



# wwPDB EM Validation Summary Report ⓘ

Nov 9, 2022 – 04:51 AM JST

PDB ID : 6IJJ  
EMDB ID : EMD-9678  
Title : Photosystem I of Chlamydomonas reinhardtii  
Authors : Pan, X.; Ma, J.; Su, X.; Liu, Z.; Zhang, X.; Li, M.  
Deposited on : 2018-10-10  
Resolution : 2.89 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>.

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

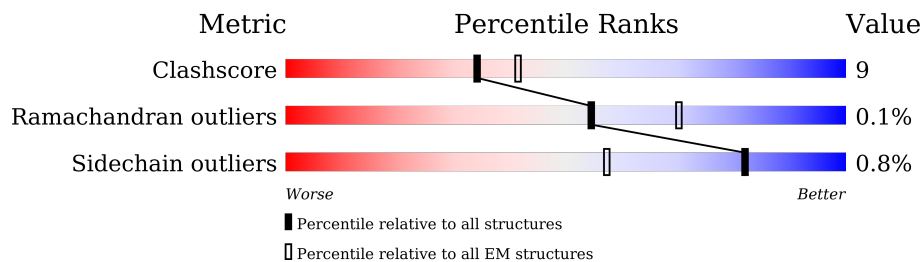
EMDB validation analysis : 0.0.1.dev43  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
MolProbity : 4.02b-467  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.31.2

# 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 2.89 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	751	
2	B	735	
3	C	81	
4	D	196	
5	E	143	
6	F	227	
7	I	106	
8	J	41	

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Mol	Chain	Length	Quality of chain
9	K	160	
10	L	258	
11	1	248	
11	a	248	
12	3	298	
13	4	290	
14	5	274	
15	6	318	
16	7	241	
17	8	272	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
18	CLA	1	601	X	-	-	-
18	CLA	1	602	X	-	-	-
18	CLA	1	603	X	-	-	-
18	CLA	1	604	X	-	-	-
18	CLA	1	606	X	-	-	-
18	CLA	1	607	X	-	-	-
18	CLA	1	608	X	-	-	-
18	CLA	1	609	X	-	-	-
18	CLA	1	610	X	-	-	-
18	CLA	1	611	X	-	-	-
18	CLA	1	612	X	-	-	-
18	CLA	1	613	X	-	-	-
18	CLA	1	614	X	-	-	-
18	CLA	1	616	X	-	-	-
18	CLA	3	602	X	-	-	-
18	CLA	3	603	X	-	-	-
18	CLA	3	604	X	-	-	-
18	CLA	3	606	X	-	-	-
18	CLA	3	607	X	-	-	-
18	CLA	3	608	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
18	CLA	3	609	X	-	-	-
18	CLA	3	610	X	-	-	-
18	CLA	3	611	X	-	-	-
18	CLA	3	612	X	-	-	-
18	CLA	3	613	X	-	-	-
18	CLA	3	614	X	-	-	-
18	CLA	3	615	X	-	-	-
18	CLA	3	617	X	-	-	-
18	CLA	4	602	X	-	-	-
18	CLA	4	603	X	-	-	-
18	CLA	4	604	X	-	-	-
18	CLA	4	606	X	-	-	-
18	CLA	4	607	X	-	-	-
18	CLA	4	608	X	-	-	-
18	CLA	4	609	X	-	-	-
18	CLA	4	610	X	-	-	-
18	CLA	4	611	X	-	-	-
18	CLA	4	613	X	-	-	-
18	CLA	4	614	X	-	-	-
18	CLA	4	616	X	-	-	-
18	CLA	4	618	X	-	-	-
18	CLA	5	601	X	-	-	-
18	CLA	5	602	X	-	-	-
18	CLA	5	603	X	-	-	-
18	CLA	5	604	X	-	-	-
18	CLA	5	606	X	-	-	-
18	CLA	5	607	X	-	-	-
18	CLA	5	608	X	-	-	-
18	CLA	5	609	X	-	-	-
18	CLA	5	610	X	-	-	-
18	CLA	5	611	X	-	-	-
18	CLA	5	612	X	-	-	-
18	CLA	5	613	X	-	-	-
18	CLA	5	614	X	-	-	-
18	CLA	5	616	X	-	-	-
18	CLA	5	617	X	-	-	-
18	CLA	5	618	X	-	-	-
18	CLA	6	601	X	-	-	-
18	CLA	6	602	X	-	-	-
18	CLA	6	603	X	-	-	-
18	CLA	6	604	X	-	-	-
18	CLA	6	606	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
18	CLA	6	607	X	-	-	-
18	CLA	6	608	X	-	-	-
18	CLA	6	609	X	-	-	-
18	CLA	6	610	X	-	-	-
18	CLA	6	611	X	-	-	-
18	CLA	6	612	X	-	-	-
18	CLA	6	613	X	-	-	-
18	CLA	6	614	X	-	-	-
18	CLA	6	616	X	-	-	-
18	CLA	6	617	X	-	-	-
18	CLA	6	618	X	-	-	-
18	CLA	6	620	X	-	-	-
18	CLA	7	602	X	-	-	-
18	CLA	7	603	X	-	-	-
18	CLA	7	604	X	-	-	-
18	CLA	7	606	X	-	-	-
18	CLA	7	607	X	-	-	-
18	CLA	7	608	X	-	-	-
18	CLA	7	609	X	-	-	-
18	CLA	7	610	X	-	-	-
18	CLA	7	611	X	-	-	-
18	CLA	7	613	X	-	-	-
18	CLA	7	614	X	-	-	-
18	CLA	7	615	X	-	-	-
18	CLA	7	616	X	-	-	-
18	CLA	8	601	X	-	-	-
18	CLA	8	602	X	-	-	-
18	CLA	8	603	X	-	-	-
18	CLA	8	604	X	-	-	-
18	CLA	8	606	X	-	-	-
18	CLA	8	607	X	-	-	-
18	CLA	8	608	X	-	-	-
18	CLA	8	609	X	-	-	-
18	CLA	8	610	X	-	-	-
18	CLA	8	611	X	-	-	-
18	CLA	8	613	X	-	-	-
18	CLA	8	614	X	-	-	-
18	CLA	A	801	X	-	-	-
18	CLA	A	802	X	-	-	-
18	CLA	A	803	X	-	-	-
18	CLA	A	804	X	-	-	-
18	CLA	A	805	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
18	CLA	A	806	X	-	-	-
18	CLA	A	807	X	-	-	-
18	CLA	A	808	X	-	-	-
18	CLA	A	809	X	-	-	-
18	CLA	A	810	X	-	-	-
18	CLA	A	811	X	-	-	-
18	CLA	A	812	X	-	-	-
18	CLA	A	813	X	-	-	-
18	CLA	A	814	X	-	-	-
18	CLA	A	815	X	-	-	-
18	CLA	A	816	X	-	-	-
18	CLA	A	817	X	-	-	-
18	CLA	A	818	X	-	-	-
18	CLA	A	819	X	-	-	-
18	CLA	A	820	X	-	-	-
18	CLA	A	821	X	-	-	-
18	CLA	A	822	X	-	-	-
18	CLA	A	823	X	-	-	-
18	CLA	A	824	X	-	-	-
18	CLA	A	825	X	-	-	-
18	CLA	A	826	X	-	-	-
18	CLA	A	827	X	-	-	-
18	CLA	A	828	X	-	-	-
18	CLA	A	829	X	-	-	-
18	CLA	A	830	X	-	-	-
18	CLA	A	831	X	-	-	-
18	CLA	A	832	X	-	-	-
18	CLA	A	833	X	-	-	-
18	CLA	A	834	X	-	-	-
18	CLA	A	835	X	-	-	-
18	CLA	A	836	X	-	-	-
18	CLA	A	837	X	-	-	-
18	CLA	A	838	X	-	-	-
18	CLA	A	839	X	-	-	-
18	CLA	A	840	X	-	-	-
18	CLA	A	841	X	-	-	-
18	CLA	A	842	X	-	-	-
18	CLA	A	843	X	-	-	-
18	CLA	A	845	X	-	-	-
18	CLA	A	854	X	-	-	-
18	CLA	B	802	X	-	-	-
18	CLA	B	803	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
18	CLA	B	804	X	-	-	-
18	CLA	B	805	X	-	-	-
18	CLA	B	806	X	-	-	-
18	CLA	B	807	X	-	-	-
18	CLA	B	808	X	-	-	-
18	CLA	B	809	X	-	-	-
18	CLA	B	810	X	-	-	-
18	CLA	B	811	X	-	-	-
18	CLA	B	812	X	-	-	-
18	CLA	B	813	X	-	-	-
18	CLA	B	814	X	-	-	-
18	CLA	B	815	X	-	-	-
18	CLA	B	816	X	-	-	-
18	CLA	B	817	X	-	-	-
18	CLA	B	818	X	-	-	-
18	CLA	B	819	X	-	-	-
18	CLA	B	820	X	-	-	-
18	CLA	B	821	X	-	-	-
18	CLA	B	822	X	-	-	-
18	CLA	B	823	X	-	-	-
18	CLA	B	824	X	-	-	-
18	CLA	B	825	X	-	-	-
18	CLA	B	826	X	-	-	-
18	CLA	B	827	X	-	-	-
18	CLA	B	828	X	-	-	-
18	CLA	B	829	X	-	-	-
18	CLA	B	830	X	-	-	-
18	CLA	B	831	X	-	-	-
18	CLA	B	832	X	-	-	-
18	CLA	B	833	X	-	-	-
18	CLA	B	834	X	-	-	-
18	CLA	B	835	X	-	-	-
18	CLA	B	836	X	-	-	-
18	CLA	B	837	X	-	-	-
18	CLA	B	838	X	-	-	-
18	CLA	B	839	X	-	-	-
18	CLA	B	840	X	-	-	-
18	CLA	B	841	X	-	-	-
18	CLA	F	301	X	-	-	-
18	CLA	F	304	X	-	-	-
18	CLA	J	101	X	-	-	-
18	CLA	K	201	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
18	CLA	K	203	X	-	-	-
18	CLA	K	204	X	-	-	-
18	CLA	K	206	X	-	-	-
18	CLA	L	302	X	-	-	-
18	CLA	L	303	X	-	-	-
18	CLA	L	304	X	-	-	-
18	CLA	a	601	X	-	-	-
18	CLA	a	602	X	-	-	-
18	CLA	a	603	X	-	-	-
18	CLA	a	604	X	-	-	-
18	CLA	a	606	X	-	-	-
18	CLA	a	607	X	-	-	-
18	CLA	a	608	X	-	-	-
18	CLA	a	609	X	-	-	-
18	CLA	a	610	X	-	-	-
18	CLA	a	611	X	-	-	-
18	CLA	a	612	X	-	-	-
18	CLA	a	613	X	-	-	-
18	CLA	a	614	X	-	-	-
18	CLA	a	616	X	-	-	-

## 2 Entry composition [i](#)

There are 28 unique types of molecules in this entry. The entry contains 44968 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 PsaA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	741	5819	3805	993	999	22	0	0

- Molecule 2 is a protein called PsaB.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	731	5812	3818	975	1001	18	0	0

- Molecule 3 is a protein called PsaC.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	80	600	369	103	116	12	0	0

- Molecule 4 is a protein called PsaD.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	144	1129	722	200	200	7	0	0

- Molecule 5 is a protein called PsaE.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
5	E	64	505	322	89	94	0	0

- Molecule 6 is a protein called PsaF.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	F	164	1254	811	209	231	3	0	0

- Molecule 7 is a protein called PsaI.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	I	32	242	166	34	41	1	0	0

- Molecule 8 is a protein called PsaJ.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	J	41	337	231	47	58	1	0	0

- Molecule 9 is a protein called PsaK.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	K	85	578	368	99	109	2	0	0

- Molecule 10 is a protein called PsaL.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	L	105	761	502	122	135	2	0	0

- Molecule 11 is a protein called Lhca1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	1	193	1433	932	239	259	3	0	0
11	a	194	1444	941	240	260	3	0	0

- Molecule 12 is a protein called Lhca3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	3	221	1683	1099	271	305	8	0	0

- Molecule 13 is a protein called Lhca4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	4	210	1631	1071	263	292	5	0	0

- Molecule 14 is a protein called Lhca5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	5	226	1765	1149	295	313	8	0	0

- Molecule 15 is a protein called Lhca6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	6	230	1771	1167	293	305	6	0	0

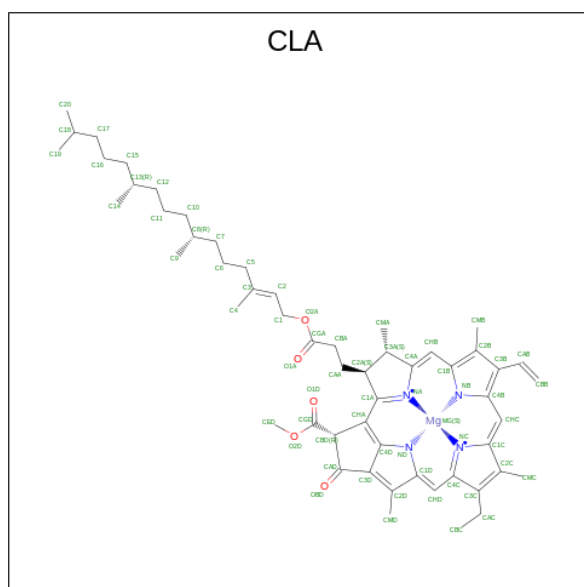
- Molecule 16 is a protein called Lhca7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	7	213	1649	1072	274	297	6	0	0

- Molecule 17 is a protein called Lhca8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	8	215	1630	1058	278	290	4	0	0

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













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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
18	F	1	Total 140	C 114	Mg 3	N 12	O 11	0
18	F	1	Total 140	C 114	Mg 3	N 12	O 11	0
18	F	1	Total 140	C 114	Mg 3	N 12	O 11	0
18	J	1	Total 42	C 34	Mg 1	N 4	O 3	0
18	K	1	Total 201	C 161	Mg 4	N 16	O 20	0
18	K	1	Total 201	C 161	Mg 4	N 16	O 20	0
18	K	1	Total 201	C 161	Mg 4	N 16	O 20	0
18	K	1	Total 201	C 161	Mg 4	N 16	O 20	0
18	L	1	Total 135	C 105	Mg 3	N 12	O 15	0
18	L	1	Total 135	C 105	Mg 3	N 12	O 15	0
18	L	1	Total 135	C 105	Mg 3	N 12	O 15	0
18	1	1	Total 675	C 546	Mg 14	N 56	O 59	0
18	1	1	Total 675	C 546	Mg 14	N 56	O 59	0
18	1	1	Total 675	C 546	Mg 14	N 56	O 59	0
18	1	1	Total 675	C 546	Mg 14	N 56	O 59	0
18	1	1	Total 675	C 546	Mg 14	N 56	O 59	0
18	1	1	Total 675	C 546	Mg 14	N 56	O 59	0
18	1	1	Total 675	C 546	Mg 14	N 56	O 59	0
18	1	1	Total 675	C 546	Mg 14	N 56	O 59	0
18	1	1	Total 675	C 546	Mg 14	N 56	O 59	0
18	1	1	Total 675	C 546	Mg 14	N 56	O 59	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
18	1	1	675	546	14	56	59	0
18	1	1	675	546	14	56	59	0
18	1	1	675	546	14	56	59	0
18	1	1	675	546	14	56	59	0
18	a	1	722	586	14	56	66	0
18	a	1	722	586	14	56	66	0
18	a	1	722	586	14	56	66	0
18	a	1	722	586	14	56	66	0
18	a	1	722	586	14	56	66	0
18	a	1	722	586	14	56	66	0
18	a	1	722	586	14	56	66	0
18	a	1	722	586	14	56	66	0
18	a	1	722	586	14	56	66	0
18	a	1	722	586	14	56	66	0
18	a	1	722	586	14	56	66	0
18	a	1	722	586	14	56	66	0
18	a	1	722	586	14	56	66	0
18	3	1	724	595	14	56	59	0
18	3	1	724	595	14	56	59	0
18	3	1	724	595	14	56	59	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
18	3	1	724	595	14	56	59	0
18	3	1	724	595	14	56	59	0
18	3	1	724	595	14	56	59	0
18	3	1	724	595	14	56	59	0
18	3	1	724	595	14	56	59	0
18	3	1	724	595	14	56	59	0
18	3	1	724	595	14	56	59	0
18	3	1	724	595	14	56	59	0
18	3	1	724	595	14	56	59	0
18	3	1	724	595	14	56	59	0
18	3	1	724	595	14	56	59	0
18	3	1	724	595	14	56	59	0
18	3	1	724	595	14	56	59	0
18	4	1	782	640	15	60	67	0
18	4	1	782	640	15	60	67	0
18	4	1	782	640	15	60	67	0
18	4	1	782	640	15	60	67	0
18	4	1	782	640	15	60	67	0
18	4	1	782	640	15	60	67	0
18	4	1	782	640	15	60	67	0
18	4	1	782	640	15	60	67	0
18	4	1	782	640	15	60	67	0
18	4	1	782	640	15	60	67	0
18	4	1	782	640	15	60	67	0

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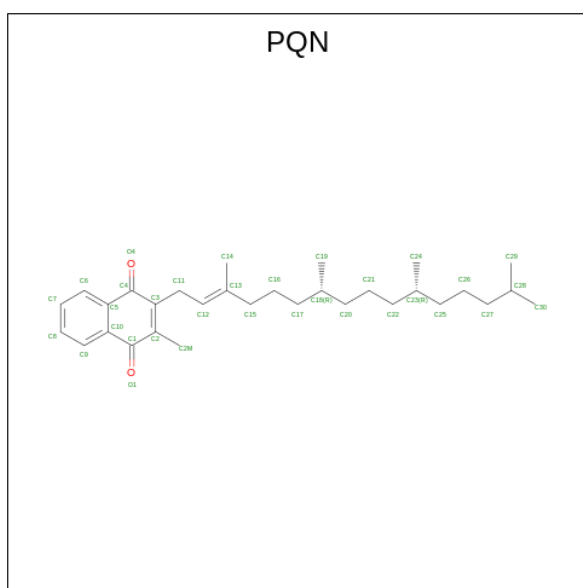




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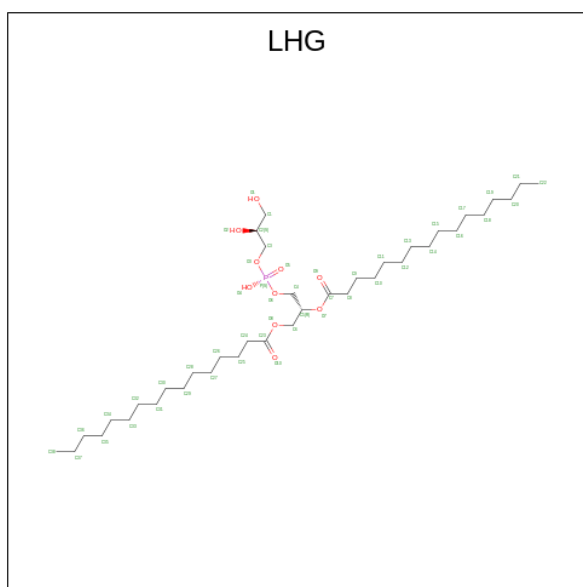
Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
18	8	1	Total 727	C 593	Mg 14	N 56	O 64	0
18	8	1	Total 727	C 593	Mg 14	N 56	O 64	0
18	8	1	Total 727	C 593	Mg 14	N 56	O 64	0
18	8	1	Total 727	C 593	Mg 14	N 56	O 64	0
18	8	1	Total 727	C 593	Mg 14	N 56	O 64	0

- Molecule 19 is PHYLLOQUINONE (three-letter code: PQN) (formula:  $C_{31}H_{46}O_2$ ).



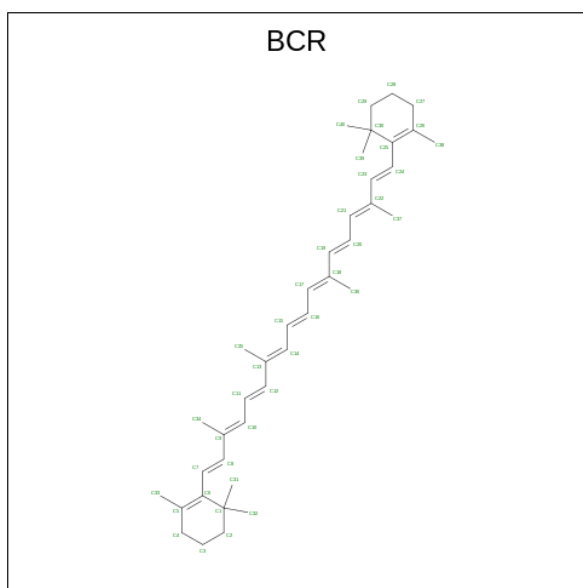
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
19	A	1	Total 33	C 31	O 2	0
19	B	1	Total 33	C 31	O 2	0

- Molecule 20 is 1,2-DIPALMITOYL-PHOSPHATIDYL-GLYCEROLE (three-letter code: LHG) (formula:  $C_{38}H_{75}O_{10}P$ ).



Mol	Chain	Residues	Atoms			AltConf	
			Total	C	O		P
20	A	1	79	57	20	2	0
20	A	1	79	57	20	2	0
20	B	1	36	26	9	1	0
20	1	1	49	38	10	1	0
20	a	1	49	38	10	1	0
20	3	1	94	72	20	2	0
20	3	1	94	72	20	2	0
20	4	1	49	38	10	1	0
20	5	1	98	76	20	2	0
20	5	1	98	76	20	2	0
20	6	1	48	37	10	1	0
20	7	1	37	26	10	1	0
20	8	1	98	76	20	2	0
20	8	1	98	76	20	2	0

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



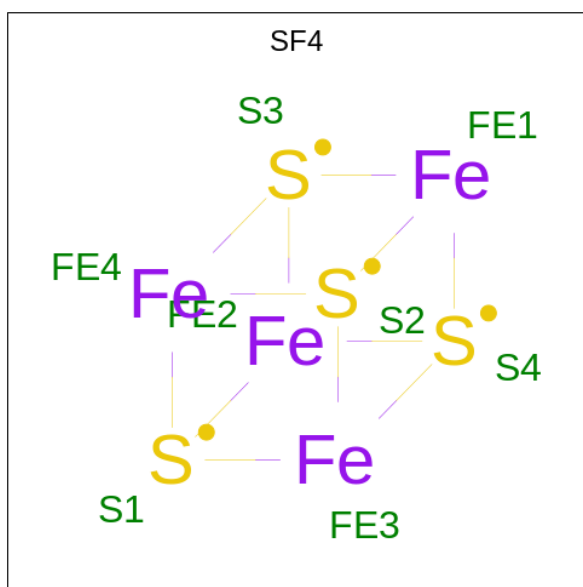
Mol	Chain	Residues	Atoms	AltConf
21	A	1	Total C 240 240	0
21	A	1	Total C 240 240	0
21	A	1	Total C 240 240	0
21	A	1	Total C 240 240	0
21	A	1	Total C 240 240	0
21	A	1	Total C 240 240	0
21	B	1	Total C 280 280	0
21	B	1	Total C 280 280	0
21	B	1	Total C 280 280	0
21	B	1	Total C 280 280	0
21	B	1	Total C 280 280	0
21	B	1	Total C 280 280	0
21	B	1	Total C 280 280	0

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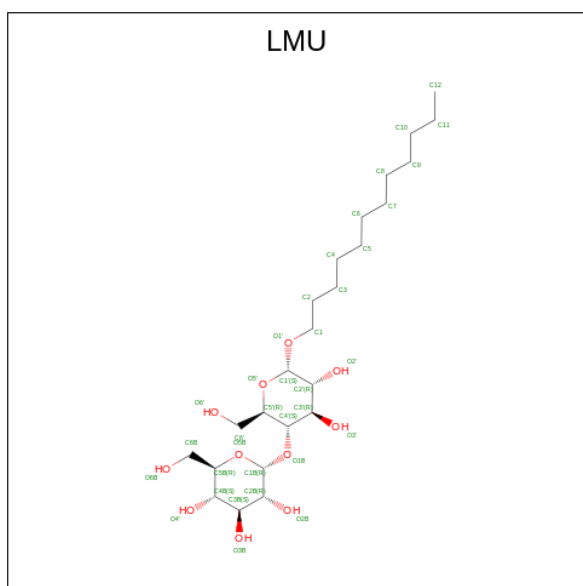
Mol	Chain	Residues	Atoms	AltConf
21	F	1	Total C 40 40	0
21	J	1	Total C 40 40	0
21	K	1	Total C 80 80	0
21	K	1	Total C 80 80	0
21	L	1	Total C 80 80	0
21	L	1	Total C 80 80	0
21	1	1	Total C 40 40	0
21	a	1	Total C 40 40	0
21	3	1	Total C 120 120	0
21	3	1	Total C 120 120	0
21	3	1	Total C 120 120	0
21	4	1	Total C 40 40	0
21	5	1	Total C 40 40	0
21	6	1	Total C 40 40	0
21	7	1	Total C 80 80	0
21	7	1	Total C 80 80	0
21	8	1	Total C 40 40	0

- Molecule 22 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe<sub>4</sub>S<sub>4</sub>).



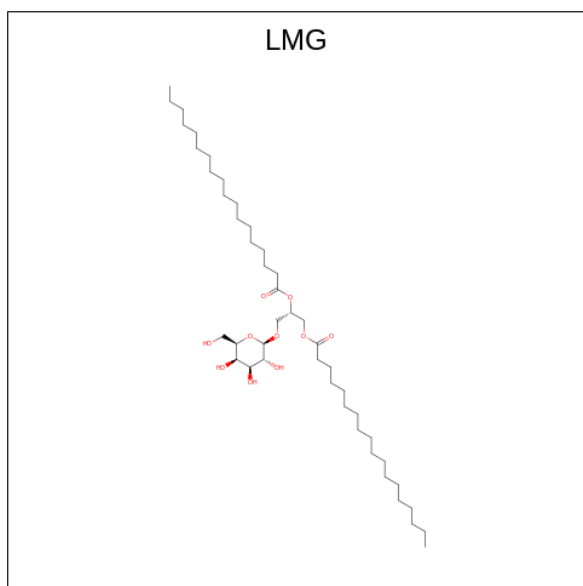
Mol	Chain	Residues	Atoms	AltConf
22	A	1	Total Fe S 8 4 4	0
22	C	1	Total Fe S 16 8 8	0
22	C	1	Total Fe S 16 8 8	0

- Molecule 23 is DODECYL-ALPHA-D-MALTOSE (three-letter code: LMU) (formula:  $C_{24}H_{46}O_{11}$ ).



Mol	Chain	Residues	Atoms			AltConf
23	A	1	Total	C	O	0
			101	71	30	
23	A	1	Total	C	O	0
			101	71	30	
23	A	1	Total	C	O	0
			101	71	30	
23	K	1	Total	C	O	0
			35	24	11	
23	5	1	Total	C	O	0
			33	22	11	
23	8	1	Total	C	O	0
			70	48	22	
23	8	1	Total	C	O	0
			70	48	22	

- Molecule 24 is 1,2-DISTEAROYL-MONOGALACTOSYL-DIGLYCERIDE (three-letter code: LMG) (formula:  $C_{45}H_{86}O_{10}$ ).



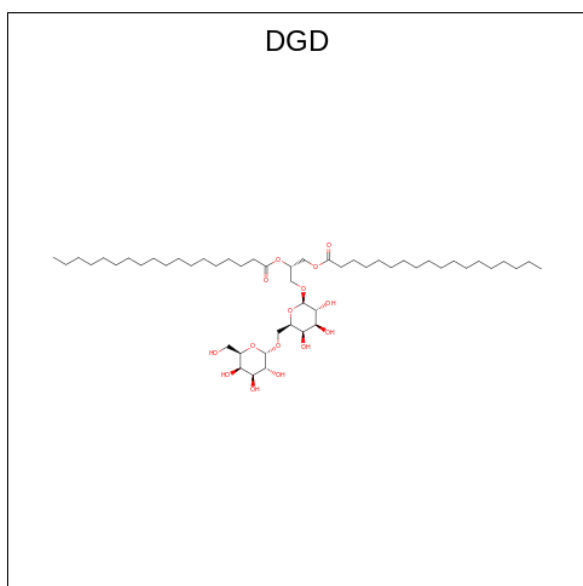
Mol	Chain	Residues	Atoms			AltConf
24	A	1	Total	C	O	0
			40	30	10	
24	J	1	Total	C	O	0
			40	30	10	
24	4	1	Total	C	O	0
			80	60	20	
24	4	1	Total	C	O	0
			80	60	20	

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Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
24	5	1	80	60	20	0
24	5	1	80	60	20	0
24	7	1	44	34	10	0

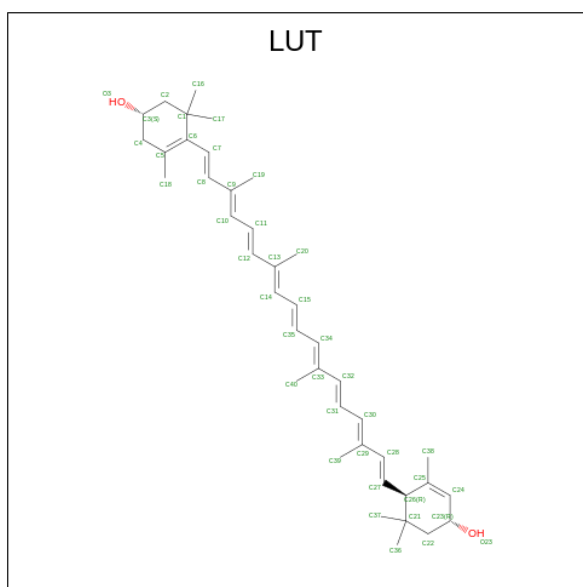
- Molecule 25 is DIGALACTOSYL DIACYL GLYCEROL (DGD) (three-letter code: DGD) (formula:  $C_{51}H_{96}O_{15}$ ).



Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
25	B	1	62	47	15	0
25	J	1	58	43	15	0

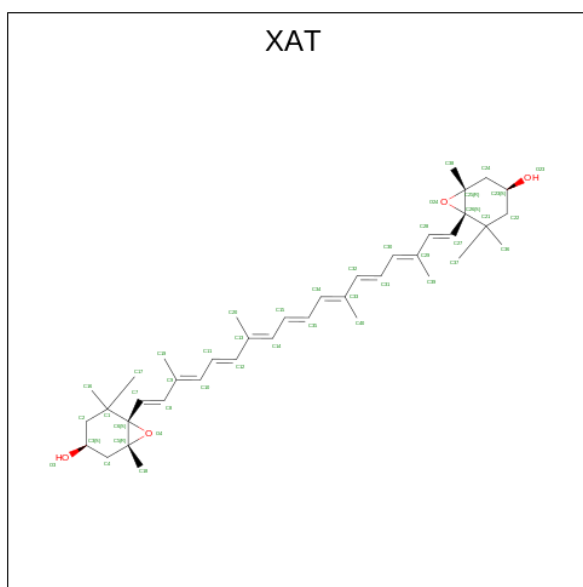
- Molecule 26 is (3R,3'R,6S)-4,5-DIDEHYDRO-5,6-DIHYDRO-BETA,BETA-CAROTENE-3,3'-DIOL (three-letter code: LUT) (formula:  $C_{40}H_{56}O_2$ ).





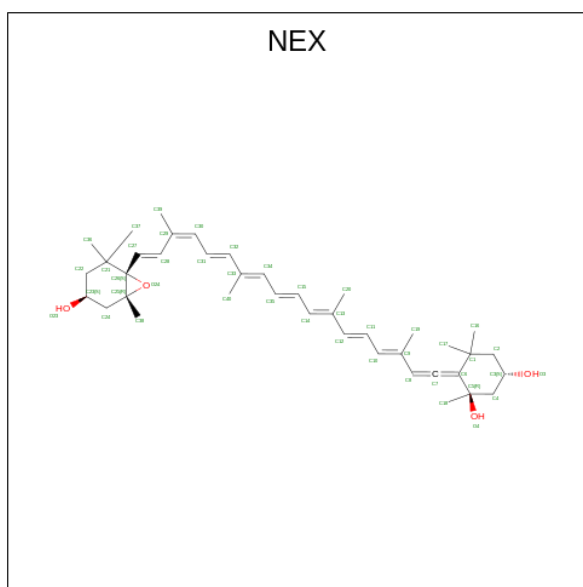
Mol	Chain	Residues	Atoms			AltConf
26	1	1	Total	C	O	0
			42	40	2	
26	a	1	Total	C	O	0
			42	40	2	
26	3	1	Total	C	O	0
			42	40	2	
26	4	1	Total	C	O	0
			42	40	2	
26	5	1	Total	C	O	0
			42	40	2	
26	6	1	Total	C	O	0
			42	40	2	
26	7	1	Total	C	O	0
			42	40	2	
26	8	1	Total	C	O	0
			42	40	2	

- Molecule 27 is (3S,5R,6S,3'S,5'R,6'S)-5,6,5',6'-DIEPOXY-5,6,5',6'- TETRAHYDRO-BETA ,BETA-CAROTENE-3,3'-DIOL (three-letter code: XAT) (formula: C<sub>40</sub>H<sub>56</sub>O<sub>4</sub>).



Mol	Chain	Residues	Atoms			AltConf
27	1	1	Total	C	O	0
			44	40	4	
27	a	1	Total	C	O	0
			44	40	4	
27	3	1	Total	C	O	0
			44	40	4	
27	4	1	Total	C	O	0
			44	40	4	
27	5	1	Total	C	O	0
			44	40	4	
27	6	1	Total	C	O	0
			44	40	4	
27	7	1	Total	C	O	0
			44	40	4	
27	8	1	Total	C	O	0
			44	40	4	

- Molecule 28 is (1R,3R)-6-[(3E,5E,7E,9E,11E,13E,15E,17E)-18-[(1S,4R,6R)-4-HYDROXY-2,2,6-TRIMETHYL-7-OXABICYCLO[4.1.0]HEPT-1-YL]-3,7,12,16-TETRAMETHYLOCTADEC-1,3,5,7,9,11,13,15,17-NONAENYLIDENE]-1,5,5-TRIMETHYLCYCLOHEXANE-1,3-DIOL (three-letter code: NEX) (formula: C<sub>40</sub>H<sub>56</sub>O<sub>4</sub>).

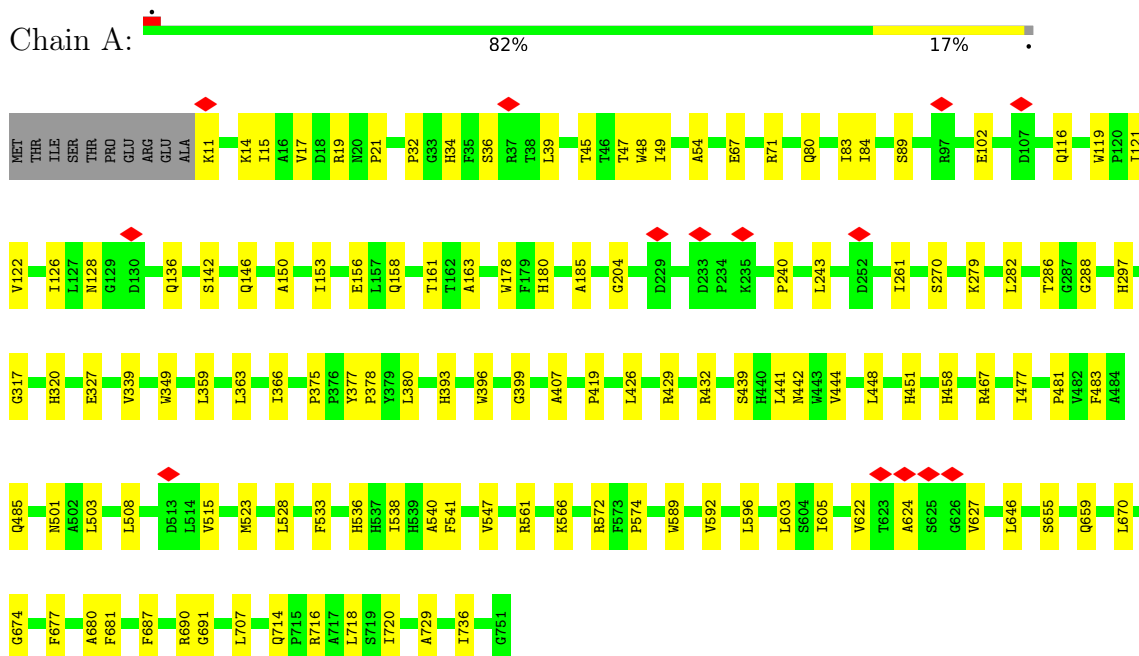


Mol	Chain	Residues	Atoms			AltConf
28	5	1	Total	C	O	0
			44	40	4	
28	6	1	Total	C	O	0
			44	40	4	

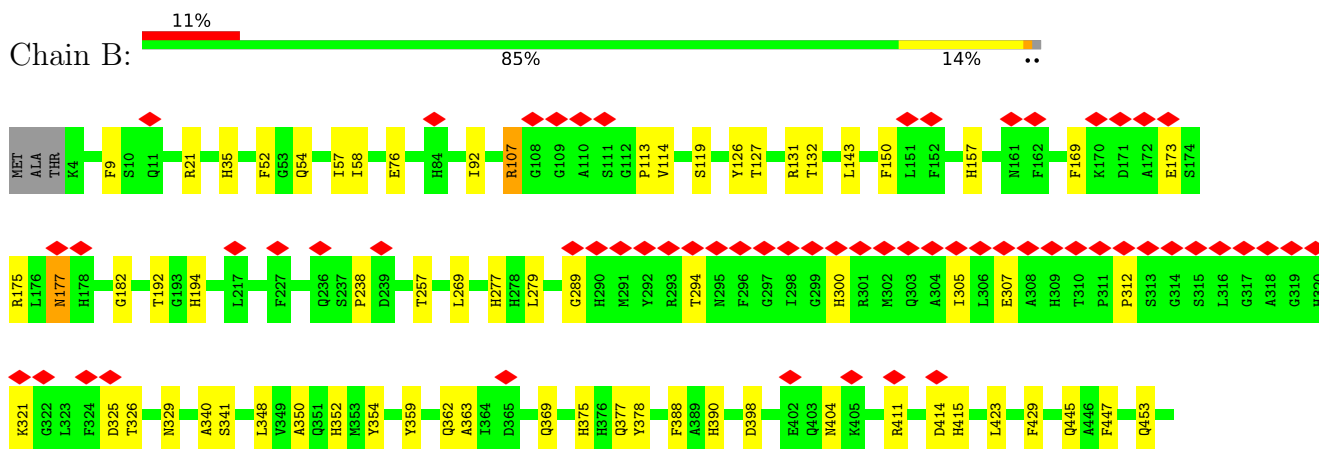
### 3 Residue-property plots

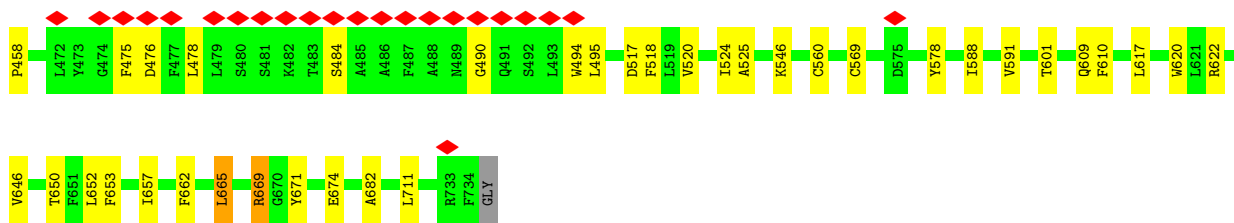
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

#### • Molecule 1: PsaA

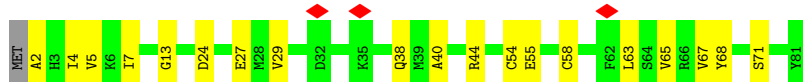


#### • Molecule 2: PsaB

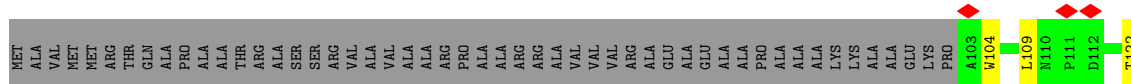




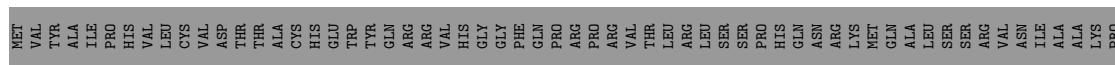
• Molecule 3: PsaC



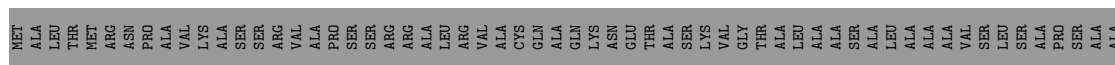
• Molecule 4: PsaD



• Molecule 5: PsaE



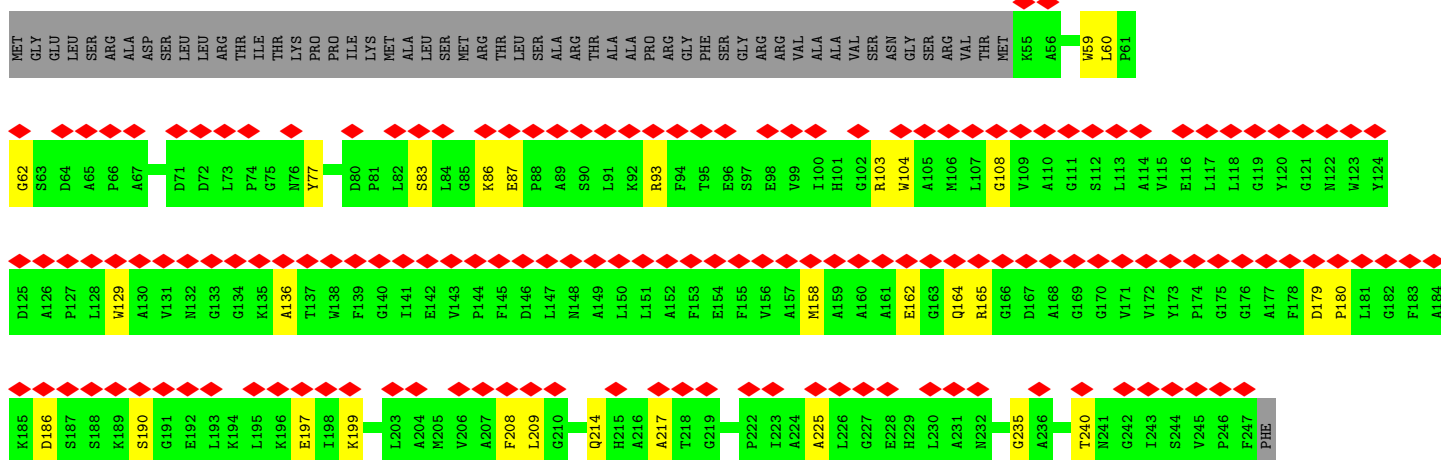
• Molecule 6: PsaF



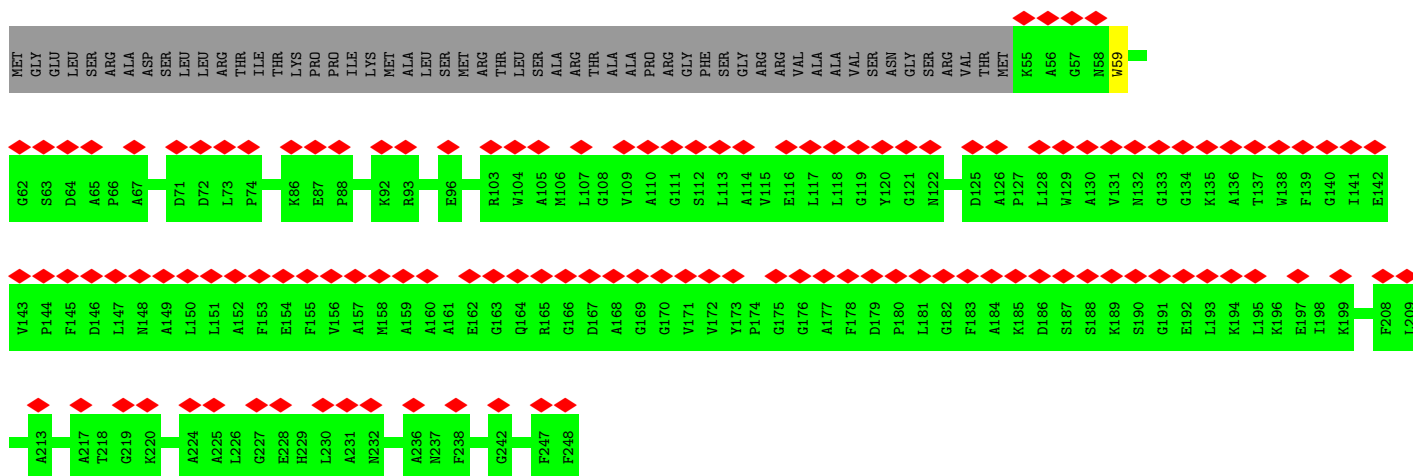
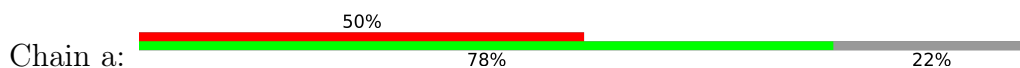
• Molecule 7: PsaI



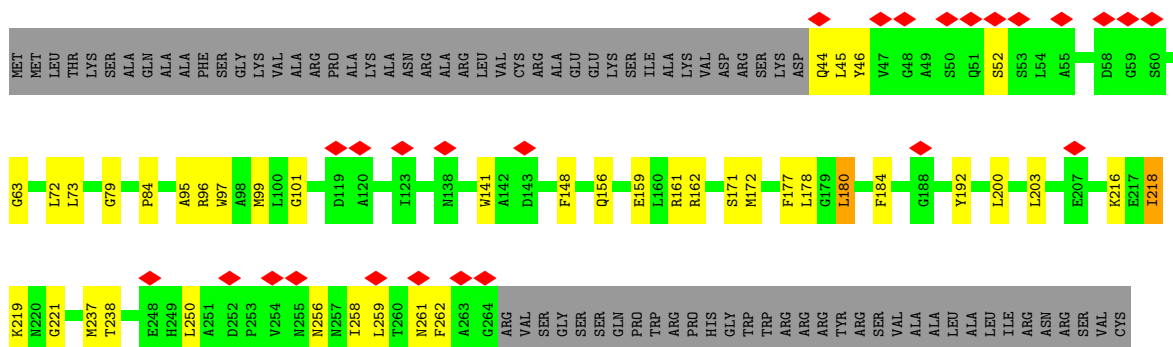




• Molecule 11: Lhca1



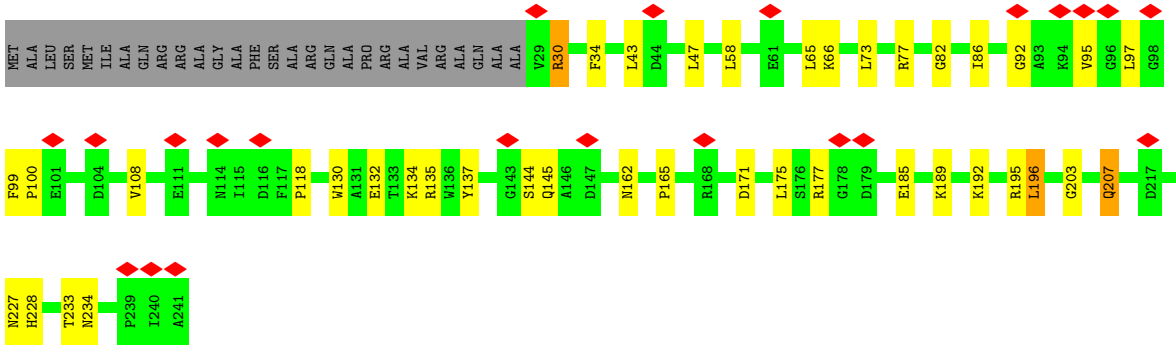
• Molecule 12: Lhca3



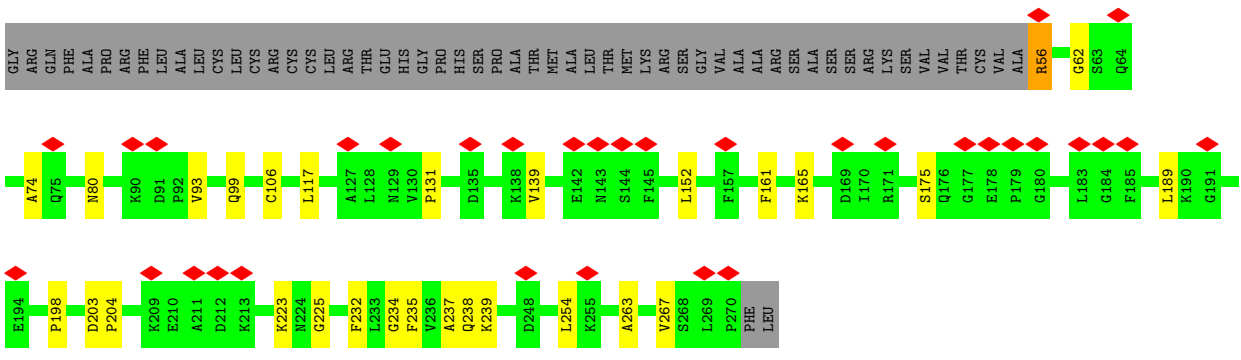
• Molecule 13: Lhca4







• Molecule 17: Lhca8



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	58955	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 ( $e^-/\text{\AA}^2$ )	60.0	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.391	Depositor
Minimum map value	-0.159	Depositor
Average map value	0.004	Depositor
Map value standard deviation	0.022	Depositor
Recommended contour level	0.07	Depositor
Map size (Å)	208.0, 208.0, 208.0	wwPDB
Map dimensions	200, 200, 200	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.04, 1.04, 1.04	Depositor

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: LMG, LHG, LUT, SF4, BCR, XAT, PQN, DGD, NEX, LMU, CLA

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	A	0.42	0/6015	0.57	1/8201 (0.0%)
2	B	0.41	0/6024	0.58	3/8225 (0.0%)
3	C	0.42	0/610	0.65	0/826
4	D	0.38	0/1157	0.60	0/1563
5	E	0.38	0/515	0.53	0/700
6	F	0.35	0/1280	0.55	0/1733
7	I	0.32	0/250	0.58	0/345
8	J	0.36	0/349	0.56	0/478
9	K	0.30	0/583	0.65	0/790
10	L	0.30	0/779	0.61	1/1063 (0.1%)
11	1	0.32	0/1478	0.55	0/2012
11	a	0.32	0/1490	0.54	0/2028
12	3	0.39	0/1731	0.65	2/2349 (0.1%)
13	4	0.33	0/1686	0.53	0/2300
14	5	0.36	0/1820	0.58	1/2480 (0.0%)
15	6	0.35	0/1833	0.57	0/2505
16	7	0.38	0/1701	0.60	1/2310 (0.0%)
17	8	0.36	0/1680	0.63	0/2288
All	All	0.38	0/30981	0.58	9/42196 (0.0%)

There are no bond length outliers.

The worst 5 of 9 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
12	3	180	LEU	CA-CB-CG	6.97	131.34	115.30
2	B	665	LEU	CB-CG-CD2	-6.66	99.68	111.00
12	3	200	LEU	CA-CB-CG	6.59	130.46	115.30
16	7	196	LEU	CA-CB-CG	6.08	129.29	115.30
14	5	106	LEU	CA-CB-CG	5.88	128.82	115.30

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	5819	0	5672	100	0
2	B	5812	0	5569	83	0
3	C	600	0	589	12	0
4	D	1129	0	1144	33	0
5	E	505	0	504	4	0
6	F	1254	0	1288	14	0
7	I	242	0	252	9	0
8	J	337	0	336	7	0
9	K	578	0	617	9	0
10	L	761	0	768	18	0
11	1	1433	0	1387	25	0
11	a	1444	0	1396	0	0
12	3	1683	0	1641	33	0
13	4	1631	0	1587	21	0
14	5	1765	0	1738	39	0
15	6	1771	0	1772	27	0
16	7	1649	0	1589	35	0
17	8	1630	0	1609	25	0
18	1	675	0	541	23	0
18	3	724	0	628	22	0
18	4	782	0	686	23	0
18	5	878	0	758	36	0
18	6	893	0	809	25	0
18	7	758	0	641	20	0
18	8	727	0	635	17	0
18	A	2625	0	2614	122	0
18	B	2277	0	2218	91	0
18	F	140	0	113	5	0
18	J	42	0	31	0	0
18	K	201	0	171	5	0
18	L	135	0	99	8	0
18	a	722	0	618	0	0
19	A	33	0	46	3	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
19	B	33	0	46	2	0
20	1	49	0	74	2	0
20	3	94	0	137	6	0
20	4	49	0	74	4	0
20	5	98	0	148	5	0
20	6	48	0	69	1	0
20	7	37	0	44	5	0
20	8	98	0	148	9	0
20	A	79	0	104	3	0
20	B	36	0	41	1	0
20	a	49	0	74	0	0
21	1	40	0	56	2	0
21	3	120	0	168	13	0
21	4	40	0	56	3	0
21	5	40	0	56	3	0
21	6	40	0	56	4	0
21	7	80	0	112	5	0
21	8	40	0	56	2	0
21	A	240	0	336	24	0
21	B	280	0	392	20	0
21	F	40	0	56	6	0
21	J	40	0	56	2	0
21	K	80	0	112	6	0
21	L	80	0	112	8	0
21	a	40	0	56	0	0
22	A	8	0	0	0	0
22	C	16	0	0	0	0
23	5	33	0	39	0	0
23	8	70	0	92	1	0
23	A	101	0	130	6	0
23	K	35	0	46	0	0
24	4	80	0	100	1	0
24	5	80	0	100	3	0
24	7	44	0	61	0	0
24	A	40	0	50	0	0
24	J	40	0	50	4	0
25	B	62	0	85	3	0
25	J	58	0	77	3	0
26	1	42	0	56	3	0
26	3	42	0	56	2	0
26	4	42	0	56	6	0
26	5	42	0	56	4	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
26	6	42	0	56	2	0
26	7	42	0	56	3	0
26	8	42	0	56	5	0
26	a	42	0	56	0	0
27	1	44	0	56	3	0
27	3	44	0	56	2	0
27	4	44	0	56	2	0
27	5	44	0	56	6	0
27	6	44	0	56	2	0
27	7	44	0	56	4	0
27	8	44	0	56	2	0
27	a	44	0	56	0	0
28	5	44	0	56	4	0
28	6	44	0	56	4	0
All	All	44968	0	44543	755	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 9.

The worst 5 of 755 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:202:HIS:HB3	4:D:203:PRO:CD	1.63	1.28
4:D:202:HIS:CB	4:D:203:PRO:HD3	1.75	1.16
4:D:202:HIS:HB3	4:D:203:PRO:HD3	1.17	1.12
4:D:202:HIS:CG	4:D:203:PRO:HD3	1.95	1.01
12:3:46:TYR:OH	20:3:624:LHG:HC42	1.80	0.82

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	739/751 (98%)	708 (96%)	31 (4%)	0	100	100
2	B	729/735 (99%)	699 (96%)	30 (4%)	0	100	100
3	C	78/81 (96%)	74 (95%)	4 (5%)	0	100	100
4	D	142/196 (72%)	131 (92%)	9 (6%)	2 (1%)	11	36
5	E	62/143 (43%)	58 (94%)	4 (6%)	0	100	100
6	F	162/227 (71%)	149 (92%)	13 (8%)	0	100	100
7	I	30/106 (28%)	28 (93%)	2 (7%)	0	100	100
8	J	39/41 (95%)	37 (95%)	2 (5%)	0	100	100
9	K	83/160 (52%)	73 (88%)	10 (12%)	0	100	100
10	L	101/258 (39%)	98 (97%)	3 (3%)	0	100	100
11	1	191/248 (77%)	171 (90%)	19 (10%)	1 (0%)	29	61
11	a	192/248 (77%)	175 (91%)	16 (8%)	1 (0%)	29	61
12	3	219/298 (74%)	202 (92%)	17 (8%)	0	100	100
13	4	208/290 (72%)	196 (94%)	12 (6%)	0	100	100
14	5	224/274 (82%)	198 (88%)	26 (12%)	0	100	100
15	6	228/318 (72%)	206 (90%)	21 (9%)	1 (0%)	34	66
16	7	211/241 (88%)	193 (92%)	18 (8%)	0	100	100
17	8	213/272 (78%)	198 (93%)	15 (7%)	0	100	100
All	All	3851/4887 (79%)	3594 (93%)	252 (6%)	5 (0%)	54	82

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	D	202	HIS
4	D	203	PRO
15	6	312	PHE
11	1	59	TRP
11	a	59	TRP

### 5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	601/610 (98%)	600 (100%)	1 (0%)	93	98
2	B	595/597 (100%)	590 (99%)	5 (1%)	81	94
3	C	69/70 (99%)	69 (100%)	0	100	100
4	D	120/152 (79%)	118 (98%)	2 (2%)	60	86
5	E	55/123 (45%)	54 (98%)	1 (2%)	59	85
6	F	126/169 (75%)	125 (99%)	1 (1%)	81	94
7	I	26/76 (34%)	26 (100%)	0	100	100
8	J	37/37 (100%)	37 (100%)	0	100	100
9	K	59/123 (48%)	58 (98%)	1 (2%)	60	86
10	L	74/198 (37%)	73 (99%)	1 (1%)	67	89
11	1	136/180 (76%)	136 (100%)	0	100	100
11	a	137/180 (76%)	137 (100%)	0	100	100
12	3	167/230 (73%)	165 (99%)	2 (1%)	71	91
13	4	165/226 (73%)	164 (99%)	1 (1%)	86	96
14	5	183/219 (84%)	182 (100%)	1 (0%)	88	96
15	6	184/260 (71%)	182 (99%)	2 (1%)	73	92
16	7	164/181 (91%)	159 (97%)	5 (3%)	41	75
17	8	161/207 (78%)	158 (98%)	3 (2%)	57	84
All	All	3059/3838 (80%)	3033 (99%)	26 (1%)	82	94

5 of 26 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
13	4	203	ASP
15	6	312	PHE
17	8	99	GLN
15	6	311	CYS
16	7	30	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 14 such sidechains are listed below:

Mol	Chain	Res	Type
5	E	123	ASN
13	4	114	GLN
16	7	234	ASN
15	6	314	GLN

*Continued on next page...*



*Continued from previous page...*

Mol	Chain	Res	Type
16	7	227	ASN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

299 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
18	CLA	A	837	1	45,53,73	1.78	8 (17%)	52,89,113	1.74	10 (19%)
18	CLA	a	601	11	53,62,73	1.62	8 (15%)	61,100,113	1.47	7 (11%)
18	CLA	A	825	-	65,73,73	1.42	8 (12%)	76,113,113	1.46	9 (11%)
18	CLA	B	829	-	65,73,73	1.51	9 (13%)	76,113,113	1.68	9 (11%)
18	CLA	B	836	-	50,58,73	1.62	7 (14%)	58,95,113	1.65	6 (10%)
18	CLA	4	612	13	40,49,73	1.84	7 (17%)	45,84,113	1.69	8 (17%)
18	CLA	1	616	11	43,51,73	1.91	8 (18%)	54,87,113	1.64	8 (14%)
18	CLA	A	818	-	60,68,73	1.48	7 (11%)	70,107,113	1.64	7 (10%)
18	CLA	L	303	-	45,53,73	1.76	5 (11%)	52,89,113	1.60	7 (13%)
18	CLA	4	601	13	65,73,73	1.50	10 (15%)	76,113,113	1.32	7 (9%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
18	CLA	A	828	-	64,72,73	1.42	7 (10%)	74,111,113	1.53	7 (9%)
18	CLA	B	817	-	59,67,73	1.54	9 (15%)	68,105,113	1.58	8 (11%)
18	CLA	4	613	13	65,73,73	1.47	7 (10%)	76,113,113	1.45	7 (9%)
18	CLA	6	603	-	54,62,73	1.64	8 (14%)	67,100,113	1.51	9 (13%)
19	PQN	A	844	-	34,34,34	2.87	11 (32%)	42,45,45	2.23	7 (16%)
20	LHG	8	623	-	48,48,48	0.61	0	51,54,54	1.26	6 (11%)
24	LMG	5	627	-	40,40,55	0.86	0	48,48,63	1.20	3 (6%)
18	CLA	5	603	-	54,62,73	1.68	9 (16%)	67,100,113	1.42	8 (11%)
24	LMG	4	623	-	40,40,55	0.89	1 (2%)	48,48,63	1.23	4 (8%)
18	CLA	5	607	-	65,73,73	1.45	8 (12%)	76,113,113	1.70	13 (17%)
18	CLA	8	613	17	65,73,73	1.45	8 (12%)	76,113,113	1.56	8 (10%)
21	BCR	4	621	-	41,41,41	0.68	0	56,56,56	1.94	16 (28%)
20	LHG	7	622	18	36,36,48	0.74	1 (2%)	39,42,54	1.28	4 (10%)
18	CLA	7	614	-	42,50,73	1.78	7 (16%)	48,85,113	1.67	8 (16%)
20	LHG	B	851	18	35,35,48	0.72	1 (2%)	38,40,54	1.33	5 (13%)
18	CLA	F	303	-	42,50,73	1.87	8 (19%)	48,85,113	1.65	7 (14%)
24	LMG	7	624	-	44,44,55	0.83	0	52,52,63	1.25	5 (9%)
18	CLA	3	615	-	39,48,73	1.90	8 (20%)	44,83,113	1.78	7 (15%)
18	CLA	7	616	16	43,51,73	1.85	7 (16%)	54,87,113	1.66	8 (14%)
18	CLA	B	802	-	65,73,73	1.46	9 (13%)	76,113,113	1.35	8 (10%)
18	CLA	4	604	-	54,62,73	1.67	8 (14%)	67,100,113	1.46	9 (13%)
18	CLA	4	611	20	42,50,73	1.78	7 (16%)	48,85,113	1.60	8 (16%)
21	BCR	L	305	-	41,41,41	0.68	0	56,56,56	1.77	12 (21%)
28	NEX	6	624	-	38,46,46	0.93	2 (5%)	50,70,70	2.28	16 (32%)
18	CLA	A	826	-	64,72,73	1.42	8 (12%)	74,111,113	1.55	8 (10%)
18	CLA	B	832	-	60,68,73	1.49	7 (11%)	70,107,113	1.61	9 (12%)
23	LMU	8	625	-	36,36,36	1.19	2 (5%)	47,47,47	1.27	6 (12%)
21	BCR	7	623	-	41,41,41	0.71	0	56,56,56	1.81	13 (23%)
18	CLA	8	604	-	50,58,73	1.65	6 (12%)	58,95,113	1.63	7 (12%)
18	CLA	A	812	-	65,73,73	1.41	7 (10%)	76,113,113	1.50	8 (10%)
18	CLA	A	820	-	65,73,73	1.47	10 (15%)	76,113,113	1.65	11 (14%)
18	CLA	A	829	-	65,73,73	1.41	8 (12%)	76,113,113	1.54	7 (9%)
18	CLA	B	804	-	41,49,73	1.78	8 (19%)	47,84,113	1.78	8 (17%)
18	CLA	a	602	11	61,69,73	1.51	7 (11%)	71,108,113	1.43	7 (9%)
18	CLA	6	618	15	39,48,73	1.87	8 (20%)	48,83,113	1.84	9 (18%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
21	BCR	A	849	-	41,41,41	0.83	0	56,56,56	2.03	18 (32%)
18	CLA	7	607	-	42,50,73	1.79	7 (16%)	48,85,113	1.72	9 (18%)
21	BCR	A	856	-	41,41,41	0.72	0	56,56,56	1.96	17 (30%)
18	CLA	3	614	-	39,48,73	1.87	7 (17%)	44,83,113	1.66	7 (15%)
18	CLA	8	601	17	65,73,73	1.46	10 (15%)	76,113,113	1.44	10 (13%)
28	NEX	5	624	-	38,46,46	1.00	1 (2%)	50,70,70	2.18	16 (32%)
27	XAT	6	621	-	39,47,47	0.92	2 (5%)	54,74,74	2.72	20 (37%)
18	CLA	4	602	13	60,68,73	1.46	8 (13%)	70,107,113	1.62	8 (11%)
18	CLA	B	806	2	65,73,73	1.45	10 (15%)	76,113,113	1.45	9 (11%)
20	LHG	6	623	18	47,47,48	0.65	1 (2%)	50,53,54	1.27	6 (12%)
25	DGD	B	850	-	63,63,67	0.98	1 (1%)	77,77,81	1.42	11 (14%)
18	CLA	a	614	-	55,62,73	1.70	7 (12%)	60,99,113	1.50	7 (11%)
18	CLA	8	602	17	60,68,73	1.51	7 (11%)	70,107,113	1.50	8 (11%)
21	BCR	J	102	-	41,41,41	0.70	0	56,56,56	1.99	18 (32%)
18	CLA	B	822	-	42,50,73	1.85	5 (11%)	48,85,113	1.67	7 (14%)
18	CLA	3	607	12	56,64,73	1.61	7 (12%)	69,102,113	1.54	11 (15%)
18	CLA	4	609	13	61,69,73	1.51	7 (11%)	71,108,113	1.53	10 (14%)
18	CLA	3	612	12	43,51,73	1.79	7 (16%)	49,86,113	1.63	8 (16%)
18	CLA	A	805	-	52,60,73	1.61	8 (15%)	60,97,113	1.64	8 (13%)
18	CLA	A	808	-	50,58,73	1.61	7 (14%)	58,95,113	1.70	9 (15%)
18	CLA	3	608	-	55,63,73	1.64	11 (20%)	64,101,113	1.49	7 (10%)
18	CLA	A	839	-	55,63,73	1.57	9 (16%)	64,101,113	1.52	8 (12%)
18	CLA	A	823	-	42,50,73	1.77	9 (21%)	48,85,113	1.71	7 (14%)
18	CLA	B	810	-	65,73,73	1.46	6 (9%)	76,113,113	1.40	7 (9%)
18	CLA	3	611	20	37,46,73	1.95	7 (18%)	46,81,113	1.81	10 (21%)
21	BCR	K	207	-	41,41,41	0.75	0	56,56,56	1.78	14 (25%)
18	CLA	8	609	17	45,53,73	1.73	7 (15%)	52,89,113	1.71	6 (11%)
18	CLA	6	616	15	65,73,73	1.45	6 (9%)	76,113,113	1.59	11 (14%)
24	LMG	4	624	-	40,40,55	0.91	1 (2%)	48,48,63	1.22	4 (8%)
18	CLA	a	608	-	43,52,73	1.81	6 (13%)	49,88,113	1.64	7 (14%)
18	CLA	B	834	-	60,68,73	1.55	8 (13%)	70,107,113	1.47	9 (12%)
18	CLA	1	606	11	37,47,73	1.92	6 (16%)	41,80,113	1.70	7 (17%)
18	CLA	A	809	1	65,73,73	1.40	7 (10%)	76,113,113	1.49	7 (9%)
18	CLA	6	620	-	45,53,73	1.74	10 (22%)	52,89,113	1.87	11 (21%)
18	CLA	1	610	11	38,47,73	1.93	7 (18%)	44,81,113	1.73	8 (18%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
18	CLA	L	304	-	45,53,73	1.79	5 (11%)	52,89,113	1.62	6 (11%)
18	CLA	A	819	-	59,67,73	1.58	10 (16%)	68,105,113	1.39	5 (7%)
18	CLA	4	603	13	44,52,73	1.83	8 (18%)	55,88,113	1.76	10 (18%)
18	CLA	8	608	-	51,59,73	1.69	8 (15%)	59,96,113	1.65	8 (13%)
18	CLA	3	617	12	39,48,73	1.84	9 (23%)	44,83,113	1.67	8 (18%)
18	CLA	A	832	-	50,58,73	1.64	8 (16%)	58,95,113	1.60	8 (13%)
18	CLA	A	840	-	52,60,73	1.62	7 (13%)	60,97,113	1.68	11 (18%)
18	CLA	B	833	-	65,73,73	1.47	7 (10%)	76,113,113	1.53	10 (13%)
18	CLA	K	203	-	65,73,73	1.48	6 (9%)	76,113,113	1.41	10 (13%)
18	CLA	A	830	-	65,73,73	1.43	8 (12%)	76,113,113	1.53	10 (13%)
18	CLA	7	611	20	59,67,73	1.47	7 (11%)	68,105,113	1.58	7 (10%)
26	LUT	8	619	-	42,43,43	0.77	0	51,60,60	1.58	10 (19%)
18	CLA	5	618	14	39,48,73	1.92	8 (20%)	48,83,113	1.79	9 (18%)
18	CLA	8	607	-	41,49,73	1.86	8 (19%)	51,84,113	1.74	9 (17%)
27	XAT	1	618	-	39,47,47	0.86	1 (2%)	54,74,74	2.59	20 (37%)
18	CLA	7	610	16	65,73,73	1.43	9 (13%)	76,113,113	1.42	10 (13%)
18	CLA	1	614	-	37,45,73	2.08	8 (21%)	44,79,113	1.82	10 (22%)
18	CLA	5	611	20	42,50,73	1.78	6 (14%)	48,85,113	1.64	7 (14%)
18	CLA	5	614	-	45,52,73	1.91	7 (15%)	48,87,113	1.65	8 (16%)
18	CLA	A	831	-	65,73,73	1.53	10 (15%)	76,113,113	1.70	14 (18%)
18	CLA	1	607	-	39,48,73	1.87	7 (17%)	44,83,113	1.70	7 (15%)
23	LMU	5	628	-	34,34,36	1.26	2 (5%)	45,45,47	1.31	7 (15%)
18	CLA	A	804	-	65,73,73	1.46	8 (12%)	76,113,113	1.46	8 (10%)
18	CLA	5	610	14	54,62,73	1.60	7 (12%)	62,99,113	1.61	7 (11%)
18	CLA	B	827	-	62,70,73	1.46	8 (12%)	72,109,113	1.53	7 (9%)
24	LMG	A	860	-	40,40,55	0.93	2 (5%)	48,48,63	1.27	5 (10%)
18	CLA	8	614	-	56,64,73	1.54	7 (12%)	65,102,113	1.58	9 (13%)
23	LMU	K	208	-	36,36,36	1.21	2 (5%)	47,47,47	1.33	5 (10%)
26	LUT	3	618	-	42,43,43	0.79	0	51,60,60	1.55	9 (17%)
18	CLA	B	841	20	44,52,73	1.82	5 (11%)	50,87,113	1.60	9 (18%)
18	CLA	3	613	12	52,61,73	1.61	8 (15%)	59,98,113	1.62	8 (13%)
18	CLA	5	616	14	41,50,73	1.89	9 (21%)	50,85,113	1.62	8 (16%)
18	CLA	B	816	-	55,63,73	1.56	7 (12%)	64,101,113	1.59	6 (9%)
18	CLA	7	606	-	41,49,73	1.84	8 (19%)	47,84,113	1.72	7 (14%)
18	CLA	B	824	-	65,73,73	1.54	7 (10%)	76,113,113	1.45	9 (11%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
18	CLA	A	807	1	65,73,73	1.48	10 (15%)	76,113,113	1.43	7 (9%)
18	CLA	F	304	-	41,49,73	1.82	6 (14%)	47,84,113	1.70	9 (19%)
18	CLA	1	611	20	65,73,73	1.44	6 (9%)	76,113,113	1.48	8 (10%)
18	CLA	a	606	11	43,52,73	1.79	6 (13%)	48,87,113	1.65	5 (10%)
18	CLA	1	608	-	43,52,73	1.85	5 (11%)	49,88,113	1.58	6 (12%)
18	CLA	5	608	-	50,58,73	1.63	8 (16%)	58,95,113	1.69	8 (13%)
18	CLA	5	619	-	43,51,73	1.85	8 (18%)	54,87,113	1.95	11 (20%)
25	DGD	J	103	-	59,59,67	0.99	3 (5%)	73,73,81	1.47	10 (13%)
18	CLA	3	609	12	60,68,73	1.52	8 (13%)	70,107,113	1.64	11 (15%)
21	BCR	L	301	-	41,41,41	0.75	0	56,56,56	1.84	15 (26%)
27	XAT	8	620	-	39,47,47	0.92	1 (2%)	54,74,74	2.67	19 (35%)
21	BCR	1	619	-	41,41,41	0.66	0	56,56,56	1.93	16 (28%)
18	CLA	8	612	17	40,49,73	1.80	7 (17%)	45,84,113	1.75	9 (20%)
18	CLA	6	617	-	45,53,73	1.75	7 (15%)	52,89,113	1.57	6 (11%)
18	CLA	1	603	-	53,62,73	1.65	6 (11%)	61,100,113	1.61	8 (13%)
18	CLA	7	609	16	45,53,73	1.67	6 (13%)	52,89,113	1.86	9 (17%)
18	CLA	a	607	-	45,53,73	1.75	6 (13%)	52,89,113	1.65	8 (15%)
23	LMU	A	858	-	34,35,36	1.29	2 (5%)	42,45,47	1.22	5 (11%)
18	CLA	a	609	11	65,73,73	1.49	6 (9%)	76,113,113	1.43	8 (10%)
21	BCR	6	622	-	41,41,41	0.72	0	56,56,56	1.95	17 (30%)
18	CLA	7	612	16	44,52,73	1.86	8 (18%)	51,88,113	1.53	9 (17%)
18	CLA	B	803	-	65,73,73	1.39	9 (13%)	76,113,113	1.92	13 (17%)
18	CLA	A	838	-	50,58,73	1.56	7 (14%)	58,95,113	1.78	8 (13%)
18	CLA	B	818	-	60,68,73	1.49	8 (13%)	70,107,113	1.61	8 (11%)
18	CLA	B	840	-	65,73,73	1.46	8 (12%)	76,113,113	1.52	6 (7%)
21	BCR	B	845	-	41,41,41	0.71	0	56,56,56	1.96	17 (30%)
18	CLA	B	821	-	46,54,73	1.80	6 (13%)	53,90,113	1.60	8 (15%)
23	LMU	A	859	-	35,35,36	1.27	3 (8%)	43,45,47	1.23	4 (9%)
18	CLA	B	819	-	55,63,73	1.63	7 (12%)	64,101,113	1.52	6 (9%)
18	CLA	A	854	-	65,73,73	1.46	9 (13%)	76,113,113	1.57	11 (14%)
18	CLA	3	606	-	53,62,73	1.63	7 (13%)	61,100,113	1.51	7 (11%)
20	LHG	3	624	18	48,48,48	0.63	0	51,54,54	1.22	6 (11%)
21	BCR	B	843	-	41,41,41	0.70	0	56,56,56	1.94	15 (26%)
18	CLA	6	610	15	65,73,73	1.44	7 (10%)	76,113,113	1.40	7 (9%)
18	CLA	B	807	-	52,60,73	1.64	9 (17%)	60,97,113	1.53	9 (15%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
18	CLA	B	839	-	65,73,73	1.43	8 (12%)	76,113,113	1.47	8 (10%)
18	CLA	5	604	-	63,71,73	1.53	8 (12%)	78,111,113	1.45	9 (11%)
18	CLA	4	616	13	43,51,73	1.85	8 (18%)	54,87,113	1.71	8 (14%)
18	CLA	3	610	12	65,73,73	1.45	9 (13%)	76,113,113	1.44	7 (9%)
18	CLA	1	612	11	45,53,73	1.77	6 (13%)	52,89,113	1.63	7 (13%)
18	CLA	5	617	-	50,58,73	1.66	8 (16%)	58,95,113	1.62	8 (13%)
18	CLA	8	611	20	42,50,73	1.78	7 (16%)	48,85,113	1.63	8 (16%)
20	LHG	A	847	18	29,29,48	0.83	1 (3%)	32,35,54	1.29	3 (9%)
18	CLA	A	803	-	65,73,73	1.46	10 (15%)	76,113,113	1.54	7 (9%)
27	XAT	5	621	-	39,47,47	0.93	0	54,74,74	2.78	21 (38%)
18	CLA	1	613	-	65,73,73	1.48	6 (9%)	76,113,113	1.45	8 (10%)
18	CLA	A	810	1	50,58,73	1.66	10 (20%)	58,95,113	1.52	10 (17%)
18	CLA	B	808	-	65,73,73	1.43	8 (12%)	76,113,113	1.64	10 (13%)
18	CLA	B	831	-	65,73,73	1.43	7 (10%)	76,113,113	1.50	6 (7%)
21	BCR	A	851	-	41,41,41	0.79	0	56,56,56	2.14	14 (25%)
18	CLA	6	614	-	60,68,73	1.52	7 (11%)	70,107,113	1.51	7 (10%)
27	XAT	3	619	-	39,47,47	0.93	2 (5%)	54,74,74	2.63	21 (38%)
21	BCR	3	620	-	41,41,41	0.72	0	56,56,56	2.06	19 (33%)
18	CLA	A	801	-	65,73,73	1.48	9 (13%)	76,113,113	1.40	7 (9%)
18	CLA	A	814	-	65,73,73	1.39	7 (10%)	76,113,113	1.58	10 (13%)
20	LHG	1	620	18	48,48,48	0.60	0	51,54,54	1.24	6 (11%)
18	CLA	7	615	-	38,47,73	1.91	7 (18%)	46,81,113	1.74	8 (17%)
26	LUT	6	619	-	42,43,43	0.76	0	51,60,60	1.57	12 (23%)
18	CLA	B	835	-	45,53,73	1.77	6 (13%)	52,89,113	1.82	9 (17%)
18	CLA	6	606	-	39,48,73	1.83	6 (15%)	44,83,113	1.75	8 (18%)
18	CLA	7	613	16	65,73,73	1.46	8 (12%)	76,113,113	1.43	9 (11%)
27	XAT	a	618	-	39,47,47	0.87	1 (2%)	54,74,74	2.61	20 (37%)
22	SF4	C	102	-	0,12,12	-	-	-	-	-
21	BCR	A	848	-	41,41,41	0.77	0	56,56,56	1.86	15 (26%)
26	LUT	1	617	-	42,43,43	0.74	0	51,60,60	1.66	14 (27%)
18	CLA	a	613	-	65,73,73	1.49	7 (10%)	76,113,113	1.49	8 (10%)
18	CLA	8	616	17	43,51,73	1.87	6 (13%)	54,87,113	1.82	12 (22%)
18	CLA	A	817	-	45,53,73	1.71	7 (15%)	52,89,113	1.97	11 (21%)
21	BCR	F	305	-	41,41,41	0.78	0	56,56,56	2.14	18 (32%)
22	SF4	C	101	-	0,12,12	-	-	-	-	-



Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
18	CLA	8	606	-	64,72,73	1.50	7 (10%)	75,112,113	1.35	6 (8%)
18	CLA	a	616	11	45,53,73	1.74	6 (13%)	52,89,113	1.55	7 (13%)
18	CLA	B	838	-	47,55,73	1.66	7 (14%)	54,91,113	1.64	7 (12%)
20	LHG	8	622	18	48,48,48	0.94	2 (4%)	51,54,54	1.04	3 (5%)
21	BCR	3	621	-	41,41,41	0.70	0	56,56,56	2.46	20 (35%)
21	BCR	A	850	-	41,41,41	0.75	0	56,56,56	1.95	15 (26%)
21	BCR	K	202	-	41,41,41	0.72	0	56,56,56	2.06	15 (26%)
18	CLA	8	603	-	44,52,73	1.80	8 (18%)	55,88,113	1.79	9 (16%)
18	CLA	A	842	-	65,73,73	1.44	8 (12%)	76,113,113	1.45	6 (7%)
21	BCR	B	846	-	41,41,41	0.73	0	56,56,56	2.05	16 (28%)
21	BCR	B	848	-	41,41,41	0.79	0	56,56,56	1.78	11 (19%)
18	CLA	1	602	11	61,69,73	1.49	7 (11%)	71,108,113	1.43	7 (9%)
18	CLA	5	602	14	65,73,73	1.44	7 (10%)	76,113,113	1.54	7 (9%)
18	CLA	A	802	-	65,73,73	1.39	8 (12%)	76,113,113	1.71	10 (13%)
26	LUT	a	617	-	42,43,43	0.74	0	51,60,60	1.58	12 (23%)
18	CLA	B	826	-	55,63,73	1.57	7 (12%)	64,101,113	1.69	6 (9%)
26	LUT	5	620	-	42,43,43	0.77	0	51,60,60	1.64	13 (25%)
18	CLA	1	609	11	40,48,73	1.96	6 (15%)	50,83,113	1.78	10 (20%)
23	LMU	8	624	-	36,36,36	1.20	2 (5%)	47,47,47	0.96	2 (4%)
26	LUT	7	619	-	42,43,43	0.89	2 (4%)	51,60,60	1.85	14 (27%)
18	CLA	A	821	-	53,61,73	1.59	8 (15%)	61,98,113	1.59	7 (11%)
18	CLA	B	811	-	54,62,73	1.63	7 (12%)	67,100,113	1.52	9 (13%)
18	CLA	A	836	-	65,73,73	1.46	9 (13%)	76,113,113	1.44	7 (9%)
18	CLA	B	815	-	43,51,73	1.73	7 (16%)	49,86,113	1.75	7 (14%)
21	BCR	5	622	-	41,41,41	0.69	0	56,56,56	2.11	20 (35%)
18	CLA	5	612	14	40,49,73	1.80	7 (17%)	45,84,113	1.75	8 (17%)
18	CLA	A	822	-	65,73,73	1.47	8 (12%)	76,113,113	1.53	7 (9%)
18	CLA	6	601	15	65,73,73	1.43	8 (12%)	76,113,113	1.56	8 (10%)
21	BCR	3	622	-	41,41,41	0.71	0	56,56,56	2.61	21 (37%)
18	CLA	6	613	-	63,72,73	1.47	8 (12%)	73,112,113	1.49	9 (12%)
21	BCR	B	844	-	41,41,41	0.73	0	56,56,56	2.03	18 (32%)
20	LHG	A	846	-	48,48,48	0.71	1 (2%)	51,54,54	1.27	6 (11%)
20	LHG	5	623	18	48,48,48	0.62	1 (2%)	51,54,54	1.25	6 (11%)
18	CLA	B	828	-	65,73,73	1.43	9 (13%)	76,113,113	1.46	8 (10%)
18	CLA	3	602	12	60,68,73	1.45	9 (15%)	70,107,113	1.51	7 (10%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
18	CLA	4	606	-	39,48,73	1.83	7 (17%)	44,83,113	1.71	7 (15%)
18	CLA	5	613	14	64,72,73	1.45	7 (10%)	74,111,113	1.53	7 (9%)
18	CLA	7	602	16	65,73,73	1.44	9 (13%)	76,113,113	1.40	8 (10%)
20	LHG	3	623	-	44,44,48	0.60	0	47,50,54	1.26	6 (12%)
21	BCR	a	619	-	41,41,41	0.69	0	56,56,56	1.93	16 (28%)
18	CLA	B	830	-	43,51,73	1.82	9 (20%)	49,86,113	1.81	9 (18%)
18	CLA	4	610	13	61,69,73	1.48	7 (11%)	71,108,113	1.55	8 (11%)
18	CLA	B	812	-	43,51,73	1.80	6 (13%)	49,86,113	1.62	6 (12%)
18	CLA	F	301	-	57,65,73	1.59	9 (15%)	66,103,113	1.41	9 (13%)
18	CLA	B	837	-	65,73,73	1.46	7 (10%)	76,113,113	1.42	8 (10%)
18	CLA	A	835	-	61,69,73	1.47	9 (14%)	71,108,113	1.68	12 (16%)
18	CLA	4	607	-	45,53,73	1.75	7 (15%)	52,89,113	1.73	7 (13%)
18	CLA	8	610	17	60,68,73	1.44	7 (11%)	70,107,113	1.50	7 (10%)
18	CLA	1	601	11	53,62,73	1.62	8 (15%)	61,100,113	1.45	9 (14%)
18	CLA	B	820	-	50,58,73	1.70	6 (12%)	58,95,113	1.62	7 (12%)
18	CLA	K	206	9	45,53,73	1.77	7 (15%)	52,89,113	1.68	7 (13%)
18	CLA	6	604	-	65,73,73	1.45	9 (13%)	76,113,113	1.38	7 (9%)
18	CLA	6	611	20	42,50,73	1.75	7 (16%)	48,85,113	1.61	7 (14%)
22	SF4	A	853	-	0,12,12	-	-	-	-	-
18	CLA	4	618	13	39,48,73	1.91	8 (20%)	48,83,113	1.79	10 (20%)
23	LMU	A	857	-	34,34,36	1.38	3 (8%)	44,44,47	1.26	4 (9%)
20	LHG	a	620	18	48,48,48	0.64	1 (2%)	51,54,54	1.25	6 (11%)
27	XAT	7	620	-	39,47,47	0.91	2 (5%)	54,74,74	2.67	20 (37%)
20	LHG	4	622	18	48,48,48	0.62	1 (2%)	51,54,54	1.25	7 (13%)
18	CLA	7	608	-	50,58,73	1.68	10 (20%)	58,95,113	1.56	9 (15%)
18	CLA	A	843	-	64,72,73	1.42	8 (12%)	74,111,113	1.44	7 (9%)
18	CLA	A	806	-	65,73,73	1.47	9 (13%)	76,113,113	1.66	11 (14%)
18	CLA	4	614	-	56,64,73	1.60	8 (14%)	65,102,113	1.49	7 (10%)
18	CLA	A	811	-	65,73,73	1.43	7 (10%)	76,113,113	1.44	7 (9%)
18	CLA	3	603	-	55,63,73	1.62	8 (14%)	64,101,113	1.70	12 (18%)
21	BCR	A	852	-	41,41,41	0.78	1 (2%)	56,56,56	2.10	16 (28%)
21	BCR	B	801	-	41,41,41	0.71	0	56,56,56	2.01	13 (23%)
18	CLA	A	815	-	50,58,73	1.67	9 (18%)	58,95,113	1.56	9 (15%)
18	CLA	a	612	11	45,53,73	1.77	7 (15%)	52,89,113	1.62	7 (13%)
26	LUT	4	619	-	42,43,43	0.79	0	51,60,60	1.62	11 (21%)



Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
18	CLA	a	611	20	37,46,73	1.96	7 (18%)	46,81,113	1.78	9 (19%)
18	CLA	7	603	-	43,52,73	1.79	8 (18%)	49,88,113	1.66	7 (14%)
18	CLA	J	101	8	42,50,73	1.82	6 (14%)	48,85,113	1.73	8 (16%)
18	CLA	7	601	16	60,68,73	1.50	8 (13%)	70,107,113	1.55	9 (12%)
19	PQN	B	842	-	34,34,34	2.90	11 (32%)	42,45,45	2.04	5 (11%)
21	BCR	8	621	-	41,41,41	0.71	0	56,56,56	1.94	18 (32%)
18	CLA	K	201	9	45,53,73	1.77	7 (15%)	52,89,113	1.87	12 (23%)
18	CLA	B	823	-	45,53,73	1.79	6 (13%)	52,89,113	1.58	6 (11%)
18	CLA	5	601	14	56,64,73	1.58	7 (12%)	65,102,113	1.48	6 (9%)
18	CLA	a	610	11	59,67,73	1.55	9 (15%)	69,106,113	1.40	7 (10%)
18	CLA	a	603	-	54,62,73	1.63	7 (12%)	62,99,113	1.57	8 (12%)
18	CLA	6	608	-	51,59,73	1.64	7 (13%)	59,96,113	1.60	6 (10%)
18	CLA	6	602	15	65,73,73	1.46	9 (13%)	76,113,113	1.45	8 (10%)
18	CLA	B	813	-	65,73,73	1.46	7 (10%)	76,113,113	1.46	9 (11%)
18	CLA	1	604	-	49,57,73	1.69	6 (12%)	55,93,113	1.75	8 (14%)
18	CLA	A	813	-	54,62,73	1.53	7 (12%)	62,99,113	1.70	6 (9%)
18	CLA	4	608	-	65,73,73	1.44	7 (10%)	76,113,113	1.44	7 (9%)
18	CLA	5	606	-	39,48,73	1.91	7 (17%)	44,83,113	1.56	7 (15%)
21	BCR	7	621	-	41,41,41	0.73	0	56,56,56	2.02	22 (39%)
24	LMG	J	104	-	40,40,55	0.90	2 (5%)	48,48,63	1.22	4 (8%)
18	CLA	A	827	-	59,67,73	1.50	8 (13%)	68,105,113	1.59	10 (14%)
18	CLA	A	833	-	45,53,73	1.72	6 (13%)	52,89,113	1.77	6 (11%)
18	CLA	6	607	-	41,49,73	1.83	8 (19%)	51,84,113	1.87	10 (19%)
18	CLA	6	609	15	45,53,73	1.76	9 (20%)	52,89,113	1.67	8 (15%)
18	CLA	A	841	-	65,73,73	1.45	9 (13%)	76,113,113	1.42	7 (9%)
21	BCR	B	847	-	41,41,41	0.73	0	56,56,56	2.00	18 (32%)
18	CLA	K	204	-	46,54,73	1.70	7 (15%)	53,90,113	1.65	6 (11%)
18	CLA	5	609	14	65,73,73	1.46	8 (12%)	76,113,113	1.46	9 (11%)
18	CLA	B	809	2	65,73,73	1.42	9 (13%)	76,113,113	1.49	6 (7%)
18	CLA	7	604	-	54,62,73	1.59	7 (12%)	63,100,113	1.62	8 (12%)
18	CLA	A	845	20	50,58,73	1.66	7 (14%)	58,95,113	1.59	6 (10%)
18	CLA	B	825	-	62,70,73	1.49	8 (12%)	72,109,113	1.39	8 (11%)
24	LMG	5	626	-	40,40,55	0.88	0	48,48,63	1.20	5 (10%)
18	CLA	L	302	10	45,53,73	1.80	5 (11%)	52,89,113	1.73	8 (15%)
18	CLA	A	824	-	41,49,73	1.82	6 (14%)	47,84,113	1.76	11 (23%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
18	CLA	a	604	-	49,57,73	1.68	7 (14%)	55,93,113	1.74	9 (16%)
18	CLA	A	834	-	65,73,73	1.43	8 (12%)	76,113,113	1.48	7 (9%)
20	LHG	5	625	-	48,48,48	0.61	0	51,54,54	1.25	6 (11%)
27	XAT	4	620	-	39,47,47	0.89	1 (2%)	54,74,74	2.61	18 (33%)
18	CLA	B	814	-	64,72,73	1.43	8 (12%)	74,111,113	1.53	7 (9%)
18	CLA	6	612	15	40,49,73	1.83	7 (17%)	45,84,113	1.77	7 (15%)
18	CLA	3	604	-	65,73,73	1.47	7 (10%)	76,113,113	1.46	6 (7%)
18	CLA	A	816	-	45,53,73	1.72	7 (15%)	52,89,113	1.83	7 (13%)
18	CLA	B	805	-	65,73,73	1.39	8 (12%)	76,113,113	1.53	8 (10%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
18	CLA	A	837	1	1/1/11/20	8/13/91/115	-
18	CLA	a	601	11	1/1/13/20	6/23/101/115	-
18	CLA	A	825	-	1/1/15/20	20/37/115/115	-
18	CLA	B	829	-	1/1/15/20	10/37/115/115	-
18	CLA	B	836	-	1/1/12/20	6/19/97/115	-
18	CLA	7	602	16	1/1/15/20	13/37/115/115	-
18	CLA	1	616	11	1/1/11/20	4/11/87/115	-
18	CLA	A	818	-	1/1/14/20	13/31/109/115	-
18	CLA	L	303	-	1/1/11/20	6/13/91/115	-
18	CLA	6	603	-	1/1/13/20	7/25/101/115	-
18	CLA	A	828	-	1/1/14/20	10/35/113/115	-
18	CLA	B	817	-	1/1/13/20	10/30/108/115	-
18	CLA	4	613	13	1/1/15/20	13/37/115/115	-
18	CLA	4	601	13	-	16/37/115/115	-
19	PQN	A	844	-	-	7/23/43/43	0/2/2/2
20	LHG	8	623	-	-	33/53/53/53	-
24	LMG	5	627	-	-	15/35/55/70	0/1/1/1
18	CLA	5	603	-	1/1/13/20	7/25/101/115	-
24	LMG	4	623	-	-	12/35/55/70	0/1/1/1
18	CLA	5	607	-	1/1/15/20	15/37/115/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
18	CLA	8	613	17	1/1/15/20	19/37/115/115	-
21	BCR	4	621	-	-	4/29/63/63	0/2/2/2
20	LHG	7	622	18	-	24/41/41/53	-
18	CLA	7	614	-	1/1/10/20	4/10/88/115	-
20	LHG	B	851	18	-	19/39/39/53	-
18	CLA	F	303	-	-	5/10/88/115	-
24	LMG	7	624	-	-	15/39/59/70	0/1/1/1
18	CLA	3	615	-	1/1/10/20	1/6/84/115	-
18	CLA	7	616	16	1/1/11/20	7/11/87/115	-
18	CLA	B	802	-	1/1/15/20	18/37/115/115	-
18	CLA	4	604	-	1/1/13/20	10/25/101/115	-
18	CLA	4	611	20	1/1/10/20	4/10/88/115	-
21	BCR	L	305	-	-	10/29/63/63	0/2/2/2
28	NEX	6	624	-	-	4/27/83/83	0/3/3/3
18	CLA	A	826	-	1/1/14/20	13/35/113/115	-
18	CLA	B	832	-	1/1/14/20	8/31/109/115	-
23	LMU	8	625	-	-	11/21/61/61	0/2/2/2
21	BCR	7	623	-	-	3/29/63/63	0/2/2/2
18	CLA	8	604	-	1/1/12/20	11/19/97/115	-
18	CLA	A	812	-	1/1/15/20	15/37/115/115	-
18	CLA	A	820	-	1/1/15/20	16/37/115/115	-
18	CLA	A	829	-	1/1/15/20	8/37/115/115	-
18	CLA	B	804	-	1/1/10/20	3/8/86/115	-
18	CLA	a	602	11	1/1/14/20	6/33/111/115	-
18	CLA	6	618	15	1/1/10/20	2/8/84/115	-
21	BCR	A	849	-	-	2/29/63/63	0/2/2/2
18	CLA	7	607	-	1/1/10/20	6/10/88/115	-
21	BCR	A	856	-	-	7/29/63/63	0/2/2/2
18	CLA	3	614	-	1/1/10/20	0/6/84/115	-
18	CLA	8	601	17	1/1/15/20	16/37/115/115	-
28	NEX	5	624	-	-	2/27/83/83	0/3/3/3
27	XAT	6	621	-	-	2/31/93/93	0/4/4/4
18	CLA	4	602	13	1/1/14/20	7/31/109/115	-
18	CLA	B	806	2	1/1/15/20	11/37/115/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
20	LHG	6	623	18	-	26/52/52/53	-
25	DGD	B	850	-	-	23/51/91/95	0/2/2/2
18	CLA	a	614	-	1/1/12/20	7/25/99/115	-
18	CLA	8	602	17	1/1/14/20	7/31/109/115	-
21	BCR	J	102	-	-	7/29/63/63	0/2/2/2
18	CLA	B	822	-	1/1/10/20	2/10/88/115	-
18	CLA	3	607	12	1/1/13/20	6/28/104/115	-
18	CLA	4	609	13	1/1/14/20	6/33/111/115	-
18	CLA	3	612	12	1/1/10/20	3/11/89/115	-
18	CLA	A	805	-	1/1/12/20	3/22/100/115	-
18	CLA	A	808	-	1/1/12/20	4/19/97/115	-
18	CLA	3	608	-	1/1/13/20	7/25/103/115	-
18	CLA	A	839	-	1/1/13/20	4/25/103/115	-
18	CLA	A	823	-	1/1/10/20	2/10/88/115	-
18	CLA	B	810	-	1/1/15/20	12/37/115/115	-
18	CLA	3	611	20	1/1/10/20	0/4/80/115	-
21	BCR	K	207	-	-	4/29/63/63	0/2/2/2
18	CLA	8	609	17	1/1/11/20	4/13/91/115	-
18	CLA	6	616	15	1/1/15/20	18/37/115/115	-
24	LMG	4	624	-	-	13/35/55/70	0/1/1/1
18	CLA	a	608	-	1/1/11/20	2/11/89/115	-
18	CLA	B	834	-	1/1/14/20	11/31/109/115	-
18	CLA	1	606	11	1/1/8/20	1/5/79/115	-
18	CLA	A	809	1	1/1/15/20	10/37/115/115	-
18	CLA	6	620	-	1/1/11/20	7/13/91/115	-
18	CLA	1	610	11	1/1/9/20	0/6/80/115	-
18	CLA	L	304	-	1/1/11/20	7/13/91/115	-
18	CLA	A	819	-	1/1/13/20	8/30/108/115	-
18	CLA	4	603	13	1/1/11/20	5/13/89/115	-
18	CLA	8	608	-	1/1/12/20	9/21/99/115	-
18	CLA	3	617	12	1/1/10/20	2/6/84/115	-
18	CLA	A	832	-	1/1/12/20	4/19/97/115	-
18	CLA	A	840	-	1/1/12/20	4/22/100/115	-
18	CLA	B	833	-	1/1/15/20	16/37/115/115	-
18	CLA	K	203	-	1/1/15/20	10/37/115/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
18	CLA	A	830	-	1/1/15/20	18/37/115/115	-
18	CLA	7	611	20	1/1/13/20	12/29/107/115	-
26	LUT	8	619	-	-	2/29/67/67	0/2/2/2
18	CLA	5	618	14	1/1/10/20	0/8/84/115	-
18	CLA	8	607	-	1/1/10/20	5/10/86/115	-
27	XAT	1	618	-	-	1/31/93/93	0/4/4/4
18	CLA	7	610	16	1/1/15/20	8/37/115/115	-
18	CLA	1	614	-	1/1/9/20	0/4/76/115	-
18	CLA	5	611	20	1/1/10/20	5/10/88/115	-
18	CLA	5	614	-	1/1/10/20	7/13/87/115	-
18	CLA	A	831	-	1/1/15/20	9/37/115/115	-
18	CLA	1	607	-	1/1/10/20	0/6/84/115	-
23	LMU	5	628	-	-	12/19/59/61	0/2/2/2
18	CLA	A	804	-	1/1/15/20	14/37/115/115	-
18	CLA	5	610	14	1/1/12/20	3/24/102/115	-
18	CLA	B	827	-	1/1/14/20	17/34/112/115	-
24	LMG	A	860	-	-	14/35/55/70	0/1/1/1
18	CLA	8	614	-	1/1/13/20	8/27/105/115	-
23	LMU	K	208	-	-	12/21/61/61	0/2/2/2
26	LUT	3	618	-	-	2/29/67/67	0/2/2/2
18	CLA	B	841	20	1/1/10/20	5/12/90/115	-
18	CLA	3	613	12	1/1/12/20	5/21/99/115	-
18	CLA	5	616	14	1/1/10/20	4/8/84/115	-
18	CLA	B	816	-	1/1/13/20	10/25/103/115	-
18	CLA	7	606	-	1/1/10/20	2/8/86/115	-
18	CLA	B	824	-	1/1/15/20	12/37/115/115	-
18	CLA	A	807	1	1/1/15/20	13/37/115/115	-
18	CLA	F	304	-	1/1/10/20	4/8/86/115	-
18	CLA	1	611	20	1/1/15/20	11/37/115/115	-
18	CLA	a	606	11	1/1/10/20	4/10/88/115	-
18	CLA	1	608	-	1/1/11/20	0/11/89/115	-
18	CLA	5	608	-	1/1/12/20	7/19/97/115	-
18	CLA	5	619	-	-	7/11/87/115	-
25	DGD	J	103	-	-	26/47/87/95	0/2/2/2
18	CLA	3	609	12	1/1/14/20	20/31/109/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
21	BCR	L	301	-	-	5/29/63/63	0/2/2/2
27	XAT	8	620	-	-	2/31/93/93	0/4/4/4
21	BCR	1	619	-	-	0/29/63/63	0/2/2/2
18	CLA	8	612	17	-	2/8/86/115	-
18	CLA	6	617	-	1/1/11/20	5/13/91/115	-
18	CLA	1	603	-	1/1/13/20	13/23/101/115	-
18	CLA	7	609	16	1/1/11/20	6/13/91/115	-
18	CLA	a	607	-	1/1/11/20	5/13/91/115	-
23	LMU	A	858	-	-	7/21/57/61	0/2/2/2
18	CLA	a	609	11	1/1/15/20	20/37/115/115	-
21	BCR	6	622	-	-	6/29/63/63	0/2/2/2
18	CLA	7	612	16	-	5/11/89/115	-
18	CLA	B	803	-	1/1/15/20	12/37/115/115	-
18	CLA	A	838	-	1/1/12/20	7/19/97/115	-
18	CLA	B	818	-	1/1/14/20	15/31/109/115	-
18	CLA	B	840	-	1/1/15/20	7/37/115/115	-
21	BCR	B	845	-	-	4/29/63/63	0/2/2/2
18	CLA	B	821	-	1/1/11/20	7/14/92/115	-
23	LMU	A	859	-	-	9/21/57/61	0/2/2/2
18	CLA	B	819	-	1/1/13/20	6/25/103/115	-
18	CLA	A	854	-	1/1/15/20	14/37/115/115	-
18	CLA	3	606	-	1/1/13/20	8/23/101/115	-
20	LHG	3	624	18	-	27/53/53/53	-
21	BCR	B	843	-	-	5/29/63/63	0/2/2/2
18	CLA	6	610	15	1/1/15/20	10/37/115/115	-
18	CLA	B	807	-	1/1/12/20	5/22/100/115	-
18	CLA	B	839	-	1/1/15/20	9/37/115/115	-
18	CLA	5	604	-	1/1/15/20	15/35/111/115	-
18	CLA	4	616	13	1/1/11/20	7/11/87/115	-
18	CLA	3	610	12	1/1/15/20	6/37/115/115	-
18	CLA	1	612	11	1/1/11/20	7/13/91/115	-
18	CLA	5	617	-	1/1/12/20	8/19/97/115	-
18	CLA	8	611	20	1/1/10/20	4/10/88/115	-
20	LHG	A	847	18	-	17/34/34/53	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
18	CLA	A	803	-	1/1/15/20	7/37/115/115	-
27	XAT	5	621	-	-	2/31/93/93	0/4/4/4
18	CLA	1	613	-	1/1/15/20	9/37/115/115	-
18	CLA	A	810	1	1/1/12/20	5/19/97/115	-
18	CLA	B	808	-	1/1/15/20	14/37/115/115	-
18	CLA	B	831	-	1/1/15/20	10/37/115/115	-
21	BCR	A	851	-	-	5/29/63/63	0/2/2/2
18	CLA	6	614	-	1/1/14/20	11/31/109/115	-
27	XAT	3	619	-	-	2/31/93/93	0/4/4/4
21	BCR	3	620	-	-	5/29/63/63	0/2/2/2
18	CLA	A	801	-	1/1/15/20	9/37/115/115	-
18	CLA	A	814	-	1/1/15/20	18/37/115/115	-
20	LHG	1	620	18	-	17/53/53/53	-
18	CLA	7	615	-	1/1/9/20	2/5/81/115	-
26	LUT	6	619	-	-	2/29/67/67	0/2/2/2
18	CLA	B	835	-	1/1/11/20	7/13/91/115	-
18	CLA	6	606	-	1/1/10/20	4/6/84/115	-
18	CLA	7	613	16	1/1/15/20	12/37/115/115	-
27	XAT	a	618	-	-	1/31/93/93	0/4/4/4
22	SF4	C	102	-	-	-	0/6/5/5
21	BCR	A	848	-	-	4/29/63/63	0/2/2/2
26	LUT	1	617	-	-	4/29/67/67	0/2/2/2
18	CLA	a	613	-	1/1/15/20	11/37/115/115	-
18	CLA	8	616	17	-	11/11/87/115	-
18	CLA	A	817	-	1/1/11/20	4/13/91/115	-
21	BCR	F	305	-	-	2/29/63/63	0/2/2/2
22	SF4	C	101	-	-	-	0/6/5/5
18	CLA	8	606	-	1/1/15/20	9/35/113/115	-
18	CLA	a	616	11	1/1/11/20	4/13/91/115	-
18	CLA	B	838	-	1/1/11/20	6/16/94/115	-
20	LHG	8	622	18	-	25/53/53/53	-
21	BCR	3	621	-	-	6/29/63/63	0/2/2/2
21	BCR	A	850	-	-	0/29/63/63	0/2/2/2
21	BCR	K	202	-	-	4/29/63/63	0/2/2/2
18	CLA	8	603	-	1/1/11/20	7/13/89/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
18	CLA	A	842	-	1/1/15/20	10/37/115/115	-
21	BCR	B	846	-	-	2/29/63/63	0/2/2/2
21	BCR	B	848	-	-	4/29/63/63	0/2/2/2
18	CLA	1	602	11	1/1/14/20	7/33/111/115	-
18	CLA	5	602	14	1/1/15/20	5/37/115/115	-
18	CLA	A	802	-	1/1/15/20	11/37/115/115	-
26	LUT	a	617	-	-	5/29/67/67	0/2/2/2
18	CLA	B	826	-	1/1/13/20	6/25/103/115	-
26	LUT	5	620	-	-	2/29/67/67	0/2/2/2
18	CLA	1	609	11	1/1/10/20	3/8/84/115	-
23	LMU	8	624	-	-	10/21/61/61	0/2/2/2
26	LUT	7	619	-	-	2/29/67/67	0/2/2/2
18	CLA	A	821	-	1/1/12/20	11/23/101/115	-
18	CLA	B	811	-	1/1/13/20	9/25/101/115	-
18	CLA	A	836	-	1/1/15/20	13/37/115/115	-
18	CLA	B	815	-	1/1/10/20	4/11/89/115	-
21	BCR	5	622	-	-	6/29/63/63	0/2/2/2
18	CLA	5	612	14	1/1/10/20	2/8/86/115	-
18	CLA	A	822	-	1/1/15/20	11/37/115/115	-
18	CLA	6	601	15	1/1/15/20	16/37/115/115	-
21	BCR	3	622	-	-	8/29/63/63	0/2/2/2
18	CLA	6	613	-	1/1/15/20	14/35/113/115	-
21	BCR	B	844	-	-	9/29/63/63	0/2/2/2
20	LHG	A	846	-	-	34/53/53/53	-
20	LHG	5	623	18	-	24/53/53/53	-
18	CLA	B	828	-	1/1/15/20	13/37/115/115	-
18	CLA	3	602	12	1/1/14/20	5/31/109/115	-
18	CLA	4	606	-	1/1/10/20	2/6/84/115	-
18	CLA	5	613	14	1/1/14/20	20/35/113/115	-
20	LHG	3	623	-	-	22/49/49/53	-
21	BCR	a	619	-	-	2/29/63/63	0/2/2/2
18	CLA	B	830	-	1/1/10/20	5/11/89/115	-
18	CLA	4	610	13	1/1/14/20	7/33/111/115	-
18	CLA	B	812	-	1/1/10/20	3/11/89/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
18	CLA	F	301	-	1/1/13/20	8/28/106/115	-
18	CLA	B	837	-	1/1/15/20	6/37/115/115	-
18	CLA	A	835	-	1/1/14/20	11/33/111/115	-
18	CLA	4	607	-	1/1/11/20	6/13/91/115	-
18	CLA	8	610	17	1/1/14/20	7/31/109/115	-
18	CLA	1	601	11	1/1/13/20	3/23/101/115	-
18	CLA	B	820	-	1/1/12/20	8/19/97/115	-
18	CLA	K	206	9	1/1/11/20	7/13/91/115	-
18	CLA	6	604	-	1/1/15/20	18/37/115/115	-
18	CLA	6	611	20	1/1/10/20	2/10/88/115	-
27	XAT	7	620	-	-	1/31/93/93	0/4/4/4
18	CLA	4	618	13	1/1/10/20	1/8/84/115	-
23	LMU	A	857	-	-	9/19/56/61	0/2/2/2
20	LHG	a	620	18	-	10/53/53/53	-
22	SF4	A	853	-	-	-	0/6/5/5
20	LHG	4	622	18	-	25/53/53/53	-
18	CLA	7	608	-	1/1/12/20	3/19/97/115	-
18	CLA	A	843	-	1/1/14/20	16/35/113/115	-
18	CLA	A	806	-	1/1/15/20	15/37/115/115	-
18	CLA	4	614	-	1/1/13/20	12/27/105/115	-
18	CLA	A	811	-	1/1/15/20	15/37/115/115	-
18	CLA	3	603	-	1/1/13/20	7/25/103/115	-
21	BCR	A	852	-	-	7/29/63/63	0/2/2/2
21	BCR	B	801	-	-	4/29/63/63	0/2/2/2
18	CLA	A	815	-	1/1/12/20	8/19/97/115	-
18	CLA	a	612	11	1/1/11/20	5/13/91/115	-
26	LUT	4	619	-	-	2/29/67/67	0/2/2/2
18	CLA	a	611	20	1/1/10/20	0/4/80/115	-
18	CLA	7	603	-	1/1/11/20	4/11/89/115	-
18	CLA	J	101	8	1/1/10/20	5/10/88/115	-
18	CLA	7	601	16	-	12/31/109/115	-
19	PQN	B	842	-	-	9/23/43/43	0/2/2/2
21	BCR	8	621	-	-	6/29/63/63	0/2/2/2
18	CLA	K	201	9	1/1/11/20	8/13/91/115	-
18	CLA	B	823	-	1/1/11/20	5/13/91/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
18	CLA	5	601	14	1/1/13/20	6/27/105/115	-
18	CLA	a	610	11	1/1/14/20	4/29/107/115	-
18	CLA	a	603	-	1/1/12/20	6/23/101/115	-
18	CLA	6	608	-	1/1/12/20	7/21/99/115	-
18	CLA	6	602	15	1/1/15/20	7/37/115/115	-
18	CLA	B	813	-	1/1/15/20	21/37/115/115	-
18	CLA	1	604	-	1/1/11/20	10/18/96/115	-
18	CLA	A	813	-	1/1/12/20	4/24/102/115	-
18	CLA	4	608	-	1/1/15/20	13/37/115/115	-
18	CLA	5	606	-	1/1/10/20	3/6/84/115	-
21	BCR	7	621	-	-	2/29/63/63	0/2/2/2
24	LMG	J	104	-	-	17/35/55/70	0/1/1/1
18	CLA	A	827	-	1/1/13/20	6/30/108/115	-
18	CLA	A	833	-	1/1/11/20	2/13/91/115	-
18	CLA	6	607	-	1/1/10/20	4/10/86/115	-
18	CLA	4	612	13	-	2/8/86/115	-
18	CLA	6	609	15	1/1/11/20	4/13/91/115	-
18	CLA	A	841	-	1/1/15/20	18/37/115/115	-
21	BCR	B	847	-	-	2/29/63/63	0/2/2/2
18	CLA	K	204	-	1/1/11/20	7/15/93/115	-
18	CLA	5	609	14	1/1/15/20	12/37/115/115	-
18	CLA	B	809	2	1/1/15/20	18/37/115/115	-
18	CLA	7	604	-	1/1/13/20	8/23/101/115	-
18	CLA	A	845	20	1/1/12/20	11/19/97/115	-
18	CLA	B	825	-	1/1/14/20	9/34/112/115	-
24	LMG	5	626	-	-	26/35/55/70	0/1/1/1
18	CLA	L	302	10	1/1/11/20	7/13/91/115	-
18	CLA	A	824	-	1/1/10/20	2/8/86/115	-
18	CLA	a	604	-	1/1/11/20	10/18/96/115	-
18	CLA	A	834	-	1/1/15/20	12/37/115/115	-
20	LHG	5	625	-	-	31/53/53/53	-
27	XAT	4	620	-	-	1/31/93/93	0/4/4/4
18	CLA	B	814	-	1/1/14/20	13/36/114/115	-
18	CLA	6	612	15	1/1/10/20	3/8/86/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
18	CLA	3	604	-	1/1/15/20	7/37/115/115	-
18	CLA	A	816	-	1/1/11/20	4/13/91/115	-
18	CLA	B	805	-	1/1/15/20	14/37/115/115	-

The worst 5 of 1701 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
19	B	842	PQN	C12-C13	8.68	1.53	1.33
19	A	844	PQN	C12-C13	8.32	1.52	1.33
18	7	612	CLA	C4B-NB	8.02	1.42	1.35
19	A	844	PQN	O1-C1	8.02	1.40	1.23
19	B	842	PQN	O1-C1	7.81	1.39	1.23

The worst 5 of 2702 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
27	5	621	XAT	O24-C25-C24	11.52	122.04	113.38
18	B	803	CLA	C4A-NA-C1A	9.21	110.84	106.71
18	8	613	CLA	C4A-NA-C1A	9.08	110.79	106.71
27	6	621	XAT	O24-C25-C24	8.96	120.11	113.38
27	8	620	XAT	O24-C25-C24	8.87	120.04	113.38

5 of 208 chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
18	A	801	CLA	ND
18	A	802	CLA	ND
18	A	803	CLA	ND
18	A	804	CLA	ND
18	A	805	CLA	ND

5 of 2486 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
18	A	801	CLA	CBD-CGD-O2D-CED
18	A	804	CLA	C1A-C2A-CAA-CBA
18	A	804	CLA	C3A-C2A-CAA-CBA
18	A	805	CLA	C1A-C2A-CAA-CBA
18	A	805	CLA	C3A-C2A-CAA-CBA

There are no ring outliers.

