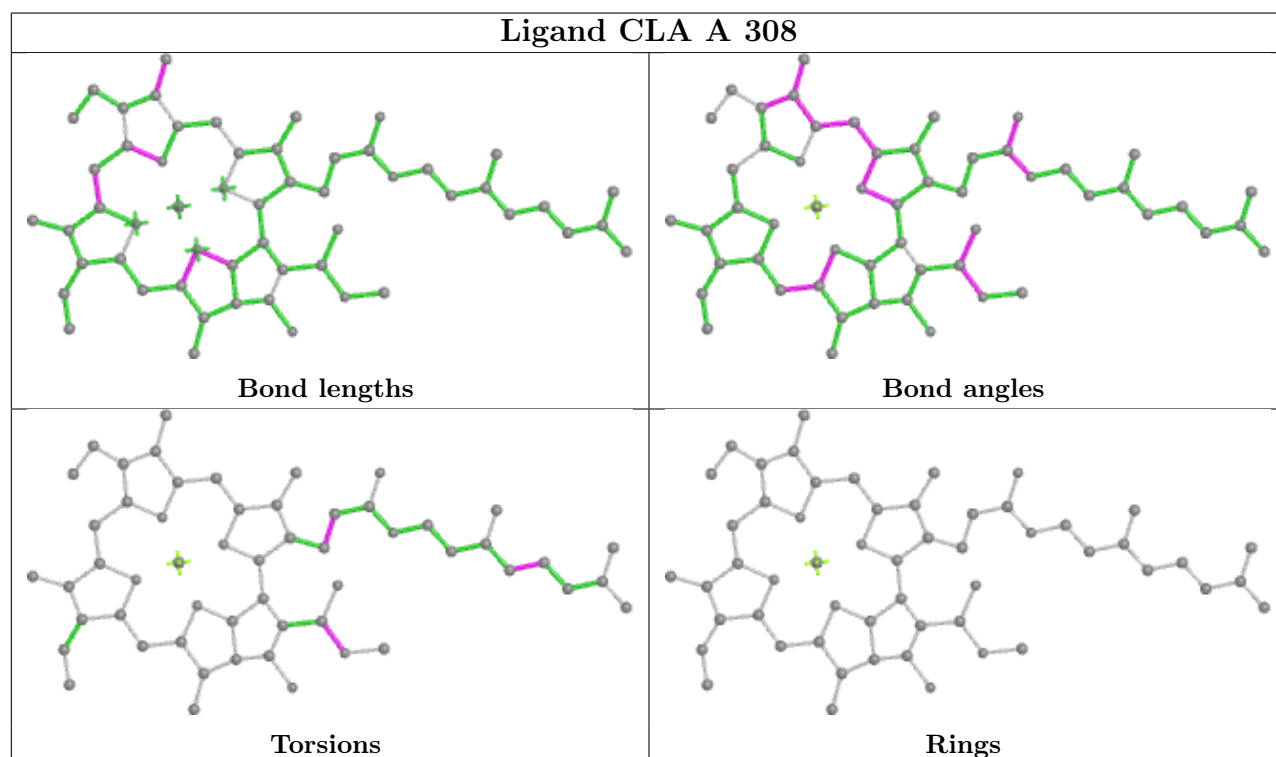
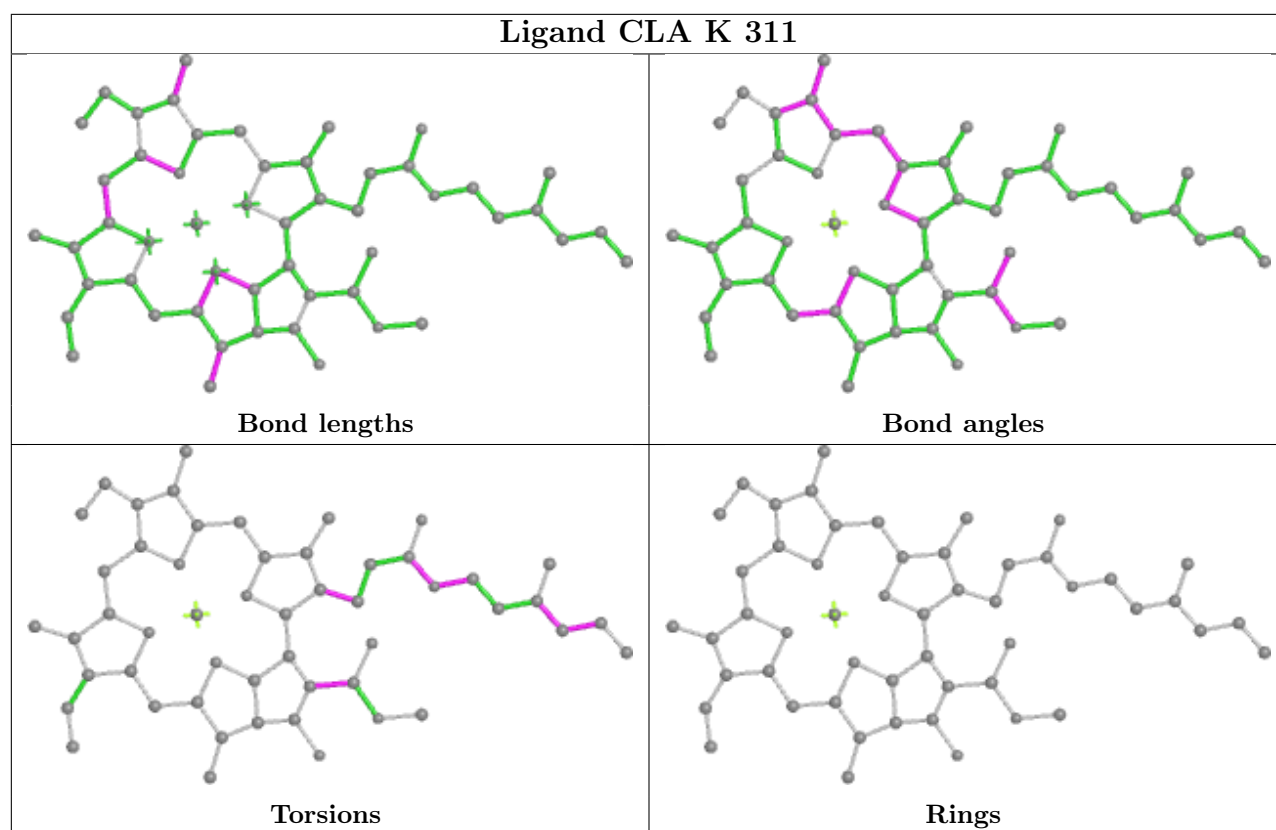


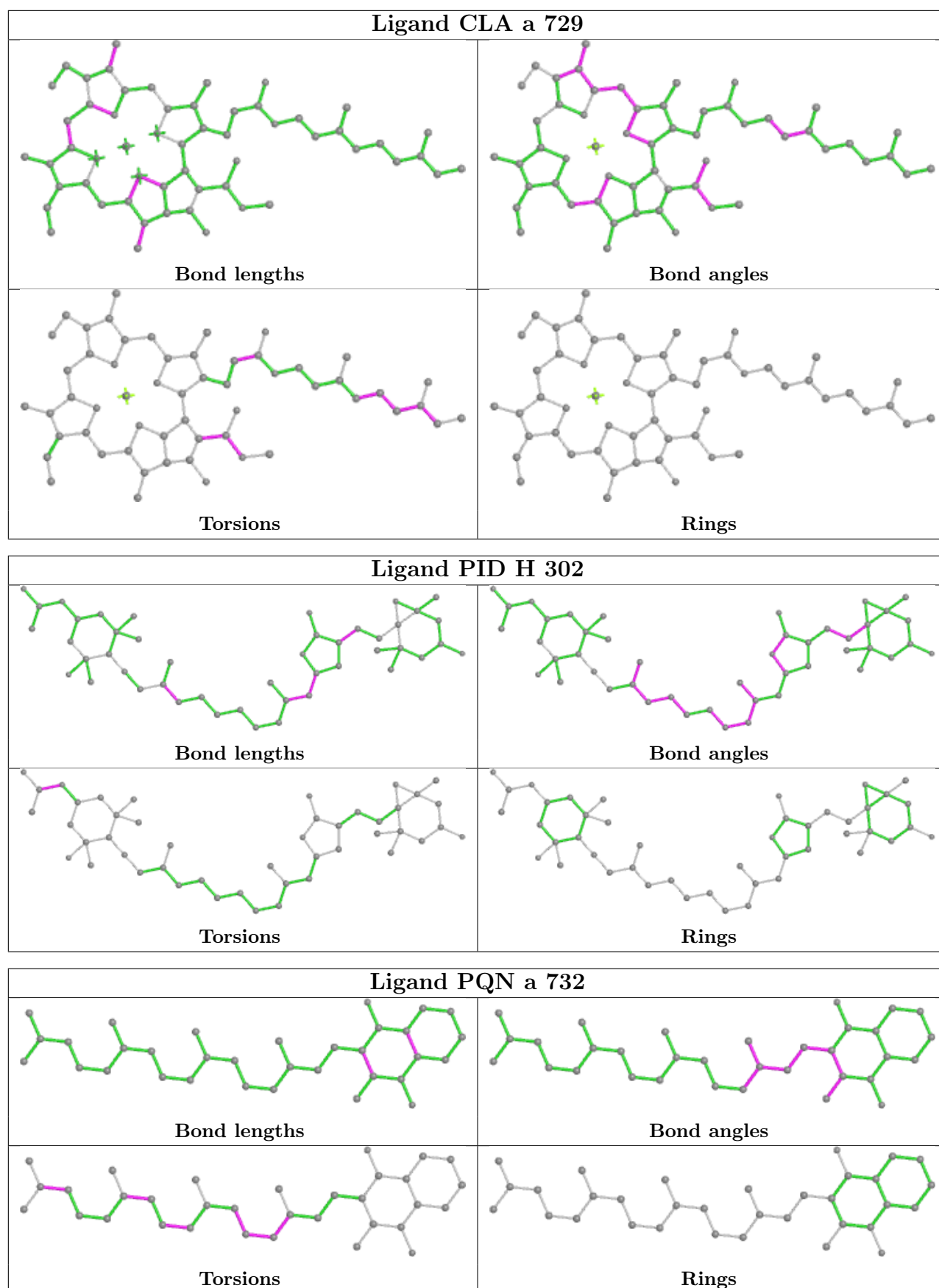


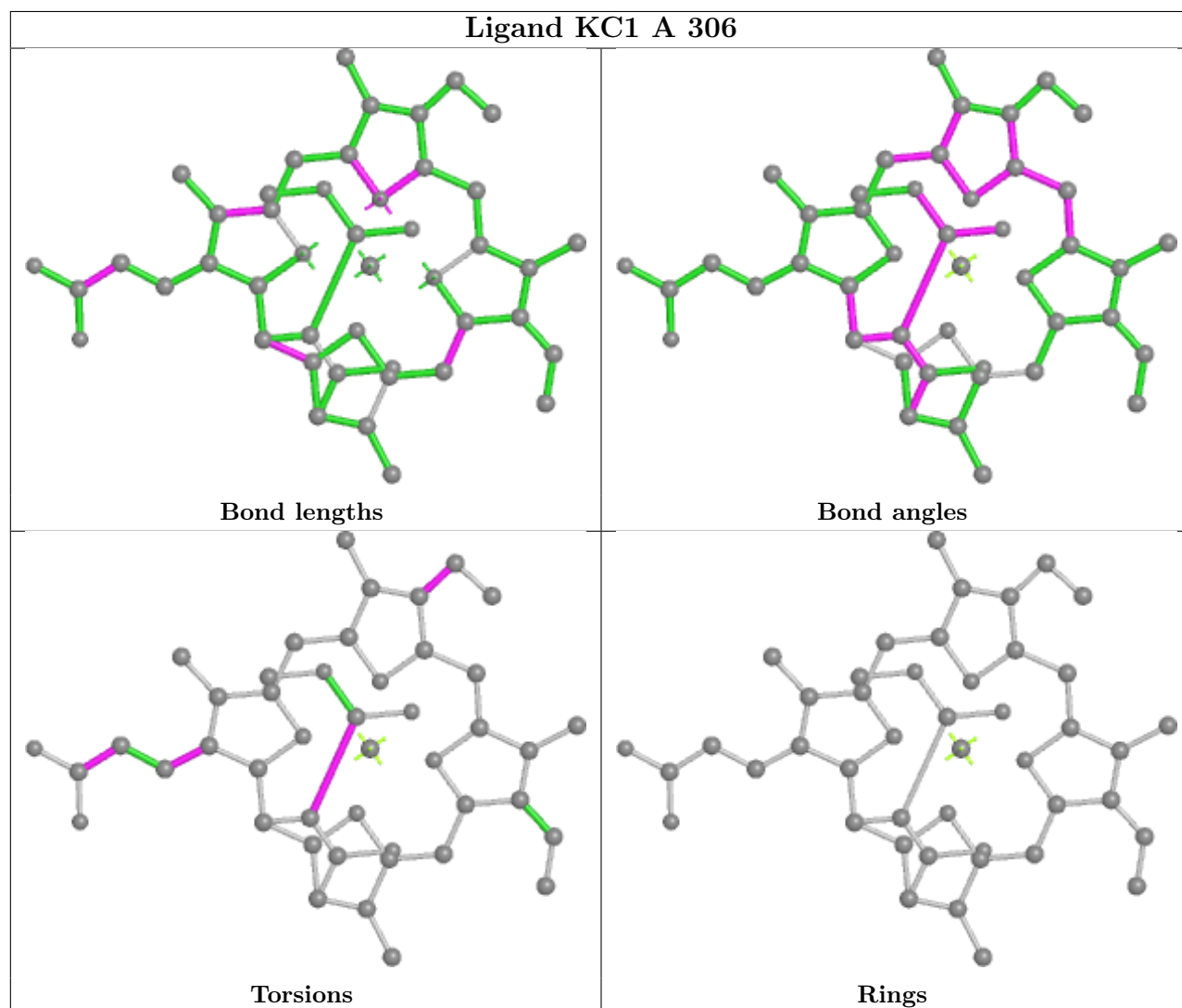
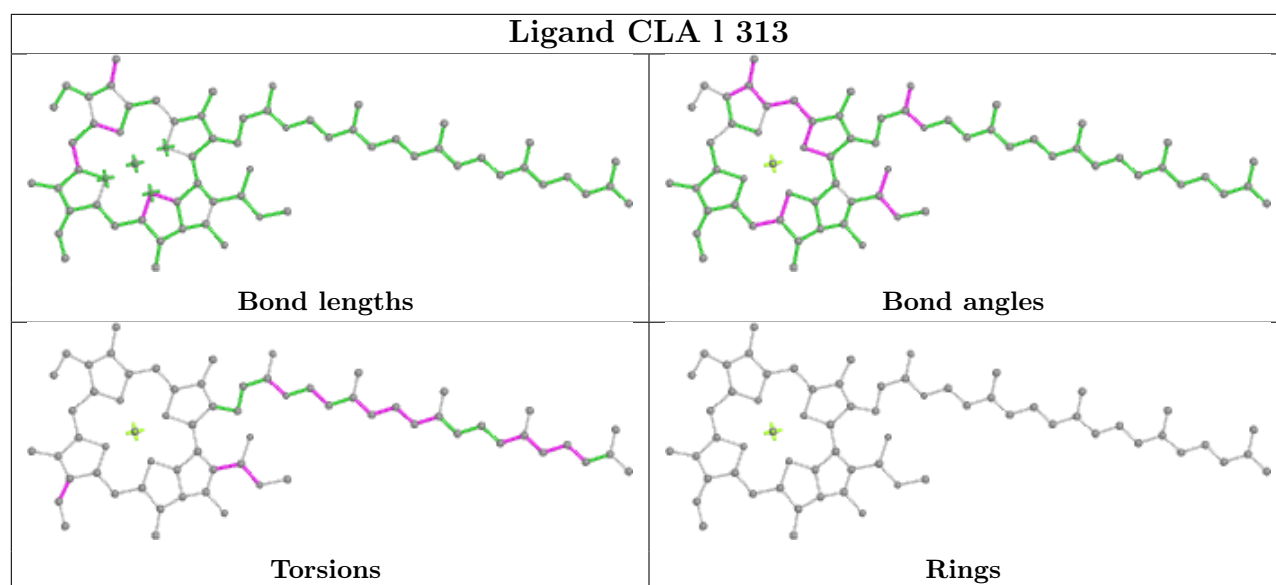


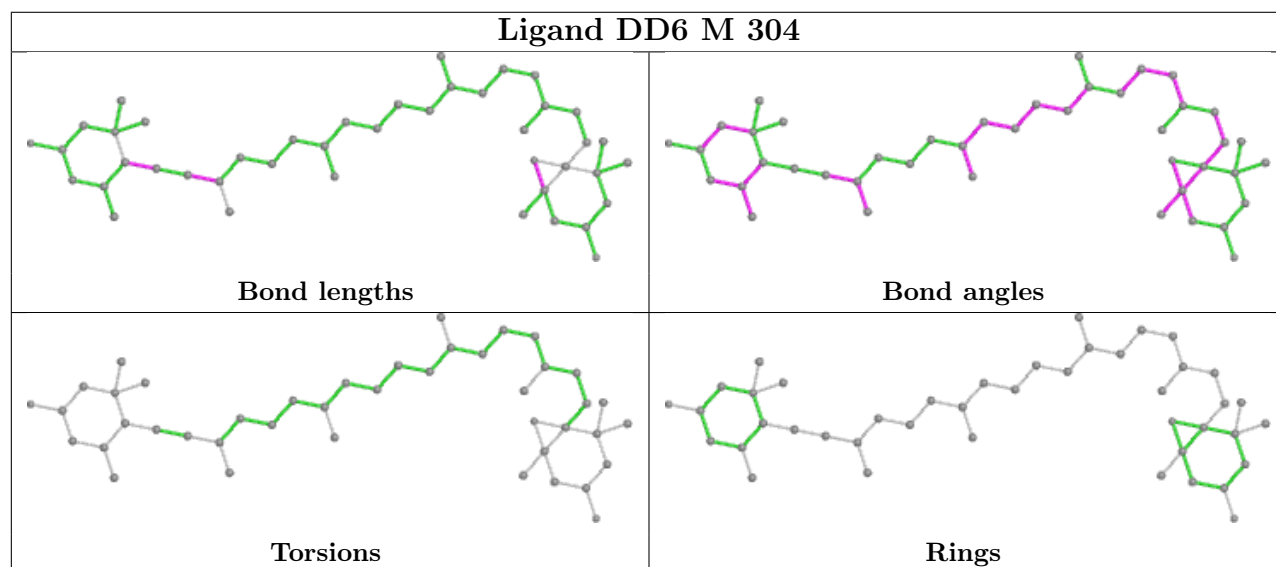
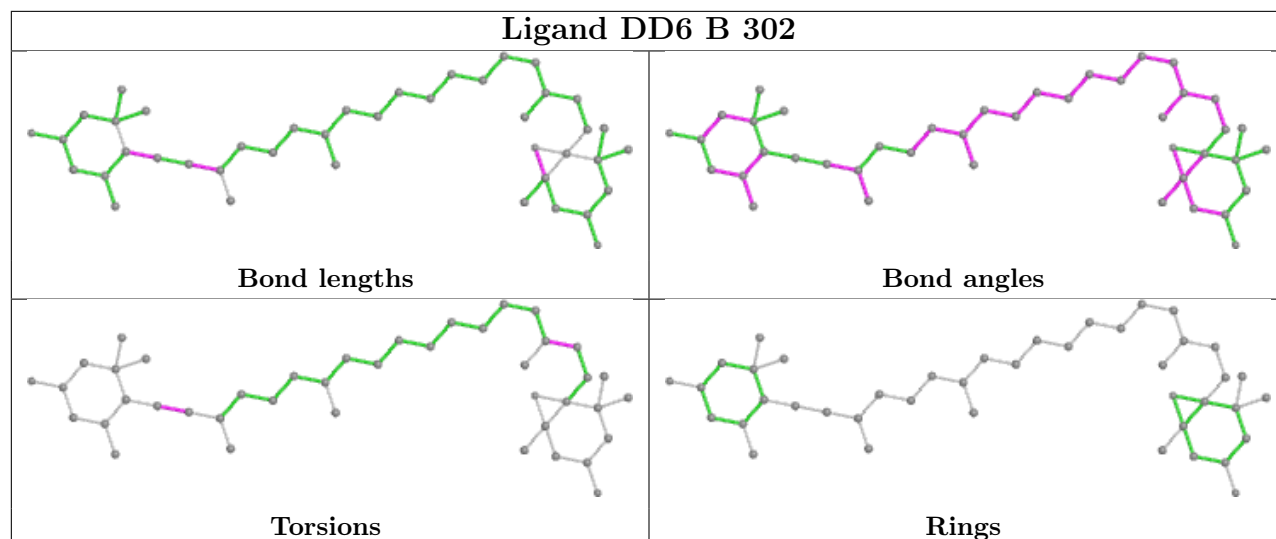


