



wwPDB EM Validation Summary Report ⓘ

Mar 23, 2026 – 07:31 pm GMT

PDB ID : 9SE6 / pdb_00009se6
EMDB ID : EMD-54803
Title : Structure of Photosystem I from Chlamydomonas reinhardtii at 1.83 Å resolution
Authors : Mahapatra, G.P.; Schuller, J.M.
Deposited on : 2025-08-15
Resolution : 1.83 Å (reported)
Based on initial model : 7ZQC

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

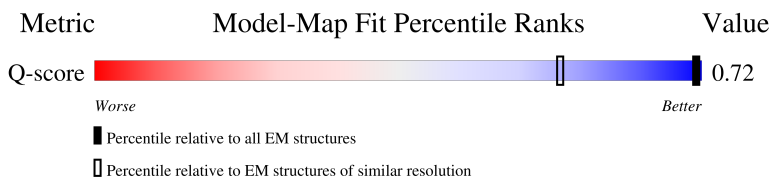
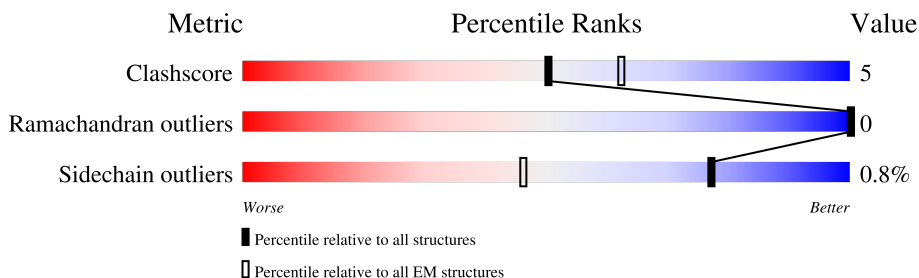
EMDB validation analysis : 0.0.1.dev132
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.48.1

1 Overall quality at a glance i

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

The reported resolution of this entry is 1.83 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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
Q-score	-	25397	903 (1.33 - 2.33)

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

Mol	Chain	Length	Quality of chain
1	3	221	
2	4	212	
3	5	227	
4	6	230	

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Mol	Chain	Length	Quality of chain
5	7	213	
6	8	217	
7	A	742	
8	B	733	
9	C	80	
10	D	144	
11	E	64	
12	I	37	
13	J	41	
14	K	86	
15	1	194	
15	Z	194	
16	F	165	
17	G	95	
18	L	124	

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
19	CLA	1	302	X	-	-	-
19	CLA	1	303	X	-	-	-
19	CLA	1	304	X	-	-	-
19	CLA	1	307	X	-	-	-
19	CLA	1	308	X	-	-	-
19	CLA	1	309	X	-	-	-
19	CLA	1	310	X	-	-	-
19	CLA	1	311	X	-	-	-
19	CLA	1	312	X	-	-	-
19	CLA	1	313	X	-	-	-
19	CLA	1	314	X	-	-	-
19	CLA	3	301	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
19	CLA	3	302	X	-	-	-
19	CLA	3	303	X	-	-	-
19	CLA	3	304	X	-	-	-
19	CLA	3	305	X	-	-	-
19	CLA	3	307	X	-	-	-
19	CLA	3	308	X	-	-	-
19	CLA	3	309	X	-	-	-
19	CLA	3	310	X	-	-	-
19	CLA	3	311	X	-	-	-
19	CLA	3	312	X	-	-	-
19	CLA	3	313	X	-	-	-
19	CLA	3	314	X	-	-	-
19	CLA	4	602	X	-	-	-
19	CLA	4	603	X	-	-	-
19	CLA	4	604	X	-	-	-
19	CLA	4	608	X	-	-	-
19	CLA	4	609	X	-	-	-
19	CLA	4	610	X	-	-	-
19	CLA	4	611	X	-	-	-
19	CLA	4	612	X	-	-	-
19	CLA	4	613	X	-	-	-
19	CLA	4	614	X	-	-	-
19	CLA	5	302	X	-	-	-
19	CLA	5	303	X	-	-	-
19	CLA	5	304	X	-	-	-
19	CLA	5	305	X	-	-	-
19	CLA	5	309	X	-	-	-
19	CLA	5	310	X	-	-	-
19	CLA	5	311	X	-	-	-
19	CLA	5	312	X	-	-	-
19	CLA	5	313	X	-	-	-
19	CLA	5	314	X	-	-	-
19	CLA	5	315	X	-	-	-
19	CLA	5	316	X	-	-	-
19	CLA	5	319	X	-	-	-
19	CLA	6	303	X	-	-	-
19	CLA	6	304	X	-	-	-
19	CLA	6	305	X	-	-	-
19	CLA	6	309	X	-	-	-
19	CLA	6	310	X	-	-	-
19	CLA	6	311	X	-	-	-
19	CLA	6	312	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
19	CLA	6	313	X	-	-	-
19	CLA	6	314	X	-	-	-
19	CLA	6	316	X	-	-	-
19	CLA	6	320	X	-	-	-
19	CLA	6	327	X	-	-	-
19	CLA	7	602	X	-	-	-
19	CLA	7	603	X	-	-	-
19	CLA	7	604	X	-	-	-
19	CLA	7	607	X	-	-	-
19	CLA	7	608	X	-	-	-
19	CLA	7	609	X	-	-	-
19	CLA	7	610	X	-	-	-
19	CLA	7	611	X	-	-	-
19	CLA	7	612	X	-	-	-
19	CLA	7	613	X	-	-	-
19	CLA	7	614	X	-	-	-
19	CLA	8	302	X	-	-	-
19	CLA	8	303	X	-	-	-
19	CLA	8	304	X	-	-	-
19	CLA	8	307	X	-	-	-
19	CLA	8	308	X	-	-	-
19	CLA	8	309	X	-	-	-
19	CLA	8	310	X	-	-	-
19	CLA	8	311	X	-	-	-
19	CLA	8	312	X	-	-	-
19	CLA	8	313	X	-	-	-
19	CLA	8	314	X	-	-	-
19	CLA	A	803	X	-	-	-
19	CLA	A	804	X	-	-	-
19	CLA	A	805	X	-	-	-
19	CLA	A	806	X	-	-	-
19	CLA	A	807	X	-	-	-
19	CLA	A	808	X	-	-	-
19	CLA	A	809	X	-	-	-
19	CLA	A	810	X	-	-	-
19	CLA	A	811	X	-	-	-
19	CLA	A	812	X	-	-	-
19	CLA	A	813	X	-	-	-
19	CLA	A	814	X	-	-	-
19	CLA	A	815	X	-	-	-
19	CLA	A	816	X	-	-	-
19	CLA	A	817	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
19	CLA	A	818	X	-	-	-
19	CLA	A	819	X	-	-	-
19	CLA	A	820	X	-	-	-
19	CLA	A	821	X	-	-	-
19	CLA	A	822	X	-	-	-
19	CLA	A	823	X	-	-	-
19	CLA	A	824	X	-	-	-
19	CLA	A	825	X	-	-	-
19	CLA	A	826	X	-	-	-
19	CLA	A	827	X	-	-	-
19	CLA	A	828	X	-	-	-
19	CLA	A	829	X	-	-	-
19	CLA	A	830	X	-	-	-
19	CLA	A	831	X	-	-	-
19	CLA	A	832	X	-	-	-
19	CLA	A	833	X	-	-	-
19	CLA	A	834	X	-	-	-
19	CLA	A	835	X	-	-	-
19	CLA	A	836	X	-	-	-
19	CLA	A	837	X	-	-	-
19	CLA	A	838	X	-	-	-
19	CLA	A	839	X	-	-	-
19	CLA	A	840	X	-	-	-
19	CLA	A	841	X	-	-	-
19	CLA	A	842	X	-	-	-
19	CLA	A	843	X	-	-	-
19	CLA	A	844	X	-	-	-
19	CLA	A	846	X	-	-	-
19	CLA	B	801	X	-	-	-
19	CLA	B	803	X	-	-	-
19	CLA	B	804	X	-	-	-
19	CLA	B	805	X	-	-	-
19	CLA	B	806	X	-	-	-
19	CLA	B	807	X	-	-	-
19	CLA	B	808	X	-	-	-
19	CLA	B	809	X	-	-	-
19	CLA	B	810	X	-	-	-
19	CLA	B	811	X	-	-	-
19	CLA	B	812	X	-	-	-
19	CLA	B	813	X	-	-	-
19	CLA	B	814	X	-	-	-
19	CLA	B	815	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
19	CLA	B	816	X	-	-	-
19	CLA	B	817	X	-	-	-
19	CLA	B	818	X	-	-	-
19	CLA	B	819	X	-	-	-
19	CLA	B	820	X	-	-	-
19	CLA	B	821	X	-	-	-
19	CLA	B	822	X	-	-	-
19	CLA	B	823	X	-	-	-
19	CLA	B	824	X	-	-	-
19	CLA	B	825	X	-	-	-
19	CLA	B	826	X	-	-	-
19	CLA	B	827	X	-	-	-
19	CLA	B	828	X	-	-	-
19	CLA	B	829	X	-	-	-
19	CLA	B	830	X	-	-	-
19	CLA	B	831	X	-	-	-
19	CLA	B	832	X	-	-	-
19	CLA	B	833	X	-	-	-
19	CLA	B	834	X	-	-	-
19	CLA	B	835	X	-	-	-
19	CLA	B	836	X	-	-	-
19	CLA	B	837	X	-	-	-
19	CLA	B	838	X	-	-	-
19	CLA	B	839	X	-	-	-
19	CLA	B	840	X	-	-	-
19	CLA	B	841	X	-	-	-
19	CLA	B	842	X	-	-	-
19	CLA	F	302	X	-	-	-
19	CLA	F	303	X	-	-	-
19	CLA	F	304	X	-	-	-
19	CLA	G	202	X	-	-	-
19	CLA	G	203	X	-	-	-
19	CLA	J	102	X	-	-	-
19	CLA	K	202	X	-	-	-
19	CLA	K	203	X	-	-	-
19	CLA	K	204	X	-	-	-
19	CLA	K	205	X	-	-	-
19	CLA	L	203	X	-	-	-
19	CLA	L	204	X	-	-	-
19	CLA	Z	602	X	-	-	-
19	CLA	Z	603	X	-	-	-
19	CLA	Z	604	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
19	CLA	Z	607	X	-	-	-
19	CLA	Z	608	X	-	-	-
19	CLA	Z	609	X	-	-	-
19	CLA	Z	610	X	-	-	-
19	CLA	Z	611	X	-	-	-
19	CLA	Z	612	X	-	-	-
19	CLA	Z	613	X	-	-	-
19	CLA	Z	614	X	-	-	-
20	CHL	1	305	X	-	-	-
20	CHL	1	306	X	-	-	-
20	CHL	3	306	X	-	-	-
20	CHL	4	601	X	-	-	-
20	CHL	4	605	X	-	-	-
20	CHL	4	606	X	-	-	-
20	CHL	4	607	X	-	-	-
20	CHL	4	615	X	-	-	-
20	CHL	5	306	X	-	-	-
20	CHL	5	307	X	-	-	-
20	CHL	5	308	X	-	-	-
20	CHL	5	317	X	-	-	-
20	CHL	6	302	X	-	-	-
20	CHL	6	306	X	-	-	-
20	CHL	6	307	X	-	-	-
20	CHL	6	308	X	-	-	-
20	CHL	6	315	X	-	-	-
20	CHL	6	317	X	-	-	-
20	CHL	7	601	X	-	-	-
20	CHL	7	605	X	-	-	-
20	CHL	7	606	X	-	-	-
20	CHL	7	621	X	-	-	-
20	CHL	8	305	X	-	-	-
20	CHL	8	306	X	-	-	-
20	CHL	8	320	X	-	-	-
20	CHL	Z	601	X	-	-	-
20	CHL	Z	605	X	-	-	-
20	CHL	Z	606	X	-	-	-
27	NEX	5	323	X	-	-	-
28	CL0	A	802	X	-	-	-

2 Entry composition [i](#)

There are 32 unique types of molecules in this entry. The entry contains 48478 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 Light-harvesting chlorophyll-a/b protein of photosystem I, type III.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	3	221	1687	1100	273	306	8	0	0

- Molecule 2 is a protein called Chlorophyll a-b binding protein, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	4	212	1652	1083	269	295	5	0	0

- Molecule 3 is a protein called Chlorophyll a-b binding protein, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	5	227	1775	1154	297	316	8	0	0

- Molecule 4 is a protein called Chlorophyll a-b binding protein, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	6	230	1772	1167	293	306	6	0	0

- Molecule 5 is a protein called Chlorophyll a-b binding protein, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	7	213	1650	1072	274	298	6	0	0

- Molecule 6 is a protein called Chlorophyll a-b binding protein, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	8	217	1650	1073	280	293	4	0	0

- Molecule 7 is a protein called Photosystem I P700 chlorophyll a apoprotein A1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	A	742	5825	3808	994	1001	22	0	0

- Molecule 8 is a protein called Photosystem I P700 chlorophyll a apoprotein A2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	B	733	5824	3824	977	1005	18	0	0

- Molecule 9 is a protein called Photosystem I iron-sulfur center.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	C	80	601	369	103	117	12	0	0

- Molecule 10 is a protein called Photosystem I reaction center subunit II, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	D	144	1133	725	200	201	7	0	0

- Molecule 11 is a protein called Photosystem I reaction center subunit IV, chloroplastic.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
11	E	64	506	322	89	95	0	0

- Molecule 12 is a protein called Photosystem I reaction center subunit VIII.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	I	37	281	195	39	46	1	0	0

- Molecule 13 is a protein called Photosystem I reaction center subunit IX.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	J	41	329	224	46	58	1	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
J	0	ACE	-	acetylation	UNP P59777

- Molecule 14 is a protein called Photosystem I reaction center subunit psaK, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	K	86	583	370	100	111	2	0	0

- Molecule 15 is a protein called Chlorophyll a-b binding protein, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	Z	194	1445	941	240	261	3	0	0
15	1	194	1445	941	240	261	3	0	0

- Molecule 16 is a protein called Photosystem I reaction center subunit III, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	F	165	1266	817	213	233	3	0	0

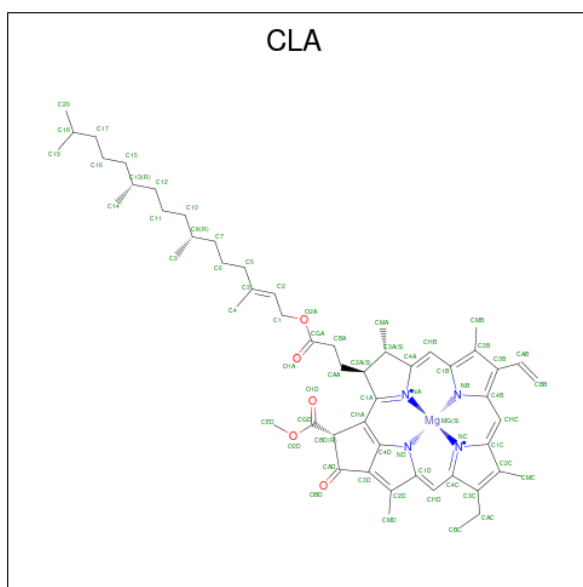
- Molecule 17 is a protein called Photosystem I reaction center subunit V, chloroplastic.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
17	G	70	512	328	90	94	0	0

- Molecule 18 is a protein called Chains: L.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
18	L	124	899	586	146	164	3	0	0

- Molecule 19 is CHLOROPHYLL A (CCD ID: CLA) (formula: C₅₅H₇₂MgN₄O₅) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				AltConf	
19	3	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
19	3	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	3	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	3	1	Total	C	Mg	N	O	0
			42	34	1	4	3	
19	3	1	Total	C	Mg	N	O	0
			51	41	1	4	5	
19	3	1	Total	C	Mg	N	O	0
			61	51	1	4	5	
19	3	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	3	1	Total	C	Mg	N	O	0
			55	45	1	4	5	
19	3	1	Total	C	Mg	N	O	0
			46	36	1	4	5	
19	3	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
19	3	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
19	3	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
19	3	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
19	4	1	Total	C	Mg	N	O	0
			60	50	1	4	5	

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
19	4	1	65	55	1	4	5	0
19	4	1	50	40	1	4	5	0
19	4	1	60	50	1	4	5	0
19	4	1	60	50	1	4	5	0
19	4	1	60	50	1	4	5	0
19	4	1	45	35	1	4	5	0
19	4	1	65	55	1	4	5	0
19	4	1	55	45	1	4	5	0
19	4	1	45	35	1	4	5	0
19	5	1	65	55	1	4	5	0
19	5	1	65	55	1	4	5	0
19	5	1	50	40	1	4	5	0
19	5	1	55	45	1	4	5	0
19	5	1	65	55	1	4	5	0
19	5	1	60	50	1	4	5	0
19	5	1	55	45	1	4	5	0
19	5	1	45	35	1	4	5	0
19	5	1	56	46	1	4	5	0
19	5	1	45	35	1	4	5	0
19	5	1	45	35	1	4	5	0
19	5	1	65	55	1	4	5	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
19	5	1	Total 46	C 36	Mg 1	N 4	O 5	0
19	6	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	6	1	Total 51	C 41	Mg 1	N 4	O 5	0
19	6	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	6	1	Total 55	C 45	Mg 1	N 4	O 5	0
19	6	1	Total 60	C 50	Mg 1	N 4	O 5	0
19	6	1	Total 58	C 48	Mg 1	N 4	O 5	0
19	6	1	Total 45	C 35	Mg 1	N 4	O 5	0
19	6	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	6	1	Total 50	C 40	Mg 1	N 4	O 5	0
19	6	1	Total 45	C 35	Mg 1	N 4	O 5	0
19	6	1	Total 55	C 45	Mg 1	N 4	O 5	0
19	6	1	Total 53	C 43	Mg 1	N 4	O 5	0
19	7	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	7	1	Total 52	C 42	Mg 1	N 4	O 5	0
19	7	1	Total 51	C 41	Mg 1	N 4	O 5	0
19	7	1	Total 50	C 40	Mg 1	N 4	O 5	0
19	7	1	Total 45	C 35	Mg 1	N 4	O 5	0
19	7	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	7	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	7	1	Total 52	C 42	Mg 1	N 4	O 5	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
19	7	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	7	1	Total 43	C 35	Mg 1	N 4	O 3	0
19	7	1	Total 46	C 36	Mg 1	N 4	O 5	0
19	8	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	8	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	8	1	Total 60	C 50	Mg 1	N 4	O 5	0
19	8	1	Total 50	C 40	Mg 1	N 4	O 5	0
19	8	1	Total 45	C 35	Mg 1	N 4	O 5	0
19	8	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	8	1	Total 45	C 35	Mg 1	N 4	O 5	0
19	8	1	Total 55	C 45	Mg 1	N 4	O 5	0
19	8	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	8	1	Total 57	C 47	Mg 1	N 4	O 5	0
19	8	1	Total 45	C 35	Mg 1	N 4	O 5	0
19	A	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	A	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	A	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	A	1	Total 55	C 45	Mg 1	N 4	O 5	0
19	A	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	A	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	A	1	Total 50	C 40	Mg 1	N 4	O 5	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
19	A	1	65	55	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	55	45	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	55	45	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	60	50	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	55	45	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	45	35	1	4	5	0
19	A	1	55	45	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	65	55	1	4	5	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
19	A	1	65	55	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	55	45	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	57	47	1	4	5	0
19	A	1	51	41	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	65	55	1	4	5	0
19	A	1	45	35	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	45	35	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
19	B	1	55	45	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	60	50	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	60	50	1	4	5	0
19	B	1	56	46	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	59	49	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	45	35	1	4	5	0
19	B	1	55	45	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	58	48	1	4	5	0
19	B	1	60	50	1	4	5	0
19	B	1	45	35	1	4	5	0
19	B	1	60	50	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	50	40	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0
19	B	1	65	55	1	4	5	0
19	J	1	55	45	1	4	5	0
19	K	1	45	35	1	4	5	0
19	K	1	60	50	1	4	5	0
19	K	1	46	36	1	4	5	0
19	K	1	45	35	1	4	5	0
19	Z	1	60	50	1	4	5	0
19	Z	1	65	55	1	4	5	0

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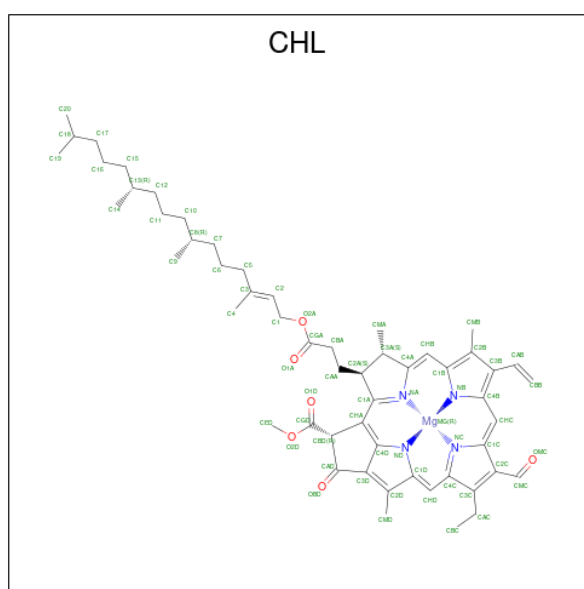
Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
19	Z	1	57	47	1	4	5	0
19	Z	1	50	40	1	4	5	0
19	Z	1	65	55	1	4	5	0
19	Z	1	60	50	1	4	5	0
19	Z	1	60	50	1	4	5	0
19	Z	1	45	35	1	4	5	0
19	Z	1	65	55	1	4	5	0
19	Z	1	50	40	1	4	5	0
19	Z	1	60	50	1	4	5	0
19	1	1	60	50	1	4	5	0
19	1	1	57	47	1	4	5	0
19	1	1	50	40	1	4	5	0
19	1	1	65	55	1	4	5	0
19	1	1	65	55	1	4	5	0
19	1	1	65	55	1	4	5	0
19	1	1	61	51	1	4	5	0
19	1	1	45	35	1	4	5	0
19	1	1	65	55	1	4	5	0
19	1	1	60	50	1	4	5	0
19	1	1	46	36	1	4	5	0
19	F	1	65	55	1	4	5	0

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Mol	Chain	Residues	Atoms				AltConf	
19	F	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
19	F	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	G	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
19	G	1	Total	C	Mg	N	O	0
			46	36	1	4	5	
19	L	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	L	1	Total	C	Mg	N	O	0
			45	35	1	4	5	

- Molecule 20 is CHLOROPHYLL B (CCD ID: CHL) (formula: $C_{55}H_{70}MgN_4O_6$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				AltConf	
20	3	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
20	4	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
20	4	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
20	4	1	Total	C	Mg	N	O	0
			43	34	1	4	4	
20	4	1	Total	C	Mg	N	O	0
			66	55	1	4	6	

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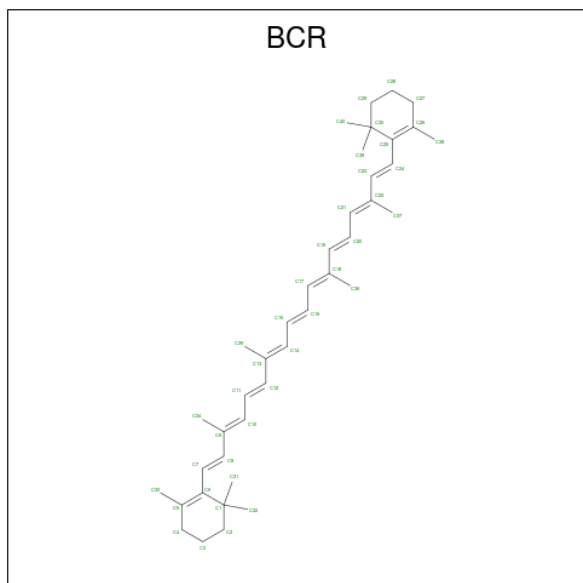
Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
20	4	1	46	35	1	4	6	0
20	5	1	46	35	1	4	6	0
20	5	1	66	55	1	4	6	0
20	5	1	51	40	1	4	6	0
20	5	1	43	34	1	4	4	0
20	6	1	66	55	1	4	6	0
20	6	1	46	35	1	4	6	0
20	6	1	66	55	1	4	6	0
20	6	1	51	40	1	4	6	0
20	6	1	66	55	1	4	6	0
20	6	1	43	34	1	4	4	0
20	7	1	66	55	1	4	6	0
20	7	1	46	35	1	4	6	0
20	7	1	46	35	1	4	6	0
20	7	1	66	55	1	4	6	0
20	8	1	66	55	1	4	6	0
20	8	1	66	55	1	4	6	0
20	8	1	66	55	1	4	6	0
20	Z	1	66	55	1	4	6	0
20	Z	1	46	35	1	4	6	0
20	Z	1	66	55	1	4	6	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
20	1	1	46	35	1	4	6	0
20	1	1	46	35	1	4	6	0

- Molecule 21 is BETA-CAROTENE (CCD ID: BCR) (formula: C₄₀H₅₆) (labeled as "Ligand of Interest" by depositor).



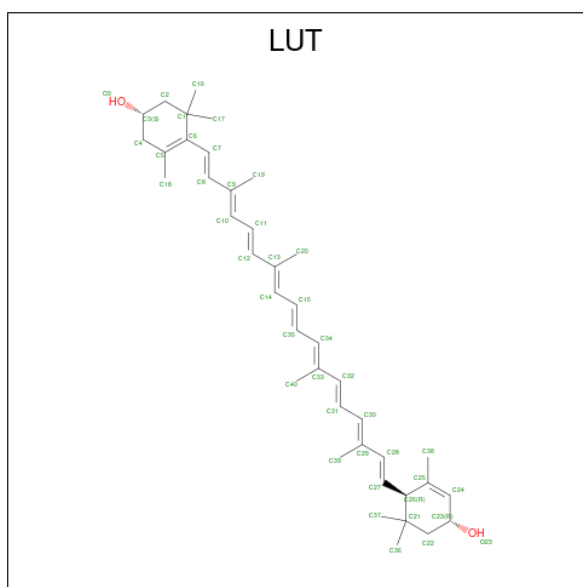
Mol	Chain	Residues	Atoms		AltConf
21	3	1	Total	C	0
			40	40	
21	3	1	Total	C	0
			40	40	
21	3	1	Total	C	0
			40	40	
21	4	1	Total	C	0
			40	40	
21	5	1	Total	C	0
			40	40	
21	6	1	Total	C	0
			40	40	
21	7	1	Total	C	0
			40	40	
21	8	1	Total	C	0
			40	40	
21	A	1	Total	C	0
			40	40	

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Mol	Chain	Residues	Atoms	AltConf
21	A	1	Total C 40 40	0
21	A	1	Total C 40 40	0
21	A	1	Total C 40 40	0
21	A	1	Total C 40 40	0
21	A	1	Total C 40 40	0
21	B	1	Total C 40 40	0
21	B	1	Total C 40 40	0
21	B	1	Total C 40 40	0
21	B	1	Total C 40 40	0
21	B	1	Total C 40 40	0
21	B	1	Total C 40 40	0
21	B	1	Total C 40 40	0
21	B	1	Total C 40 40	0
21	B	1	Total C 40 40	0
21	I	1	Total C 40 40	0
21	J	1	Total C 40 40	0
21	K	1	Total C 40 40	0
21	G	1	Total C 40 40	0
21	L	1	Total C 40 40	0
21	L	1	Total C 40 40	0

- Molecule 22 is (3R,3'R,6S)-4,5-DIDEHYDRO-5,6-DIHYDRO-BETA,BETA-CAROTENE-3,3'-DIOL (CCD ID: LUT) (formula: C₄₀H₅₆O₂) (labeled as "Ligand of Interest" by depositor).



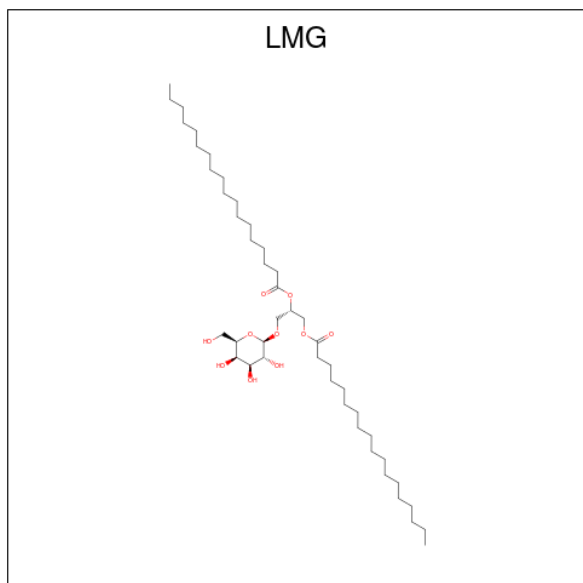
Mol	Chain	Residues	Atoms			AltConf
22	3	1	Total	C	O	0
			42	40	2	
22	3	1	Total	C	O	0
			42	40	2	
22	3	1	Total	C	O	0
			20	19	1	
22	4	1	Total	C	O	0
			42	40	2	
22	5	1	Total	C	O	0
			42	40	2	
22	5	1	Total	C	O	0
			42	40	2	
22	6	1	Total	C	O	0
			42	40	2	
22	7	1	Total	C	O	0
			42	40	2	
22	8	1	Total	C	O	0
			42	40	2	
22	8	1	Total	C	O	0
			42	40	2	
22	J	1	Total	C	O	0
			42	40	2	
22	Z	1	Total	C	O	0
			42	40	2	
22	Z	1	Total	C	O	0
			26	25	1	
22	1	1	Total	C	O	0
			42	40	2	

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Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
22	1	1	42	40	2	0
22	F	1	42	40	2	0

- Molecule 23 is 1,2-DISTEAROYL-MONOGALACTOSYL-DIGLYCERIDE (CCD ID: LMG) (formula: C₄₅H₈₆O₁₀).



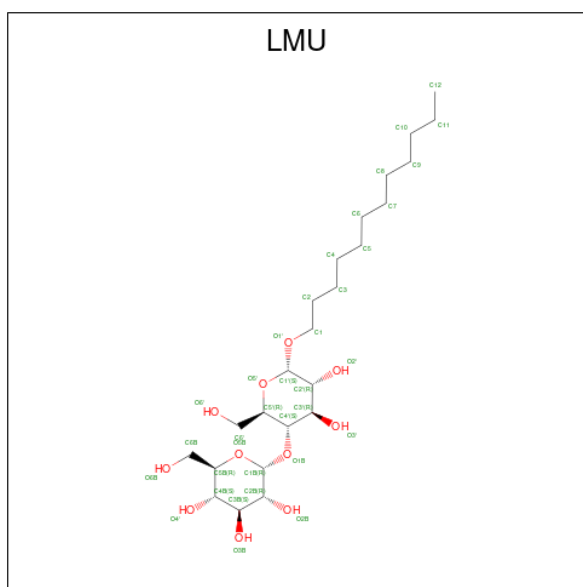
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
23	3	1	37	27	10	0
23	4	1	41	31	10	0
23	6	1	27	22	5	0
23	6	1	20	18	2	0
23	7	1	32	22	10	0
23	8	1	49	39	10	0
23	B	1	43	33	10	0
23	J	1	42	32	10	0
23	J	1	35	25	10	0

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Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
23	F	1	32	22	10	0
23	G	1	36	26	10	0
23	L	1	40	30	10	0

- Molecule 24 is DODECYL-ALPHA-D-MALTOSE (CCD ID: LMU) (formula: C₂₄H₄₆O₁₁).



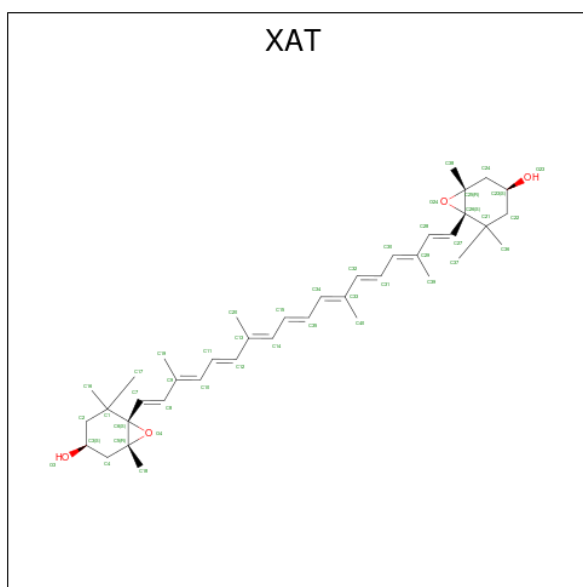
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
24	3	1	34	23	11	0
24	3	1	24	18	6	0
24	3	1	35	24	11	0
24	3	1	24	18	6	0
24	4	1	22	16	6	0
24	4	1	20	14	6	0
24	4	1	24	18	6	0
24	4	1	22	16	6	0

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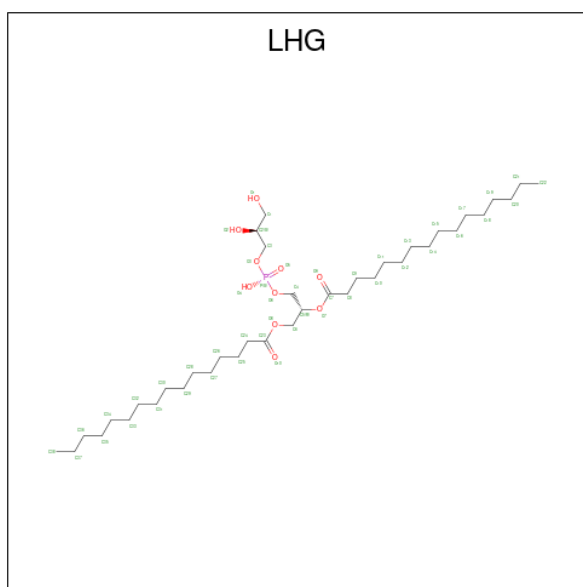
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
24	6	1	24	18	6	0
24	6	1	24	18	6	0
24	7	1	21	15	6	0
24	7	1	22	16	6	0
24	8	1	24	18	6	0
24	A	1	35	24	11	0
24	A	1	20	14	6	0
24	A	1	24	18	6	0
24	B	1	35	24	11	0
24	K	1	24	18	6	0
24	Z	1	31	20	11	0
24	Z	1	24	18	6	0
24	Z	1	24	18	6	0
24	1	1	35	24	11	0
24	1	1	35	24	11	0
24	1	1	19	13	6	0
24	1	1	24	18	6	0
24	1	1	22	16	6	0
24	F	1	35	24	11	0

- Molecule 25 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 (CCD ID: XAT) (formula: C₄₀H₅₆O₄) (labeled as "Ligand of Interest" by depositor).



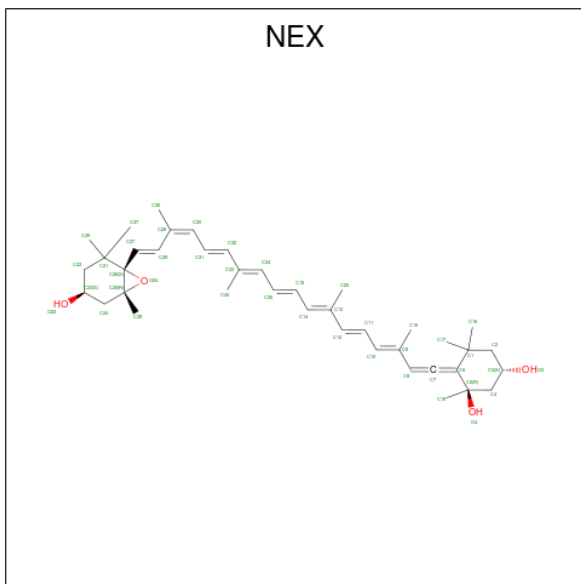
Mol	Chain	Residues	Atoms			AltConf
25	4	1	Total	C	O	0
			44	40	4	
25	5	1	Total	C	O	0
			44	40	4	
25	6	1	Total	C	O	0
			44	40	4	
25	7	1	Total	C	O	0
			44	40	4	
25	8	1	Total	C	O	0
			44	40	4	
25	Z	1	Total	C	O	0
			44	40	4	
25	1	1	Total	C	O	0
			44	40	4	

- Molecule 26 is 1,2-DIPALMITOYL-PHOSPHATIDYL-GLYCEROLE (CCD ID: LHG) (formula: $C_{38}H_{75}O_{10}P$).



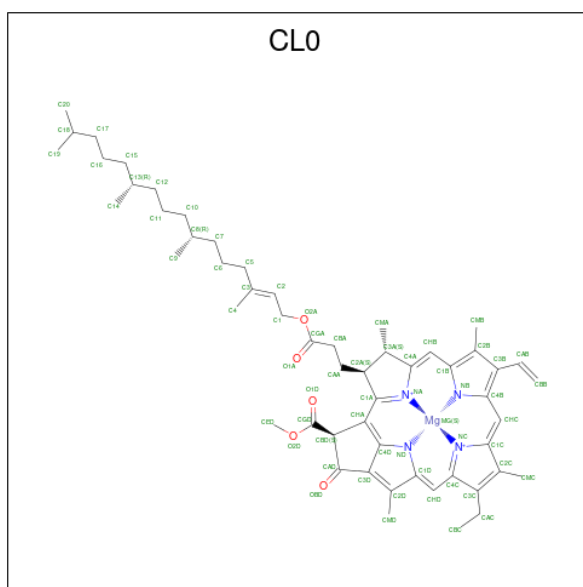
Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
26	4	1	49	38	10	1	0
26	4	1	38	27	10	1	0
26	5	1	38	27	10	1	0
26	5	1	37	26	10	1	0
26	6	1	49	38	10	1	0
26	6	1	36	25	10	1	0
26	7	1	49	38	10	1	0
26	8	1	44	33	10	1	0
26	A	1	31	20	10	1	0
26	A	1	49	38	10	1	0
26	A	1	38	27	10	1	0
26	B	1	45	34	10	1	0
26	Z	1	39	28	10	1	0
26	1	1	44	33	10	1	0

- Molecule 27 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 (CCD ID: NEX) (formula: $C_{40}H_{56}O_4$) (labeled as "Ligand of Interest" by depositor).



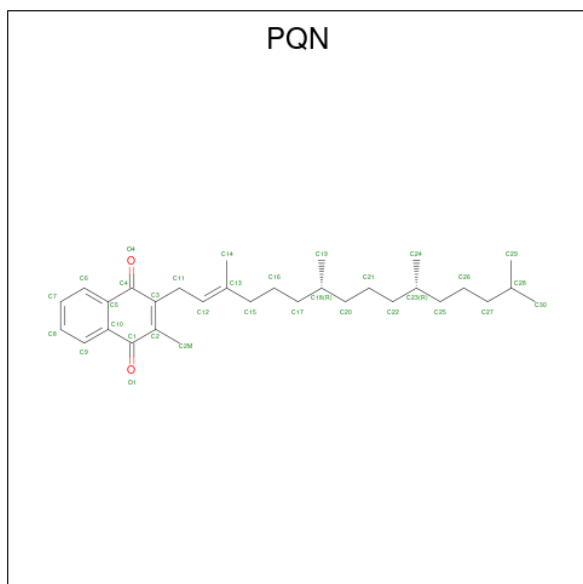
Mol	Chain	Residues	Atoms			AltConf
27	5	1	Total	C	O	0
			44	40	4	
27	6	1	Total	C	O	0
			44	40	4	

- Molecule 28 is CHLOROPHYLL A ISOMER (CCD ID: CL0) (formula: $C_{55}H_{72}MgN_4O_5$) (labeled as "Ligand of Interest" by depositor).



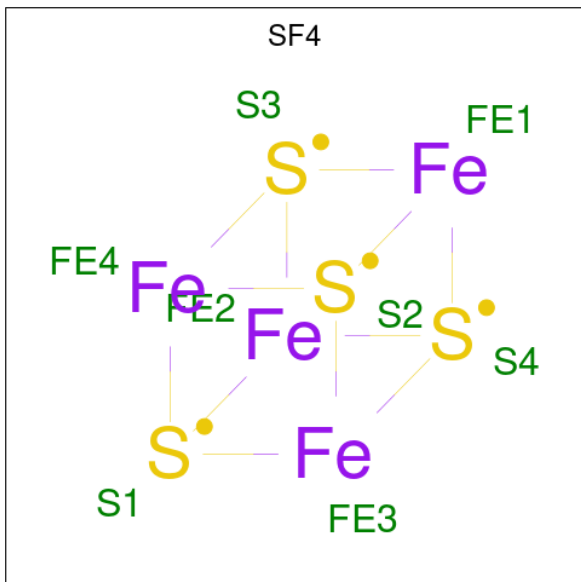
Mol	Chain	Residues	Atoms				AltConf	
			Total	C	Mg	N		O
28	A	1	65	55	1	4	5	0

- Molecule 29 is PHYLLOQUINONE (CCD ID: PQN) (formula: $C_{31}H_{46}O_2$) (labeled as "Ligand of Interest" by depositor).



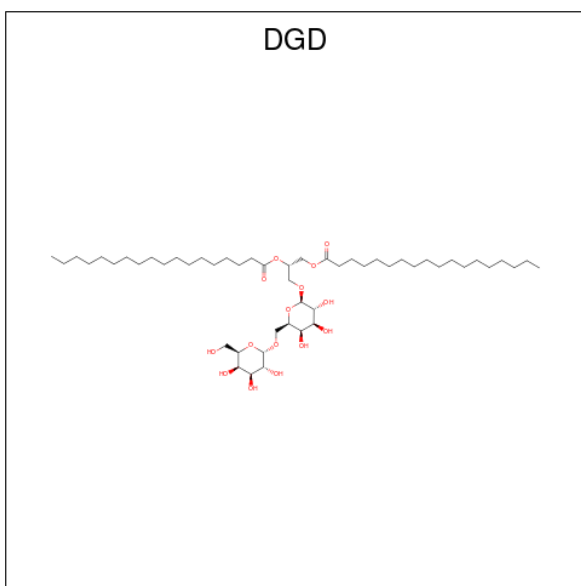
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
29	A	1	33	31	2	0
29	B	1	33	31	2	0

- Molecule 30 is IRON/SULFUR CLUSTER (CCD ID: SF4) (formula: Fe_4S_4) (labeled as "Ligand of Interest" by depositor).



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

- Molecule 31 is DIGALACTOSYL DIACYL GLYCEROL (DGDG) (CCD ID: DGD) (formula: $\text{C}_{51}\text{H}_{96}\text{O}_{15}$).



Mol	Chain	Residues	Atoms			AltConf
31	B	1	Total	C	O	0
			59	44	15	

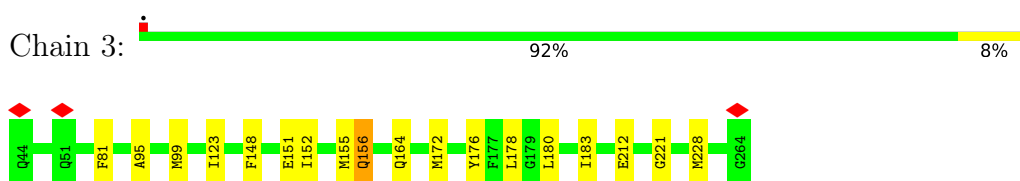
- Molecule 32 is water.

Mol	Chain	Residues	Atoms		AltConf
32	3	55	Total	O	0
			55	55	
32	4	17	Total	O	0
			17	17	
32	5	36	Total	O	0
			36	36	
32	6	21	Total	O	0
			21	21	
32	7	74	Total	O	0
			74	74	
32	8	61	Total	O	0
			61	61	
32	A	288	Total	O	0
			288	288	
32	B	237	Total	O	0
			237	237	
32	C	50	Total	O	0
			50	50	
32	D	49	Total	O	0
			49	49	
32	E	21	Total	O	0
			21	21	
32	I	2	Total	O	0
			2	2	
32	J	9	Total	O	0
			9	9	
32	K	3	Total	O	0
			3	3	
32	Z	11	Total	O	0
			11	11	
32	1	32	Total	O	0
			32	32	
32	F	47	Total	O	0
			47	47	
32	L	6	Total	O	0
			6	6	

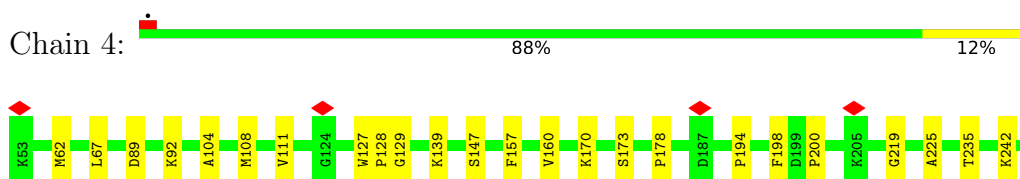
3 Residue-property plots [i](#)

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

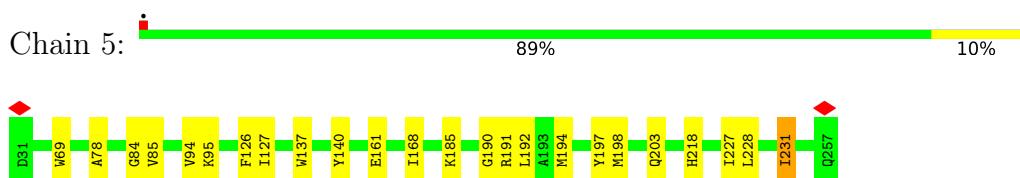
- Molecule 1: Light-harvesting chlorophyll-a/b protein of photosystem I, type III



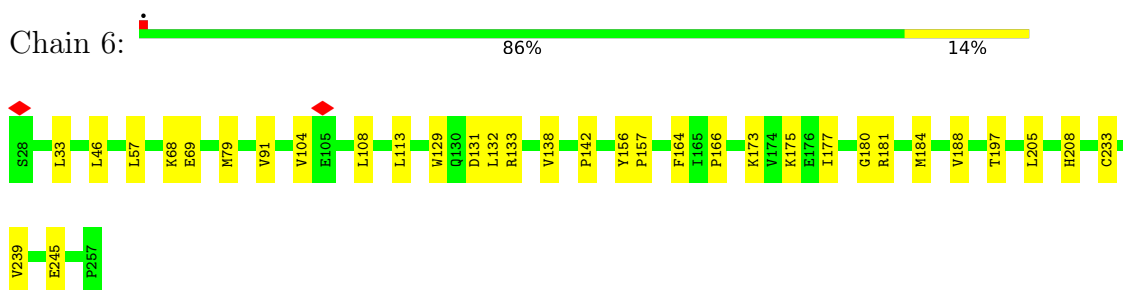
- Molecule 2: Chlorophyll a-b binding protein, chloroplastic



- Molecule 3: Chlorophyll a-b binding protein, chloroplastic



- Molecule 4: Chlorophyll a-b binding protein, chloroplastic



- Molecule 5: Chlorophyll a-b binding protein, chloroplastic





- Molecule 6: Chlorophyll a-b binding protein, chloroplastic



- Molecule 7: Photosystem I P700 chlorophyll a apoprotein A1



- Molecule 8: Photosystem I P700 chlorophyll a apoprotein A2



- Molecule 9: Photosystem I iron-sulfur center

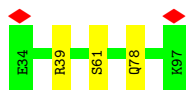


- Molecule 10: Photosystem I reaction center subunit II, chloroplastic

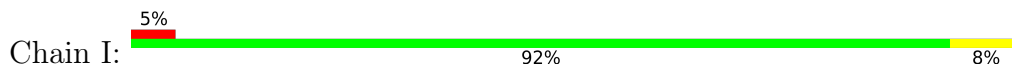


- Molecule 11: Photosystem I reaction center subunit IV, chloroplastic

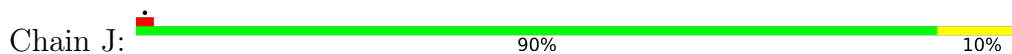




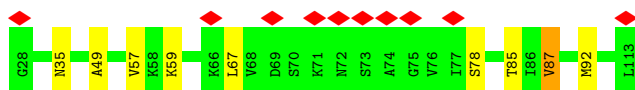
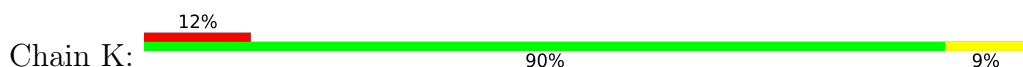
- Molecule 12: Photosystem I reaction center subunit VIII



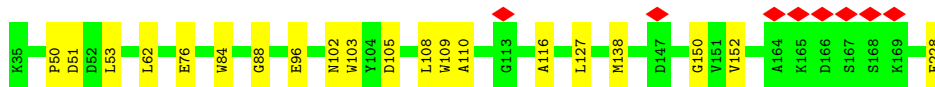
- Molecule 13: Photosystem I reaction center subunit IX



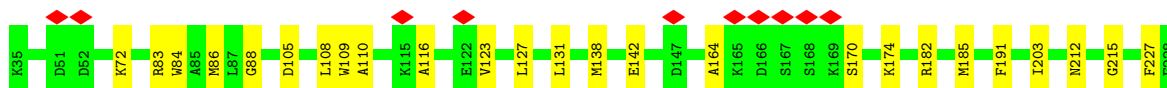
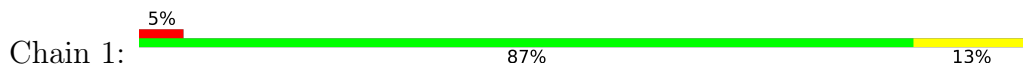
- Molecule 14: Photosystem I reaction center subunit psaK, chloroplastic



- Molecule 15: Chlorophyll a-b binding protein, chloroplastic



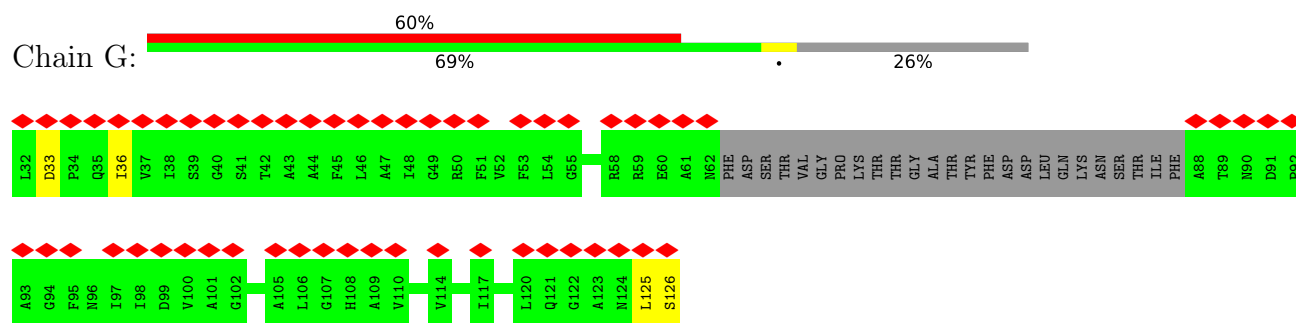
- Molecule 15: Chlorophyll a-b binding protein, chloroplastic



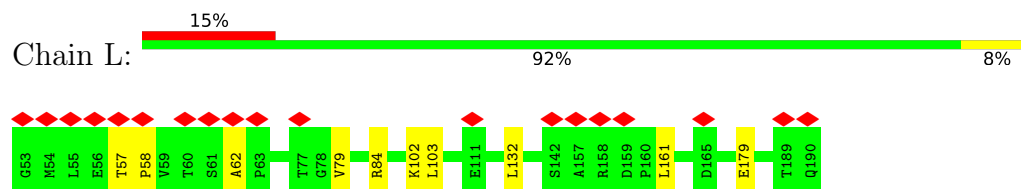
- Molecule 16: Photosystem I reaction center subunit III, chloroplastic



- Molecule 17: Photosystem I reaction center subunit V, chloroplastic



- Molecule 18: Chains: L



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	246159	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	0.385	Depositor
Minimum map value	-0.108	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.007	Depositor
Recommended contour level	0.04	Depositor
Map size (\AA)	373.76, 373.76, 373.76	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	0.73, 0.73, 0.73	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: LUT, LMU, CHL, LHG, BCR, DGD, SF4, ACE, PQN, NEX, CL0, LMG, XAT, 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	3	0.16	0/1735	0.39	1/2355 (0.0%)
2	4	0.13	0/1707	0.28	0/2325
3	5	0.14	0/1830	0.30	0/2492
4	6	0.13	0/1834	0.30	0/2505
5	7	0.14	0/1702	0.30	0/2310
6	8	0.14	0/1701	0.29	0/2315
7	A	0.15	0/6021	0.32	0/8208
8	B	0.15	0/6036	0.34	0/8240
9	C	0.12	0/611	0.34	0/826
10	D	0.12	0/1161	0.34	0/1567
11	E	0.11	0/516	0.29	0/700
12	I	0.13	0/293	0.29	0/406
13	J	0.17	0/338	0.33	0/464
14	K	0.12	0/588	0.26	0/795
15	1	0.15	0/1491	0.32	0/2028
15	Z	0.13	0/1491	0.27	0/2028
16	F	0.13	0/1292	0.31	0/1747
17	G	0.09	0/521	0.20	0/706
18	L	0.13	0/920	0.27	0/1257
All	All	0.14	0/31788	0.32	1/43274 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	3	156	GLN	CA-CB-CG	7.14	128.39	114.10

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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	3	1687	0	1646	16	0
2	4	1652	0	1613	19	0
3	5	1775	0	1746	19	0
4	6	1772	0	1770	29	0
5	7	1650	0	1589	16	0
6	8	1650	0	1629	19	0
7	A	5825	0	5675	40	0
8	B	5824	0	5577	41	0
9	C	601	0	581	3	0
10	D	1133	0	1150	6	0
11	E	506	0	504	2	0
12	I	281	0	292	2	0
13	J	329	0	328	3	0
14	K	583	0	620	7	0
15	1	1445	0	1396	20	0
15	Z	1445	0	1396	14	0
16	F	1266	0	1301	8	0
17	G	512	0	503	3	0
18	L	899	0	905	8	0
19	1	639	0	625	16	0
19	3	720	0	674	22	0
19	4	565	0	534	15	0
19	5	717	0	667	26	0
19	6	667	0	619	19	0
19	7	599	0	553	14	0
19	8	617	0	587	16	0
19	A	2653	0	2784	68	0
19	B	2528	0	2652	79	0
19	F	175	0	177	7	0
19	G	106	0	92	0	0
19	J	55	0	49	1	0
19	K	196	0	158	5	0
19	L	110	0	105	3	0
19	Z	637	0	616	10	0
20	1	92	0	62	2	0
20	3	66	0	70	0	0
20	4	287	0	270	11	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
20	5	206	0	167	5	0
20	6	338	0	307	15	0
20	7	224	0	202	3	0
20	8	198	0	210	5	0
20	Z	178	0	171	1	0
21	3	120	0	168	6	0
21	4	40	0	56	1	0
21	5	40	0	56	4	0
21	6	40	0	56	2	0
21	7	40	0	56	3	0
21	8	40	0	56	1	0
21	A	240	0	336	9	0
21	B	280	0	392	10	0
21	G	40	0	56	0	0
21	I	40	0	56	1	0
21	J	40	0	56	1	0
21	K	40	0	56	1	0
21	L	80	0	112	4	0
22	1	84	0	112	3	0
22	3	104	0	138	1	0
22	4	42	0	56	3	0
22	5	84	0	112	4	0
22	6	42	0	56	0	0
22	7	42	0	56	0	0
22	8	84	0	112	0	0
22	F	42	0	56	1	0
22	J	42	0	56	3	0
22	Z	68	0	89	1	0
23	3	37	0	44	4	0
23	4	41	0	55	0	0
23	6	47	0	68	3	0
23	7	32	0	34	0	0
23	8	49	0	71	1	0
23	B	43	0	56	1	0
23	F	32	0	34	1	0
23	G	36	0	42	0	0
23	J	77	0	97	4	0
23	L	40	0	50	2	0
24	1	135	0	177	5	0
24	3	117	0	157	3	0
24	4	88	0	115	2	0
24	6	48	0	70	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
24	7	43	0	54	1	0
24	8	24	0	35	1	0
24	A	79	0	105	1	0
24	B	35	0	46	2	0
24	F	35	0	46	2	0
24	K	24	0	35	0	0
24	Z	79	0	105	0	0
25	1	44	0	56	1	0
25	4	44	0	56	1	0
25	5	44	0	56	3	0
25	6	44	0	56	2	0
25	7	44	0	56	1	0
25	8	44	0	56	0	0
25	Z	44	0	56	2	0
26	1	44	0	58	0	0
26	4	87	0	123	5	0
26	5	75	0	90	2	0
26	6	85	0	116	7	0
26	7	49	0	74	1	0
26	8	44	0	61	3	0
26	A	118	0	155	3	0
26	B	45	0	63	6	0
26	Z	39	0	48	0	0
27	5	44	0	56	0	0
27	6	44	0	56	2	0
28	A	65	0	72	0	0
29	A	33	0	46	0	0
29	B	33	0	46	0	0
30	A	8	0	0	0	0
30	C	16	0	0	0	0
31	B	59	0	79	2	0
32	1	32	0	0	0	0
32	3	55	0	0	0	0
32	4	17	0	0	0	0
32	5	36	0	0	0	0
32	6	21	0	0	0	0
32	7	74	0	0	0	0
32	8	61	0	0	0	0
32	A	288	0	0	0	0
32	B	237	0	0	1	0
32	C	50	0	0	0	0
32	D	49	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
32	E	21	0	0	0	0
32	F	47	0	0	0	0
32	I	2	0	0	0	0
32	J	9	0	0	0	0
32	K	3	0	0	0	0
32	L	6	0	0	0	0
32	Z	11	0	0	0	0
All	All	48478	0	47958	518	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 5.

The worst 5 of 518 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)
8:B:663:MET:HB2	19:B:804:CLA:C1C	2.07	0.83
20:5:308:CHL:HBB2	20:5:317:CHL:HHC	1.60	0.81
20:4:607:CHL:HBB2	20:4:615:CHL:HHC	1.65	0.77
21:5:320:BCR:HC42	26:6:318:LHG:H102	1.70	0.73
15:1:142:GLU:HG3	19:1:308:CLA:C4B	2.18	0.73

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	3	219/221 (99%)	216 (99%)	3 (1%)	0	100	100
2	4	210/212 (99%)	209 (100%)	1 (0%)	0	100	100
3	5	225/227 (99%)	222 (99%)	3 (1%)	0	100	100
4	6	228/230 (99%)	224 (98%)	4 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
5	7	211/213 (99%)	207 (98%)	4 (2%)	0	100	100
6	8	215/217 (99%)	214 (100%)	1 (0%)	0	100	100
7	A	740/742 (100%)	728 (98%)	12 (2%)	0	100	100
8	B	731/733 (100%)	714 (98%)	17 (2%)	0	100	100
9	C	78/80 (98%)	78 (100%)	0	0	100	100
10	D	142/144 (99%)	138 (97%)	4 (3%)	0	100	100
11	E	62/64 (97%)	61 (98%)	1 (2%)	0	100	100
12	I	35/37 (95%)	35 (100%)	0	0	100	100
13	J	39/41 (95%)	39 (100%)	0	0	100	100
14	K	84/86 (98%)	83 (99%)	1 (1%)	0	100	100
15	1	192/194 (99%)	191 (100%)	1 (0%)	0	100	100
15	Z	192/194 (99%)	191 (100%)	1 (0%)	0	100	100
16	F	163/165 (99%)	161 (99%)	2 (1%)	0	100	100
17	G	66/95 (70%)	66 (100%)	0	0	100	100
18	L	120/124 (97%)	120 (100%)	0	0	100	100
All	All	3952/4019 (98%)	3897 (99%)	55 (1%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	3	168/168 (100%)	168 (100%)	0	100	100
2	4	167/167 (100%)	165 (99%)	2 (1%)	67	57
3	5	184/184 (100%)	180 (98%)	4 (2%)	47	31
4	6	184/184 (100%)	182 (99%)	2 (1%)	70	60
5	7	164/164 (100%)	164 (100%)	0	100	100
6	8	163/163 (100%)	162 (99%)	1 (1%)	84	79

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
7	A	601/601 (100%)	600 (100%)	1 (0%)	92	91
8	B	596/596 (100%)	592 (99%)	4 (1%)	81	76
9	C	69/69 (100%)	69 (100%)	0	100	100
10	D	121/121 (100%)	117 (97%)	4 (3%)	33	16
11	E	55/55 (100%)	55 (100%)	0	100	100
12	I	31/31 (100%)	30 (97%)	1 (3%)	34	17
13	J	36/36 (100%)	36 (100%)	0	100	100
14	K	59/59 (100%)	58 (98%)	1 (2%)	56	41
15	1	137/137 (100%)	136 (99%)	1 (1%)	81	76
15	Z	137/137 (100%)	136 (99%)	1 (1%)	81	76
16	F	127/127 (100%)	125 (98%)	2 (2%)	58	44
17	G	49/71 (69%)	49 (100%)	0	100	100
18	L	90/90 (100%)	90 (100%)	0	100	100
All	All	3138/3160 (99%)	3114 (99%)	24 (1%)	77	72

5 of 24 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
10	D	57	THR
10	D	191	MET
10	D	175	ILE
12	I	102	GLU
4	6	233	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 29 such sidechains are listed below:

Mol	Chain	Res	Type
7	A	387	GLN
15	1	212	ASN
8	B	84	HIS
15	1	128	ASN
8	B	77	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

328 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
19	CLA	6	314	4	50,58,73	1.70	6 (12%)	58,95,113	1.50	9 (15%)
19	CLA	A	813	19,7	65,73,73	1.46	6 (9%)	76,113,113	1.34	7 (9%)
19	CLA	5	304	3	50,58,73	1.66	6 (12%)	58,95,113	1.60	8 (13%)
20	CHL	5	306	32	46,54,74	1.41	7 (15%)	49,90,114	1.51	5 (10%)
19	CLA	7	612	5	65,73,73	1.49	5 (7%)	76,113,113	1.35	8 (10%)
27	NEX	6	323	-	38,46,46	0.21	0	50,70,70	1.29	4 (8%)
22	LUT	3	317	-	42,43,43	0.26	0	51,60,60	0.60	0
19	CLA	8	314	6	45,53,73	1.77	6 (13%)	52,89,113	1.58	8 (15%)
19	CLA	8	312	6	65,73,73	1.50	6 (9%)	76,113,113	1.34	8 (10%)
25	XAT	7	616	-	39,47,47	0.66	2 (5%)	54,74,74	0.75	0
19	CLA	B	821	8	56,64,73	1.59	5 (8%)	65,102,113	1.49	7 (10%)
19	CLA	4	608	2	60,68,73	1.53	5 (8%)	70,107,113	1.47	8 (11%)
22	LUT	6	319	-	42,43,43	0.30	0	51,60,60	0.68	0
19	CLA	7	614	5	46,54,73	1.76	6 (13%)	53,90,113	1.52	6 (11%)
22	LUT	3	316	-	42,43,43	0.26	0	51,60,60	0.58	0
19	CLA	3	301	1	60,68,73	1.52	6 (10%)	70,107,113	1.48	8 (11%)
20	CHL	4	606	32	43,51,74	1.40	7 (16%)	45,86,114	1.51	6 (13%)
24	LMU	4	625	-	22,22,36	0.39	0	27,27,47	0.60	0
24	LMU	4	623	-	20,20,36	0.40	0	25,25,47	0.78	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
19	CLA	L	204	32	45,53,73	1.78	5 (11%)	52,89,113	1.59	8 (15%)
24	LMU	4	622	-	22,22,36	0.41	0	27,27,47	0.70	0
21	BCR	B	845	-	41,41,41	0.35	0	56,56,56	0.74	0
19	CLA	3	307	1	61,69,73	1.50	5 (8%)	71,108,113	1.42	6 (8%)
20	CHL	Z	601	15	66,74,74	1.18	7 (10%)	73,114,114	1.37	8 (10%)
19	CLA	A	835	7	65,73,73	1.51	6 (9%)	76,113,113	1.36	8 (10%)
19	CLA	Z	612	32	65,73,73	1.46	6 (9%)	76,113,113	1.42	8 (10%)
19	CLA	1	308	15	65,73,73	1.50	5 (7%)	76,113,113	1.38	6 (7%)
19	CLA	B	814	8	65,73,73	1.48	6 (9%)	76,113,113	1.36	7 (9%)
19	CLA	Z	614	15	60,68,73	1.56	6 (10%)	70,107,113	1.39	9 (12%)
19	CLA	B	827	8	65,73,73	1.47	6 (9%)	76,113,113	1.38	8 (10%)
20	CHL	4	615	2	46,54,74	1.32	6 (13%)	49,90,114	1.57	6 (12%)
24	LMU	3	324	-	36,36,36	0.45	0	47,47,47	1.06	4 (8%)
19	CLA	5	313	3	56,64,73	1.56	6 (10%)	65,102,113	1.53	8 (12%)
19	CLA	B	805	8	45,53,73	1.80	5 (11%)	52,89,113	1.59	8 (15%)
19	CLA	3	305	1	51,59,73	1.69	5 (9%)	59,96,113	1.50	8 (13%)
19	CLA	K	203	32	60,68,73	1.55	5 (8%)	70,107,113	1.49	11 (15%)
20	CHL	8	306	32	66,74,74	1.19	6 (9%)	73,114,114	1.32	7 (9%)
19	CLA	3	310	1	46,54,73	1.74	6 (13%)	53,90,113	1.55	6 (11%)
19	CLA	B	833	8	65,73,73	1.49	5 (7%)	76,113,113	1.42	9 (11%)
19	CLA	5	311	26	55,63,73	1.60	5 (9%)	64,101,113	1.51	7 (10%)
20	CHL	1	305	32	46,54,74	1.31	6 (13%)	49,90,114	1.46	7 (14%)
19	CLA	6	312	4	45,53,73	1.79	6 (13%)	52,89,113	1.58	6 (11%)
24	LMU	4	624	-	24,24,36	0.39	0	29,29,47	0.64	0
19	CLA	8	304	32	60,68,73	1.53	5 (8%)	70,107,113	1.41	7 (10%)
20	CHL	7	621	6	66,74,74	1.22	7 (10%)	73,114,114	1.28	5 (6%)
19	CLA	A	829	7	65,73,73	1.48	5 (7%)	76,113,113	1.36	8 (10%)
26	LHG	4	620	-	37,37,48	0.57	0	40,43,54	0.52	0
19	CLA	A	844	32	65,73,73	1.49	5 (7%)	76,113,113	1.38	8 (10%)
26	LHG	4	619	19	48,48,48	0.52	0	51,54,54	0.49	0
19	CLA	7	613	5	43,51,73	1.80	6 (13%)	49,86,113	1.57	7 (14%)
21	BCR	3	319	-	41,41,41	0.30	0	56,56,56	0.61	0
23	LMG	G	201	-	36,36,55	0.56	0	44,44,63	0.68	0
19	CLA	Z	604	32	57,65,73	1.58	6 (10%)	66,103,113	1.48	8 (12%)
24	LMU	A	855	-	36,36,36	0.45	0	47,47,47	1.08	2 (4%)
26	LHG	A	848	19	37,37,48	0.58	0	40,43,54	0.52	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
19	CLA	6	320	32	55,63,73	1.59	5 (9%)	64,101,113	1.50	7 (10%)
27	NEX	5	323	-	38,46,46	0.23	0	50,70,70	1.31	4 (8%)
26	LHG	5	301	-	37,37,48	0.57	0	40,43,54	0.56	0
19	CLA	A	811	7	65,73,73	1.46	6 (9%)	76,113,113	1.44	9 (11%)
29	PQN	A	845	-	34,34,34	0.34	0	42,45,45	0.52	1 (2%)
19	CLA	B	803	8	65,73,73	1.48	6 (9%)	76,113,113	1.31	7 (9%)
20	CHL	4	605	32	66,74,74	1.12	7 (10%)	73,114,114	1.16	6 (8%)
19	CLA	A	825	7	45,53,73	1.79	6 (13%)	52,89,113	1.56	7 (13%)
19	CLA	A	817	7	65,73,73	1.48	5 (7%)	76,113,113	1.41	7 (9%)
21	BCR	B	848	-	41,41,41	0.29	0	56,56,56	0.80	1 (1%)
26	LHG	6	325	-	35,35,48	0.56	0	38,41,54	0.73	1 (2%)
19	CLA	J	102	13	55,63,73	1.59	6 (10%)	64,101,113	1.51	6 (9%)
19	CLA	3	314	1	45,53,73	1.76	7 (15%)	52,89,113	1.55	7 (13%)
19	CLA	A	821	7	65,73,73	1.50	6 (9%)	76,113,113	1.38	10 (13%)
19	CLA	K	205	14	45,53,73	1.78	6 (13%)	52,89,113	1.59	8 (15%)
19	CLA	B	842	26	65,73,73	1.47	6 (9%)	76,113,113	1.41	7 (9%)
25	XAT	6	322	-	39,47,47	0.67	2 (5%)	54,74,74	0.82	0
22	LUT	1	315	-	42,43,43	0.30	0	51,60,60	0.68	0
21	BCR	A	850	-	41,41,41	0.31	0	56,56,56	0.62	1 (1%)
22	LUT	4	616	-	42,43,43	0.30	0	51,60,60	0.70	0
19	CLA	4	610	26	60,68,73	1.56	5 (8%)	70,107,113	1.37	7 (10%)
30	SF4	C	101	9	0,12,12	-	-	-	-	-
19	CLA	Z	603	15	65,73,73	1.48	6 (9%)	76,113,113	1.39	7 (9%)
19	CLA	Z	613	15	50,58,73	1.70	5 (10%)	58,95,113	1.56	8 (13%)
21	BCR	4	618	-	41,41,41	0.31	0	56,56,56	0.58	0
19	CLA	8	309	6	65,73,73	1.47	5 (7%)	76,113,113	1.36	7 (9%)
19	CLA	8	303	6	65,73,73	1.48	6 (9%)	76,113,113	1.44	8 (10%)
21	BCR	J	103	-	41,41,41	0.34	0	56,56,56	0.53	0
22	LUT	F	305	-	42,43,43	0.28	0	51,60,60	0.78	1 (1%)
19	CLA	B	828	8	65,73,73	1.48	6 (9%)	76,113,113	1.35	7 (9%)
19	CLA	A	837	7	65,73,73	1.50	6 (9%)	76,113,113	1.35	7 (9%)
19	CLA	B	809	8	65,73,73	1.50	6 (9%)	76,113,113	1.40	9 (11%)
19	CLA	B	806	8	65,73,73	1.47	6 (9%)	76,113,113	1.40	7 (9%)
19	CLA	F	303	32	45,53,73	1.77	6 (13%)	52,89,113	1.61	7 (13%)
19	CLA	1	310	26	61,69,73	1.52	6 (9%)	71,108,113	1.40	8 (11%)
19	CLA	A	843	7	65,73,73	1.50	6 (9%)	76,113,113	1.32	7 (9%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
23	LMG	L	201	-	40,40,55	0.53	0	48,48,63	0.59	0
23	LMG	8	321	-	49,49,55	0.52	0	57,57,63	0.64	0
19	CLA	6	309	4	55,63,73	1.60	5 (9%)	64,101,113	1.46	8 (12%)
19	CLA	4	602	2	60,68,73	1.53	5 (8%)	70,107,113	1.43	6 (8%)
19	CLA	6	311	26	58,66,73	1.58	5 (8%)	67,104,113	1.38	6 (8%)
19	CLA	A	823	32	65,73,73	1.47	6 (9%)	76,113,113	1.39	7 (9%)
19	CLA	1	309	15	65,73,73	1.47	5 (7%)	76,113,113	1.38	7 (9%)
20	CHL	6	315	4	66,74,74	1.18	7 (10%)	73,114,114	1.20	2 (2%)
23	LMG	6	301	-	26,26,55	0.45	0	28,28,63	0.48	0
19	CLA	B	822	8	65,73,73	1.50	6 (9%)	76,113,113	1.36	8 (10%)
19	CLA	5	319	32	46,54,73	1.77	5 (10%)	53,90,113	1.65	7 (13%)
26	LHG	8	318	19	43,43,48	0.54	0	46,49,54	0.54	0
24	LMU	8	319	-	24,24,36	0.39	0	29,29,47	0.61	0
19	CLA	5	316	3	65,73,73	1.47	6 (9%)	76,113,113	1.38	8 (10%)
24	LMU	Z	620	-	24,24,36	0.40	0	29,29,47	0.60	0
19	CLA	5	305	32	55,63,73	1.60	6 (10%)	64,101,113	1.47	6 (9%)
26	LHG	7	618	19	48,48,48	0.51	0	51,54,54	0.49	0
24	LMU	1	322	-	22,22,36	0.39	0	27,27,47	0.72	0
19	CLA	5	310	3	60,68,73	1.53	6 (10%)	70,107,113	1.46	8 (11%)
25	XAT	8	316	-	39,47,47	0.66	2 (5%)	54,74,74	0.72	0
19	CLA	4	609	2	60,68,73	1.52	6 (10%)	70,107,113	1.43	7 (10%)
19	CLA	A	833	7	55,63,73	1.61	6 (10%)	64,101,113	1.49	6 (9%)
28	CLO	A	802	7	65,73,73	1.10	6 (9%)	76,113,113	1.06	2 (2%)
24	LMU	Z	621	-	24,24,36	0.39	0	29,29,47	0.60	0
26	LHG	1	318	19	43,43,48	0.53	0	46,49,54	0.51	0
19	CLA	A	846	26	45,53,73	1.76	6 (13%)	52,89,113	1.62	7 (13%)
20	CHL	7	606	32	46,54,74	1.34	7 (15%)	49,90,114	1.48	6 (12%)
26	LHG	A	847	-	48,48,48	0.51	0	51,54,54	0.47	0
19	CLA	B	823	8	59,67,73	1.56	6 (10%)	68,105,113	1.44	8 (11%)
19	CLA	6	304	4	51,59,73	1.66	5 (9%)	59,96,113	1.57	8 (13%)
19	CLA	A	812	7	65,73,73	1.48	7 (10%)	76,113,113	1.36	9 (11%)
19	CLA	Z	607	32	50,58,73	1.69	6 (12%)	58,95,113	1.53	8 (13%)
19	CLA	B	801	32	65,73,73	1.48	6 (9%)	76,113,113	1.35	7 (9%)
19	CLA	L	203	18	65,73,73	1.48	6 (9%)	76,113,113	1.42	10 (13%)
19	CLA	B	804	-	65,73,73	1.50	7 (10%)	76,113,113	1.39	8 (10%)
24	LMU	6	328	-	24,24,36	0.38	0	29,29,47	0.64	0
22	LUT	5	324	-	42,43,43	0.29	0	51,60,60	0.56	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
19	CLA	8	302	6	65,73,73	1.47	5 (7%)	76,113,113	1.41	8 (10%)
19	CLA	7	603	5	52,60,73	1.64	6 (11%)	60,97,113	1.57	7 (11%)
19	CLA	3	308	1	65,73,73	1.47	6 (9%)	76,113,113	1.39	8 (10%)
19	CLA	B	807	8	65,73,73	1.48	5 (7%)	76,113,113	1.36	8 (10%)
29	PQN	B	843	-	34,34,34	0.35	0	42,45,45	0.59	1 (2%)
19	CLA	A	828	32	65,73,73	1.48	6 (9%)	76,113,113	1.41	8 (10%)
19	CLA	6	327	32	53,61,73	1.63	6 (11%)	61,98,113	1.52	7 (11%)
20	CHL	4	601	2	66,74,74	1.18	7 (10%)	73,114,114	1.22	6 (8%)
19	CLA	A	816	7	55,63,73	1.62	5 (9%)	64,101,113	1.44	7 (10%)
19	CLA	B	834	8	58,66,73	1.56	6 (10%)	67,104,113	1.52	10 (14%)
19	CLA	A	841	7	65,73,73	1.49	5 (7%)	76,113,113	1.40	9 (11%)
20	CHL	6	317	4	43,51,74	1.38	7 (16%)	45,86,114	1.72	3 (6%)
19	CLA	A	815	7	65,73,73	1.48	6 (9%)	76,113,113	1.40	8 (10%)
20	CHL	6	307	32	66,74,74	1.17	7 (10%)	73,114,114	1.15	7 (9%)
19	CLA	6	305	4	65,73,73	1.48	6 (9%)	76,113,113	1.37	8 (10%)
19	CLA	A	809	7	50,58,73	1.66	6 (12%)	58,95,113	1.58	9 (15%)
19	CLA	B	826	32	65,73,73	1.48	6 (9%)	76,113,113	1.40	8 (10%)
19	CLA	F	302	32	65,73,73	1.49	5 (7%)	76,113,113	1.35	7 (9%)
19	CLA	B	830	8	65,73,73	1.50	6 (9%)	76,113,113	1.34	8 (10%)
19	CLA	4	603	2	65,73,73	1.50	6 (9%)	76,113,113	1.35	6 (7%)
21	BCR	B	802	-	41,41,41	0.36	0	56,56,56	1.07	4 (7%)
20	CHL	3	306	32	66,74,74	1.18	7 (10%)	73,114,114	1.14	4 (5%)
19	CLA	1	304	32	50,58,73	1.67	6 (12%)	58,95,113	1.57	9 (15%)
19	CLA	3	304	32	42,50,73	1.82	5 (11%)	48,85,113	1.58	7 (14%)
24	LMU	1	301	-	36,36,36	0.44	0	47,47,47	1.07	1 (2%)
19	CLA	1	302	15	60,68,73	1.54	5 (8%)	70,107,113	1.41	7 (10%)
19	CLA	A	822	7	55,63,73	1.59	6 (10%)	64,101,113	1.45	9 (14%)
22	LUT	8	301	-	42,43,43	0.30	0	51,60,60	0.62	1 (1%)
19	CLA	7	604	32	51,59,73	1.66	6 (11%)	59,96,113	1.54	7 (11%)
22	LUT	1	317	-	42,43,43	0.28	0	51,60,60	0.72	0
20	CHL	6	306	32	46,54,74	1.37	7 (15%)	49,90,114	1.28	5 (10%)
19	CLA	B	813	8	65,73,73	1.48	6 (9%)	76,113,113	1.40	9 (11%)
22	LUT	7	615	-	42,43,43	0.28	0	51,60,60	0.61	0
19	CLA	8	308	6	45,53,73	1.75	6 (13%)	52,89,113	1.60	6 (11%)
19	CLA	4	612	2	65,73,73	1.50	5 (7%)	76,113,113	1.50	9 (11%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
19	CLA	4	614	2	45,53,73	1.78	5 (11%)	52,89,113	1.58	6 (11%)
19	CLA	B	829	8	65,73,73	1.46	6 (9%)	76,113,113	1.35	7 (9%)
19	CLA	Z	610	26	60,68,73	1.52	5 (8%)	70,107,113	1.42	6 (8%)
19	CLA	B	816	8	65,73,73	1.47	6 (9%)	76,113,113	1.41	7 (9%)
19	CLA	A	810	7	65,73,73	1.47	6 (9%)	76,113,113	1.41	7 (9%)
19	CLA	B	841	8	65,73,73	1.50	6 (9%)	76,113,113	1.38	8 (10%)
24	LMU	1	321	-	24,24,36	0.38	0	29,29,47	0.63	0
21	BCR	A	853	-	41,41,41	0.34	0	56,56,56	0.63	0
19	CLA	B	831	8	45,53,73	1.78	6 (13%)	52,89,113	1.62	6 (11%)
19	CLA	6	313	32	65,73,73	1.50	6 (9%)	76,113,113	1.34	9 (11%)
19	CLA	3	313	32	60,68,73	1.52	5 (8%)	70,107,113	1.59	9 (12%)
19	CLA	B	817	8	65,73,73	1.47	5 (7%)	76,113,113	1.37	8 (10%)
22	LUT	5	318	-	42,43,43	0.30	0	51,60,60	0.74	0
19	CLA	6	303	4	65,73,73	1.48	5 (7%)	76,113,113	1.38	8 (10%)
21	BCR	7	617	-	41,41,41	0.31	0	56,56,56	0.65	0
20	CHL	8	305	32	66,74,74	1.13	7 (10%)	73,114,114	1.22	5 (6%)
19	CLA	5	302	3	65,73,73	1.50	5 (7%)	76,113,113	1.35	7 (9%)
23	LMG	7	622	-	32,32,55	0.57	0	40,40,63	0.73	0
21	BCR	L	202	-	41,41,41	0.34	0	56,56,56	0.53	0
19	CLA	4	604	32	50,58,73	1.68	5 (10%)	58,95,113	1.55	8 (13%)
19	CLA	7	608	5	45,53,73	1.74	6 (13%)	52,89,113	1.66	7 (13%)
22	LUT	J	101	-	42,43,43	0.30	0	51,60,60	0.77	1 (1%)
19	CLA	B	835	8	60,68,73	1.53	6 (10%)	70,107,113	1.45	8 (11%)
25	XAT	Z	616	-	39,47,47	0.66	2 (5%)	54,74,74	0.82	0
19	CLA	8	307	32	50,58,73	1.69	5 (10%)	58,95,113	1.55	9 (15%)
20	CHL	5	317	3	43,51,74	1.39	7 (16%)	45,86,114	1.64	6 (13%)
19	CLA	A	834	7	65,73,73	1.47	5 (7%)	76,113,113	1.43	6 (7%)
19	CLA	B	840	32	65,73,73	1.50	6 (9%)	76,113,113	1.38	9 (11%)
19	CLA	A	827	32	65,73,73	1.46	6 (9%)	76,113,113	1.42	7 (9%)
19	CLA	A	807	7	65,73,73	1.46	6 (9%)	76,113,113	1.41	9 (11%)
19	CLA	B	820	32	60,68,73	1.59	5 (8%)	70,107,113	1.39	8 (11%)
23	LMG	J	104	-	42,42,55	0.53	0	50,50,63	0.64	0
19	CLA	1	313	15	60,68,73	1.56	6 (10%)	70,107,113	1.40	10 (14%)
19	CLA	B	824	8	65,73,73	1.47	7 (10%)	76,113,113	1.44	10 (13%)
19	CLA	B	808	8	55,63,73	1.60	5 (9%)	64,101,113	1.48	8 (12%)
22	LUT	Z	615	-	42,43,43	0.30	0	51,60,60	0.70	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
19	CLA	1	311	15	45,53,73	1.76	6 (13%)	52,89,113	1.58	6 (11%)
19	CLA	3	303	32	65,73,73	1.47	5 (7%)	76,113,113	1.42	8 (10%)
23	LMG	F	301	-	32,32,55	0.60	0	40,40,63	0.74	0
19	CLA	A	831	7	65,73,73	1.49	6 (9%)	76,113,113	1.37	7 (9%)
19	CLA	B	819	8	65,73,73	1.49	6 (9%)	76,113,113	1.39	10 (13%)
19	CLA	B	811	8	65,73,73	1.48	6 (9%)	76,113,113	1.40	8 (10%)
21	BCR	3	318	-	41,41,41	0.31	0	56,56,56	0.58	0
19	CLA	4	613	2	55,63,73	1.62	6 (10%)	64,101,113	1.45	8 (12%)
26	LHG	Z	618	19	38,38,48	0.57	0	41,44,54	0.53	0
26	LHG	A	801	-	30,30,48	0.61	0	33,36,54	0.60	0
19	CLA	A	826	7	55,63,73	1.64	6 (10%)	64,101,113	1.44	8 (12%)
19	CLA	7	609	5	65,73,73	1.46	6 (9%)	76,113,113	1.37	6 (7%)
19	CLA	Z	611	15	45,53,73	1.81	6 (13%)	52,89,113	1.55	6 (11%)
20	CHL	5	307	32	66,74,74	1.18	7 (10%)	73,114,114	1.17	5 (6%)
21	BCR	B	846	-	41,41,41	0.33	0	56,56,56	0.56	0
23	LMG	3	321	-	37,37,55	0.57	0	45,45,63	0.72	0
19	CLA	A	806	19,7	55,63,73	1.60	5 (9%)	64,101,113	1.47	7 (10%)
19	CLA	3	309	32	55,63,73	1.60	5 (9%)	64,101,113	1.50	7 (10%)
22	LUT	3	320	-	19,20,43	0.45	0	20,28,60	0.49	0
19	CLA	7	610	26	65,73,73	1.47	5 (7%)	76,113,113	1.37	7 (9%)
21	BCR	K	206	-	41,41,41	0.31	0	56,56,56	0.49	0
19	CLA	B	818	8	65,73,73	1.50	7 (10%)	76,113,113	1.34	8 (10%)
19	CLA	Z	608	15	65,73,73	1.50	6 (9%)	76,113,113	1.31	7 (9%)
19	CLA	1	314	15	46,54,73	1.74	5 (10%)	53,90,113	1.57	7 (13%)
19	CLA	7	607	32	50,58,73	1.66	5 (10%)	58,95,113	1.62	9 (15%)
26	LHG	6	318	19	48,48,48	0.51	0	51,54,54	0.51	0
20	CHL	Z	606	32	66,74,74	1.12	7 (10%)	73,114,114	1.29	4 (5%)
19	CLA	B	825	32	65,73,73	1.49	6 (9%)	76,113,113	1.39	8 (10%)
25	XAT	4	617	-	39,47,47	0.65	2 (5%)	54,74,74	0.88	1 (1%)
19	CLA	5	312	3	45,53,73	1.74	5 (11%)	52,89,113	1.65	7 (13%)
24	LMU	7	620	-	22,22,36	0.41	0	27,27,47	0.68	0
19	CLA	6	310	4	60,68,73	1.55	6 (10%)	70,107,113	1.40	7 (10%)
20	CHL	Z	605	32	46,54,74	1.33	6 (13%)	49,90,114	1.54	7 (14%)
19	CLA	8	310	26	45,53,73	1.78	5 (11%)	52,89,113	1.52	7 (13%)
20	CHL	7	605	32	46,54,74	1.39	7 (15%)	49,90,114	1.49	4 (8%)
19	CLA	G	203	17	46,54,73	1.75	5 (10%)	53,90,113	1.57	6 (11%)
19	CLA	B	836	32	45,53,73	1.77	5 (11%)	52,89,113	1.65	7 (13%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
20	CHL	7	601	5	66,74,74	1.16	7 (10%)	73,114,114	1.17	8 (10%)
19	CLA	6	316	4	45,53,73	1.80	6 (13%)	52,89,113	1.54	7 (13%)
21	BCR	B	849	-	41,41,41	0.31	0	56,56,56	0.70	0
19	CLA	1	307	32	65,73,73	1.48	6 (9%)	76,113,113	1.40	9 (11%)
19	CLA	A	820	7	60,68,73	1.57	6 (10%)	70,107,113	1.34	7 (10%)
24	LMU	F	306	-	36,36,36	0.46	0	47,47,47	0.77	1 (2%)
19	CLA	G	202	17	60,68,73	1.57	5 (8%)	70,107,113	1.40	8 (11%)
20	CHL	4	607	32	66,74,74	1.19	7 (10%)	73,114,114	1.11	6 (8%)
23	LMG	B	852	-	43,43,55	0.53	0	51,51,63	0.68	0
23	LMG	6	326	-	19,19,55	0.34	0	19,19,63	0.46	0
22	LUT	Z	617	-	26,26,43	0.42	0	34,35,60	0.61	0
19	CLA	B	837	8	60,68,73	1.53	6 (10%)	70,107,113	1.42	8 (11%)
19	CLA	A	838	7	57,65,73	1.59	5 (8%)	66,103,113	1.46	8 (12%)
30	SF4	A	854	8,7	0,12,12	-	-	-	-	-
19	CLA	A	814	7	65,73,73	1.46	6 (9%)	76,113,113	1.42	8 (10%)
21	BCR	L	205	-	41,41,41	0.35	0	56,56,56	0.56	0
19	CLA	8	311	6	55,63,73	1.60	5 (9%)	64,101,113	1.48	6 (9%)
19	CLA	A	824	7	65,73,73	1.50	6 (9%)	76,113,113	1.37	8 (10%)
21	BCR	G	204	-	41,41,41	0.34	0	56,56,56	0.59	0
19	CLA	5	315	3	45,53,73	1.79	6 (13%)	52,89,113	1.55	7 (13%)
19	CLA	A	805	7	65,73,73	1.46	6 (9%)	76,113,113	1.49	9 (11%)
22	LUT	8	315	-	42,43,43	0.28	0	51,60,60	0.63	0
19	CLA	1	303	15	57,65,73	1.59	5 (8%)	66,103,113	1.49	8 (12%)
23	LMG	J	105	-	35,35,55	0.60	0	43,43,63	0.72	0
20	CHL	8	320	15	66,74,74	1.23	7 (10%)	73,114,114	1.25	5 (6%)
19	CLA	A	819	7	65,73,73	1.46	6 (9%)	76,113,113	1.42	8 (10%)
21	BCR	B	847	-	41,41,41	0.31	0	56,56,56	0.58	0
19	CLA	3	302	1	65,73,73	1.47	6 (9%)	76,113,113	1.46	7 (9%)
19	CLA	A	840	7	65,73,73	1.46	6 (9%)	76,113,113	1.42	8 (10%)
19	CLA	B	812	8	65,73,73	1.49	5 (7%)	76,113,113	1.33	8 (10%)
24	LMU	6	324	-	24,24,36	0.39	0	29,29,47	0.61	0
19	CLA	A	839	7	51,59,73	1.65	5 (9%)	59,96,113	1.55	7 (11%)
25	XAT	1	316	-	39,47,47	0.66	2 (5%)	54,74,74	0.83	0
24	LMU	7	619	-	21,21,36	0.40	0	26,26,47	0.71	0
19	CLA	7	602	5	65,73,73	1.48	5 (7%)	76,113,113	1.37	8 (10%)
24	LMU	3	323	-	24,24,36	0.37	0	29,29,47	0.67	0
24	LMU	K	201	-	24,24,36	0.39	0	29,29,47	0.71	0
21	BCR	A	852	-	41,41,41	0.31	0	56,56,56	0.56	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
20	CHL	1	306	32	46,54,74	1.36	6 (13%)	49,90,114	1.49	7 (14%)
19	CLA	K	204	14	46,54,73	1.74	7 (15%)	53,90,113	1.58	6 (11%)
19	CLA	A	804	32	65,73,73	1.49	6 (9%)	76,113,113	1.39	6 (7%)
21	BCR	6	321	-	41,41,41	0.31	0	56,56,56	0.56	0
21	BCR	A	849	-	41,41,41	0.33	0	56,56,56	0.53	0
19	CLA	A	818	32	55,63,73	1.60	5 (9%)	64,101,113	1.51	7 (10%)
19	CLA	A	803	-	65,73,73	1.48	5 (7%)	76,113,113	1.34	8 (10%)
20	CHL	5	308	32	51,59,74	1.37	7 (13%)	55,96,114	1.41	4 (7%)
19	CLA	5	309	3	65,73,73	1.48	6 (9%)	76,113,113	1.40	7 (9%)
19	CLA	5	303	3	65,73,73	1.48	5 (7%)	76,113,113	1.36	7 (9%)
19	CLA	A	842	7	65,73,73	1.45	5 (7%)	76,113,113	1.37	8 (10%)
19	CLA	7	611	5	52,60,73	1.65	6 (11%)	60,97,113	1.52	7 (11%)
24	LMU	1	319	-	36,36,36	0.45	0	47,47,47	0.74	1 (2%)
23	LMG	4	621	-	41,41,55	0.54	0	49,49,63	0.69	0
24	LMU	A	856	-	20,20,36	0.41	0	25,25,47	0.70	0
19	CLA	Z	609	15	60,68,73	1.53	5 (8%)	70,107,113	1.44	8 (11%)
19	CLA	Z	602	15	60,68,73	1.53	6 (10%)	70,107,113	1.45	7 (10%)
19	CLA	1	312	32	65,73,73	1.48	5 (7%)	76,113,113	1.39	9 (11%)
21	BCR	3	315	-	41,41,41	0.31	0	56,56,56	0.55	0
24	LMU	B	853	-	36,36,36	0.46	0	47,47,47	0.66	0
26	LHG	5	321	19	36,36,48	0.58	0	39,42,54	0.54	0
21	BCR	I	201	-	41,41,41	0.35	0	56,56,56	0.76	0
19	CLA	A	808	7	65,73,73	1.51	6 (9%)	76,113,113	1.35	7 (9%)
19	CLA	B	815	8	60,68,73	1.53	6 (10%)	70,107,113	1.42	8 (11%)
24	LMU	3	322	-	35,35,36	0.48	0	46,46,47	0.64	0
21	BCR	B	844	-	41,41,41	0.37	0	56,56,56	0.89	4 (7%)
24	LMU	1	320	-	19,19,36	0.42	0	24,24,47	0.65	0
31	DGD	B	850	-	60,60,67	0.57	0	74,74,81	0.81	2 (2%)
19	CLA	A	832	7	65,73,73	1.47	6 (9%)	76,113,113	1.39	8 (10%)
24	LMU	Z	619	-	32,32,36	0.47	0	43,43,47	0.85	1 (2%)
19	CLA	F	304	16	65,73,73	1.50	6 (9%)	76,113,113	1.29	6 (7%)
19	CLA	A	830	7	65,73,73	1.48	6 (9%)	76,113,113	1.40	7 (9%)
19	CLA	4	611	2	45,53,73	1.77	5 (11%)	52,89,113	1.63	6 (11%)
24	LMU	A	857	-	24,24,36	0.37	0	29,29,47	0.61	0
20	CHL	6	308	32	51,59,74	1.29	7 (13%)	55,96,114	1.23	3 (5%)
19	CLA	3	311	1	60,68,73	1.56	5 (8%)	70,107,113	1.37	8 (11%)
24	LMU	3	325	-	24,24,36	0.37	0	29,29,47	0.65	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
30	SF4	C	102	9	0,12,12	-	-	-		
19	CLA	B	832	8	55,63,73	1.59	6 (10%)	64,101,113	1.50	8 (12%)
19	CLA	A	836	7	65,73,73	1.48	6 (9%)	76,113,113	1.40	9 (11%)
19	CLA	B	839	8	50,58,73	1.66	6 (12%)	58,95,113	1.62	9 (15%)
20	CHL	6	302	4	66,74,74	1.17	7 (10%)	73,114,114	1.26	5 (6%)
19	CLA	3	312	1	45,53,73	1.80	5 (11%)	52,89,113	1.54	7 (13%)
26	LHG	B	851	19	44,44,48	0.53	0	47,50,54	0.53	0
19	CLA	8	313	6	57,65,73	1.58	6 (10%)	66,103,113	1.41	9 (13%)
21	BCR	A	858	-	41,41,41	0.33	0	56,56,56	0.83	2 (3%)
25	XAT	5	322	-	39,47,47	0.66	2 (5%)	54,74,74	0.81	0
19	CLA	B	838	8	65,73,73	1.47	6 (9%)	76,113,113	1.39	8 (10%)
21	BCR	8	317	-	41,41,41	0.31	0	56,56,56	0.53	0
21	BCR	5	320	-	41,41,41	0.29	0	56,56,56	0.60	0
19	CLA	5	314	3	45,53,73	1.78	5 (11%)	52,89,113	1.59	7 (13%)
21	BCR	A	851	-	41,41,41	0.34	0	56,56,56	0.70	0
19	CLA	K	202	14	45,53,73	1.78	6 (13%)	52,89,113	1.66	8 (15%)
19	CLA	B	810	8	65,73,73	1.49	5 (7%)	76,113,113	1.39	7 (9%)