235 monomers are involved in 528 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
18	A	837	CLA	1	0
18	A	825	CLA	3	0
18	B	829	CLA	7	0
18	4	612	CLA	1	0
18	1	616	CLA	1	0
18	A	818	CLA	5	0
18	L	303	CLA	1	0
18	4	601	CLA	4	0
18	A	828	CLA	8	0
18	B	817	CLA	5	0
18	4	613	CLA	3	0
18	6	603	CLA	1	0
19	A	844	PQN	3	0
20	8	623	LHG	2	0
24	5	627	LMG	3	0
18	5	607	CLA	5	0
18	8	613	CLA	5	0
21	4	621	BCR	3	0
20	7	622	LHG	5	0
18	7	614	CLA	1	0
20	B	851	LHG	1	0
18	F	303	CLA	1	0
18	3	615	CLA	1	0
18	B	802	CLA	2	0
21	L	305	BCR	4	0
28	6	624	NEX	4	0
18	A	826	CLA	1	0
18	B	832	CLA	4	0
21	7	623	BCR	1	0
18	8	604	CLA	1	0
18	A	812	CLA	5	0
18	A	820	CLA	5	0
18	A	829	CLA	9	0
21	A	849	BCR	5	0
21	A	856	BCR	6	0
18	3	614	CLA	1	0
18	8	601	CLA	1	0
28	5	624	NEX	4	0
27	6	621	XAT	2	0
18	4	602	CLA	3	0
18	B	806	CLA	5	0
20	6	623	LHG	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
25	B	850	DGD	3	0
21	J	102	BCR	2	0
18	3	607	CLA	2	0
18	4	609	CLA	3	0
18	3	612	CLA	2	0
18	A	808	CLA	2	0
18	3	608	CLA	4	0
18	A	839	CLA	4	0
18	A	823	CLA	1	0
18	B	810	CLA	3	0
21	K	207	BCR	4	0
18	6	616	CLA	5	0
24	4	624	LMG	1	0
18	B	834	CLA	3	0
18	1	606	CLA	1	0
18	A	809	CLA	3	0
18	6	620	CLA	3	0
18	1	610	CLA	1	0
18	L	304	CLA	2	0
18	A	819	CLA	3	0
18	4	603	CLA	1	0
18	8	608	CLA	2	0
18	3	617	CLA	5	0
18	A	840	CLA	4	0
18	B	833	CLA	3	0
18	K	203	CLA	1	0
18	A	830	CLA	5	0
18	7	611	CLA	2	0
26	8	619	LUT	5	0
18	5	618	CLA	2	0
18	8	607	CLA	1	0
27	1	618	XAT	3	0
18	7	610	CLA	3	0
18	5	614	CLA	1	0
18	A	831	CLA	3	0
18	A	804	CLA	3	0
18	5	610	CLA	5	0
18	B	827	CLA	5	0
18	8	614	CLA	2	0
26	3	618	LUT	2	0
18	B	841	CLA	3	0
18	5	616	CLA	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
18	B	824	CLA	5	0
18	A	807	CLA	3	0
18	F	304	CLA	1	0
18	1	611	CLA	1	0
18	1	608	CLA	3	0
18	5	608	CLA	3	0
18	5	619	CLA	3	0
25	J	103	DGD	3	0
18	3	609	CLA	3	0
21	L	301	BCR	4	0
27	8	620	XAT	2	0
21	1	619	BCR	2	0
18	8	612	CLA	1	0
18	6	617	CLA	2	0
18	1	603	CLA	6	0
23	A	858	LMU	2	0
21	6	622	BCR	4	0
18	7	612	CLA	3	0
18	B	803	CLA	3	0
18	A	838	CLA	1	0
18	B	818	CLA	4	0
18	B	840	CLA	3	0
21	B	845	BCR	2	0
18	B	821	CLA	1	0
23	A	859	LMU	3	0
18	B	819	CLA	2	0
18	A	854	CLA	5	0
18	3	606	CLA	2	0
20	3	624	LHG	5	0
21	B	843	BCR	3	0
18	6	610	CLA	2	0
18	B	807	CLA	4	0
18	B	839	CLA	1	0
18	5	604	CLA	3	0
18	4	616	CLA	1	0
18	3	610	CLA	4	0
18	1	612	CLA	1	0
18	5	617	CLA	1	0
18	8	611	CLA	2	0
18	A	803	CLA	1	0
27	5	621	XAT	6	0
18	1	613	CLA	2	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
18	A	810	CLA	2	0
18	B	808	CLA	5	0
18	B	831	CLA	5	0
21	A	851	BCR	4	0
27	3	619	XAT	2	0
21	3	620	BCR	6	0
18	A	801	CLA	5	0
18	A	814	CLA	7	0
20	1	620	LHG	2	0
26	6	619	LUT	2	0
18	B	835	CLA	1	0
18	7	613	CLA	1	0
21	A	848	BCR	3	0
26	1	617	LUT	3	0
18	8	616	CLA	1	0
18	A	817	CLA	1	0
21	F	305	BCR	6	0
18	8	606	CLA	1	0
18	B	838	CLA	3	0
20	8	622	LHG	7	0
21	3	621	BCR	3	0
21	A	850	BCR	4	0
21	K	202	BCR	2	0
18	A	842	CLA	6	0
21	B	846	BCR	3	0
21	B	848	BCR	2	0
18	1	602	CLA	2	0
18	5	602	CLA	5	0
18	A	802	CLA	5	0
18	B	826	CLA	1	0
26	5	620	LUT	4	0
18	1	609	CLA	5	0
23	8	624	LMU	1	0
26	7	619	LUT	3	0
18	A	821	CLA	1	0
18	B	811	CLA	3	0
18	A	836	CLA	5	0
21	5	622	BCR	3	0
18	5	612	CLA	2	0
18	A	822	CLA	3	0
18	6	601	CLA	3	0
21	3	622	BCR	4	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
18	6	613	CLA	2	0
21	B	844	BCR	3	0
20	A	846	LHG	3	0
20	5	623	LHG	2	0
18	B	828	CLA	3	0
18	4	606	CLA	1	0
18	5	613	CLA	4	0
18	7	602	CLA	2	0
20	3	623	LHG	1	0
18	B	830	CLA	1	0
18	4	610	CLA	3	0
18	B	812	CLA	1	0
18	F	301	CLA	3	0
18	B	837	CLA	6	0
18	A	835	CLA	4	0
18	4	607	CLA	1	0
18	8	610	CLA	4	0
18	1	601	CLA	2	0
18	K	206	CLA	1	0
18	6	604	CLA	4	0
18	6	611	CLA	1	0
23	A	857	LMU	1	0
27	7	620	XAT	4	0
20	4	622	LHG	4	0
18	7	608	CLA	6	0
18	A	843	CLA	2	0
18	A	806	CLA	7	0
18	4	614	CLA	1	0
18	A	811	CLA	6	0
21	A	852	BCR	3	0
21	B	801	BCR	4	0
18	A	815	CLA	1	0
26	4	619	LUT	6	0
18	7	601	CLA	3	0
19	B	842	PQN	2	0
21	8	621	BCR	2	0
18	K	201	CLA	2	0
18	6	608	CLA	1	0
18	6	602	CLA	1	0
18	B	813	CLA	6	0
18	A	813	CLA	2	0
18	4	608	CLA	3	0

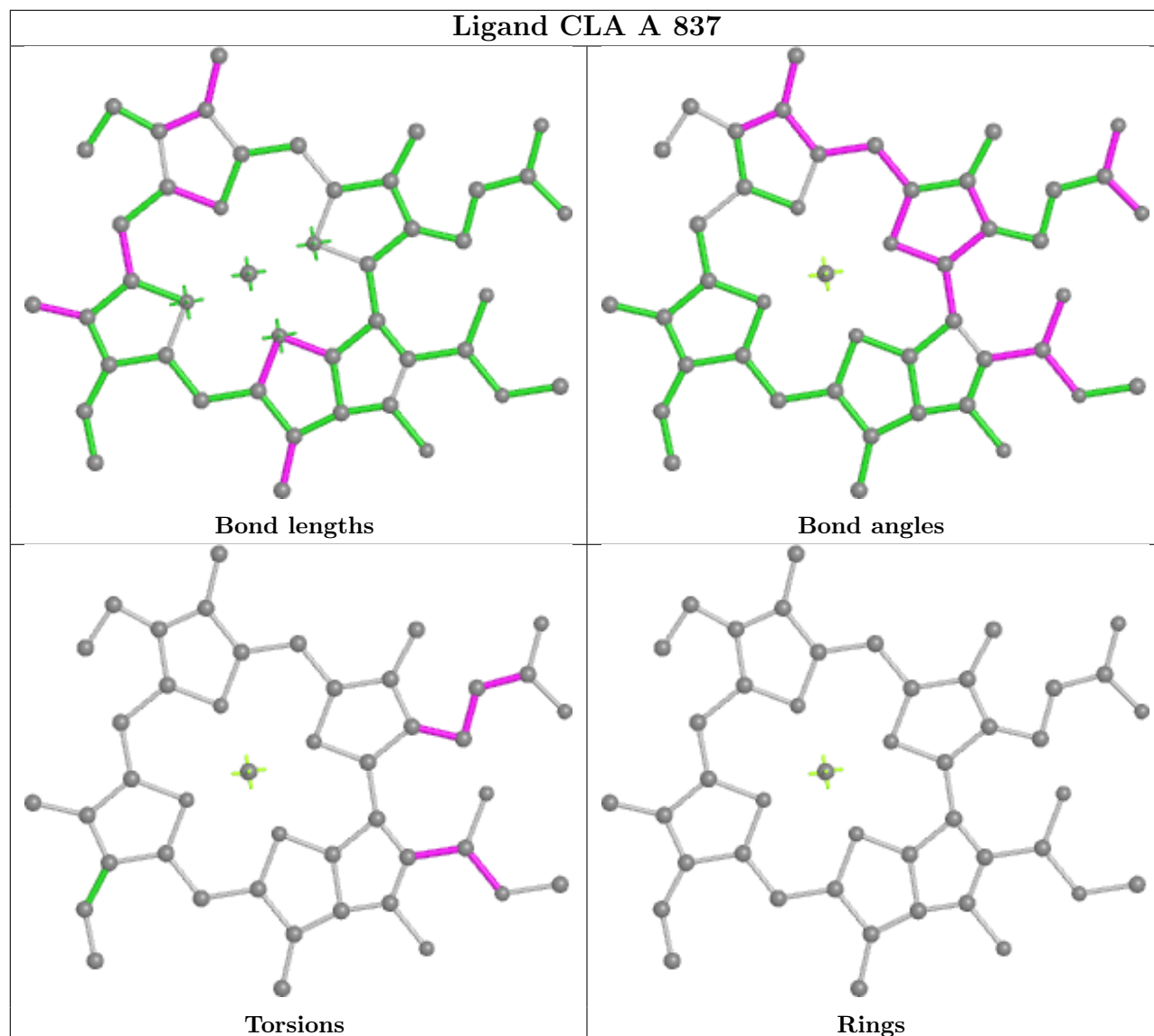
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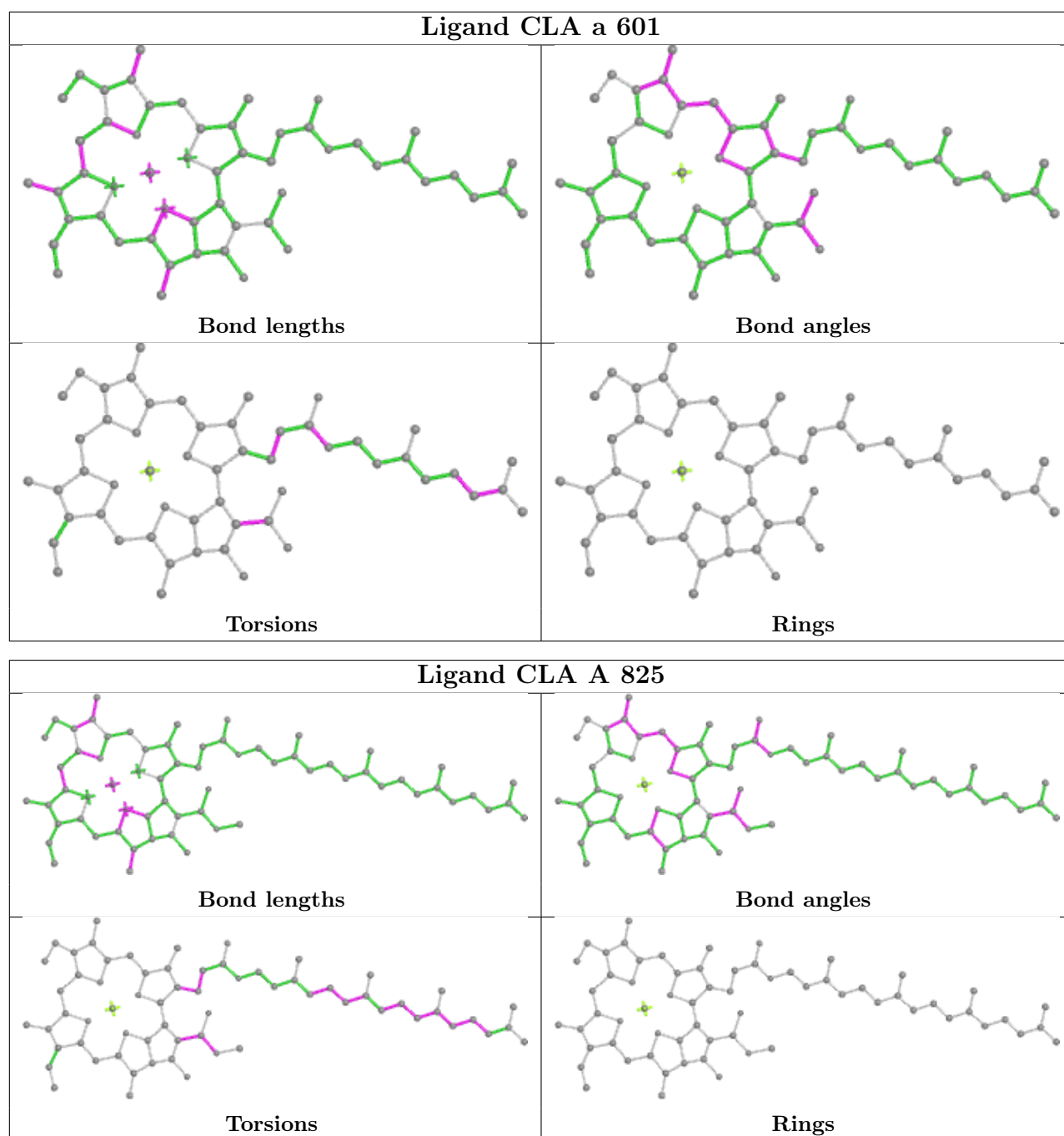


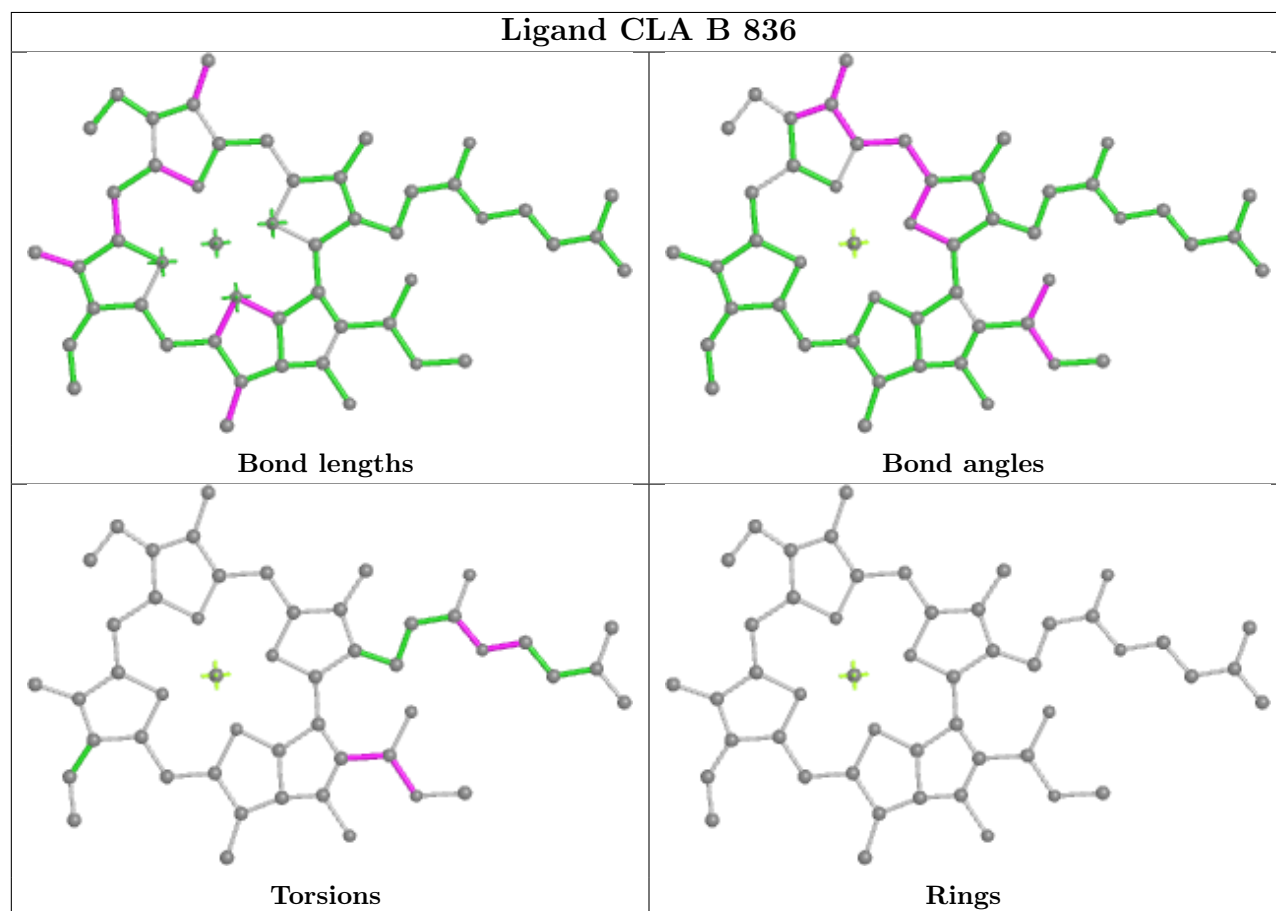
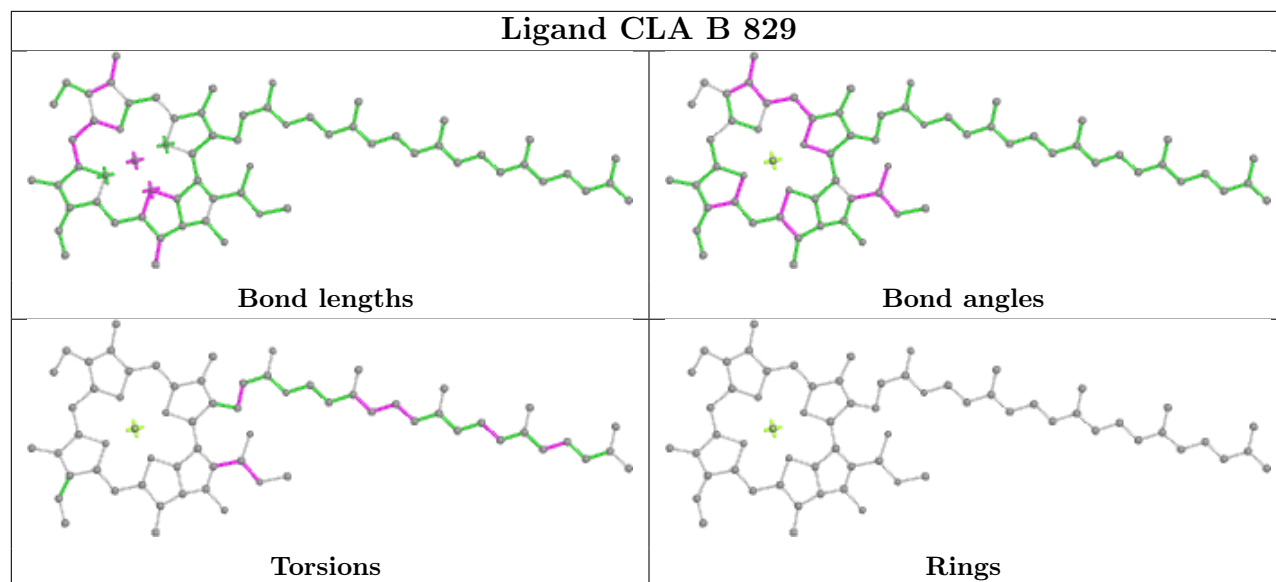
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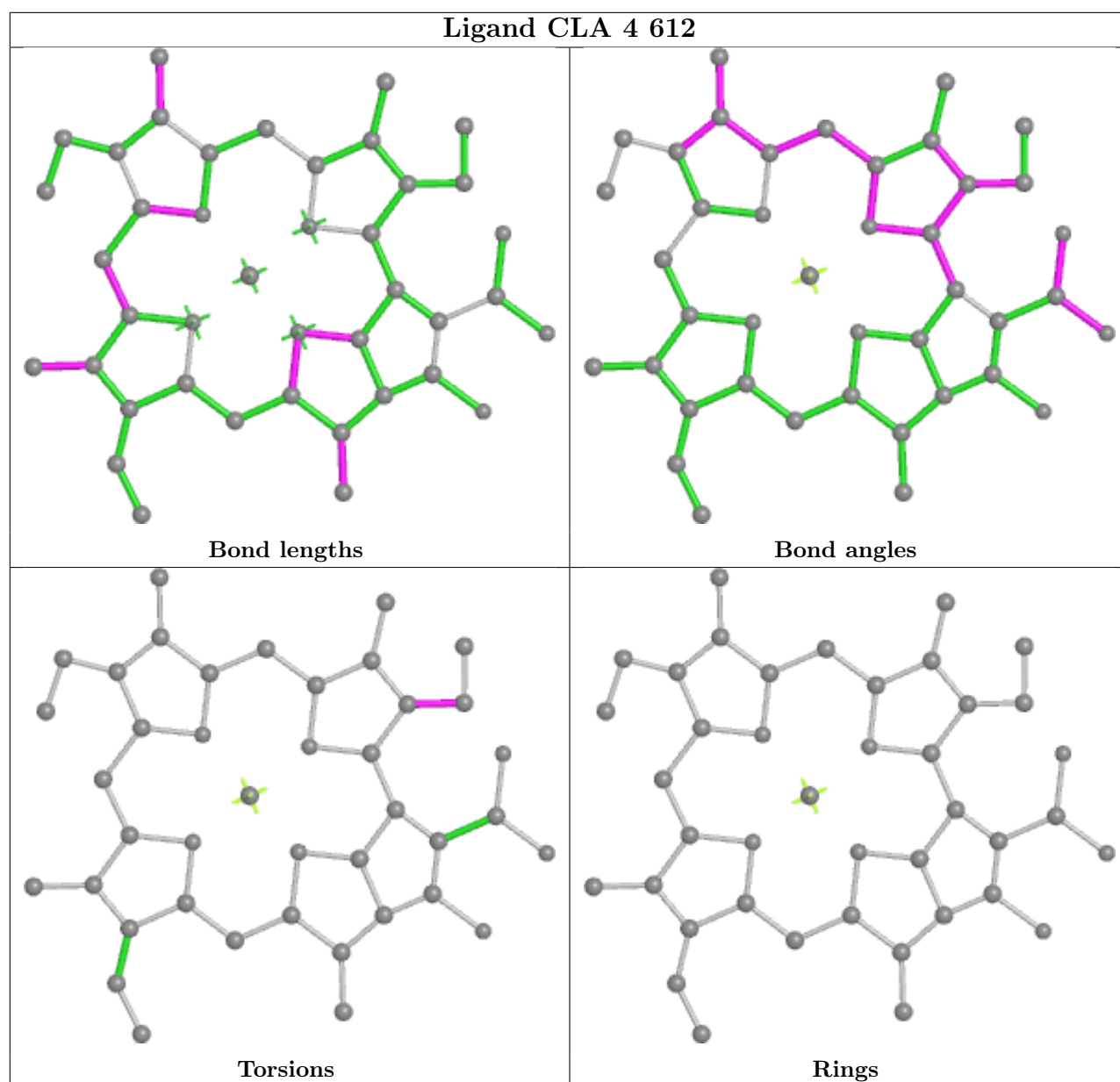
Mol	Chain	Res	Type	Clashes	Symm-Clashes
18	5	606	CLA	2	0
21	7	621	BCR	4	0
24	J	104	LMG	4	0
18	A	827	CLA	2	0
18	A	833	CLA	1	0
18	6	607	CLA	1	0
18	6	609	CLA	1	0
18	A	841	CLA	4	0
21	B	847	BCR	4	0
18	K	204	CLA	1	0
18	5	609	CLA	5	0
18	B	809	CLA	3	0
18	7	604	CLA	2	0
18	A	845	CLA	1	0
18	B	825	CLA	3	0
18	L	302	CLA	5	0
18	A	824	CLA	1	0
18	A	834	CLA	3	0
20	5	625	LHG	3	0
27	4	620	XAT	2	0
18	B	814	CLA	1	0
18	6	612	CLA	2	0
18	3	604	CLA	2	0
18	A	816	CLA	1	0
18	B	805	CLA	2	0

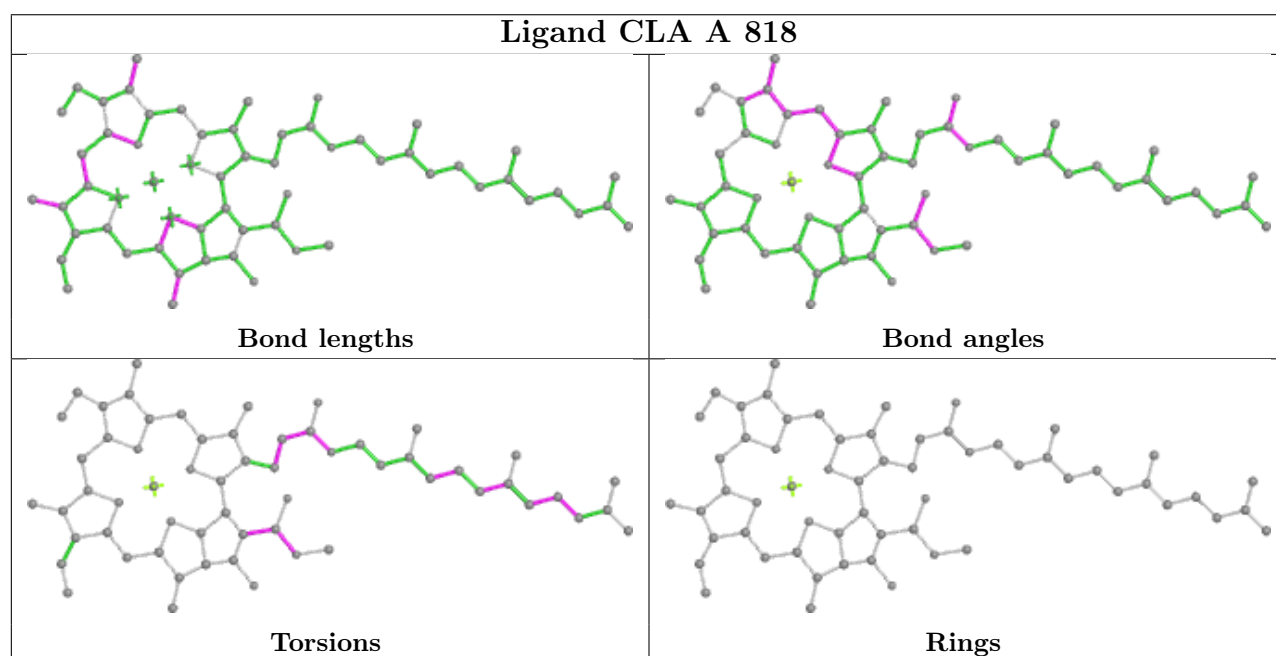
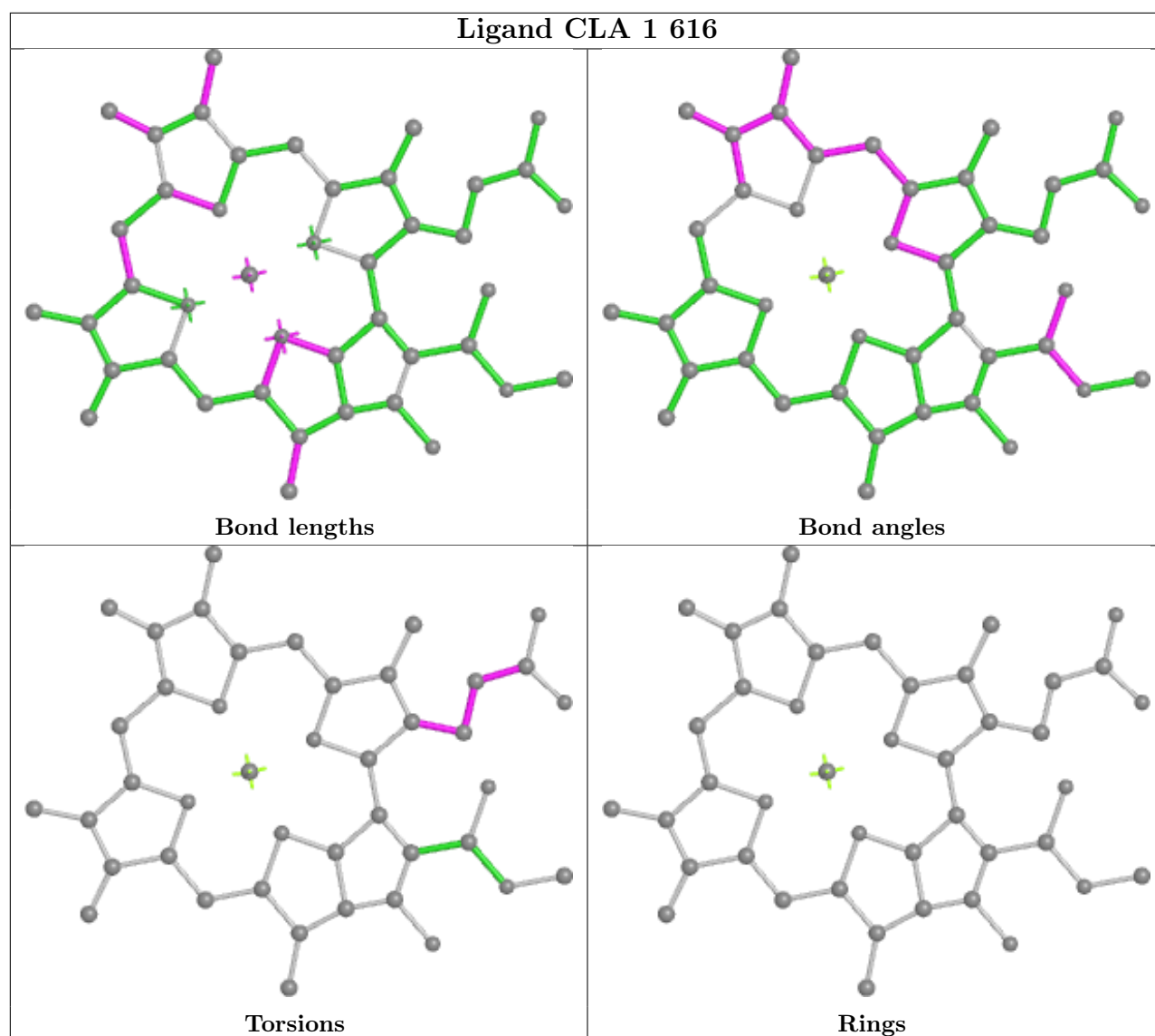
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

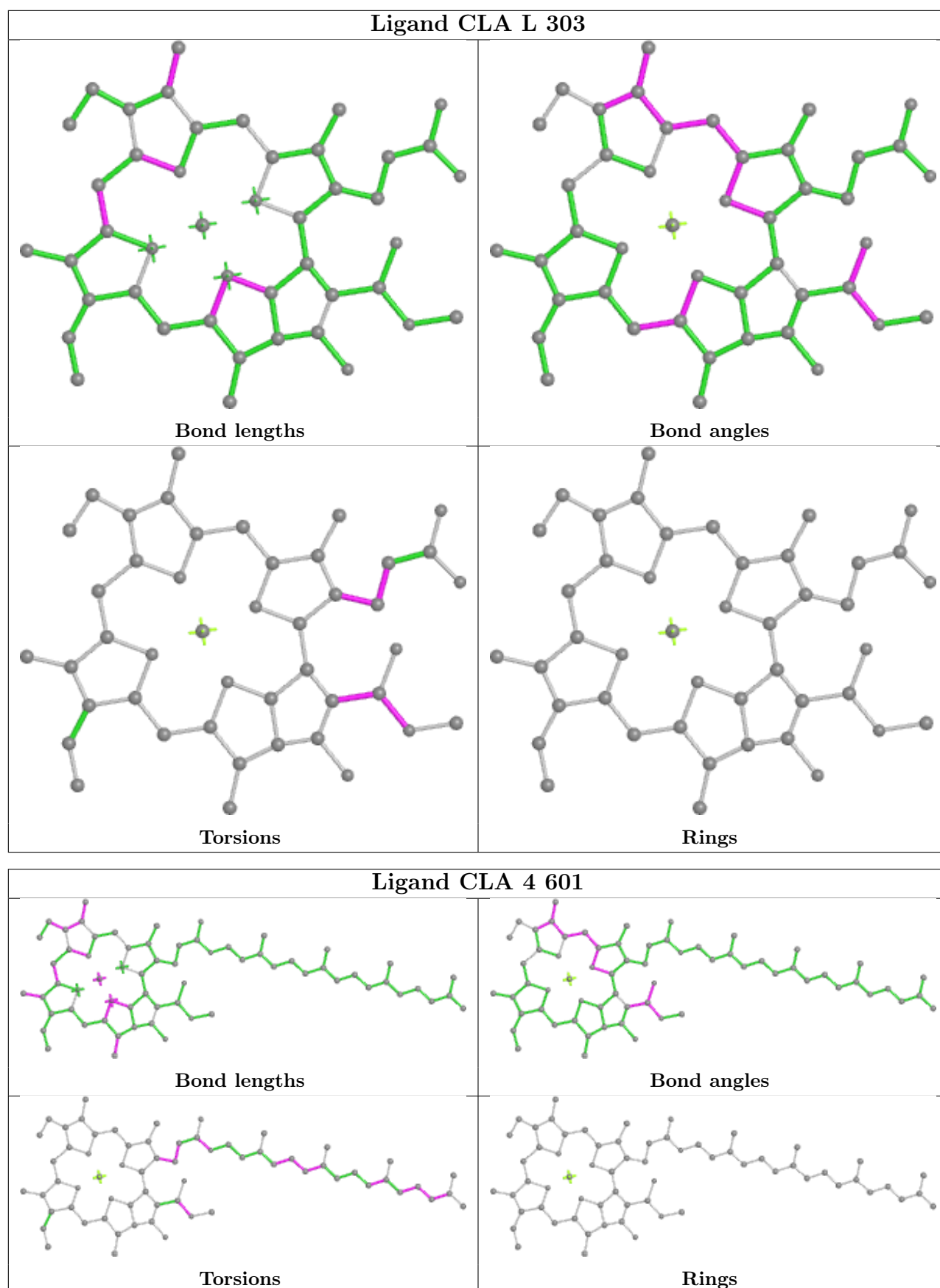


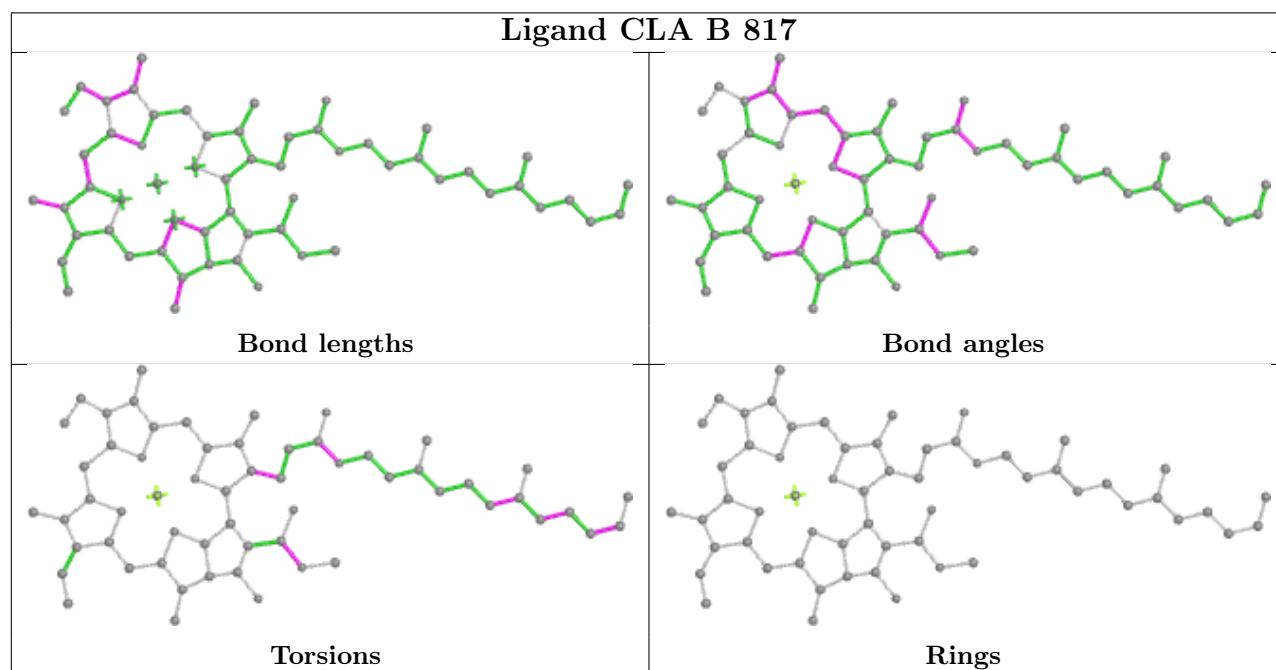
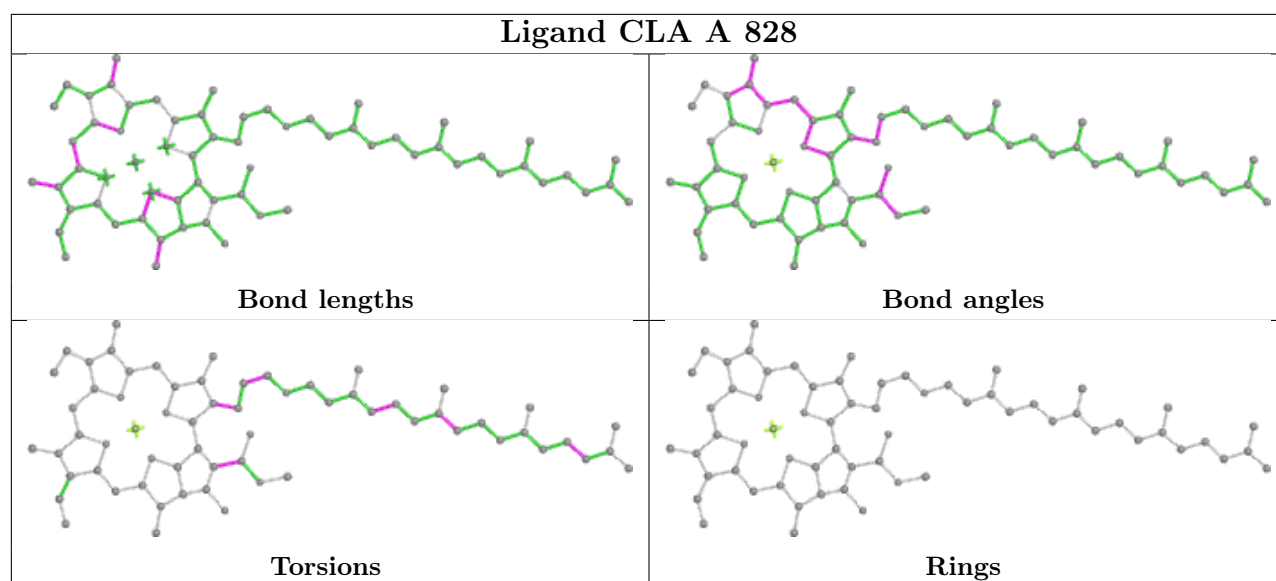




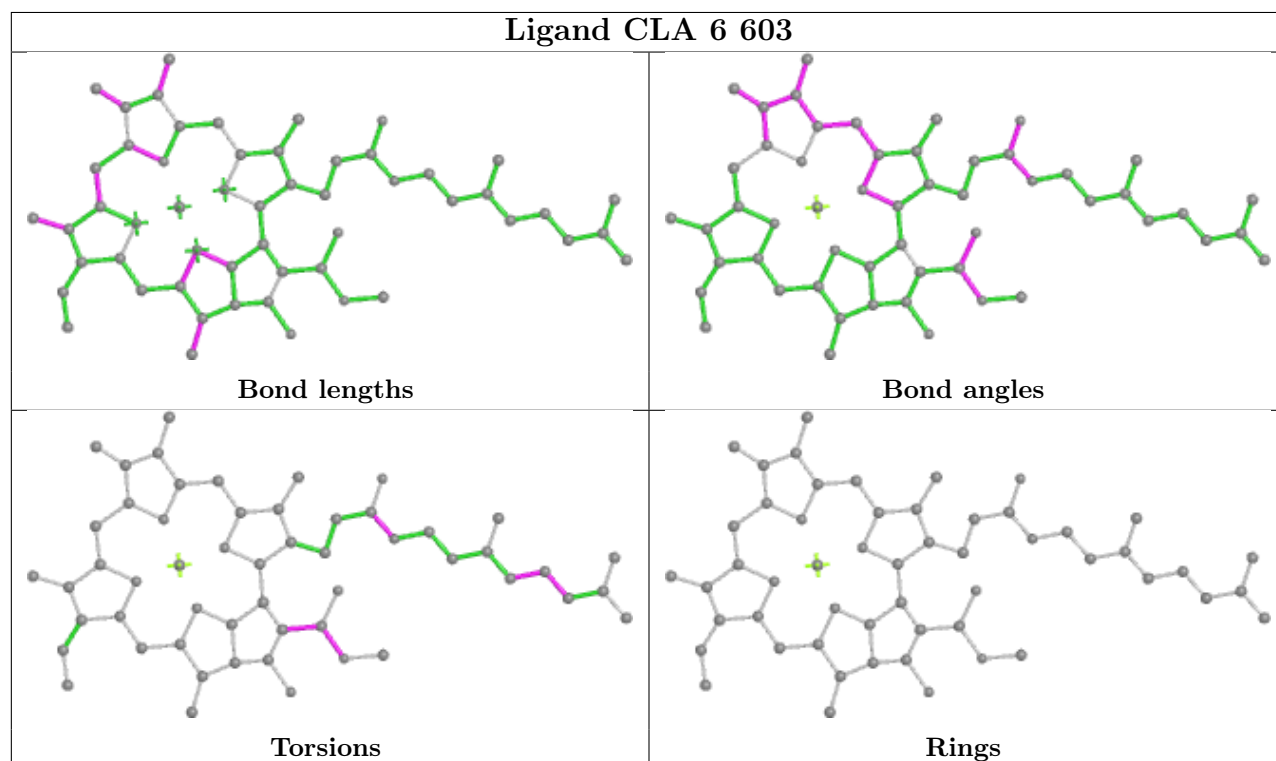
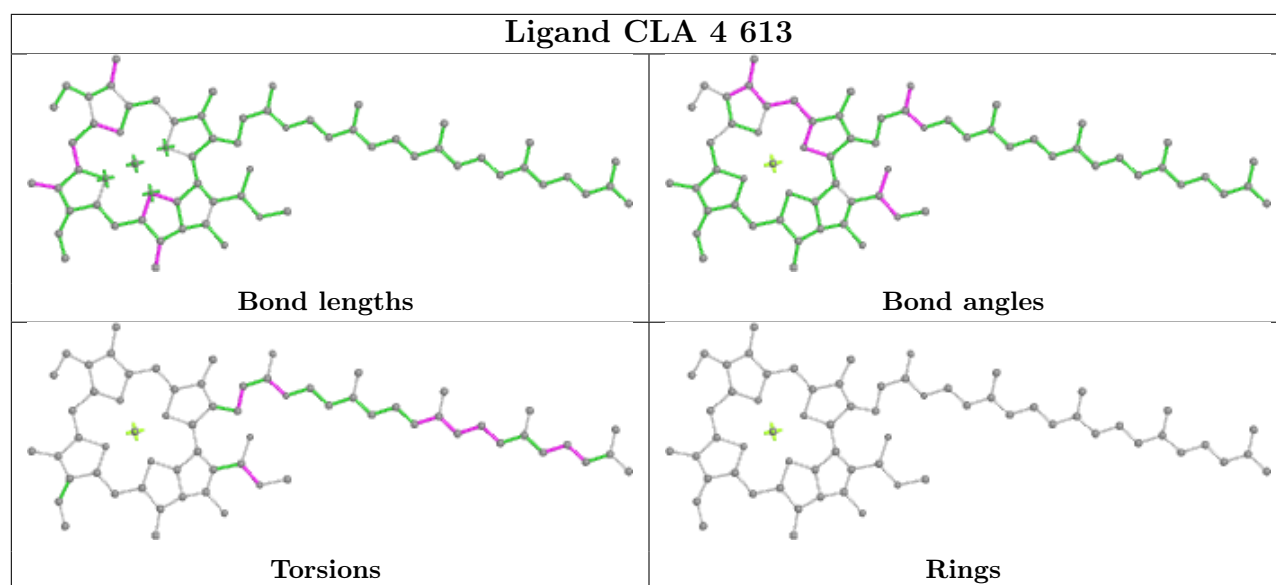


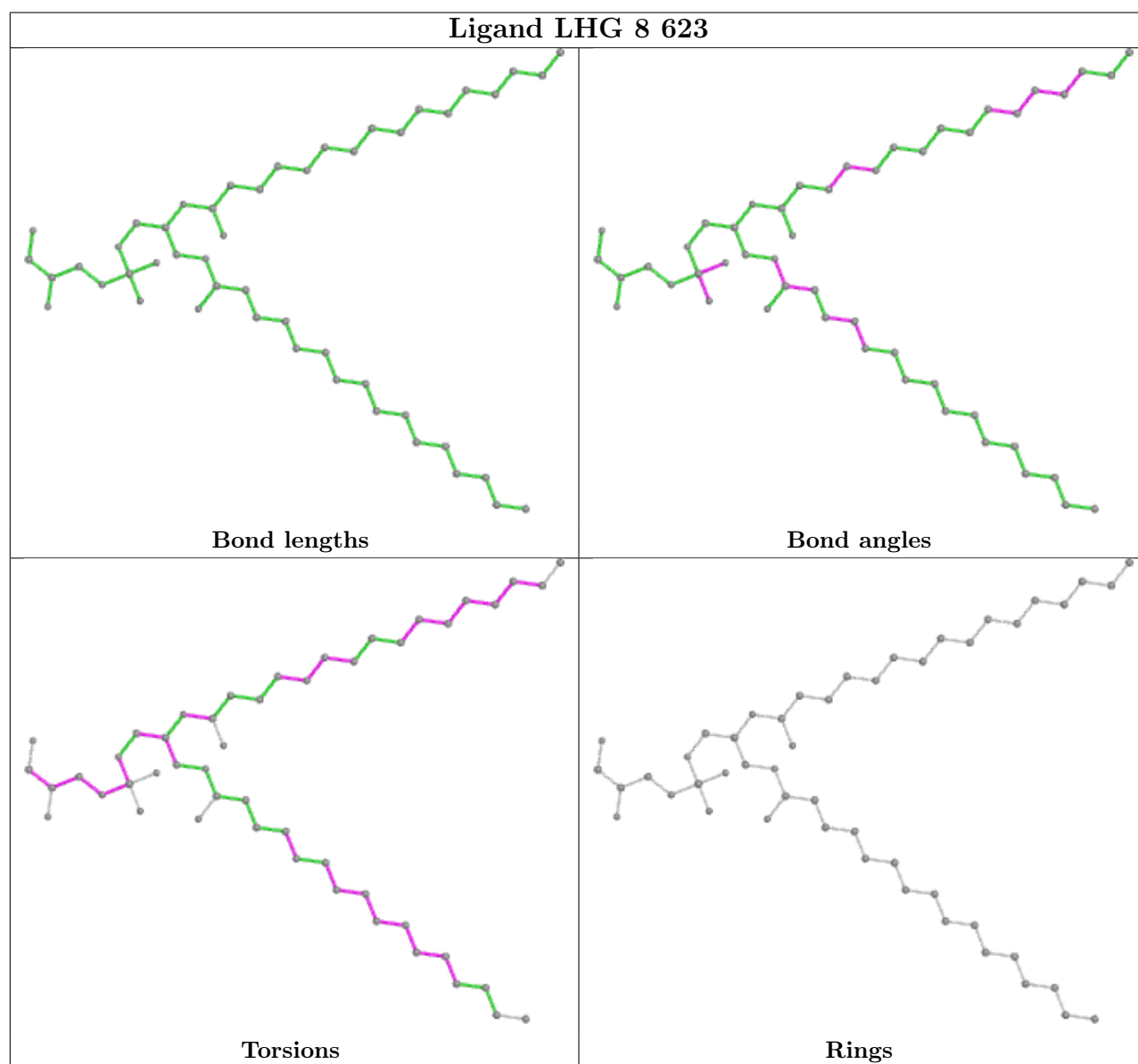
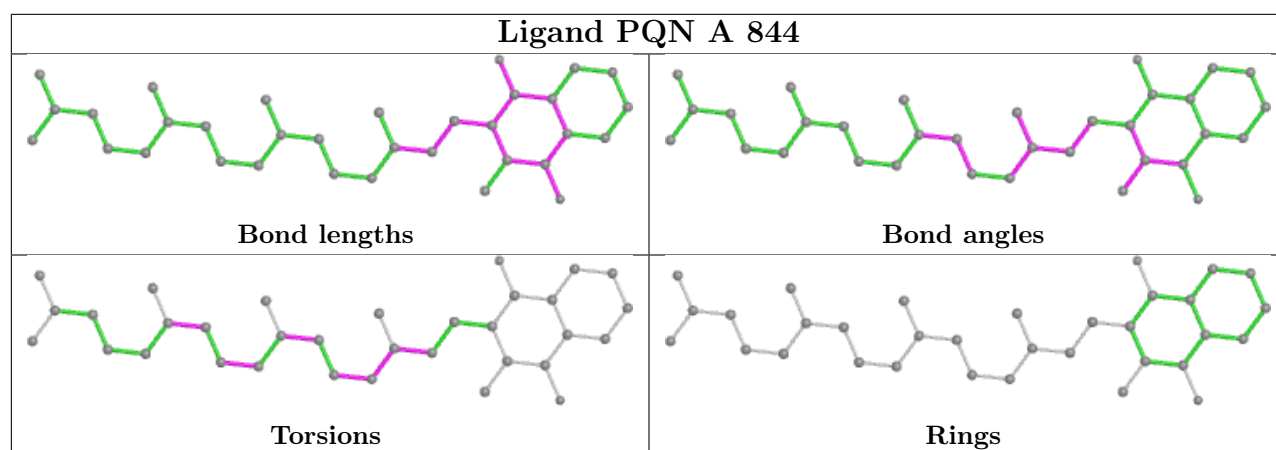


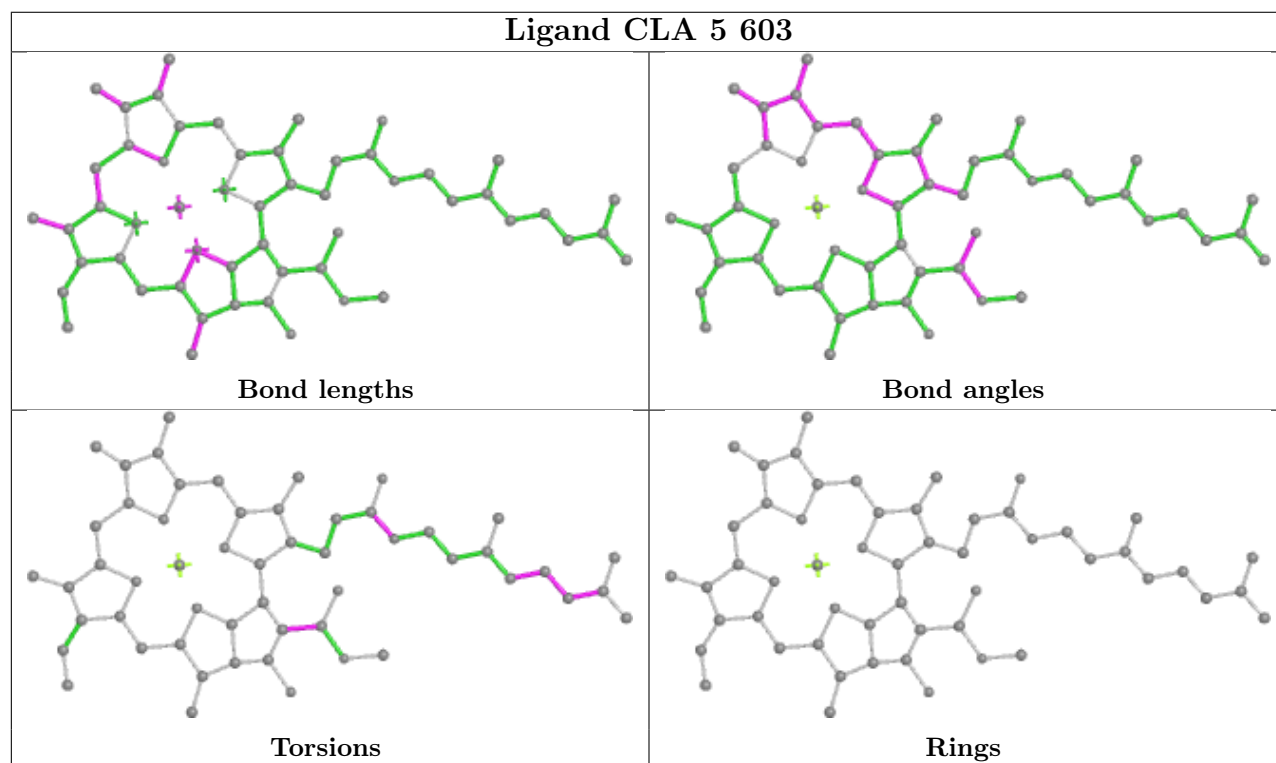
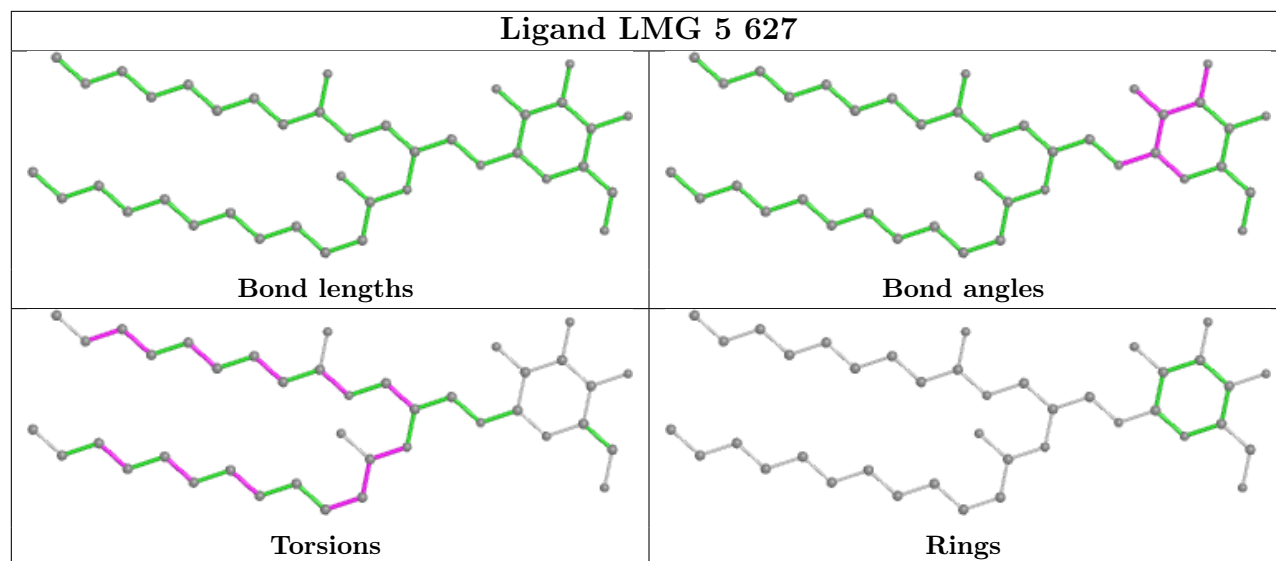


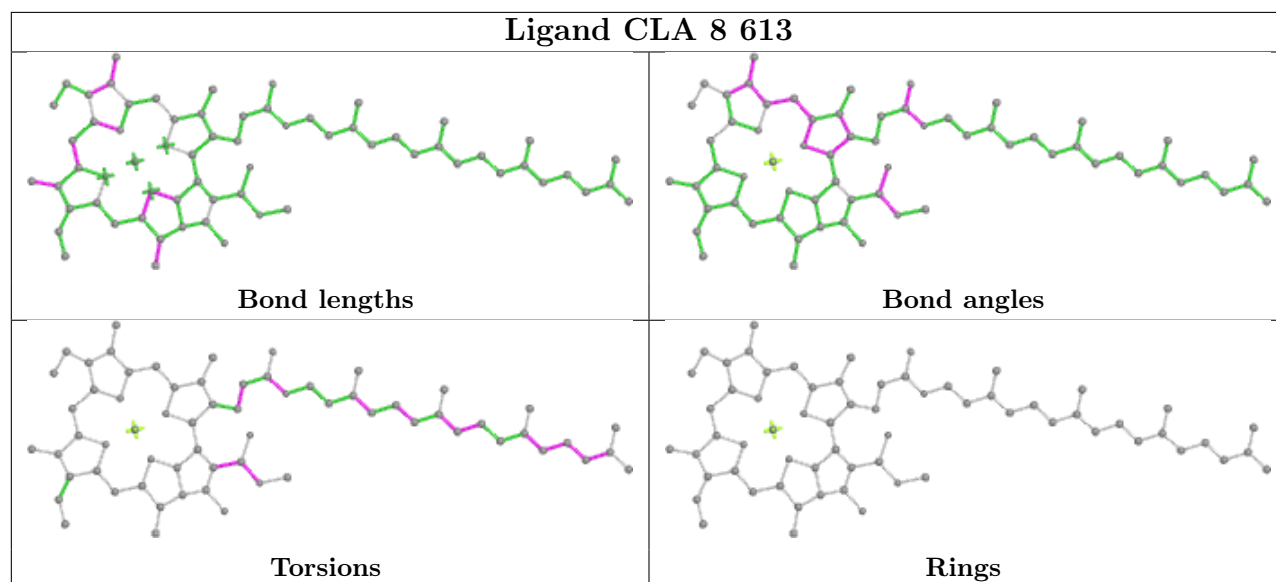
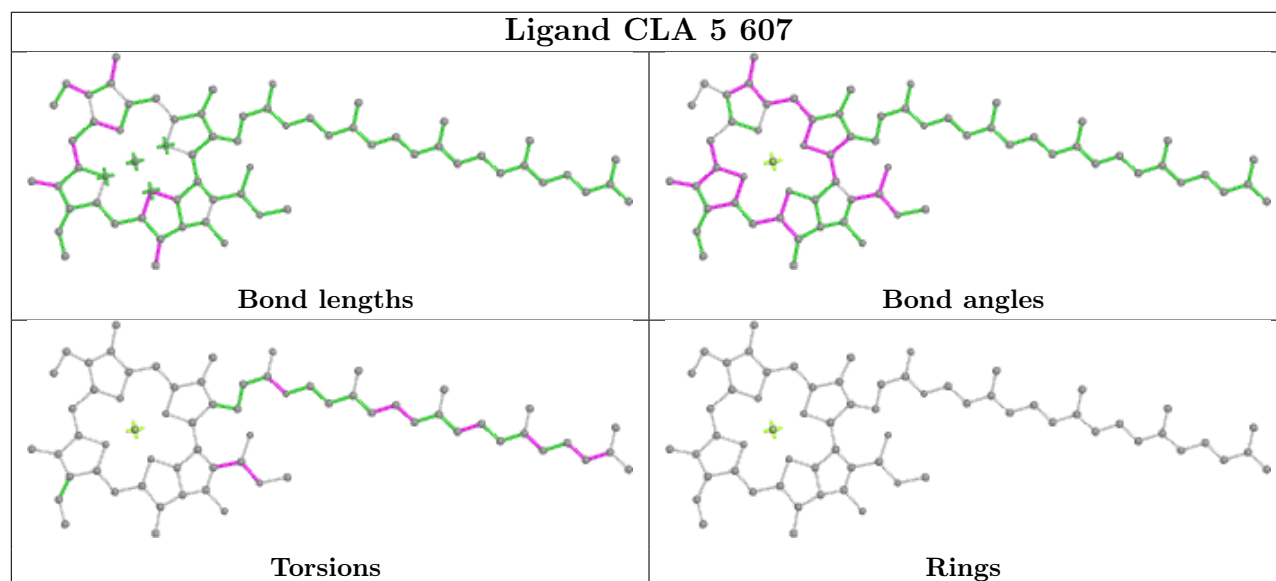
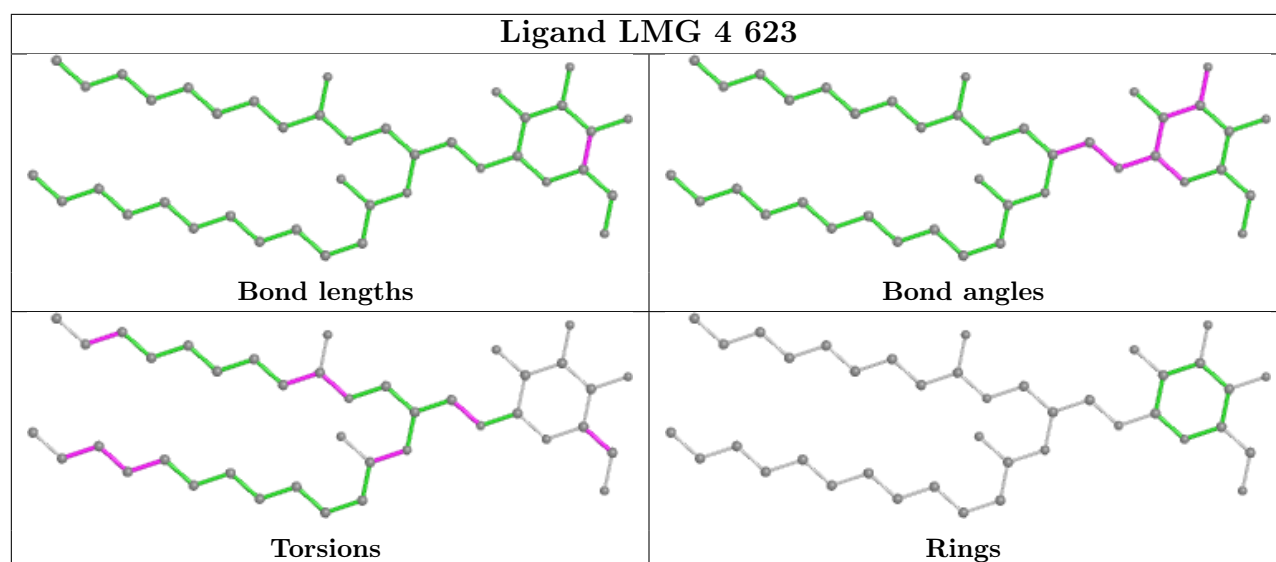


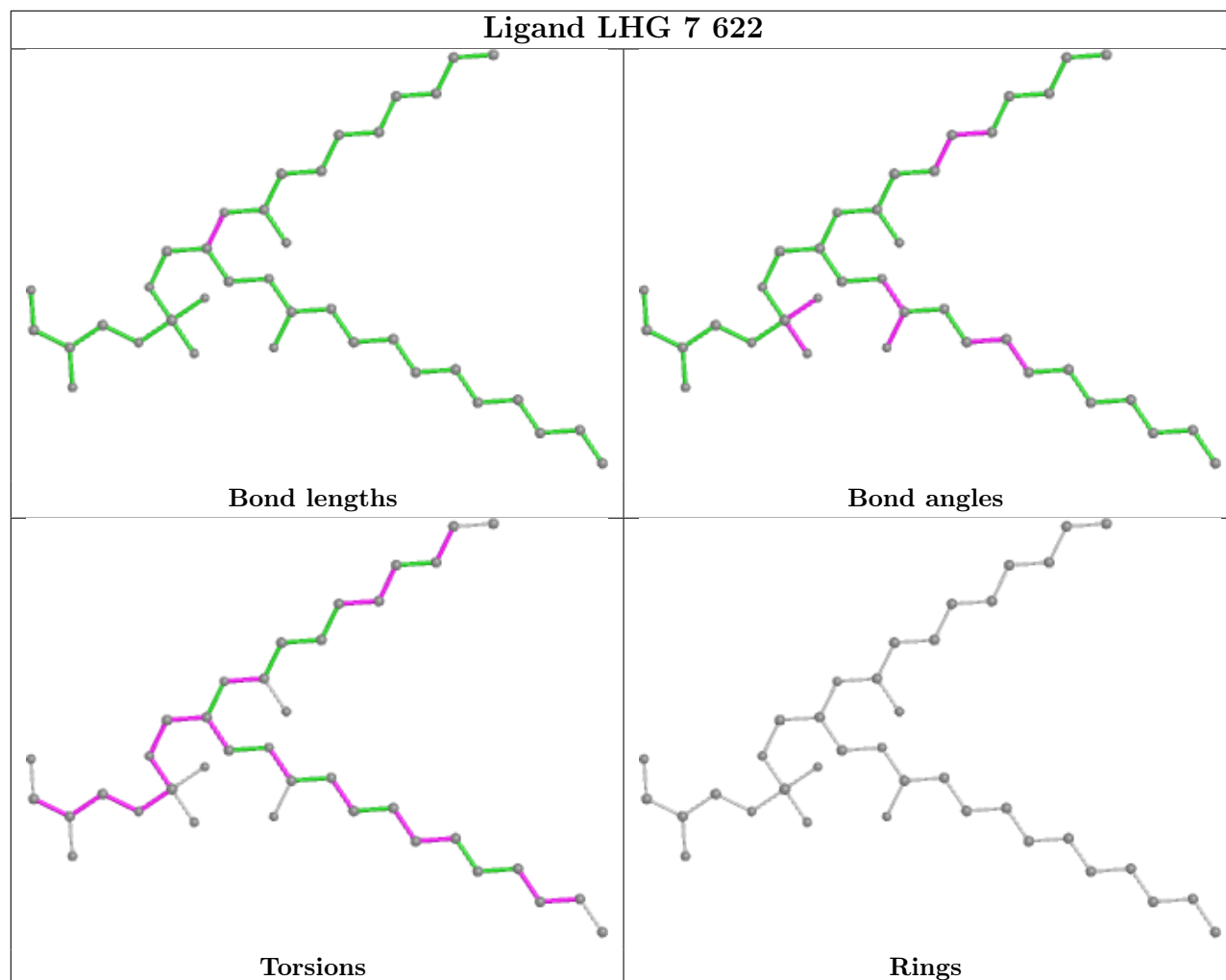
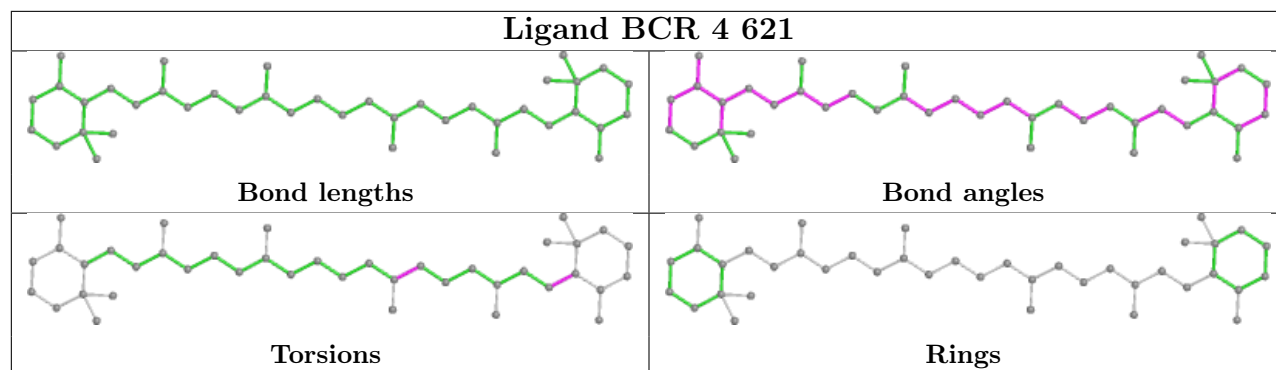


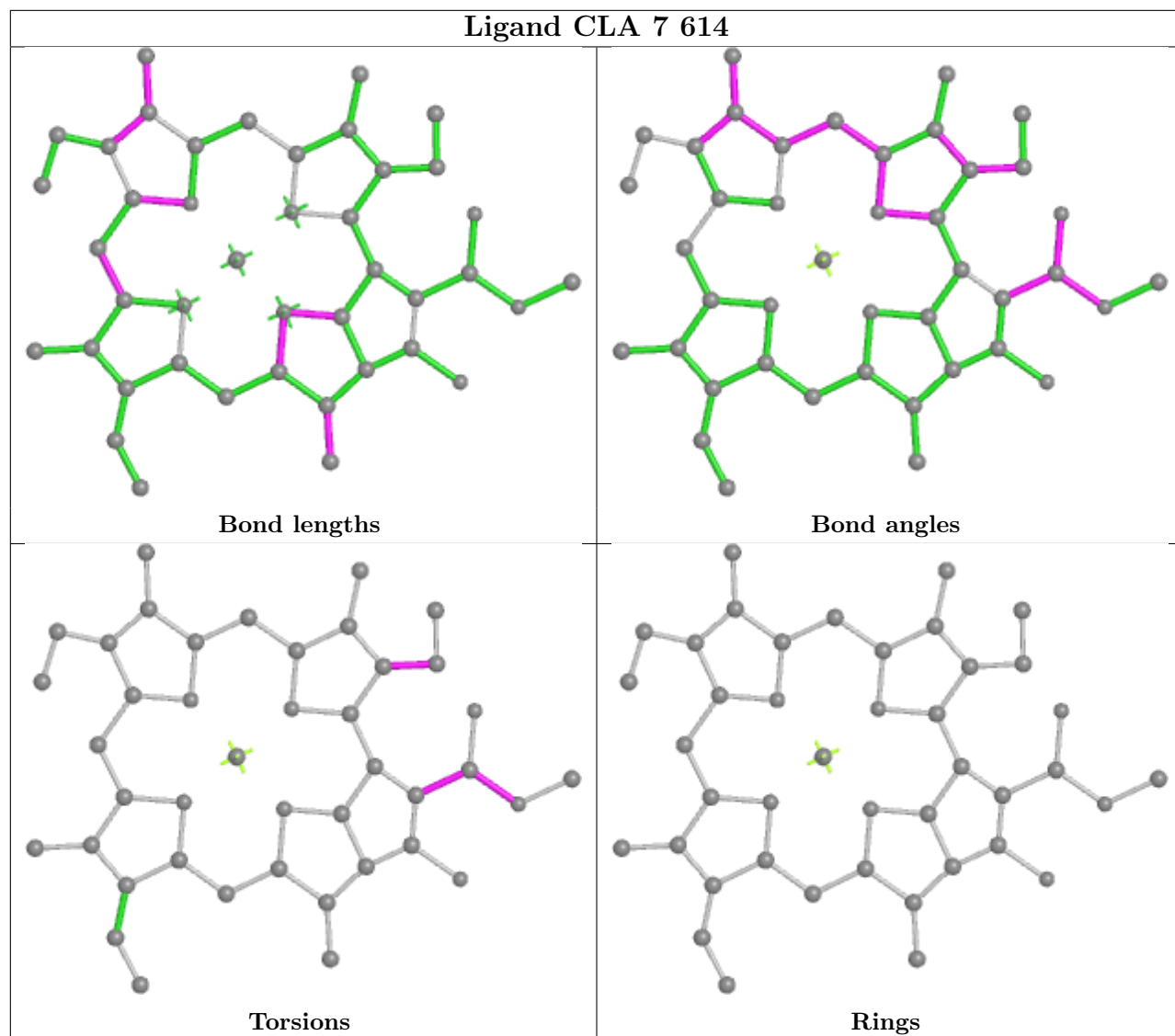


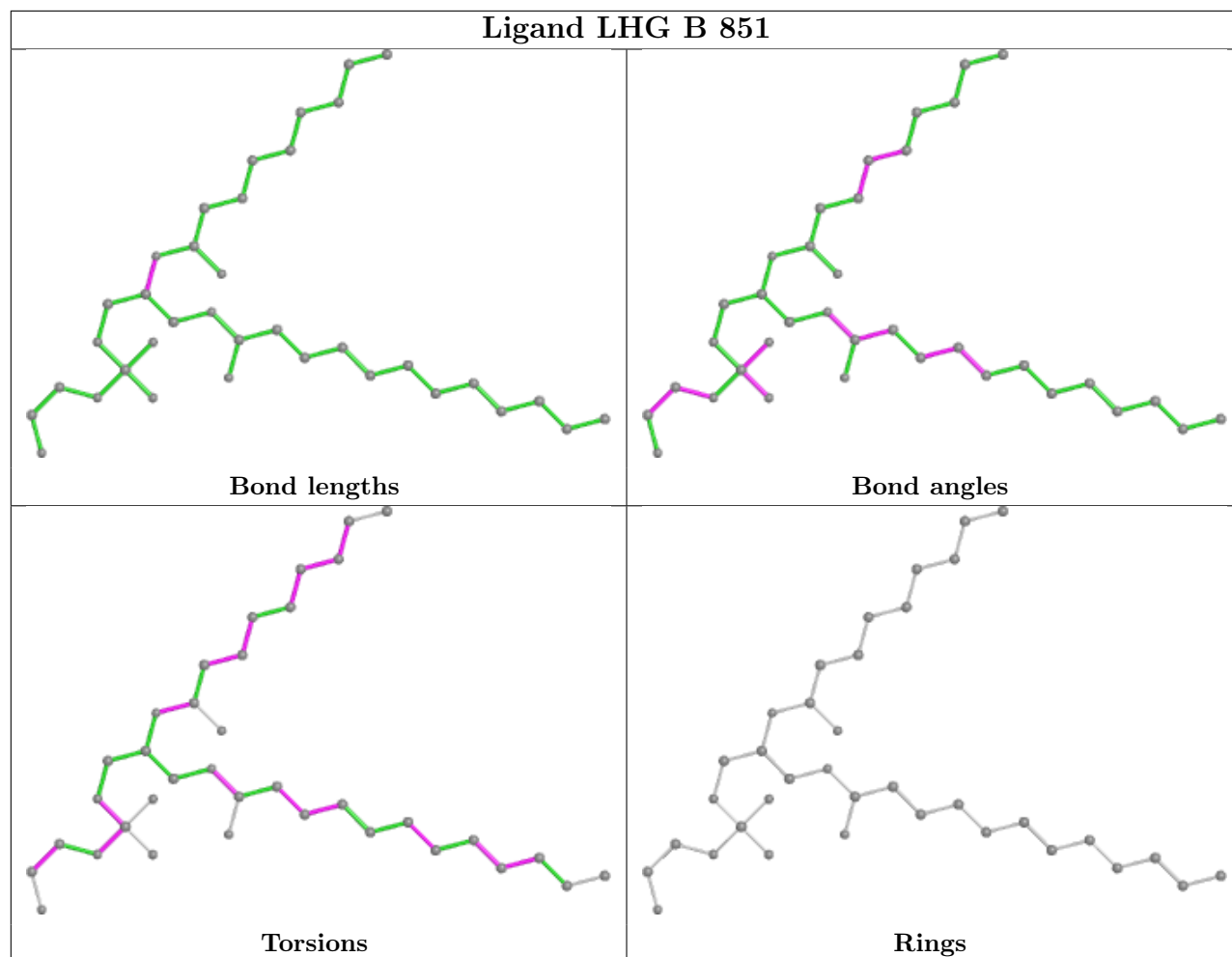


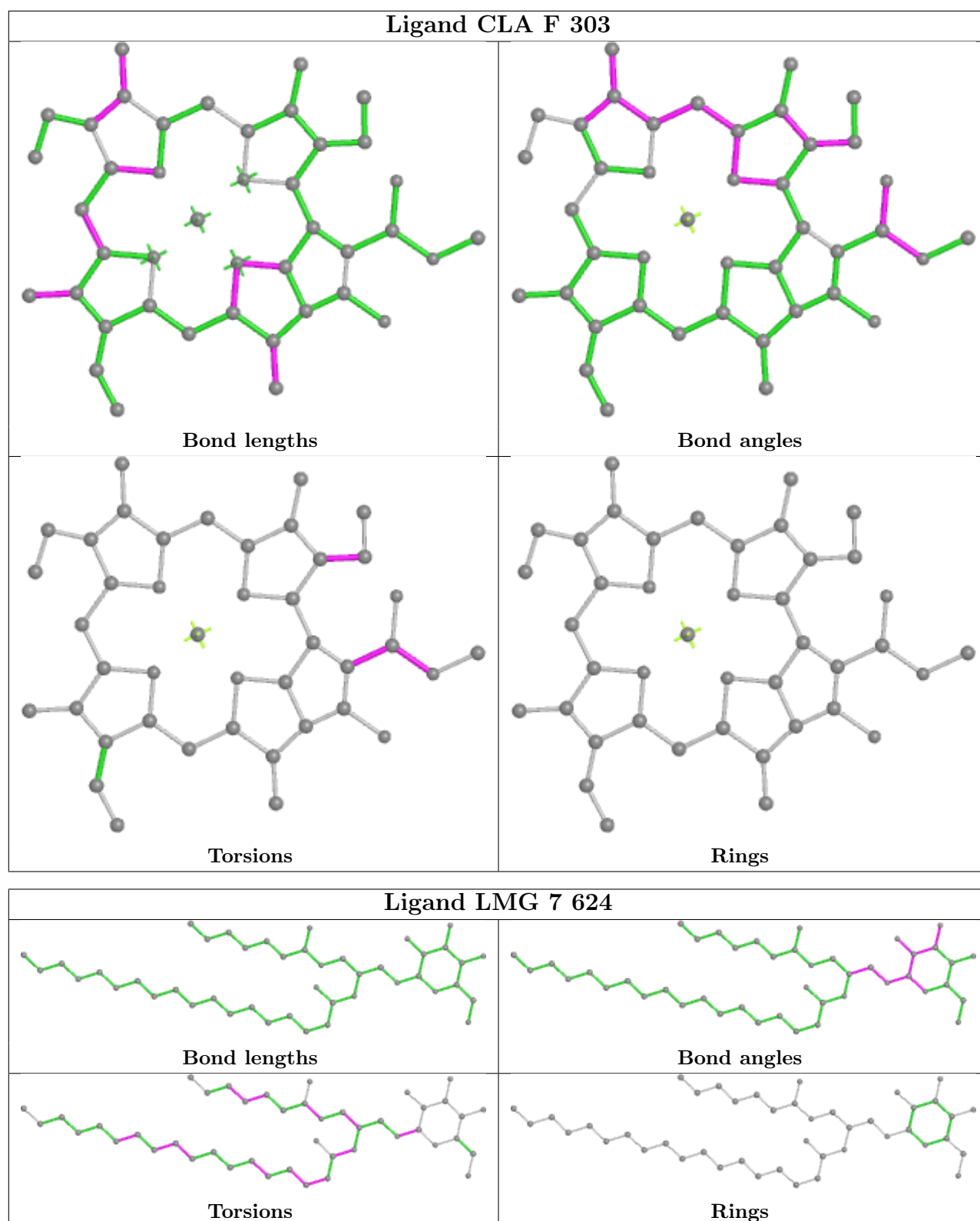




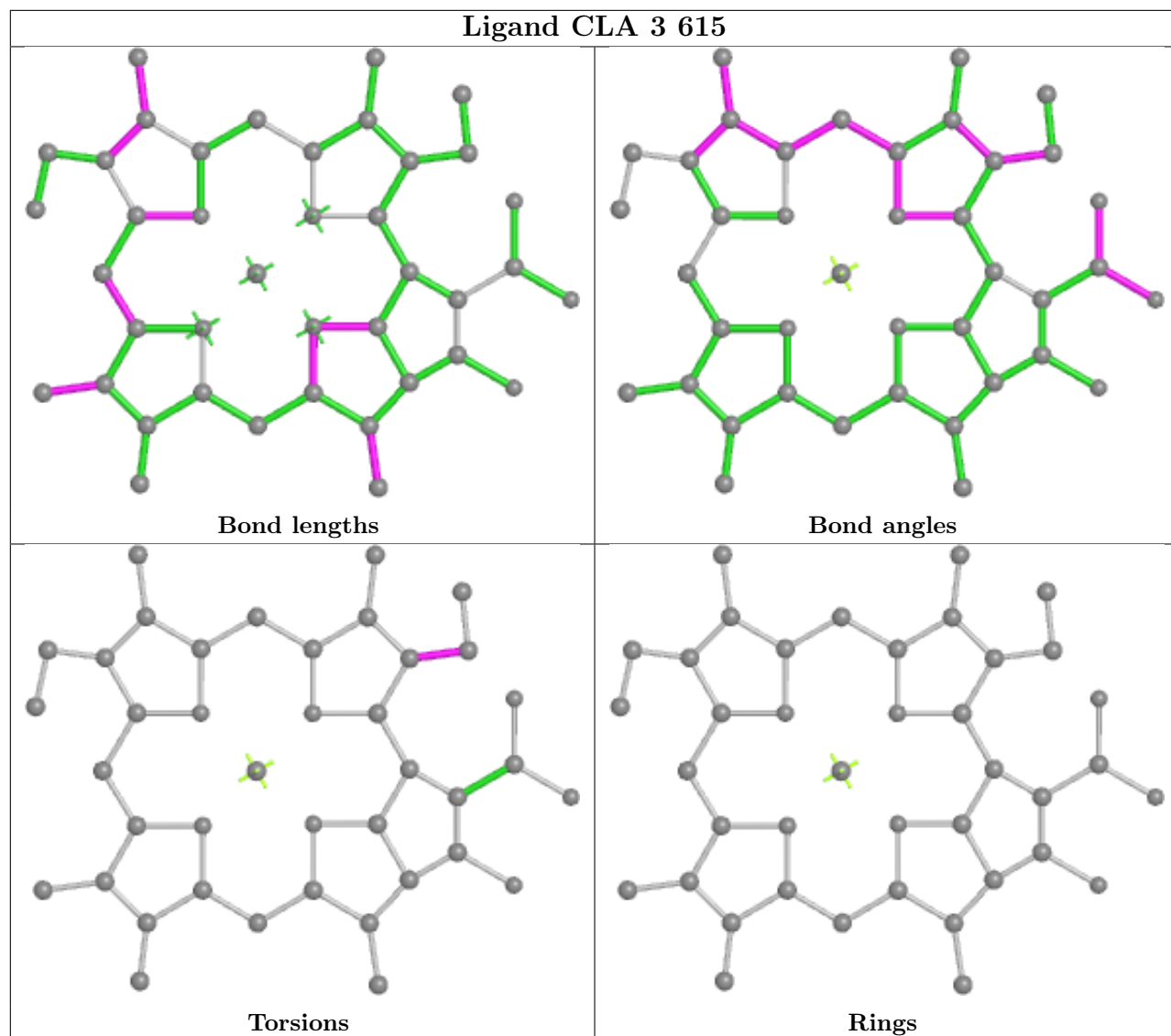


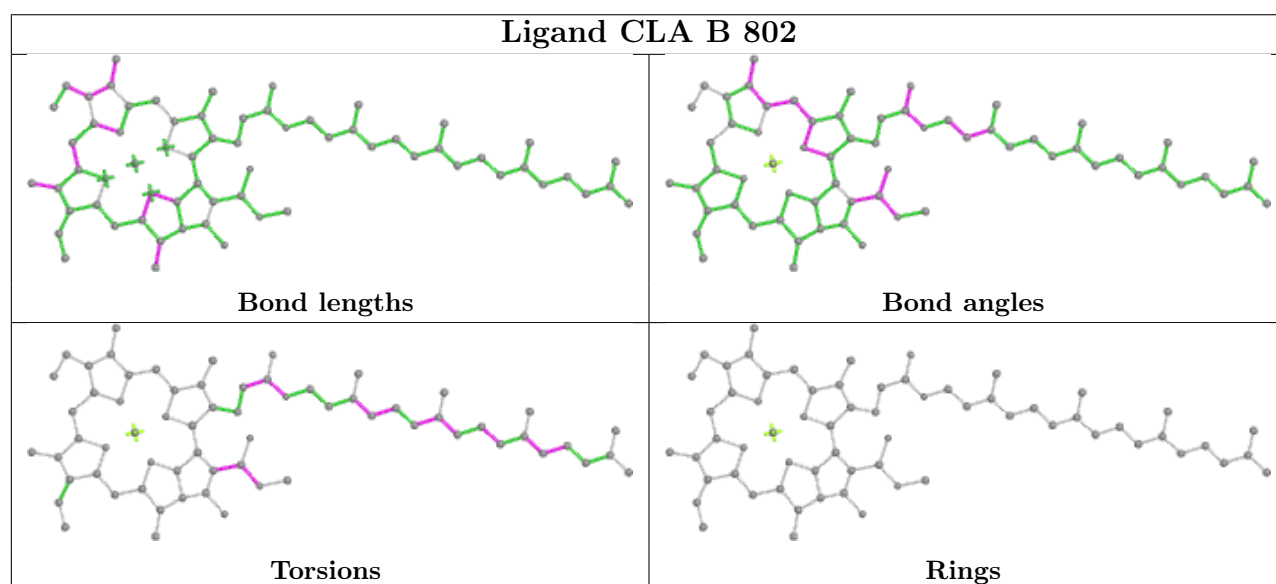
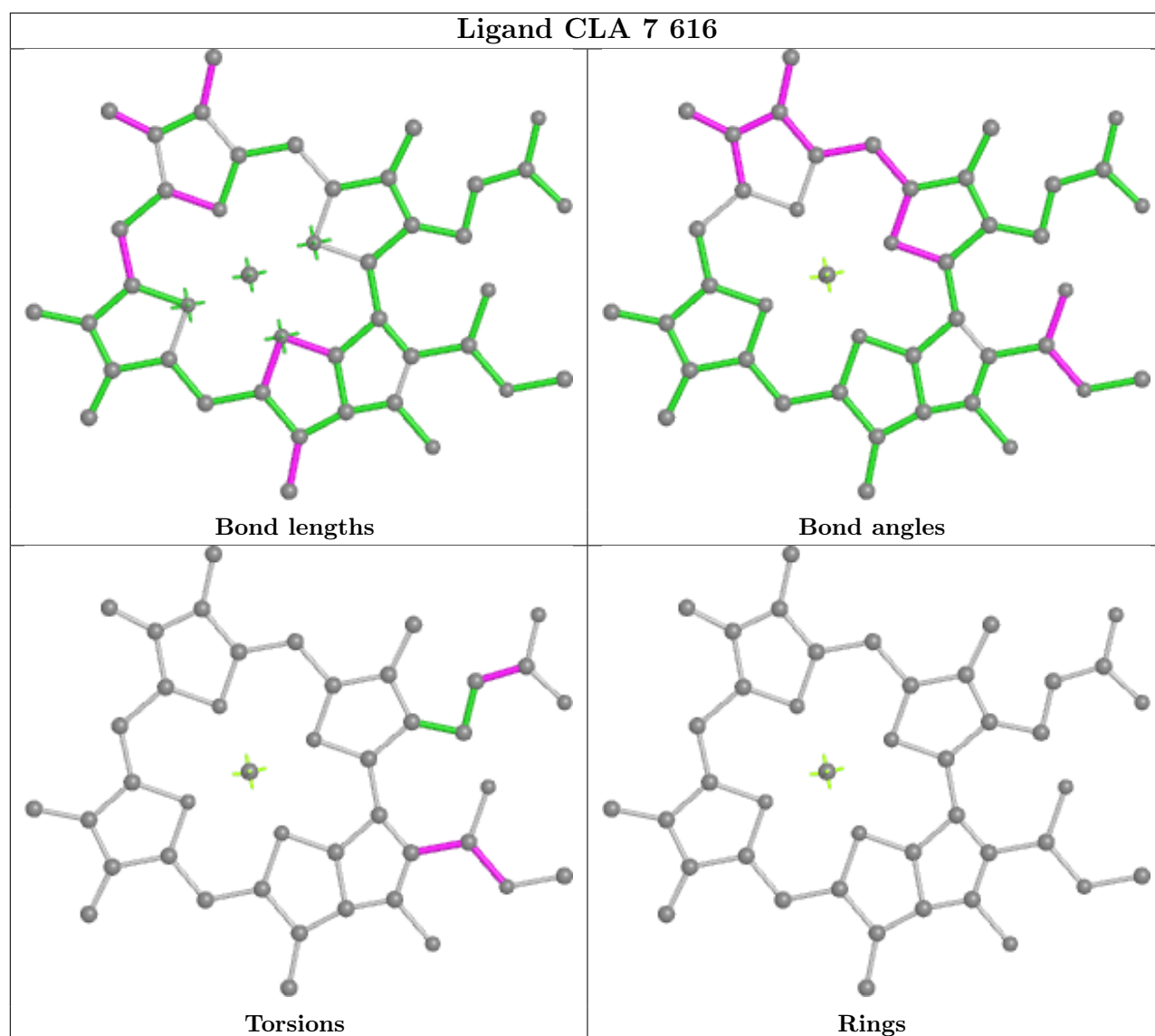