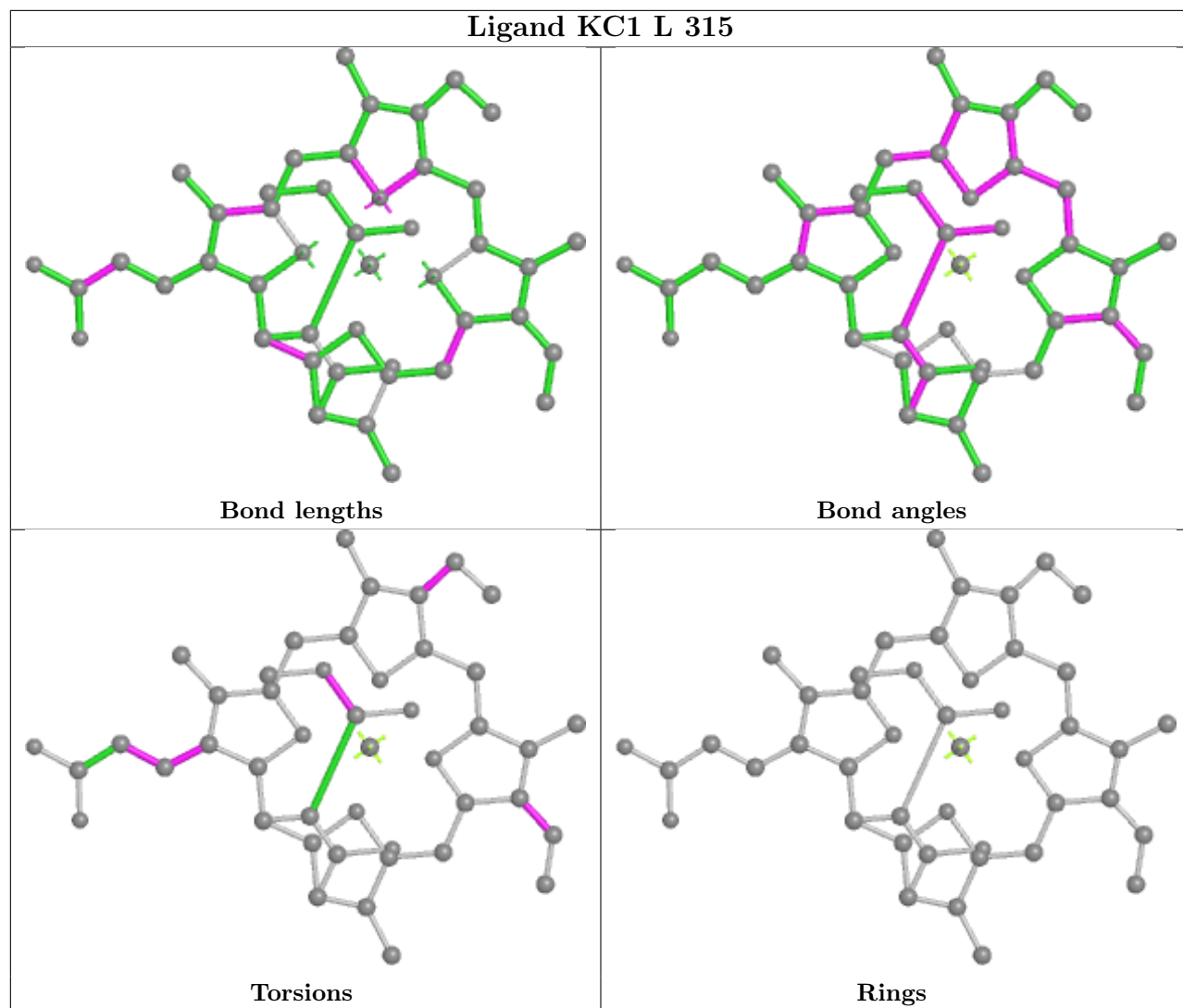




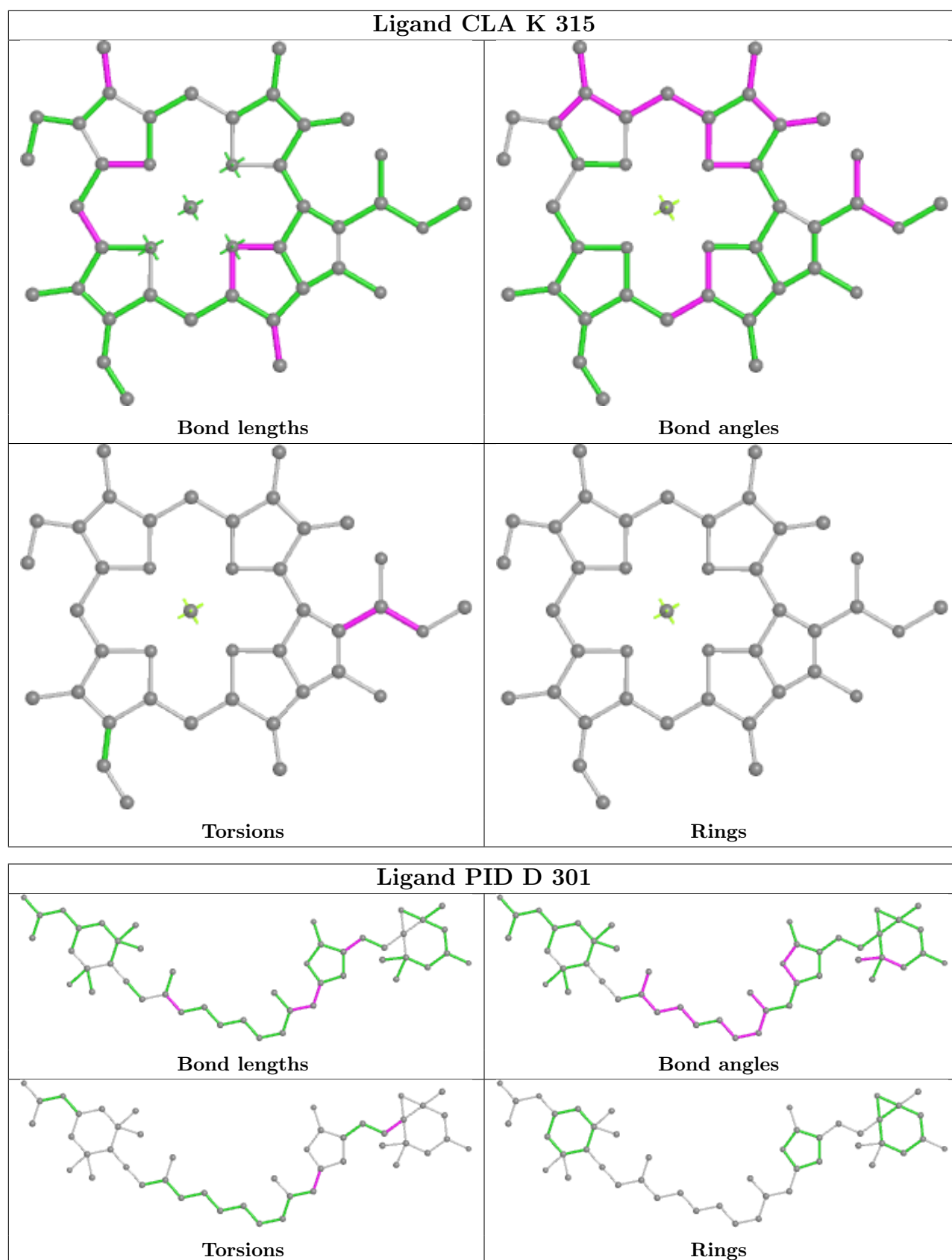


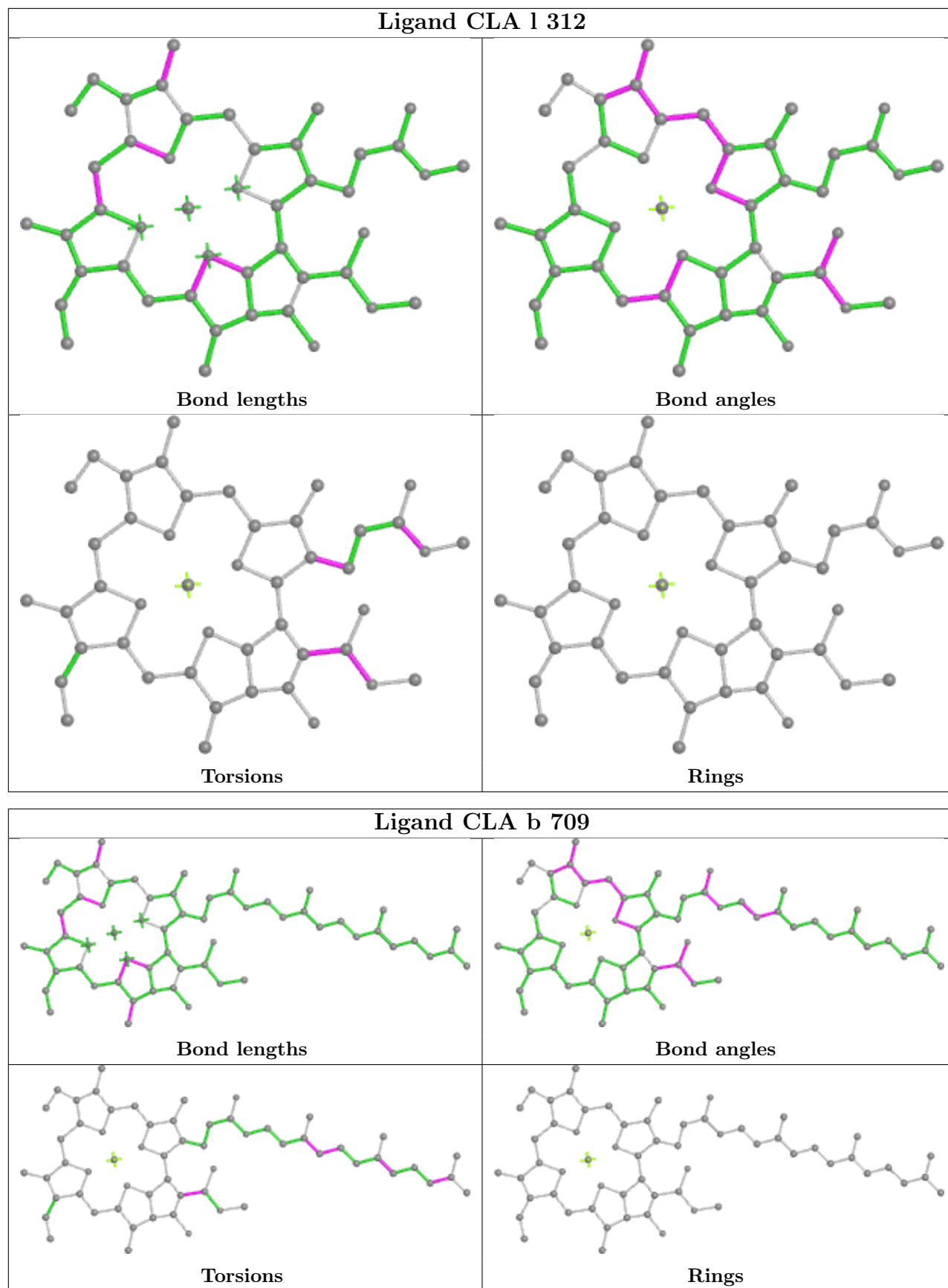


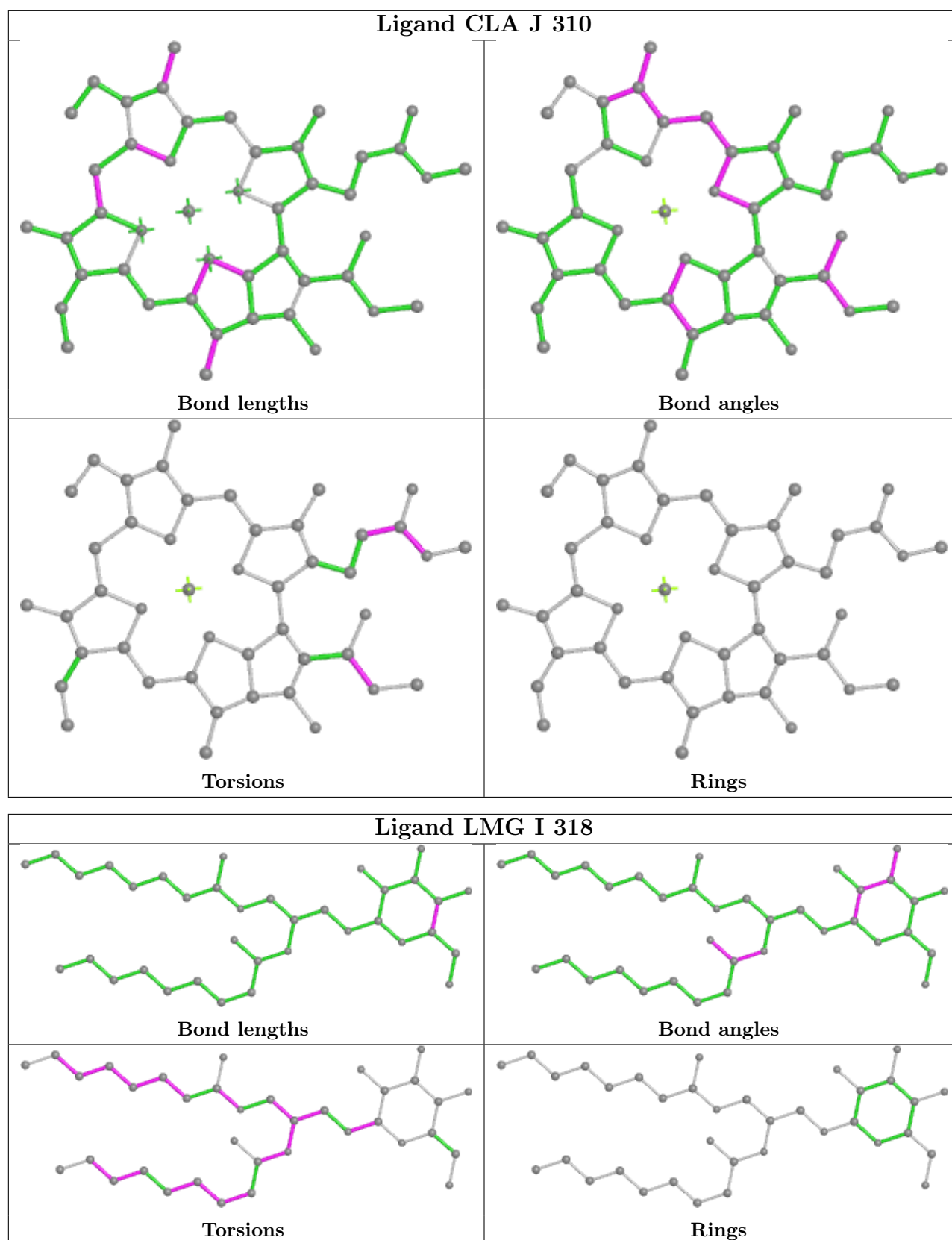


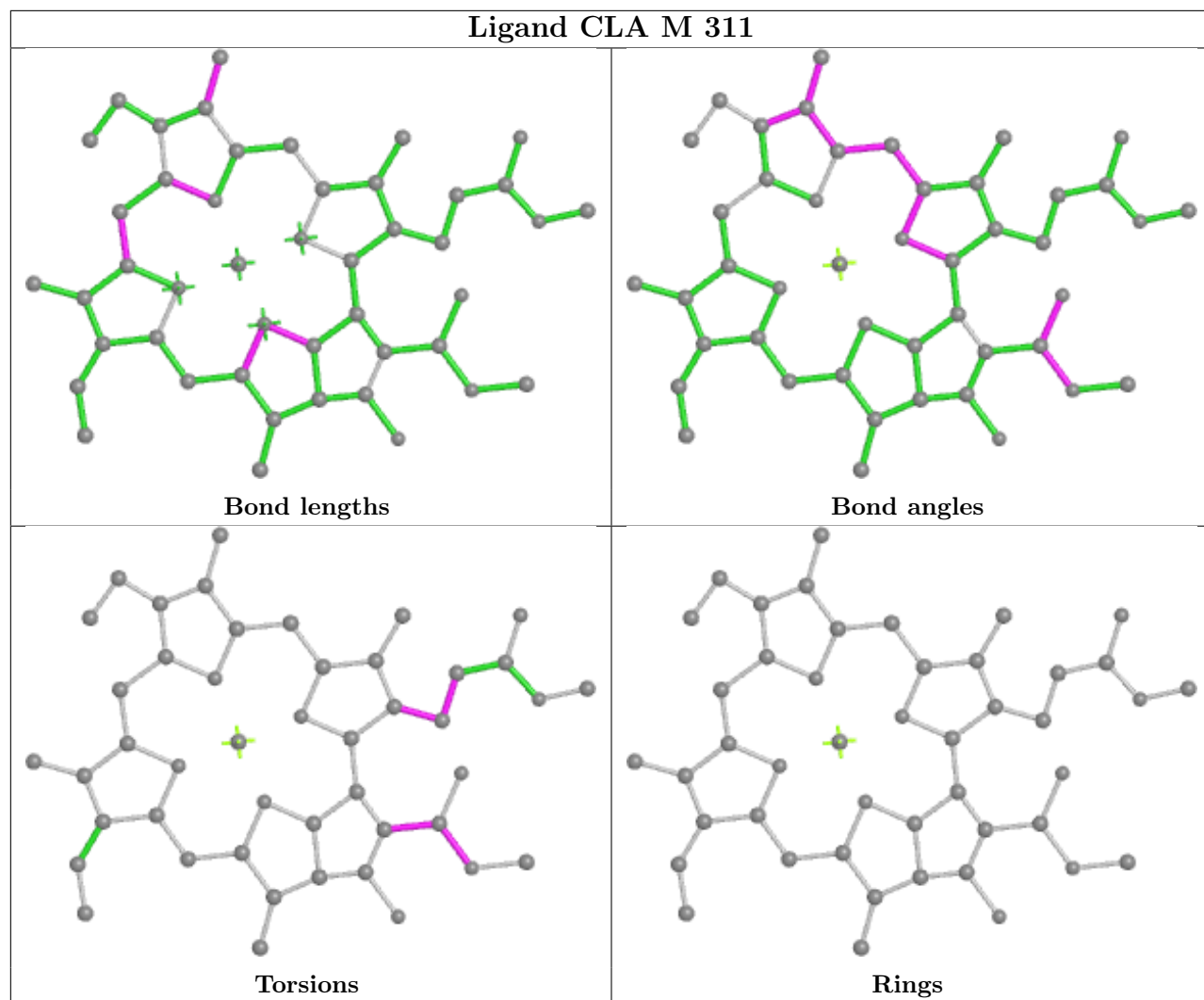


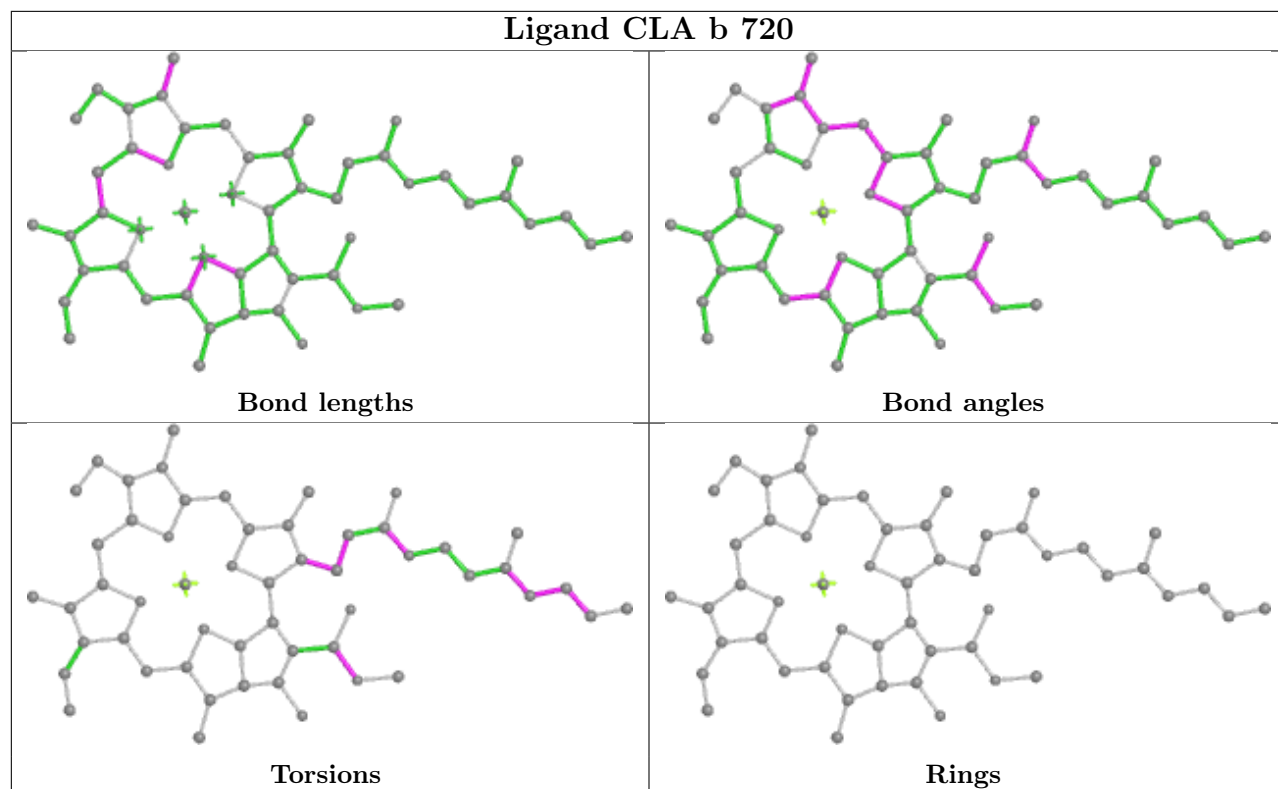


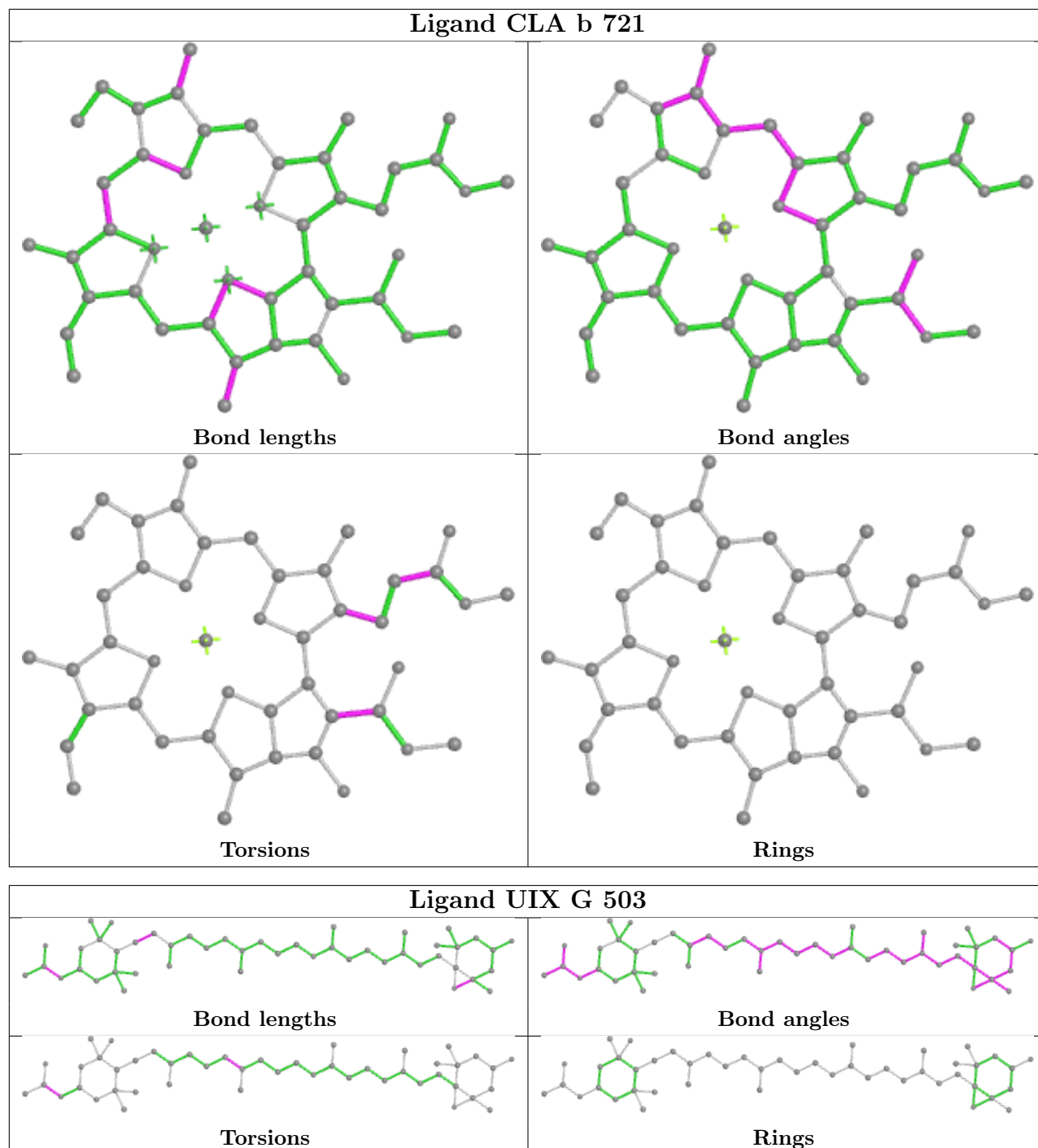