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
19	CLA	6	314	4	1/1/12/20	5/19/97/115	-
19	CLA	A	813	19,7	1/1/15/20	8/37/115/115	-
19	CLA	5	304	3	1/1/12/20	7/19/97/115	-
20	CHL	5	306	32	2/2/16/26	5/15/113/137	-
19	CLA	7	612	5	1/1/15/20	8/37/115/115	-
27	NEX	6	323	-	-	3/27/83/83	0/3/3/3
22	LUT	3	317	-	-	2/29/67/67	0/2/2/2
19	CLA	8	314	6	1/1/11/20	1/13/91/115	-
19	CLA	8	312	6	1/1/15/20	3/37/115/115	-
25	XAT	7	616	-	-	0/31/93/93	0/4/4/4
19	CLA	B	821	8	1/1/13/20	6/27/105/115	-
19	CLA	4	608	2	1/1/14/20	9/31/109/115	-
22	LUT	6	319	-	-	4/29/67/67	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
19	CLA	7	614	5	1/1/11/20	4/15/93/115	-
22	LUT	3	316	-	-	3/29/67/67	0/2/2/2
19	CLA	3	301	1	1/1/14/20	3/31/109/115	-
20	CHL	4	606	32	2/2/15/26	2/12/110/137	-
24	LMU	4	625	-	-	0/13/33/61	0/1/1/2
24	LMU	4	623	-	-	4/11/31/61	0/1/1/2
19	CLA	L	204	32	1/1/11/20	3/13/91/115	-
24	LMU	4	622	-	-	6/13/33/61	0/1/1/2
21	BCR	B	845	-	-	3/29/63/63	0/2/2/2
19	CLA	3	307	1	1/1/14/20	6/33/111/115	-
20	CHL	Z	601	15	2/2/20/26	11/39/137/137	-
19	CLA	A	835	7	1/1/15/20	5/37/115/115	-
19	CLA	Z	612	32	1/1/15/20	3/37/115/115	-
19	CLA	1	308	15	1/1/15/20	16/37/115/115	-
19	CLA	B	814	8	1/1/15/20	10/37/115/115	-
19	CLA	Z	614	15	1/1/14/20	8/31/109/115	-
19	CLA	B	827	8	1/1/15/20	4/37/115/115	-
20	CHL	4	615	2	2/2/16/26	4/15/113/137	-
24	LMU	3	324	-	-	9/21/61/61	0/2/2/2
19	CLA	5	313	3	1/1/13/20	6/27/105/115	-
19	CLA	B	805	8	1/1/11/20	5/13/91/115	-
19	CLA	3	305	1	1/1/12/20	2/21/99/115	-
19	CLA	K	203	32	1/1/14/20	6/31/109/115	-
20	CHL	8	306	32	2/2/20/26	12/39/137/137	-
19	CLA	3	310	1	1/1/11/20	7/15/93/115	-
19	CLA	B	833	8	1/1/15/20	7/37/115/115	-
19	CLA	5	311	26	1/1/13/20	5/25/103/115	-
20	CHL	1	305	32	2/2/16/26	0/15/113/137	-
19	CLA	6	312	4	1/1/11/20	2/13/91/115	-
24	LMU	4	624	-	-	6/15/35/61	0/1/1/2
19	CLA	8	304	32	1/1/14/20	7/31/109/115	-
20	CHL	7	621	6	2/2/20/26	10/39/137/137	-
19	CLA	A	829	7	1/1/15/20	4/37/115/115	-
26	LHG	4	620	-	-	12/42/42/53	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
19	CLA	A	844	32	1/1/15/20	13/37/115/115	-
26	LHG	4	619	19	-	11/53/53/53	-
19	CLA	7	613	5	1/1/10/20	2/11/89/115	-
21	BCR	3	319	-	-	4/29/63/63	0/2/2/2
23	LMG	G	201	-	-	6/31/51/70	0/1/1/1
19	CLA	Z	604	32	1/1/13/20	11/28/106/115	-
24	LMU	A	855	-	-	6/21/61/61	0/2/2/2
26	LHG	A	848	19	-	11/42/42/53	-
19	CLA	6	320	32	1/1/13/20	6/25/103/115	-
27	NEX	5	323	-	1/1/12/25	2/27/83/83	0/3/3/3
26	LHG	5	301	-	-	12/42/42/53	-
19	CLA	A	811	7	1/1/15/20	13/37/115/115	-
29	PQN	A	845	-	-	0/23/43/43	0/2/2/2
19	CLA	B	803	8	1/1/15/20	7/37/115/115	-
20	CHL	4	605	32	3/3/20/26	11/39/137/137	-
19	CLA	A	825	7	1/1/11/20	3/13/91/115	-
19	CLA	A	817	7	1/1/15/20	7/37/115/115	-
21	BCR	B	848	-	-	2/29/63/63	0/2/2/2
26	LHG	6	325	-	-	14/40/40/53	-
19	CLA	J	102	13	1/1/13/20	8/25/103/115	-
19	CLA	3	314	1	1/1/11/20	0/13/91/115	-
19	CLA	A	821	7	1/1/15/20	3/37/115/115	-
19	CLA	K	205	14	1/1/11/20	2/13/91/115	-
19	CLA	B	842	26	1/1/15/20	8/37/115/115	-
25	XAT	6	322	-	-	1/31/93/93	0/4/4/4
22	LUT	1	315	-	-	4/29/67/67	0/2/2/2
21	BCR	A	850	-	-	0/29/63/63	0/2/2/2
22	LUT	4	616	-	-	3/29/67/67	0/2/2/2
19	CLA	4	610	26	1/1/14/20	3/31/109/115	-
30	SF4	C	101	9	-	-	0/6/5/5
19	CLA	Z	603	15	1/1/15/20	9/37/115/115	-
19	CLA	Z	613	15	1/1/12/20	2/19/97/115	-
21	BCR	4	618	-	-	5/29/63/63	0/2/2/2
19	CLA	8	309	6	1/1/15/20	6/37/115/115	-
19	CLA	8	303	6	1/1/15/20	18/37/115/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
21	BCR	J	103	-	-	4/29/63/63	0/2/2/2
22	LUT	F	305	-	-	10/29/67/67	0/2/2/2
19	CLA	B	828	8	1/1/15/20	11/37/115/115	-
19	CLA	A	837	7	1/1/15/20	8/37/115/115	-
19	CLA	B	809	8	1/1/15/20	8/37/115/115	-
19	CLA	B	806	8	1/1/15/20	11/37/115/115	-
19	CLA	F	303	32	1/1/11/20	2/13/91/115	-
19	CLA	1	310	26	1/1/14/20	11/33/111/115	-
19	CLA	A	843	7	1/1/15/20	4/37/115/115	-
23	LMG	L	201	-	-	15/35/55/70	0/1/1/1
23	LMG	8	321	-	-	22/44/64/70	0/1/1/1
19	CLA	6	309	4	1/1/13/20	5/25/103/115	-
19	CLA	4	602	2	1/1/14/20	3/31/109/115	-
19	CLA	6	311	26	1/1/13/20	7/29/107/115	-
19	CLA	A	823	32	1/1/15/20	4/37/115/115	-
19	CLA	1	309	15	1/1/15/20	3/37/115/115	-
20	CHL	6	315	4	2/2/20/26	15/39/137/137	-
23	LMG	6	301	-	-	7/28/28/70	-
19	CLA	B	822	8	1/1/15/20	16/37/115/115	-
19	CLA	5	319	32	1/1/11/20	10/15/93/115	-
26	LHG	8	318	19	-	16/48/48/53	-
24	LMU	8	319	-	-	6/15/35/61	0/1/1/2
19	CLA	5	316	3	1/1/15/20	16/37/115/115	-
24	LMU	Z	620	-	-	2/15/35/61	0/1/1/2
19	CLA	5	305	32	1/1/13/20	6/25/103/115	-
26	LHG	7	618	19	-	16/53/53/53	-
24	LMU	1	322	-	-	5/13/33/61	0/1/1/2
19	CLA	5	310	3	1/1/14/20	5/31/109/115	-
25	XAT	8	316	-	-	0/31/93/93	0/4/4/4
19	CLA	4	609	2	1/1/14/20	4/31/109/115	-
19	CLA	A	833	7	1/1/13/20	11/25/103/115	-
28	CL0	A	802	7	3/3/20/25	1/37/135/135	-
24	LMU	Z	621	-	-	3/15/35/61	0/1/1/2
26	LHG	1	318	19	-	11/48/48/53	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
19	CLA	A	846	26	1/1/11/20	7/13/91/115	-
20	CHL	7	606	32	2/2/16/26	3/15/113/137	-
26	LHG	A	847	-	-	14/53/53/53	-
19	CLA	B	823	8	1/1/13/20	5/30/108/115	-
19	CLA	6	304	4	1/1/12/20	10/21/99/115	-
19	CLA	A	812	7	1/1/15/20	12/37/115/115	-
19	CLA	Z	607	32	1/1/12/20	5/19/97/115	-
19	CLA	B	801	32	1/1/15/20	11/37/115/115	-
19	CLA	L	203	18	1/1/15/20	16/37/115/115	-
19	CLA	B	804	-	1/1/15/20	15/37/115/115	-
24	LMU	6	328	-	-	7/15/35/61	0/1/1/2
22	LUT	5	324	-	-	10/29/67/67	0/2/2/2
19	CLA	8	302	6	1/1/15/20	6/37/115/115	-
19	CLA	7	603	5	1/1/12/20	3/22/100/115	-
19	CLA	3	308	1	1/1/15/20	5/37/115/115	-
19	CLA	B	807	8	1/1/15/20	2/37/115/115	-
29	PQN	B	843	-	-	2/23/43/43	0/2/2/2
19	CLA	A	828	32	1/1/15/20	12/37/115/115	-
19	CLA	6	327	32	1/1/12/20	5/23/101/115	-
20	CHL	4	601	2	2/2/20/26	2/39/137/137	-
19	CLA	A	816	7	1/1/13/20	6/25/103/115	-
19	CLA	B	834	8	1/1/13/20	5/29/107/115	-
19	CLA	A	841	7	1/1/15/20	5/37/115/115	-
20	CHL	6	317	4	2/2/15/26	0/12/110/137	-
19	CLA	A	815	7	1/1/15/20	9/37/115/115	-
20	CHL	6	307	32	3/3/20/26	12/39/137/137	-
19	CLA	6	305	4	1/1/15/20	15/37/115/115	-
19	CLA	A	809	7	1/1/12/20	5/19/97/115	-
19	CLA	B	826	32	1/1/15/20	12/37/115/115	-
19	CLA	F	302	32	1/1/15/20	10/37/115/115	-
19	CLA	B	830	8	1/1/15/20	11/37/115/115	-
19	CLA	4	603	2	1/1/15/20	11/37/115/115	-
21	BCR	B	802	-	-	7/29/63/63	0/2/2/2
20	CHL	3	306	32	2/2/20/26	5/39/137/137	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
19	CLA	1	304	32	1/1/12/20	4/19/97/115	-
19	CLA	3	304	32	1/1/10/20	0/10/88/115	-
24	LMU	1	301	-	-	11/21/61/61	0/2/2/2
19	CLA	1	302	15	1/1/14/20	6/31/109/115	-
19	CLA	A	822	7	1/1/13/20	4/25/103/115	-
22	LUT	8	301	-	-	4/29/67/67	0/2/2/2
19	CLA	7	604	32	1/1/12/20	0/21/99/115	-
22	LUT	1	317	-	-	5/29/67/67	0/2/2/2
20	CHL	6	306	32	2/2/16/26	4/15/113/137	-
19	CLA	B	813	8	1/1/15/20	18/37/115/115	-
22	LUT	7	615	-	-	2/29/67/67	0/2/2/2
19	CLA	8	308	6	1/1/11/20	4/13/91/115	-
19	CLA	4	612	2	1/1/15/20	12/37/115/115	-
19	CLA	4	614	2	1/1/11/20	3/13/91/115	-
19	CLA	B	829	8	1/1/15/20	6/37/115/115	-
19	CLA	Z	610	26	1/1/14/20	7/31/109/115	-
19	CLA	B	816	8	1/1/15/20	13/37/115/115	-
19	CLA	A	810	7	1/1/15/20	5/37/115/115	-
19	CLA	B	841	8	1/1/15/20	10/37/115/115	-
24	LMU	1	321	-	-	4/15/35/61	0/1/1/2
21	BCR	A	853	-	-	4/29/63/63	0/2/2/2
19	CLA	B	831	8	1/1/11/20	0/13/91/115	-
19	CLA	6	313	32	1/1/15/20	2/37/115/115	-
19	CLA	3	313	32	1/1/14/20	10/31/109/115	-
19	CLA	B	817	8	1/1/15/20	7/37/115/115	-
22	LUT	5	318	-	-	4/29/67/67	0/2/2/2
19	CLA	6	303	4	1/1/15/20	4/37/115/115	-
21	BCR	7	617	-	-	4/29/63/63	0/2/2/2
20	CHL	8	305	32	2/2/20/26	8/39/137/137	-
19	CLA	5	302	3	1/1/15/20	6/37/115/115	-
23	LMG	7	622	-	-	9/27/47/70	0/1/1/1
21	BCR	L	202	-	-	4/29/63/63	0/2/2/2
19	CLA	4	604	32	1/1/12/20	4/19/97/115	-
19	CLA	7	608	5	1/1/11/20	2/13/91/115	-
22	LUT	J	101	-	-	6/29/67/67	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
19	CLA	B	835	8	1/1/14/20	4/31/109/115	-
25	XAT	Z	616	-	-	3/31/93/93	0/4/4/4
19	CLA	8	307	32	1/1/12/20	2/19/97/115	-
20	CHL	5	317	3	2/2/15/26	2/12/110/137	-
19	CLA	A	834	7	1/1/15/20	7/37/115/115	-
19	CLA	B	840	32	1/1/15/20	9/37/115/115	-
19	CLA	A	827	32	1/1/15/20	7/37/115/115	-
19	CLA	A	807	7	1/1/15/20	18/37/115/115	-
19	CLA	B	820	32	1/1/14/20	8/31/109/115	-
23	LMG	J	104	-	-	9/37/57/70	0/1/1/1
19	CLA	1	313	15	1/1/14/20	10/31/109/115	-
19	CLA	B	824	8	1/1/15/20	12/37/115/115	-
19	CLA	B	808	8	1/1/13/20	5/25/103/115	-
22	LUT	Z	615	-	-	4/29/67/67	0/2/2/2
19	CLA	1	311	15	1/1/11/20	5/13/91/115	-
19	CLA	3	303	32	1/1/15/20	3/37/115/115	-
23	LMG	F	301	-	-	11/27/47/70	0/1/1/1
19	CLA	A	831	7	1/1/15/20	4/37/115/115	-
19	CLA	B	819	8	1/1/15/20	5/37/115/115	-
19	CLA	B	811	8	1/1/15/20	12/37/115/115	-
21	BCR	3	318	-	-	4/29/63/63	0/2/2/2
19	CLA	4	613	2	1/1/13/20	6/25/103/115	-
26	LHG	Z	618	19	-	5/43/43/53	-
26	LHG	A	801	-	-	14/35/35/53	-
19	CLA	A	826	7	1/1/13/20	4/25/103/115	-
19	CLA	7	609	5	1/1/15/20	8/37/115/115	-
19	CLA	Z	611	15	1/1/11/20	5/13/91/115	-
20	CHL	5	307	32	3/3/20/26	11/39/137/137	-
21	BCR	B	846	-	-	4/29/63/63	0/2/2/2
23	LMG	3	321	-	-	12/32/52/70	0/1/1/1
19	CLA	A	806	19,7	1/1/13/20	2/25/103/115	-
19	CLA	3	309	32	1/1/13/20	5/25/103/115	-
22	LUT	3	320	-	-	1/11/30/67	0/1/1/2
19	CLA	7	610	26	1/1/15/20	7/37/115/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
21	BCR	K	206	-	-	2/29/63/63	0/2/2/2
19	CLA	B	818	8	1/1/15/20	5/37/115/115	-
19	CLA	Z	608	15	1/1/15/20	17/37/115/115	-
19	CLA	1	314	15	1/1/11/20	2/15/93/115	-
19	CLA	7	607	32	1/1/12/20	1/19/97/115	-
26	LHG	6	318	19	-	15/53/53/53	-
20	CHL	Z	606	32	2/2/20/26	10/39/137/137	-
19	CLA	B	825	32	1/1/15/20	9/37/115/115	-
25	XAT	4	617	-	-	0/31/93/93	0/4/4/4
19	CLA	5	312	3	1/1/11/20	4/13/91/115	-
24	LMU	7	620	-	-	7/13/33/61	0/1/1/2
19	CLA	6	310	4	1/1/14/20	2/31/109/115	-
20	CHL	Z	605	32	2/2/16/26	2/15/113/137	-
19	CLA	8	310	26	1/1/11/20	2/13/91/115	-
20	CHL	7	605	32	2/2/16/26	0/15/113/137	-
19	CLA	G	203	17	1/1/11/20	2/15/93/115	-
19	CLA	B	836	32	1/1/11/20	5/13/91/115	-
20	CHL	7	601	5	2/2/20/26	11/39/137/137	-
19	CLA	6	316	4	1/1/11/20	2/13/91/115	-
21	BCR	B	849	-	-	2/29/63/63	0/2/2/2
19	CLA	1	307	32	1/1/15/20	12/37/115/115	-
19	CLA	A	820	7	1/1/14/20	14/31/109/115	-
24	LMU	F	306	-	-	8/21/61/61	0/2/2/2
19	CLA	G	202	17	1/1/14/20	7/31/109/115	-
20	CHL	4	607	32	3/3/20/26	19/39/137/137	-
23	LMG	B	852	-	-	9/38/58/70	0/1/1/1
23	LMG	6	326	-	-	6/17/17/70	-
22	LUT	Z	617	-	-	3/18/37/67	0/1/1/2
19	CLA	B	837	8	1/1/14/20	6/31/109/115	-
19	CLA	A	838	7	1/1/13/20	8/28/106/115	-
30	SF4	A	854	8,7	-	-	0/6/5/5
19	CLA	A	814	7	1/1/15/20	8/37/115/115	-
21	BCR	L	205	-	-	4/29/63/63	0/2/2/2
19	CLA	8	311	6	1/1/13/20	6/25/103/115	-
19	CLA	A	824	7	1/1/15/20	20/37/115/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
21	BCR	G	204	-	-	0/29/63/63	0/2/2/2
19	CLA	5	315	3	1/1/11/20	2/13/91/115	-
19	CLA	A	805	7	1/1/15/20	6/37/115/115	-
22	LUT	8	315	-	-	2/29/67/67	0/2/2/2
19	CLA	1	303	15	1/1/13/20	8/28/106/115	-
23	LMG	J	105	-	-	14/30/50/70	0/1/1/1
20	CHL	8	320	15	2/2/20/26	8/39/137/137	-
19	CLA	A	819	7	1/1/15/20	7/37/115/115	-
21	BCR	B	847	-	-	1/29/63/63	0/2/2/2
19	CLA	3	302	1	1/1/15/20	12/37/115/115	-
19	CLA	A	840	7	1/1/15/20	8/37/115/115	-
19	CLA	B	812	8	1/1/15/20	14/37/115/115	-
24	LMU	6	324	-	-	6/15/35/61	0/1/1/2
19	CLA	A	839	7	1/1/12/20	2/21/99/115	-
25	XAT	1	316	-	-	0/31/93/93	0/4/4/4
24	LMU	7	619	-	-	4/12/32/61	0/1/1/2
19	CLA	7	602	5	1/1/15/20	1/37/115/115	-
24	LMU	3	323	-	-	5/15/35/61	0/1/1/2
24	LMU	K	201	-	-	6/15/35/61	0/1/1/2
21	BCR	A	852	-	-	5/29/63/63	0/2/2/2
20	CHL	1	306	32	2/2/16/26	4/15/113/137	-
19	CLA	K	204	14	1/1/11/20	1/15/93/115	-
19	CLA	A	804	32	1/1/15/20	2/37/115/115	-
21	BCR	6	321	-	-	2/29/63/63	0/2/2/2
21	BCR	A	849	-	-	2/29/63/63	0/2/2/2
19	CLA	A	818	32	1/1/13/20	5/25/103/115	-
19	CLA	A	803	-	1/1/15/20	1/37/115/115	-
20	CHL	5	308	32	2/2/17/26	2/21/119/137	-
19	CLA	5	309	3	1/1/15/20	12/37/115/115	-
19	CLA	5	303	3	1/1/15/20	2/37/115/115	-
19	CLA	A	842	7	1/1/15/20	9/37/115/115	-
19	CLA	7	611	5	1/1/12/20	5/22/100/115	-
24	LMU	1	319	-	-	7/21/61/61	0/2/2/2
23	LMG	4	621	-	-	16/36/56/70	0/1/1/1
24	LMU	A	856	-	-	3/11/31/61	0/1/1/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
19	CLA	Z	609	15	1/1/14/20	2/31/109/115	-
19	CLA	Z	602	15	1/1/14/20	3/31/109/115	-
19	CLA	1	312	32	1/1/15/20	10/37/115/115	-
21	BCR	3	315	-	-	7/29/63/63	0/2/2/2
24	LMU	B	853	-	-	3/21/61/61	0/2/2/2
26	LHG	5	321	19	-	14/41/41/53	-
21	BCR	I	201	-	-	6/29/63/63	0/2/2/2
19	CLA	A	808	7	1/1/15/20	8/37/115/115	-
19	CLA	B	815	8	1/1/14/20	6/31/109/115	-
24	LMU	3	322	-	-	2/20/60/61	0/2/2/2
21	BCR	B	844	-	-	4/29/63/63	0/2/2/2
24	LMU	1	320	-	-	7/10/30/61	0/1/1/2
31	DGD	B	850	-	-	11/48/88/95	0/2/2/2
19	CLA	A	832	7	1/1/15/20	5/37/115/115	-
24	LMU	Z	619	-	-	5/17/57/61	0/2/2/2
19	CLA	F	304	16	1/1/15/20	18/37/115/115	-
19	CLA	A	830	7	1/1/15/20	12/37/115/115	-
19	CLA	4	611	2	1/1/11/20	3/13/91/115	-
24	LMU	A	857	-	-	4/15/35/61	0/1/1/2
20	CHL	6	308	32	3/3/17/26	3/21/119/137	-
19	CLA	3	311	1	1/1/14/20	3/31/109/115	-
24	LMU	3	325	-	-	7/15/35/61	0/1/1/2
30	SF4	C	102	9	-	-	0/6/5/5
19	CLA	B	832	8	1/1/13/20	2/25/103/115	-
19	CLA	A	836	7	1/1/15/20	8/37/115/115	-
19	CLA	B	839	8	1/1/12/20	1/19/97/115	-
20	CHL	6	302	4	2/2/20/26	12/39/137/137	-
19	CLA	3	312	1	1/1/11/20	4/13/91/115	-
26	LHG	B	851	19	-	13/49/49/53	-
19	CLA	8	313	6	1/1/13/20	8/28/106/115	-
21	BCR	A	858	-	-	5/29/63/63	0/2/2/2
25	XAT	5	322	-	-	1/31/93/93	0/4/4/4
19	CLA	B	838	8	1/1/15/20	3/37/115/115	-
21	BCR	8	317	-	-	3/29/63/63	0/2/2/2
21	BCR	5	320	-	-	2/29/63/63	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
19	CLA	5	314	3	1/1/11/20	6/13/91/115	-
21	BCR	A	851	-	-	4/29/63/63	0/2/2/2
19	CLA	K	202	14	1/1/11/20	2/13/91/115	-
19	CLA	B	810	8	1/1/15/20	8/37/115/115	-

The worst 5 of 1273 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
19	Z	611	CLA	C4B-NB	7.78	1.42	1.35
19	B	809	CLA	C4B-NB	7.71	1.42	1.35
19	A	820	CLA	C4B-NB	7.68	1.42	1.35
19	F	304	CLA	C4B-NB	7.65	1.42	1.35
19	B	820	CLA	C4B-NB	7.64	1.42	1.35

The worst 5 of 1622 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	Z	601	CHL	C4A-NA-C1A	8.19	110.39	106.71
19	K	202	CLA	C4A-NA-C1A	7.38	110.02	106.71
19	B	841	CLA	C4A-NA-C1A	7.37	110.02	106.71
20	6	317	CHL	C4A-NA-C1A	7.35	110.01	106.71
20	7	621	CHL	C4A-NA-C1A	7.33	110.00	106.71

5 of 253 chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
19	3	301	CLA	ND
19	3	302	CLA	ND
19	3	303	CLA	ND
19	3	304	CLA	ND
19	3	305	CLA	ND

5 of 2075 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
19	3	302	CLA	C11-C12-C13-C14
19	3	305	CLA	C4-C3-C5-C6
19	3	309	CLA	CBD-CGD-O2D-CED
19	3	313	CLA	CBD-CGD-O2D-CED
19	3	313	CLA	C2-C3-C5-C6

There are no ring outliers.

240 monomers are involved in 396 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
19	6	314	CLA	2	0
19	A	813	CLA	3	0
19	5	304	CLA	4	0
20	5	306	CHL	2	0
19	7	612	CLA	5	0
27	6	323	NEX	2	0
22	3	317	LUT	1	0
19	8	312	CLA	1	0
25	7	616	XAT	1	0
19	4	608	CLA	1	0
20	4	606	CHL	1	0
24	4	623	LMU	2	0
19	L	204	CLA	1	0
21	B	845	BCR	3	0
19	Z	612	CLA	1	0
19	1	308	CLA	2	0
19	B	814	CLA	4	0
19	Z	614	CLA	1	0
19	B	827	CLA	1	0
20	4	615	CHL	2	0
24	3	324	LMU	2	0
19	5	313	CLA	3	0
19	B	805	CLA	3	0
19	3	305	CLA	2	0
19	K	203	CLA	4	0
20	8	306	CHL	2	0
19	3	310	CLA	1	0
19	B	833	CLA	1	0
19	5	311	CLA	1	0
20	1	305	CHL	2	0
19	6	312	CLA	2	0
19	8	304	CLA	3	0
20	7	621	CHL	2	0
19	A	829	CLA	2	0
26	4	620	LHG	2	0
19	A	844	CLA	1	0
26	4	619	LHG	3	0
19	7	613	CLA	1	0
21	3	319	BCR	1	0
24	A	855	LMU	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
26	A	848	LHG	1	0
19	6	320	CLA	2	0
26	5	301	LHG	1	0
19	A	811	CLA	6	0
19	B	803	CLA	1	0
20	4	605	CHL	3	0
19	A	817	CLA	1	0
21	B	848	BCR	2	0
26	6	325	LHG	1	0
19	J	102	CLA	1	0
19	3	314	CLA	4	0
19	A	821	CLA	3	0
19	B	842	CLA	5	0
25	6	322	XAT	2	0
22	1	315	LUT	2	0
21	A	850	BCR	2	0
22	4	616	LUT	3	0
19	4	610	CLA	1	0
19	Z	603	CLA	2	0
21	4	618	BCR	1	0
19	8	309	CLA	3	0
19	8	303	CLA	6	0
21	J	103	BCR	1	0
22	F	305	LUT	1	0
19	B	828	CLA	3	0
19	A	837	CLA	5	0
19	B	809	CLA	3	0
19	B	806	CLA	2	0
19	1	310	CLA	3	0
23	L	201	LMG	2	0
23	8	321	LMG	1	0
19	4	602	CLA	1	0
19	A	823	CLA	1	0
19	1	309	CLA	2	0
20	6	315	CHL	2	0
23	6	301	LMG	1	0
19	B	822	CLA	3	0
19	5	319	CLA	6	0
26	8	318	LHG	3	0
24	8	319	LMU	1	0
19	5	316	CLA	3	0
19	5	305	CLA	2	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
26	7	618	LHG	1	0
24	1	322	LMU	1	0
19	5	310	CLA	1	0
19	4	609	CLA	2	0
19	A	833	CLA	2	0
19	A	846	CLA	1	0
26	A	847	LHG	1	0
19	B	823	CLA	2	0
19	6	304	CLA	1	0
19	A	812	CLA	1	0
19	Z	607	CLA	1	0
19	B	801	CLA	2	0
19	L	203	CLA	2	0
19	B	804	CLA	10	0
22	5	324	LUT	2	0
19	8	302	CLA	4	0
19	3	308	CLA	3	0
19	B	807	CLA	1	0
19	6	327	CLA	1	0
20	4	601	CHL	2	0
19	A	816	CLA	2	0
19	B	834	CLA	2	0
19	A	841	CLA	1	0
20	6	317	CHL	1	0
19	A	815	CLA	4	0
20	6	307	CHL	8	0
19	6	305	CLA	4	0
19	B	826	CLA	2	0
19	F	302	CLA	3	0
19	B	830	CLA	2	0
19	4	603	CLA	4	0
21	B	802	BCR	2	0
24	1	301	LMU	2	0
22	1	317	LUT	1	0
20	6	306	CHL	2	0
19	B	813	CLA	3	0
19	4	612	CLA	3	0
19	4	614	CLA	2	0
19	B	829	CLA	1	0
19	A	810	CLA	3	0
19	B	841	CLA	2	0
24	1	321	LMU	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
21	A	853	BCR	3	0
19	B	831	CLA	2	0
19	6	313	CLA	2	0
19	3	313	CLA	3	0
19	B	817	CLA	5	0
22	5	318	LUT	2	0
19	6	303	CLA	4	0
21	7	617	BCR	3	0
20	8	305	CHL	2	0
19	5	302	CLA	2	0
21	L	202	BCR	2	0
19	4	604	CLA	1	0
22	J	101	LUT	3	0
19	B	835	CLA	1	0
25	Z	616	XAT	2	0
19	8	307	CLA	1	0
20	5	317	CHL	1	0
19	A	834	CLA	2	0
19	A	827	CLA	3	0
19	A	807	CLA	2	0
19	B	820	CLA	1	0
23	J	104	LMG	1	0
19	B	824	CLA	6	0
22	Z	615	LUT	1	0
19	1	311	CLA	3	0
19	3	303	CLA	3	0
23	F	301	LMG	1	0
19	A	831	CLA	1	0
19	B	819	CLA	2	0
19	B	811	CLA	3	0
21	3	318	BCR	3	0
19	4	613	CLA	1	0
26	A	801	LHG	1	0
19	A	826	CLA	1	0
19	7	609	CLA	3	0
19	Z	611	CLA	1	0
20	5	307	CHL	3	0
21	B	846	BCR	1	0
23	3	321	LMG	4	0
19	3	309	CLA	3	0
19	7	610	CLA	4	0
21	K	206	BCR	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
19	B	818	CLA	5	0
19	Z	608	CLA	5	0
19	1	314	CLA	2	0
26	6	318	LHG	6	0
20	Z	606	CHL	1	0
25	4	617	XAT	1	0
19	5	312	CLA	4	0
24	7	620	LMU	1	0
19	6	310	CLA	3	0
20	Z	605	CHL	1	0
20	7	605	CHL	1	0
19	1	307	CLA	3	0
19	A	820	CLA	3	0
24	F	306	LMU	2	0
20	4	607	CHL	5	0
23	B	852	LMG	1	0
23	6	326	LMG	2	0
19	B	837	CLA	3	0
19	A	838	CLA	3	0
19	A	814	CLA	2	0
21	L	205	BCR	2	0
19	8	311	CLA	2	0
19	A	824	CLA	2	0
19	A	805	CLA	1	0
19	1	303	CLA	3	0
23	J	105	LMG	3	0
20	8	320	CHL	1	0
19	A	819	CLA	2	0
19	3	302	CLA	3	0
19	A	840	CLA	2	0
19	B	812	CLA	3	0
19	A	839	CLA	1	0
25	1	316	XAT	1	0
19	7	602	CLA	2	0
21	A	852	BCR	1	0
20	1	306	CHL	1	0
19	K	204	CLA	1	0
21	6	321	BCR	2	0
21	A	849	BCR	2	0
19	A	818	CLA	1	0
19	A	803	CLA	3	0
20	5	308	CHL	1	0

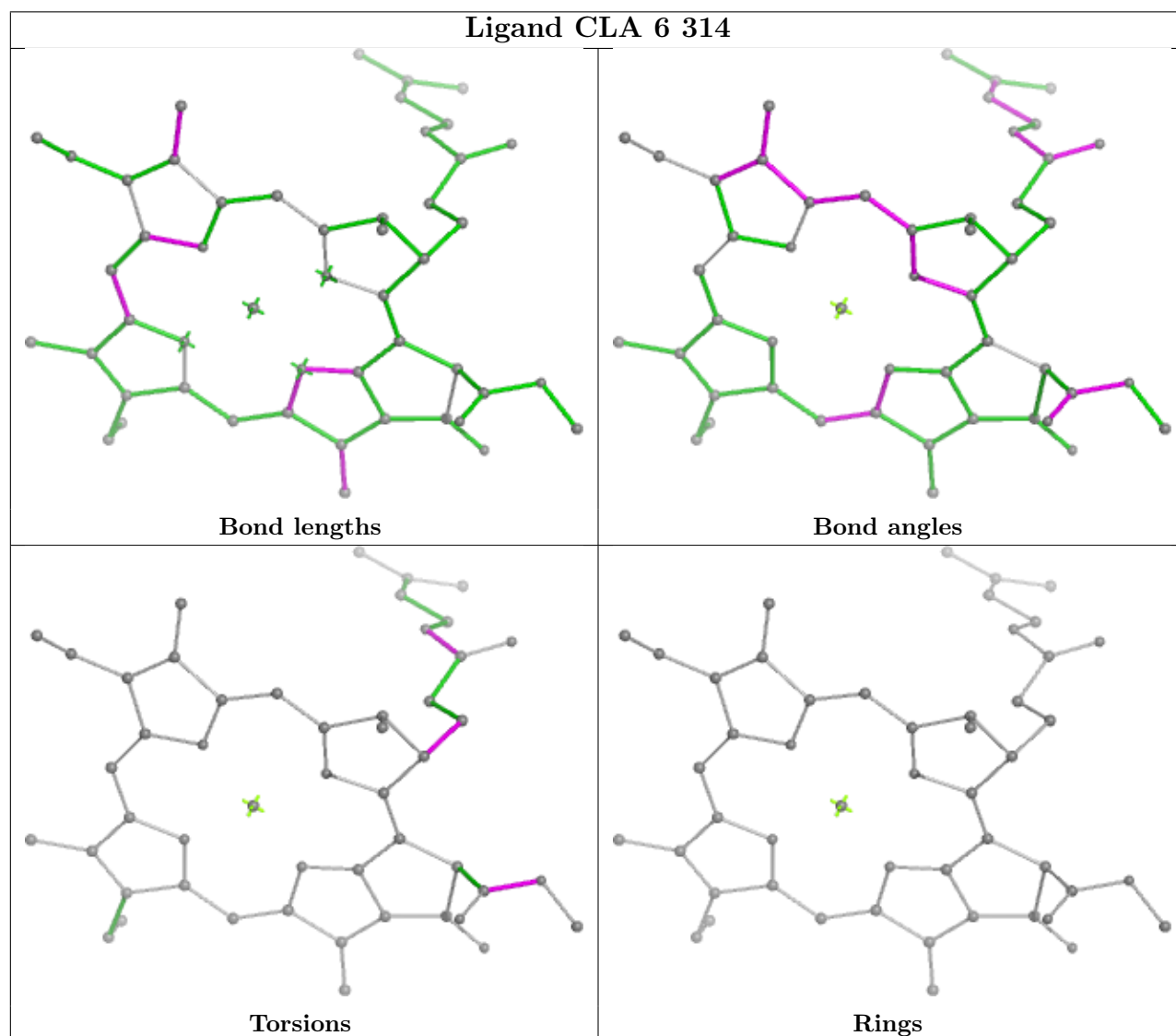
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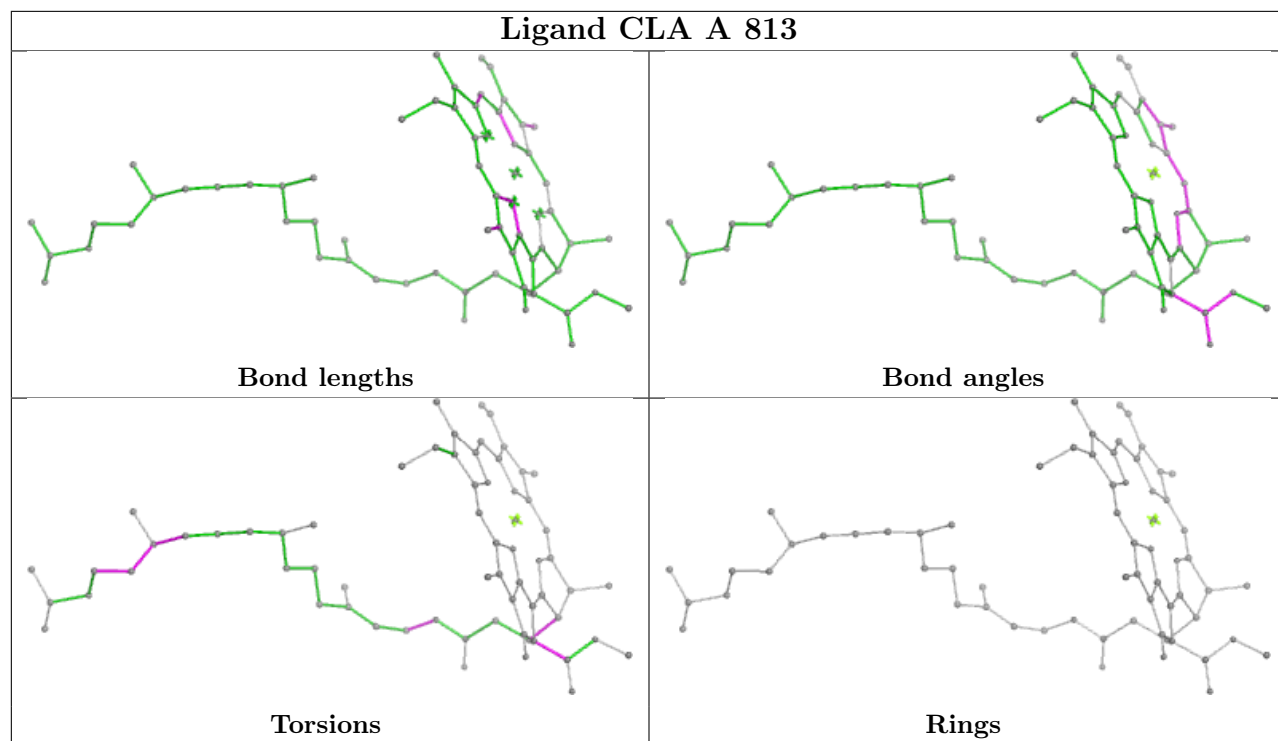
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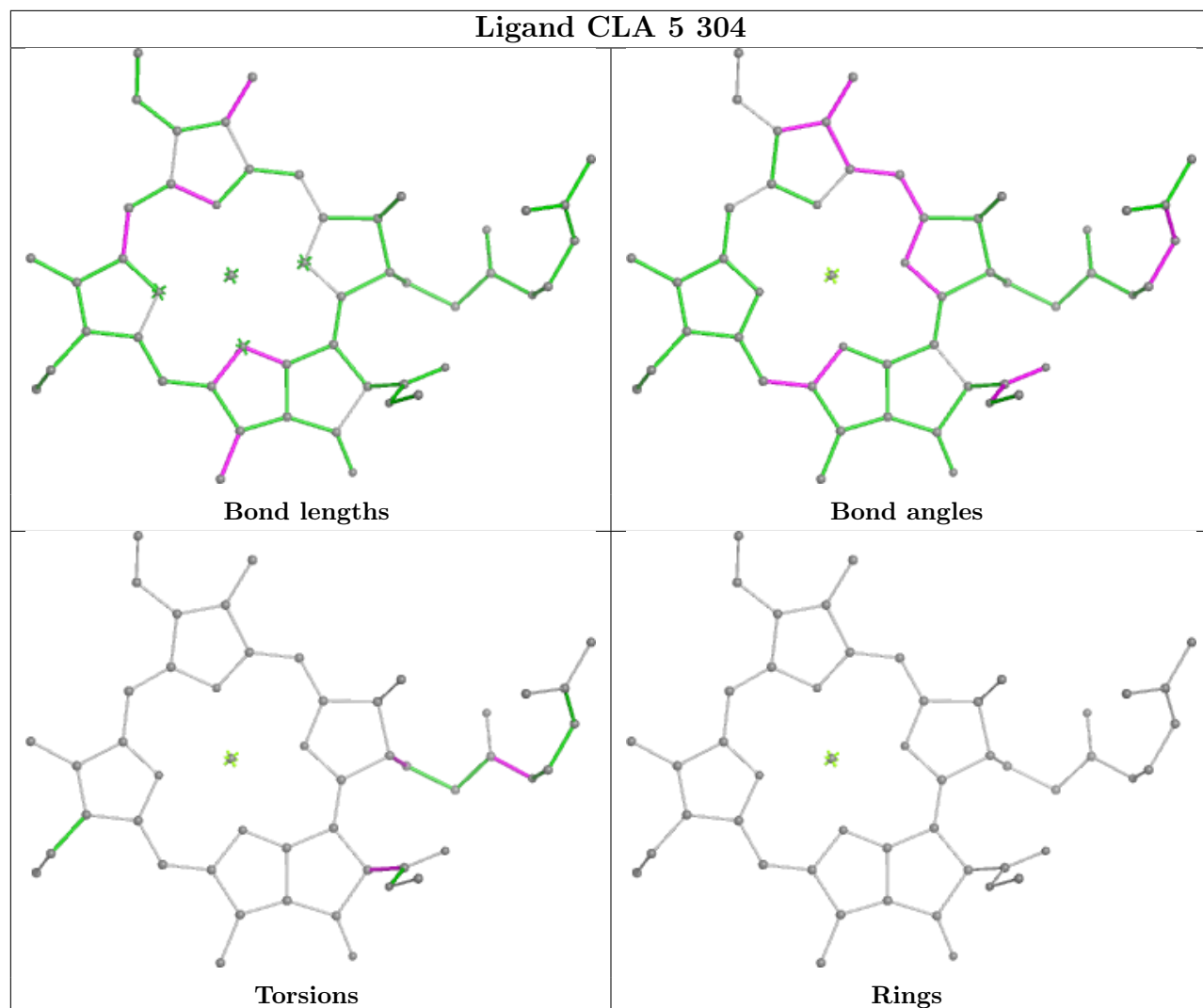
Mol	Chain	Res	Type	Clashes	Symm-Clashes
19	5	303	CLA	3	0
19	A	842	CLA	3	0
24	1	319	LMU	1	0
19	Z	609	CLA	1	0
19	Z	602	CLA	1	0
19	1	312	CLA	1	0
21	3	315	BCR	2	0
24	B	853	LMU	2	0
26	5	321	LHG	1	0
21	I	201	BCR	1	0
19	A	808	CLA	1	0
19	B	815	CLA	2	0
24	3	322	LMU	1	0
21	B	844	BCR	2	0
31	B	850	DGD	2	0
19	A	832	CLA	3	0
19	F	304	CLA	4	0
19	A	830	CLA	2	0
20	6	308	CHL	1	0
19	B	832	CLA	3	0
19	A	836	CLA	1	0
19	B	839	CLA	1	0
20	6	302	CHL	2	0
26	B	851	LHG	6	0
19	8	313	CLA	1	0
21	A	858	BCR	1	0
25	5	322	XAT	3	0
19	B	838	CLA	3	0
21	8	317	BCR	1	0
21	5	320	BCR	4	0
21	A	851	BCR	1	0
19	B	810	CLA	1	0

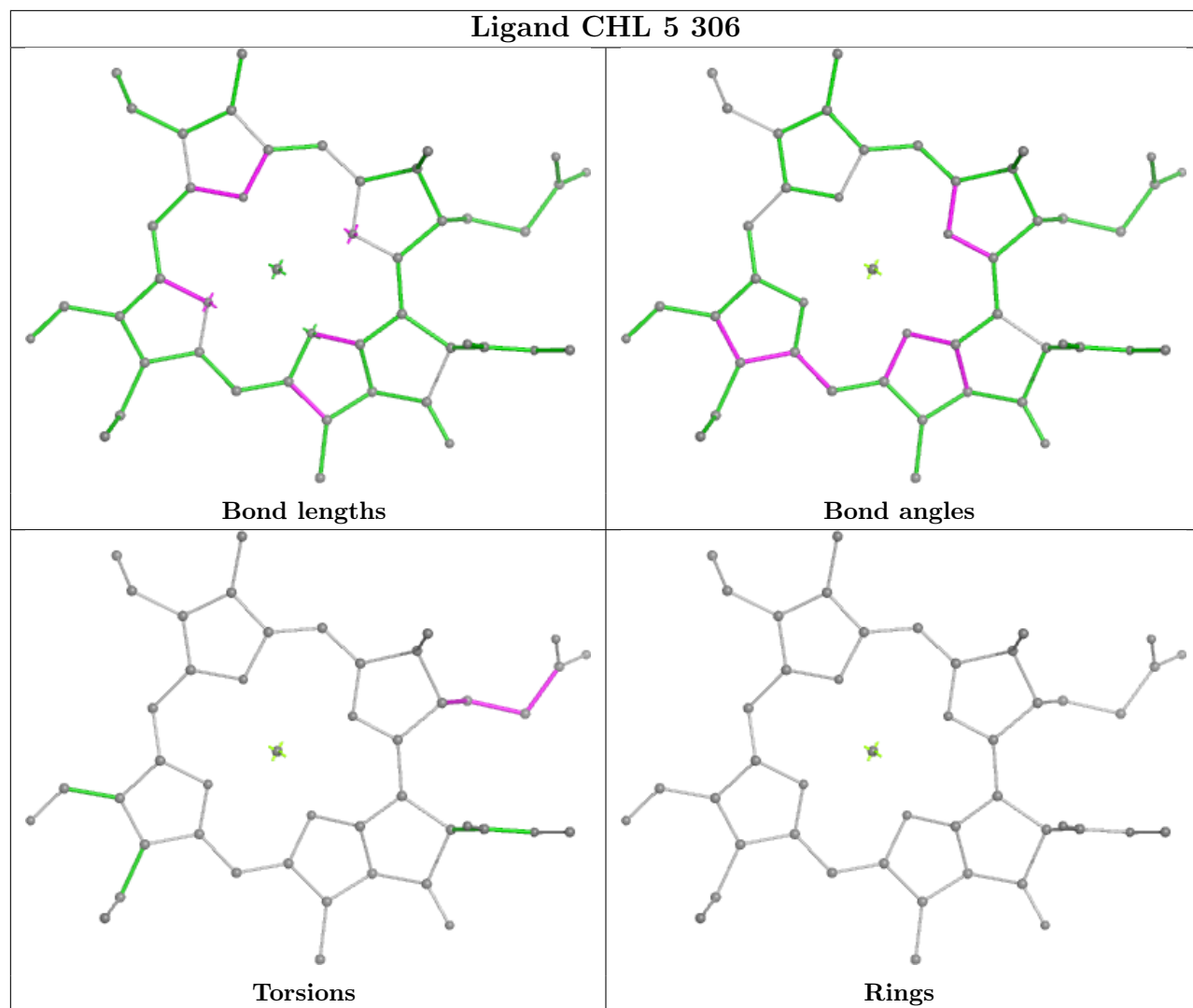
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

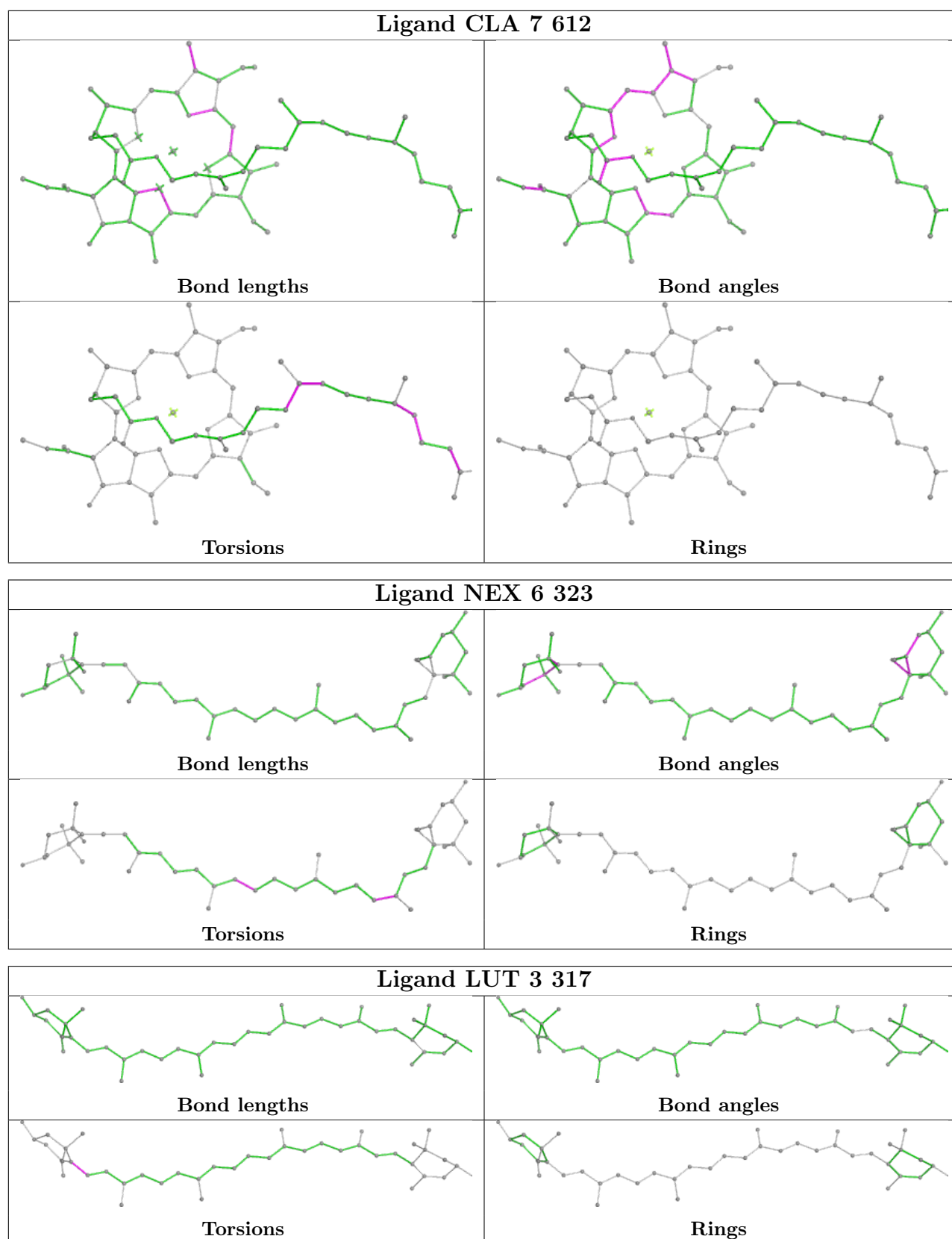
The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

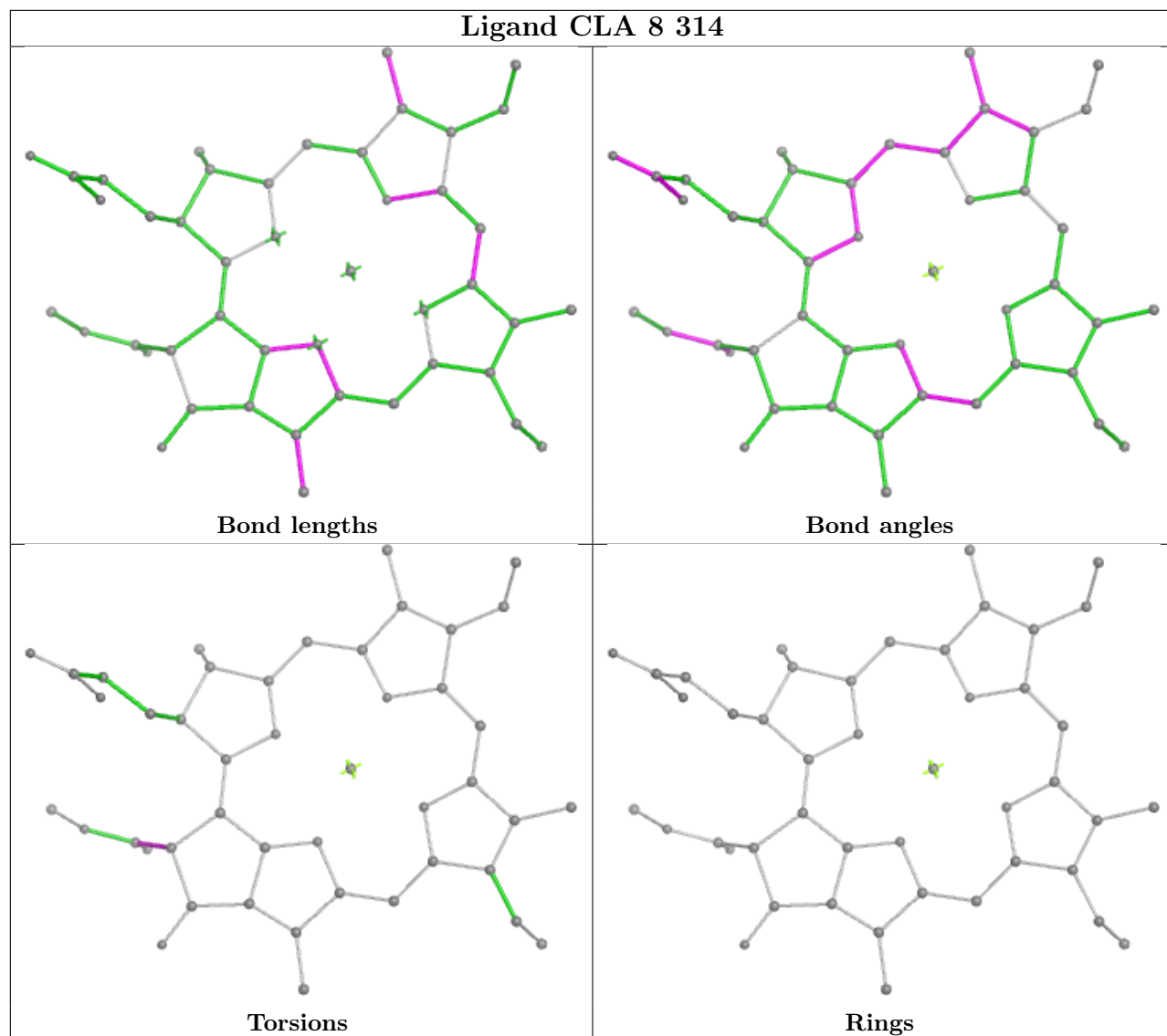


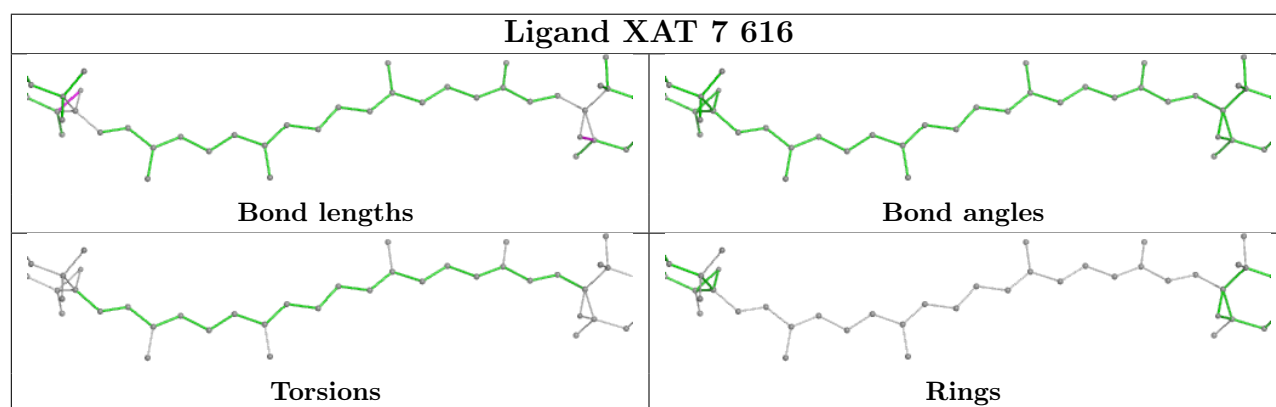
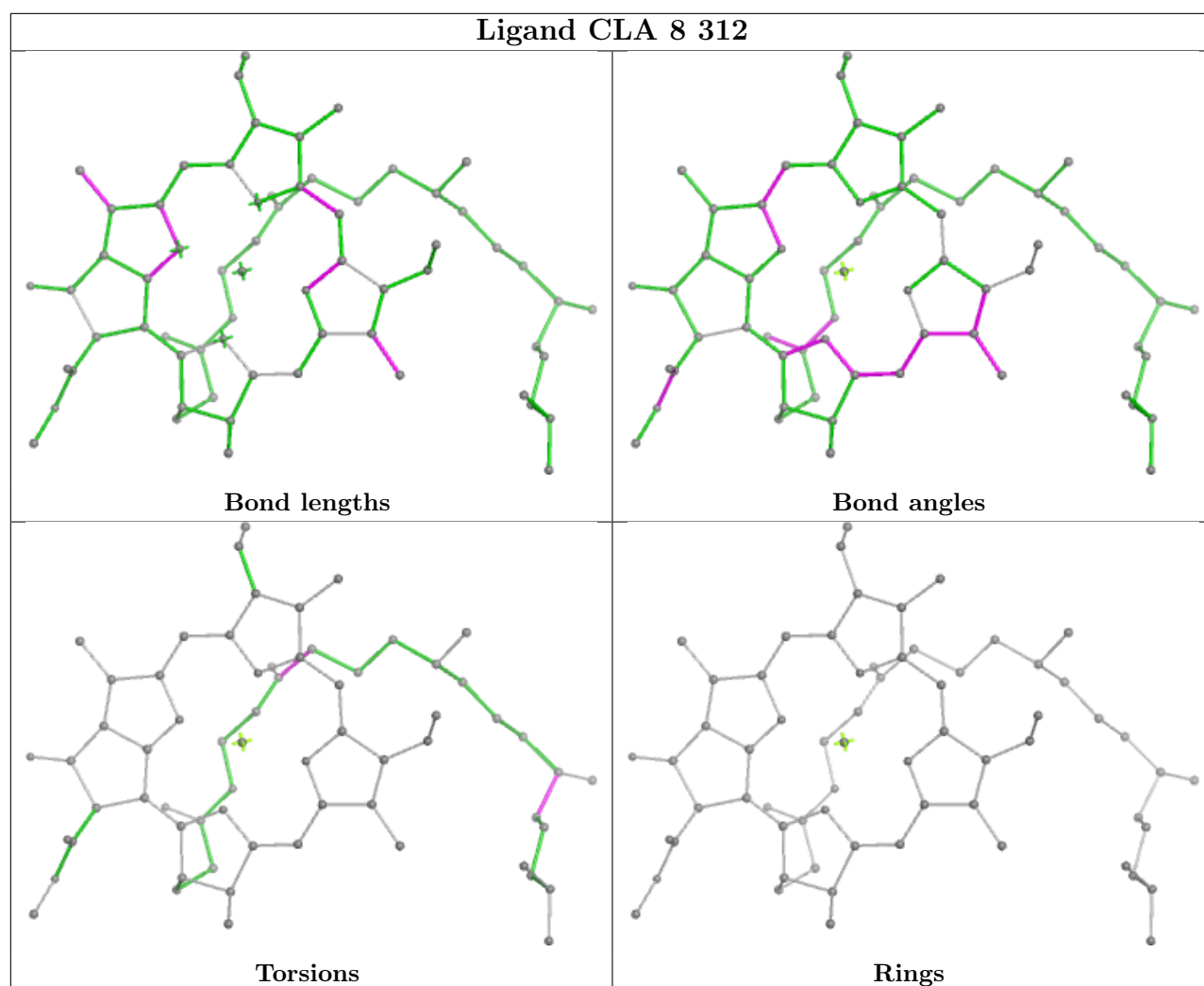


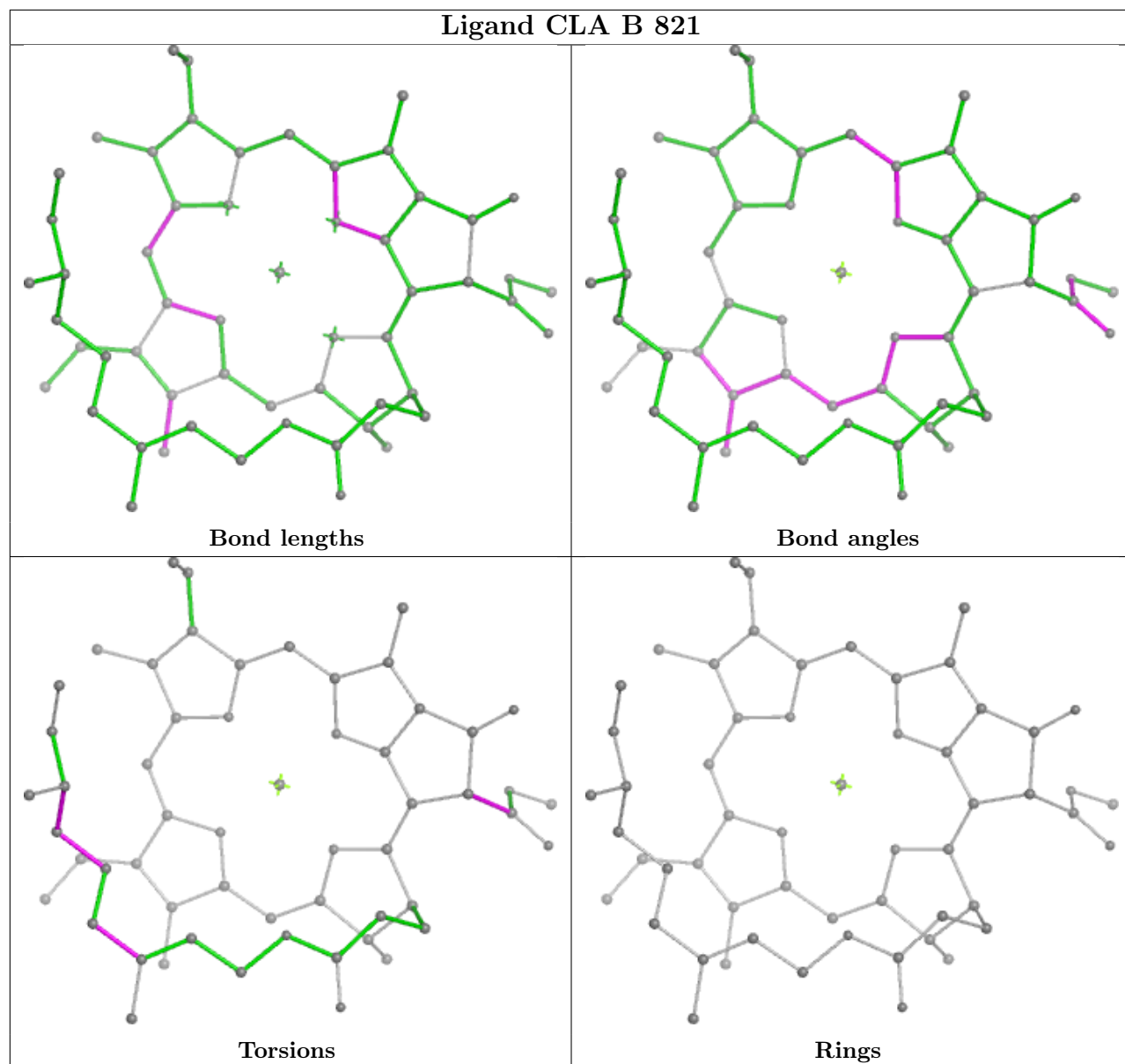


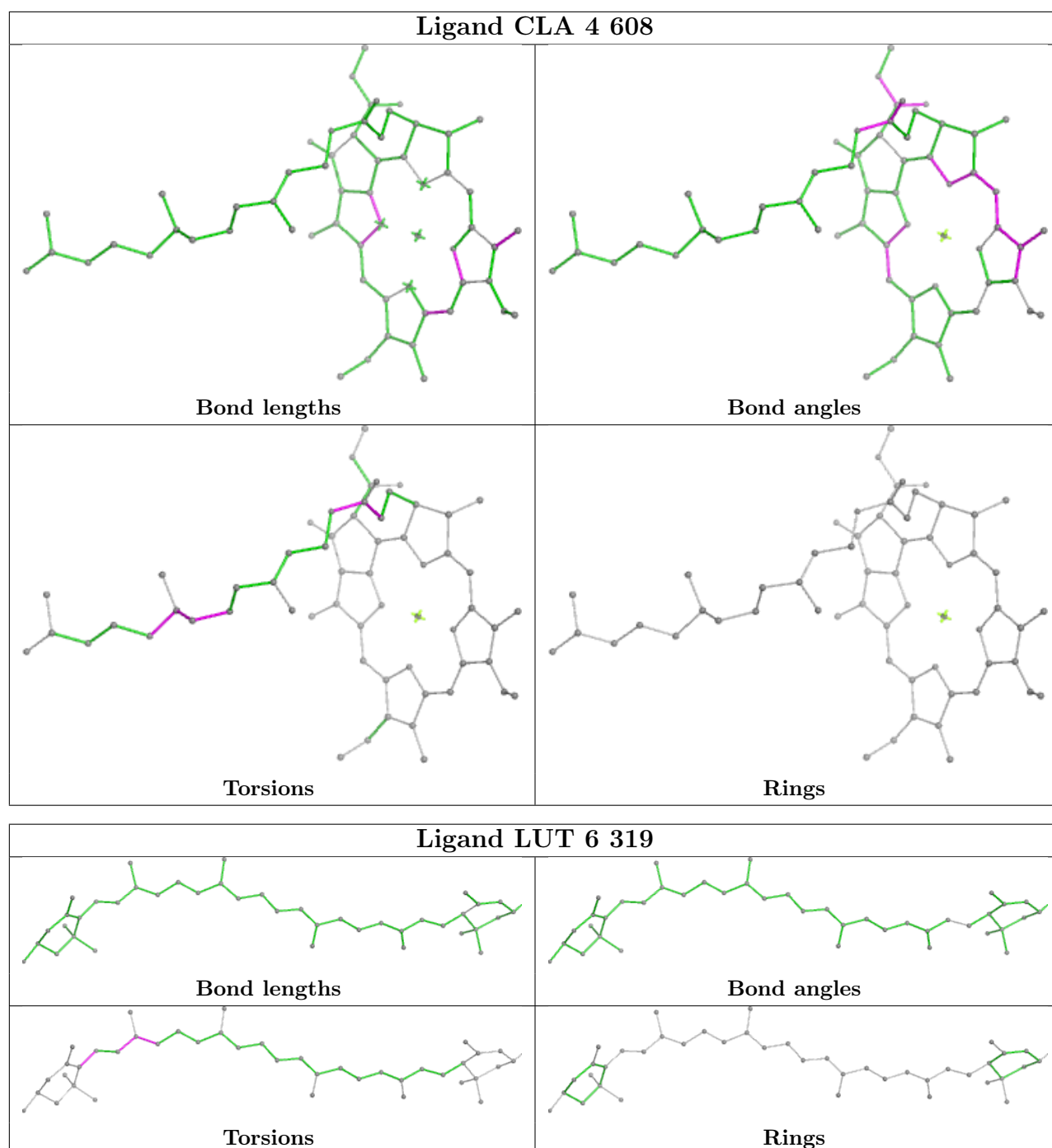


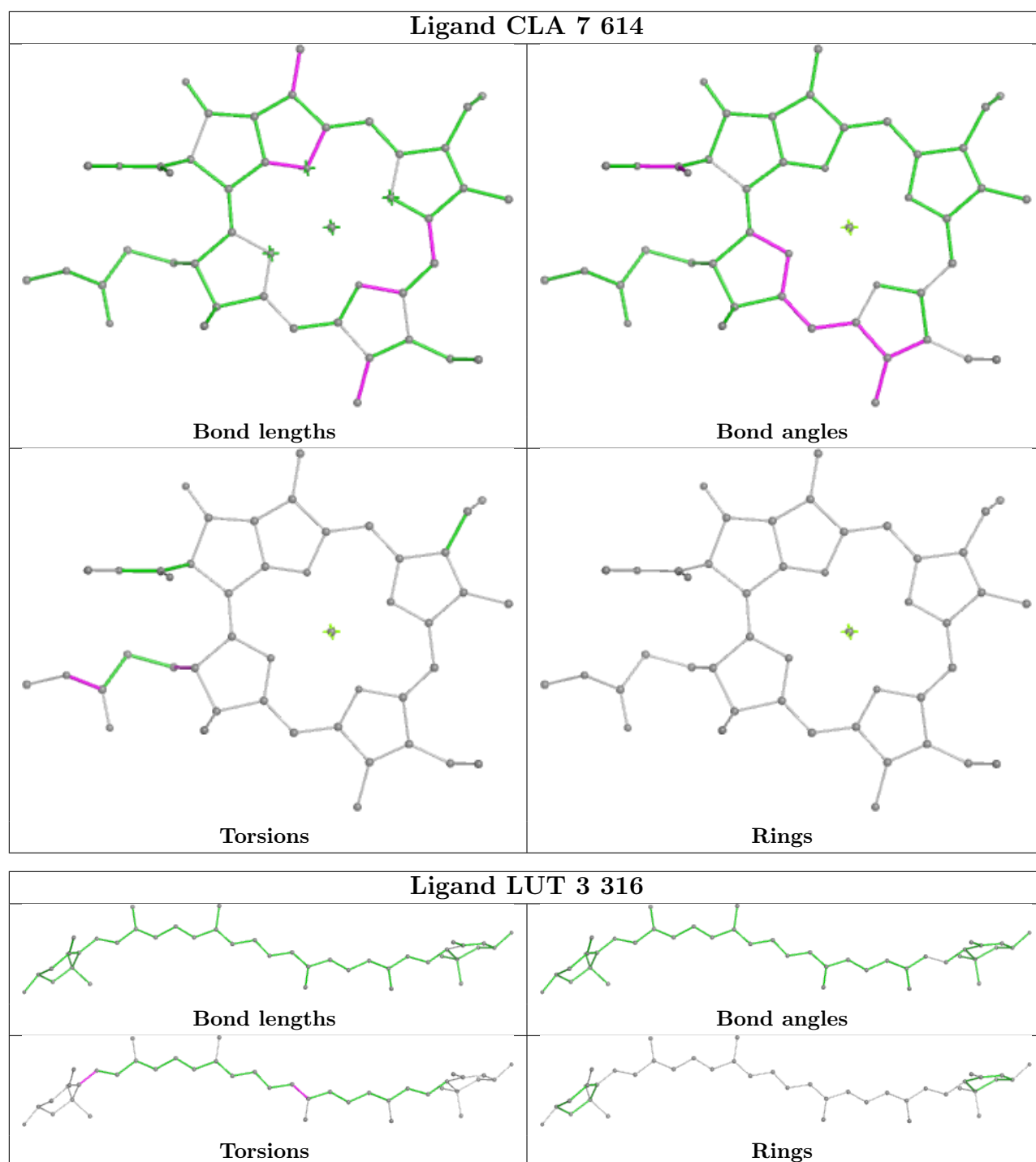


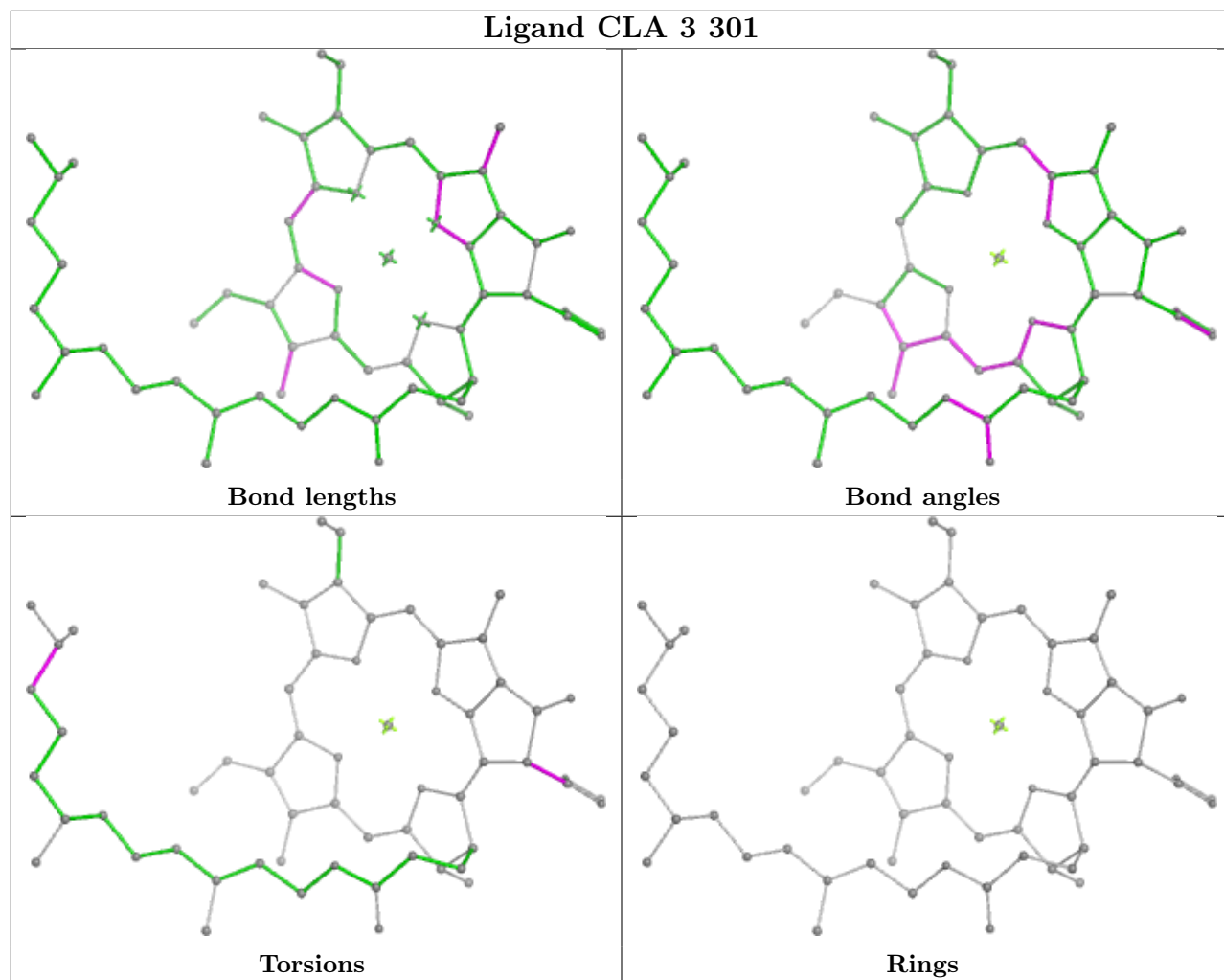


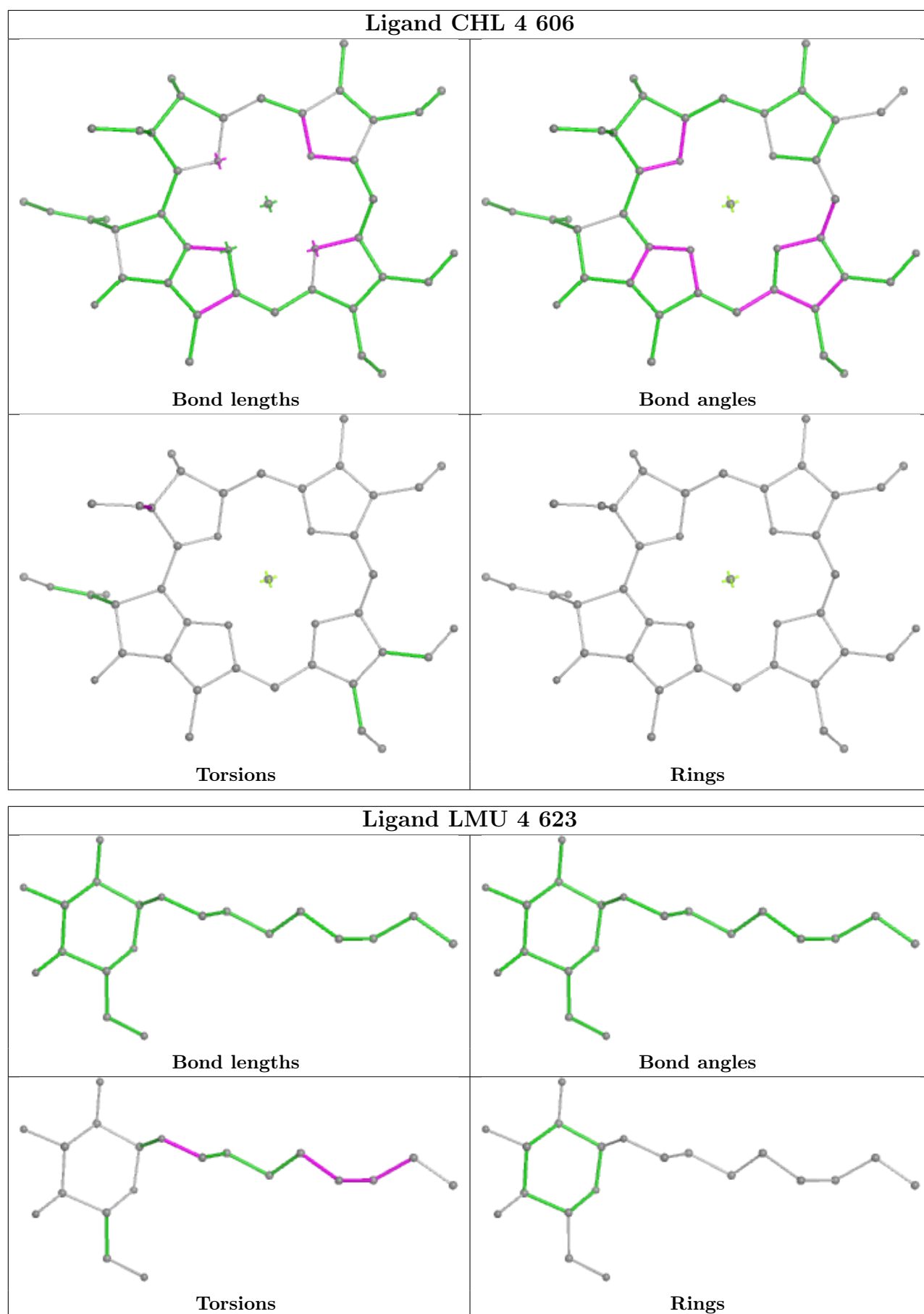


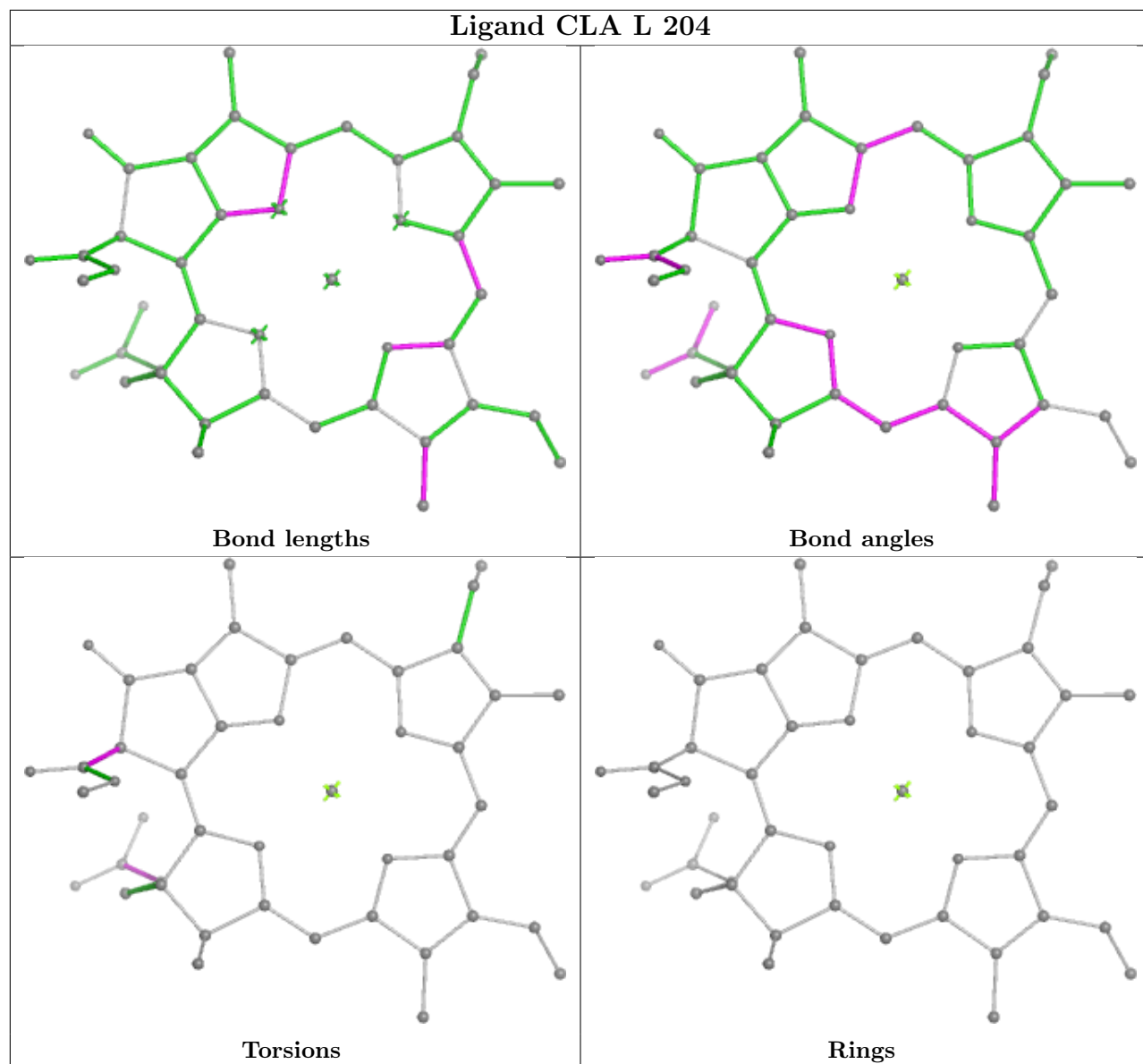


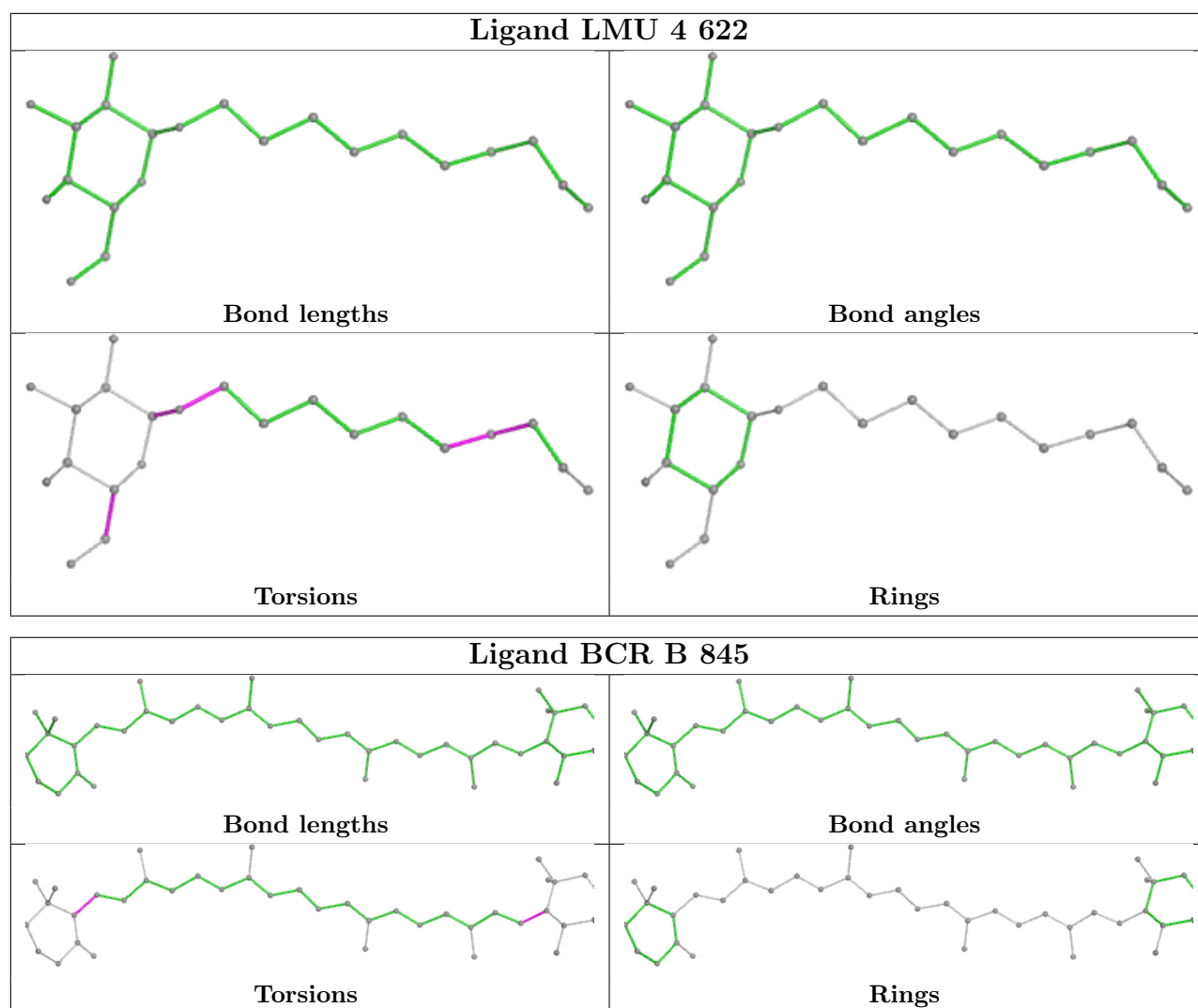


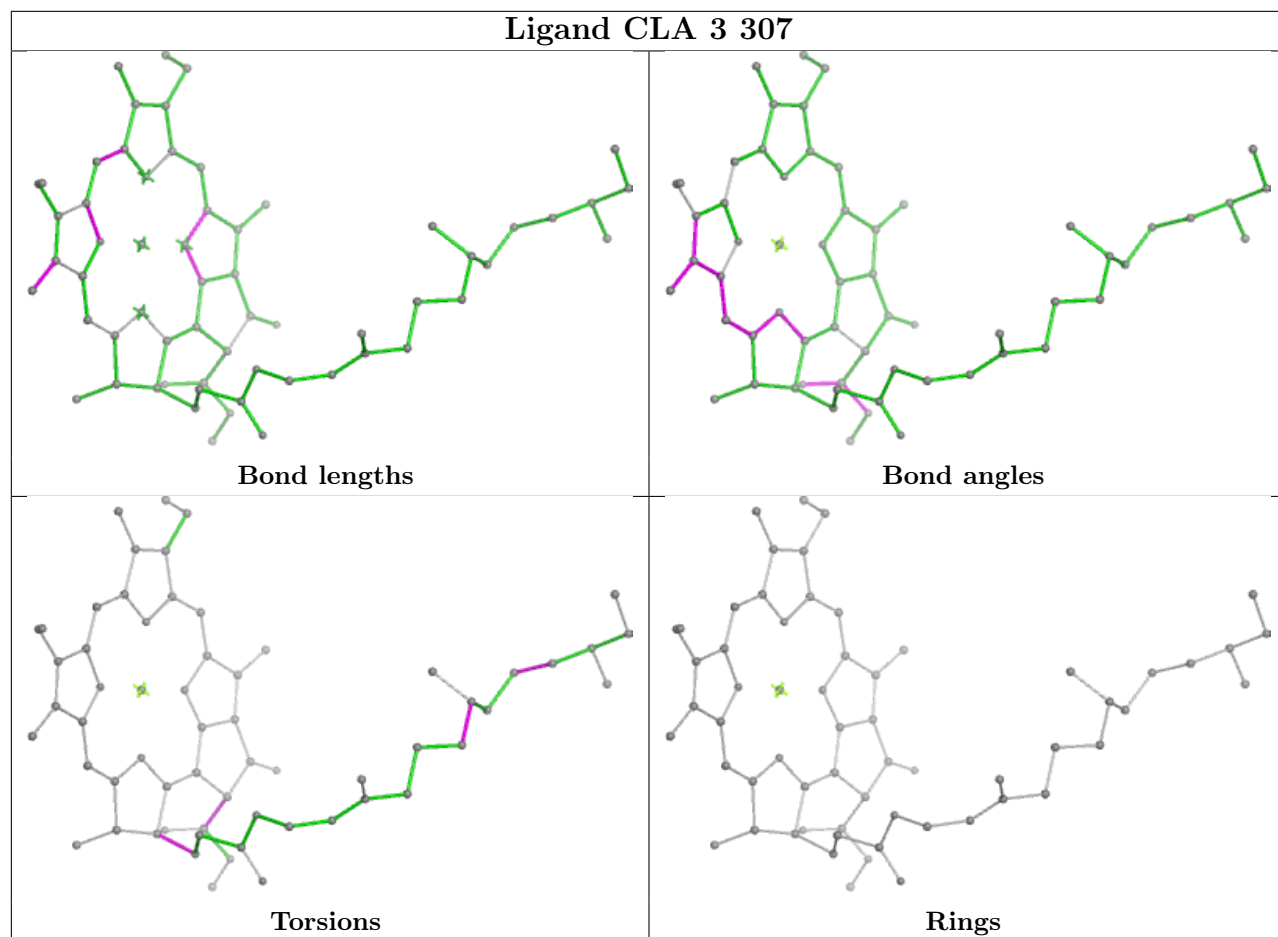


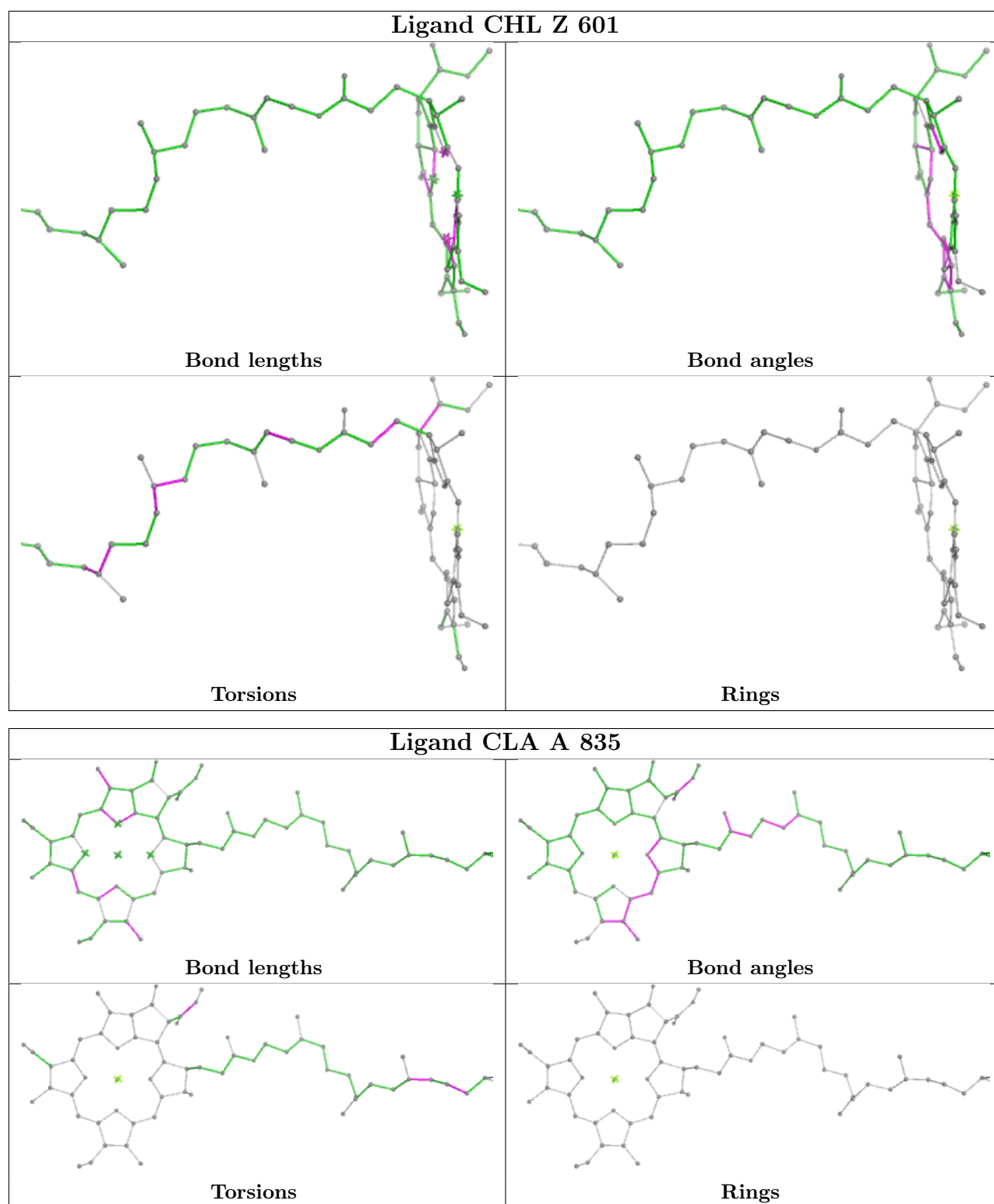


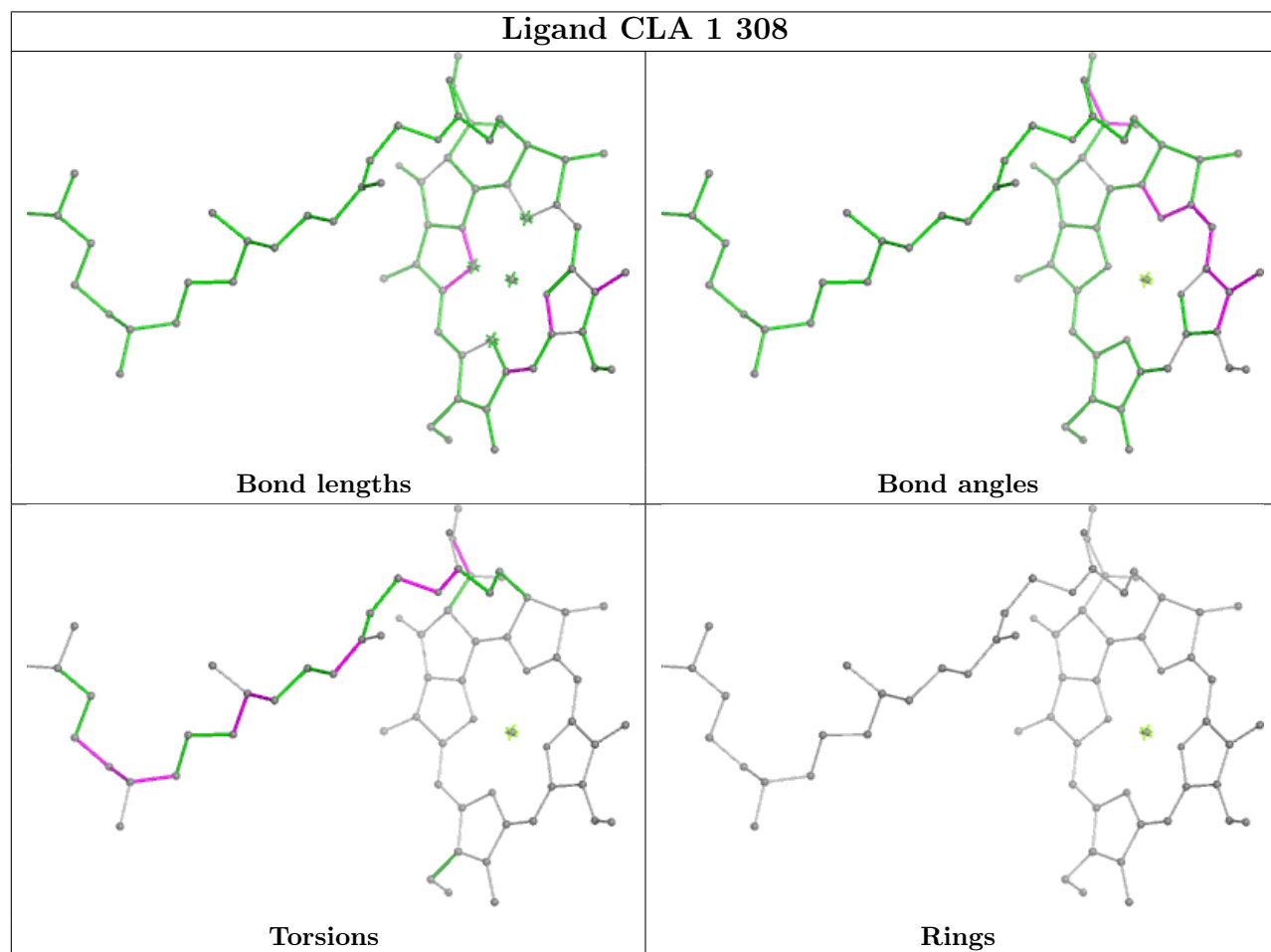
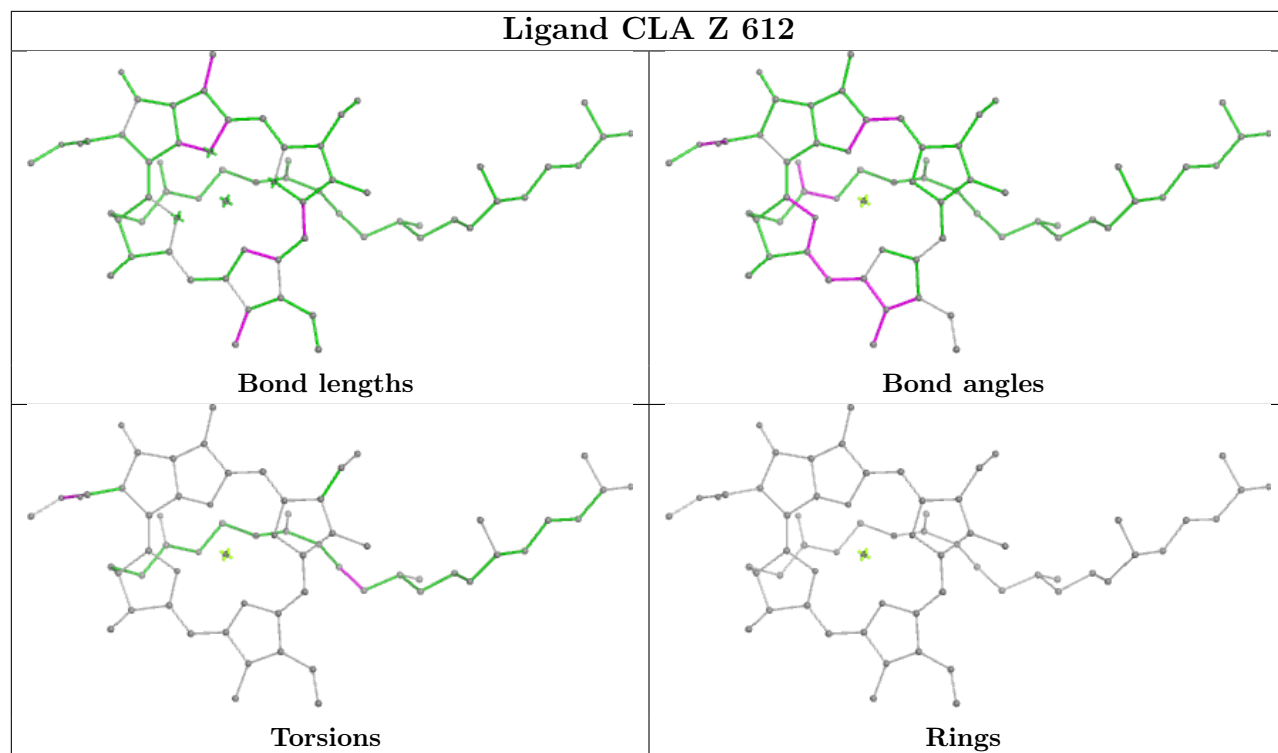