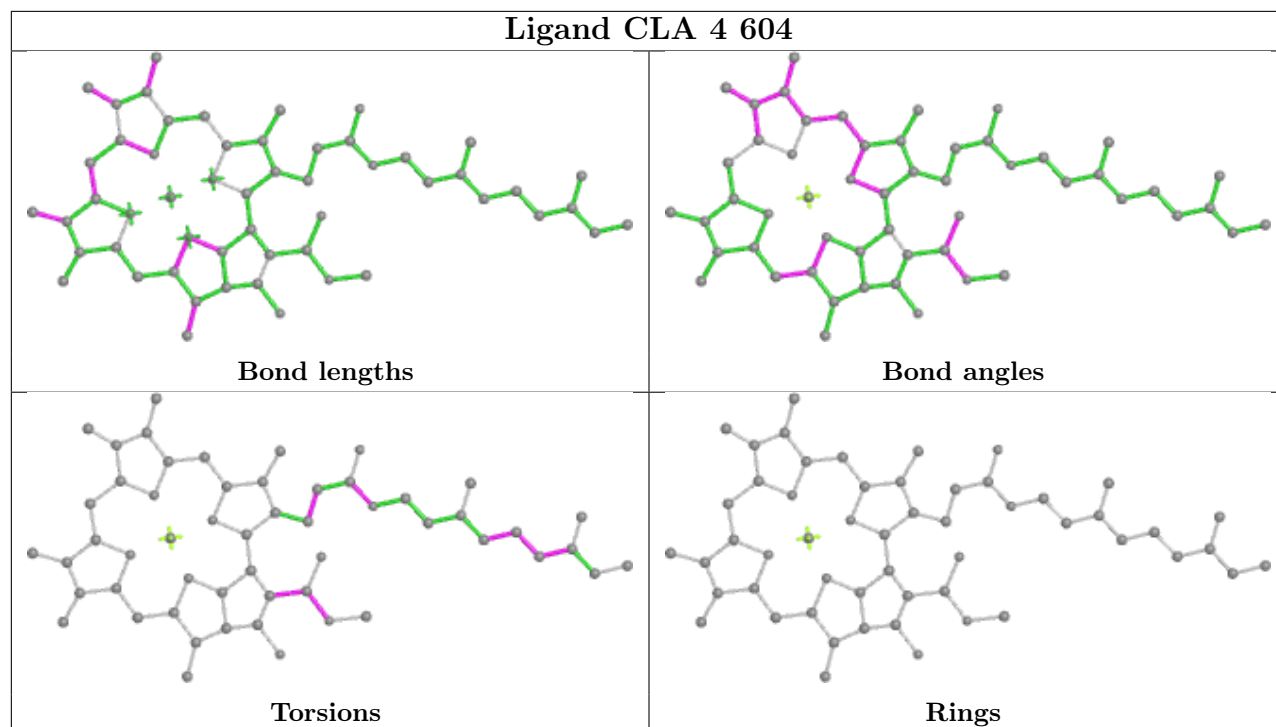


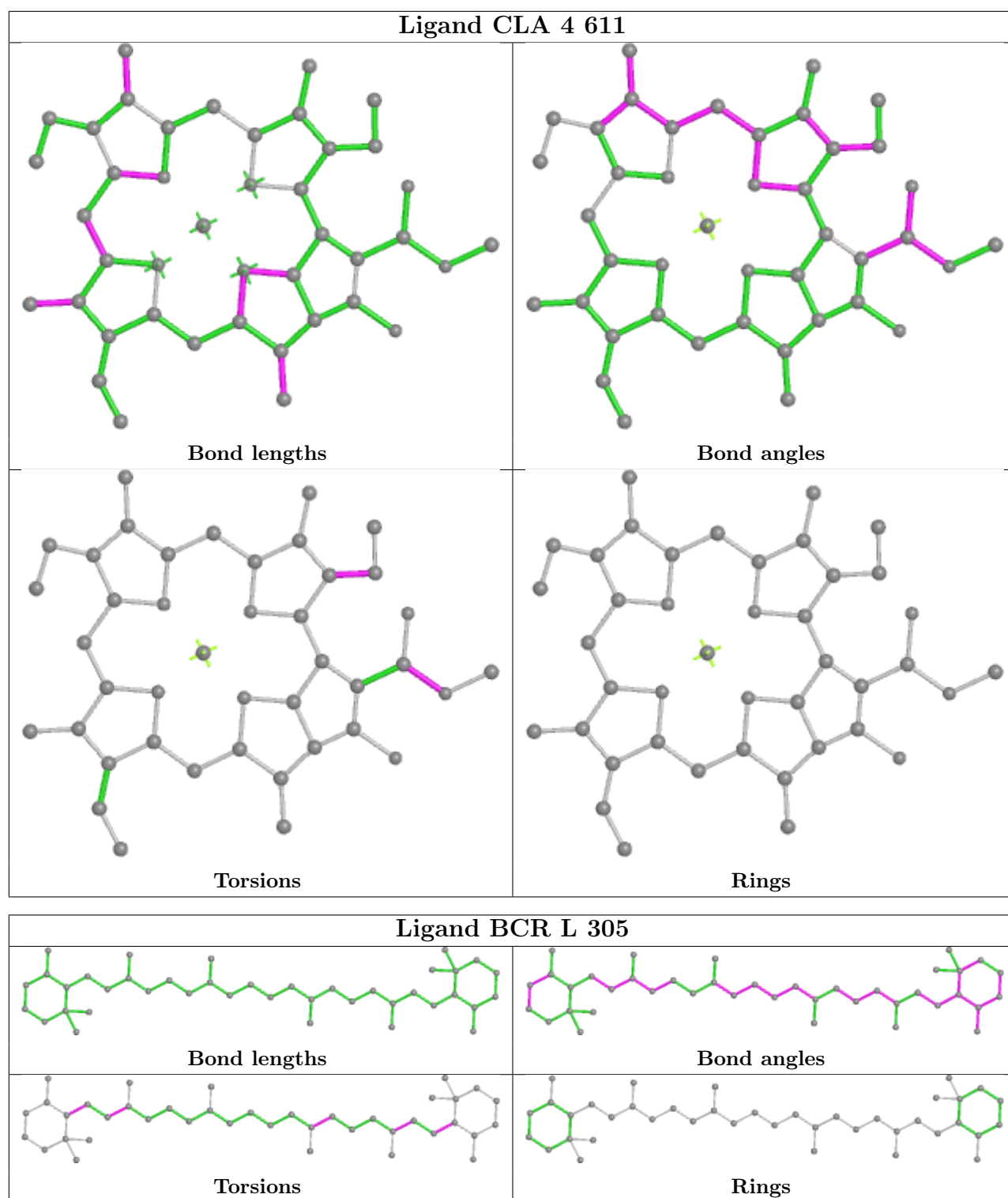


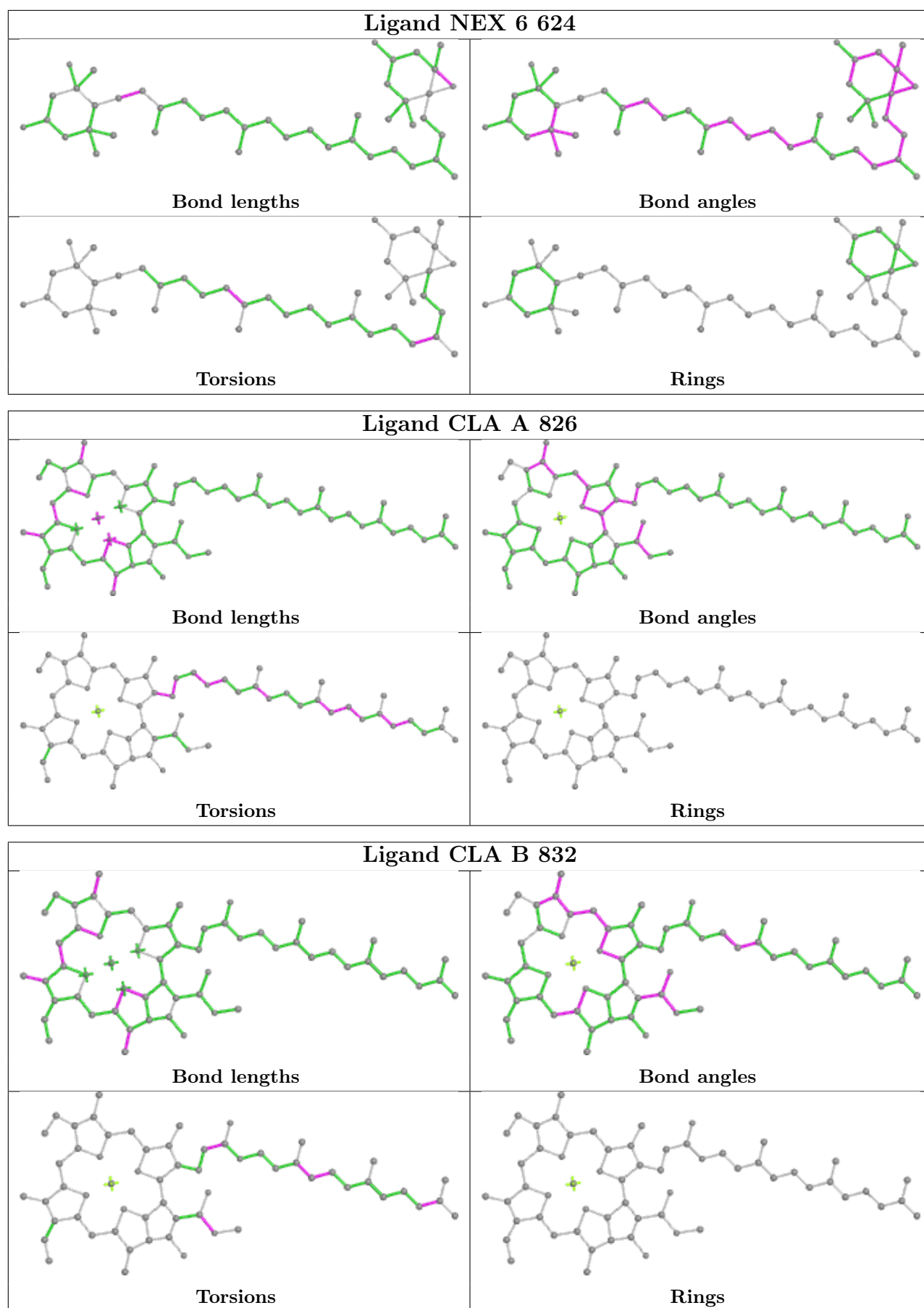


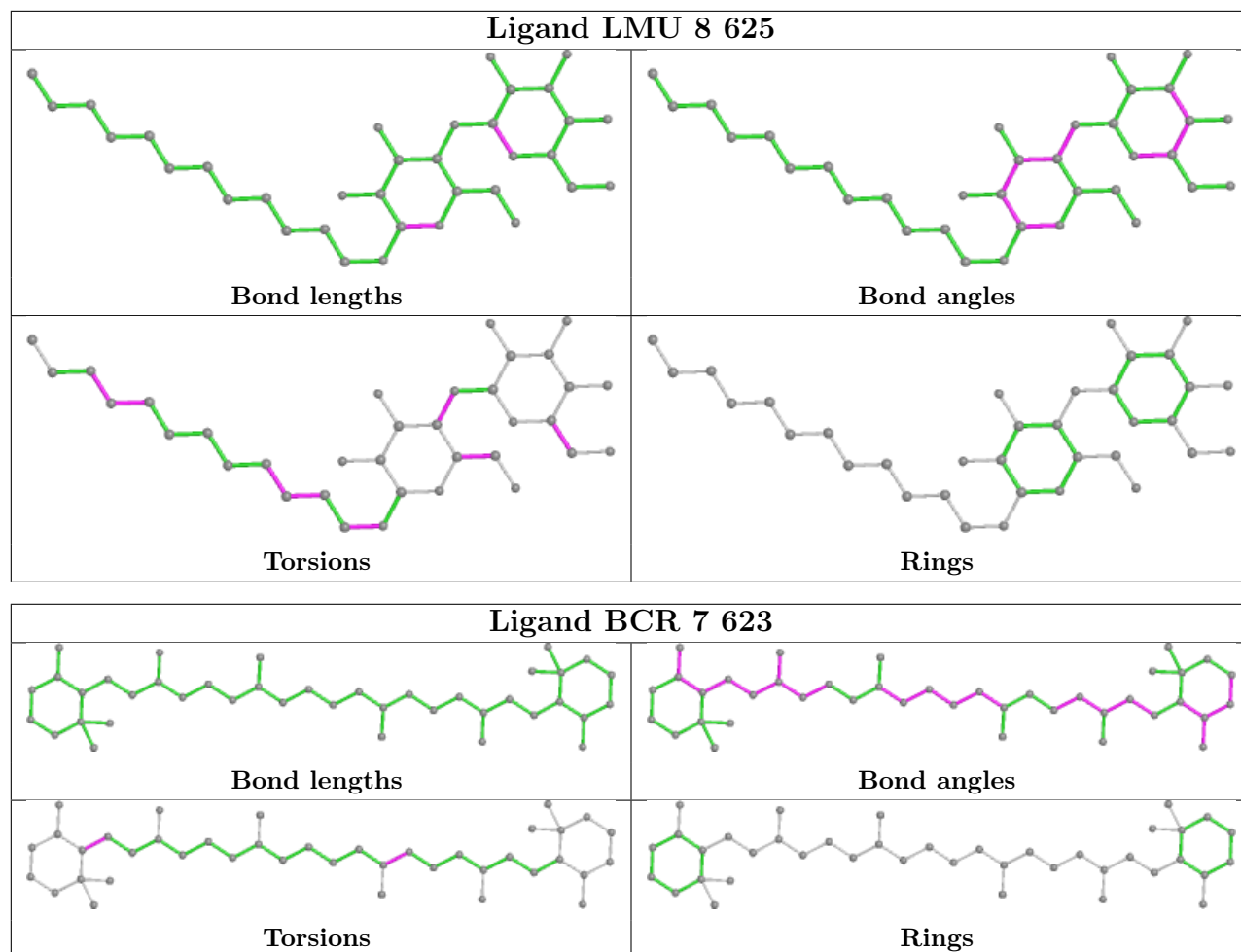


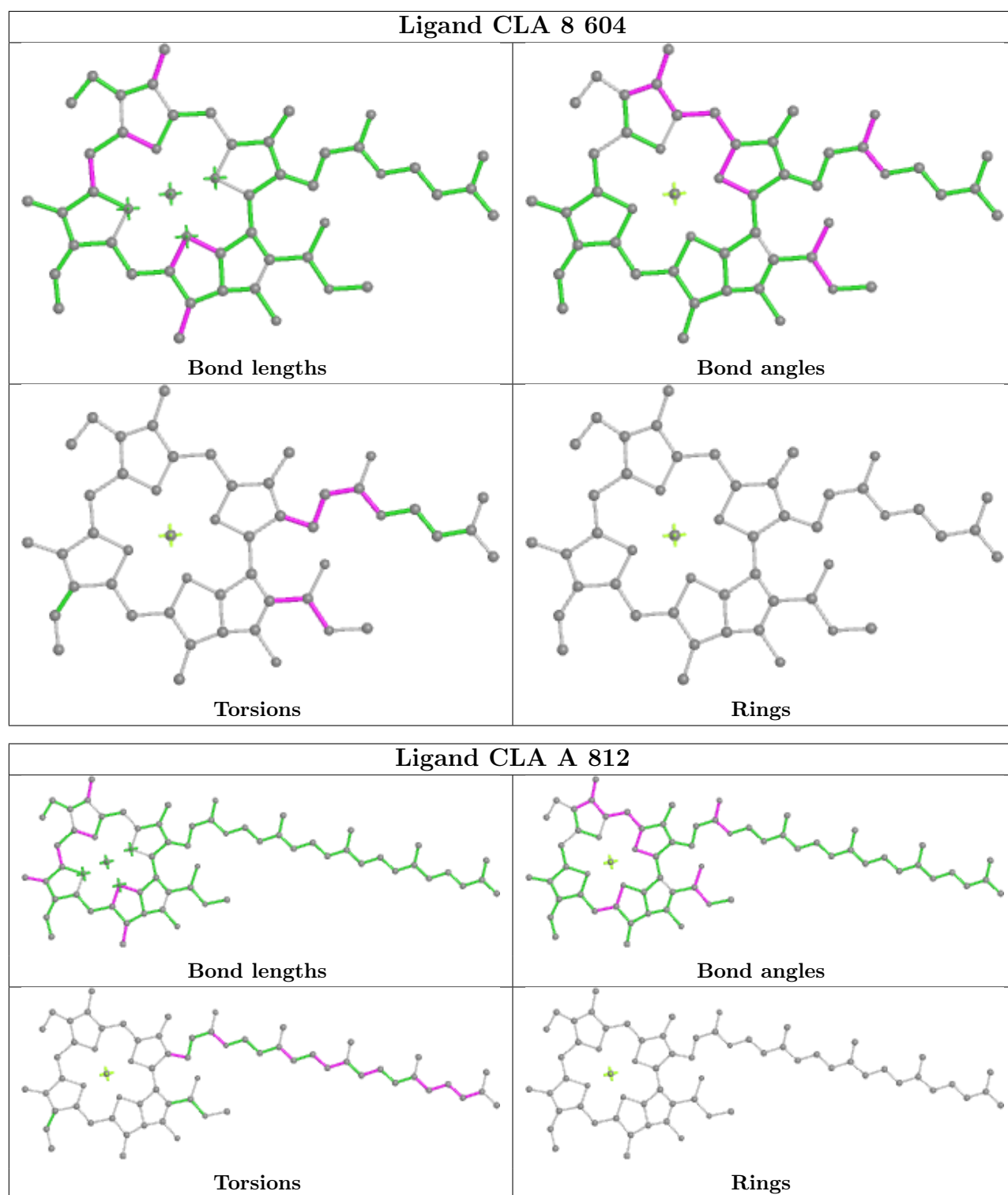


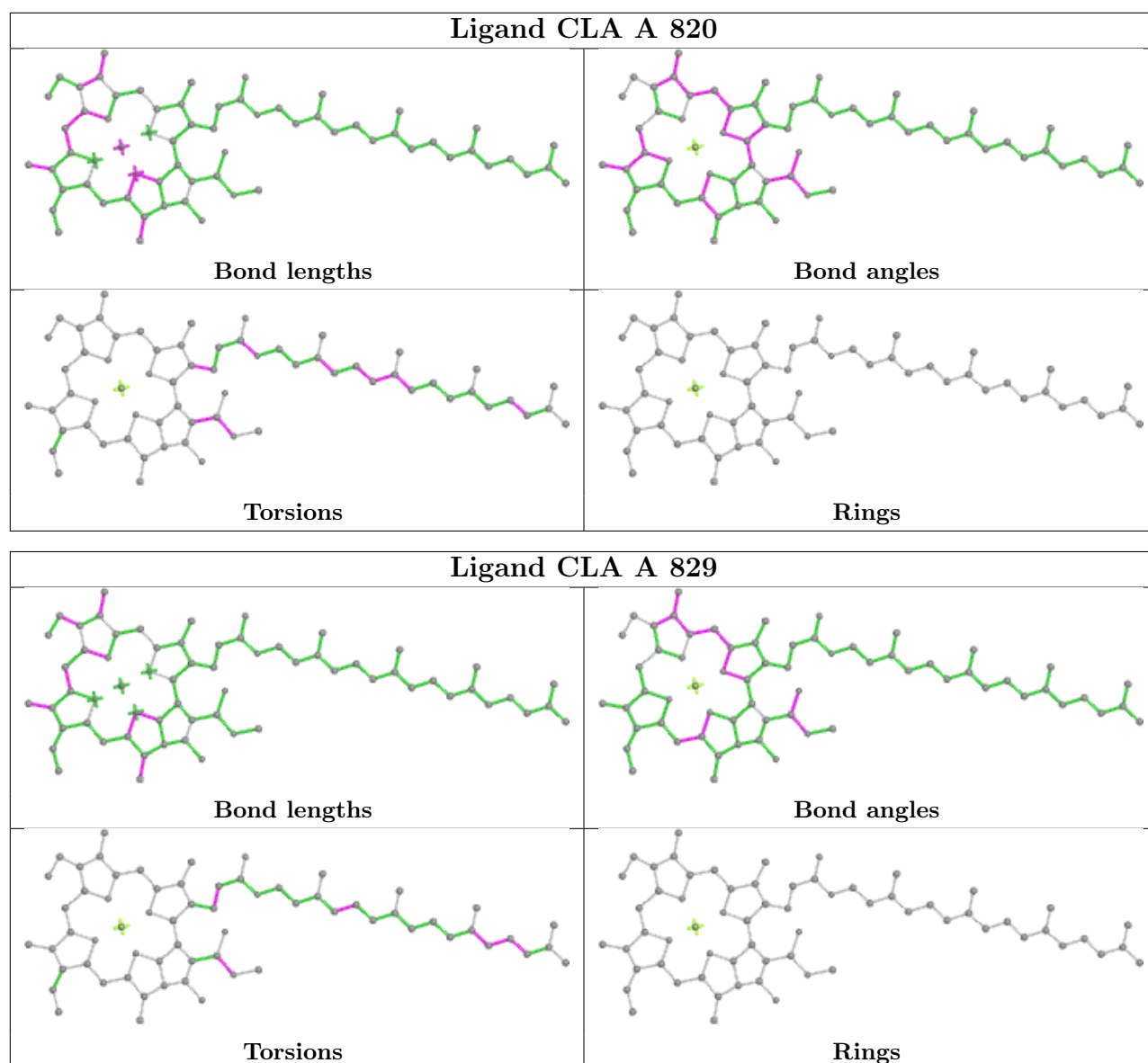




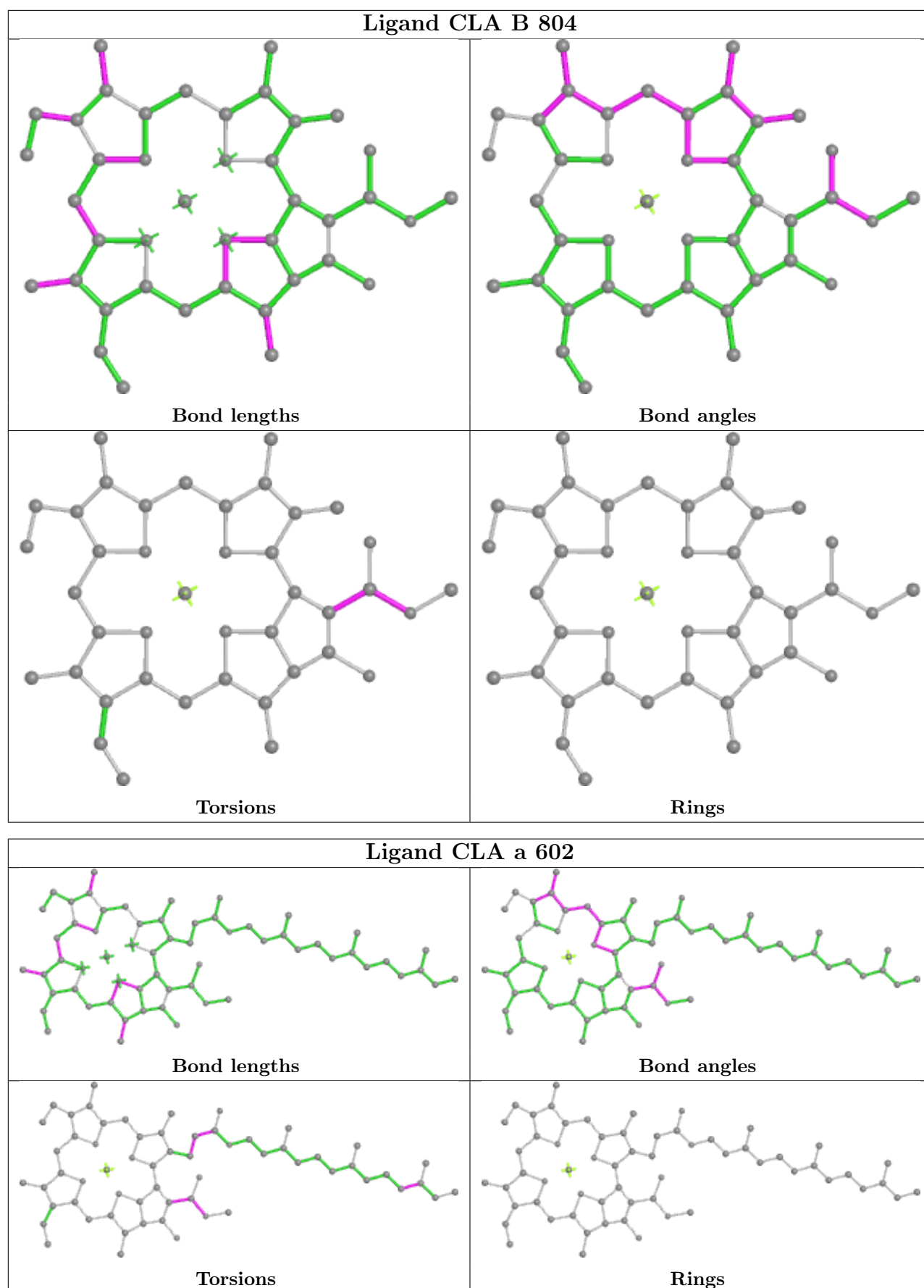


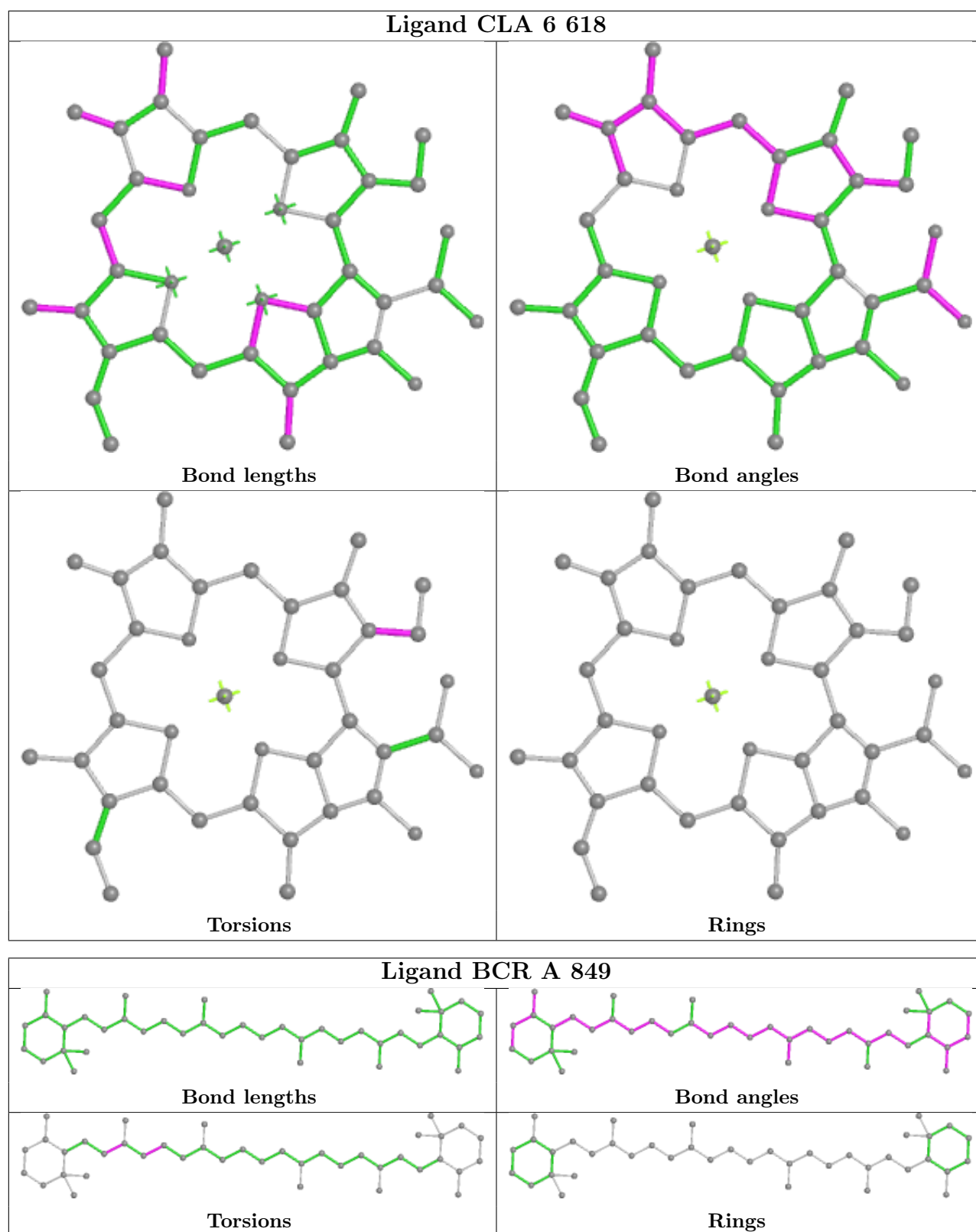


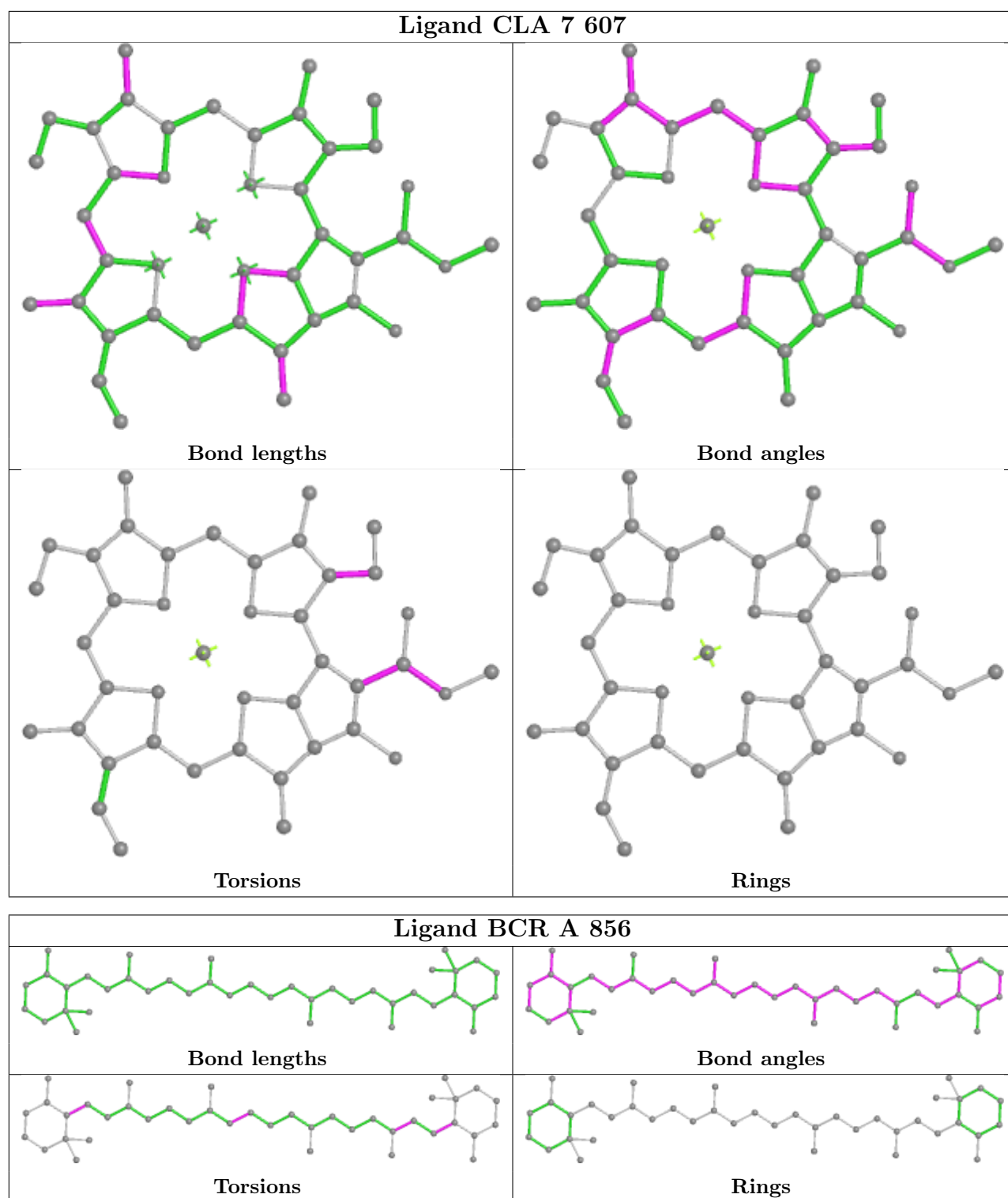


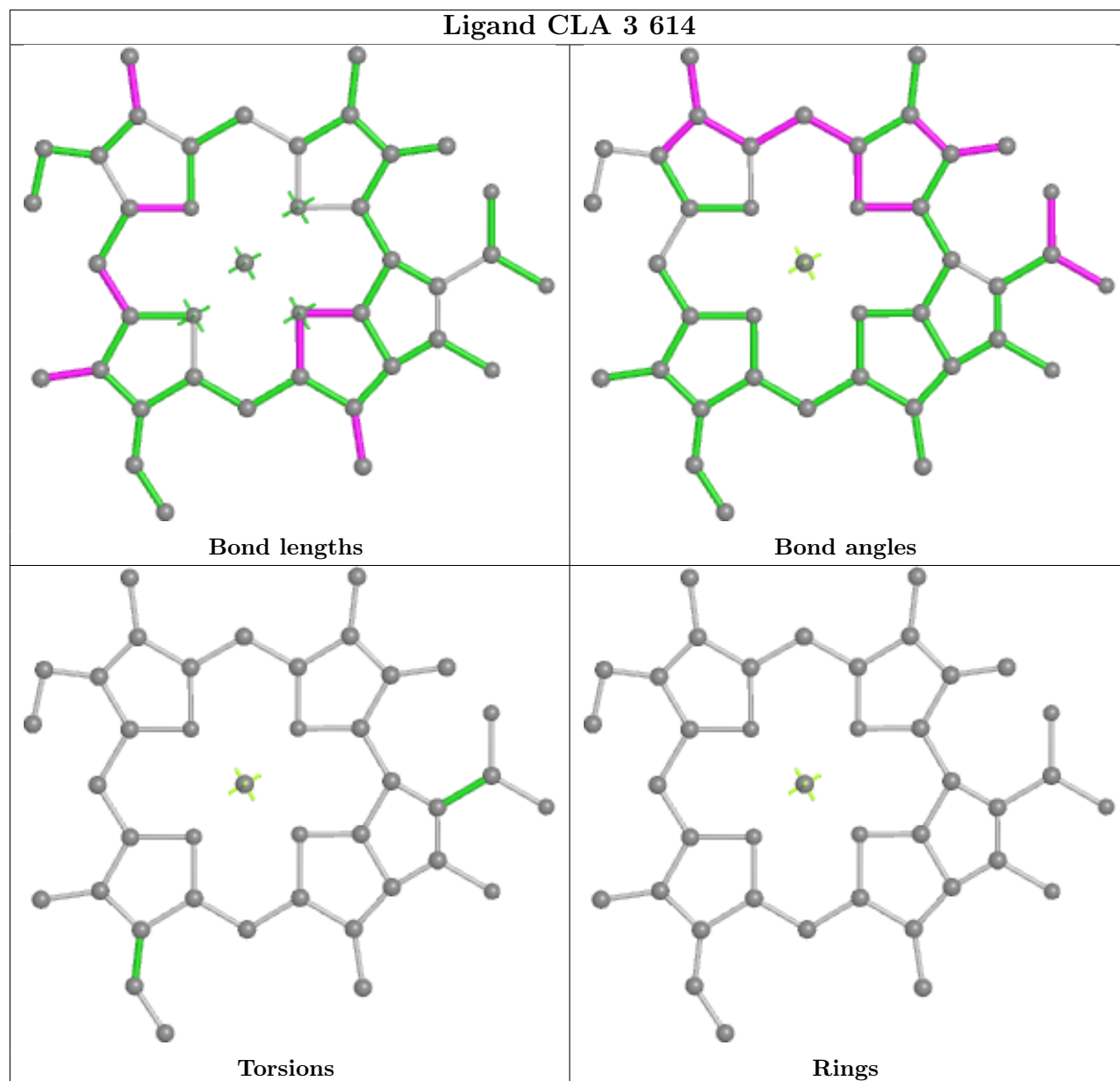


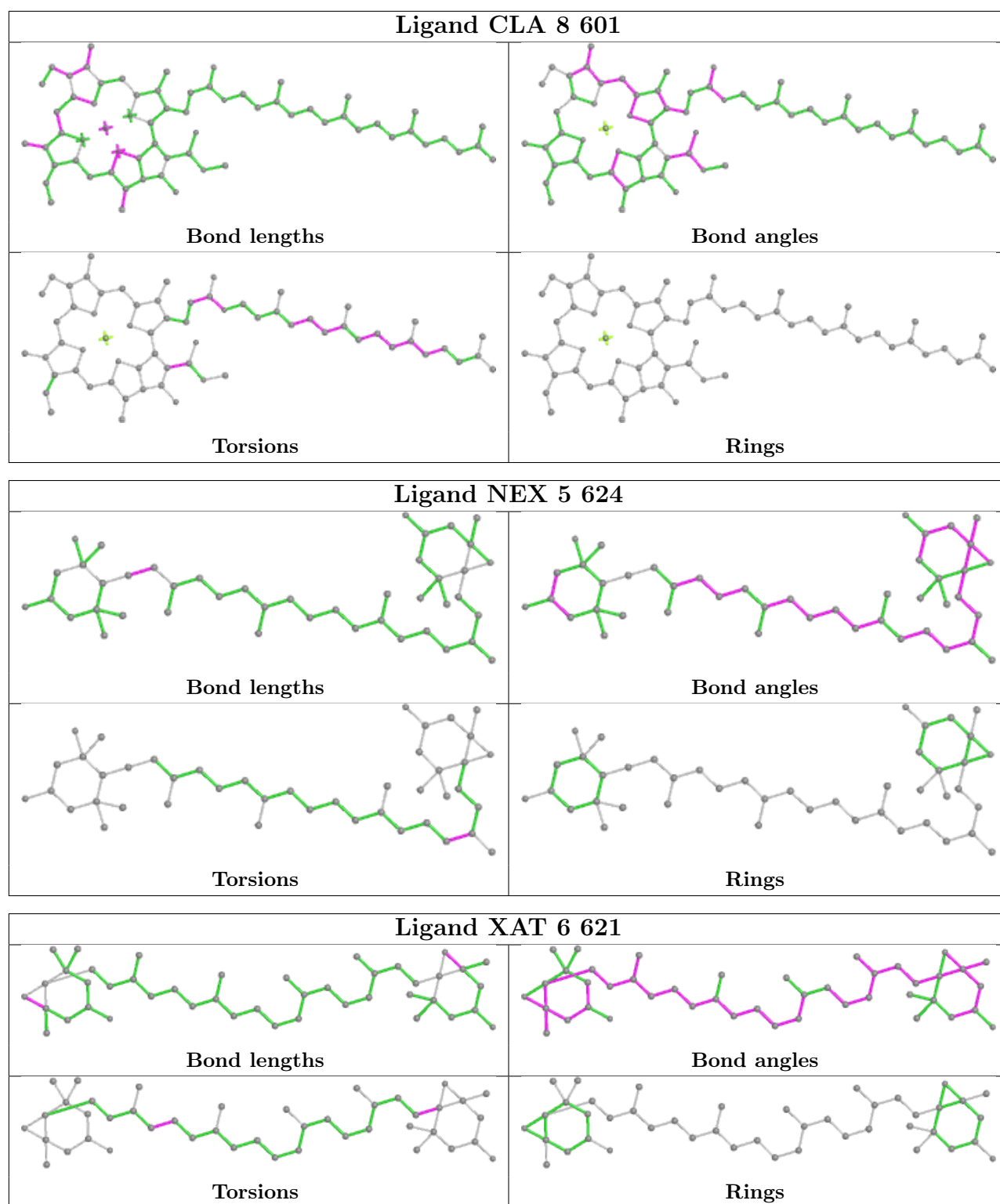


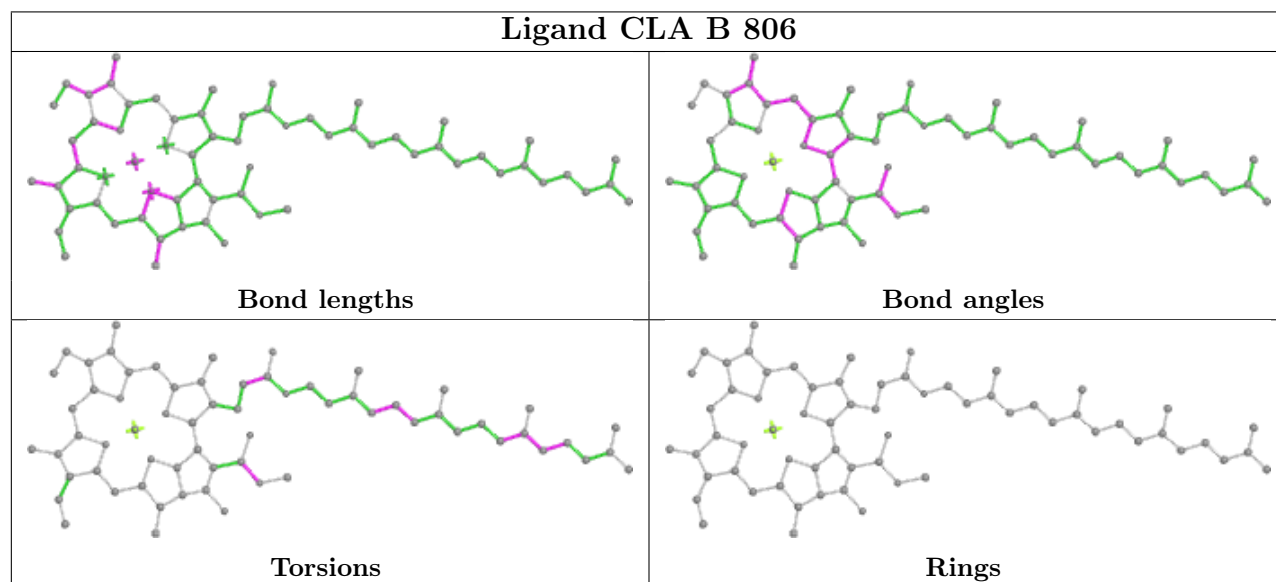
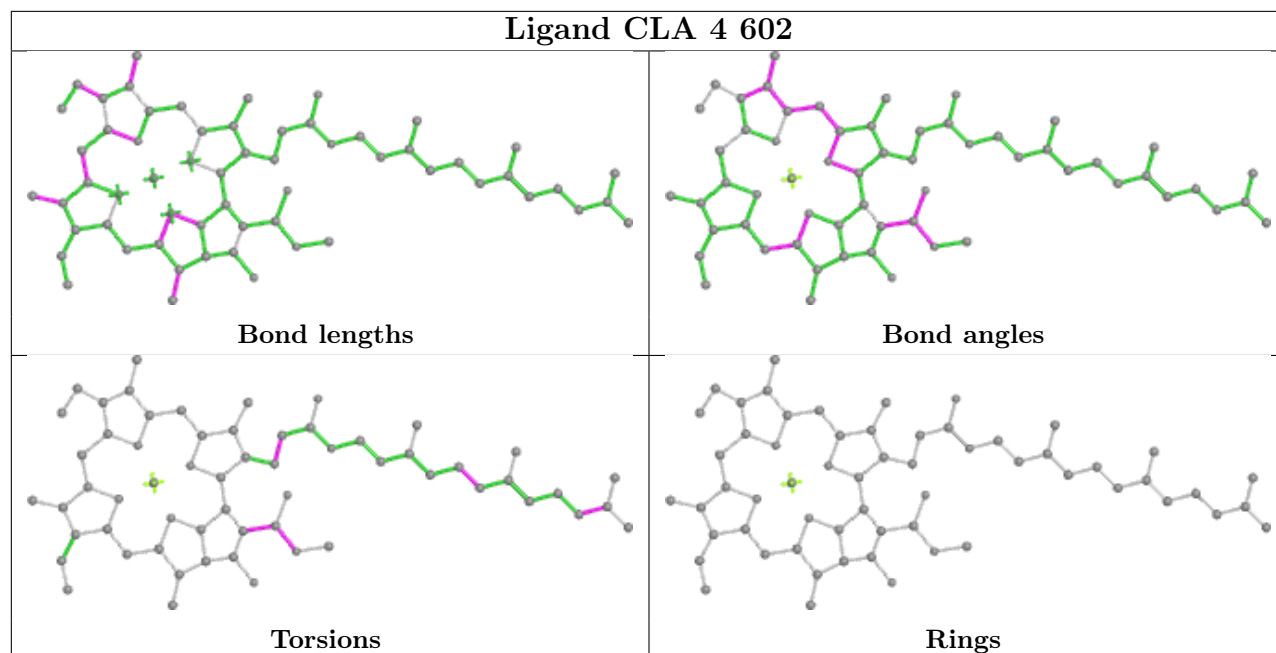


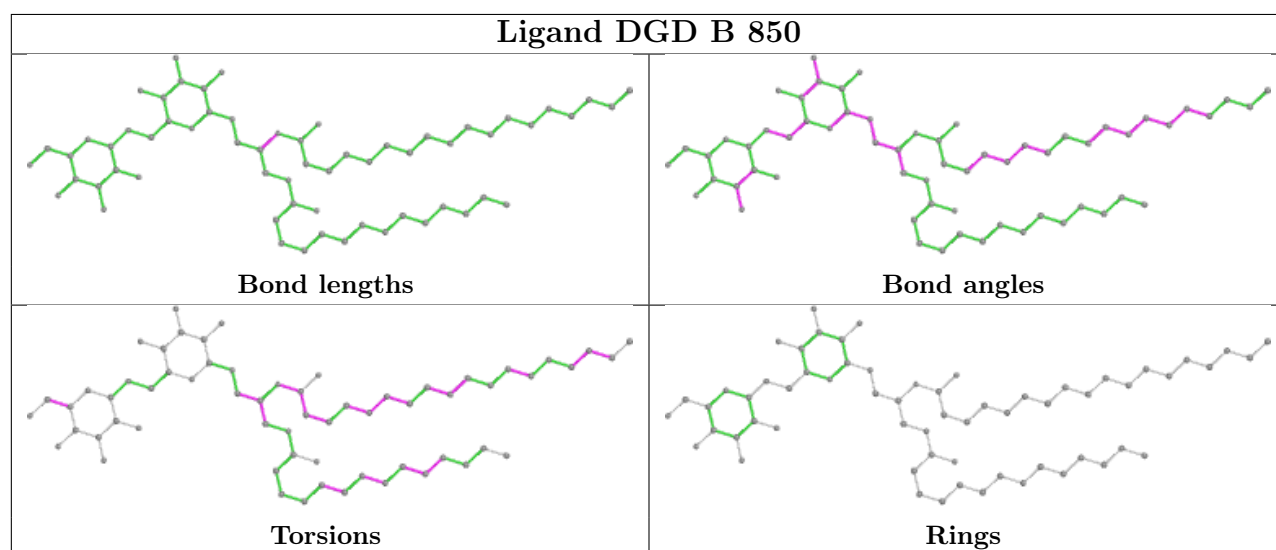
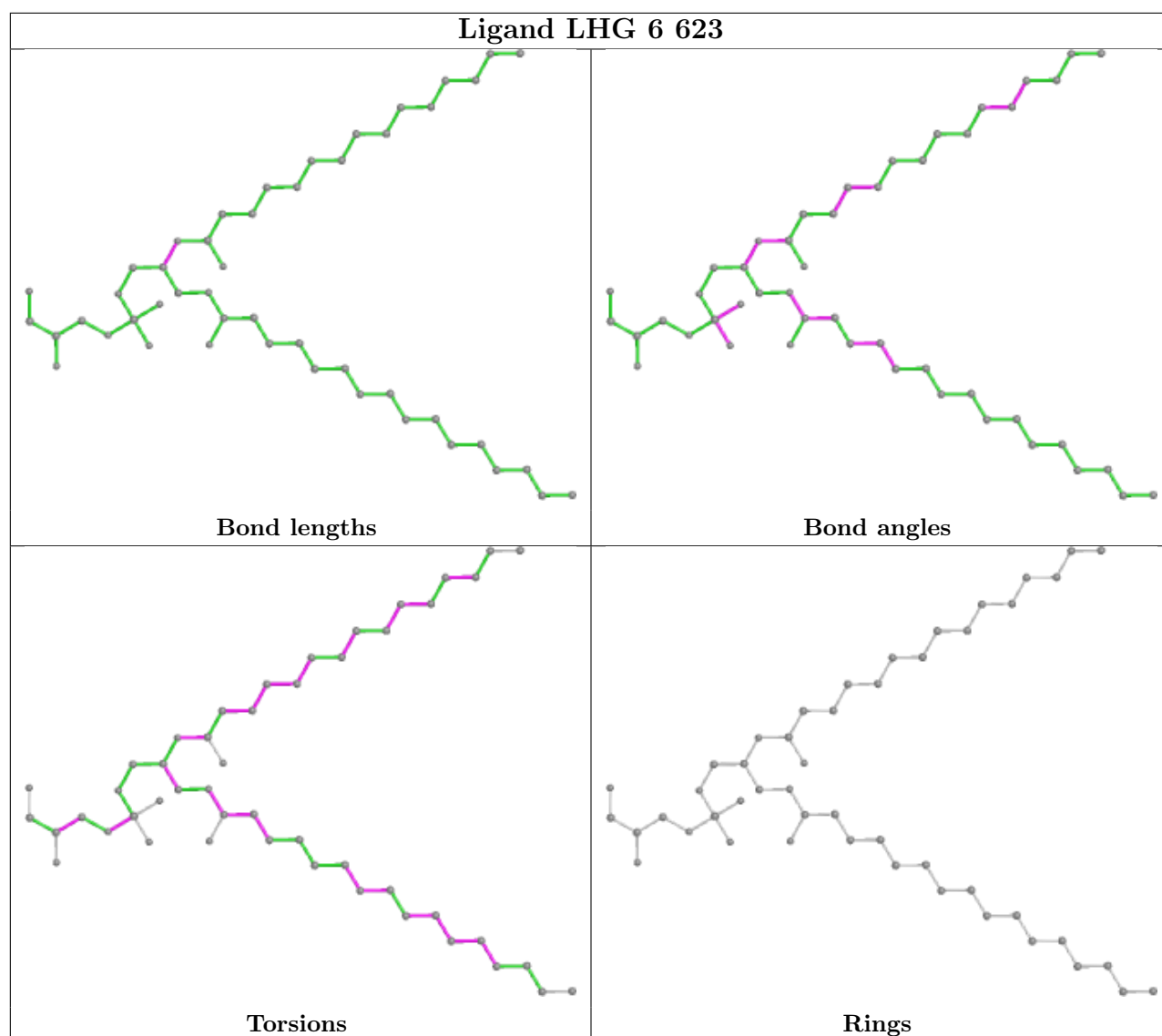


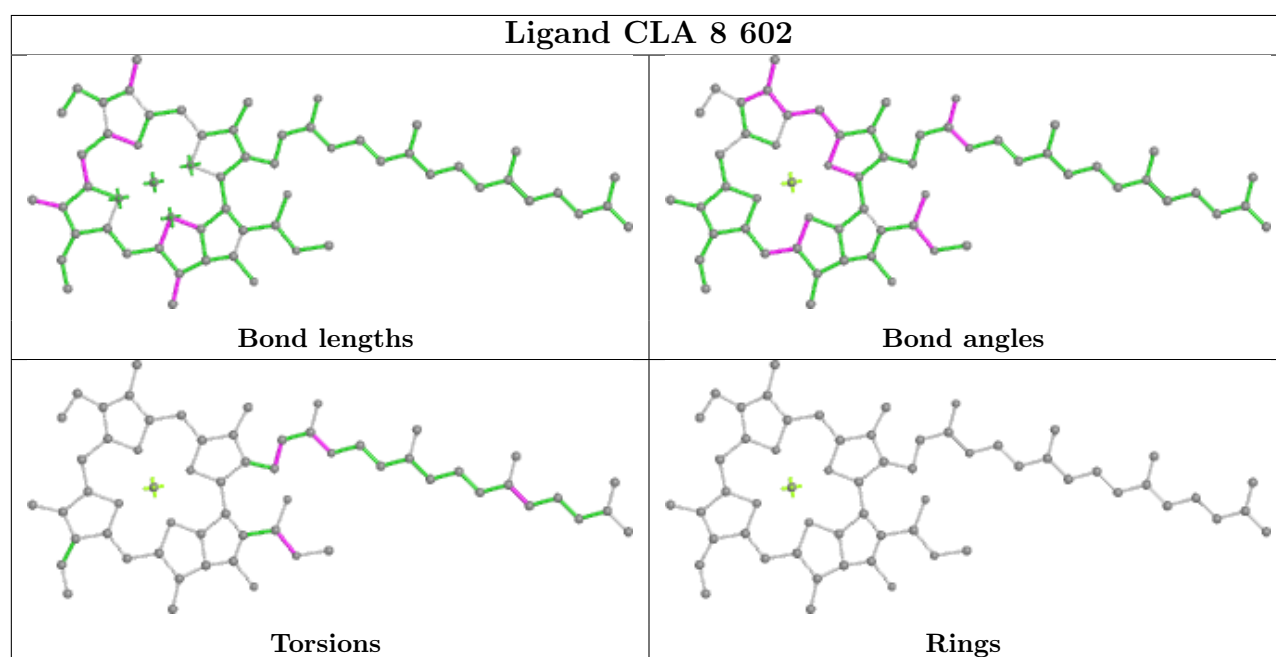
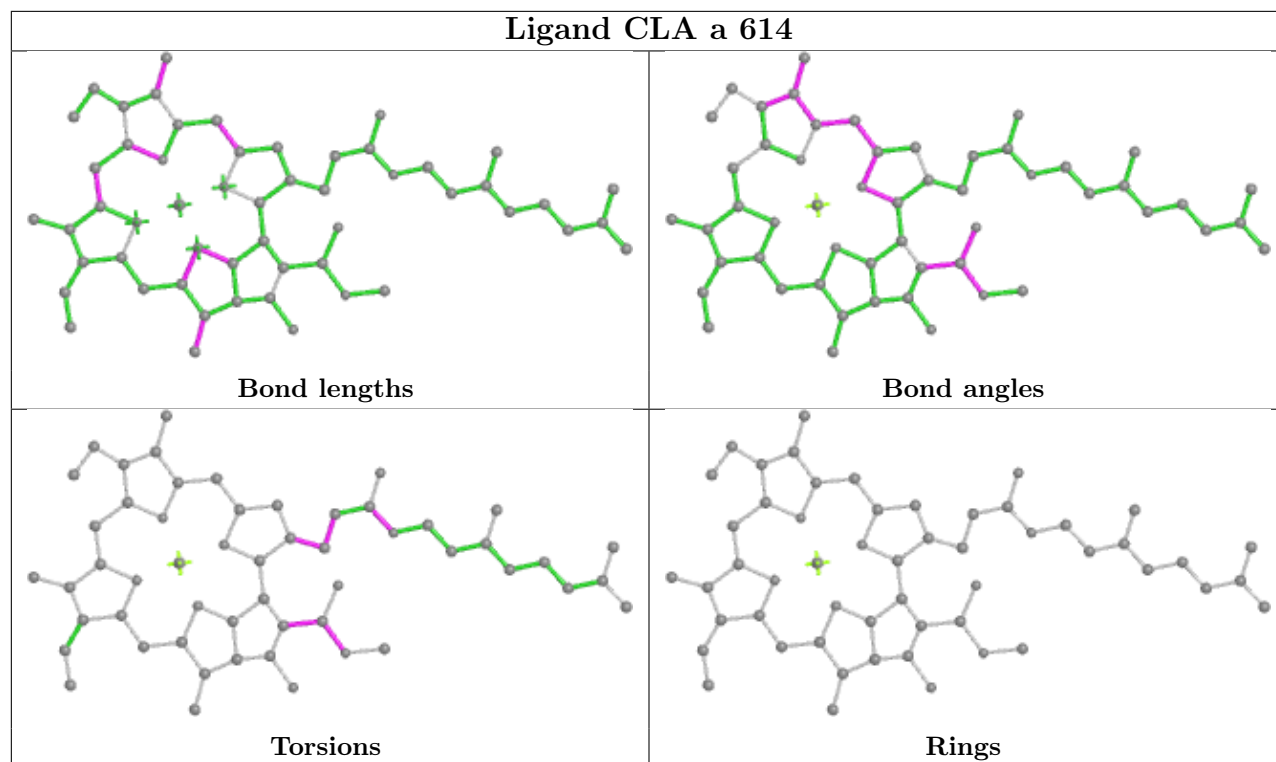




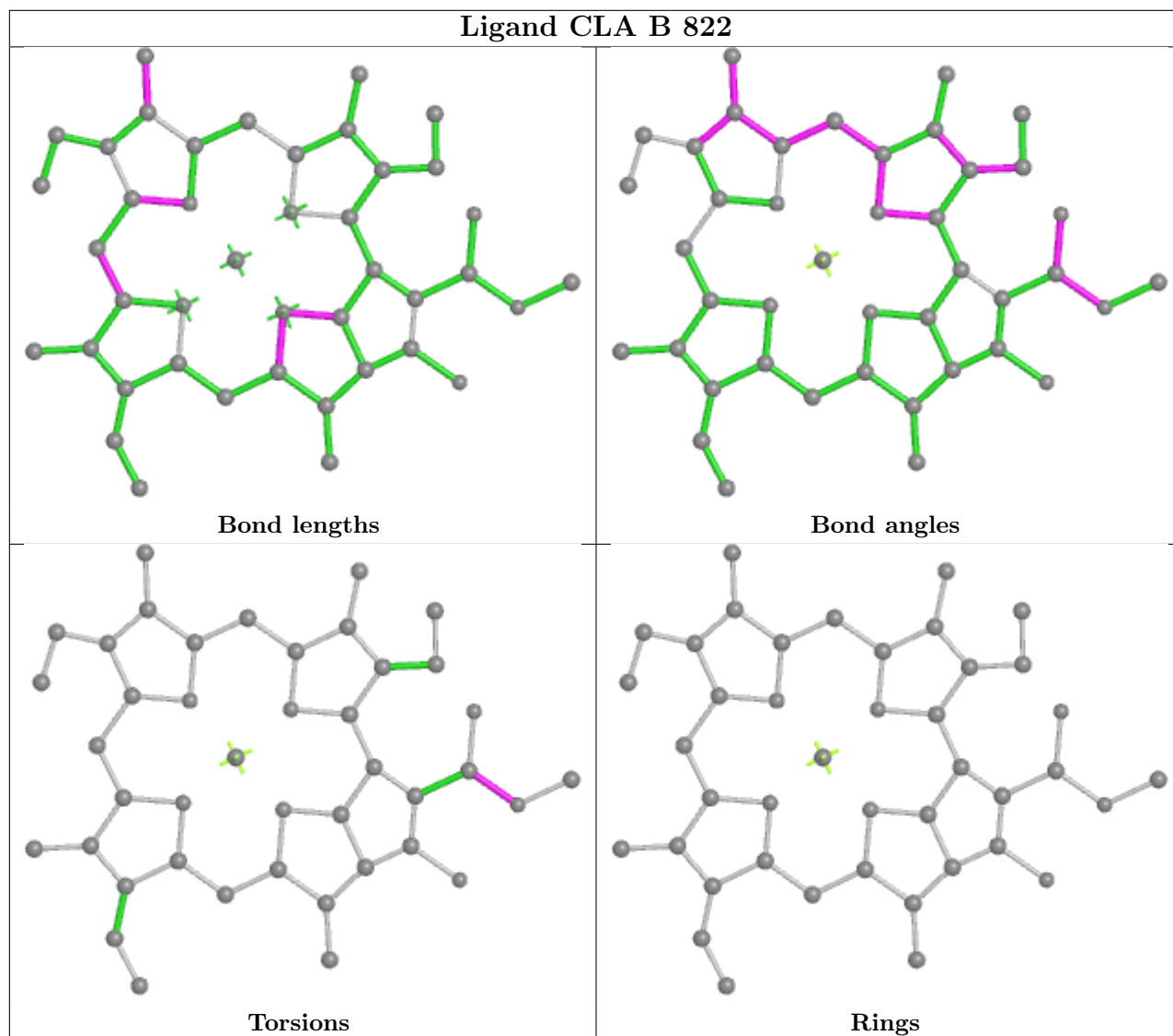
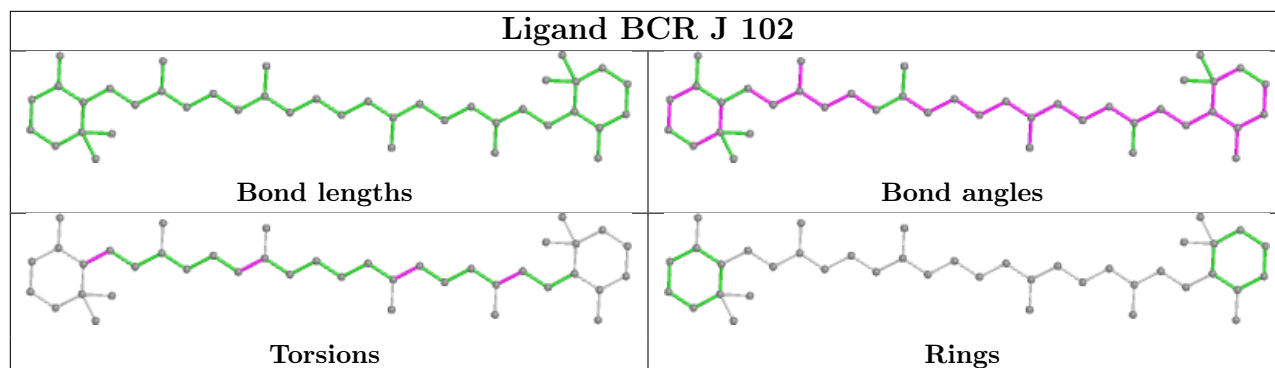


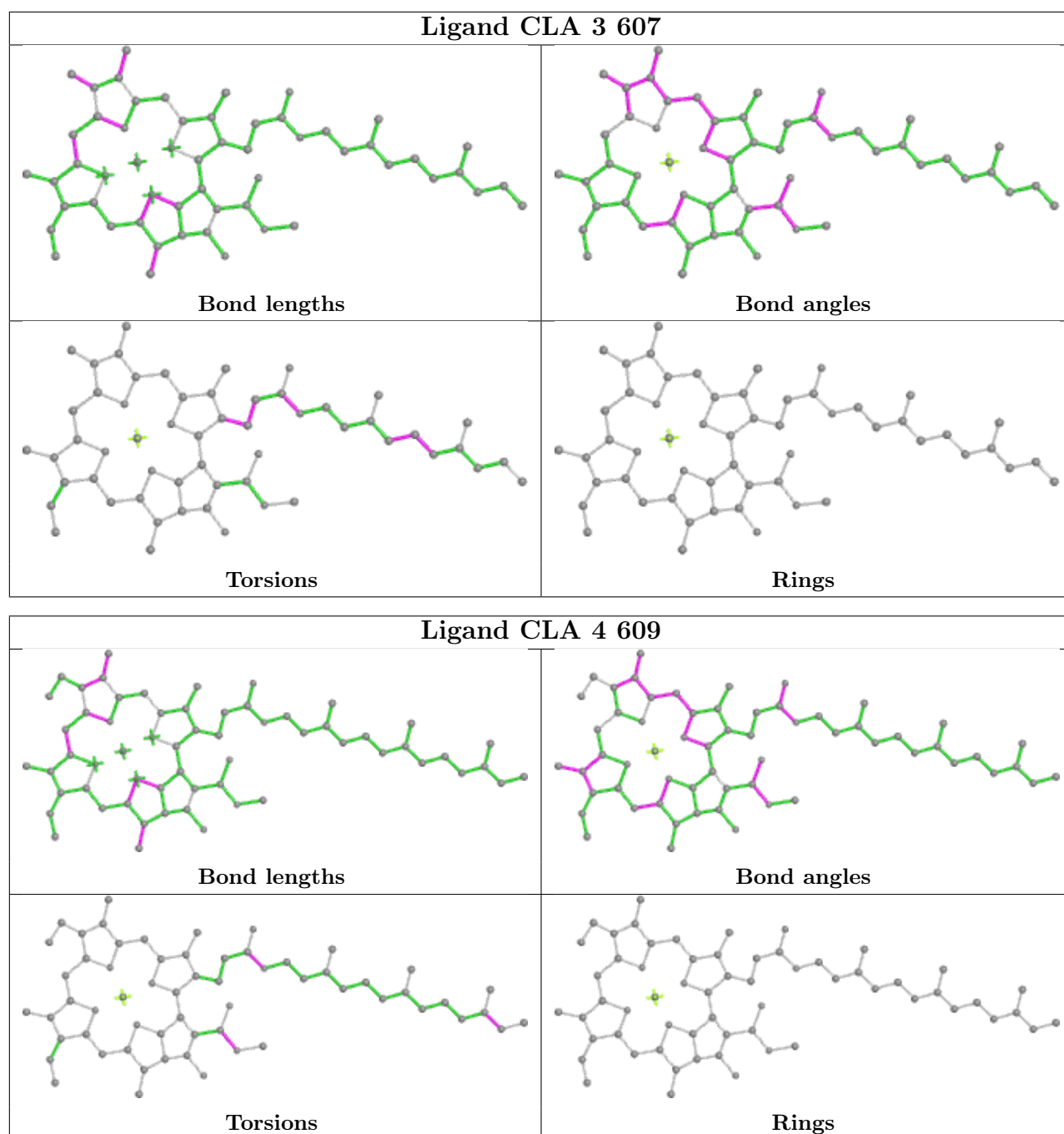


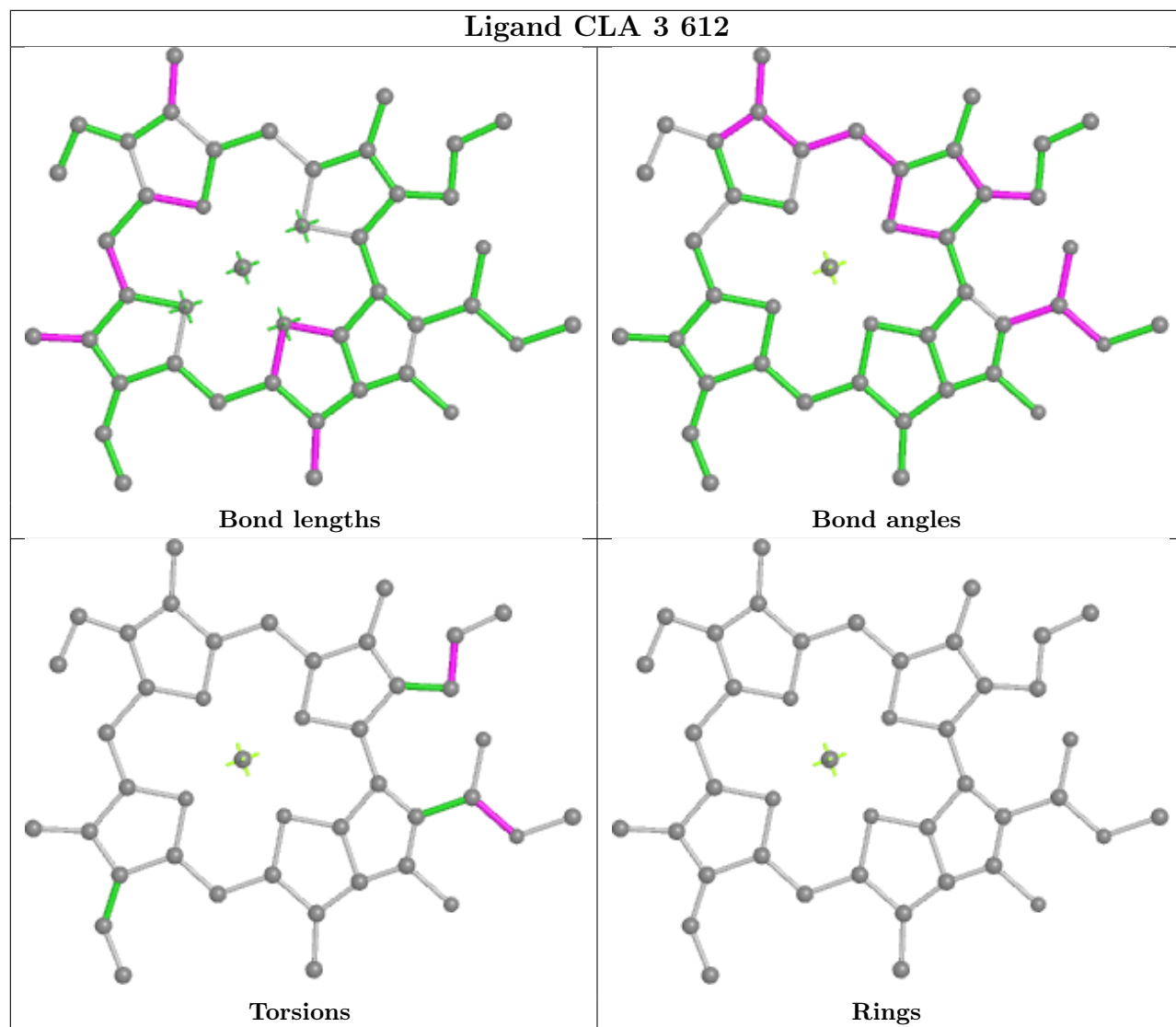


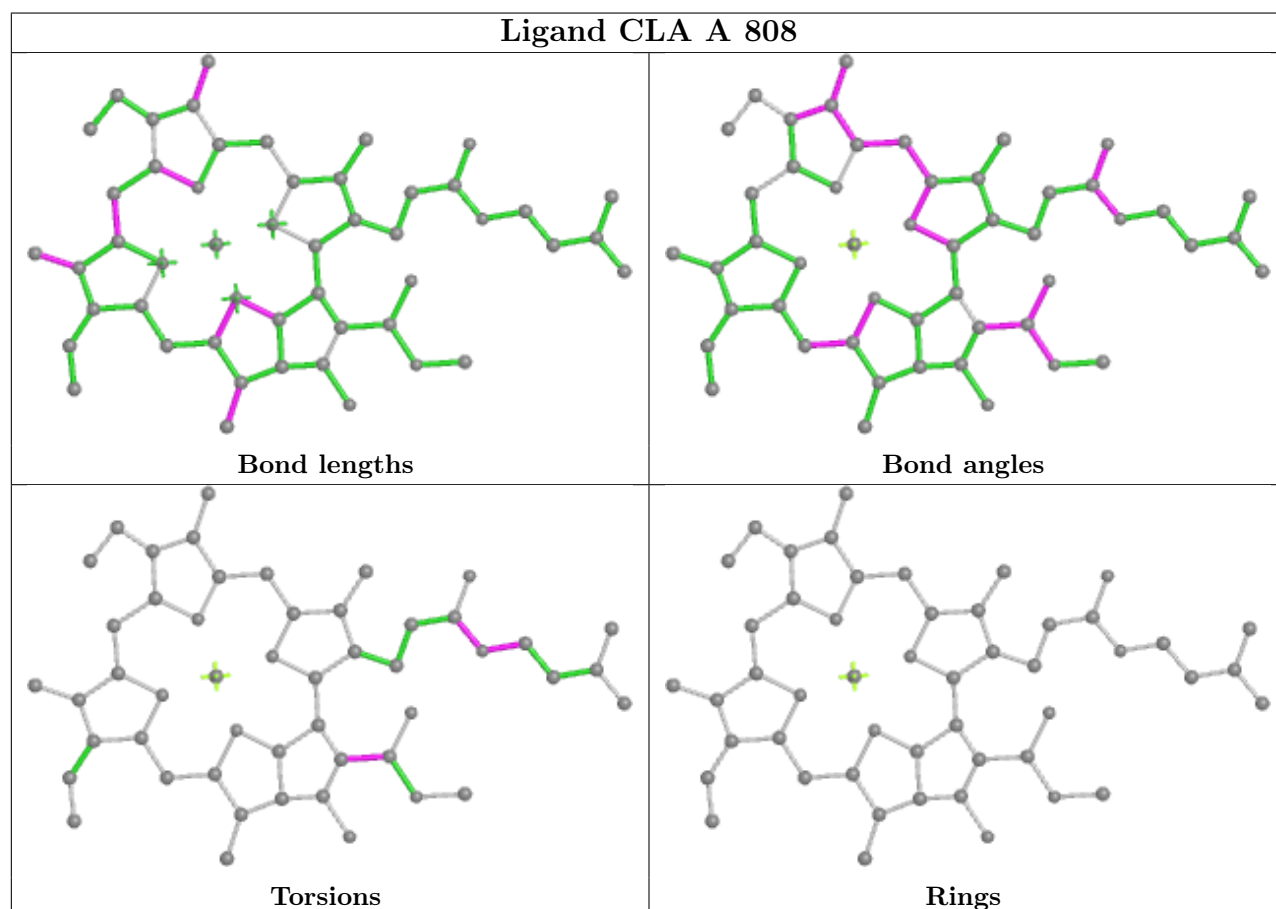
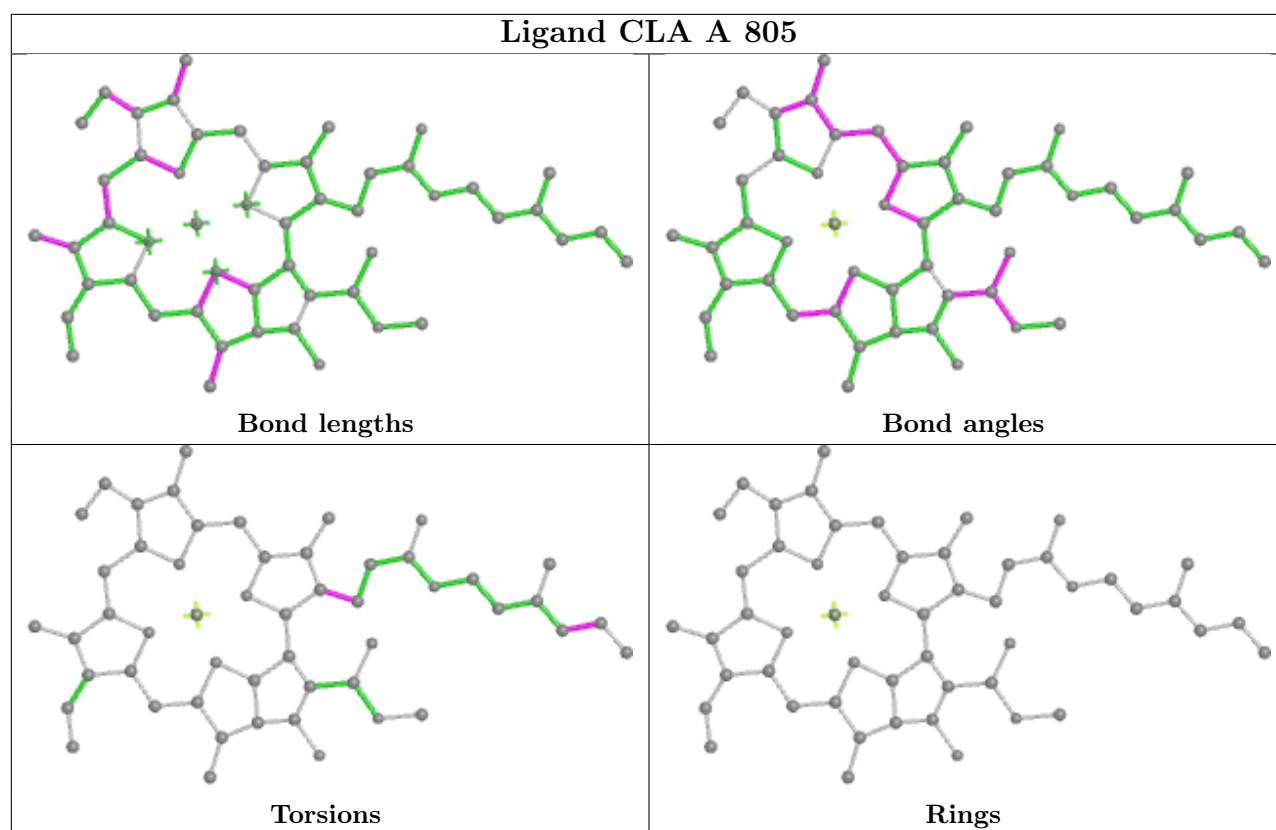


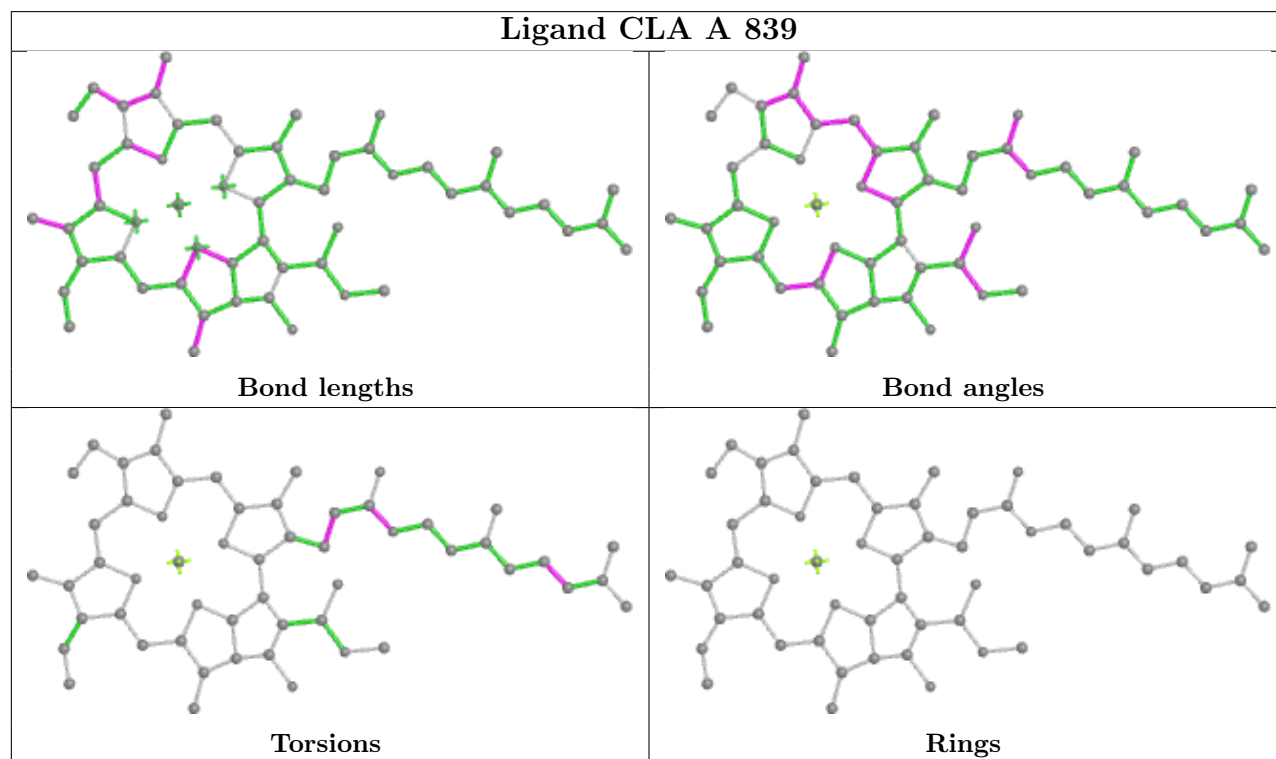
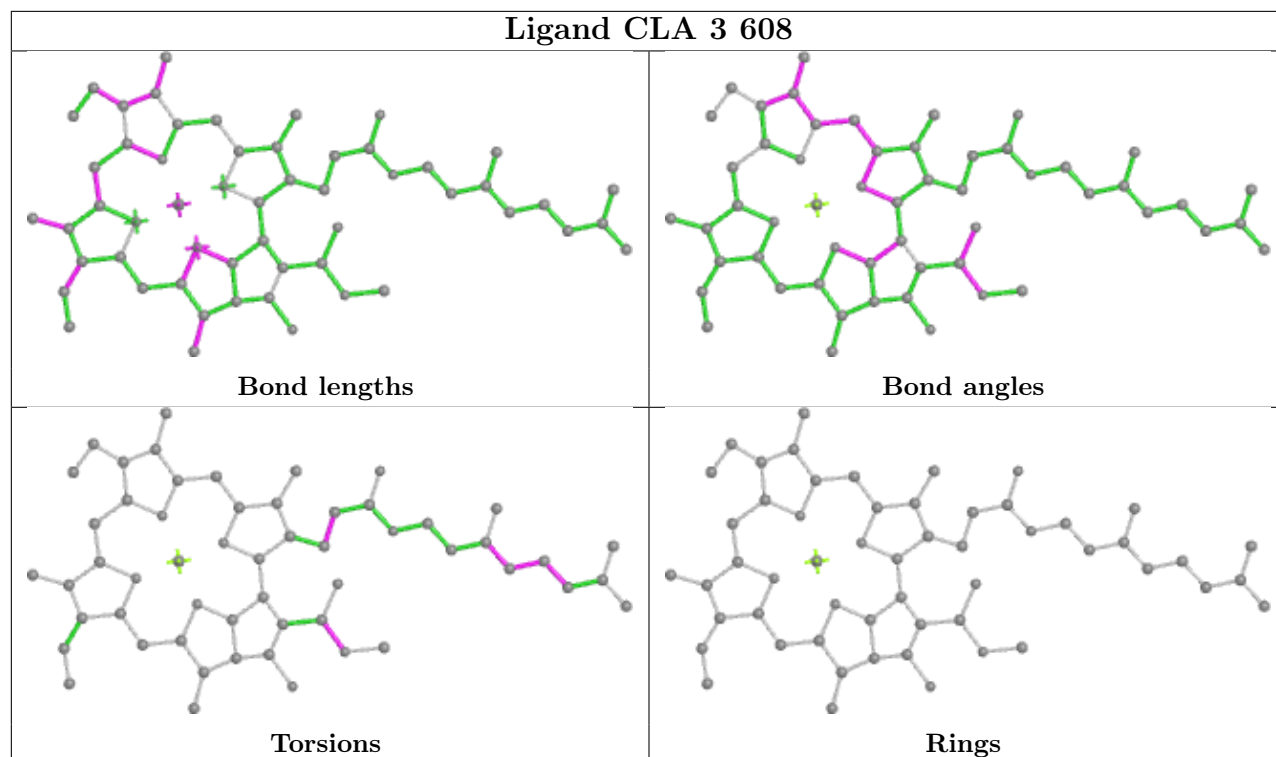


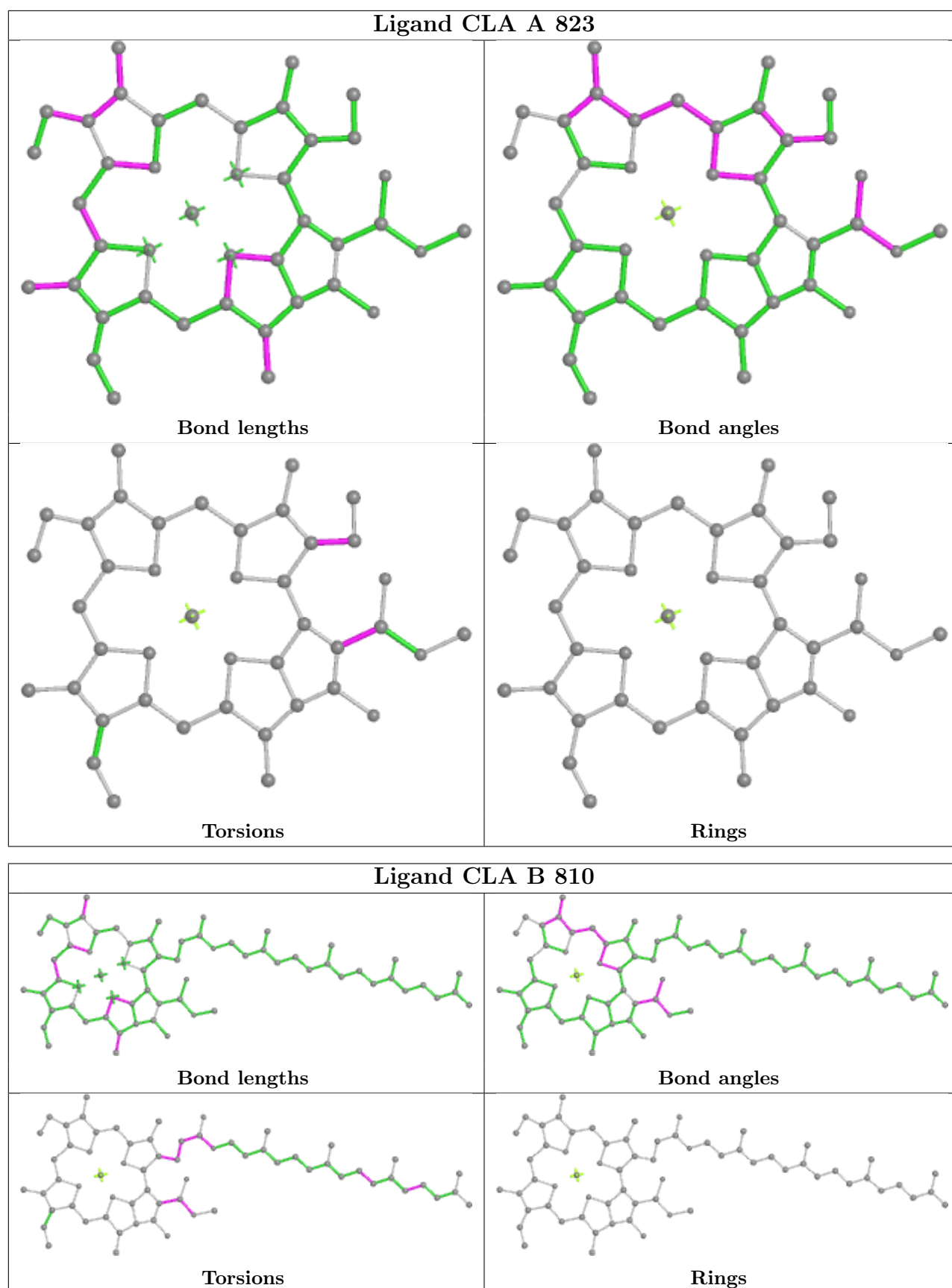


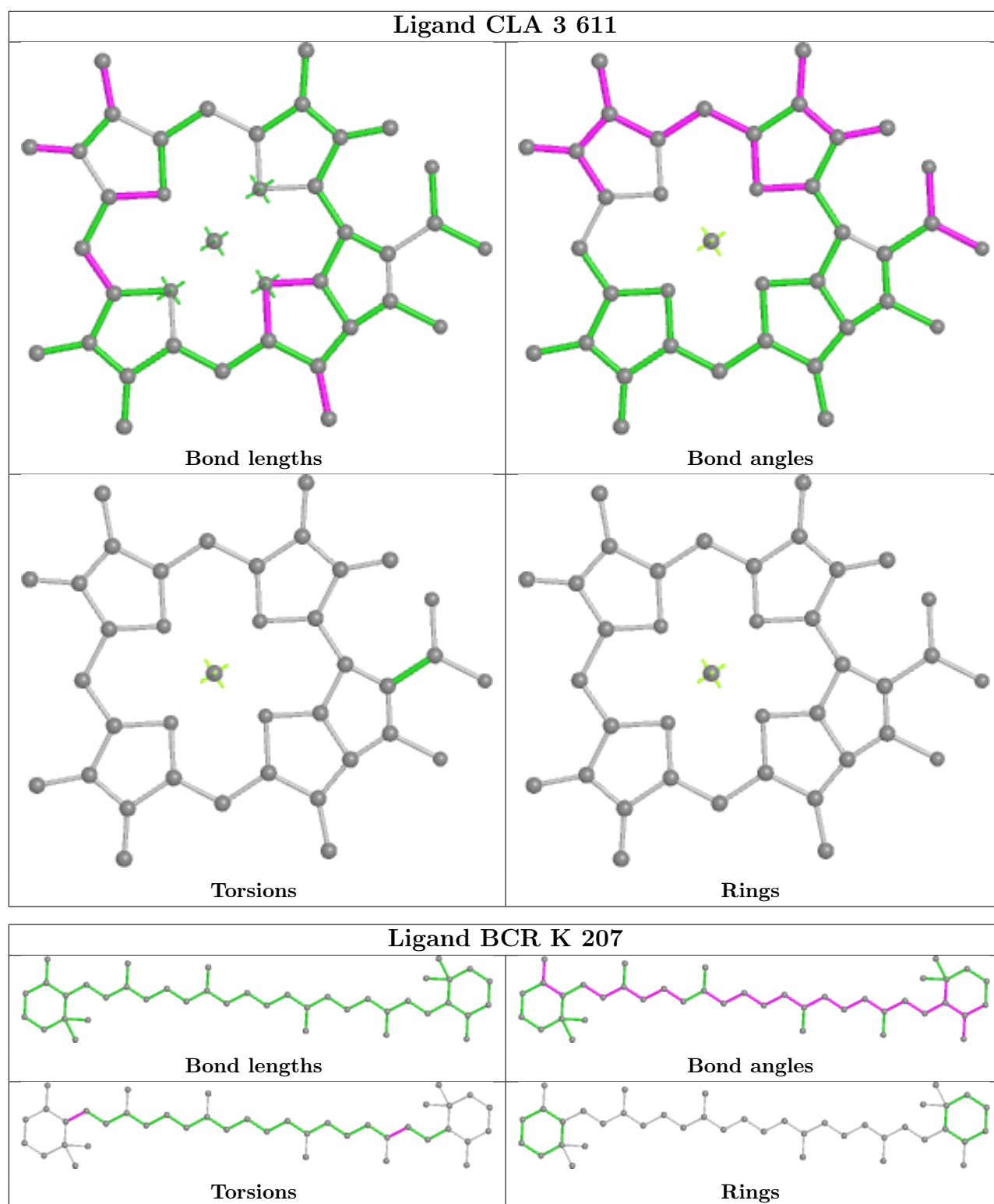


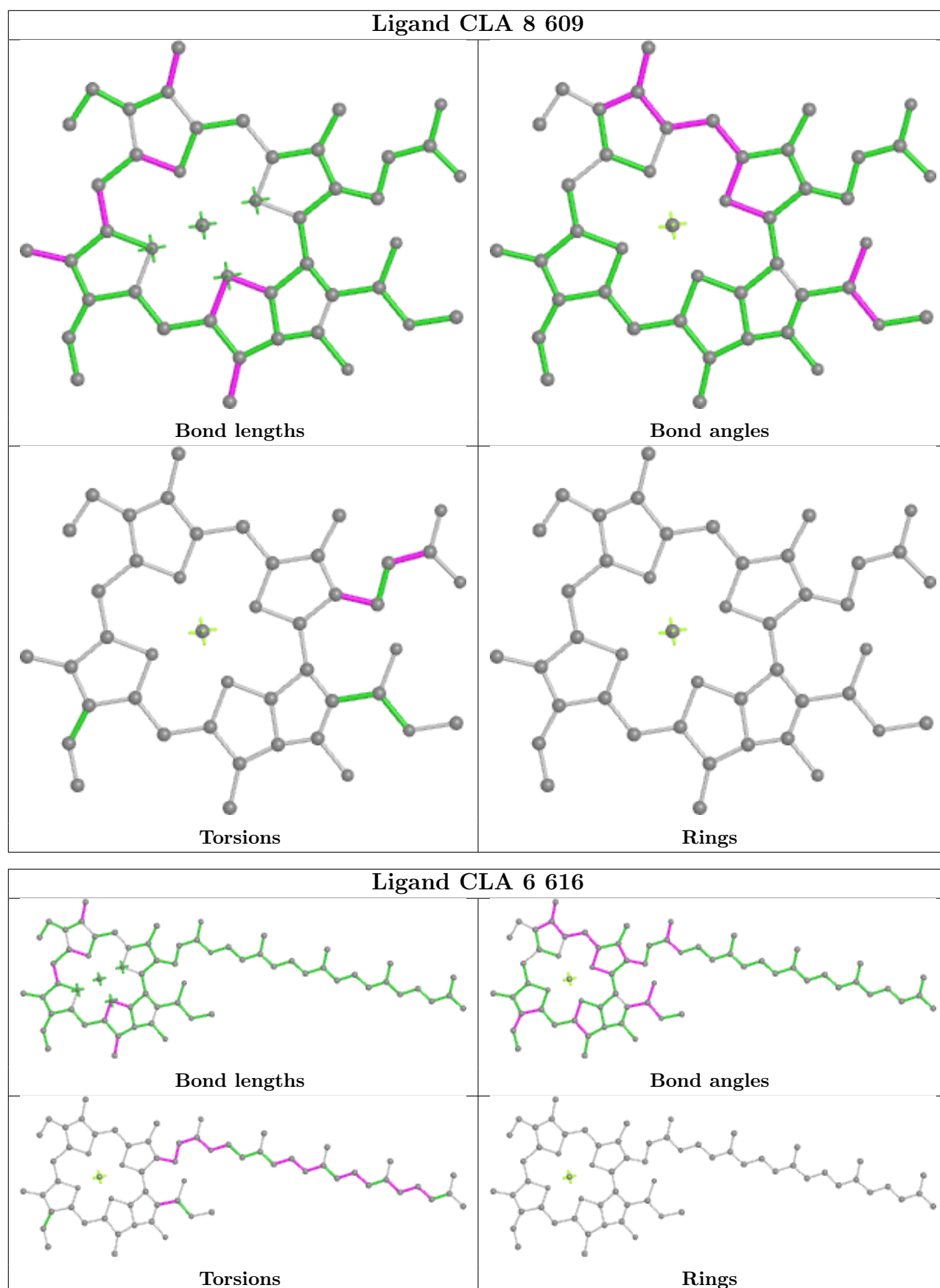




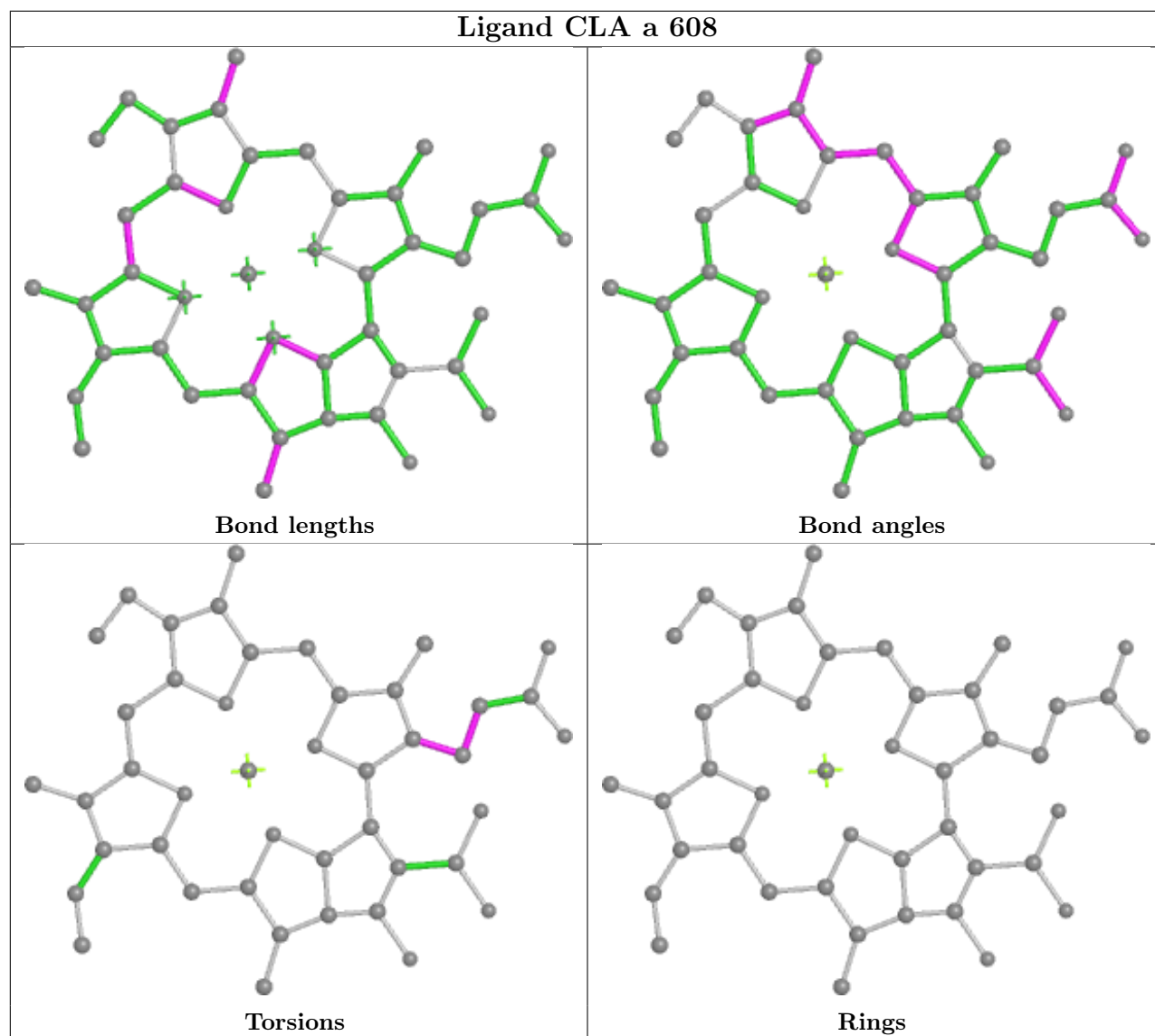
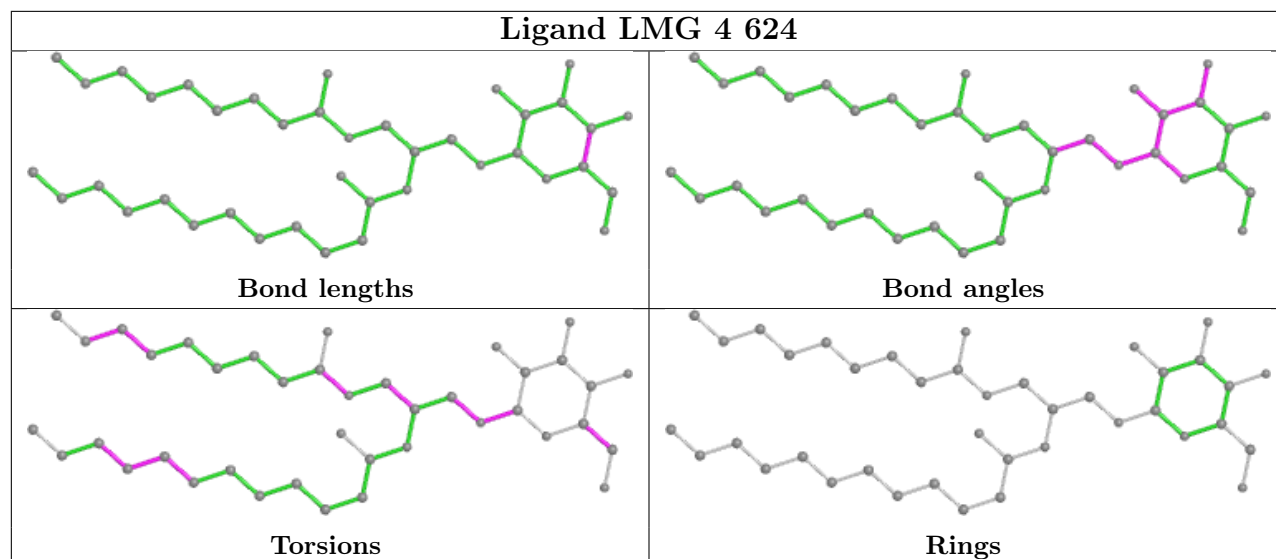


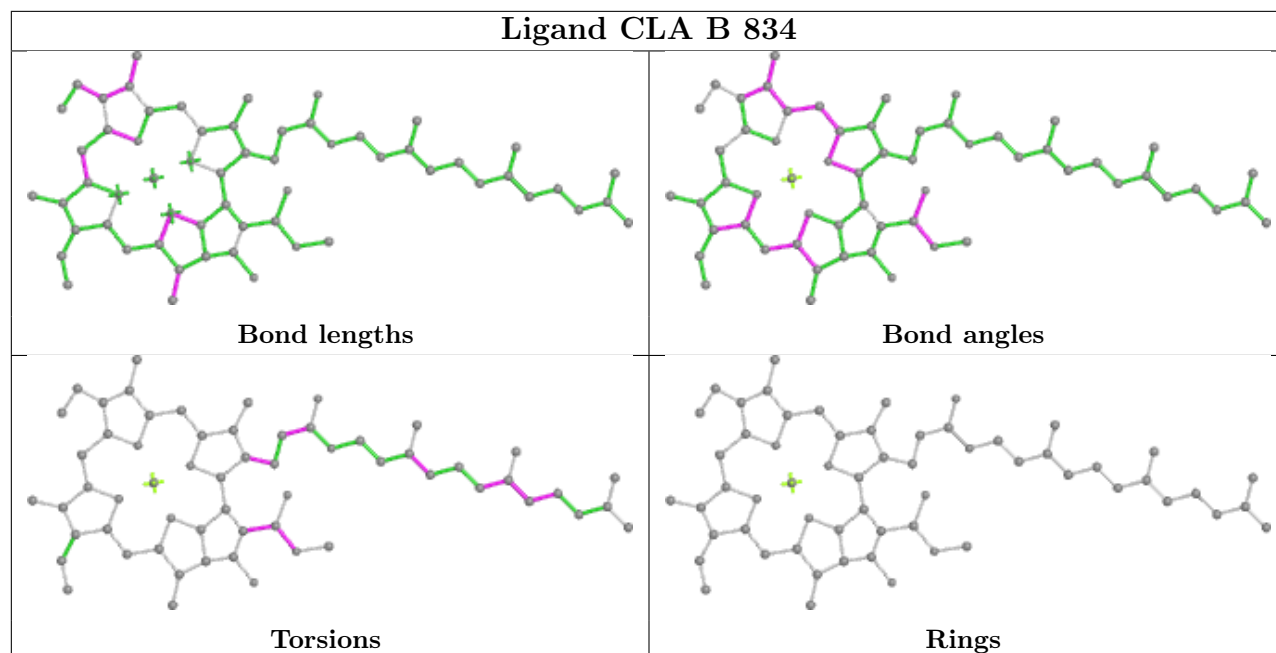


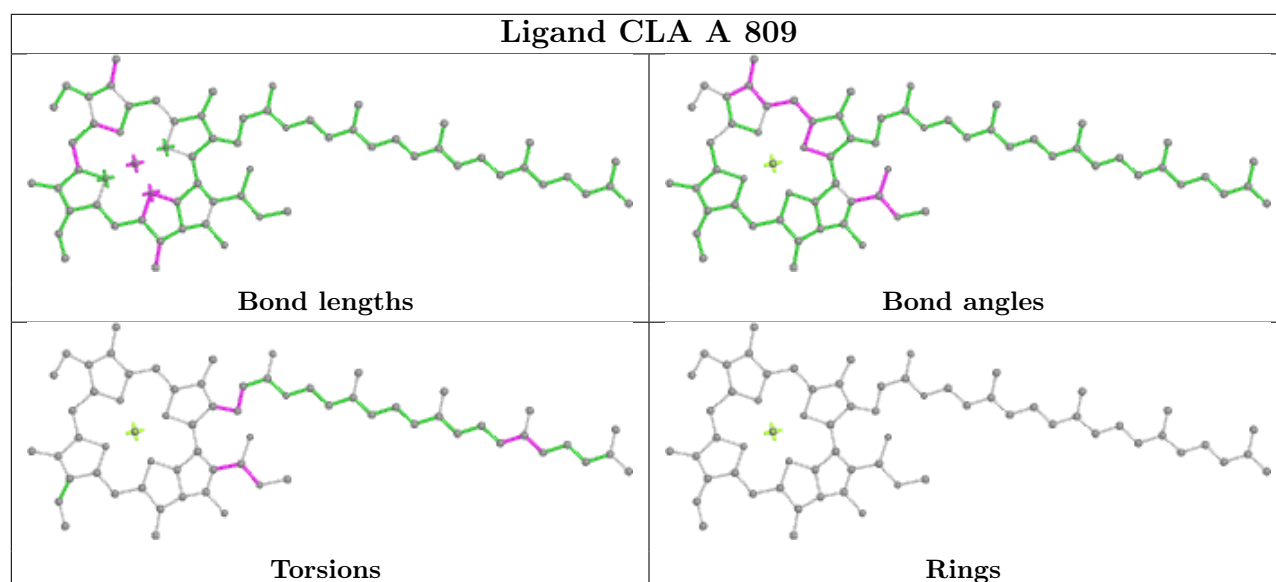
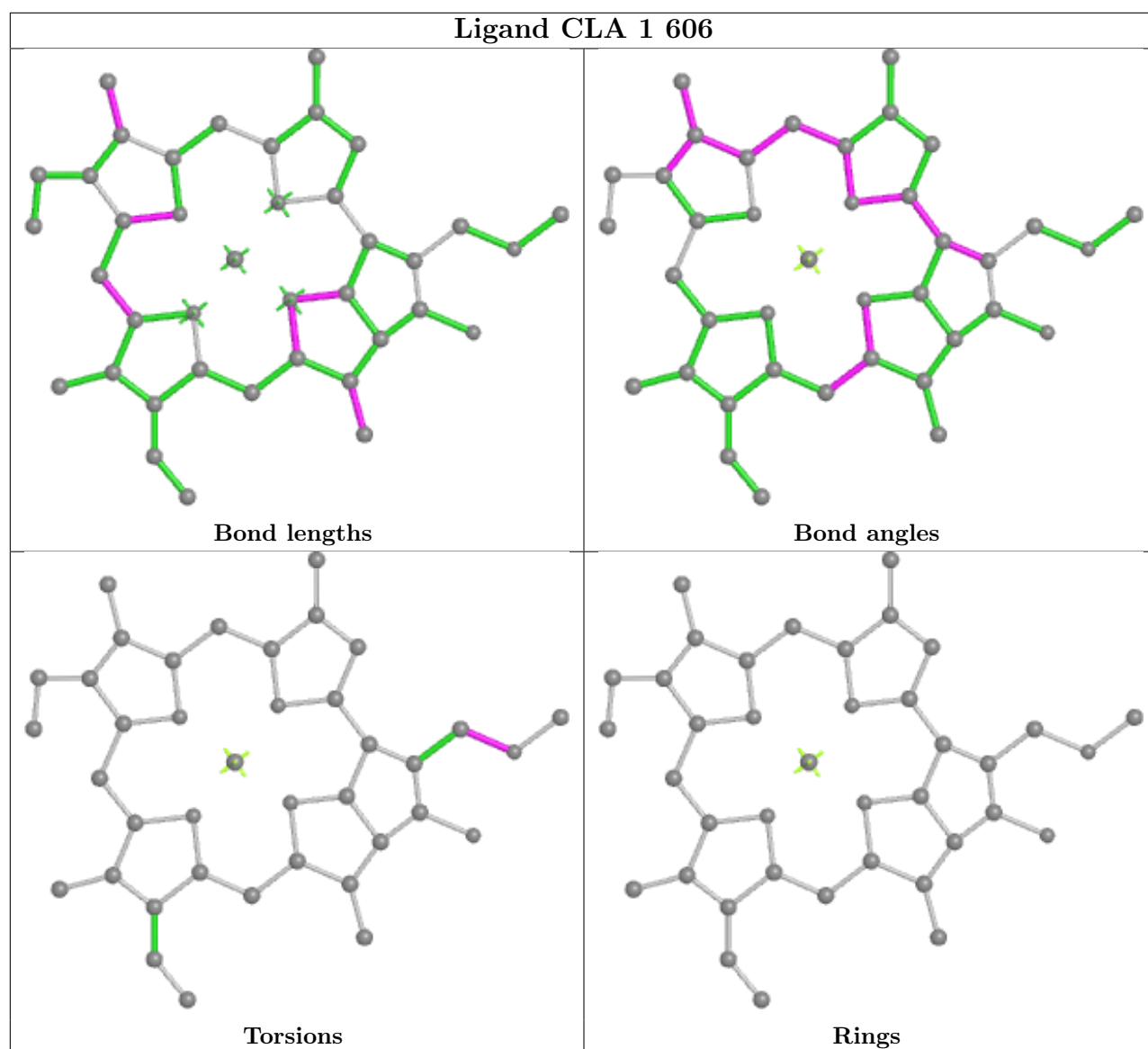


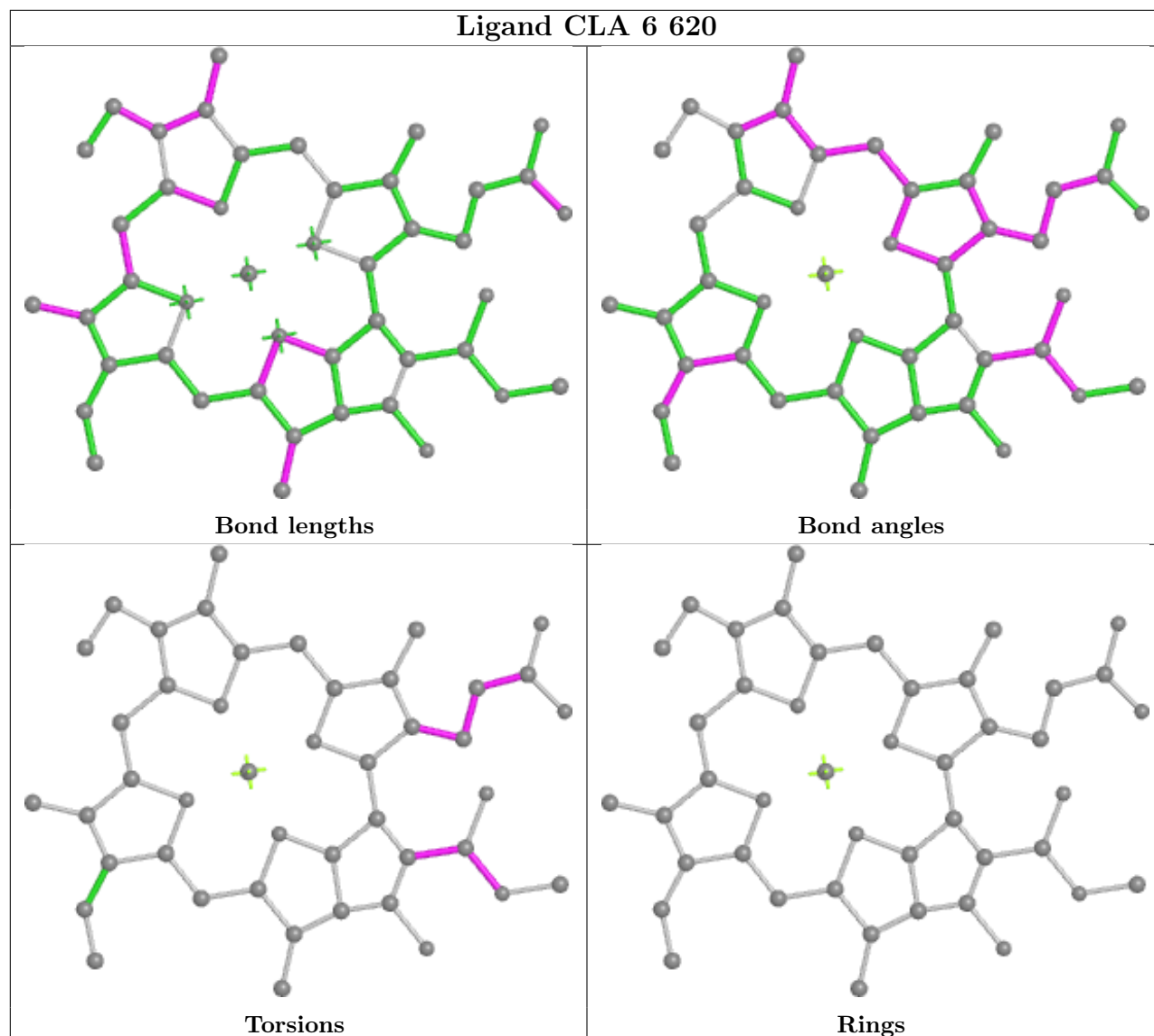


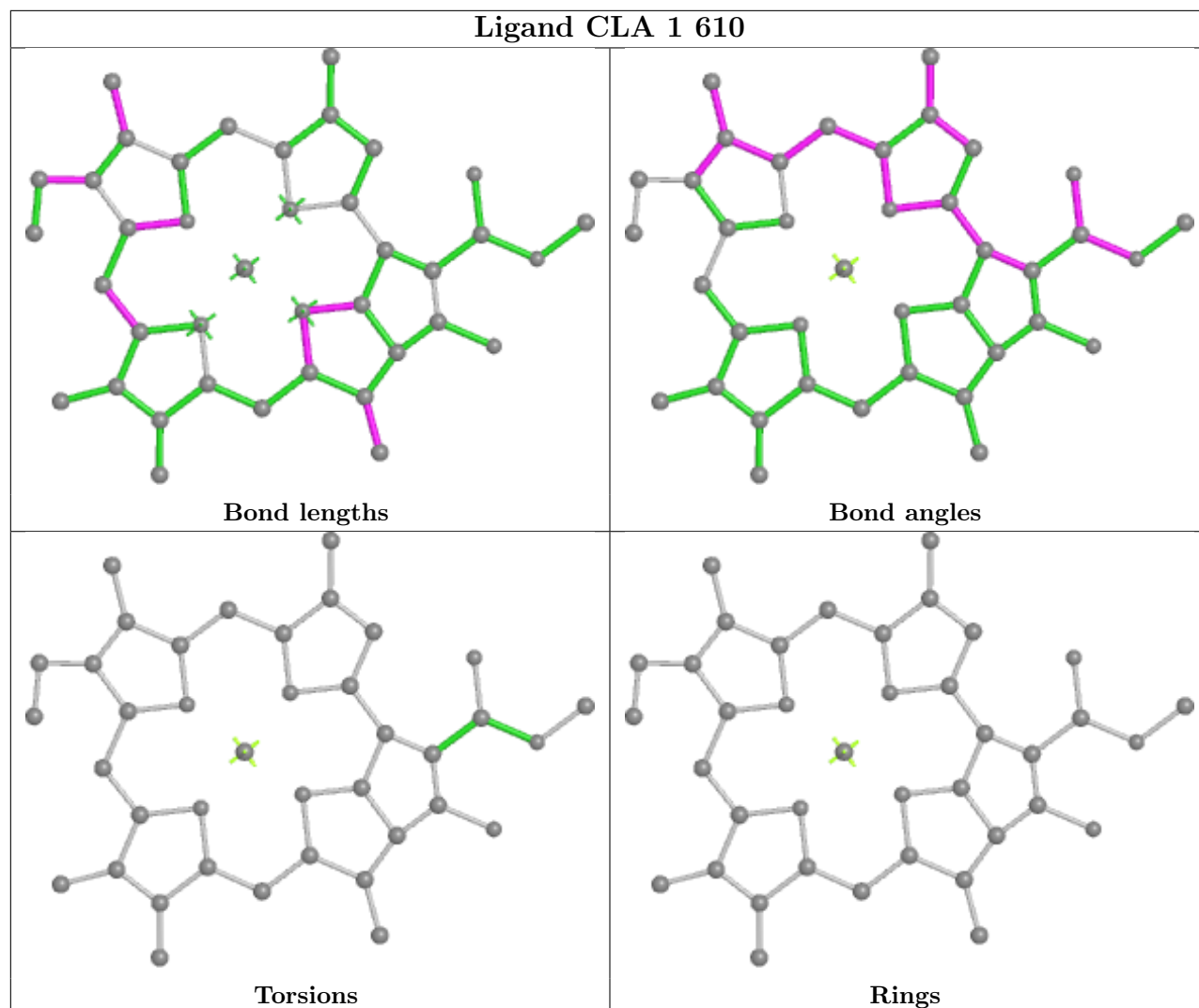


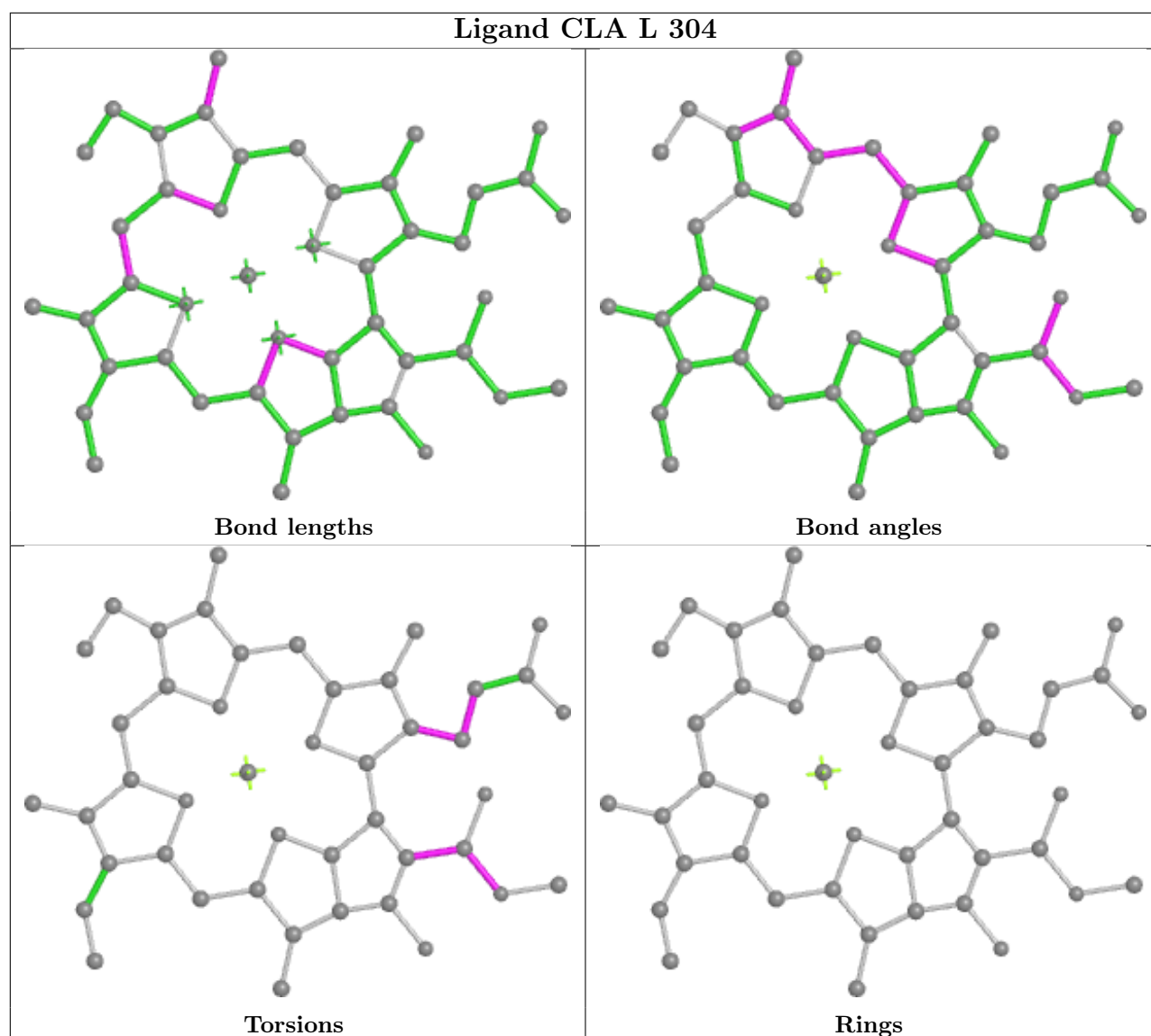


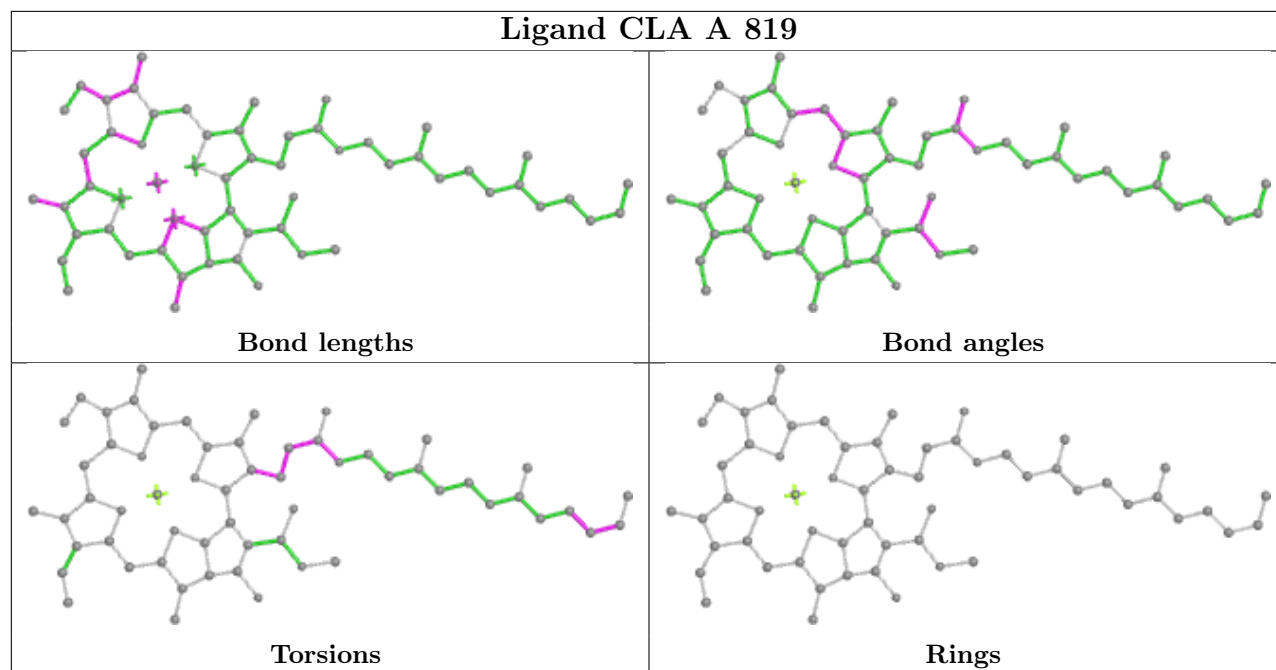


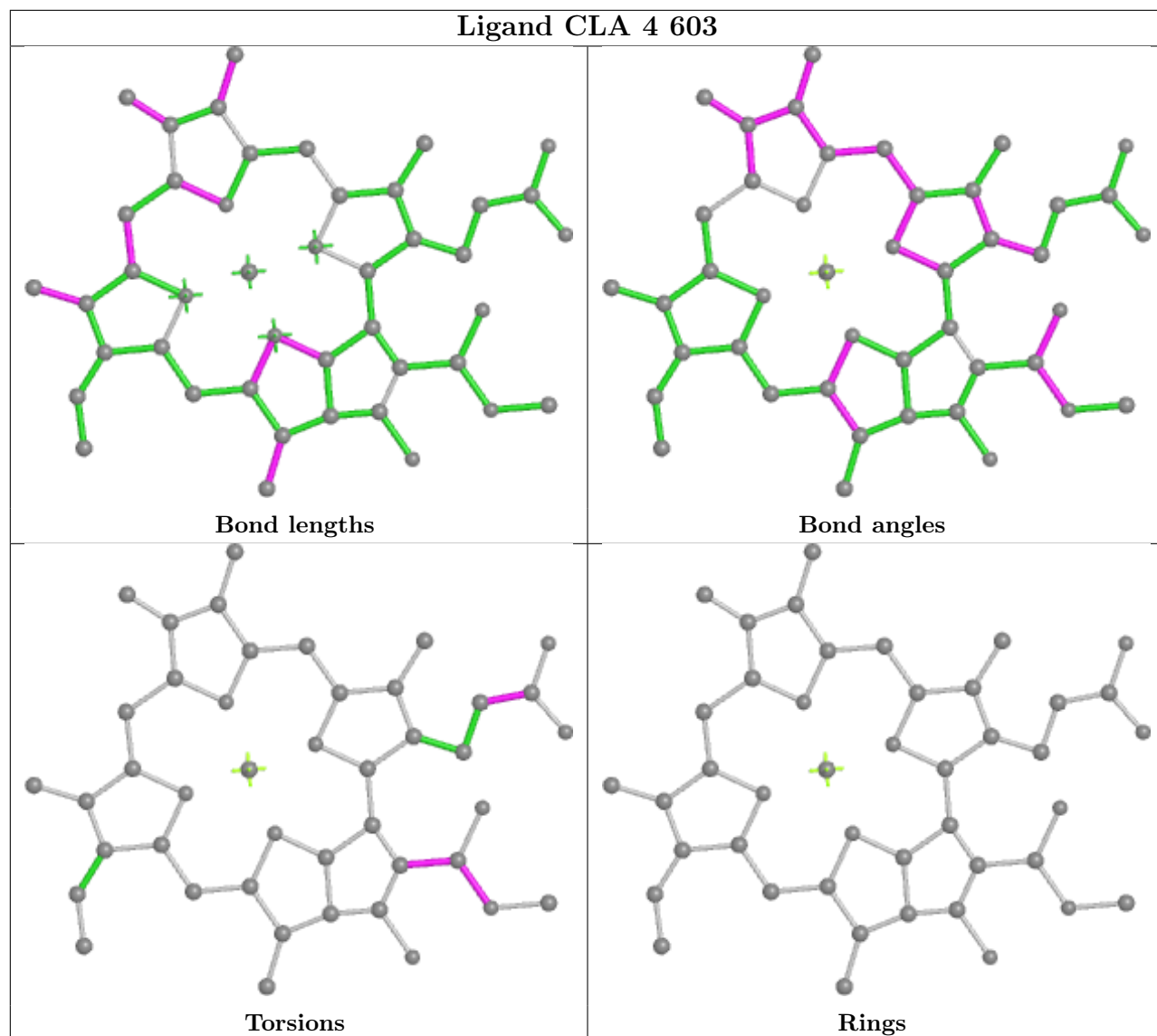




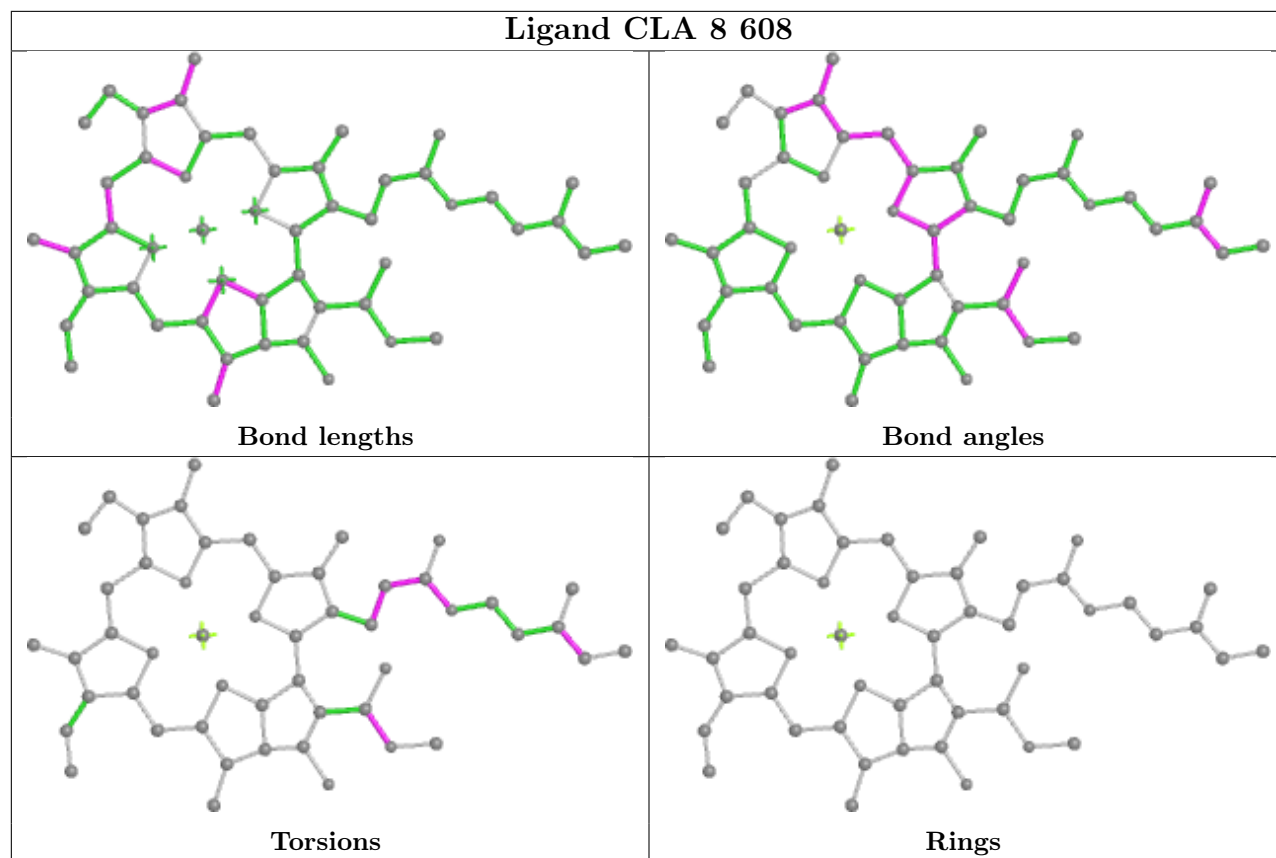


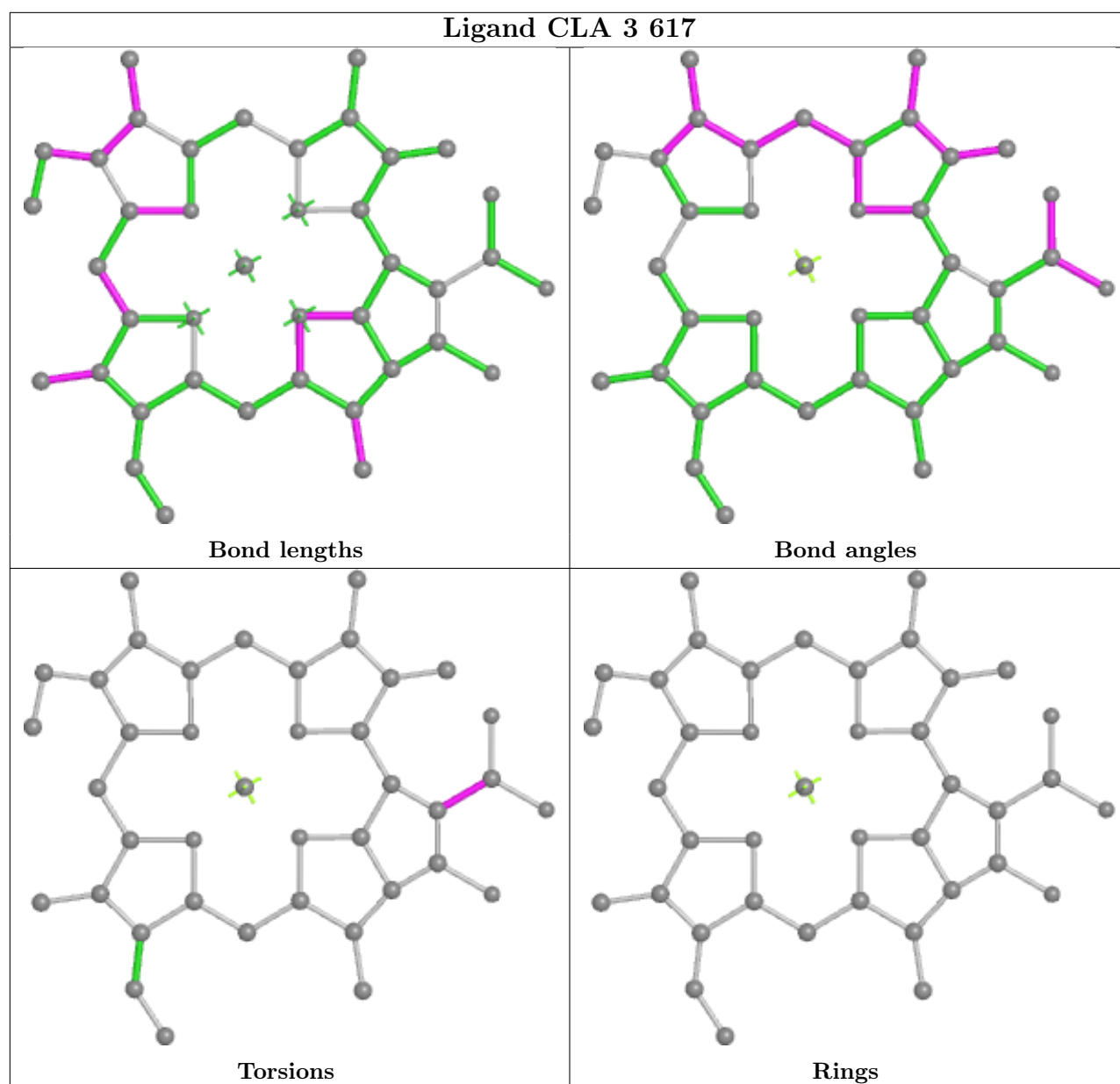


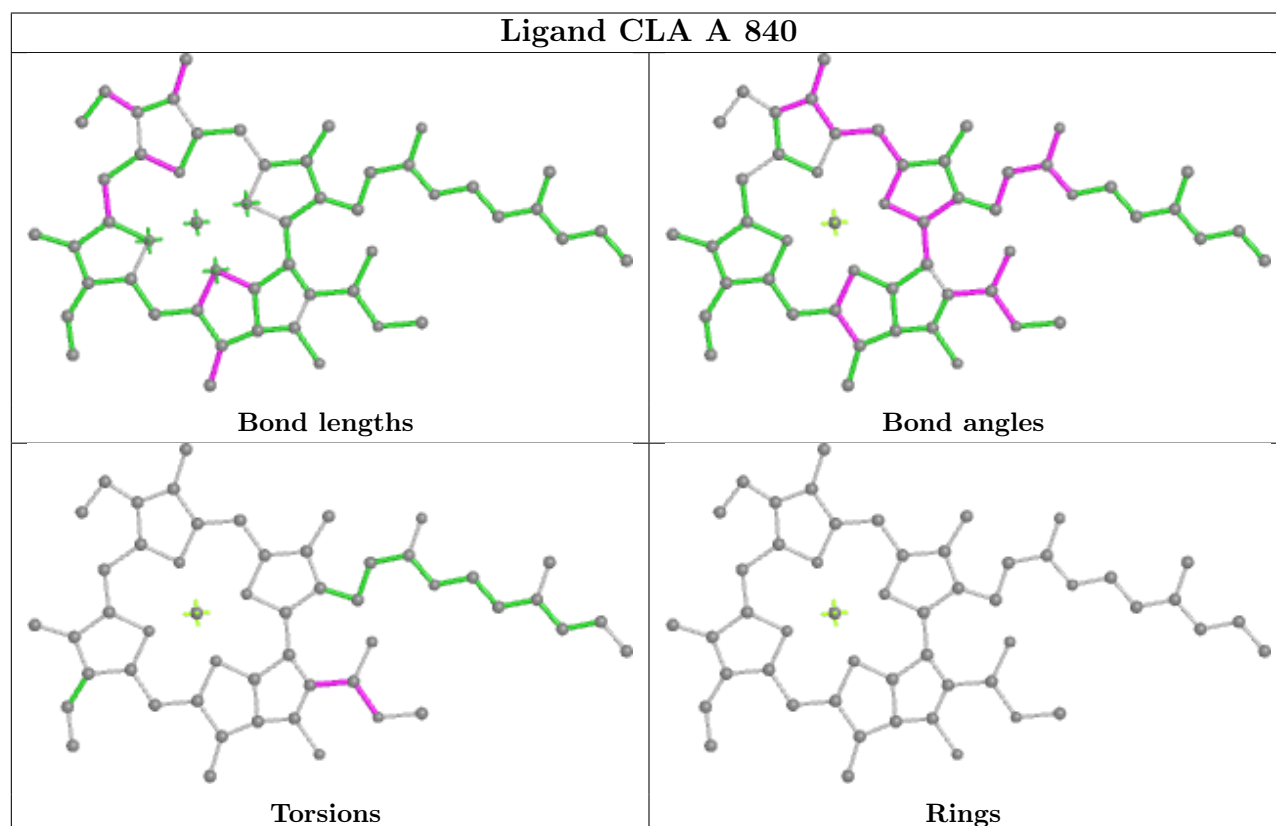
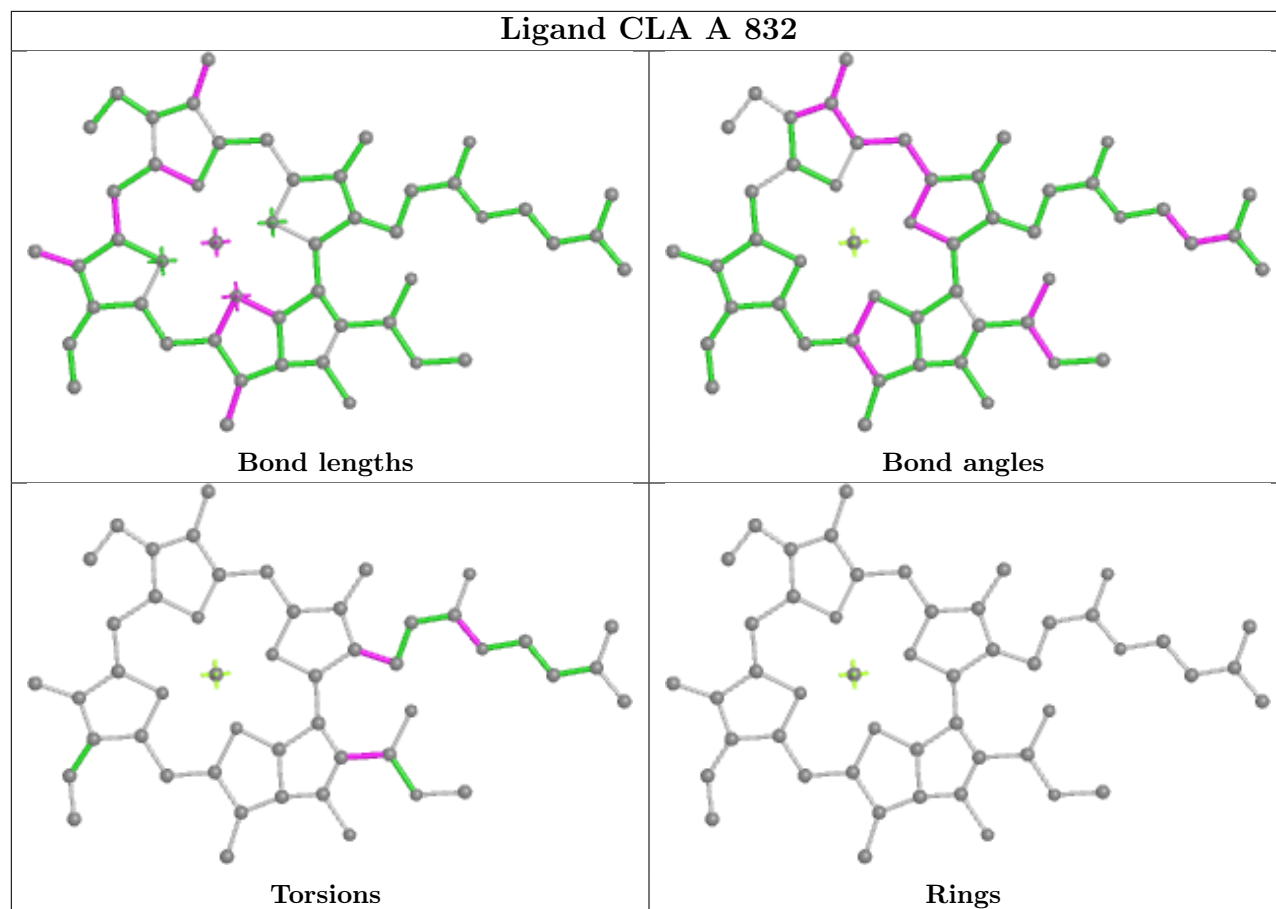