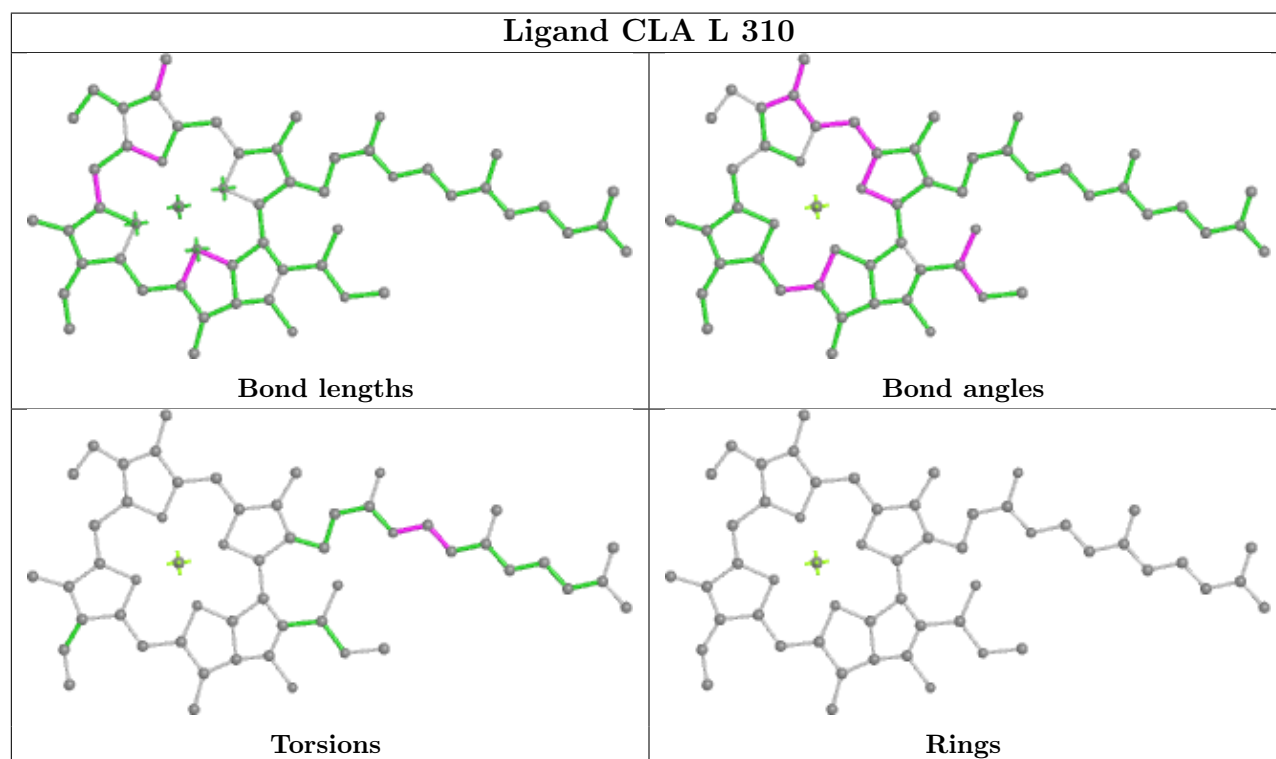
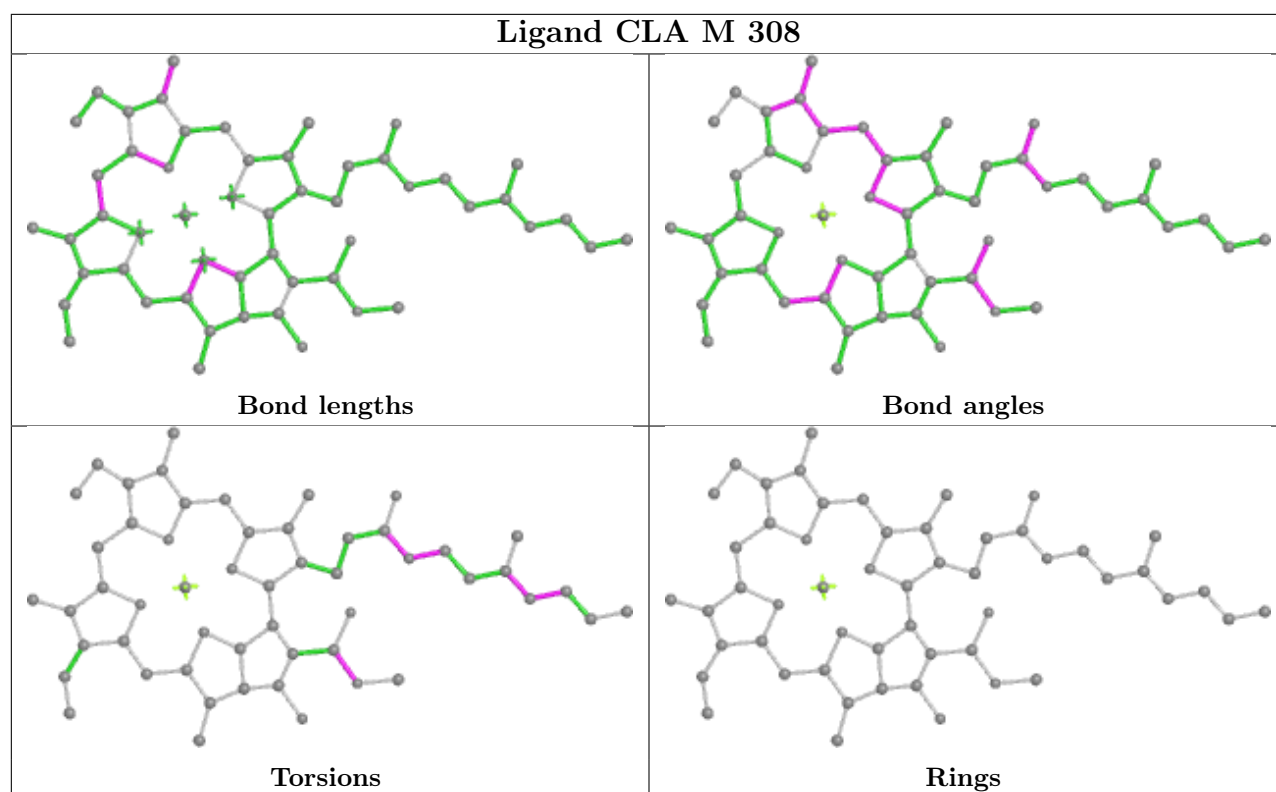


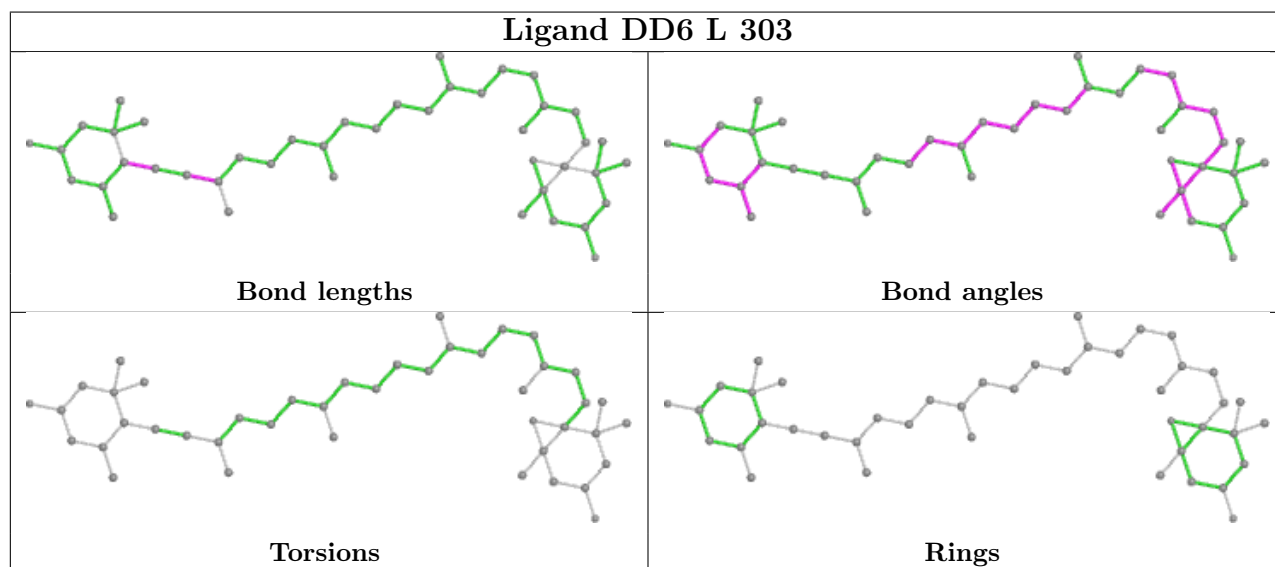
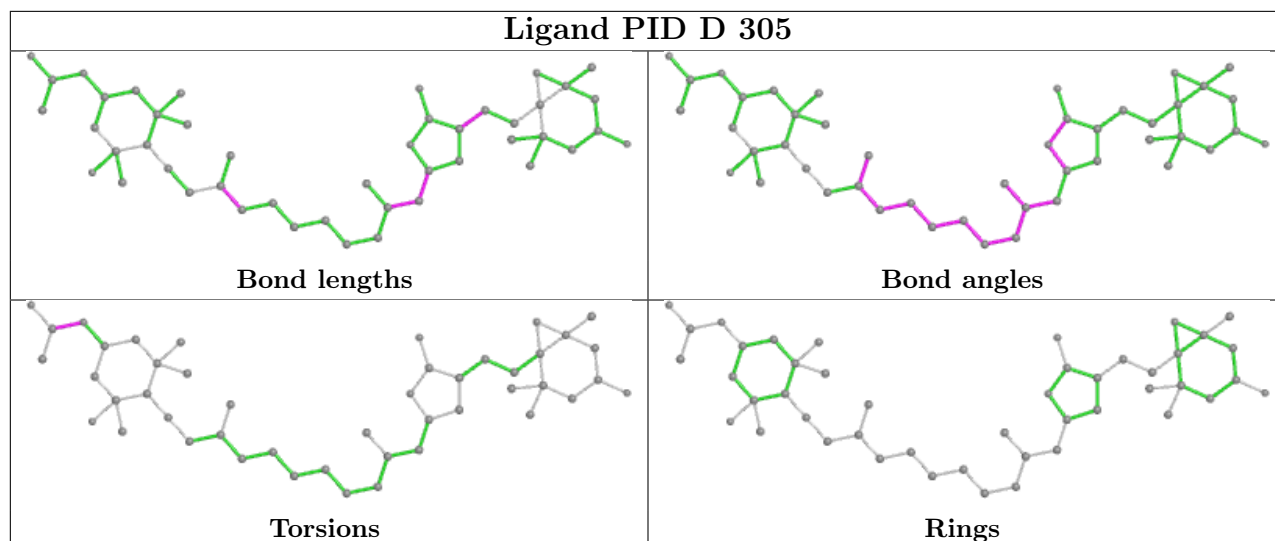




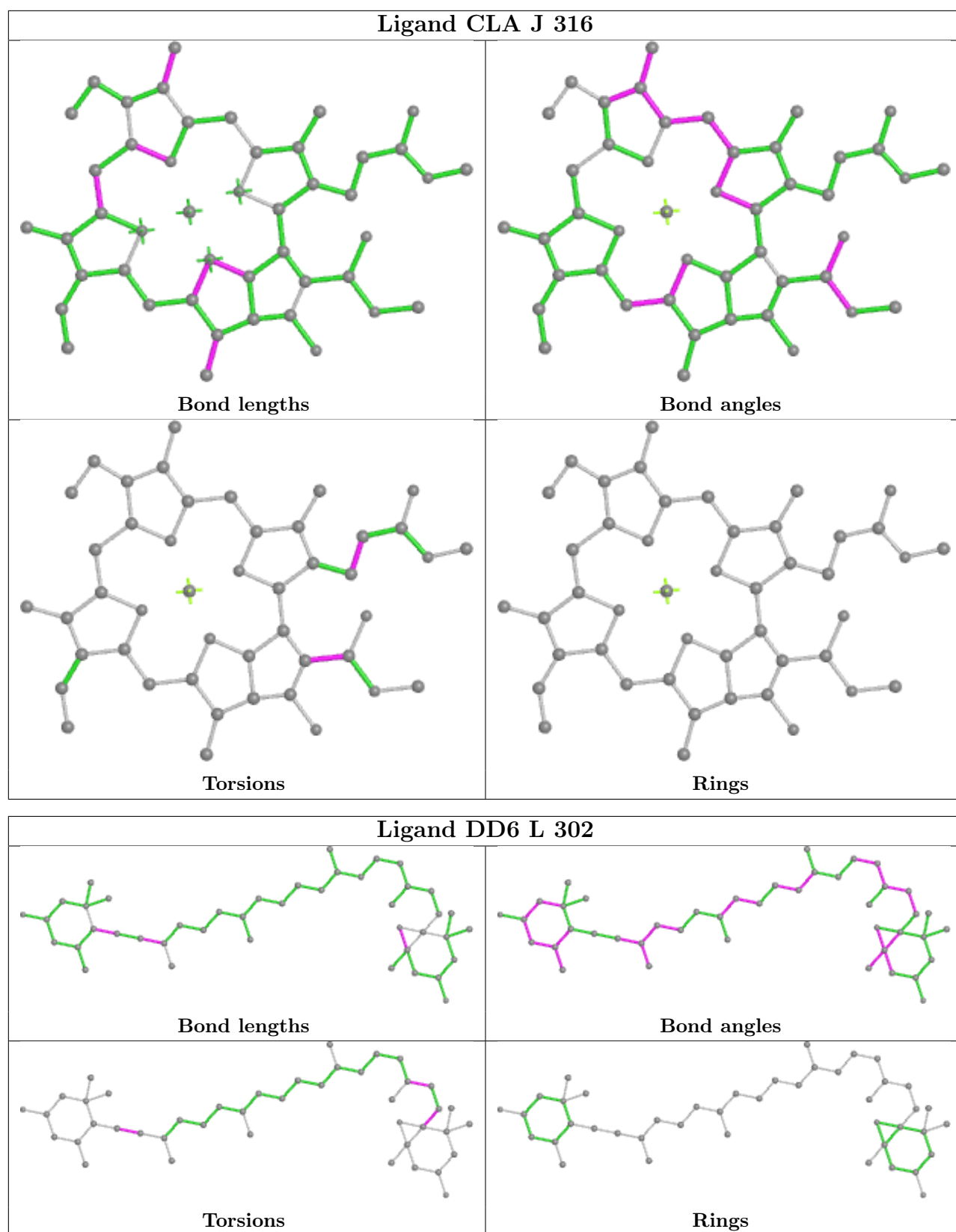


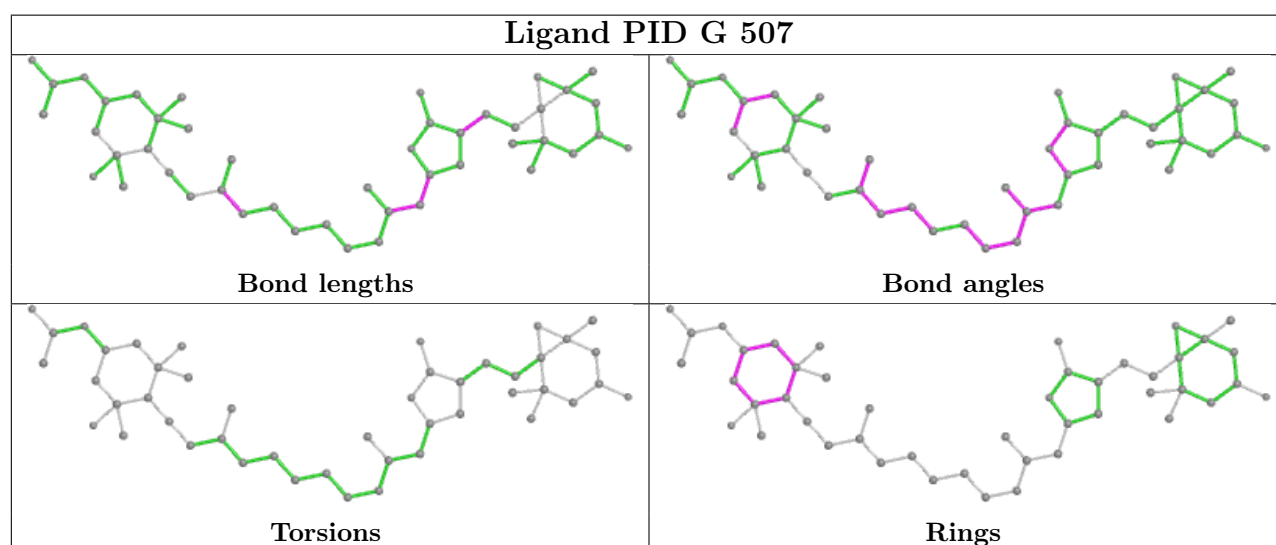
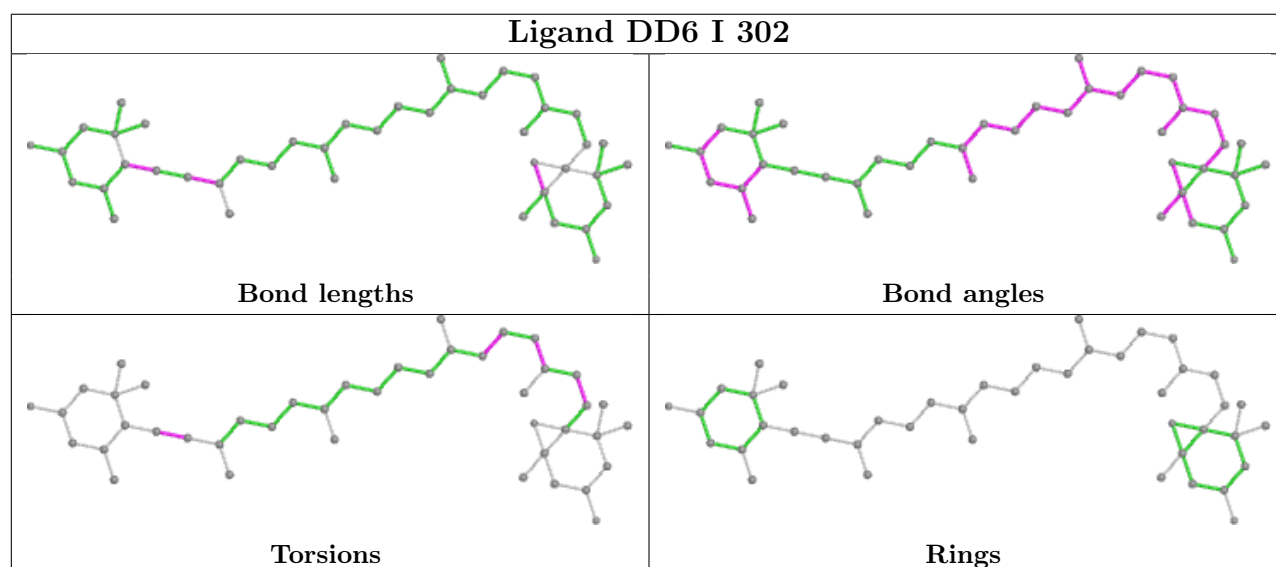
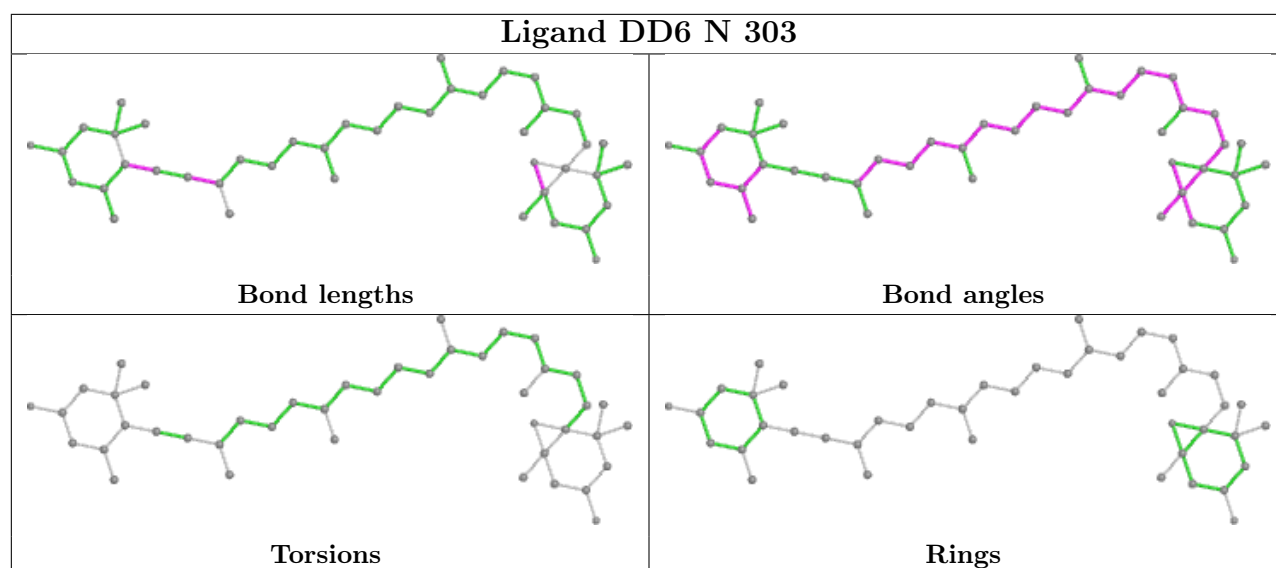