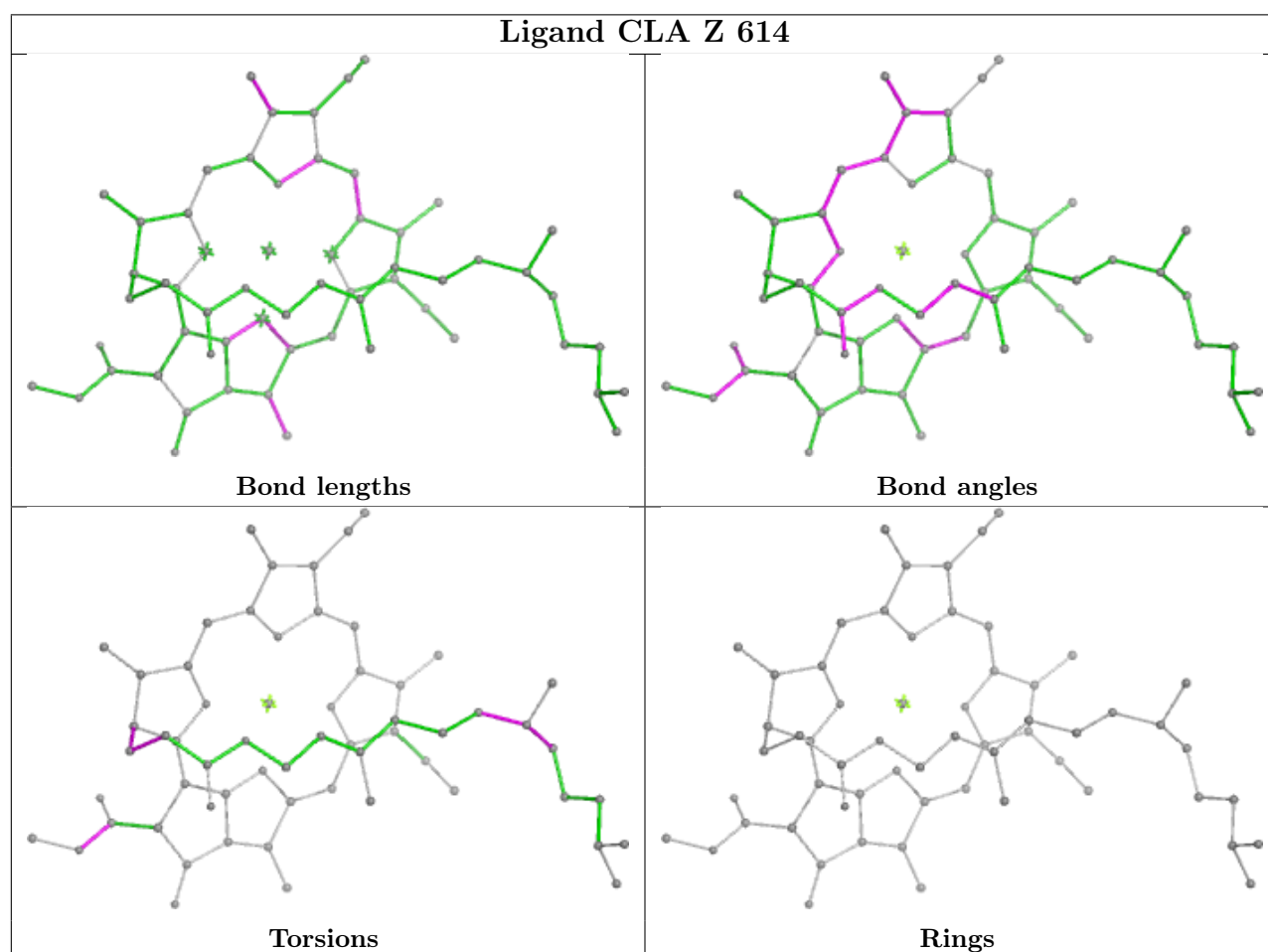
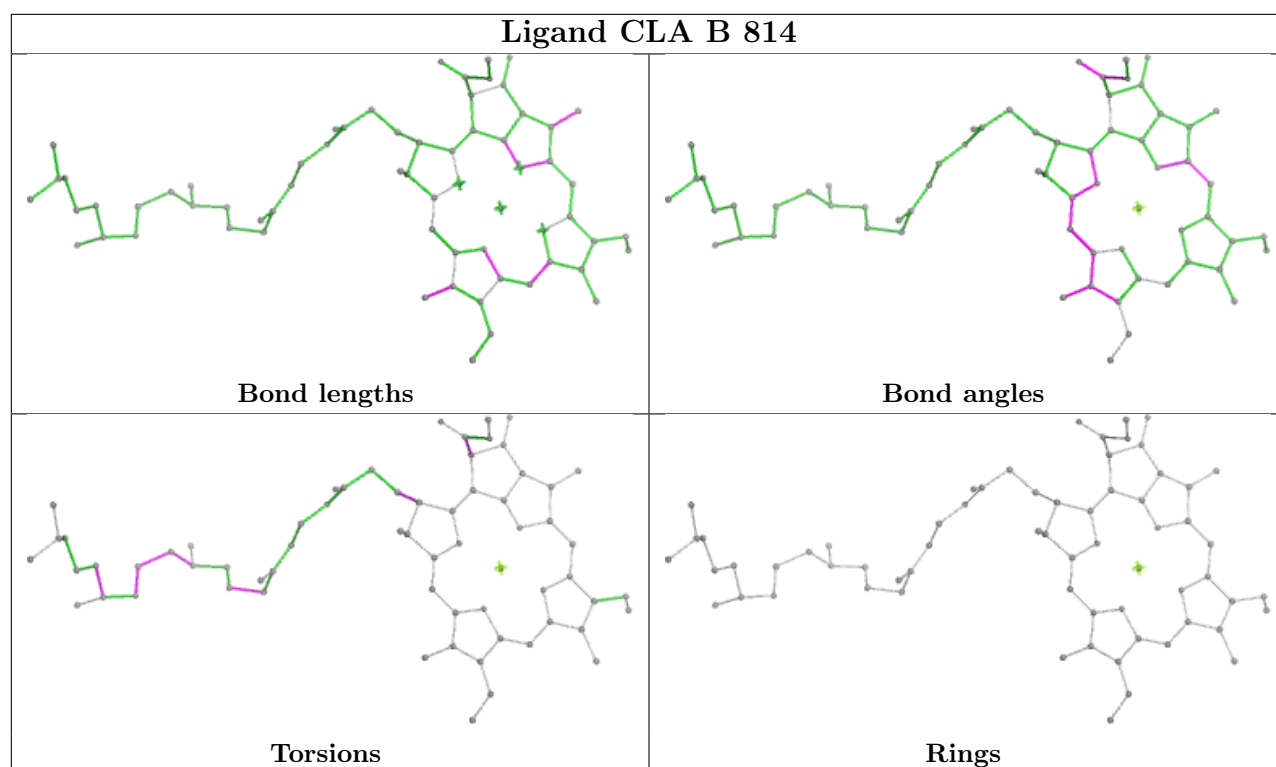


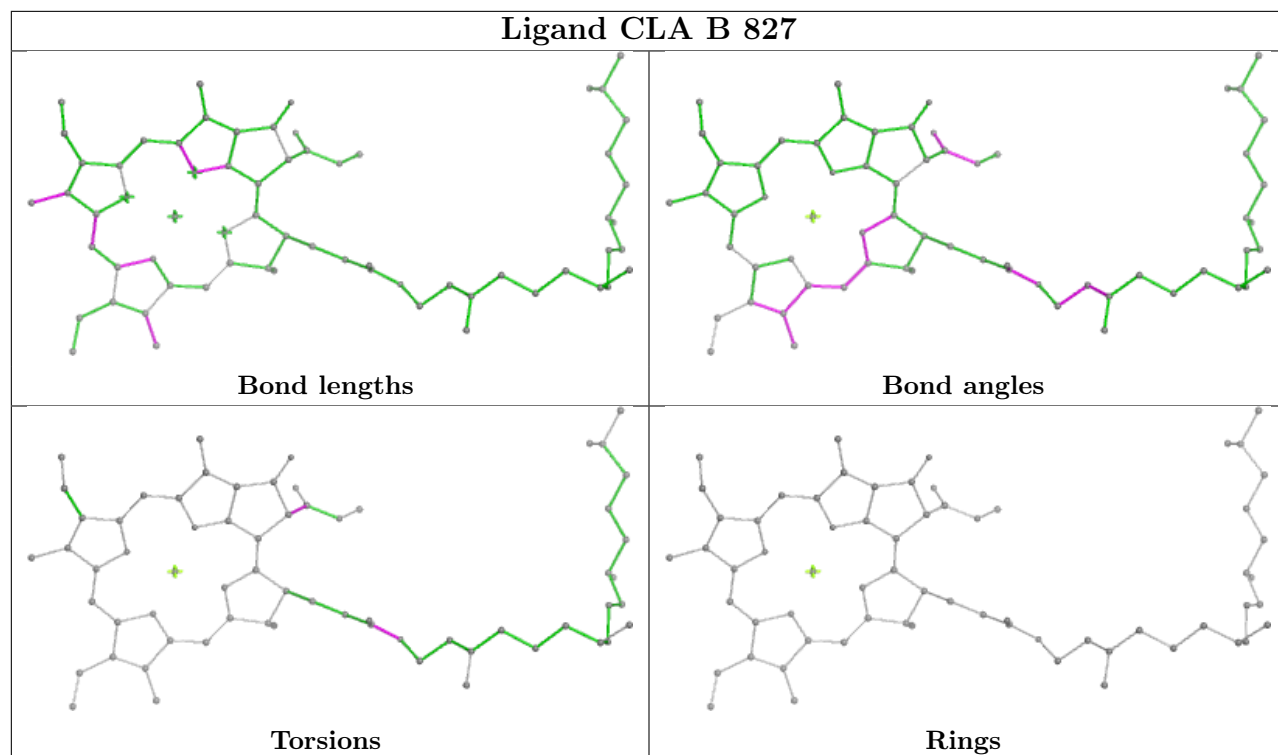


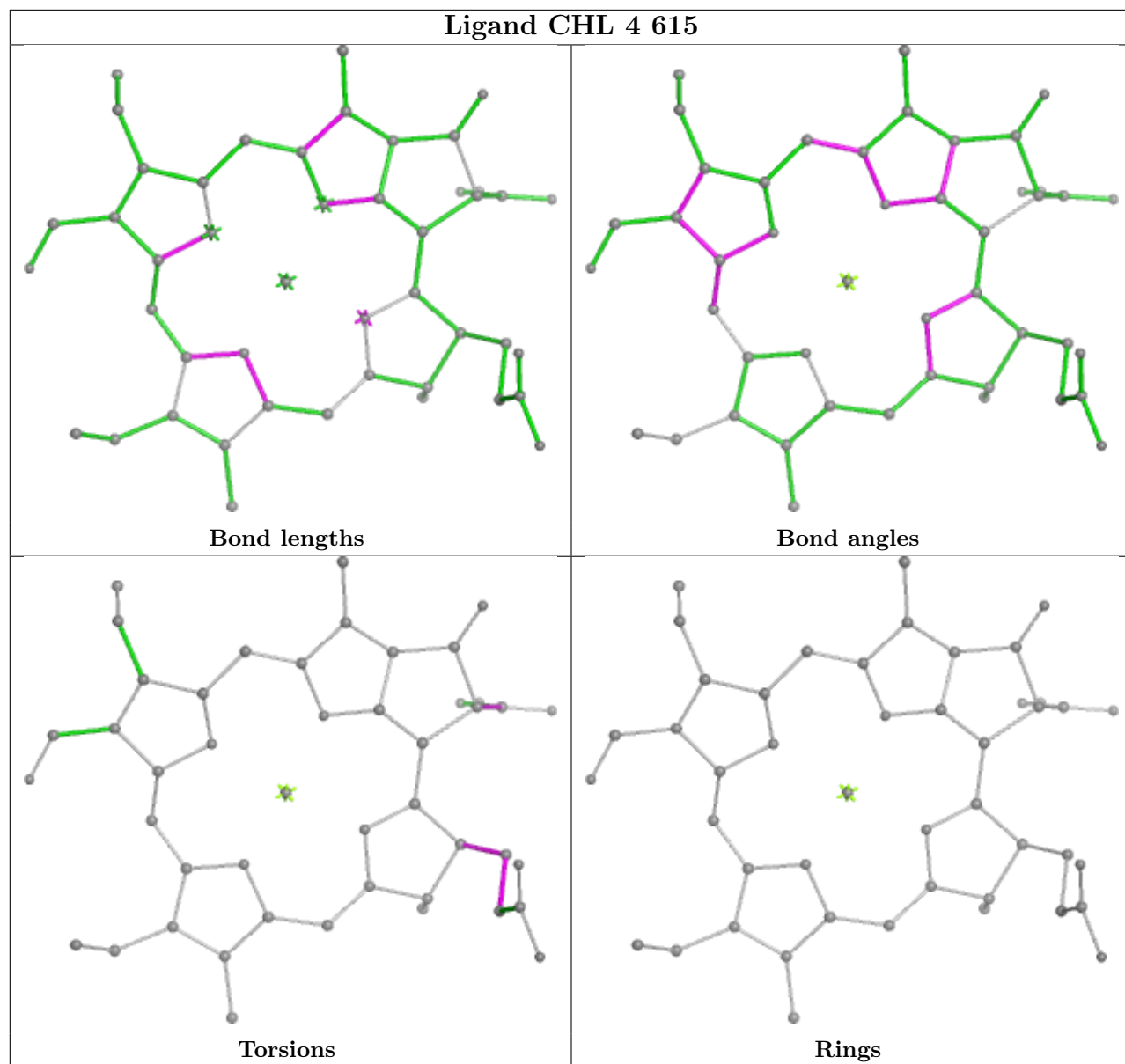


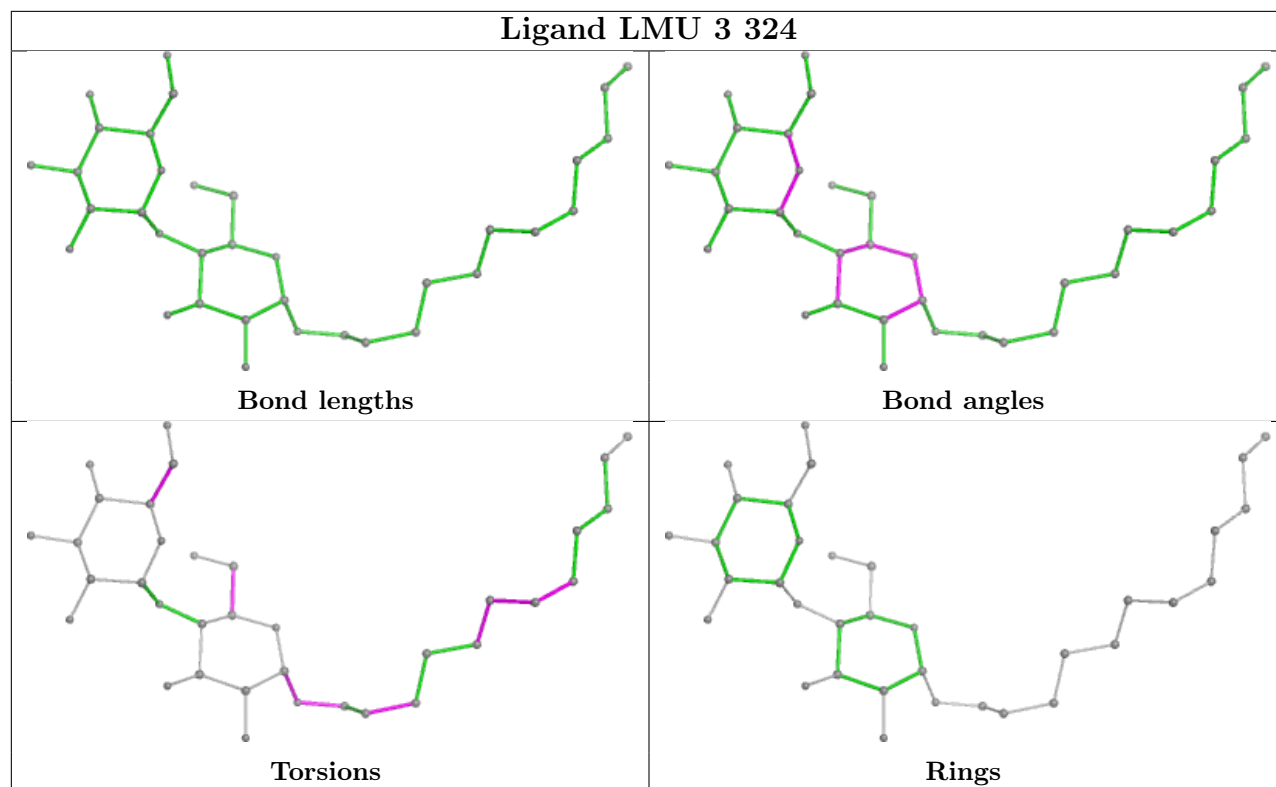


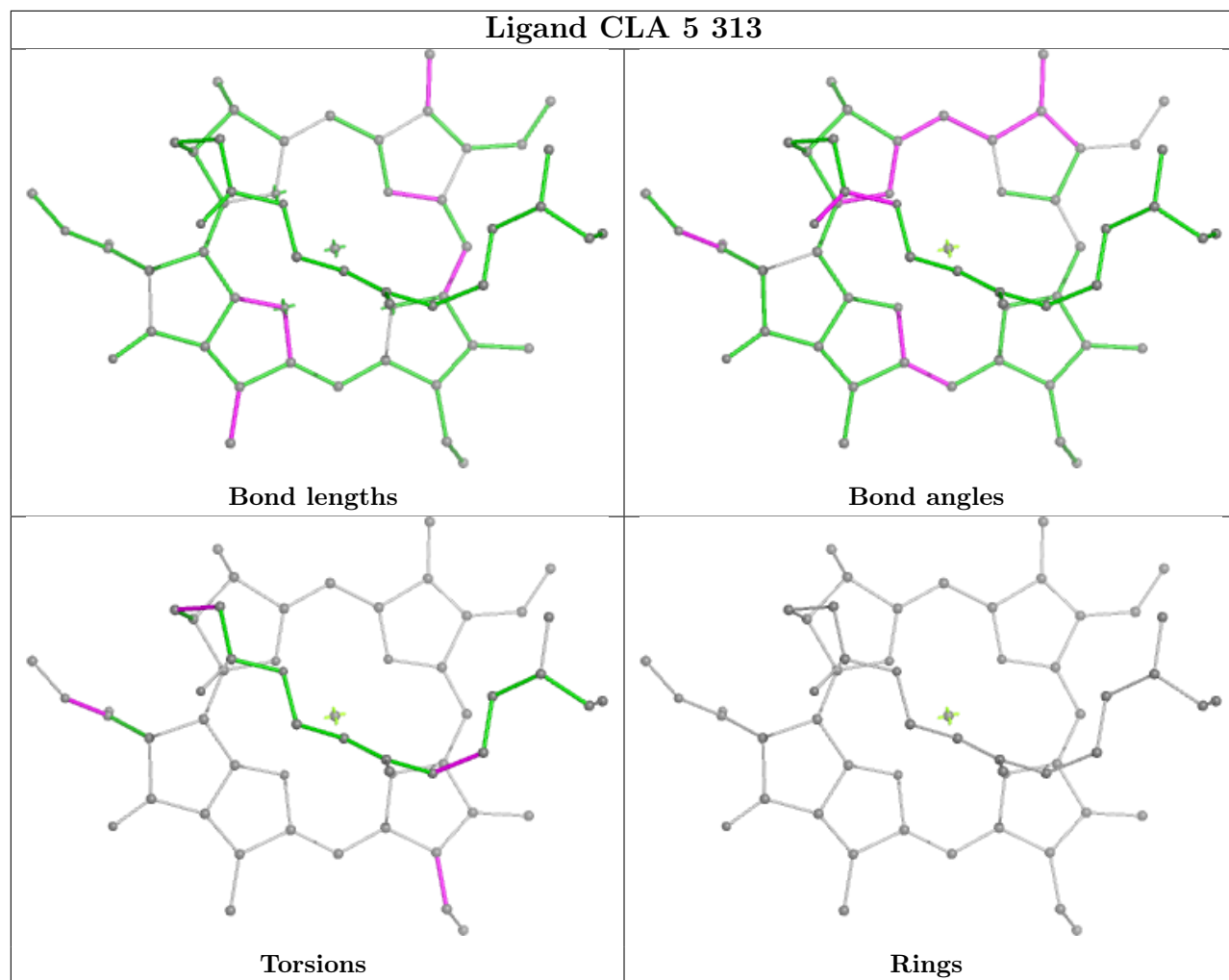


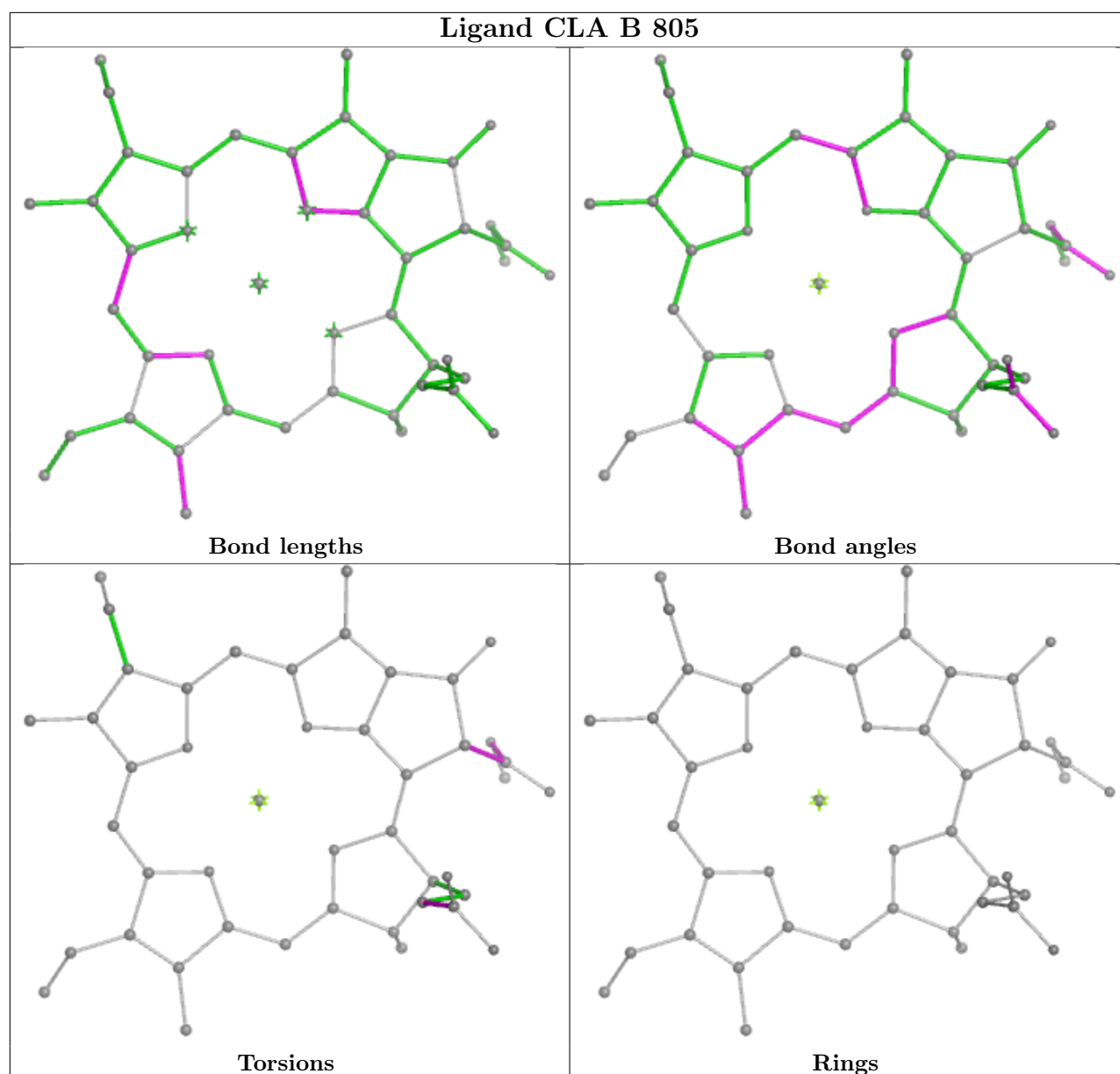


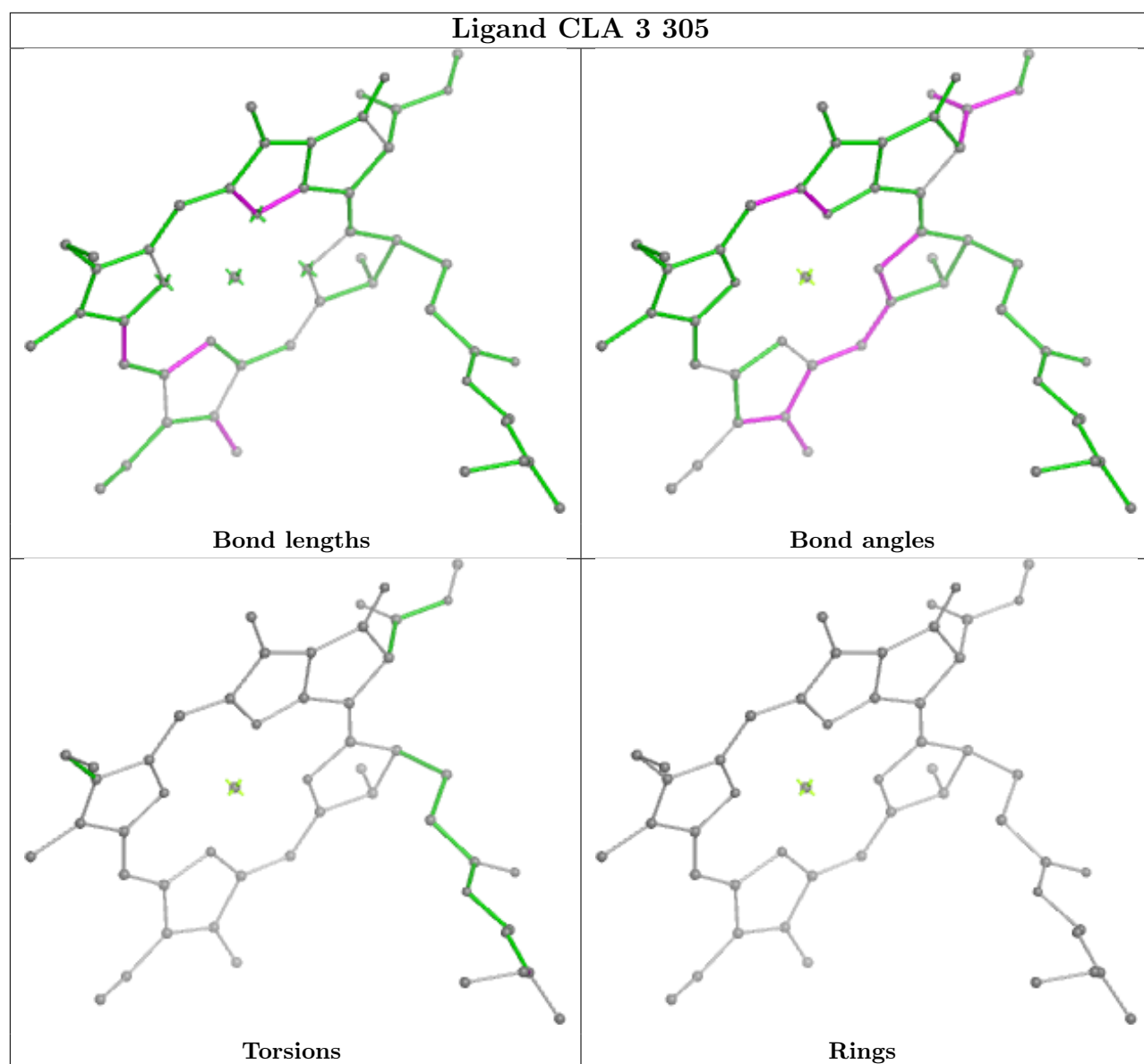


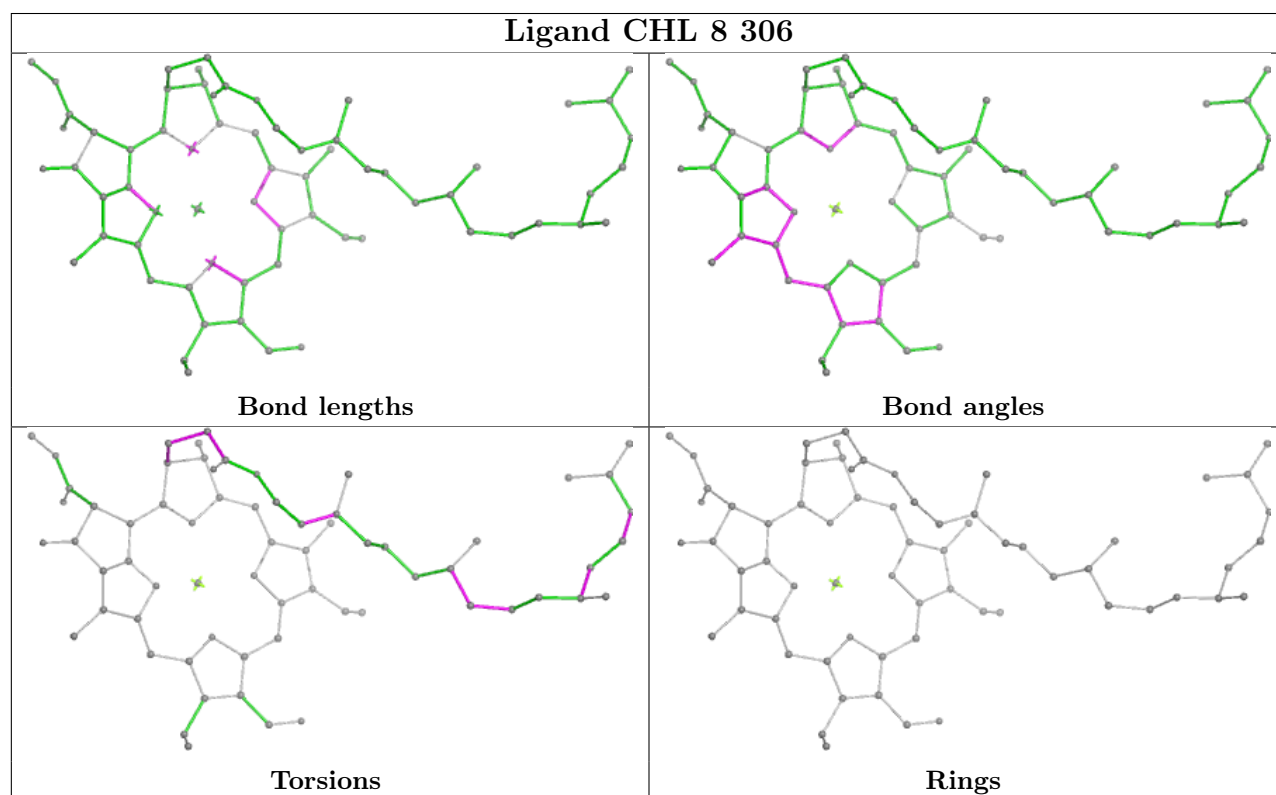
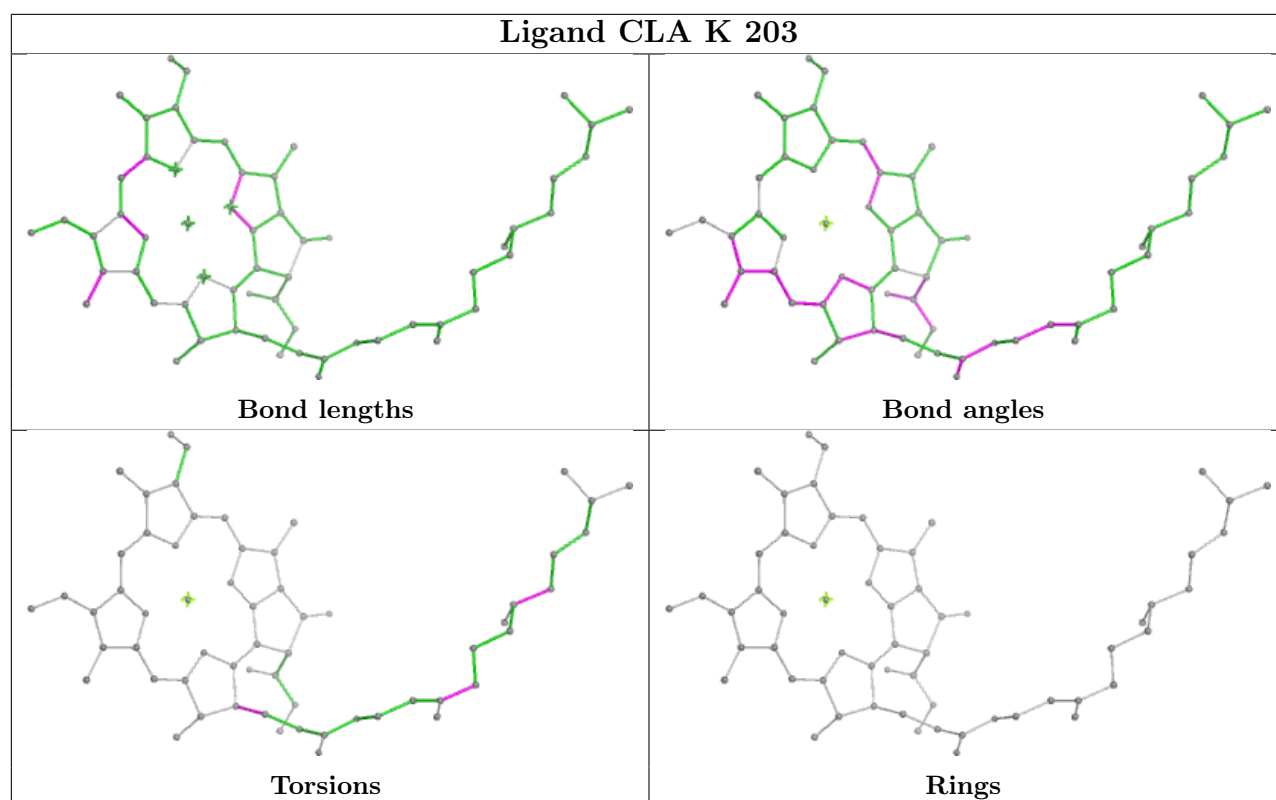


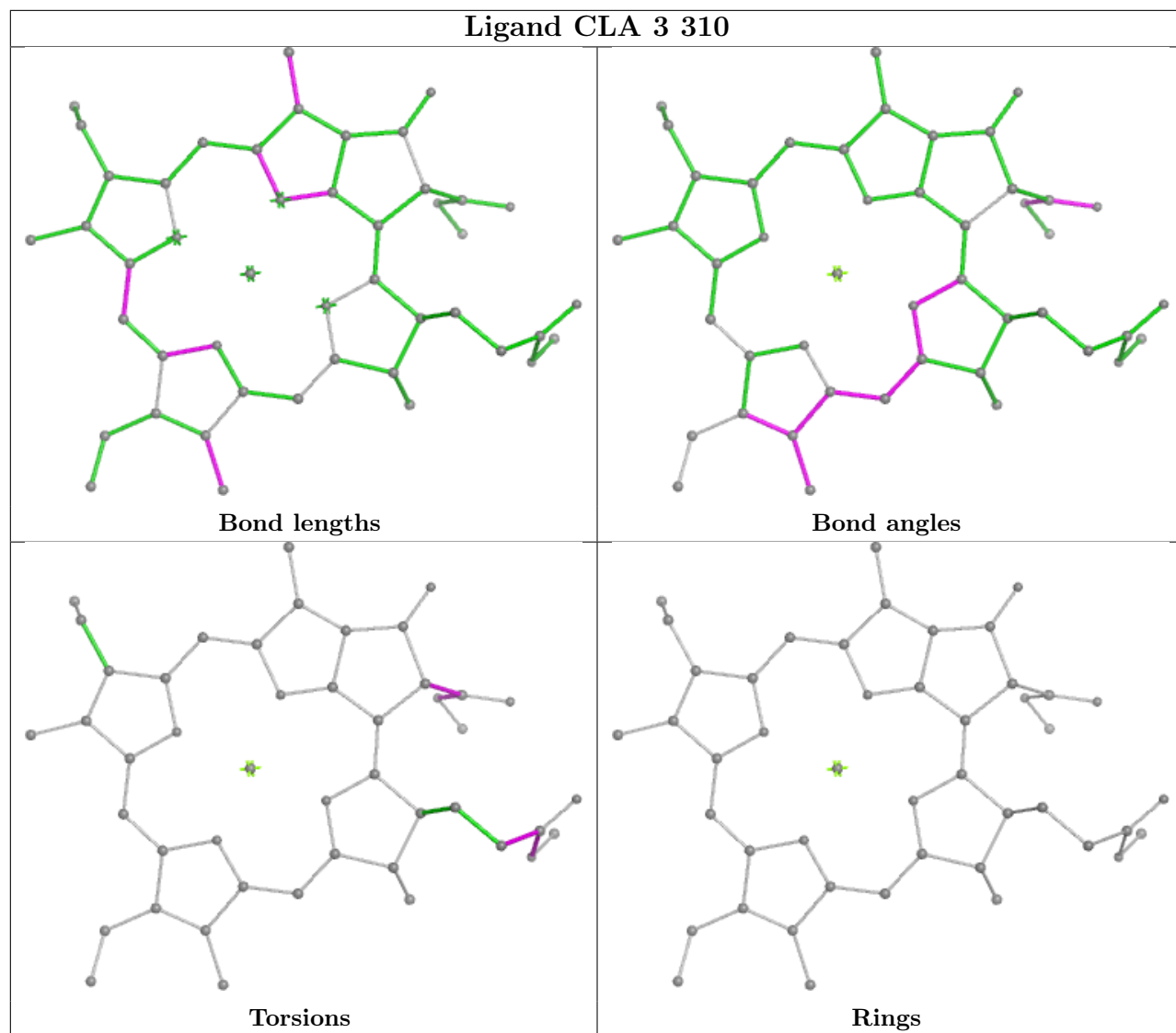


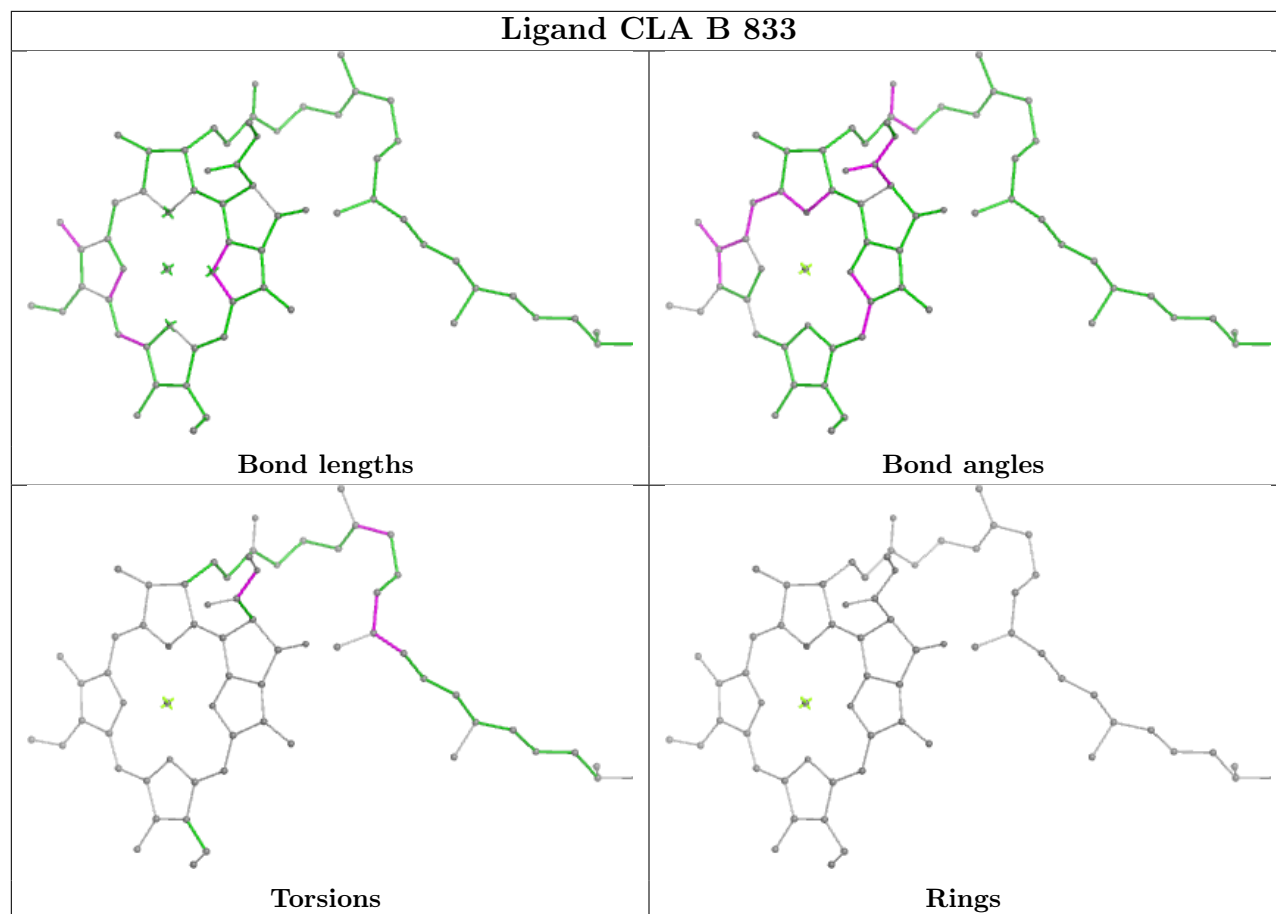


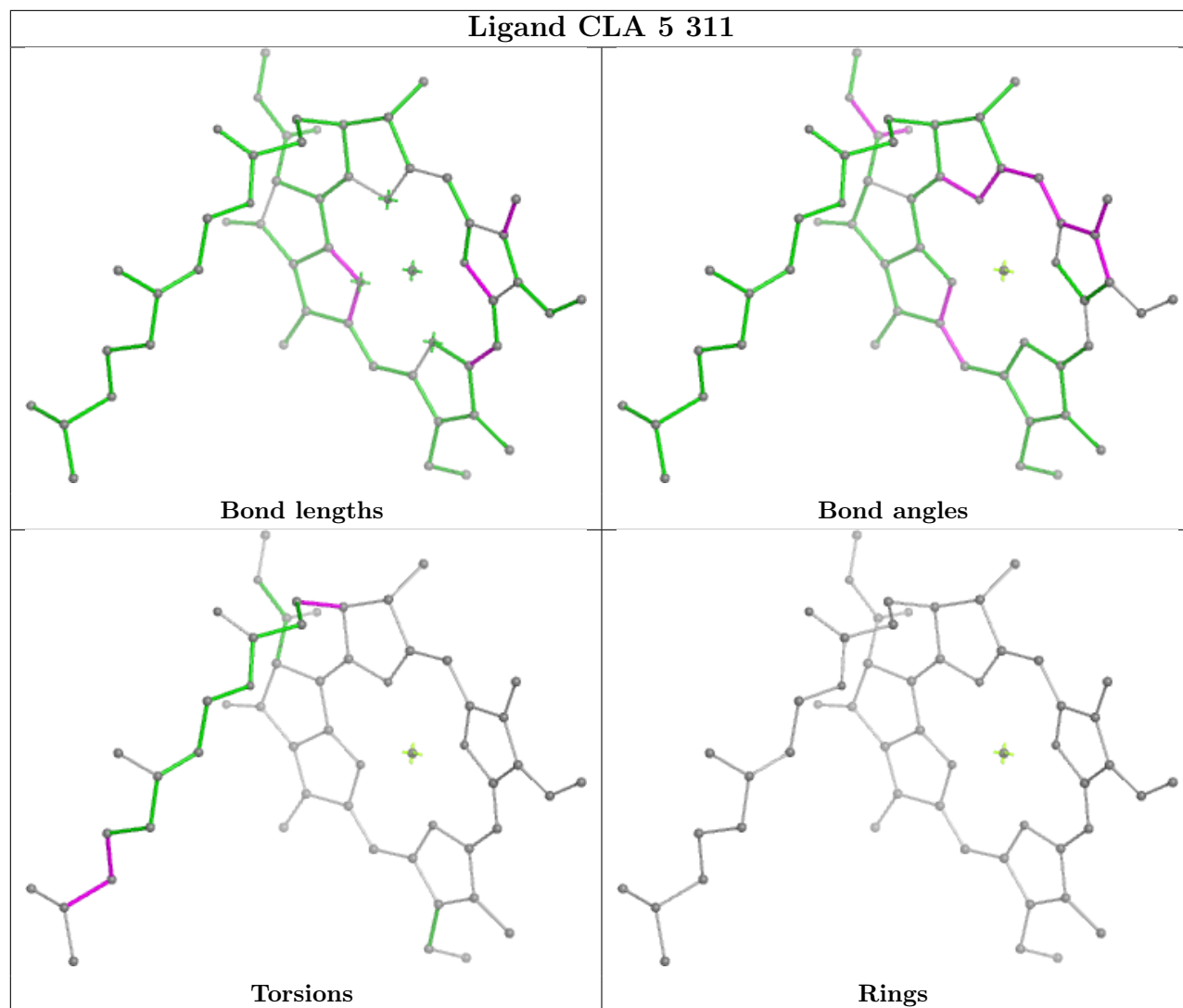


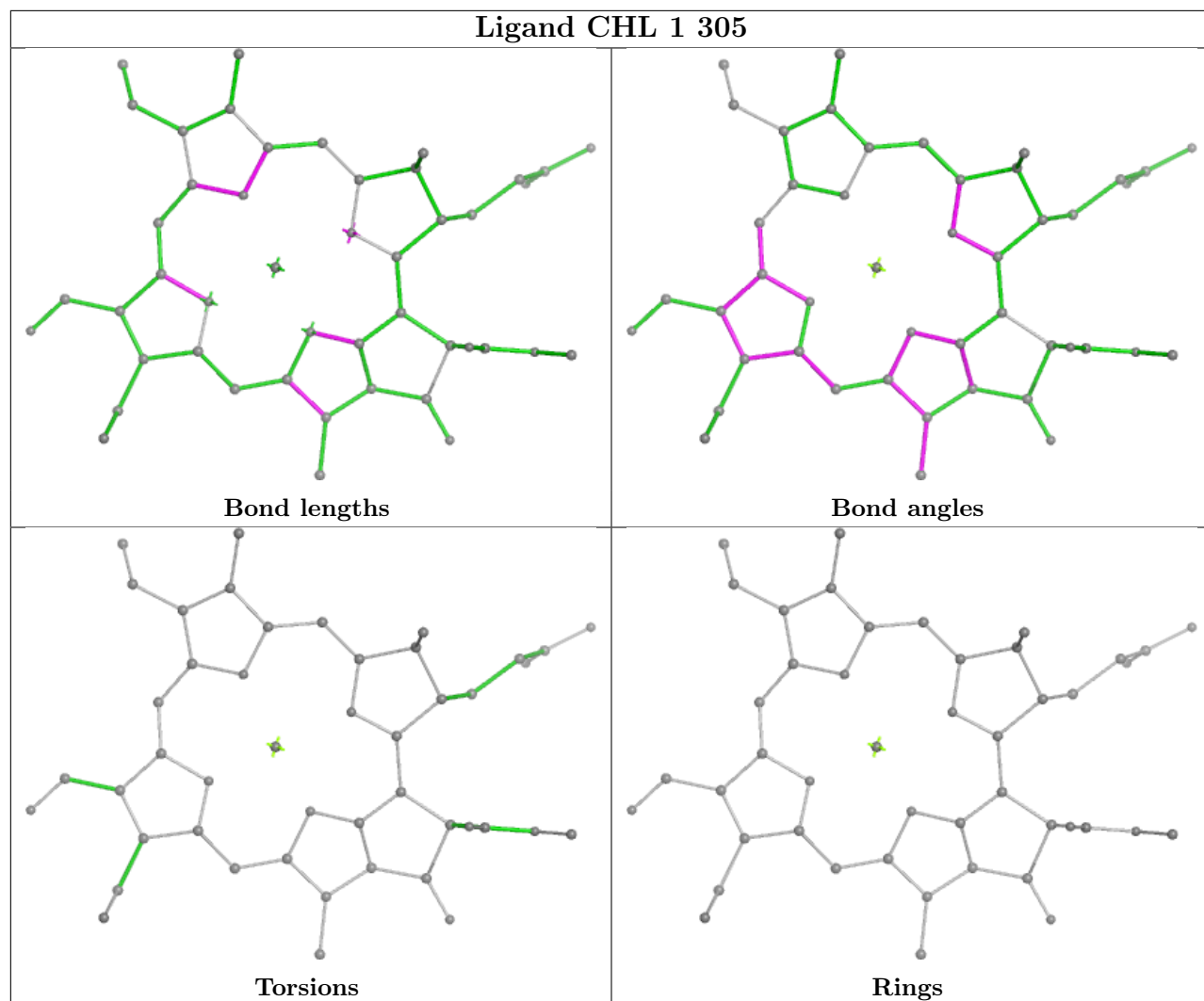


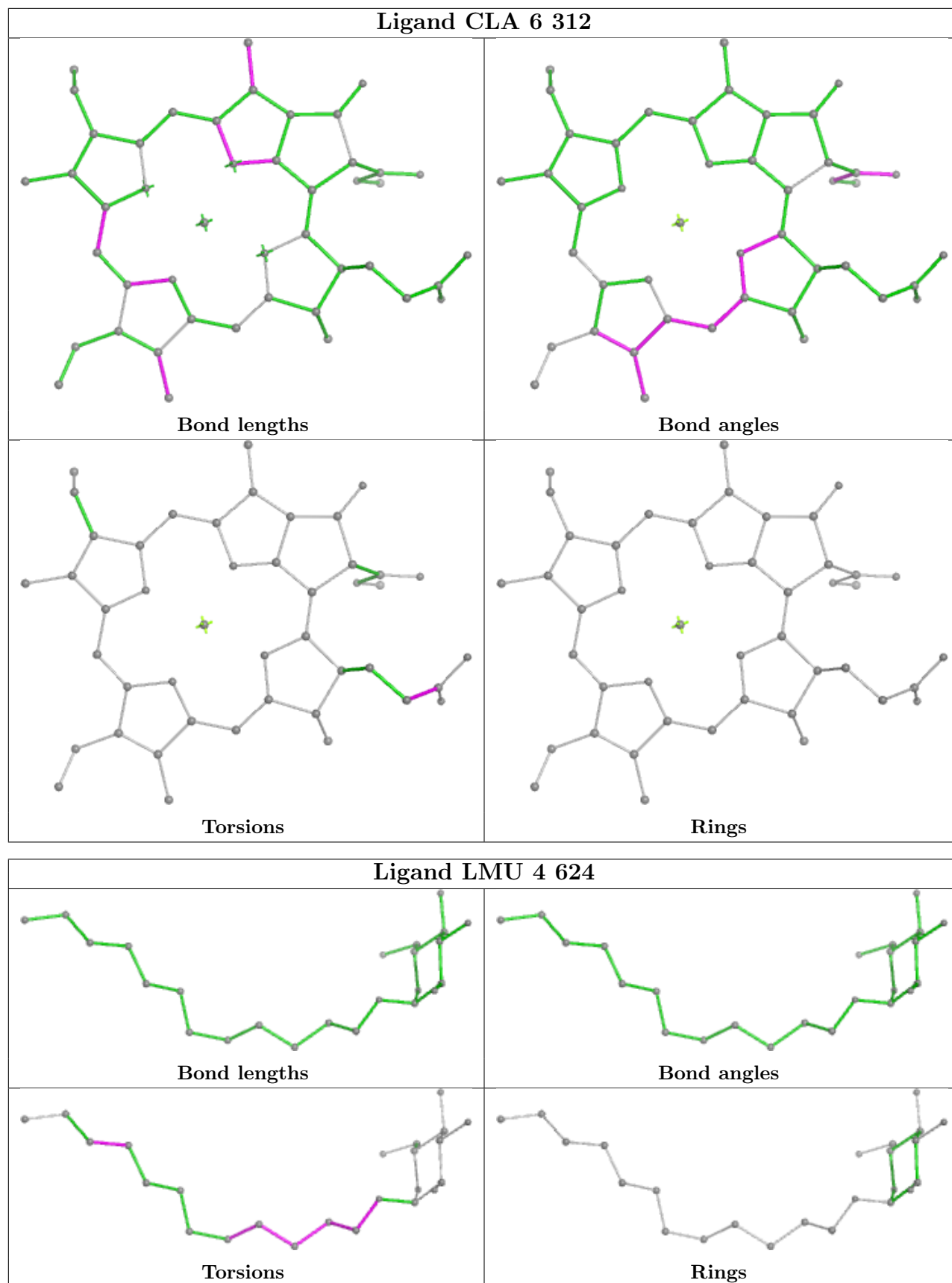


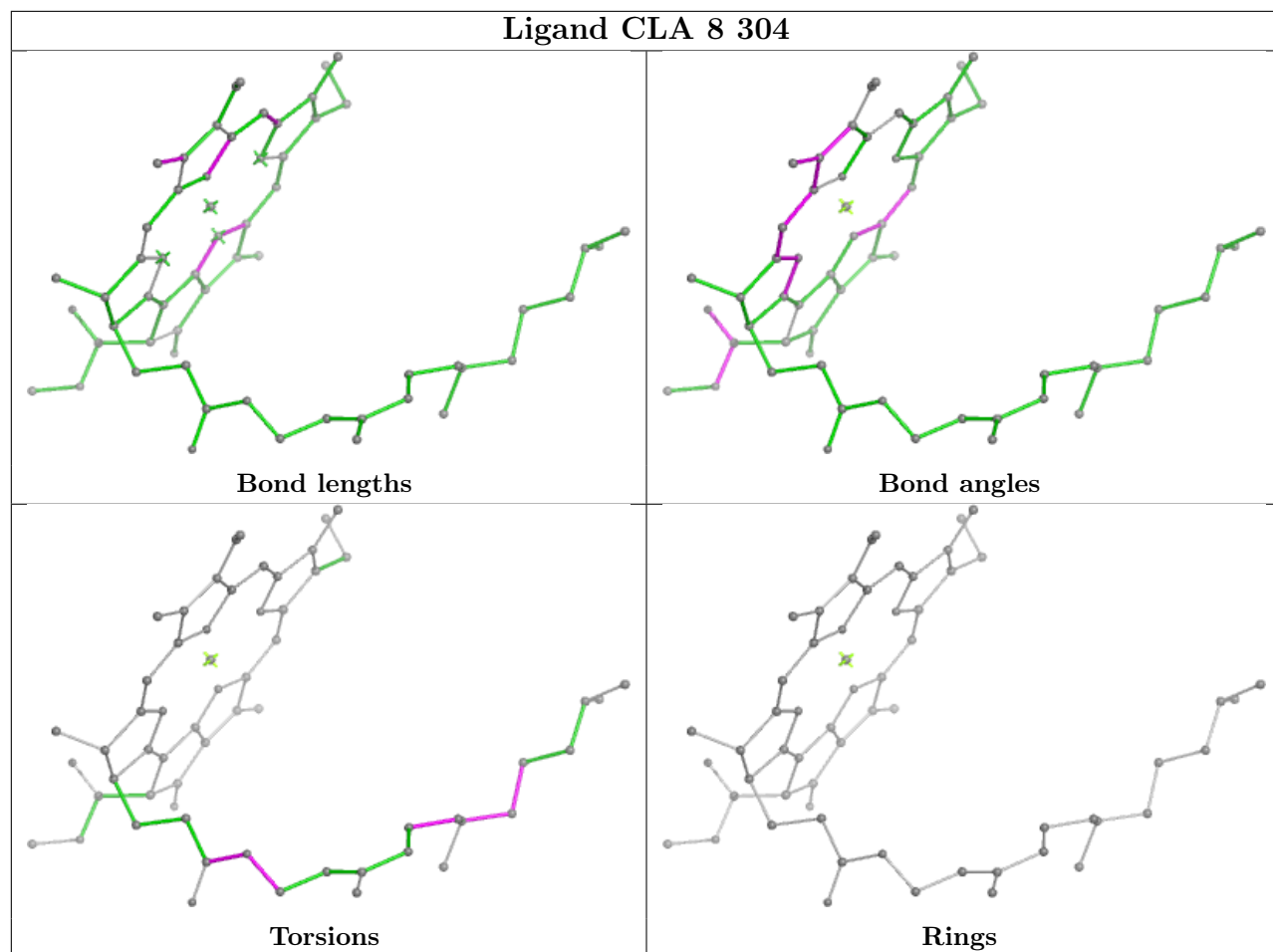


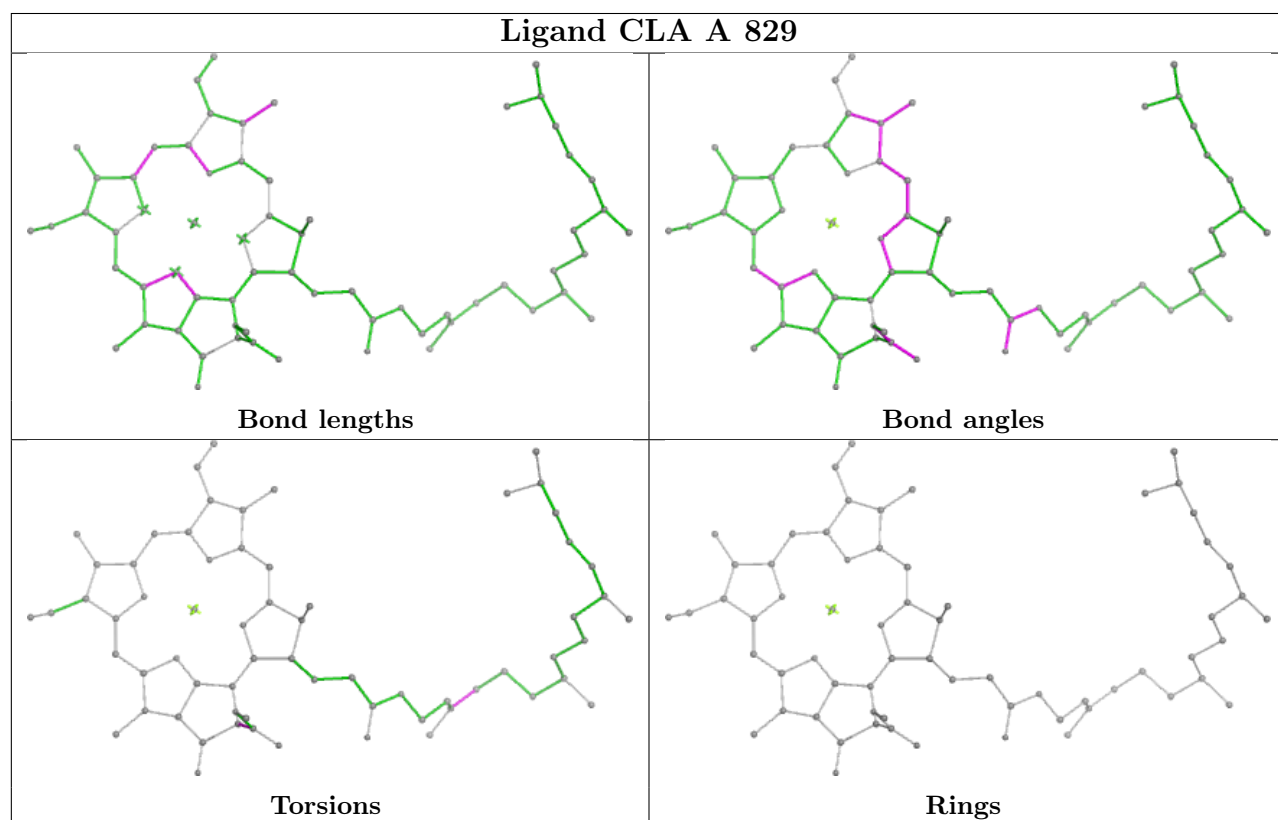
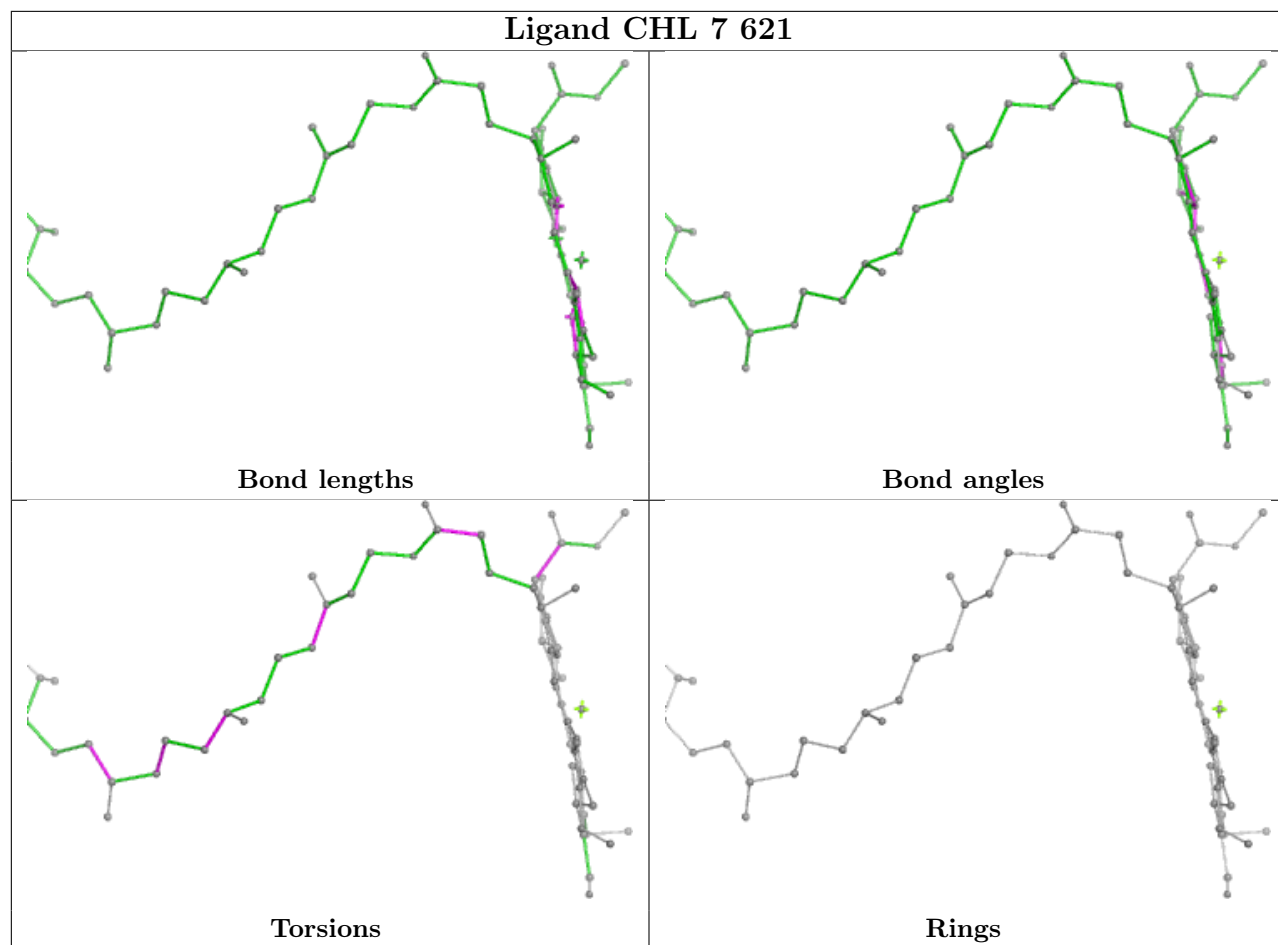


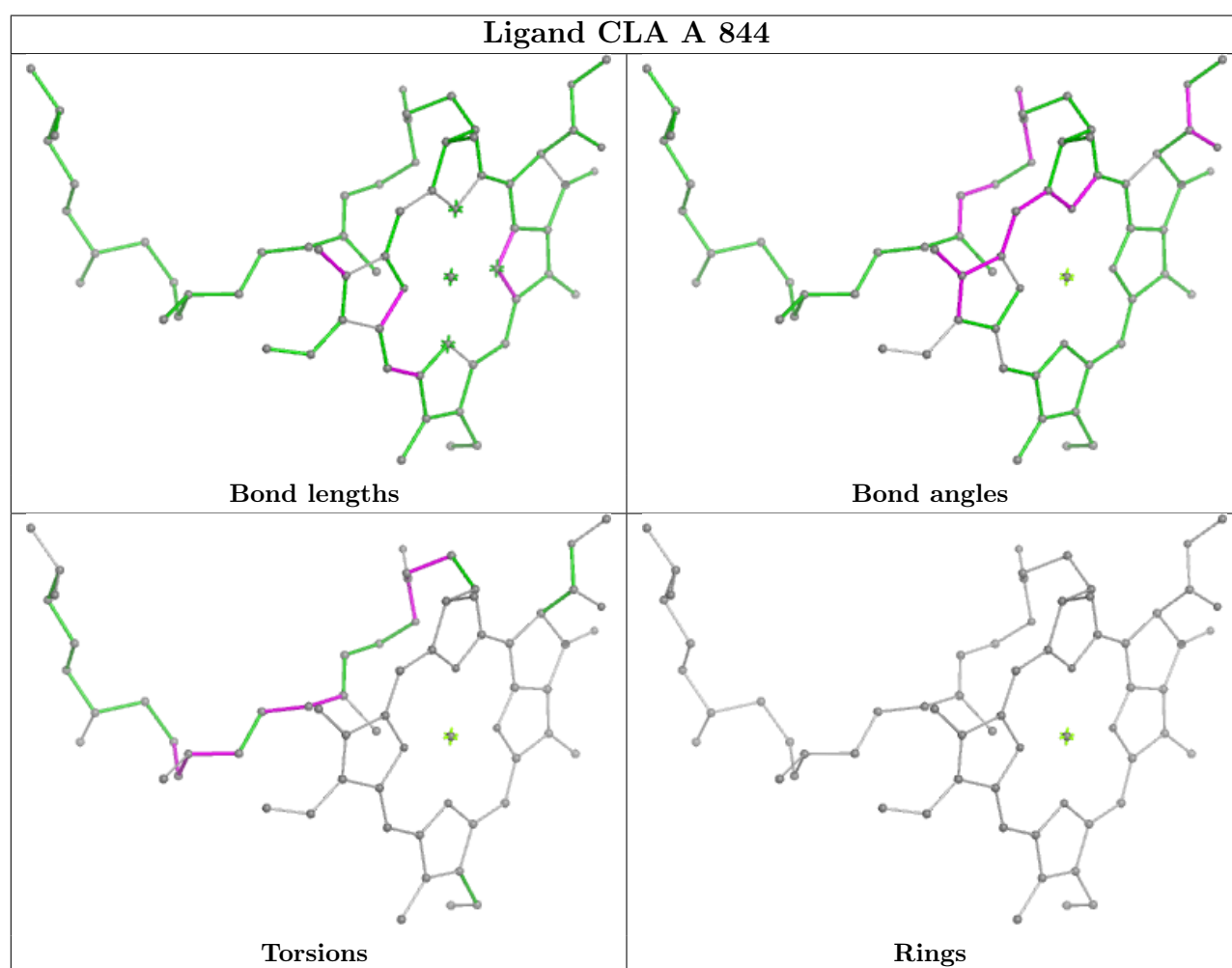
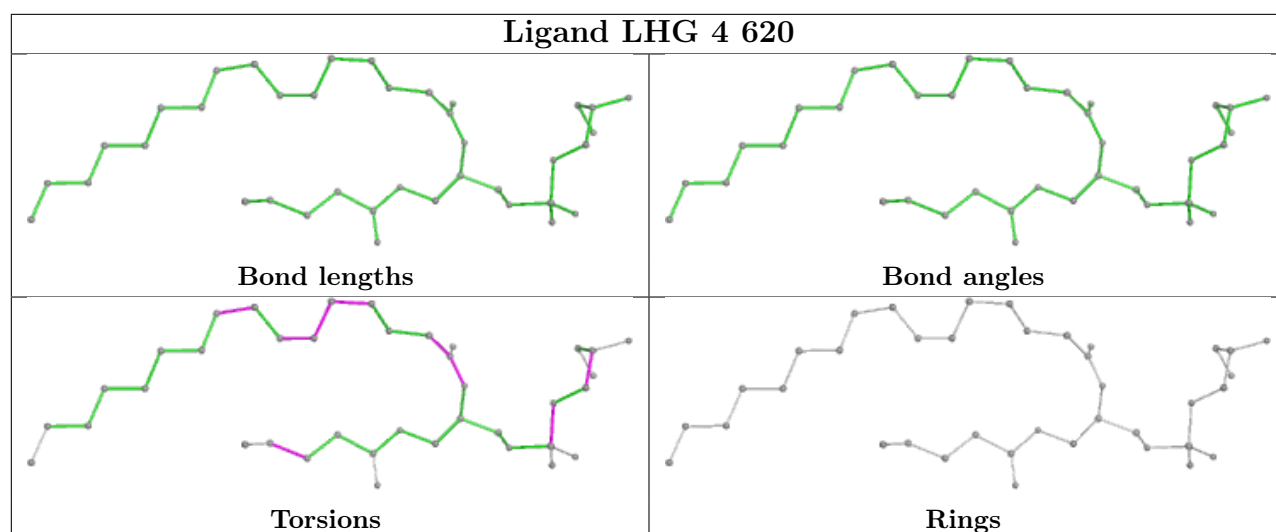


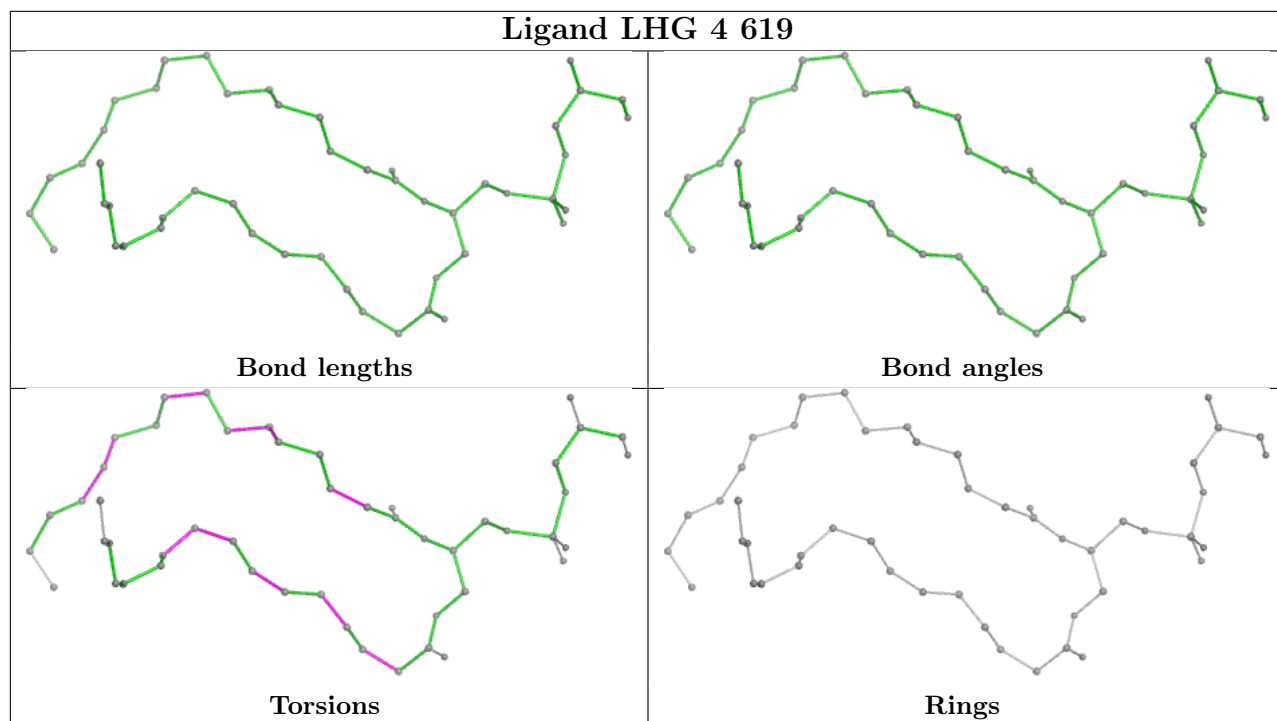


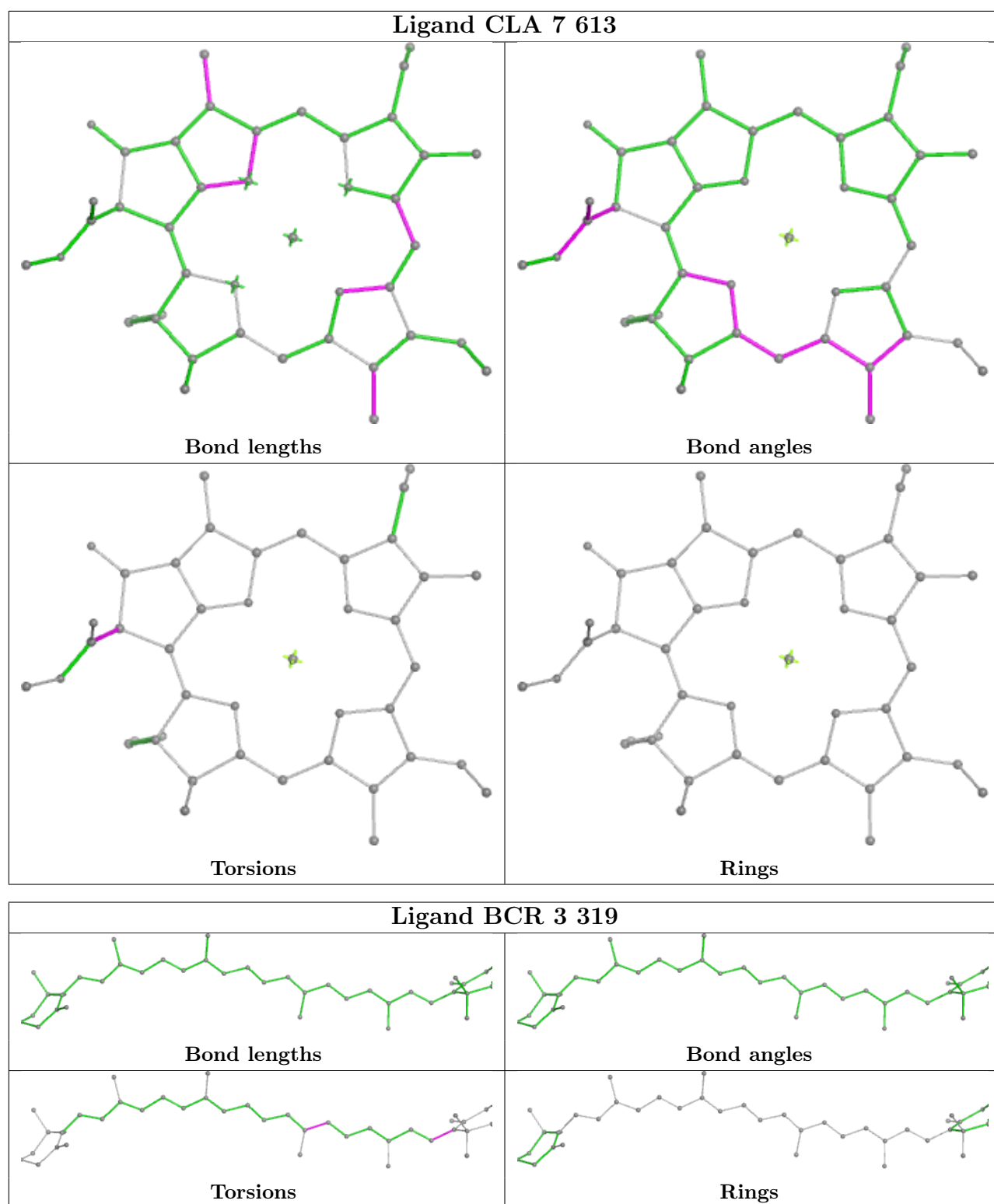


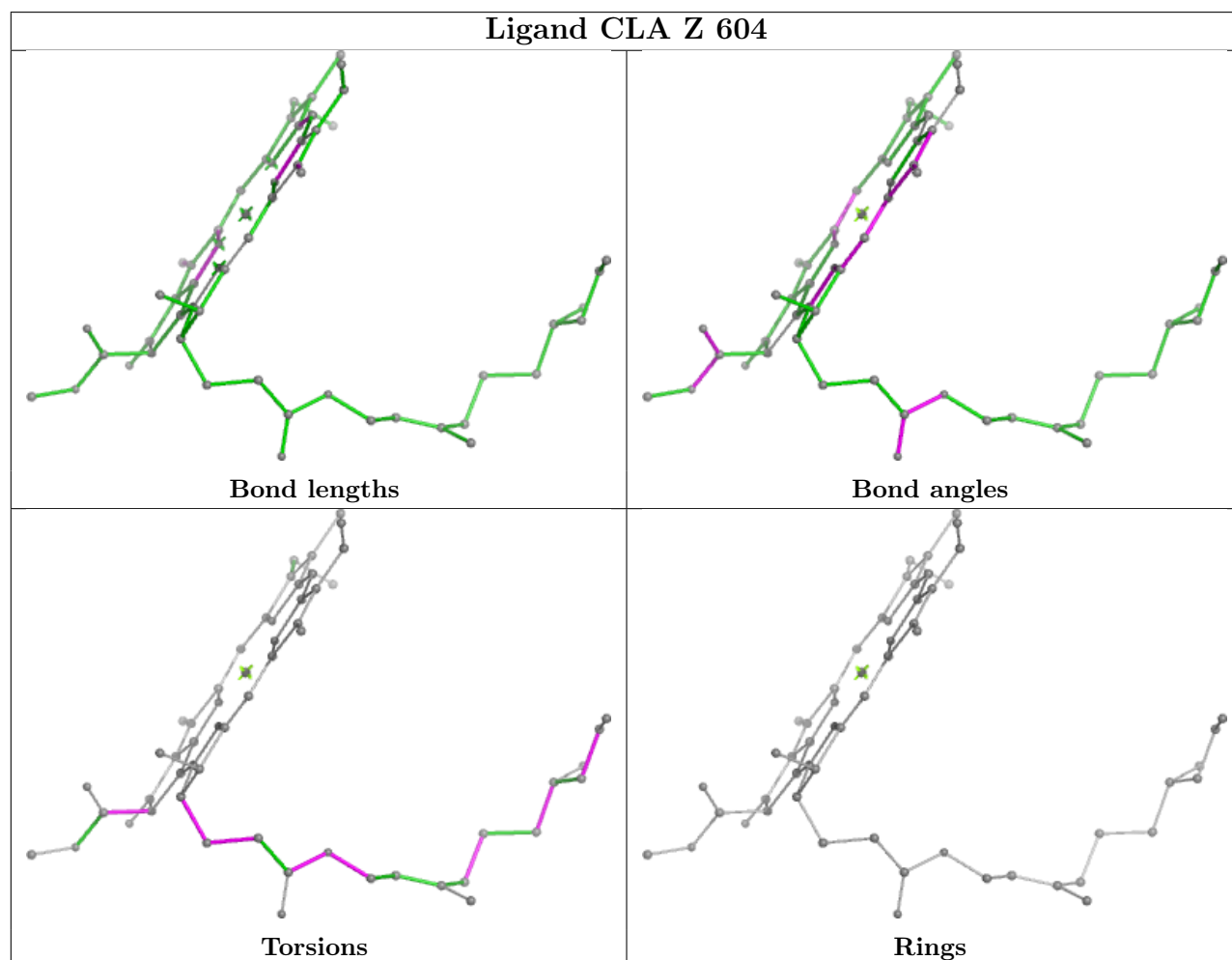
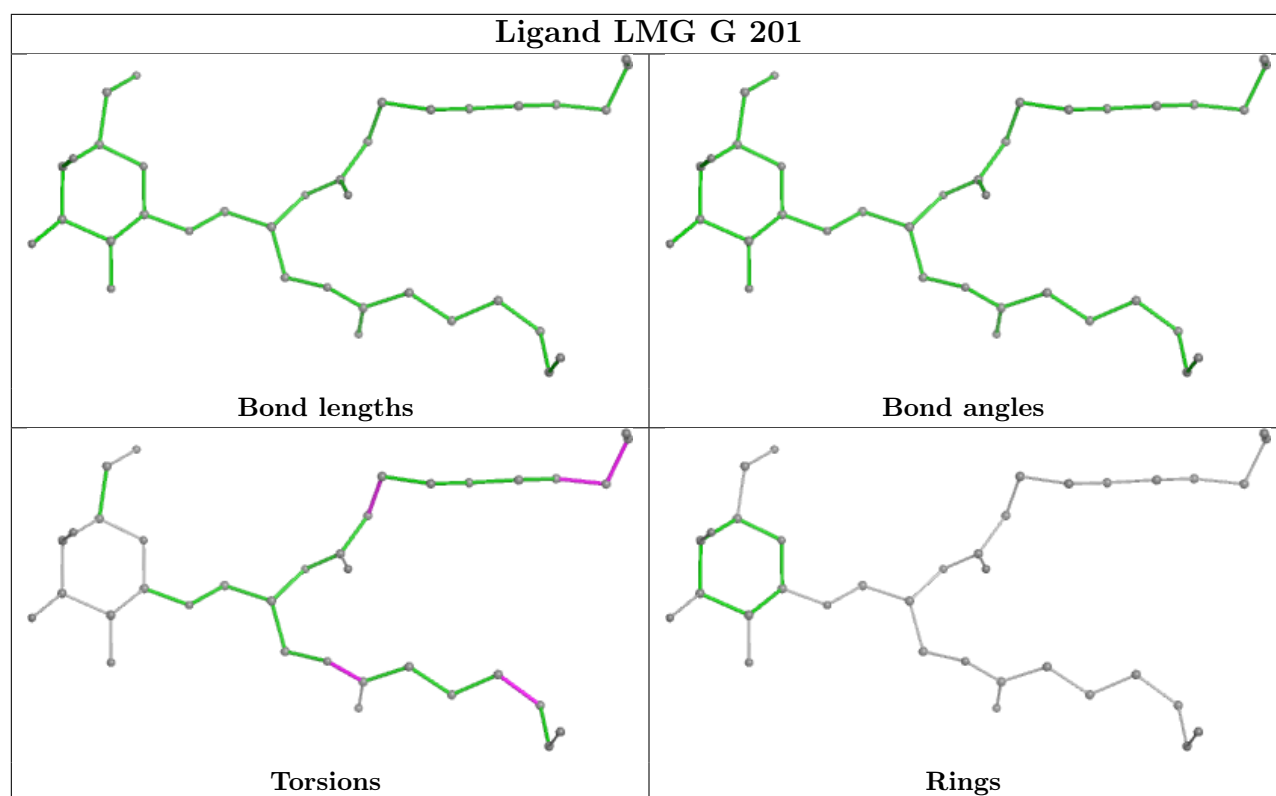


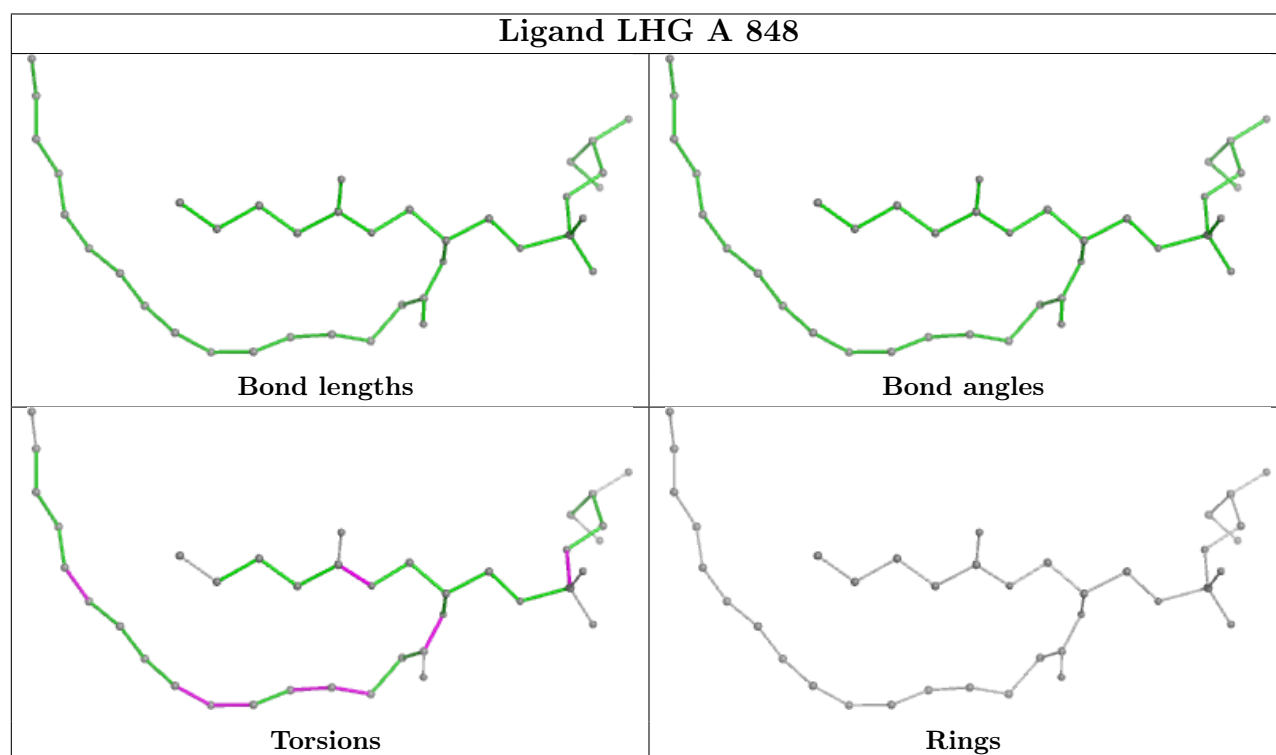
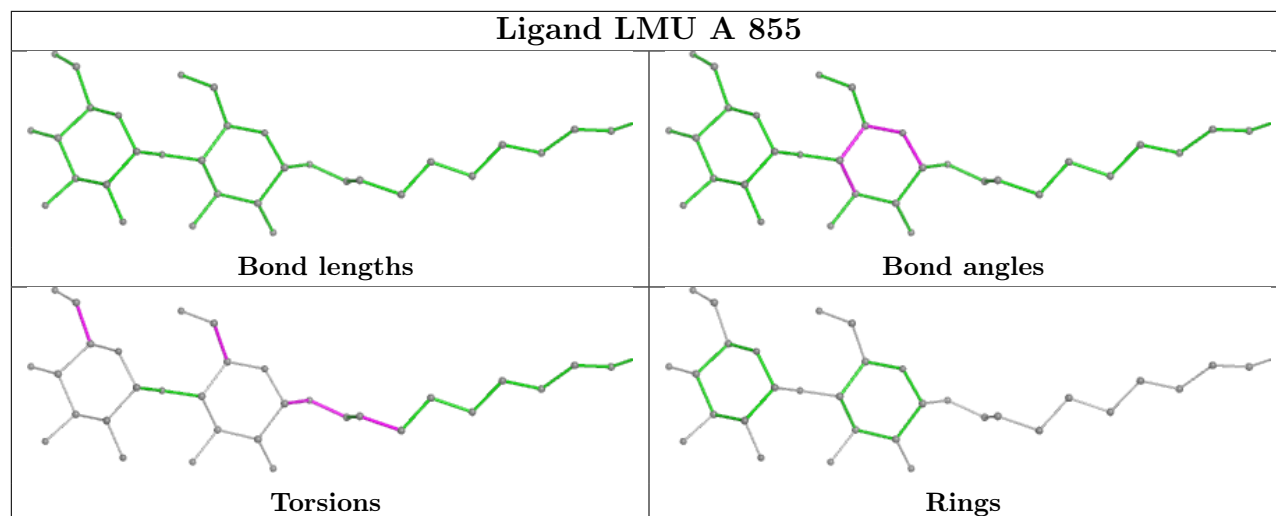


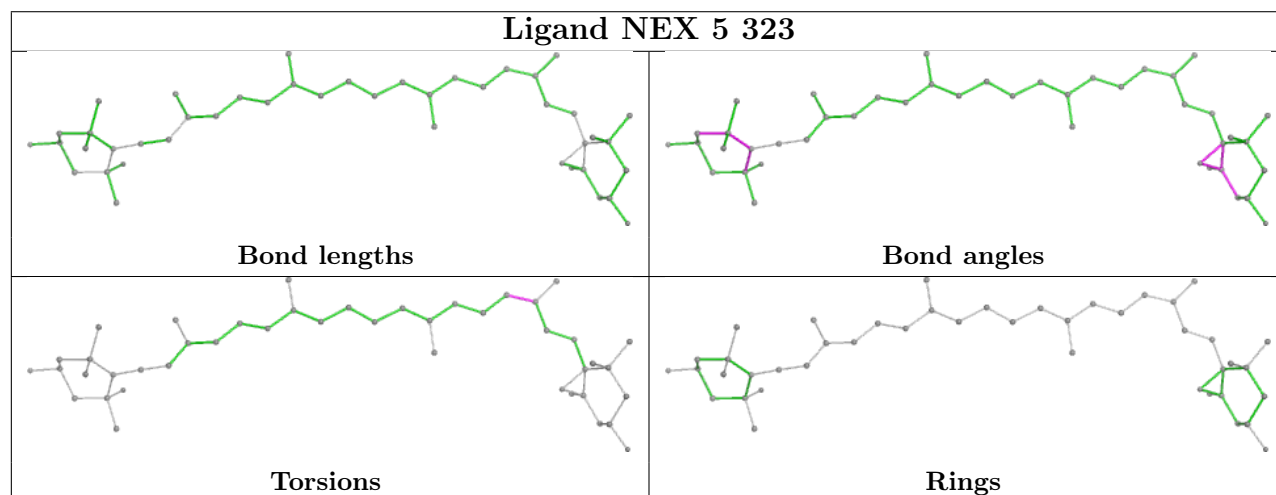
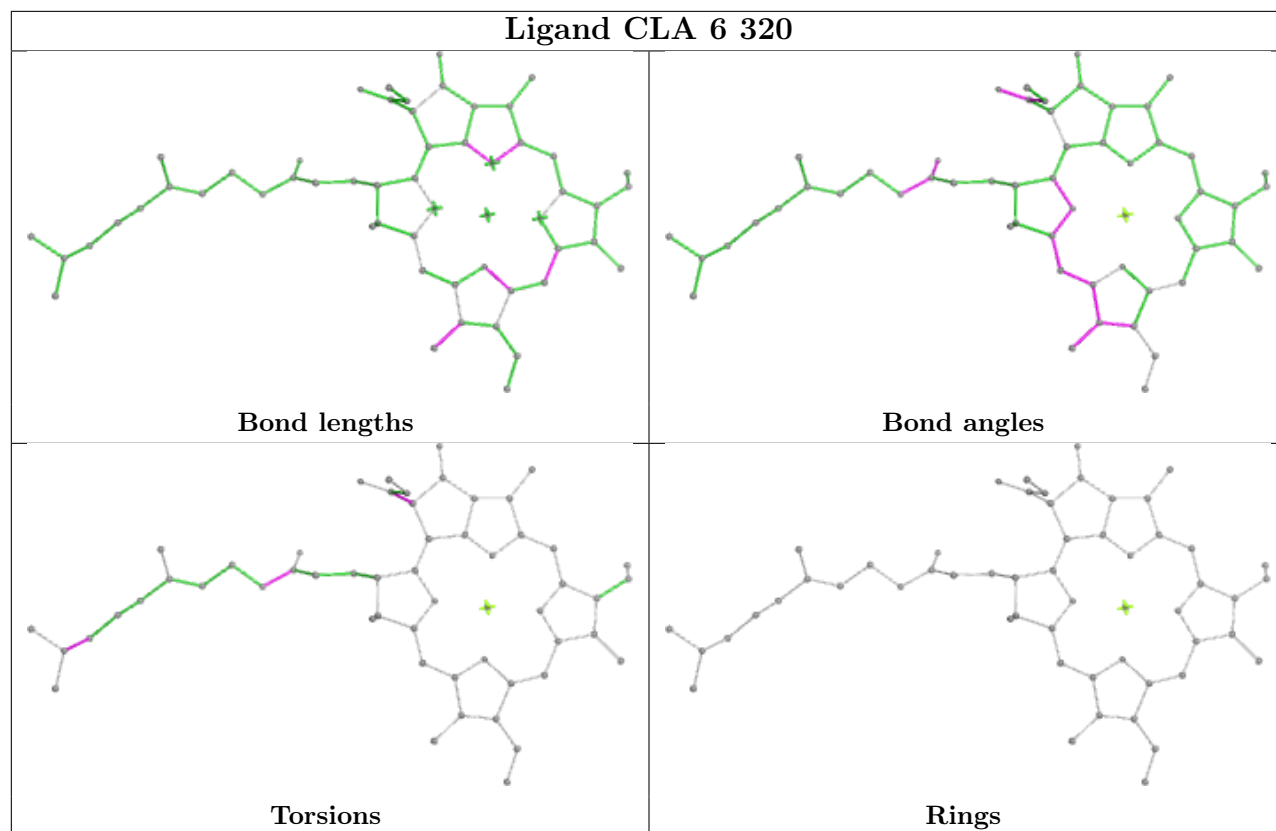