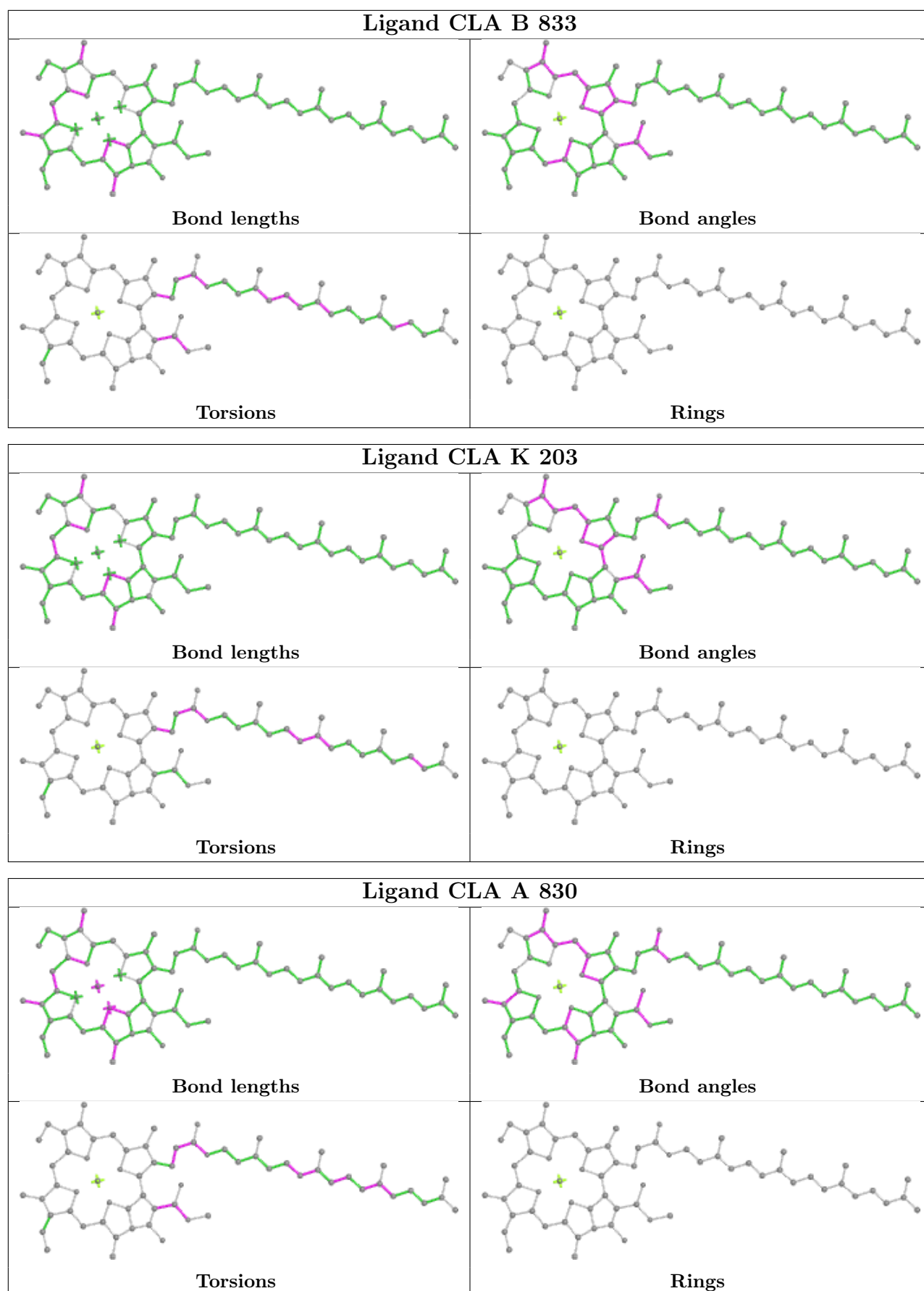


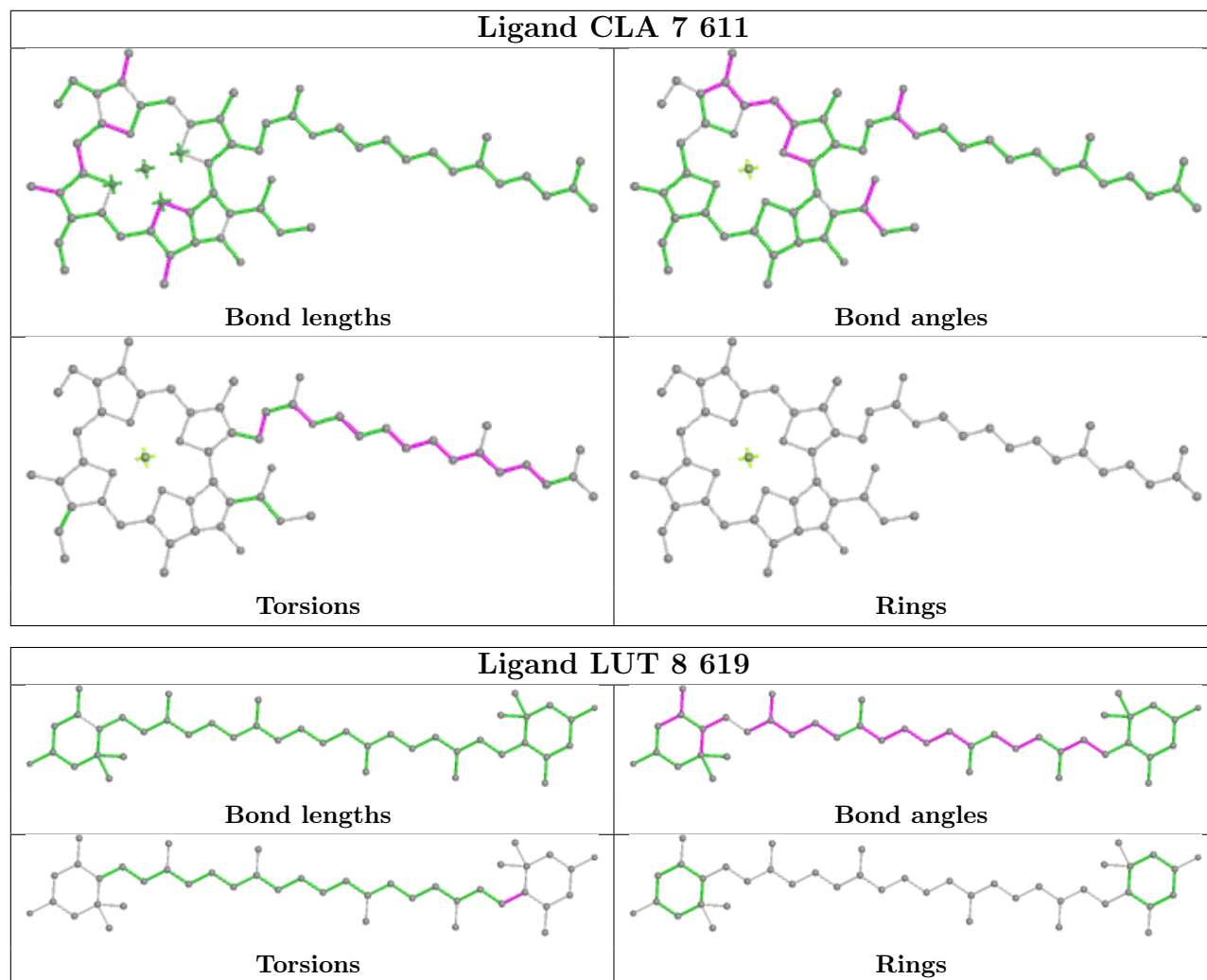


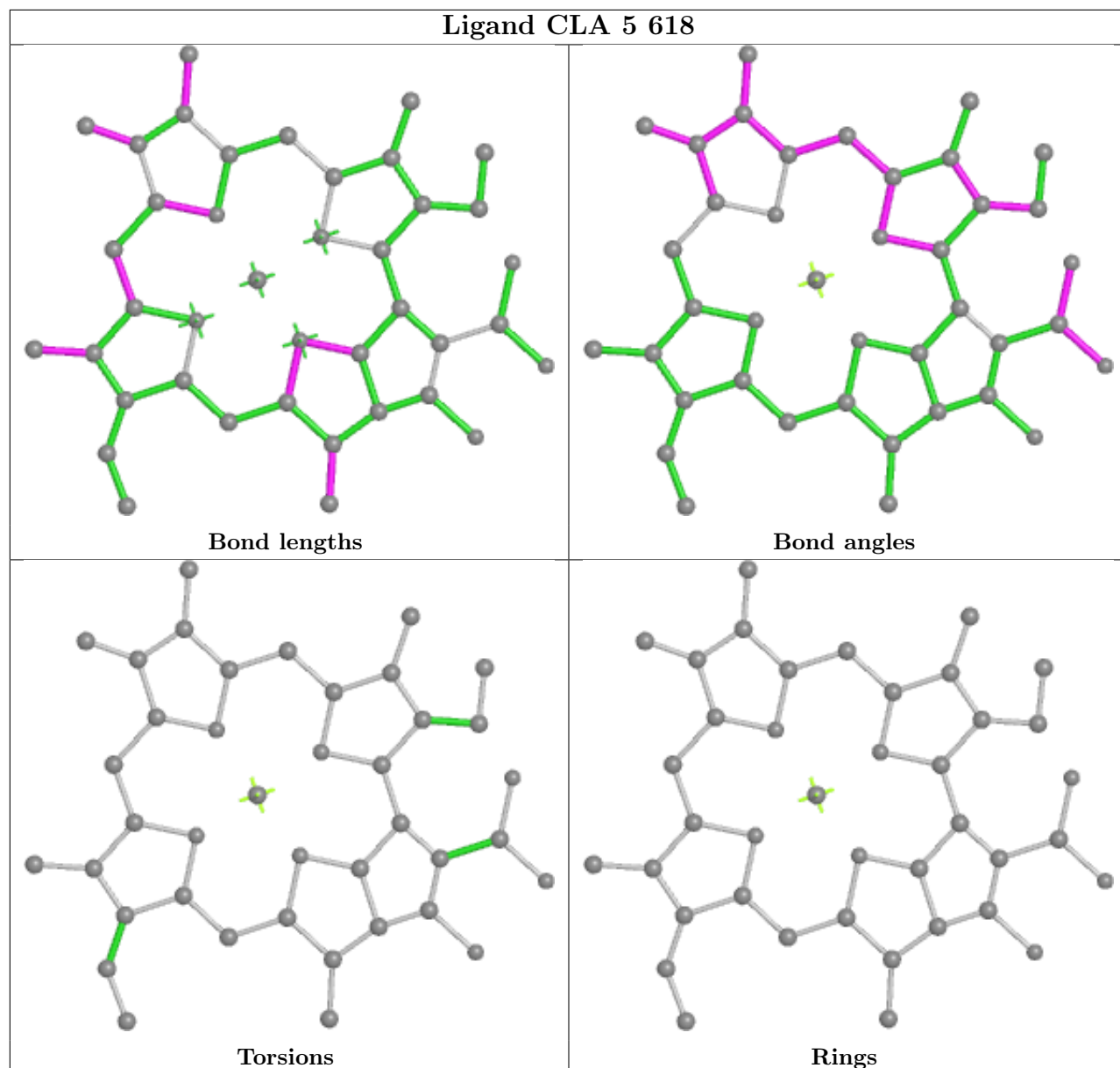


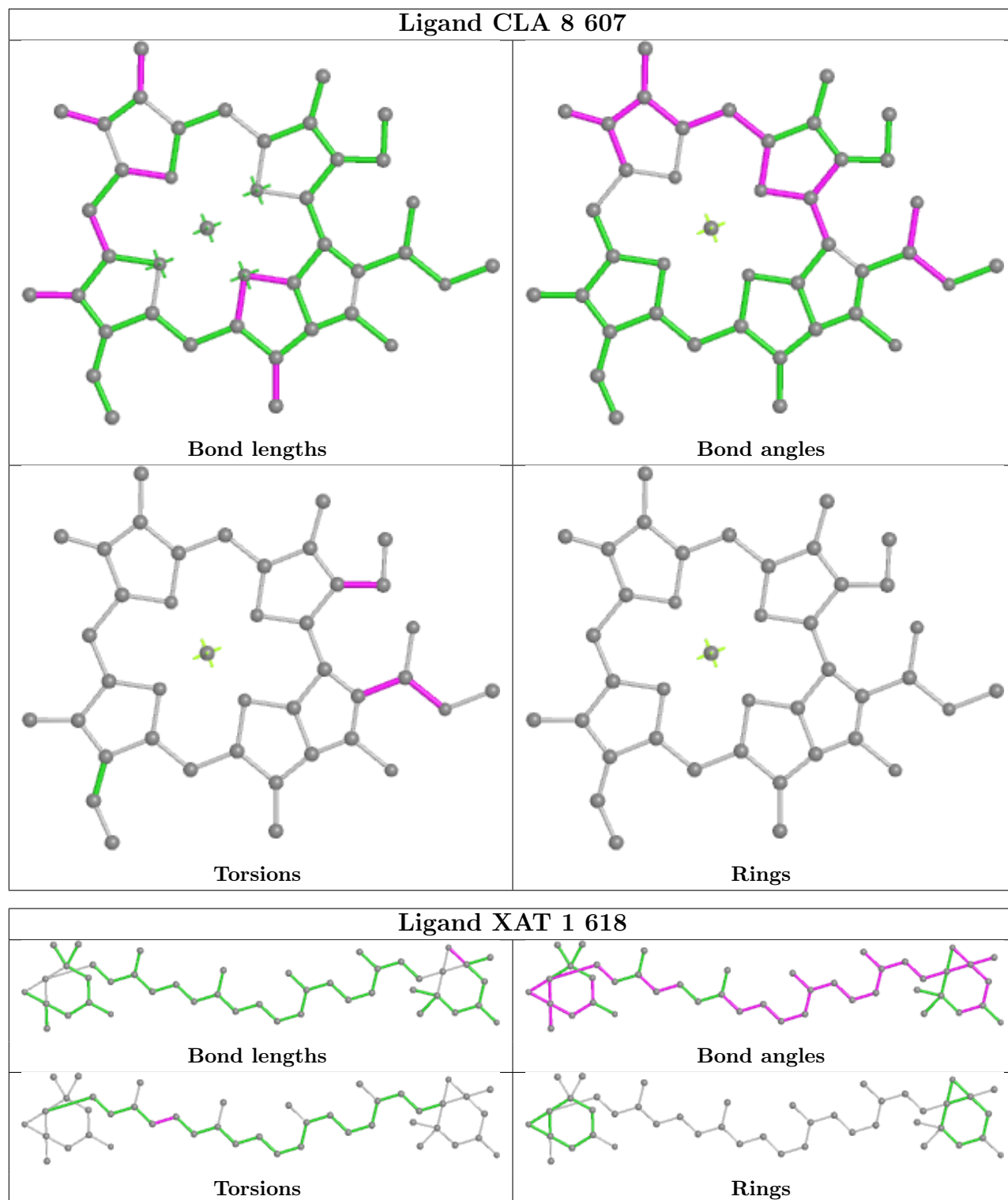


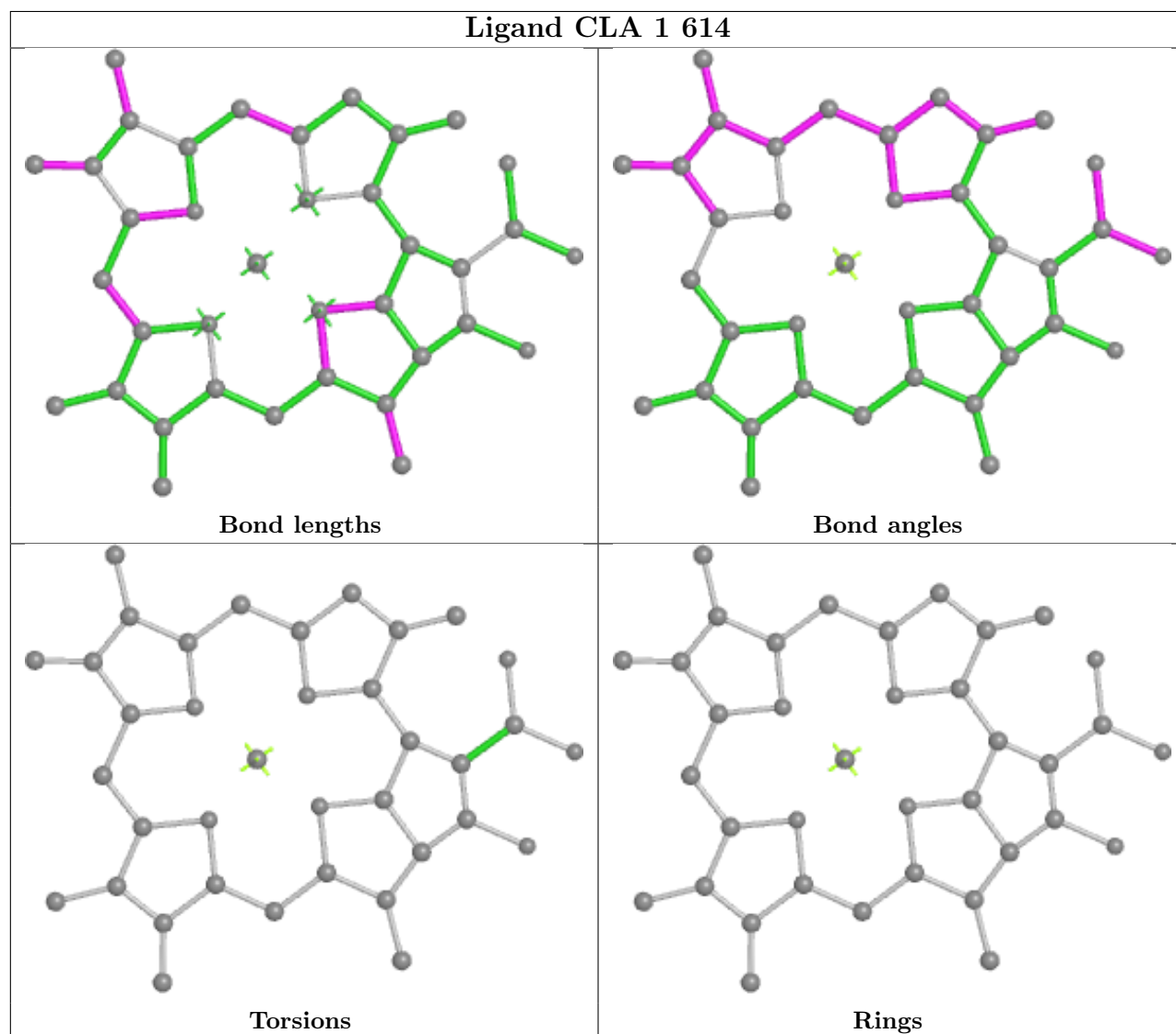
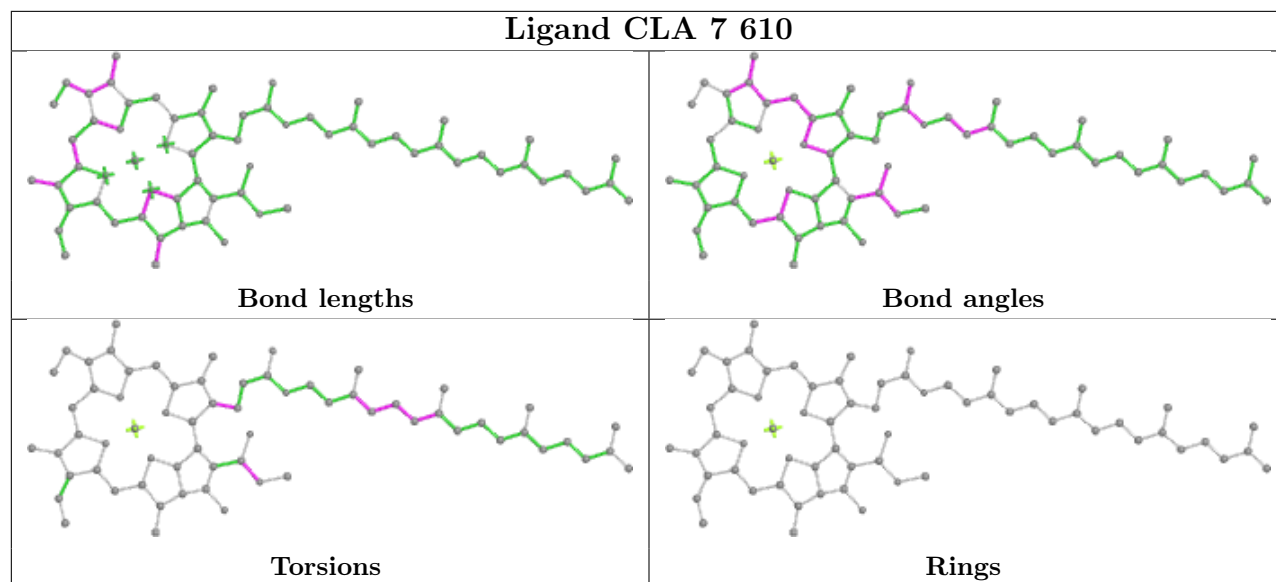






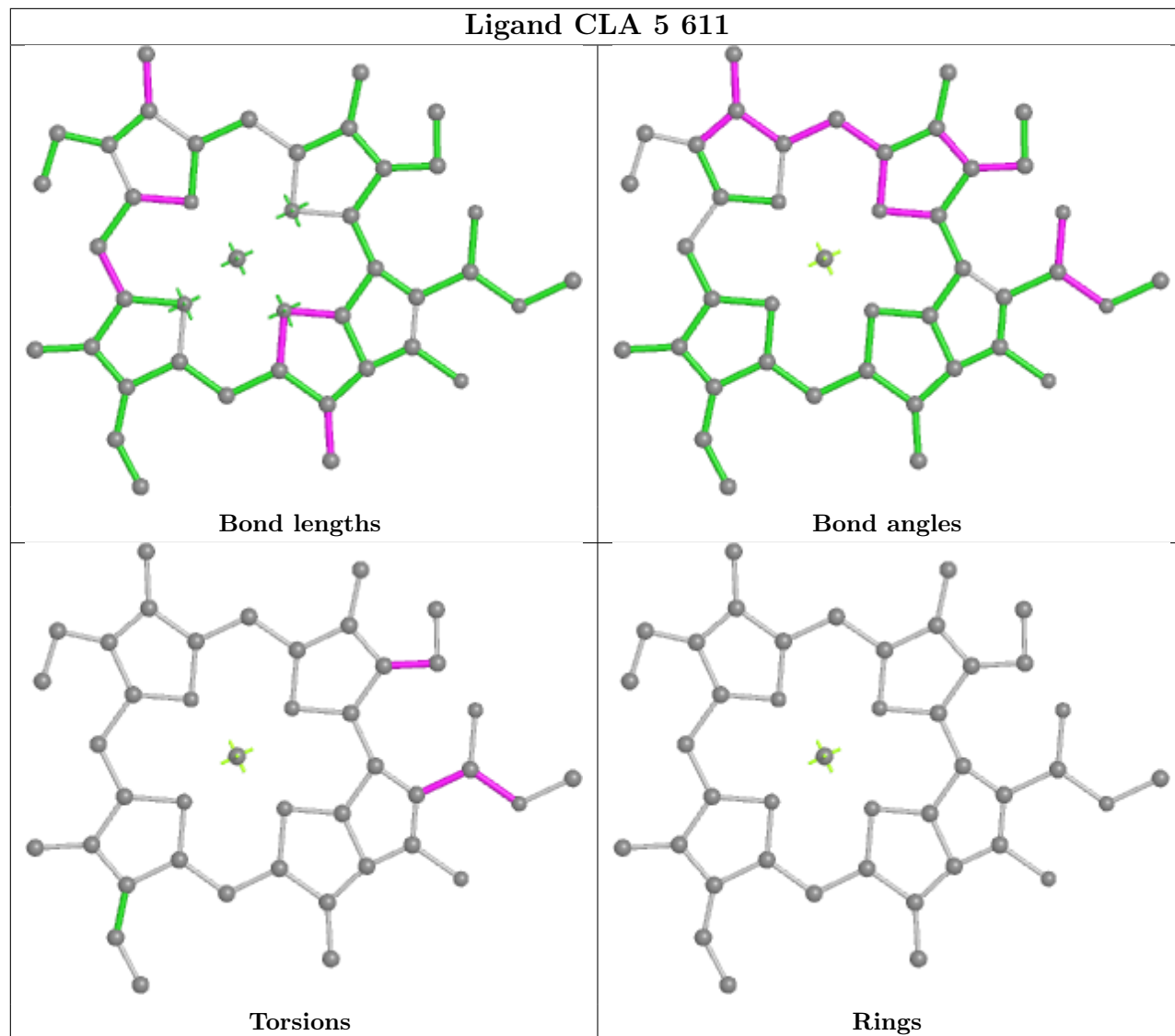




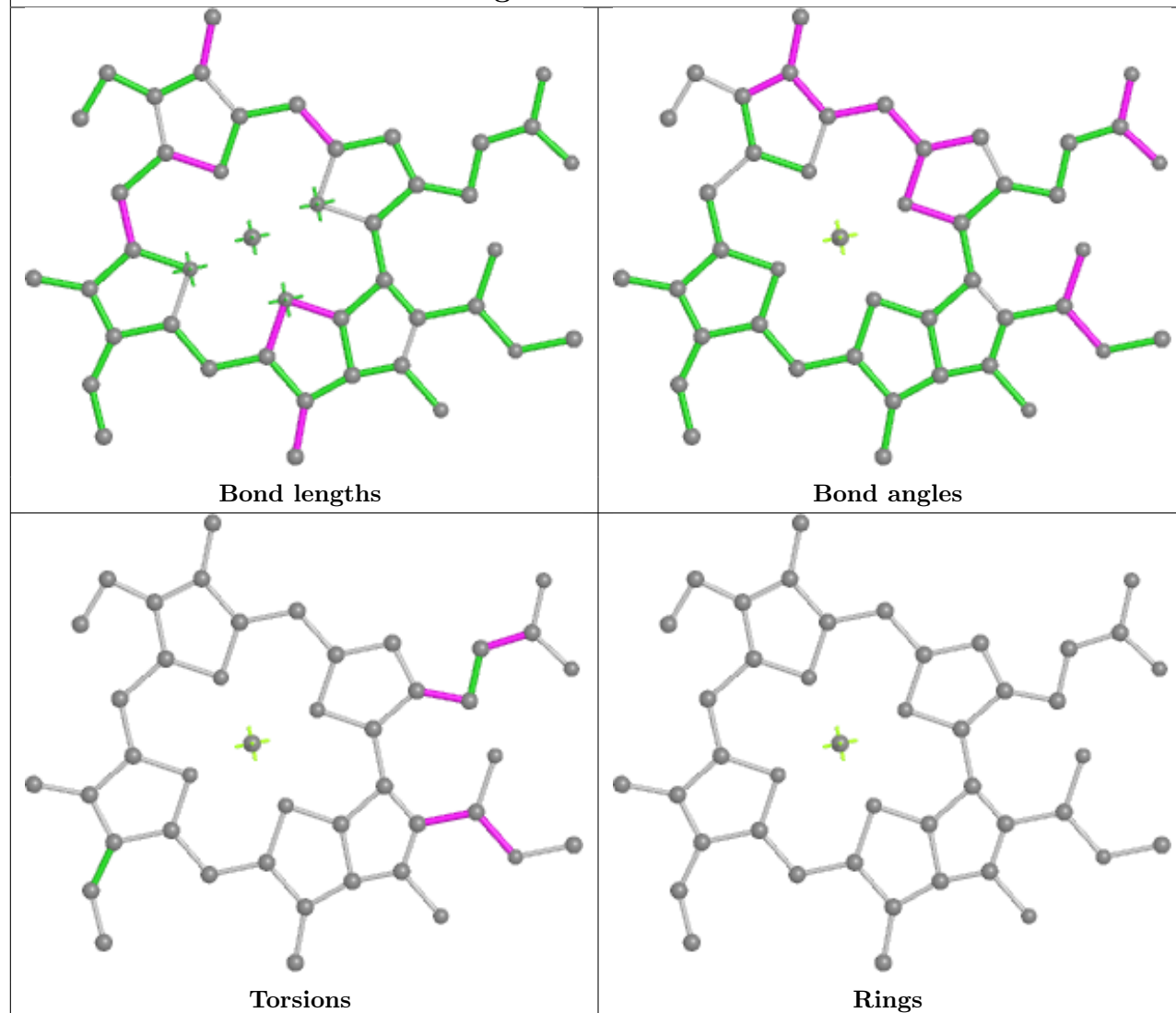




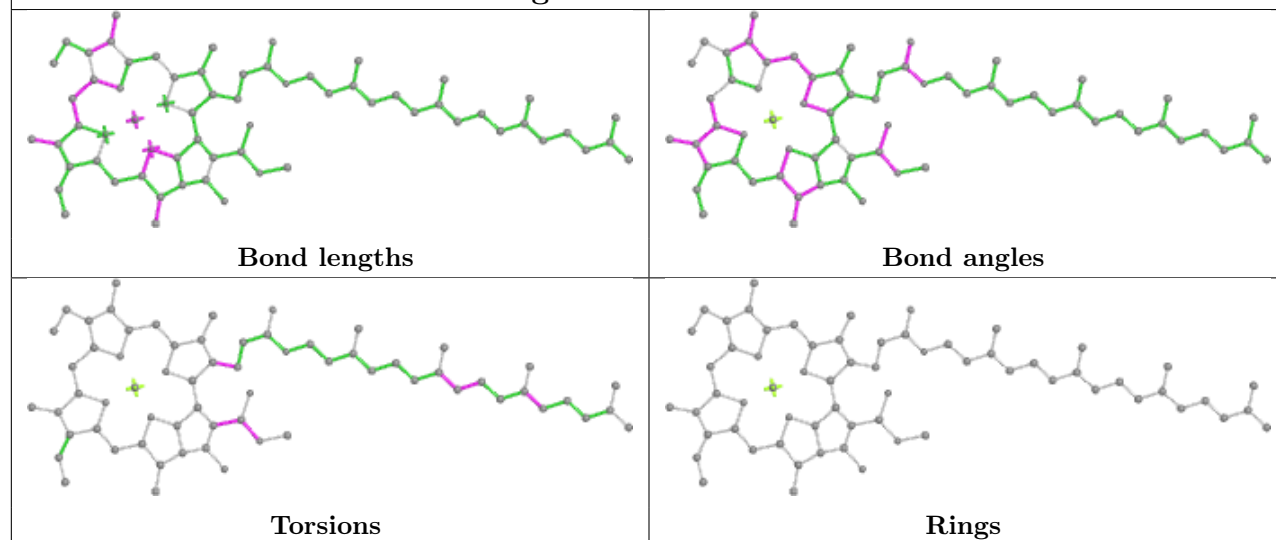
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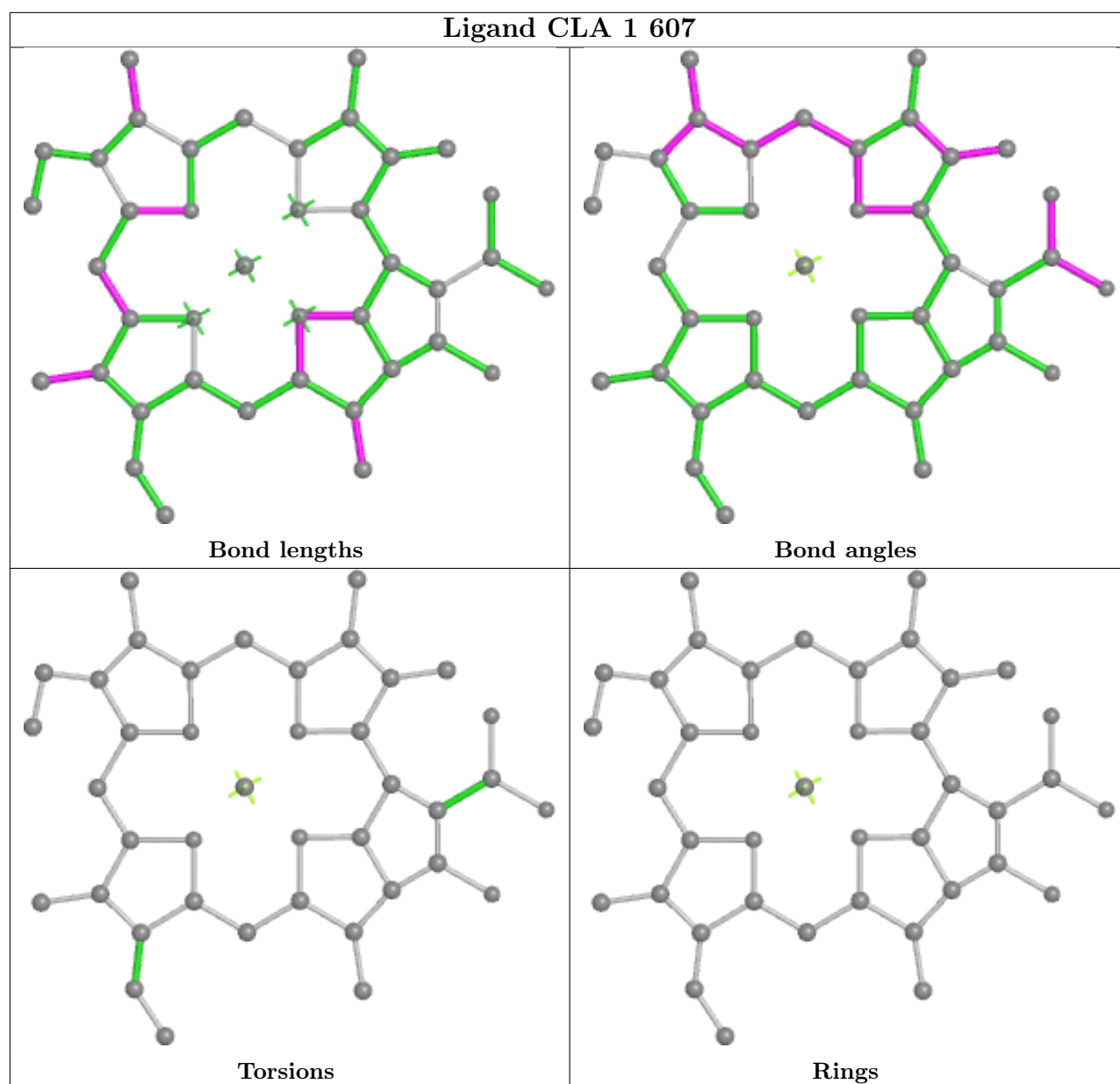


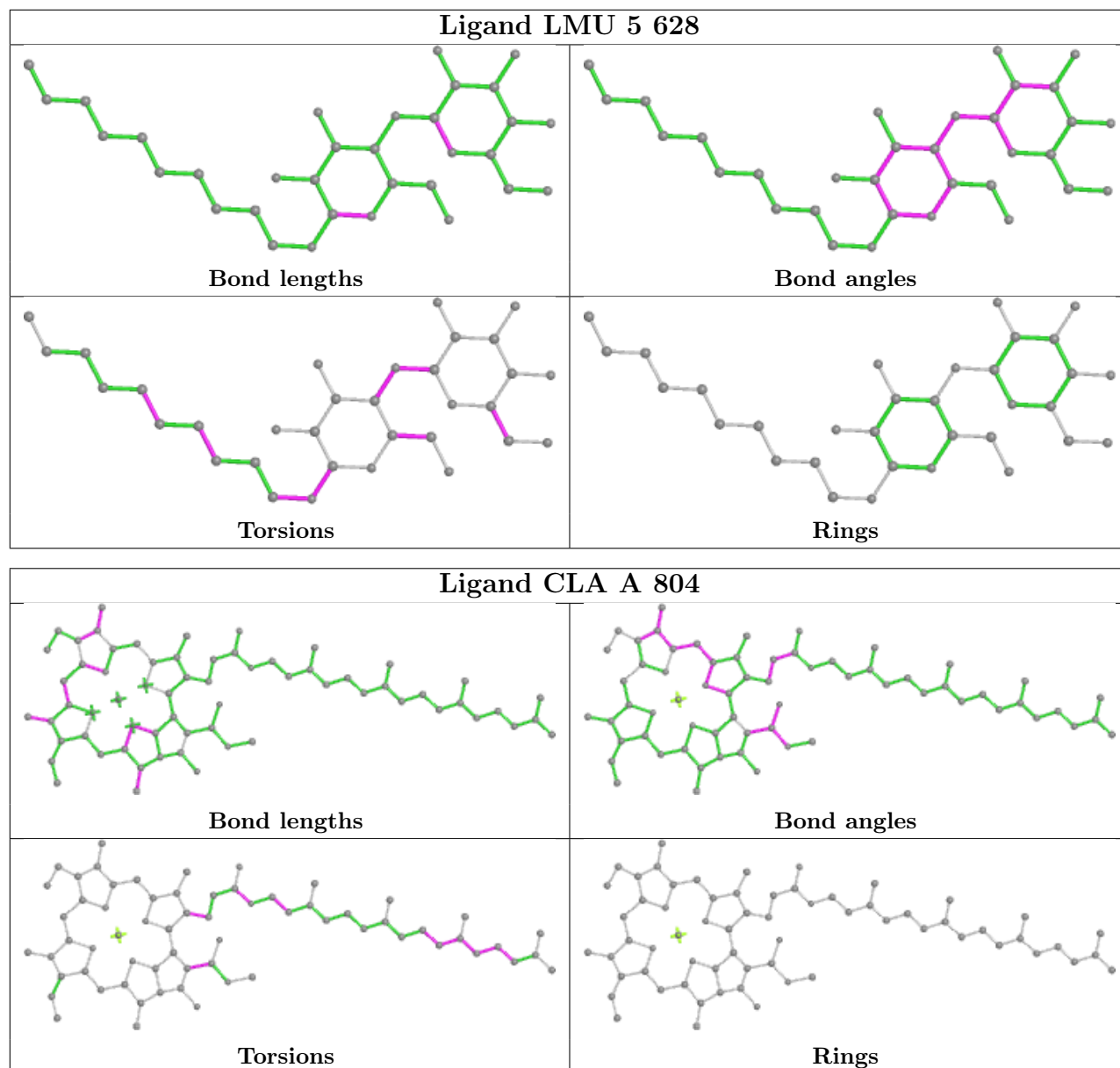
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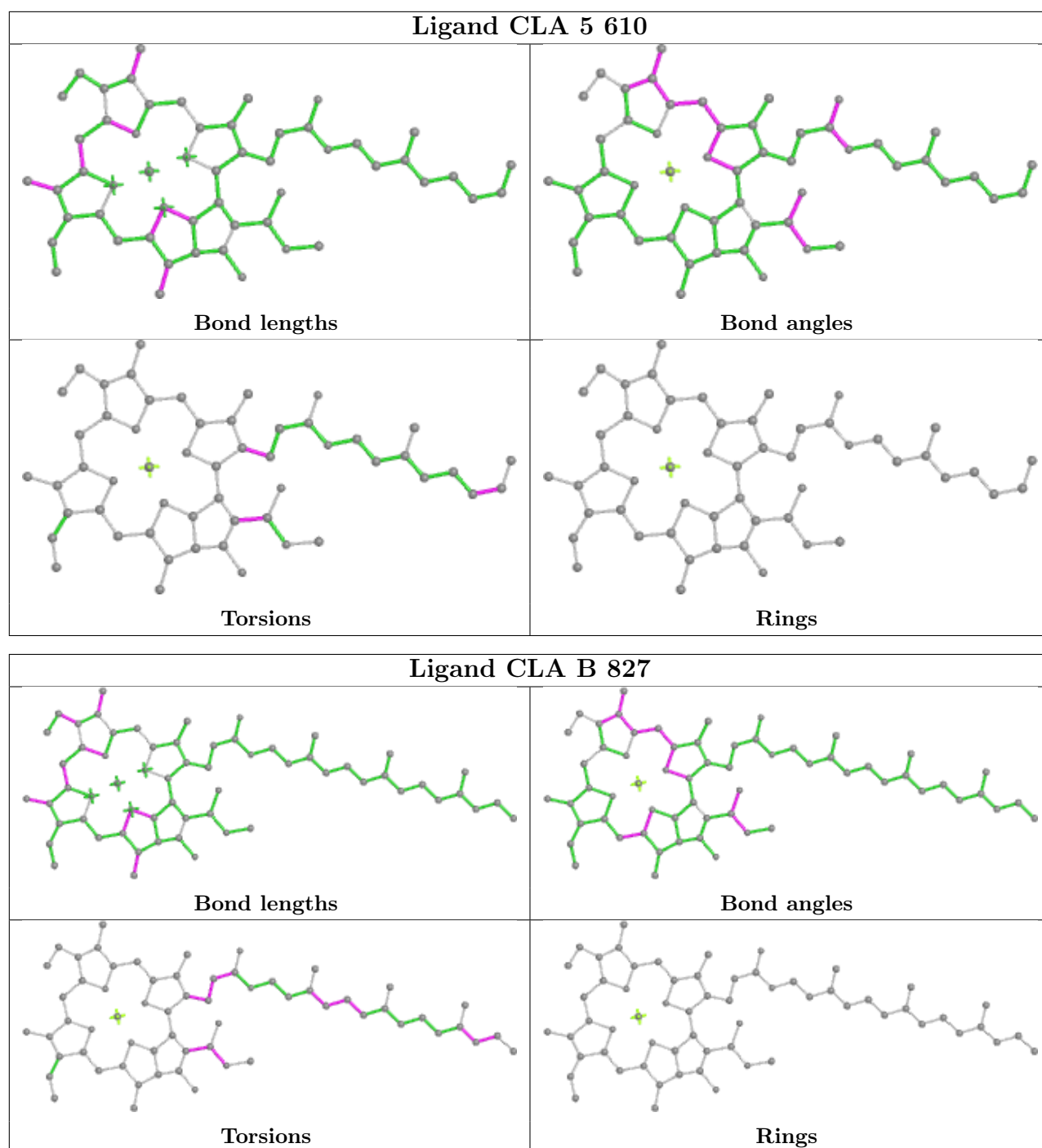


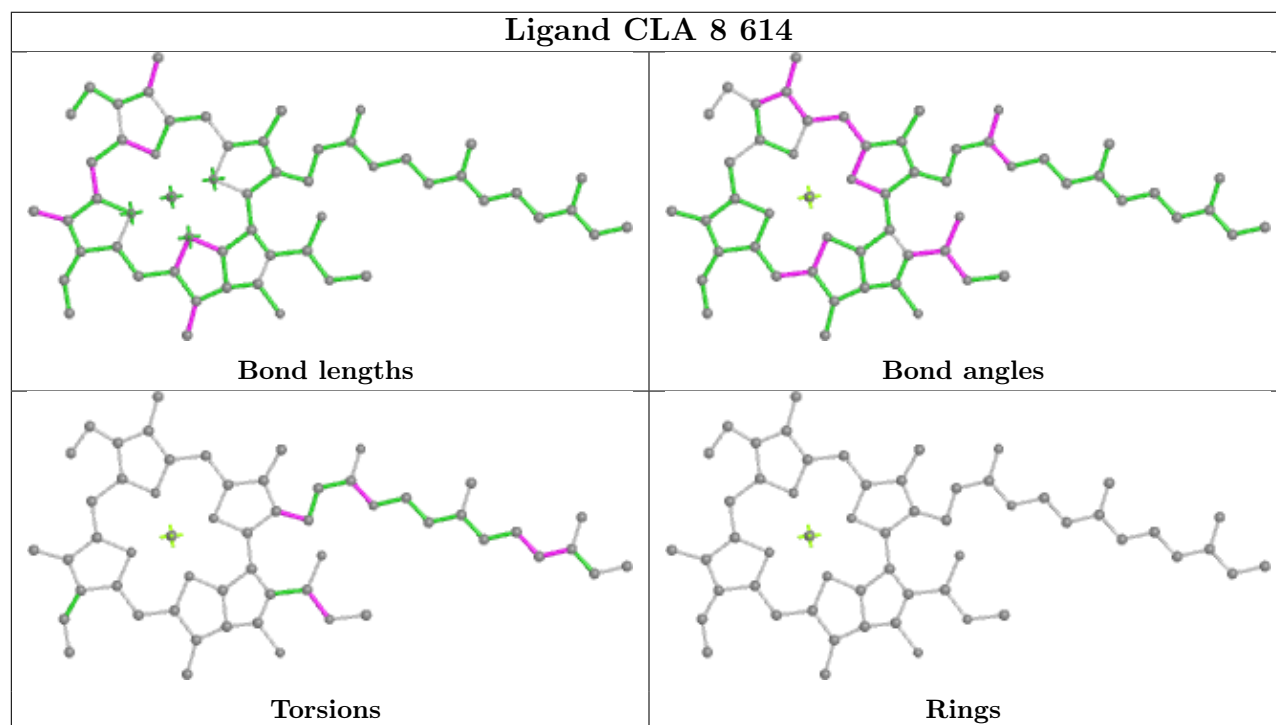
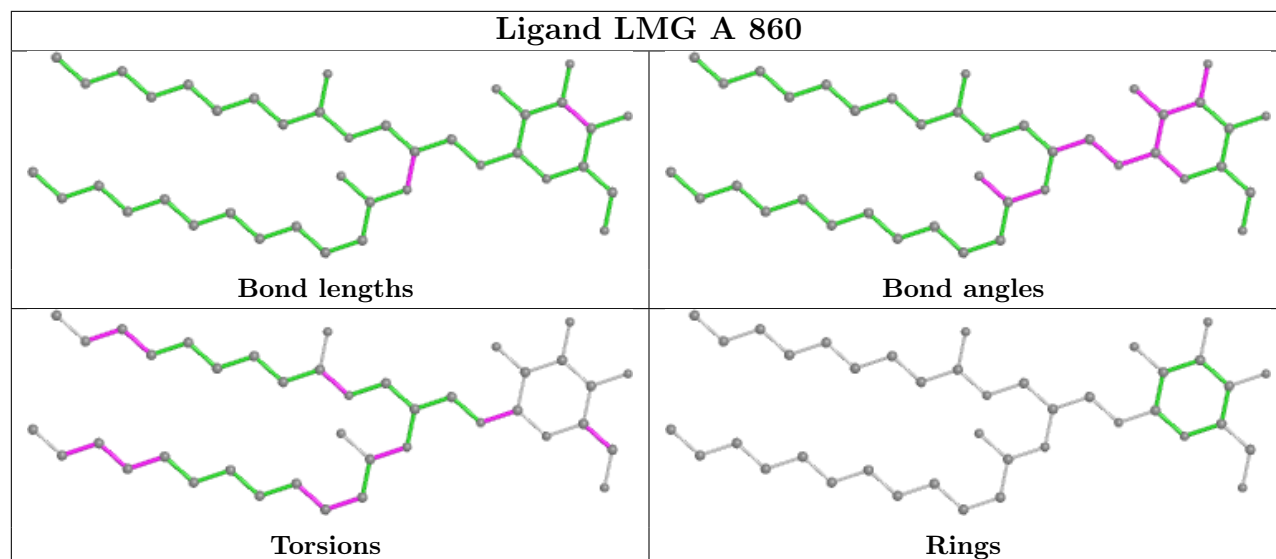
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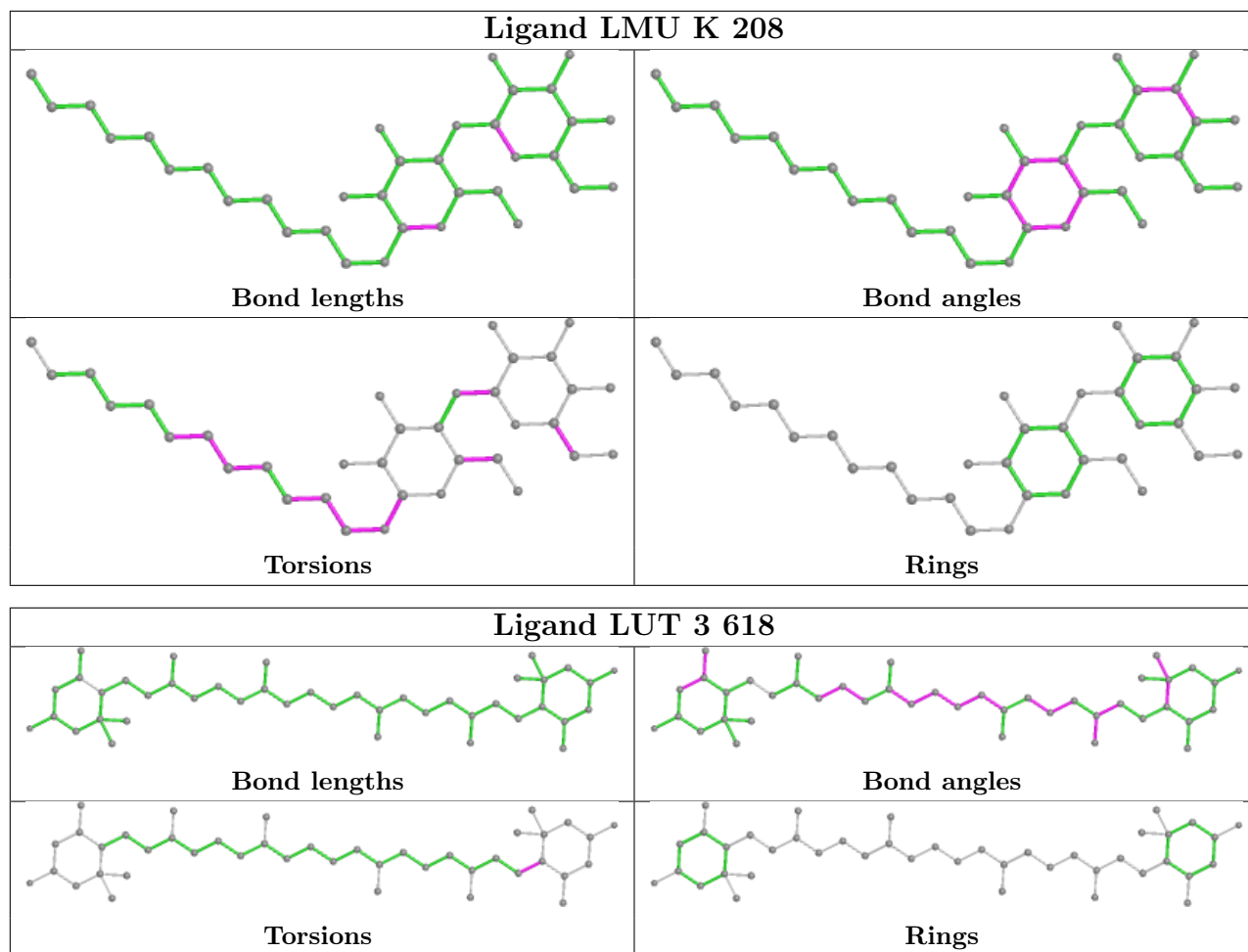


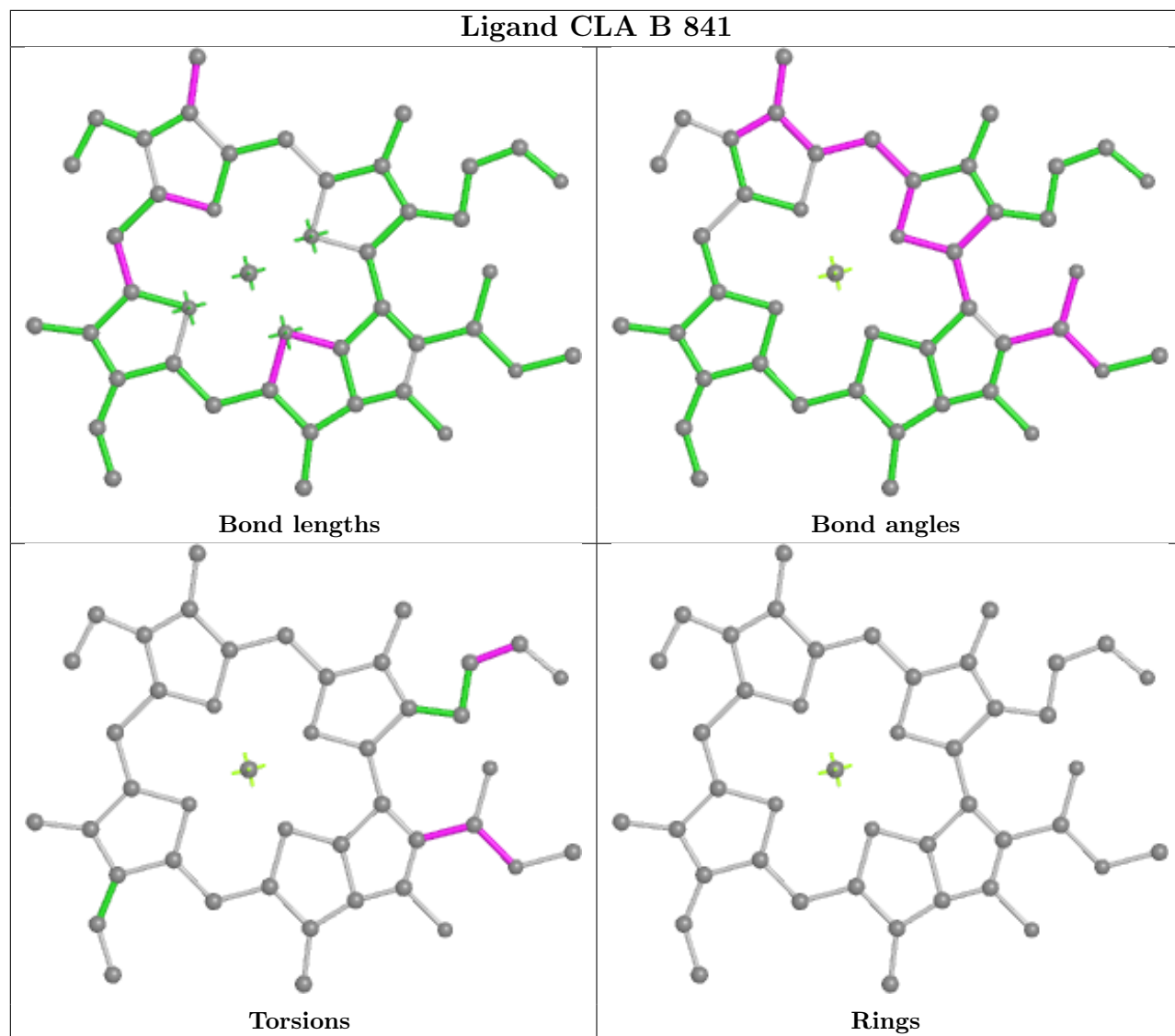




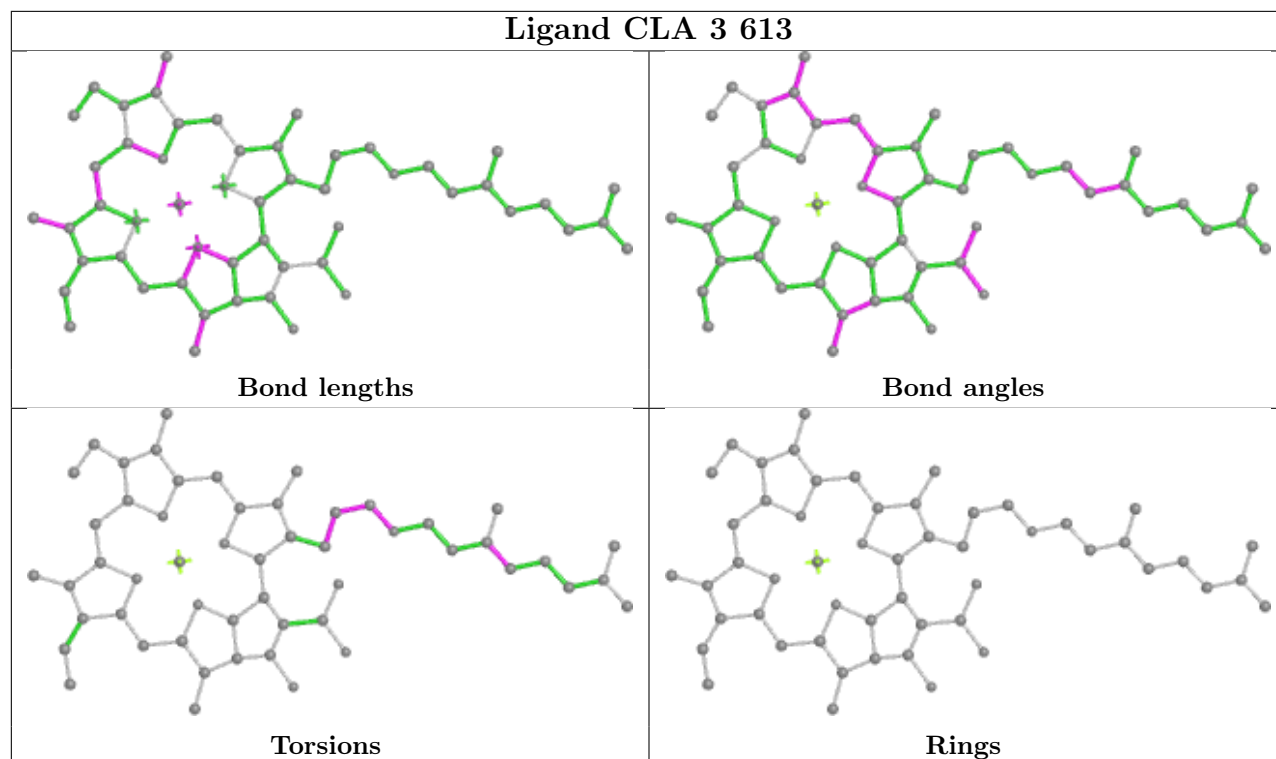


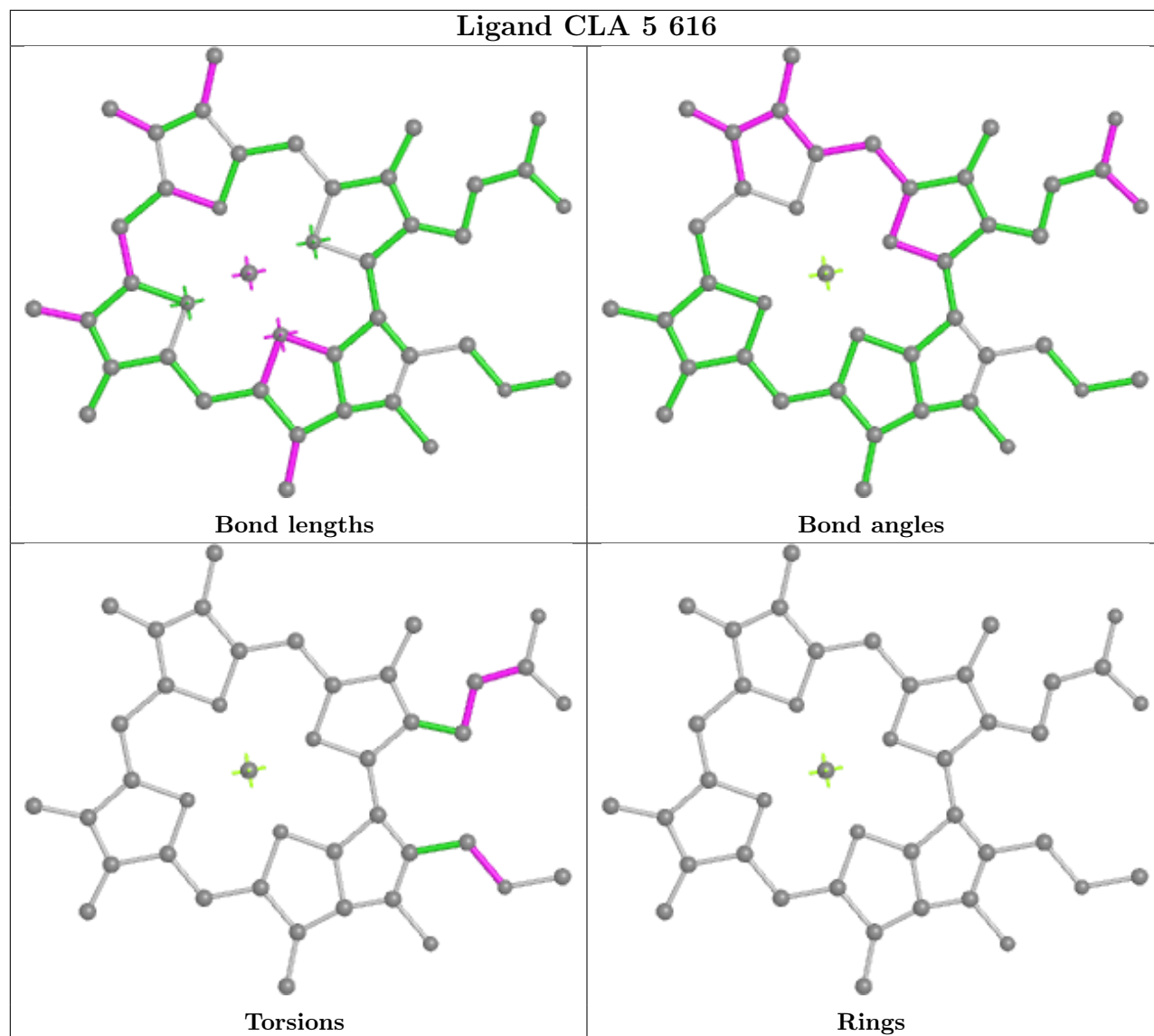


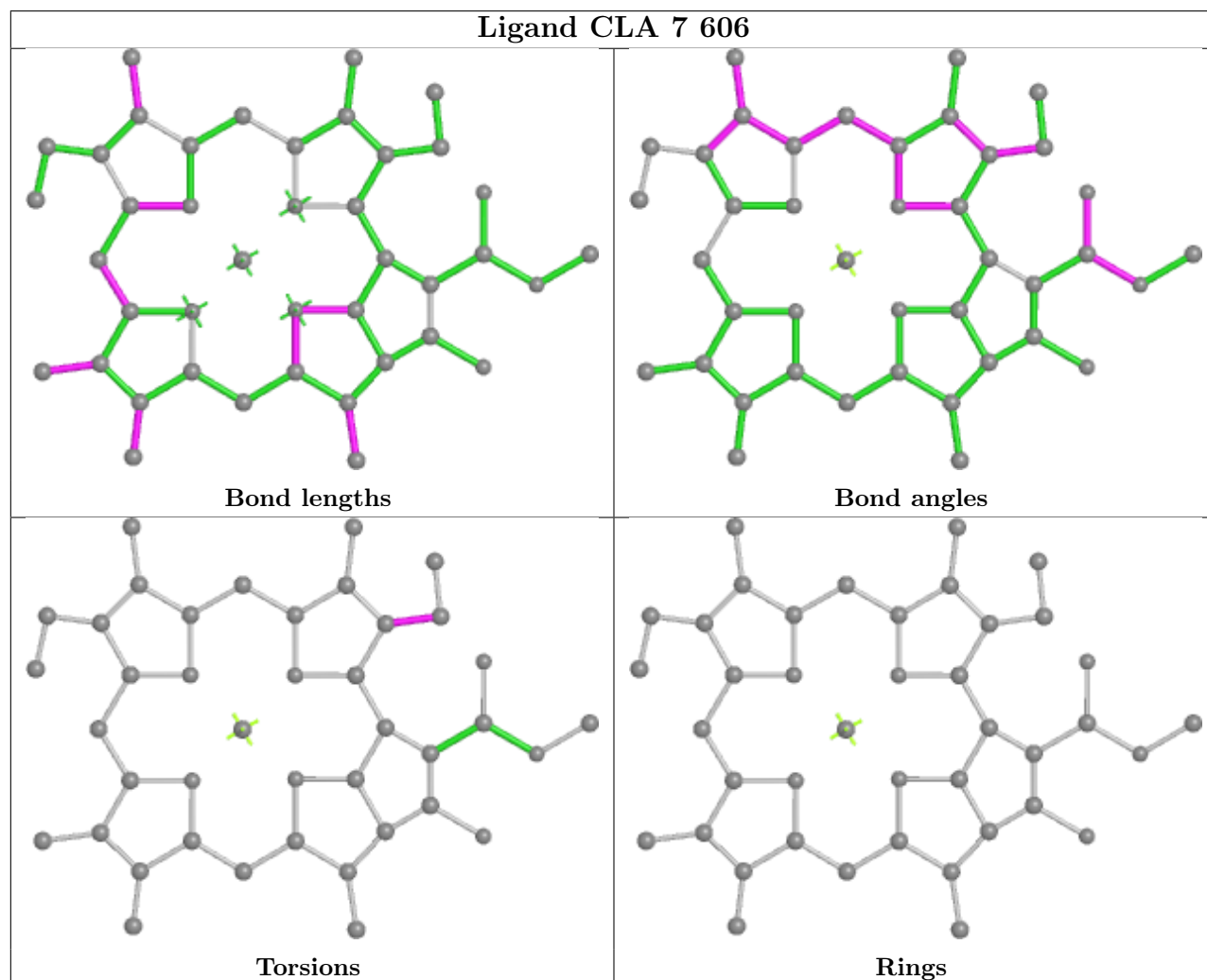
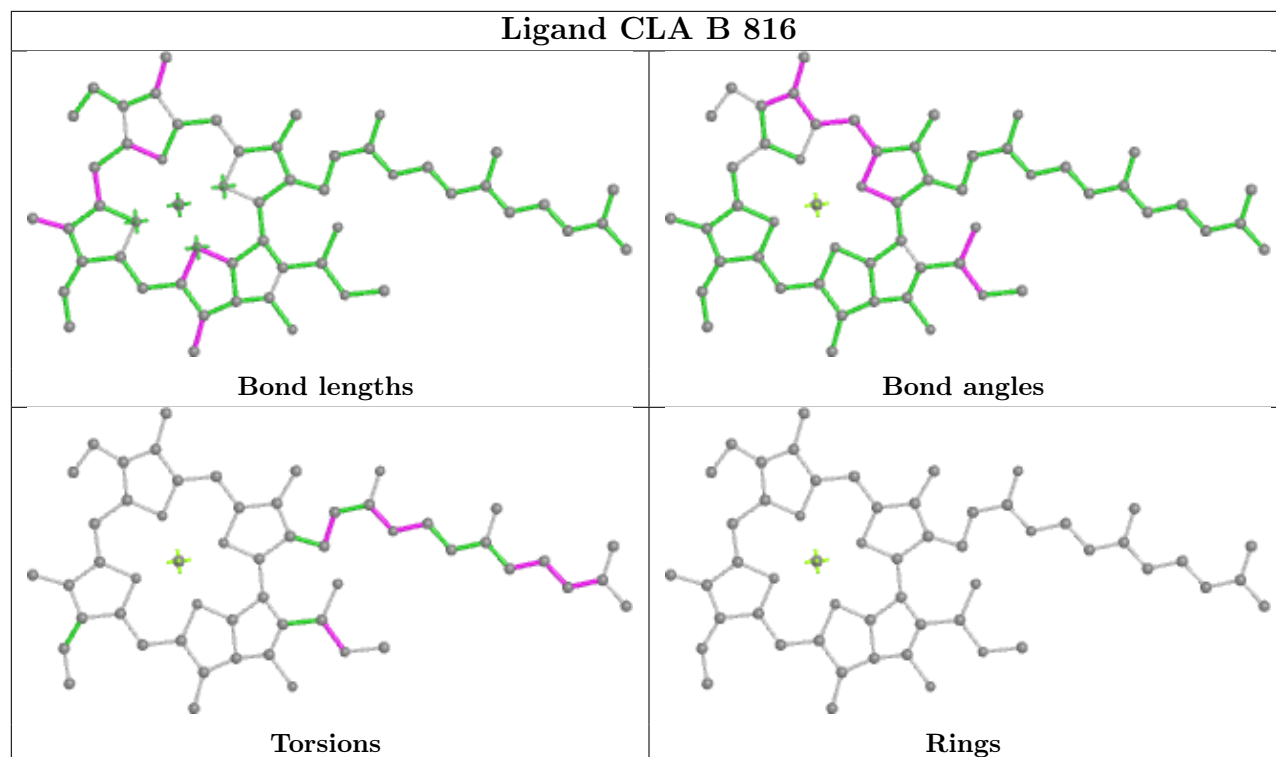


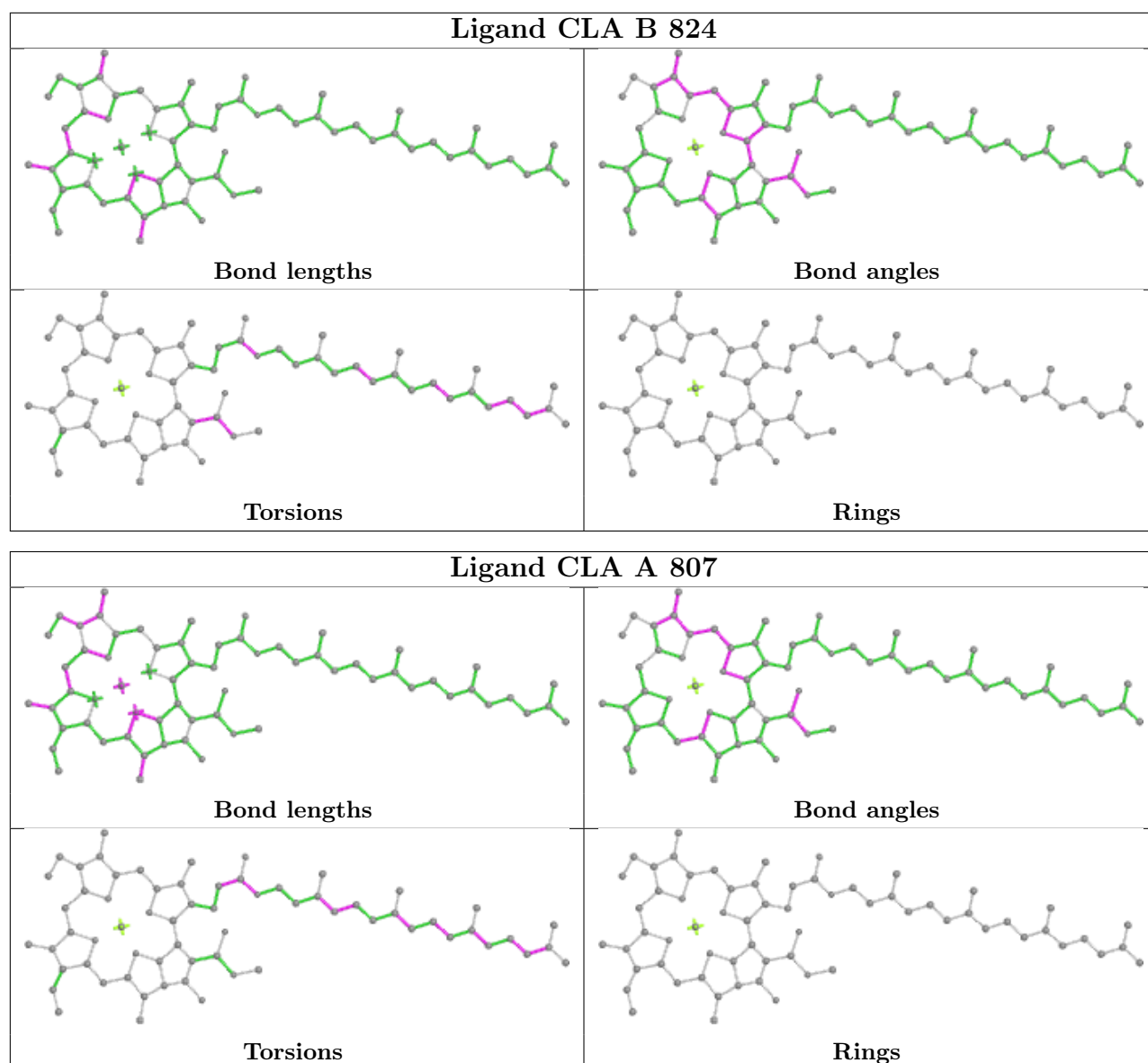


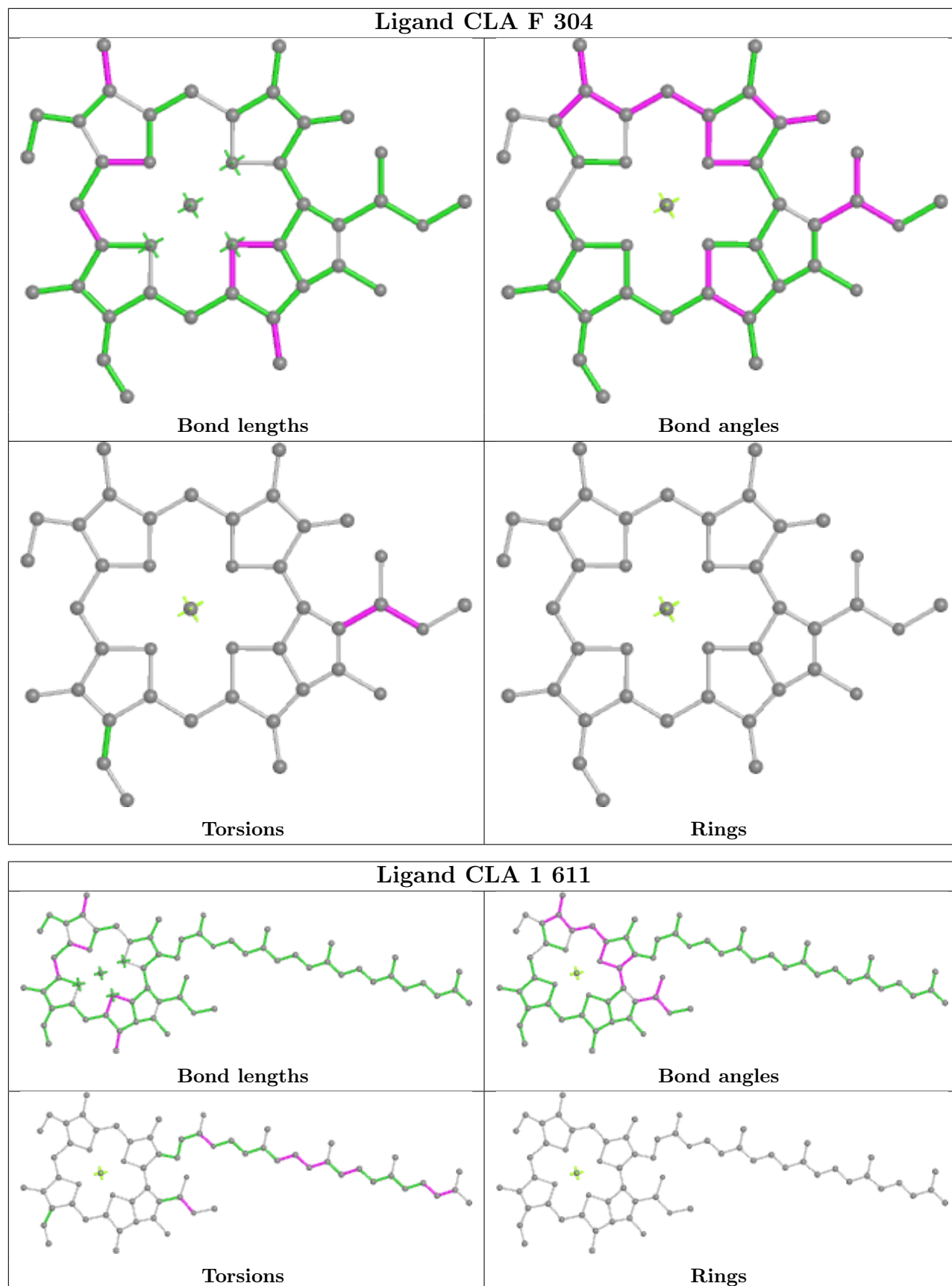


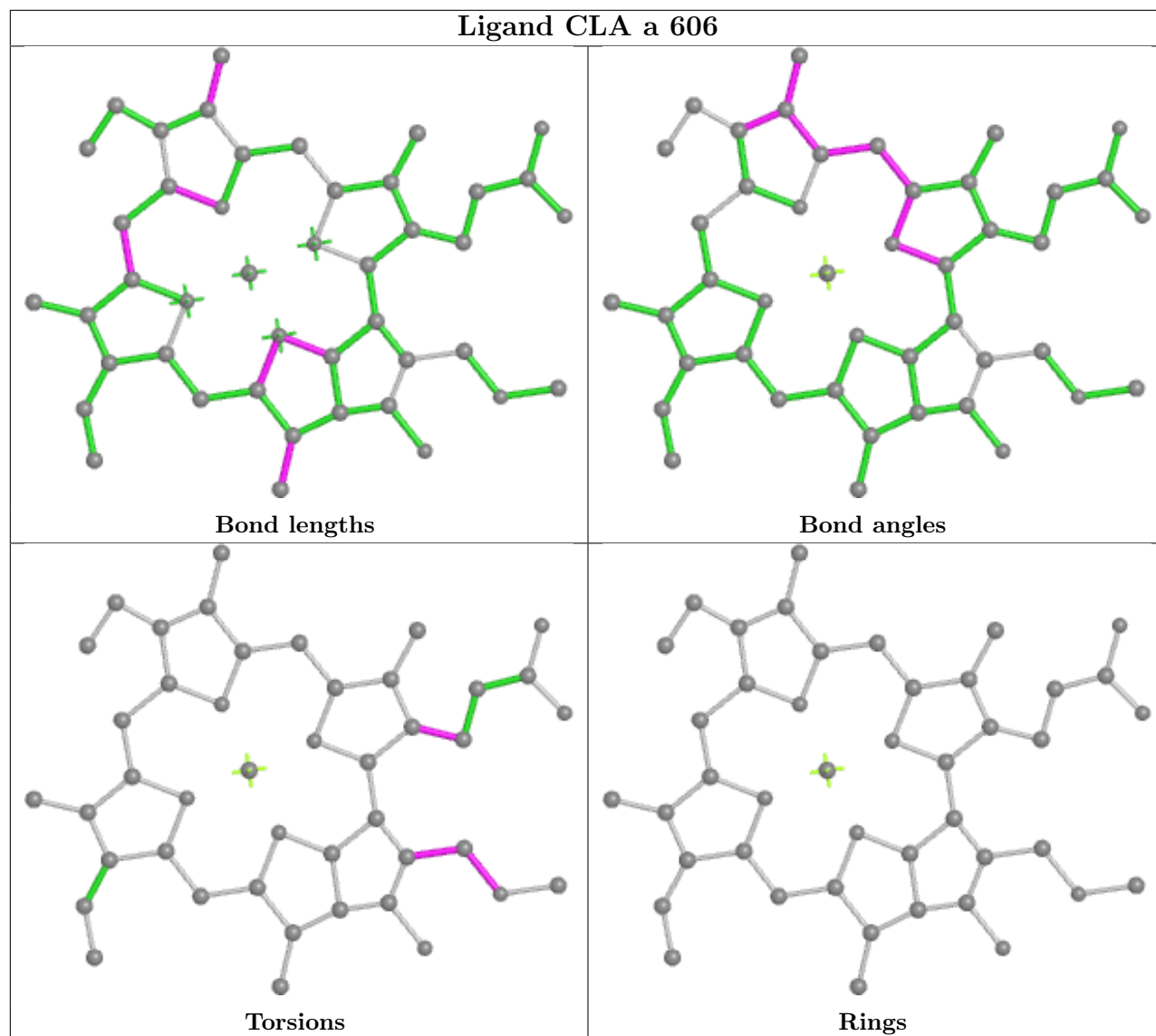


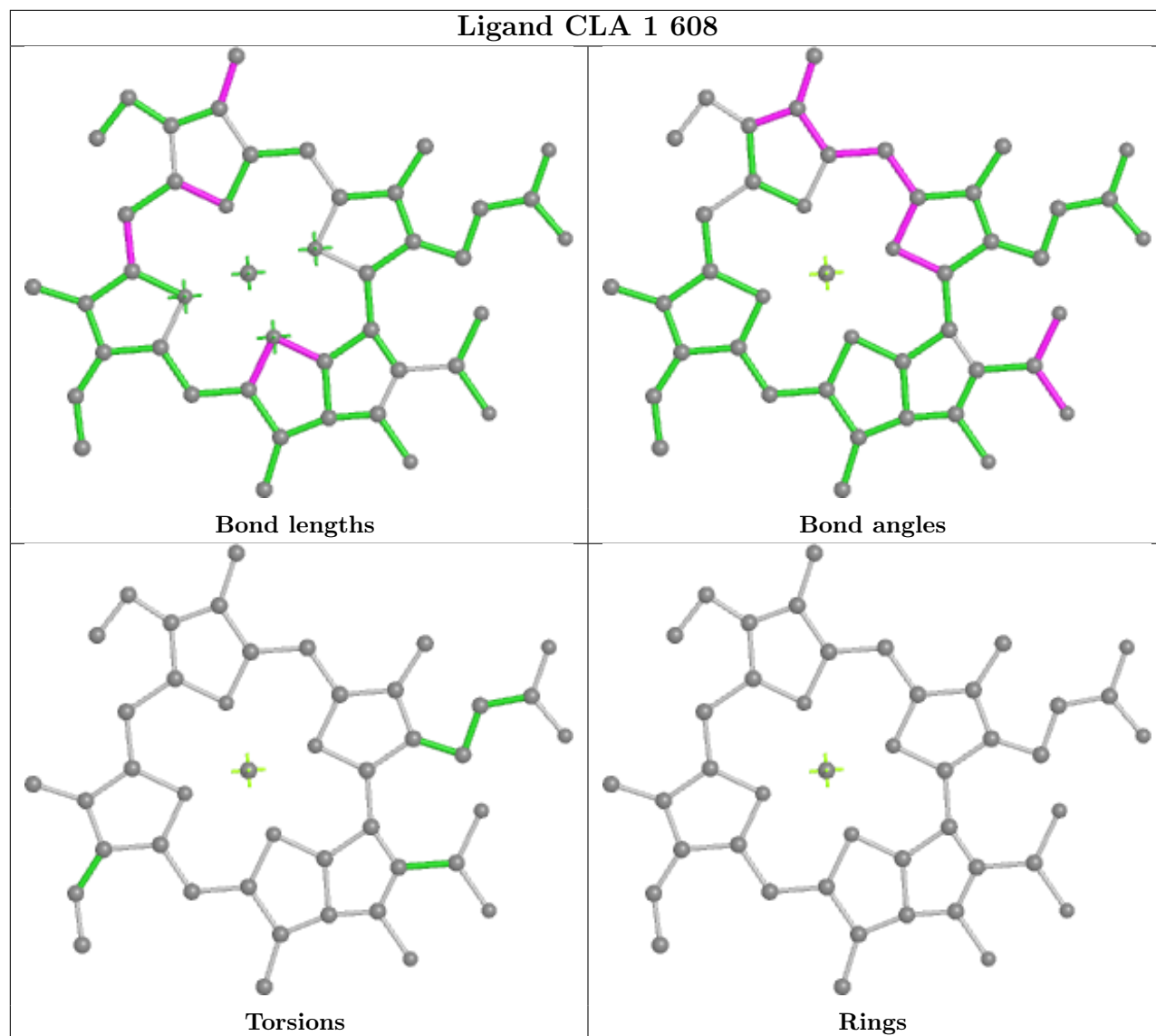


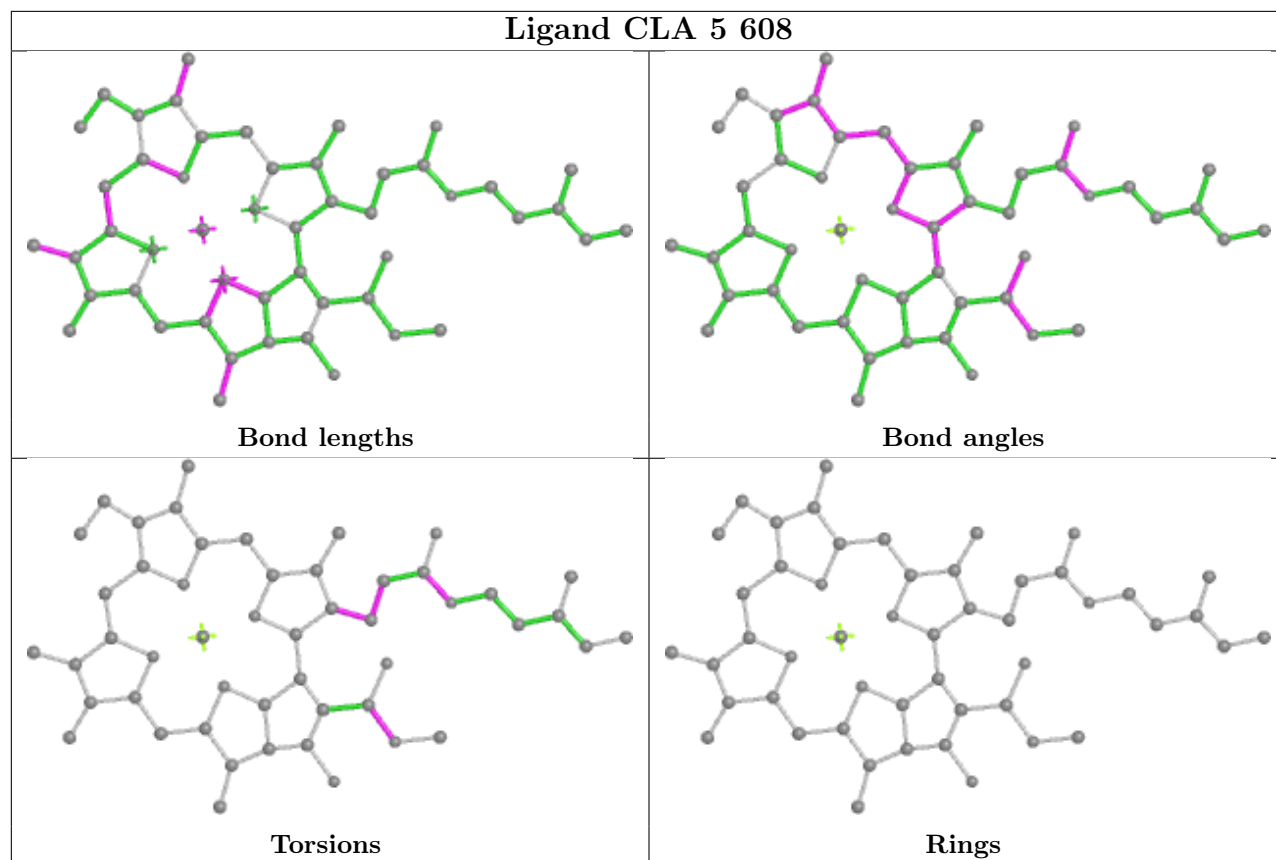




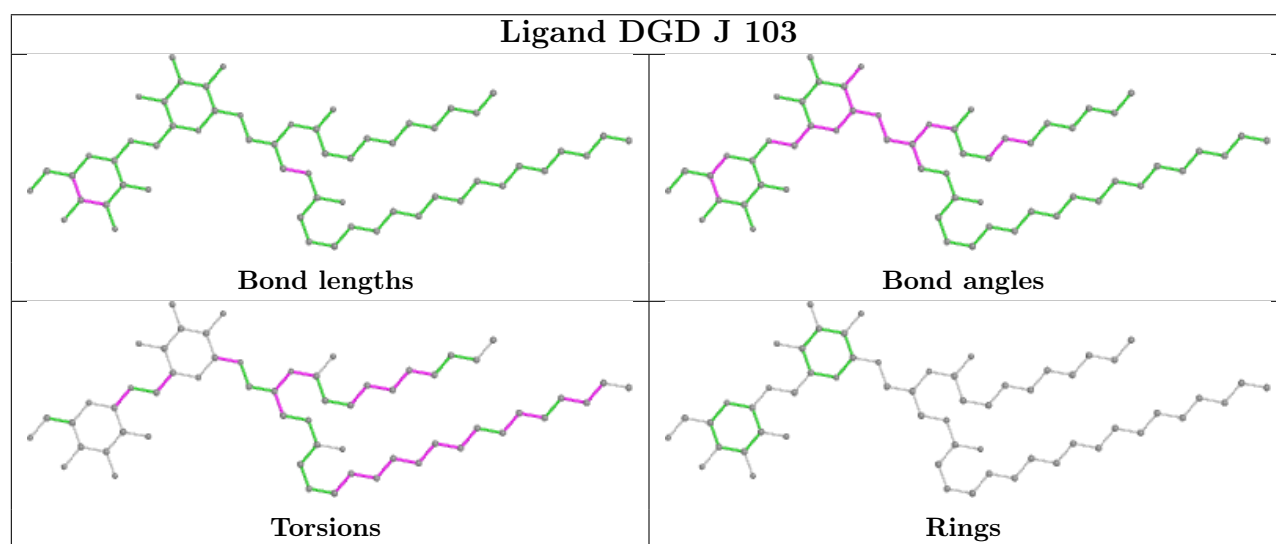
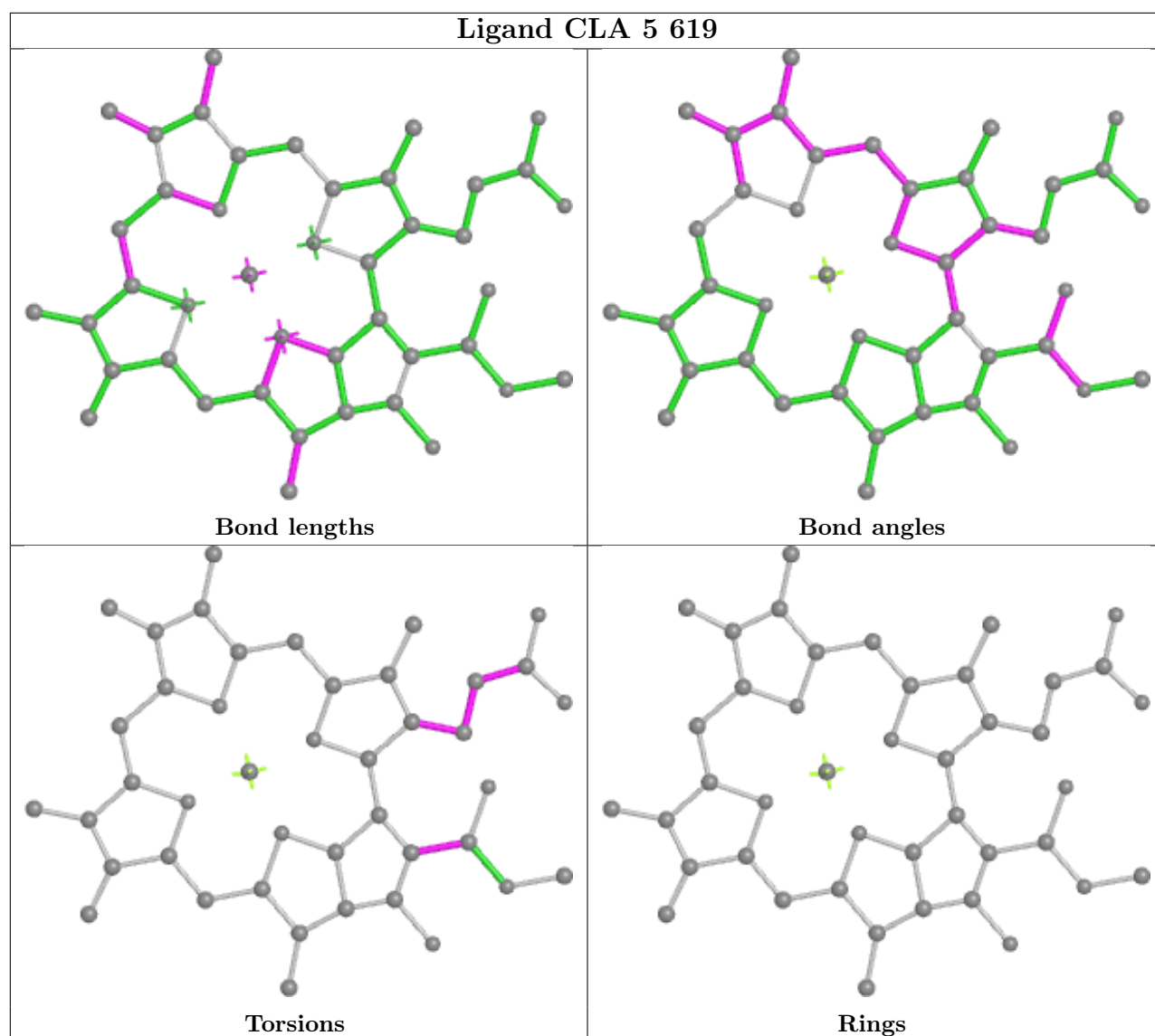