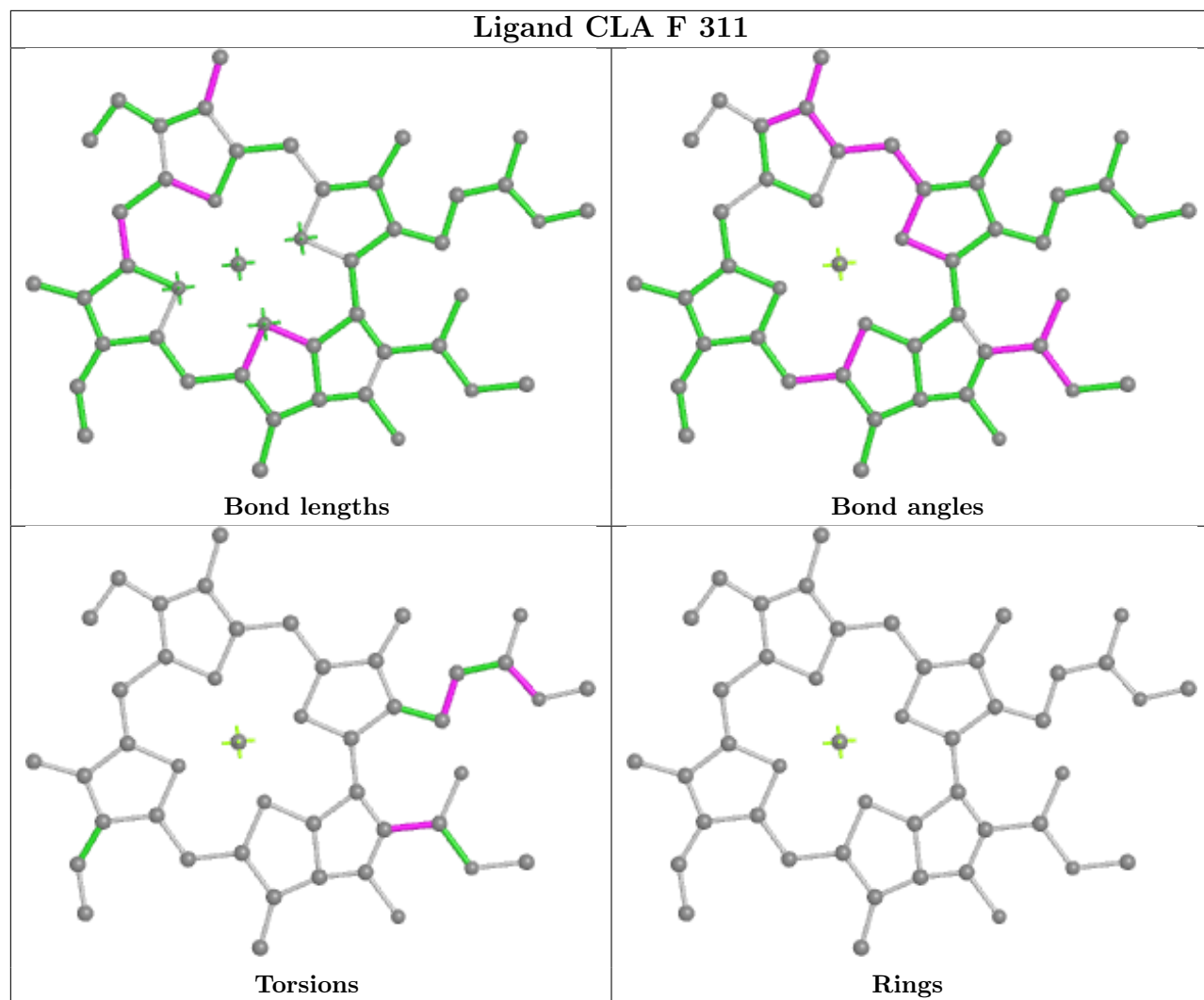


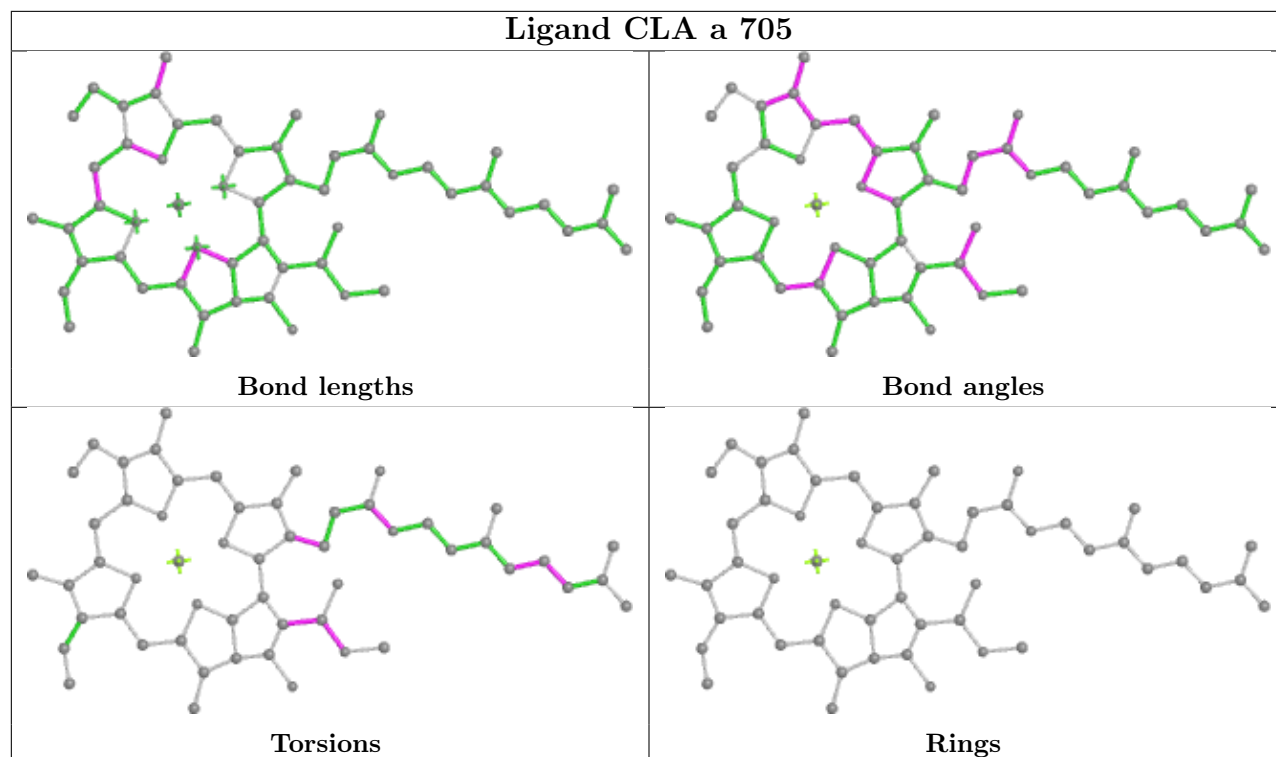


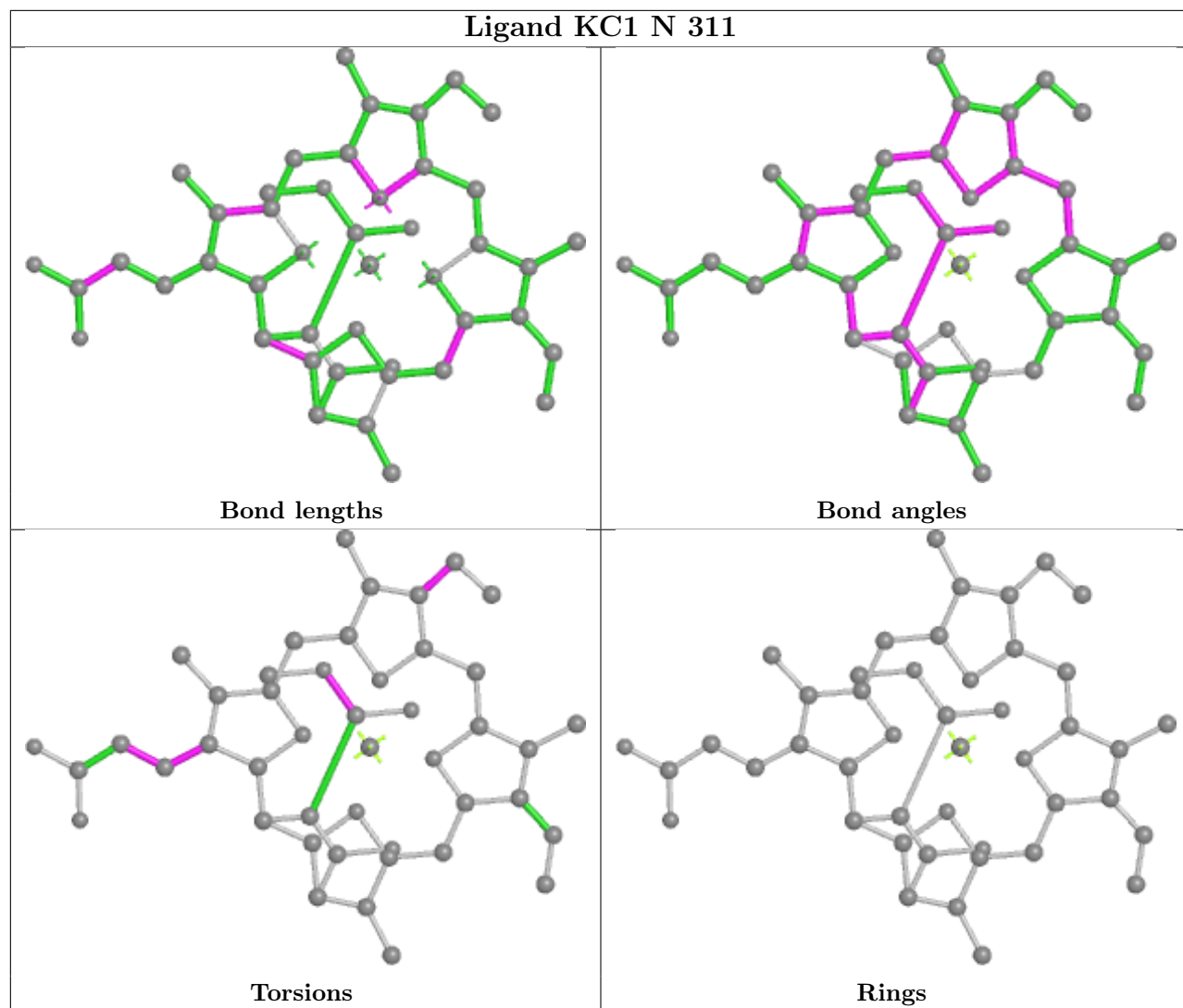


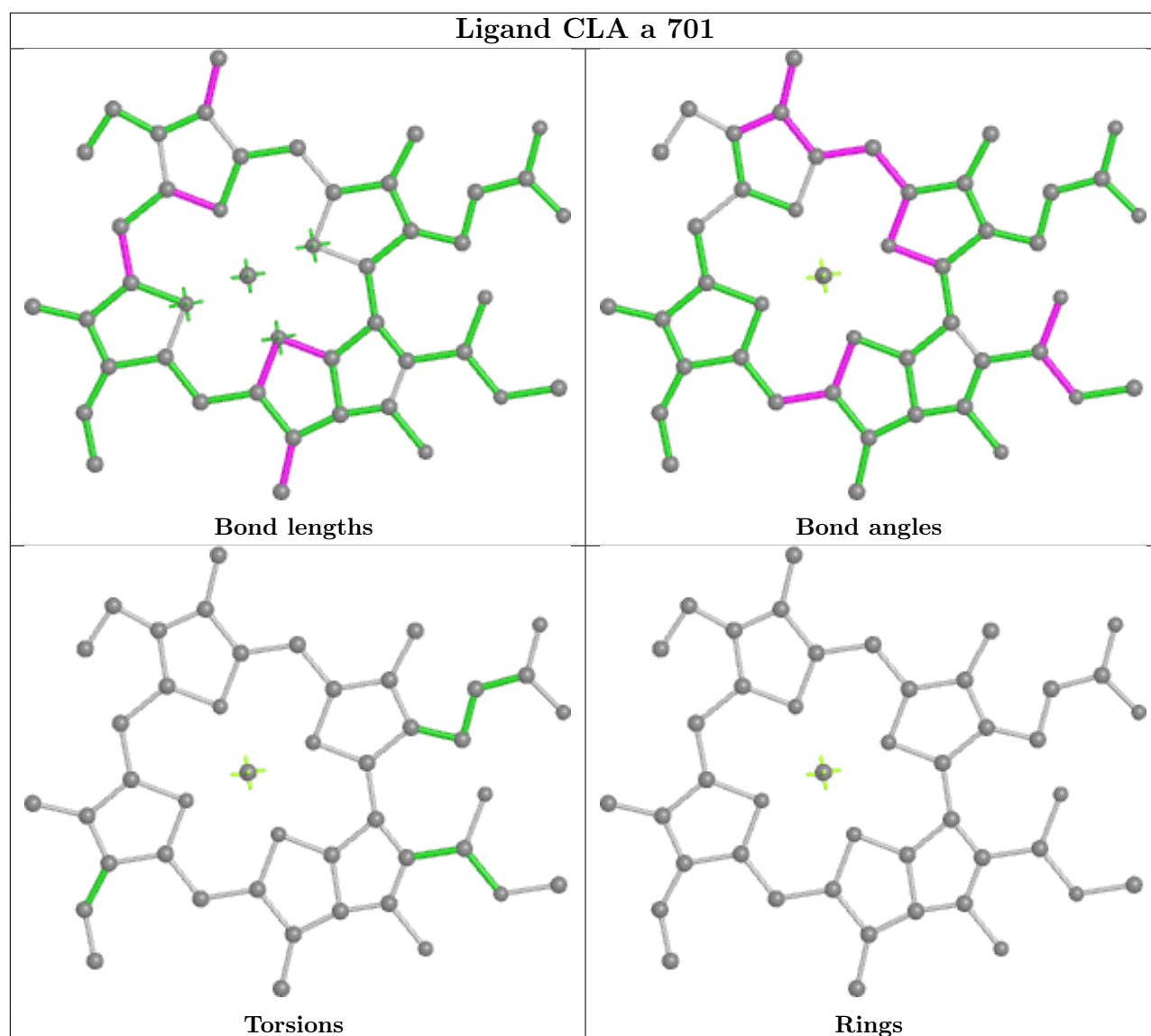


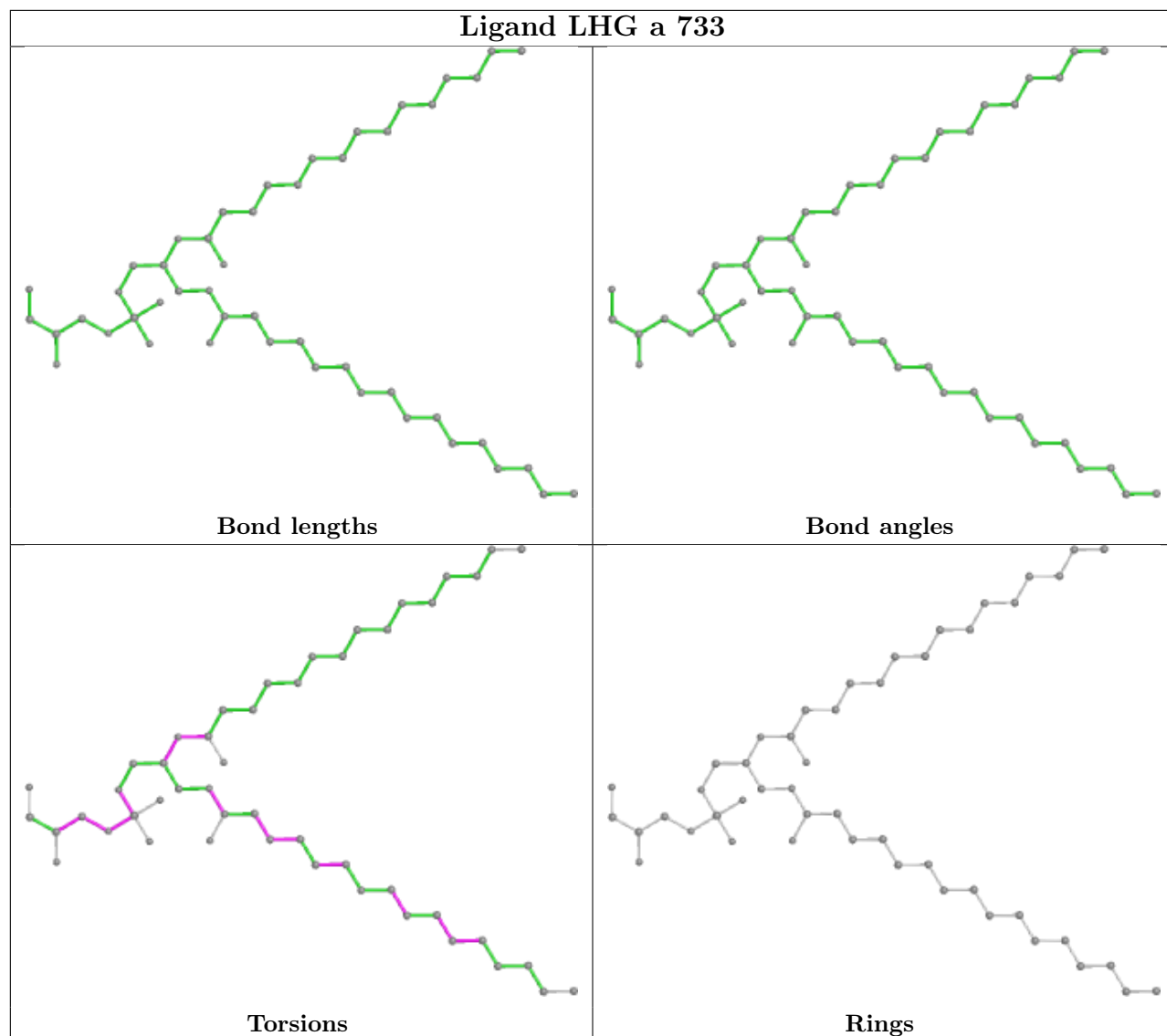