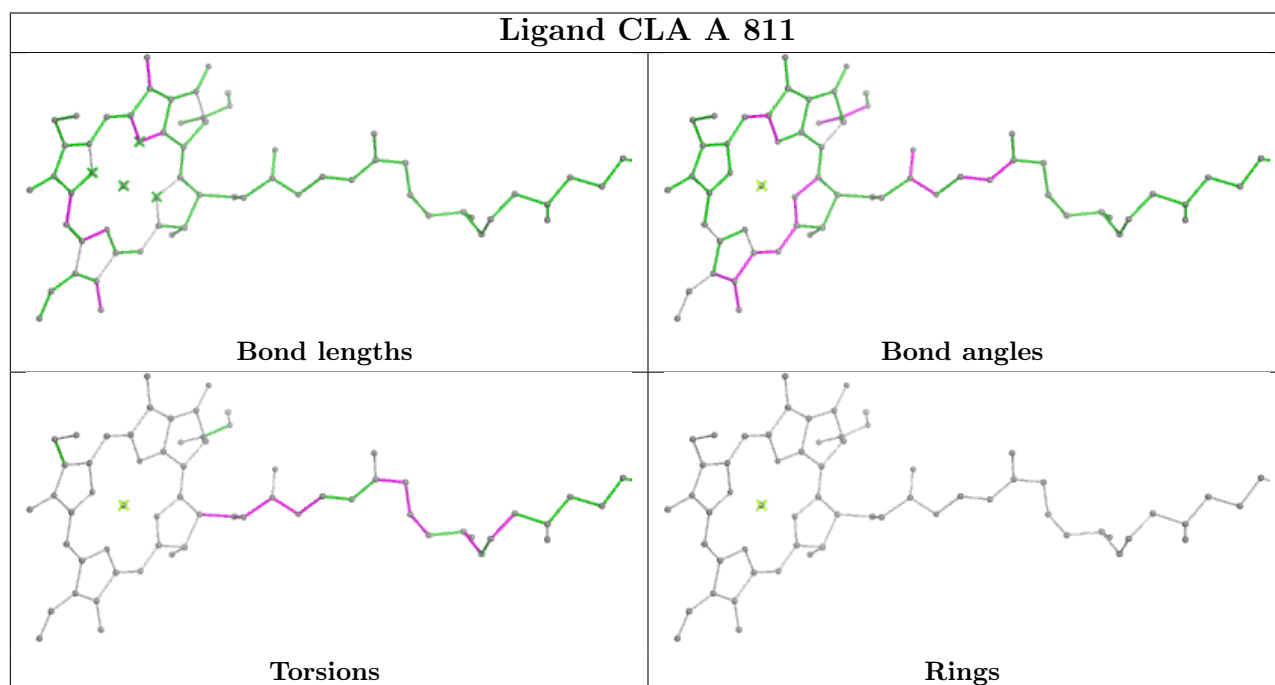
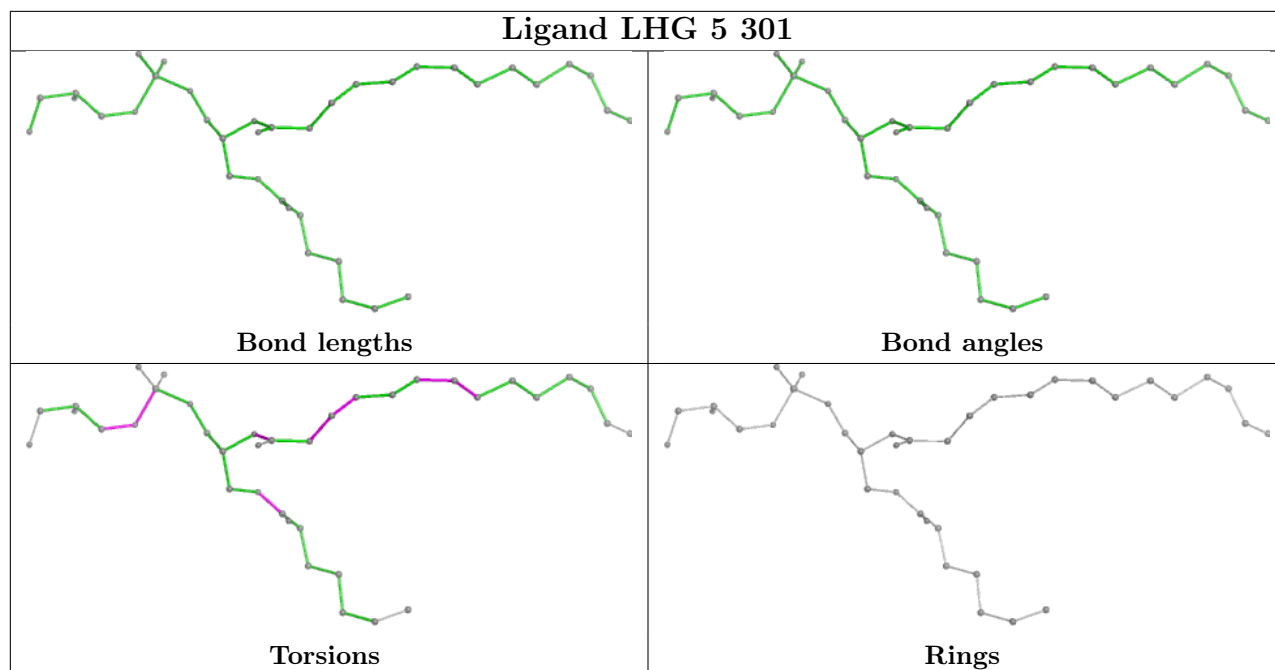


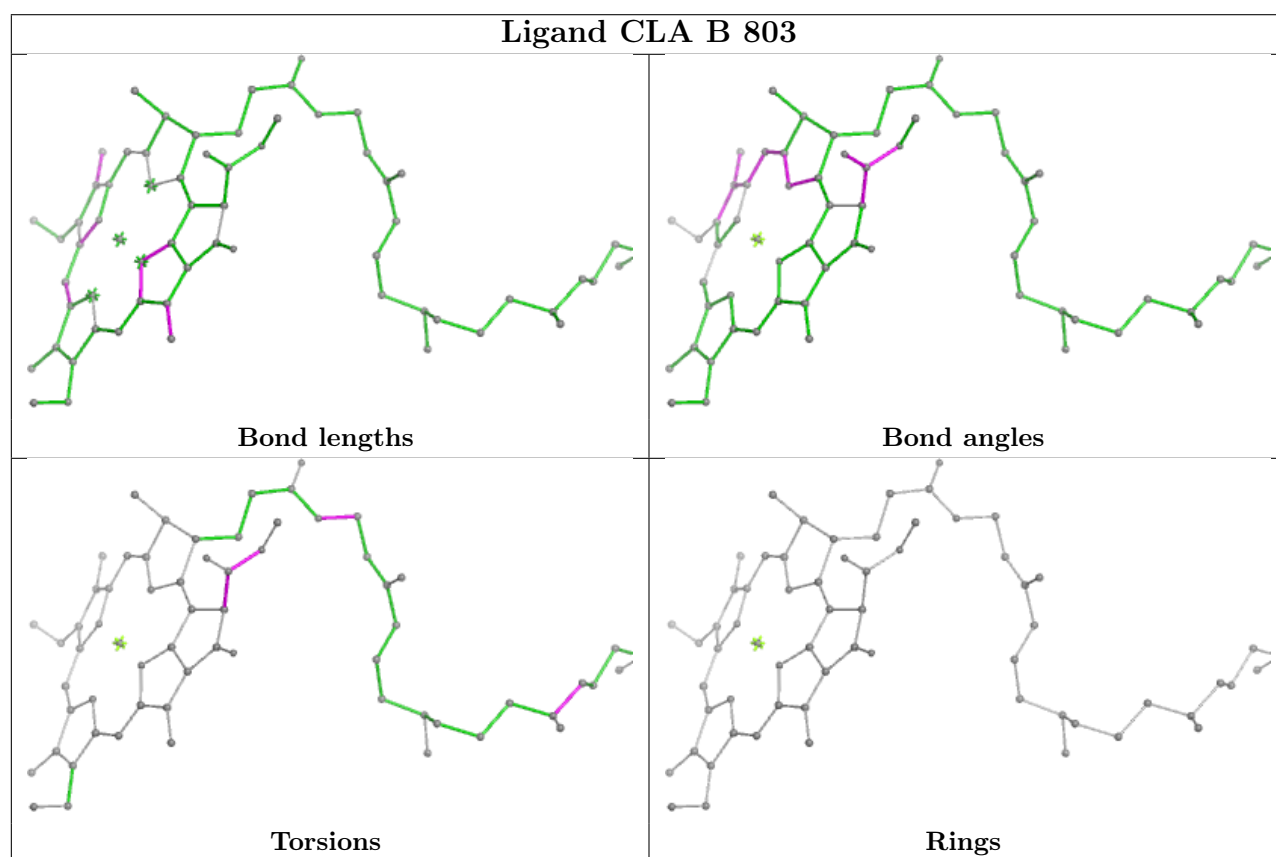
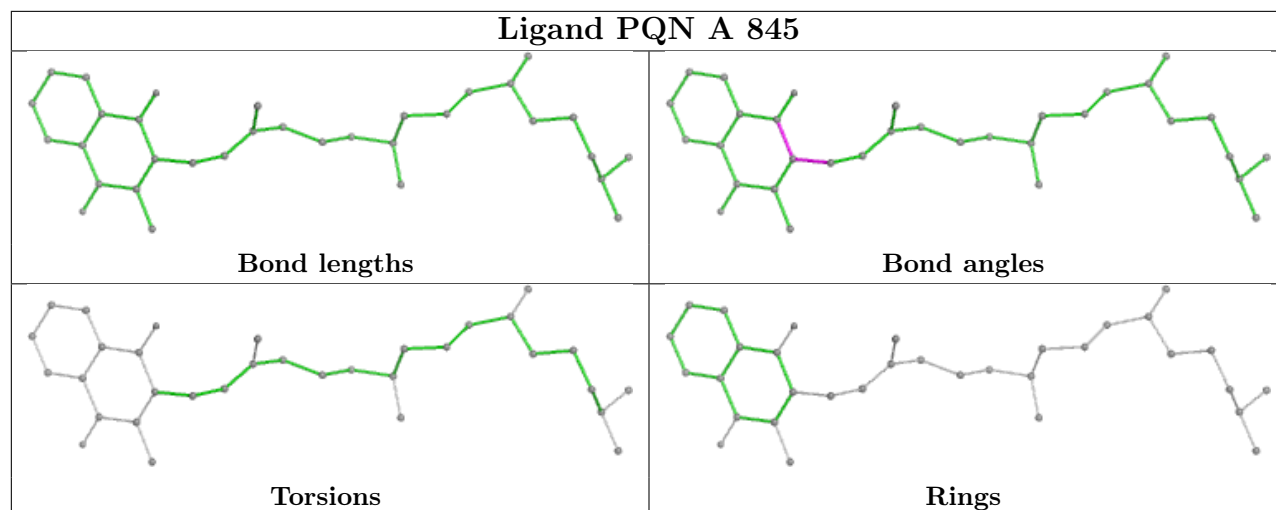


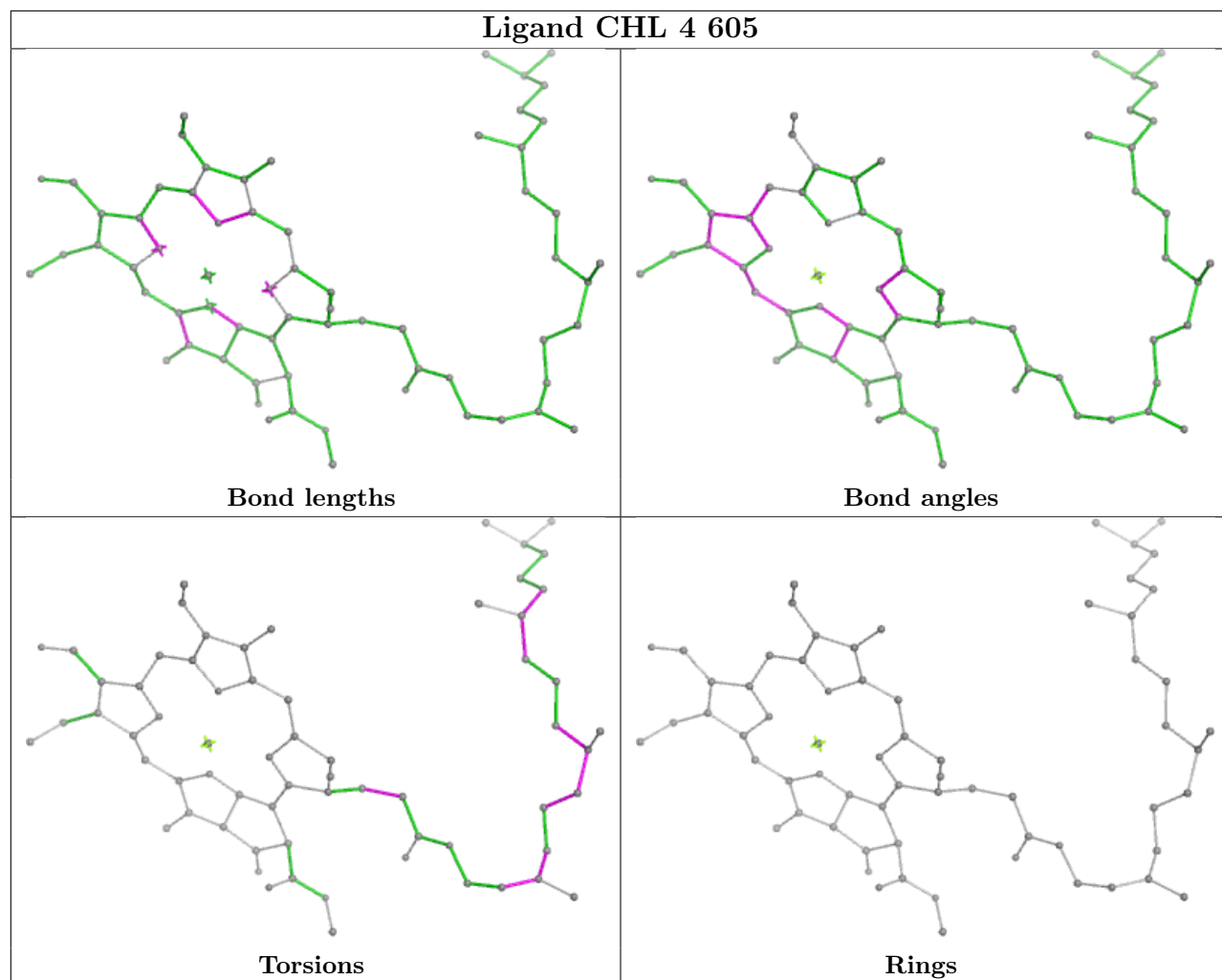


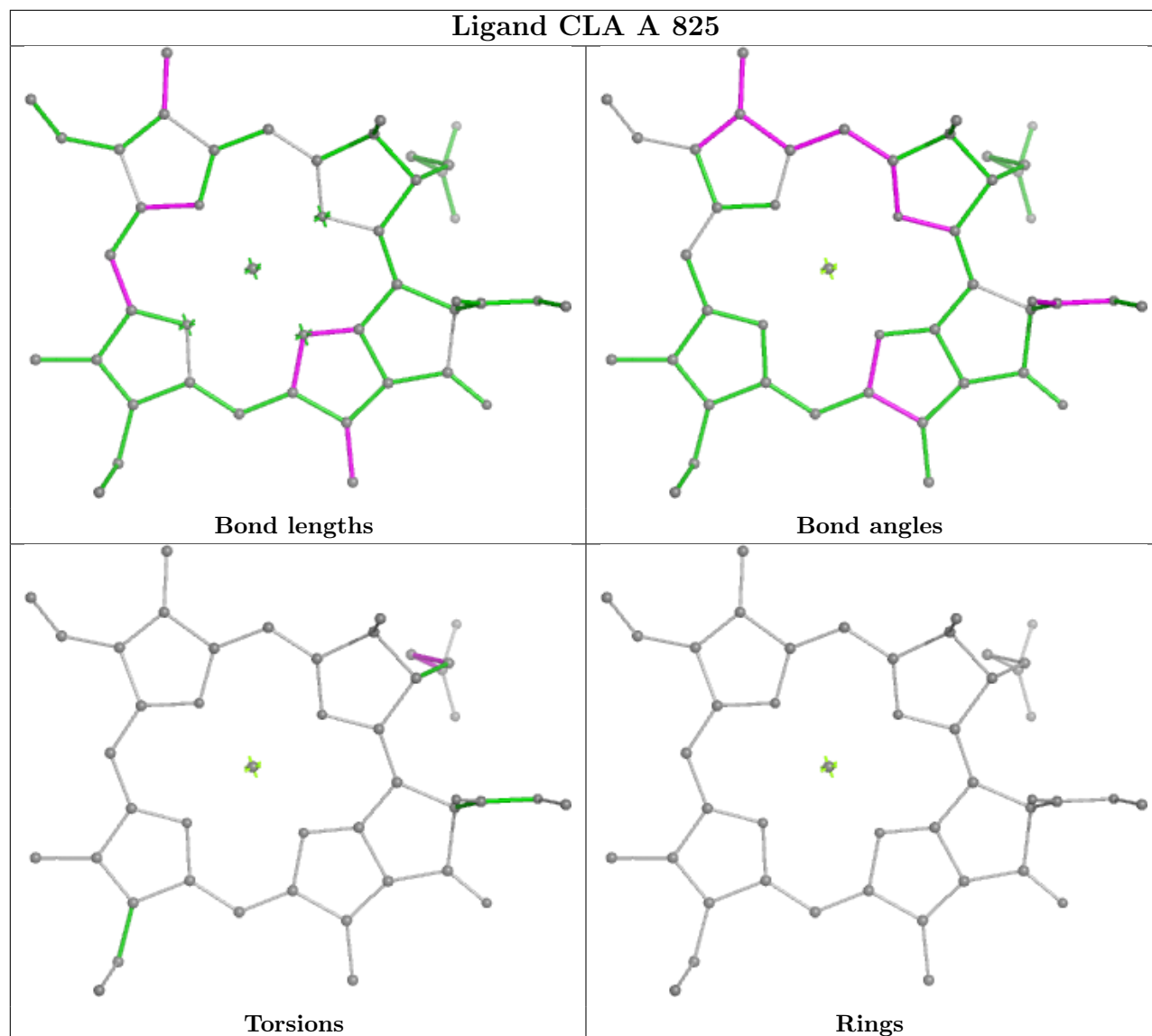


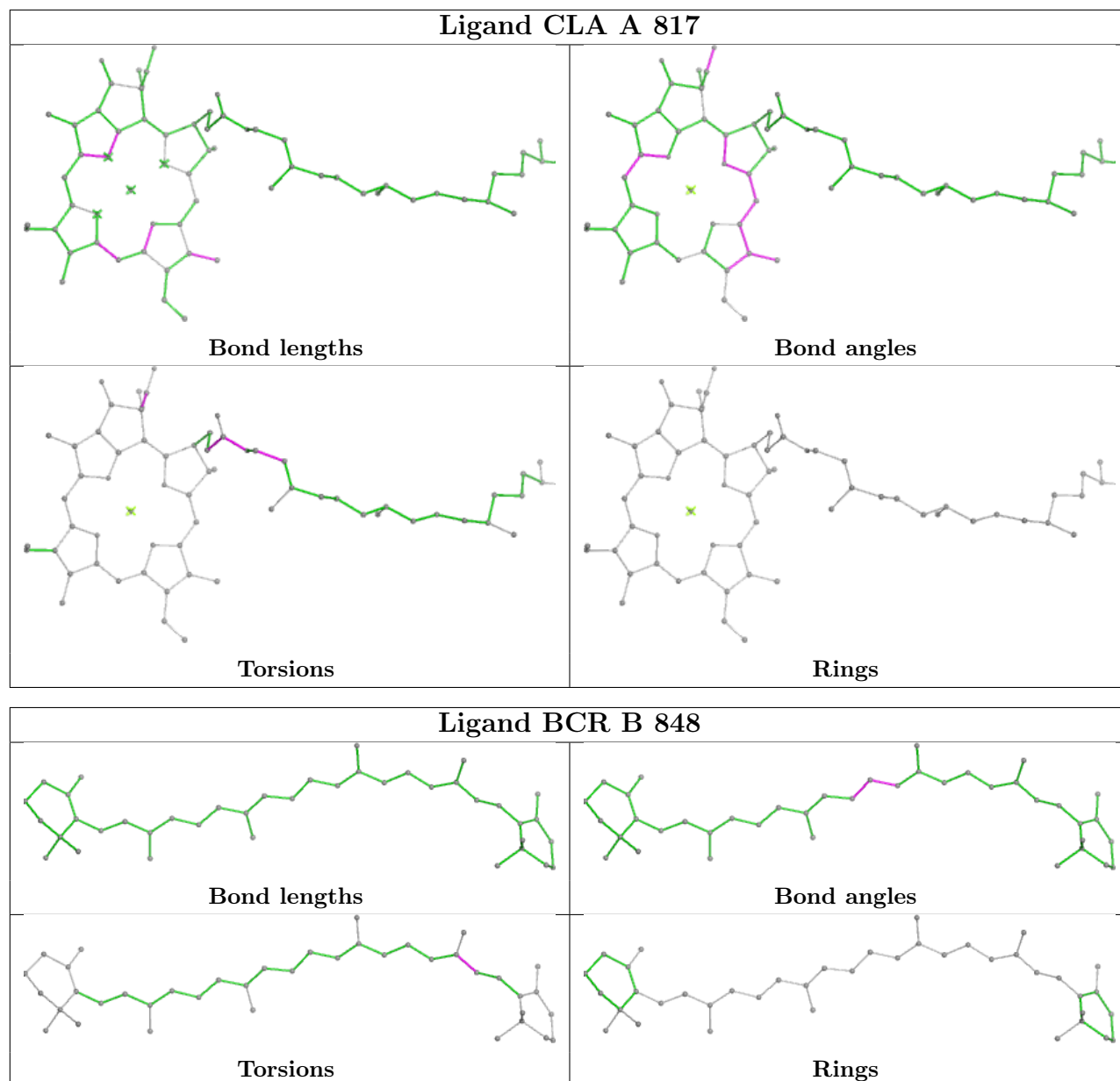


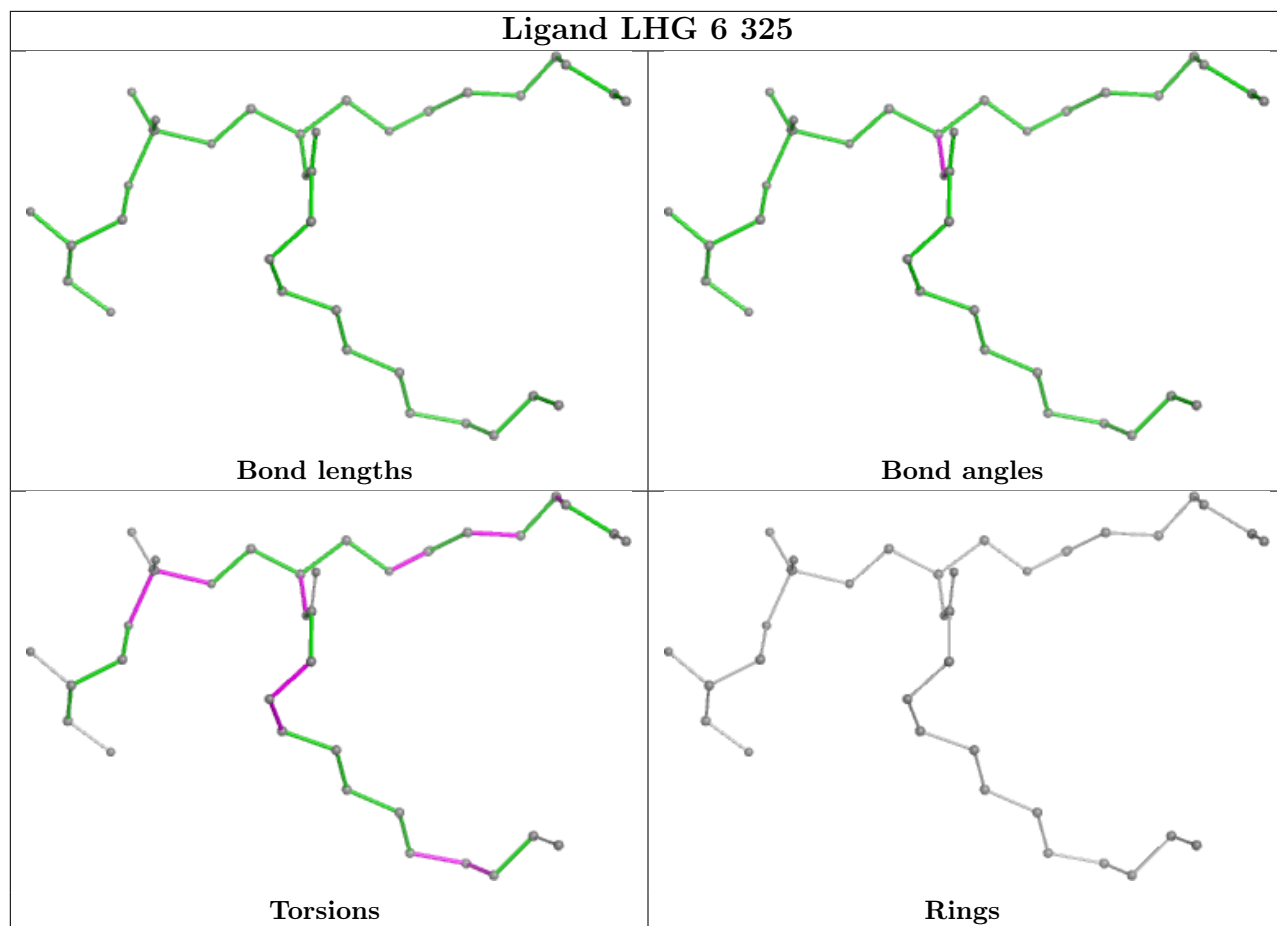


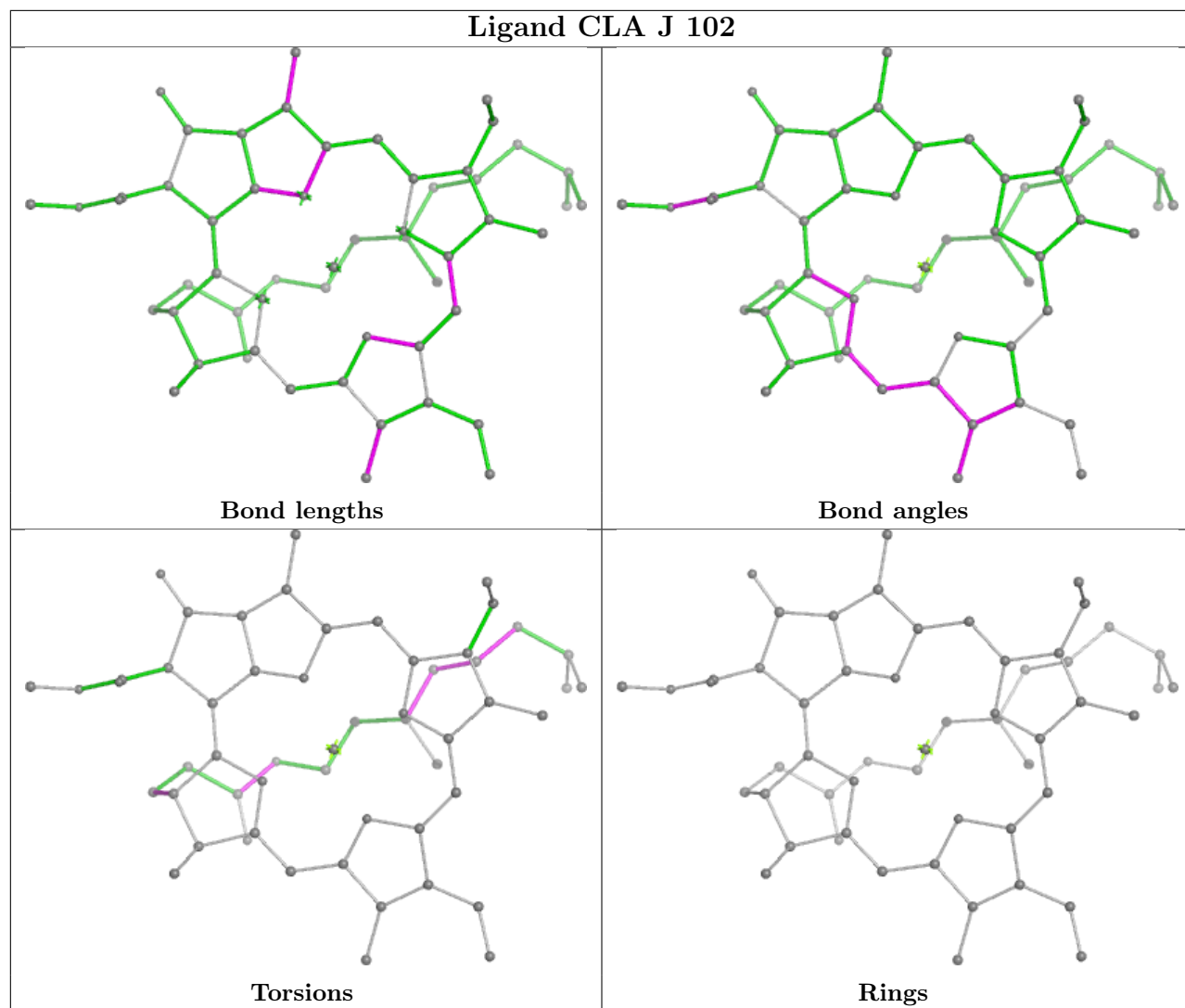


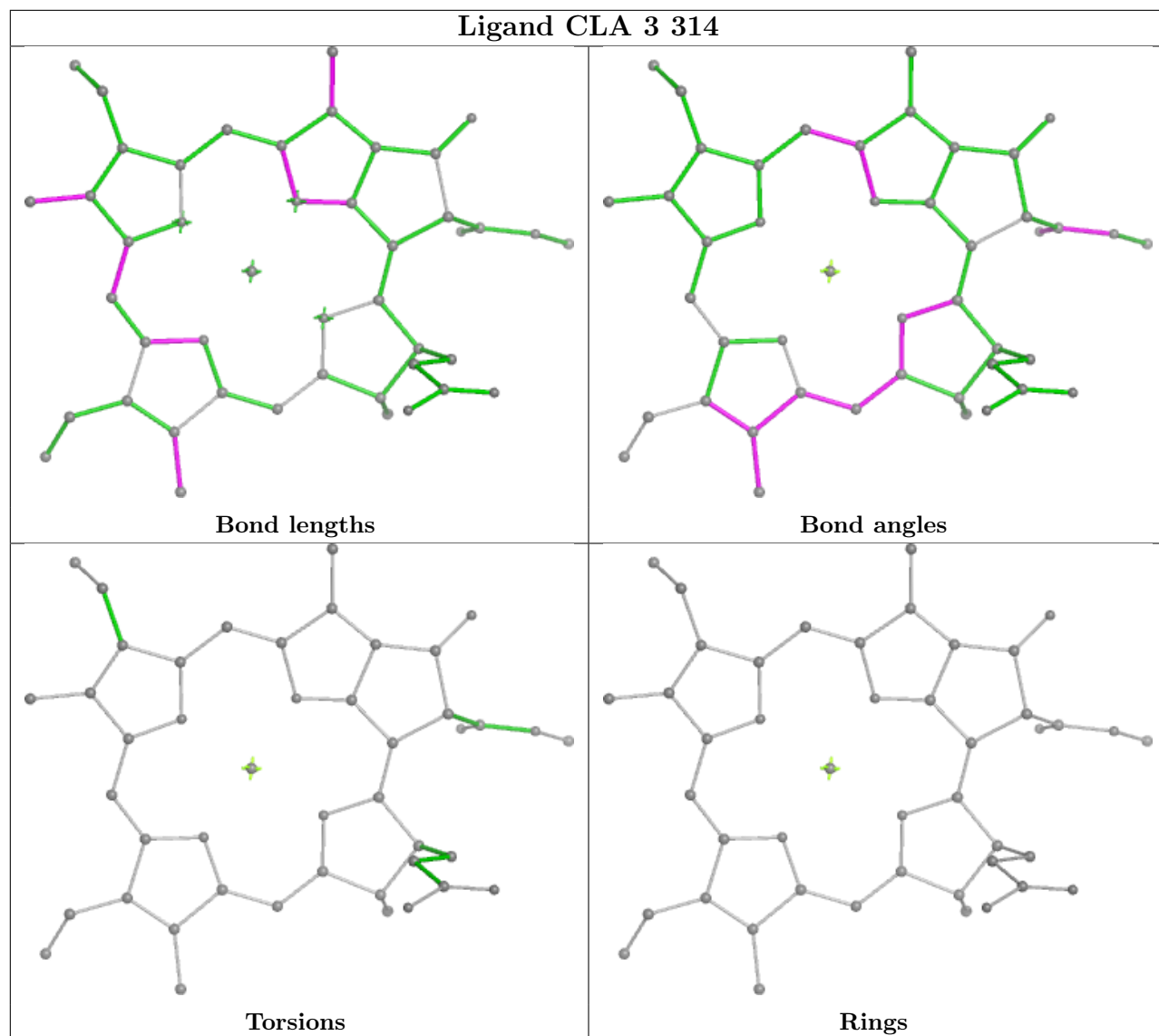


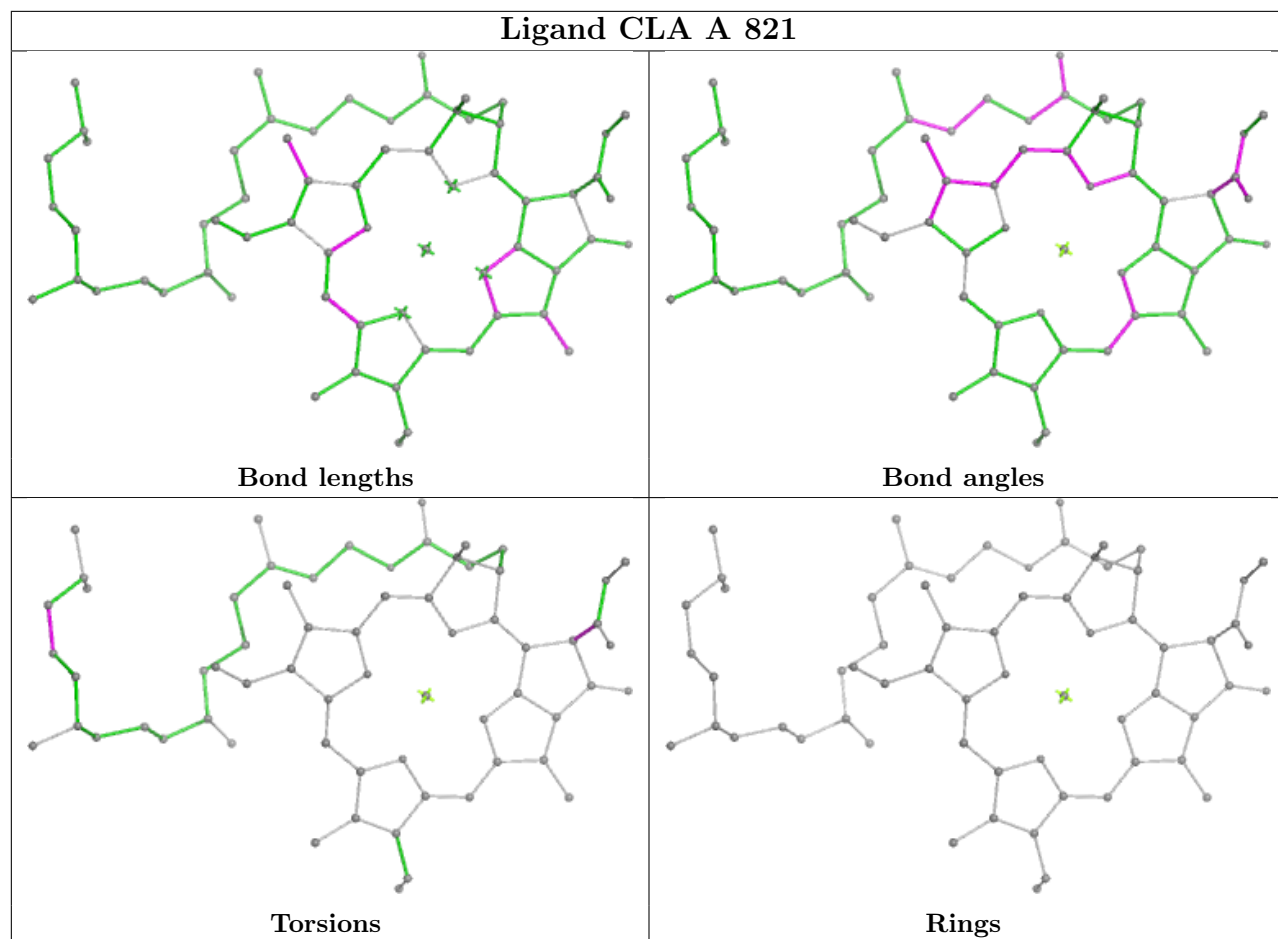


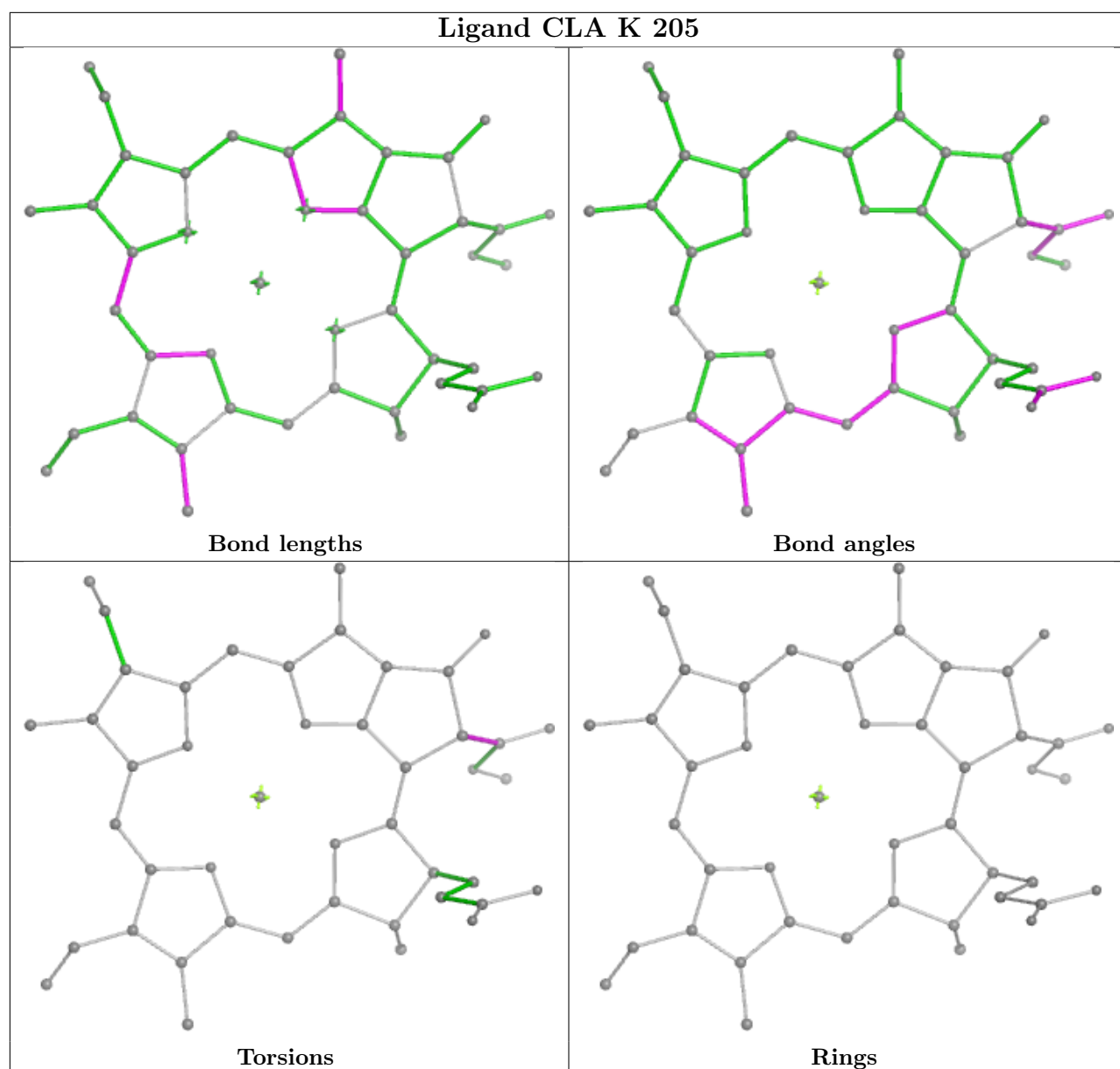


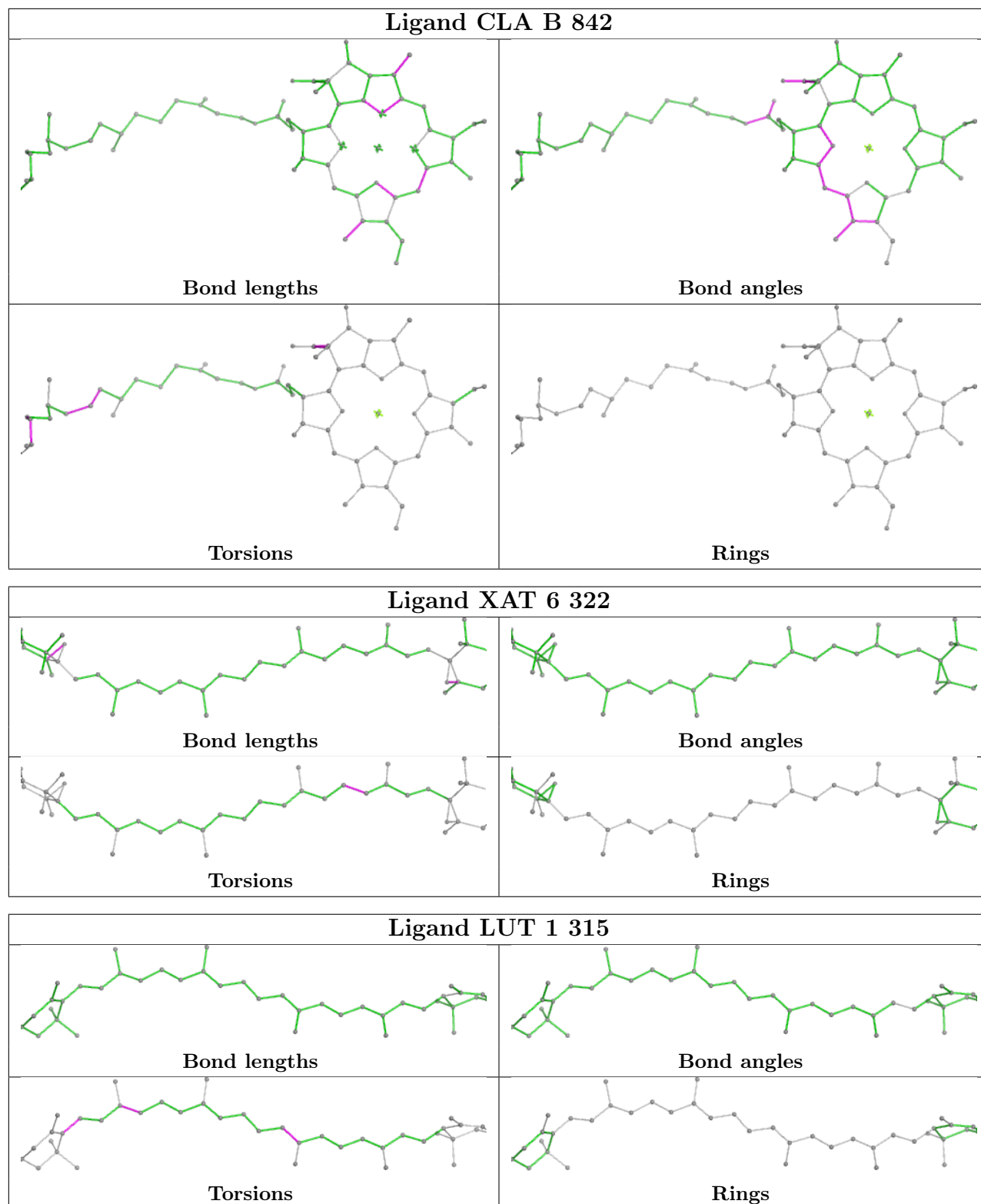


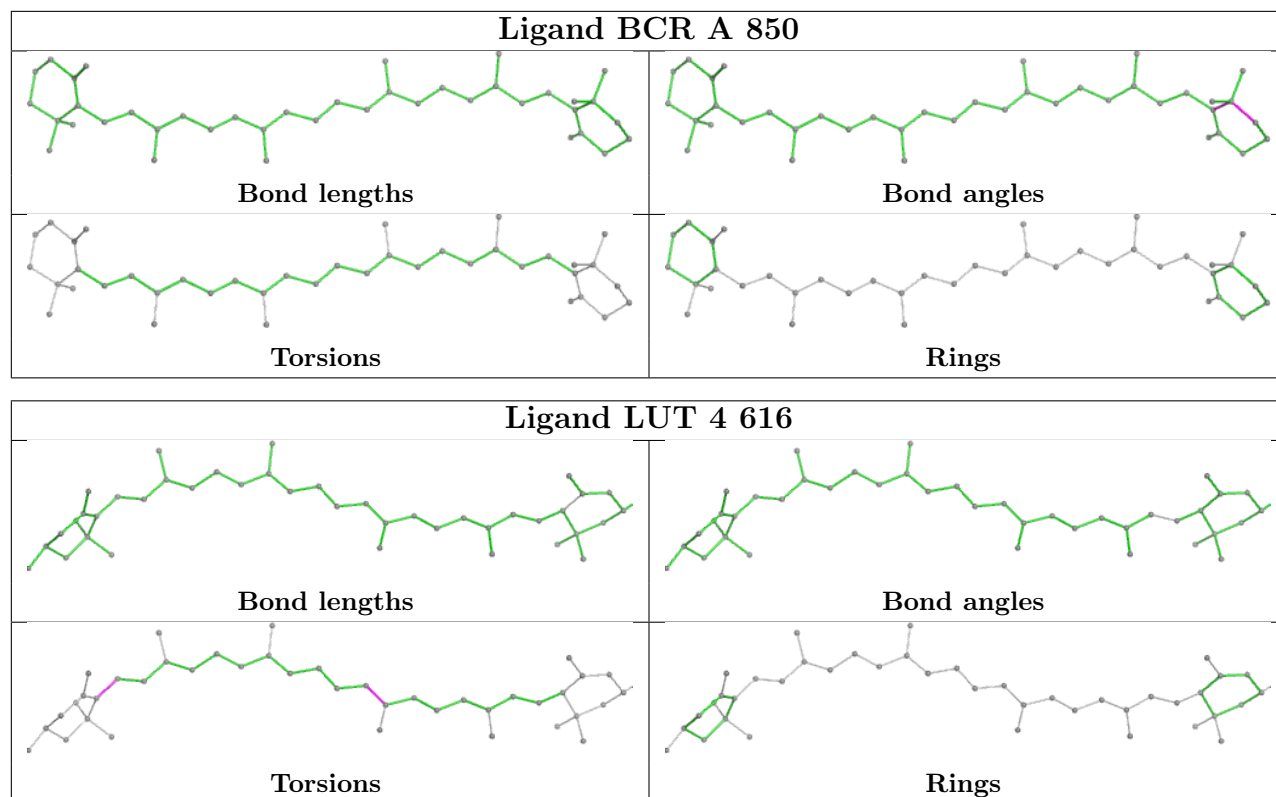


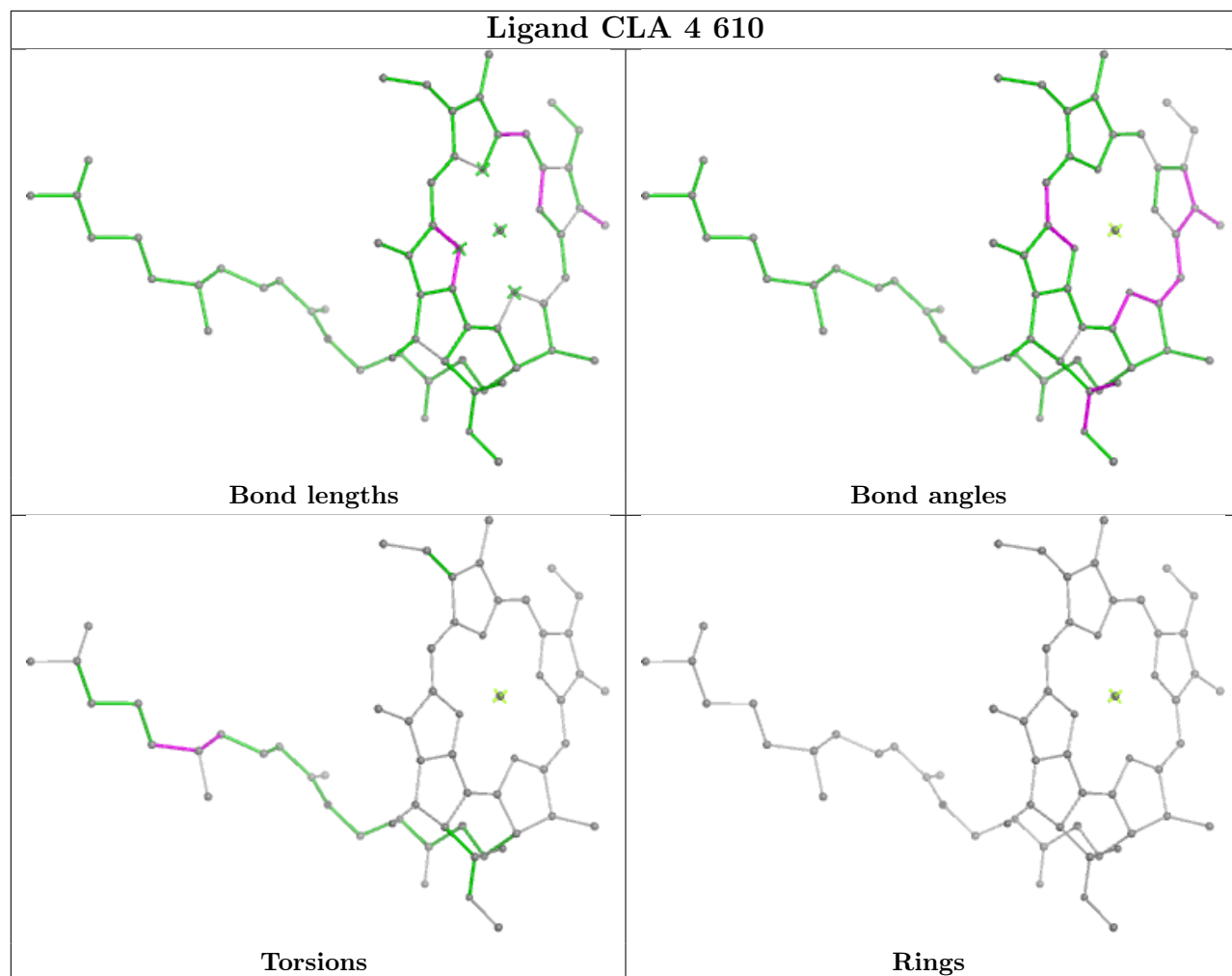


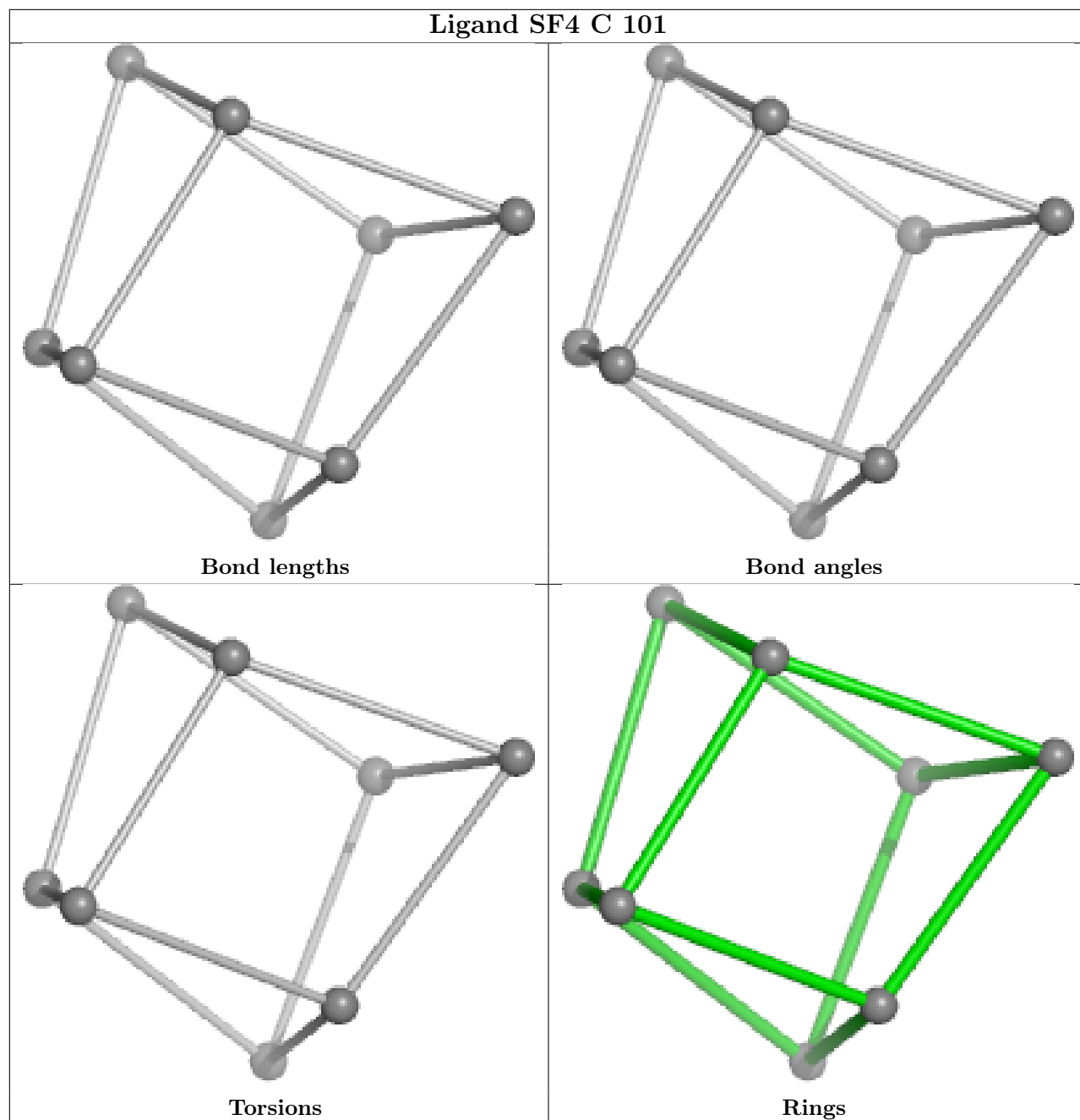


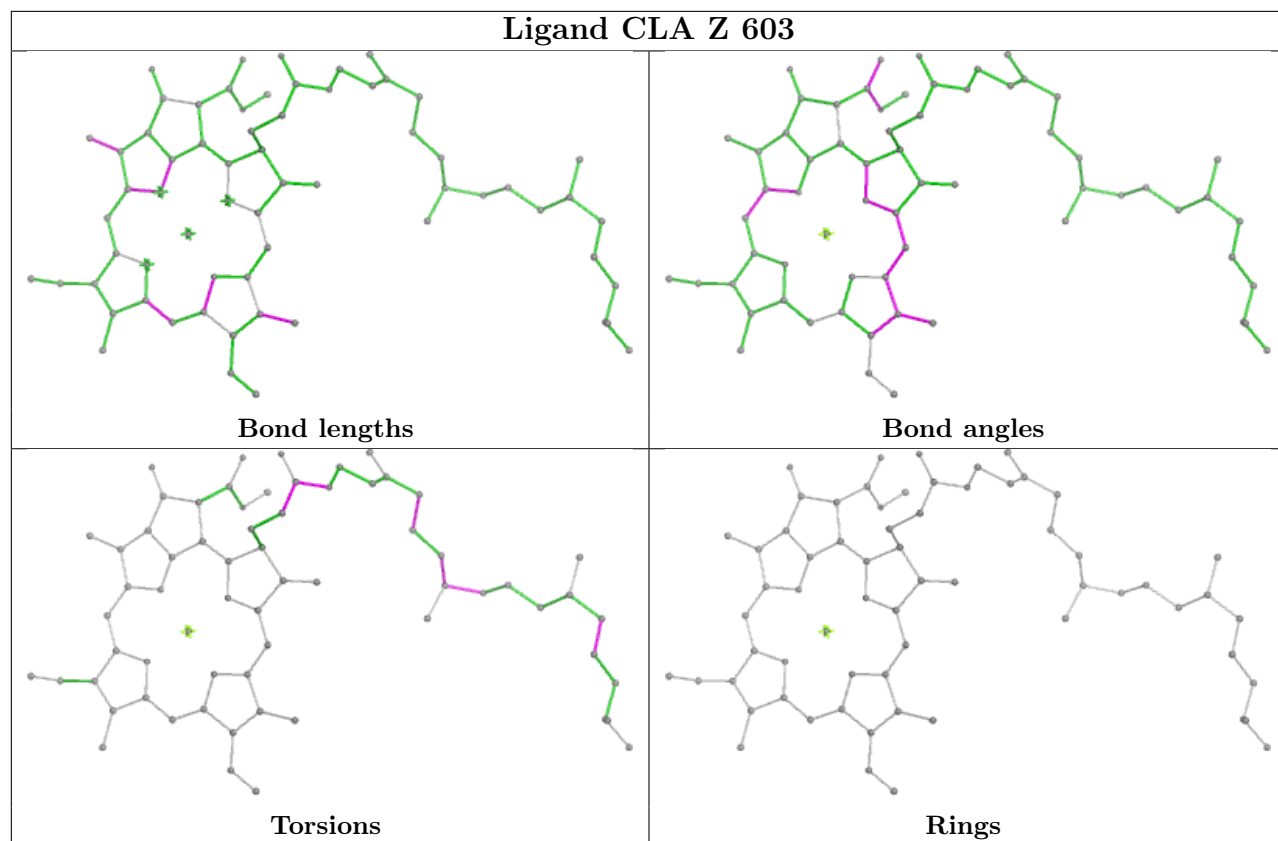


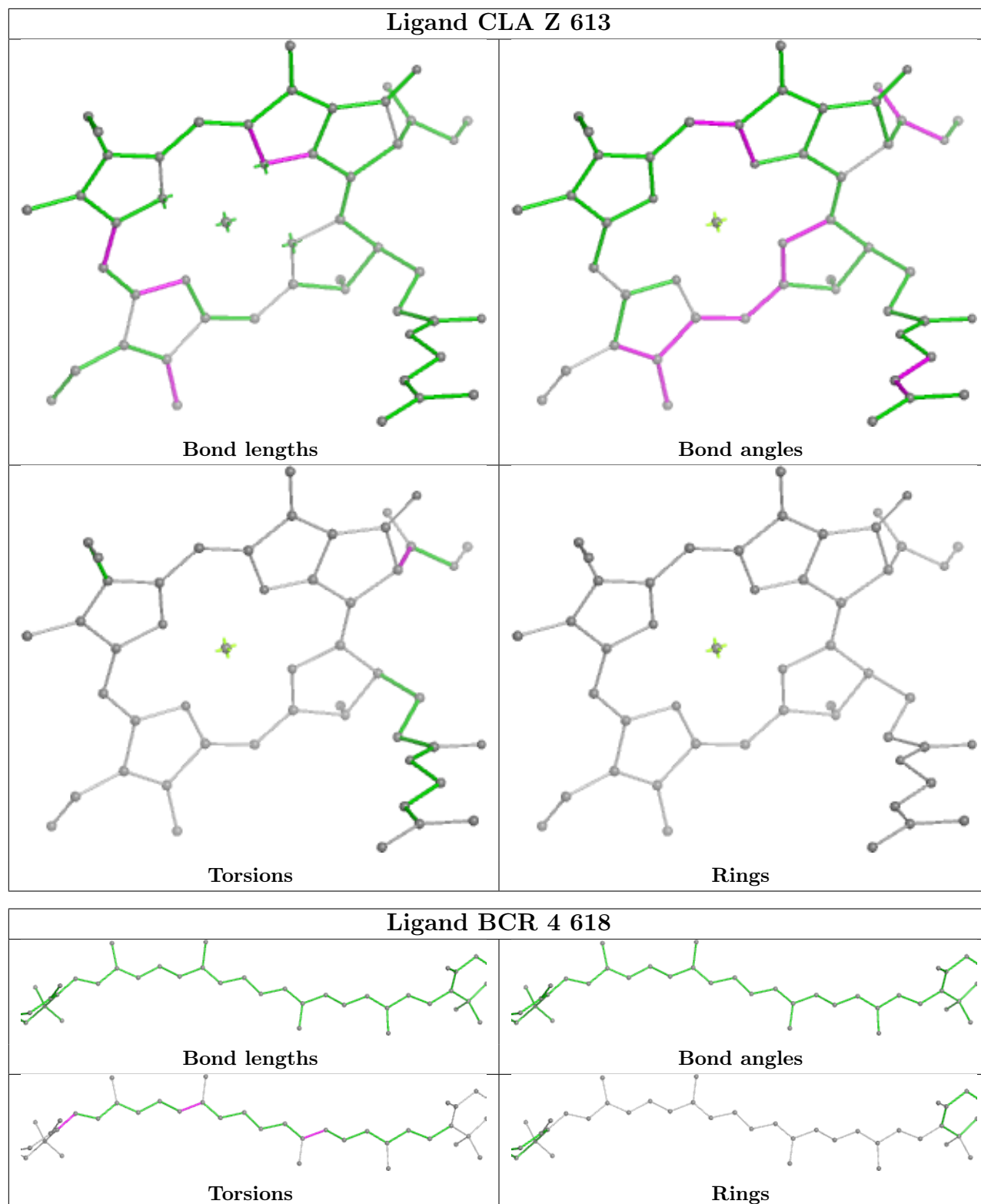


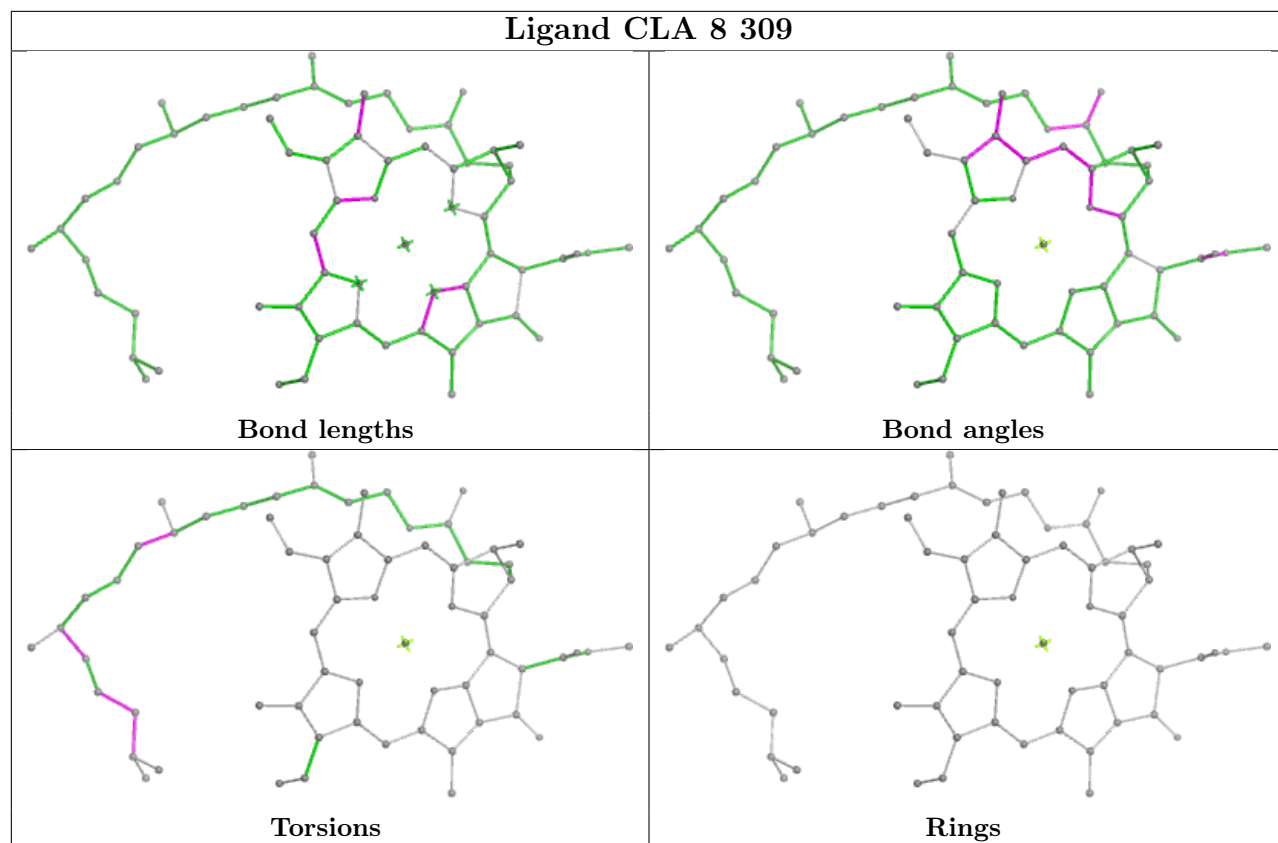


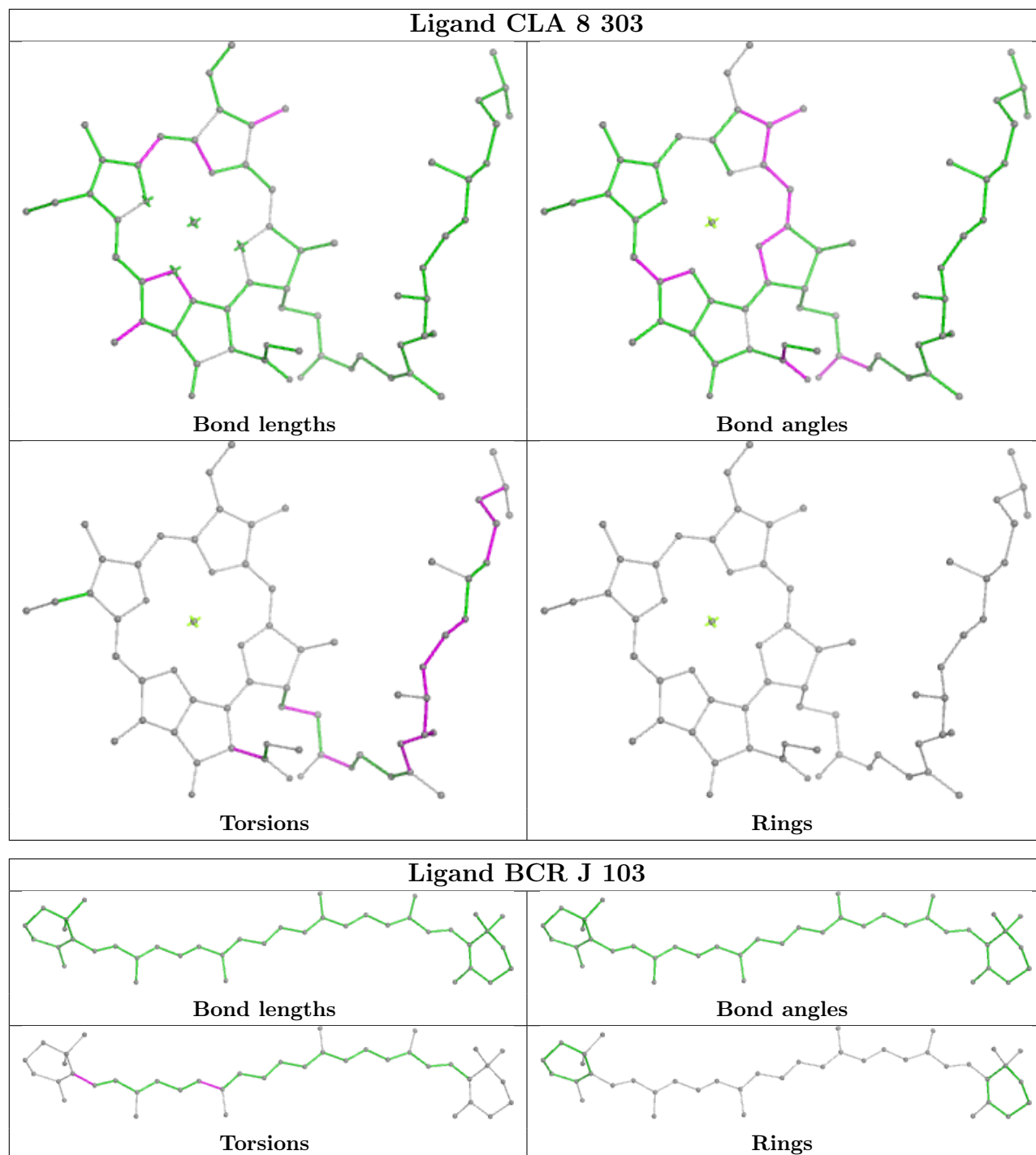


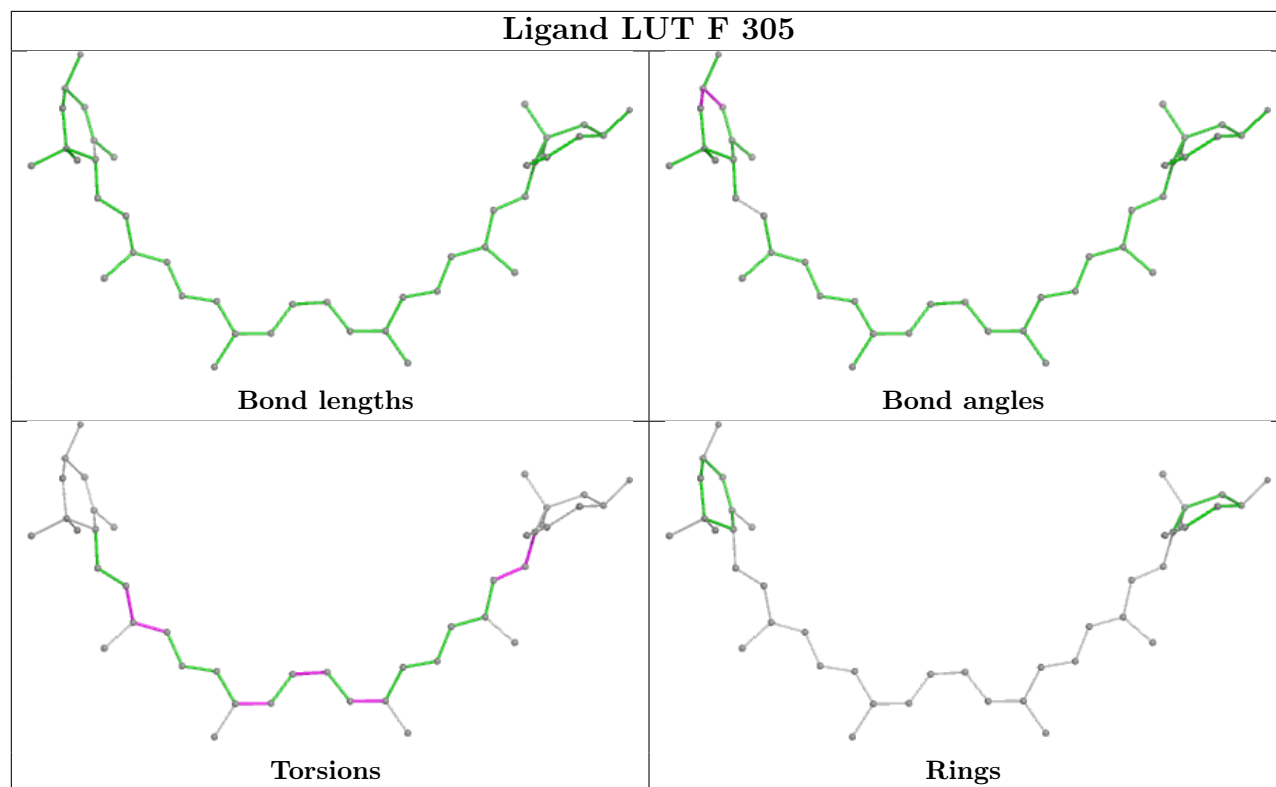


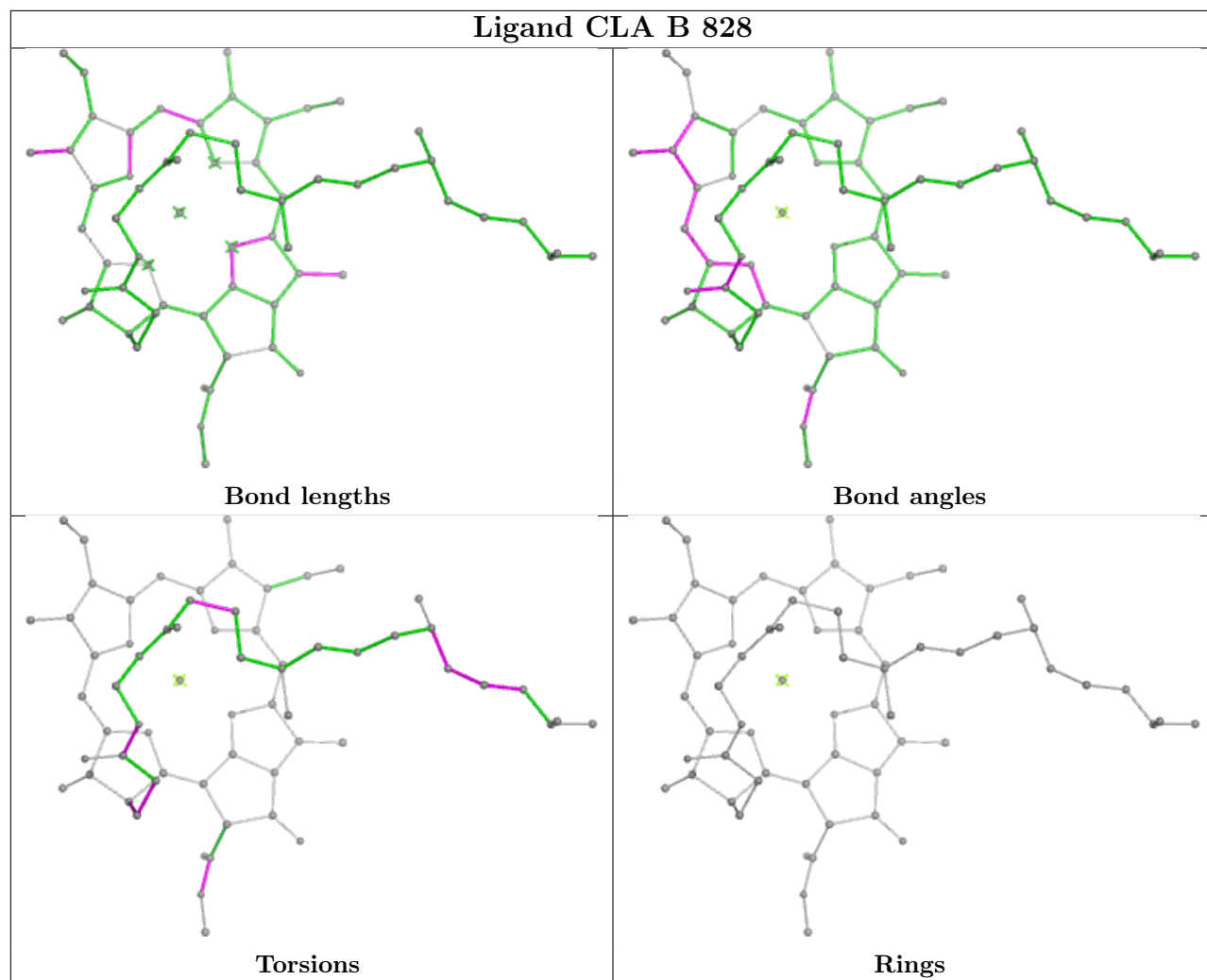


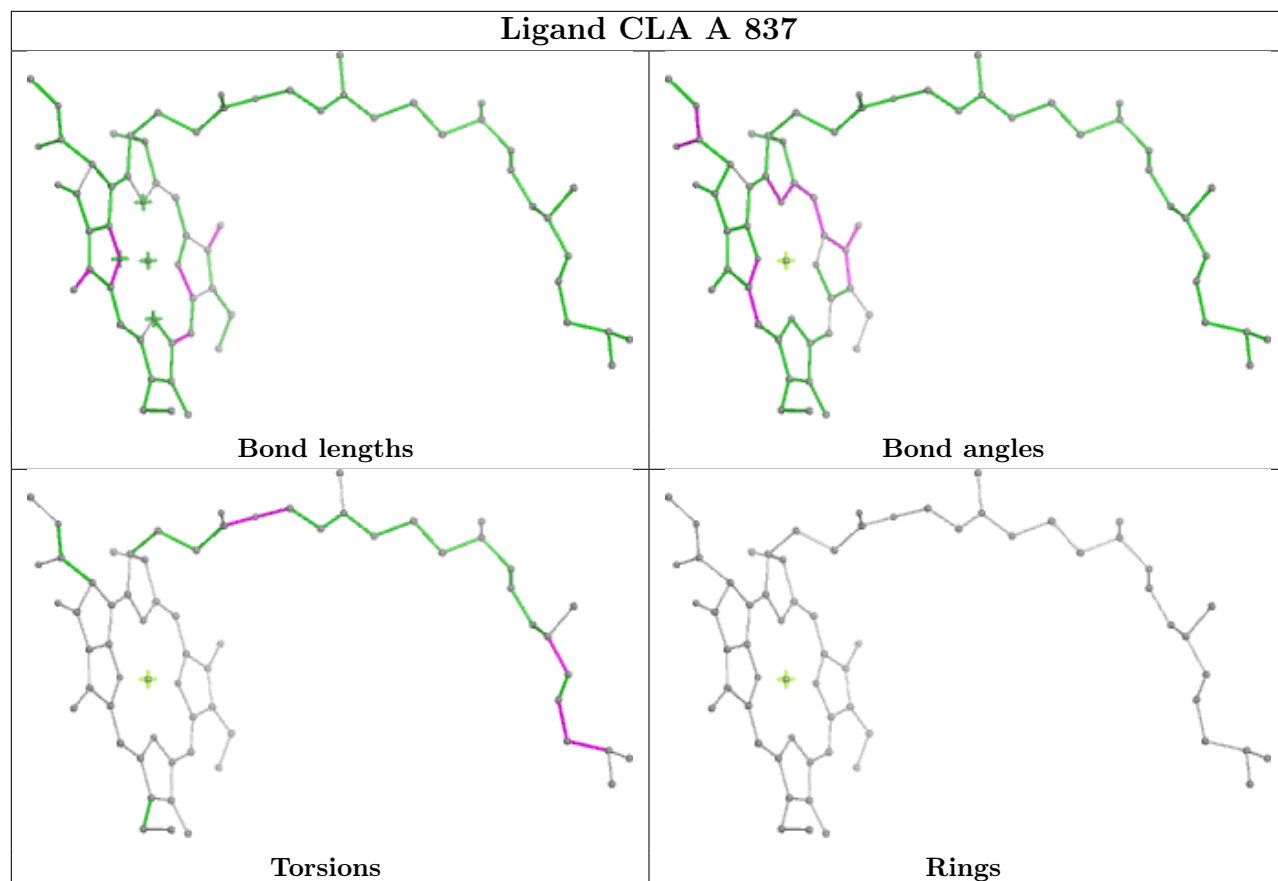


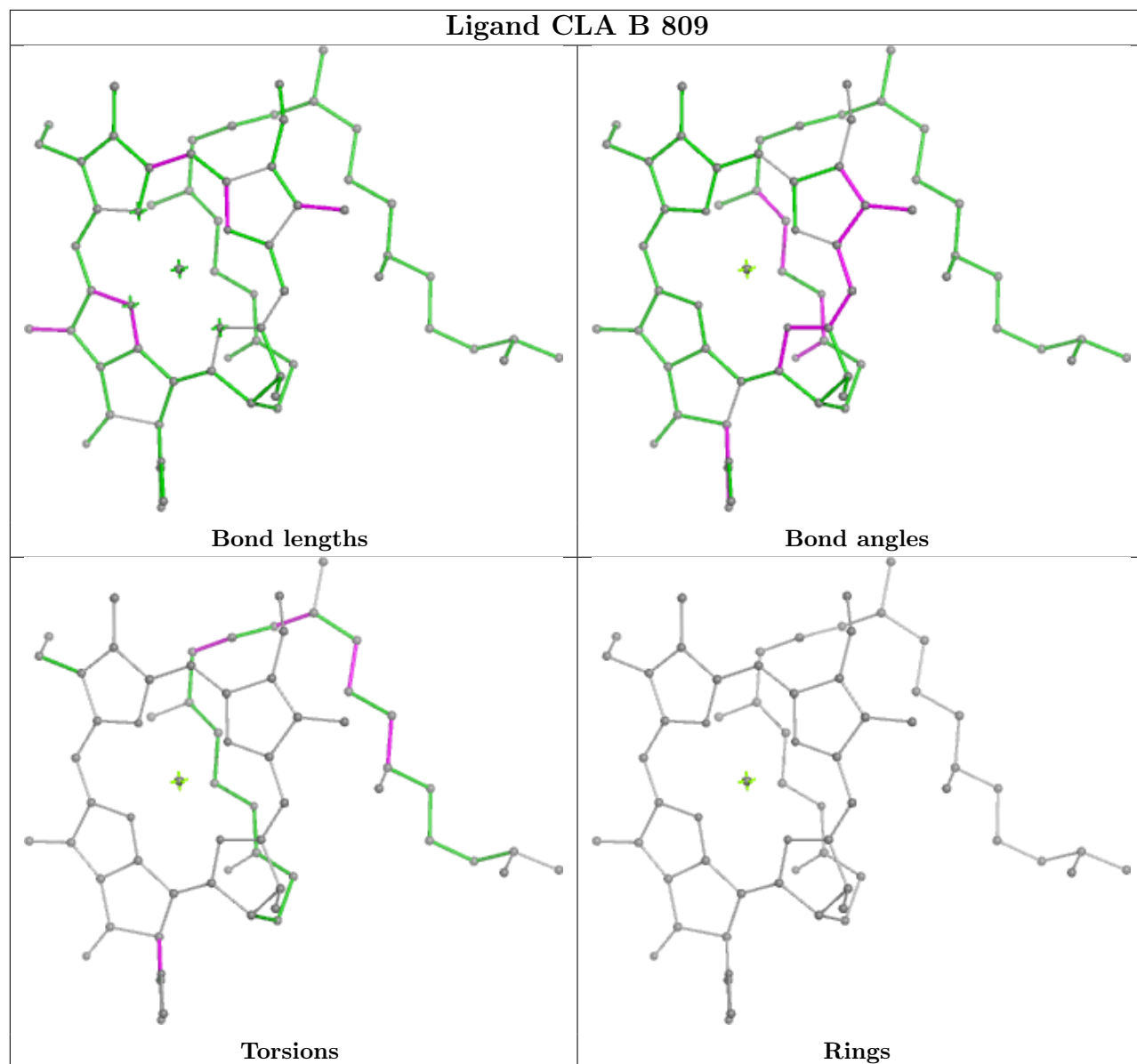


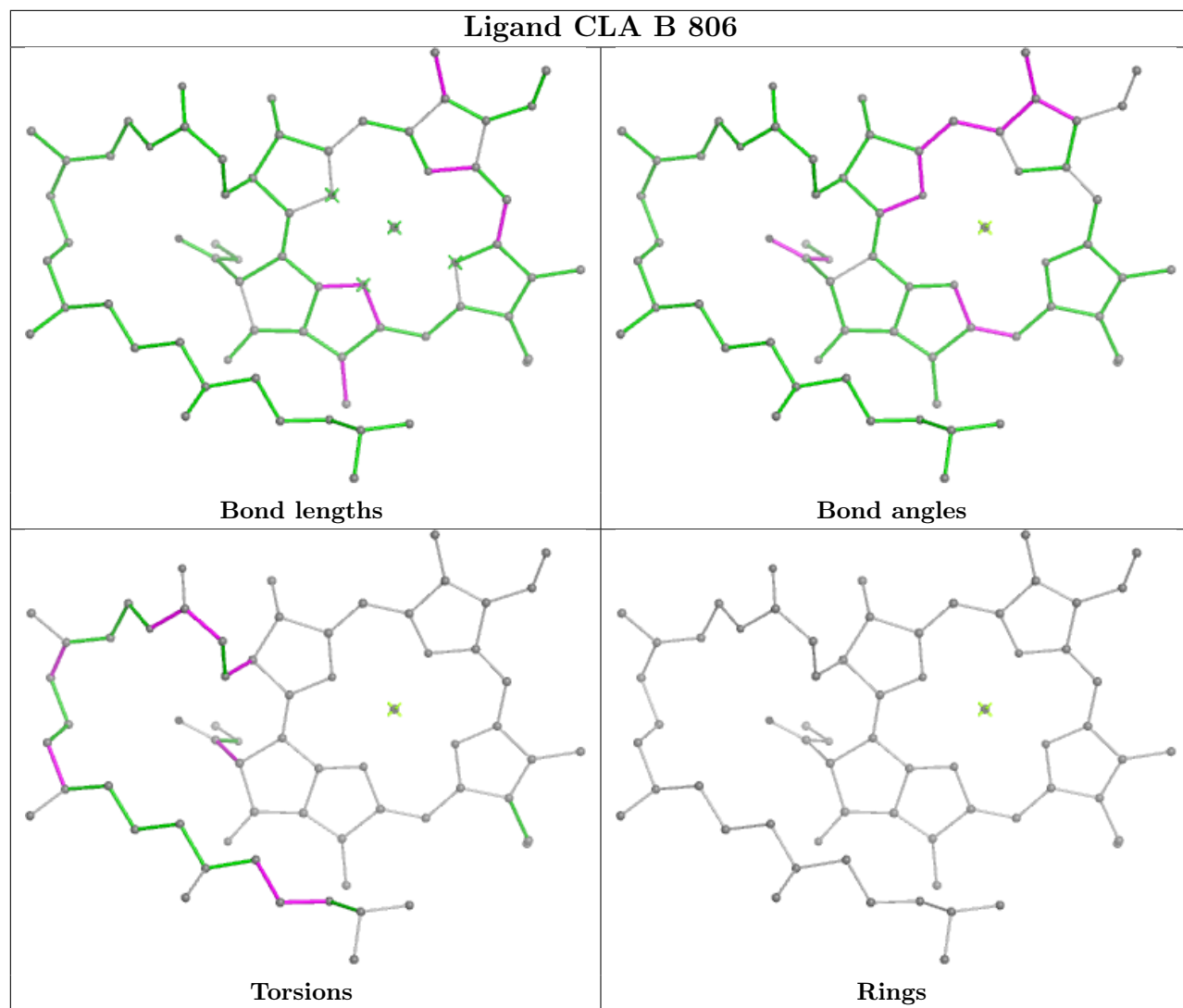


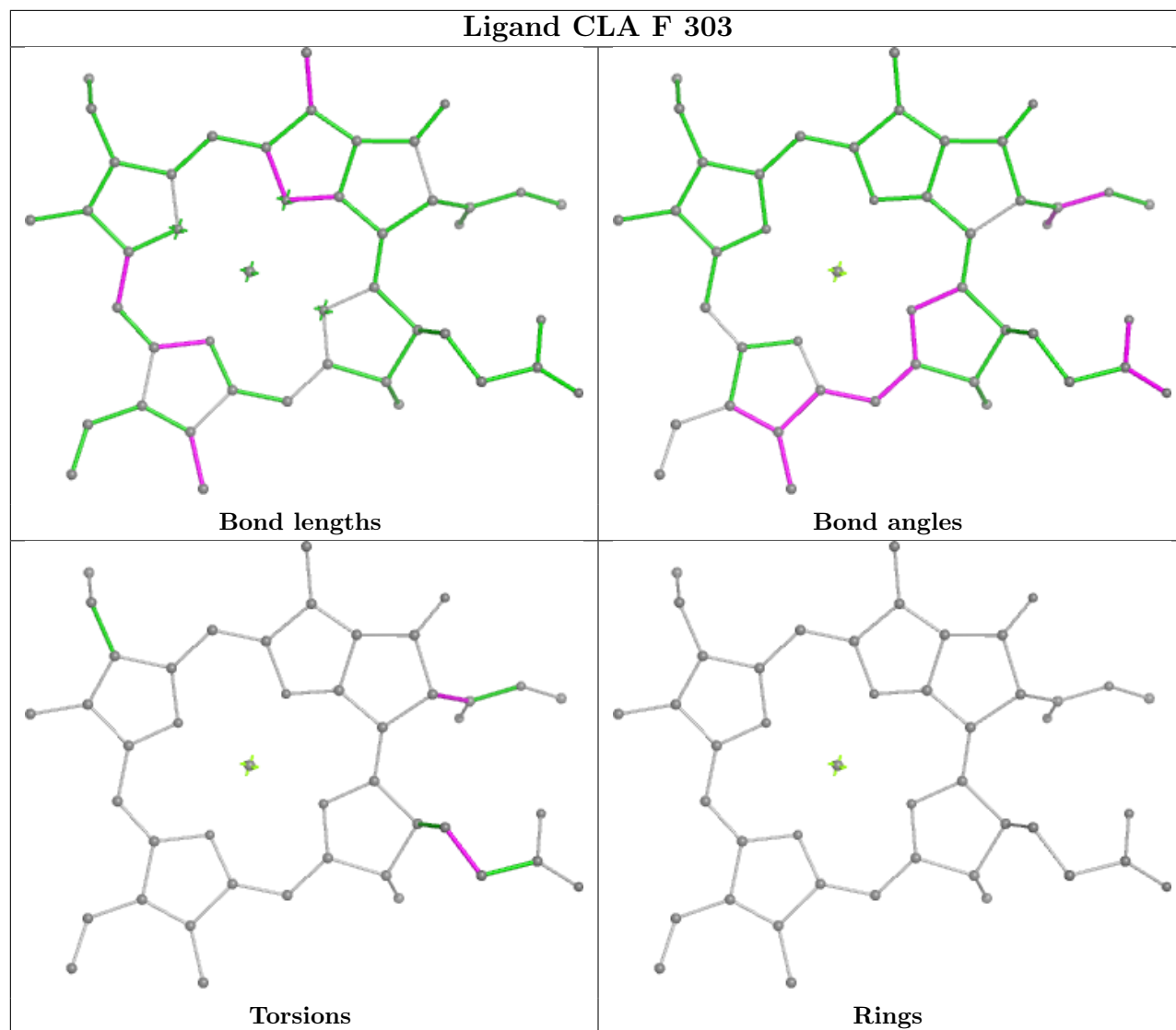


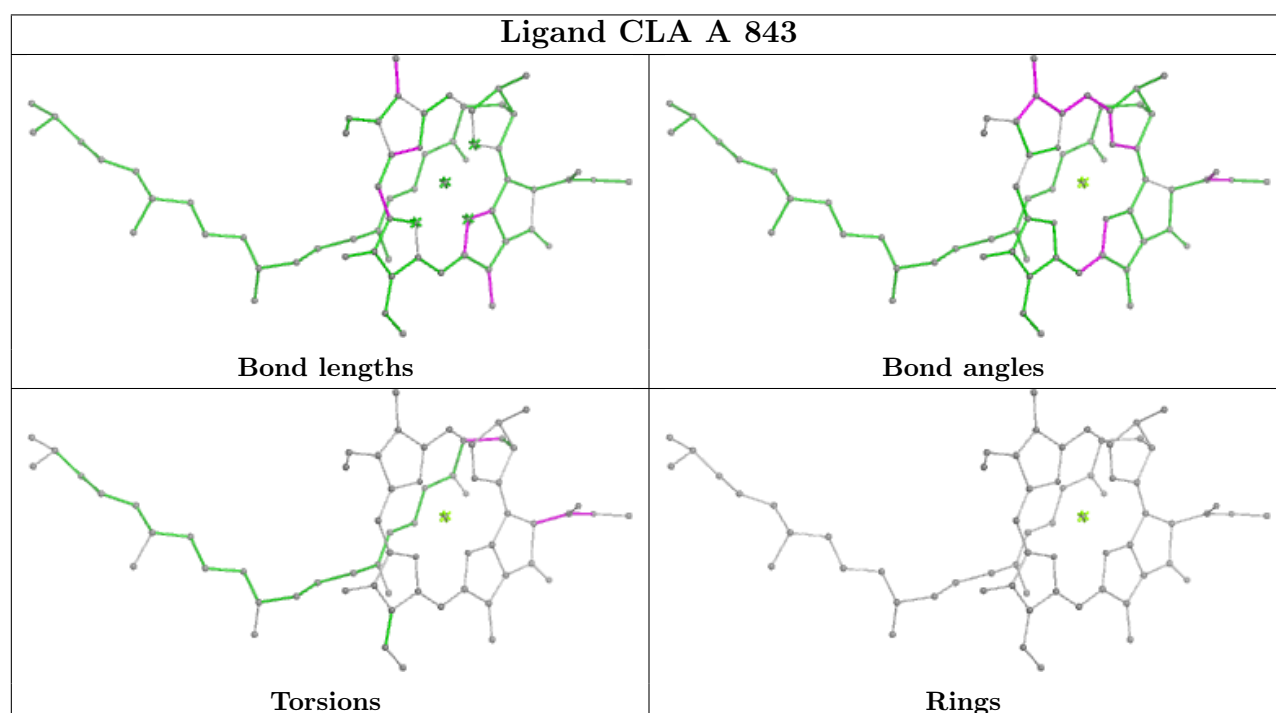
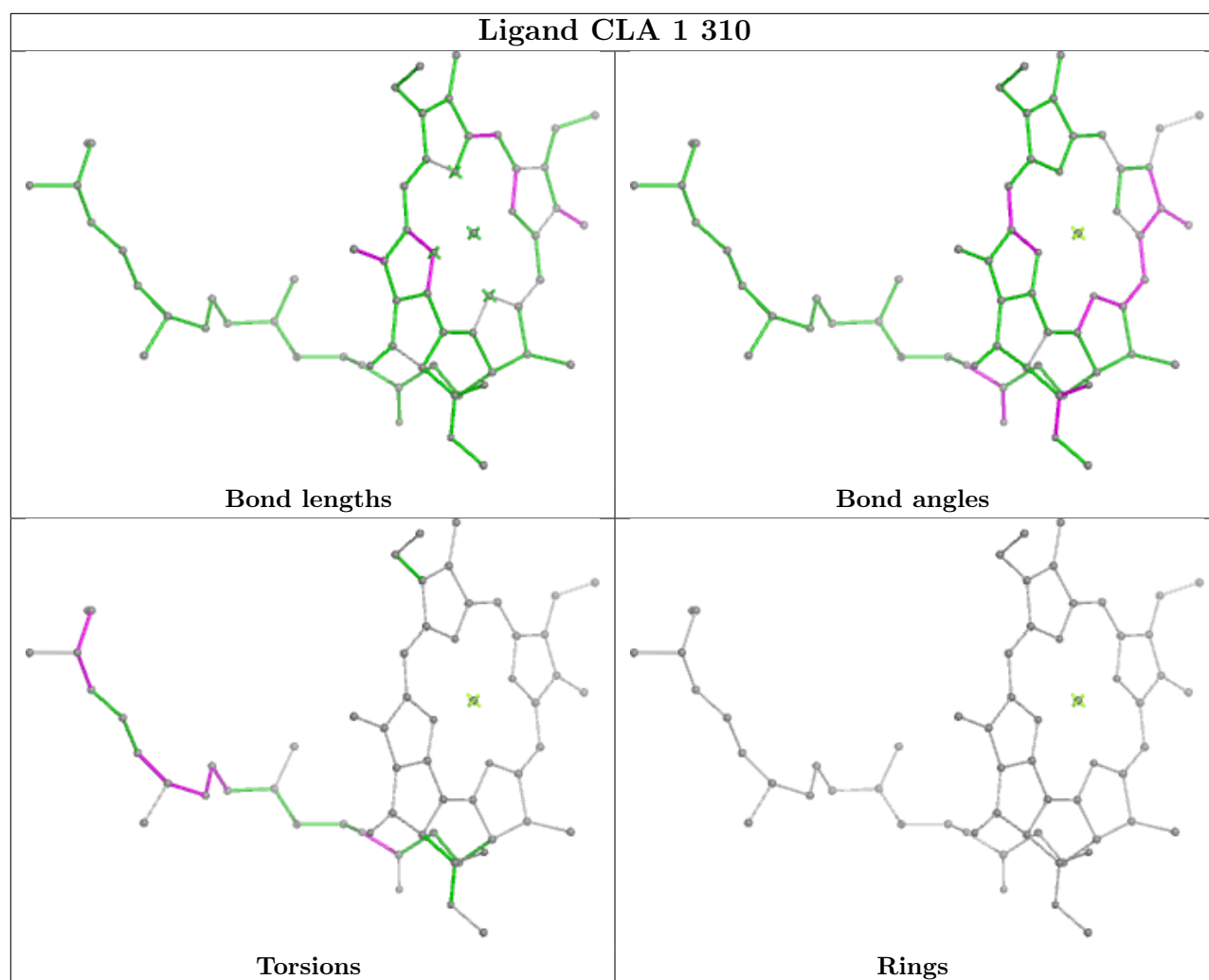