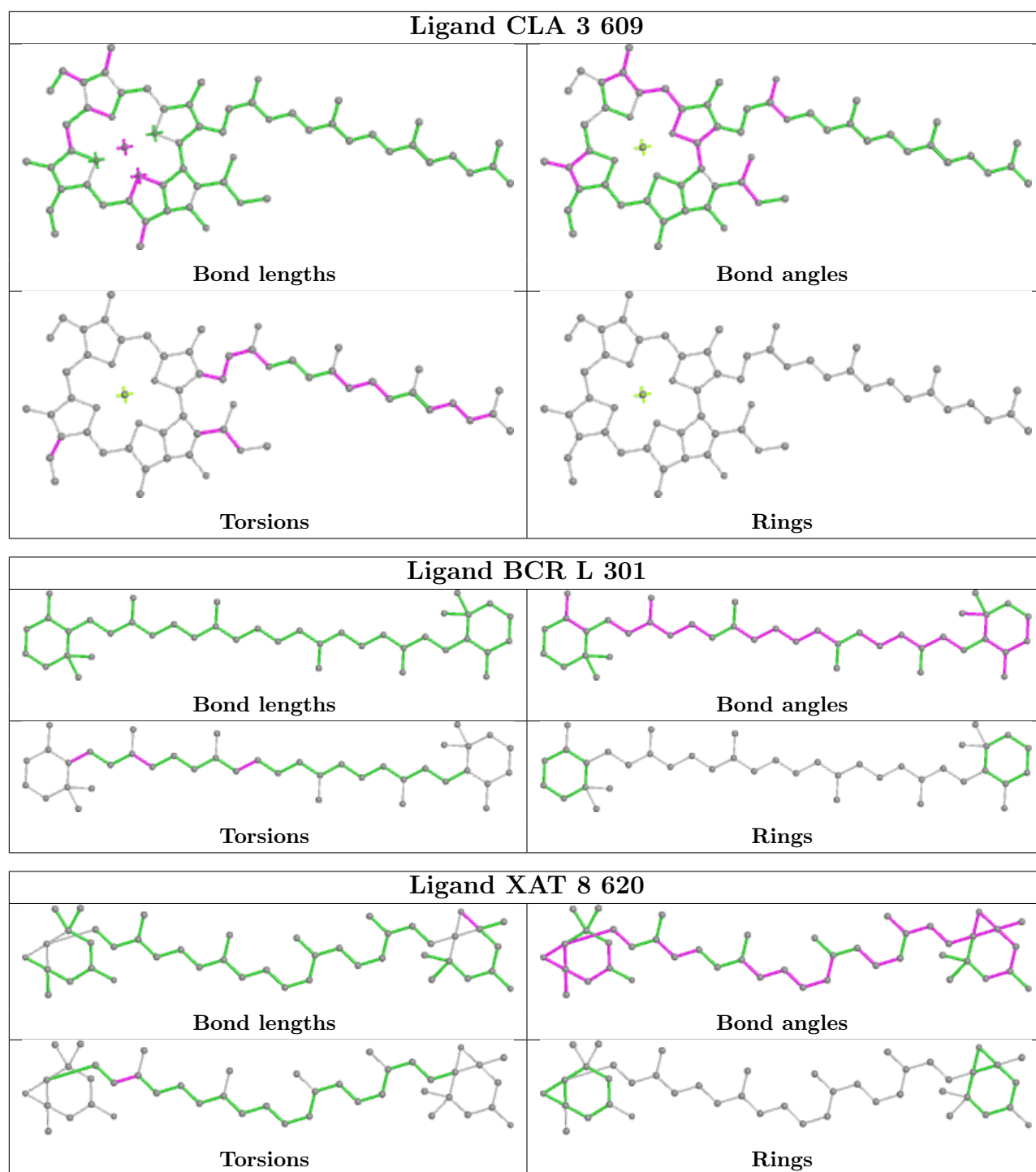


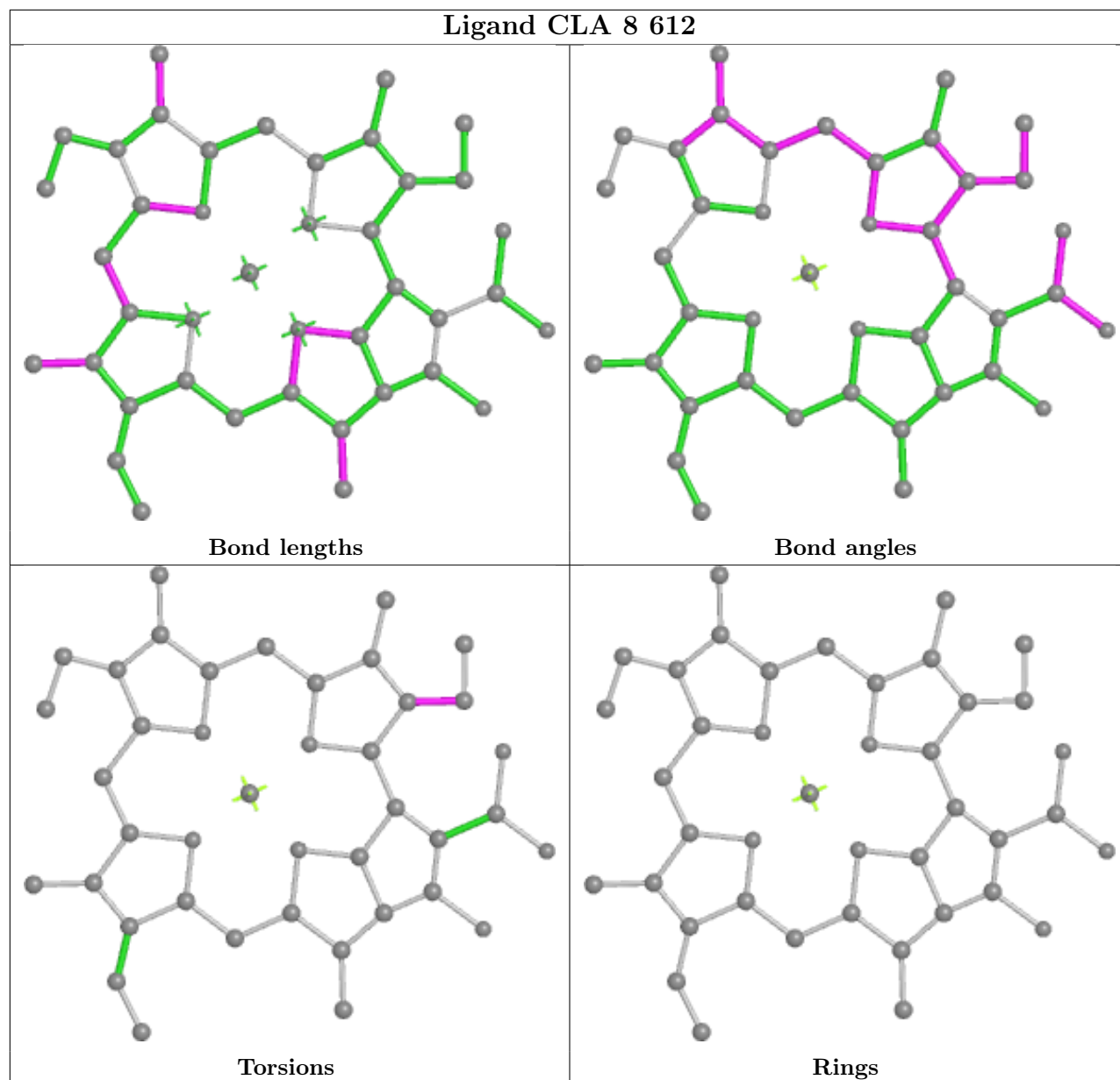
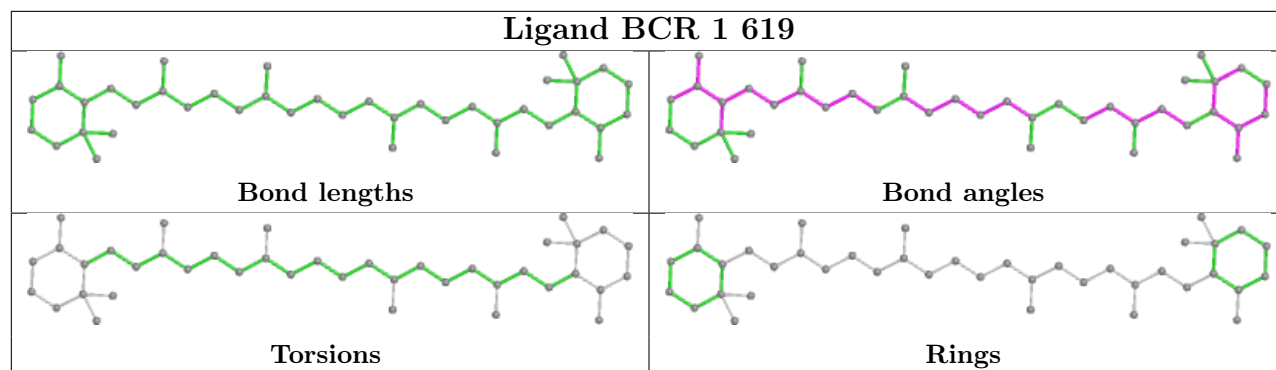


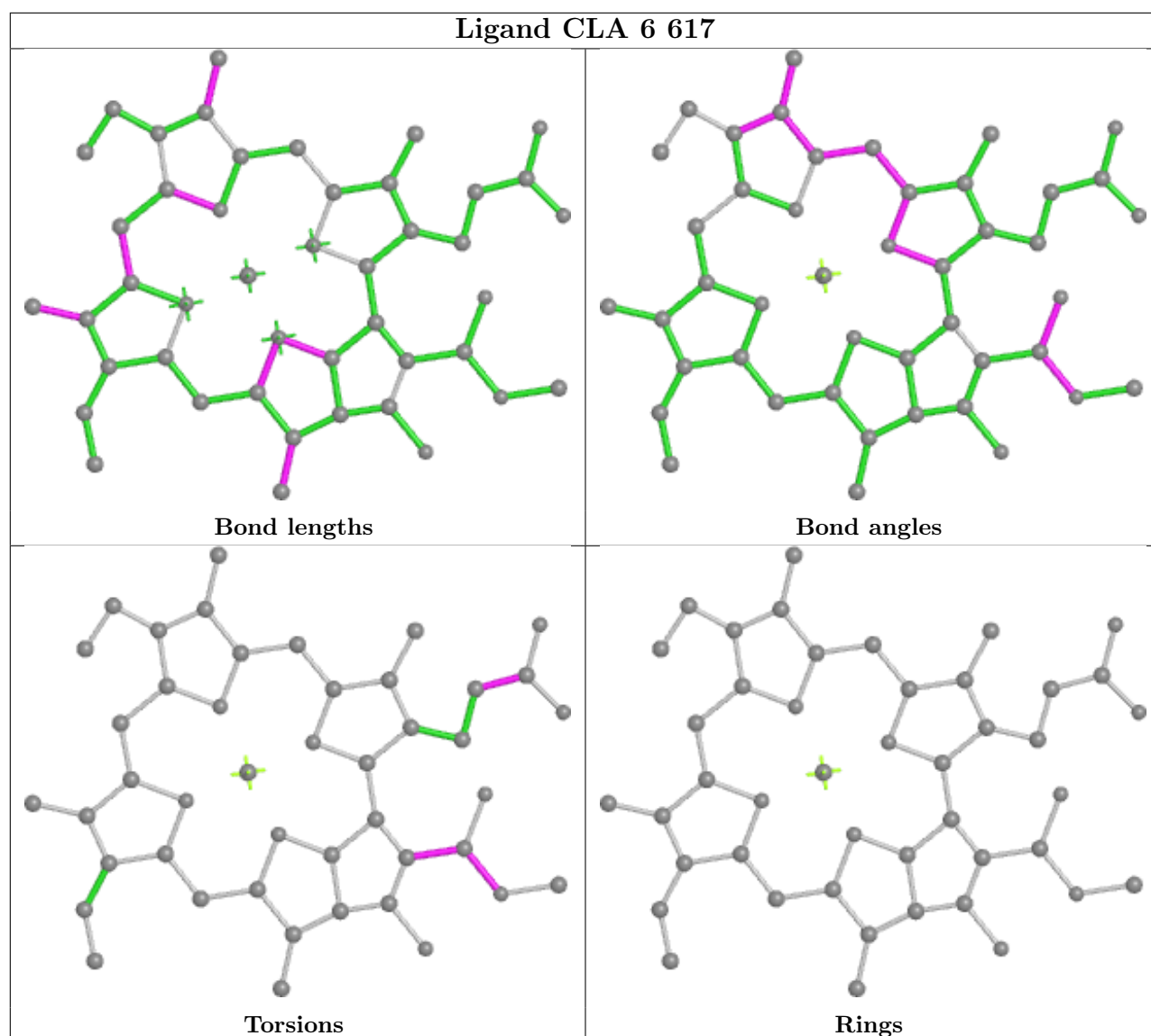


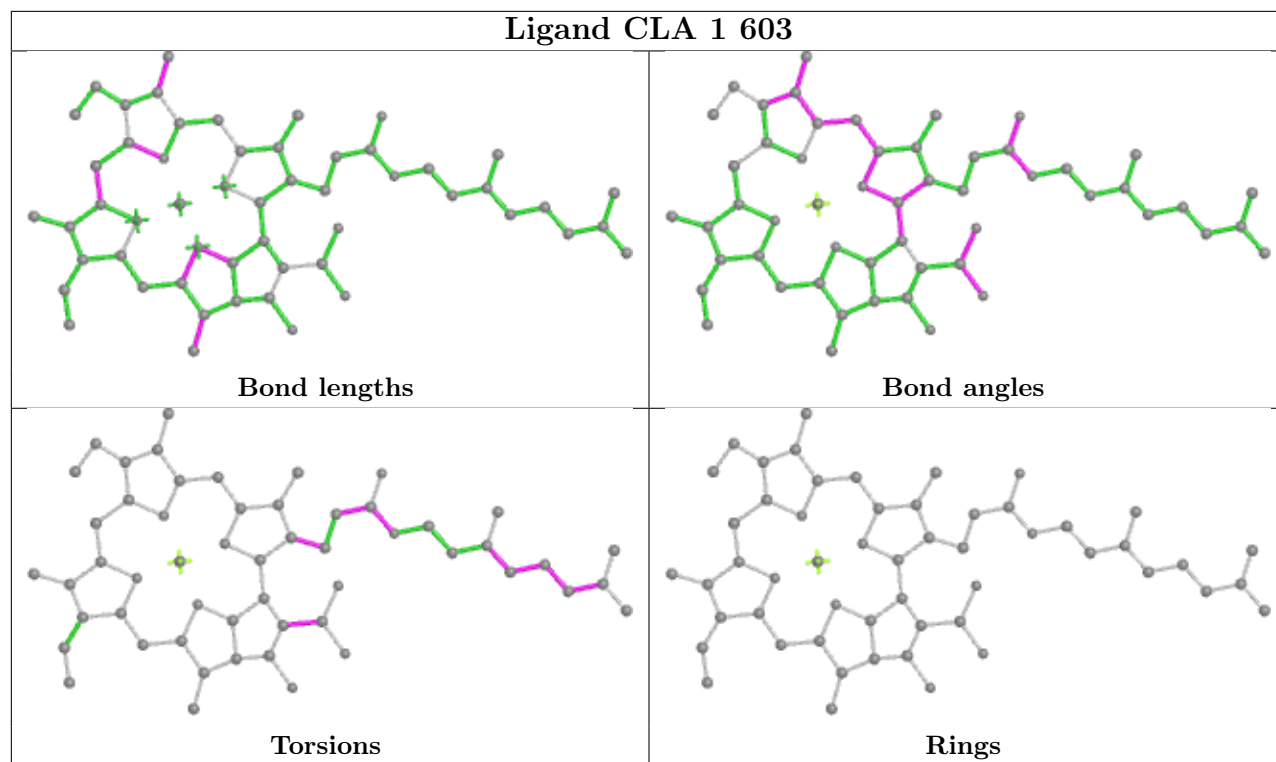


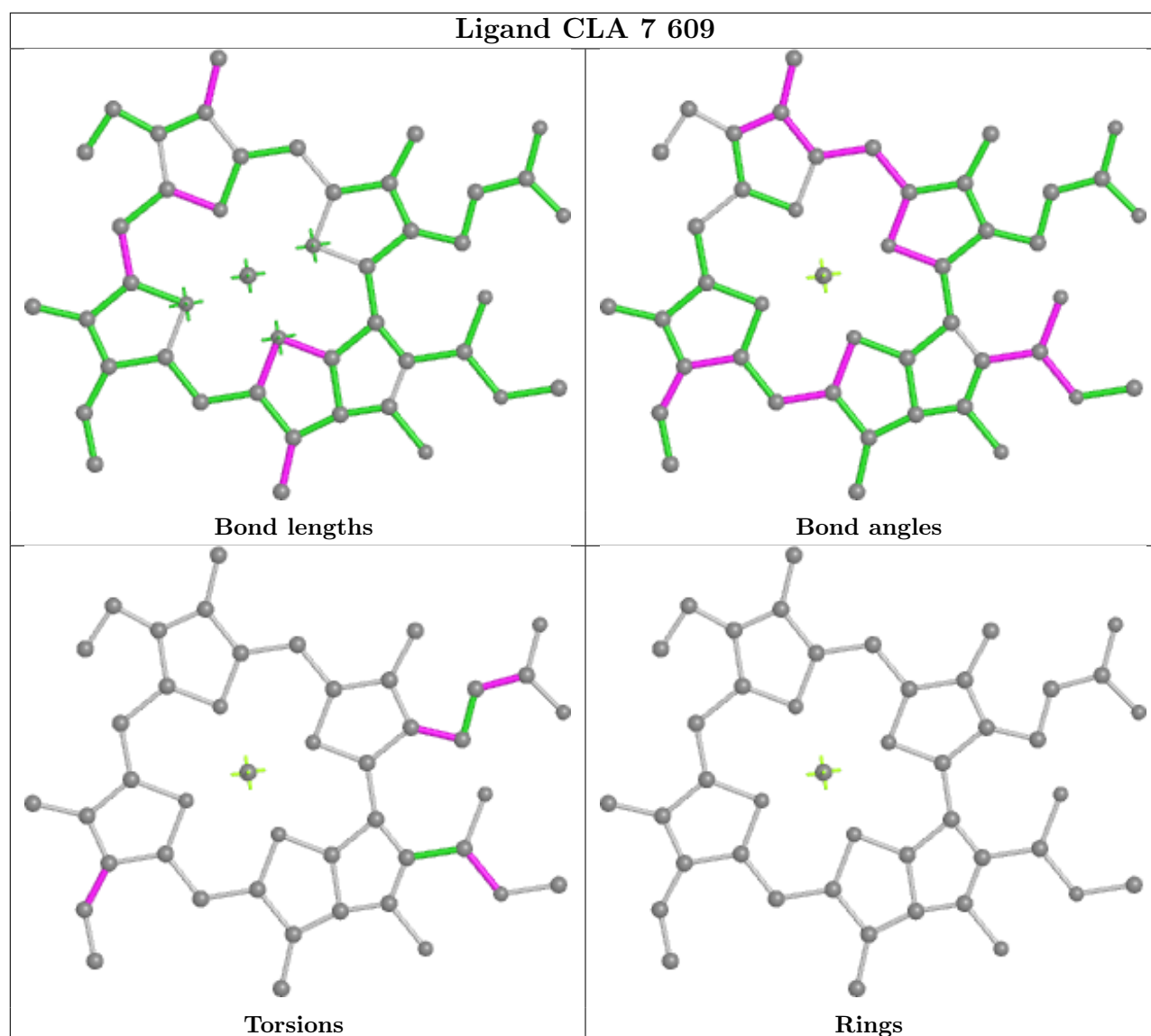


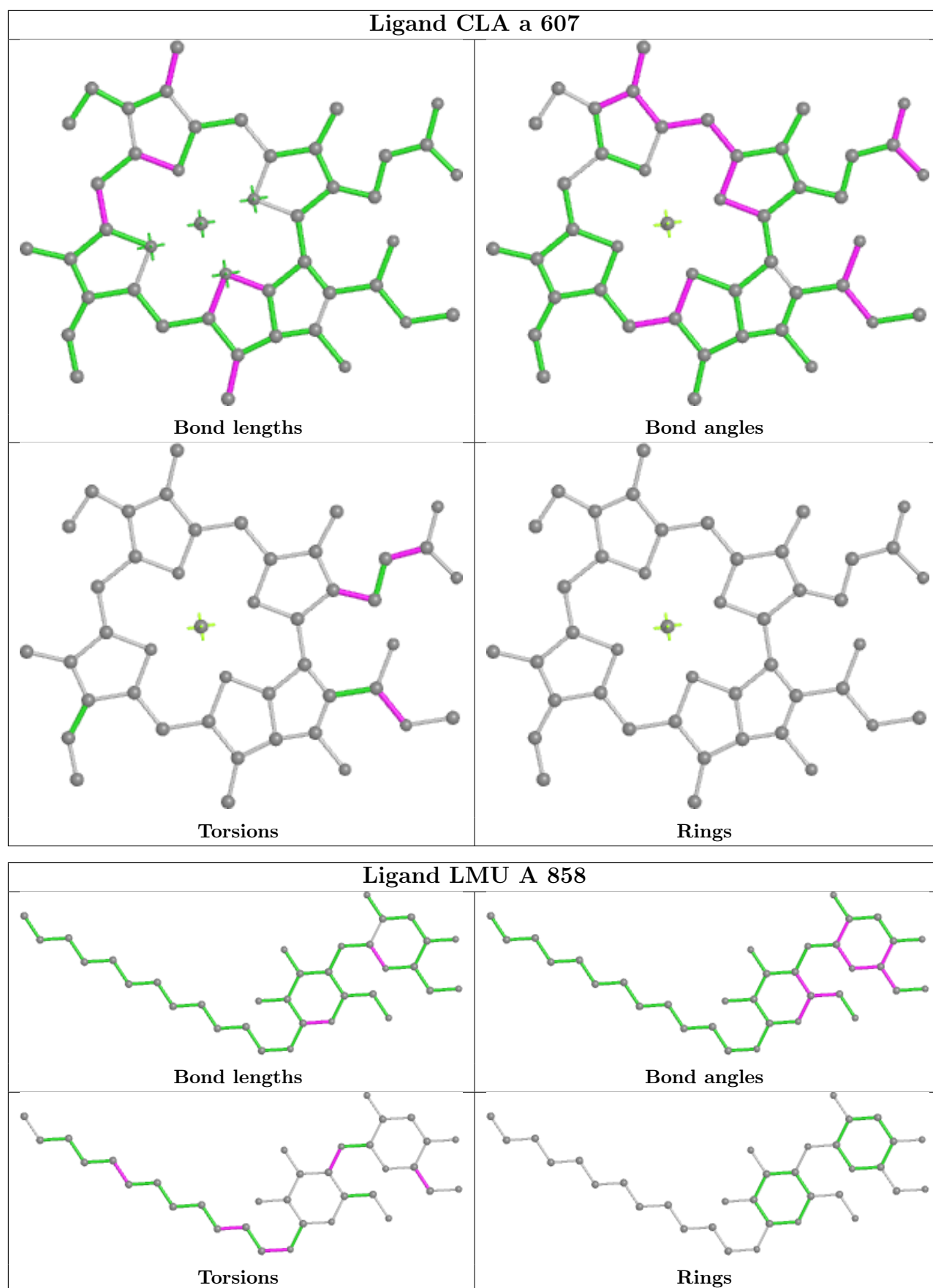


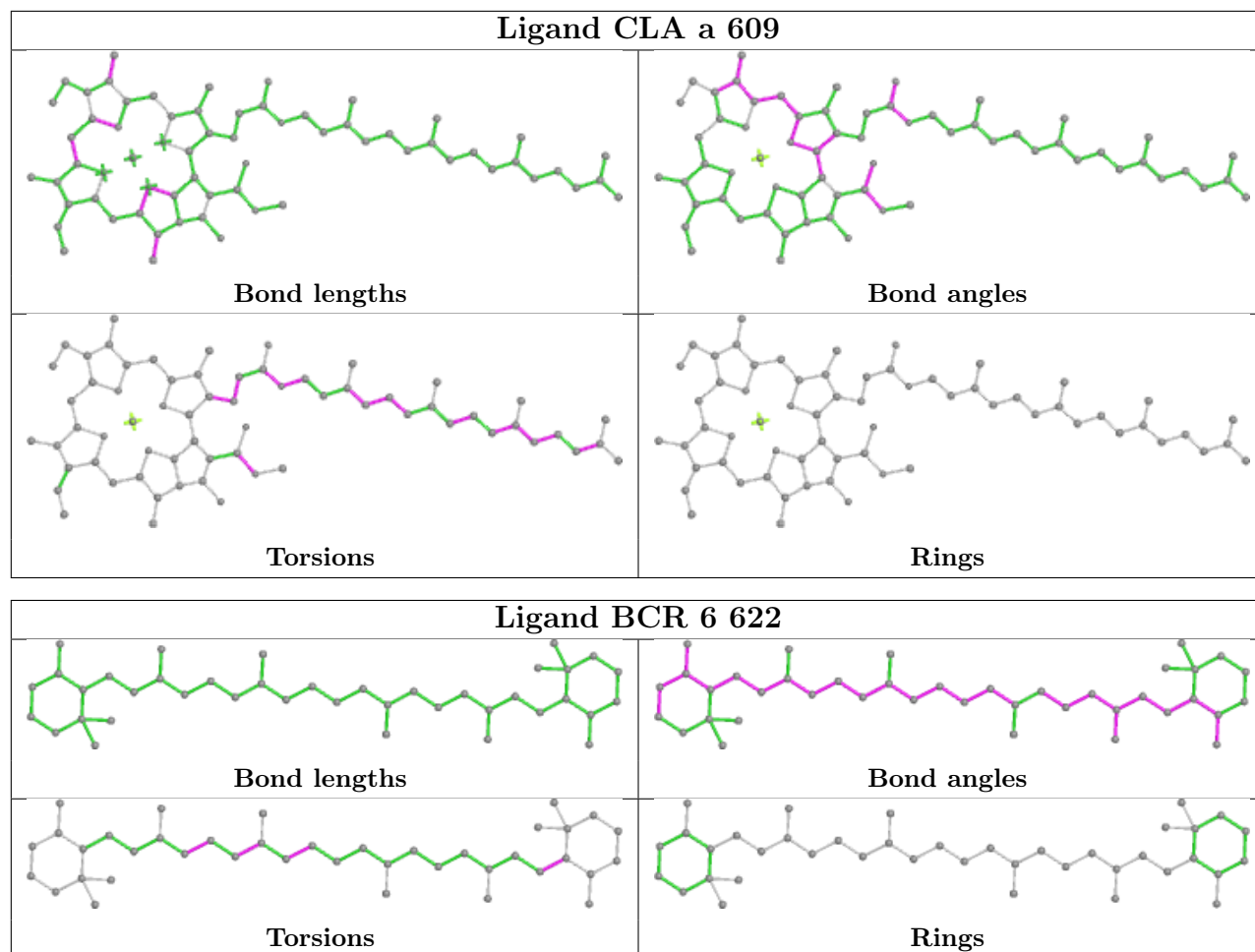




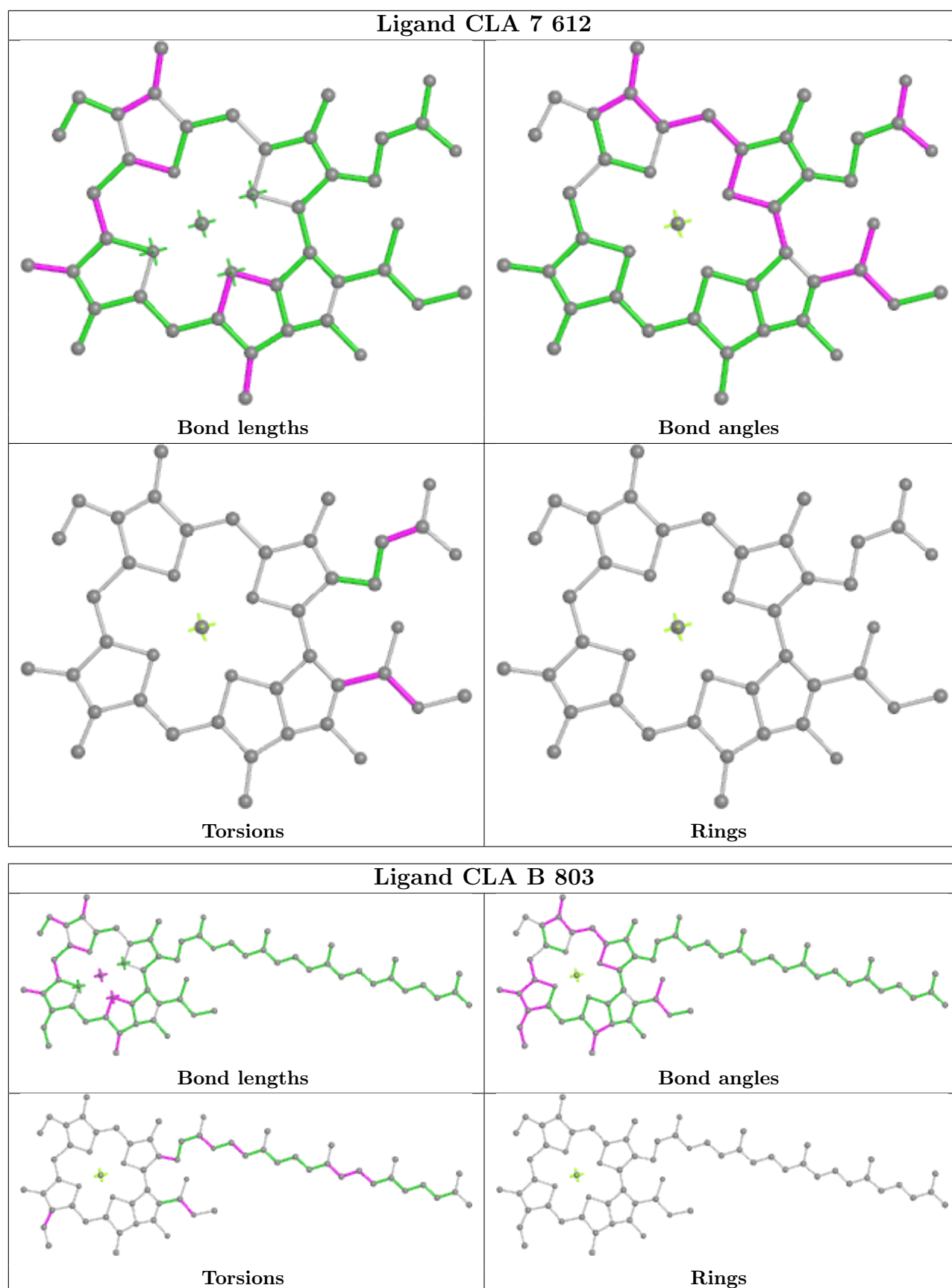


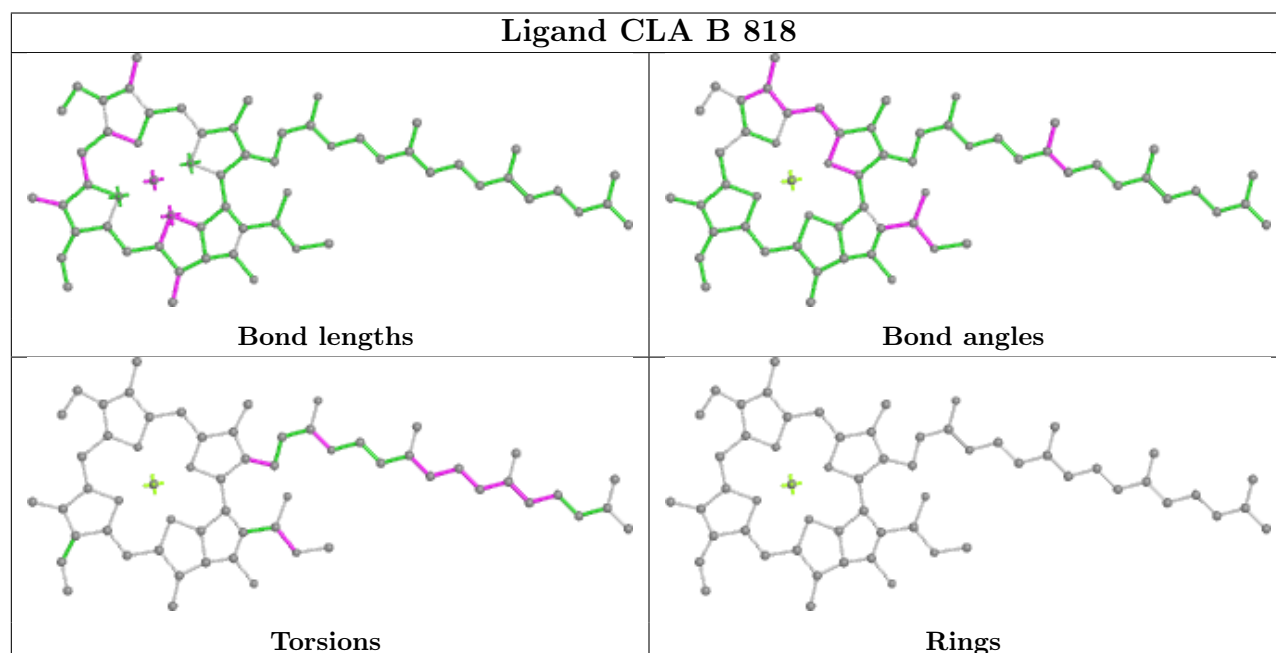
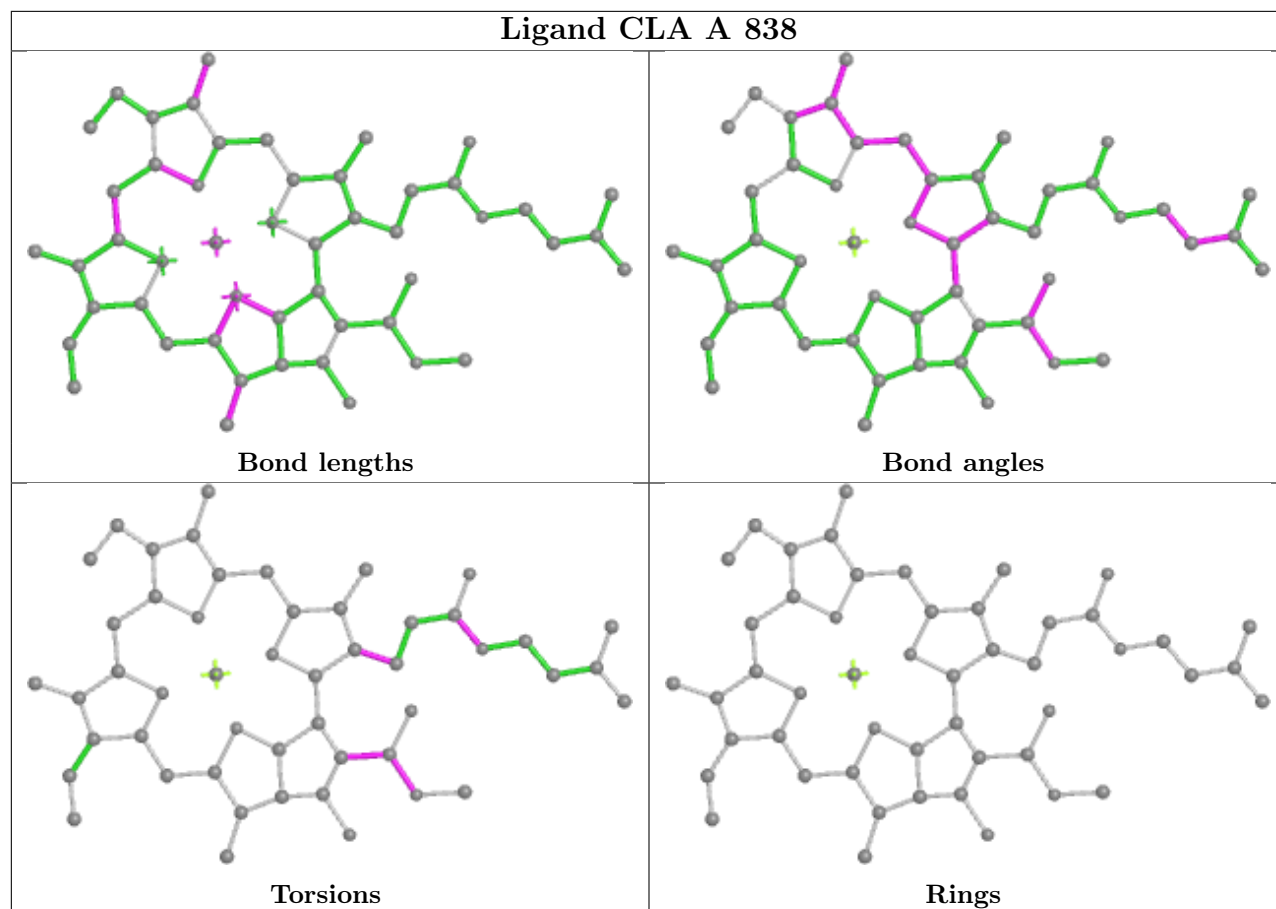


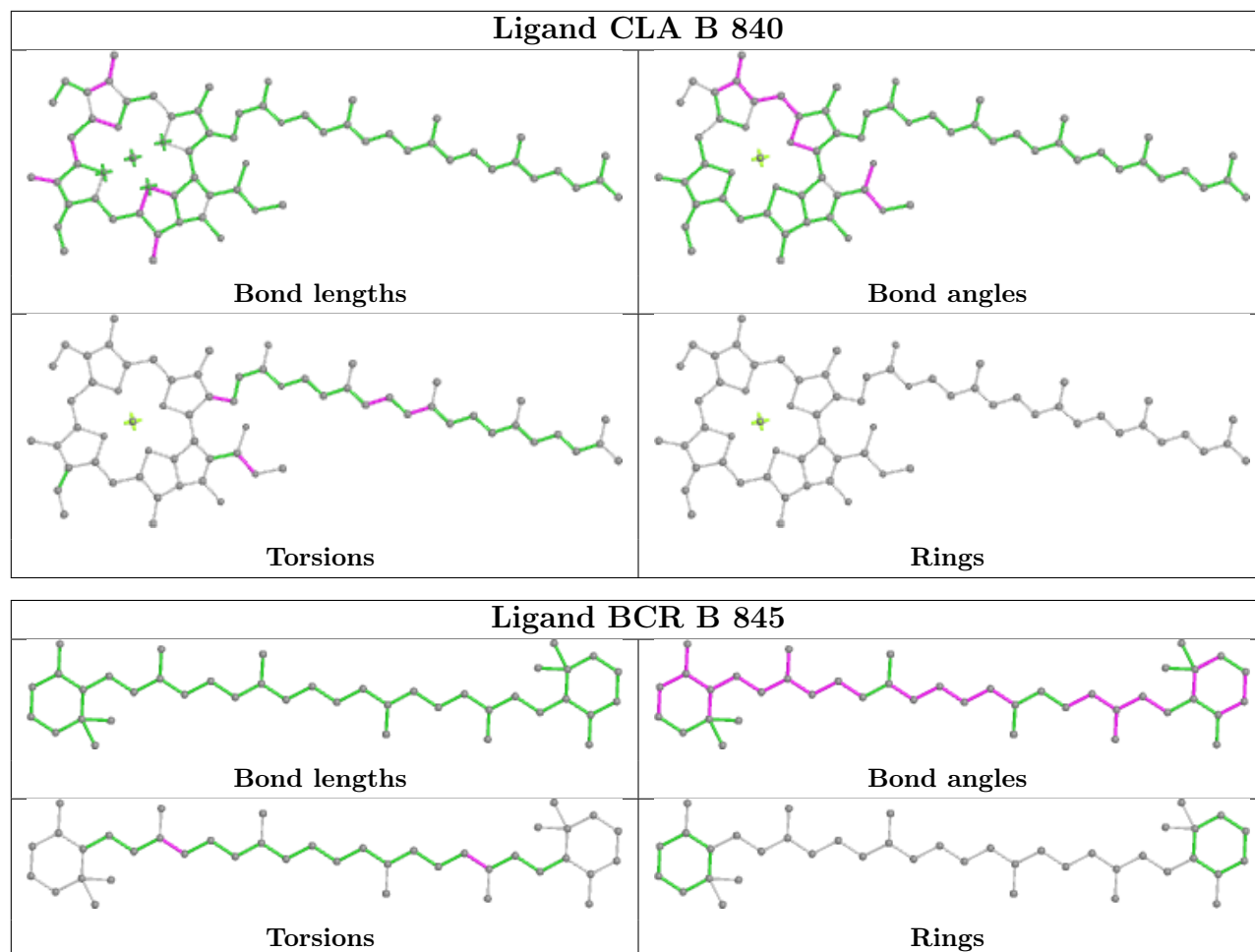


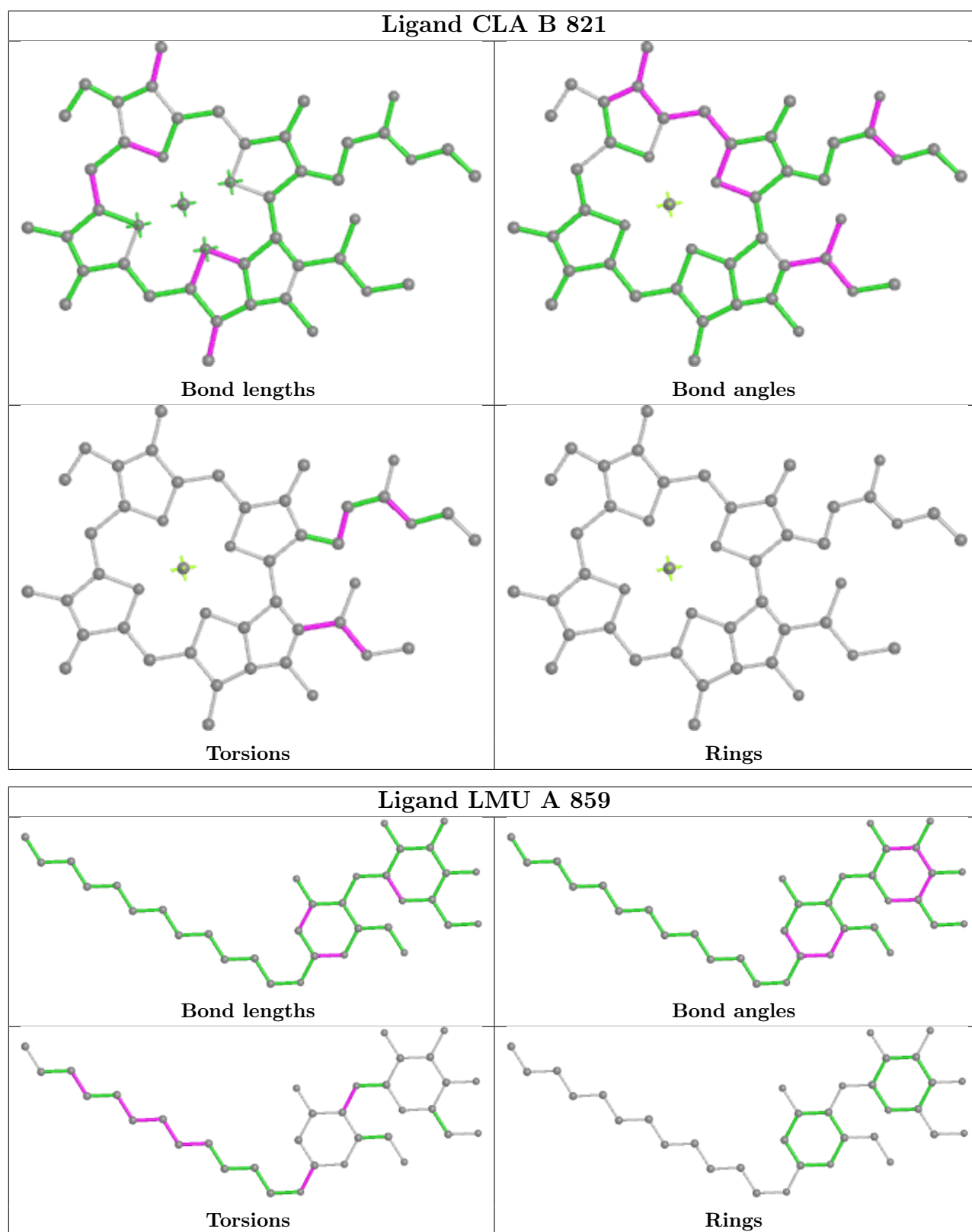


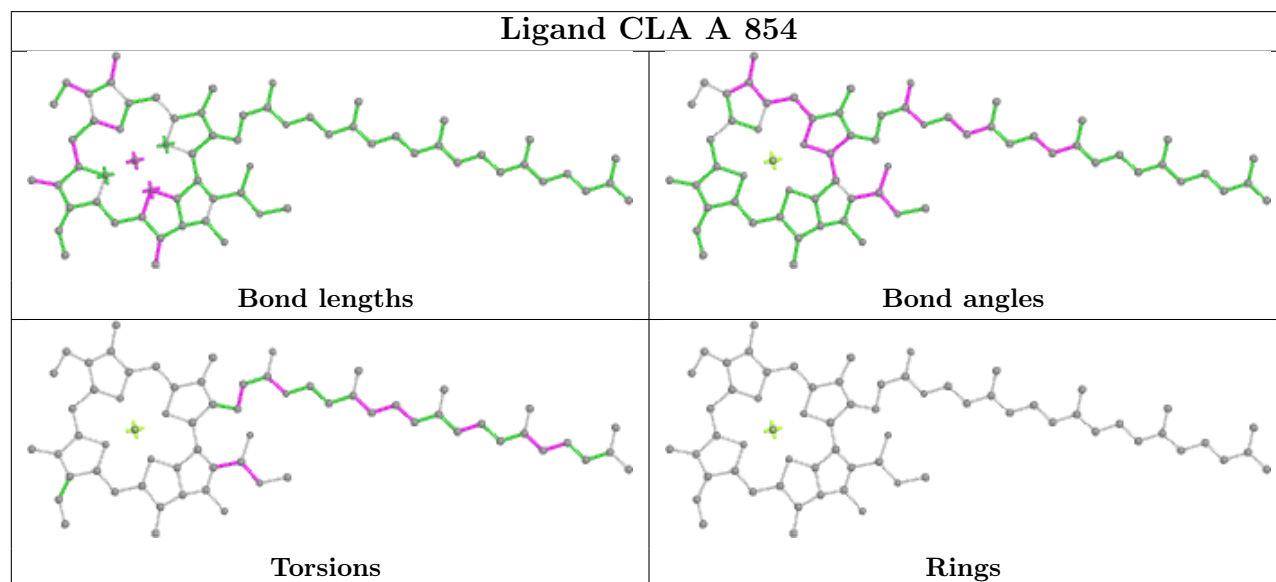
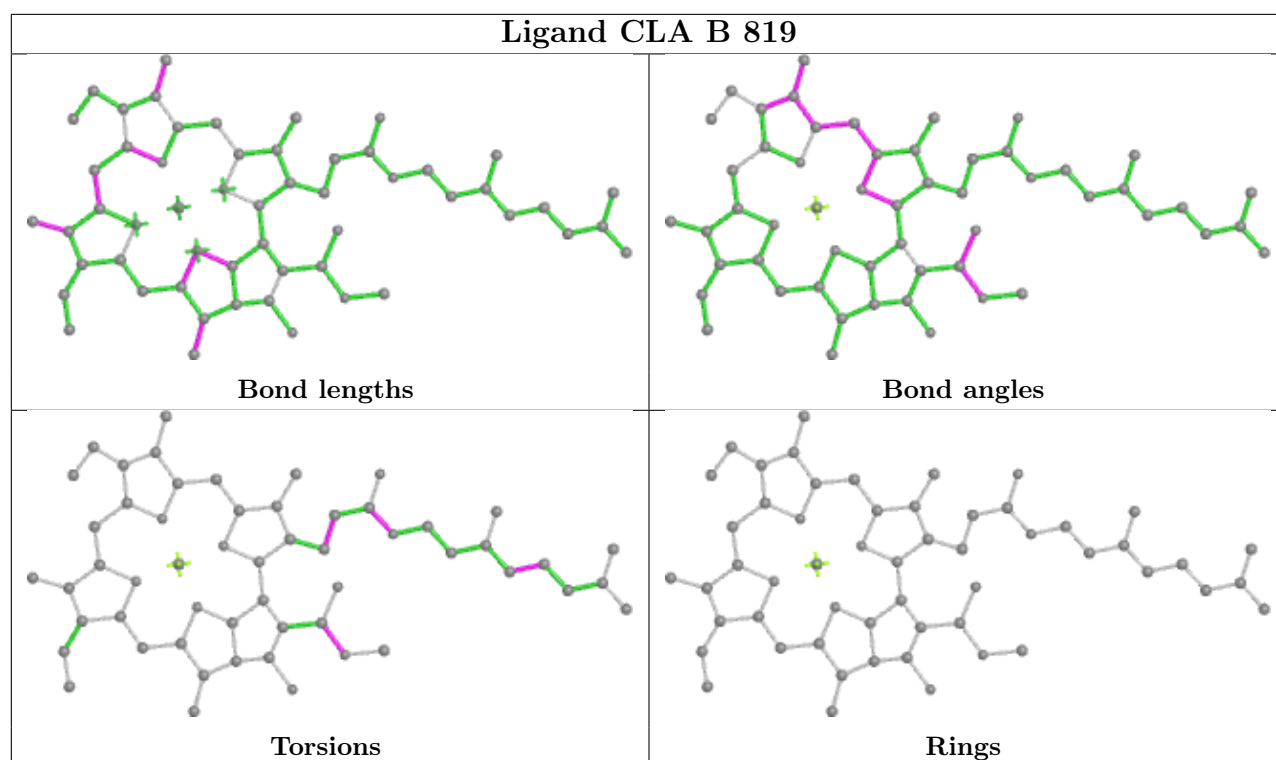


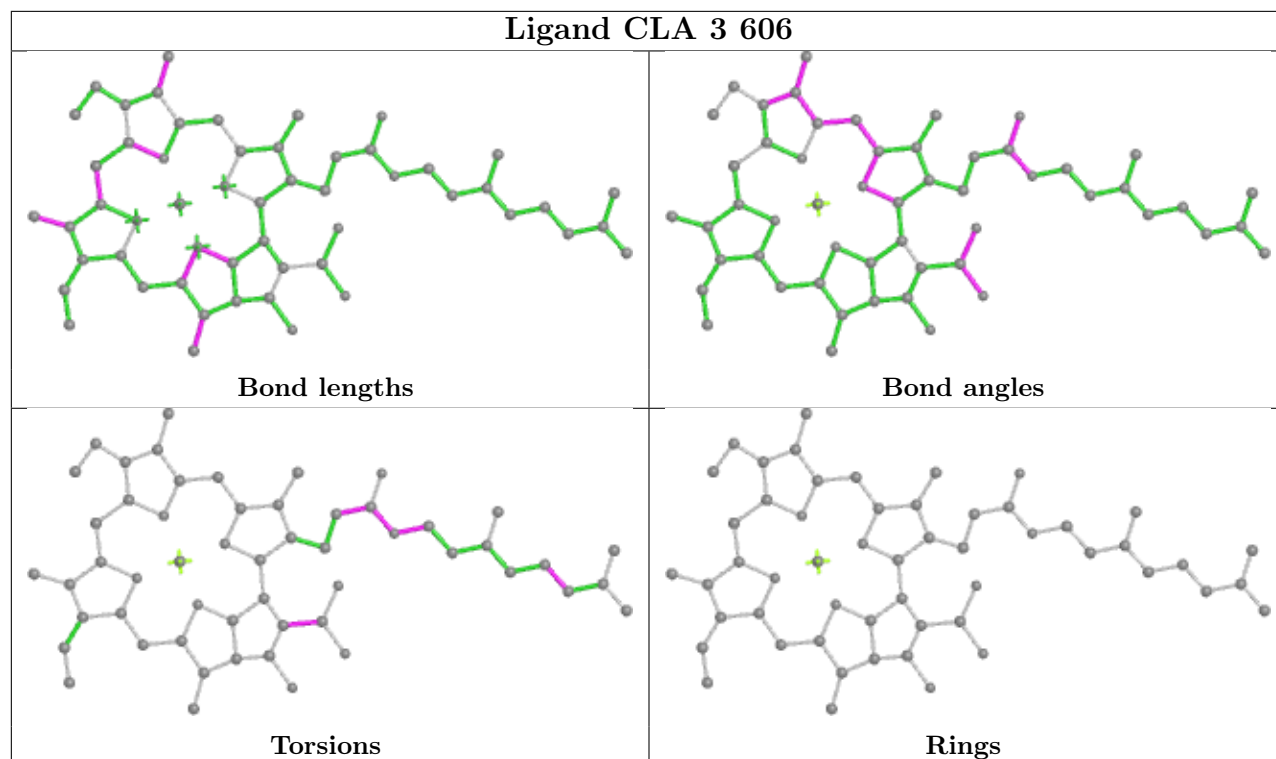


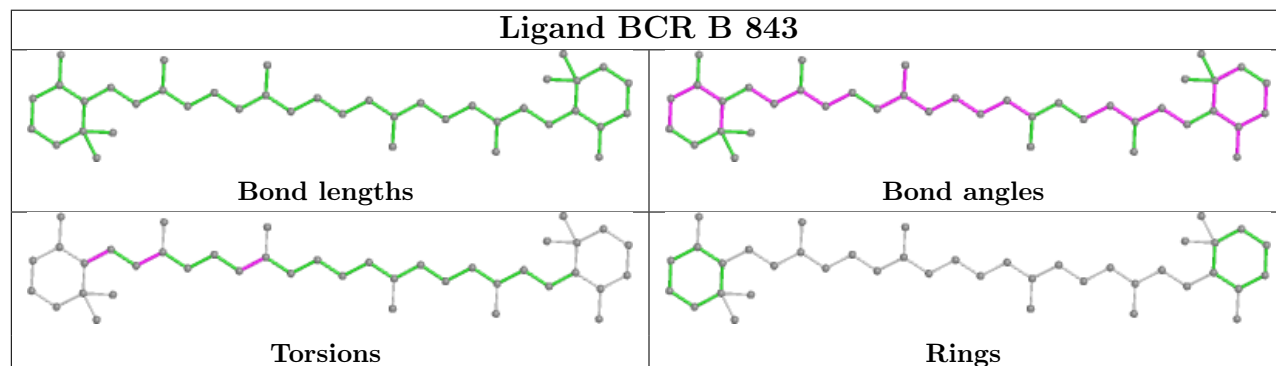
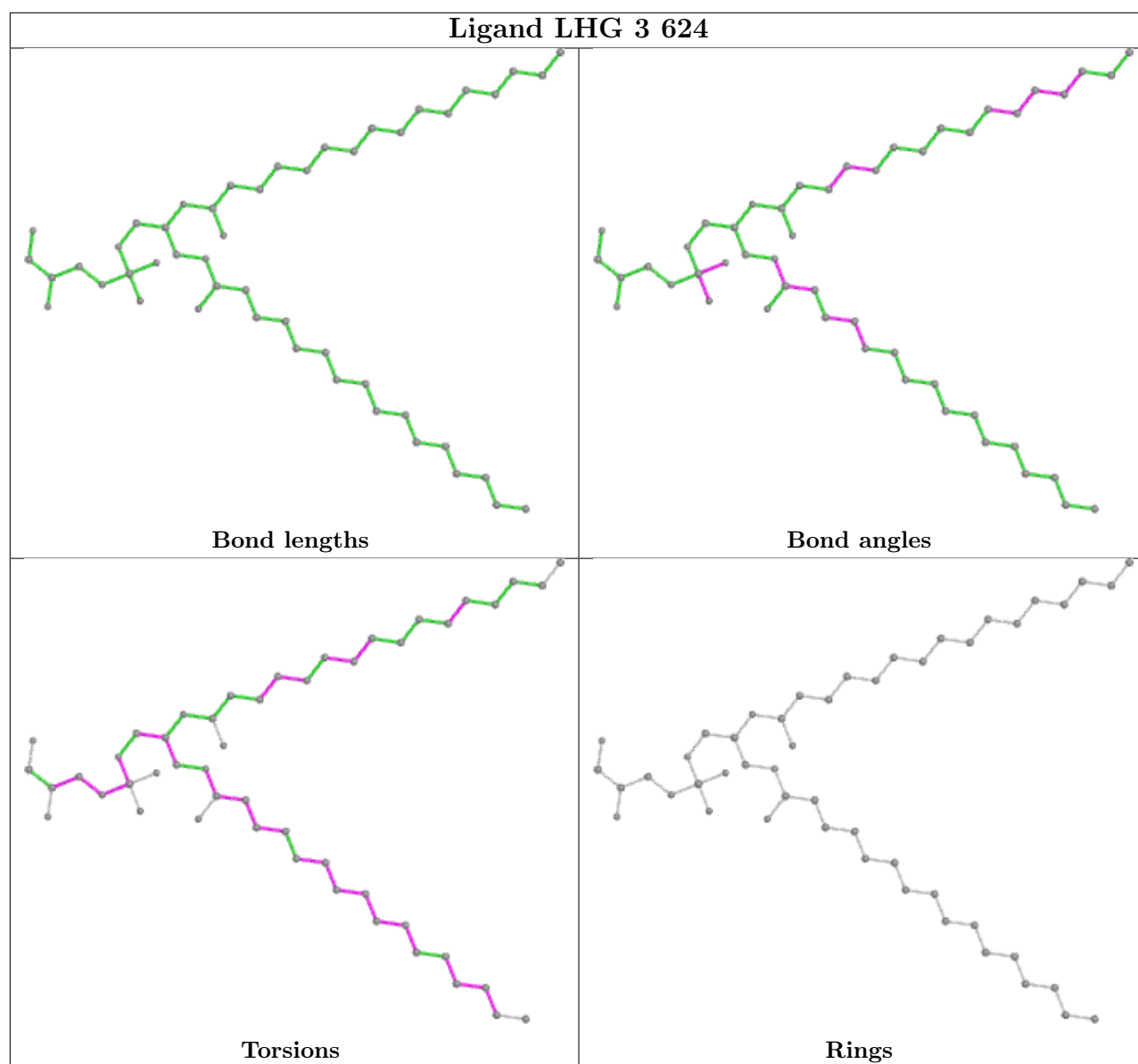


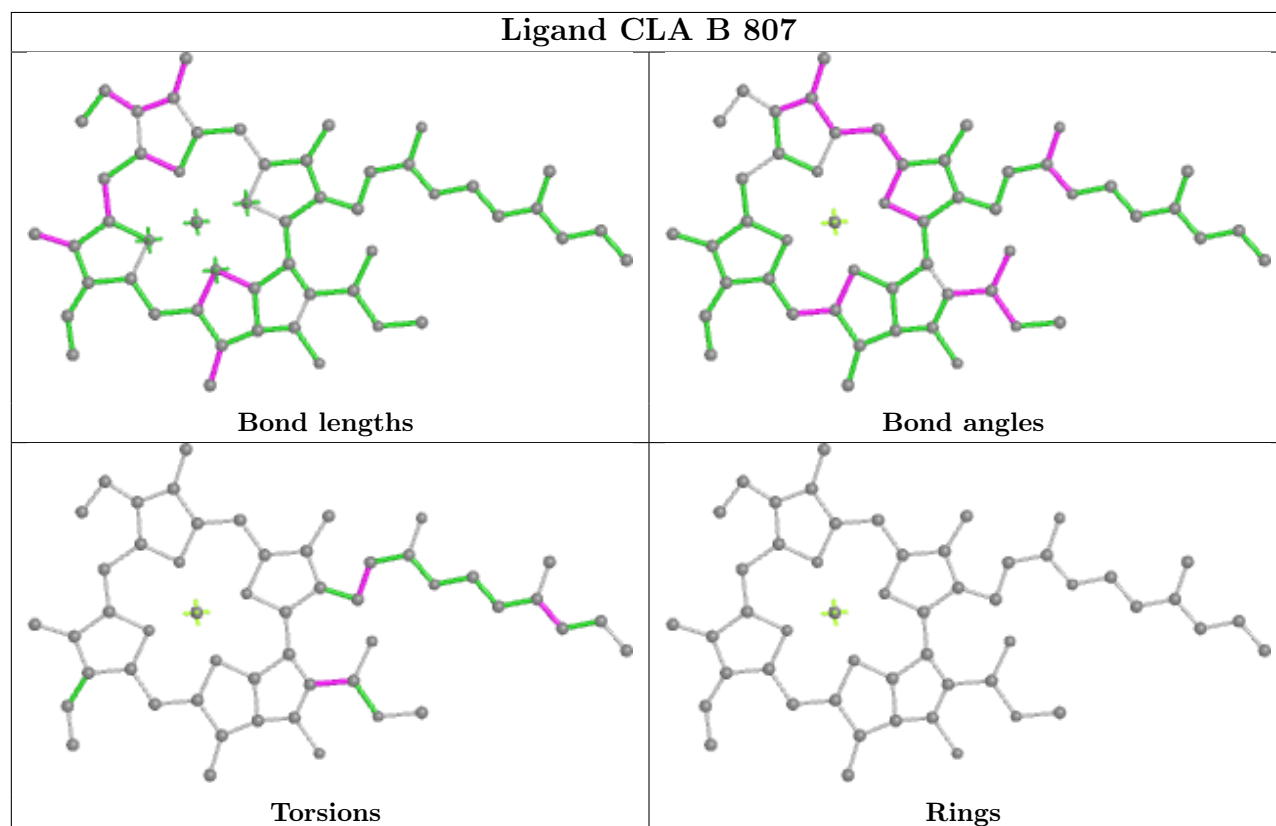
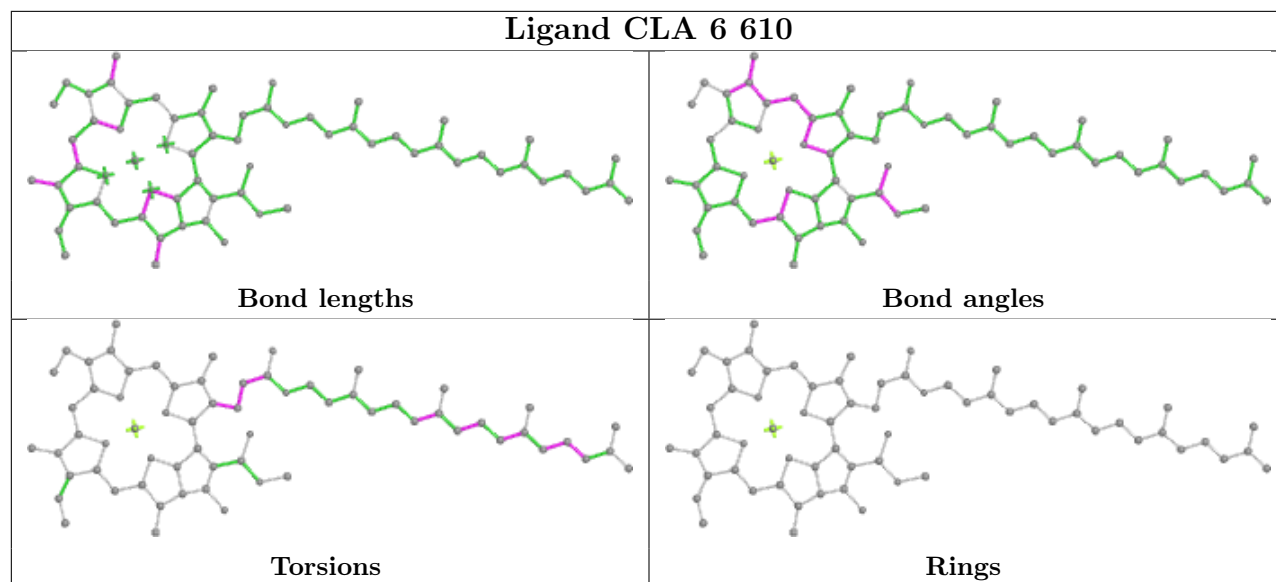




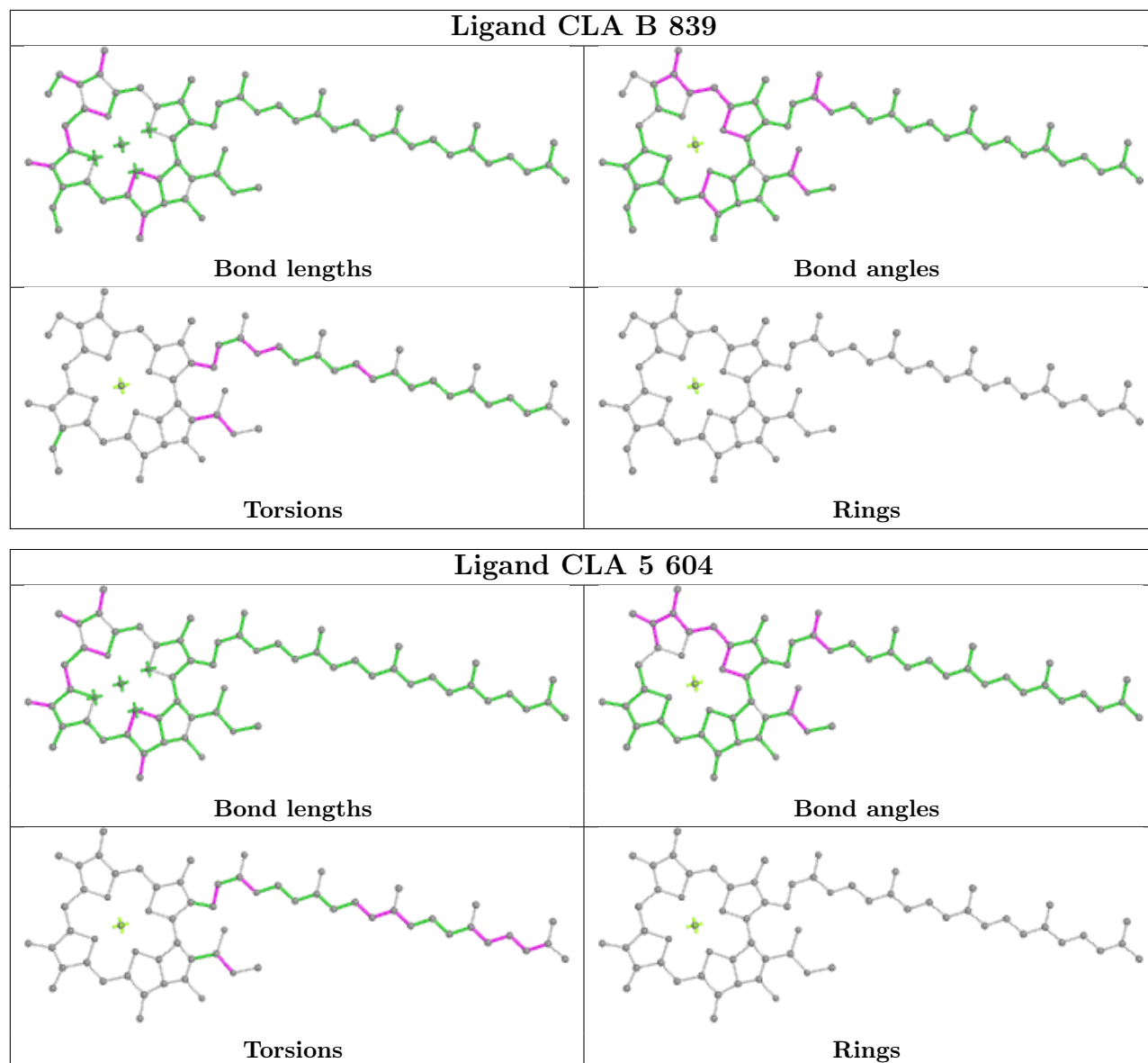


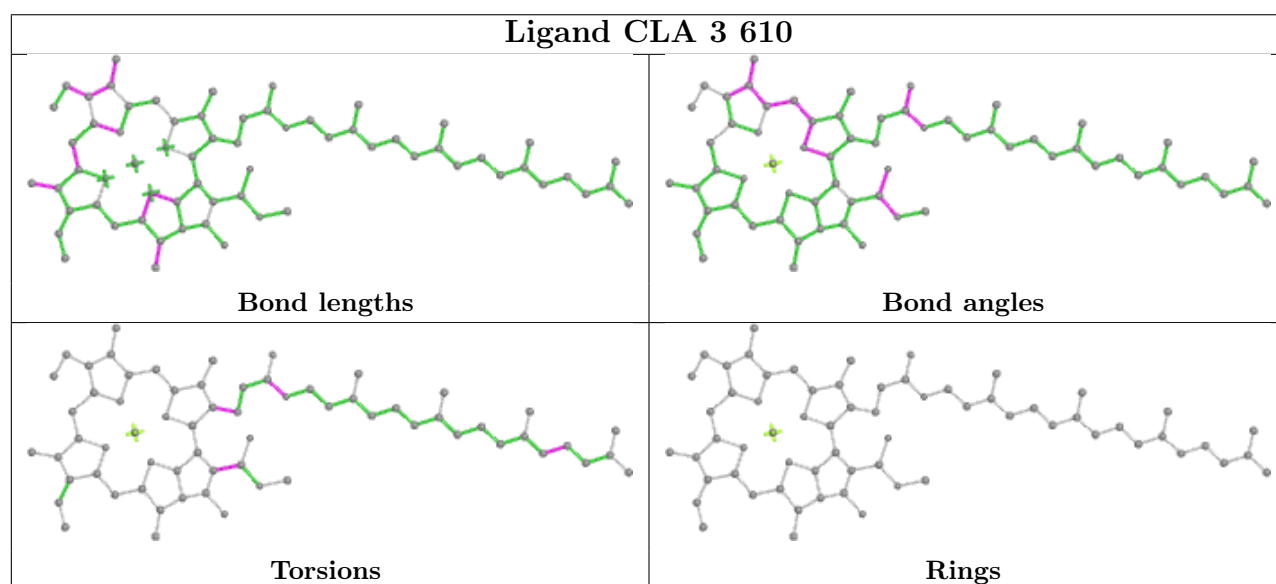
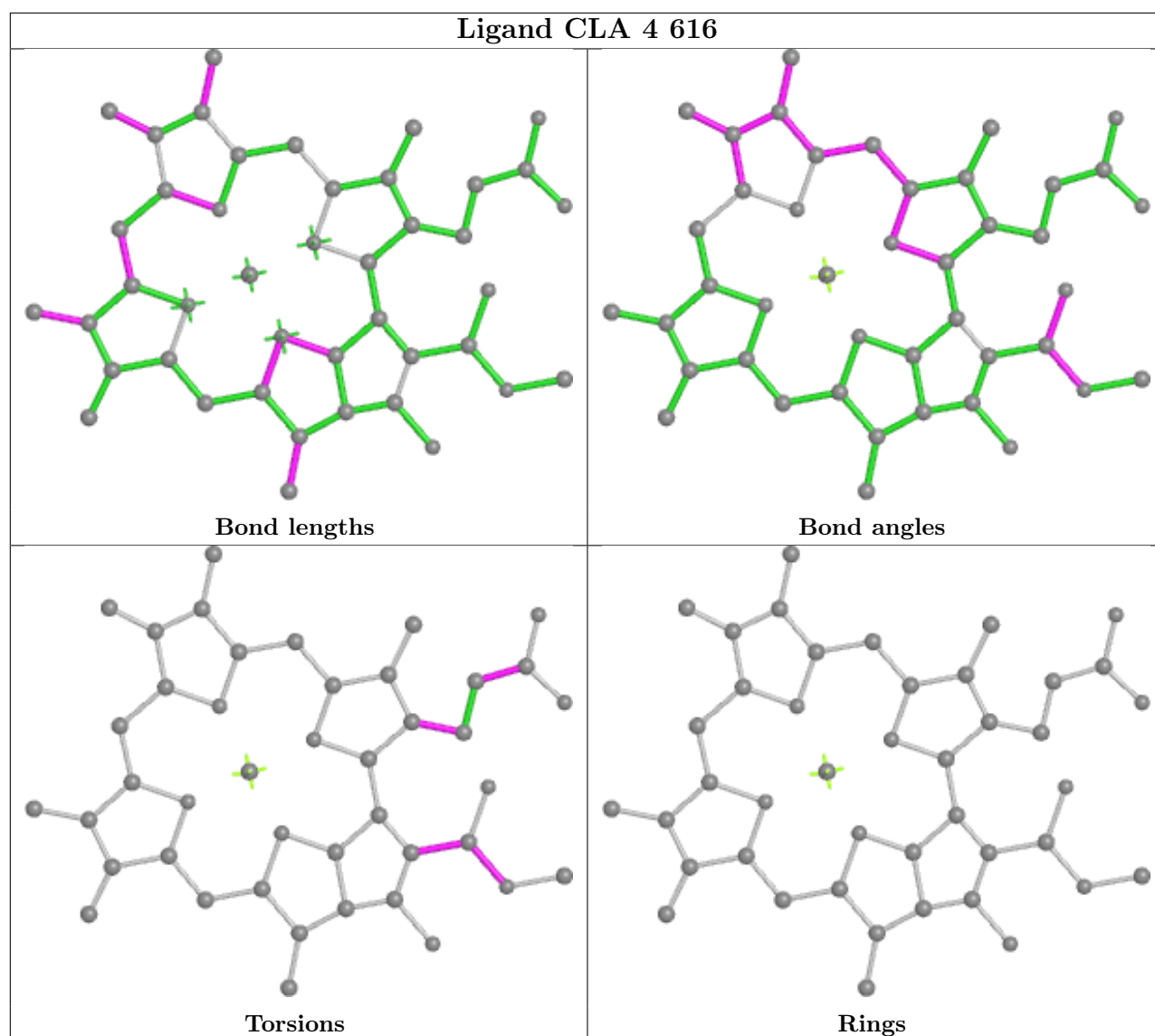


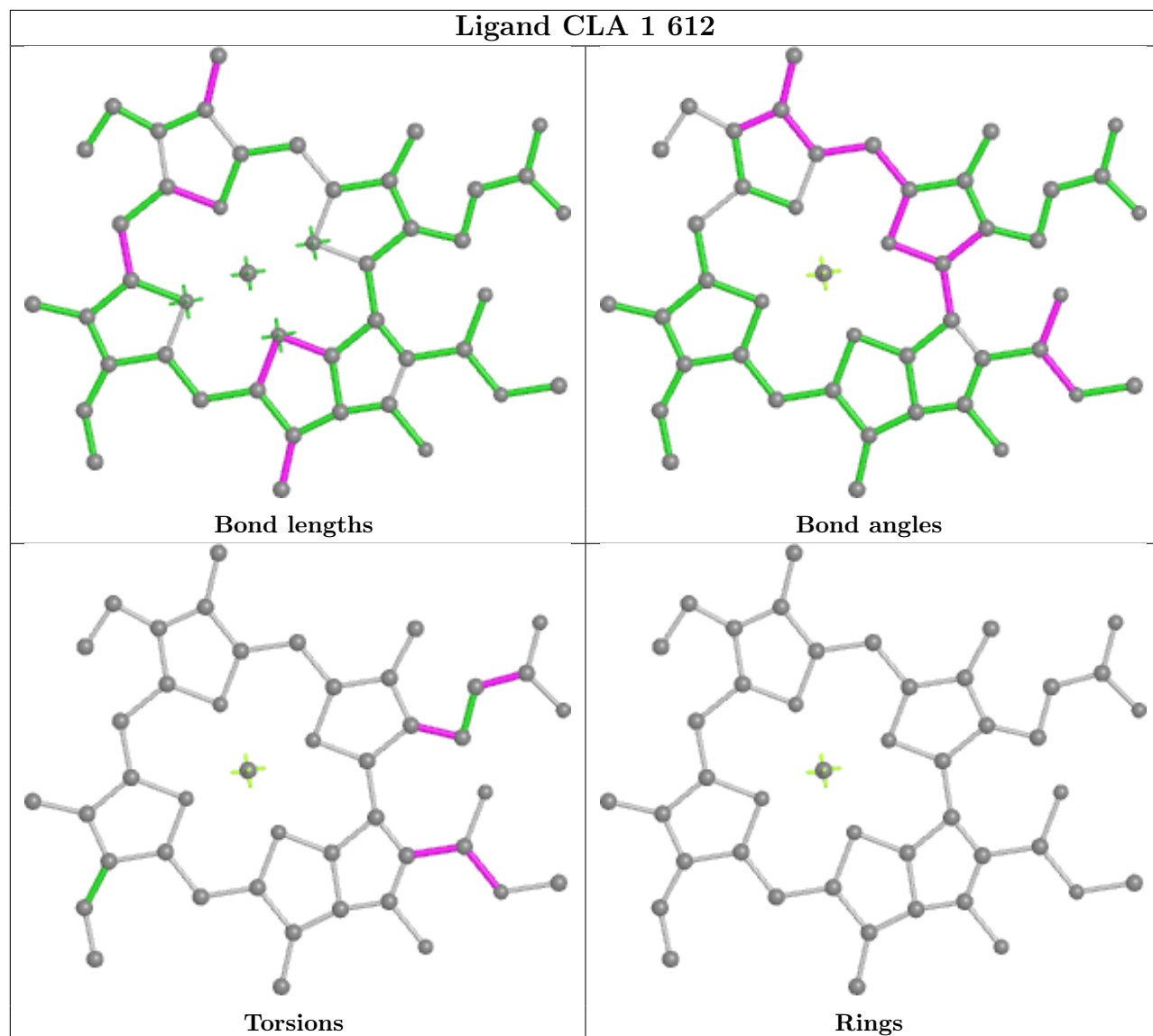


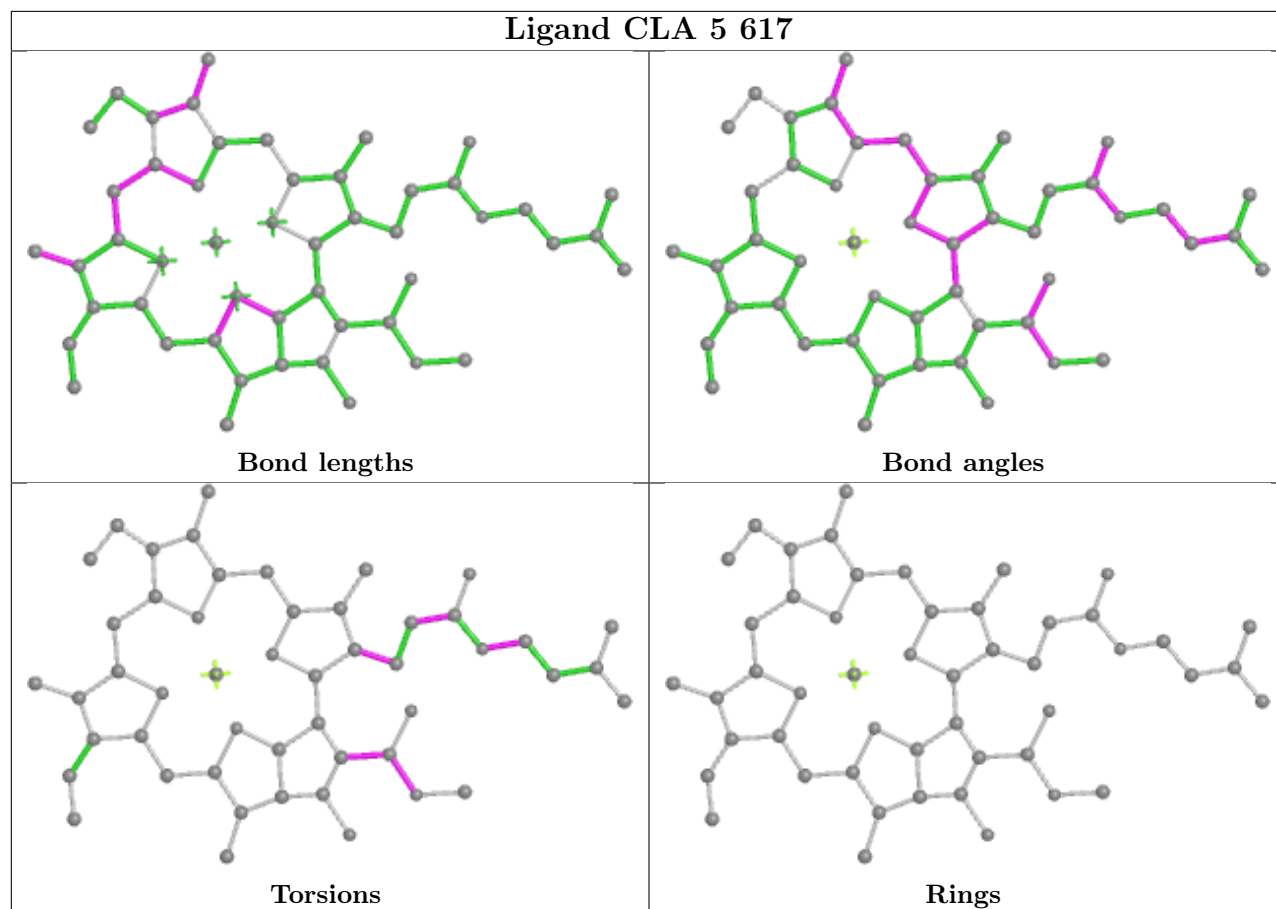




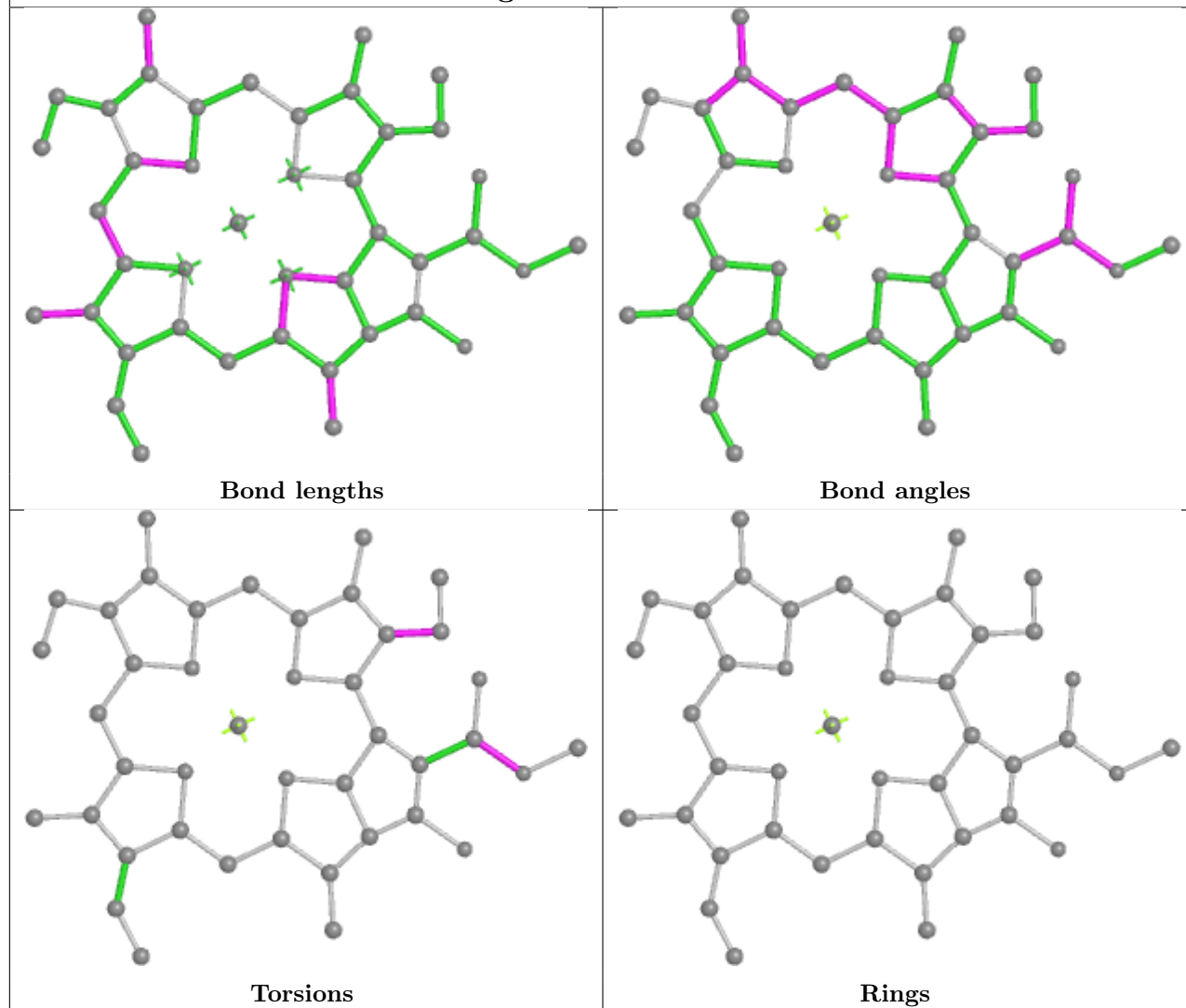


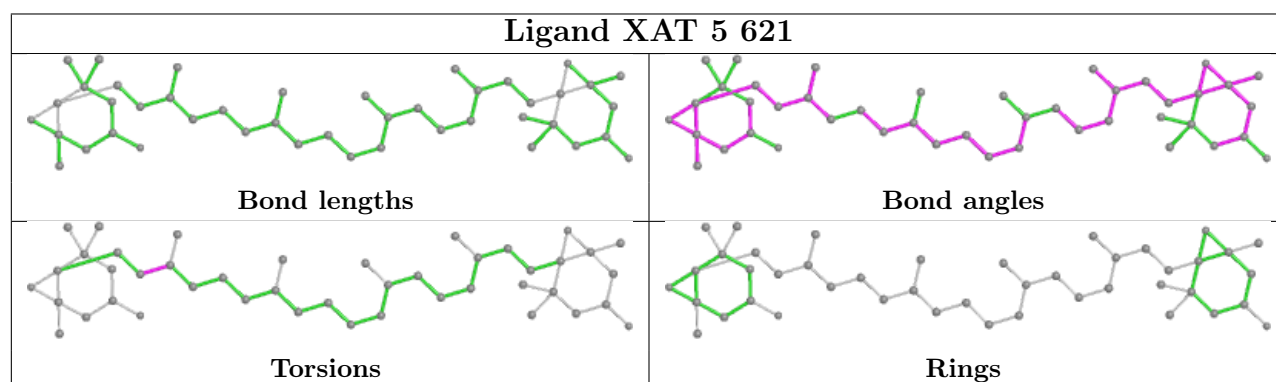
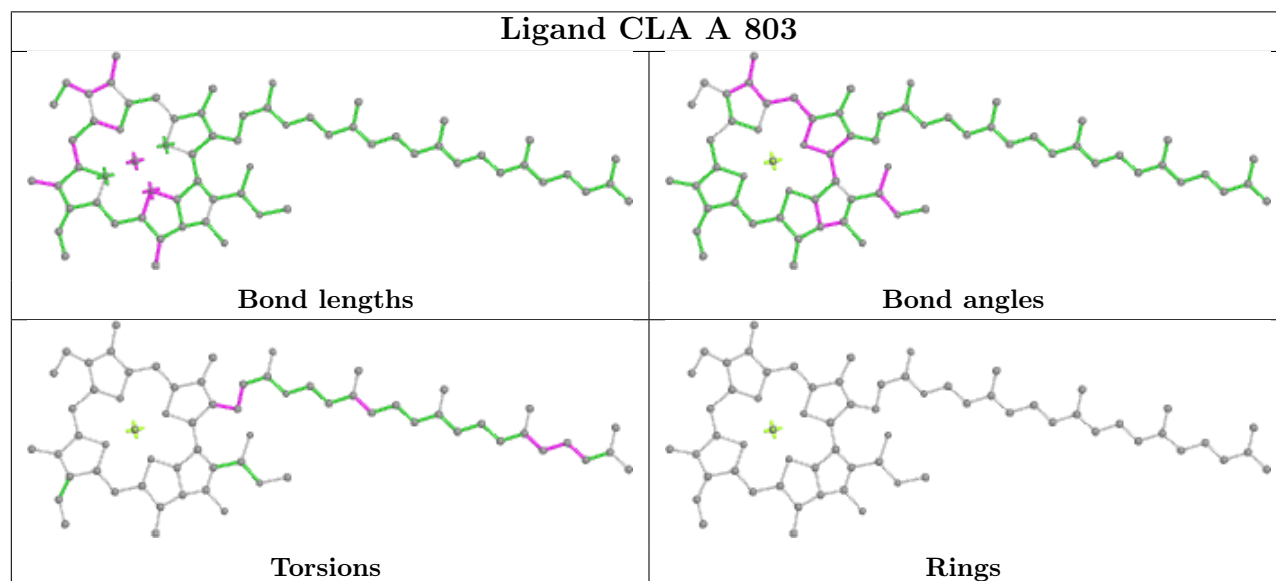
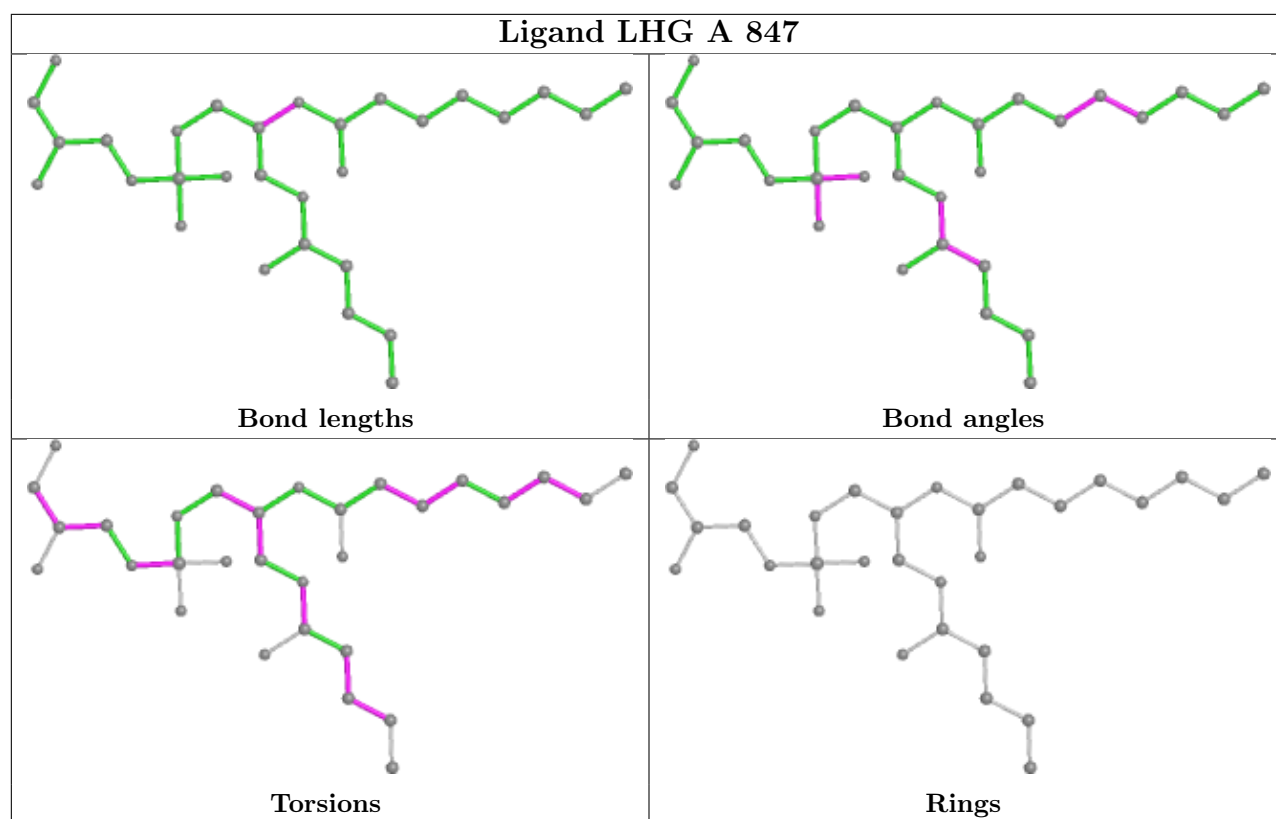


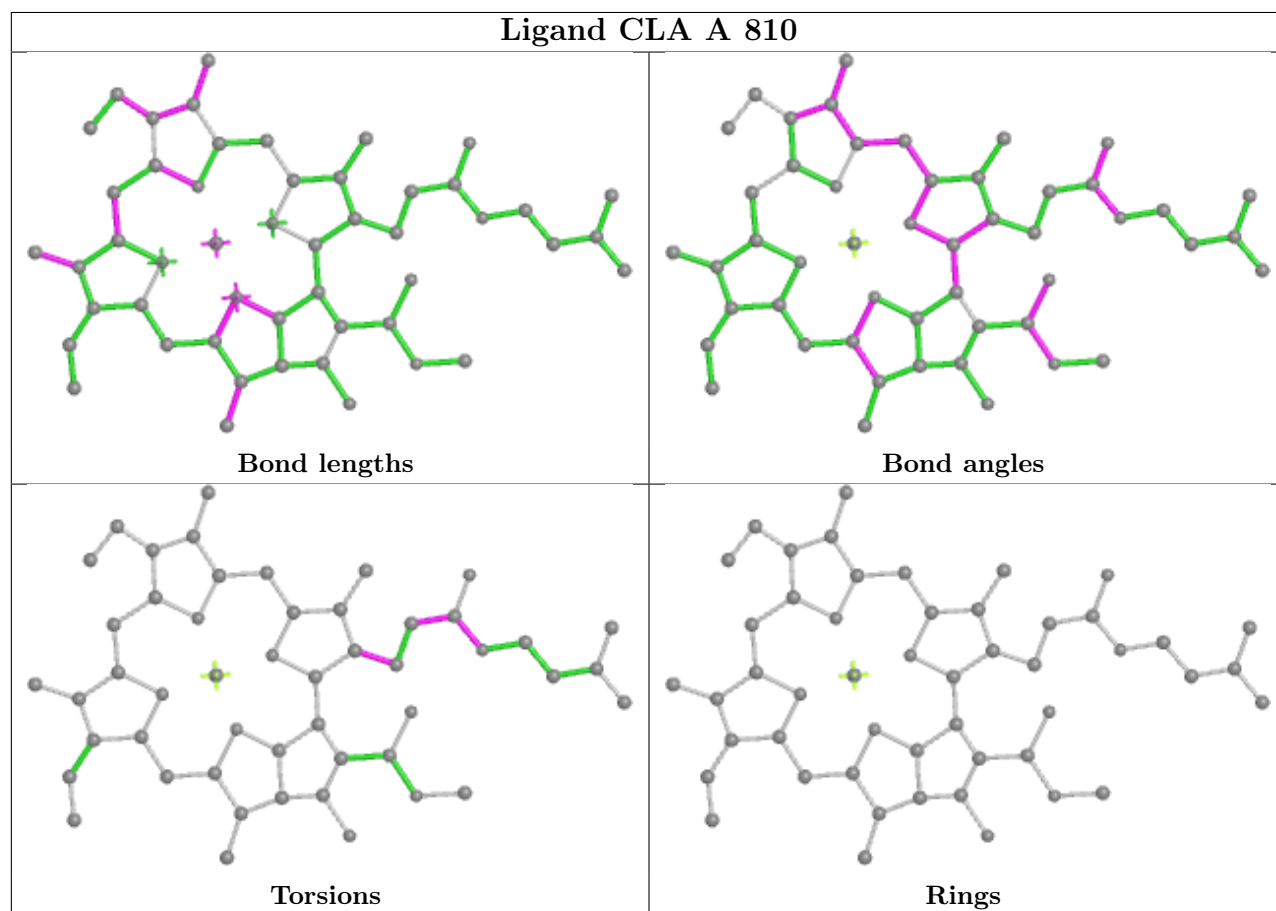
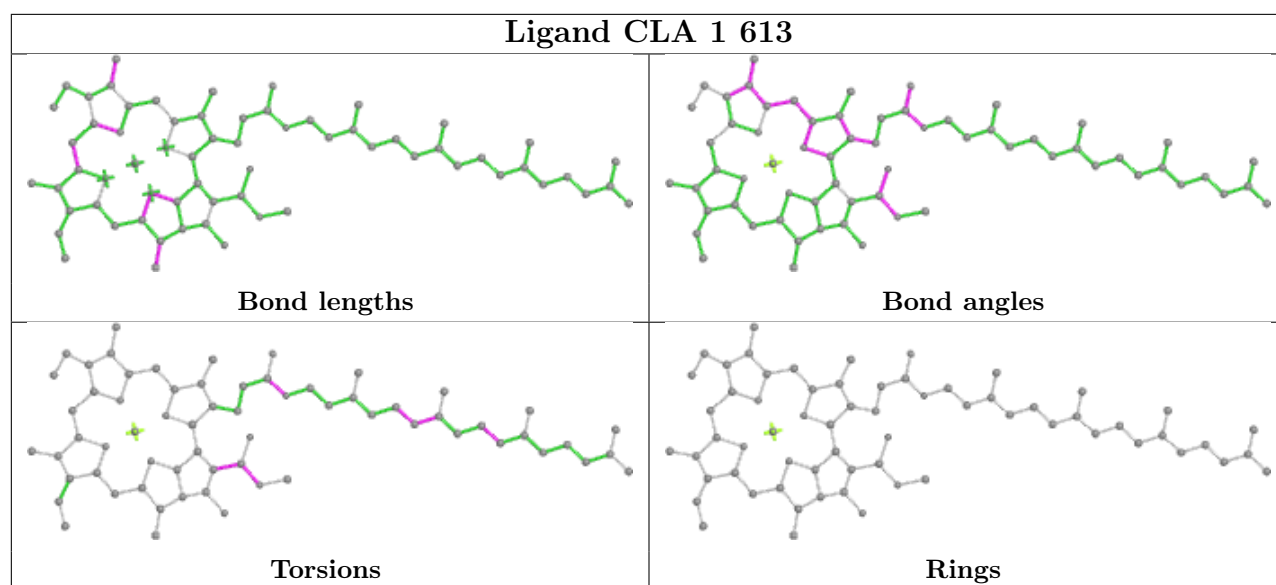


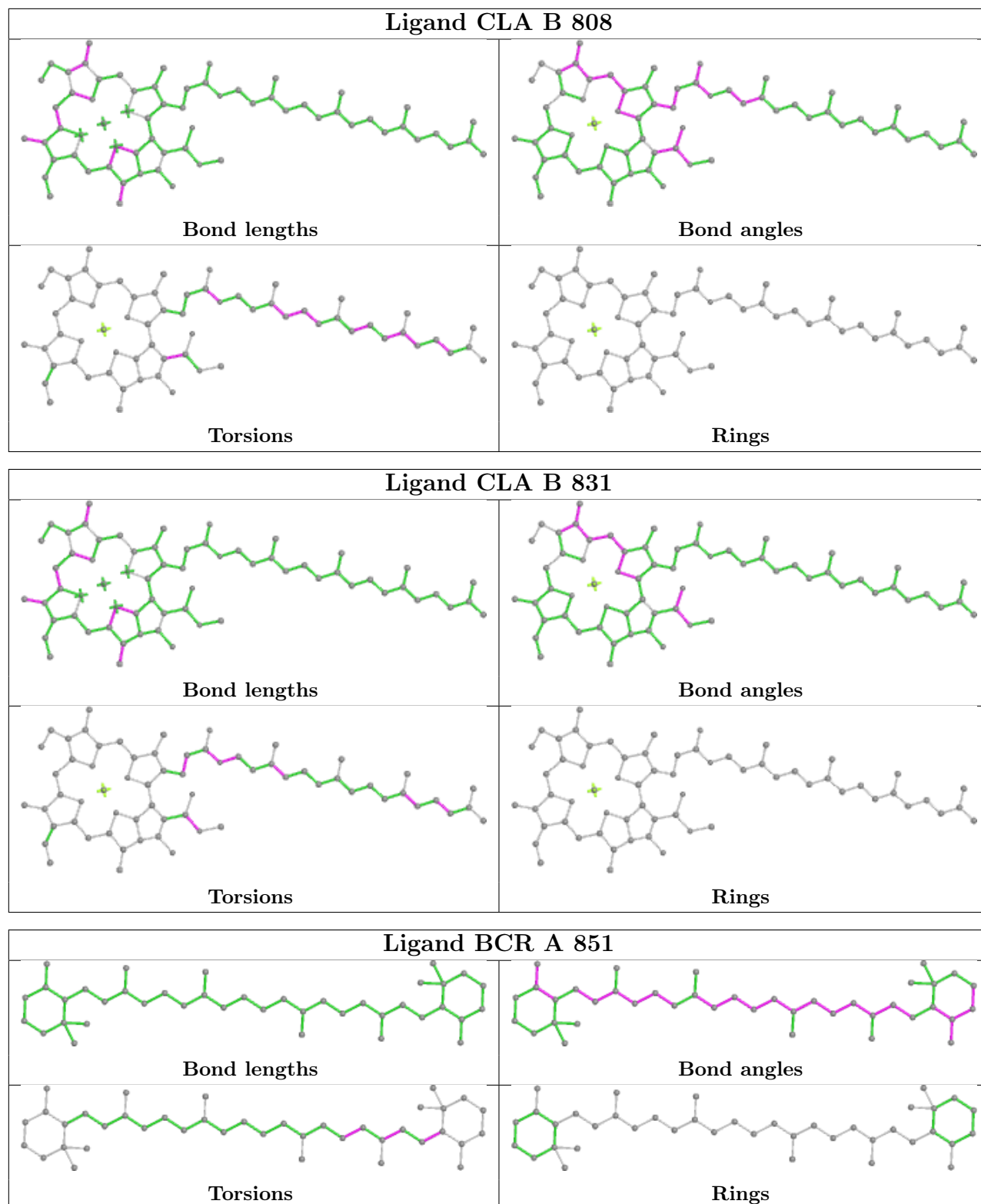


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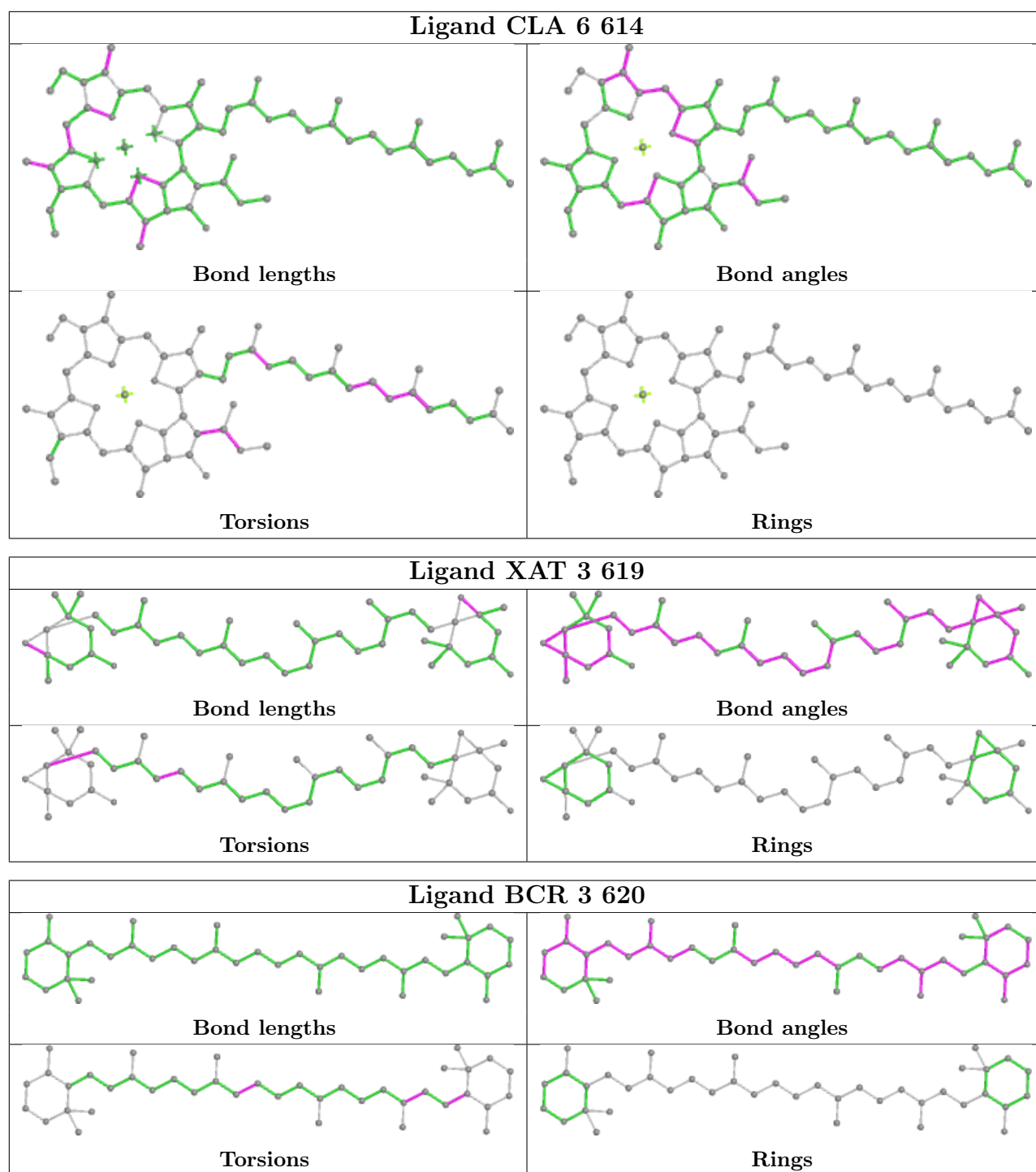