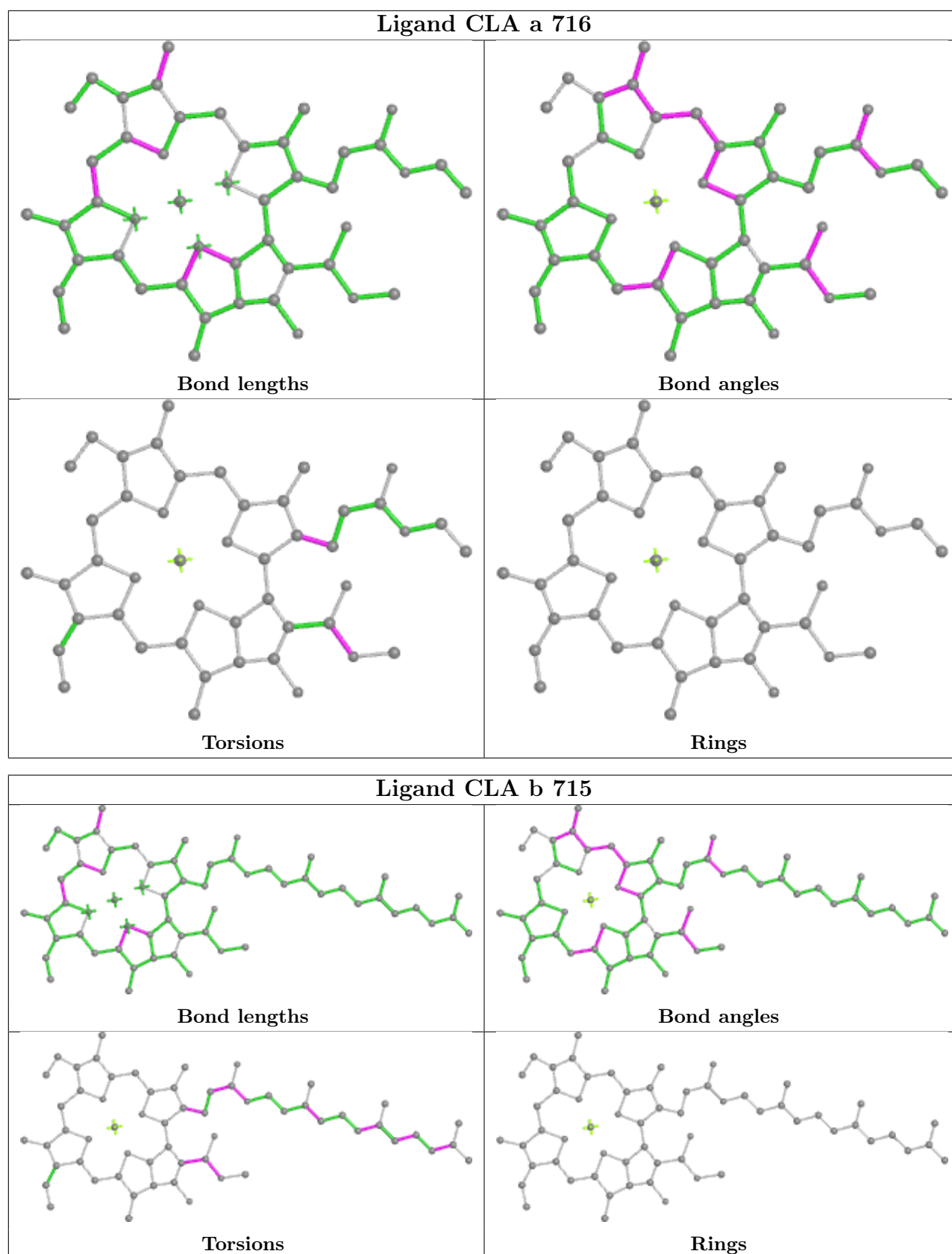




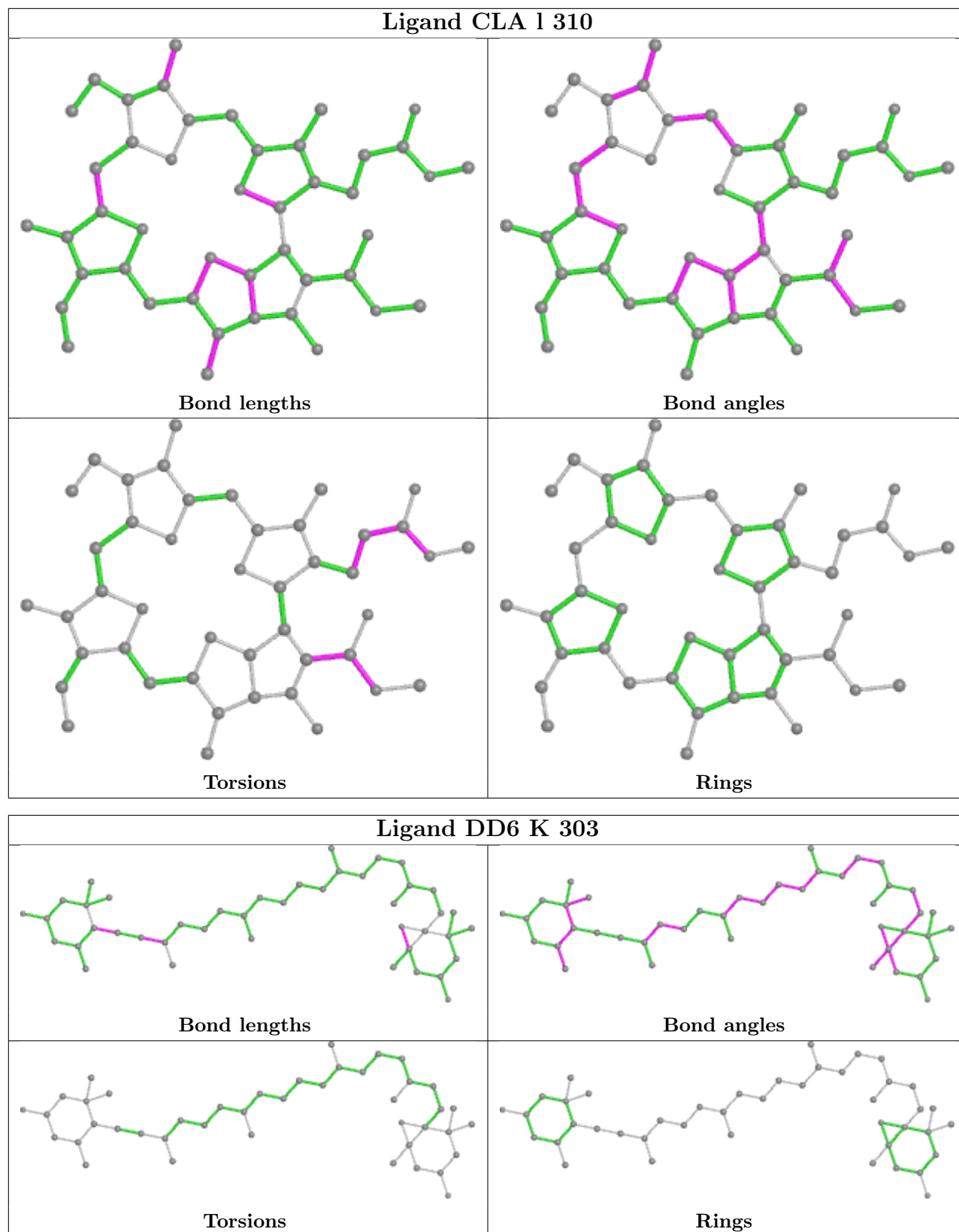


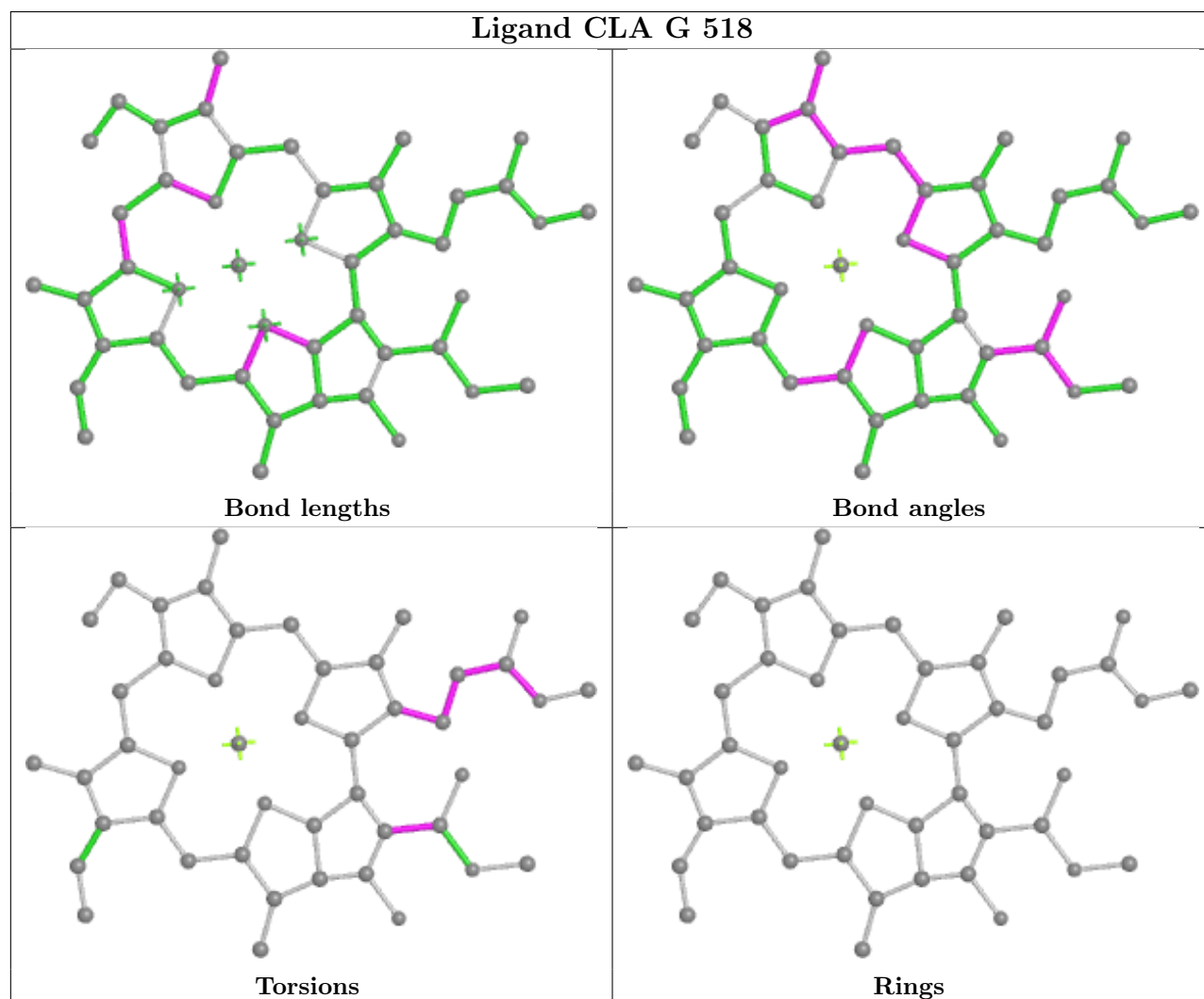
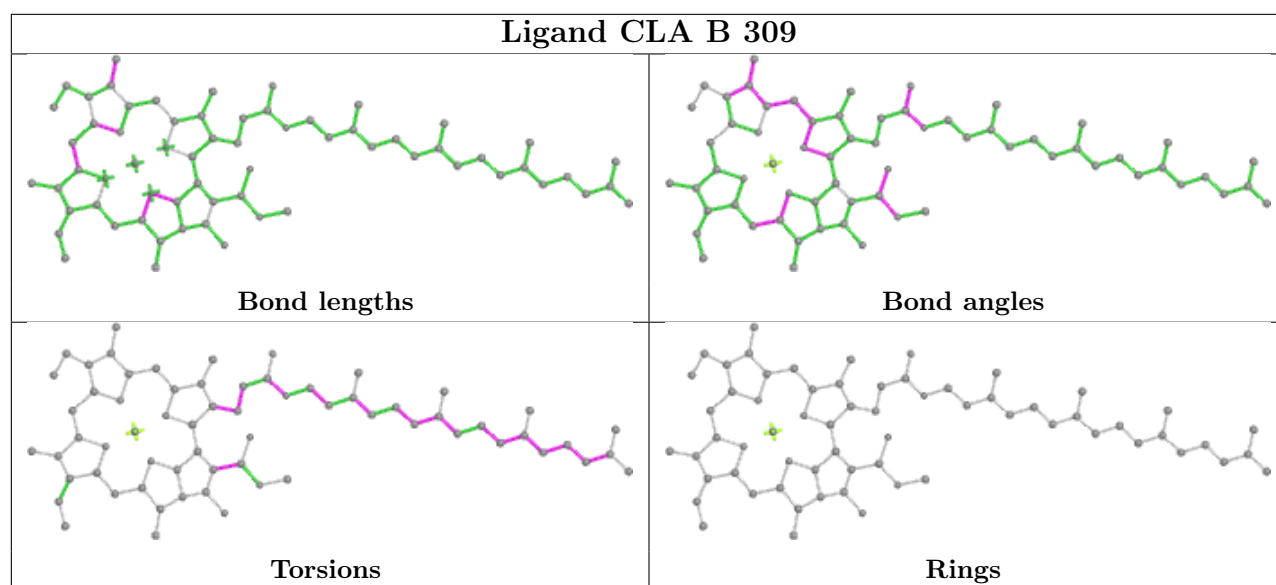


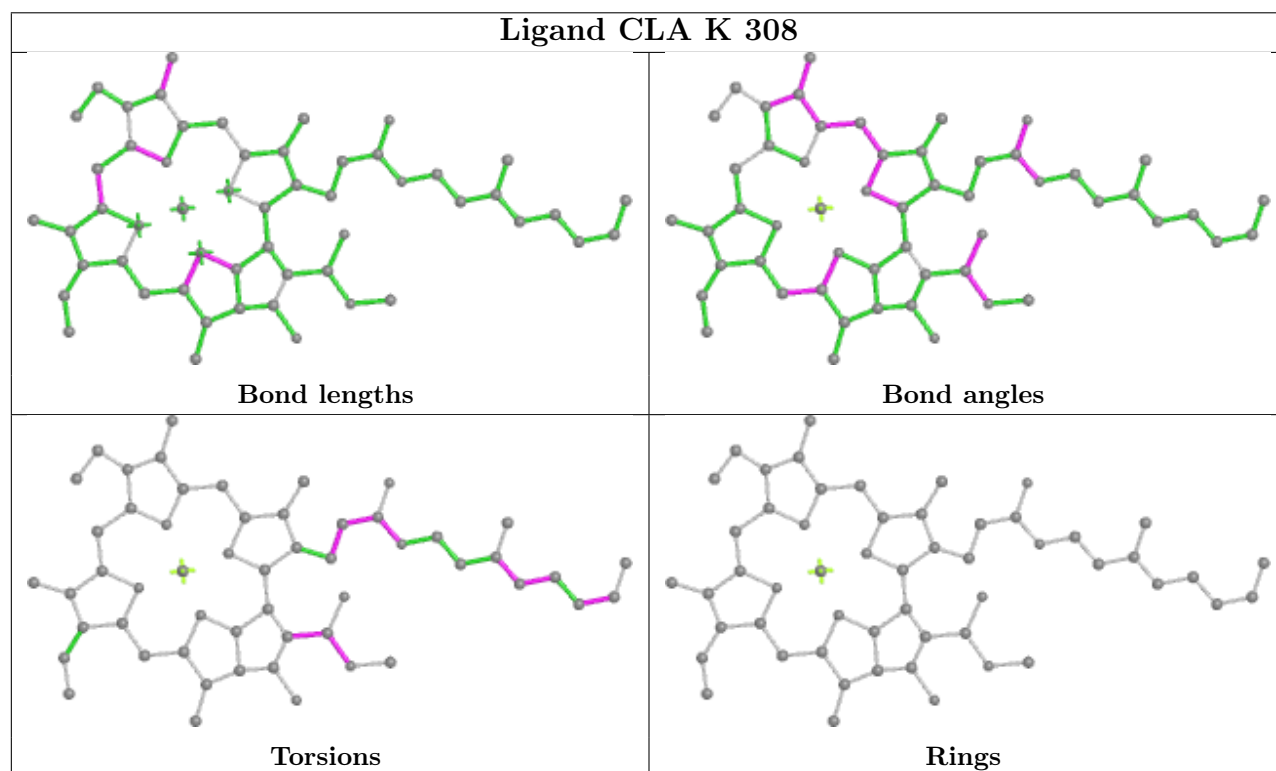
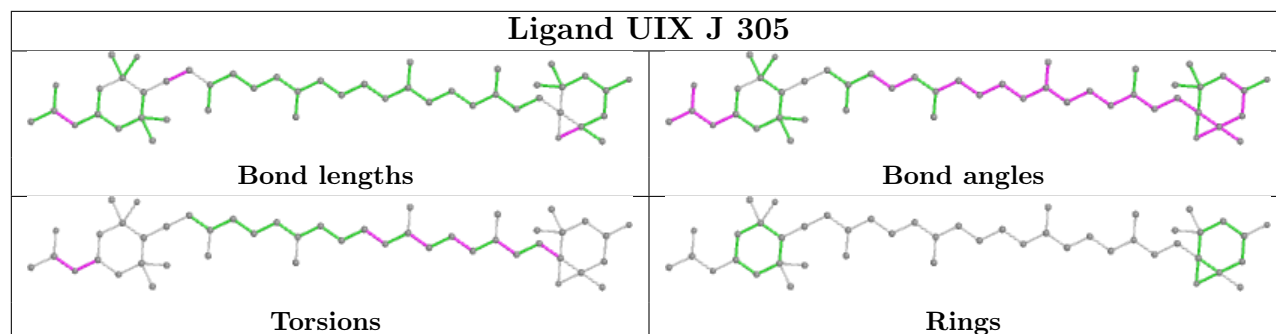