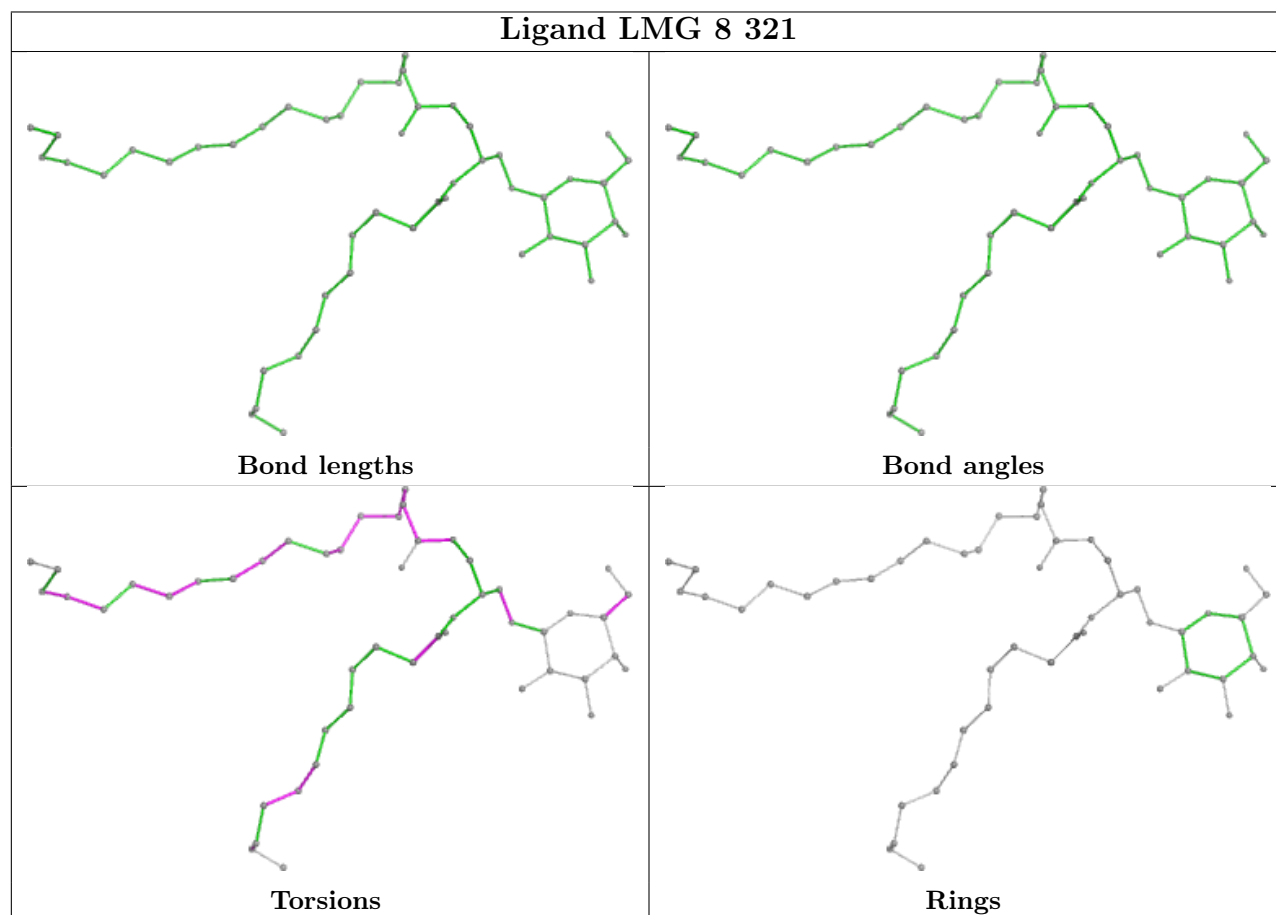
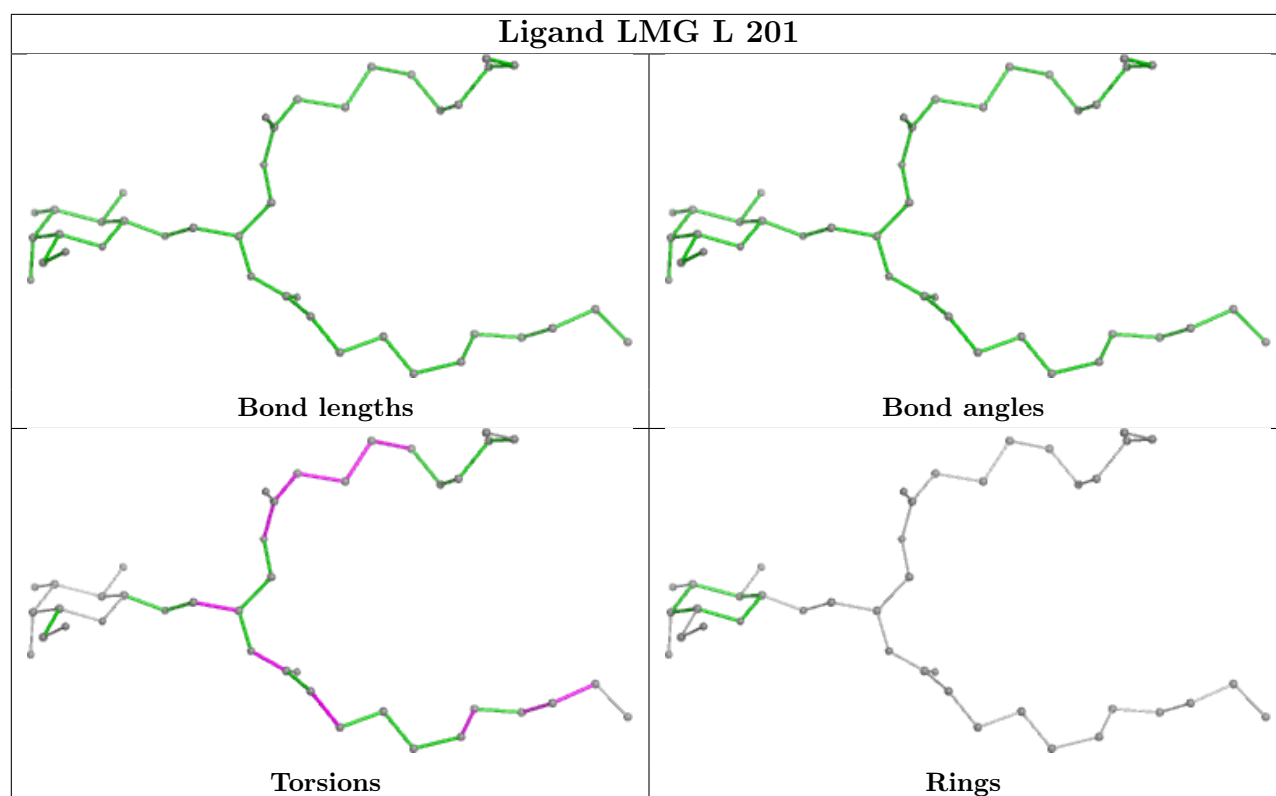


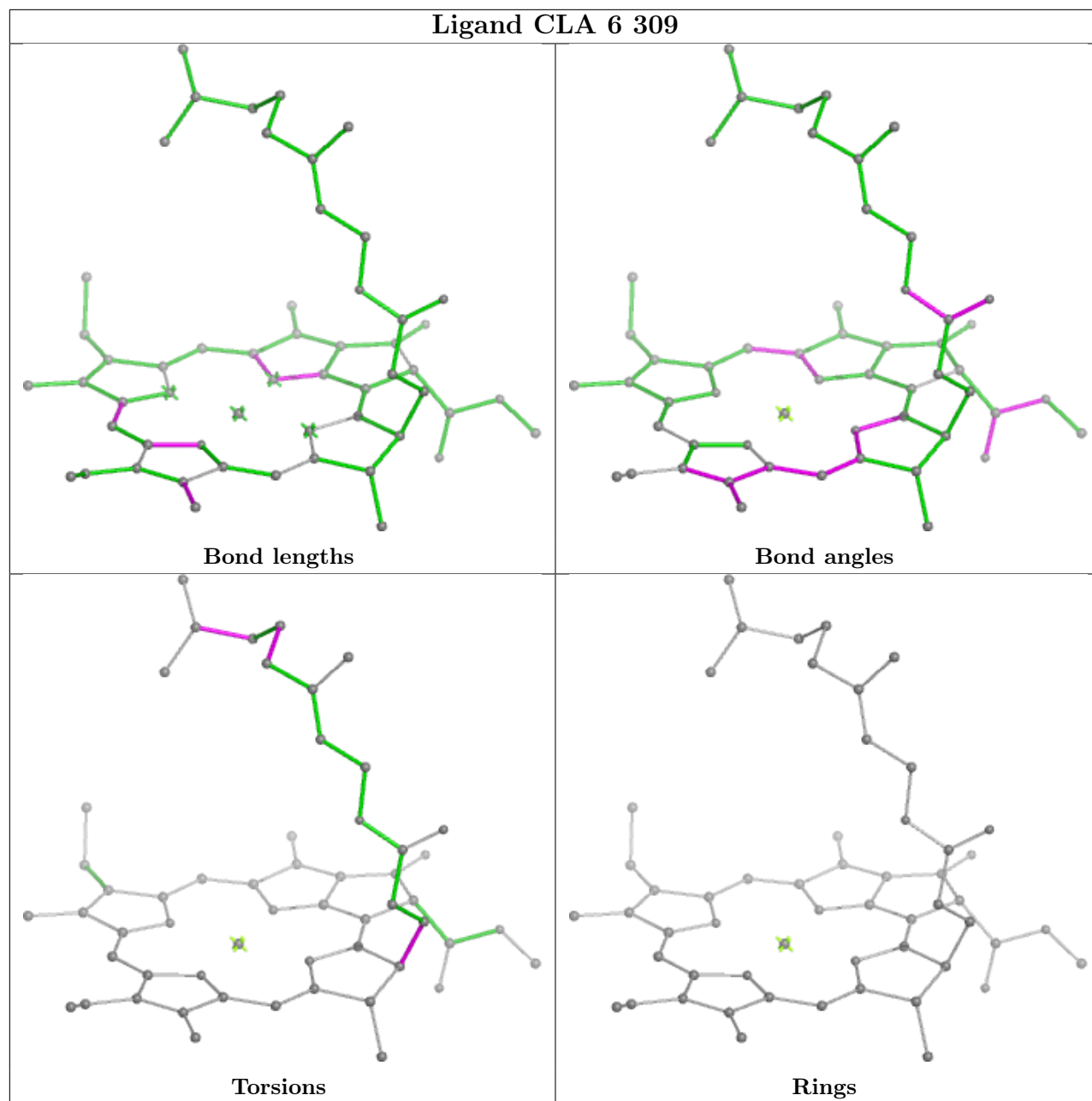


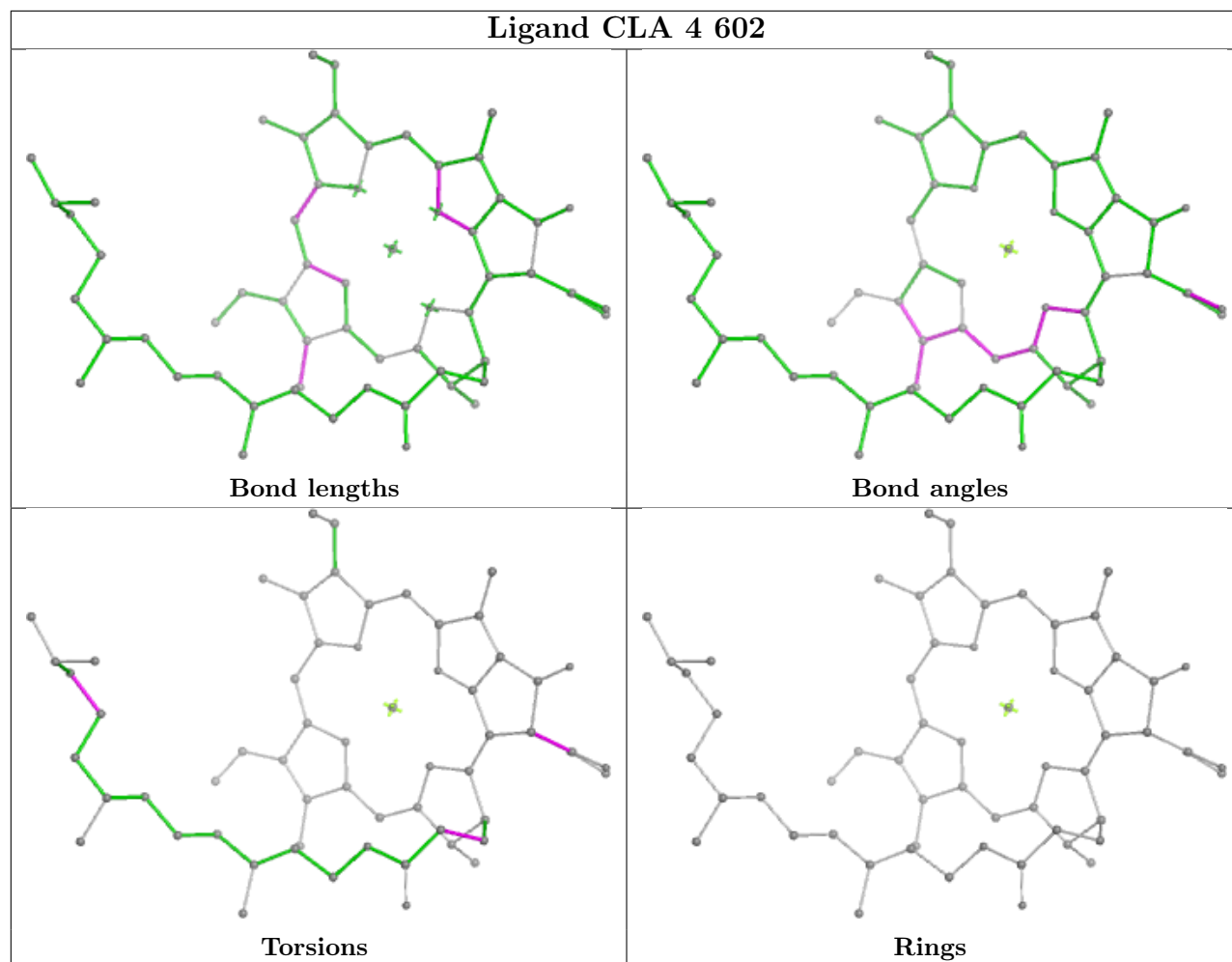


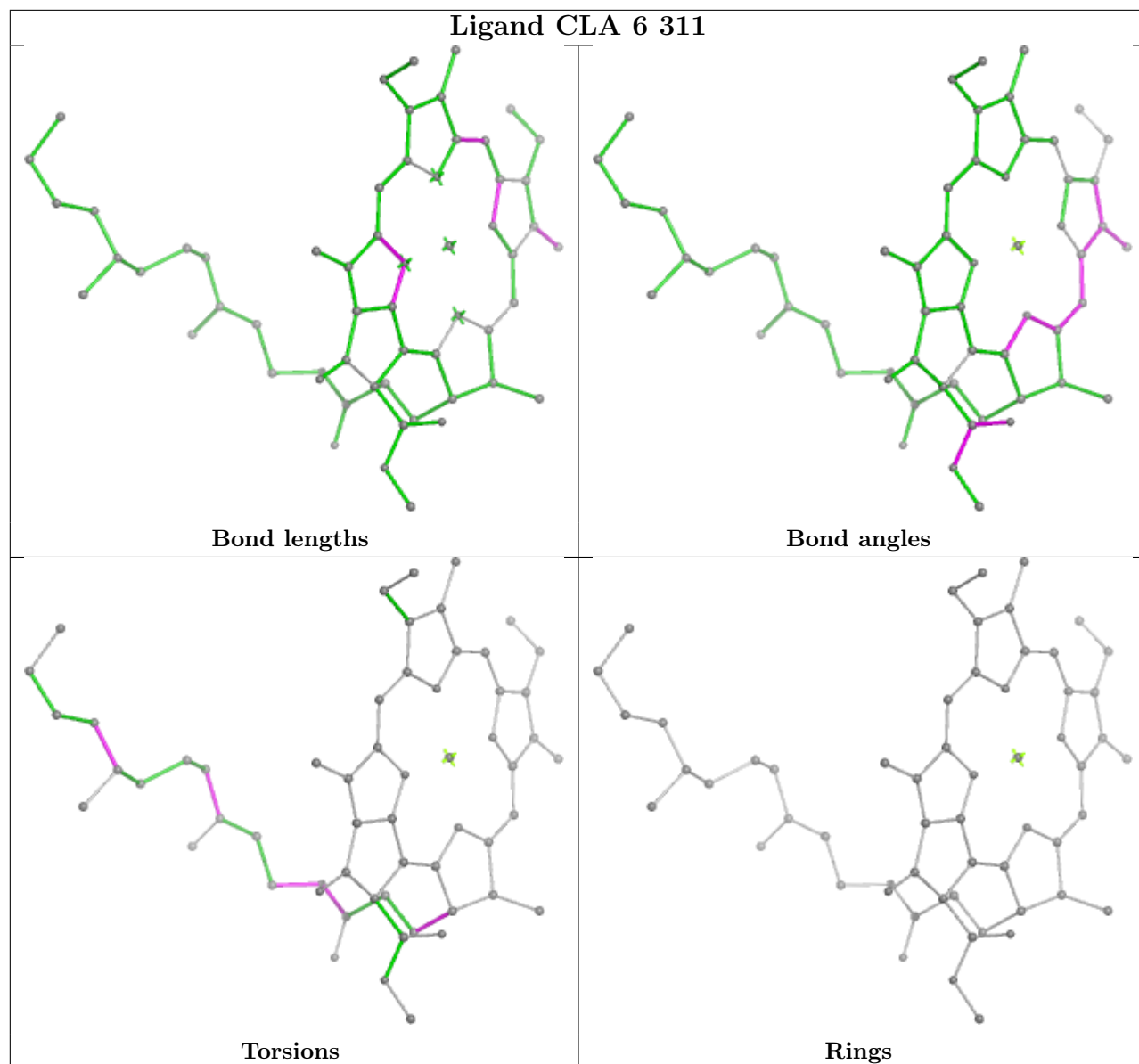


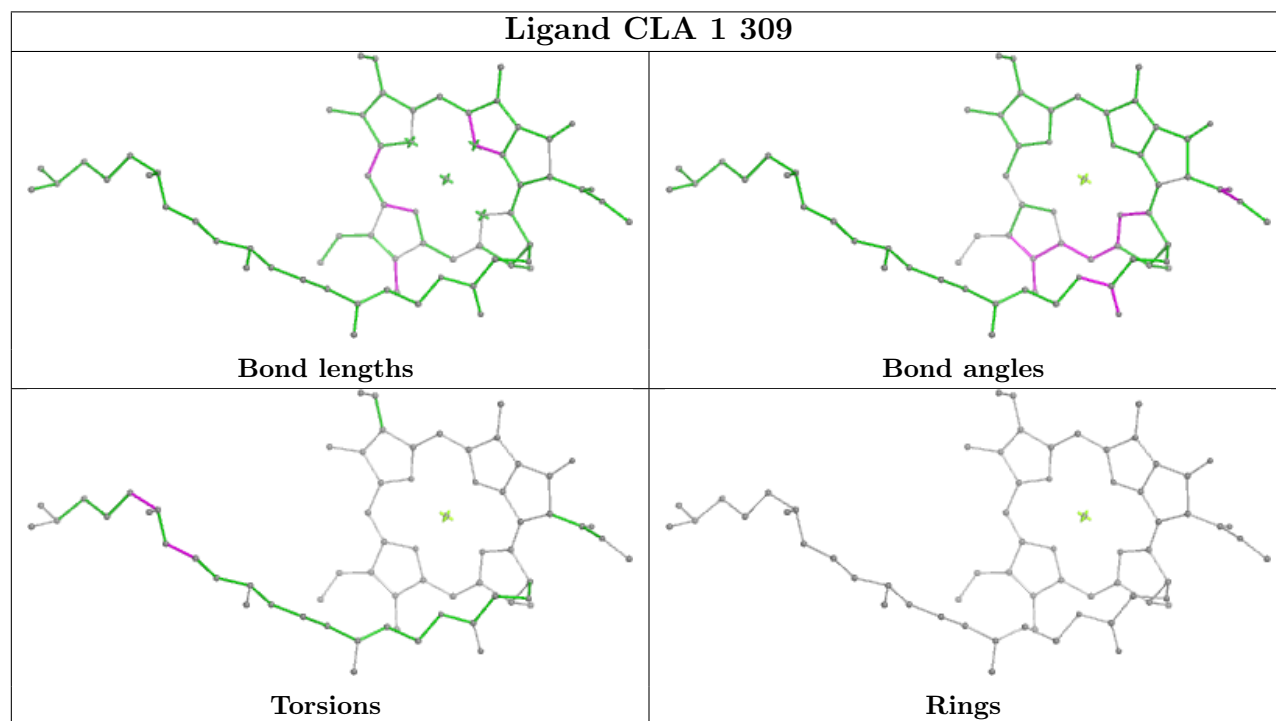
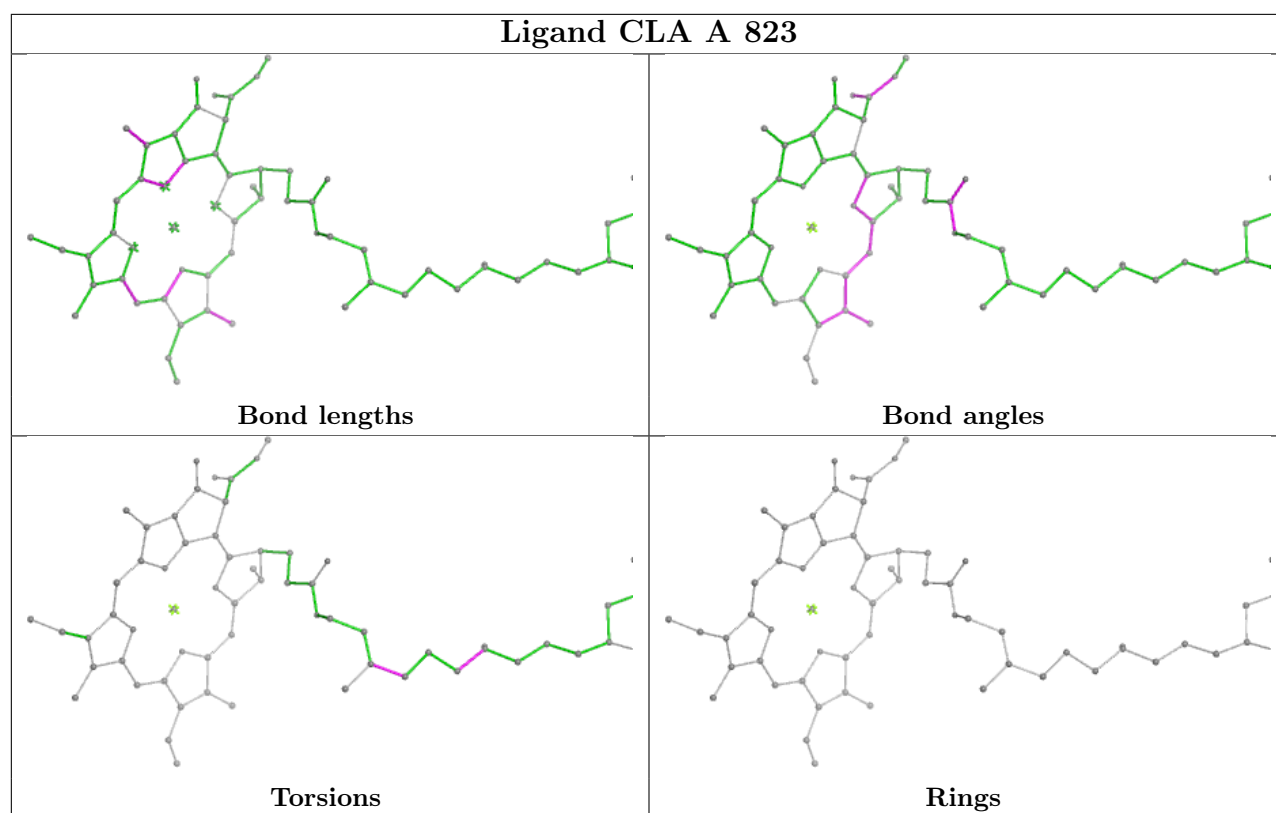


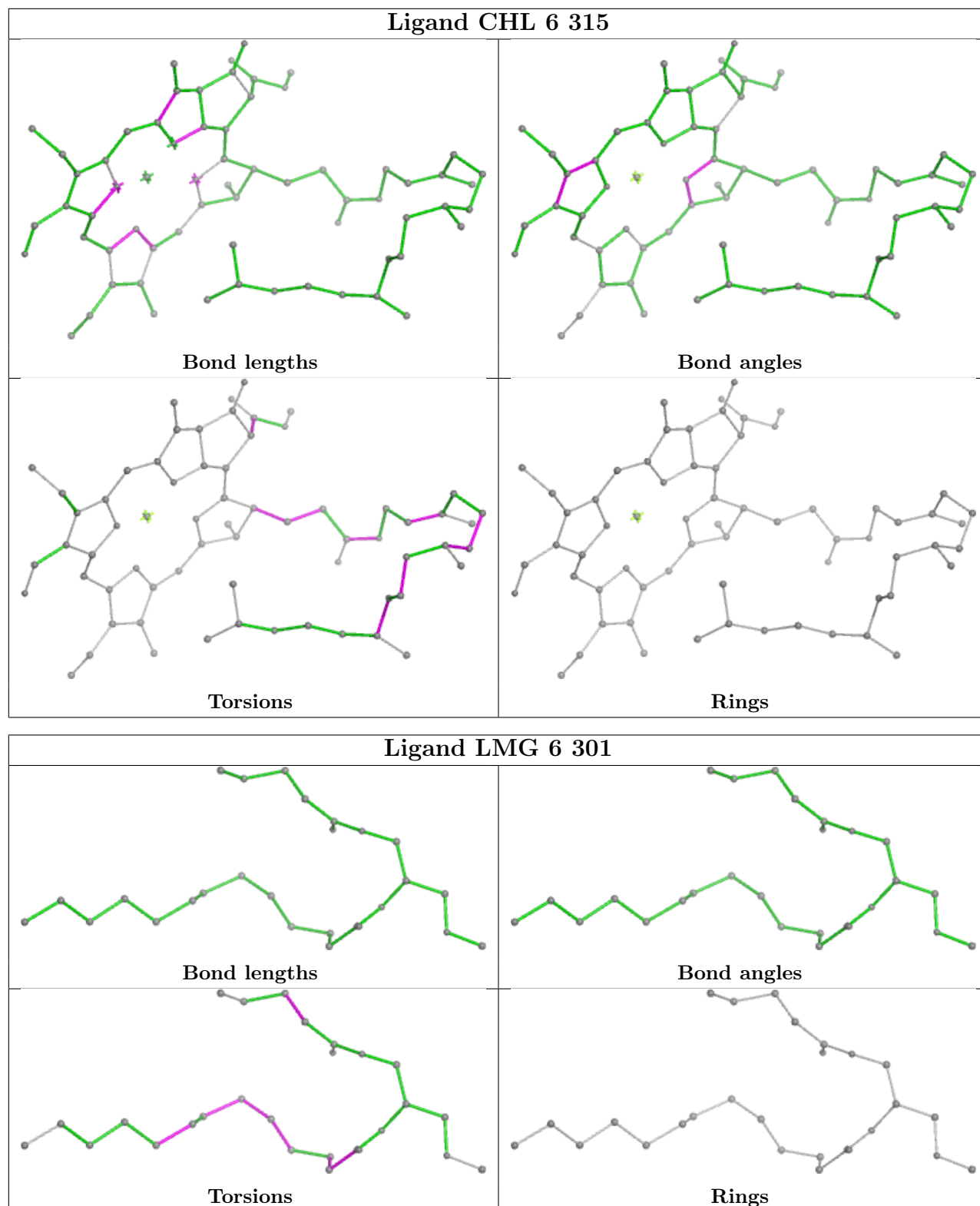


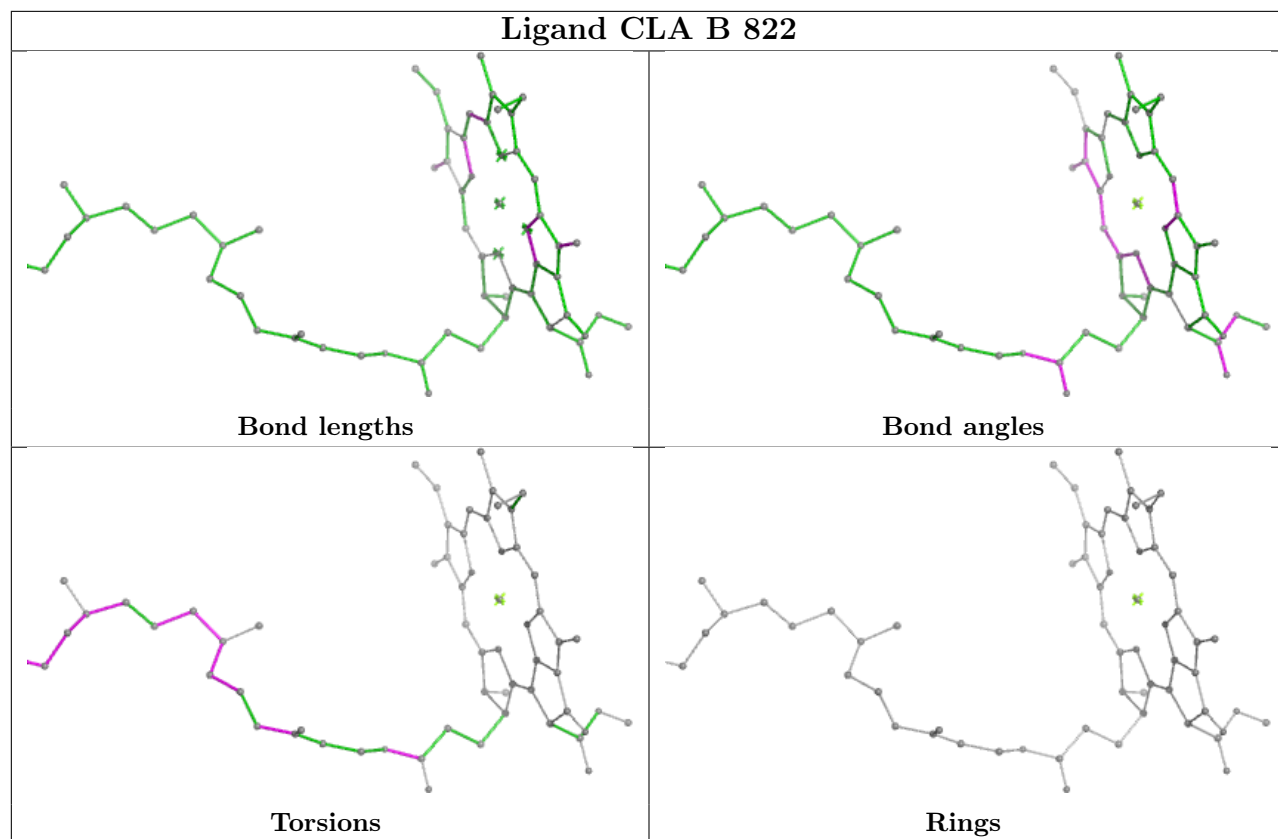


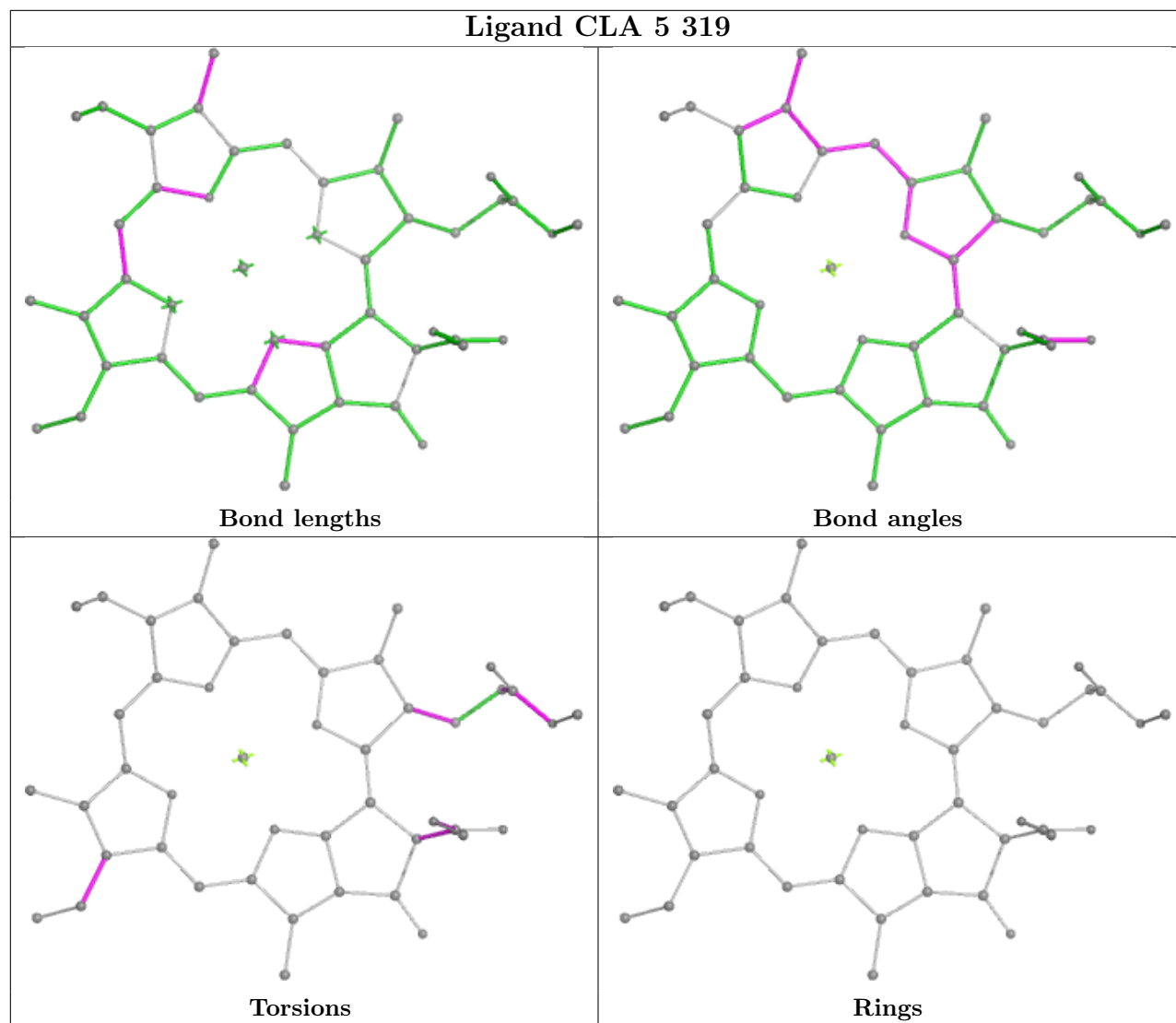


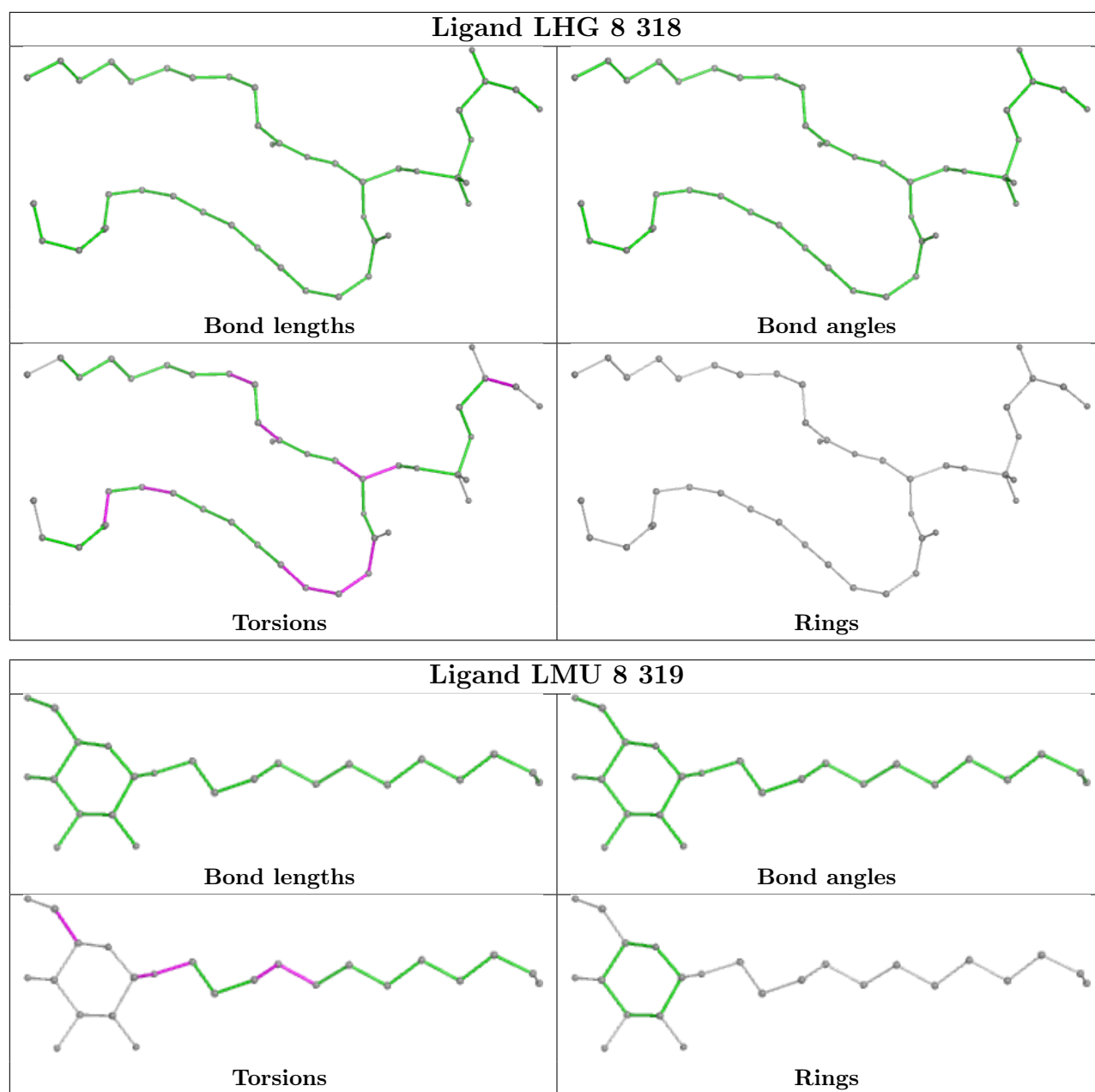


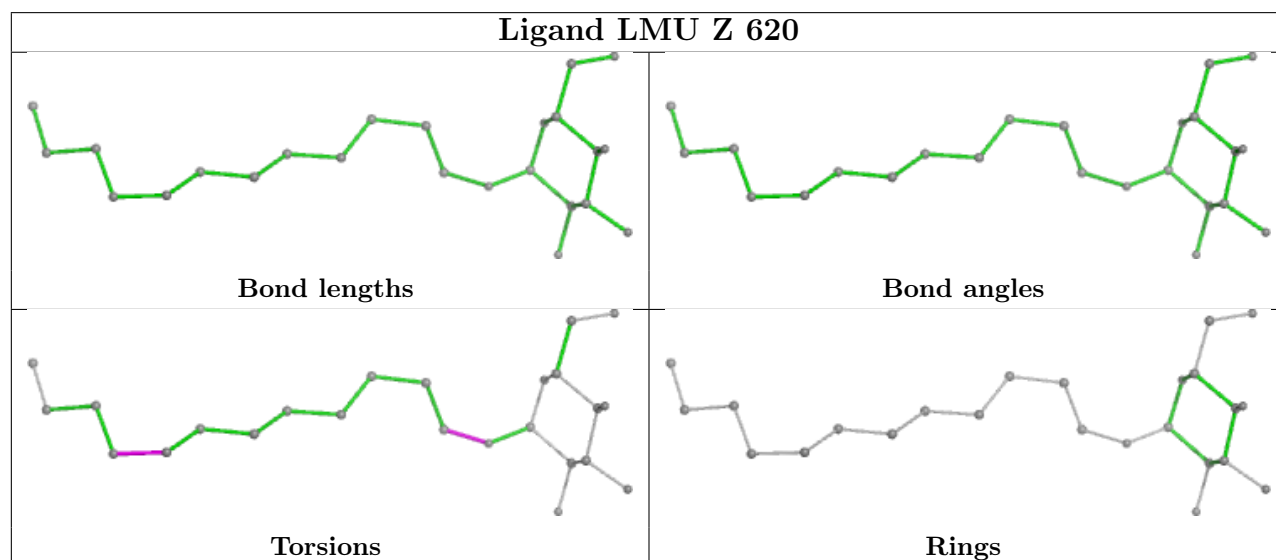
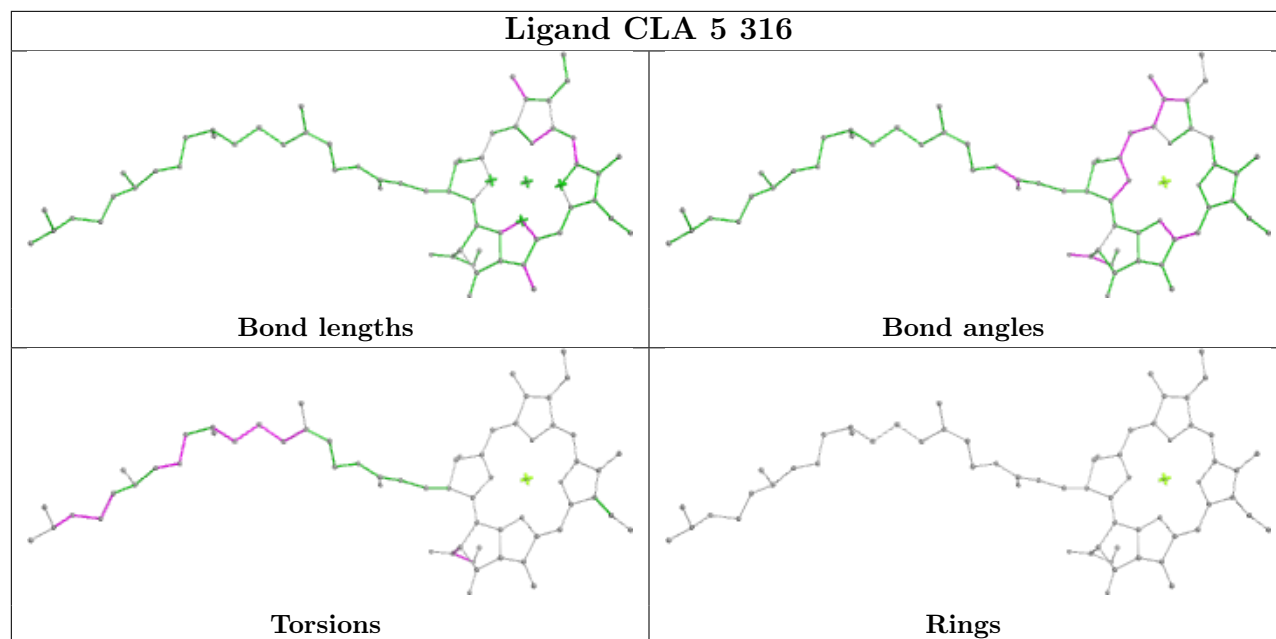


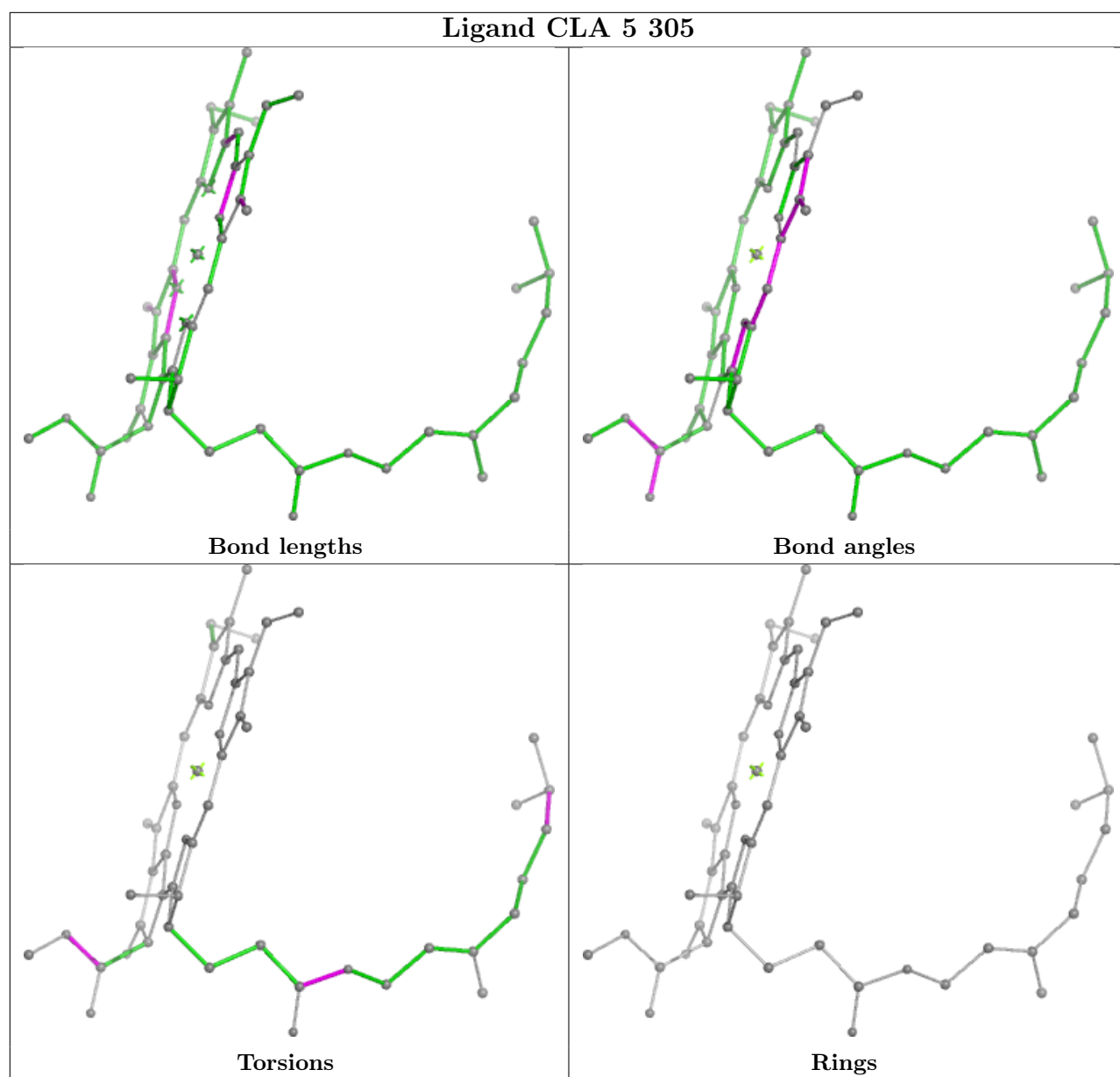


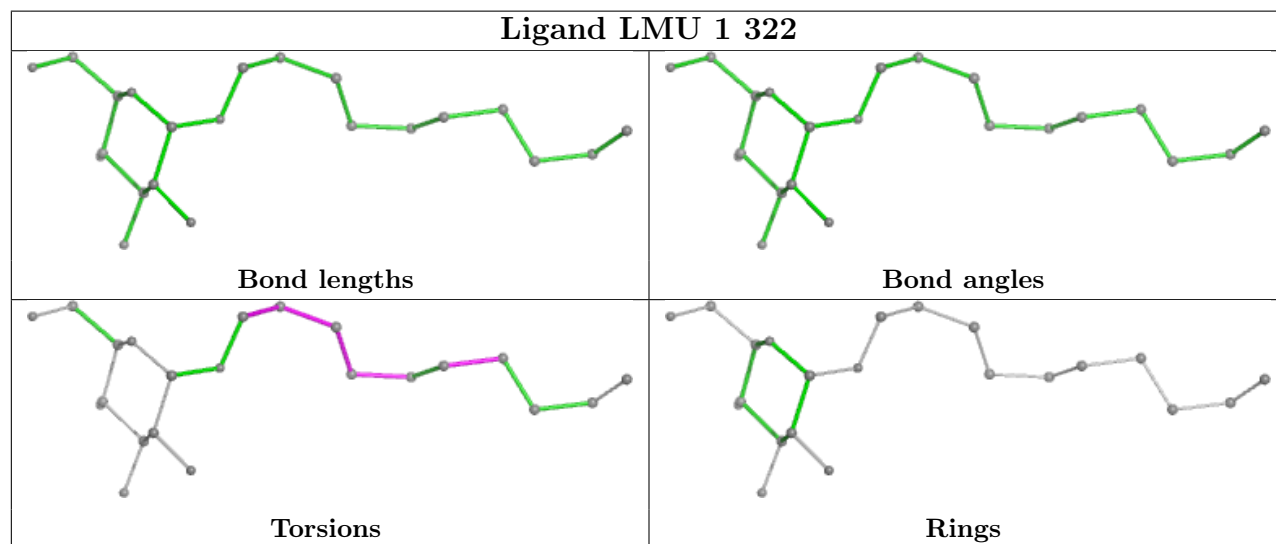
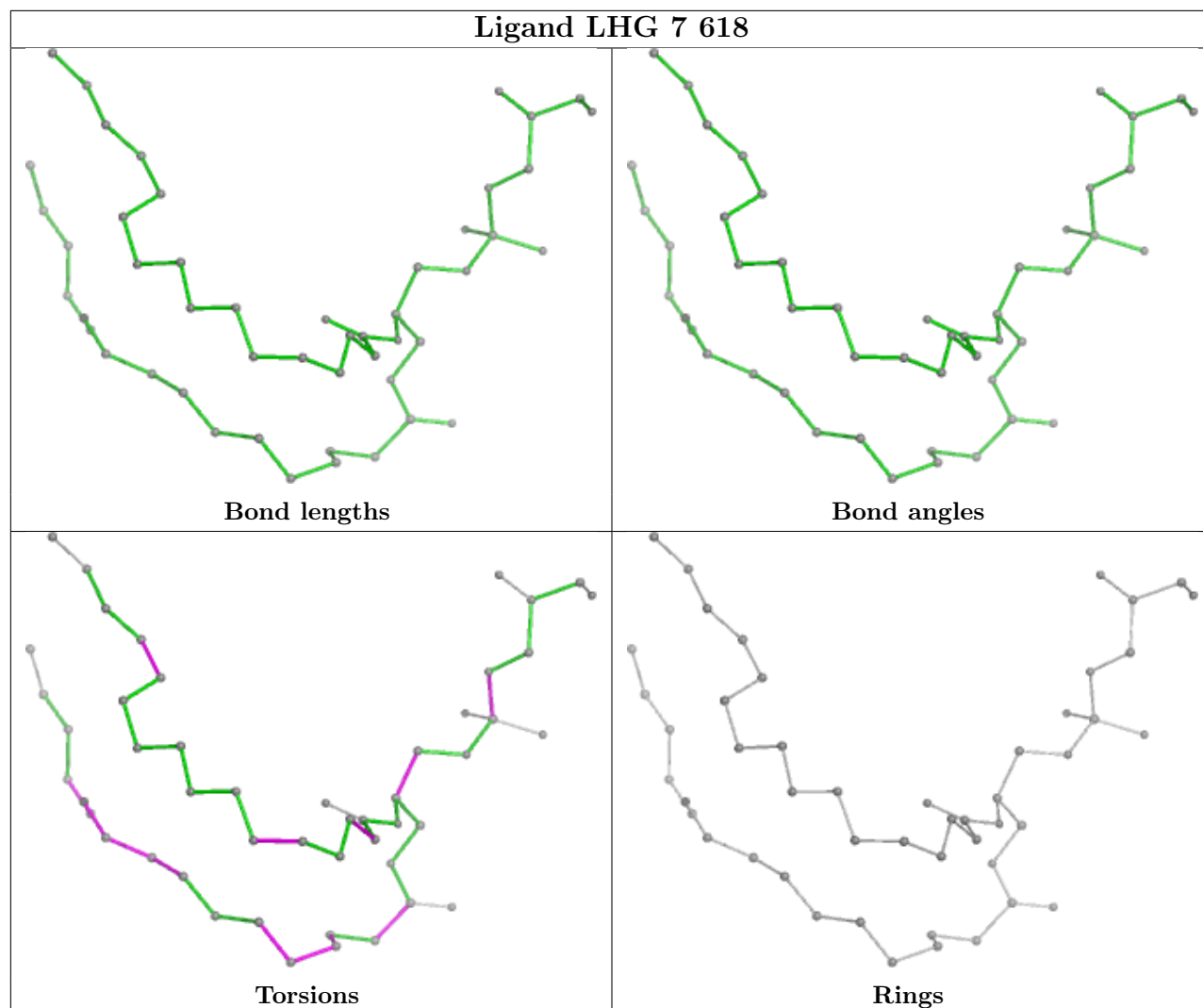


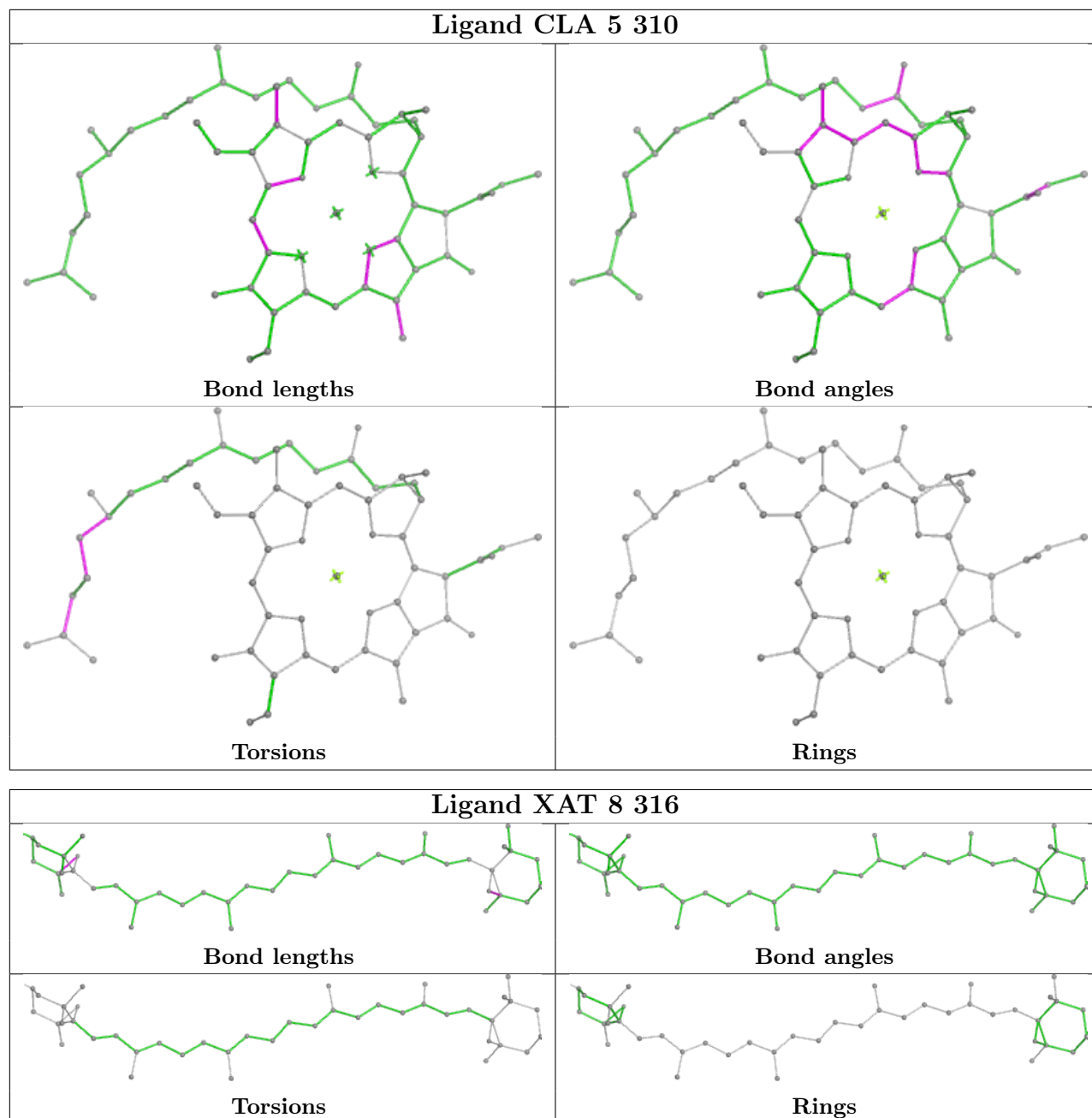


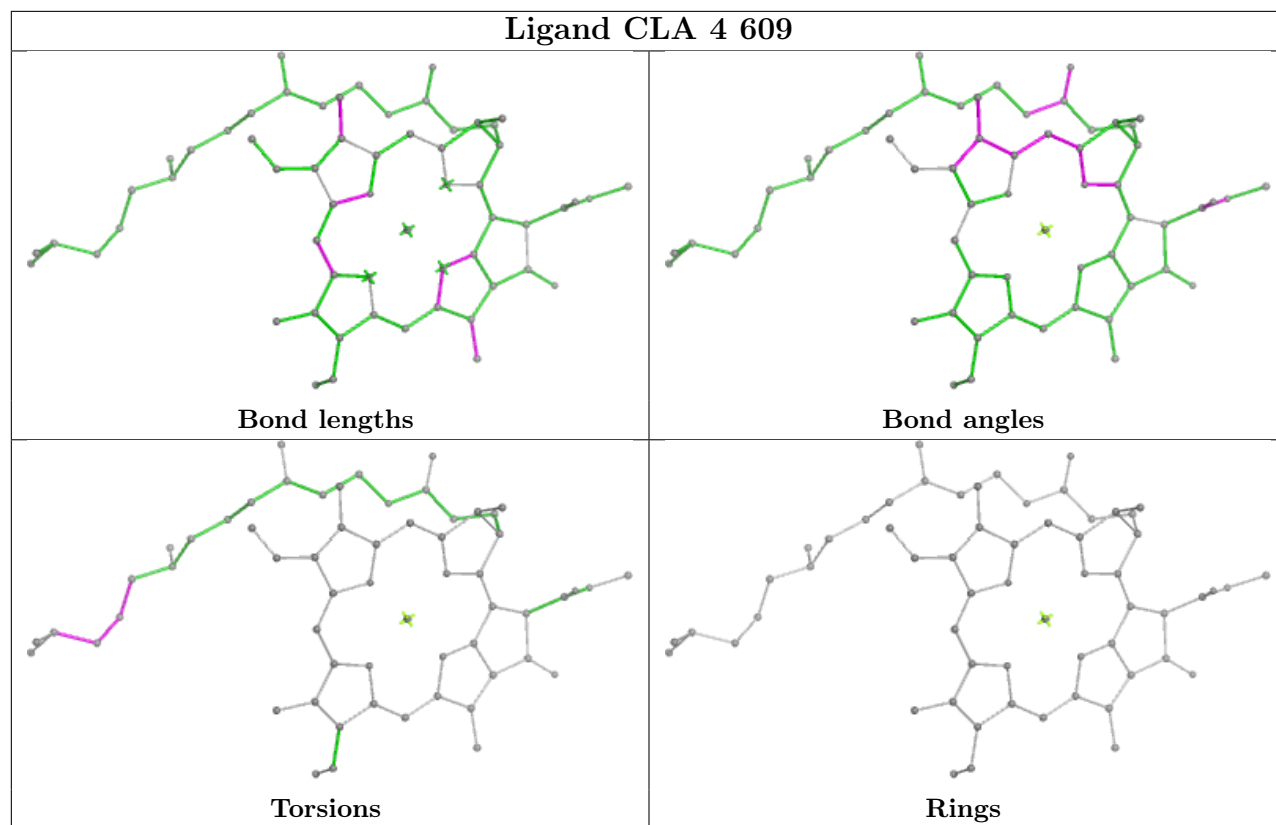


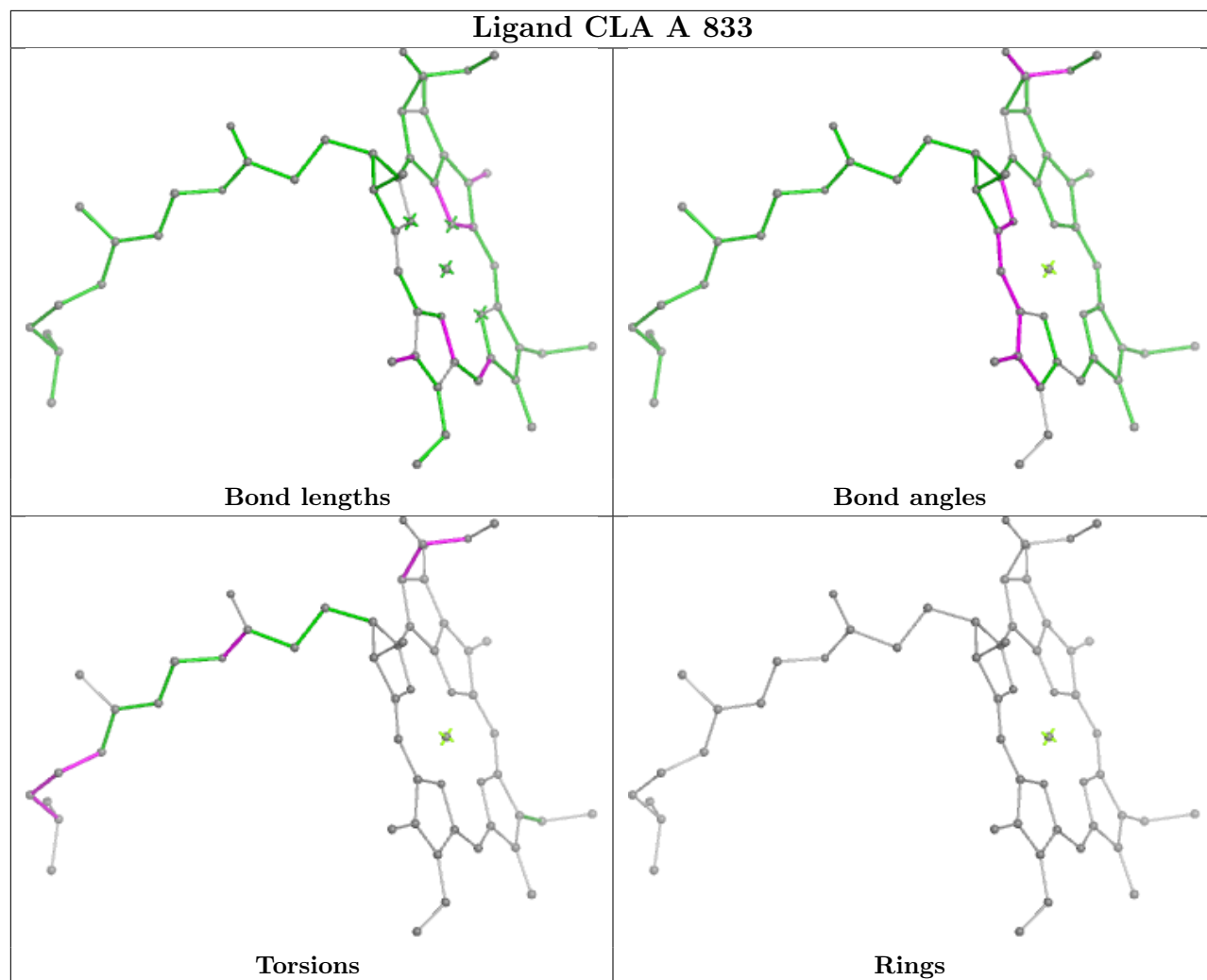


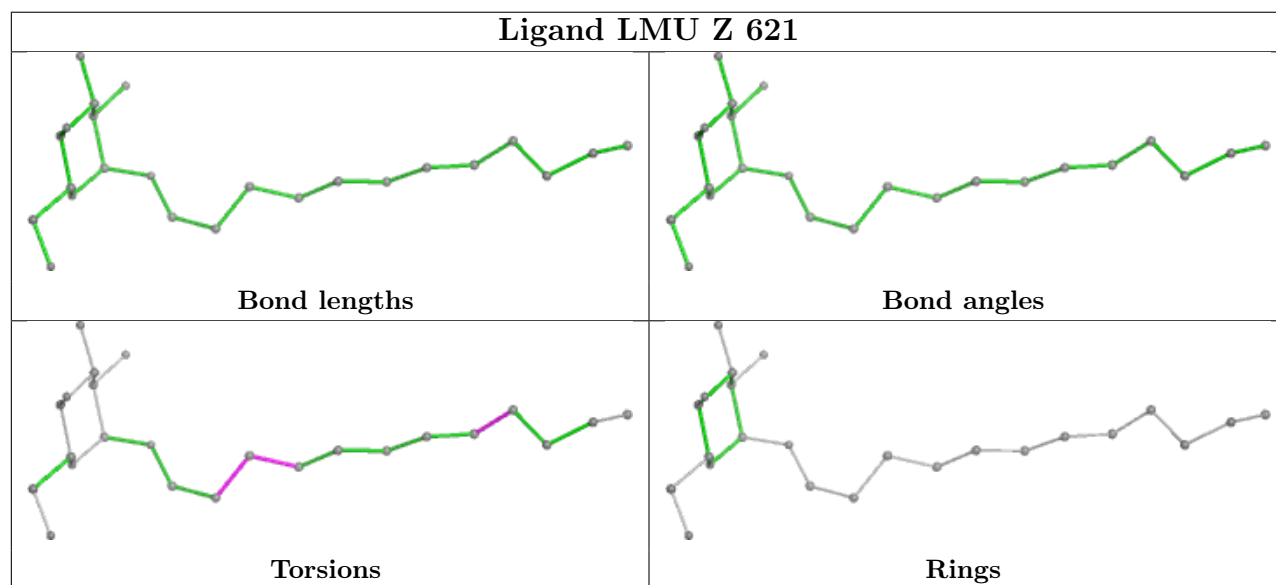
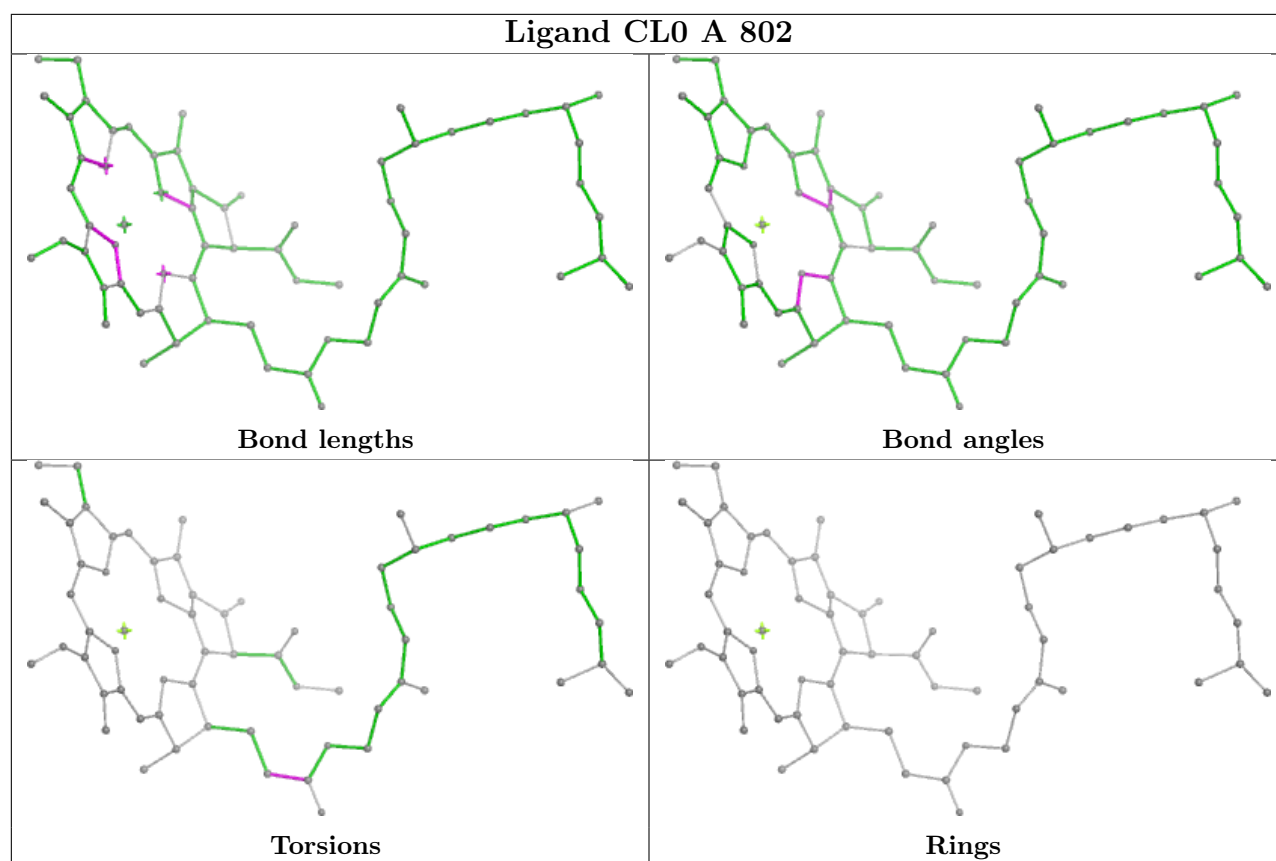


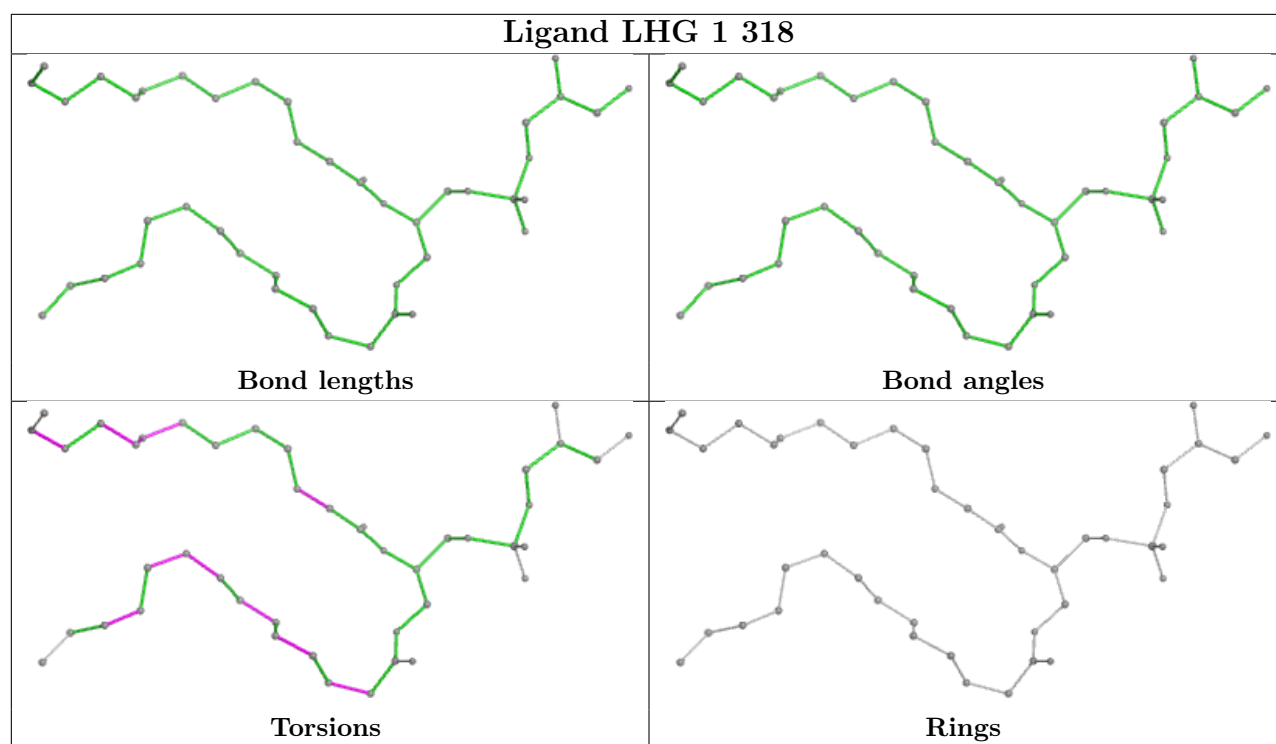


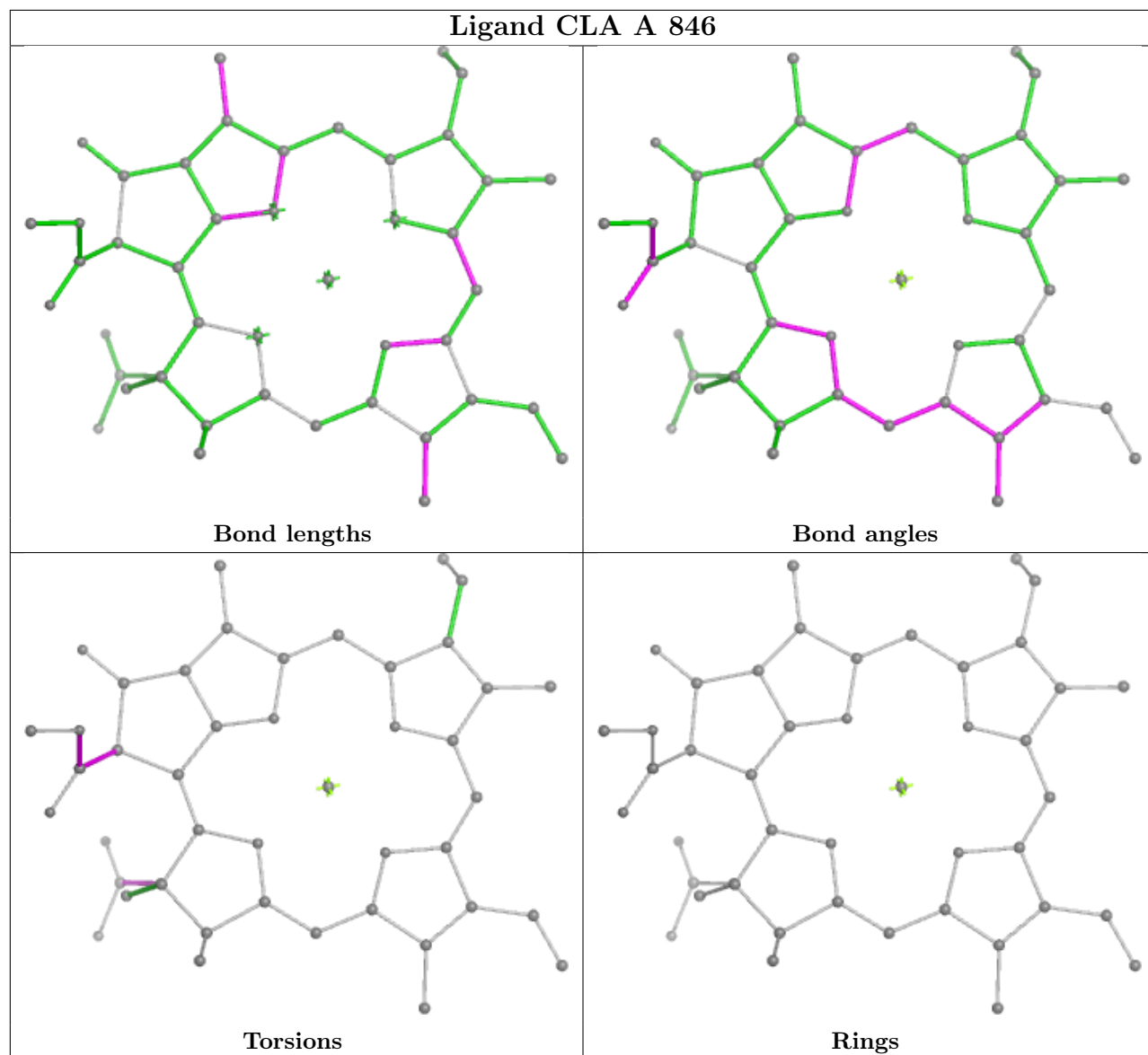


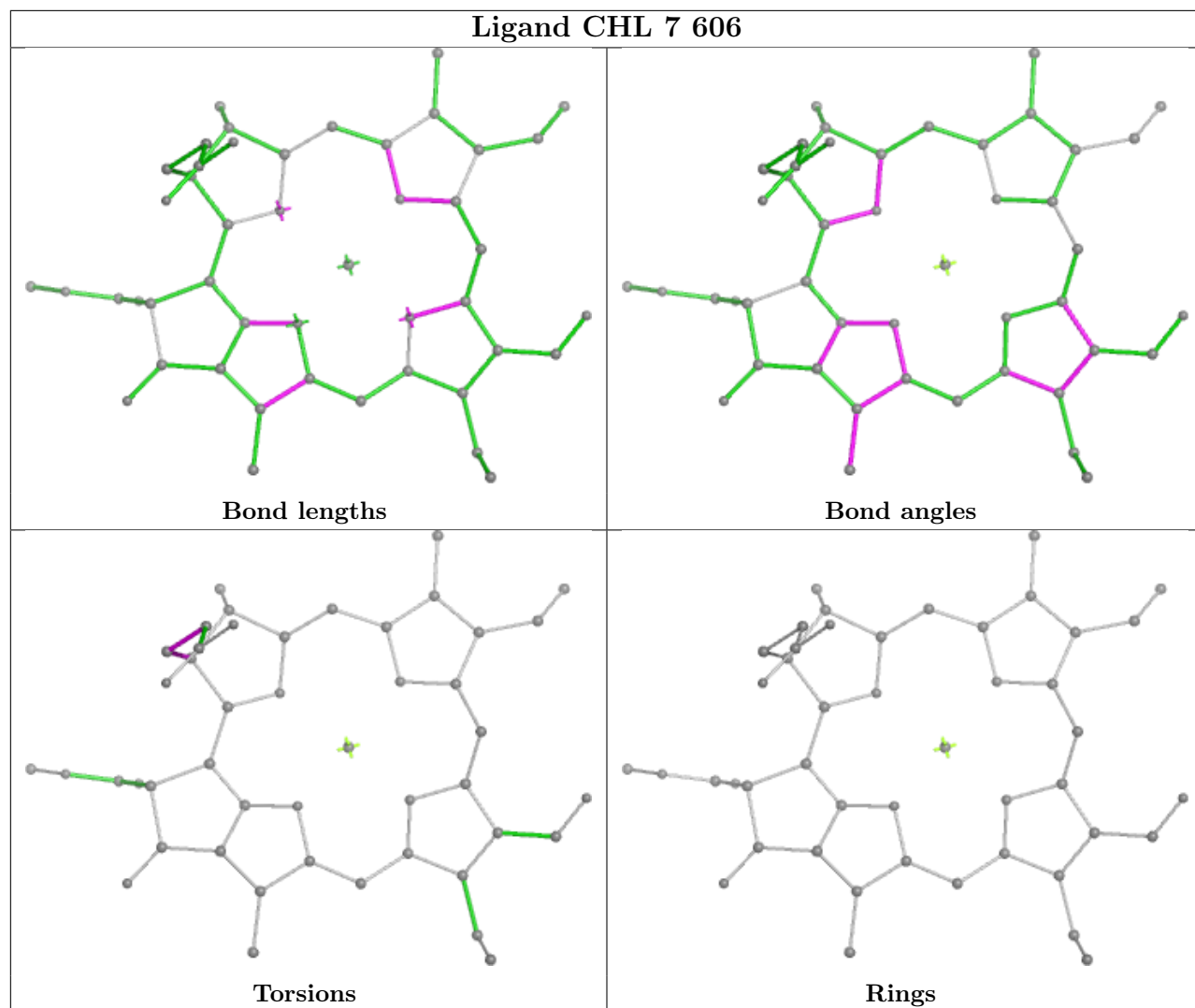


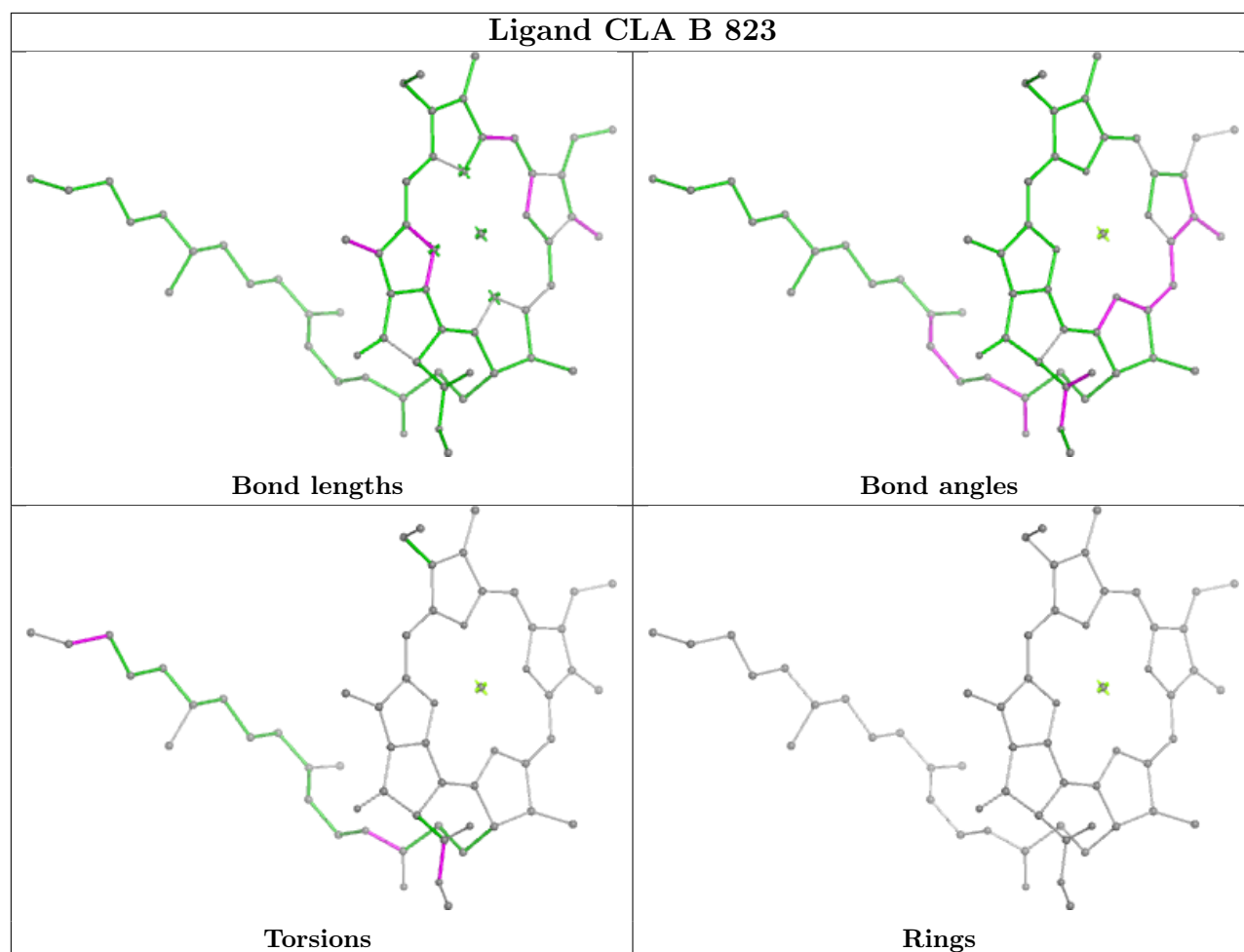
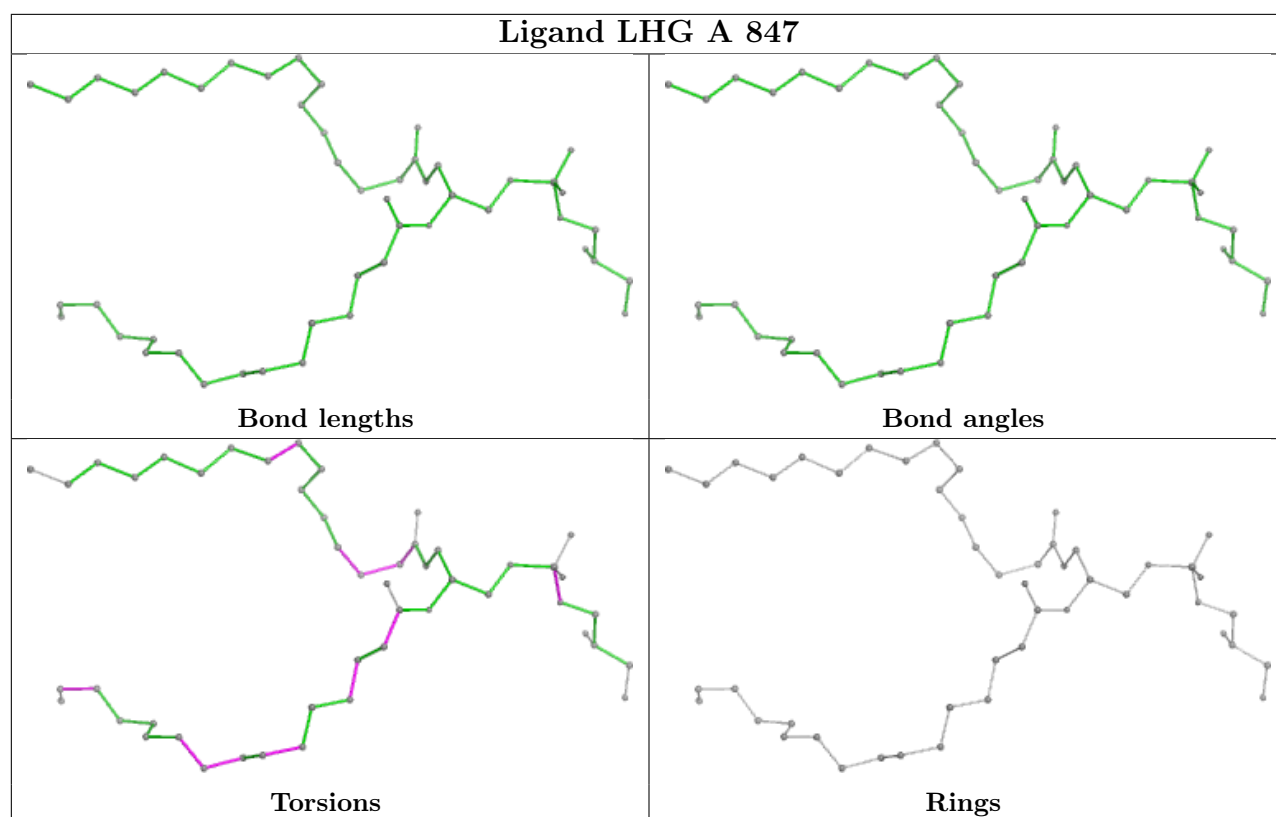