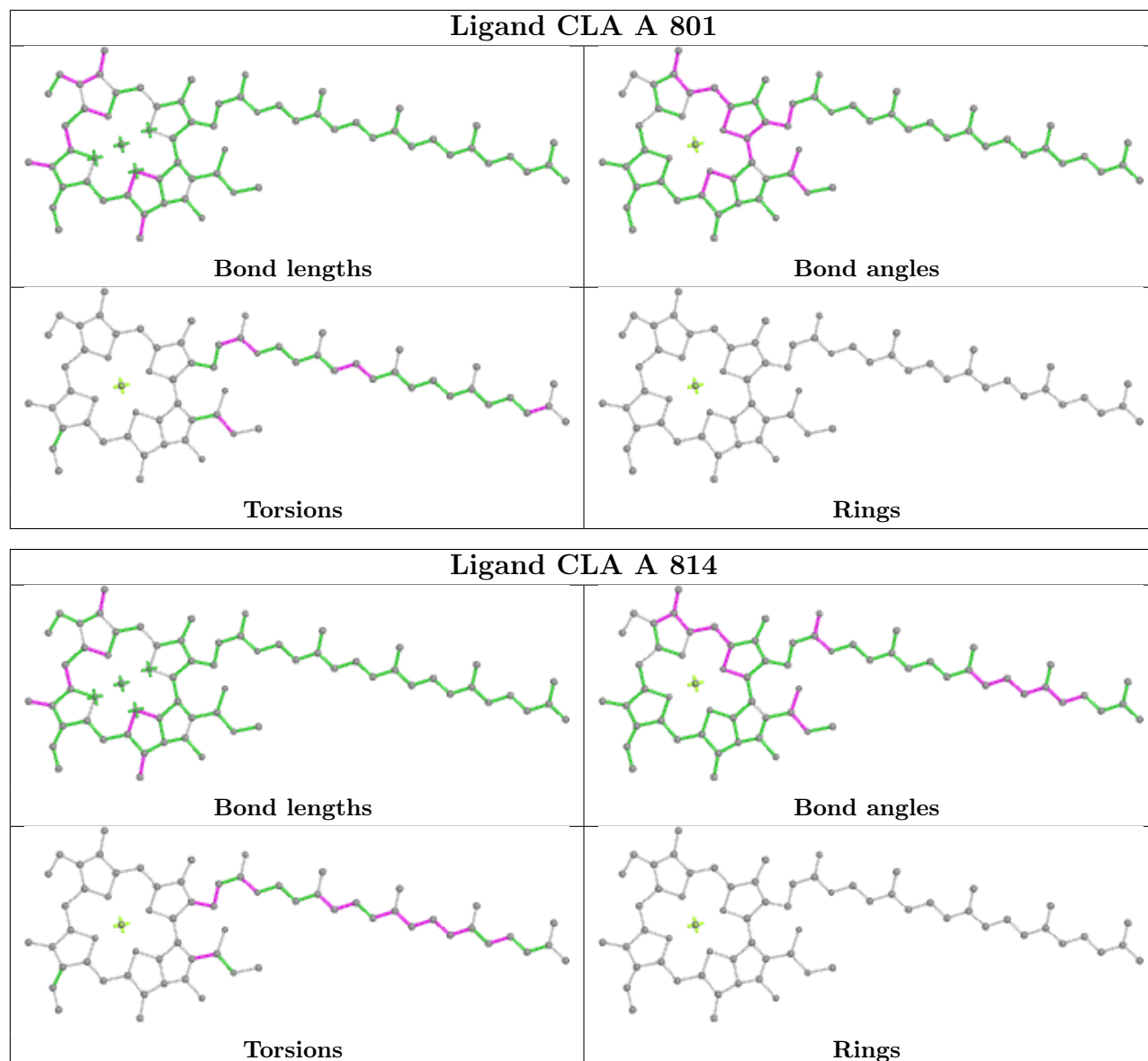


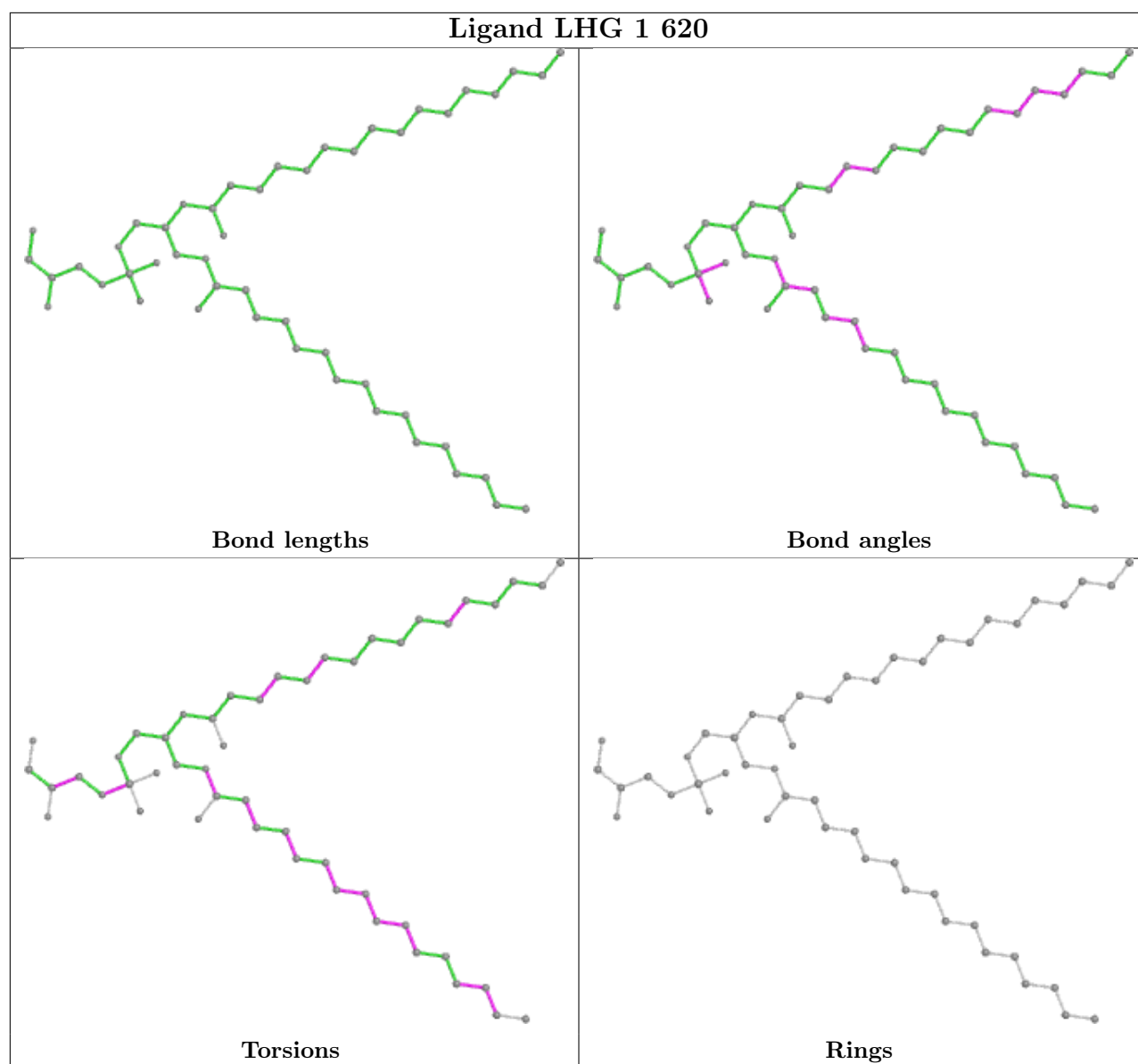


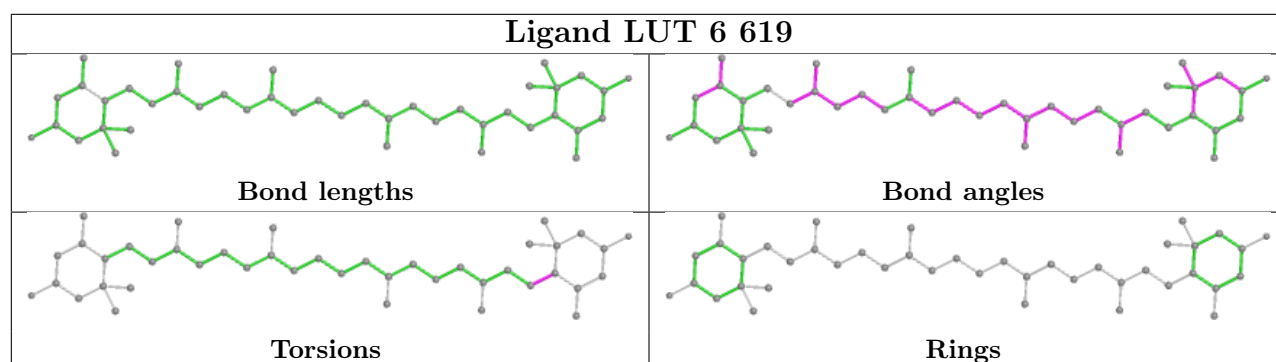
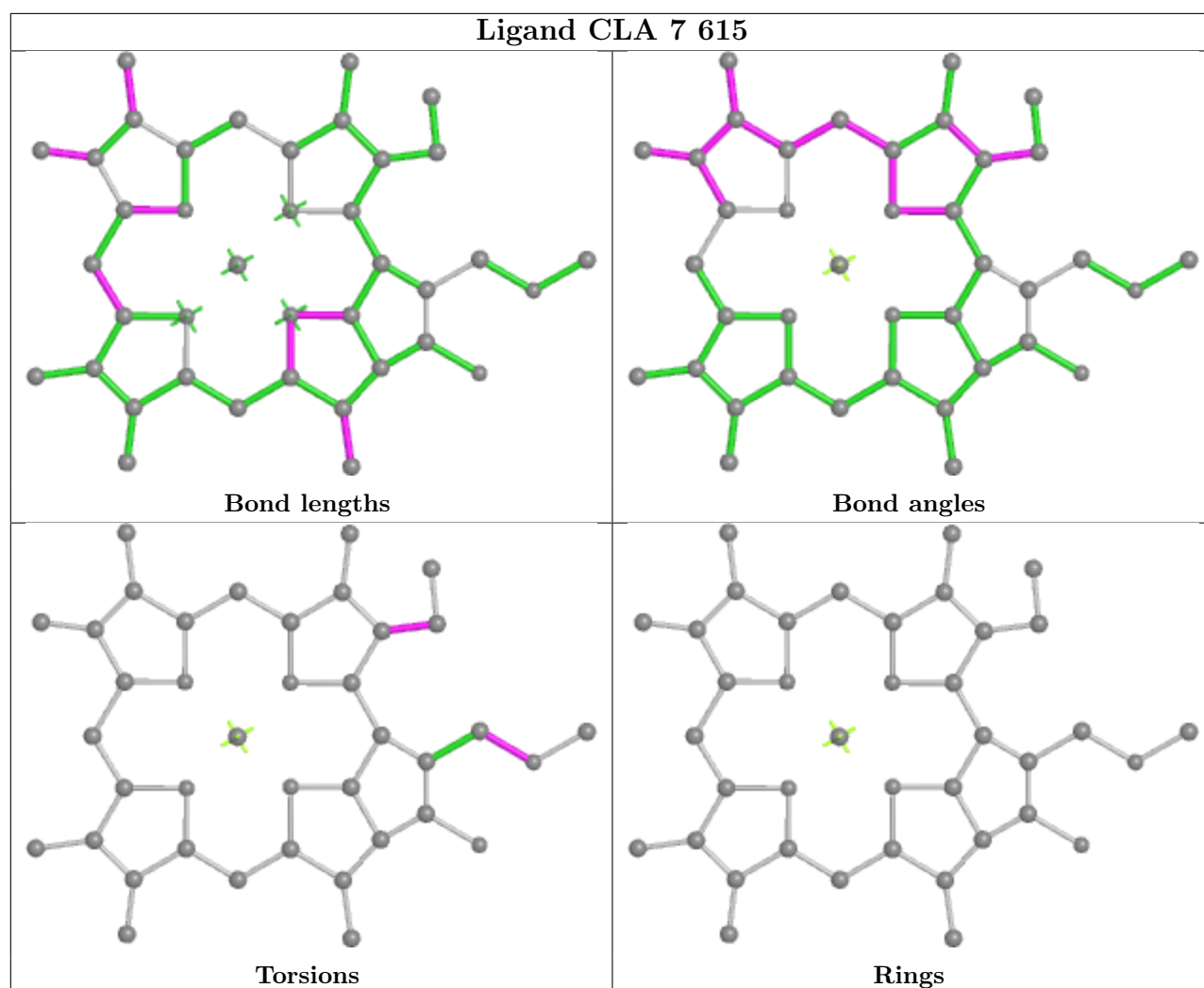


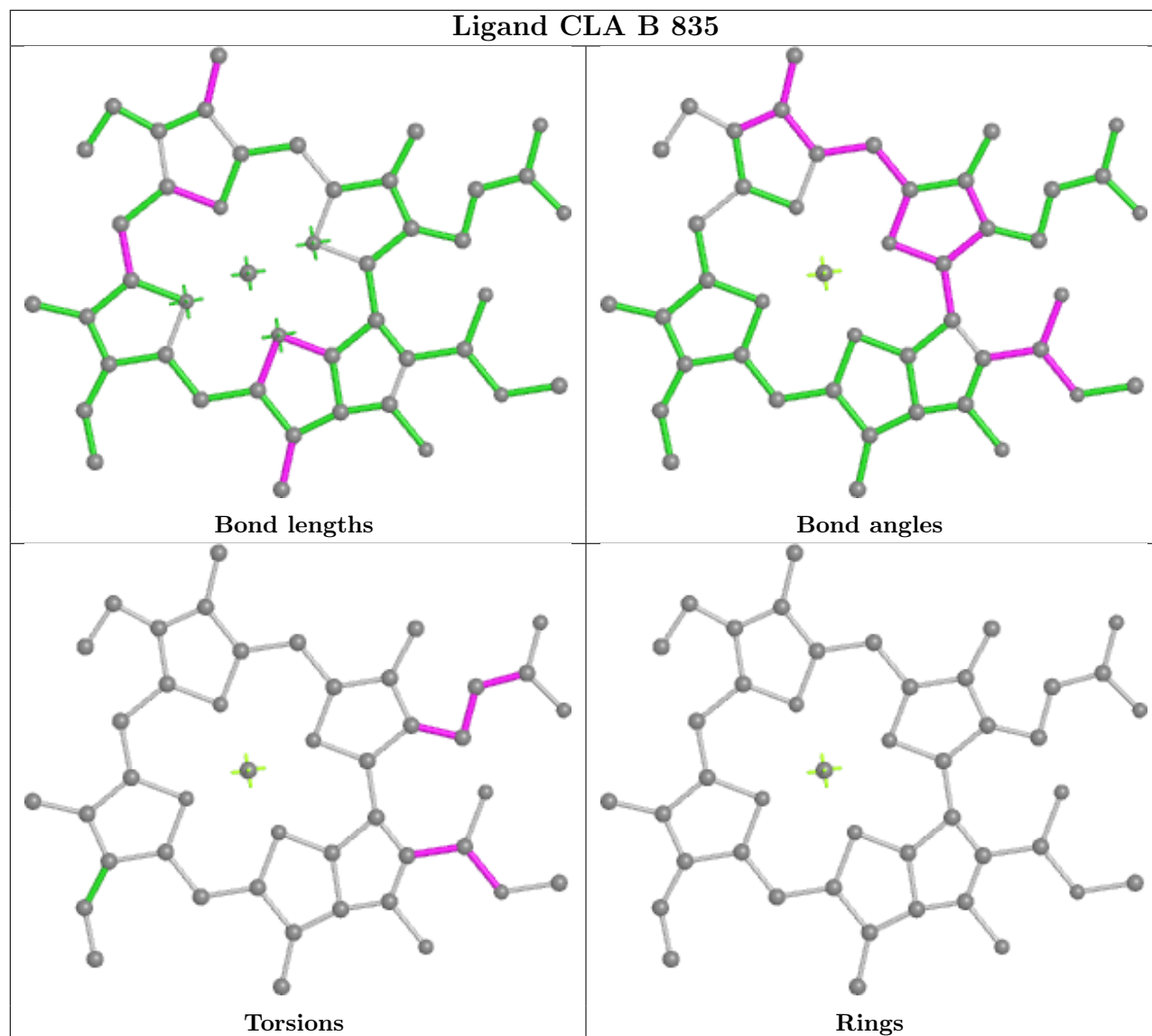


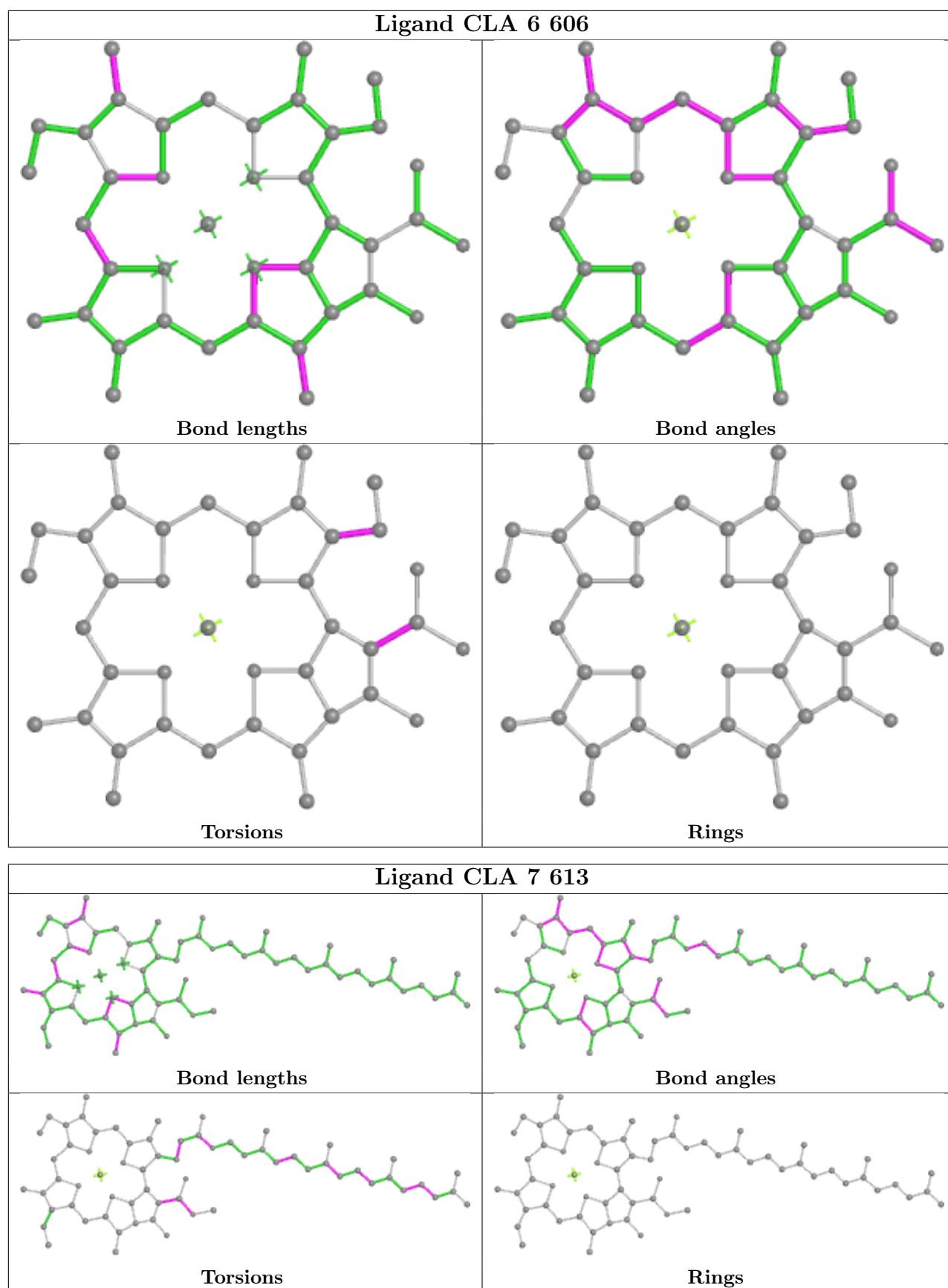


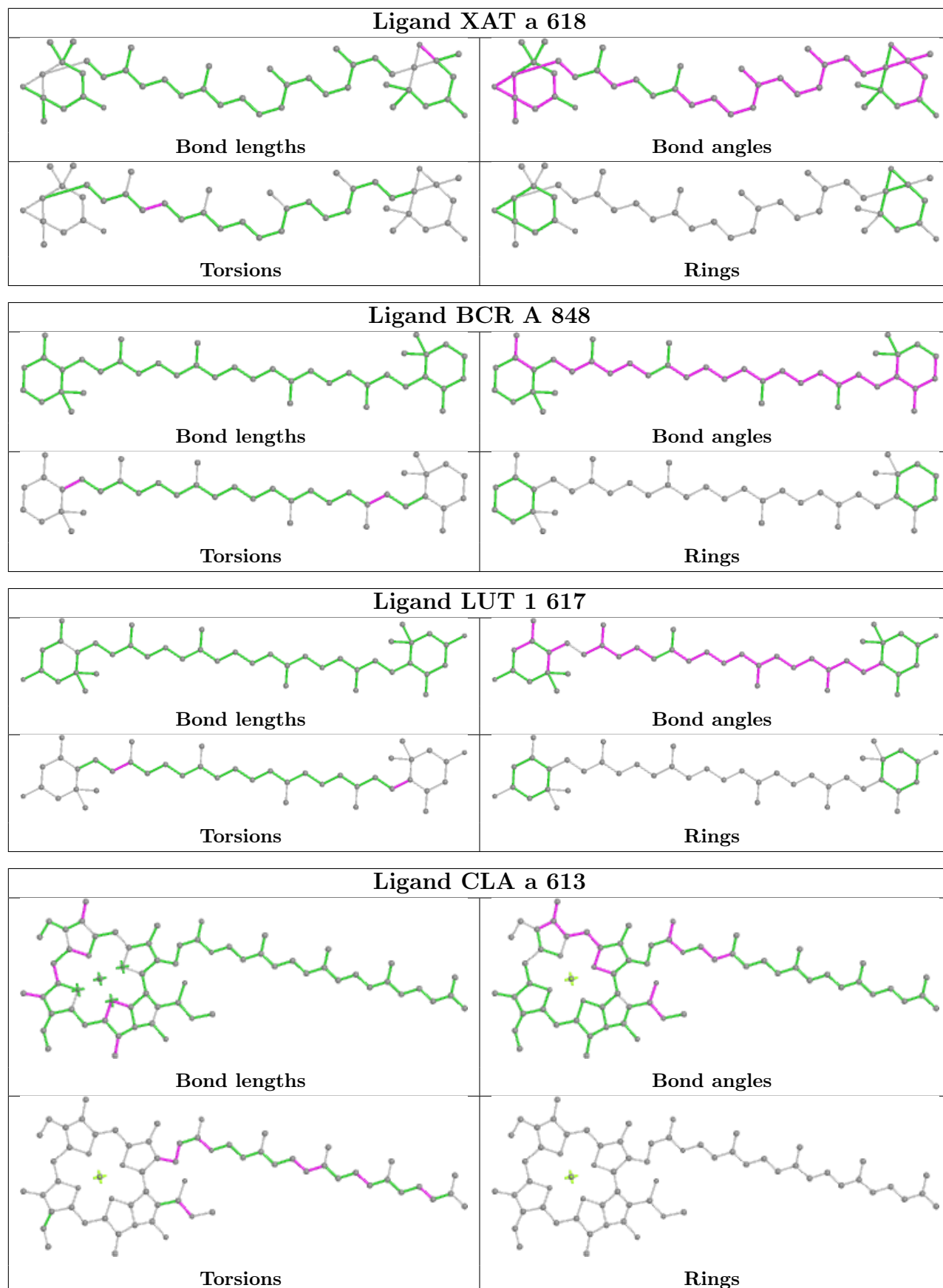


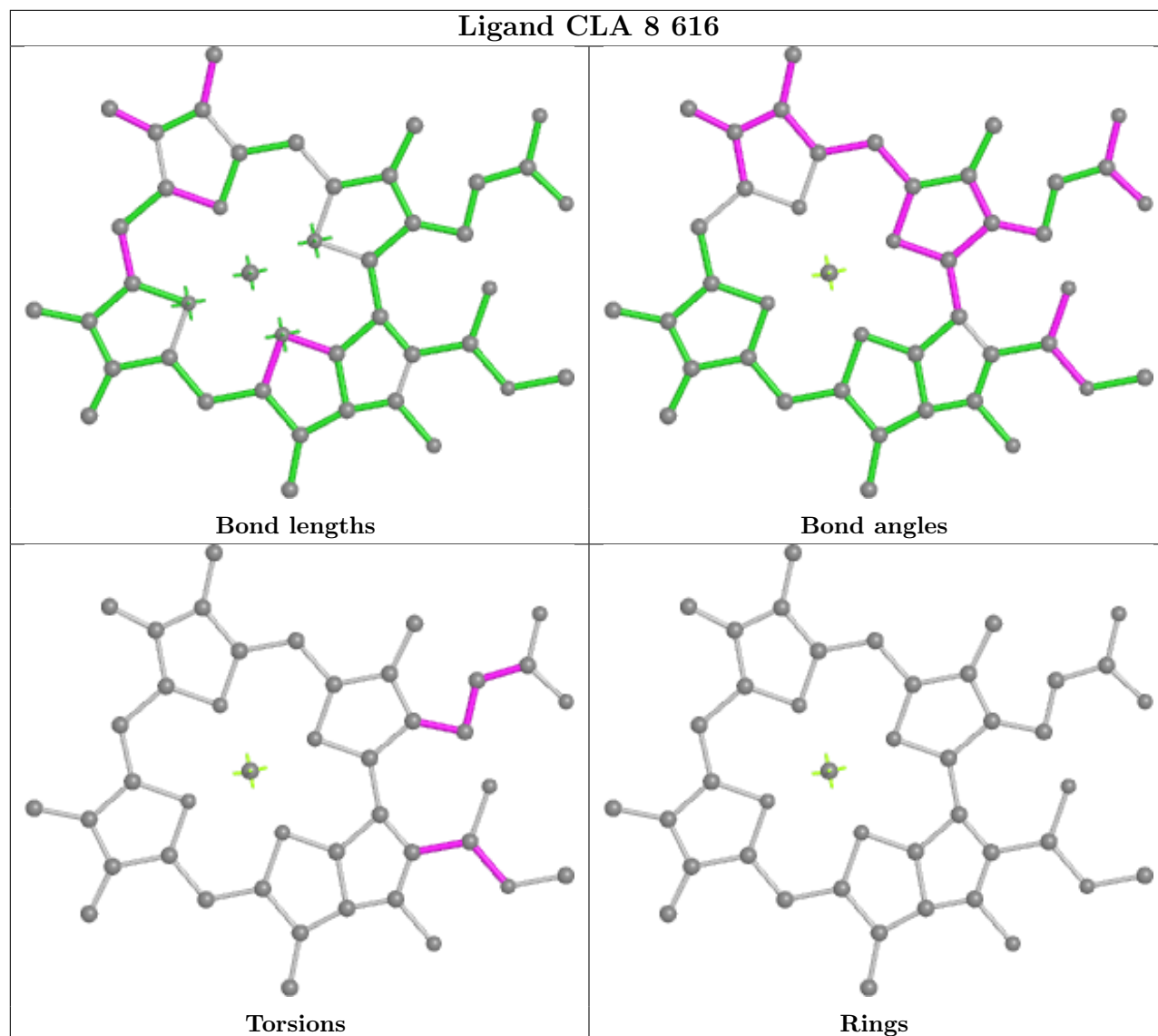




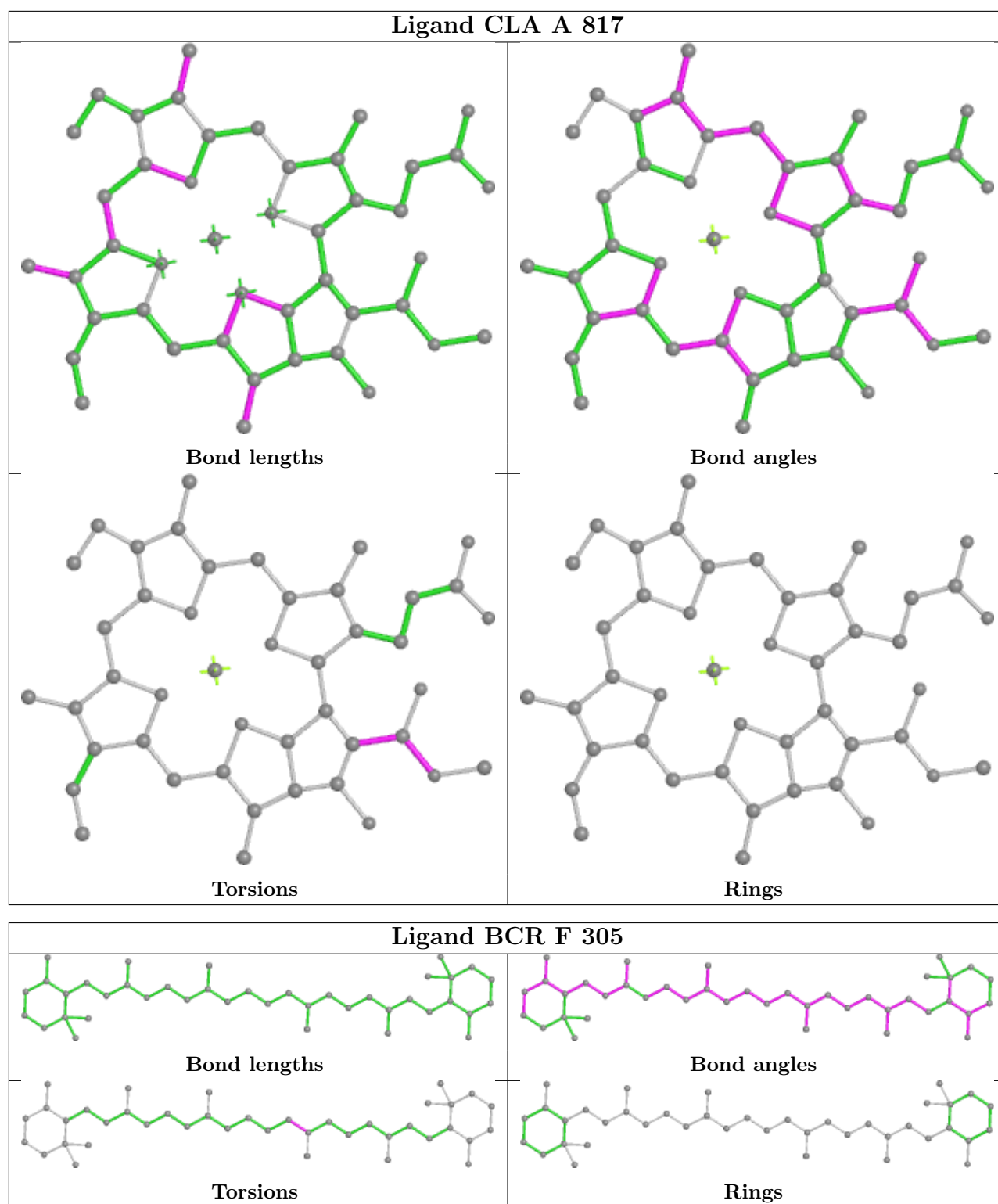


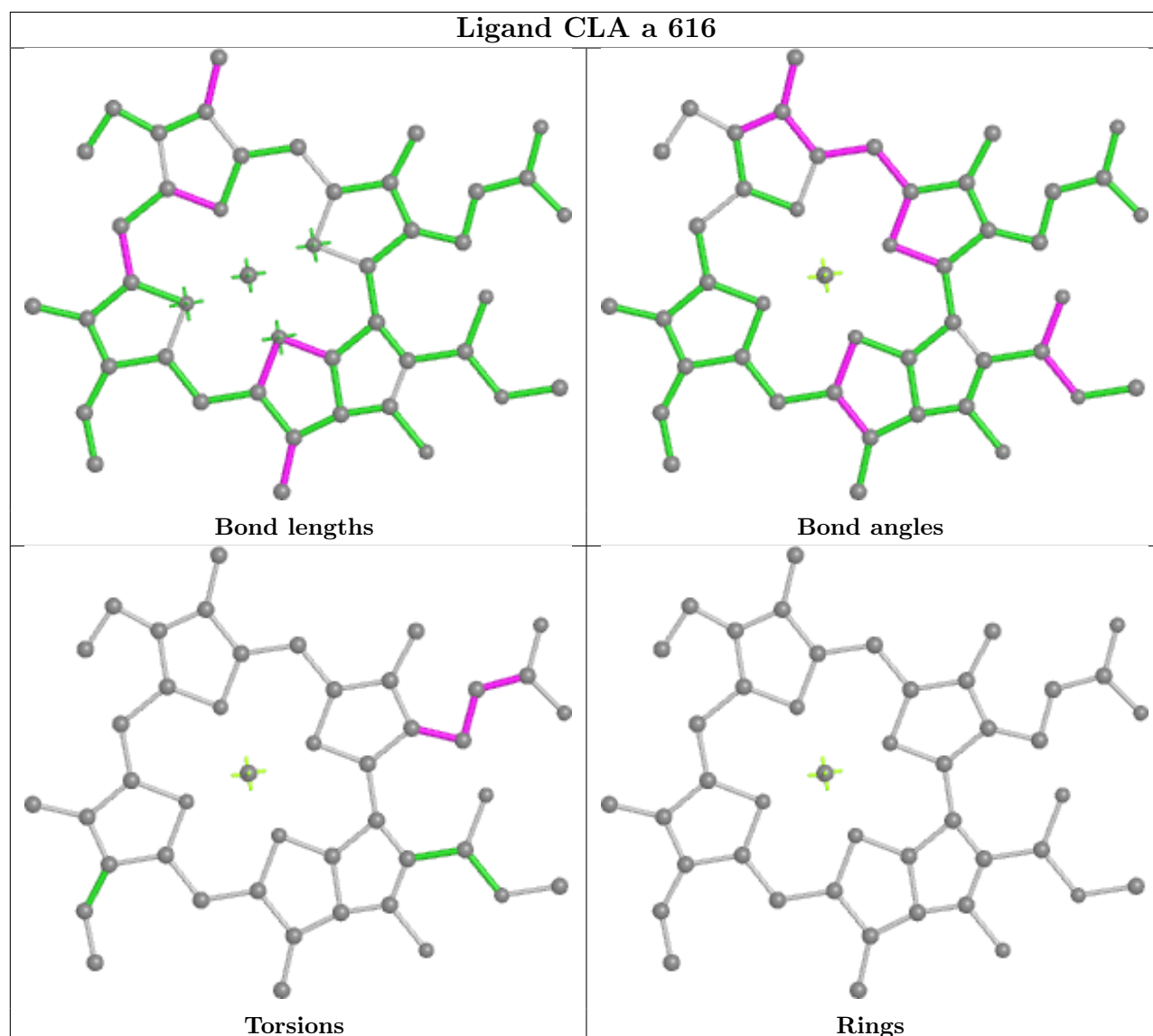
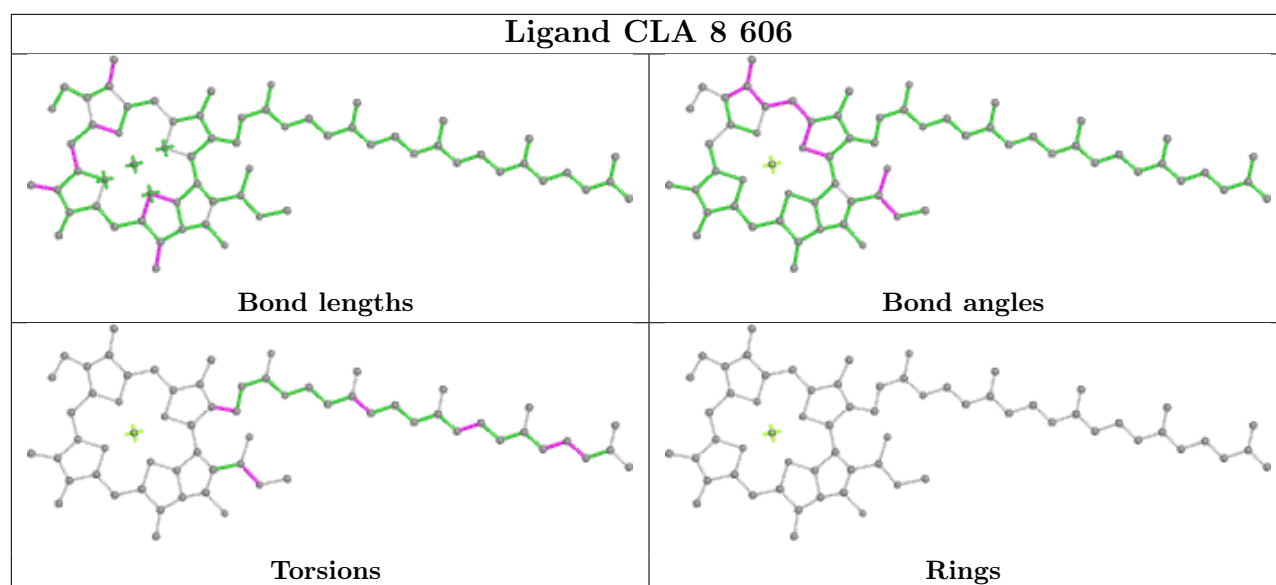


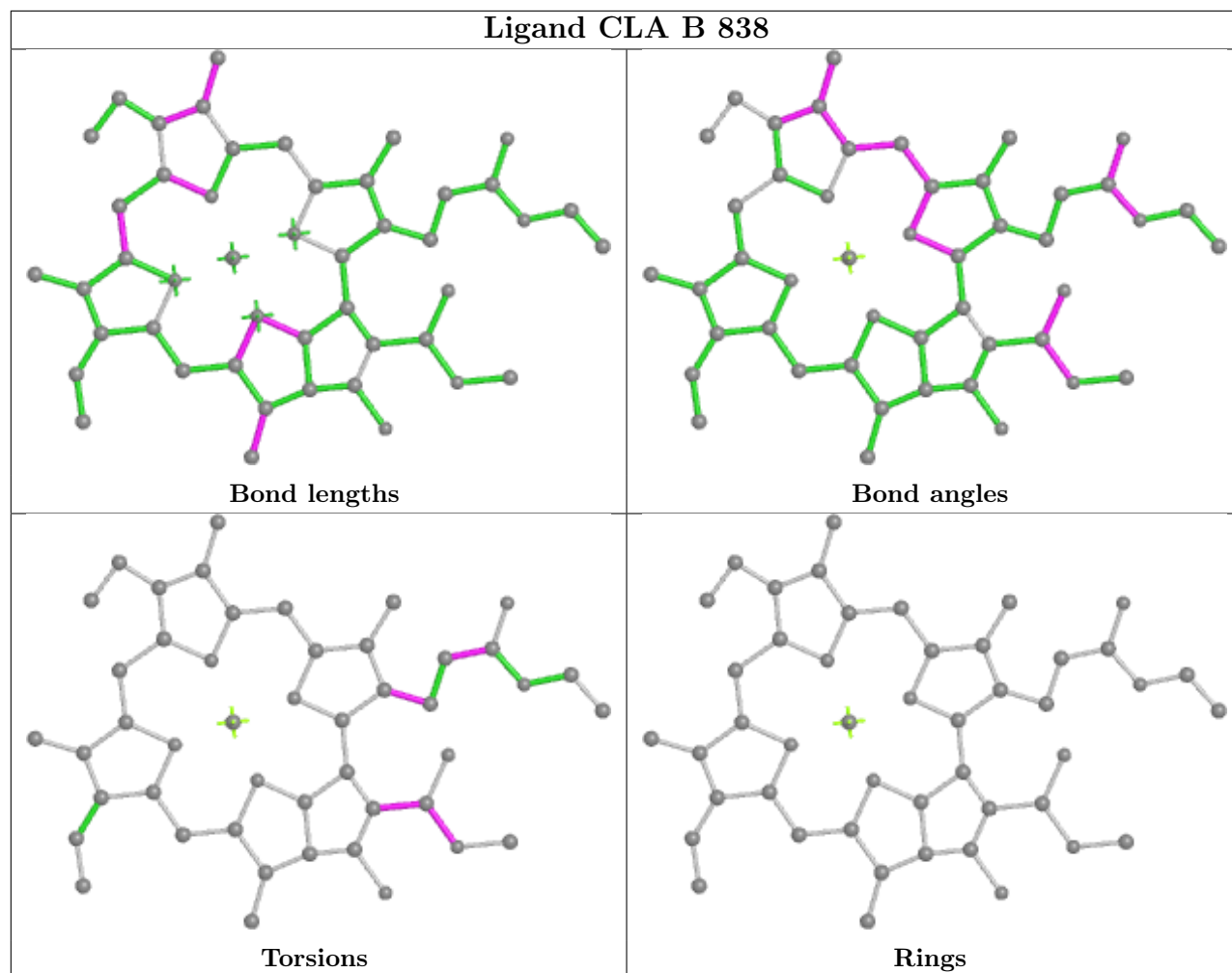


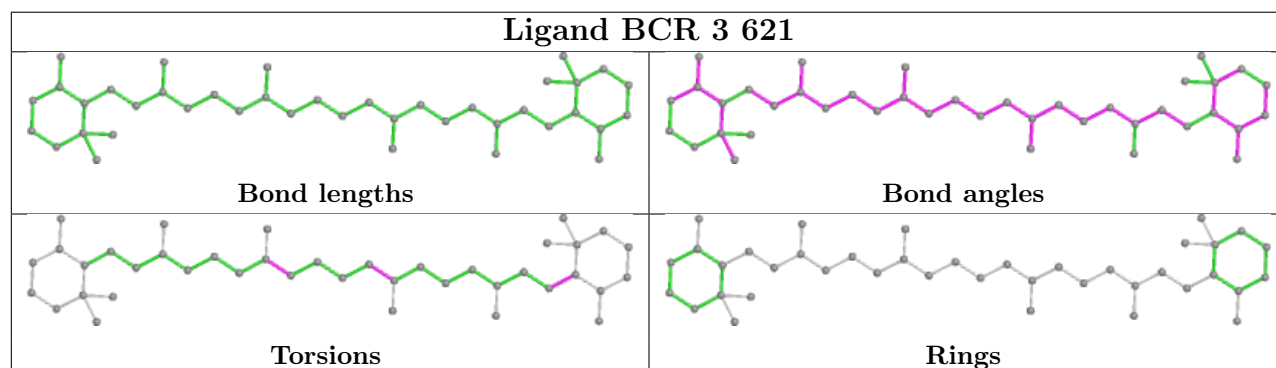
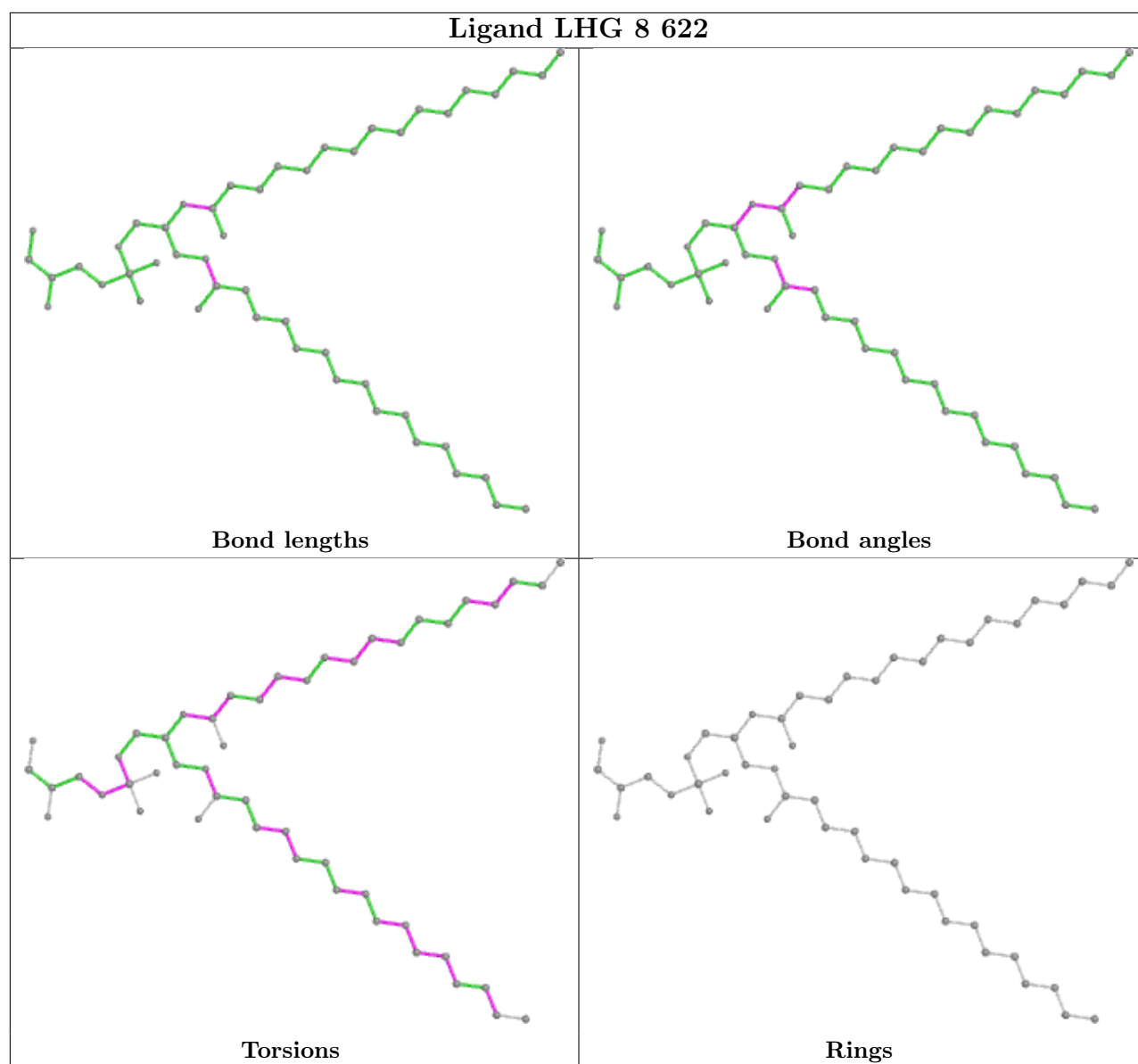


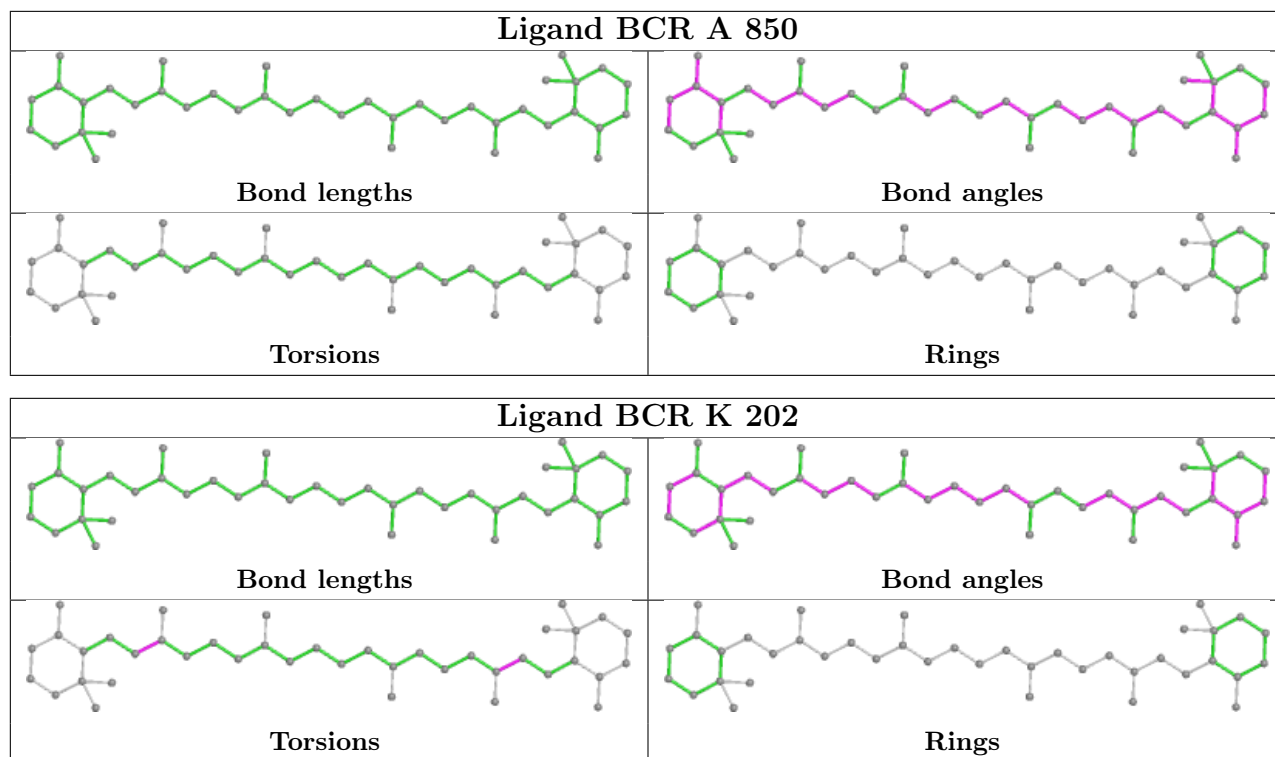


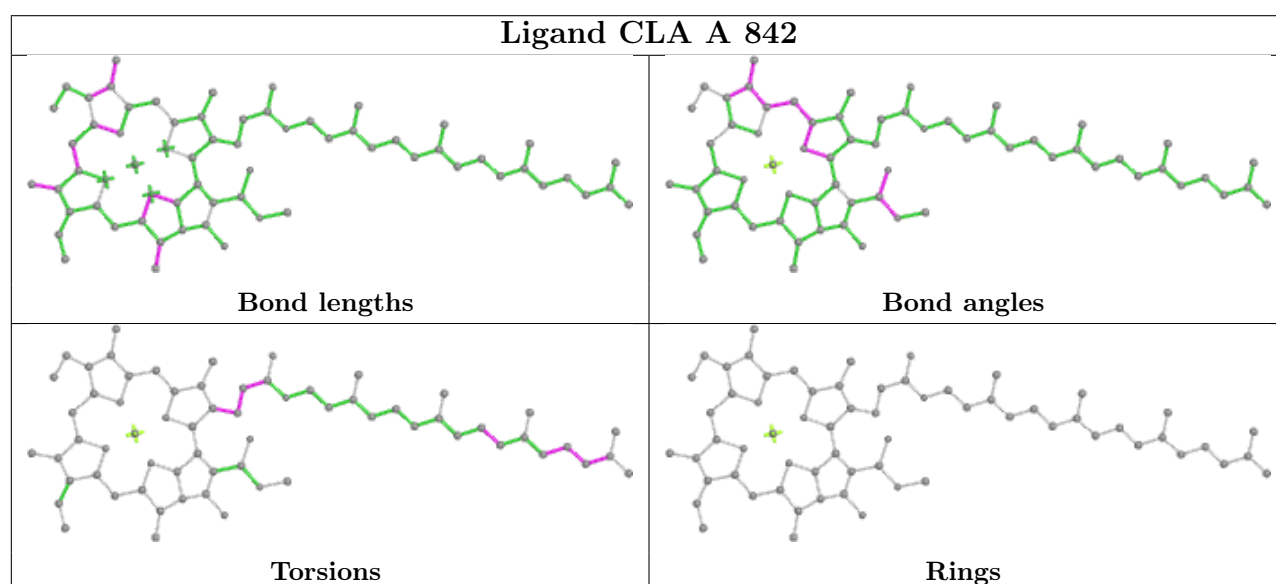
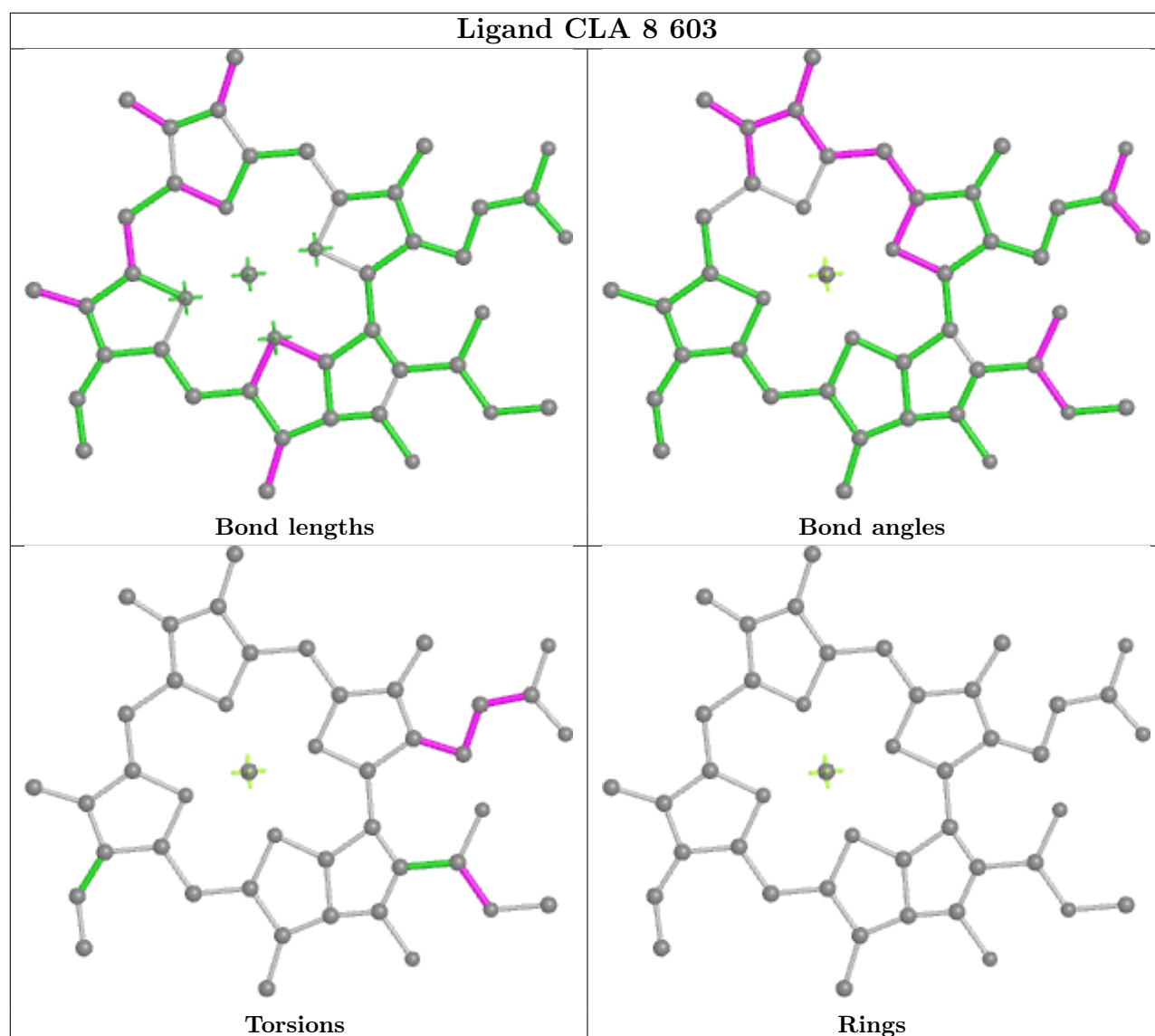


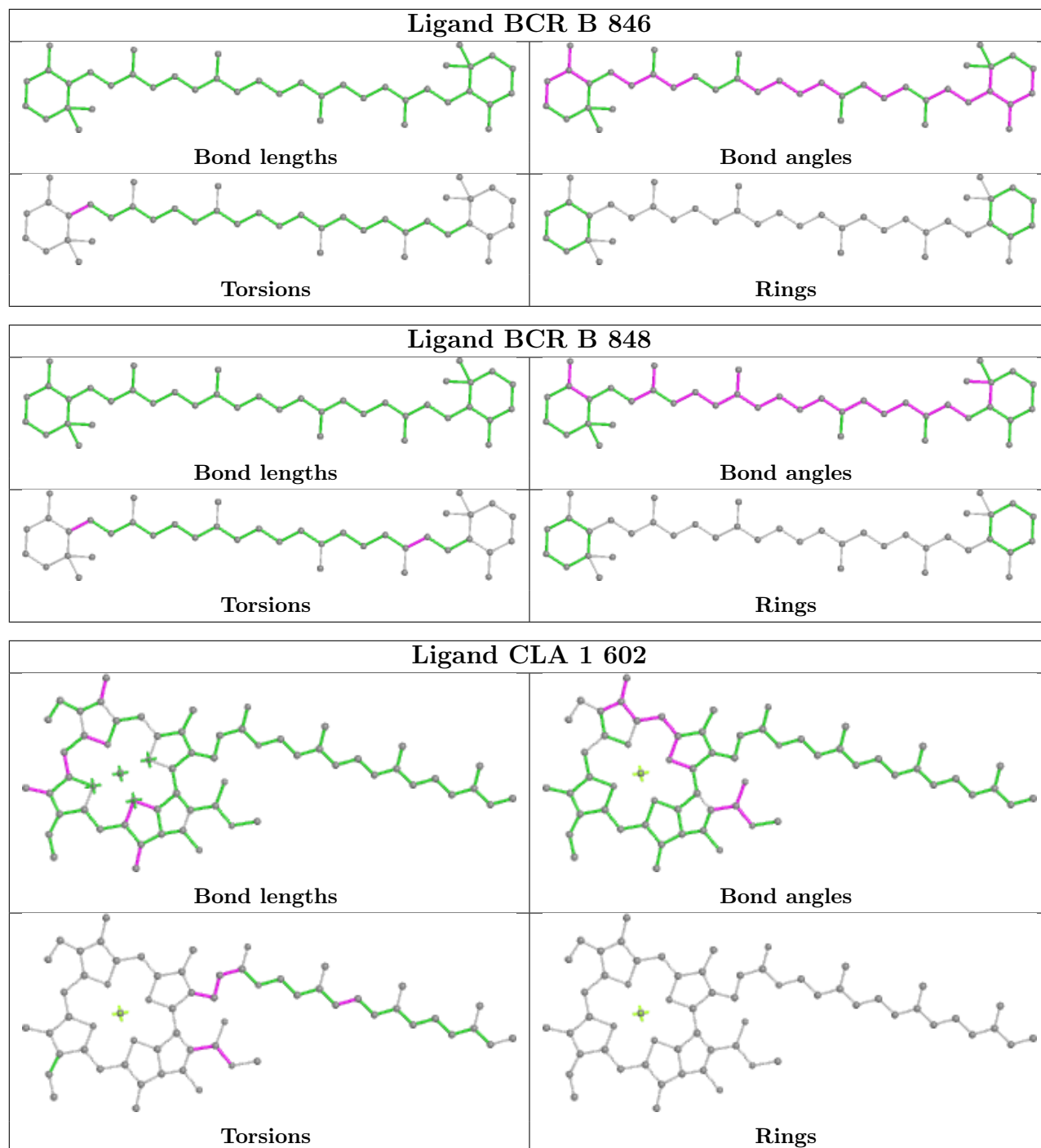


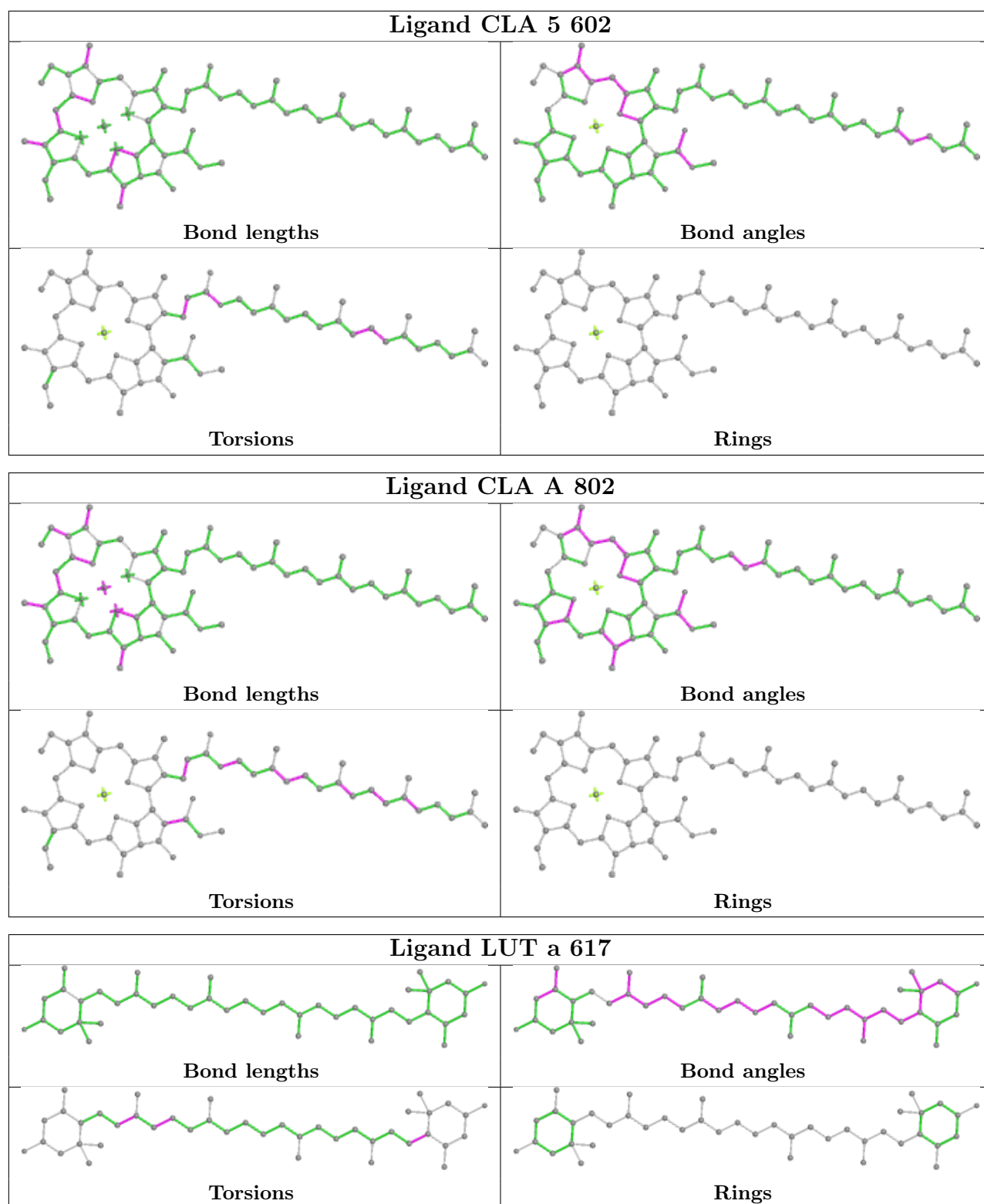




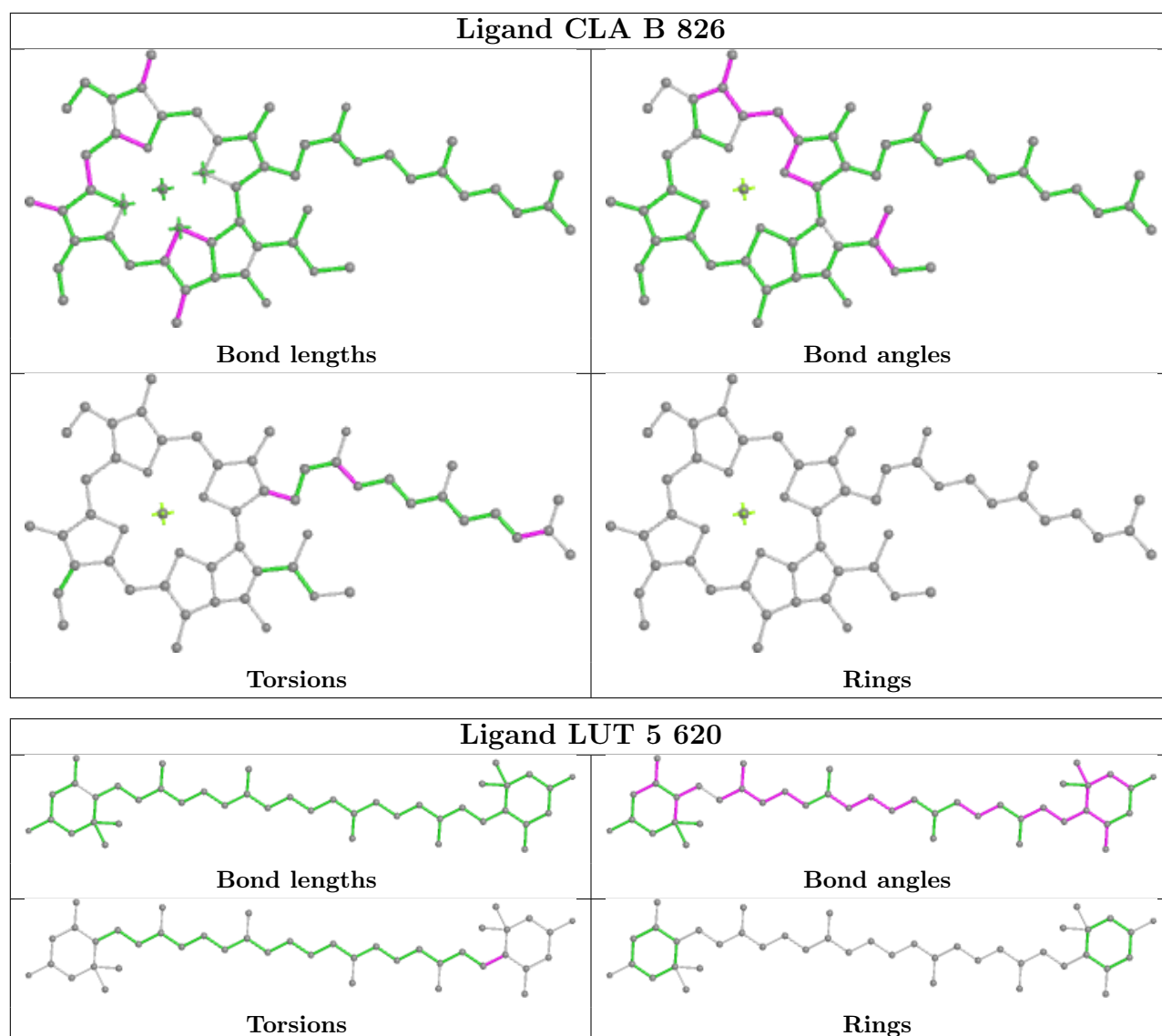


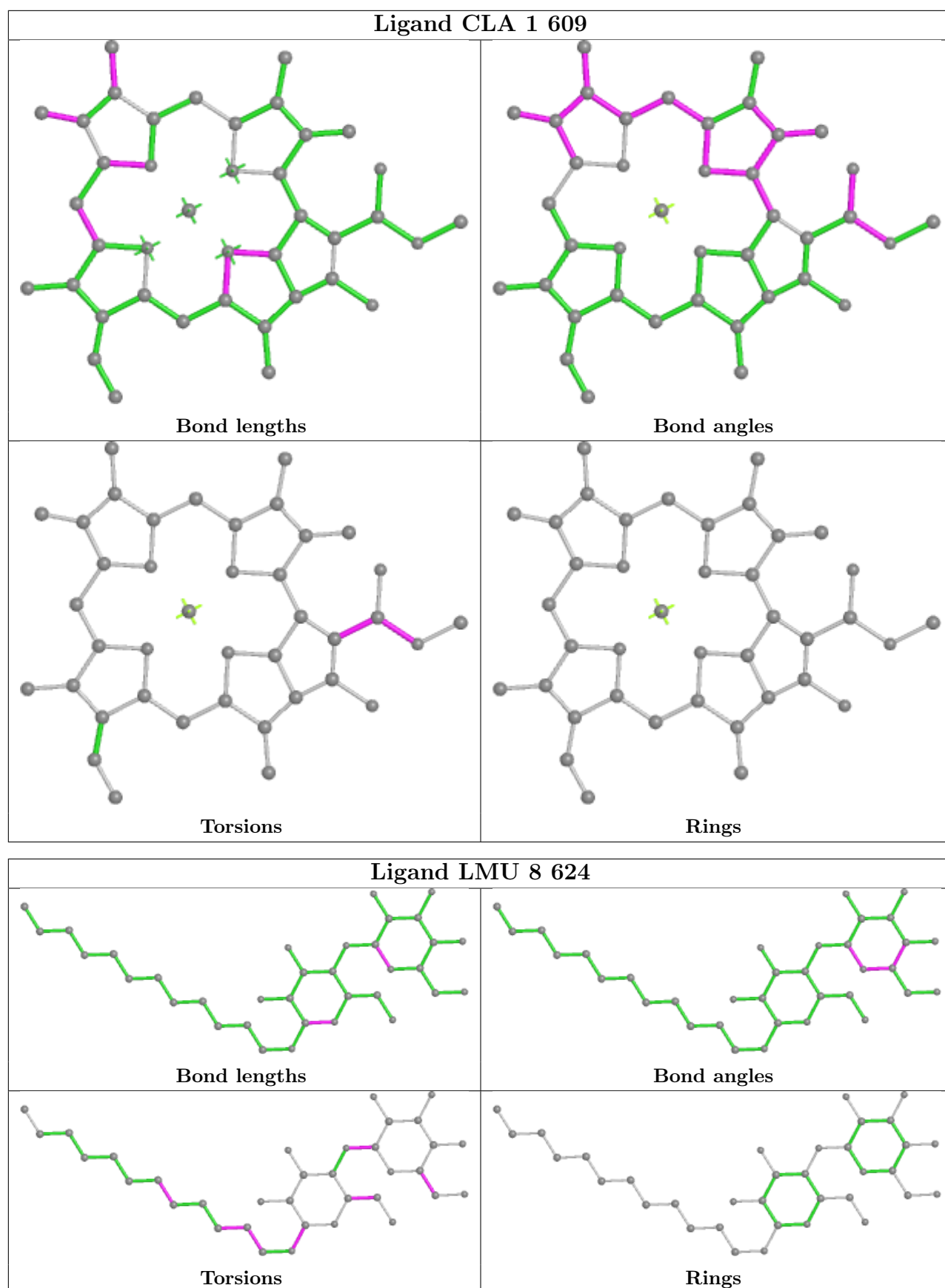


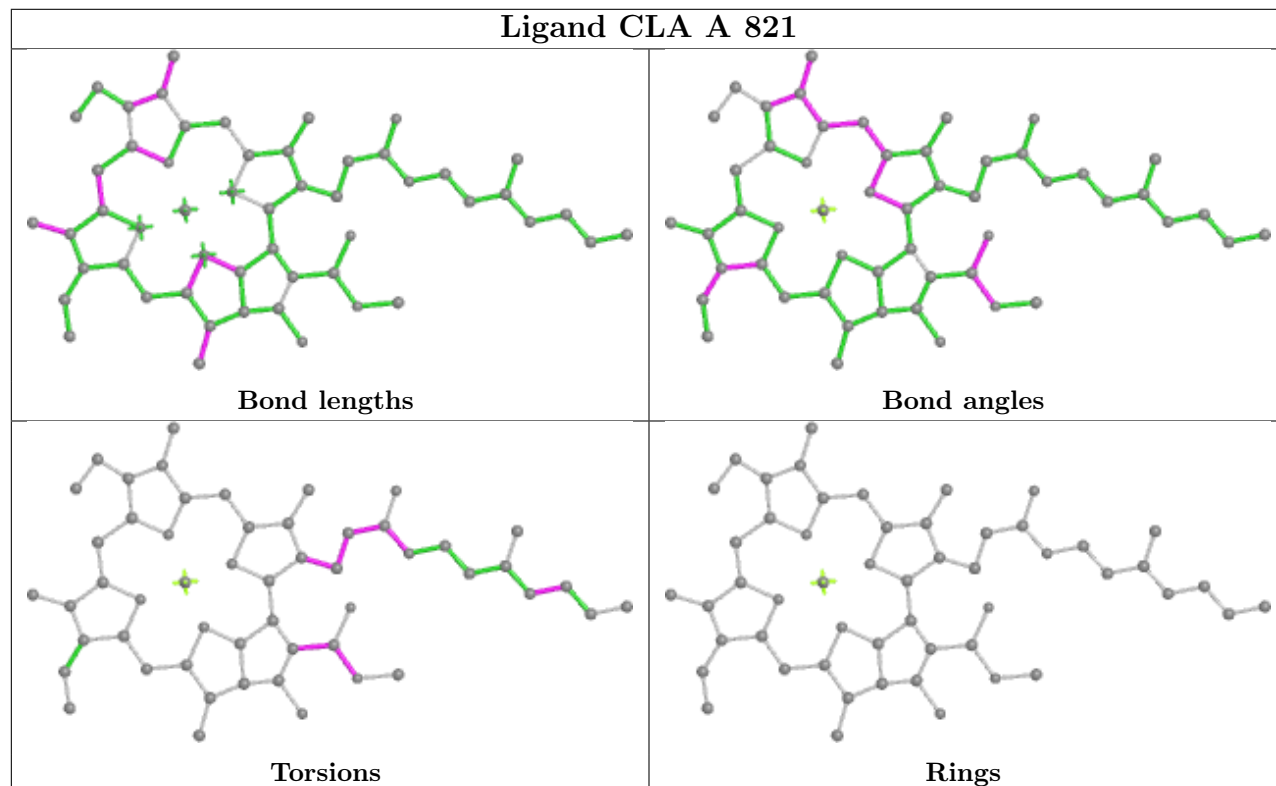
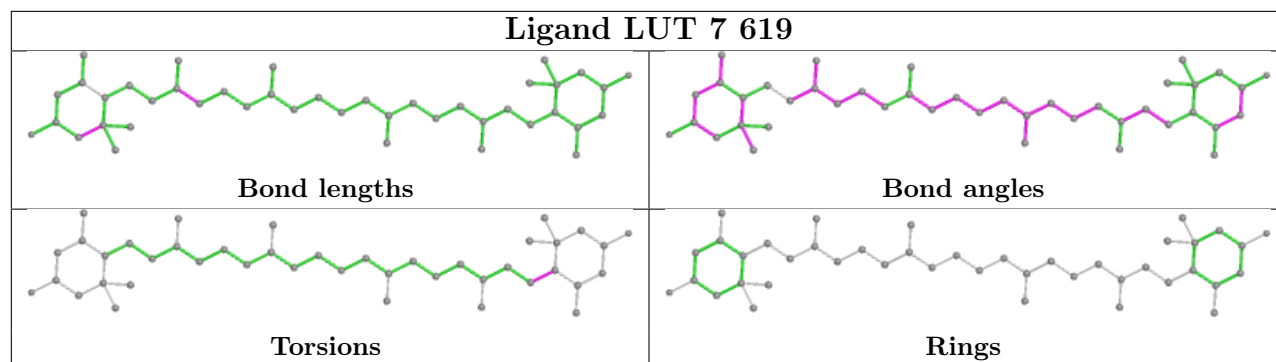


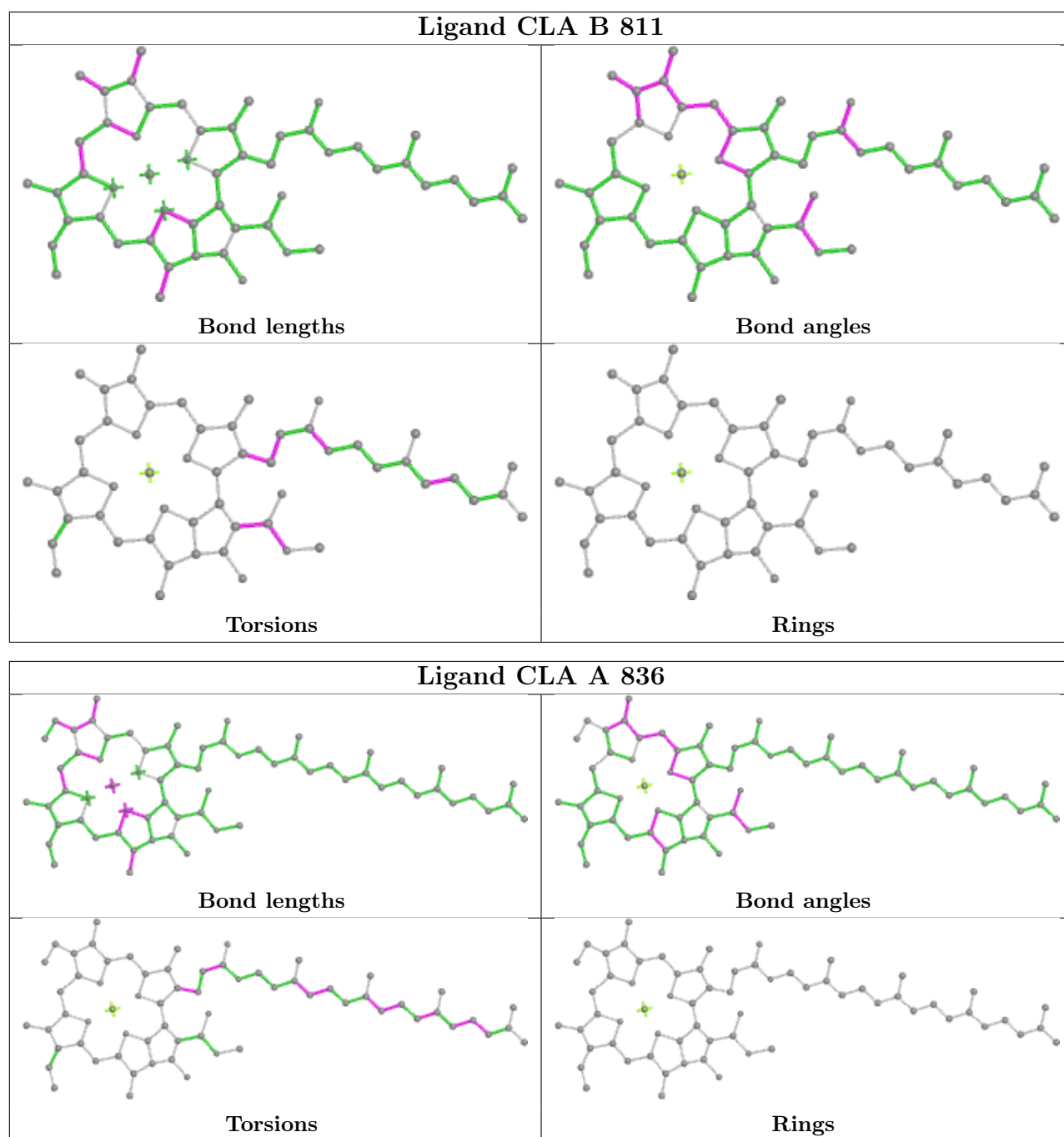


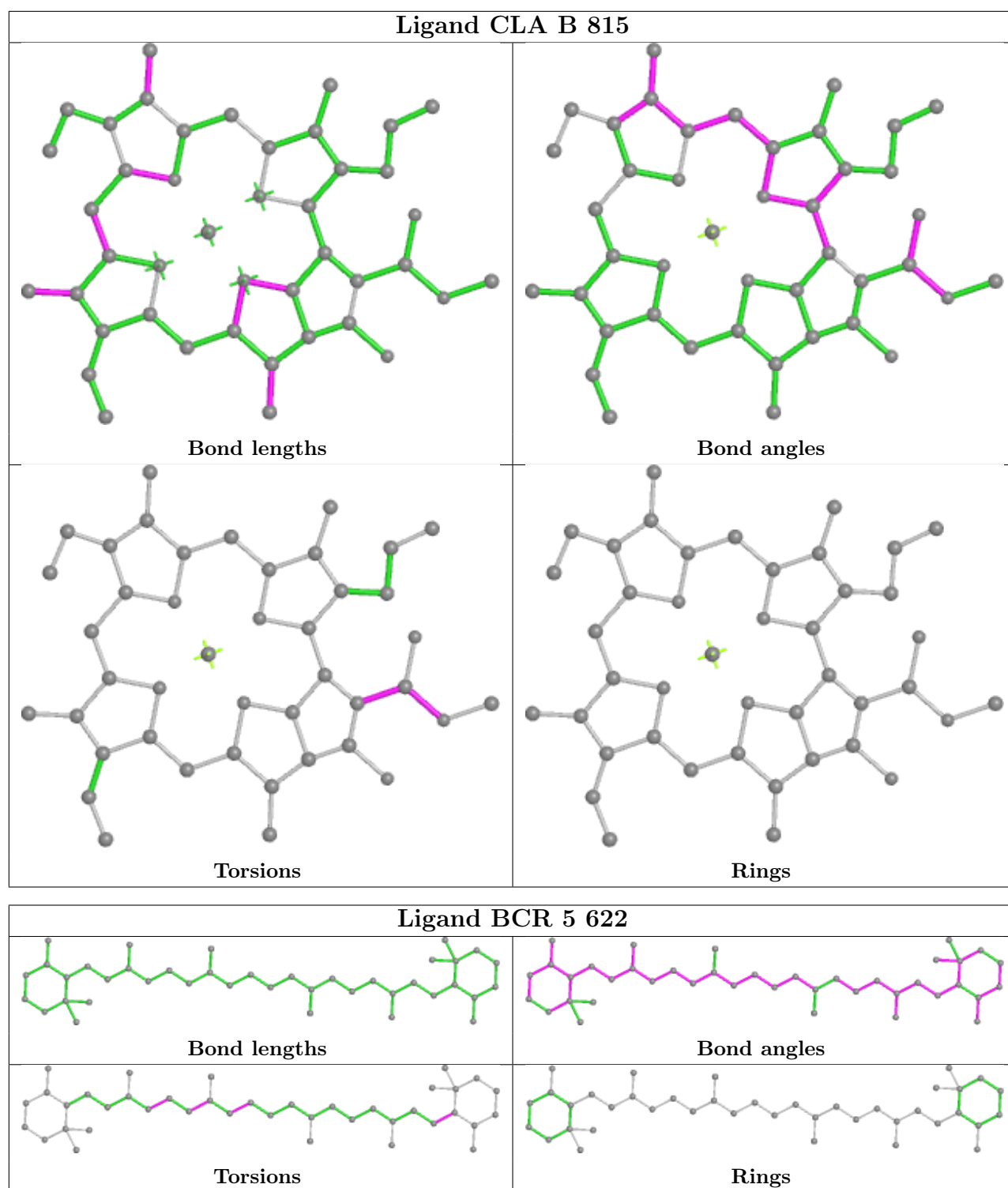


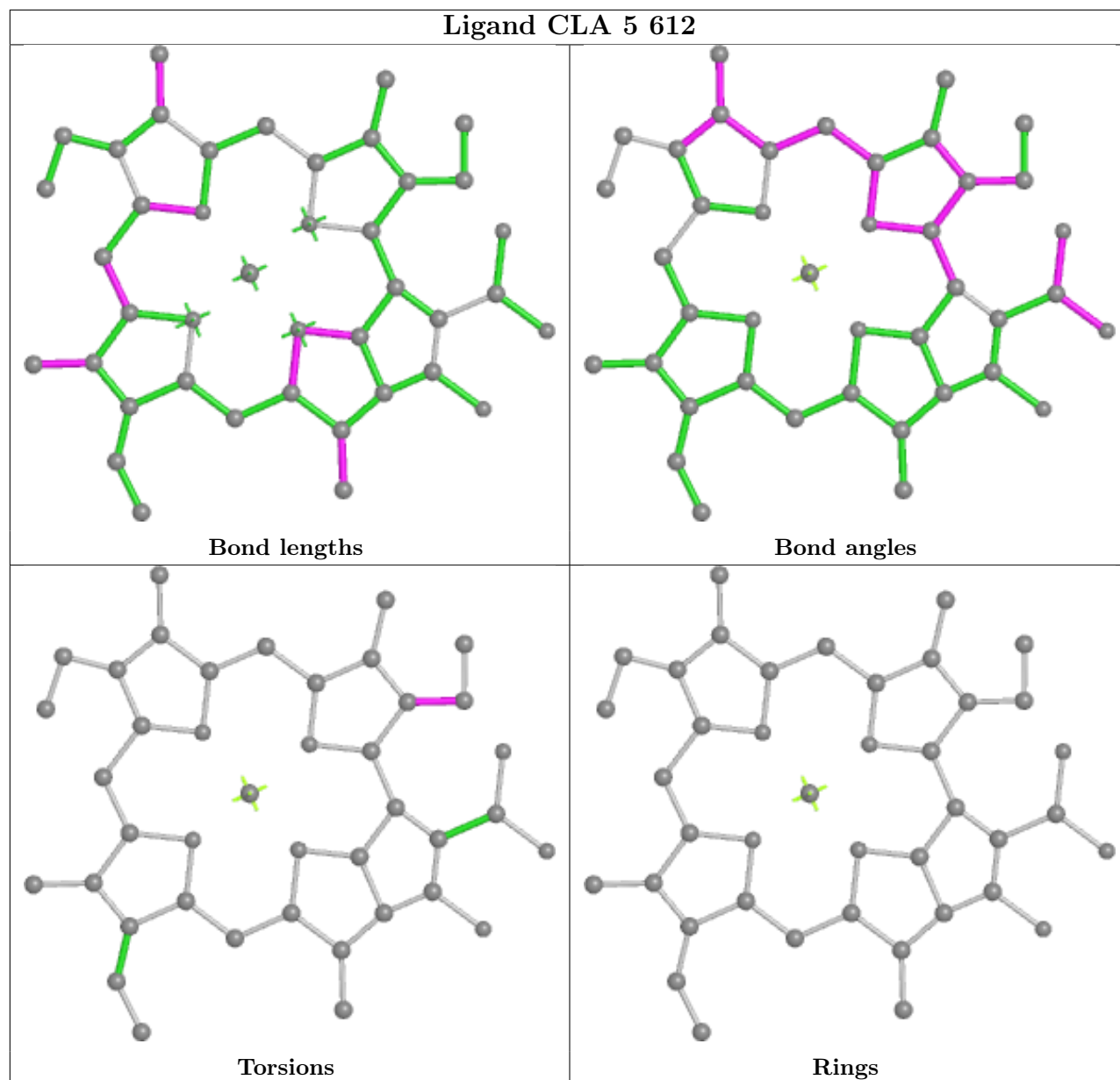


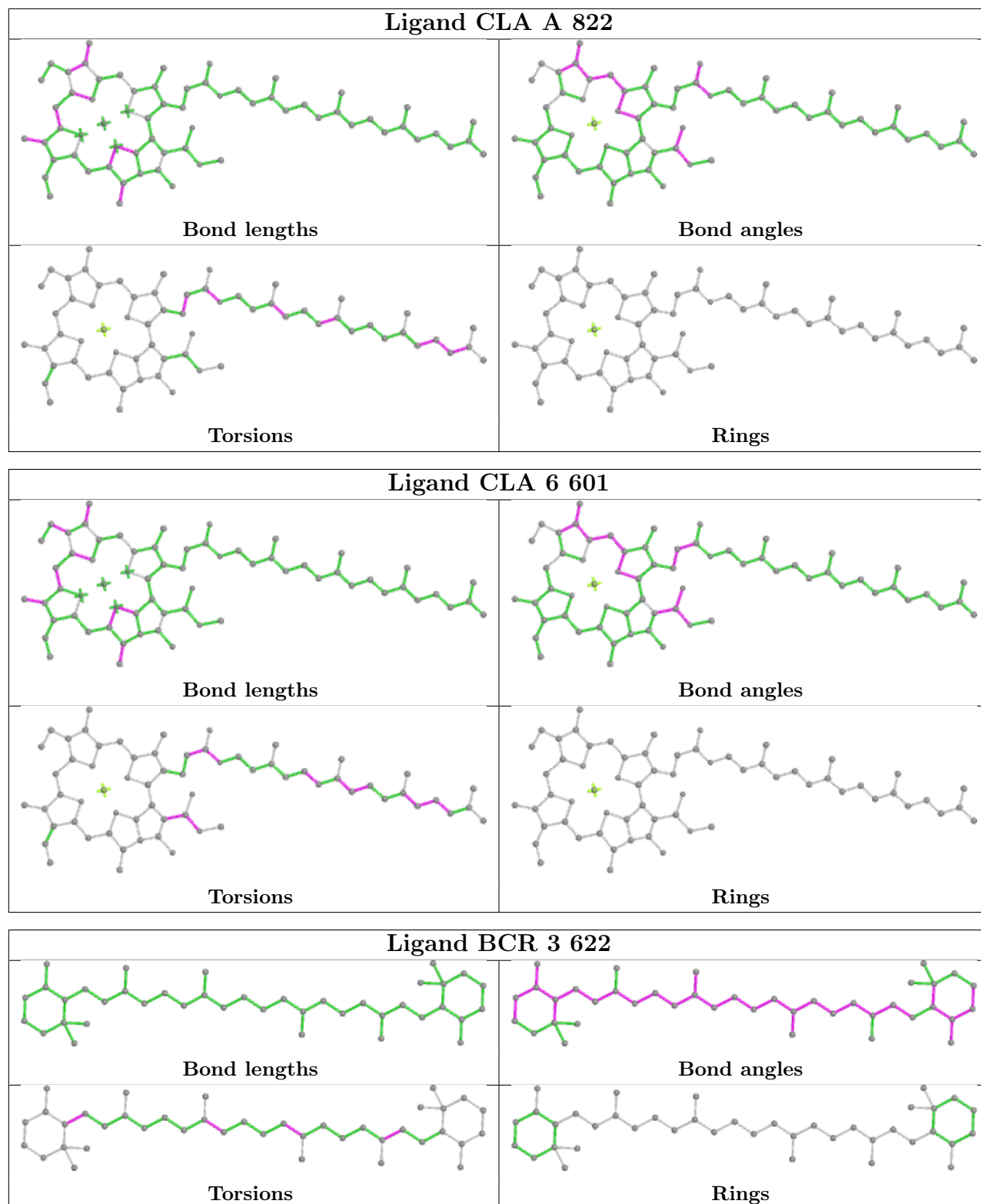


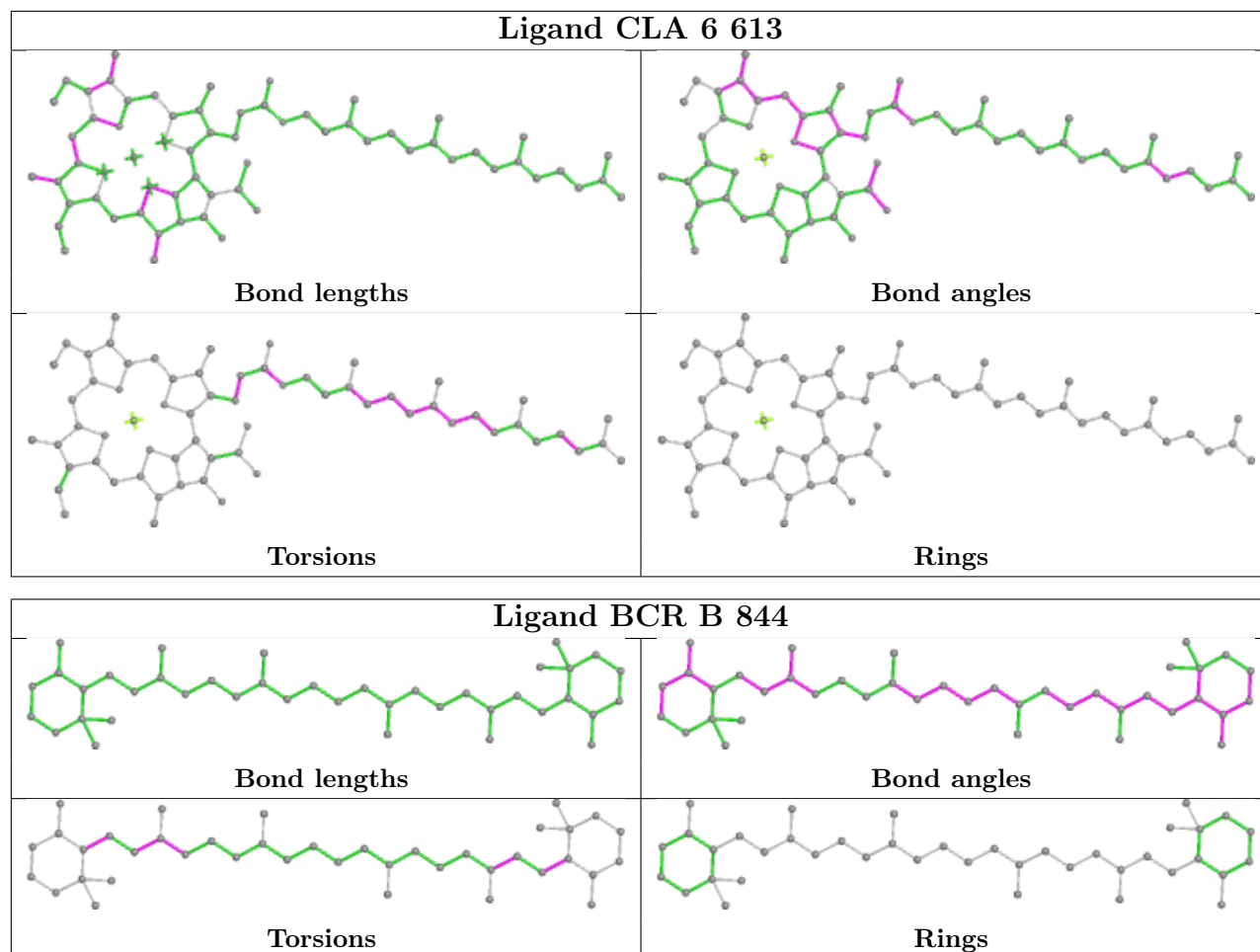




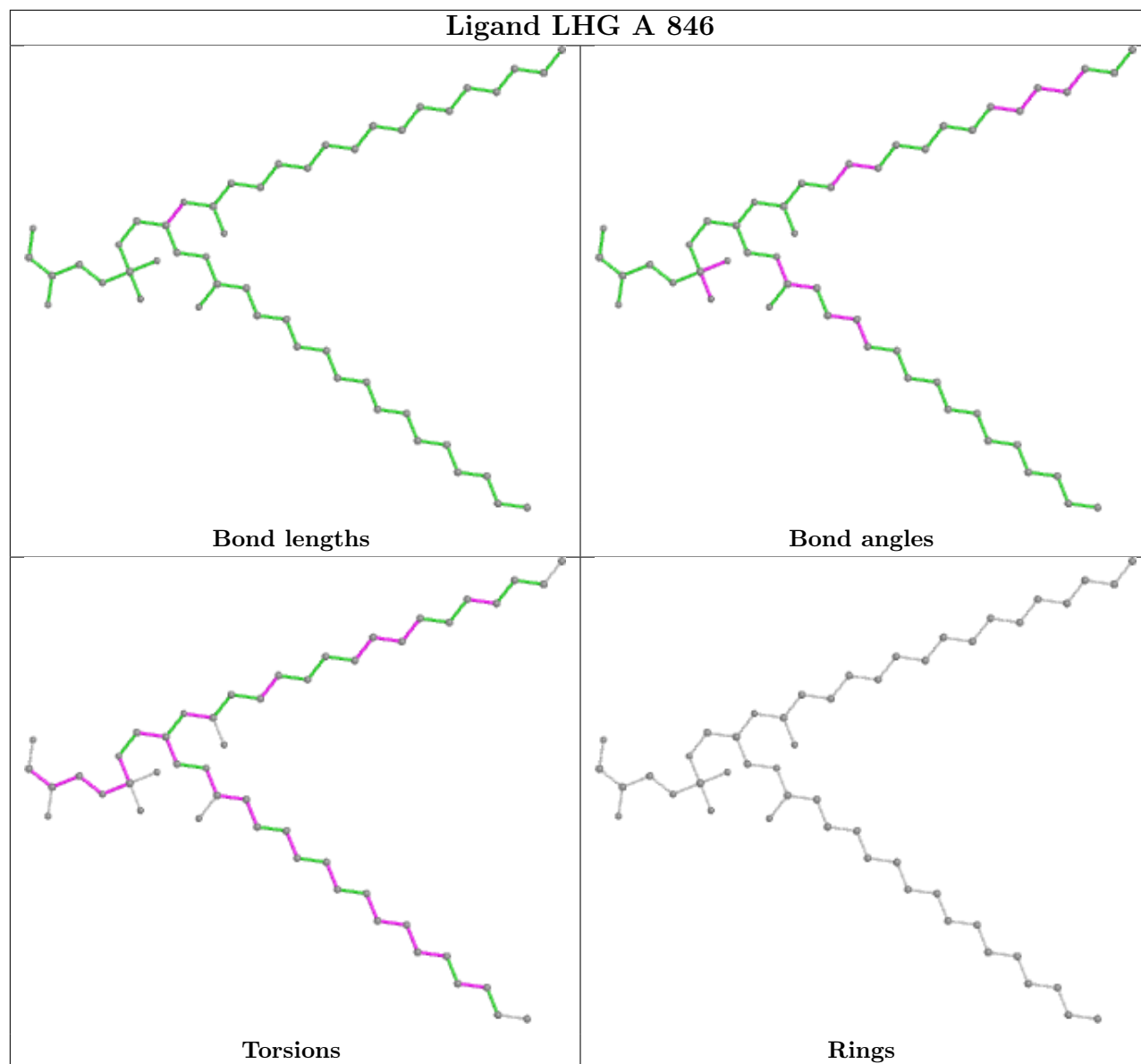


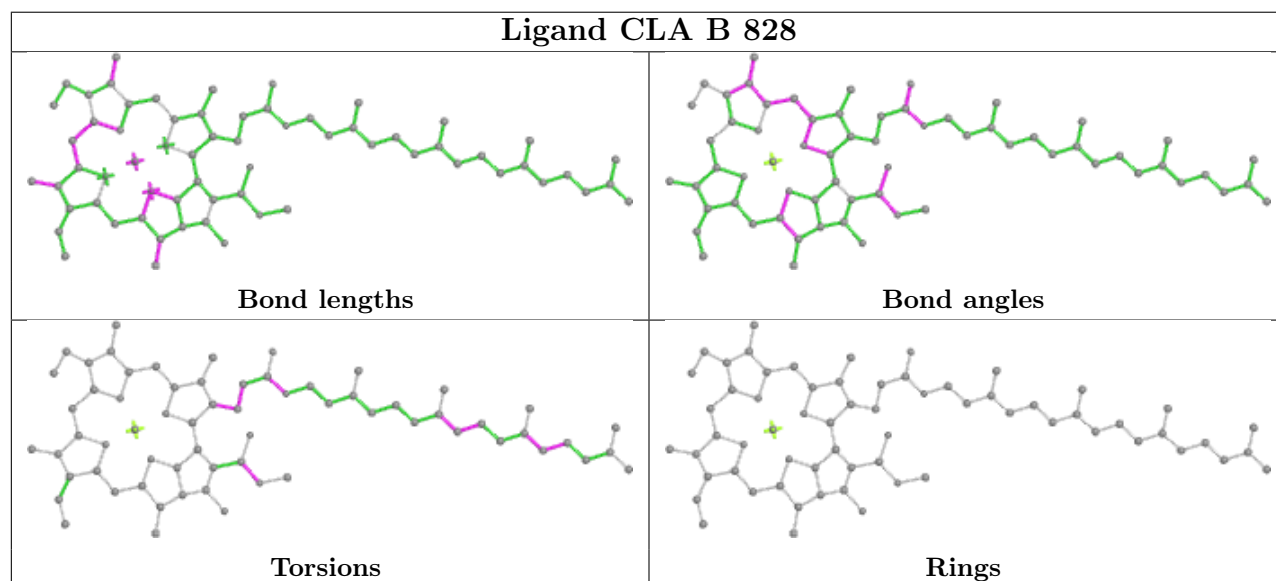
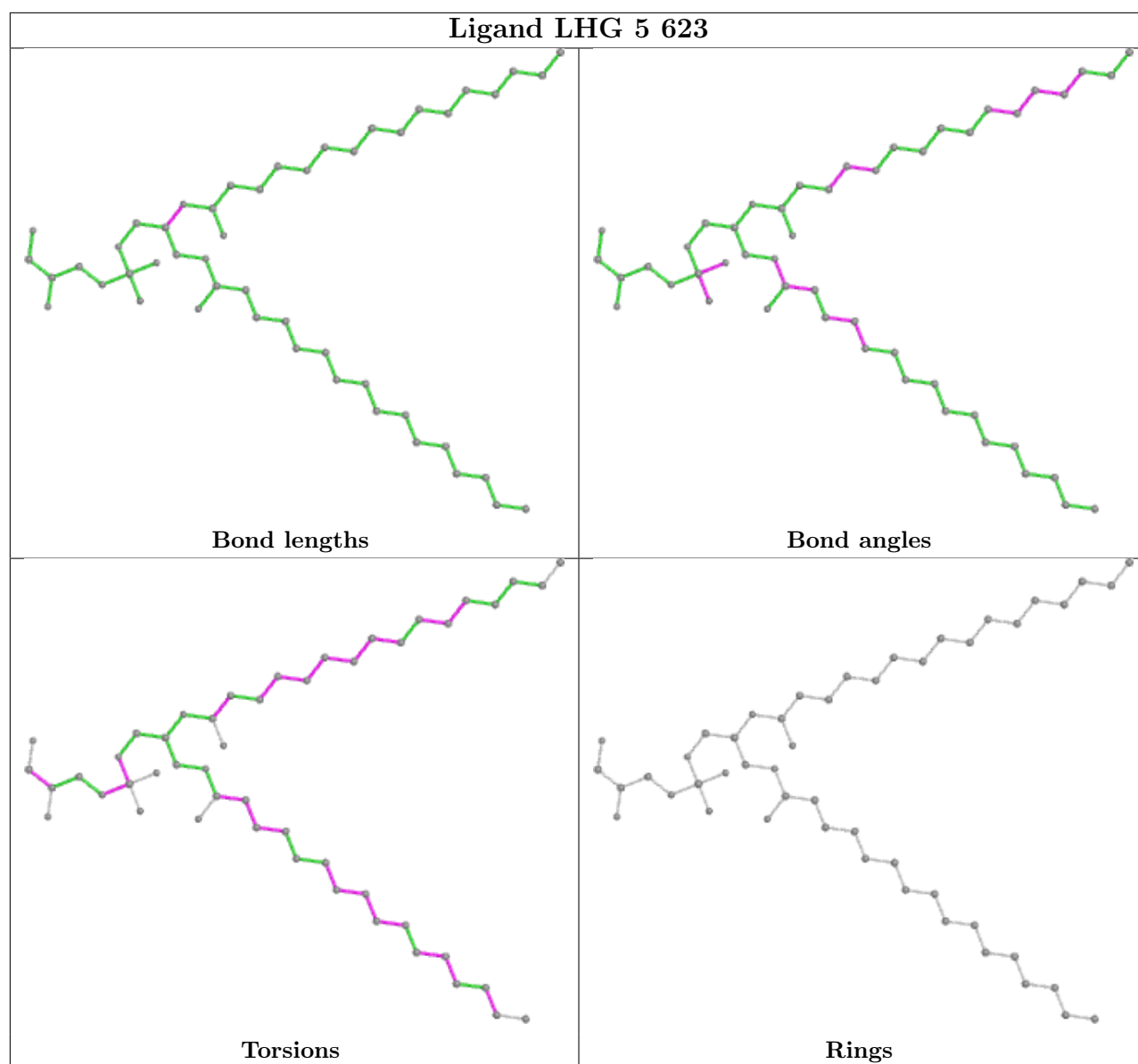


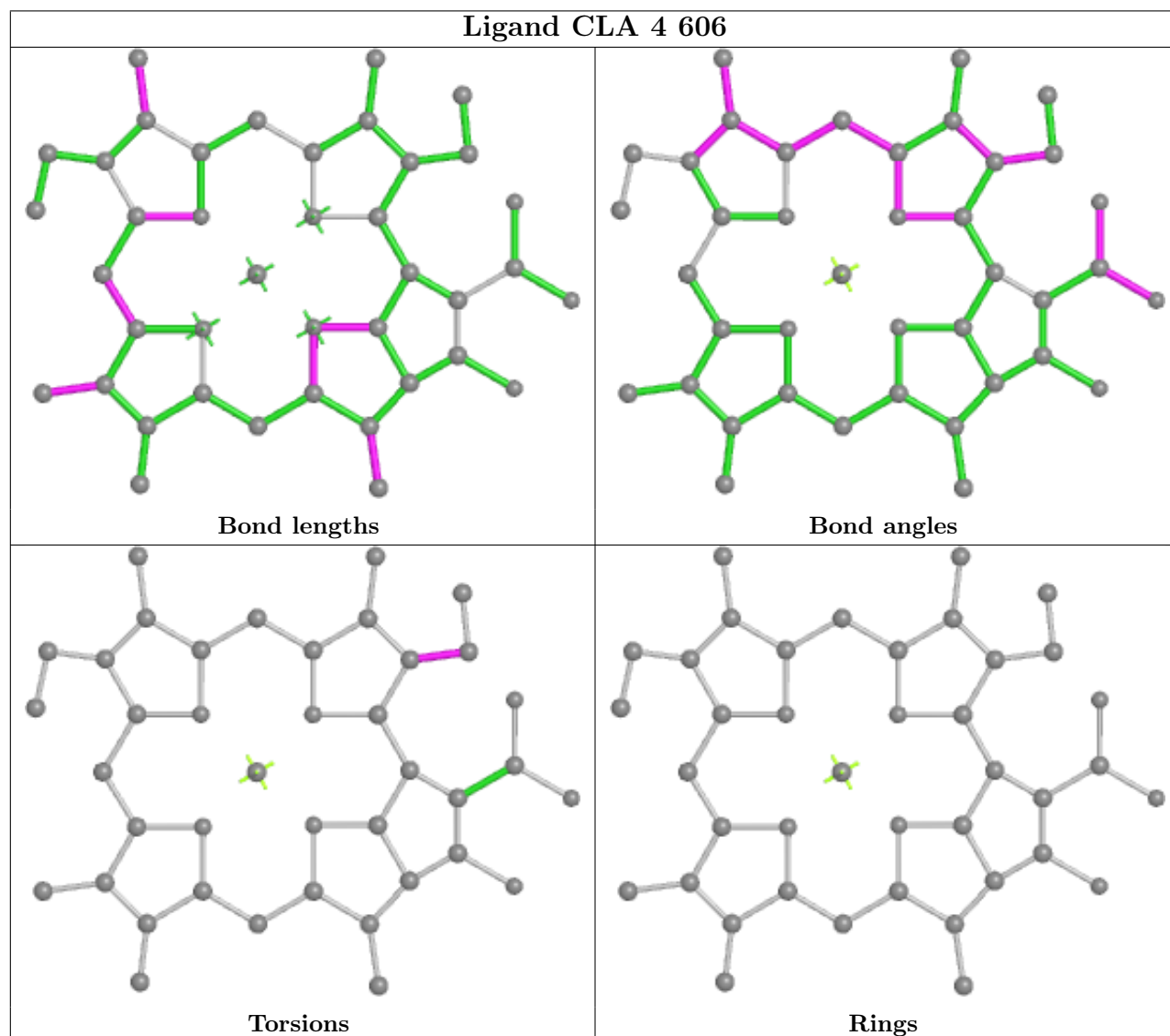
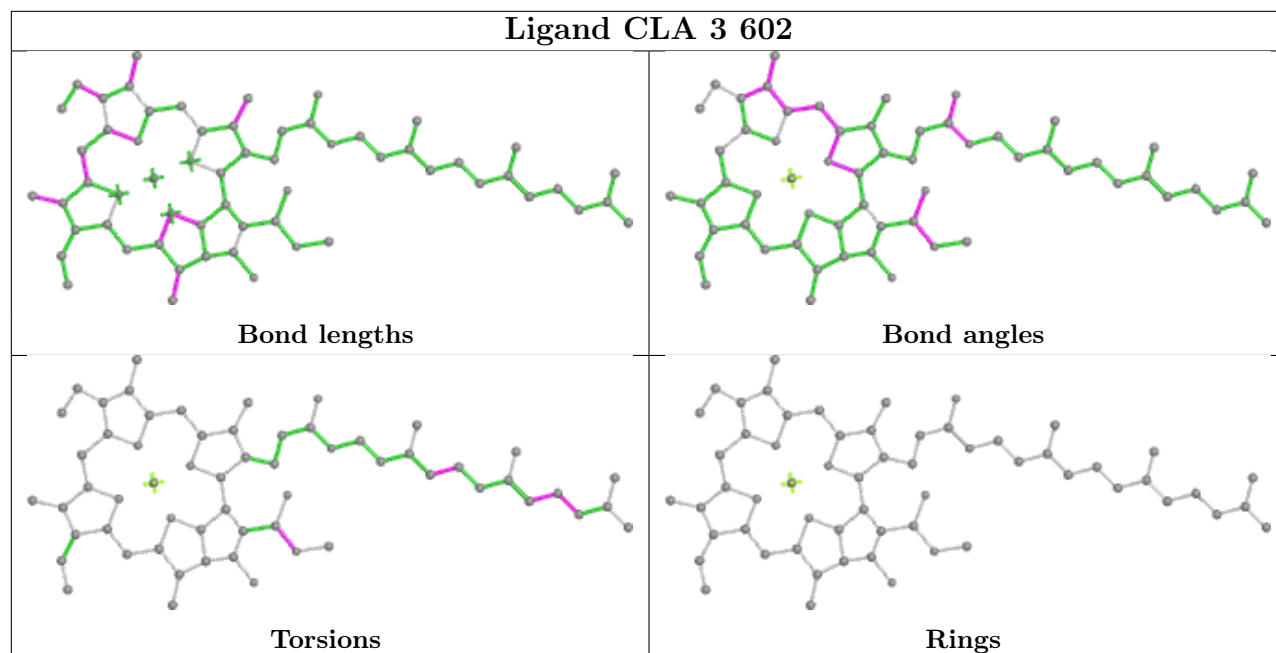