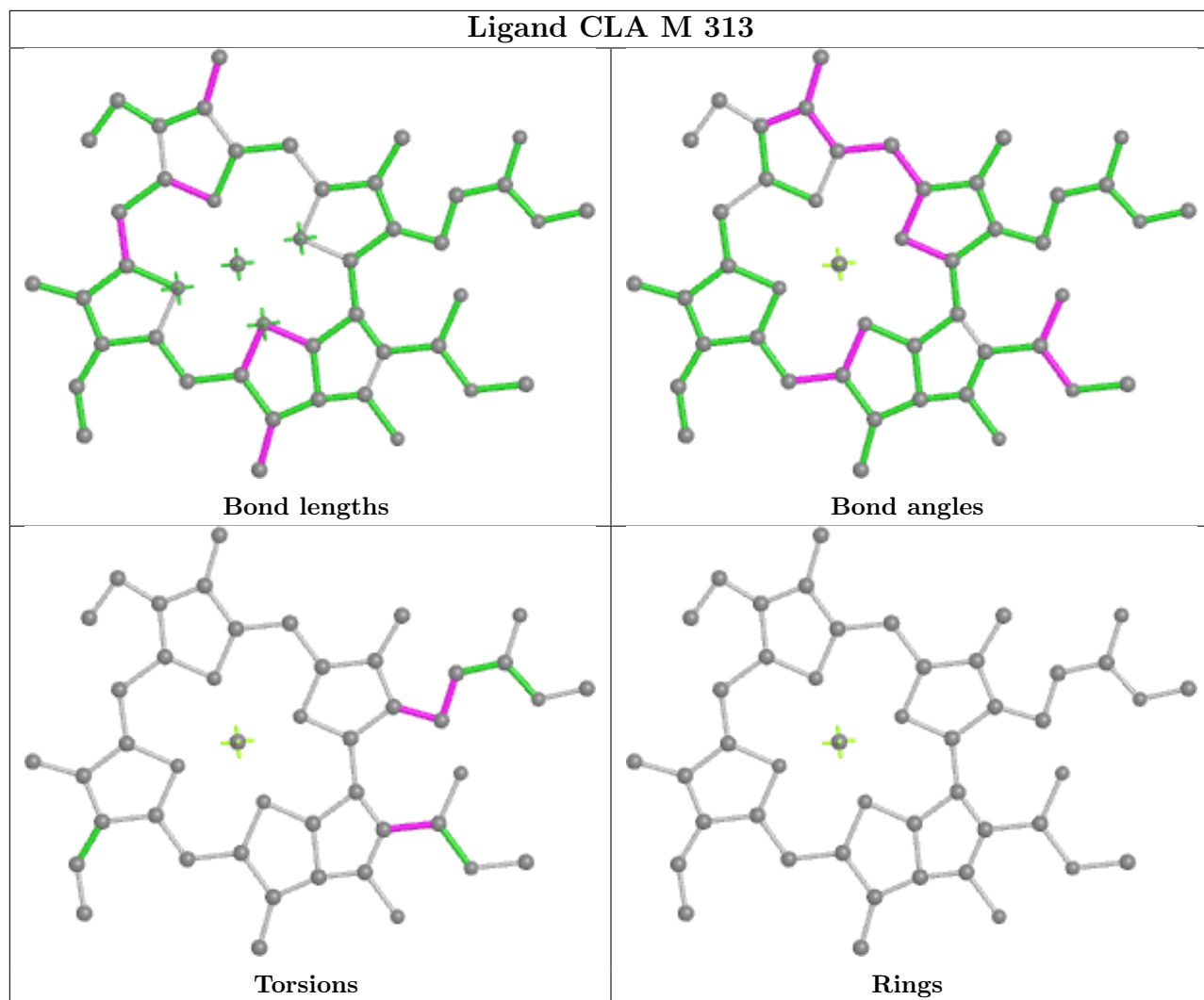


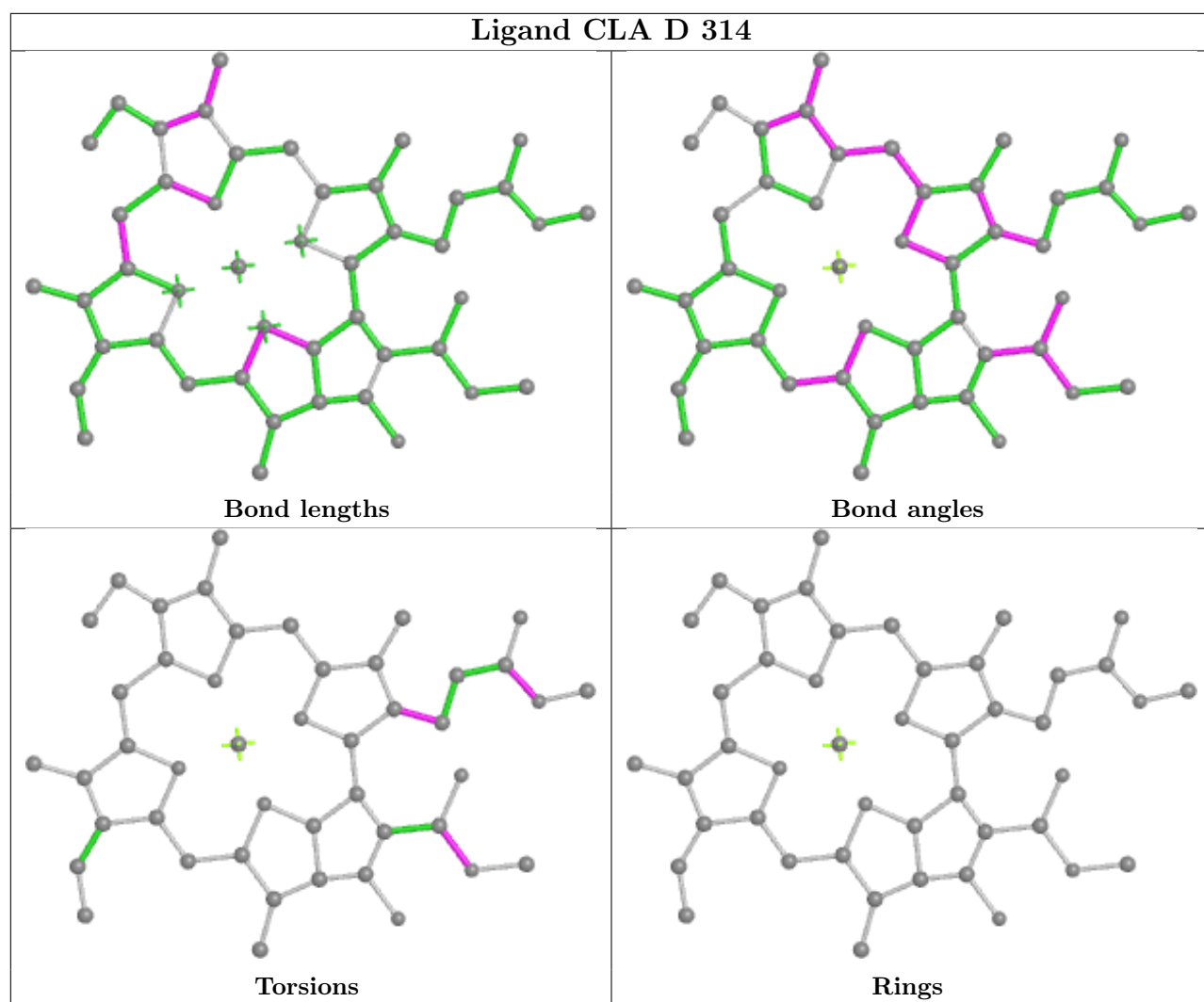


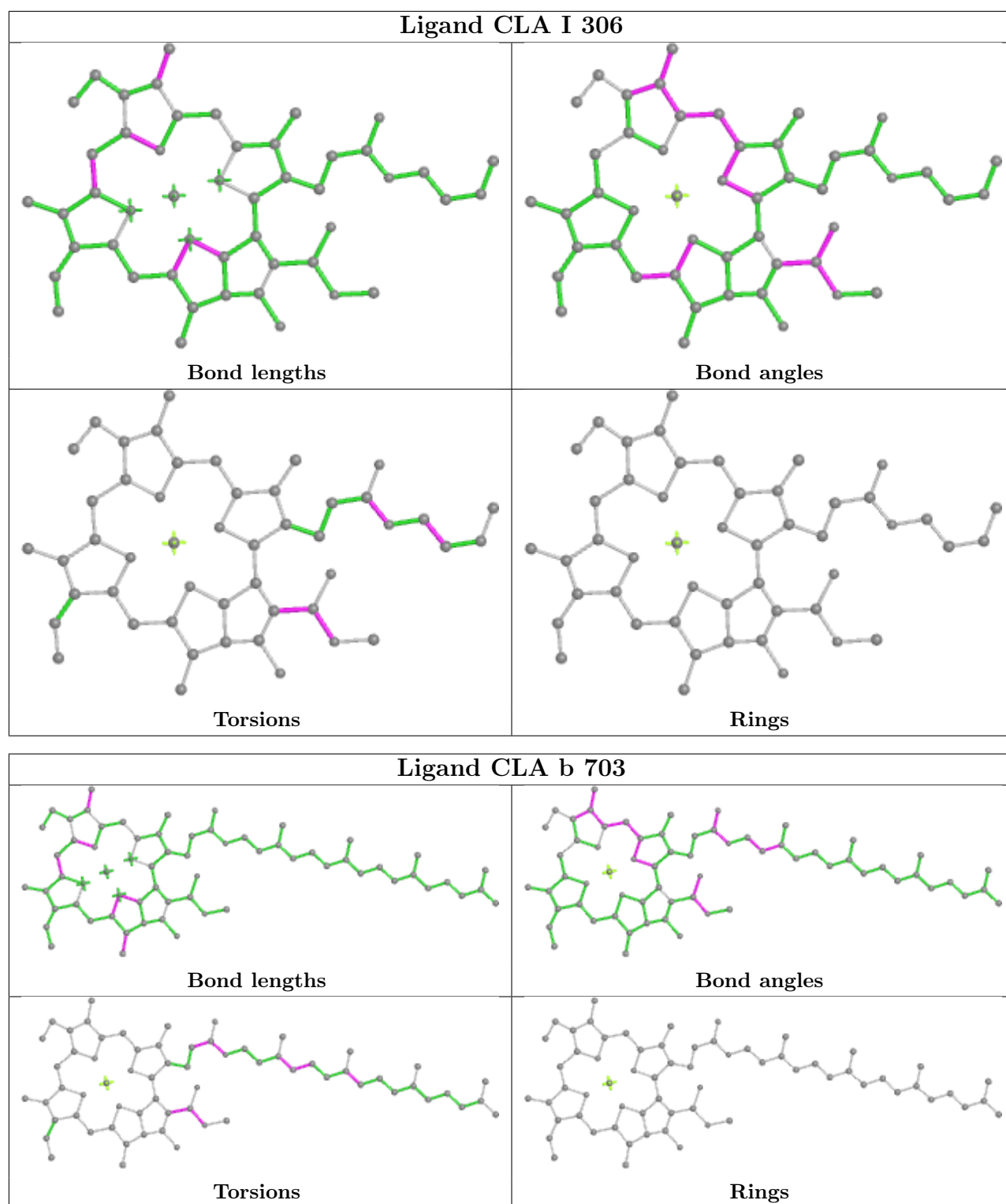


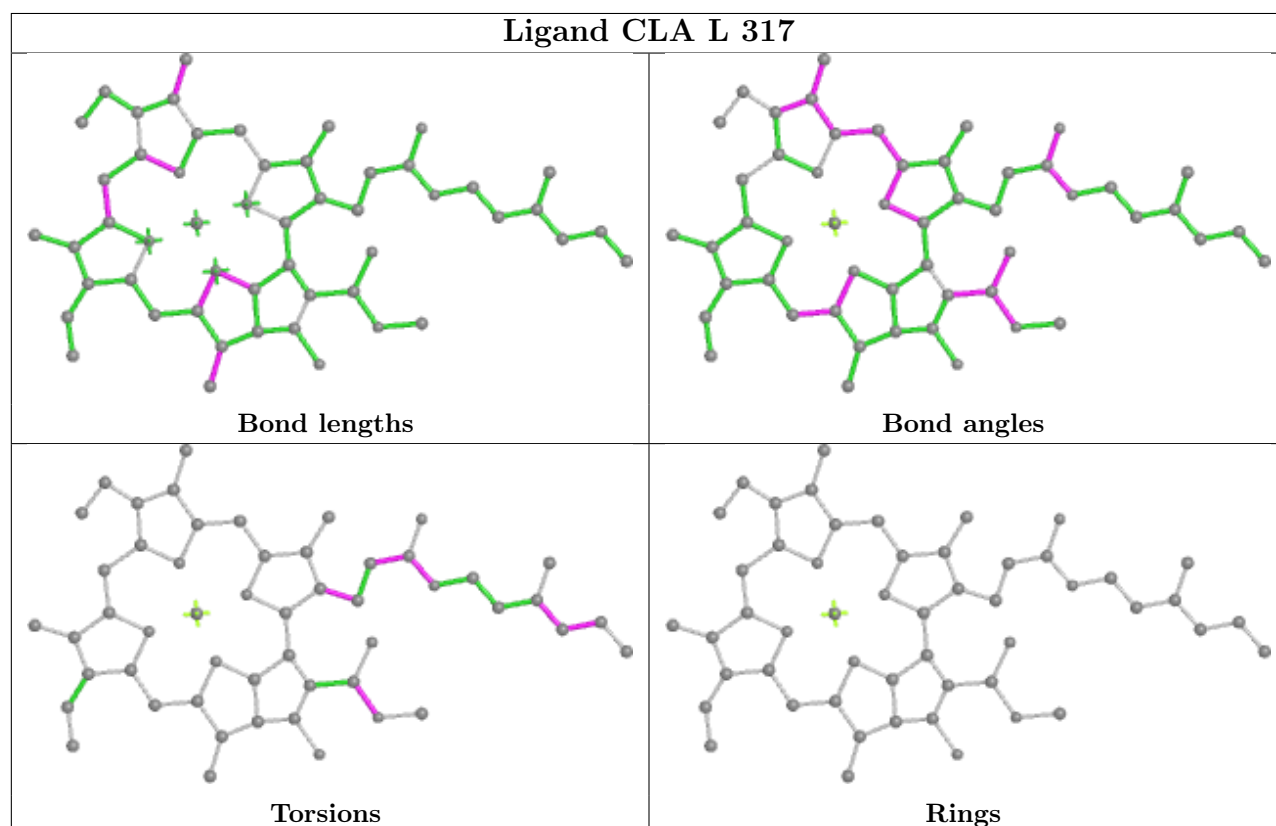
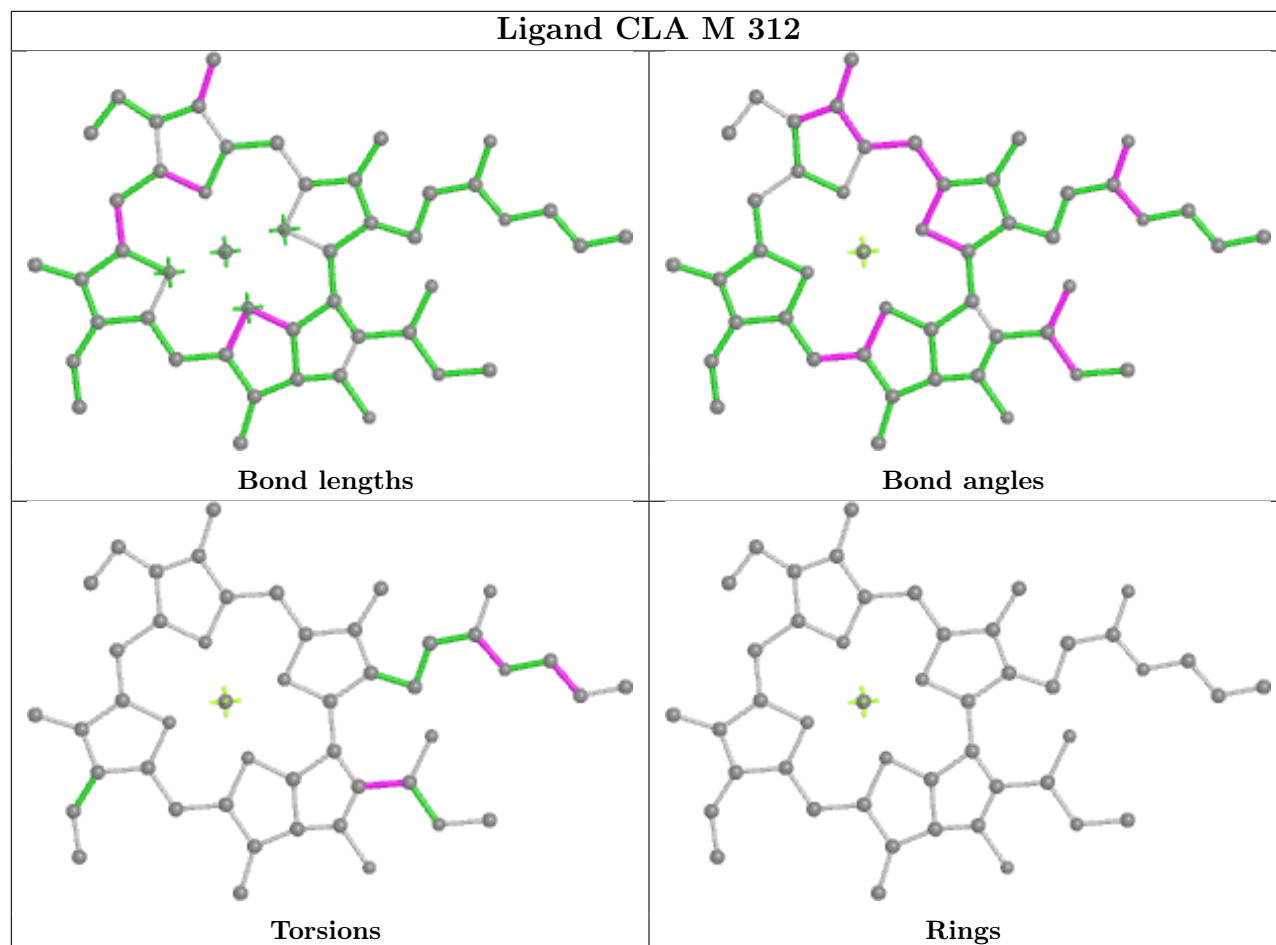