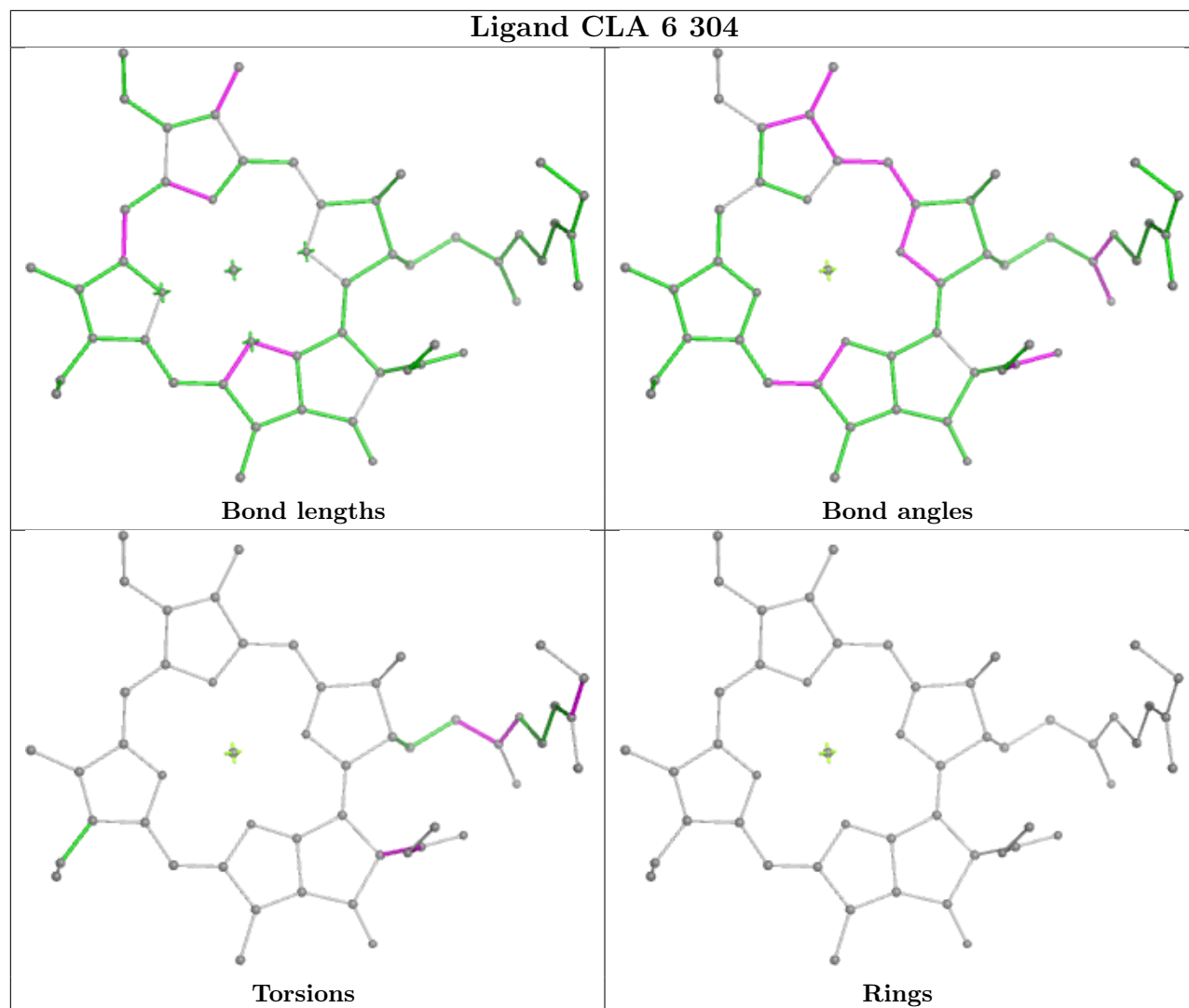


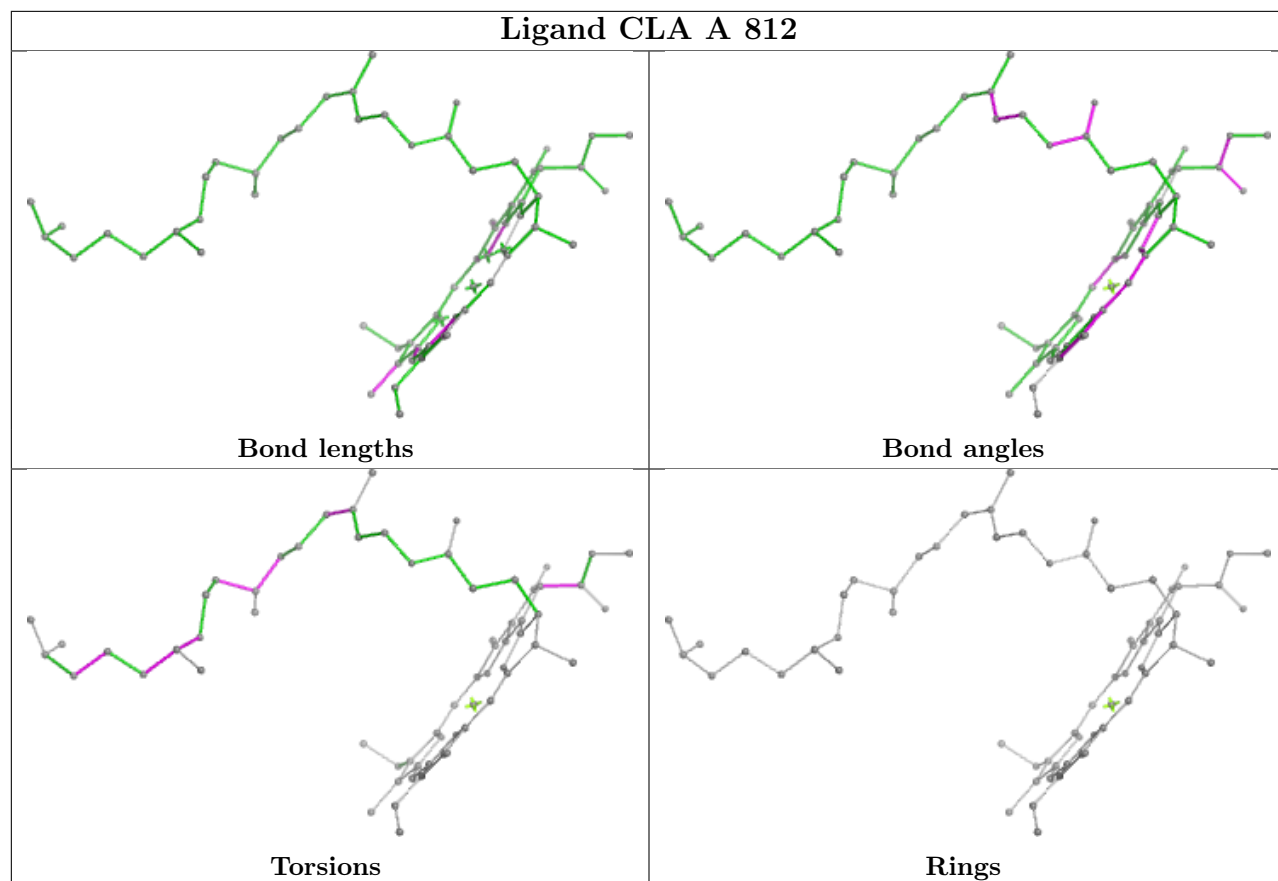


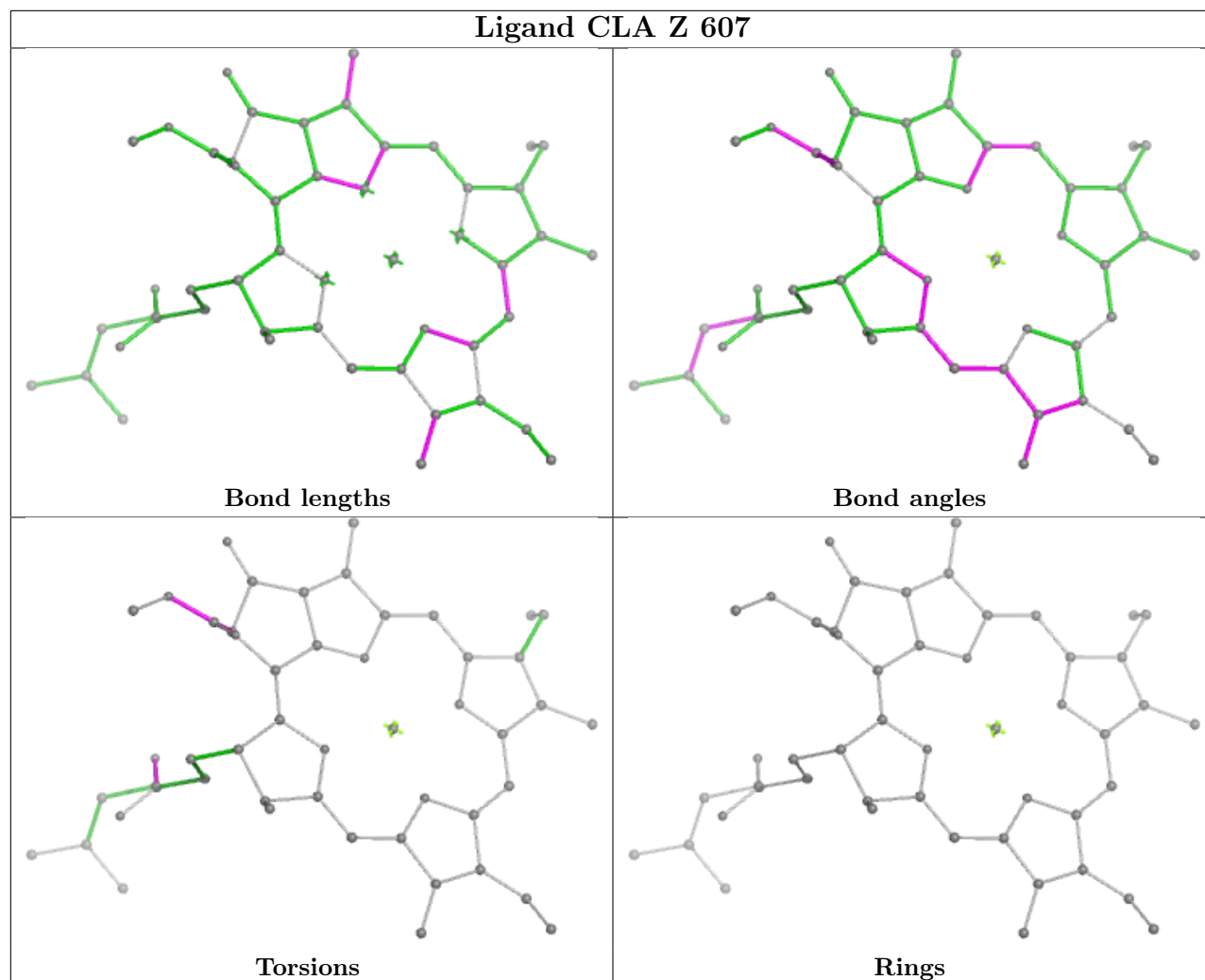


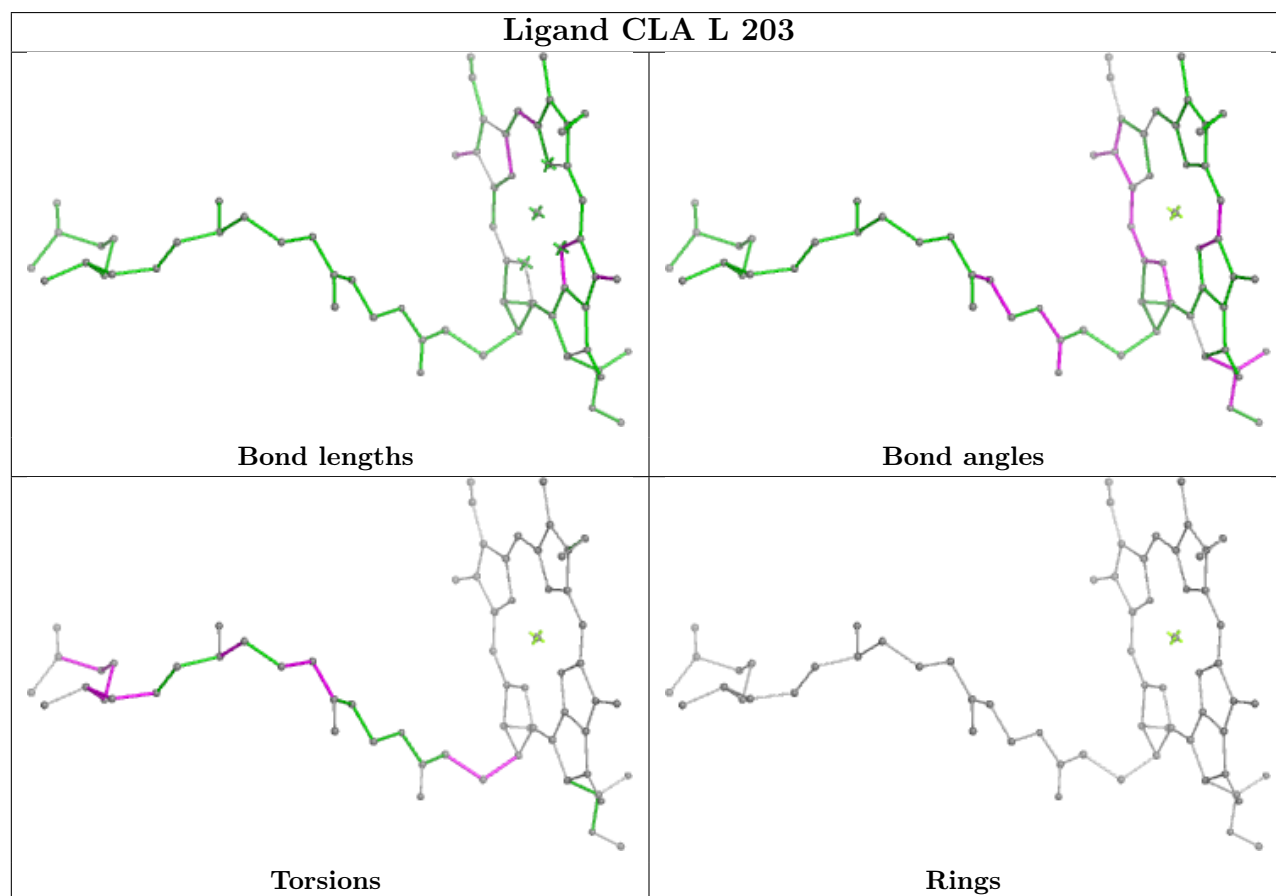
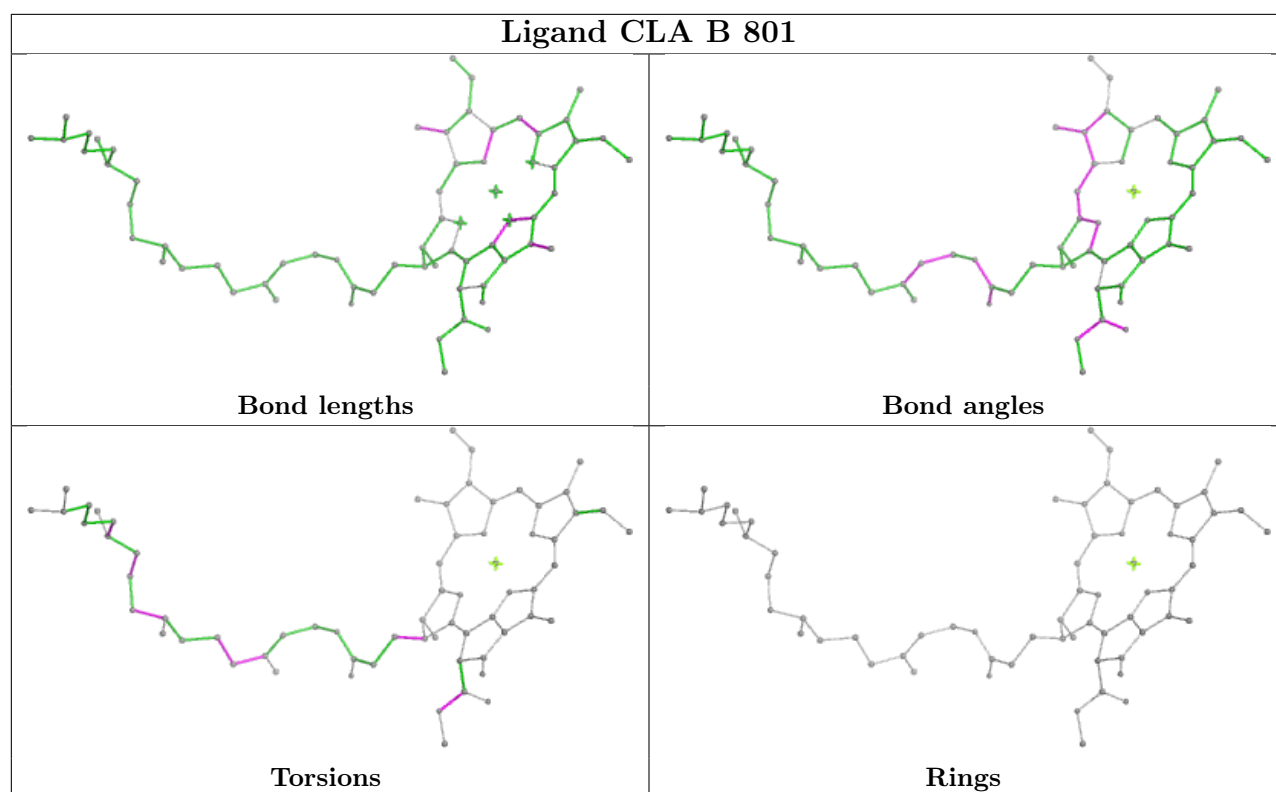


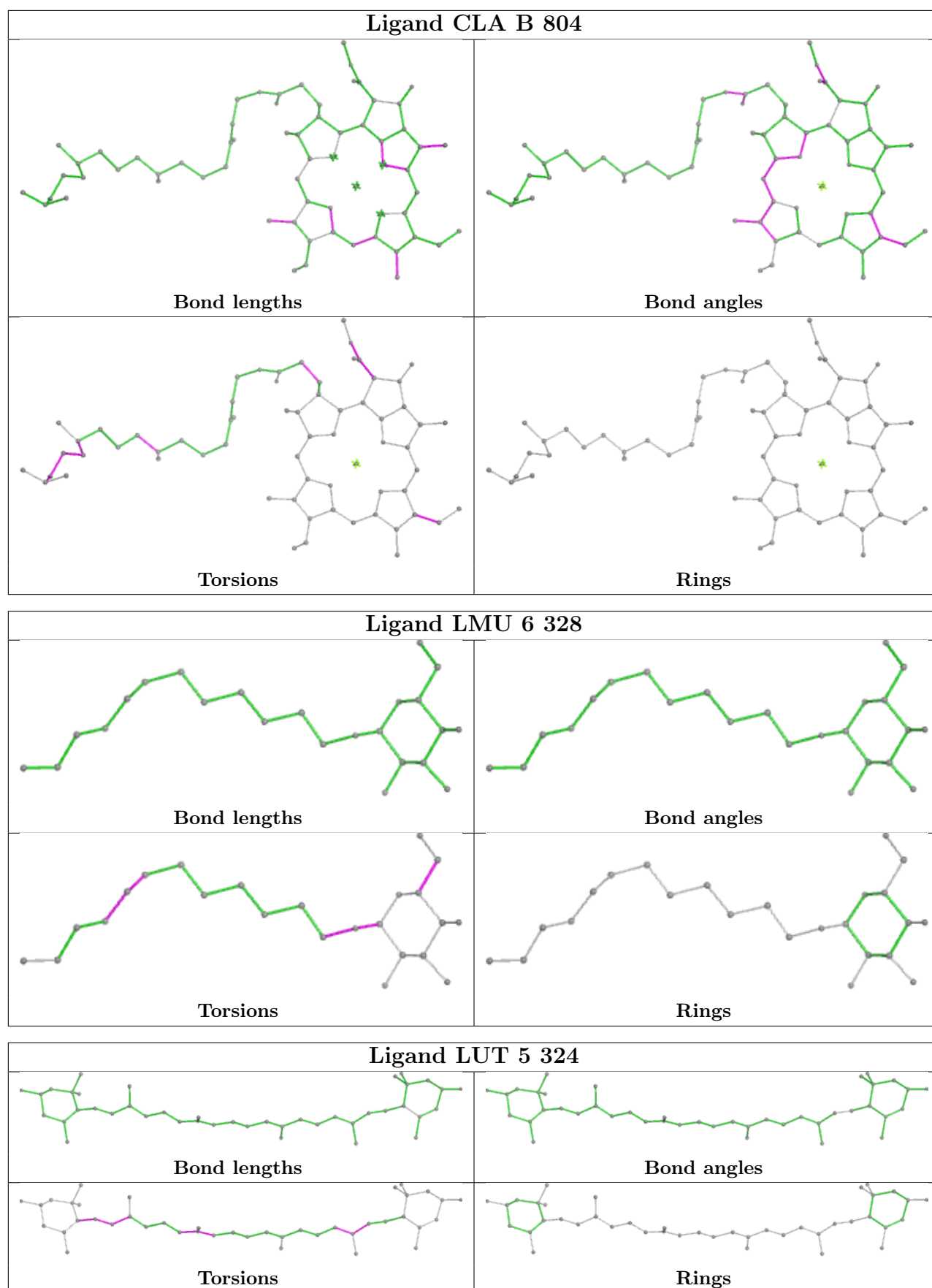


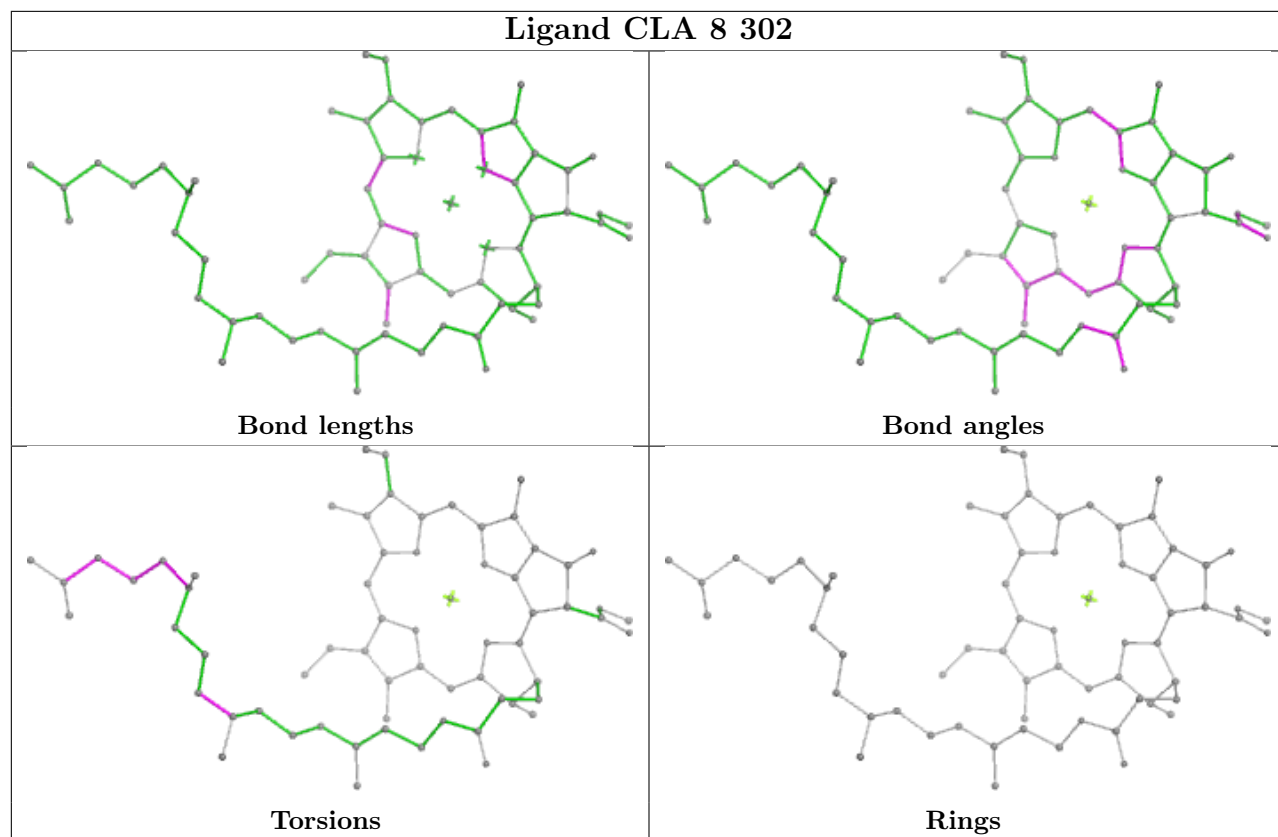


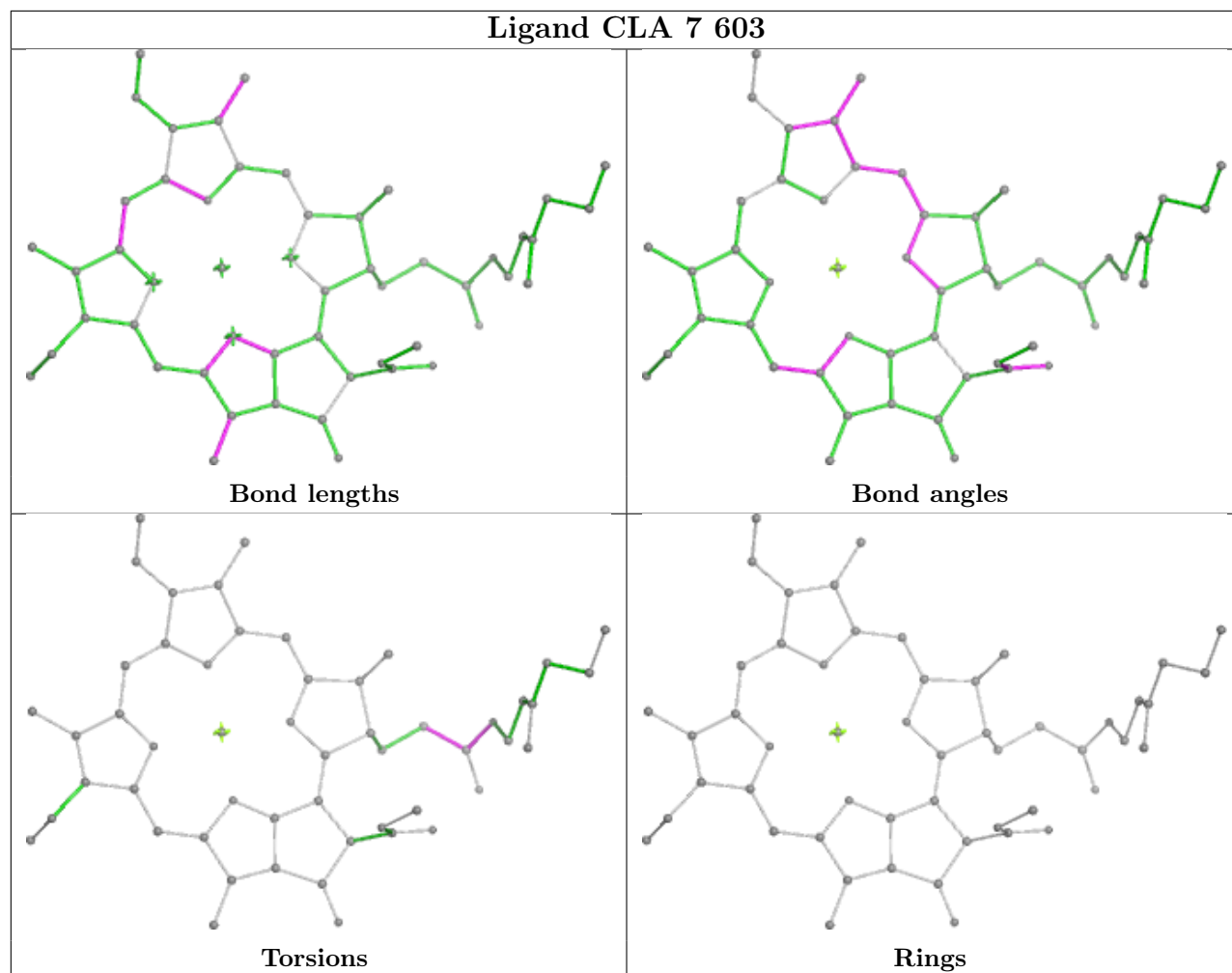


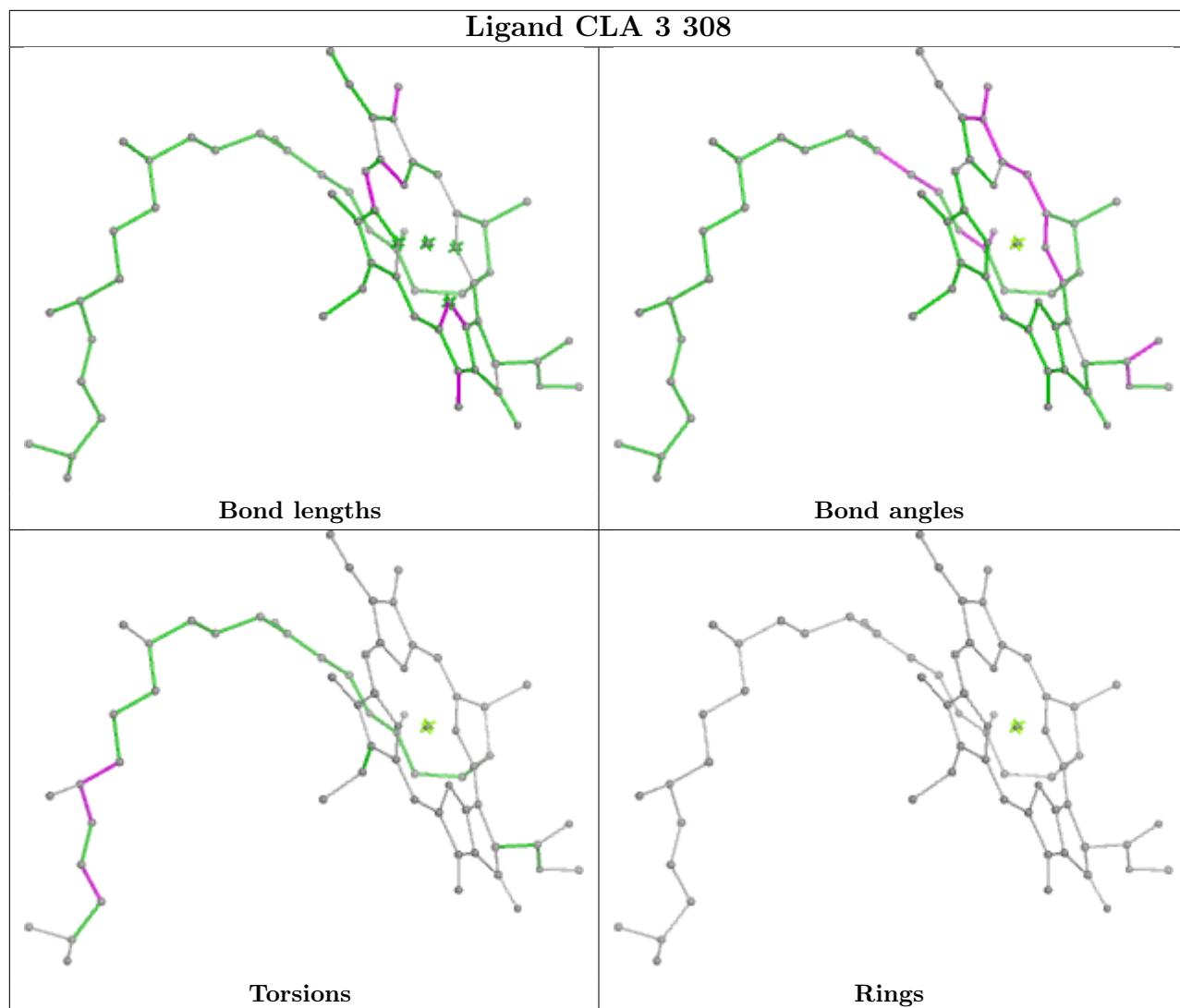


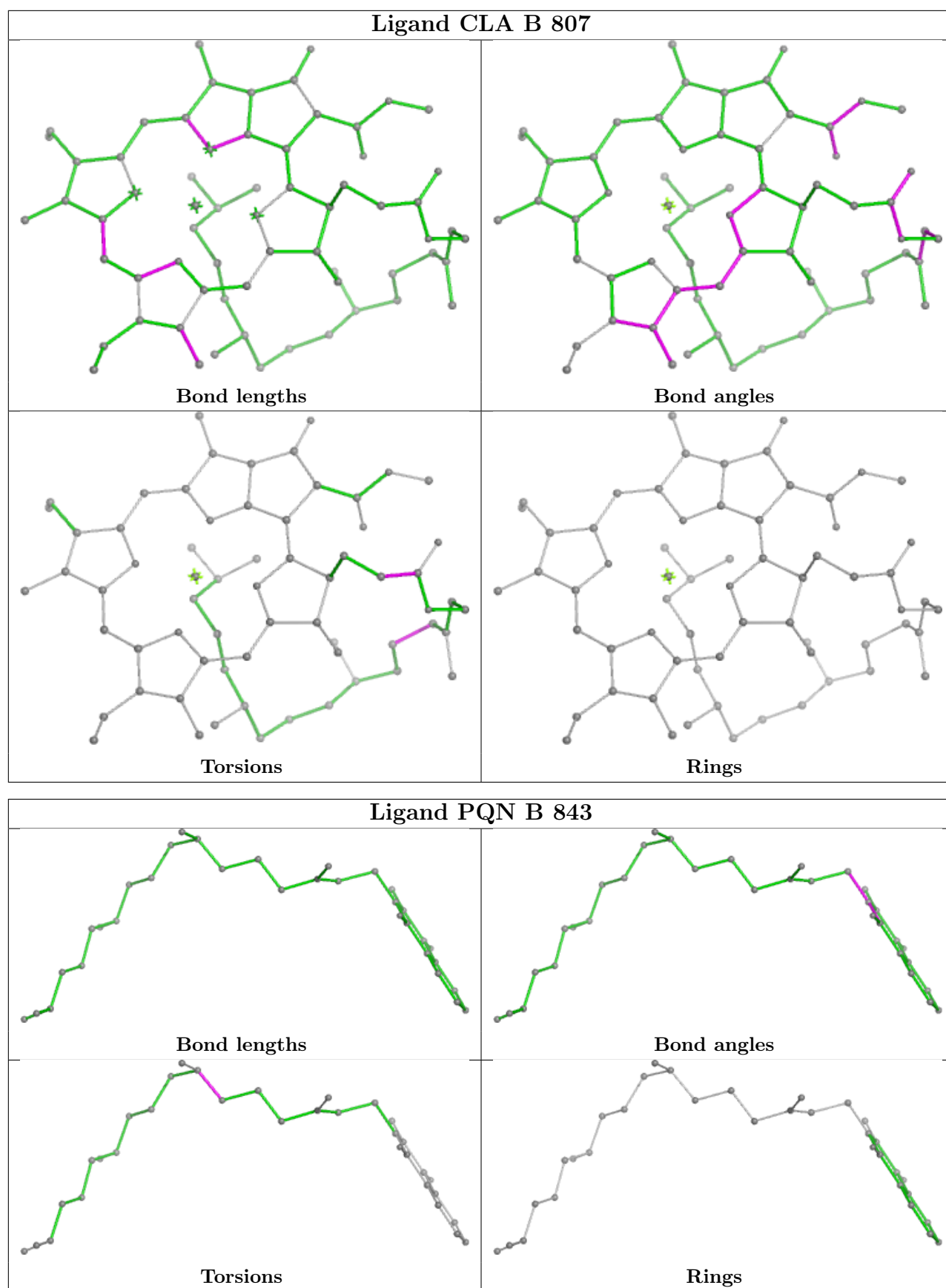


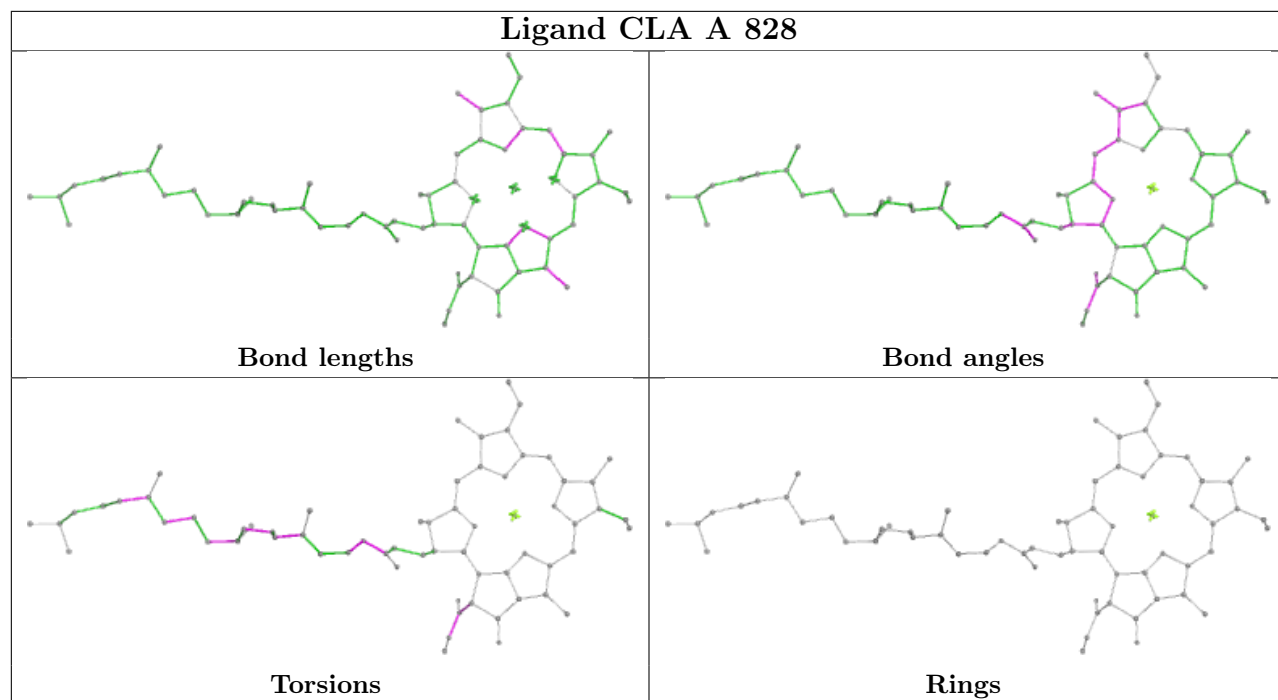


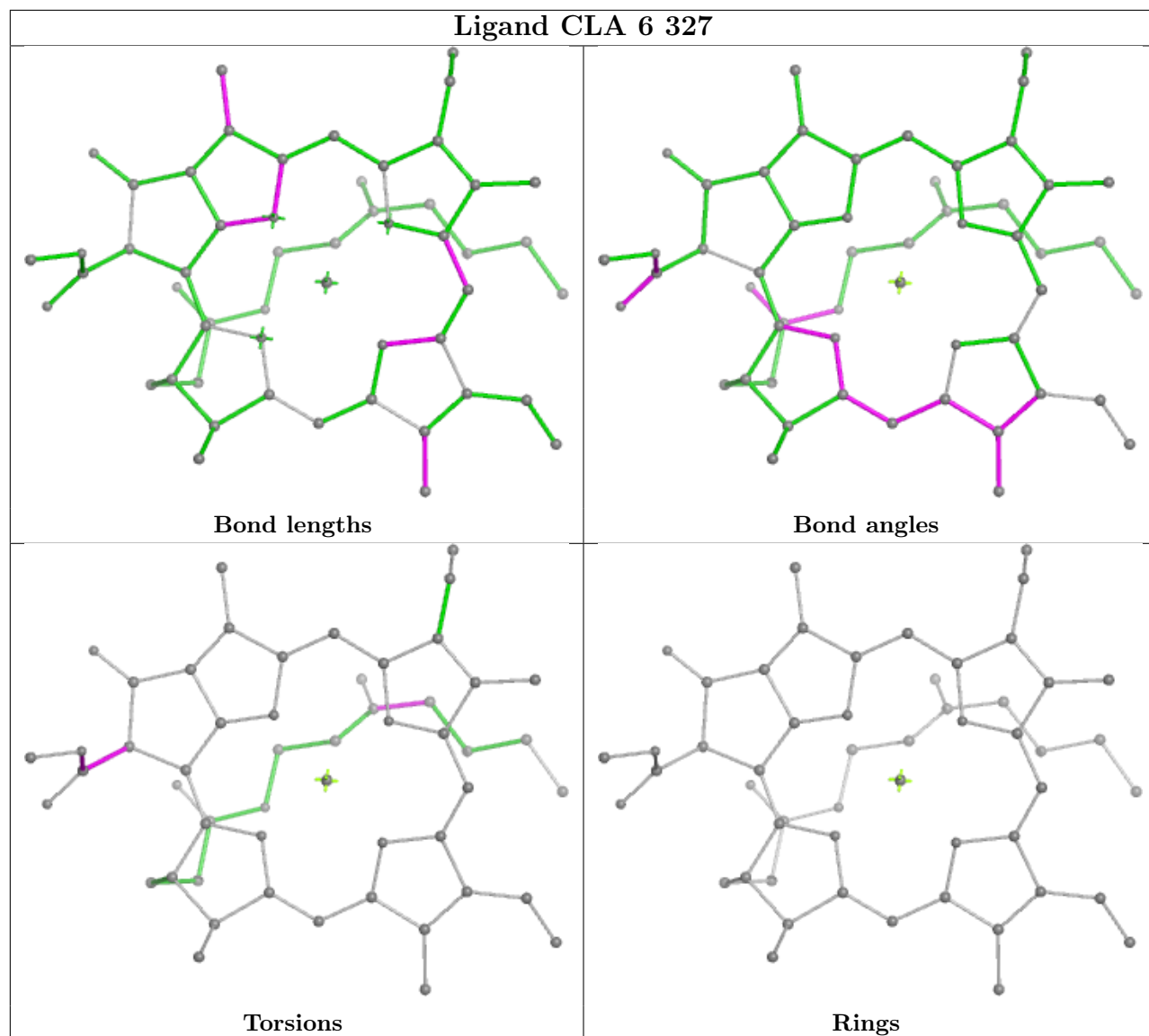


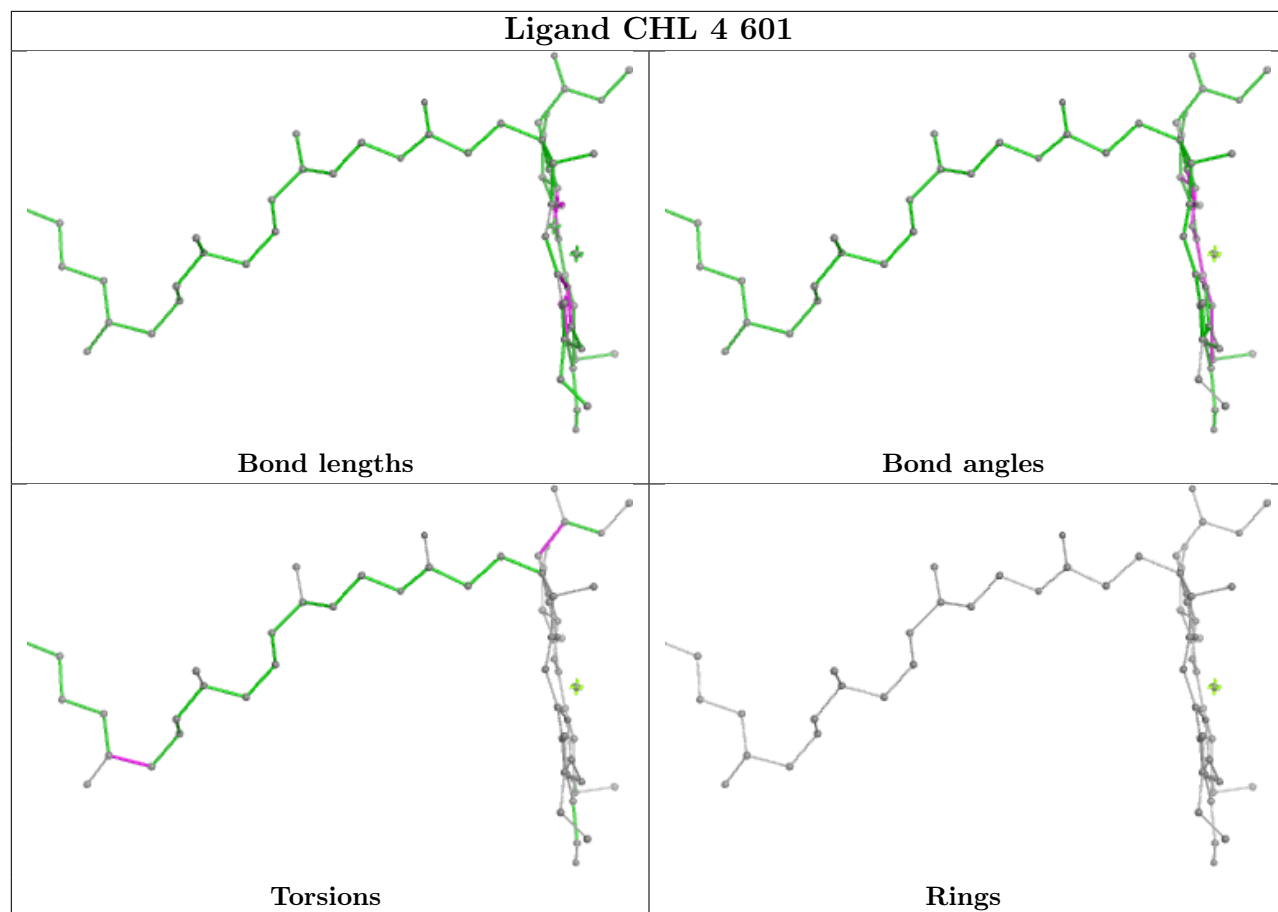


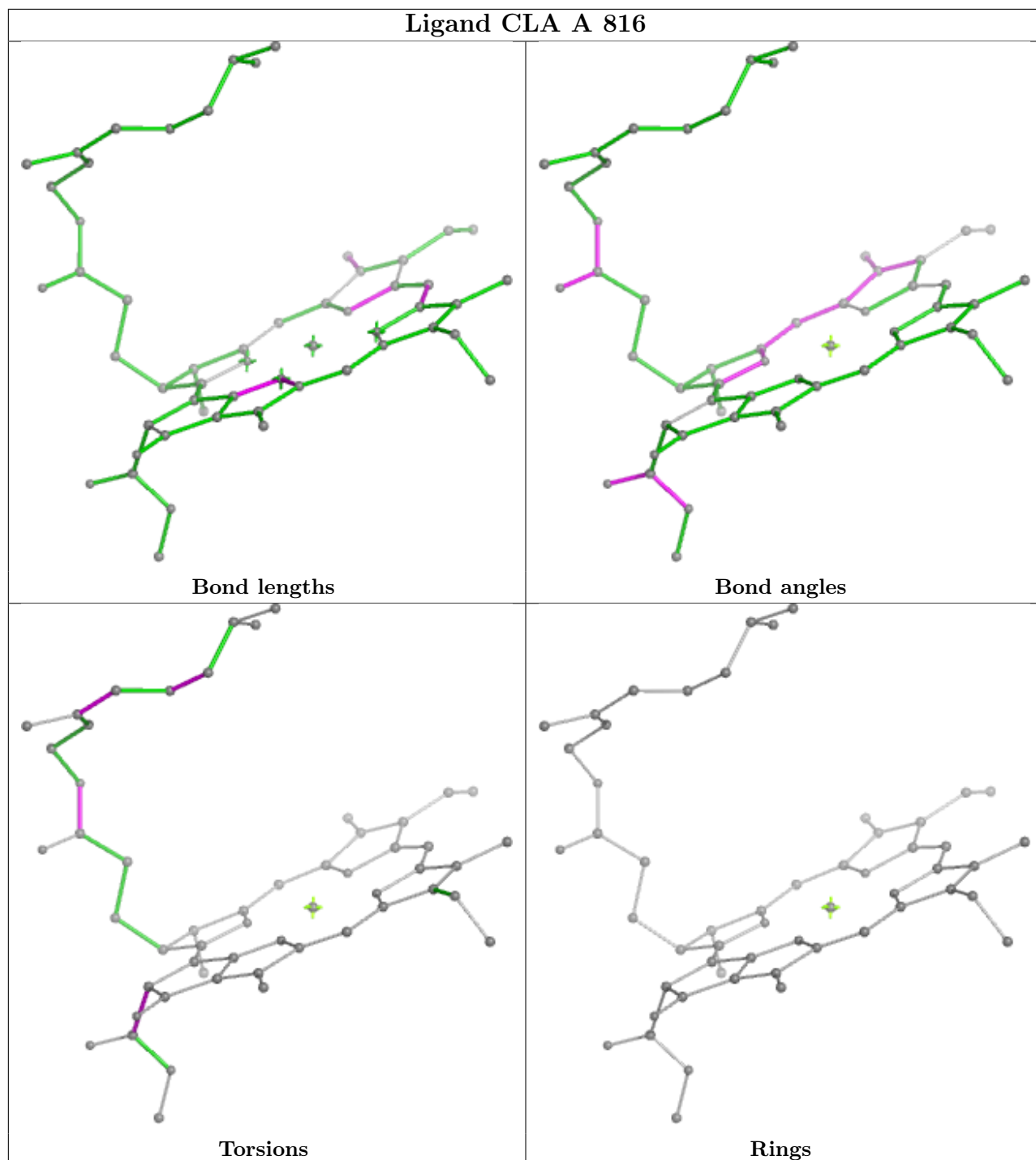


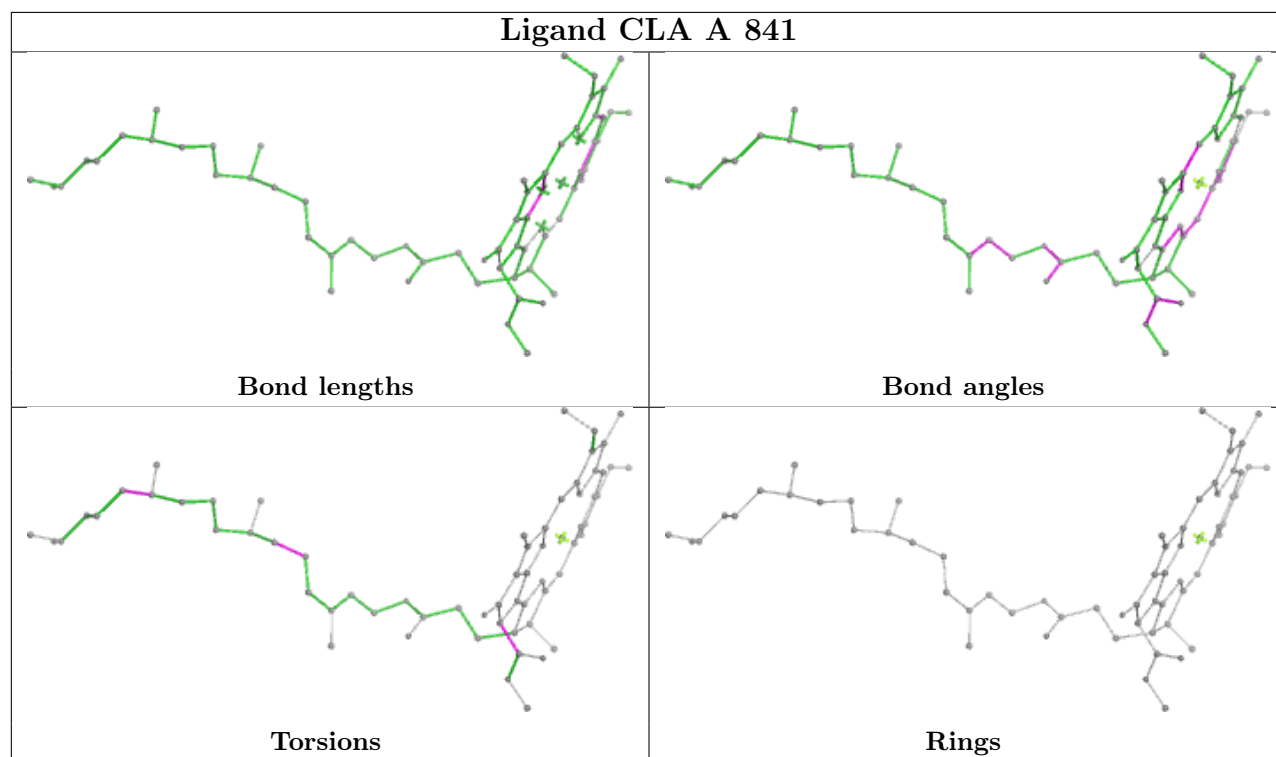
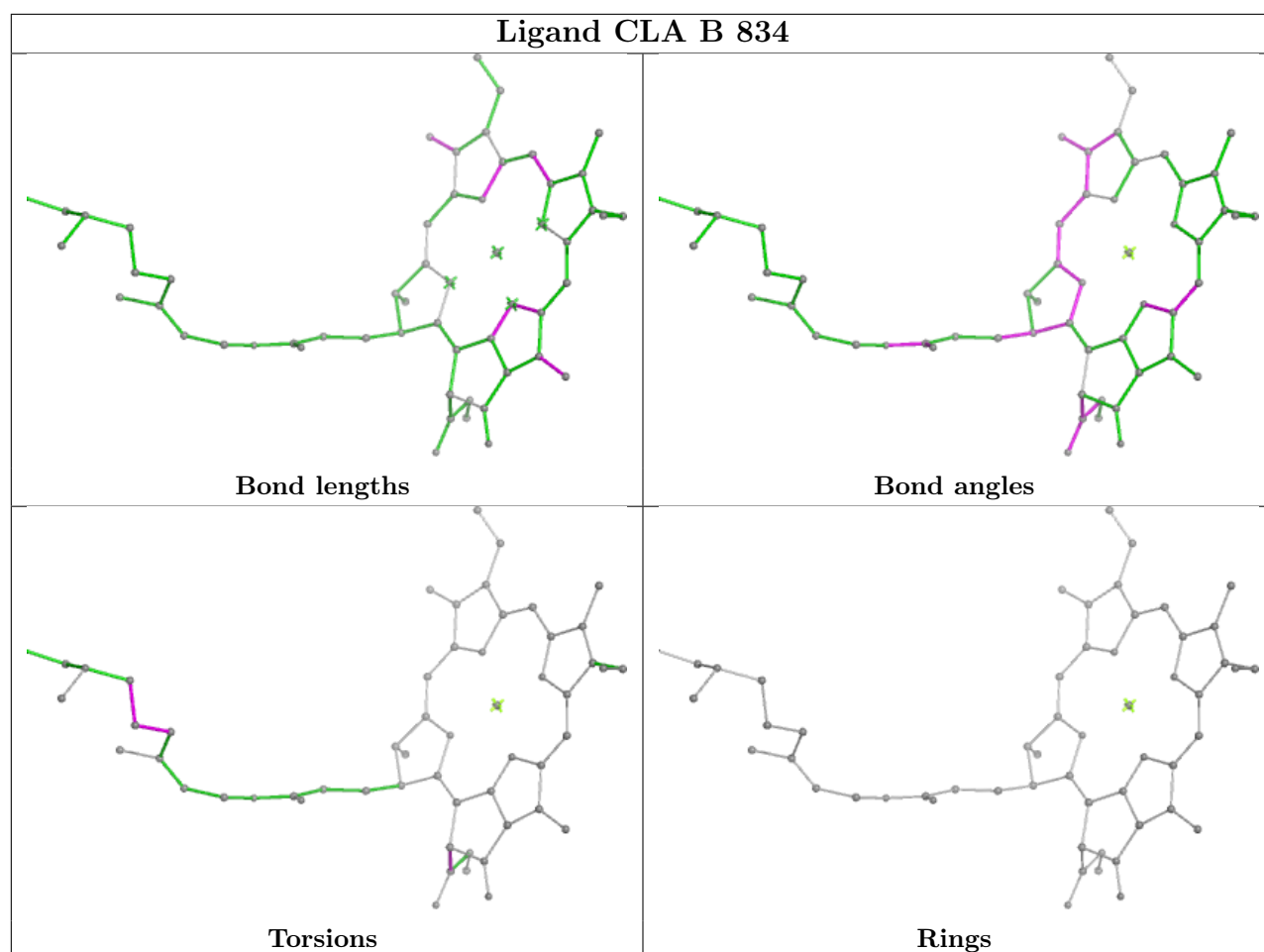


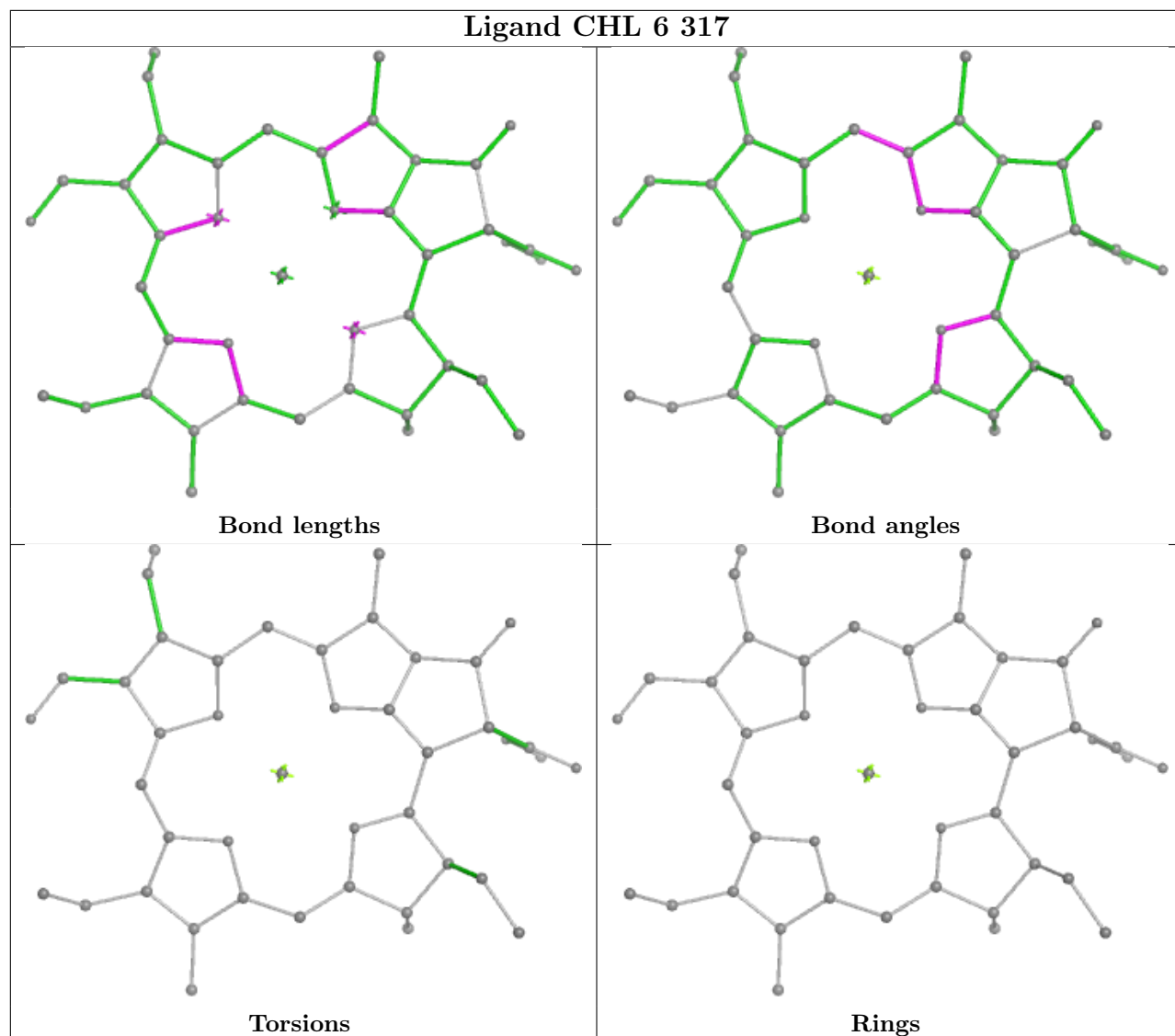


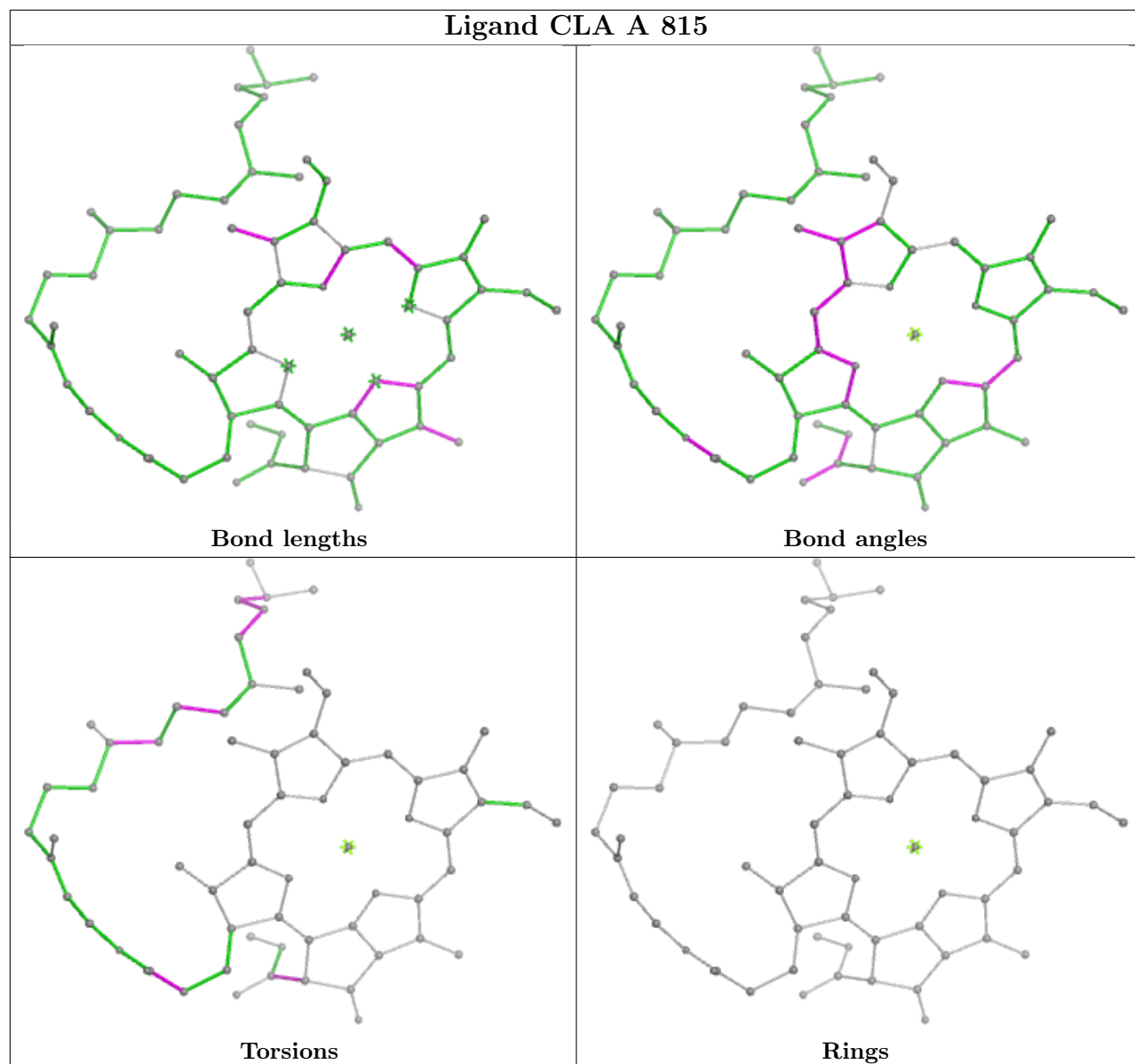


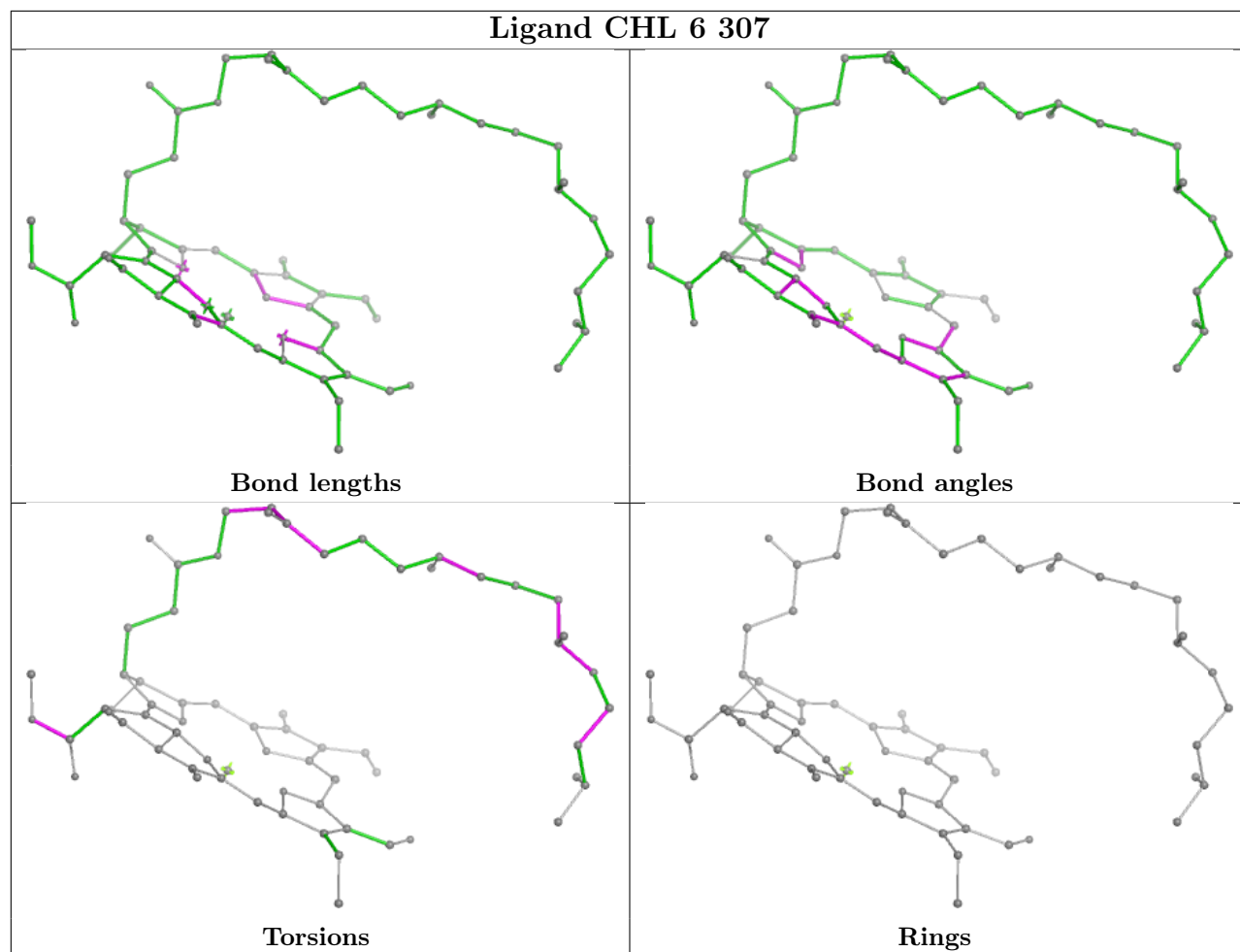


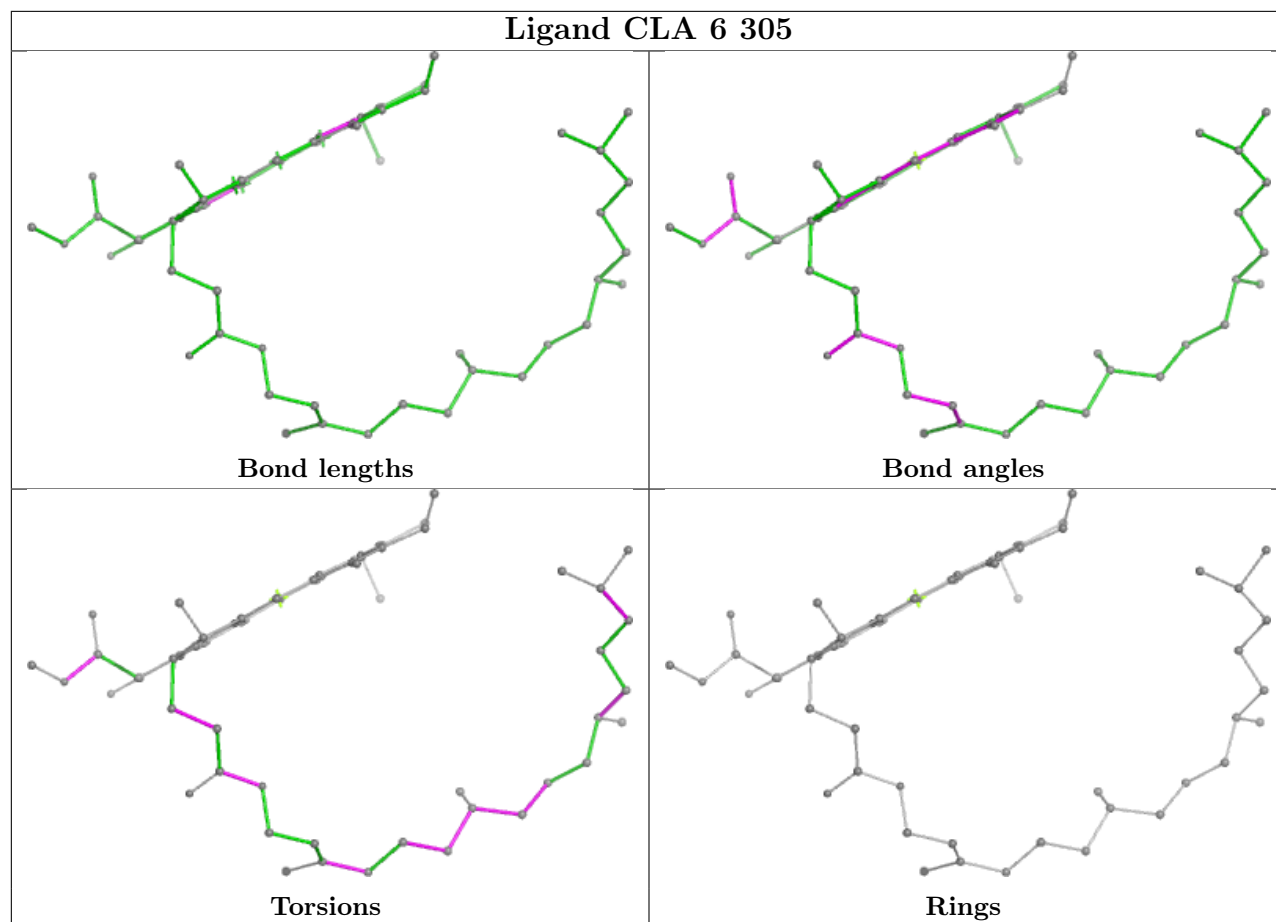


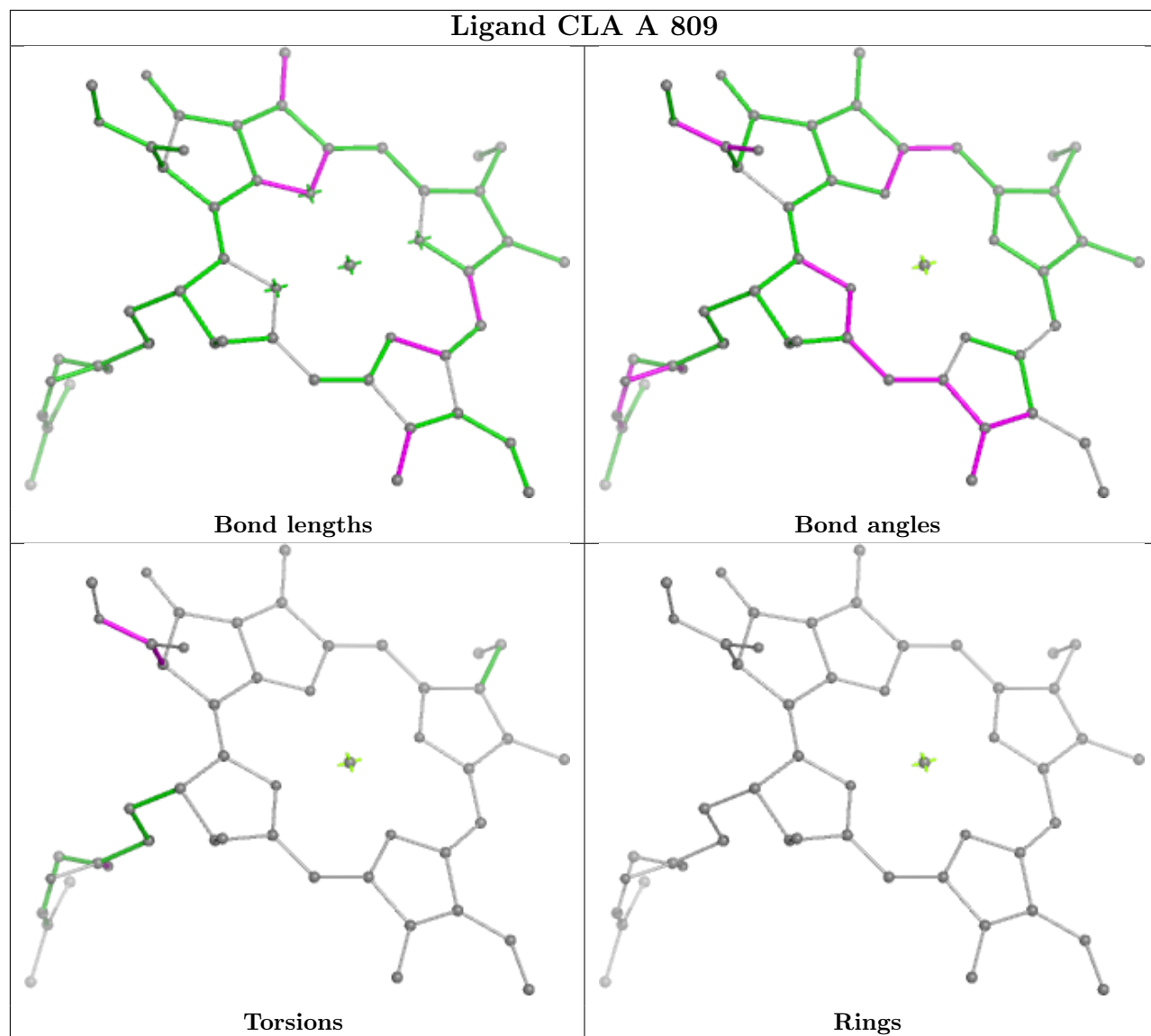


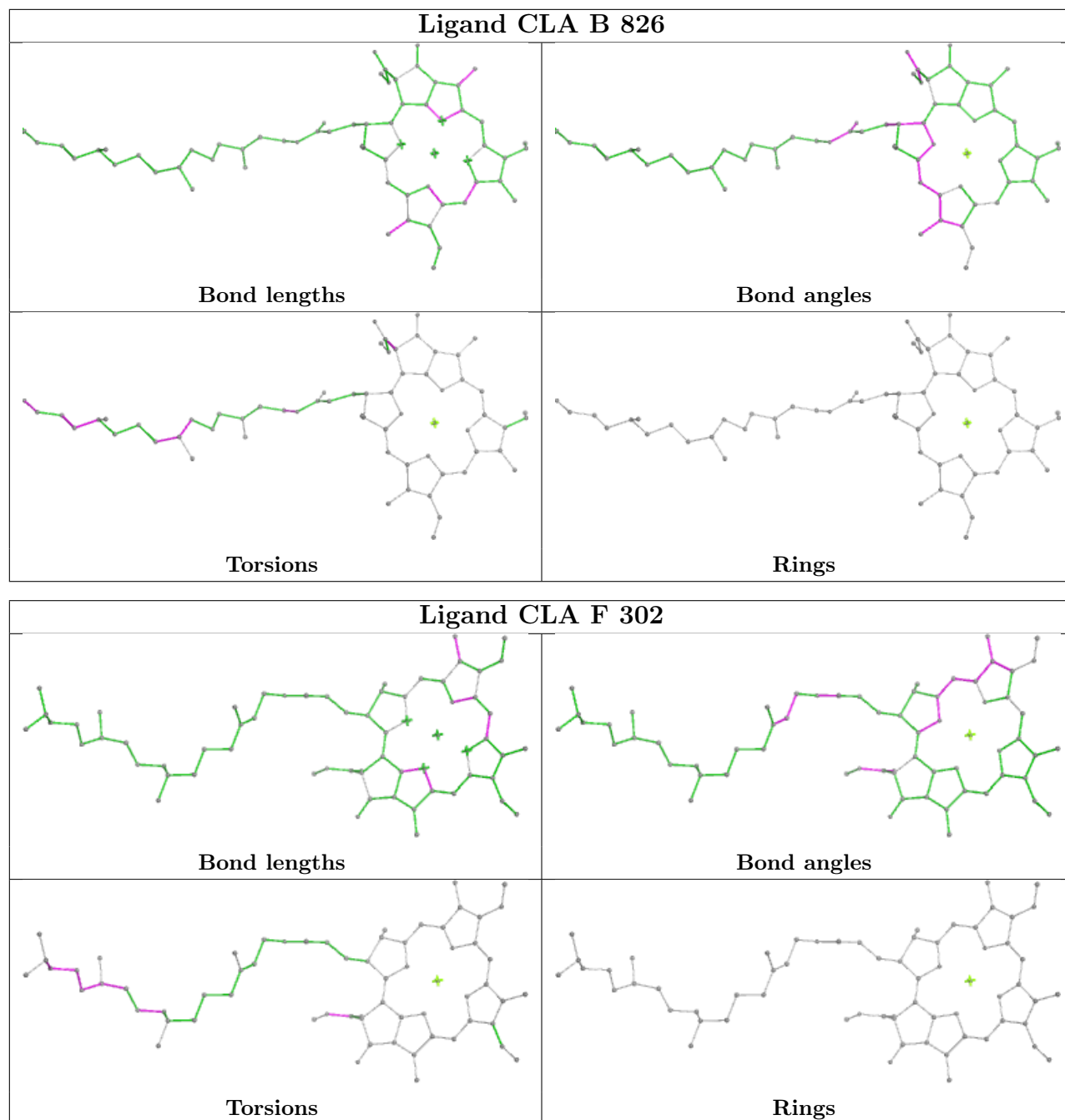


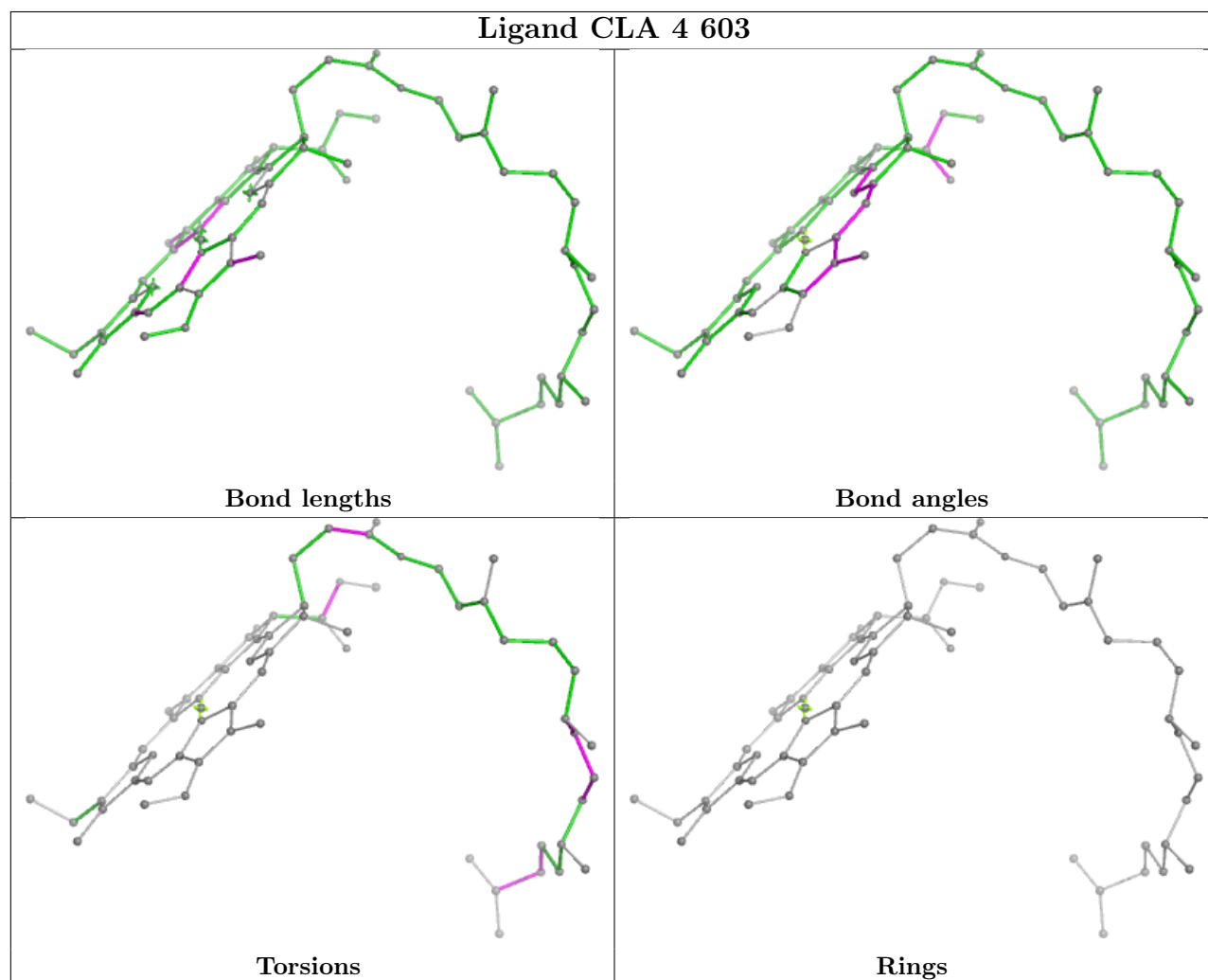
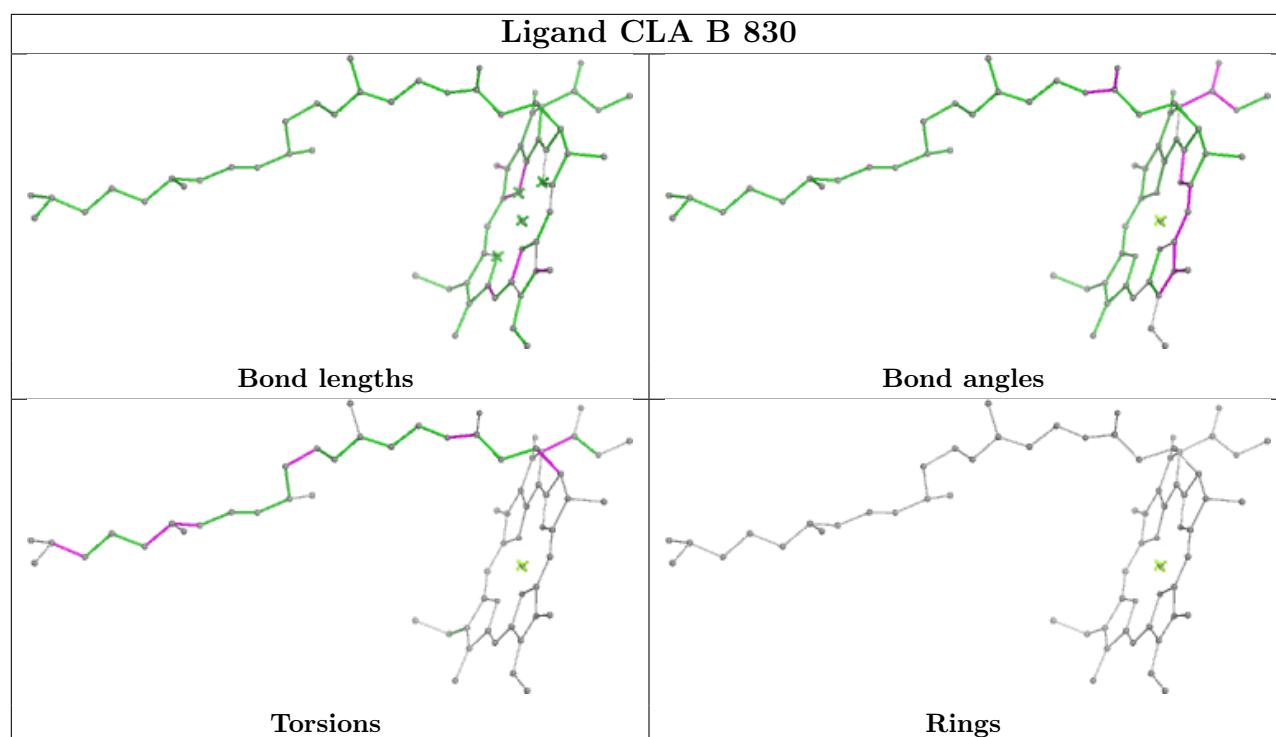


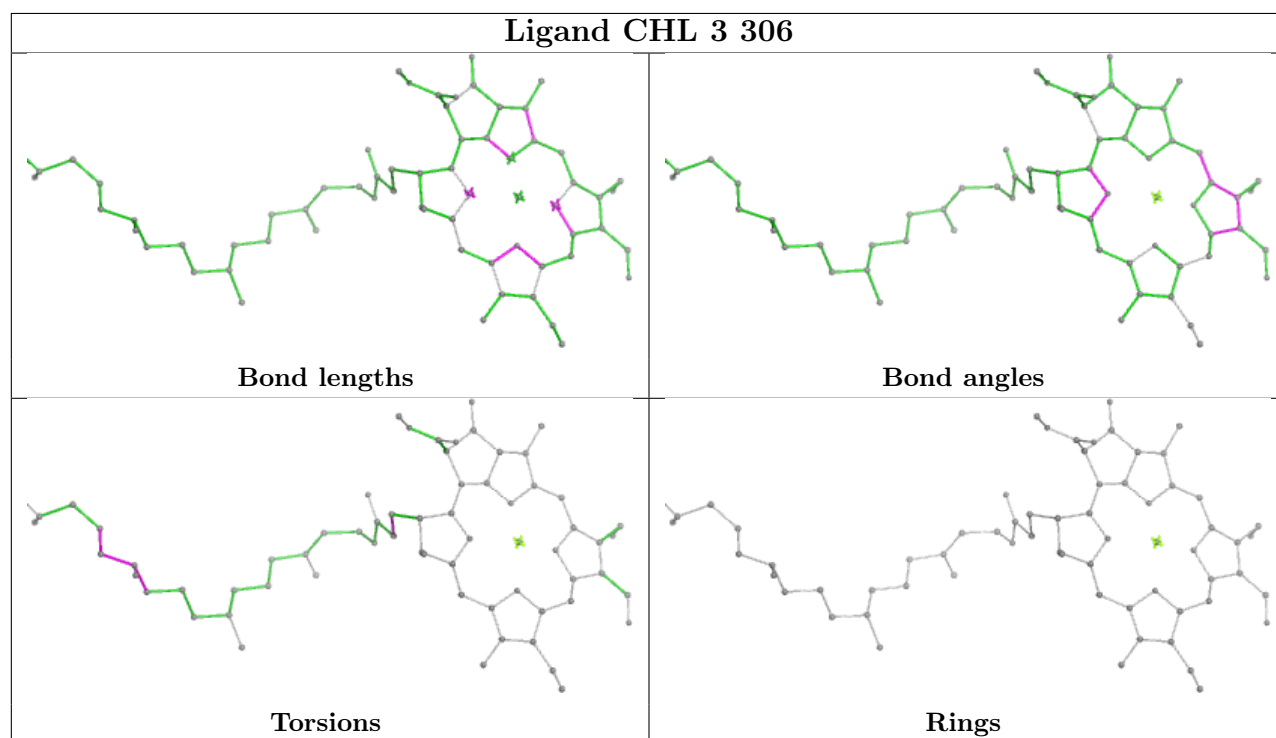
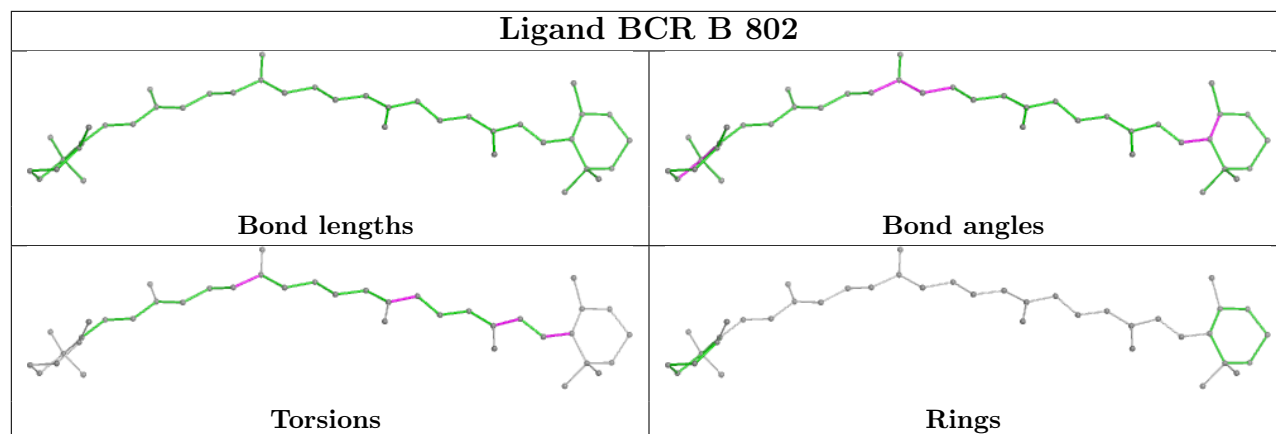


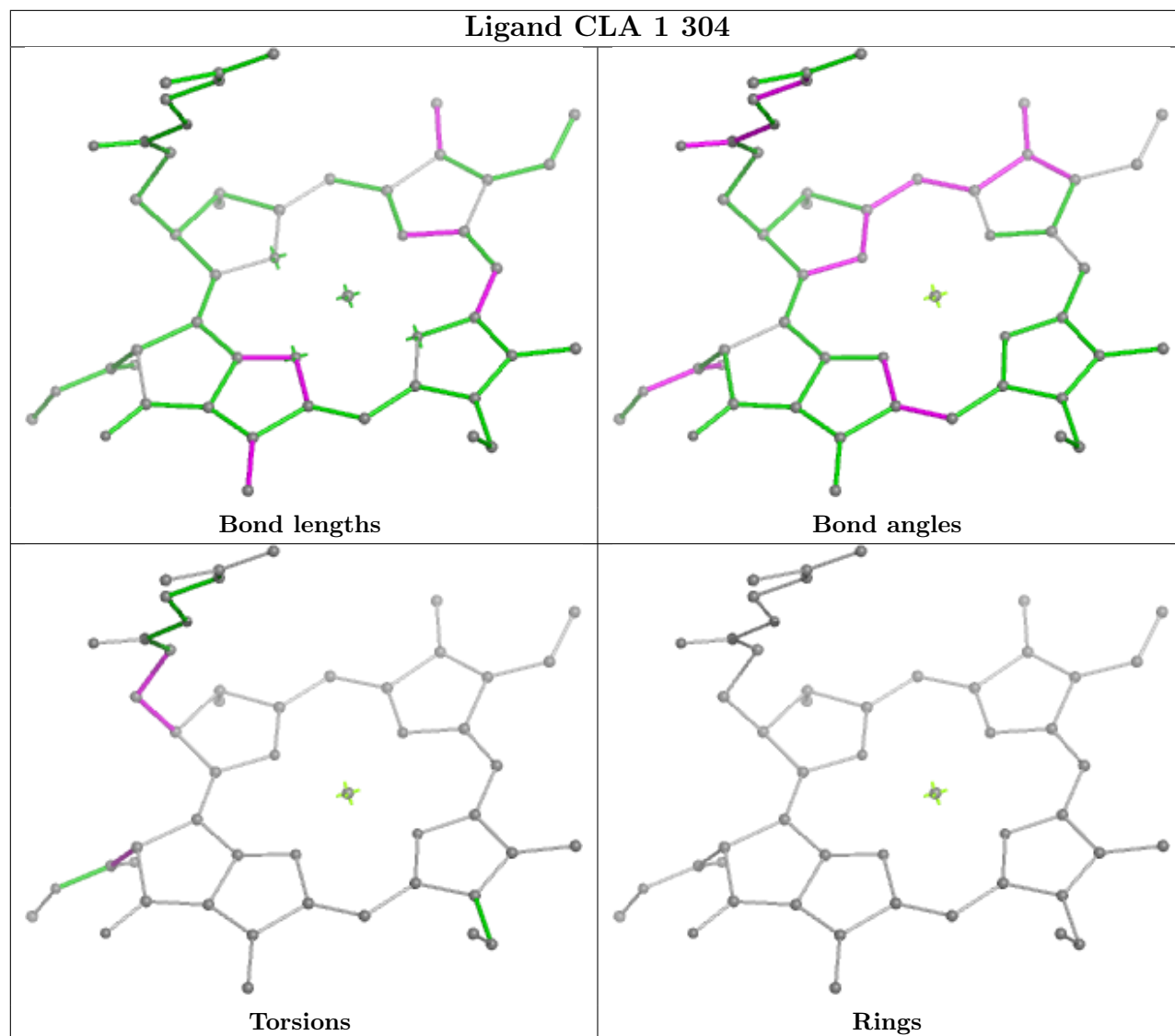


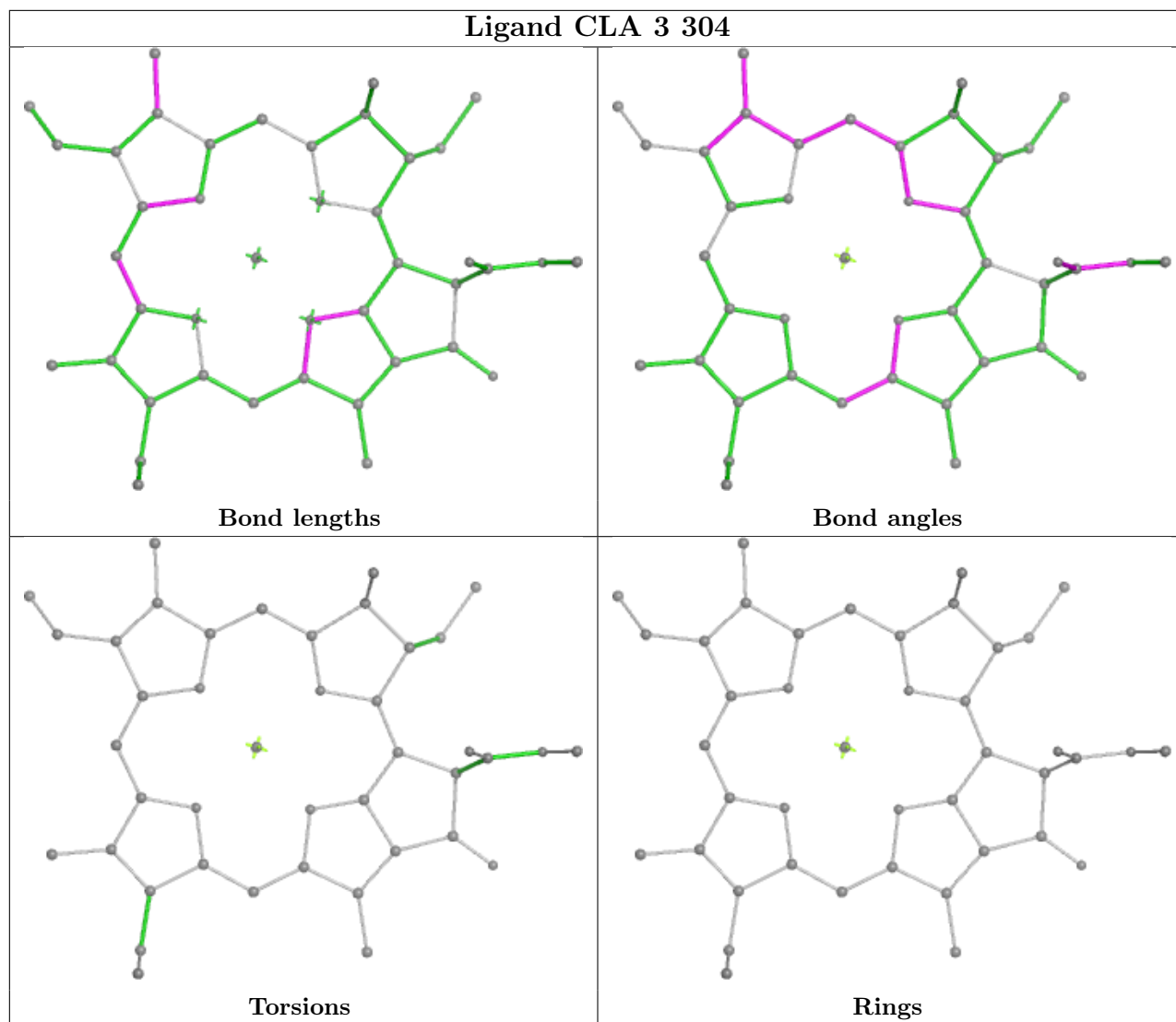


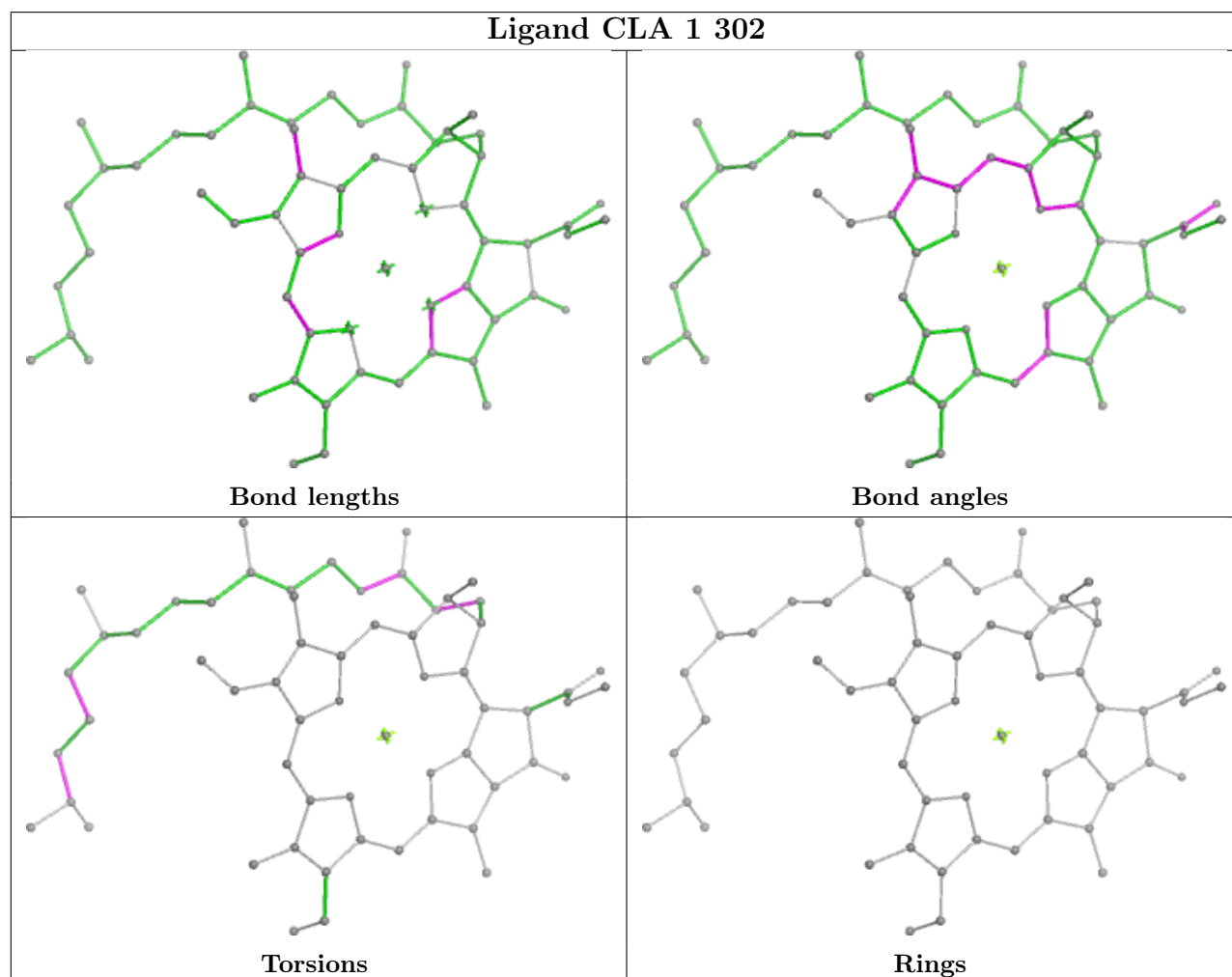
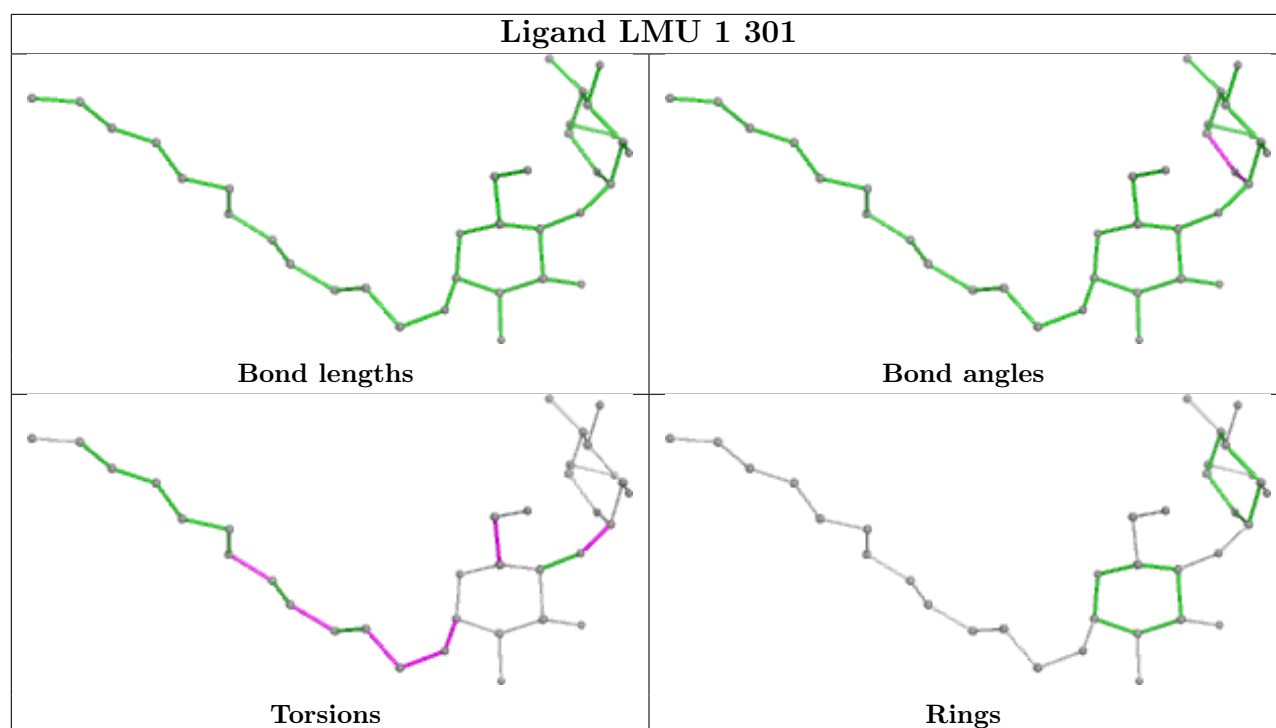