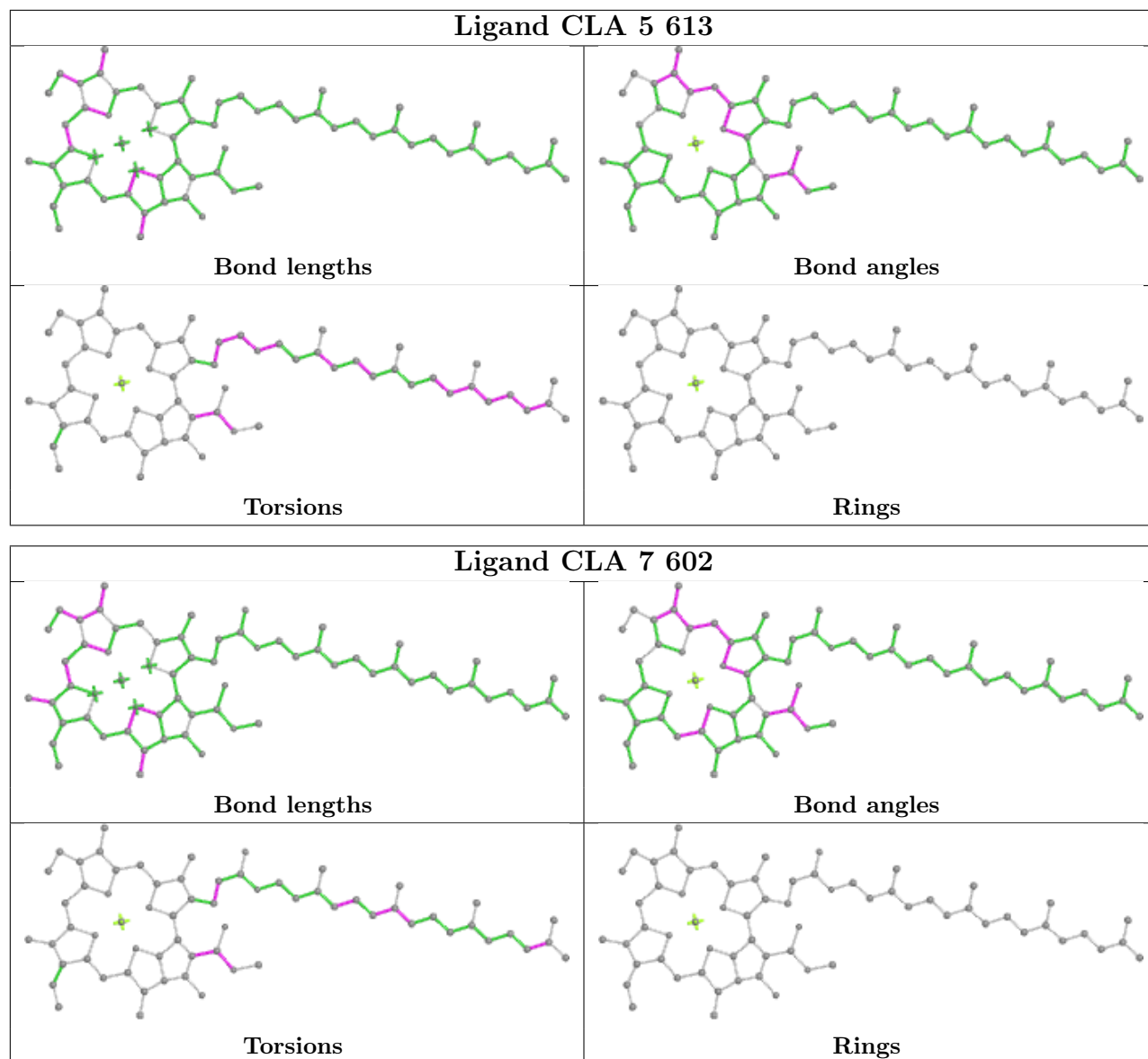


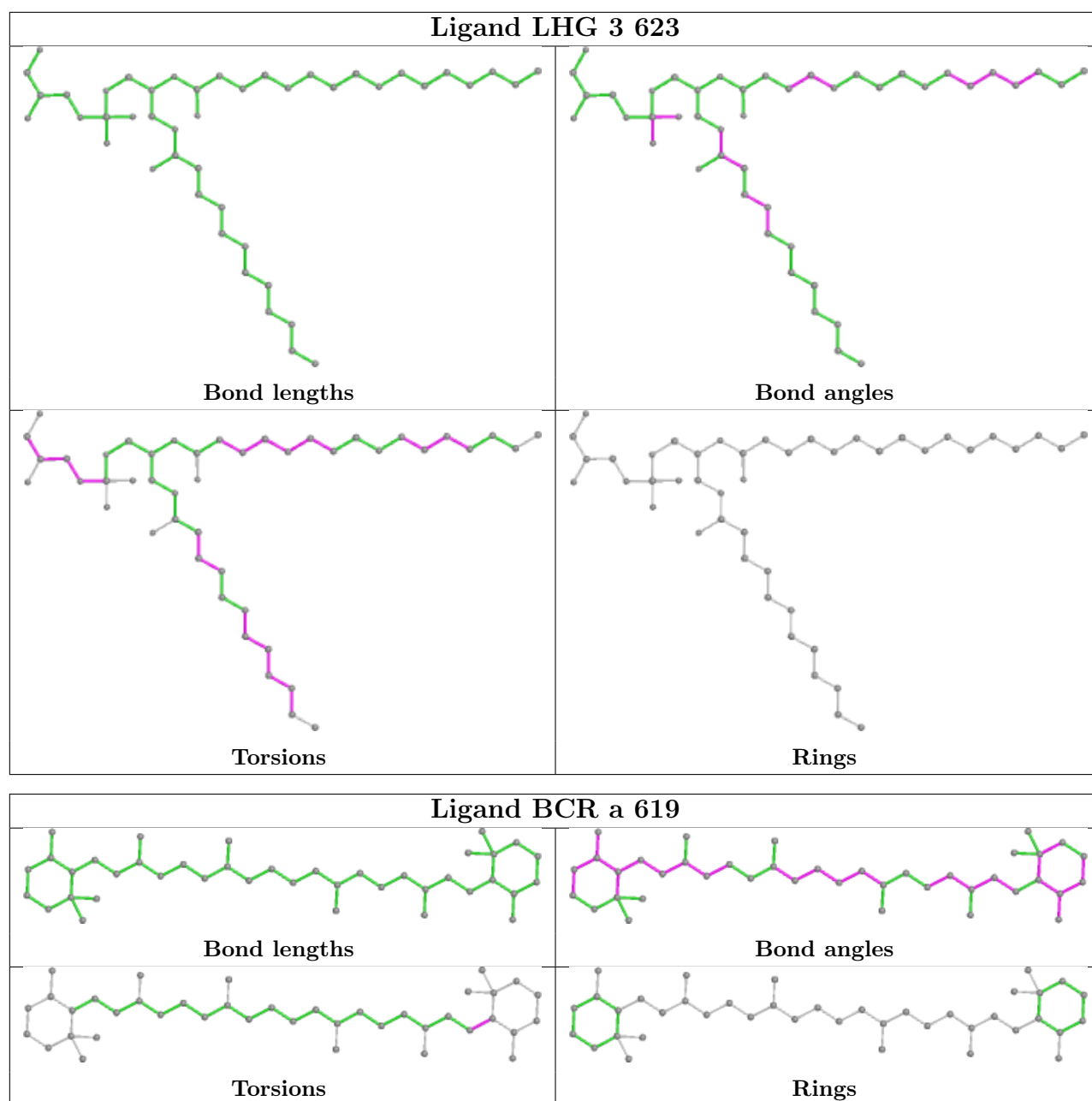


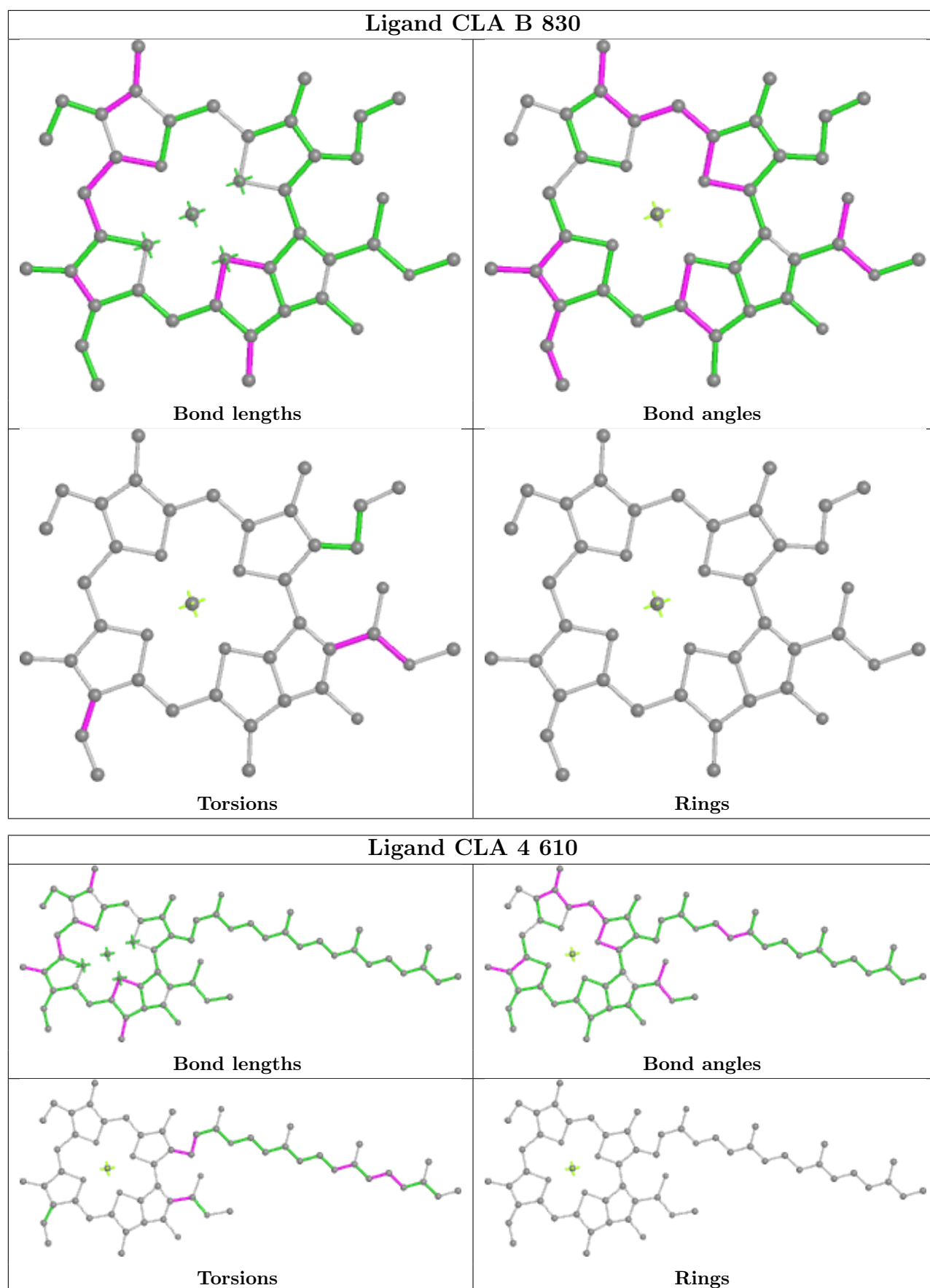


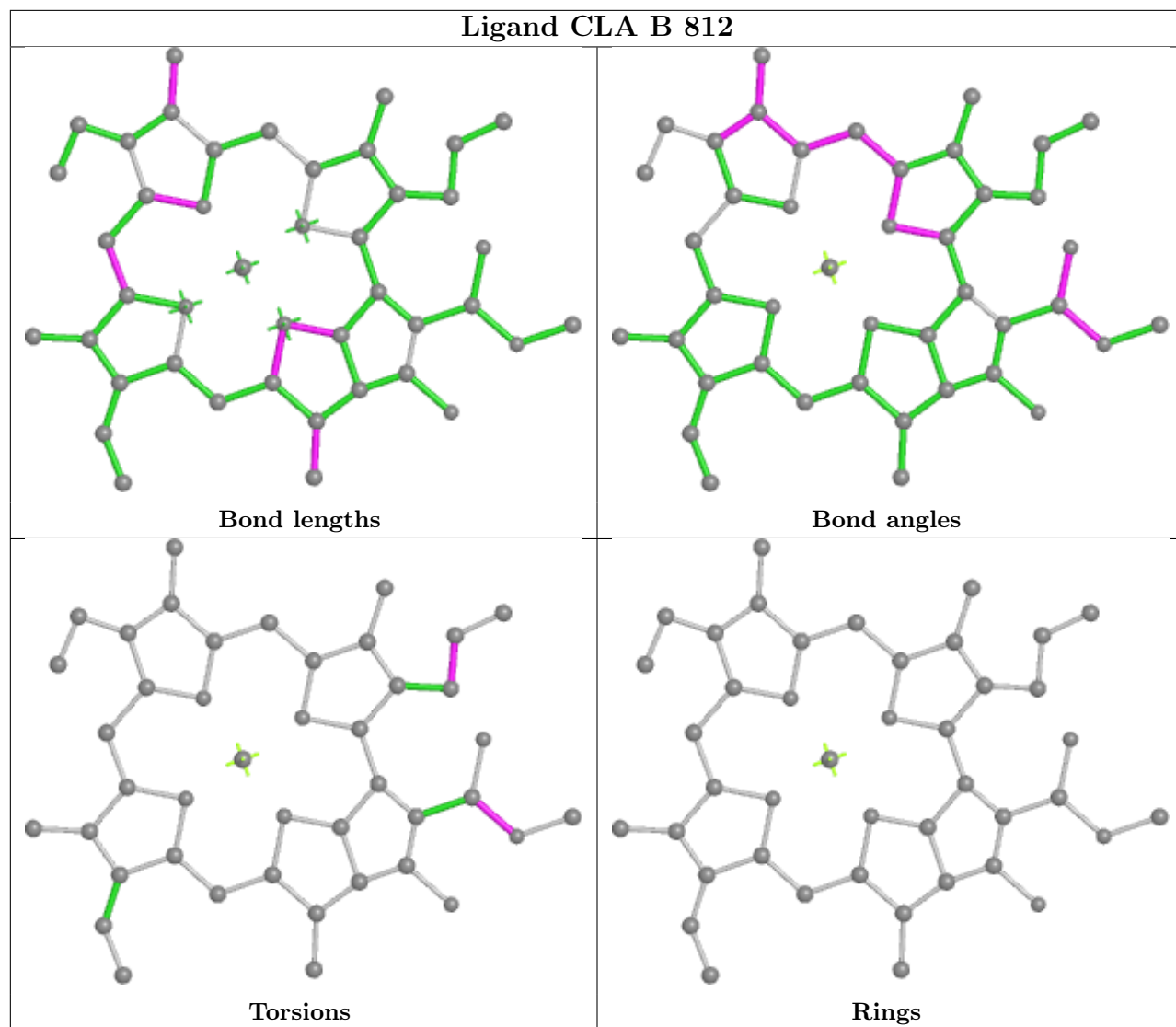


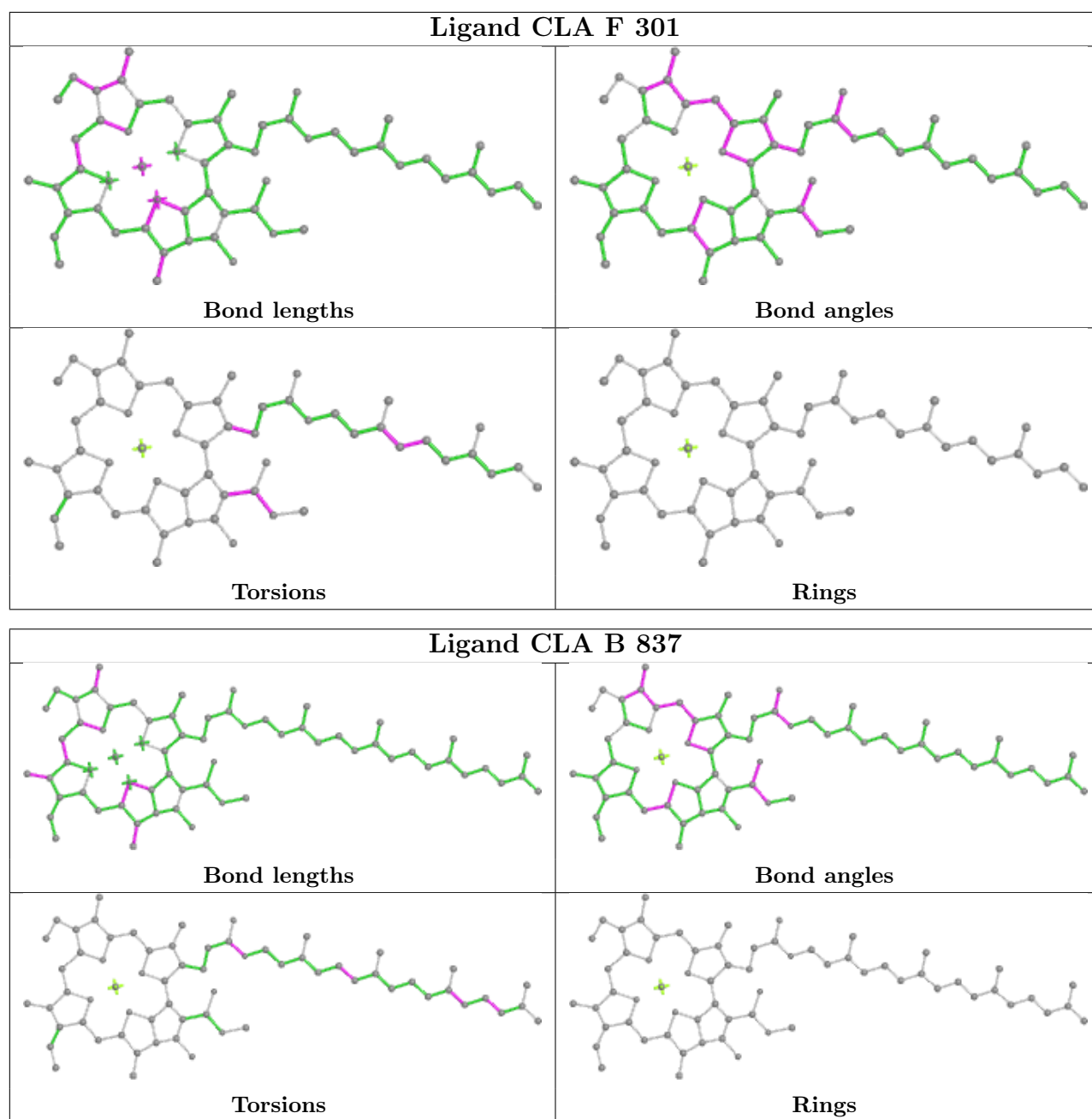




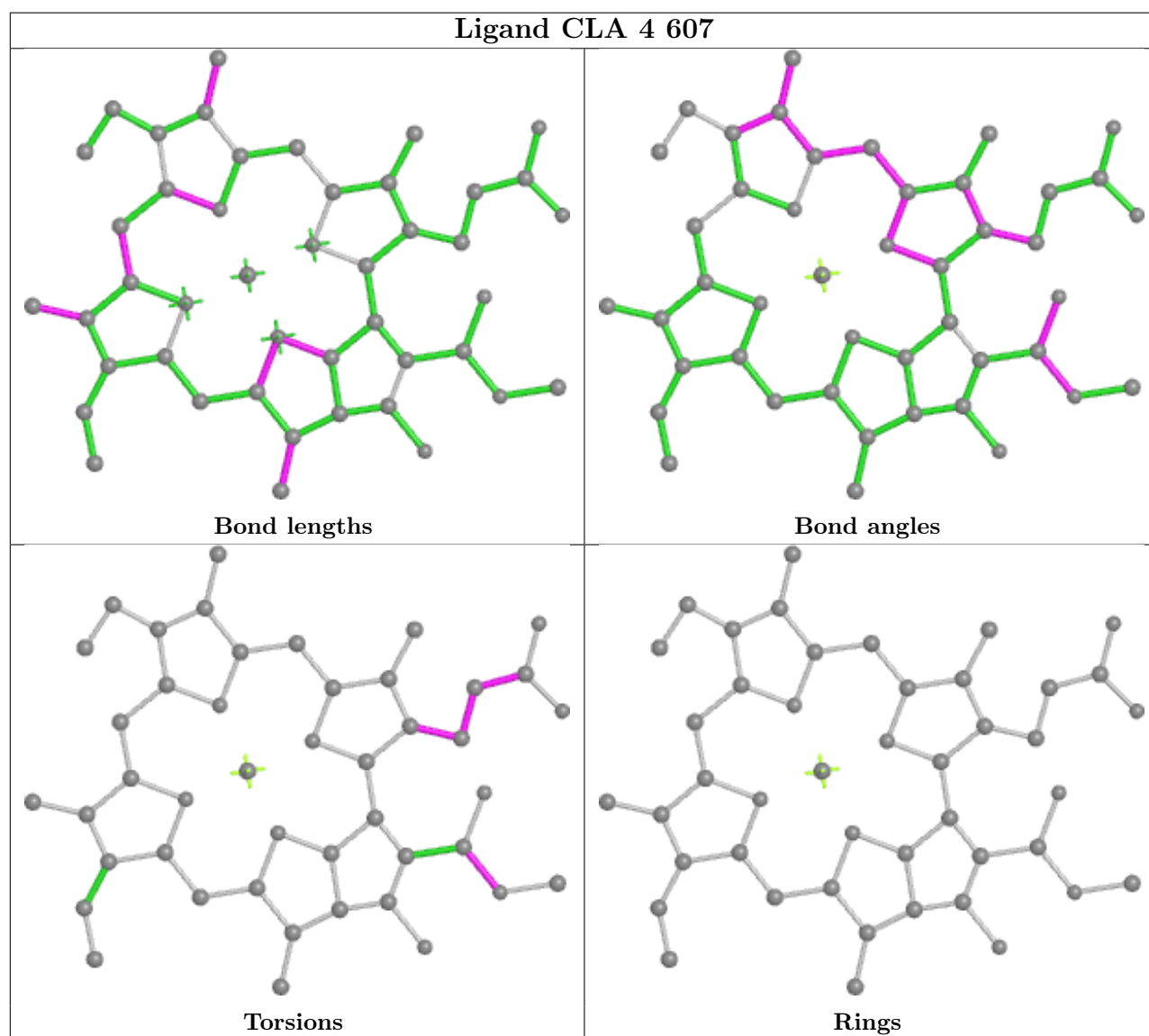
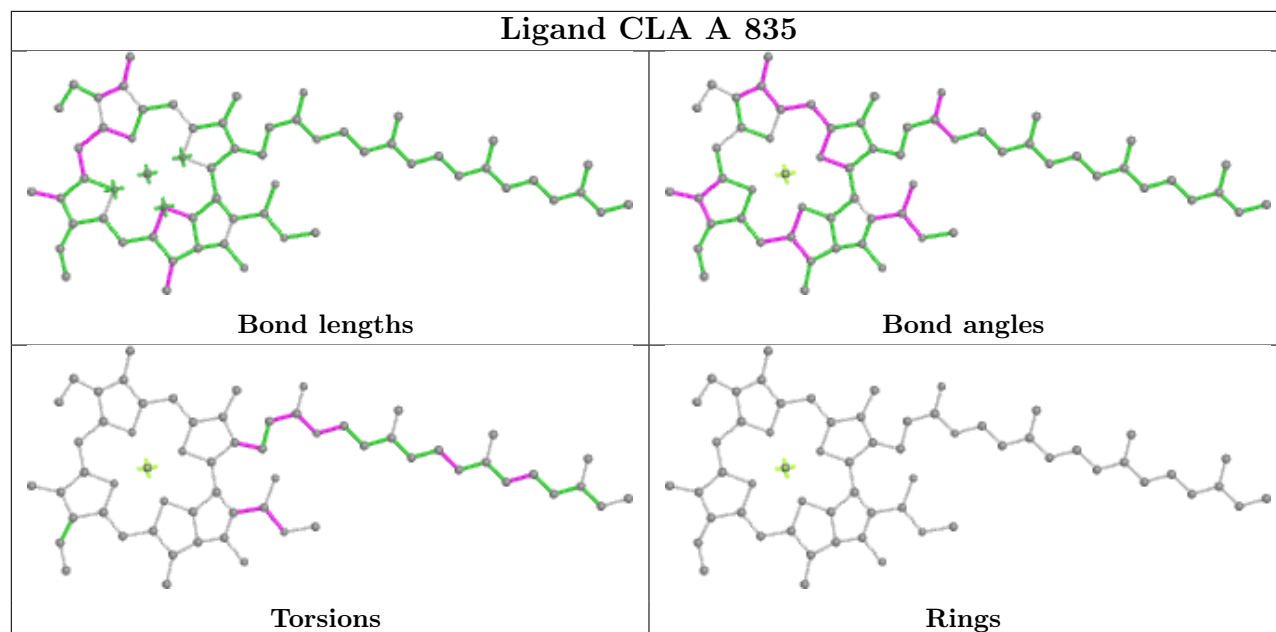


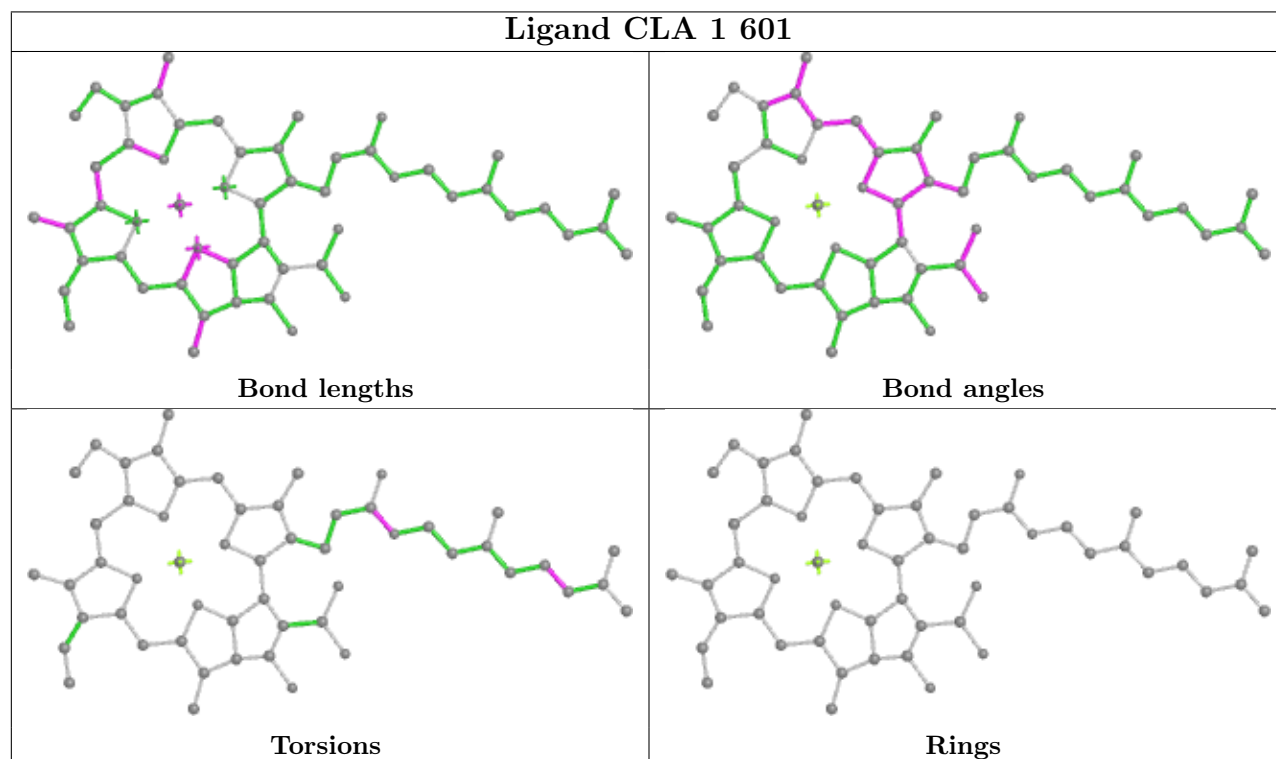
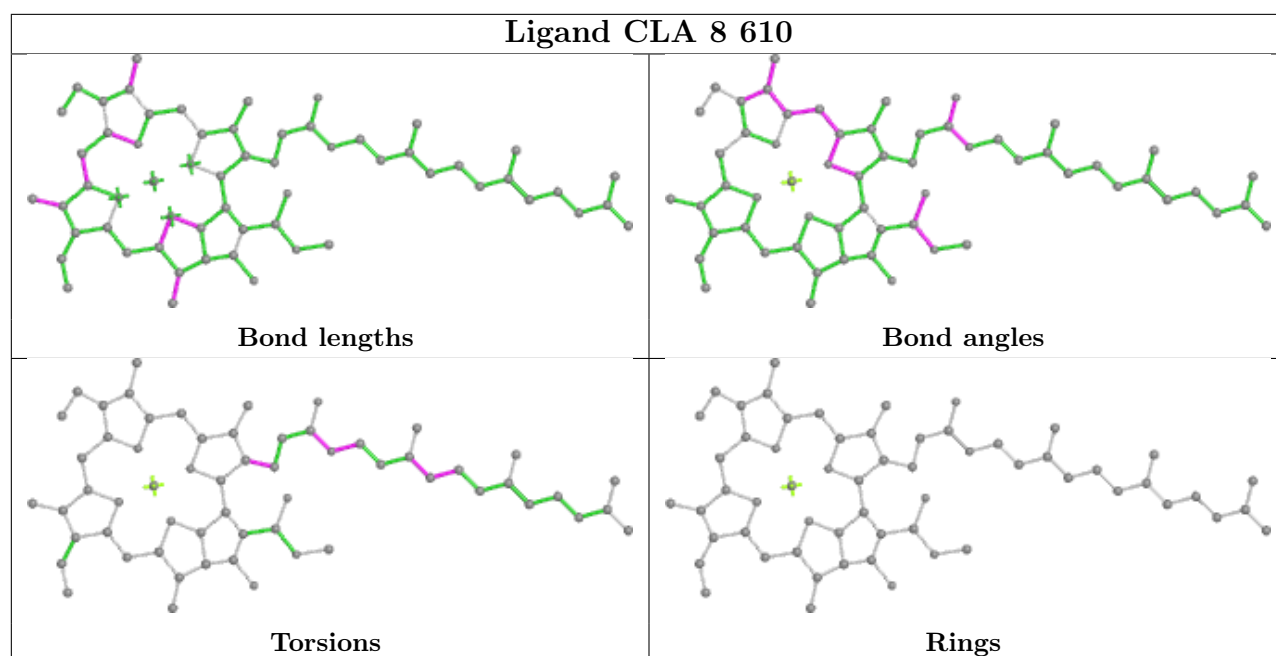


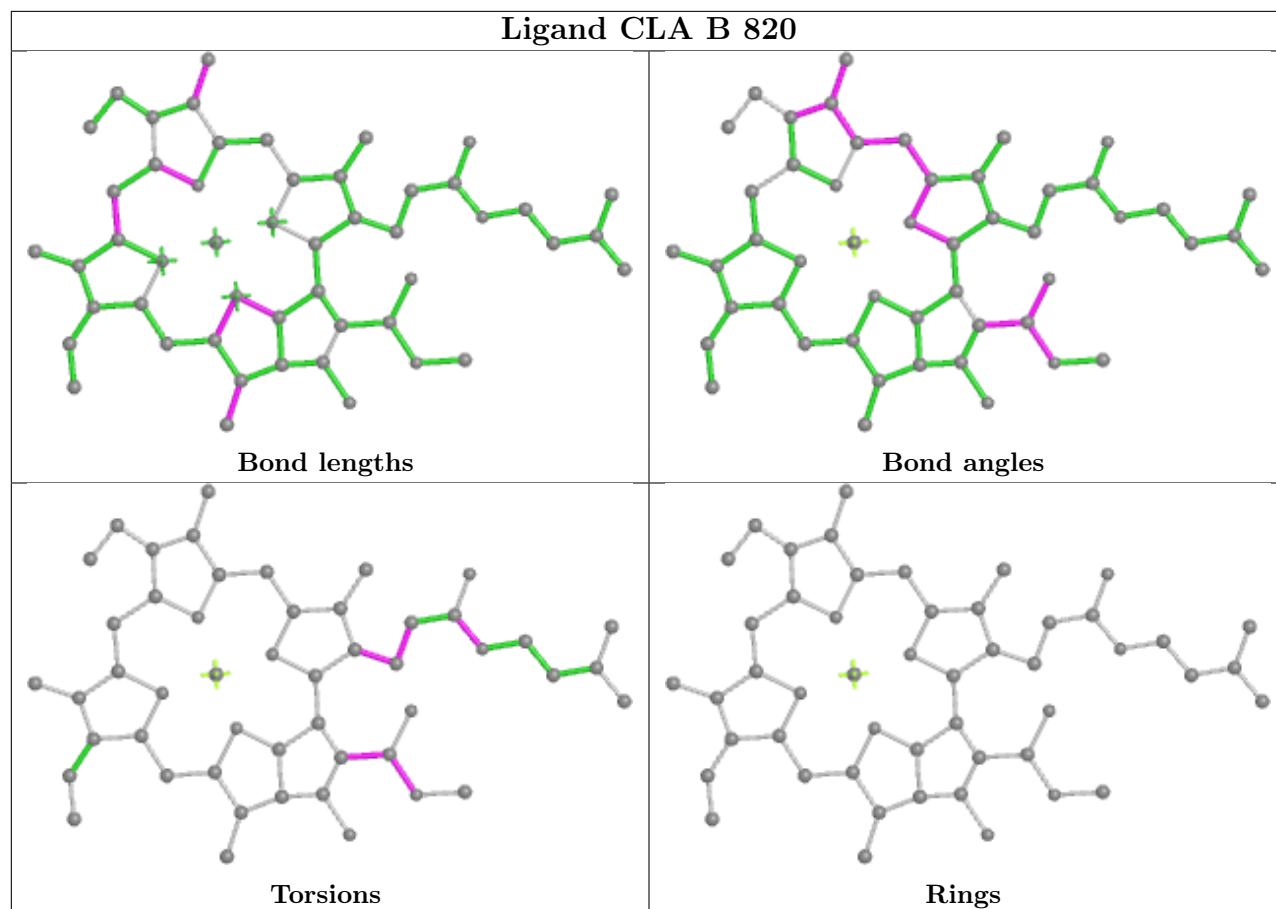


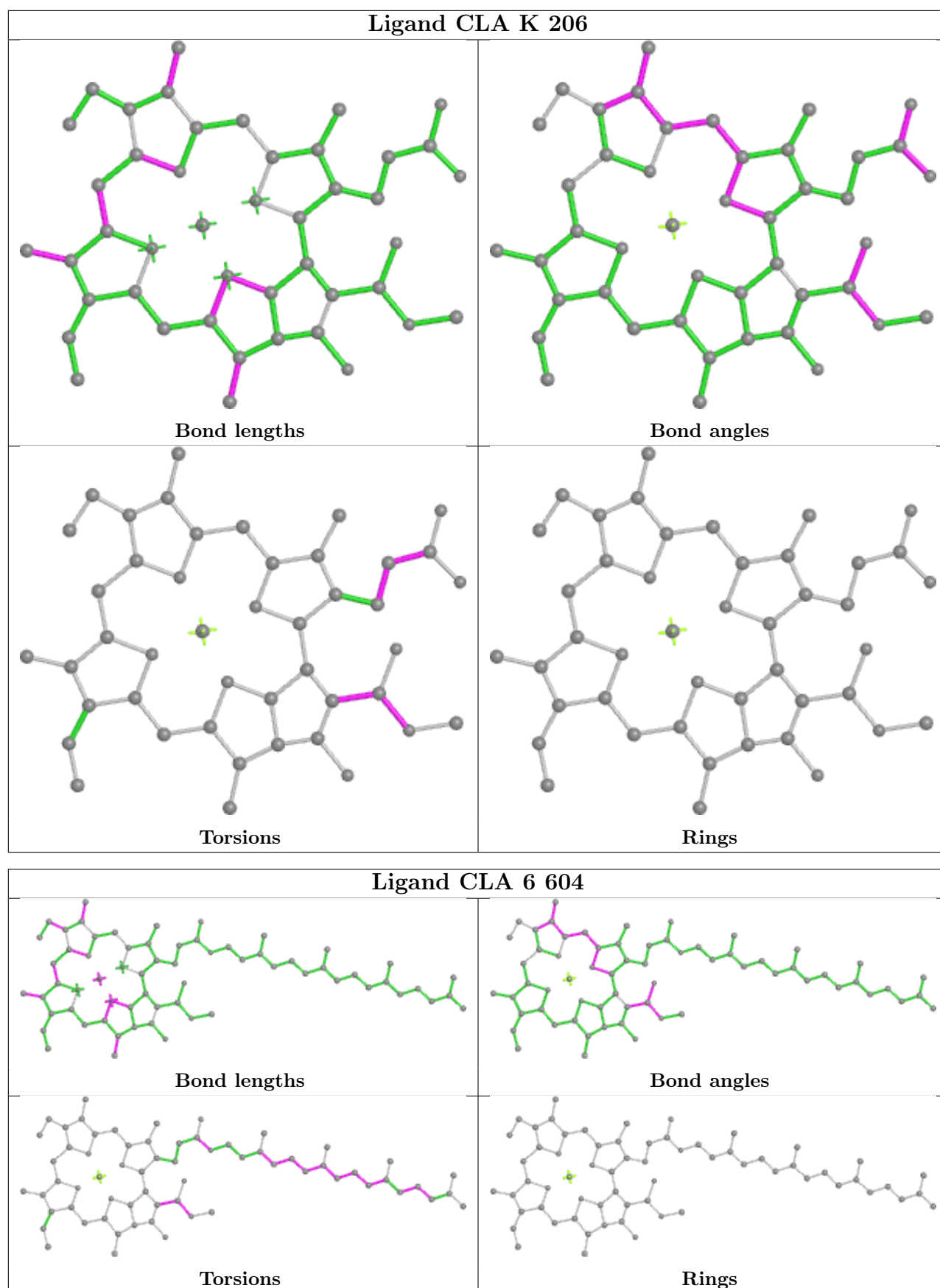


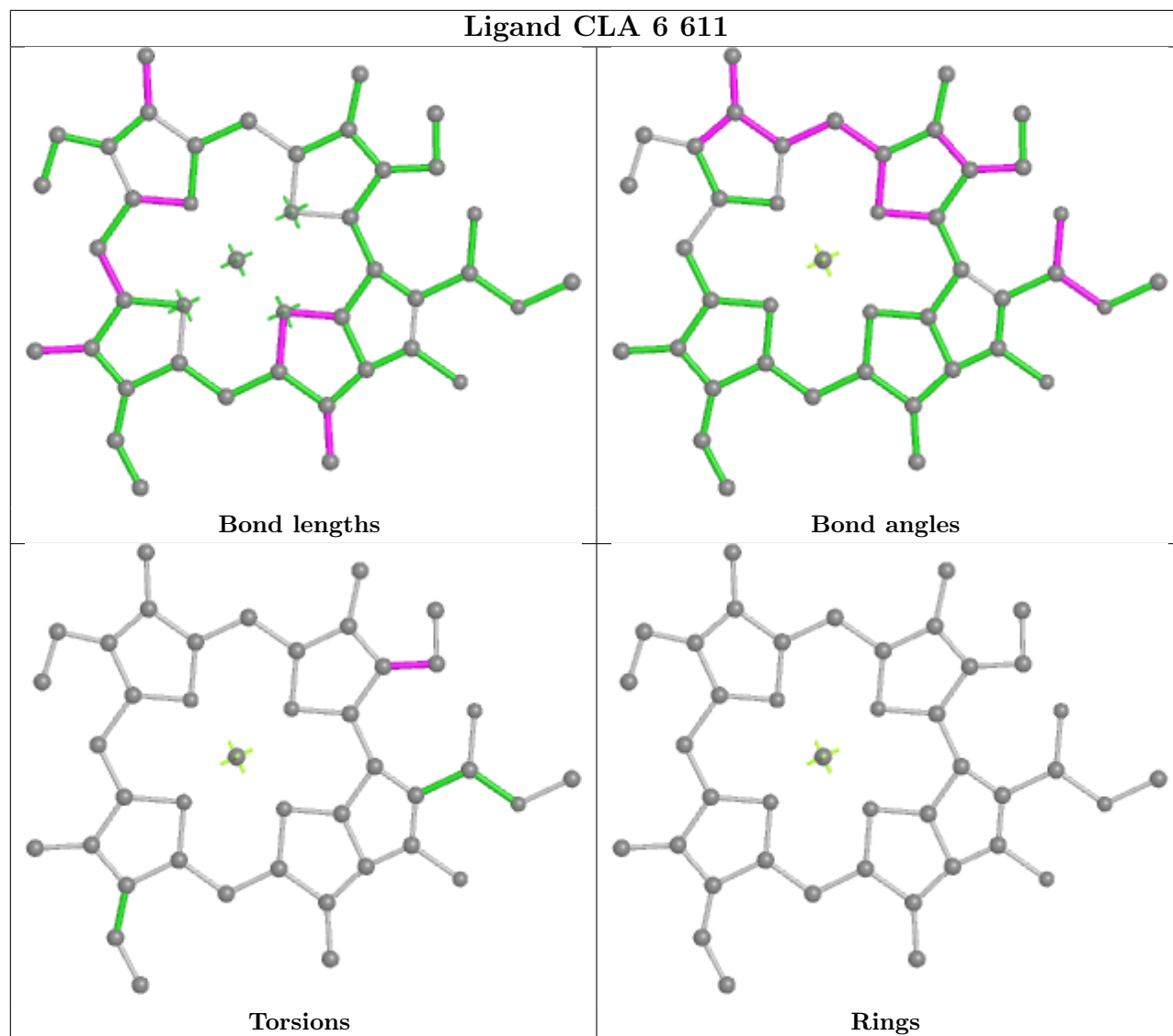


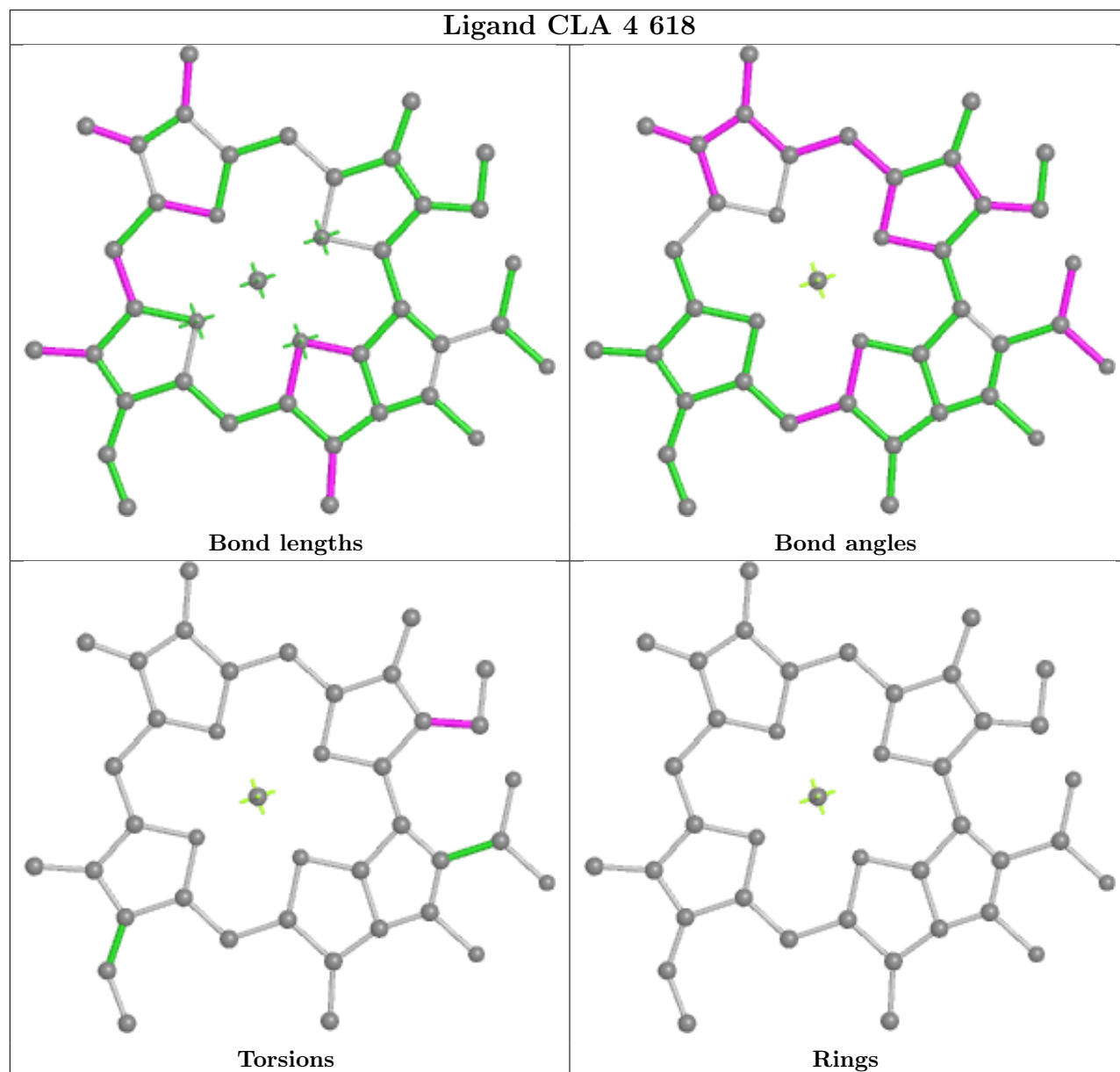


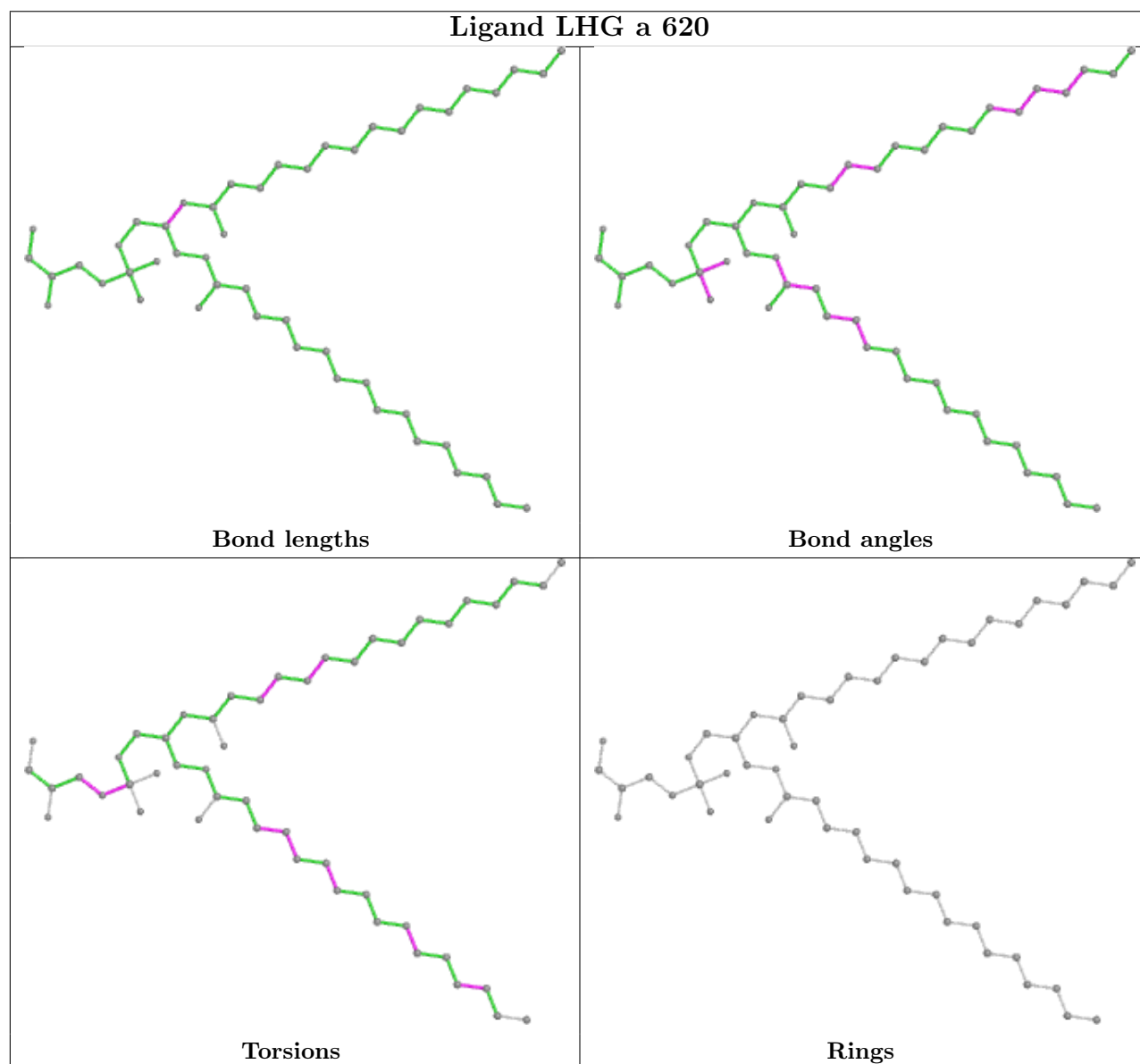
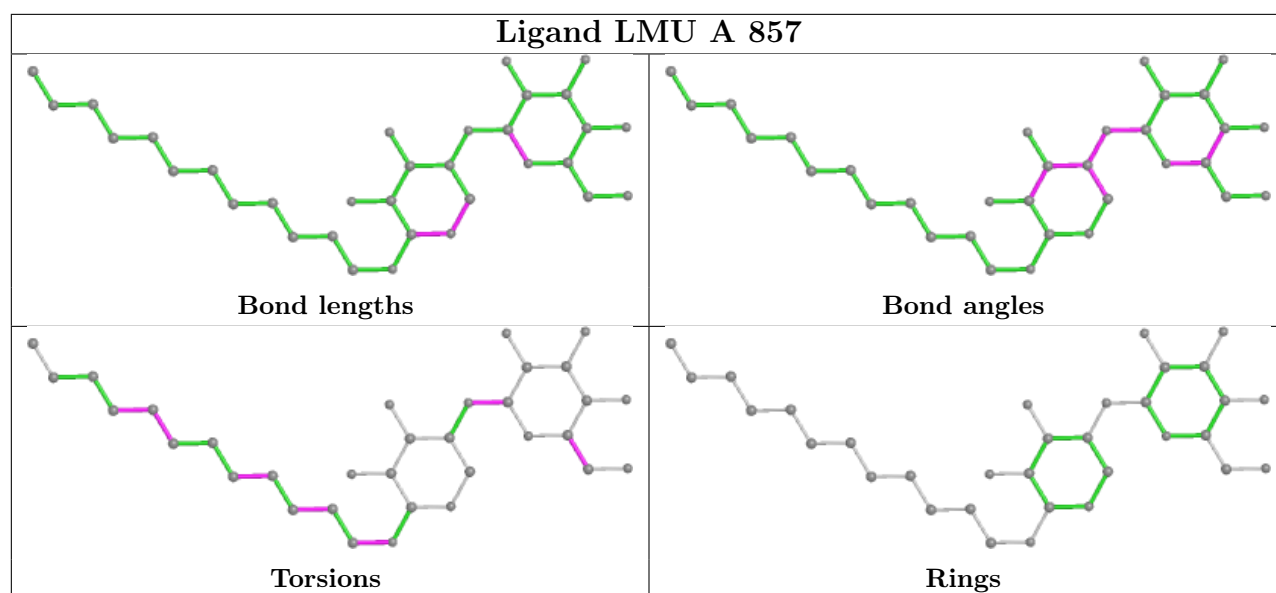


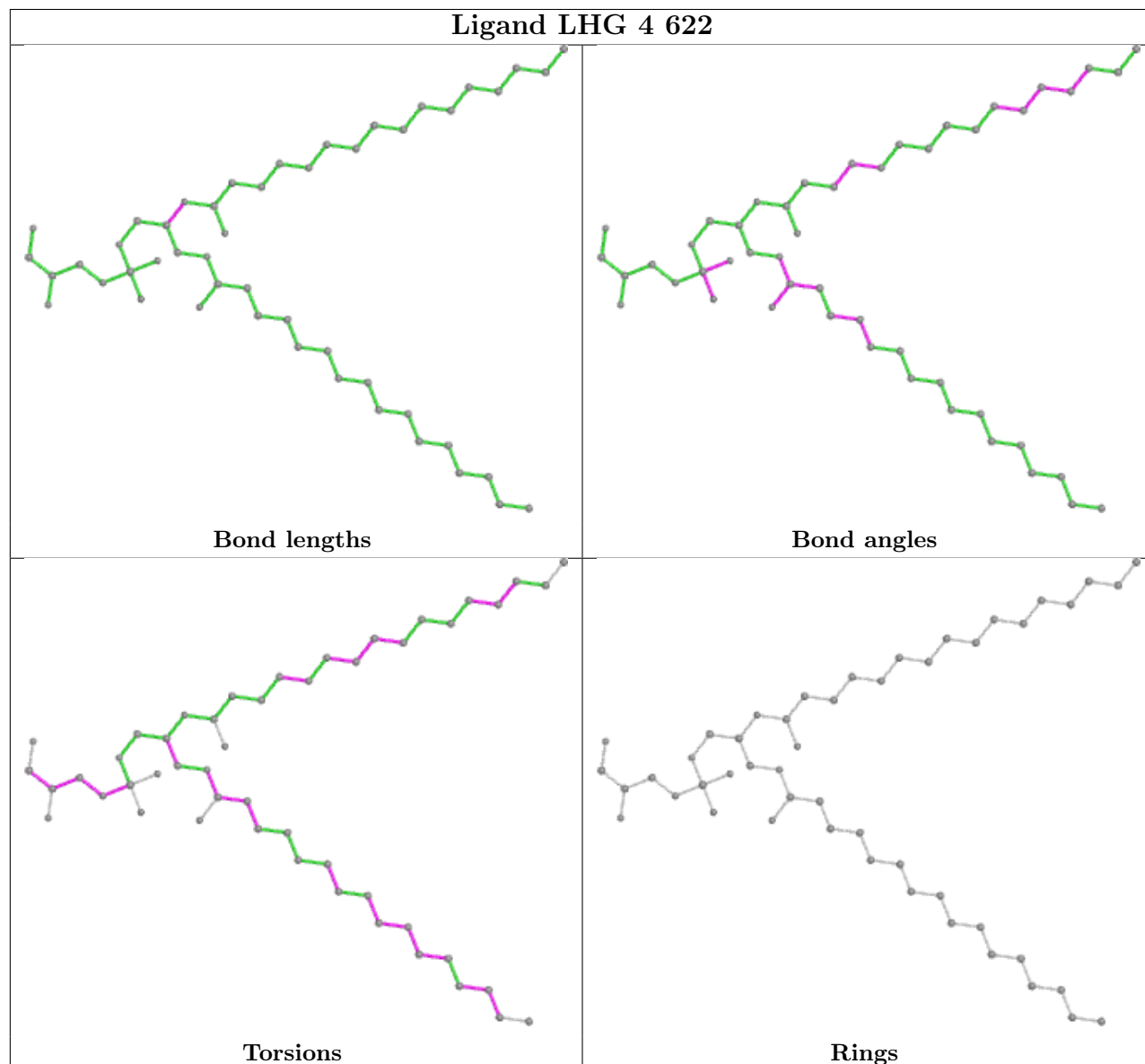
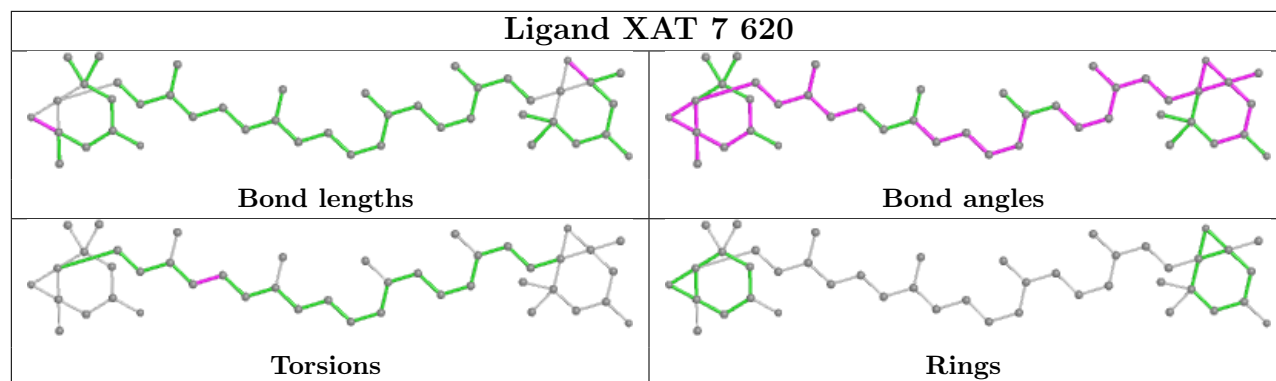




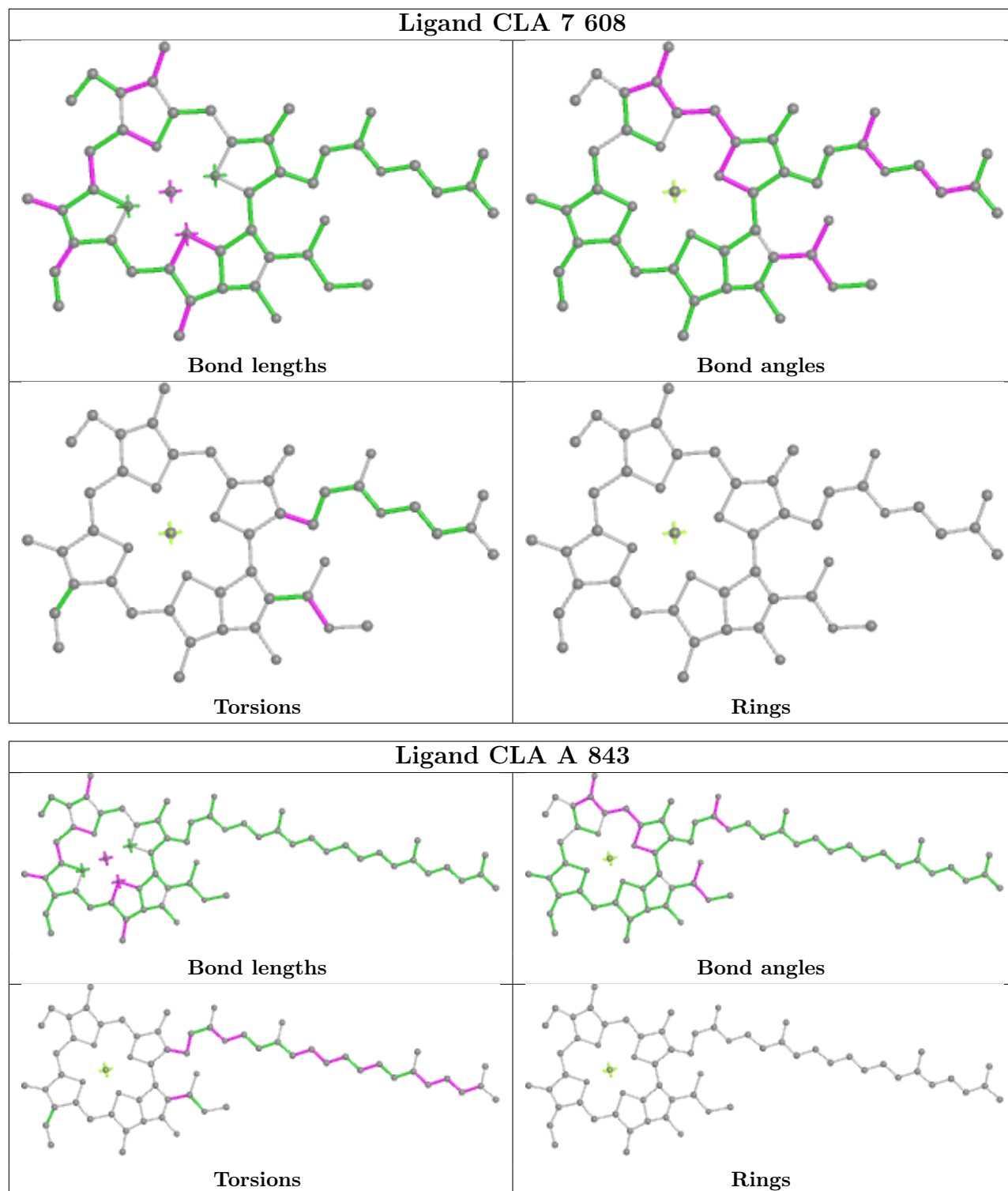


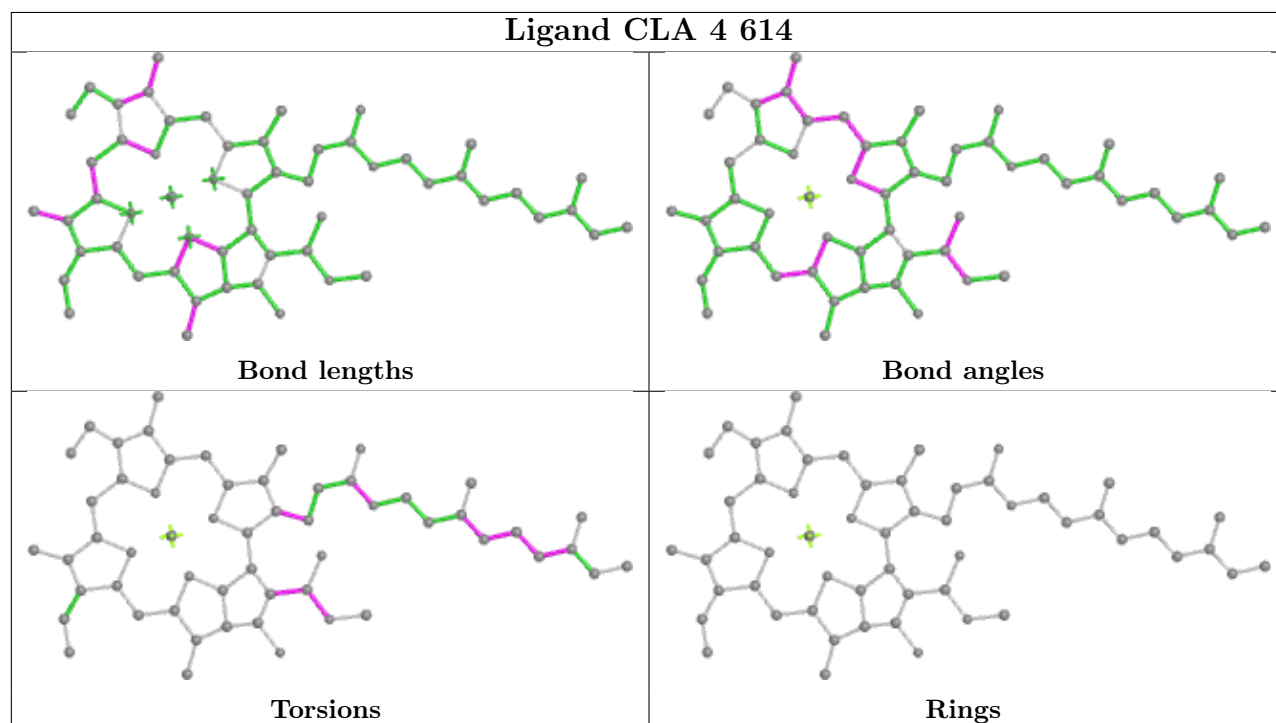
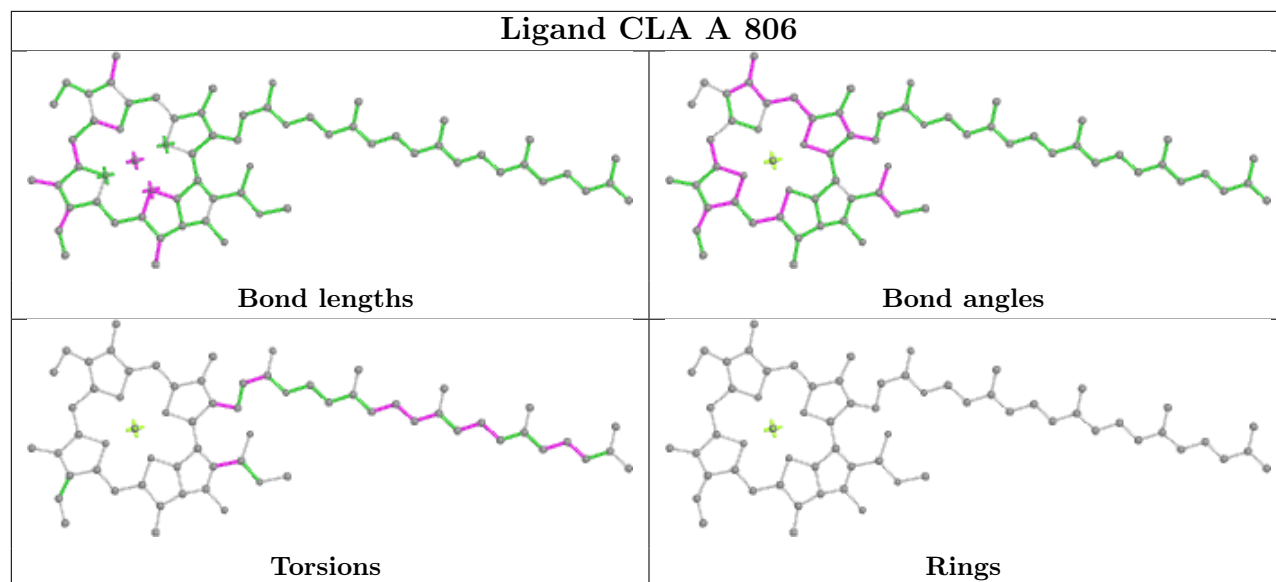


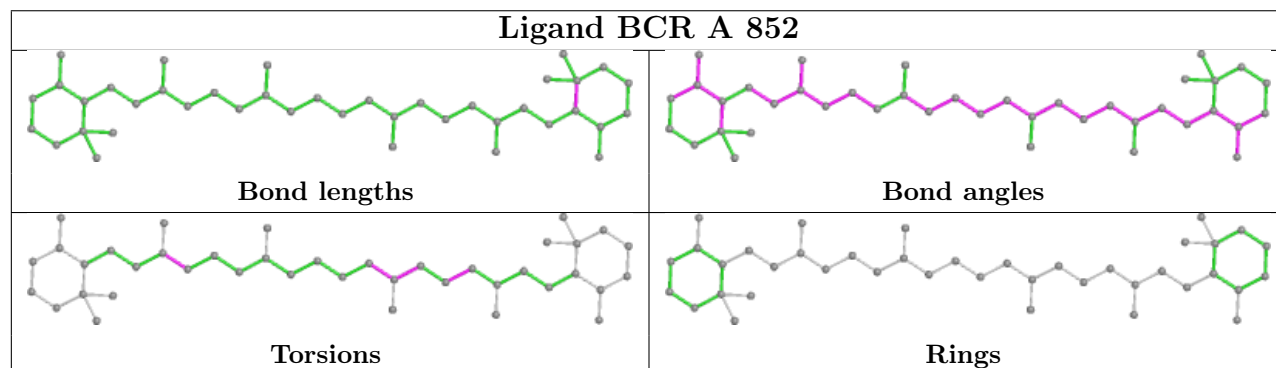
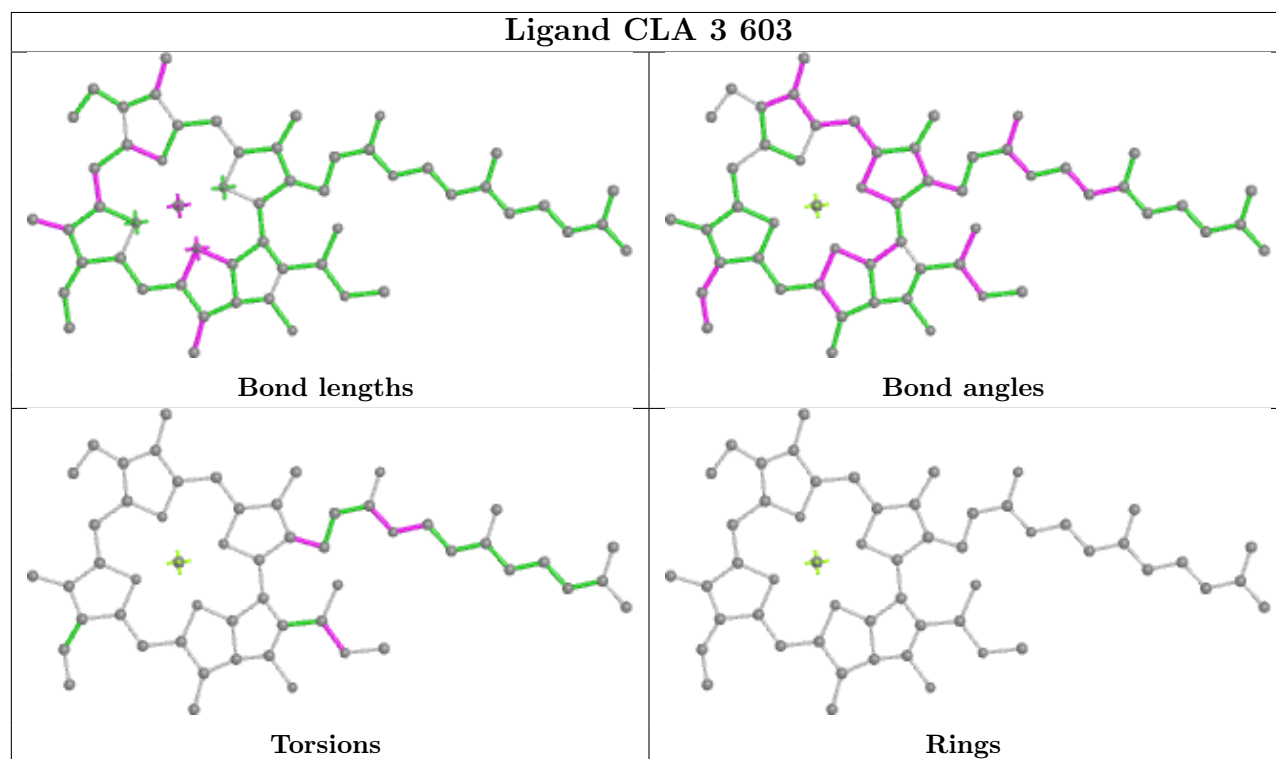
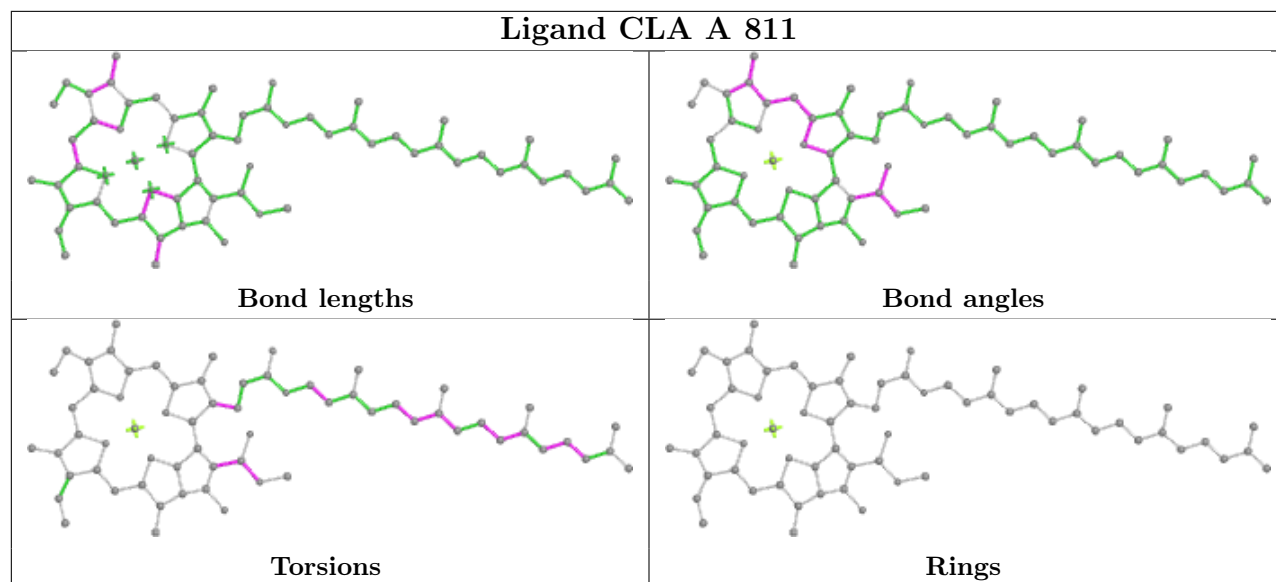


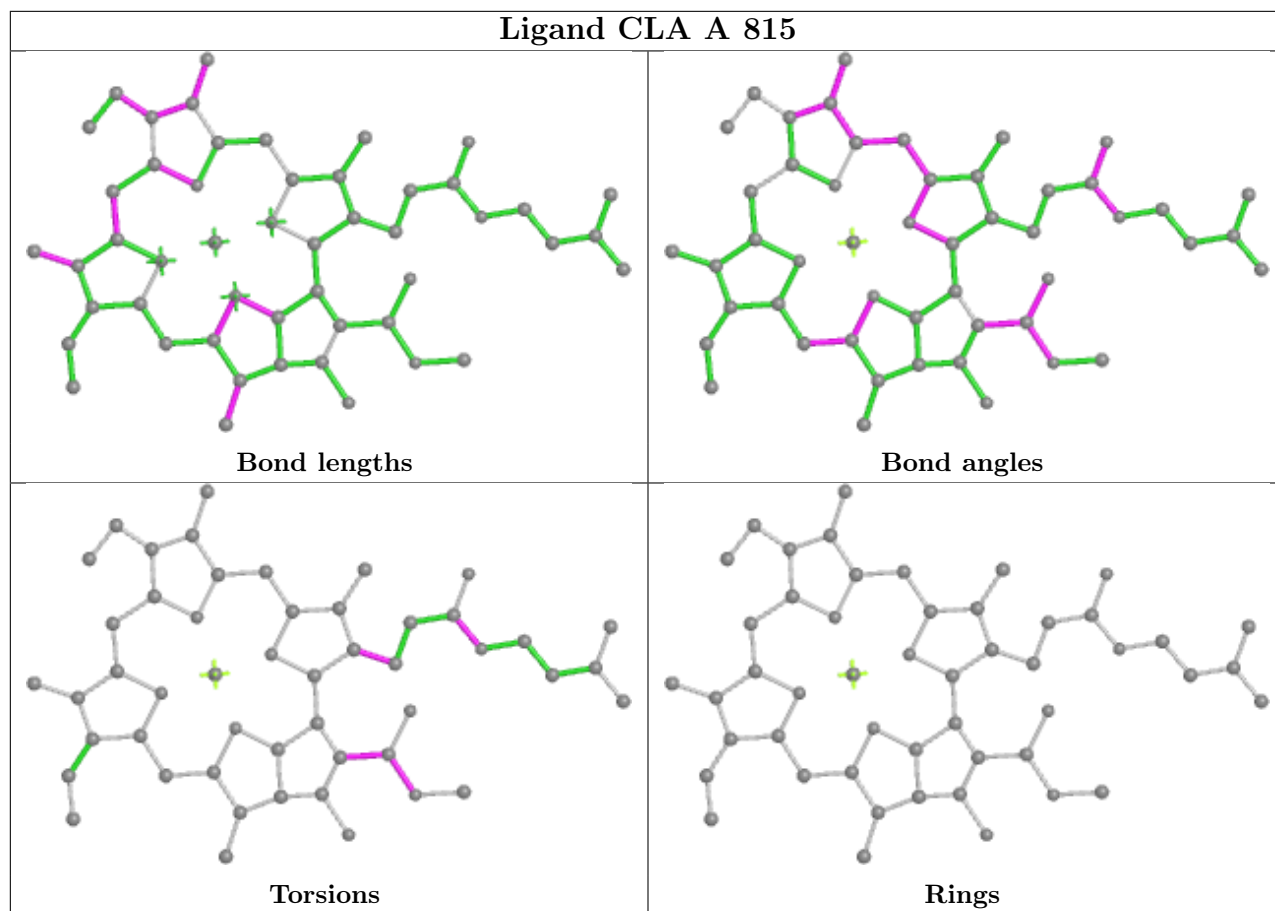
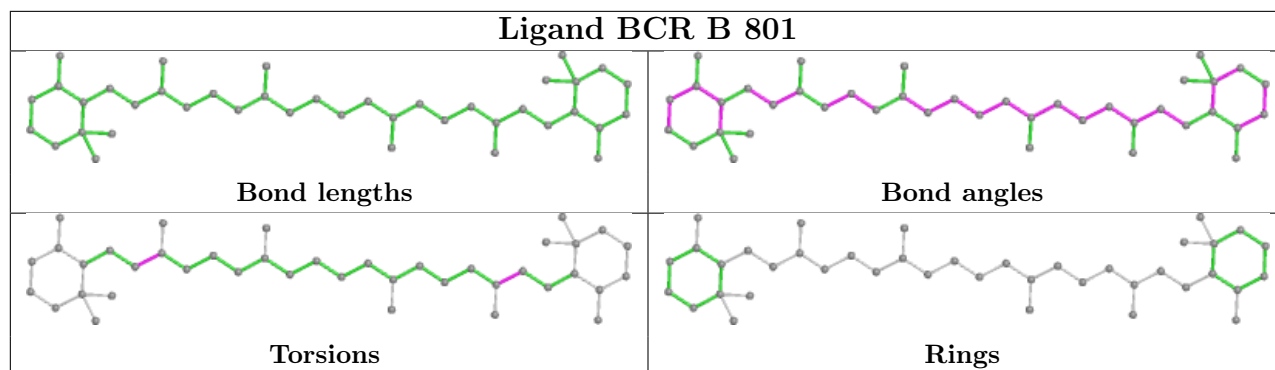


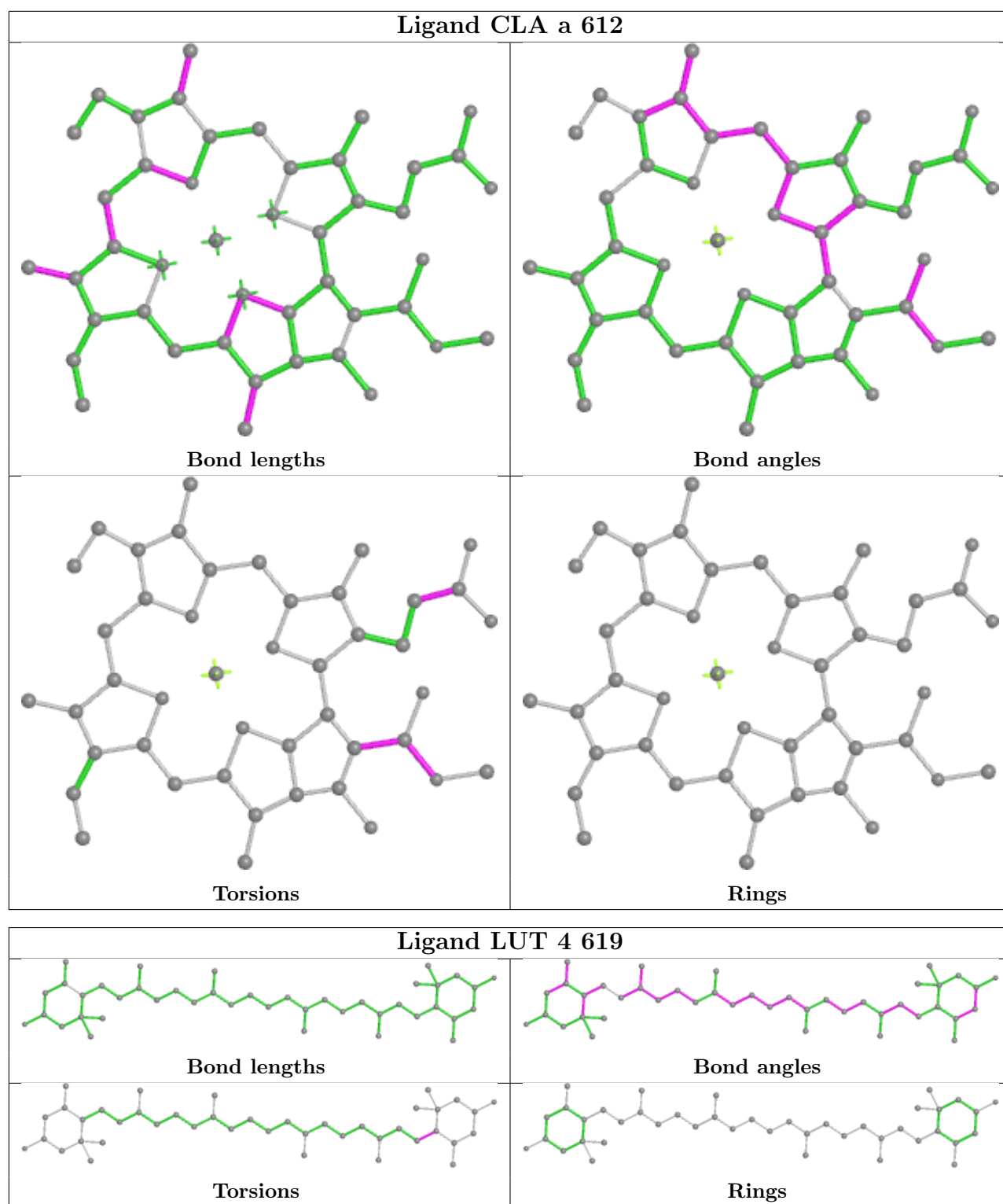


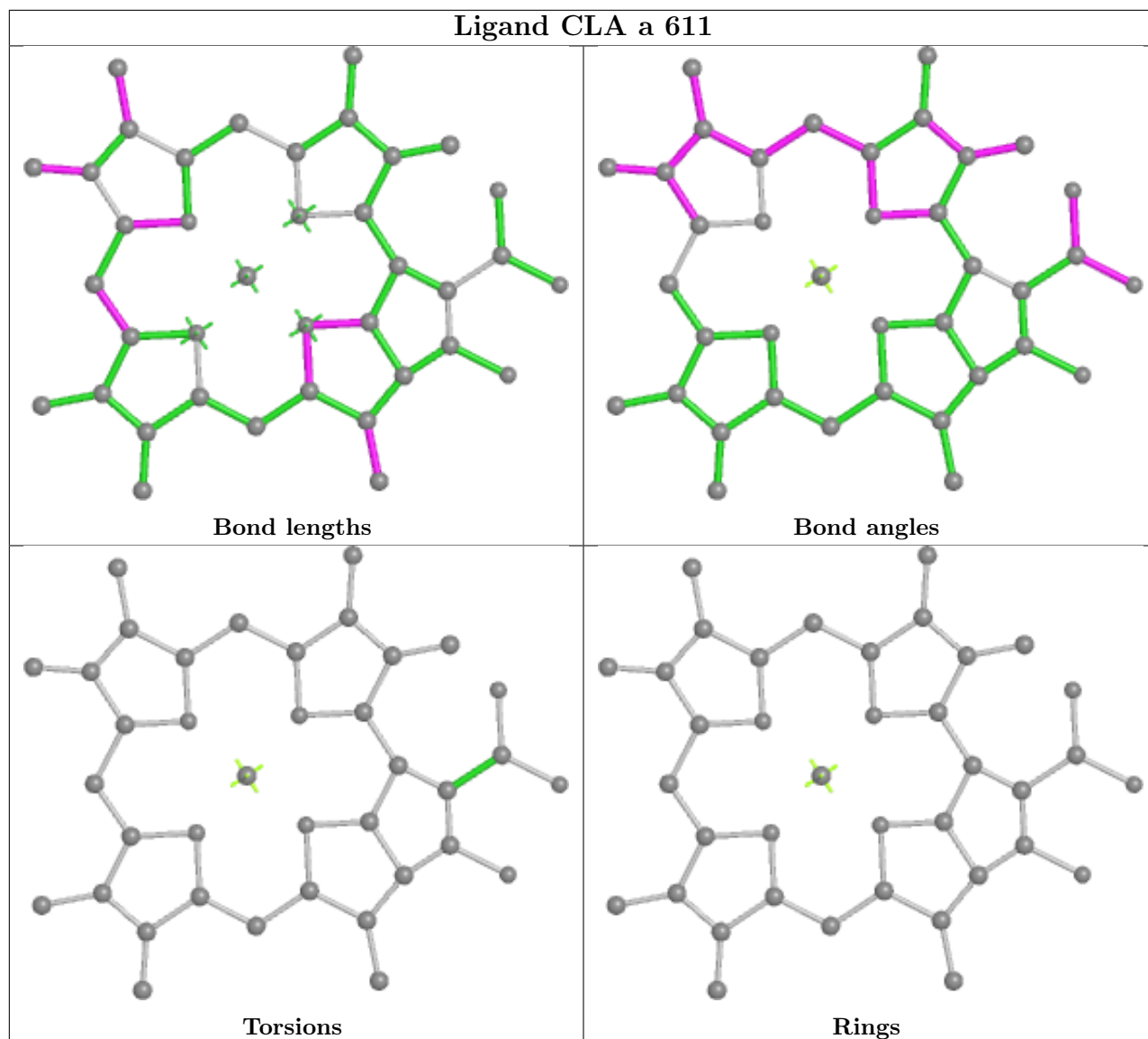


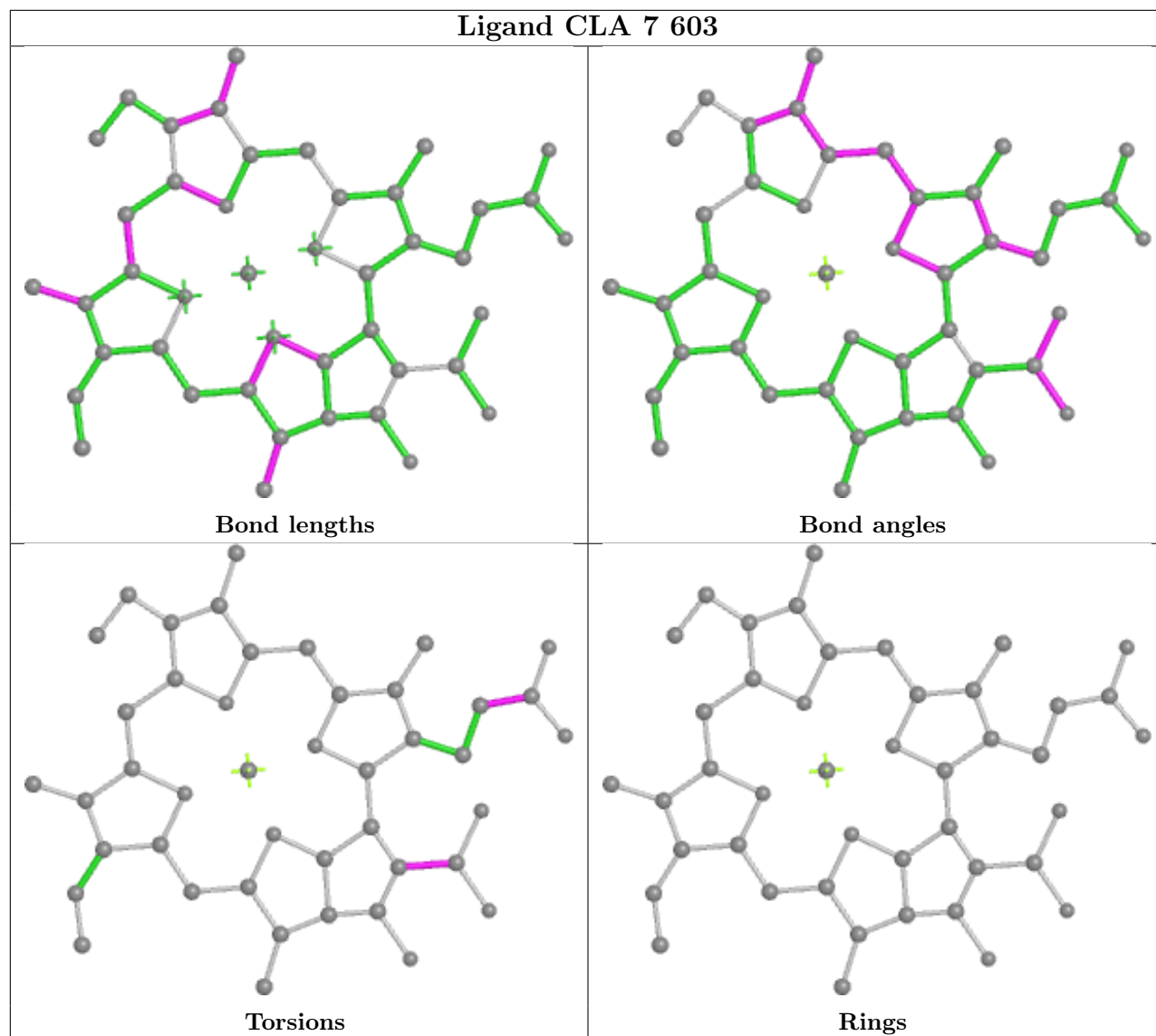


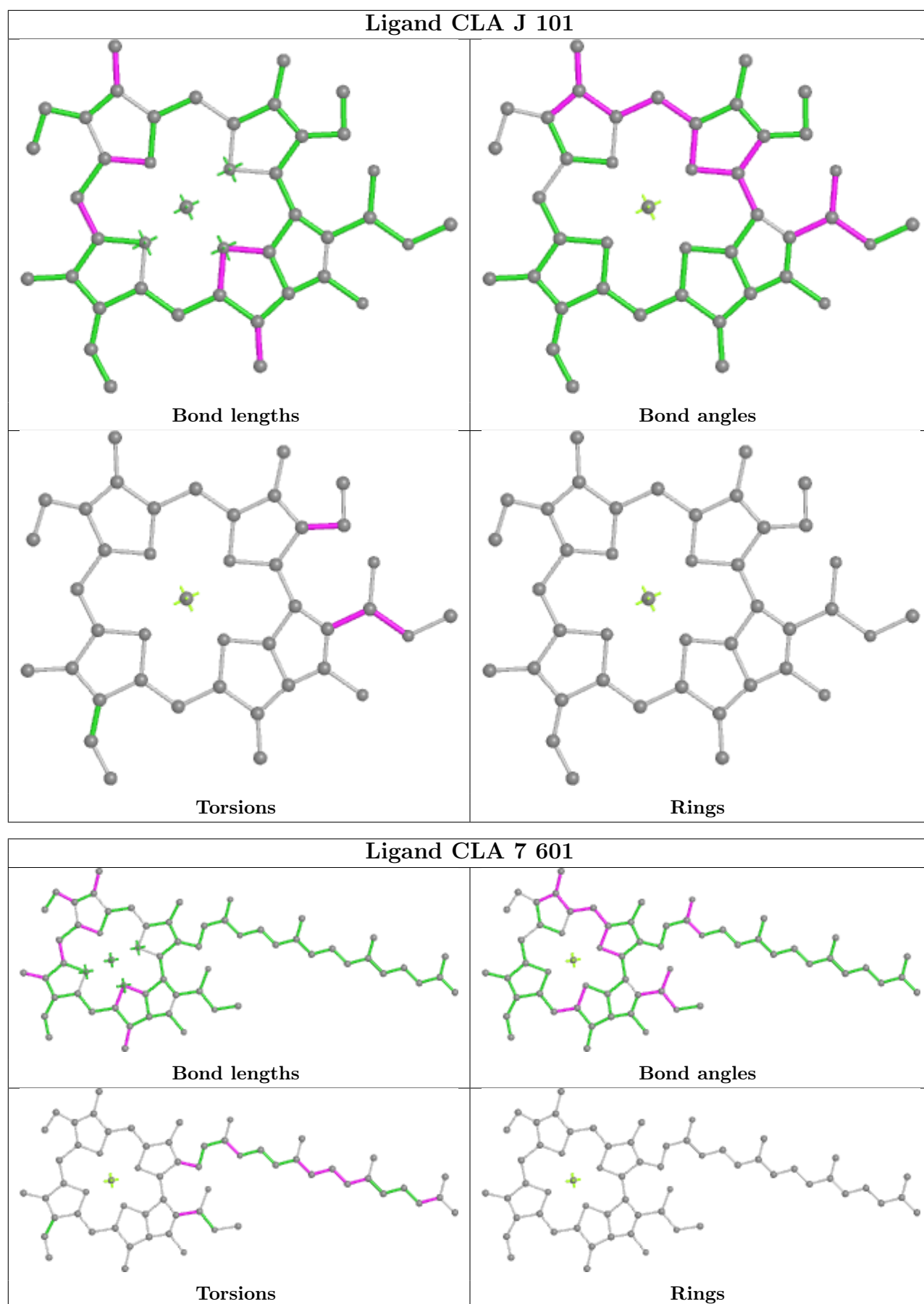




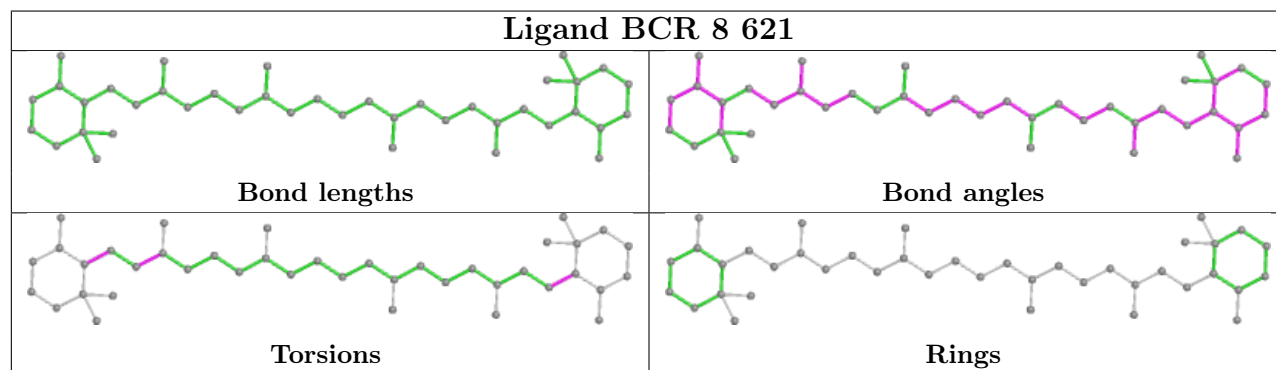
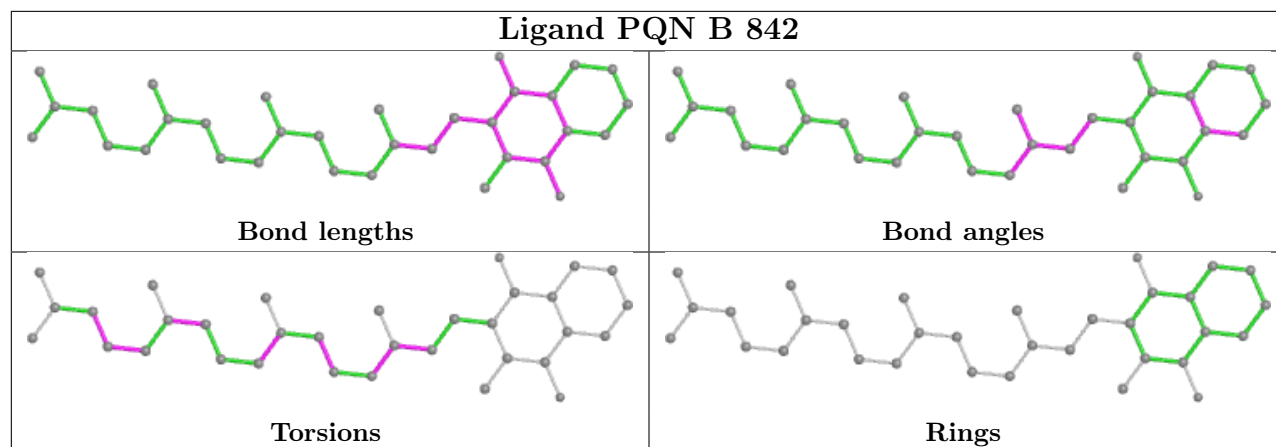


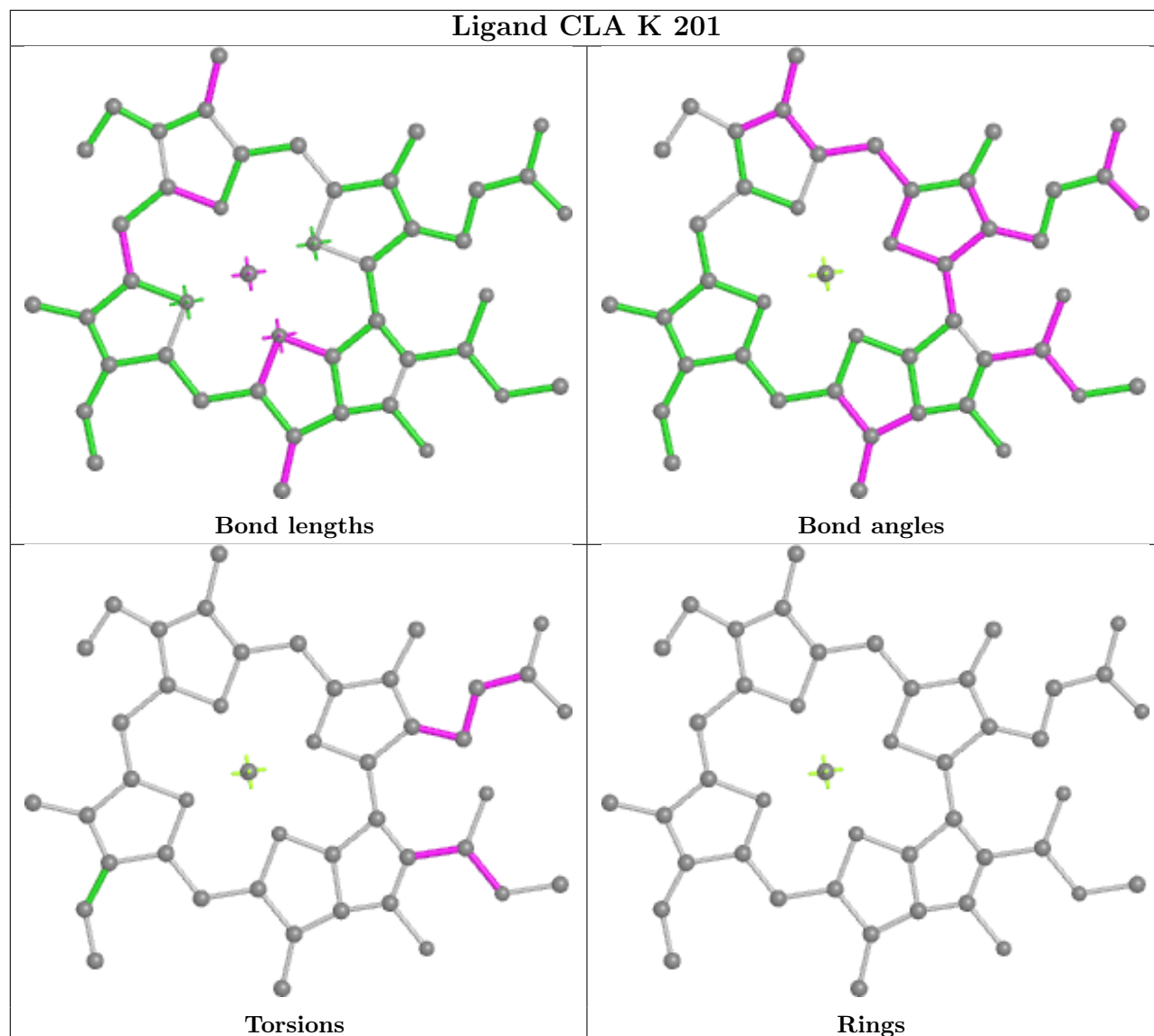


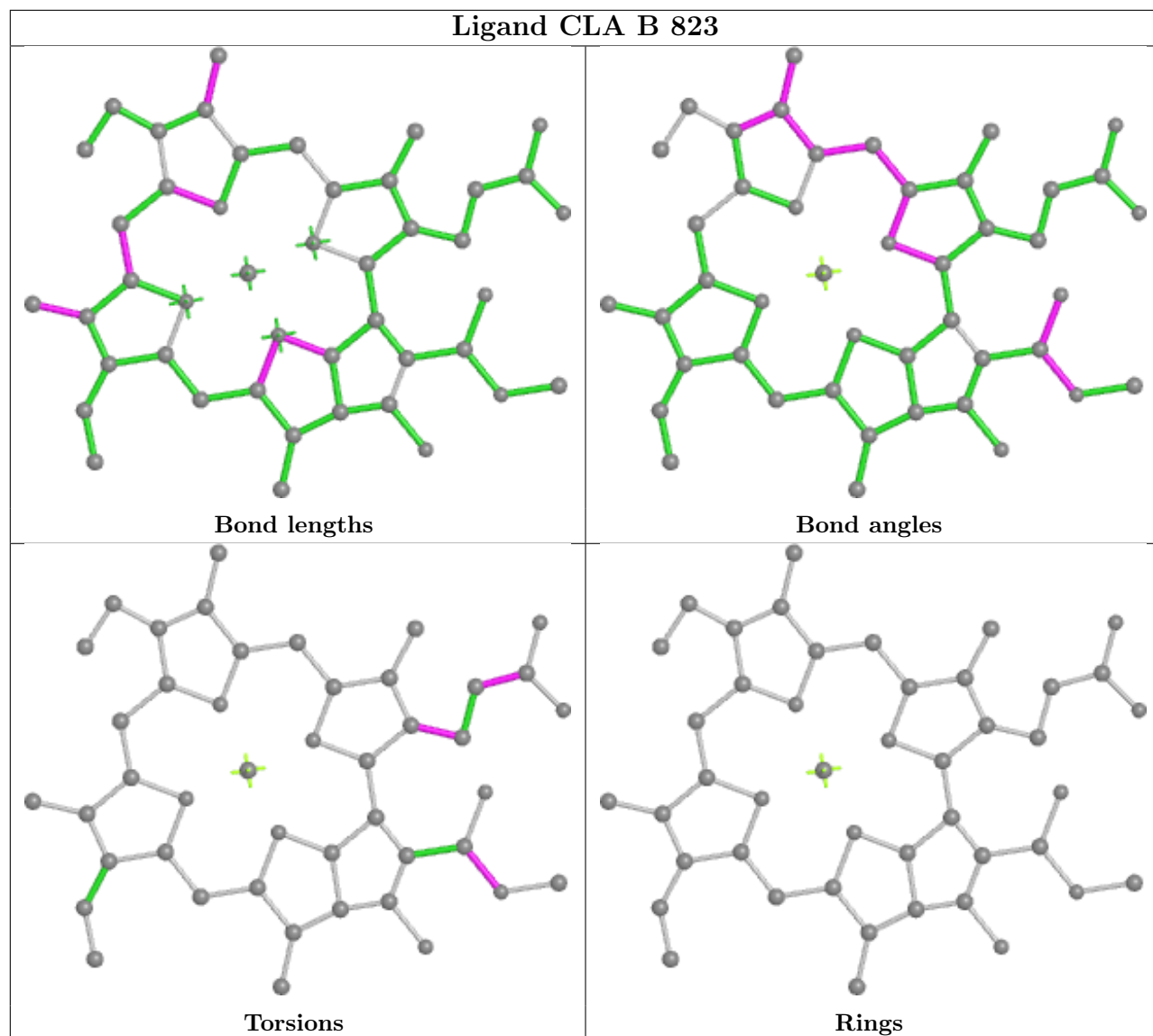


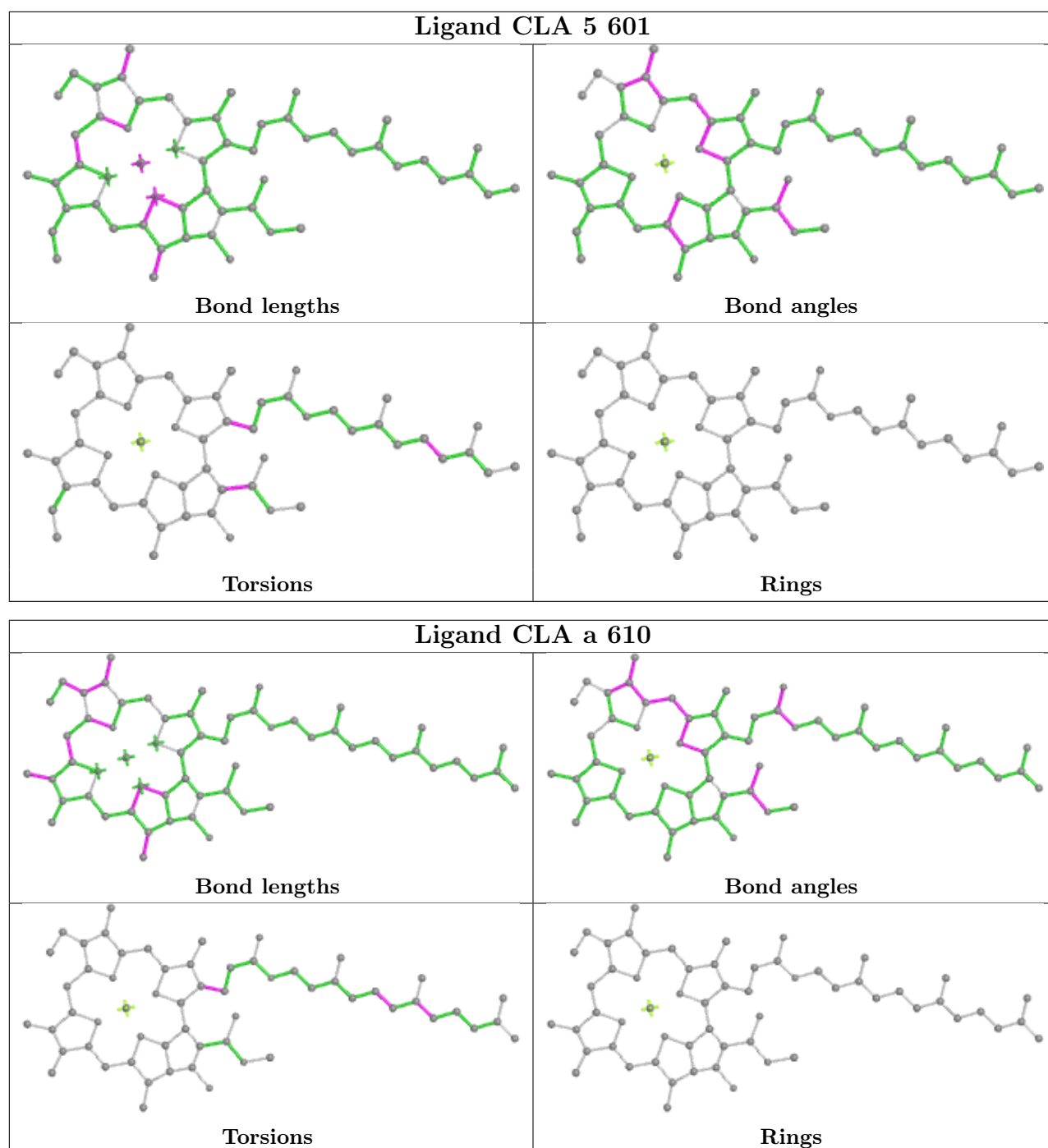


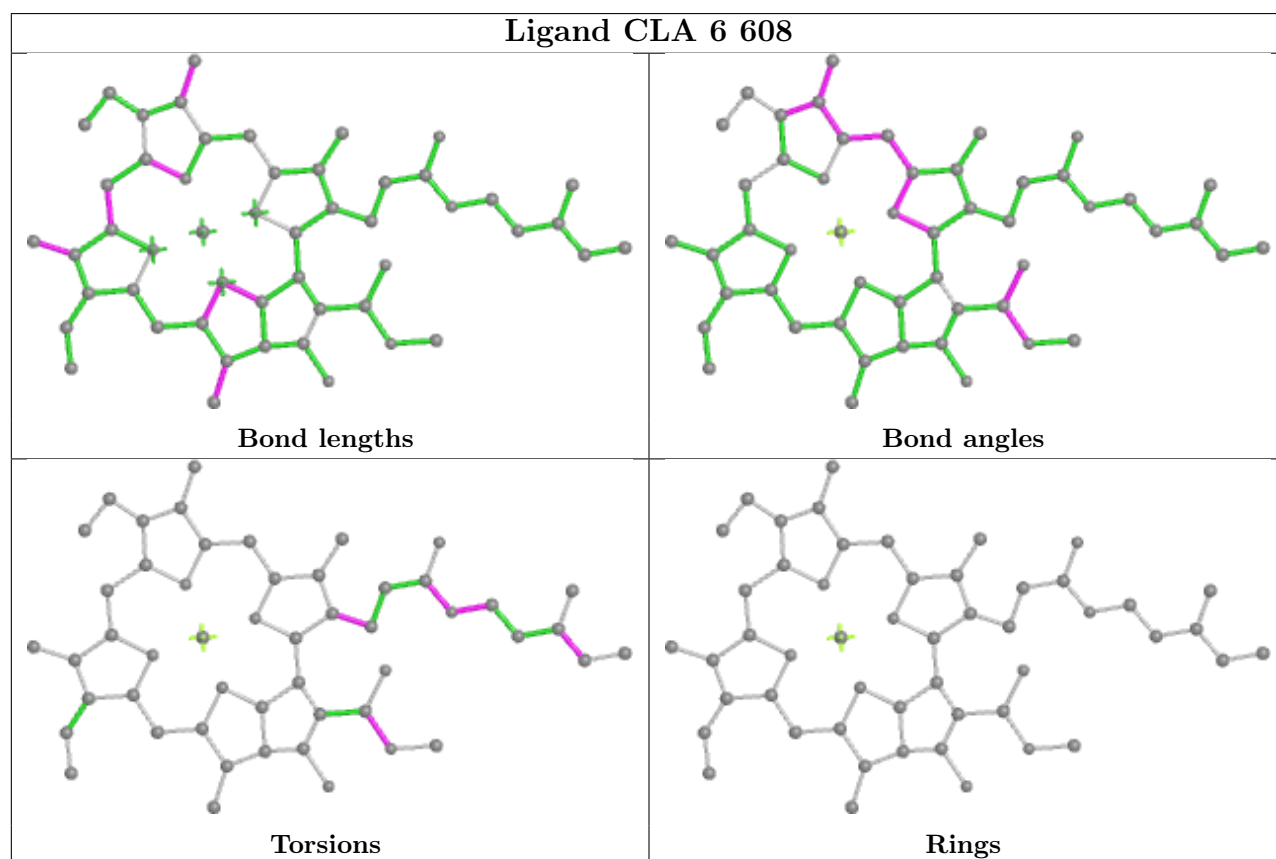
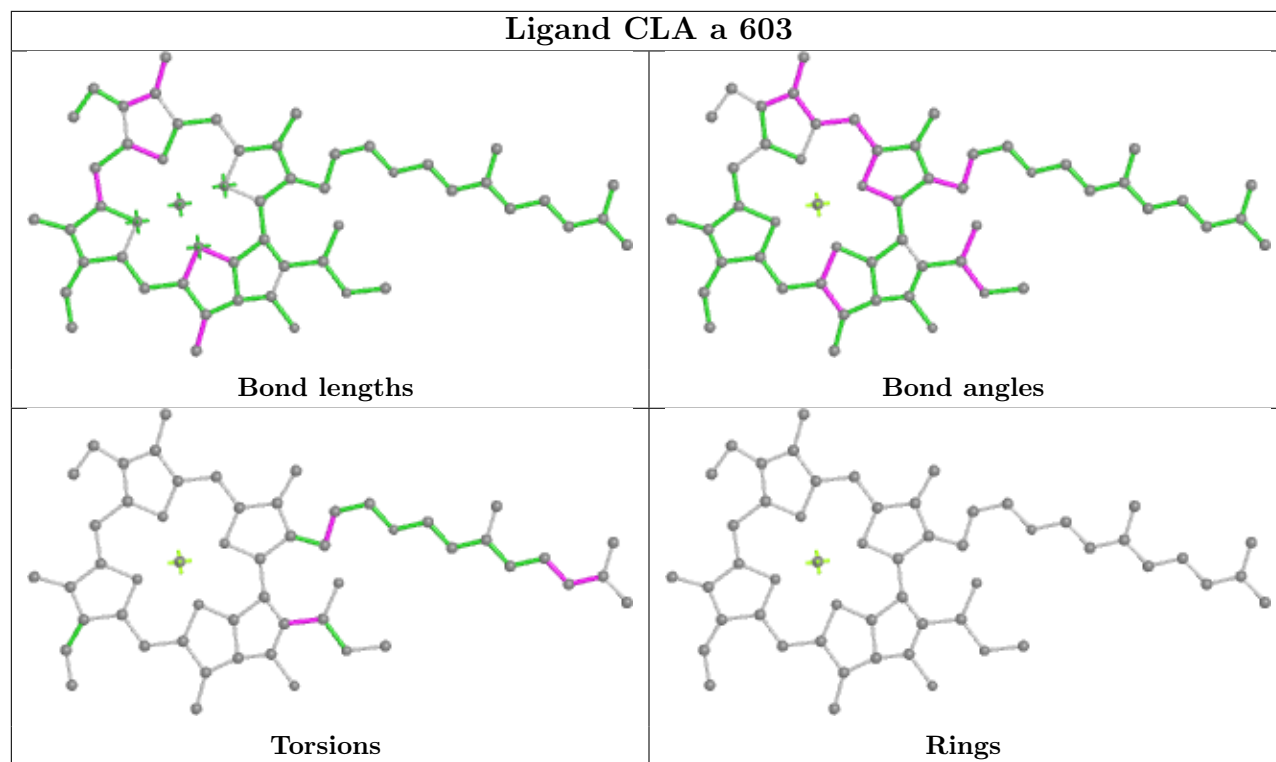