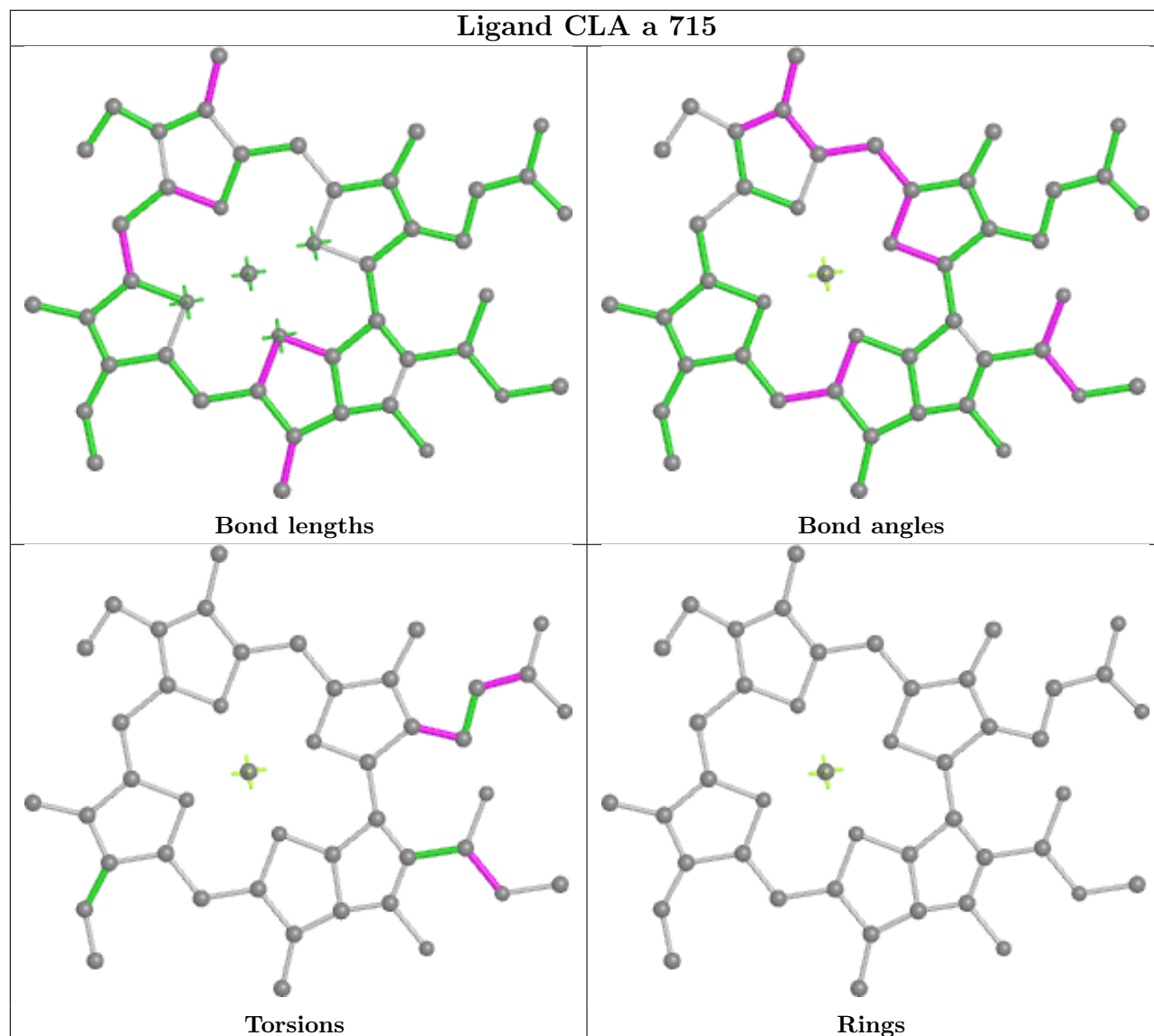




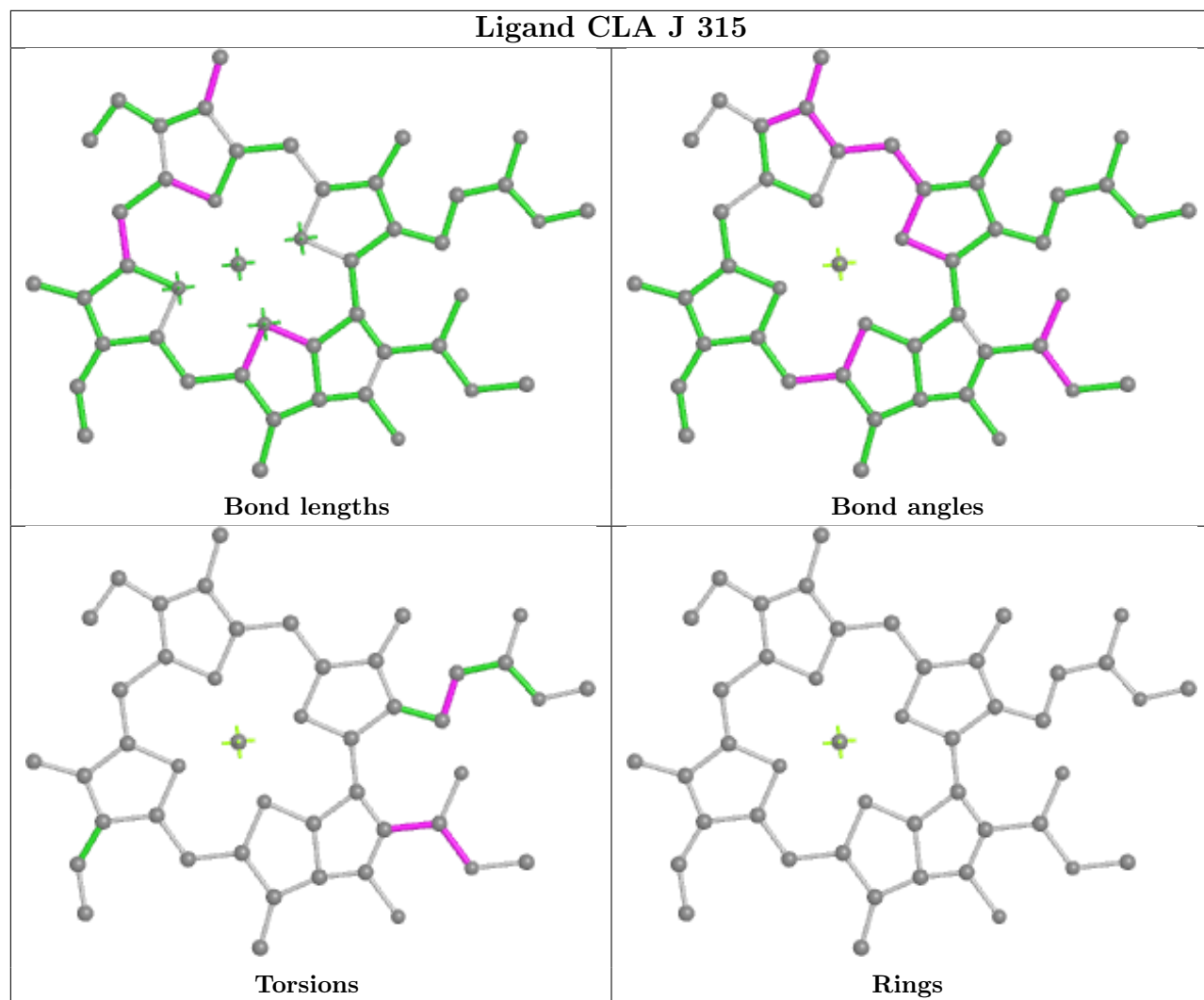


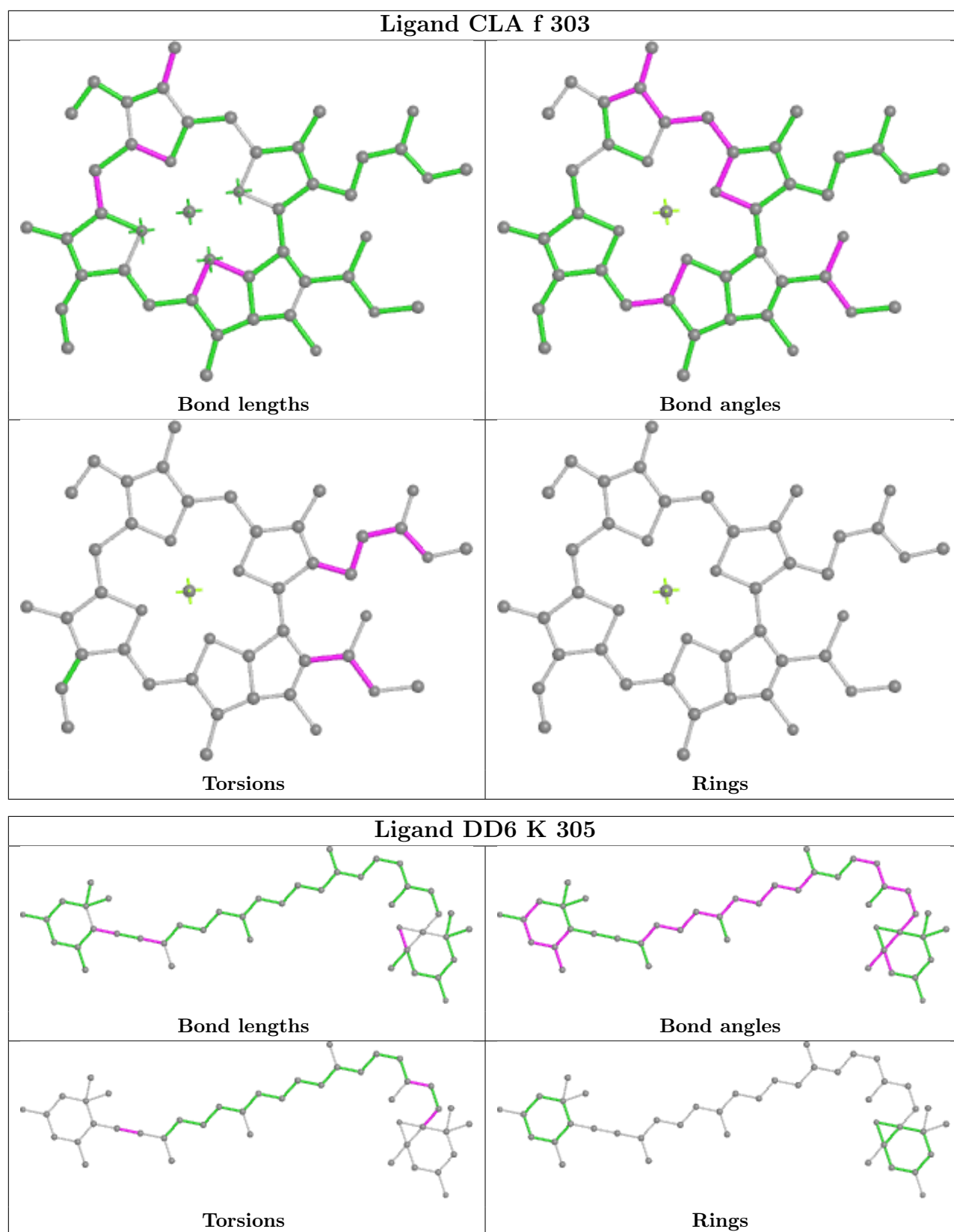


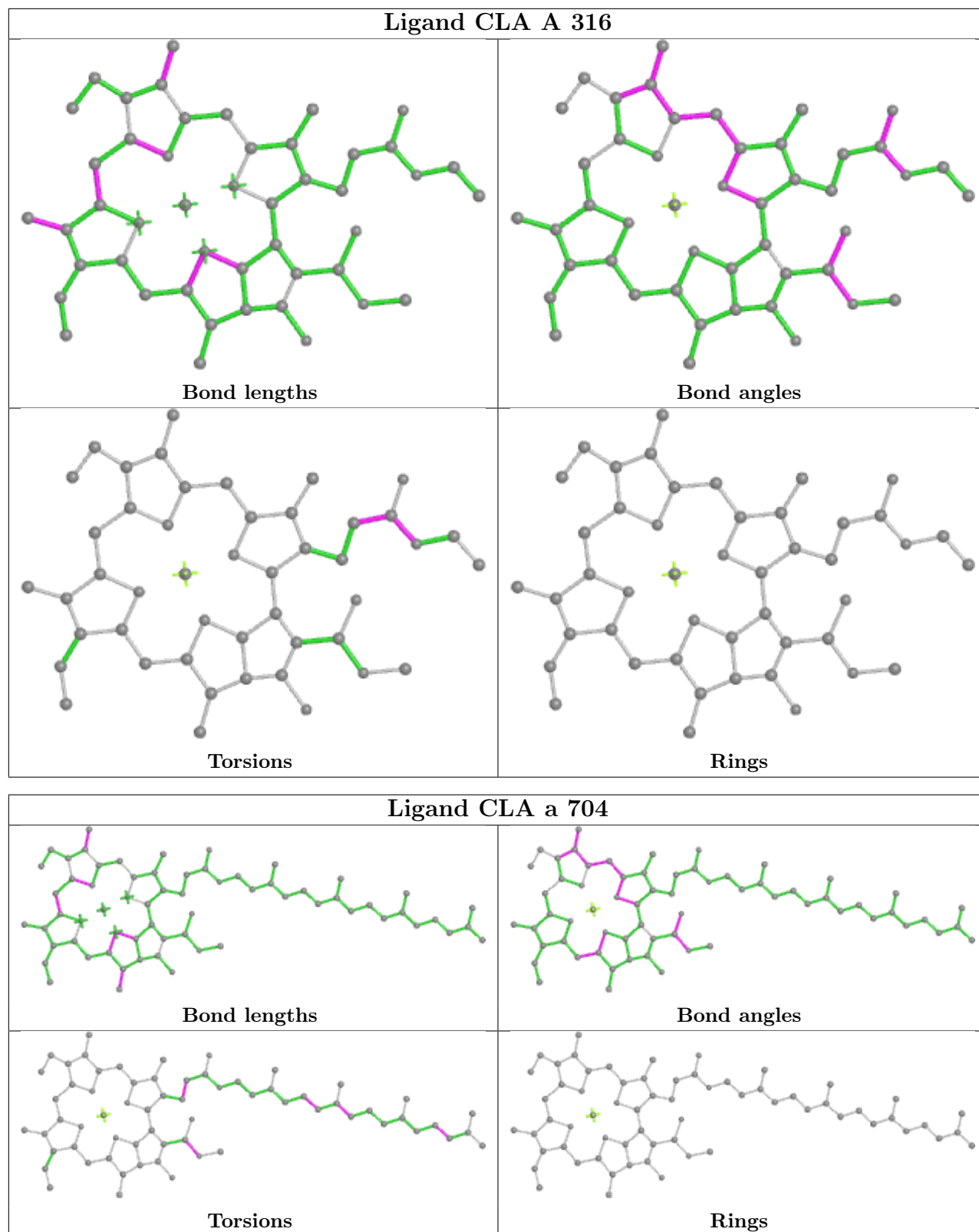


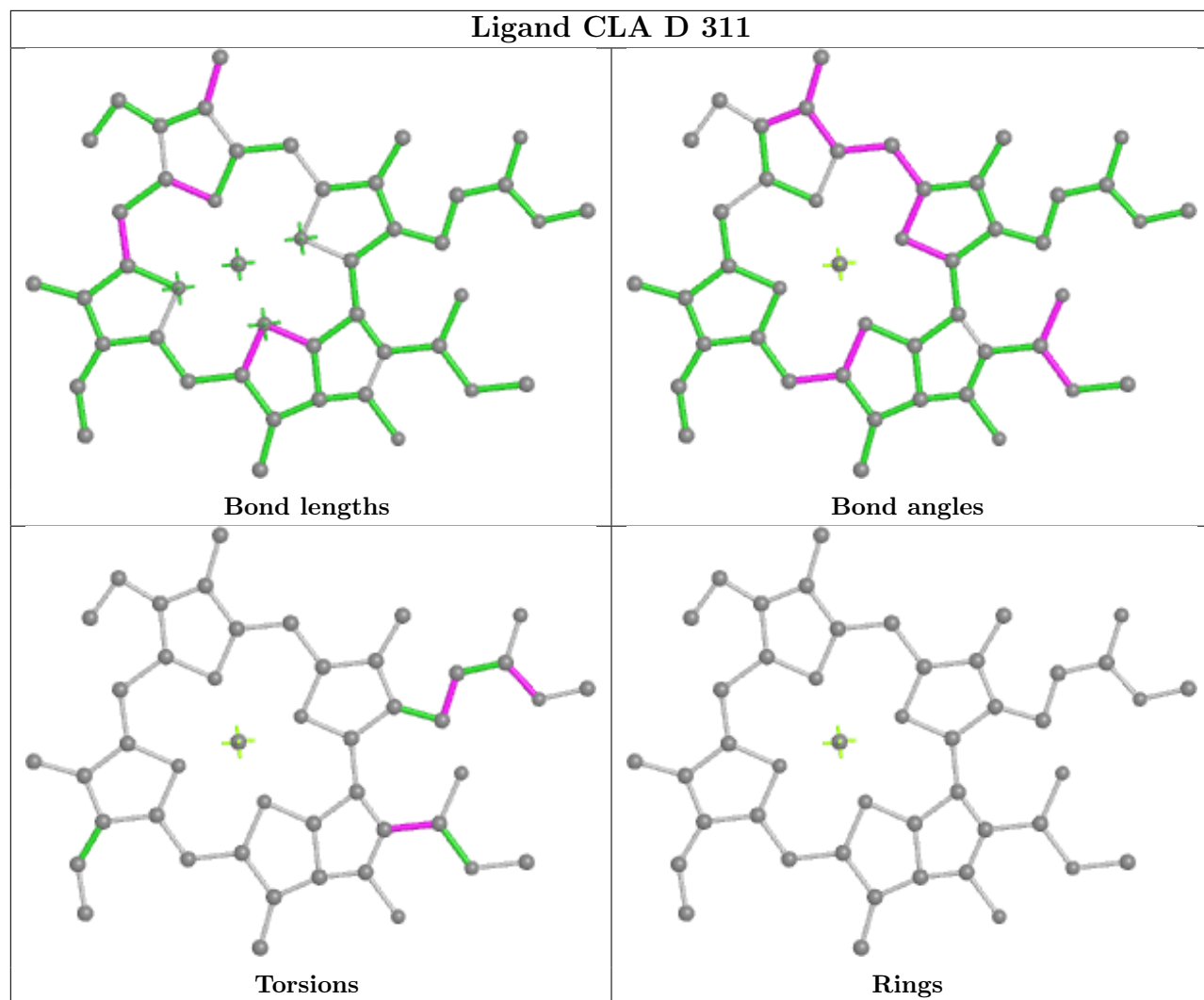


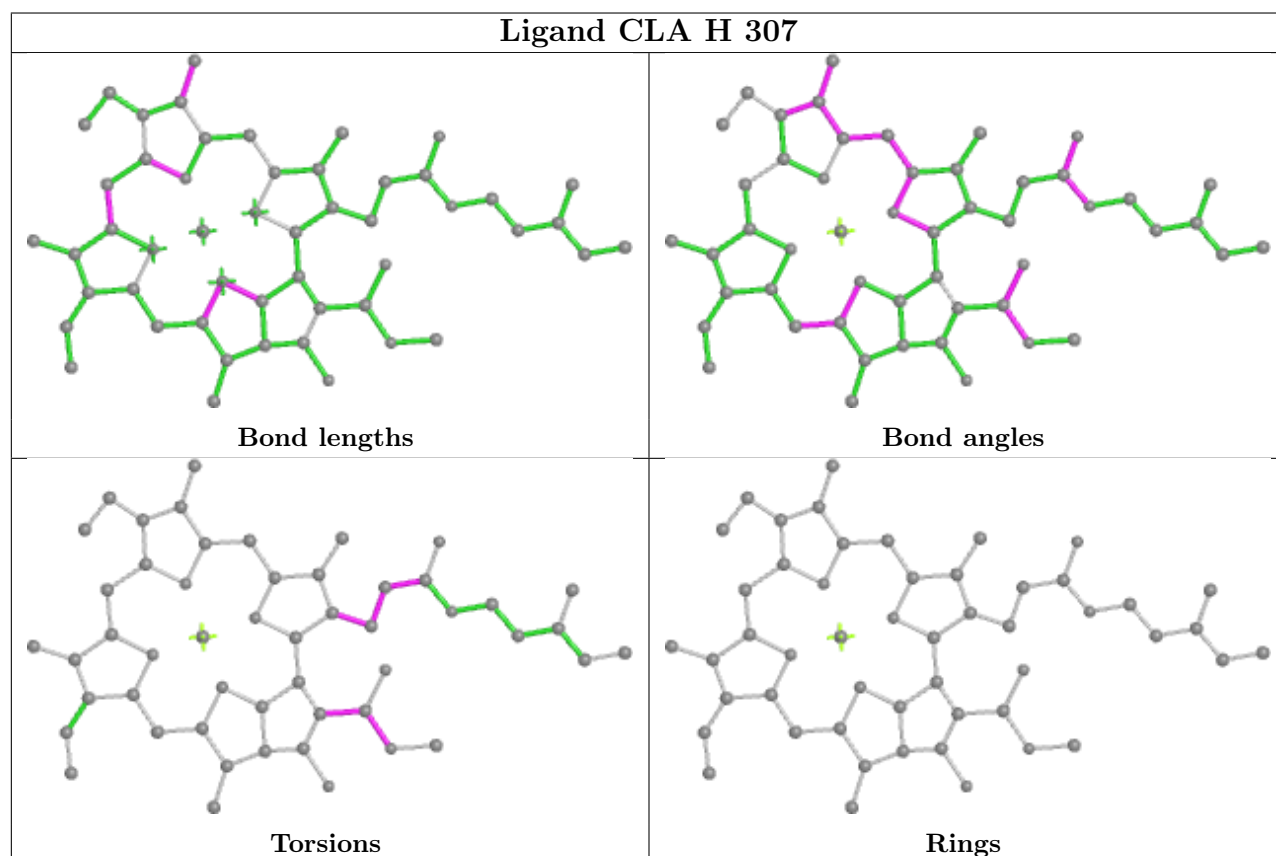
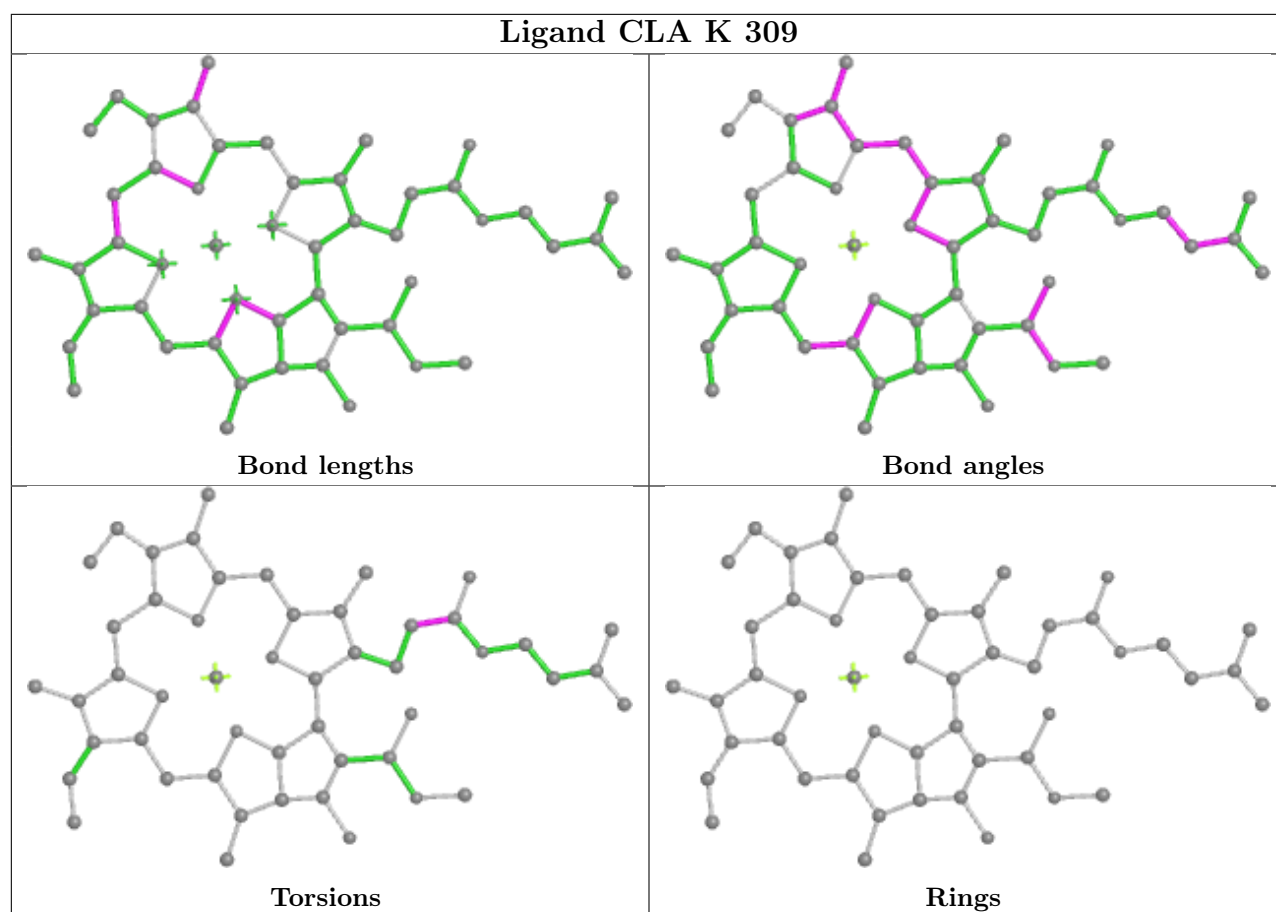


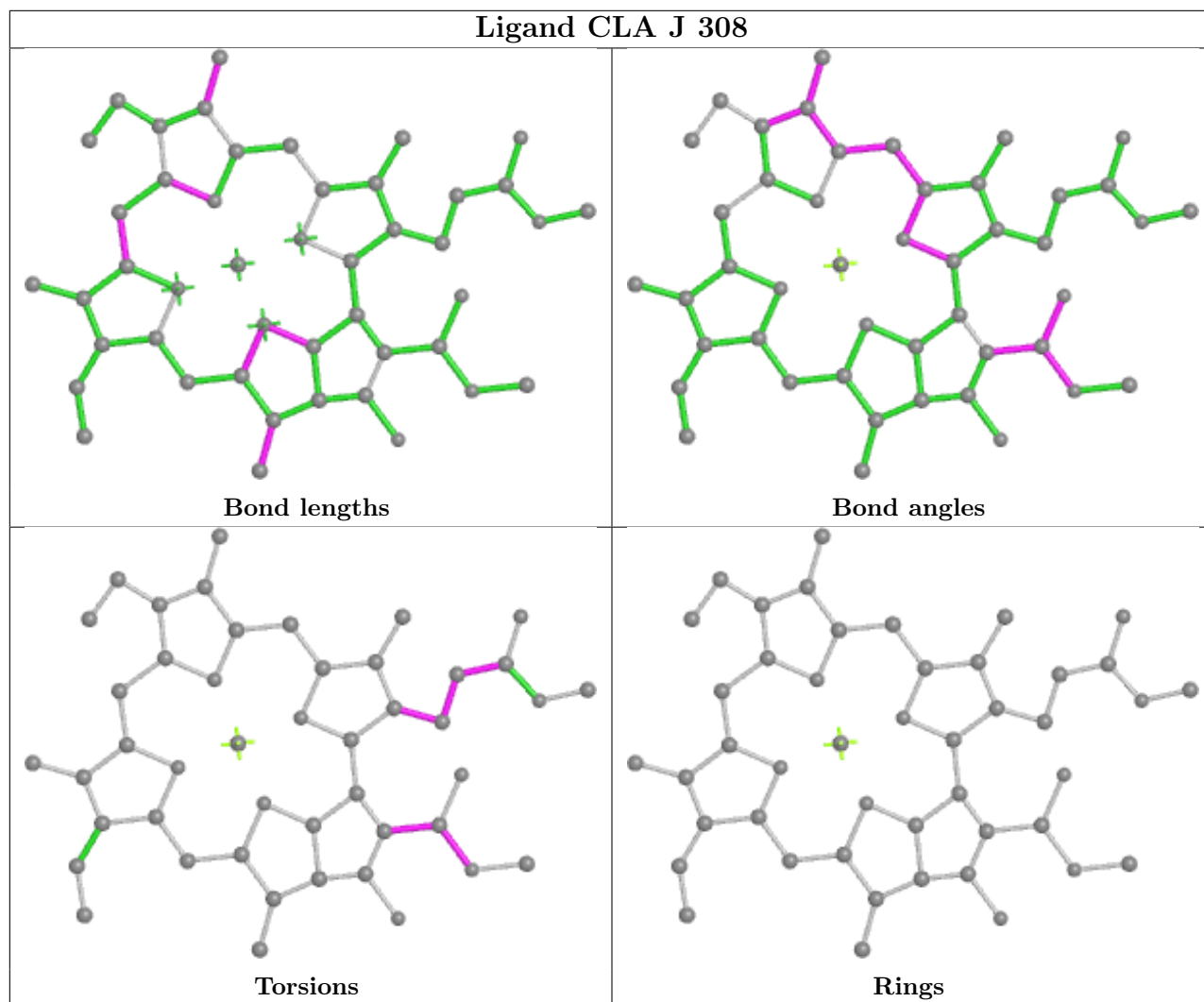
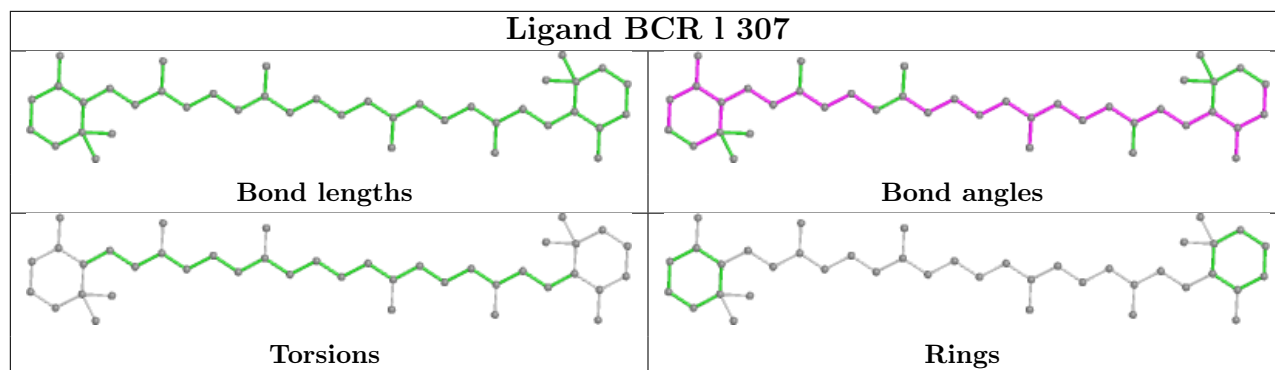