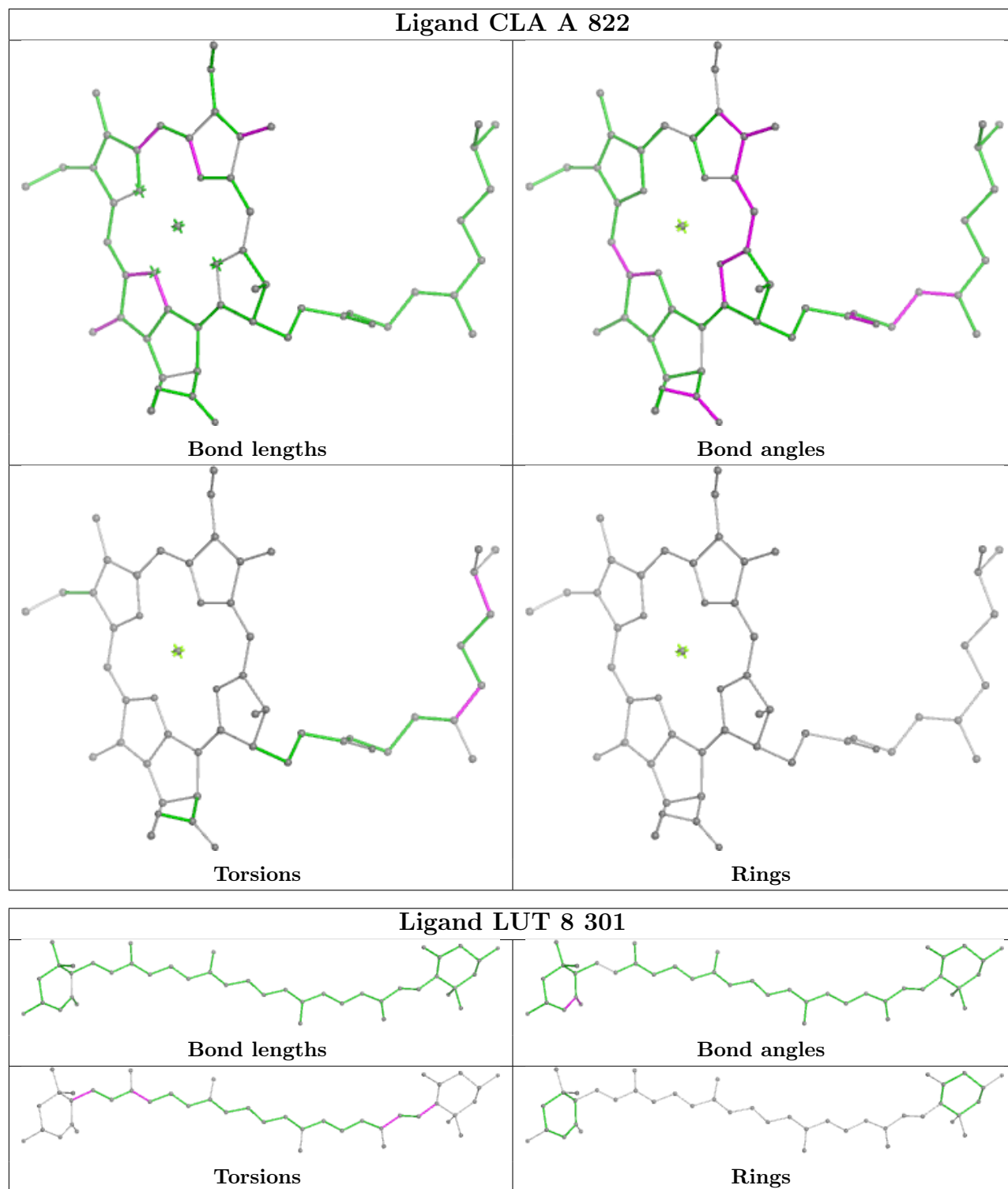


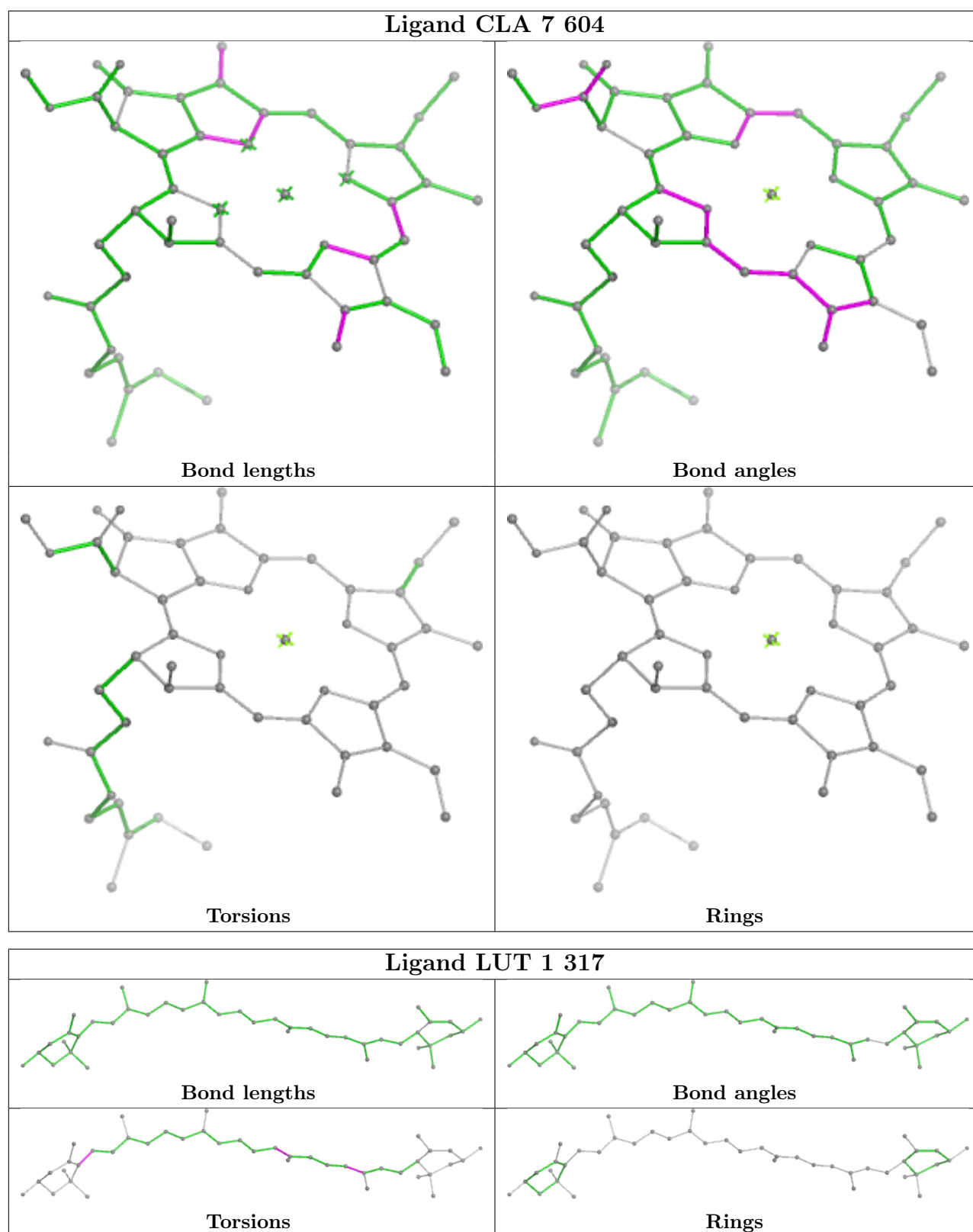


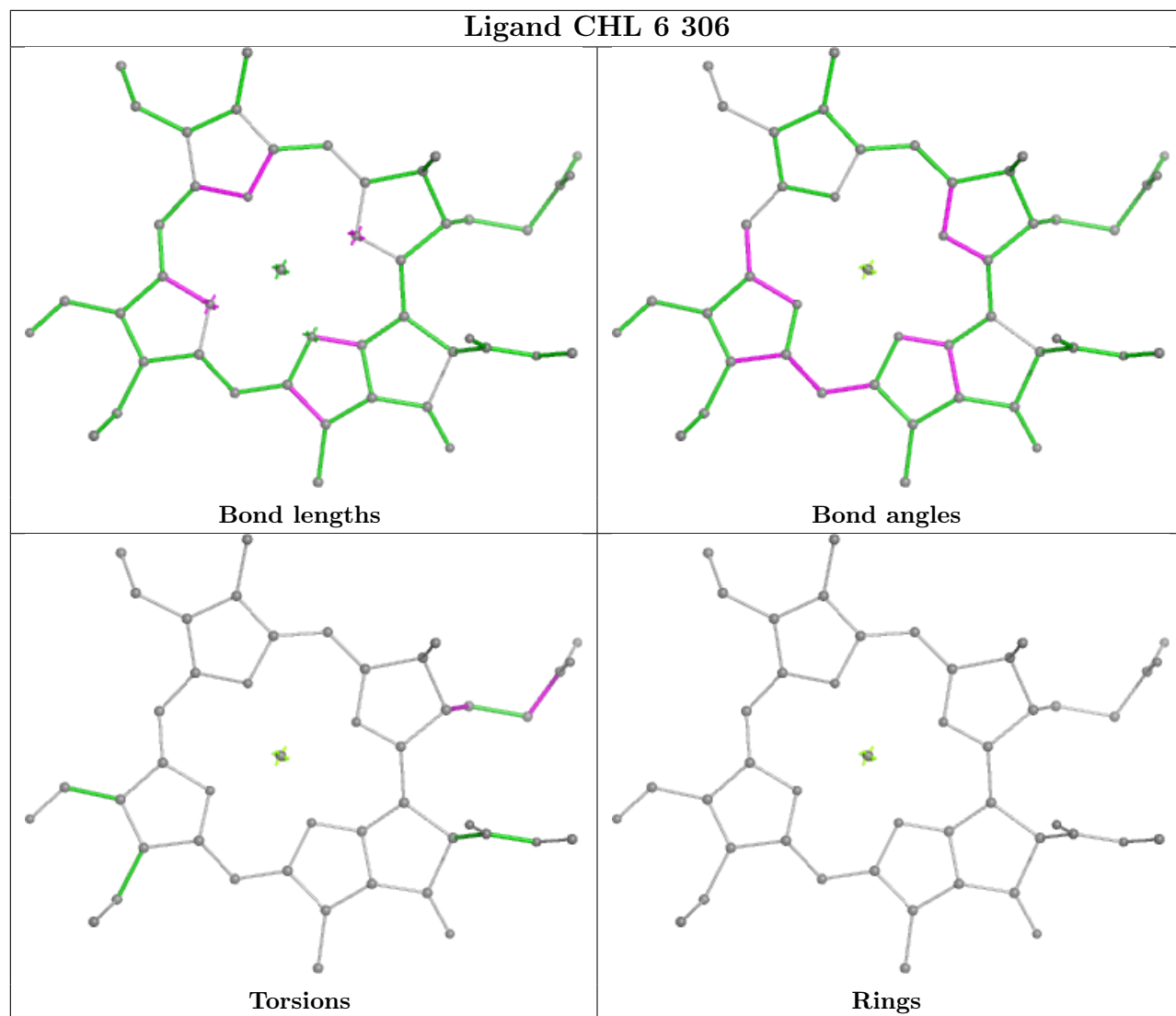


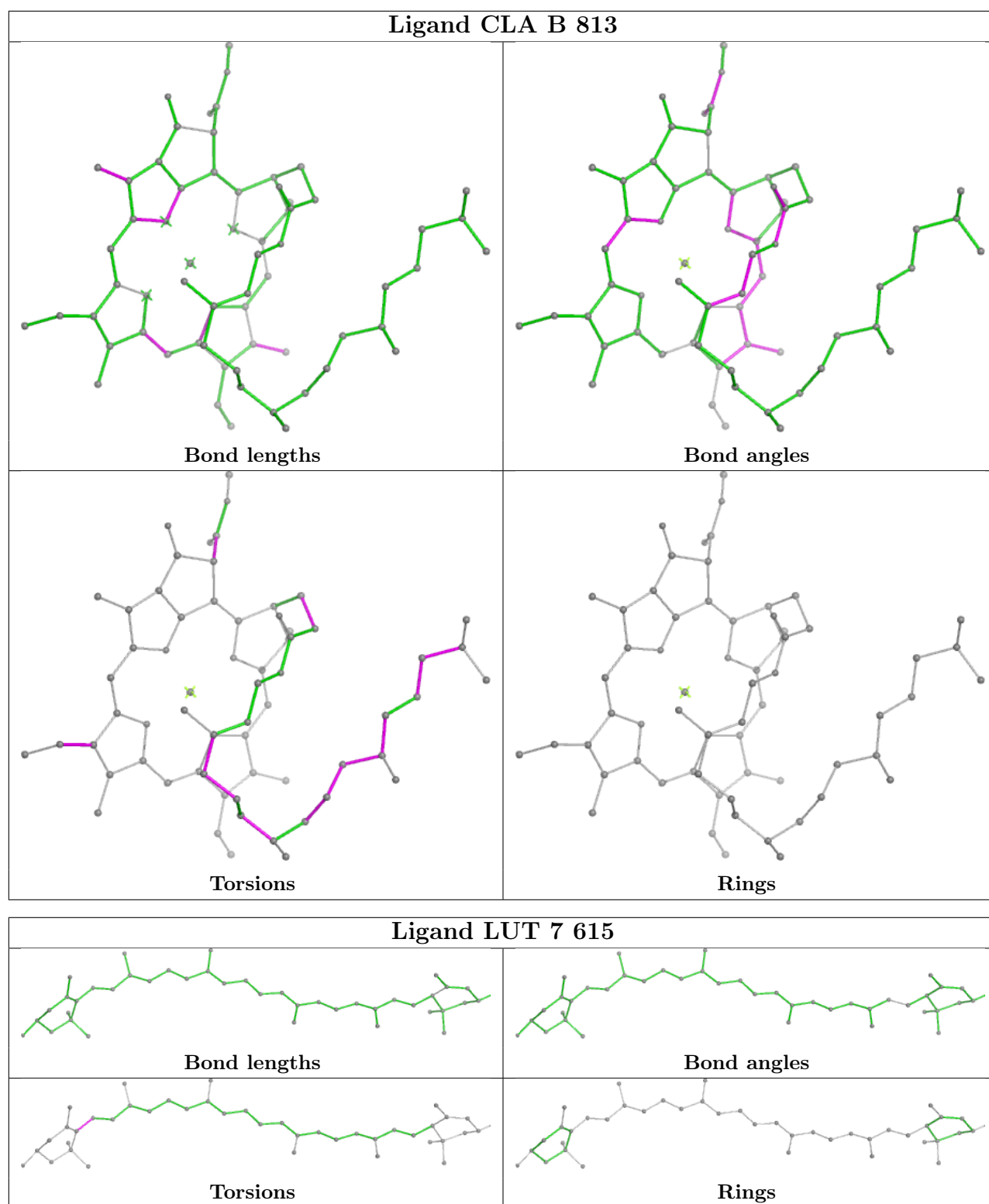


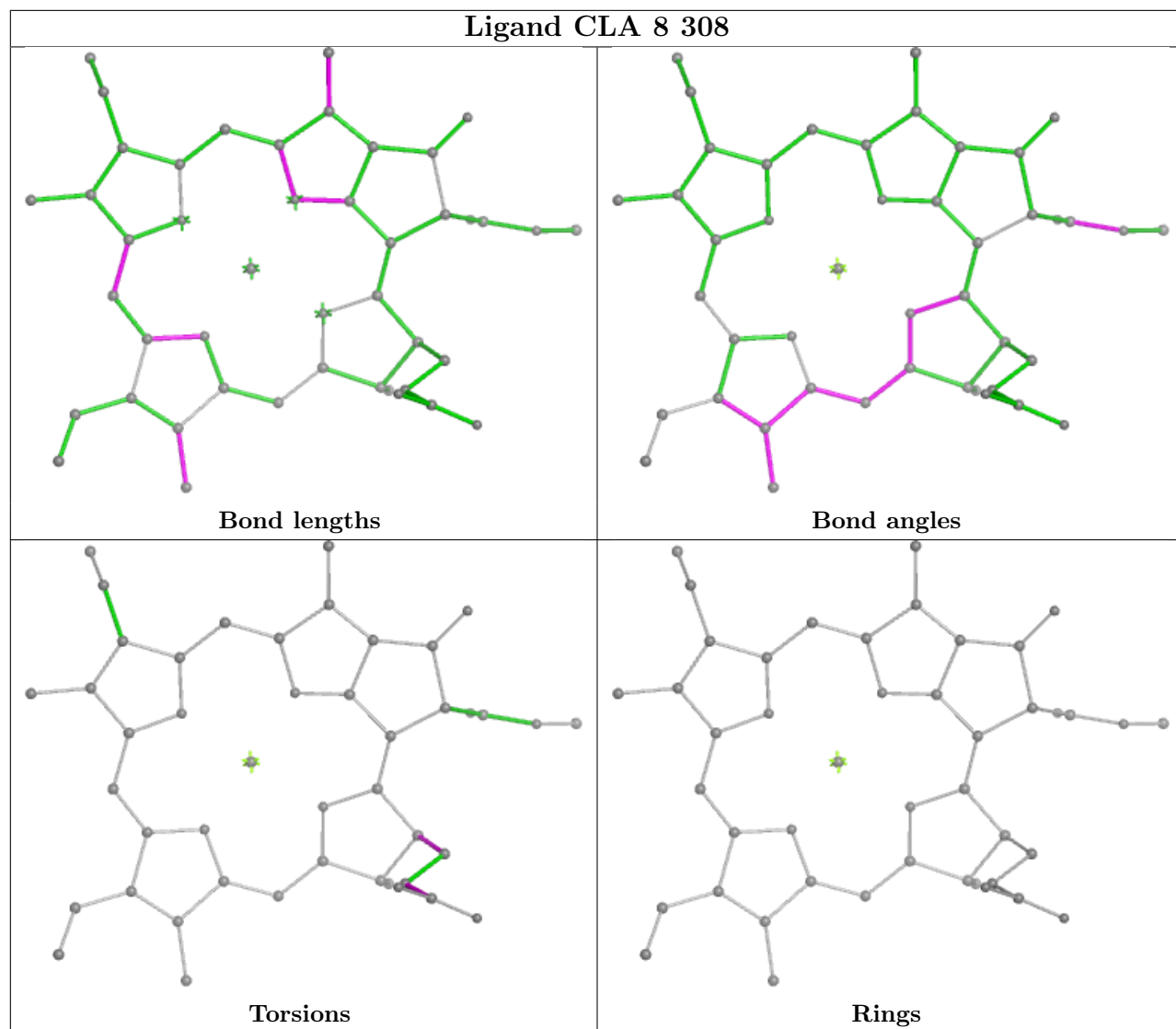


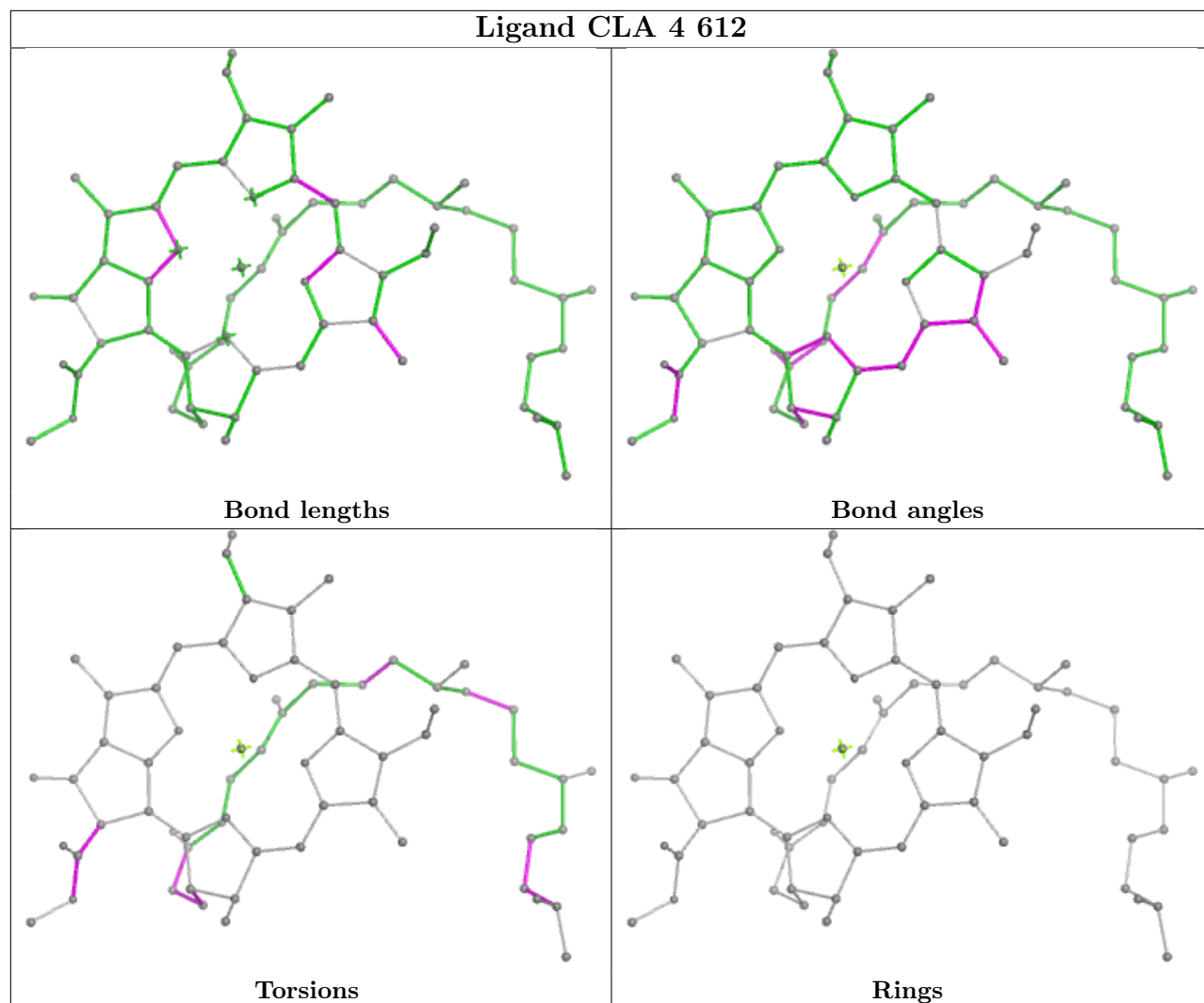


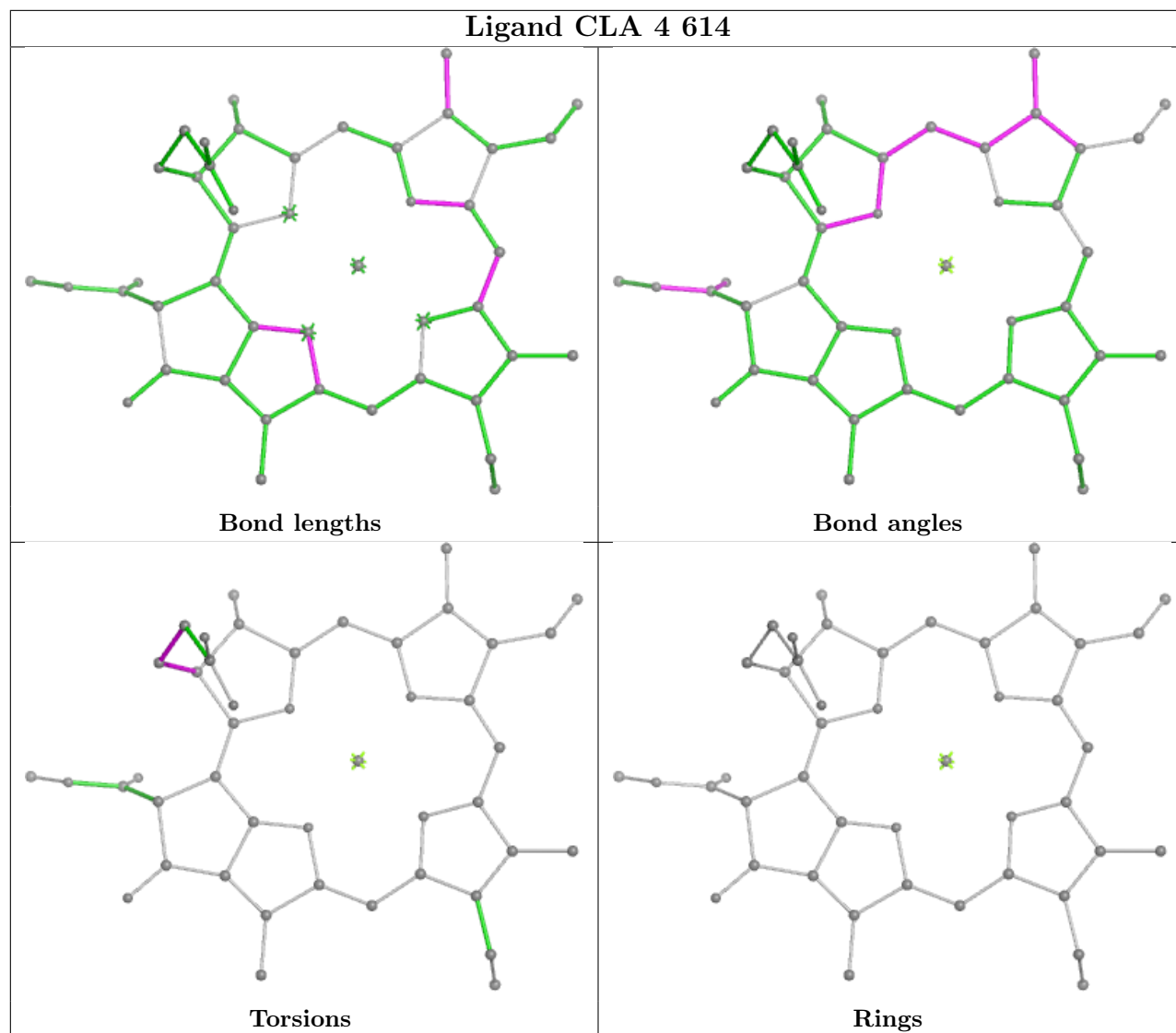


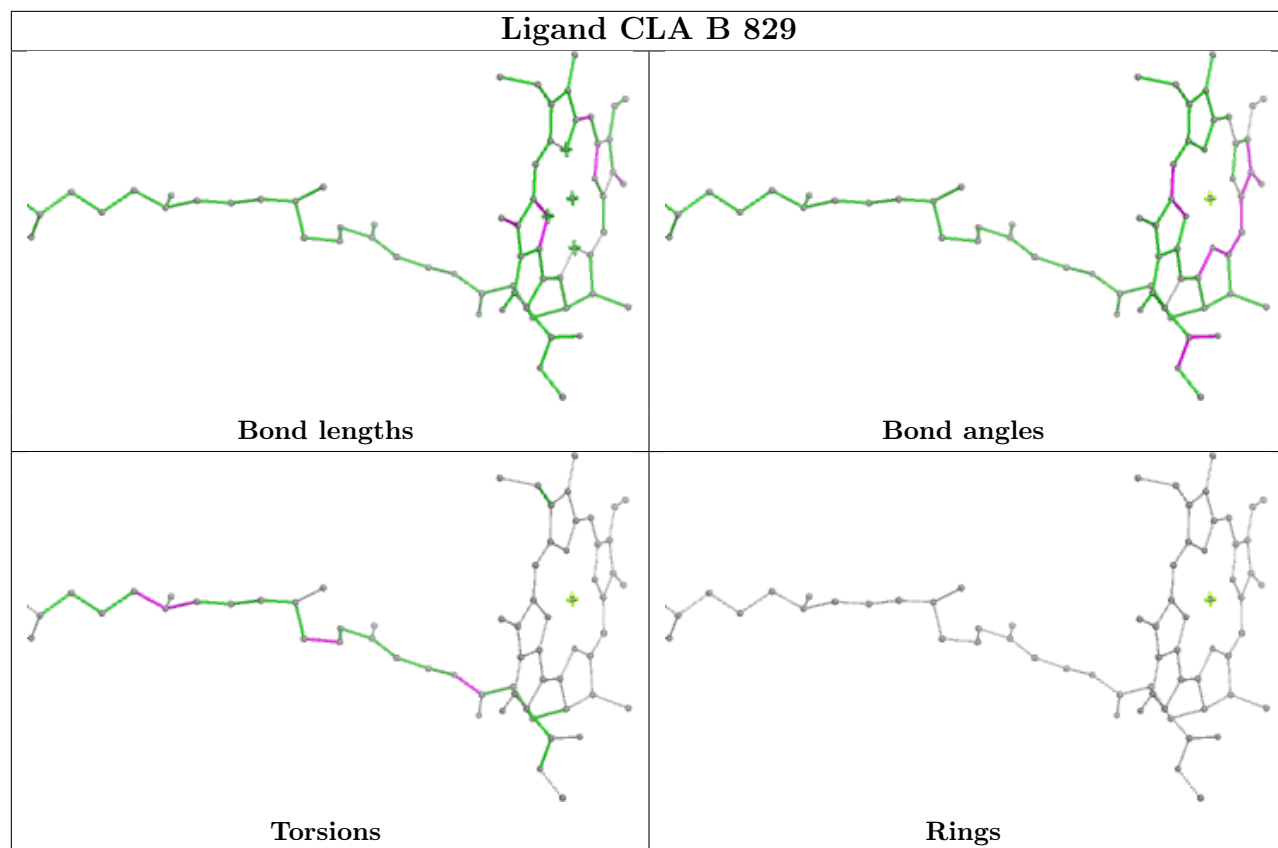


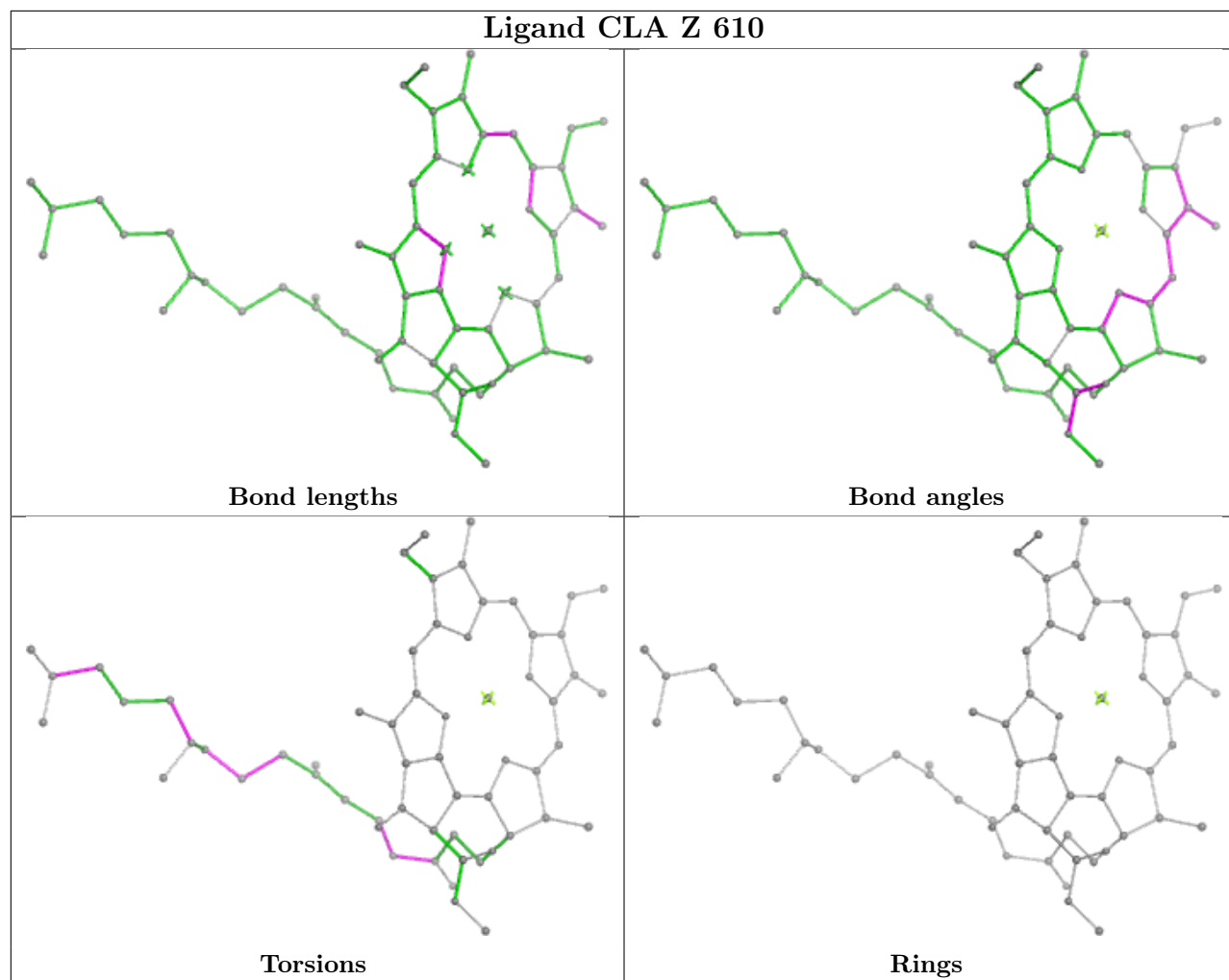


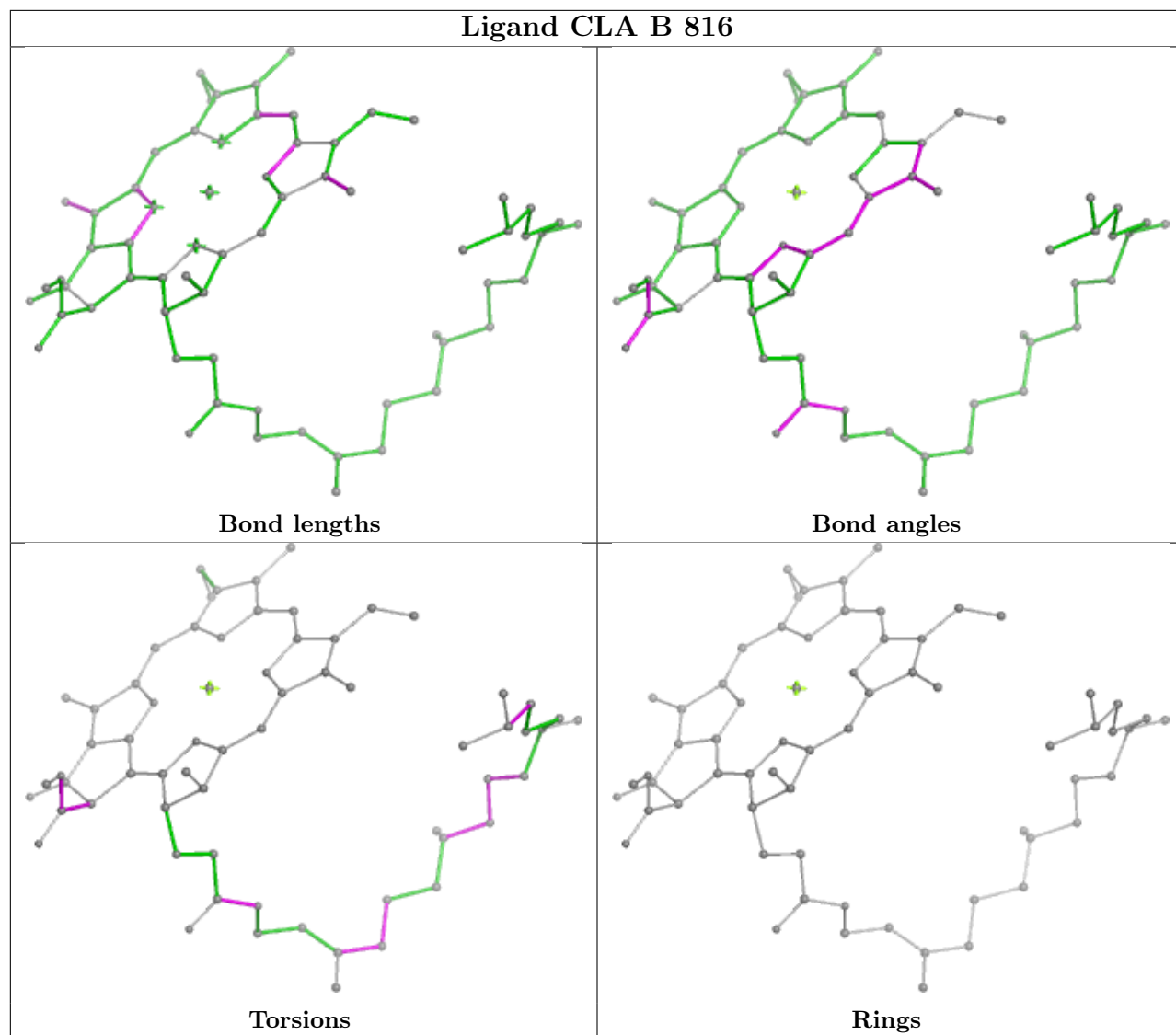


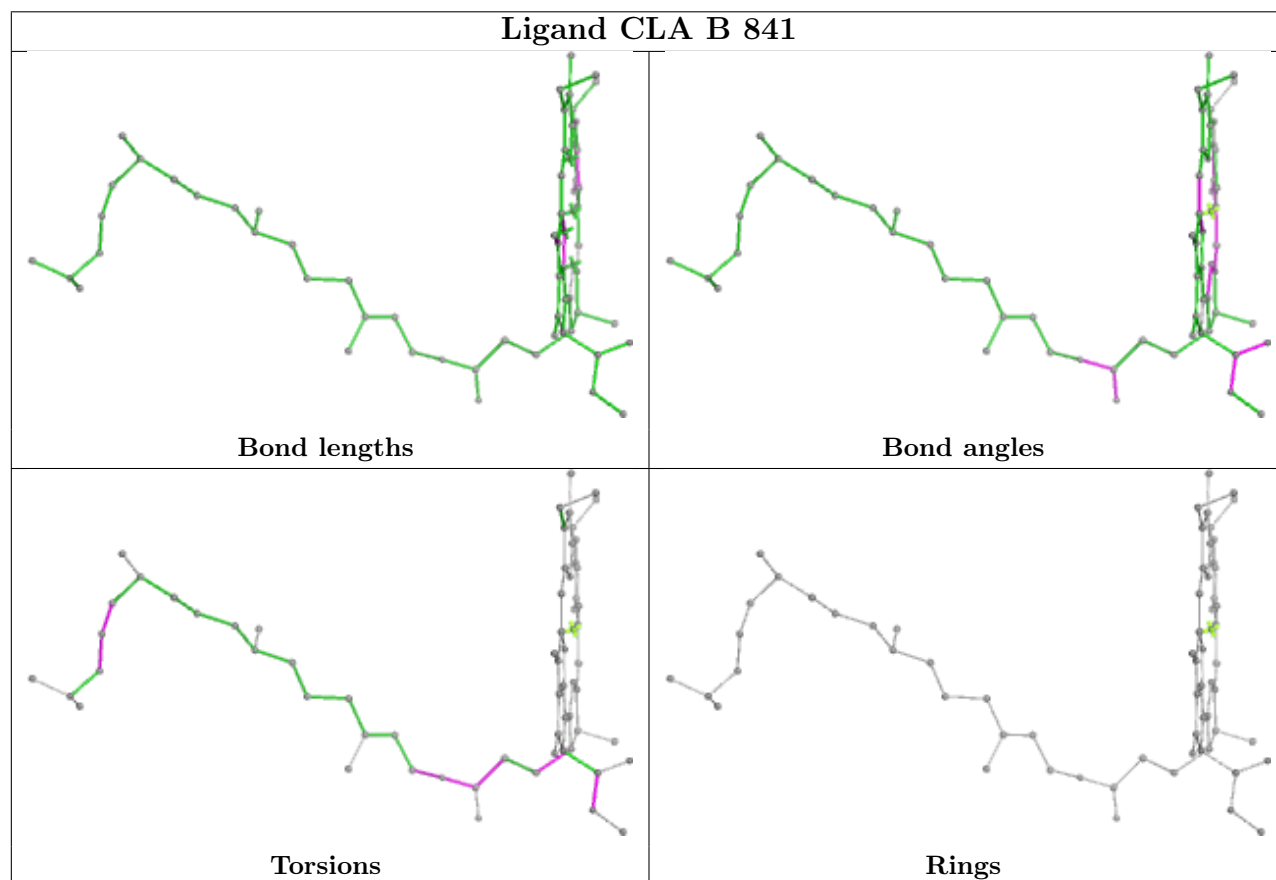
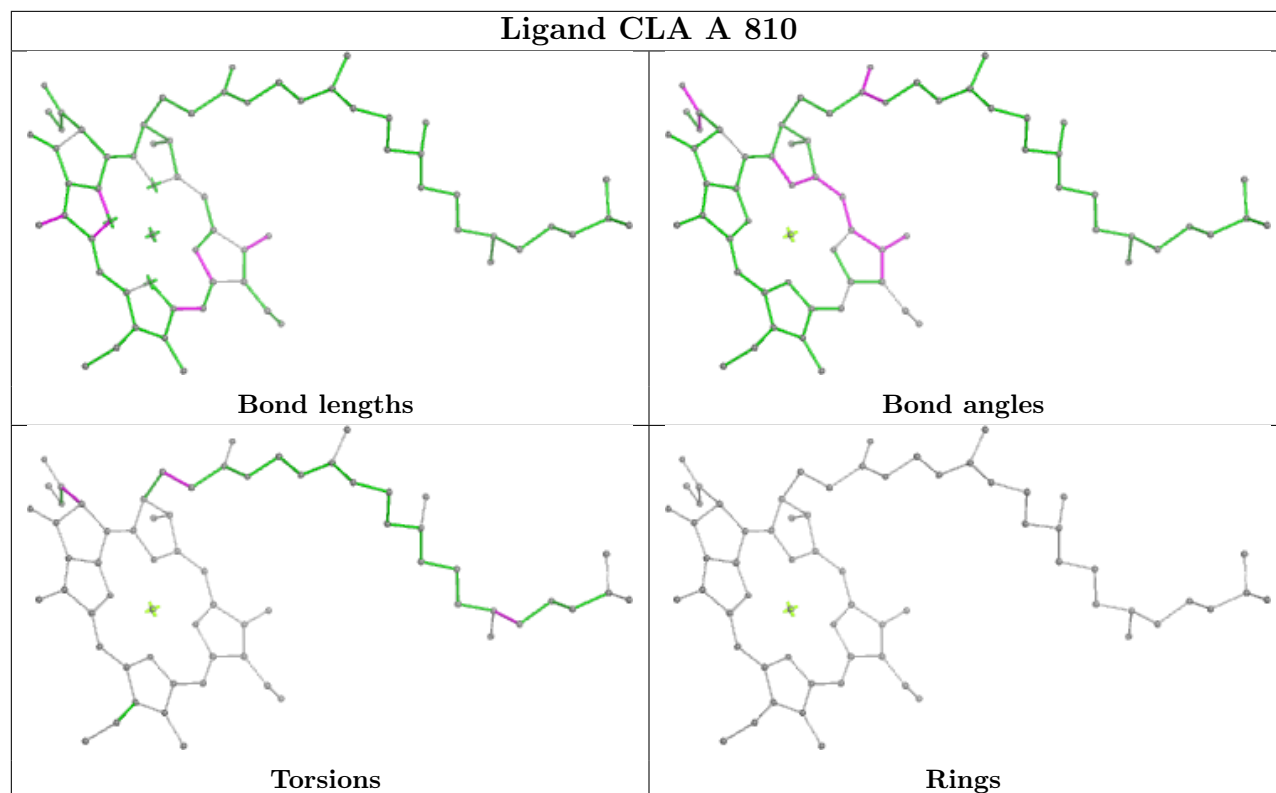


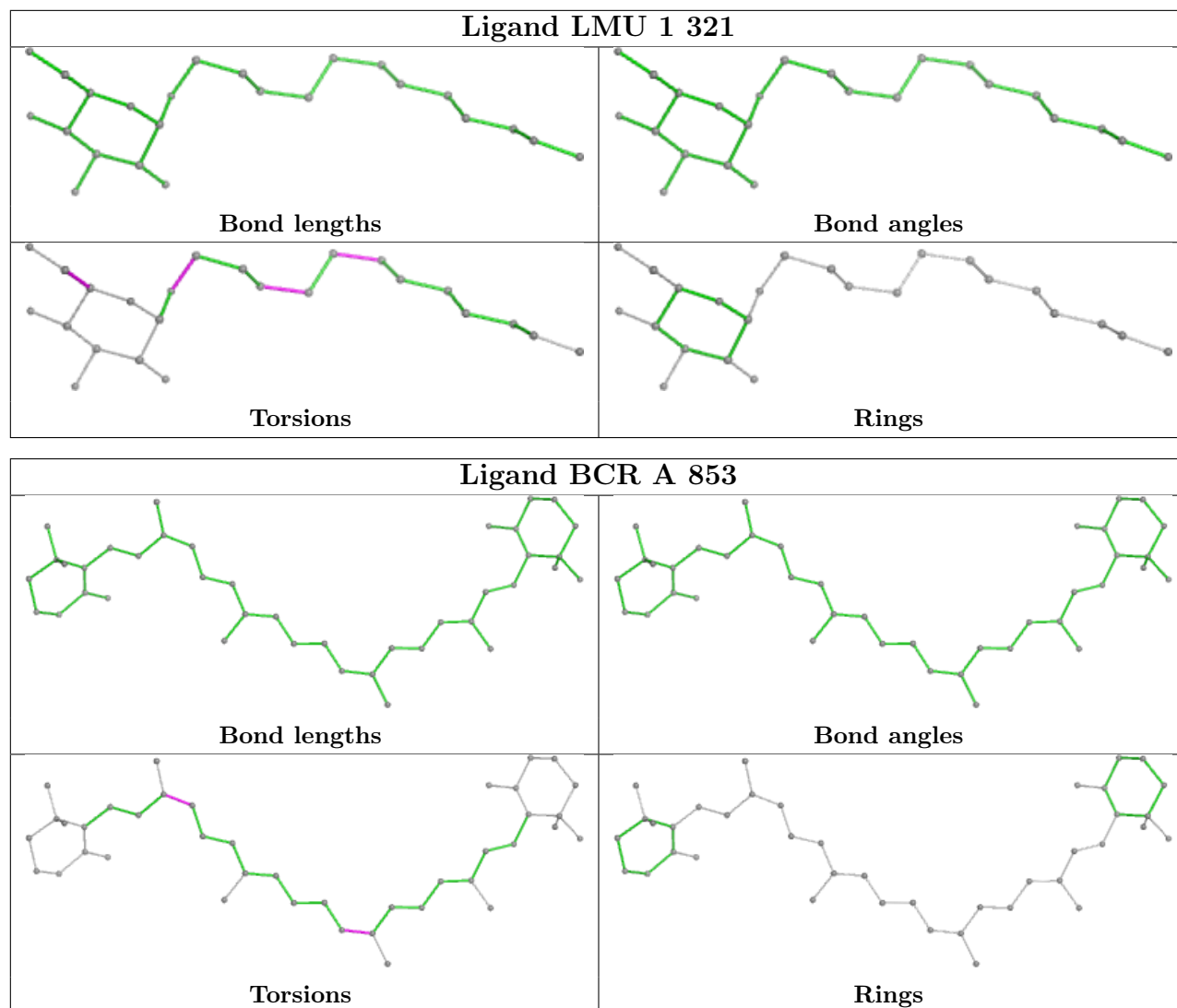


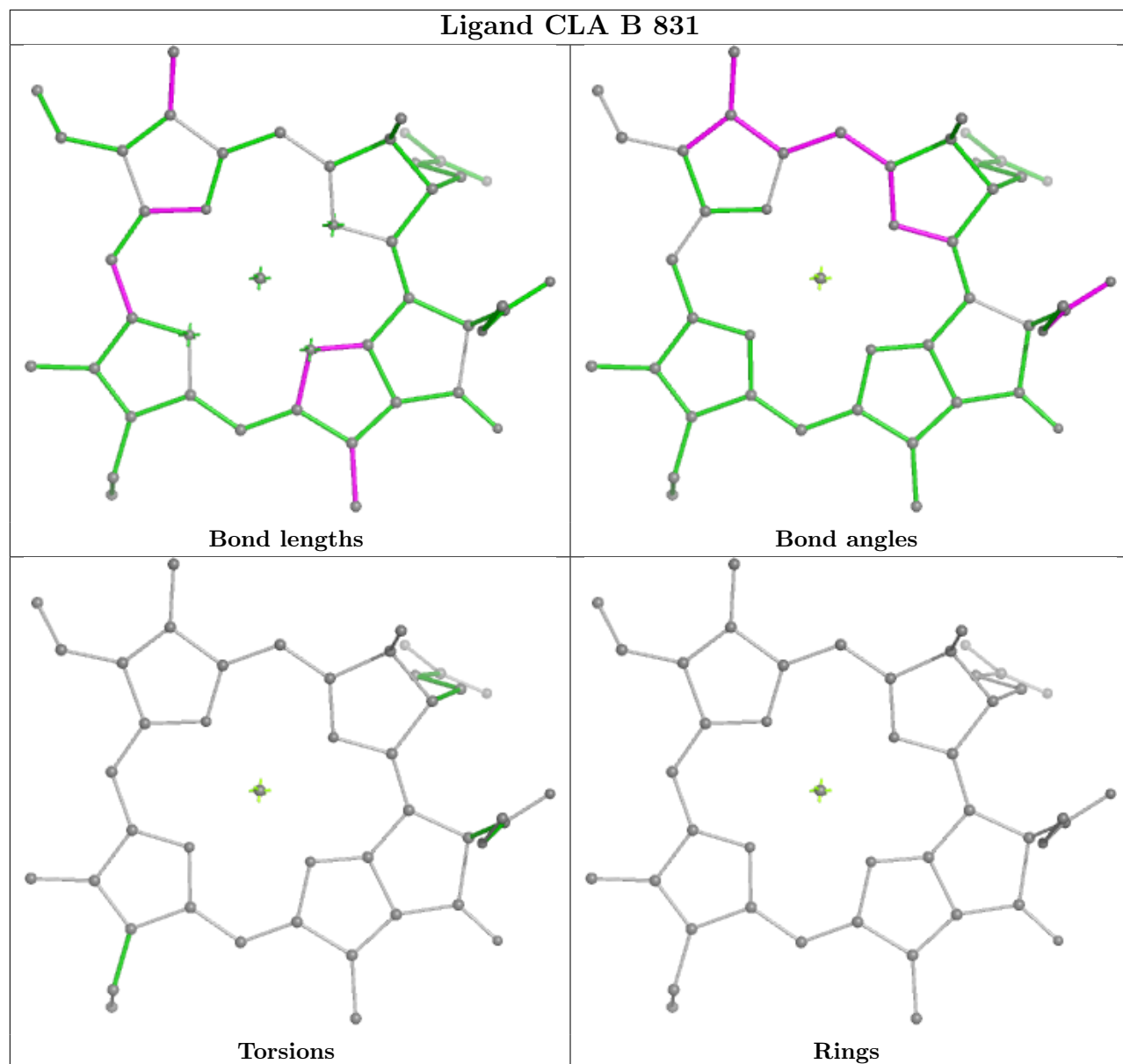


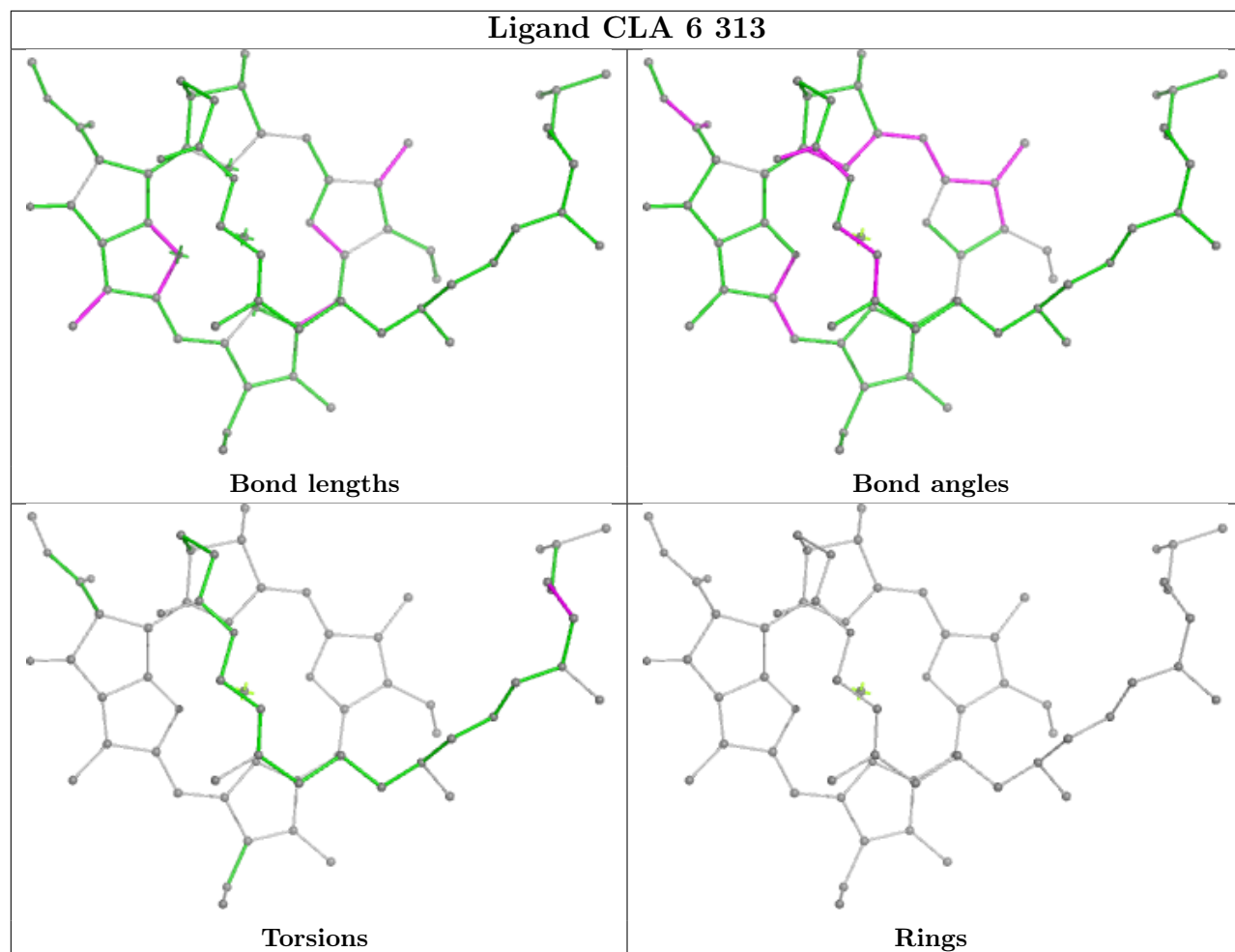


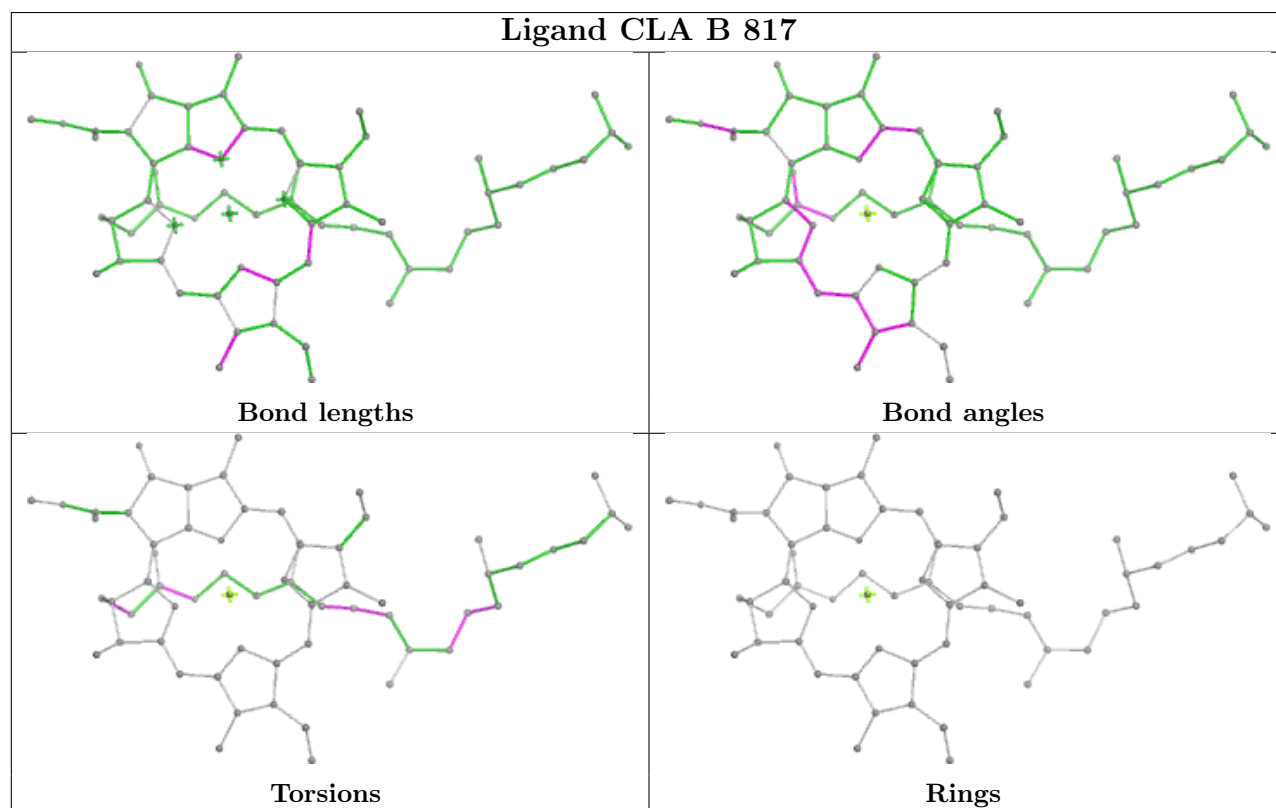
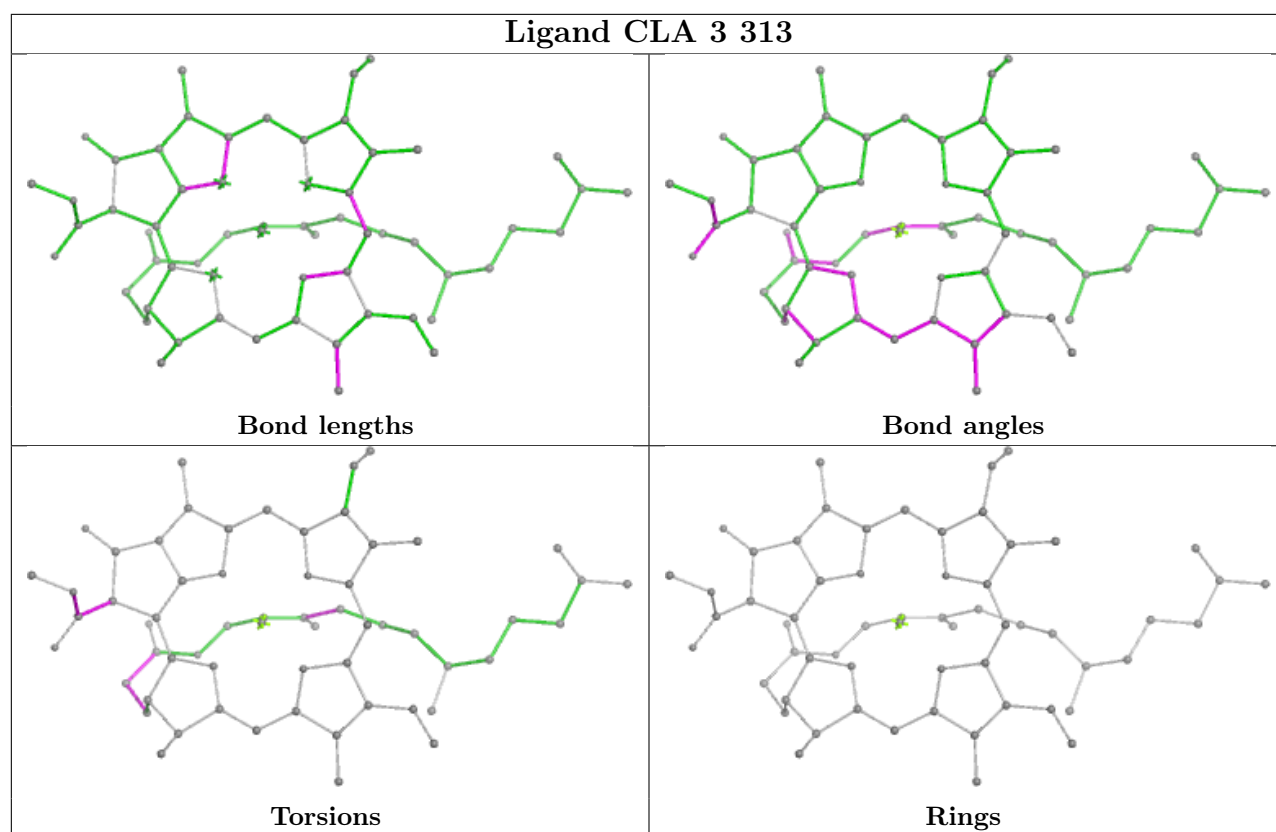


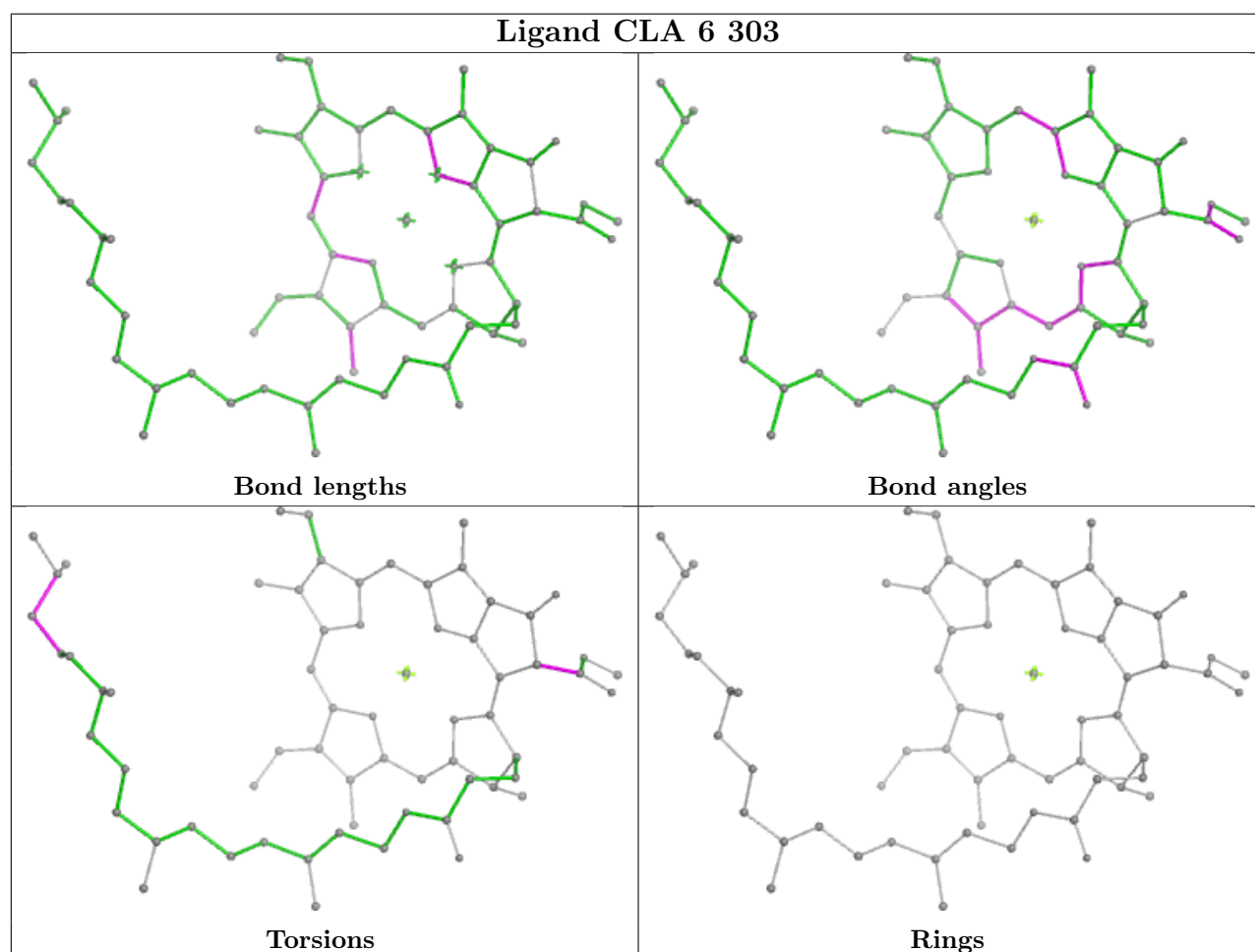
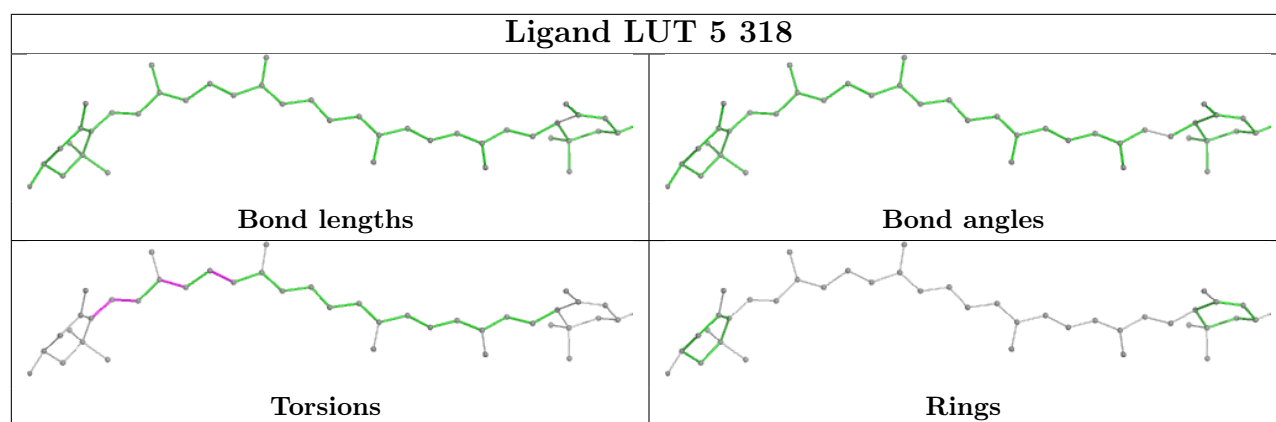


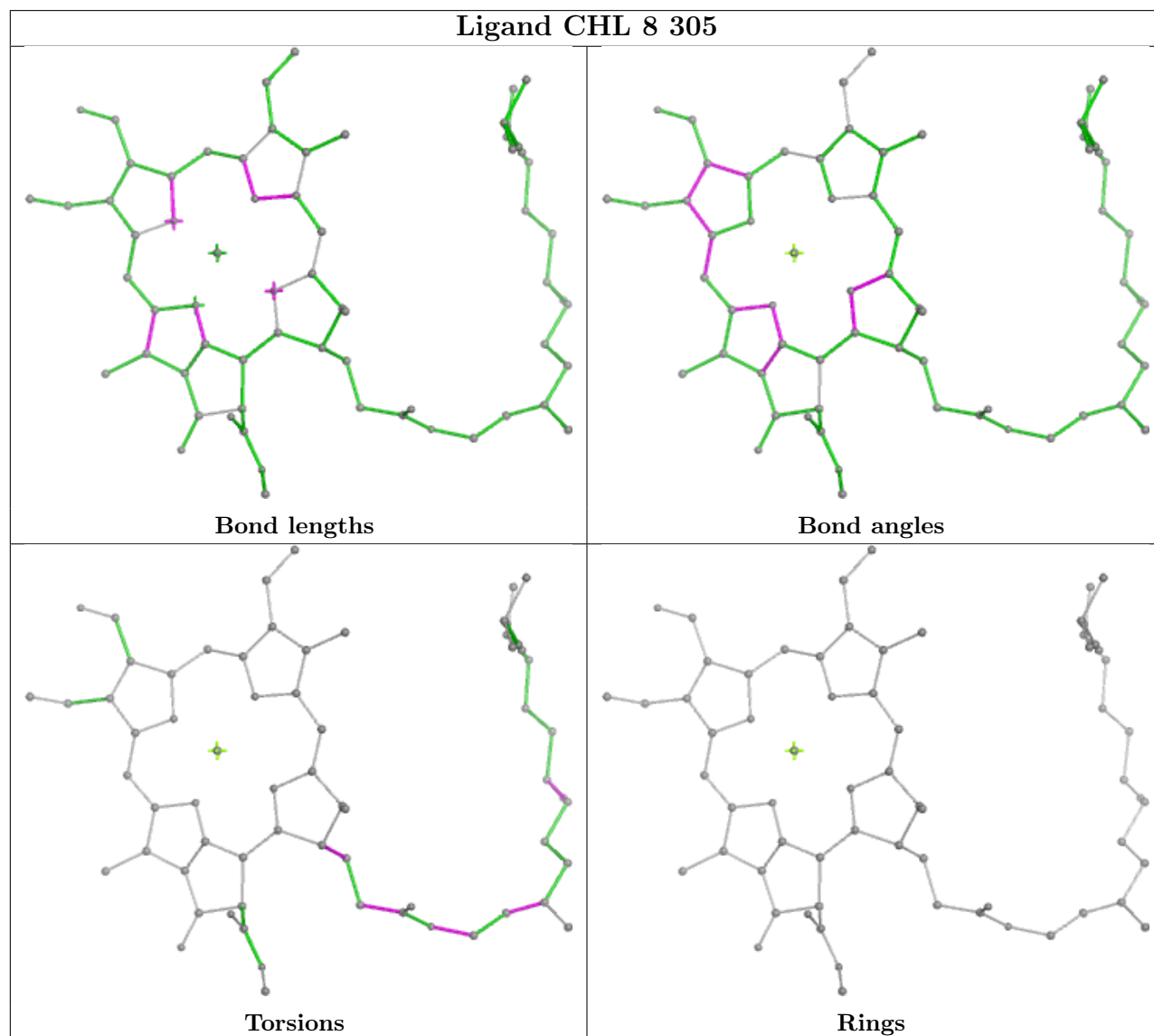
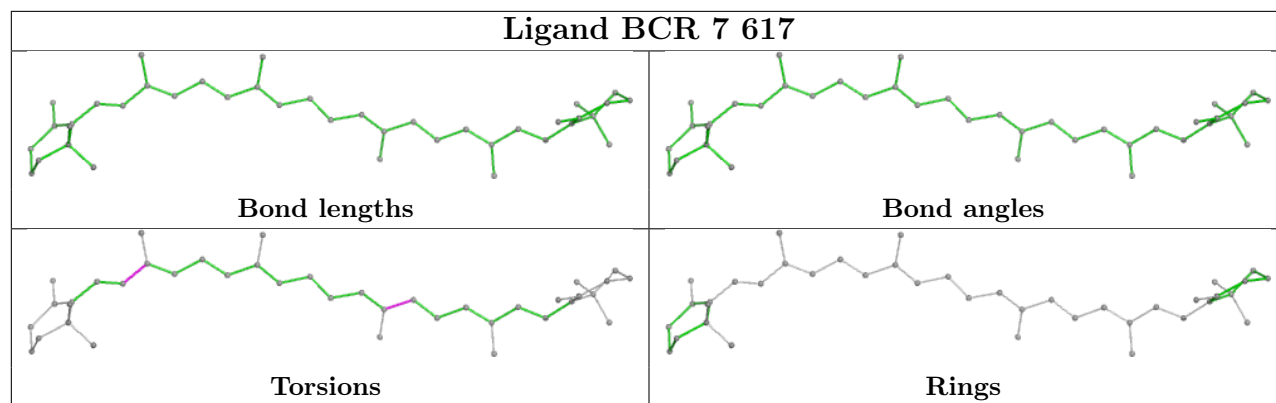


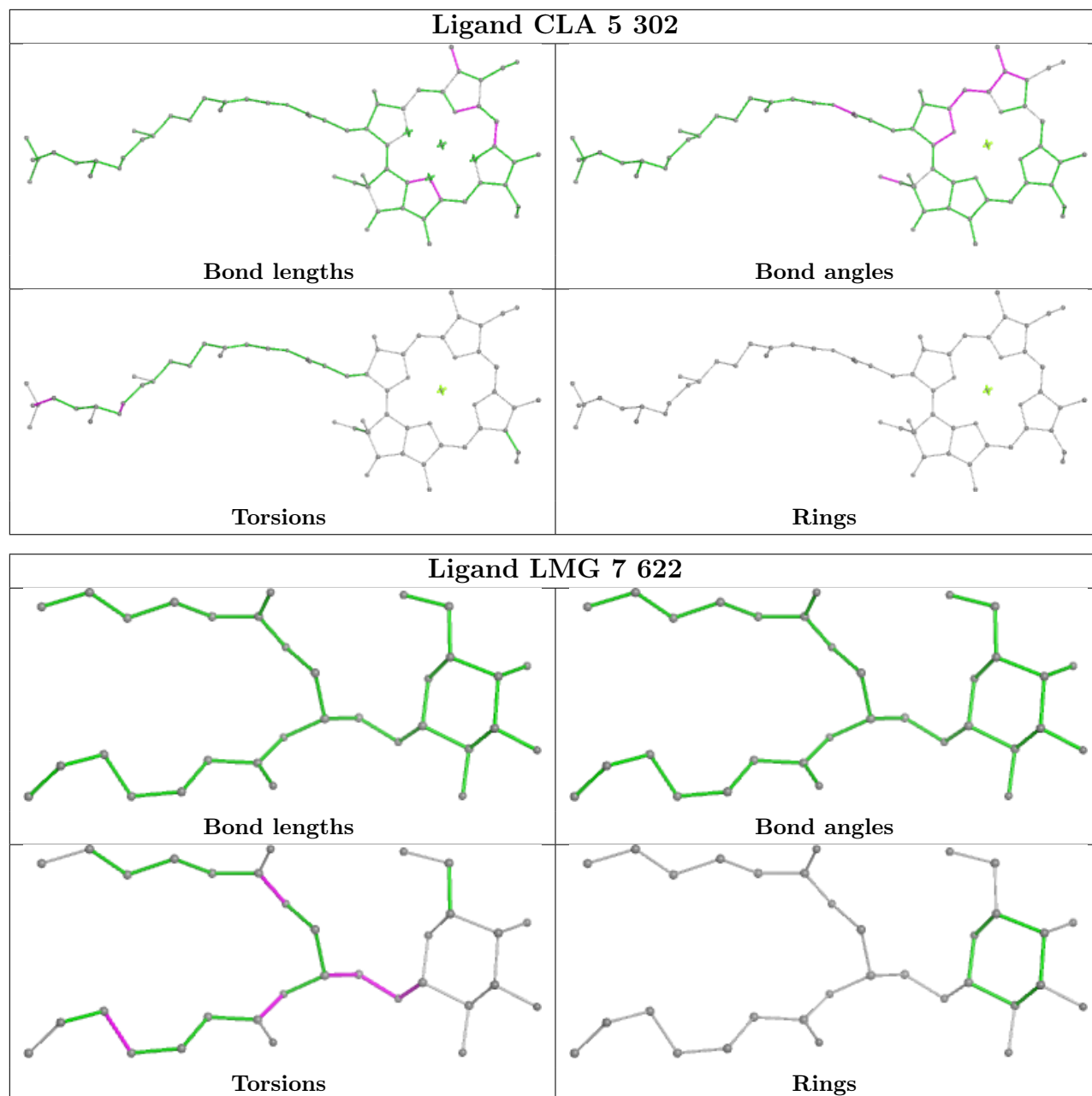


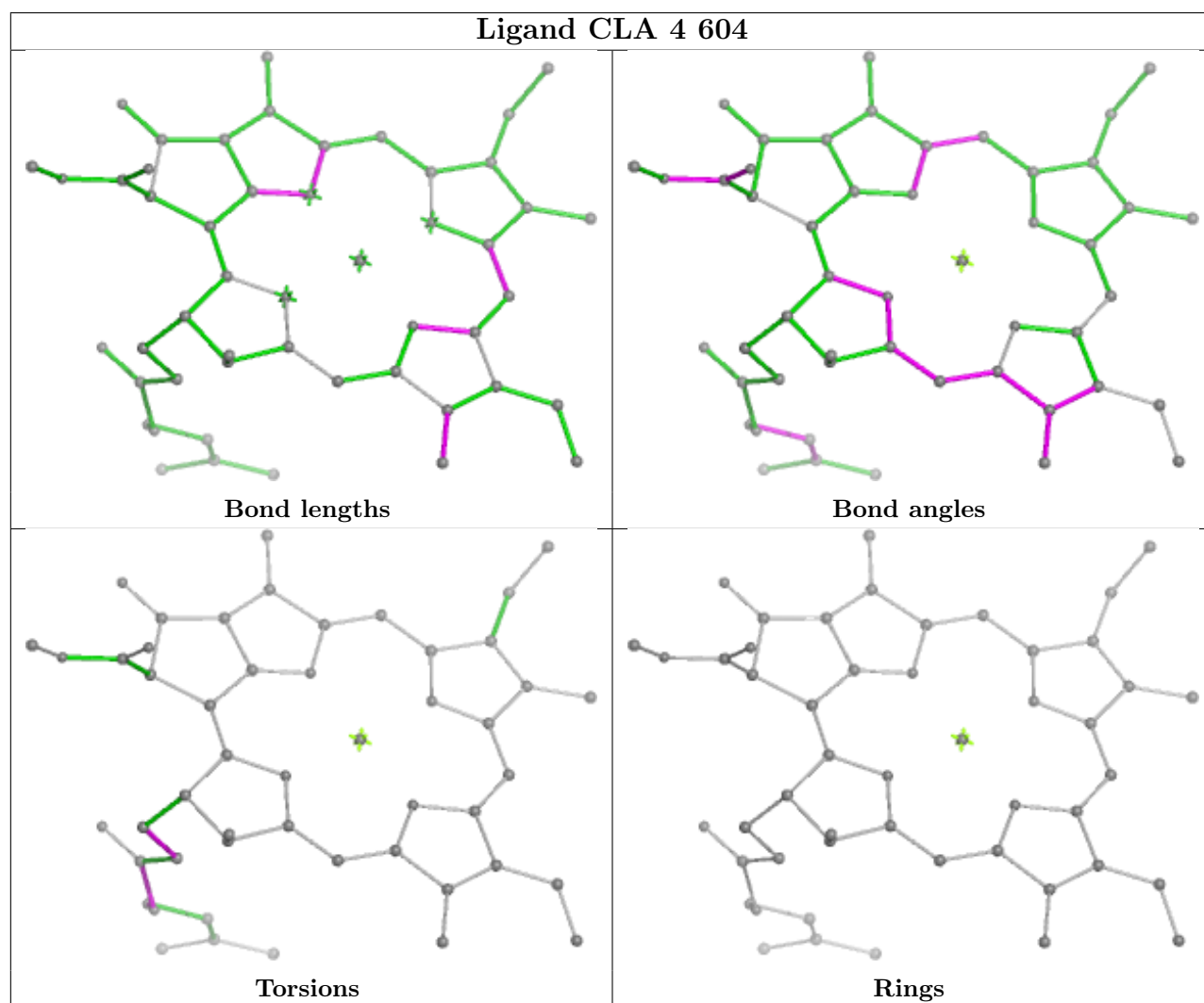
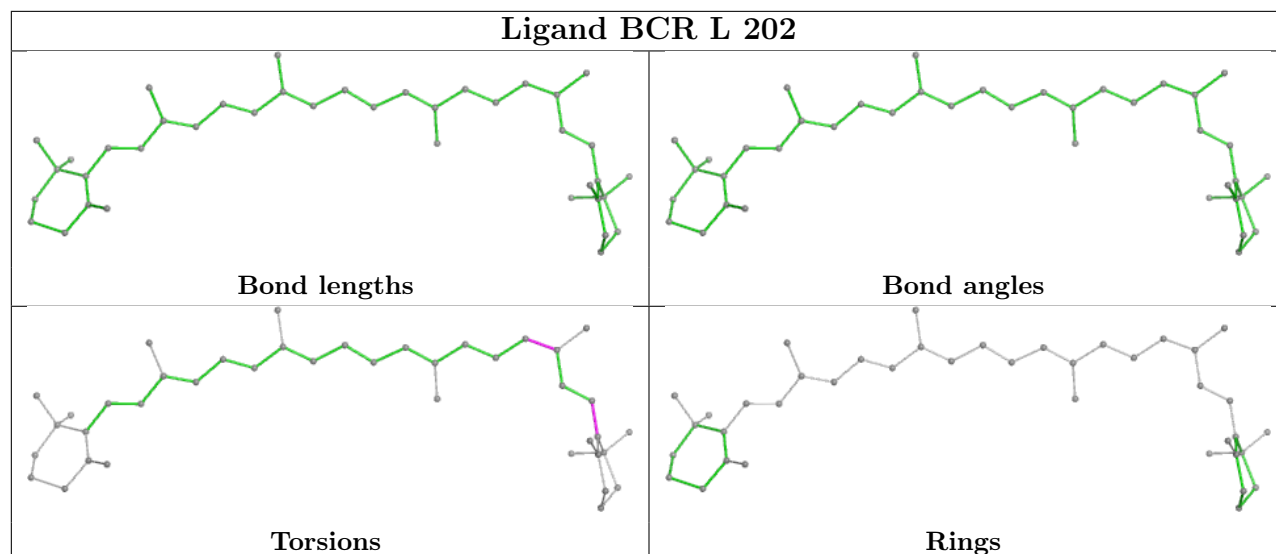


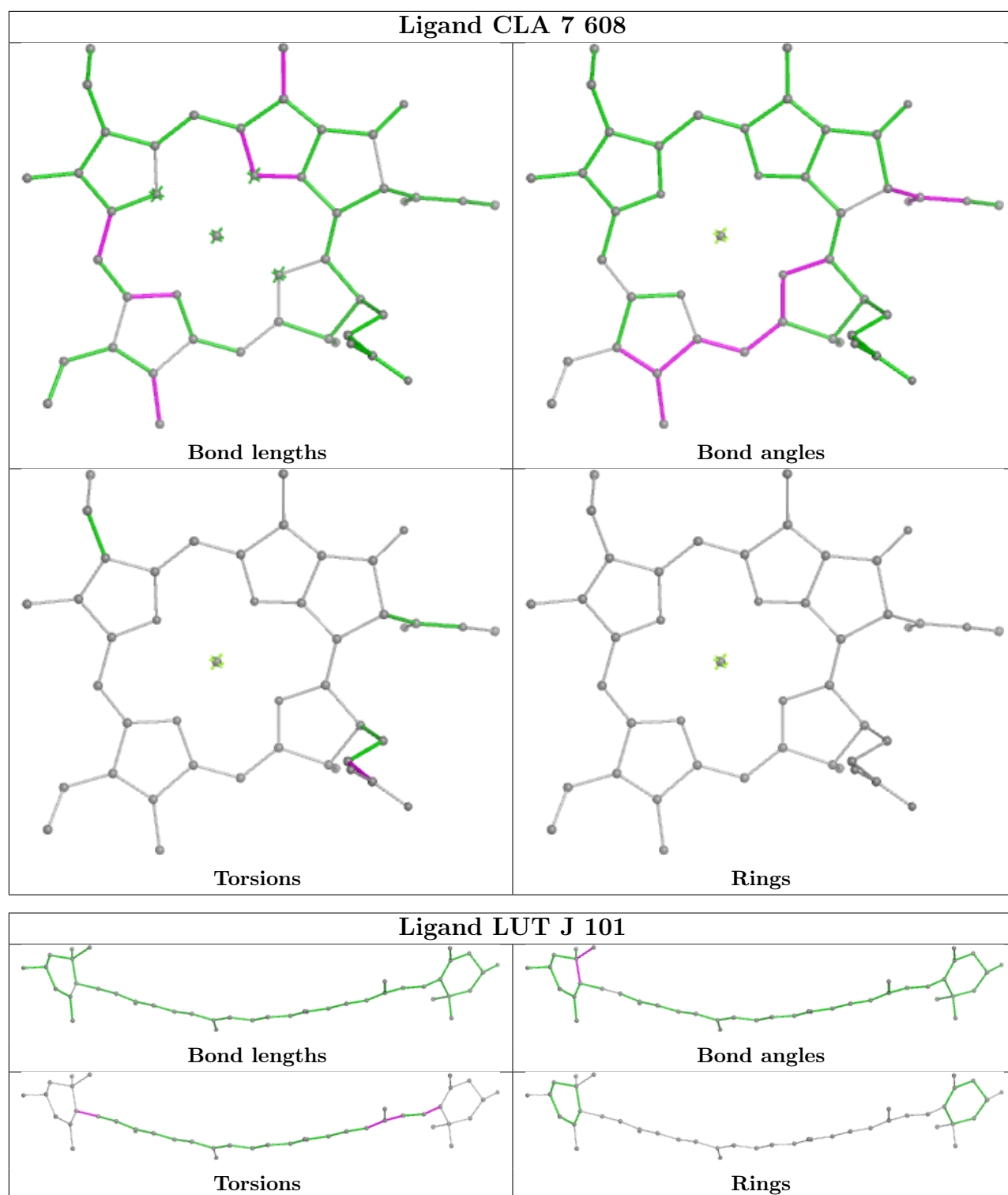


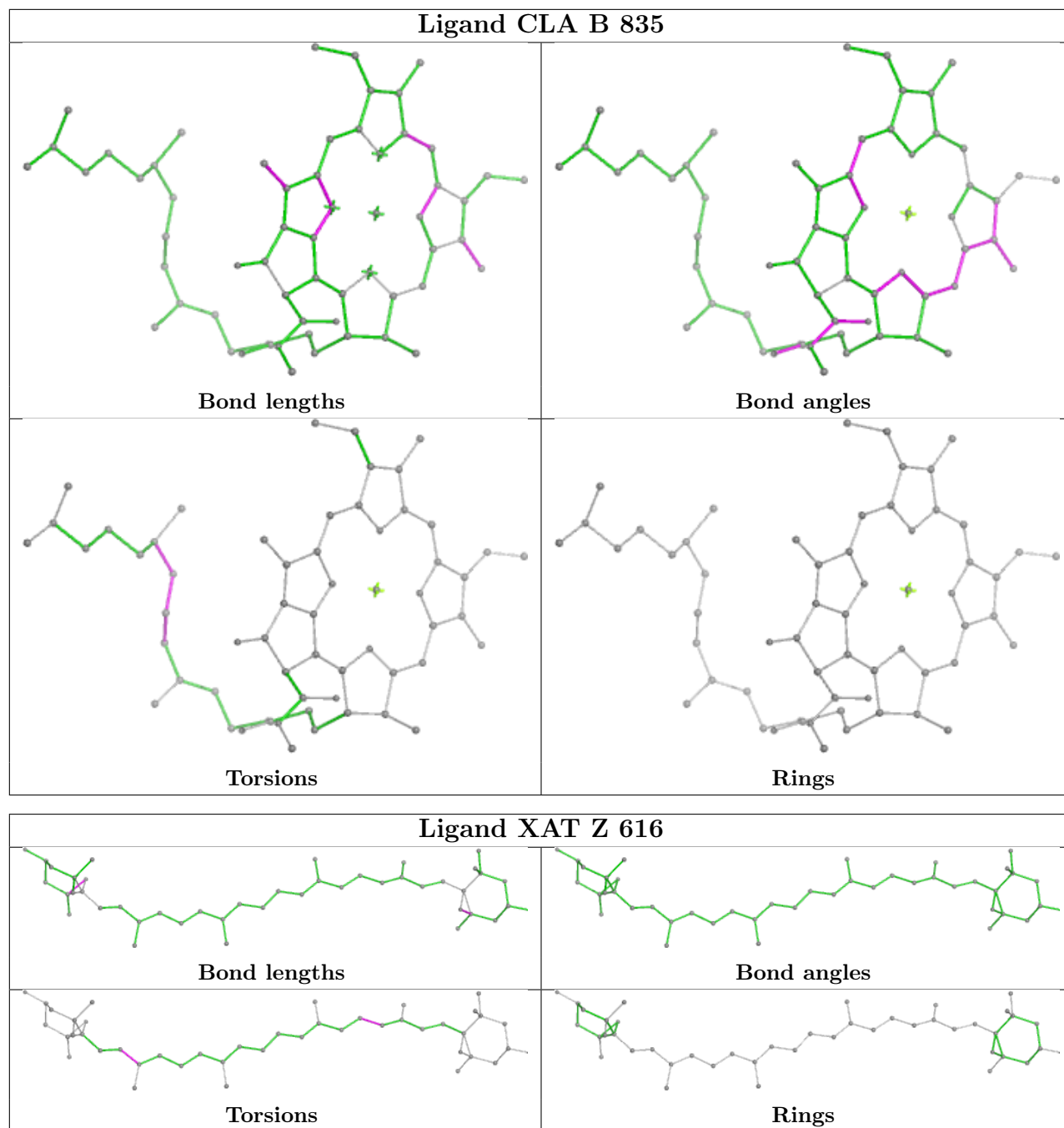


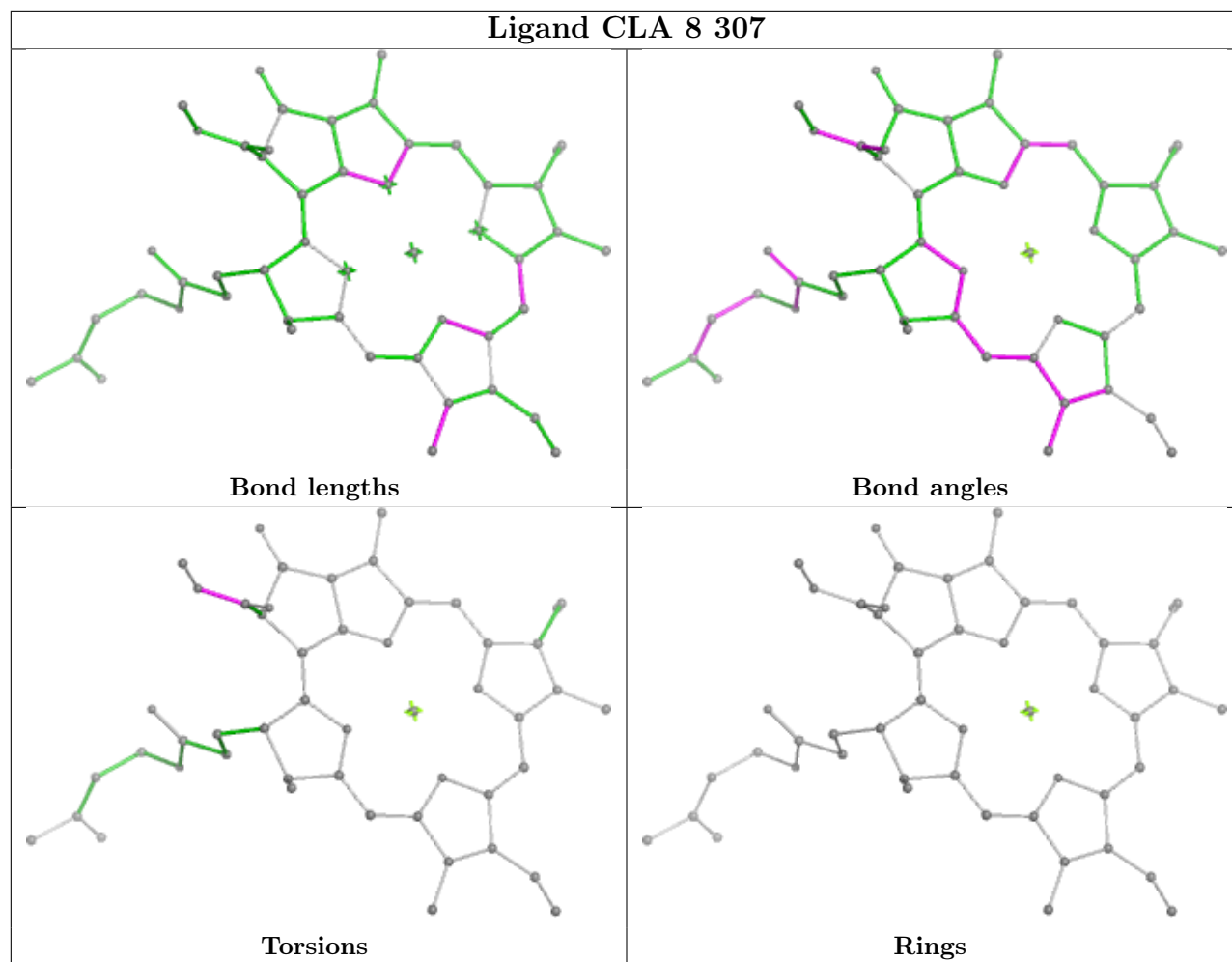


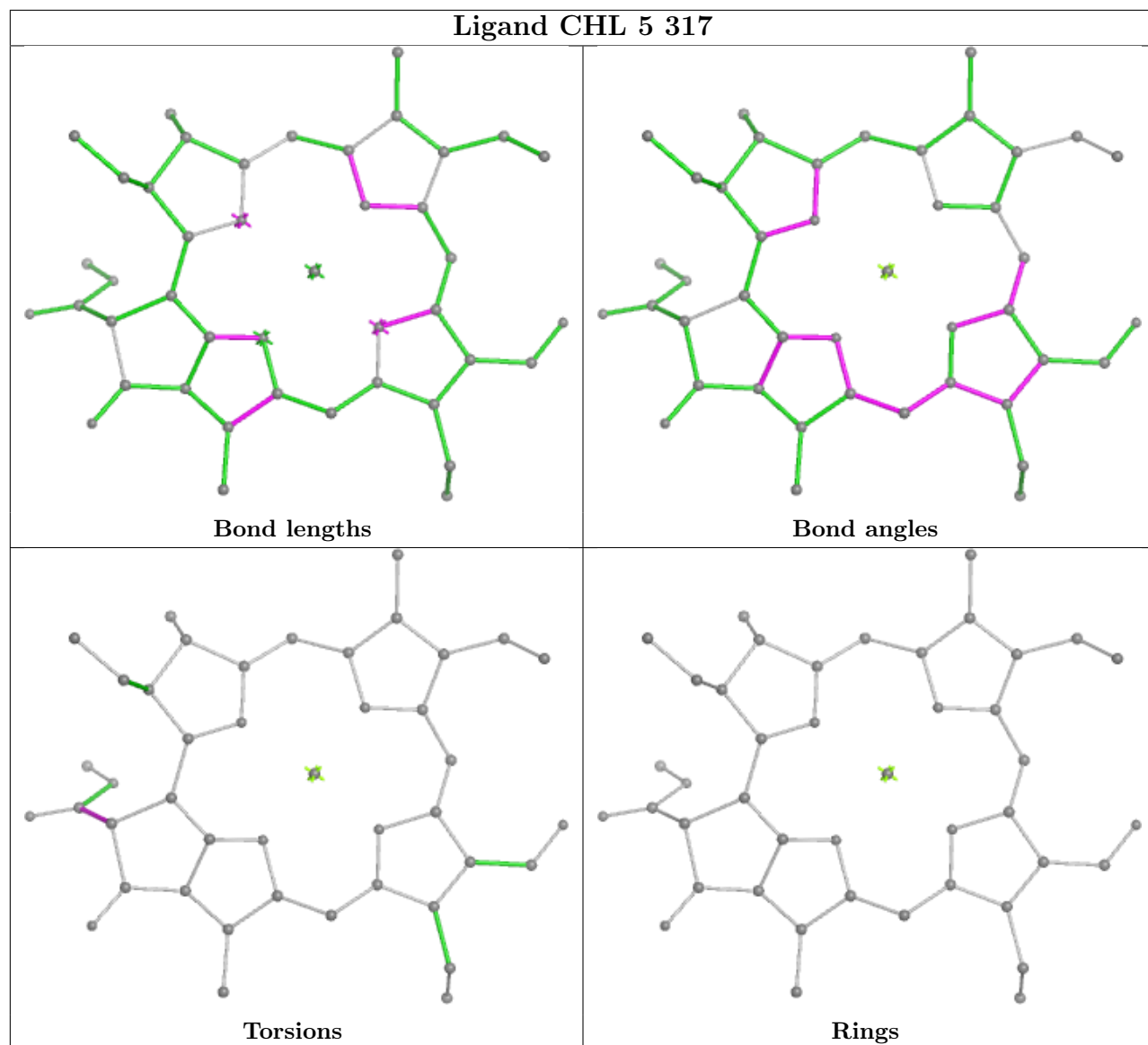


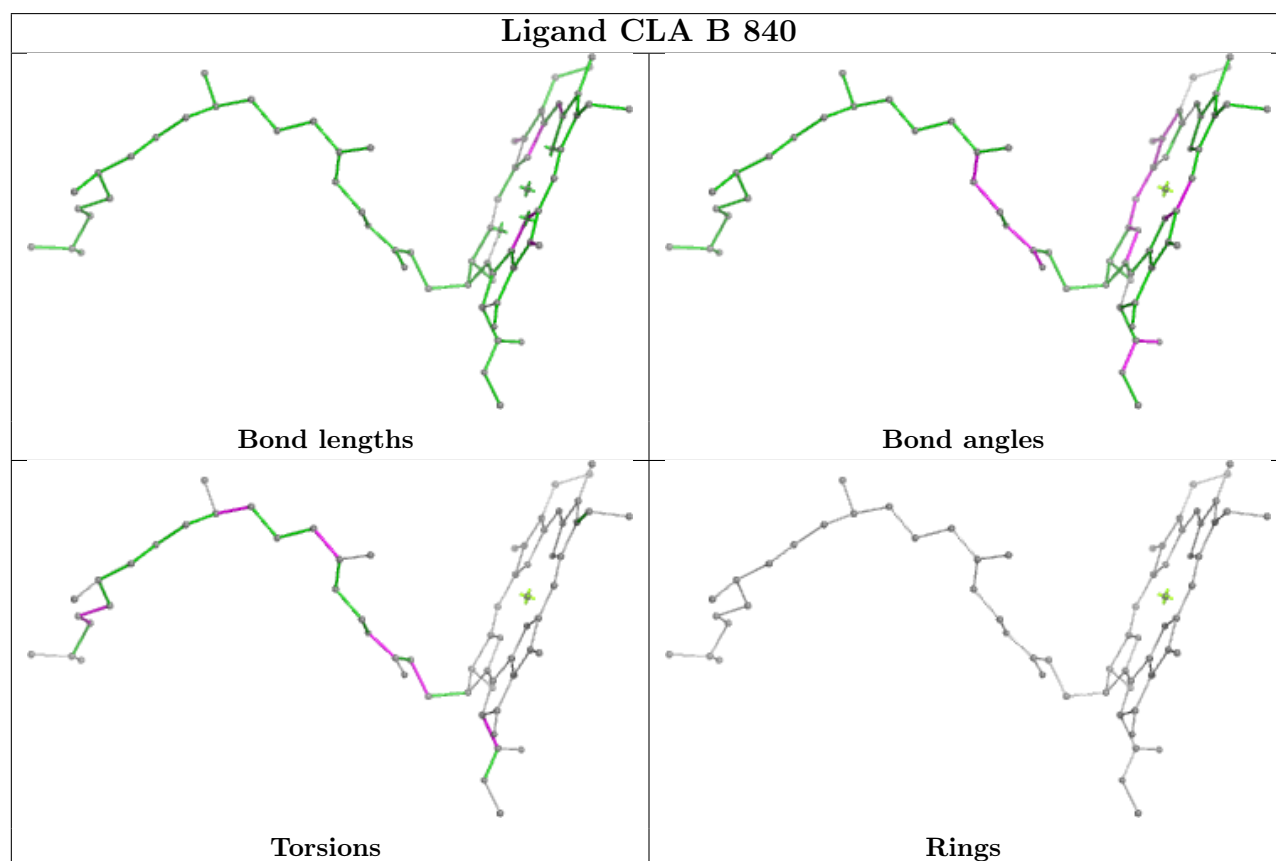
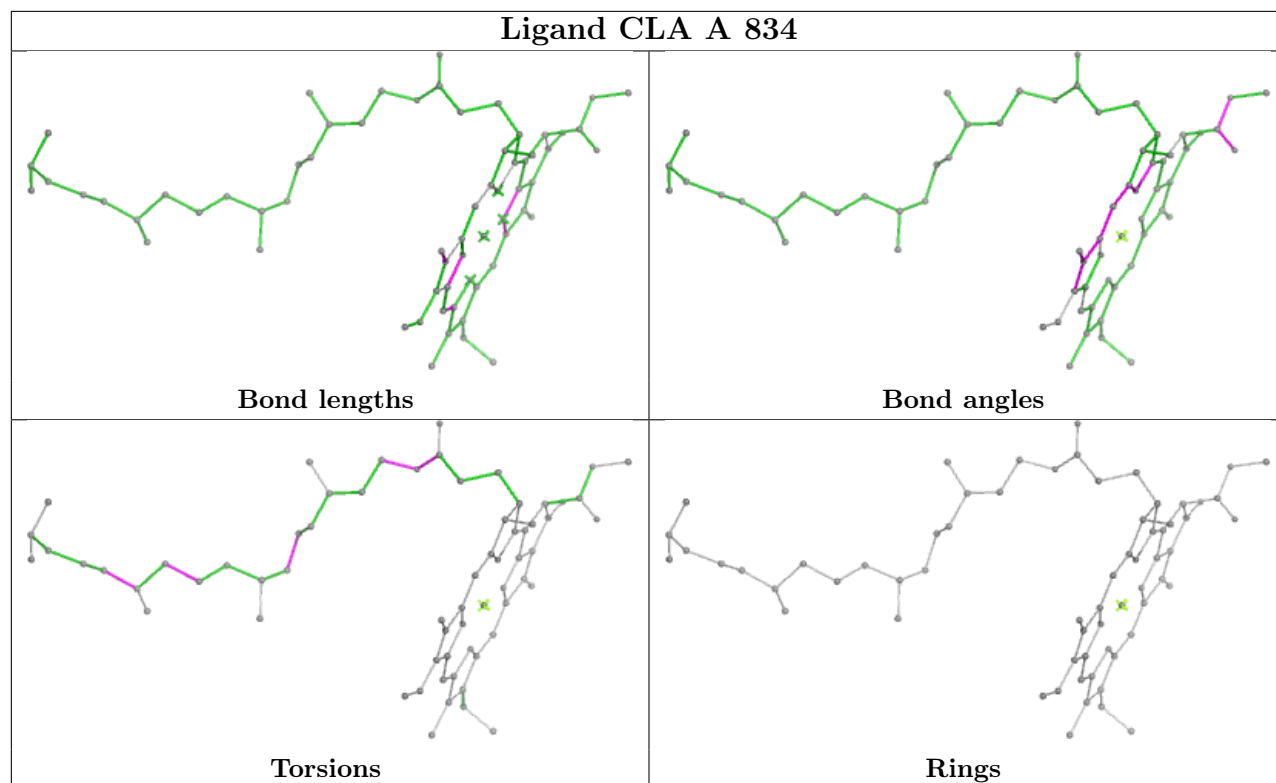