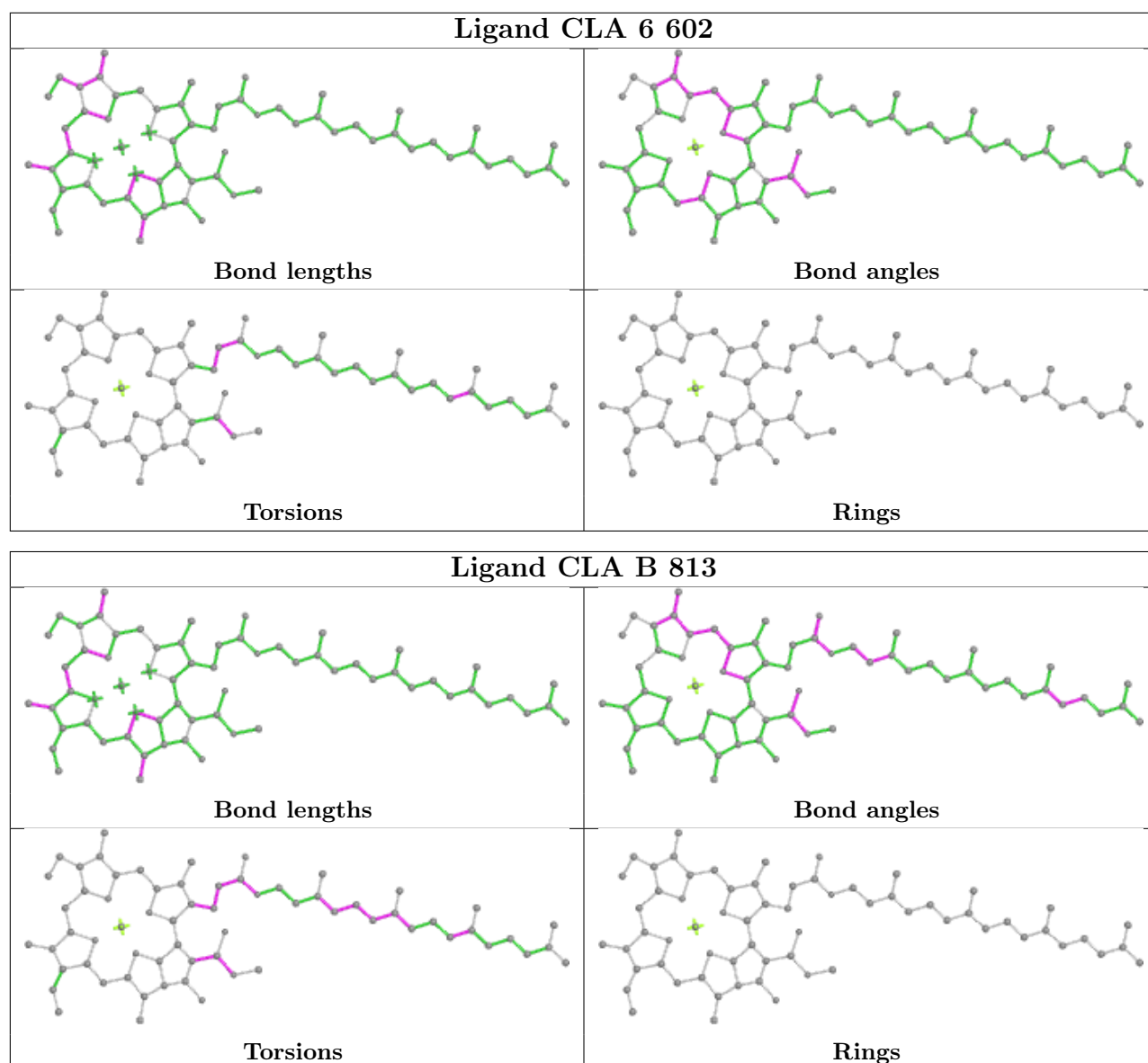


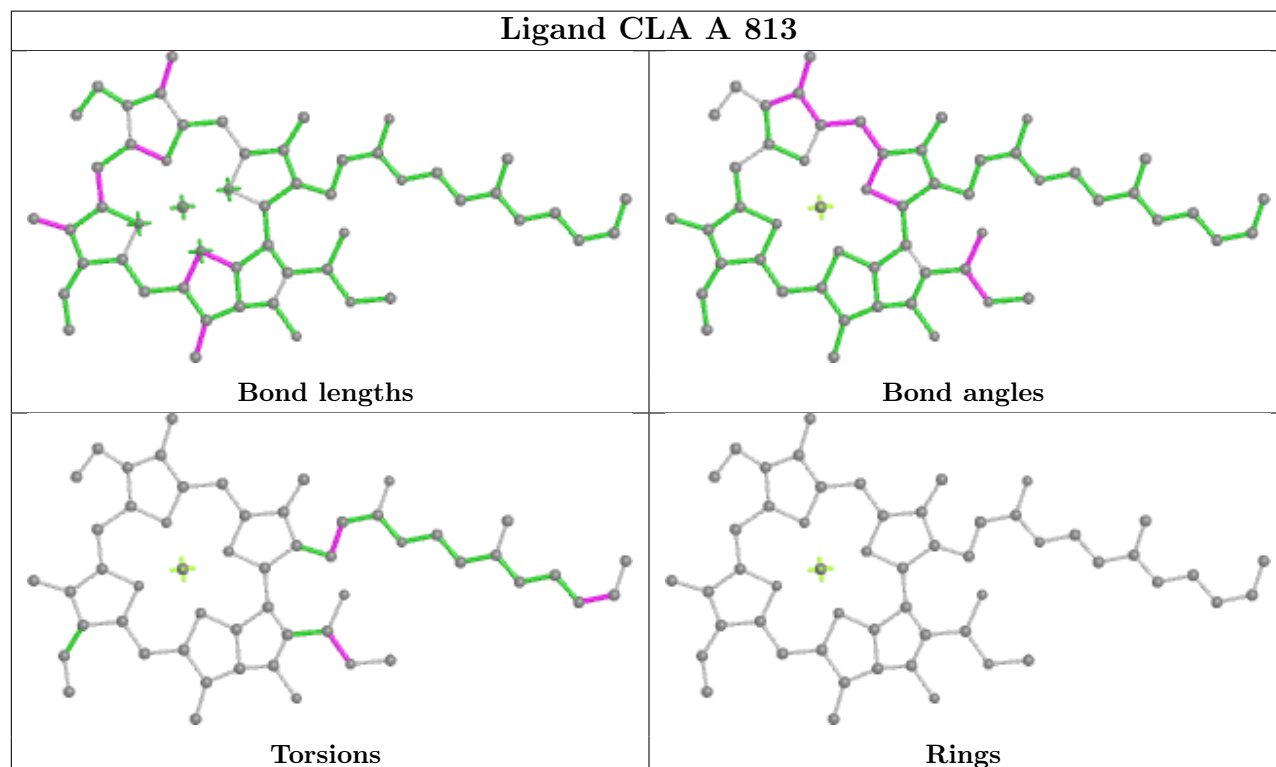
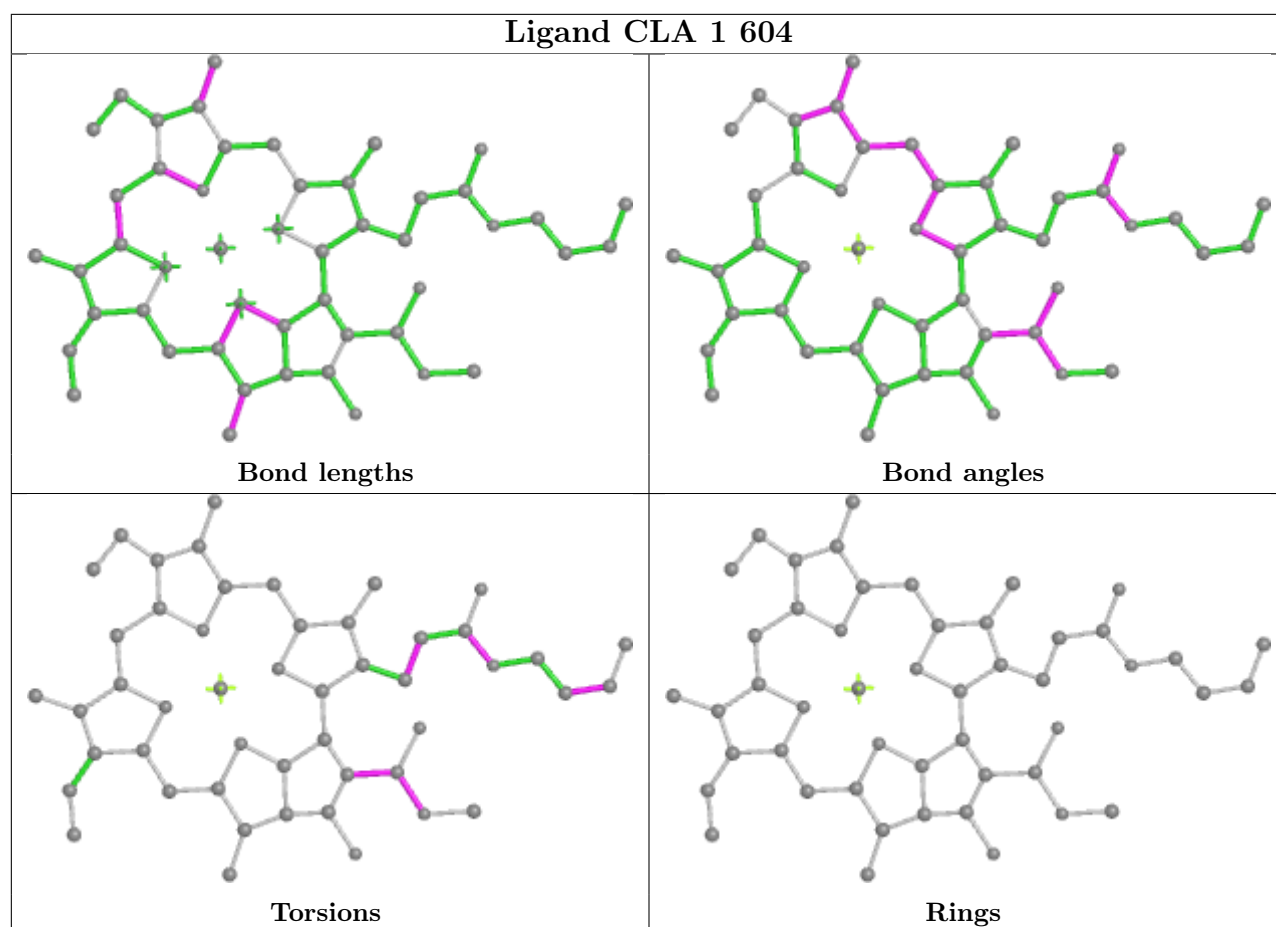


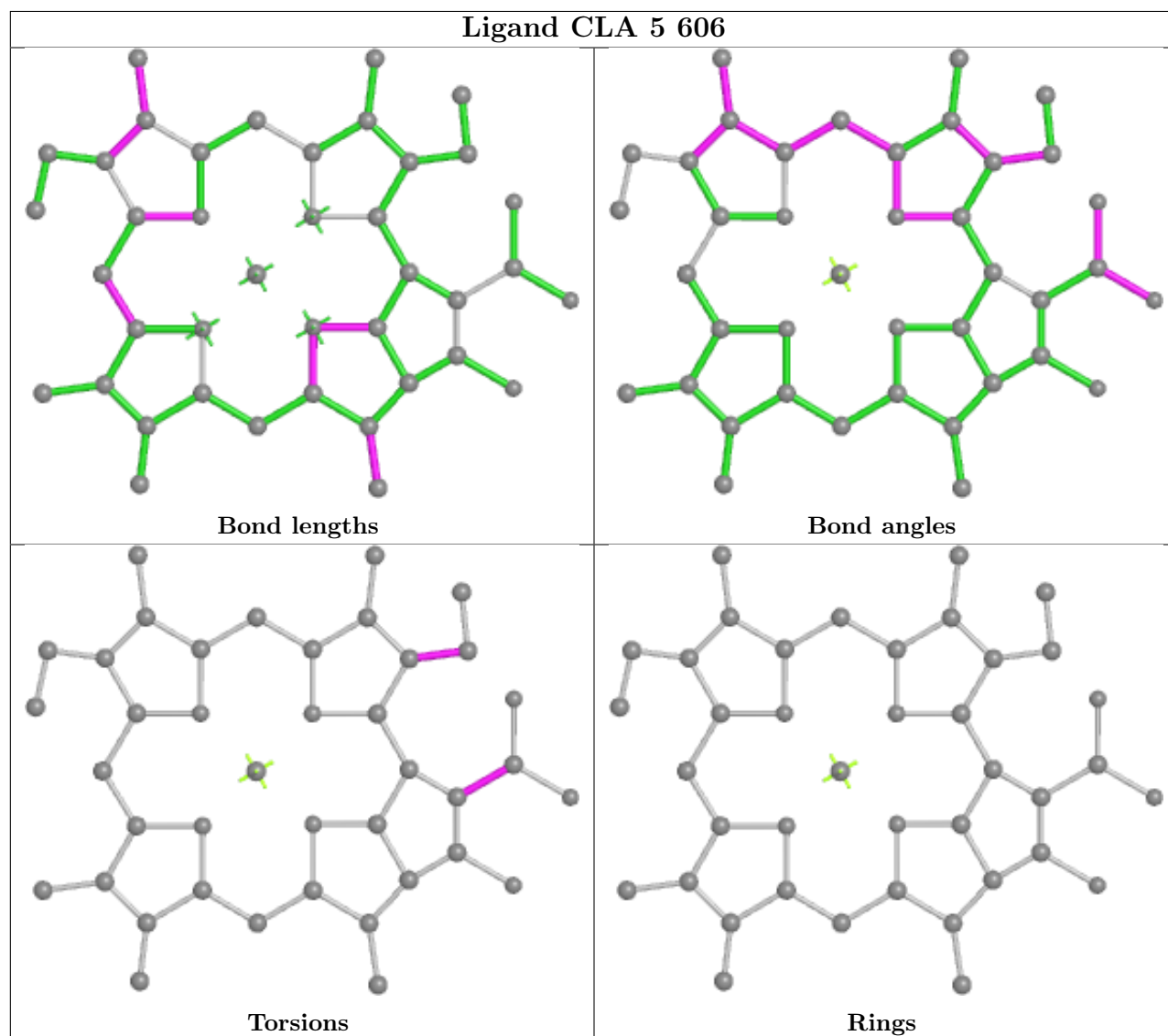
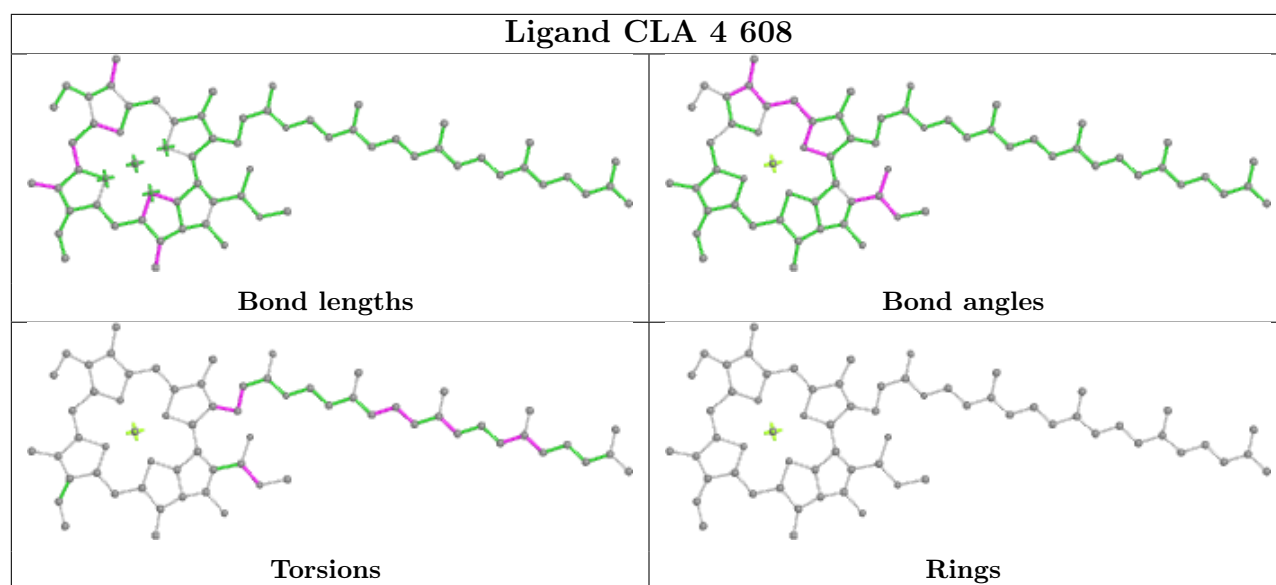




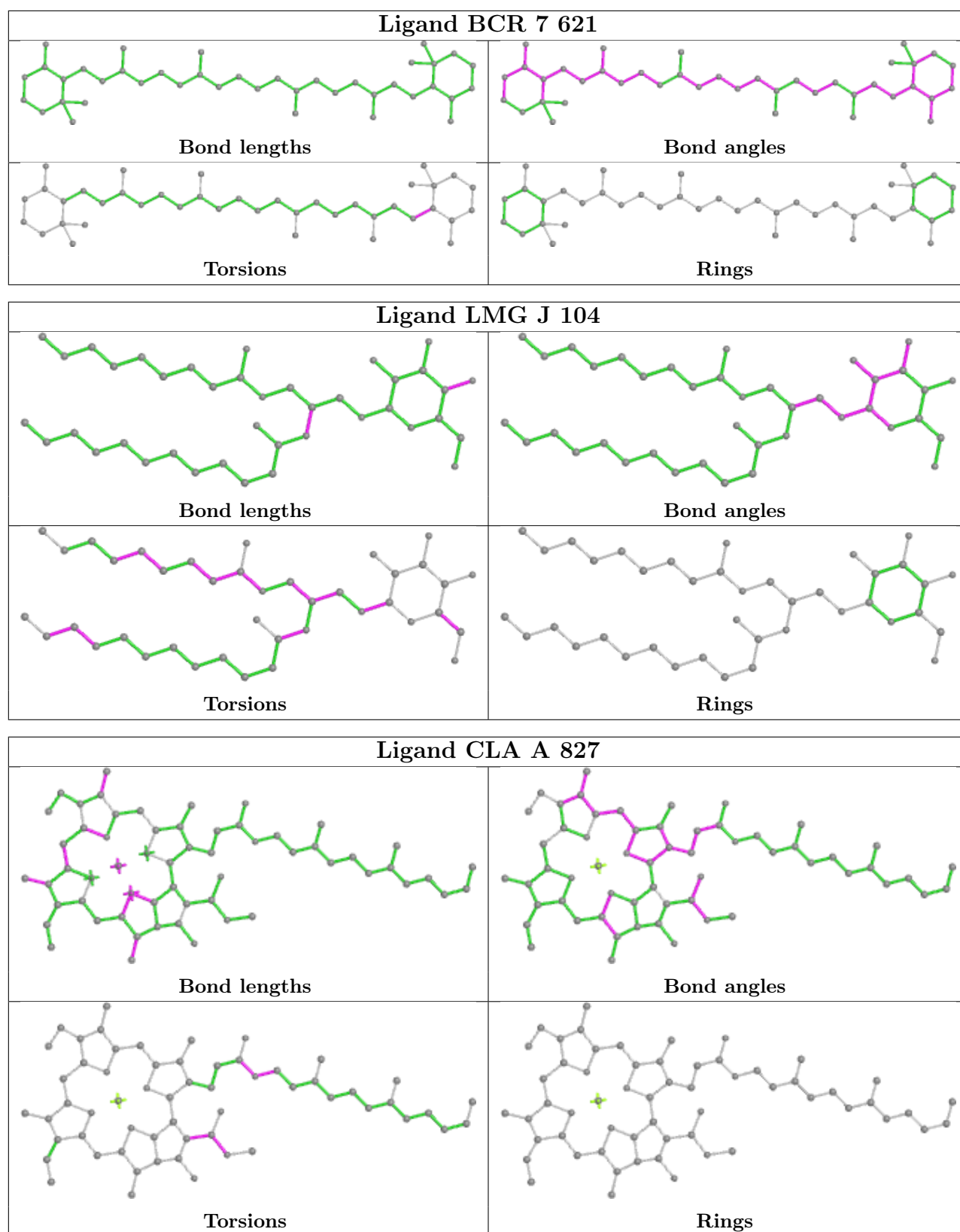


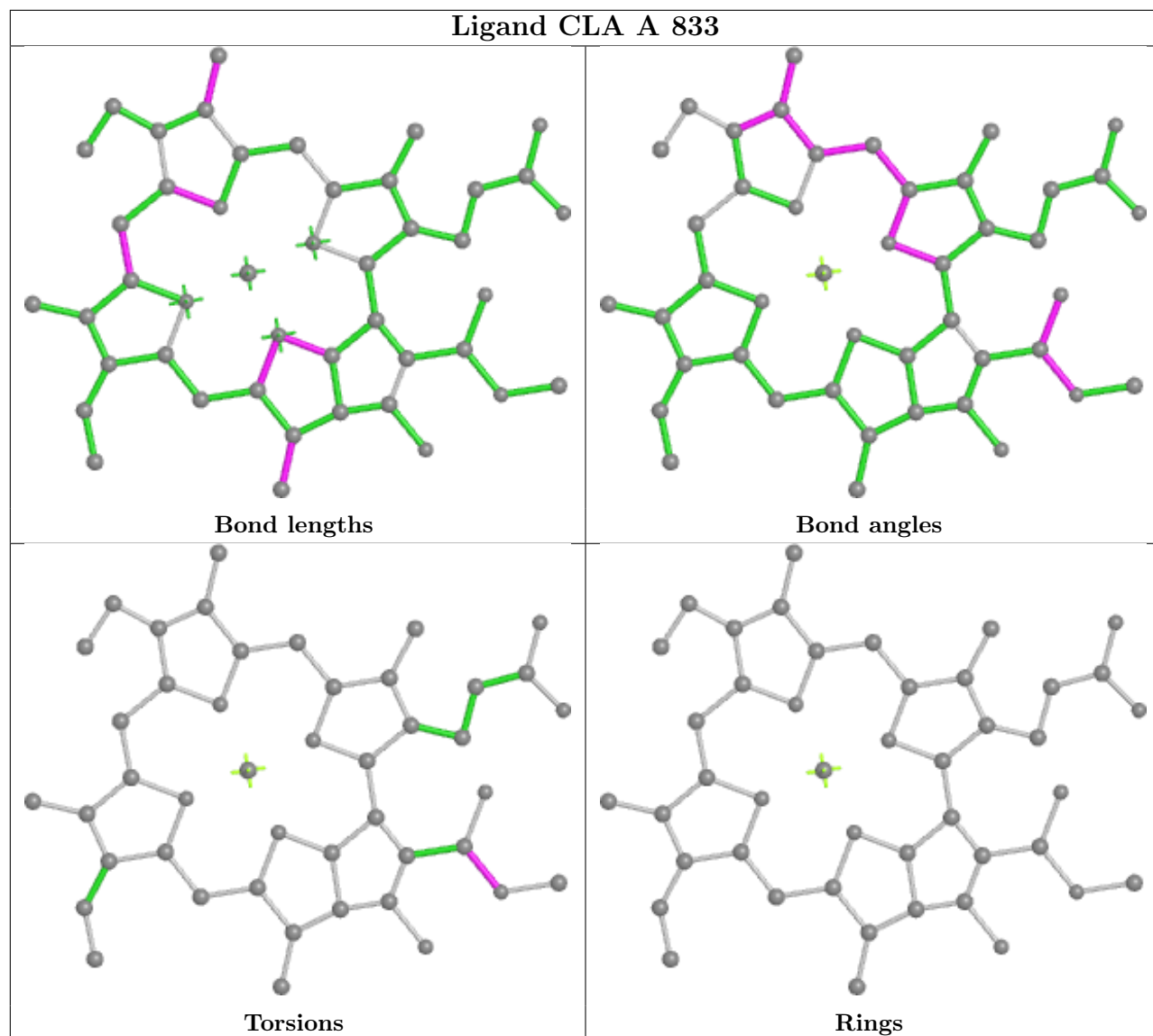


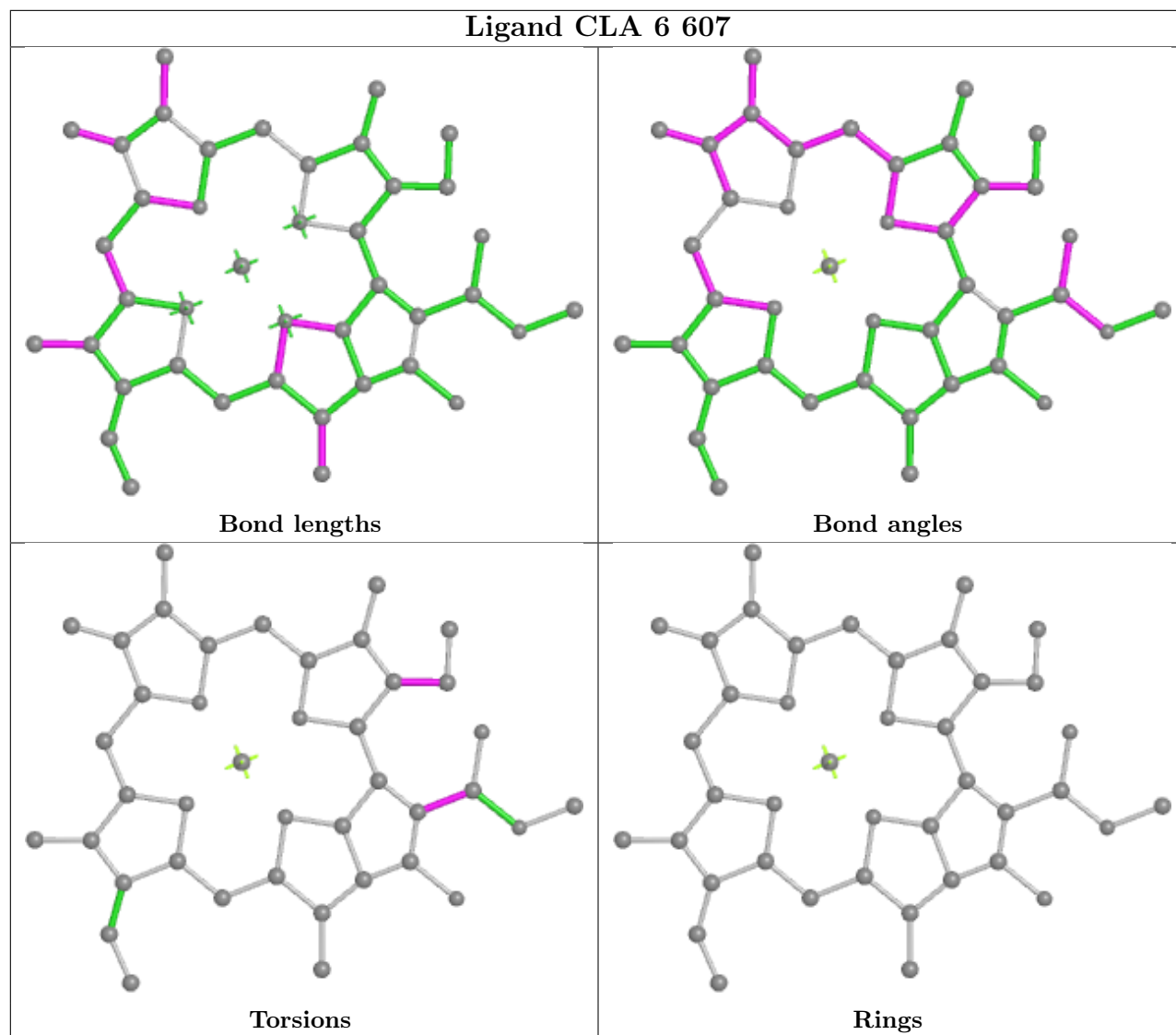


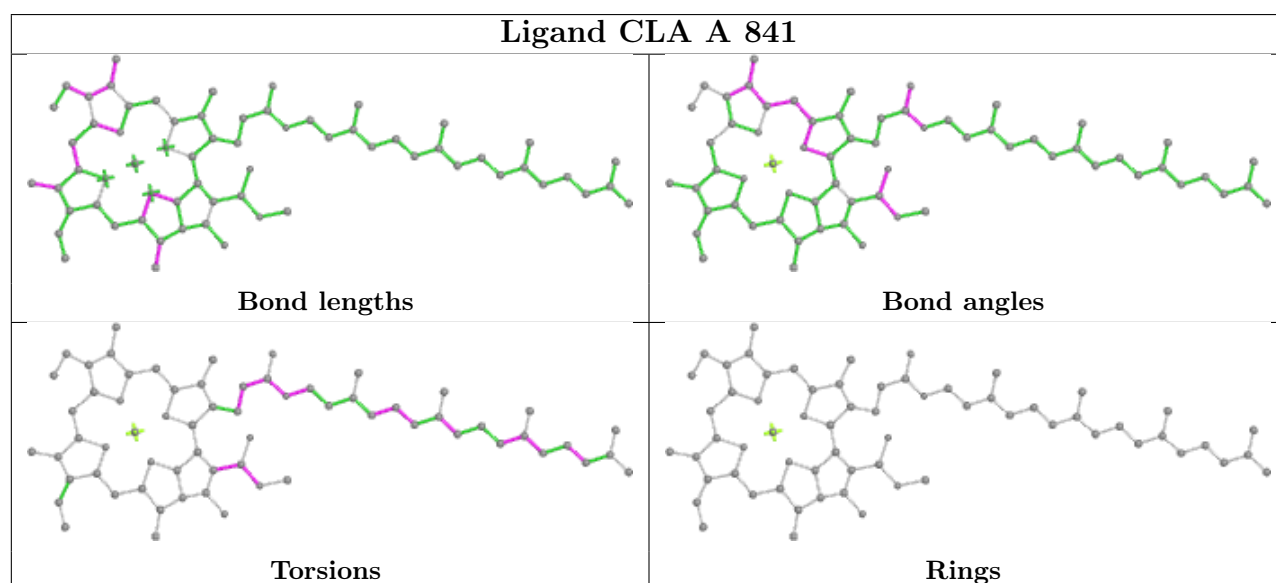
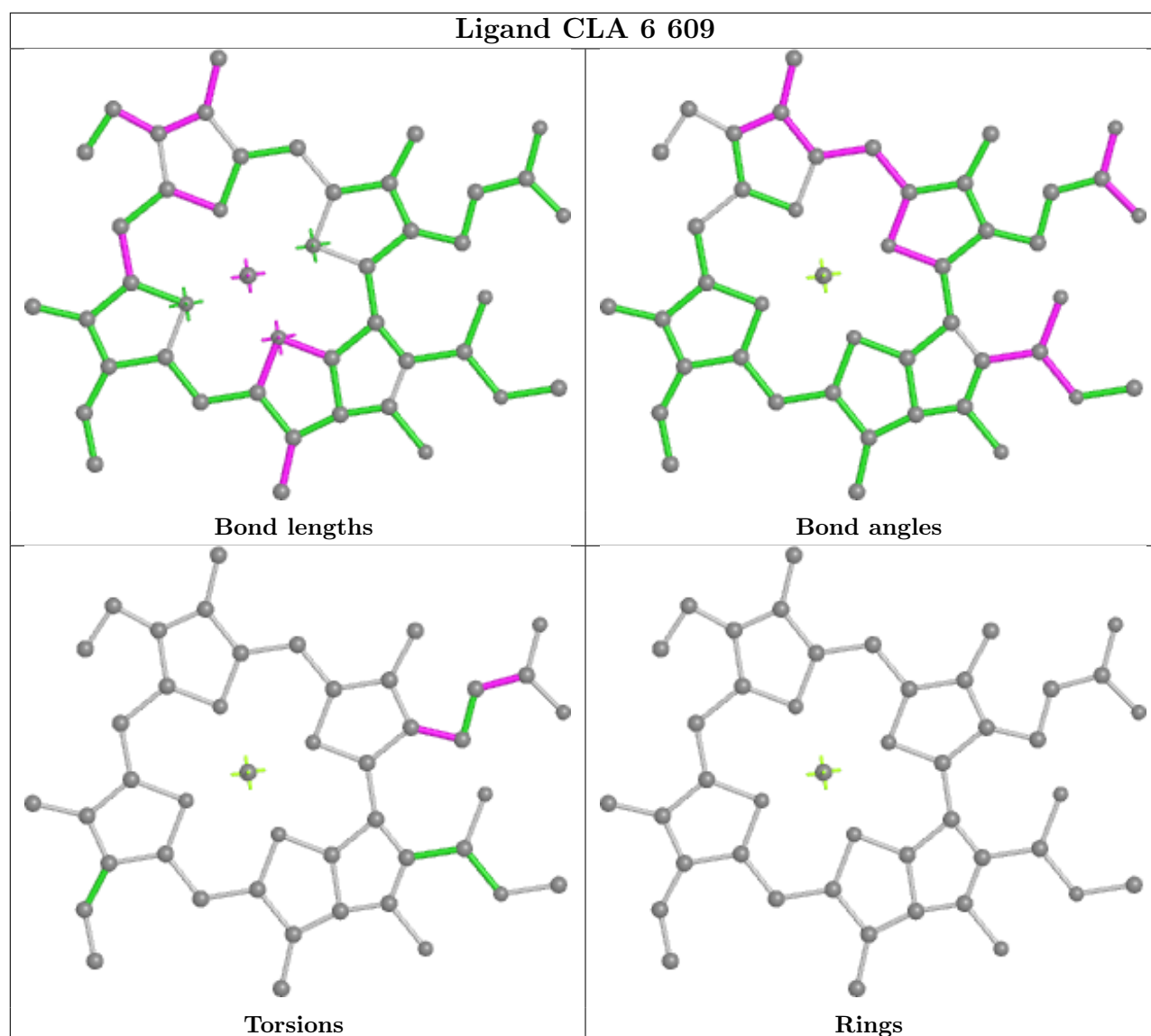


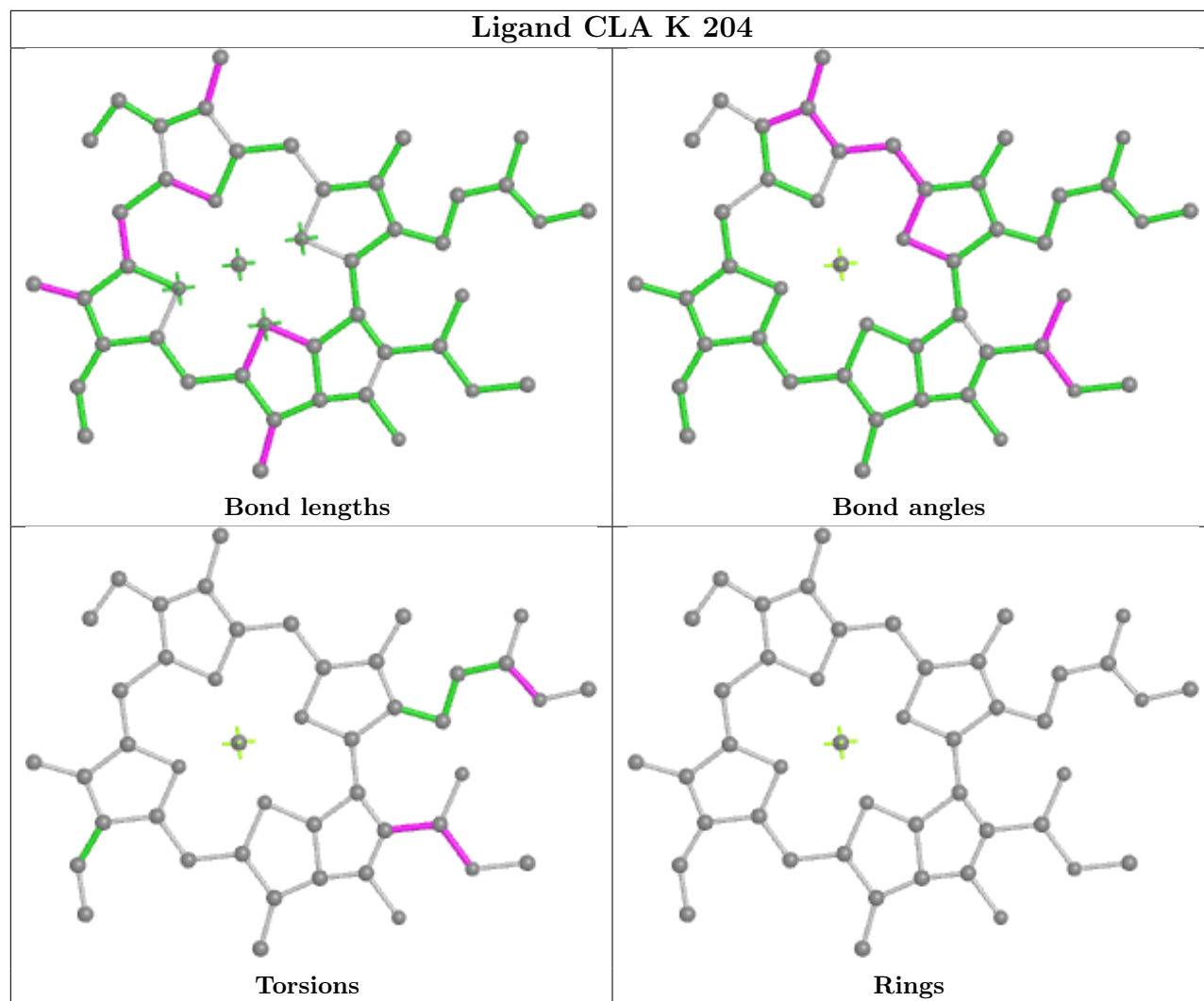
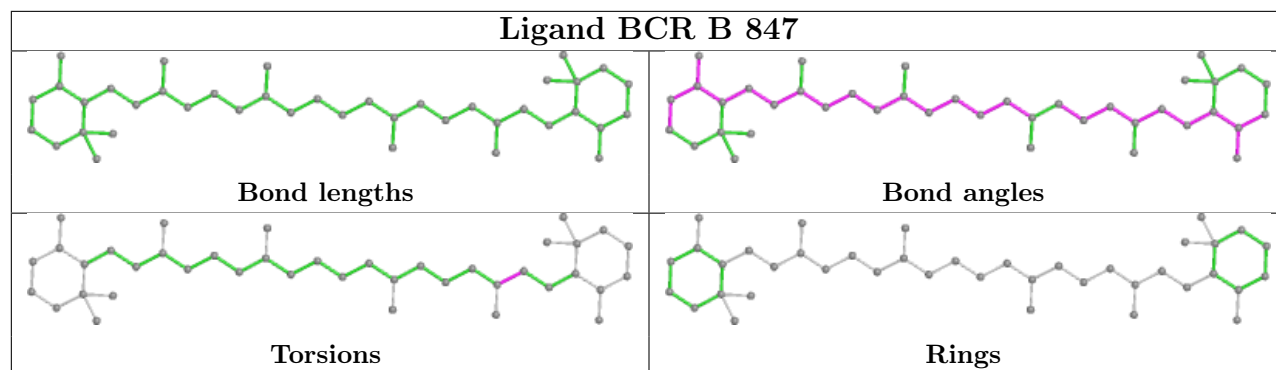


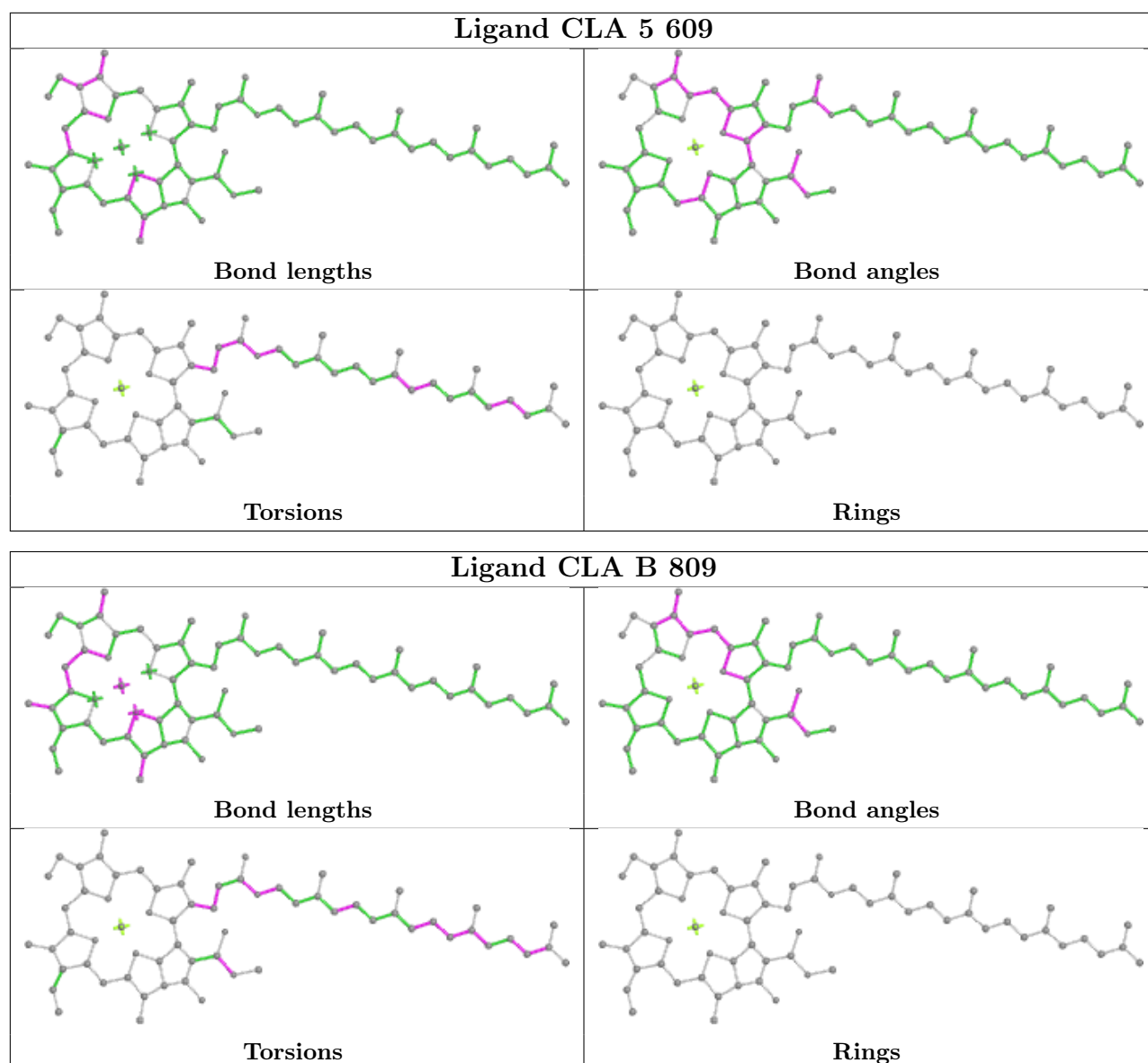


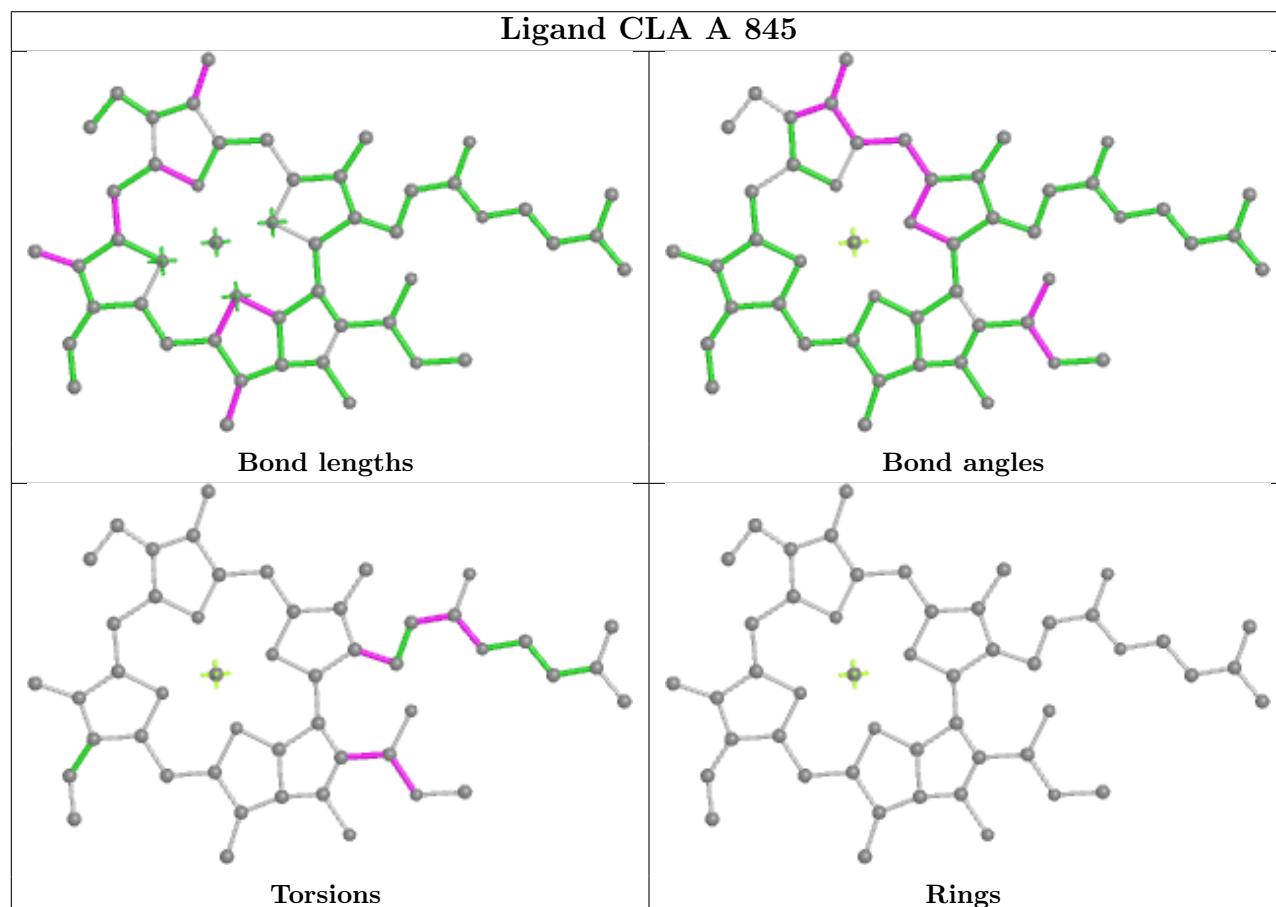
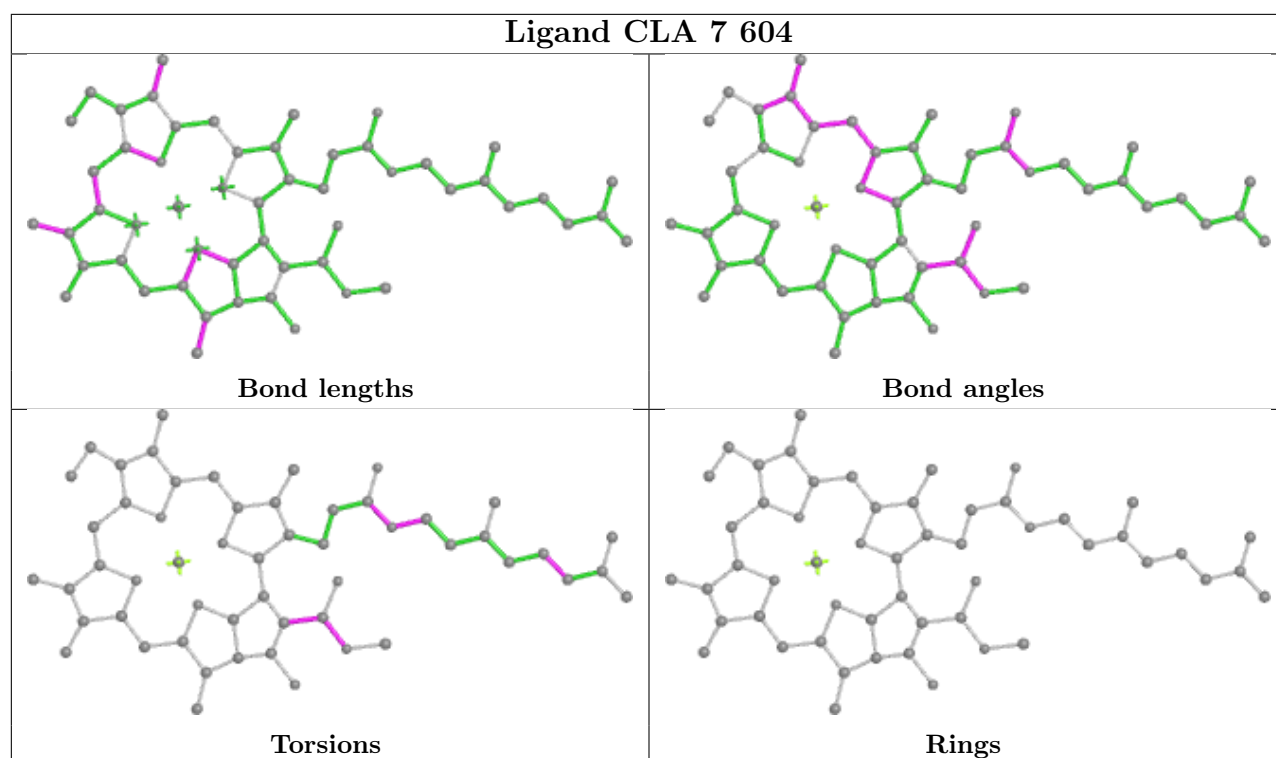


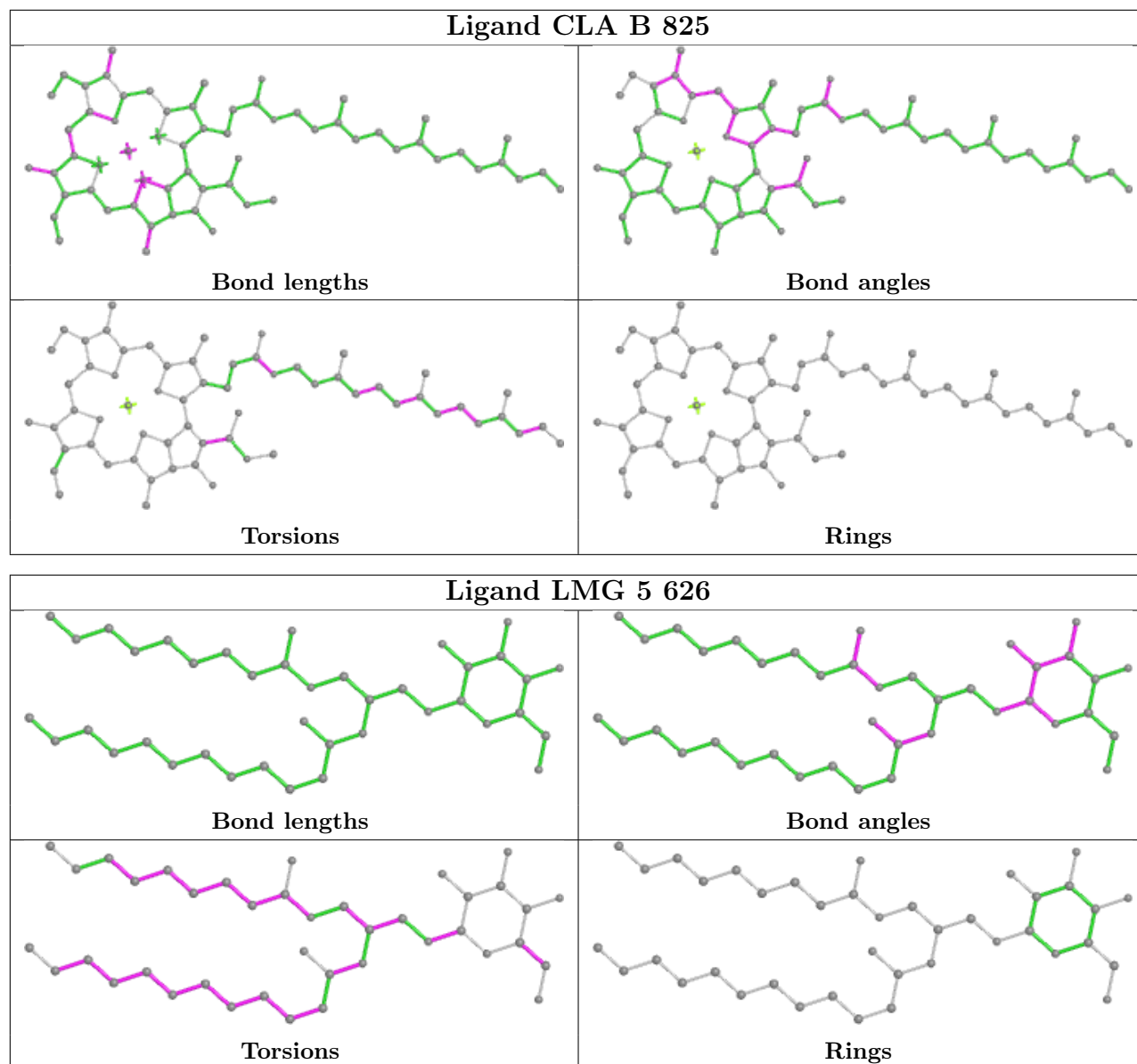




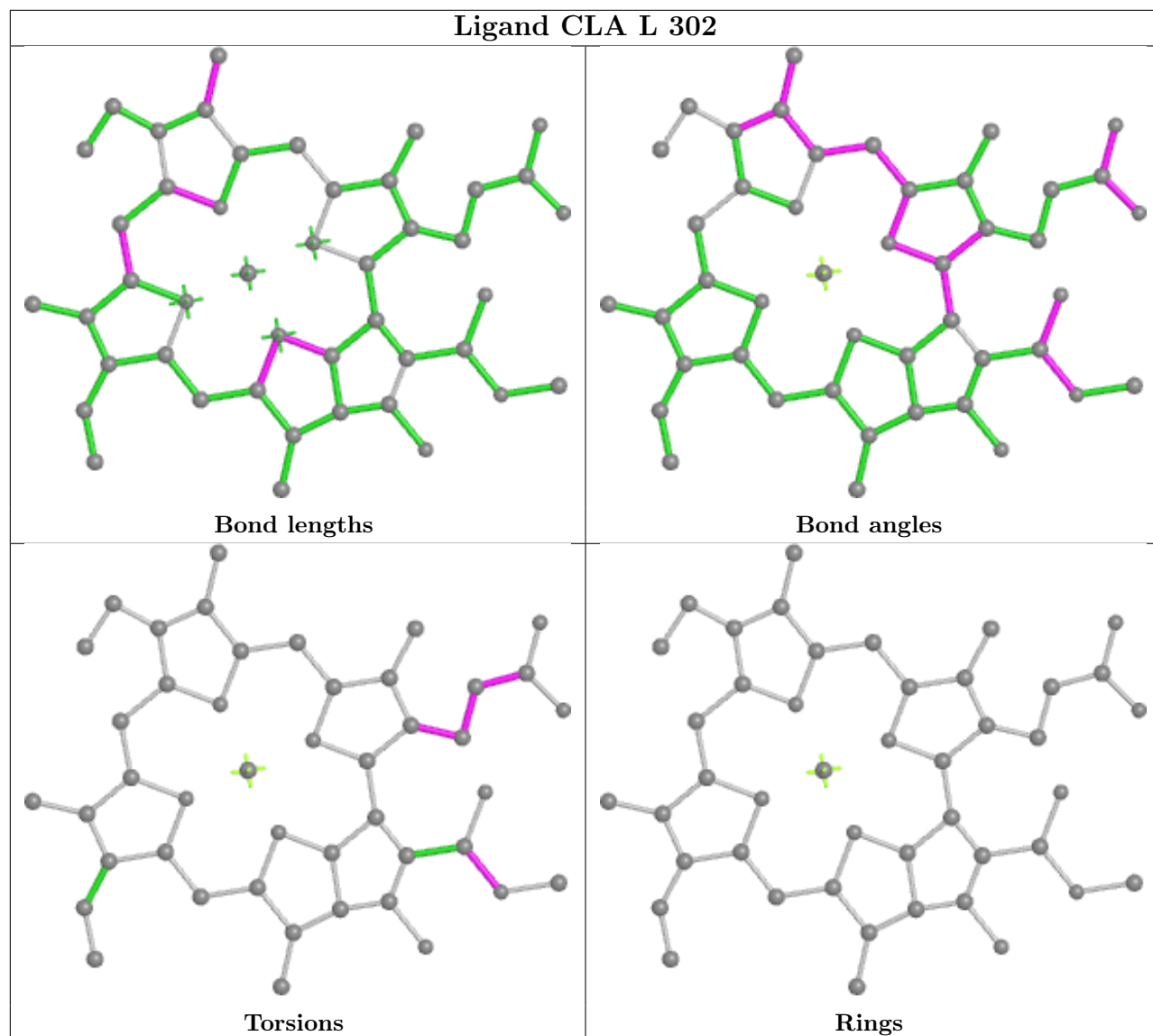


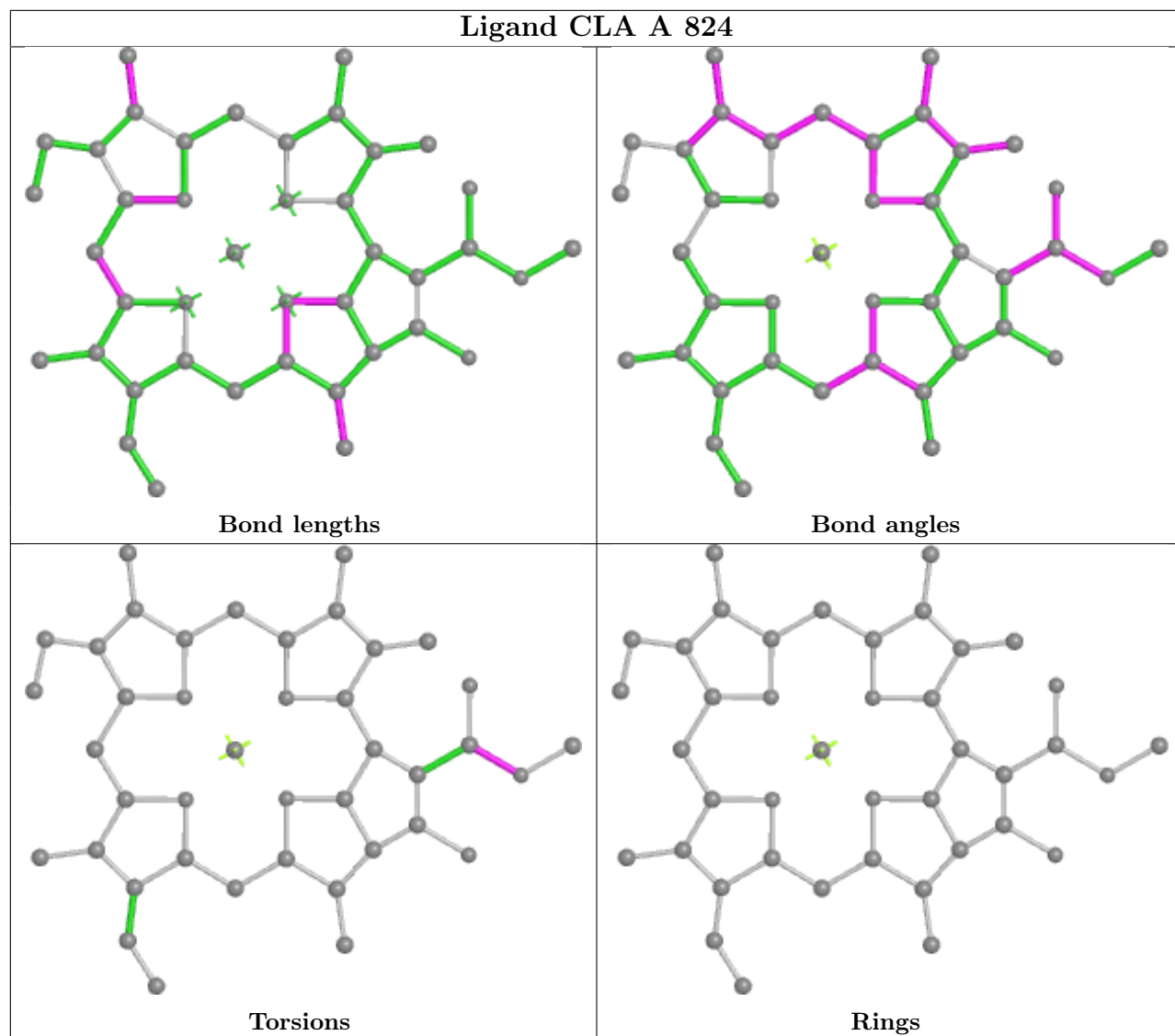


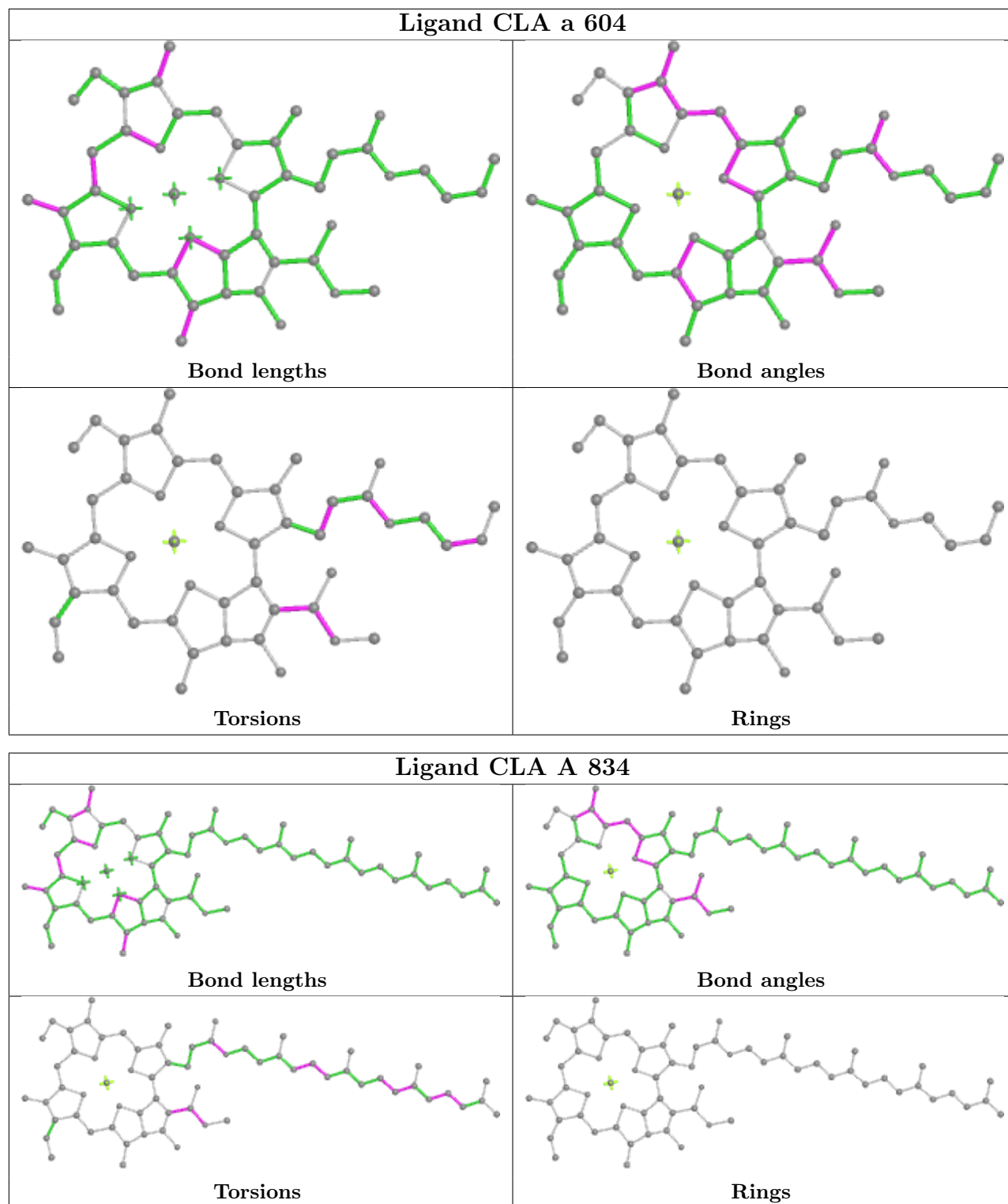


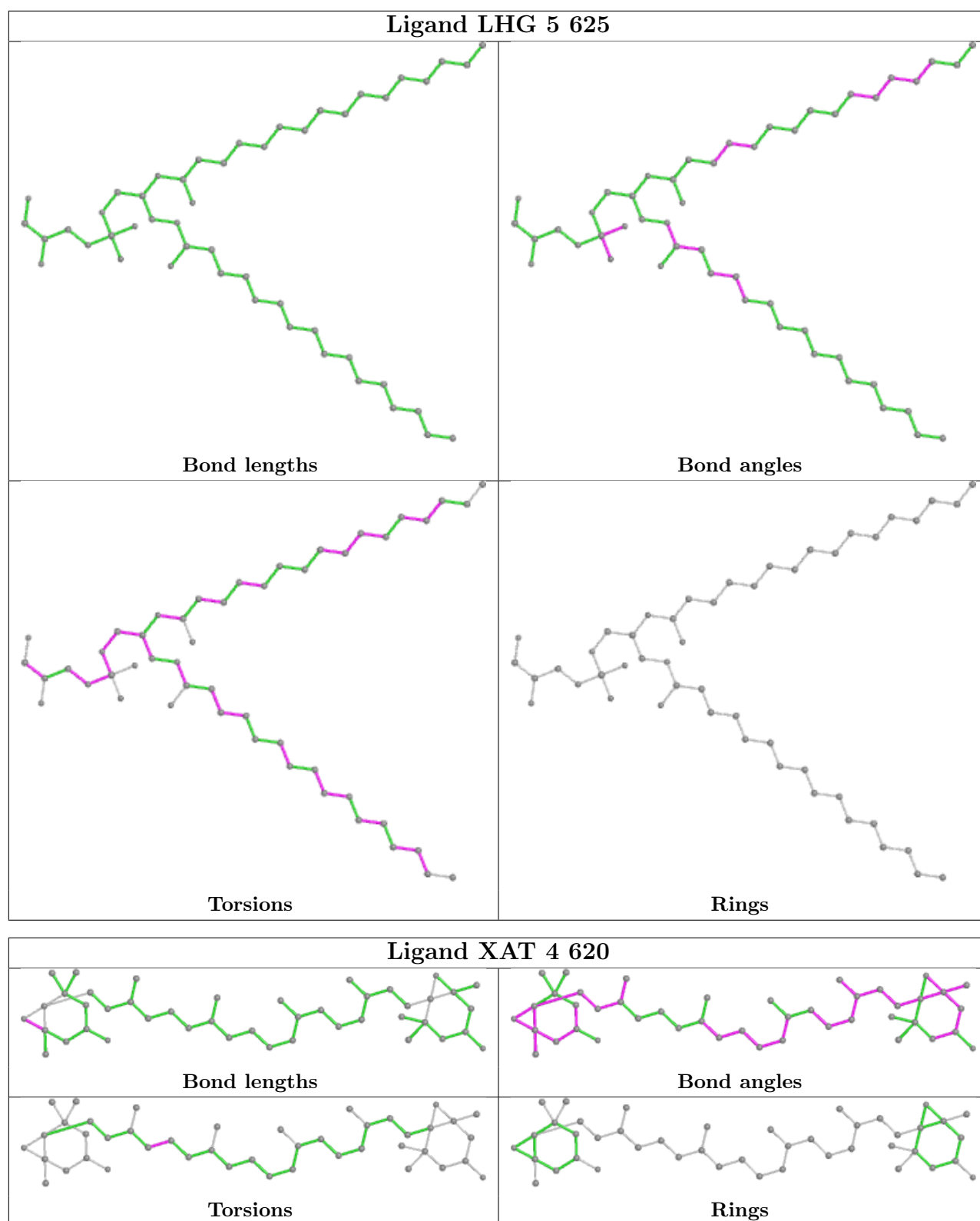


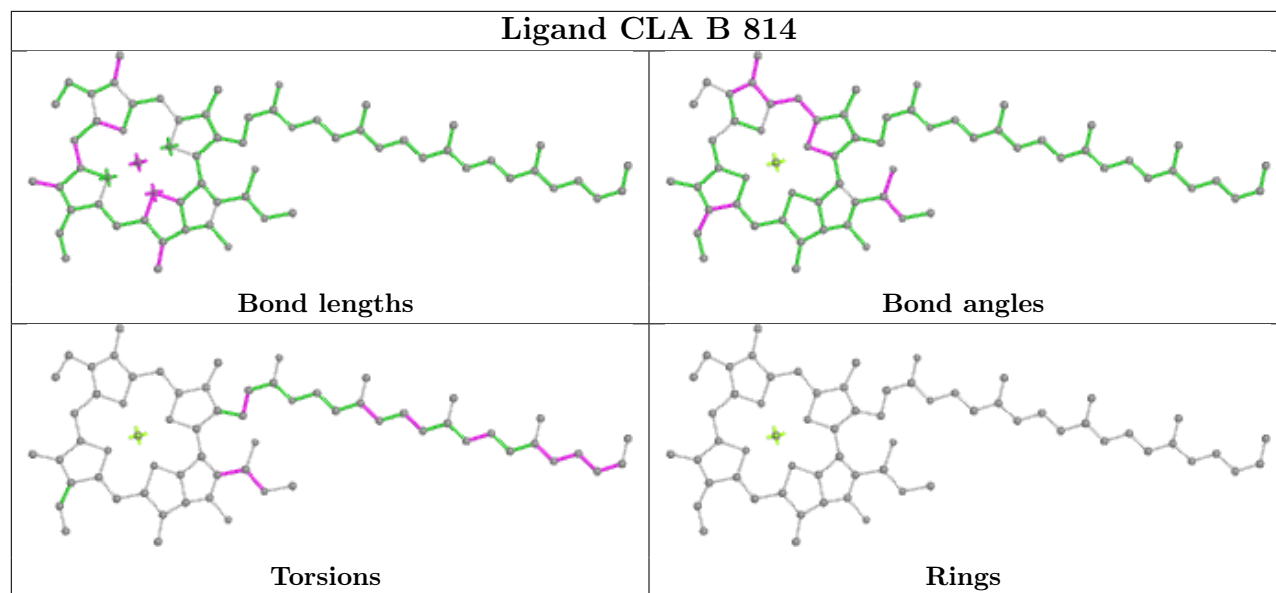


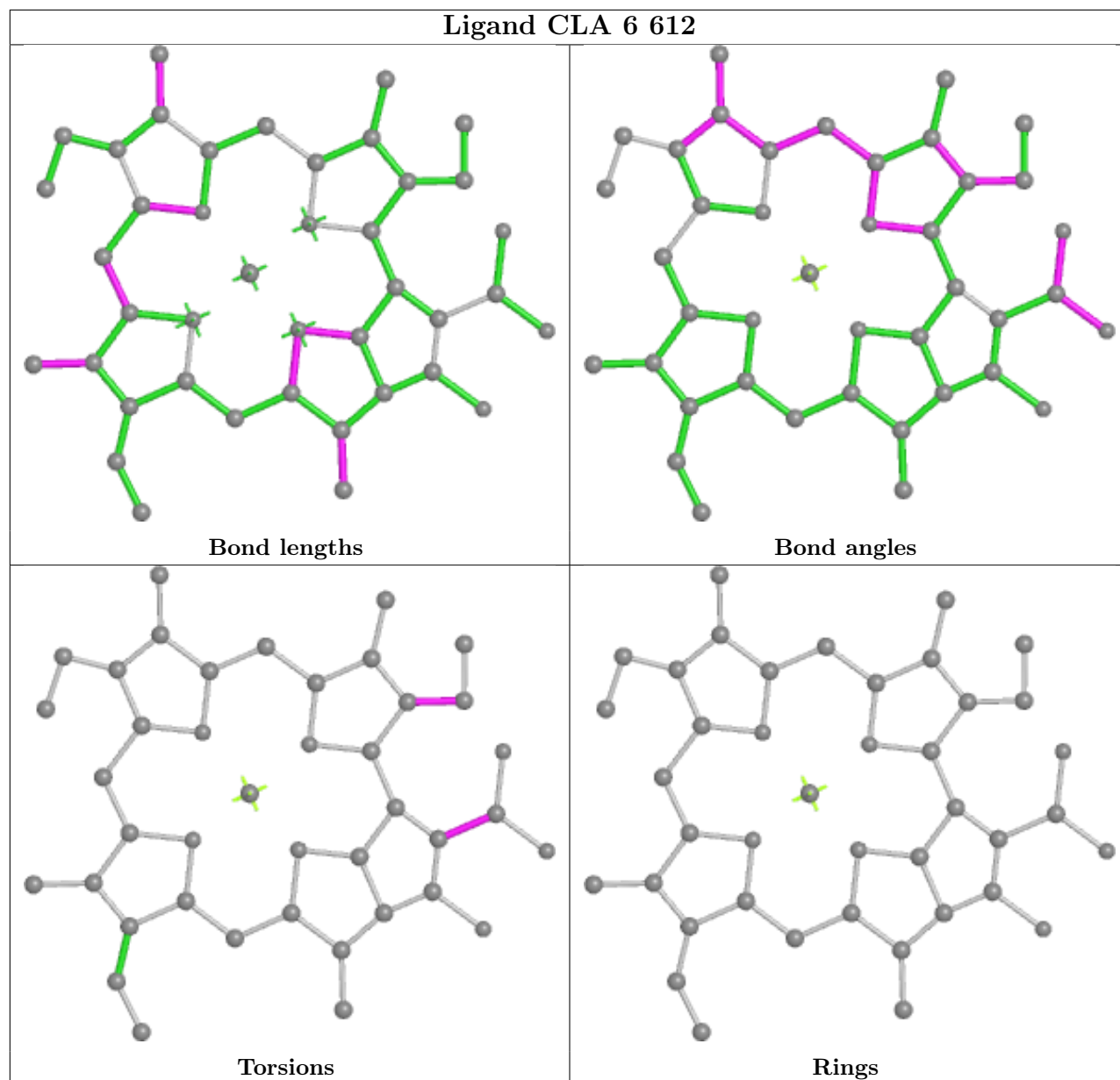


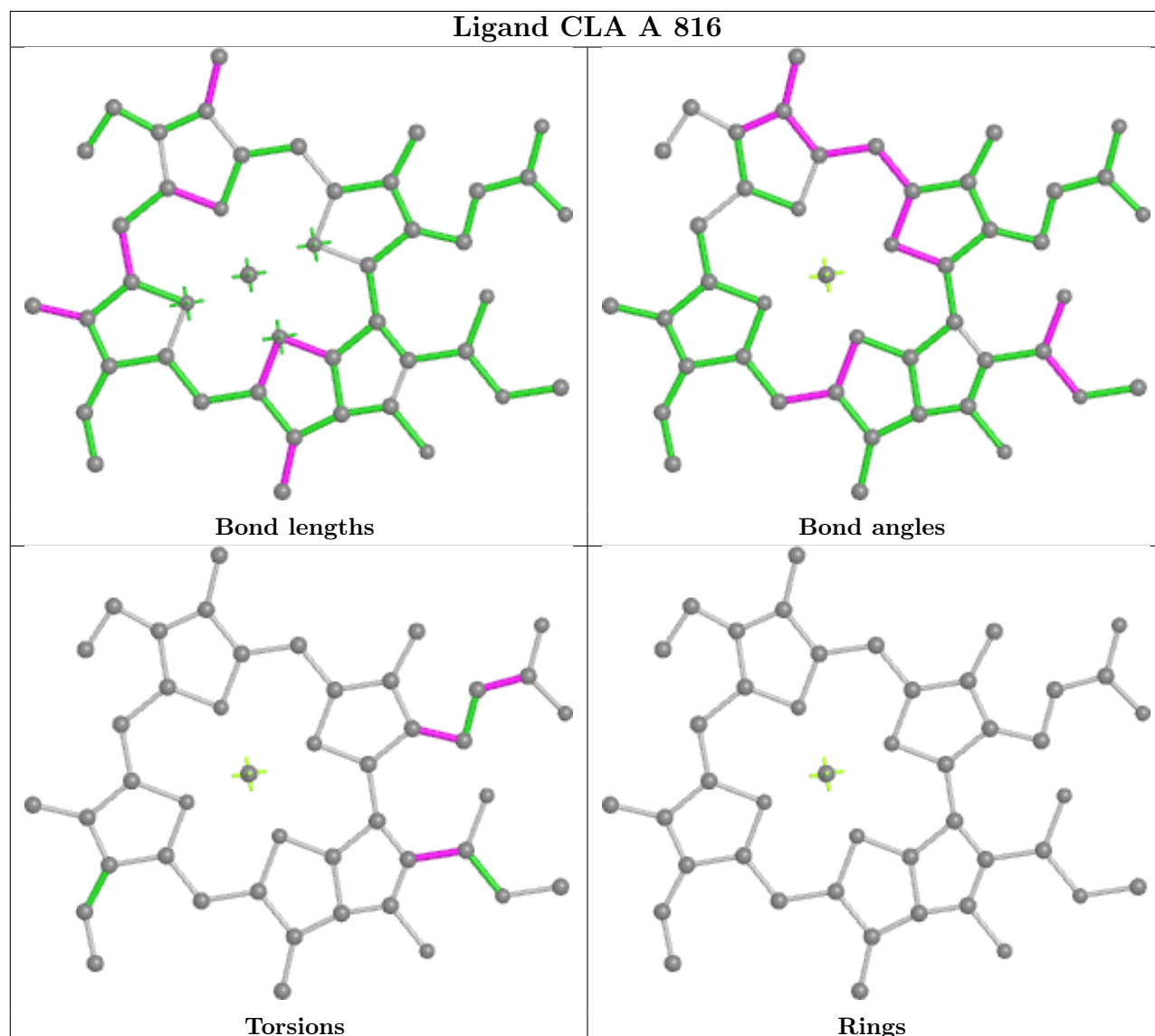
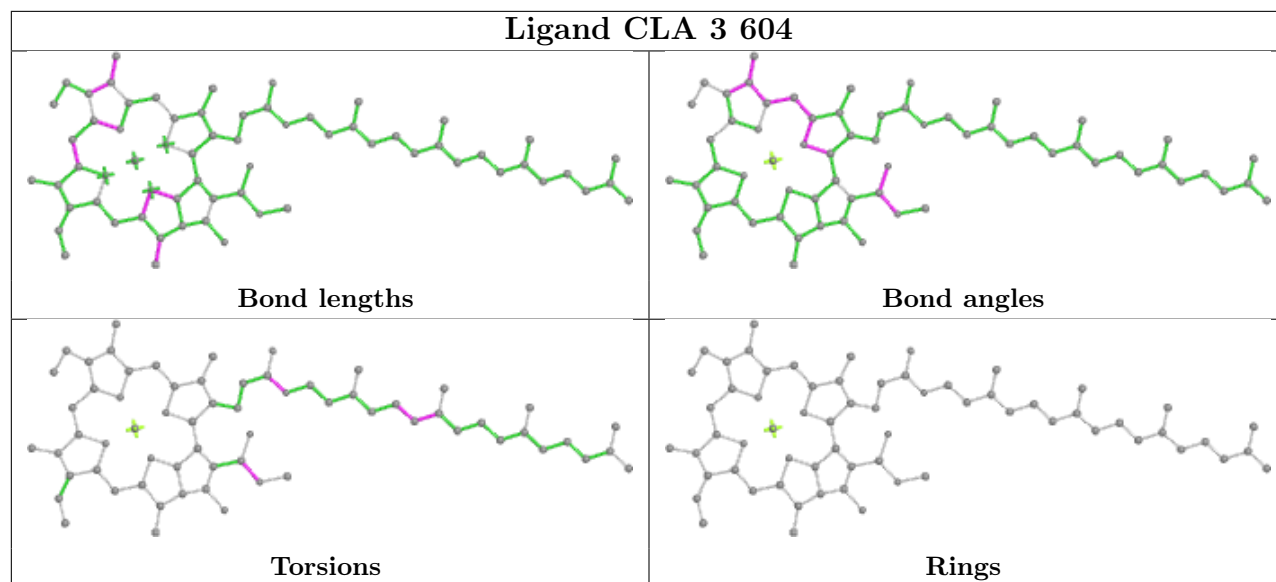


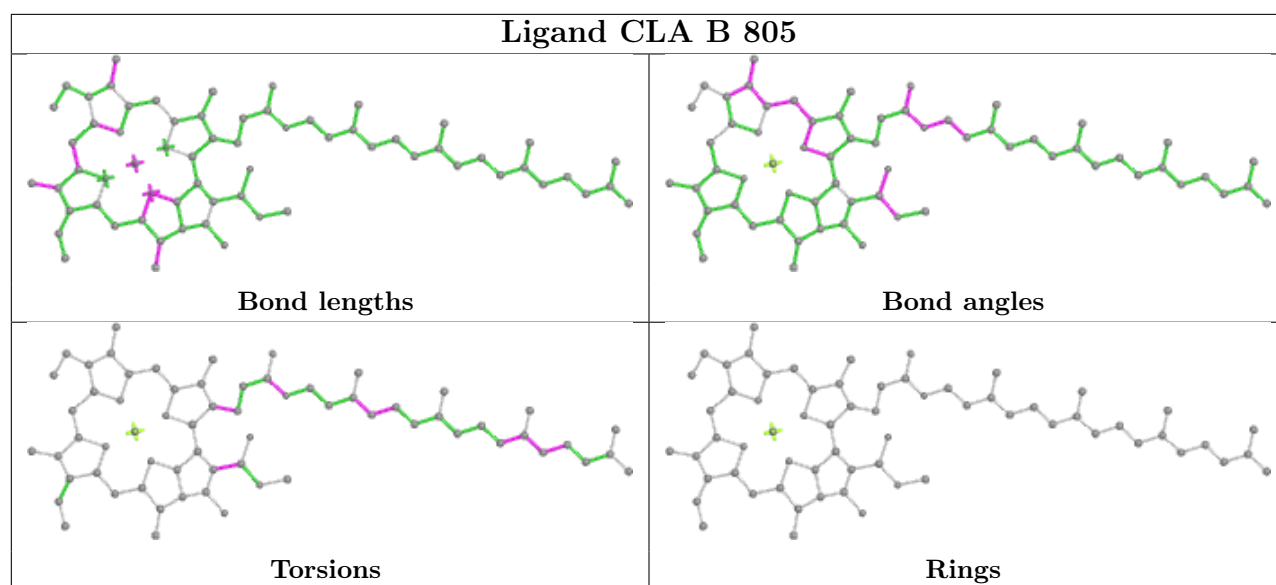












## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.



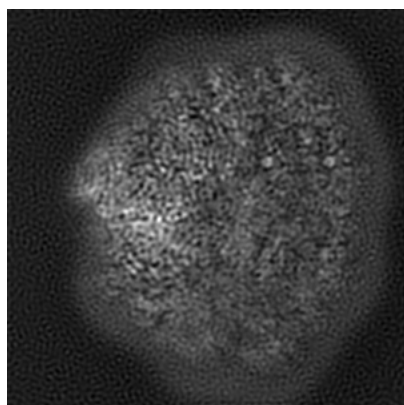
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-9678. These allow visual inspection of the internal detail of the map and identification of artifacts.

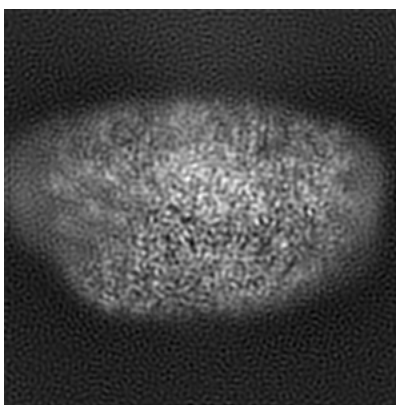
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

### 6.1 Orthogonal projections [i](#)

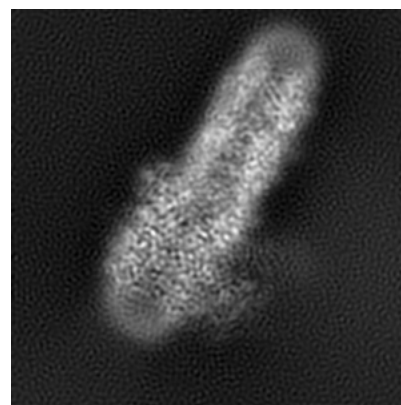
#### 6.1.1 Primary map



X



Y

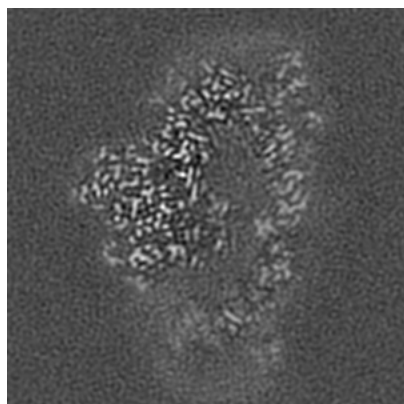


Z

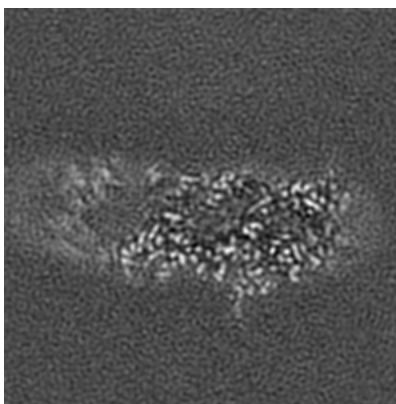
The images above show the map projected in three orthogonal directions.

### 6.2 Central slices [i](#)

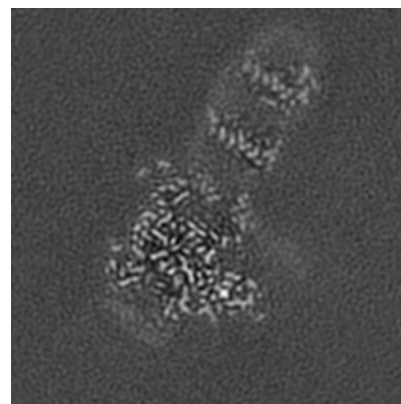
#### 6.2.1 Primary map



X Index: 100



Y Index: 100

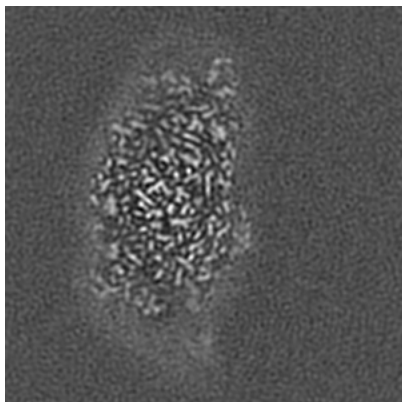


Z Index: 100

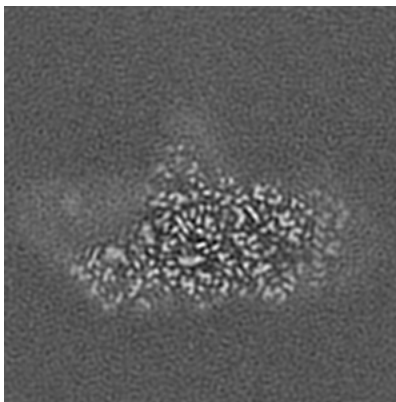
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

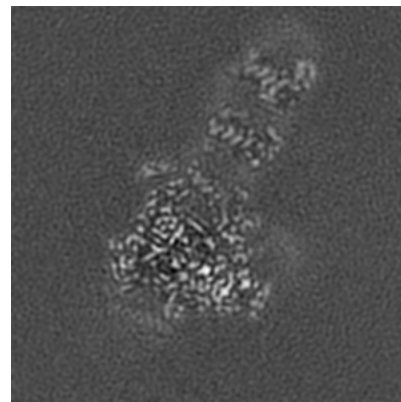
### 6.3.1 Primary map



X Index: 80



Y Index: 82

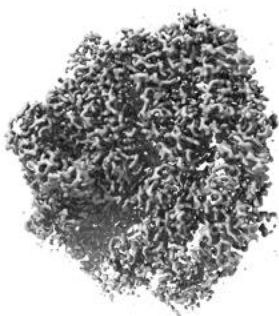


Z Index: 98

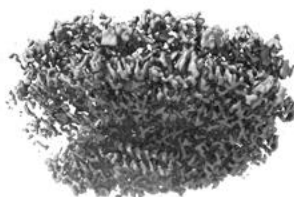
The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal surface views [i](#)

### 6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.07. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

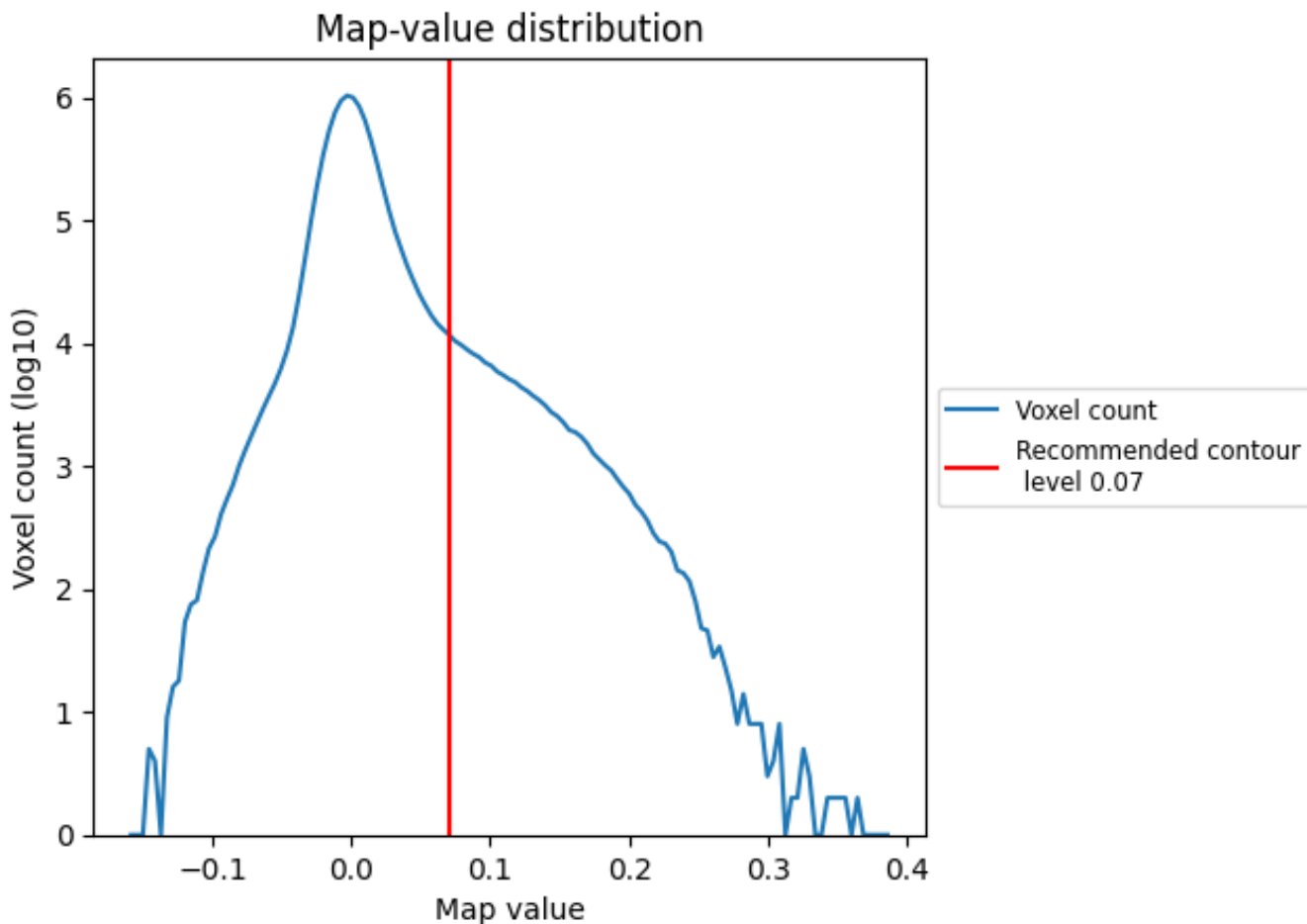
## 6.5 Mask visualisation

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

## 7 Map analysis [i](#)

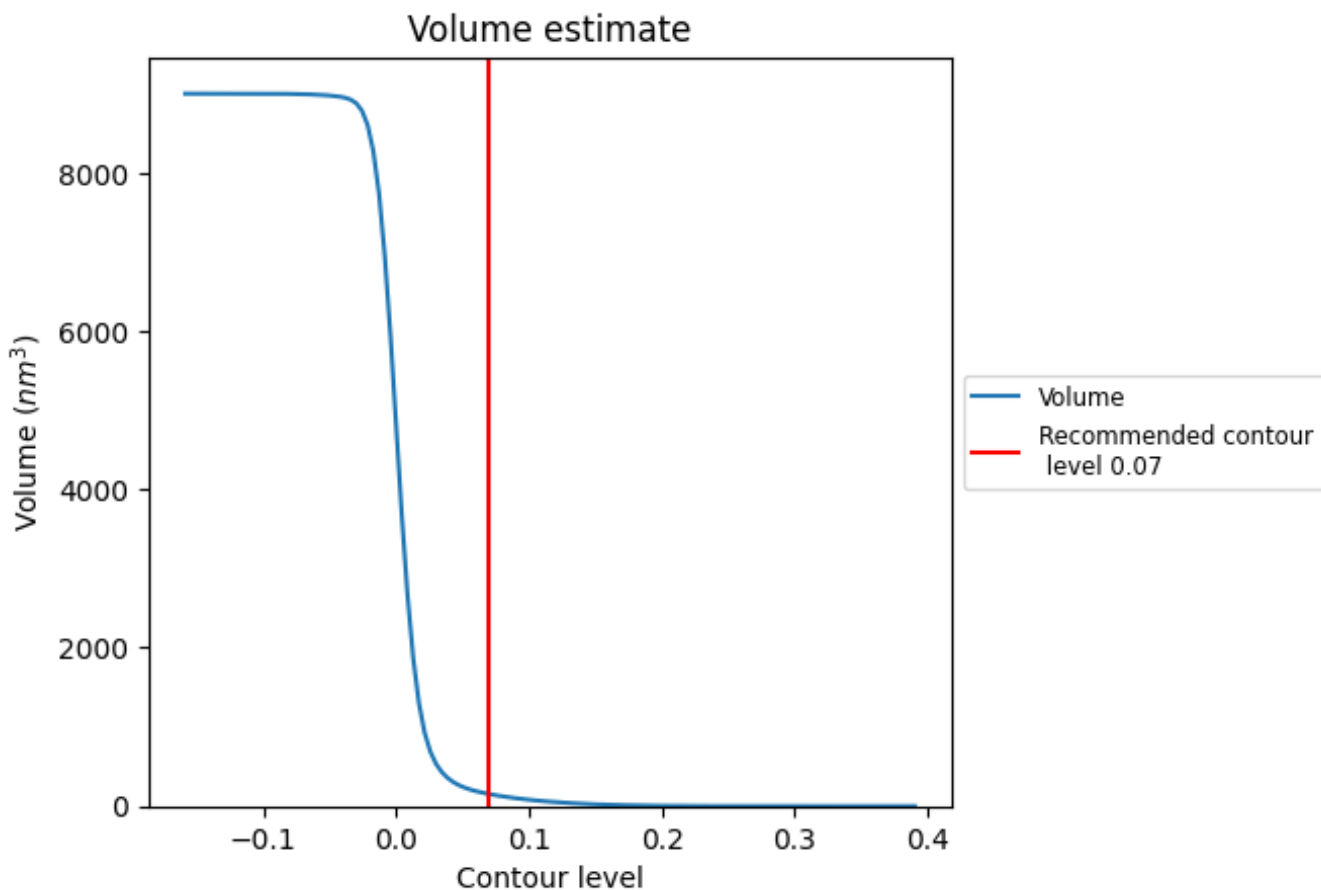
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



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

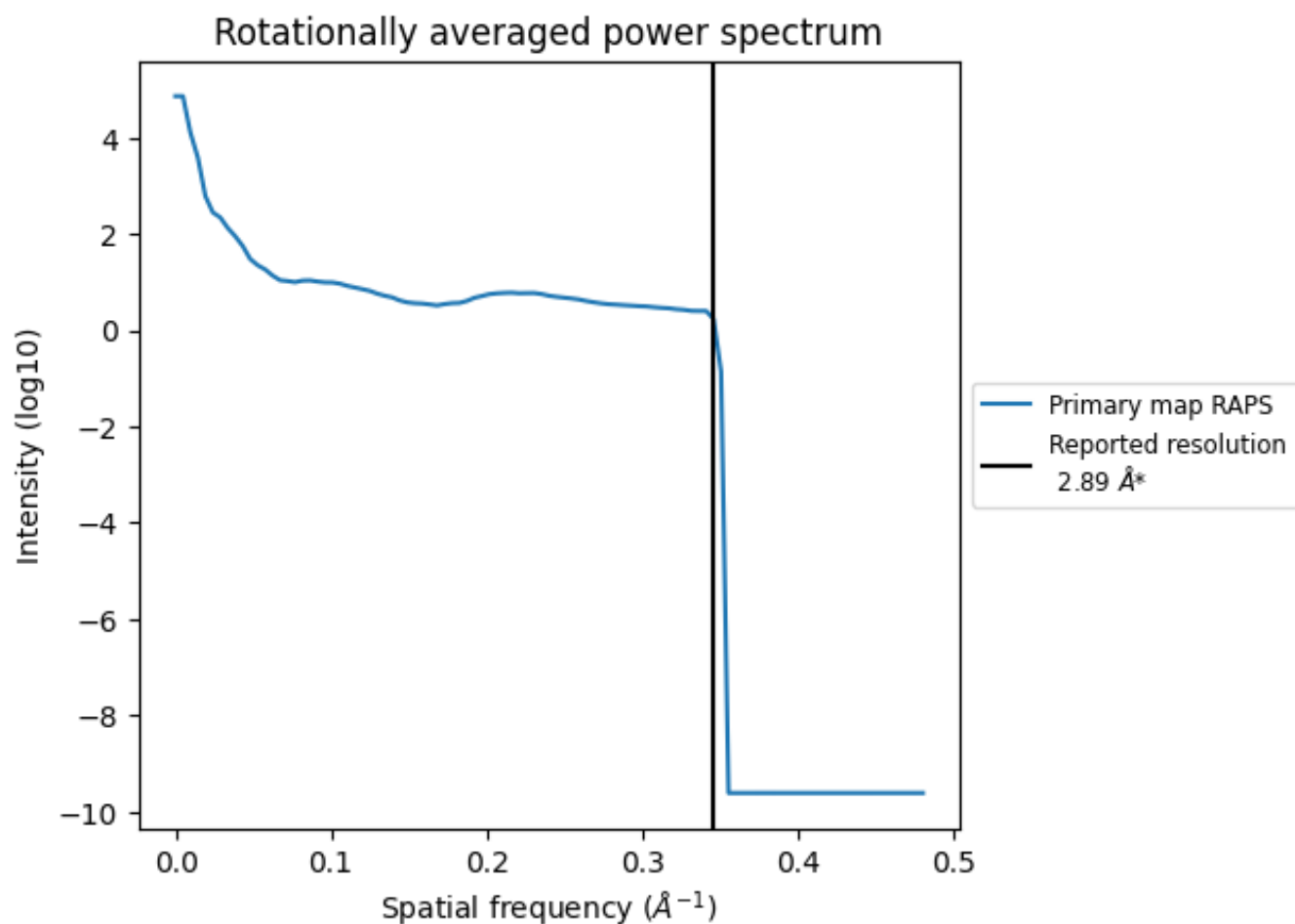
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is  $153 \text{ nm}^3$ ; this corresponds to an approximate mass of 138 kDa.

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

### 7.3 Rotationally averaged power spectrum [\(i\)](#)



\*Reported resolution corresponds to spatial frequency of 0.346 Å<sup>-1</sup>

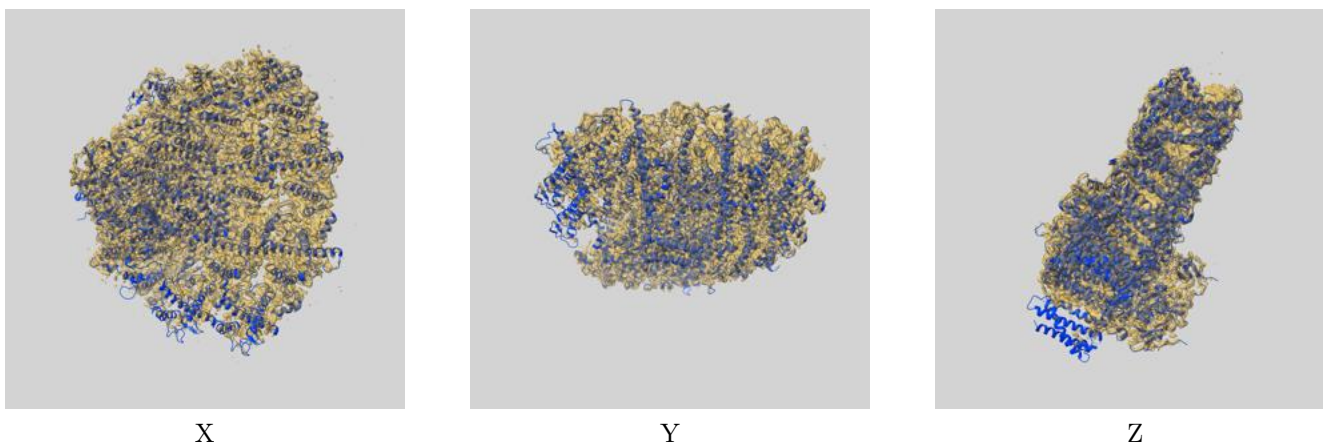
## 8 Fourier-Shell correlation

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

## 9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-9678 and PDB model 6IJJ. Per-residue inclusion information can be found in section [3](#) on page [32](#).

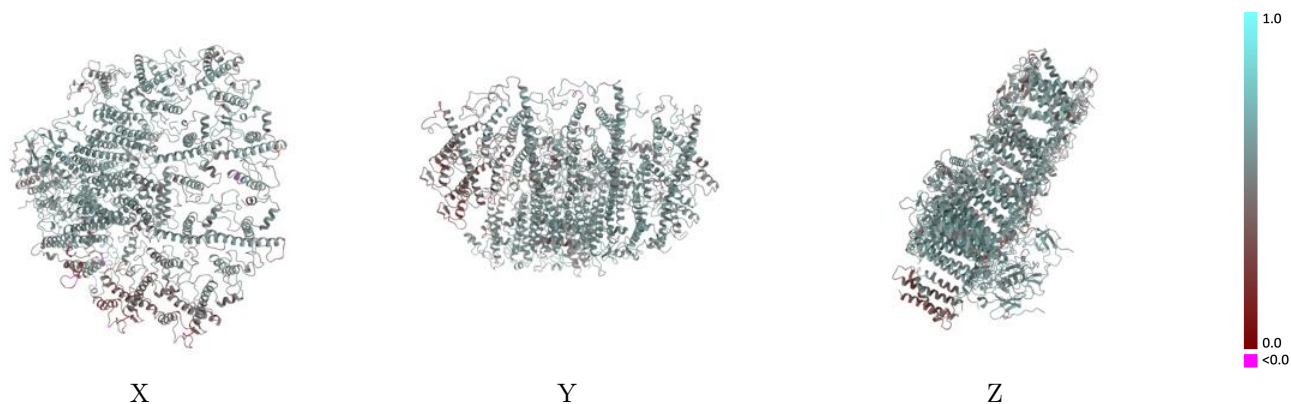
### 9.1 Map-model overlay [i](#)



The images above show the 3D surface view of the map at the recommended contour level 0.07 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

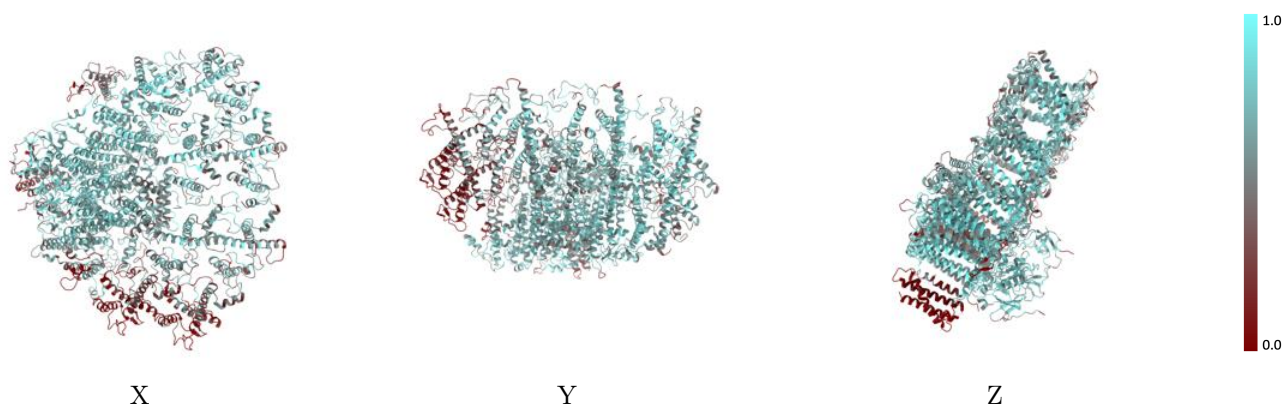


## 9.2 Q-score mapped to coordinate model [\(i\)](#)



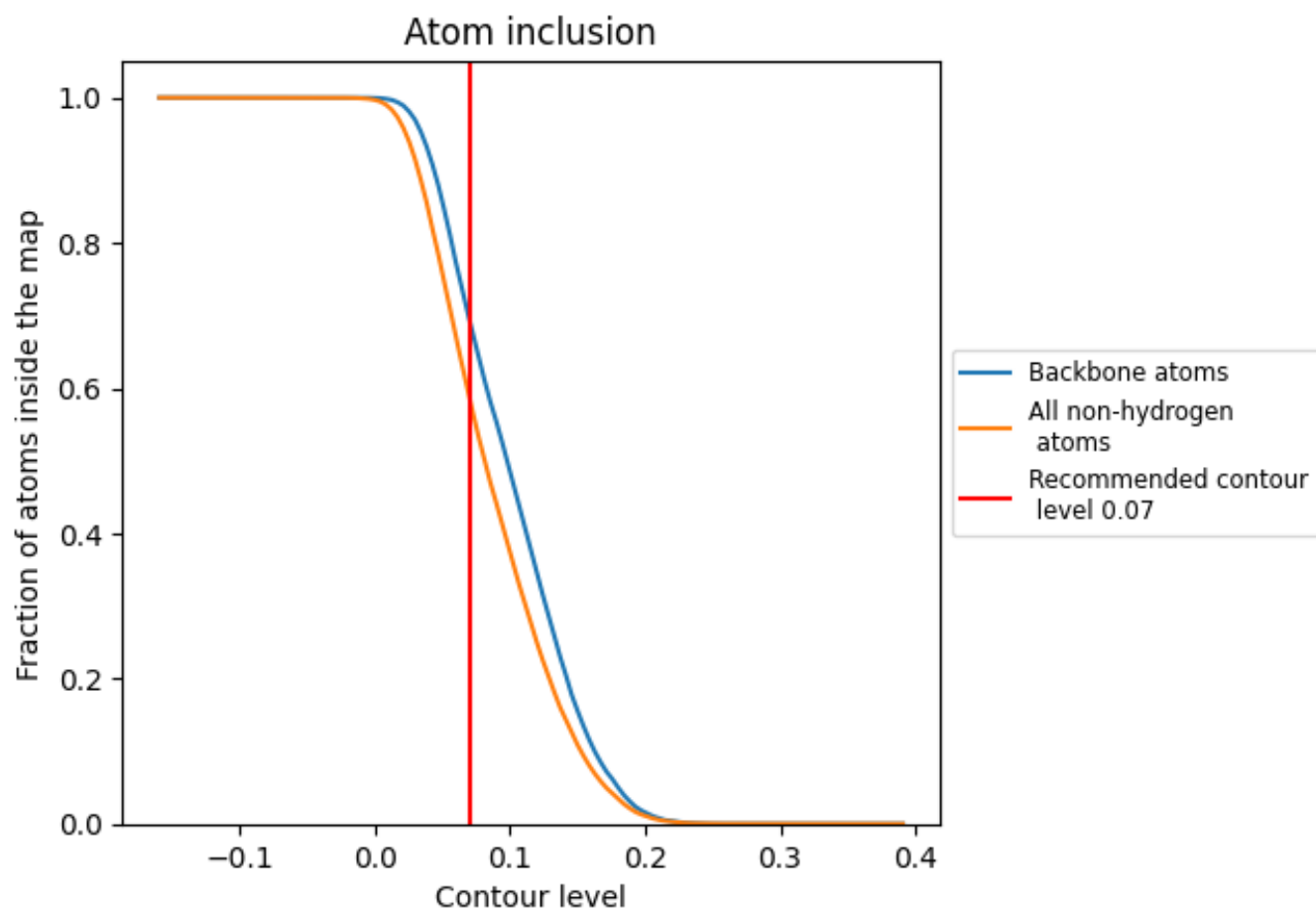
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.07).







































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 70% of all backbone atoms, 59% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.07) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5896	 0.5370
1	 0.2228	 0.3740
3	 0.6650	 0.5730
4	 0.5480	 0.5270
5	 0.5936	 0.5430
6	 0.6173	 0.5440
7	 0.6347	 0.5530
8	 0.5856	 0.5300
A	 0.7669	 0.6020
B	 0.6295	 0.5440
C	 0.7907	 0.5640
D	 0.6829	 0.5550
E	 0.6789	 0.5520
F	 0.5243	 0.5090
I	 0.2083	 0.4660
J	 0.3886	 0.5120
K	 0.3664	 0.5030
L	 0.0221	 0.3540
a	 0.3297	 0.4660