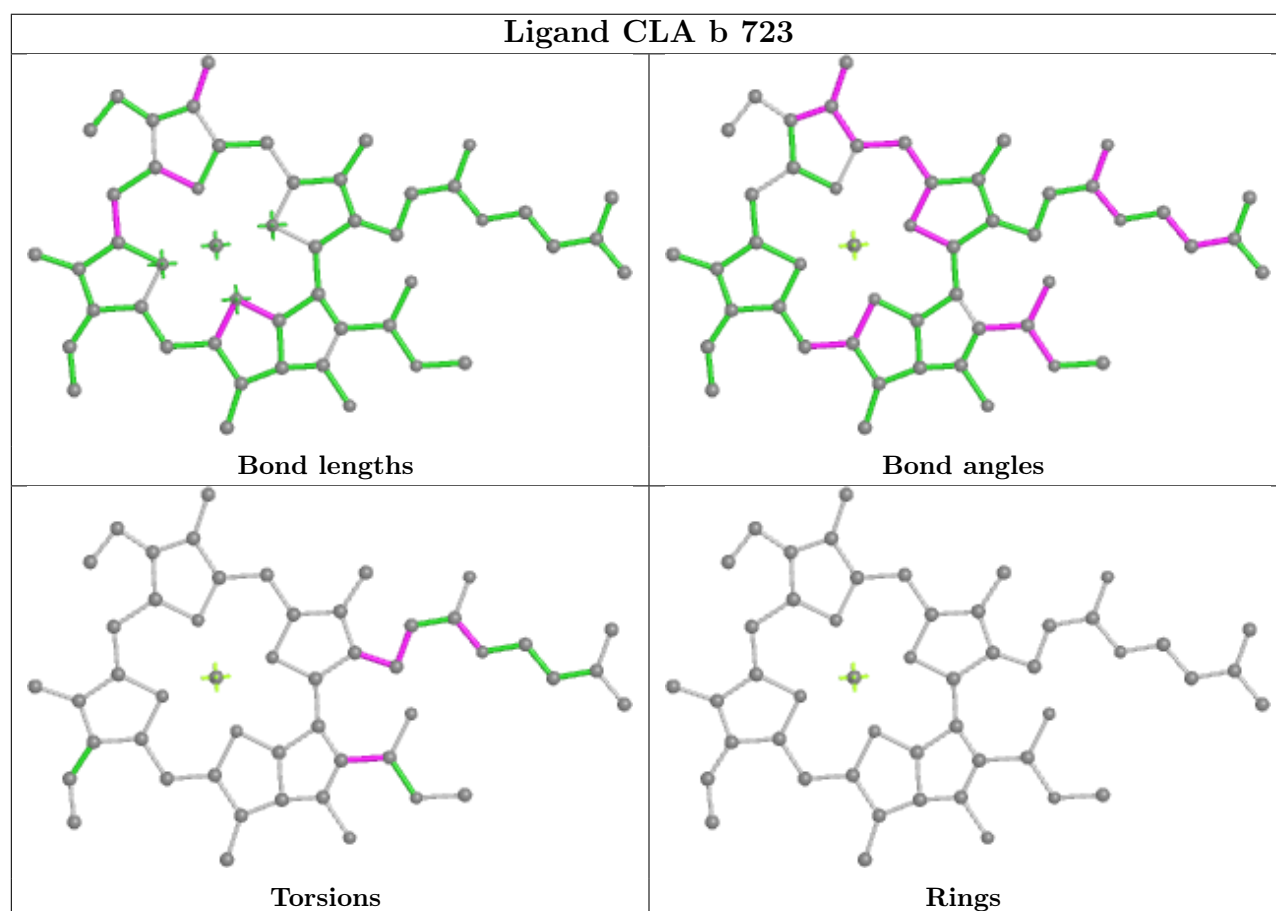
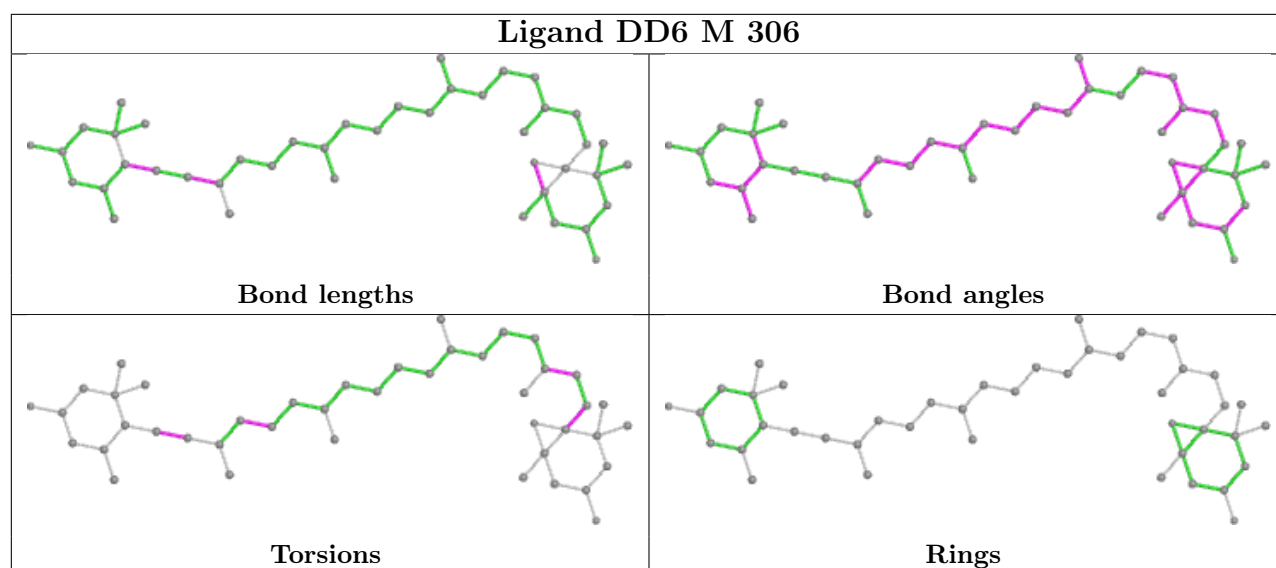


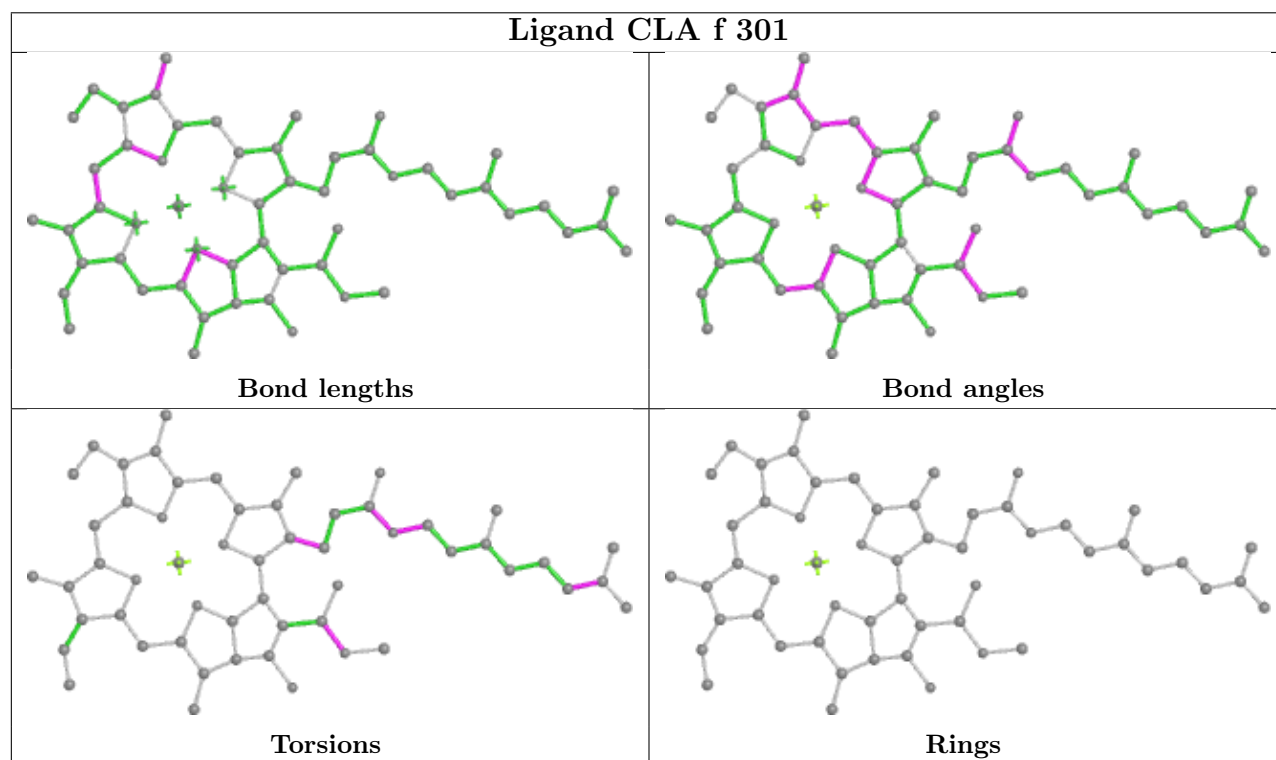
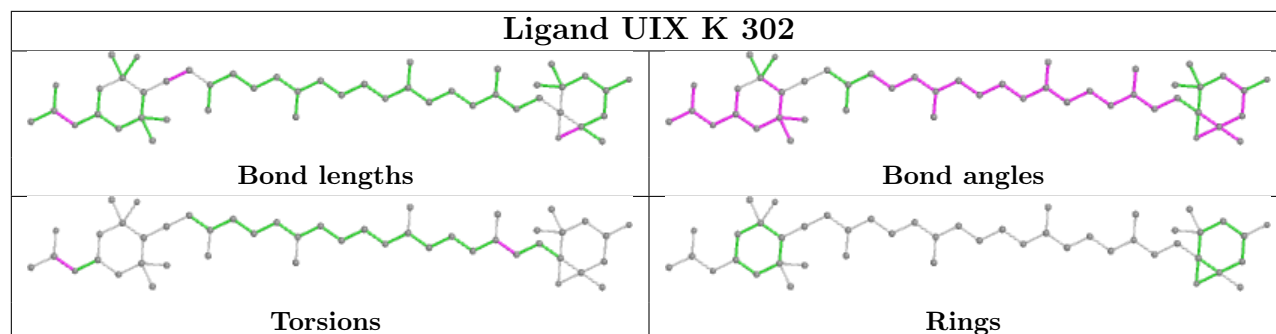




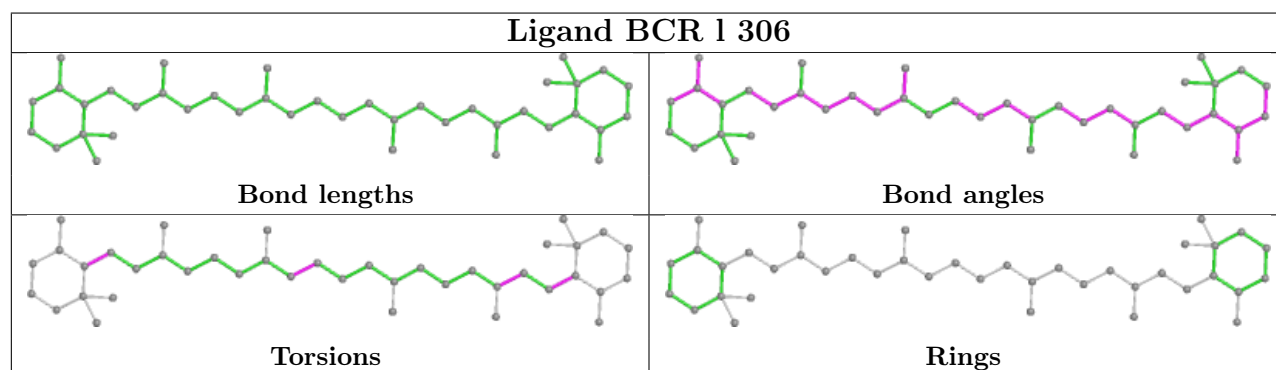
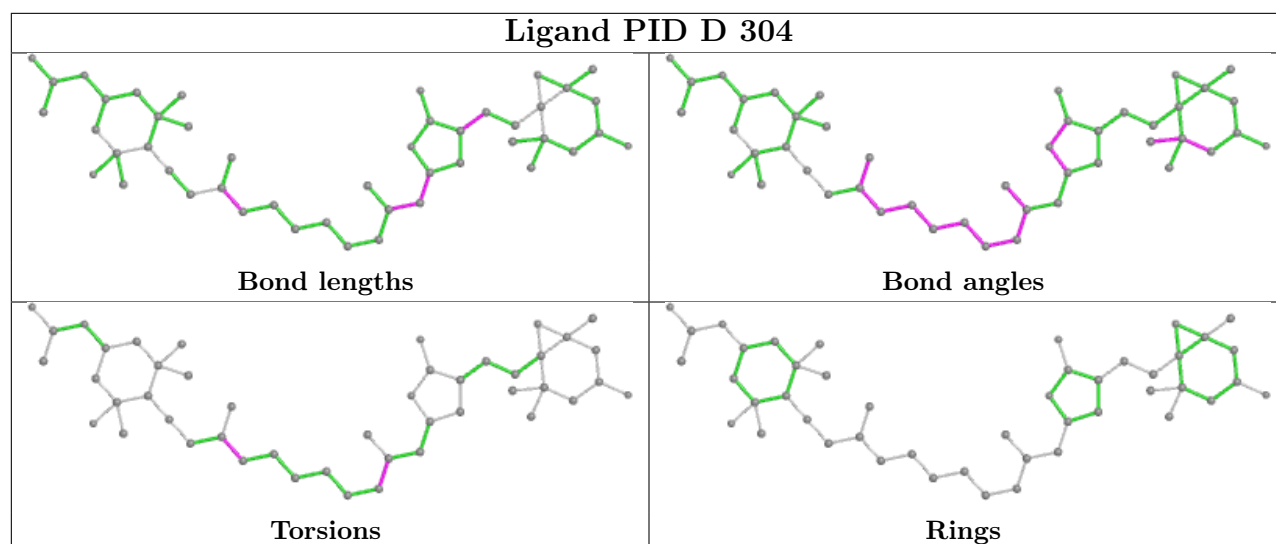
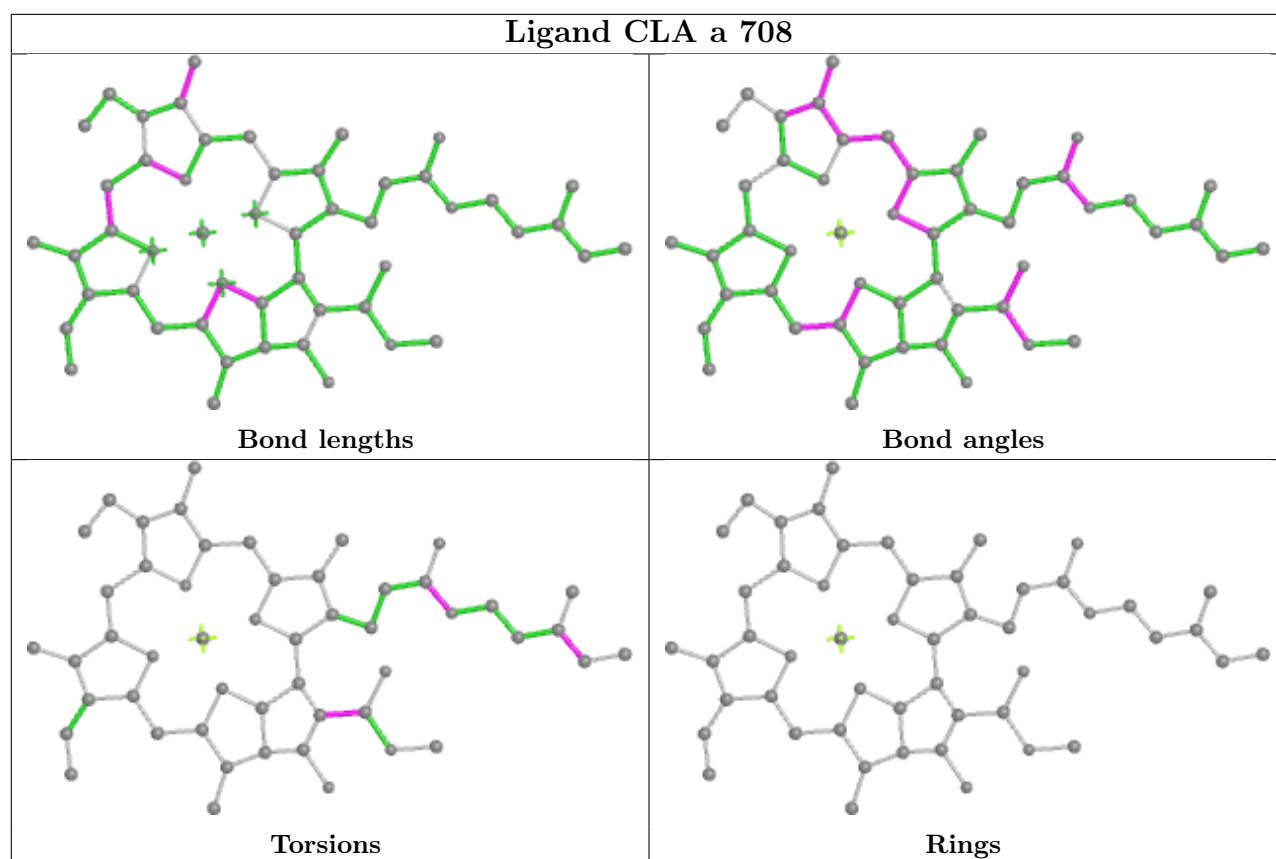


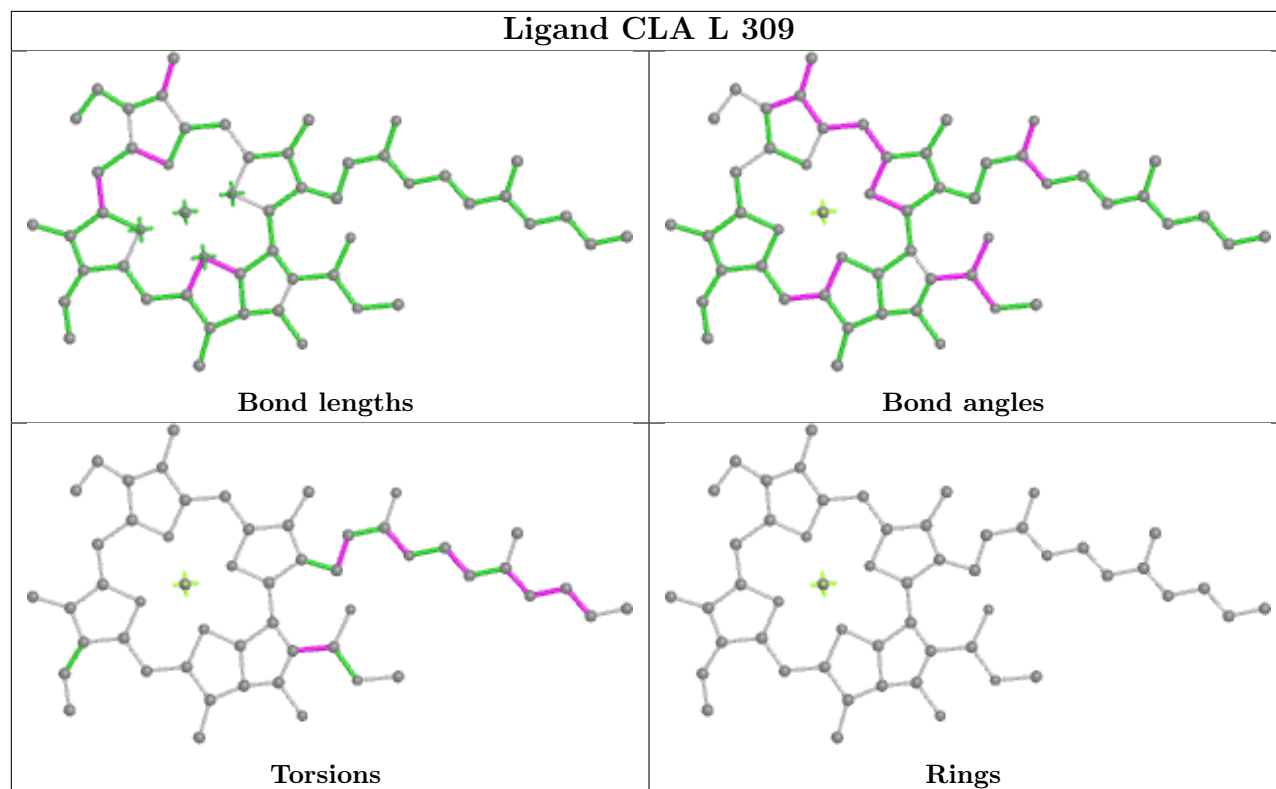


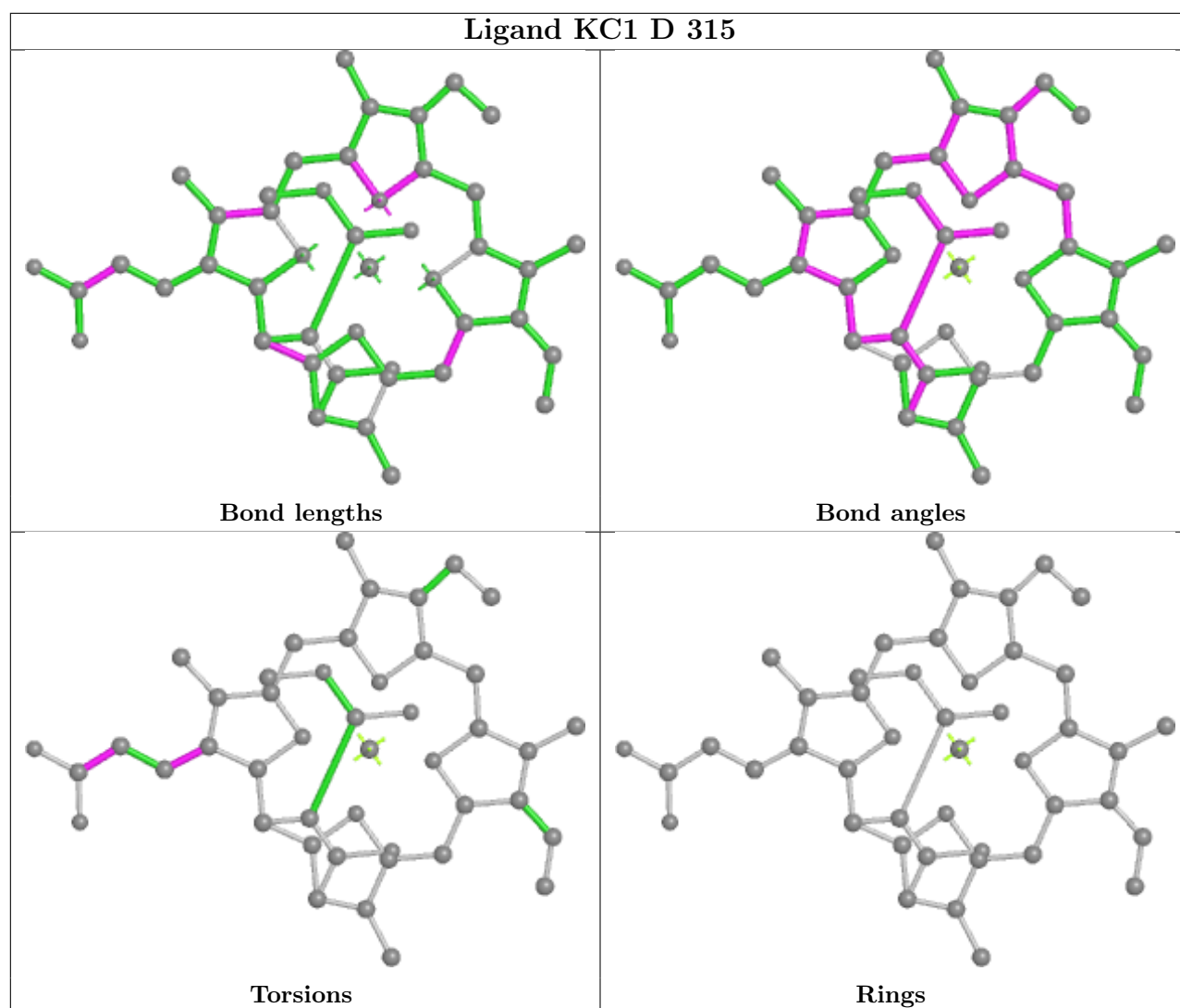












## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.