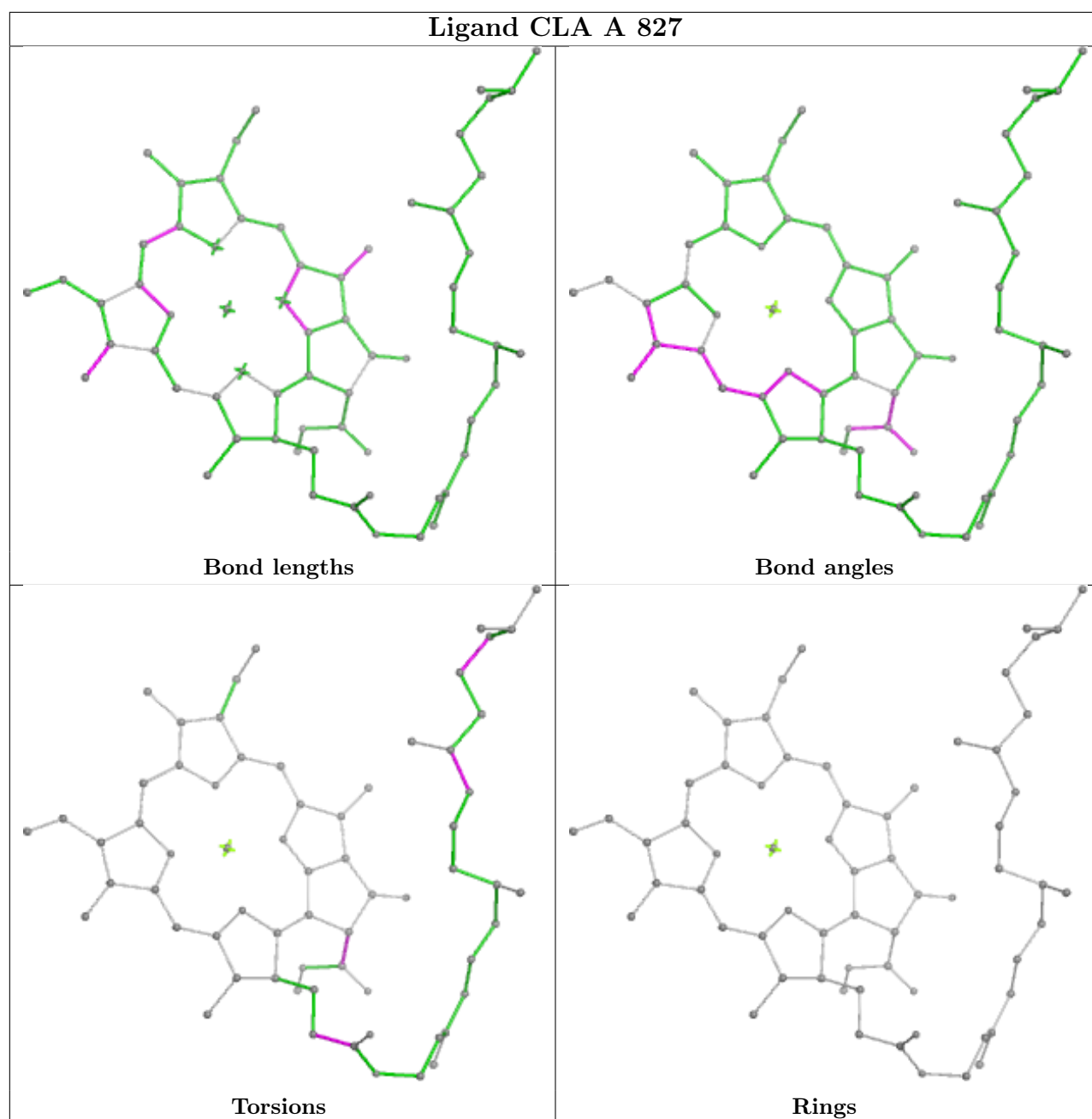


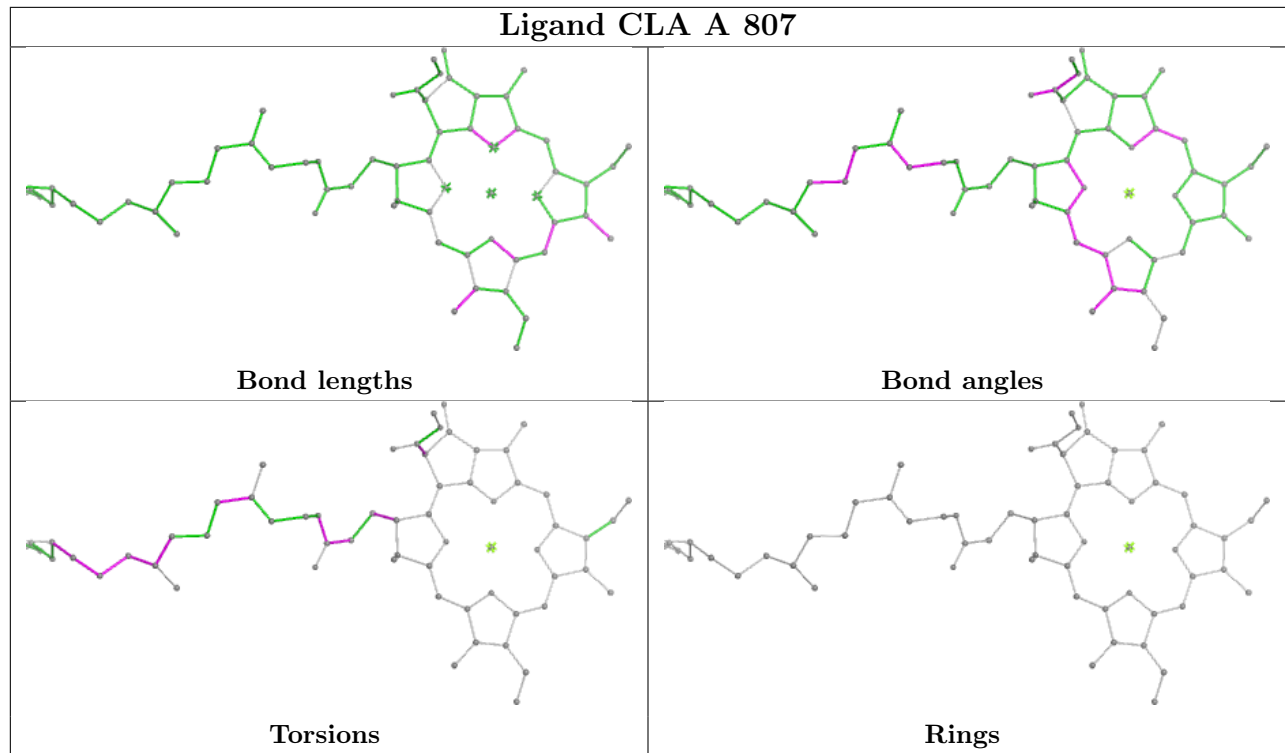


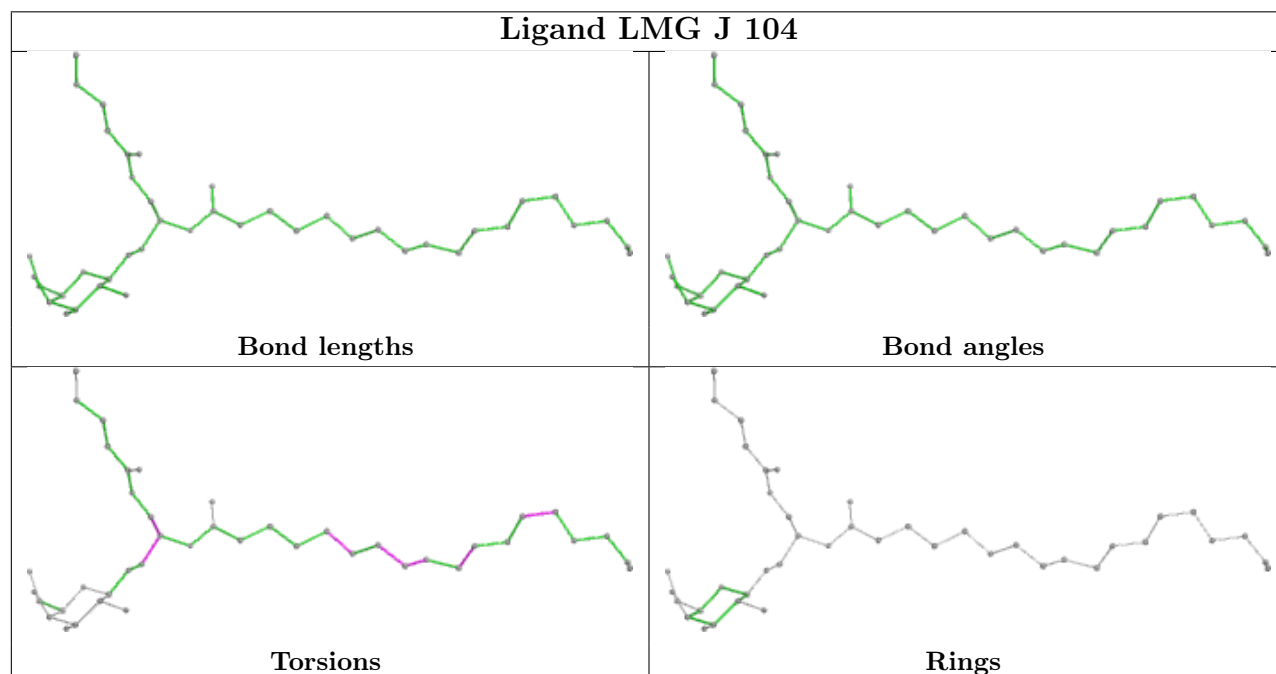
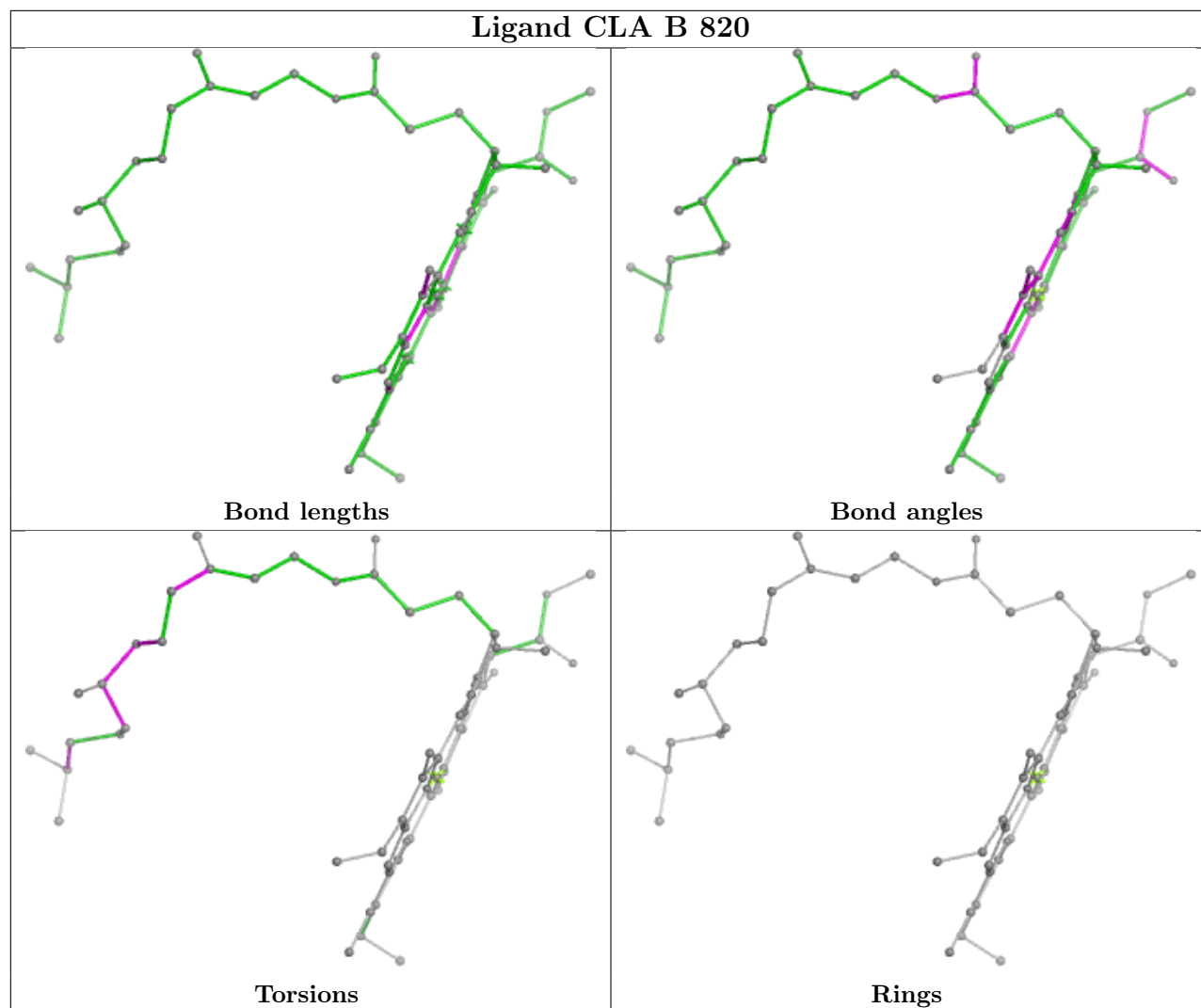


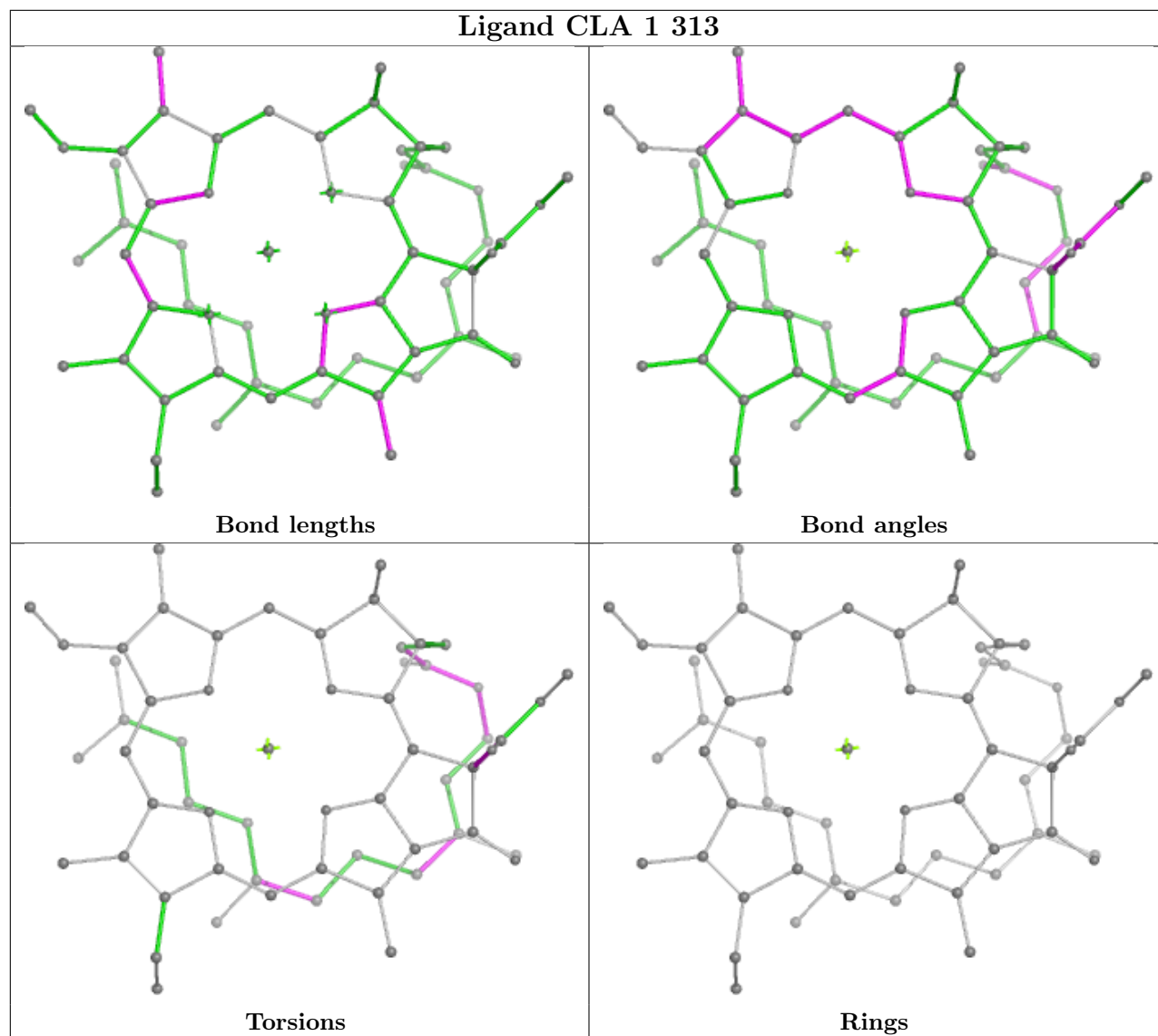


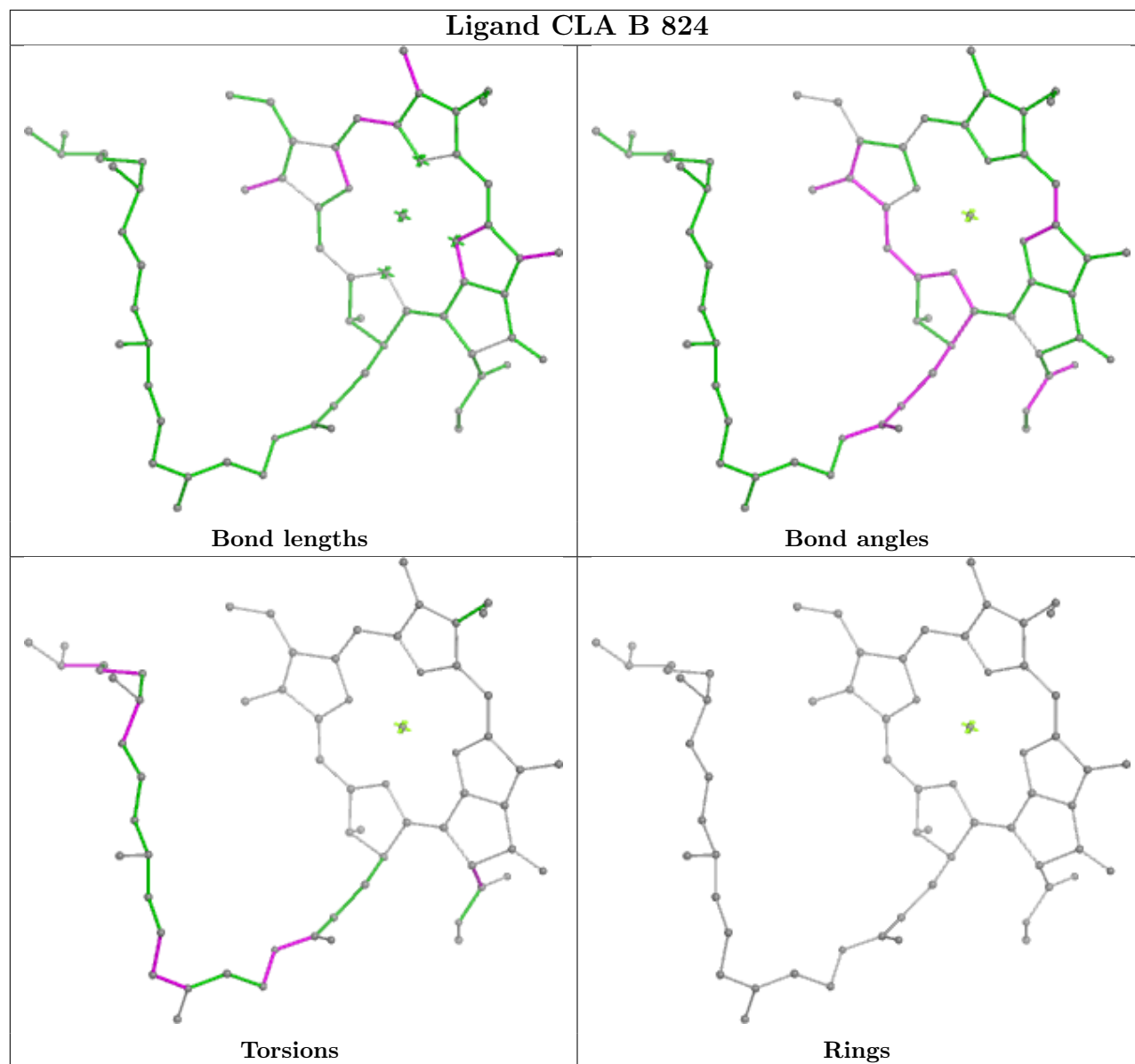


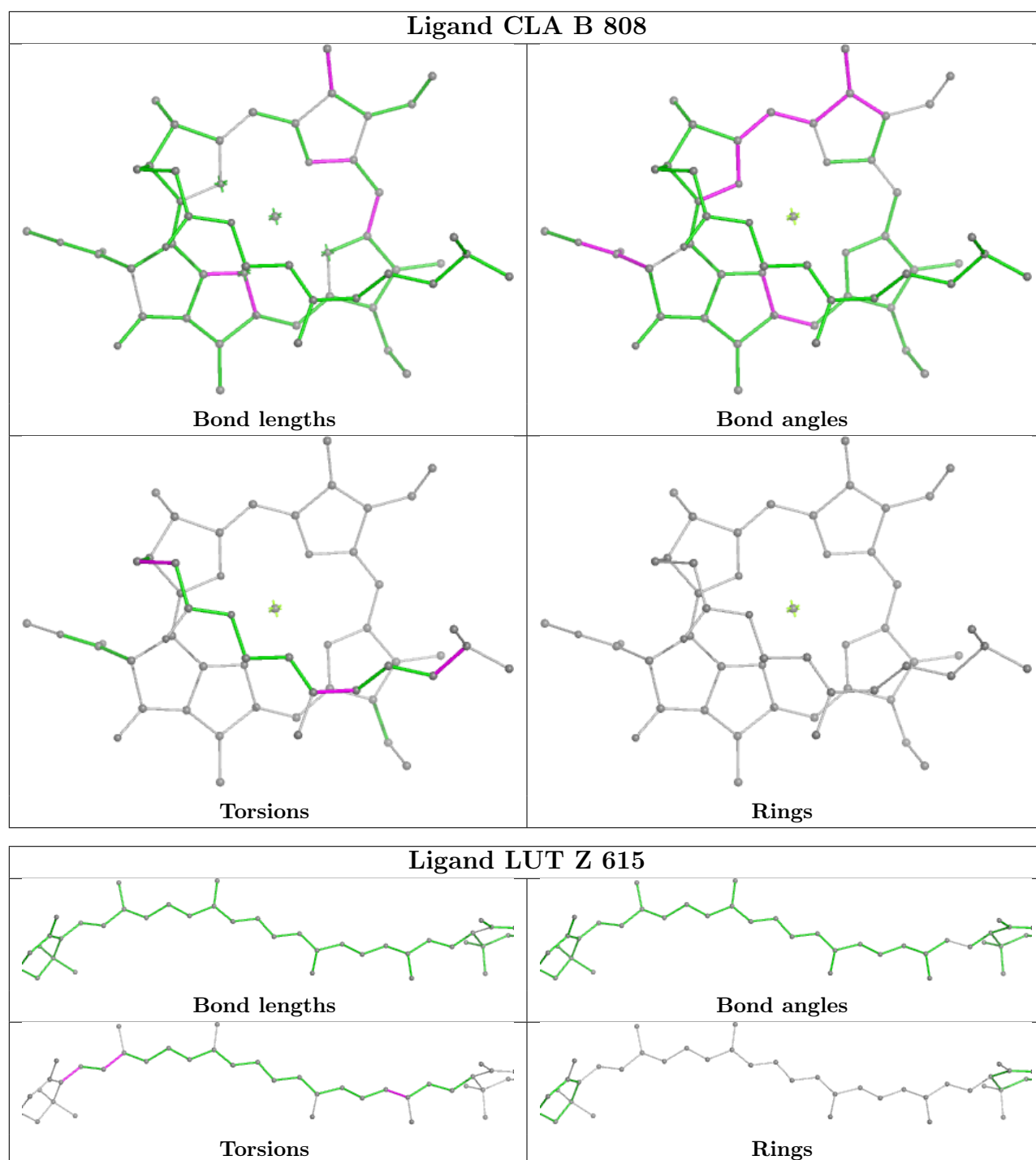


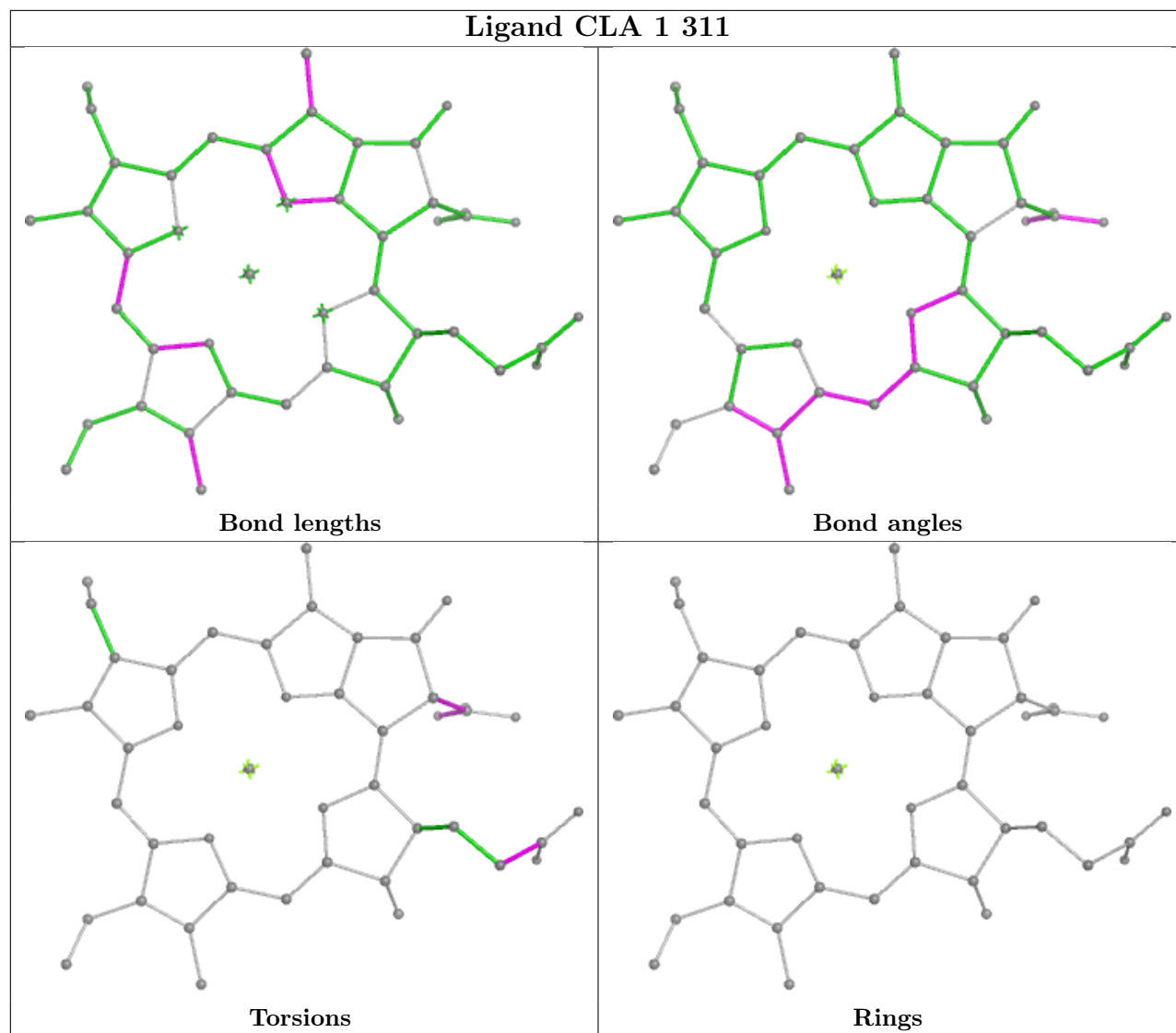


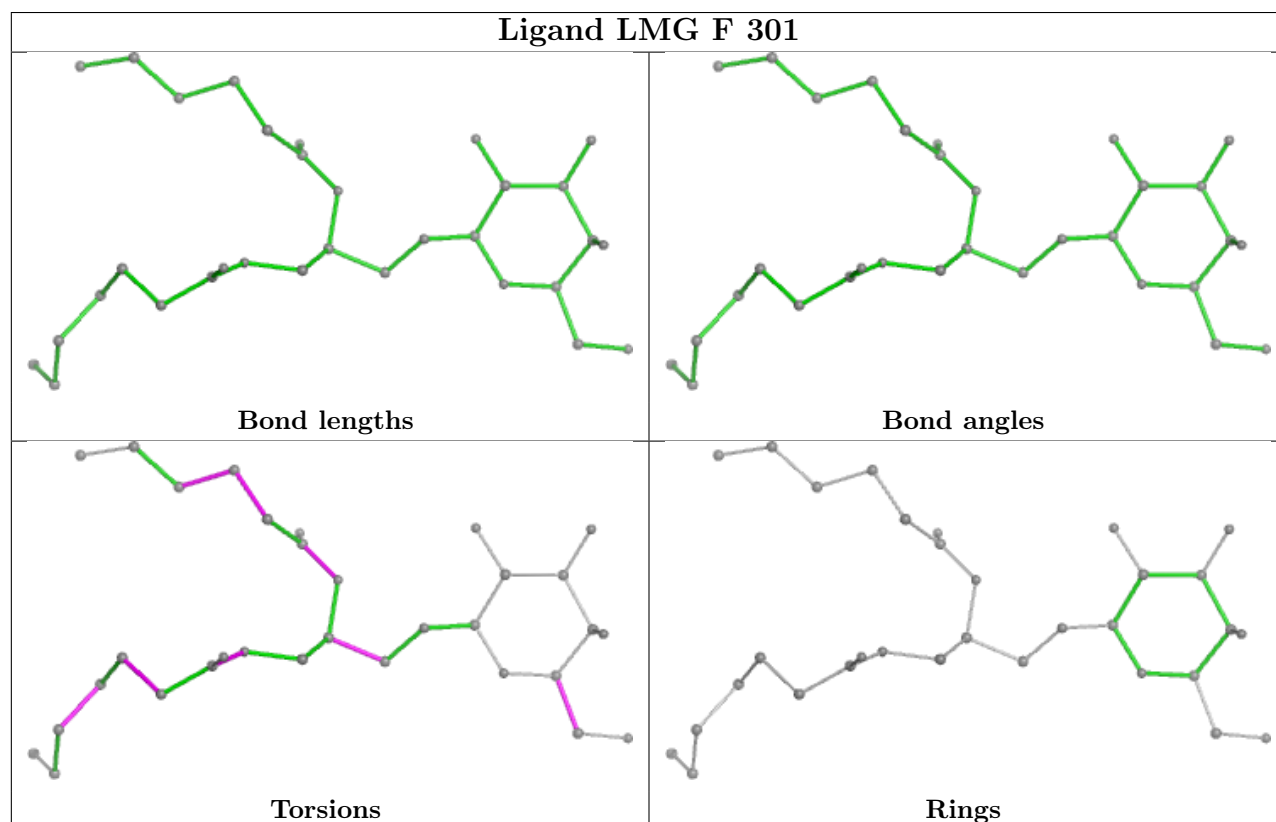
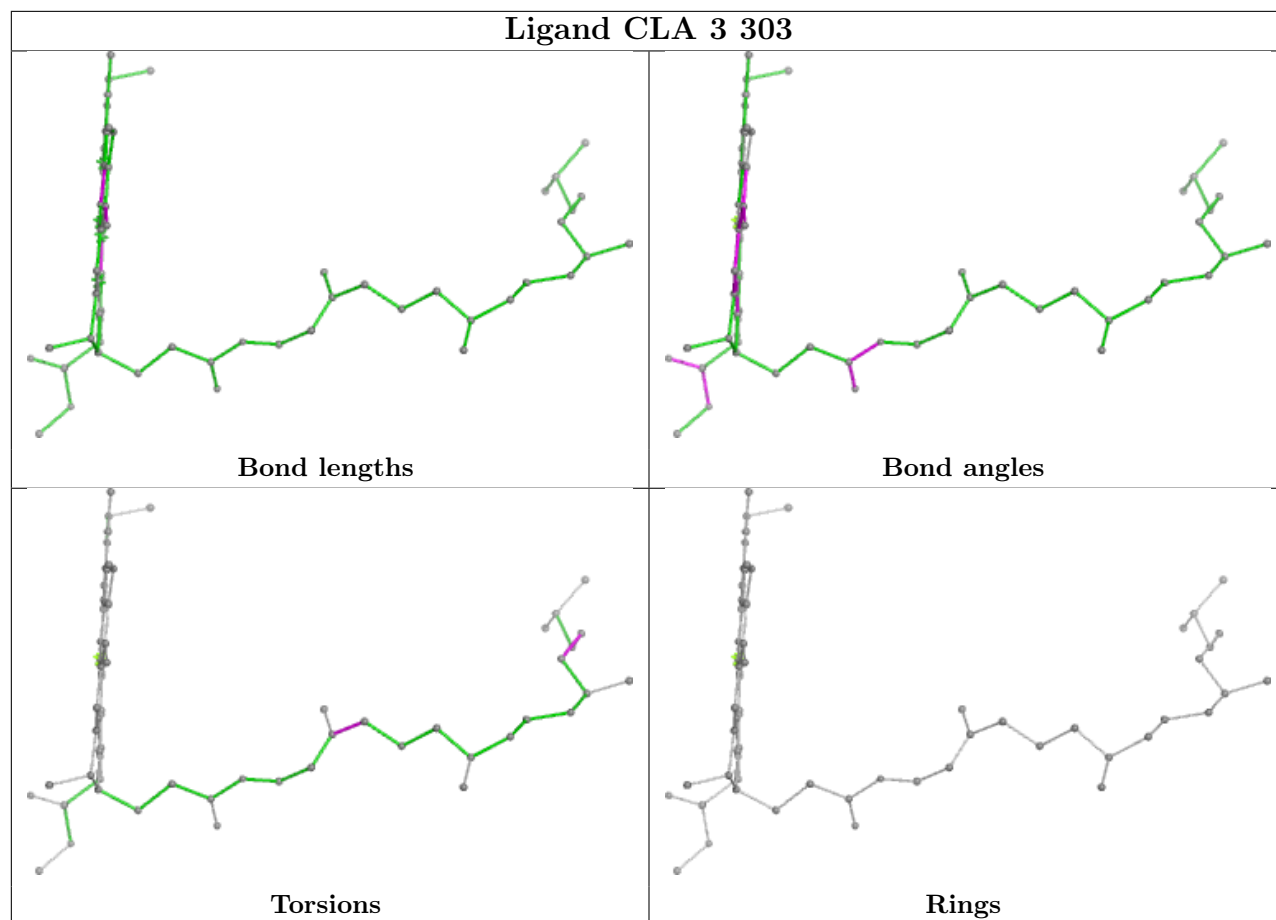


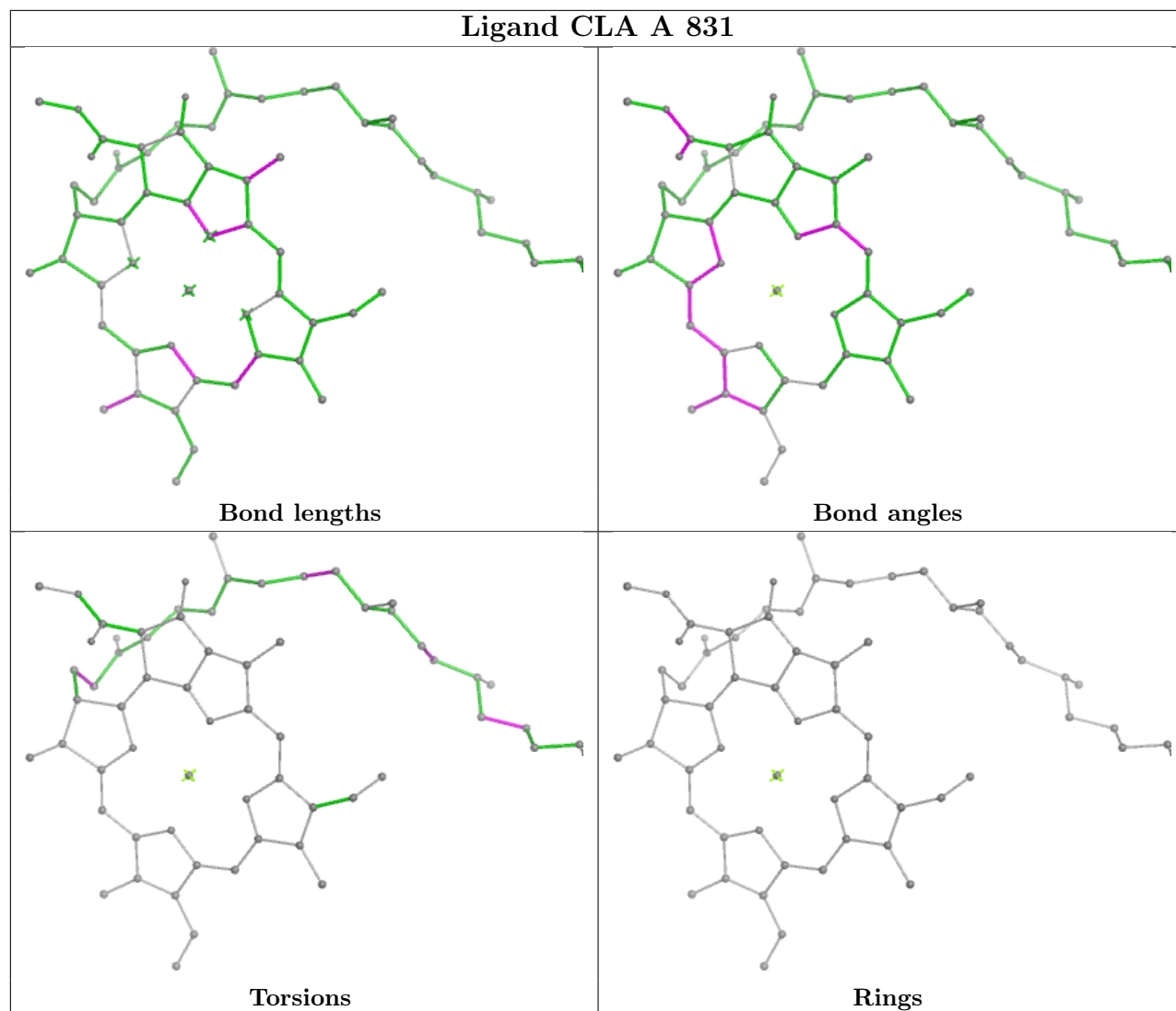


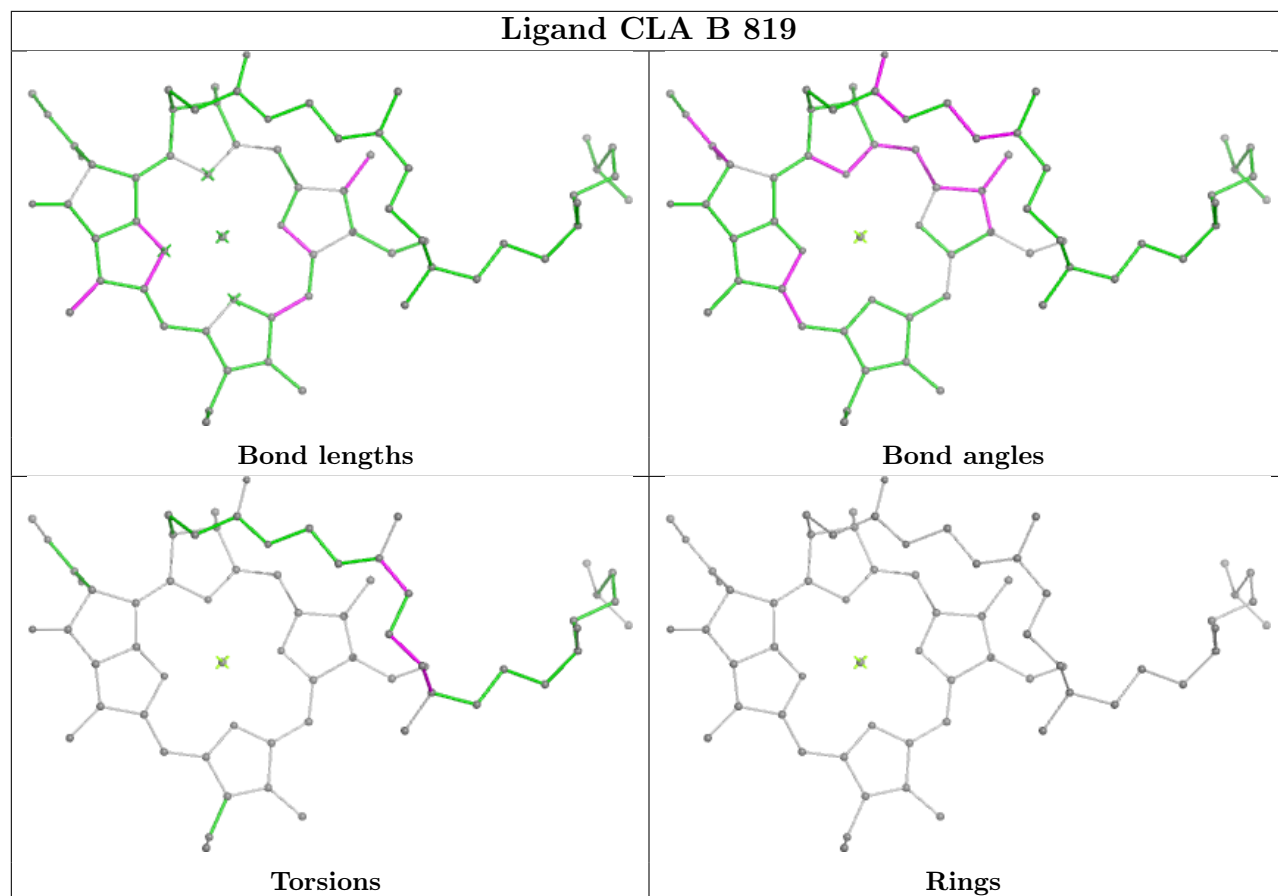


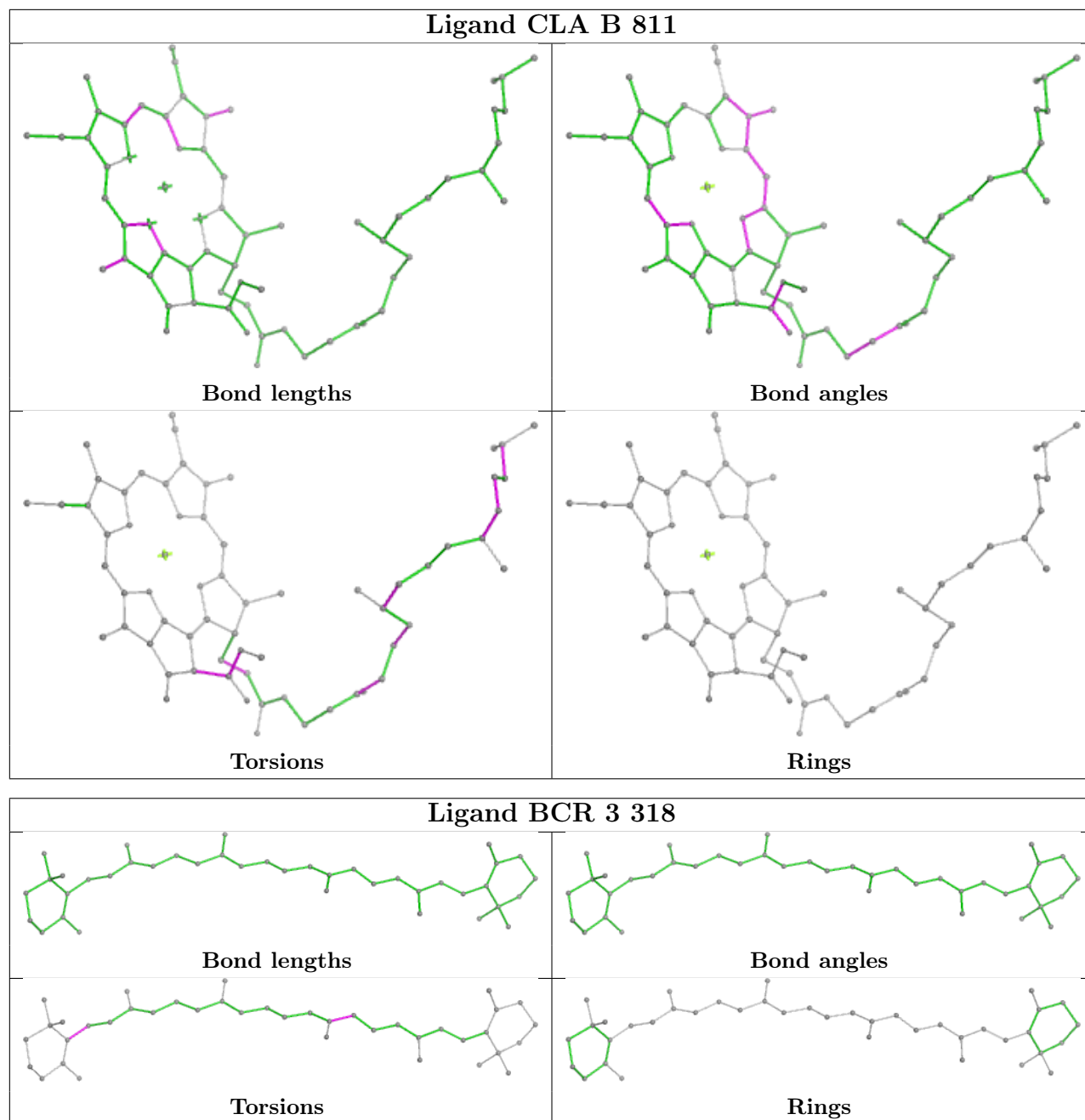


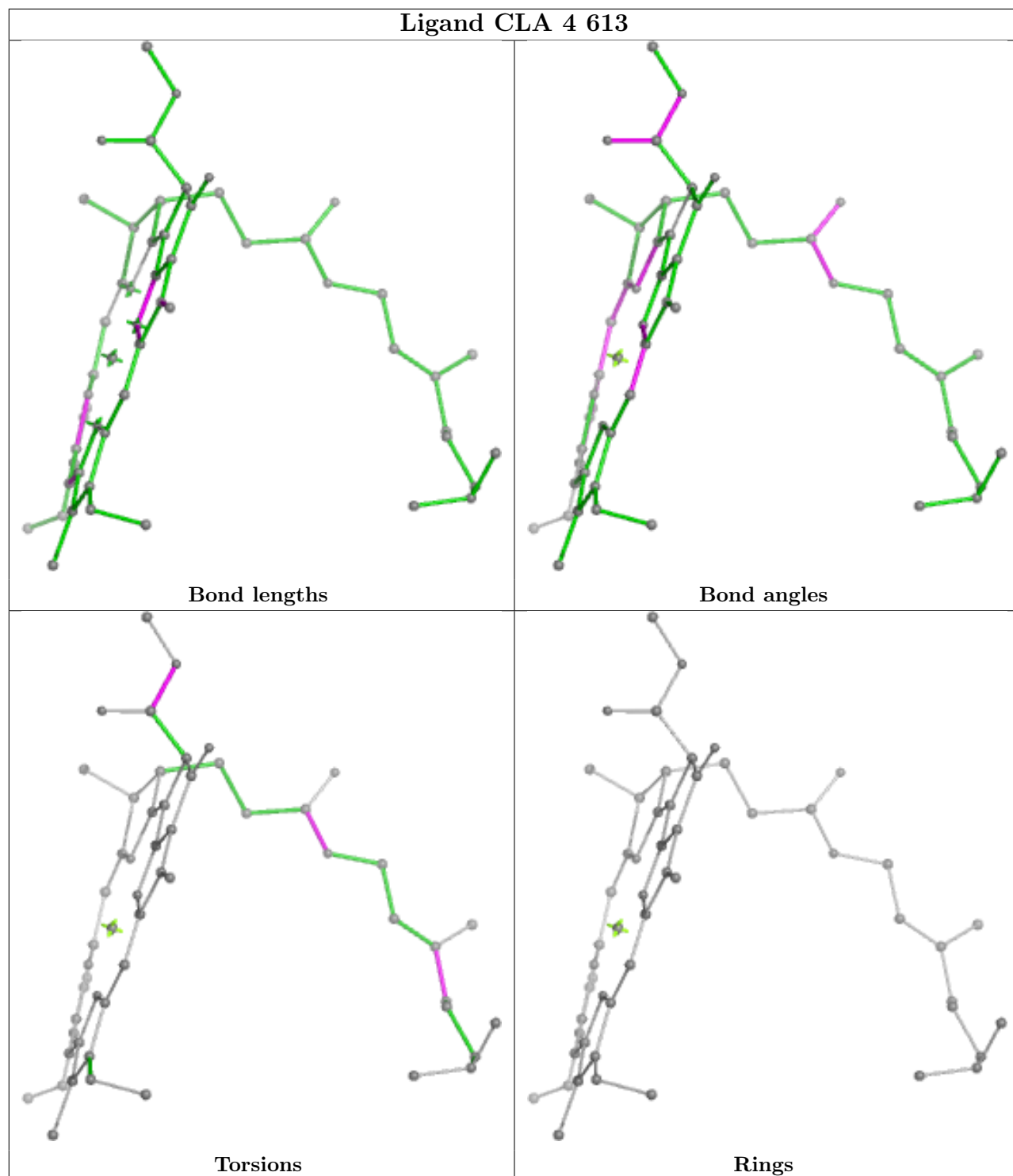


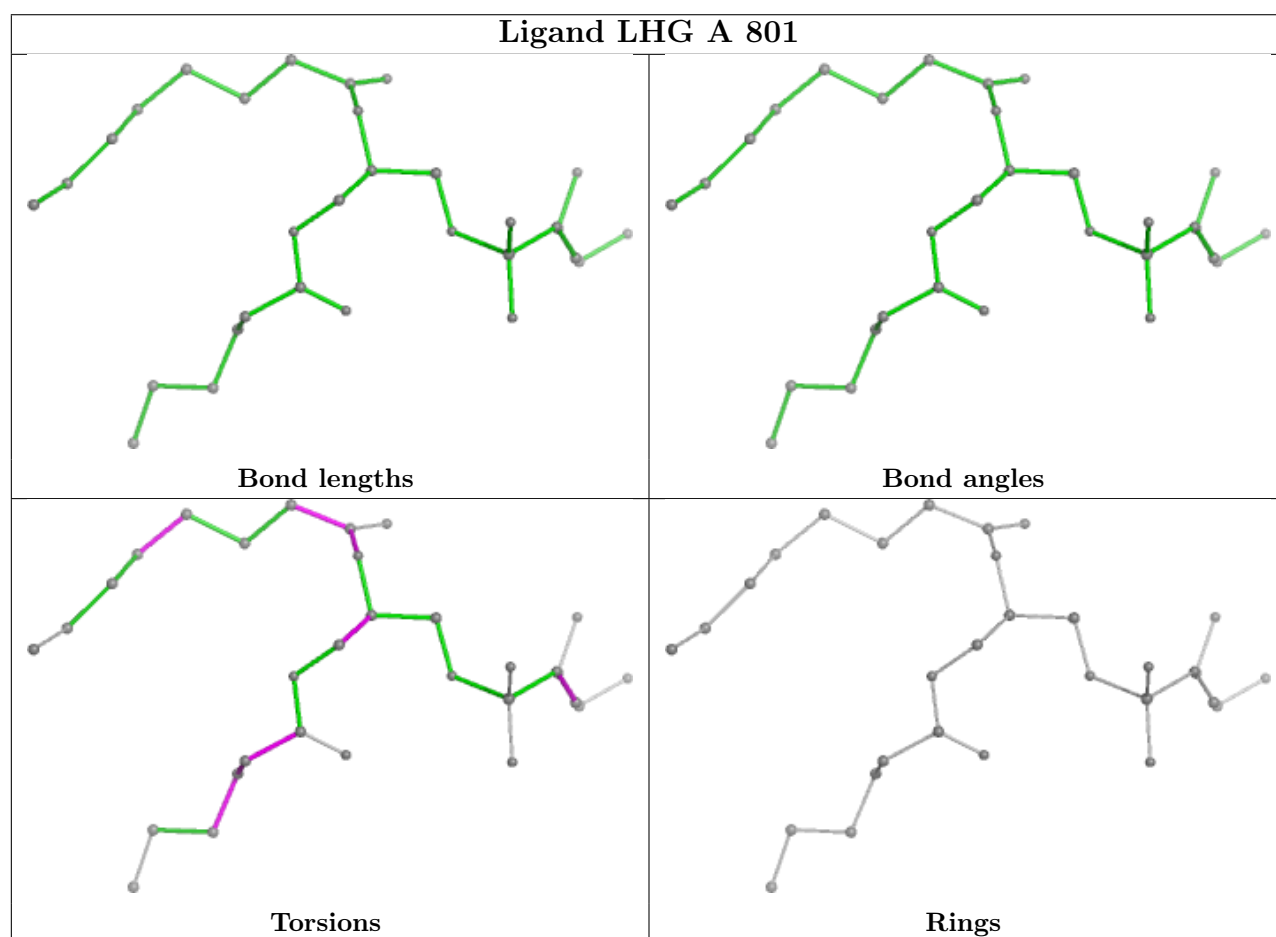
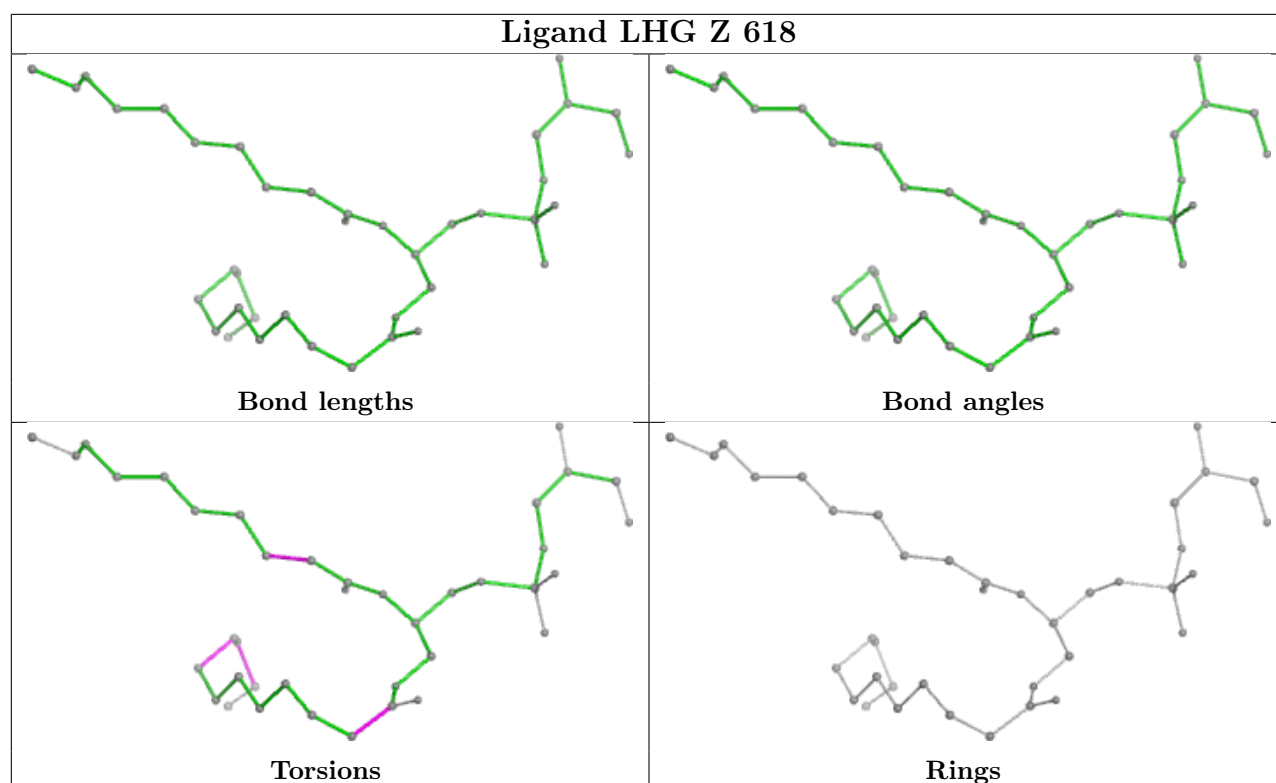


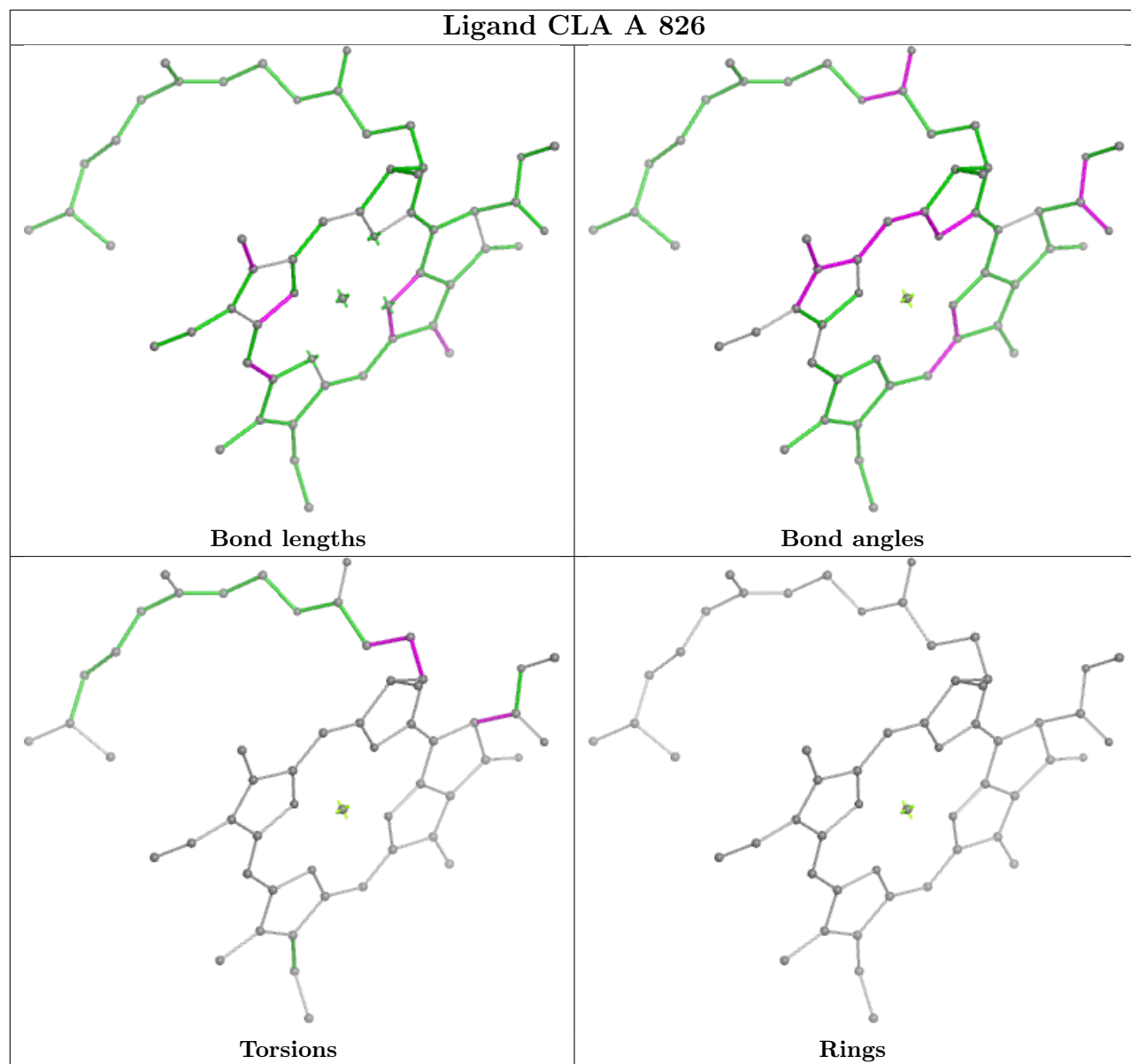


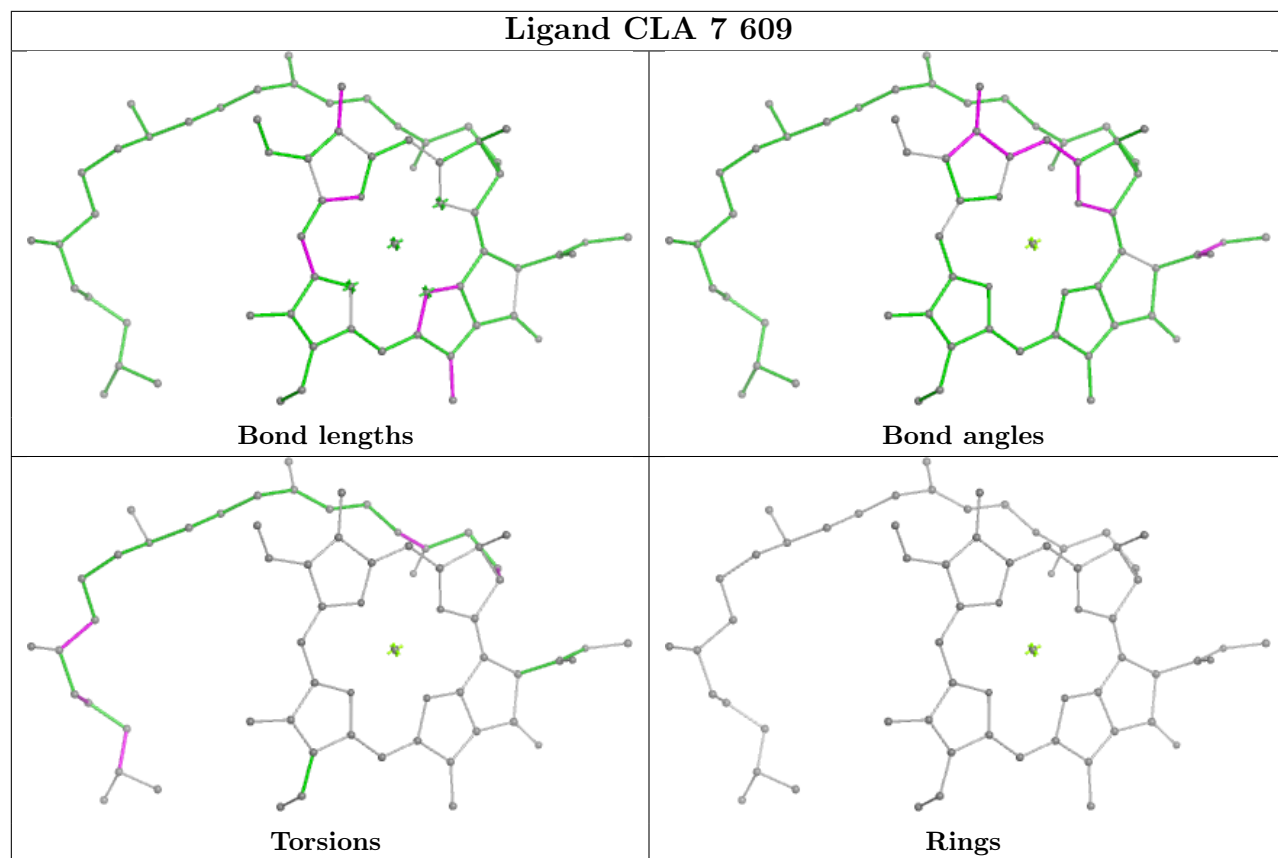


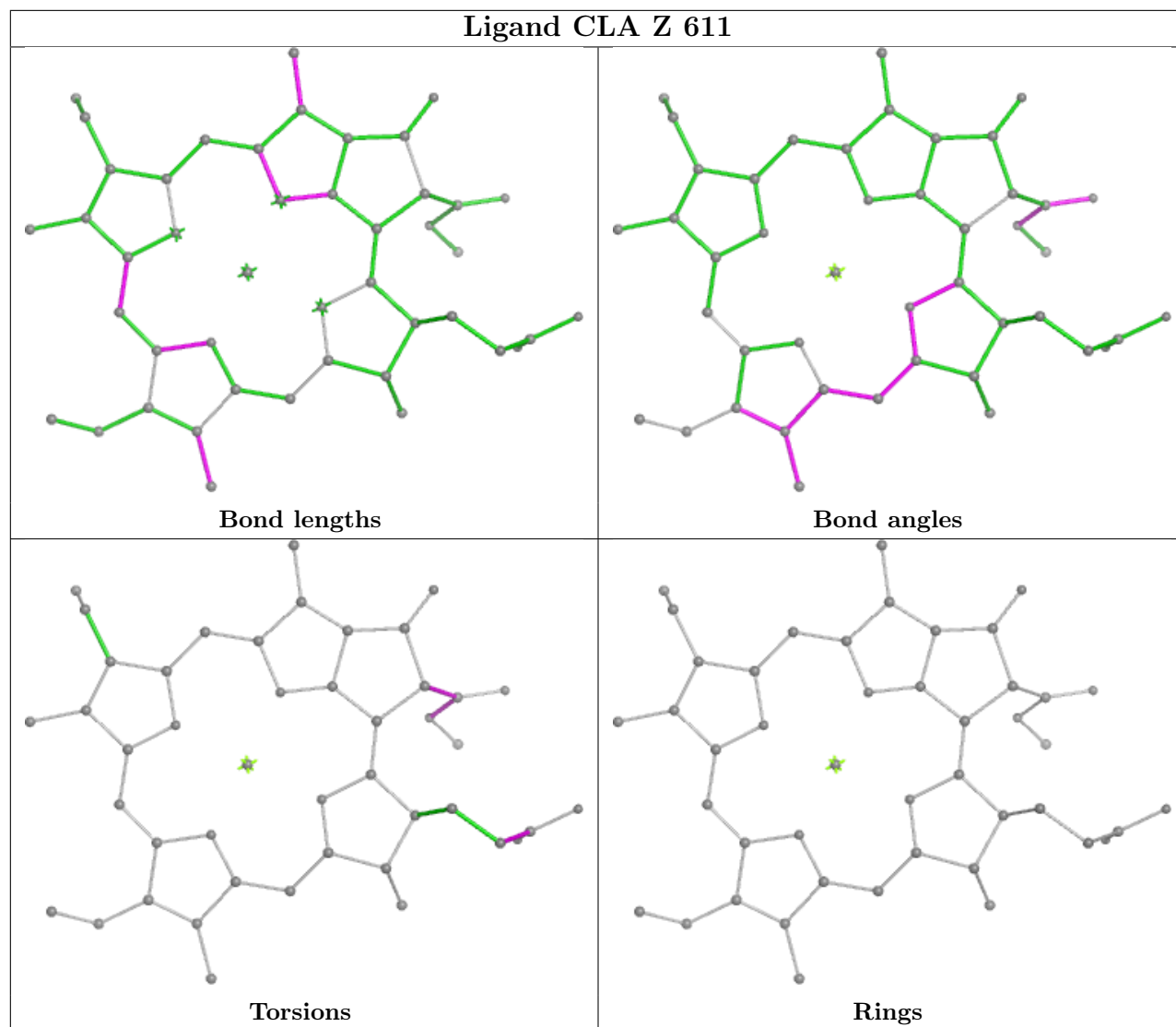


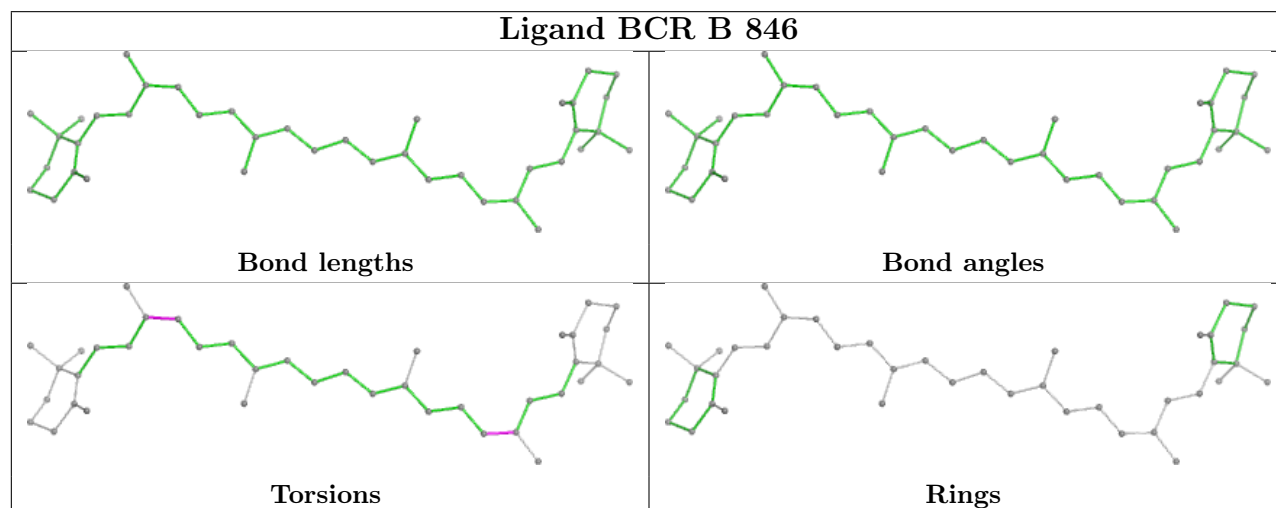
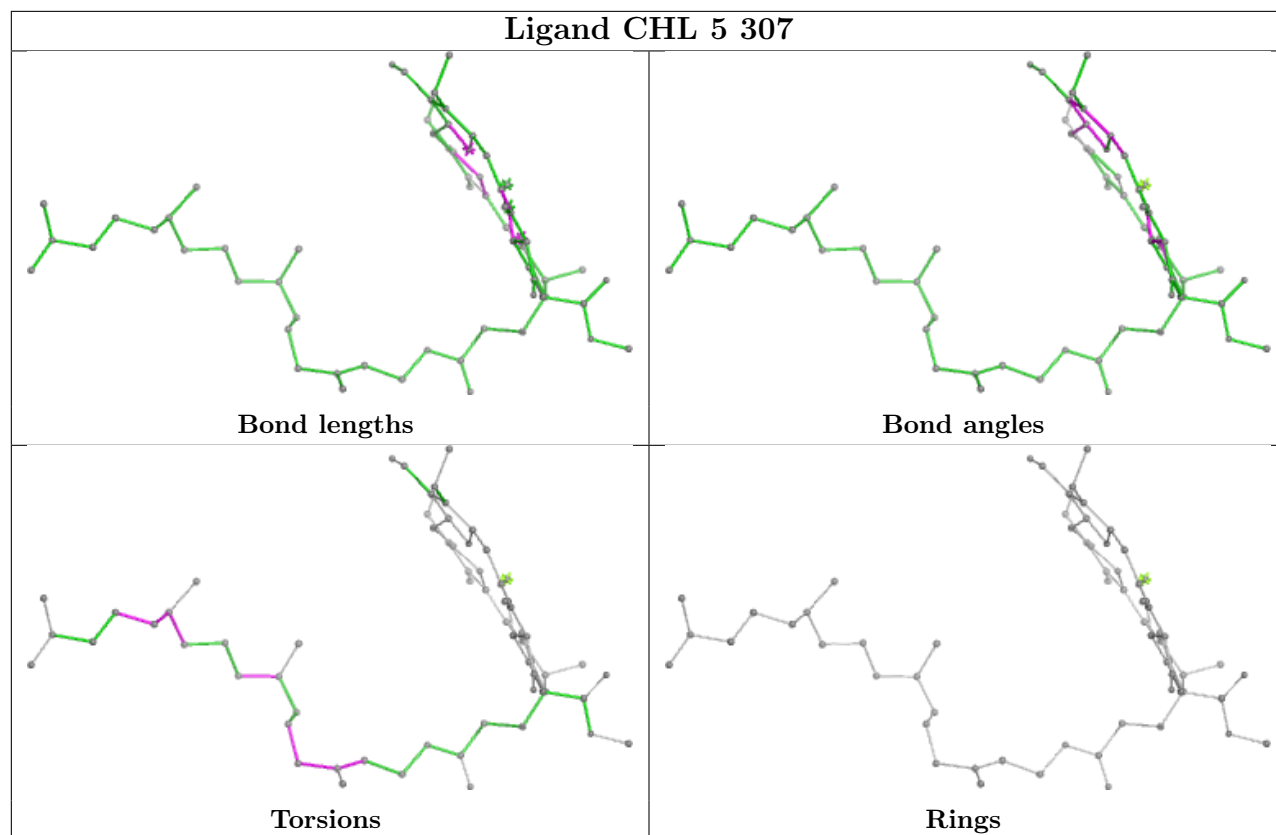


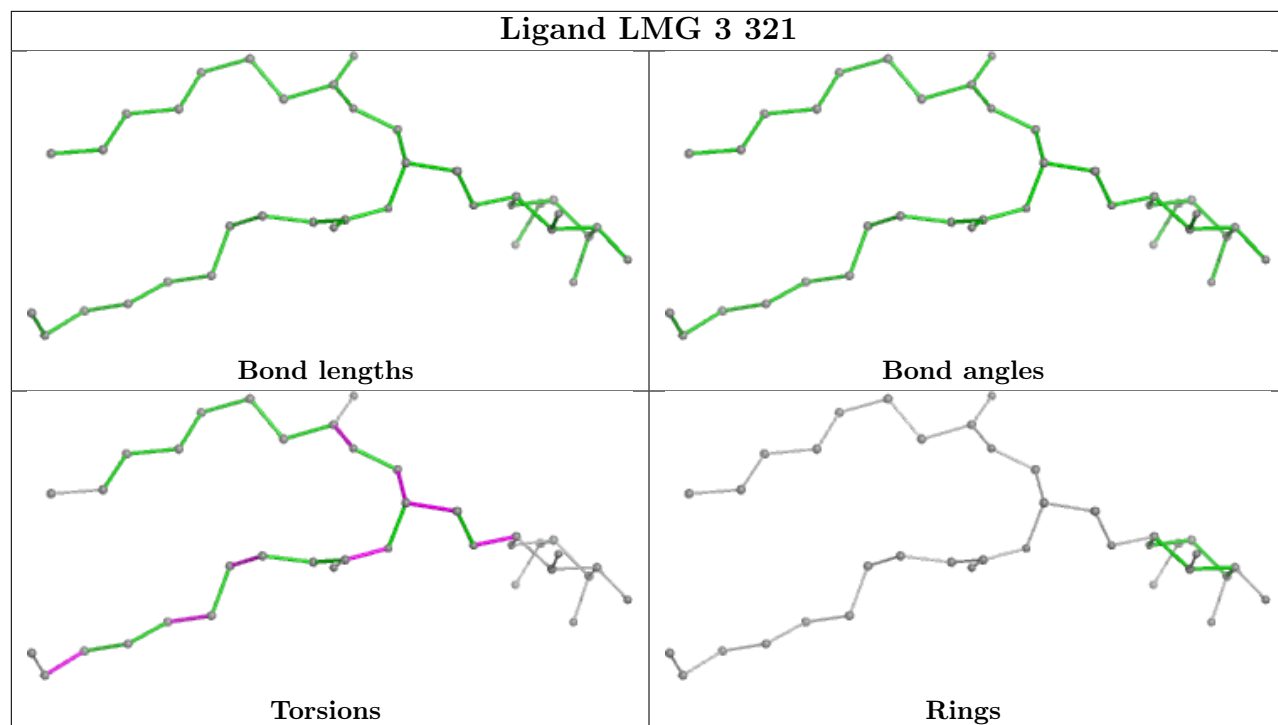


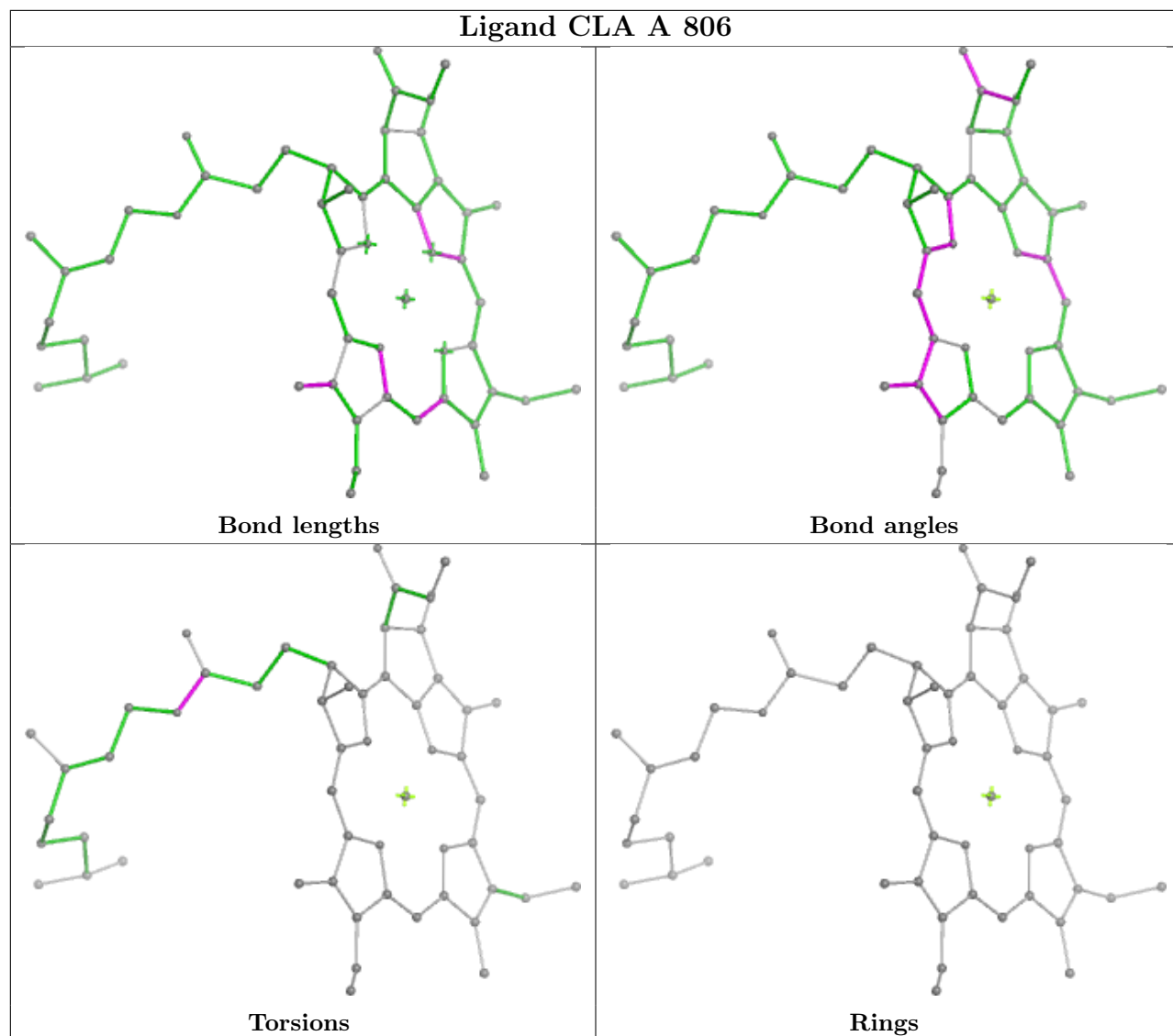


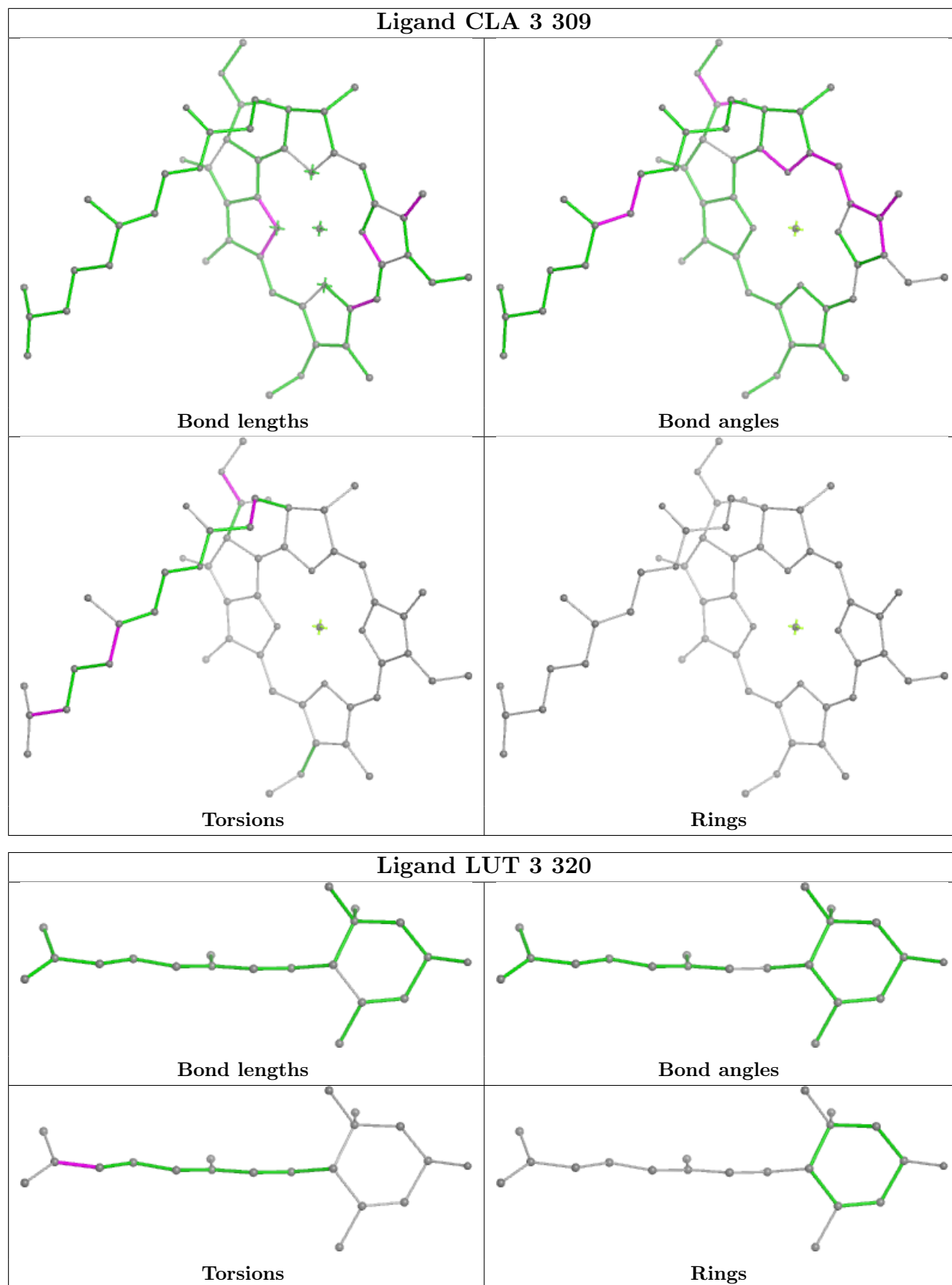


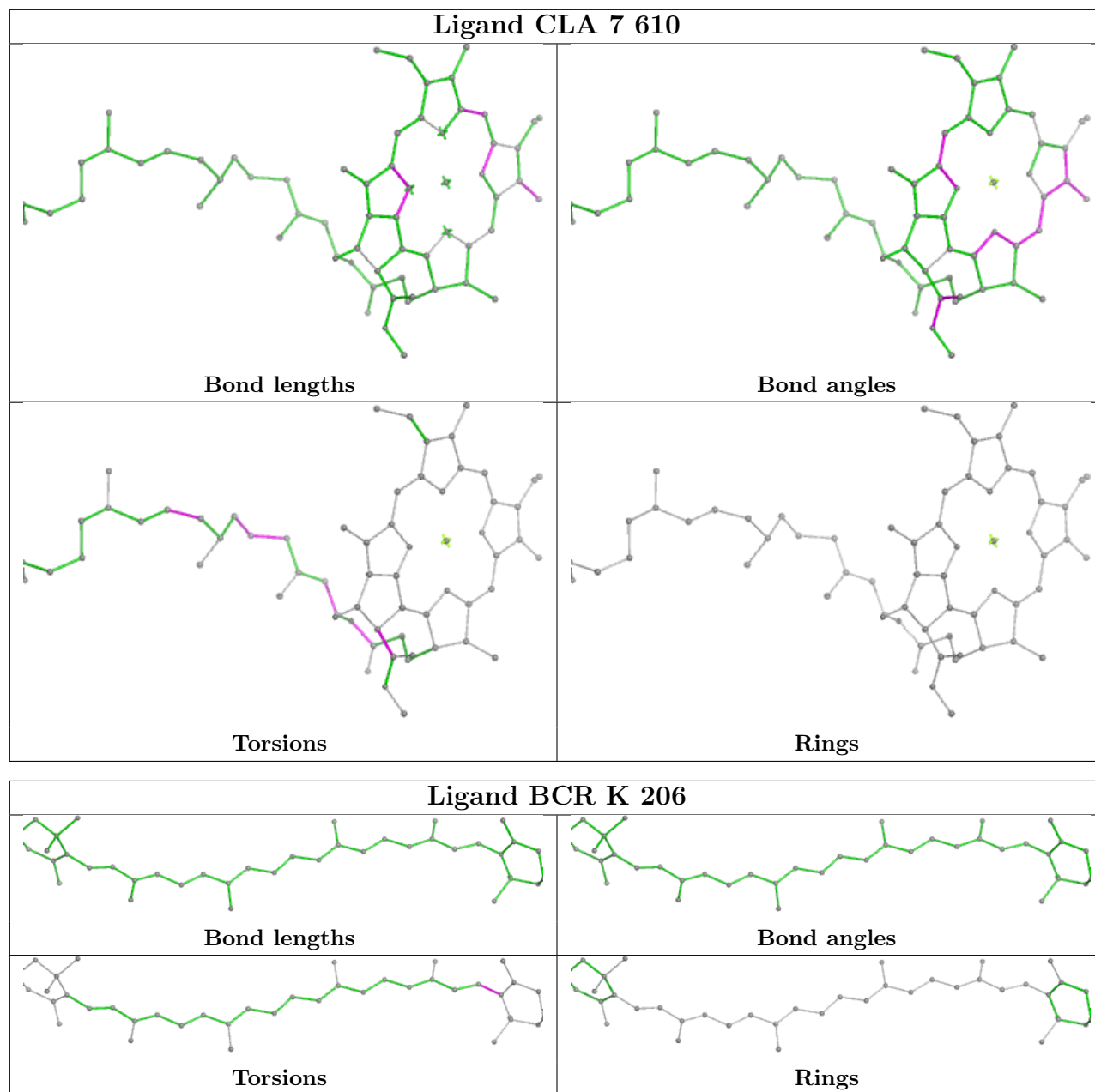


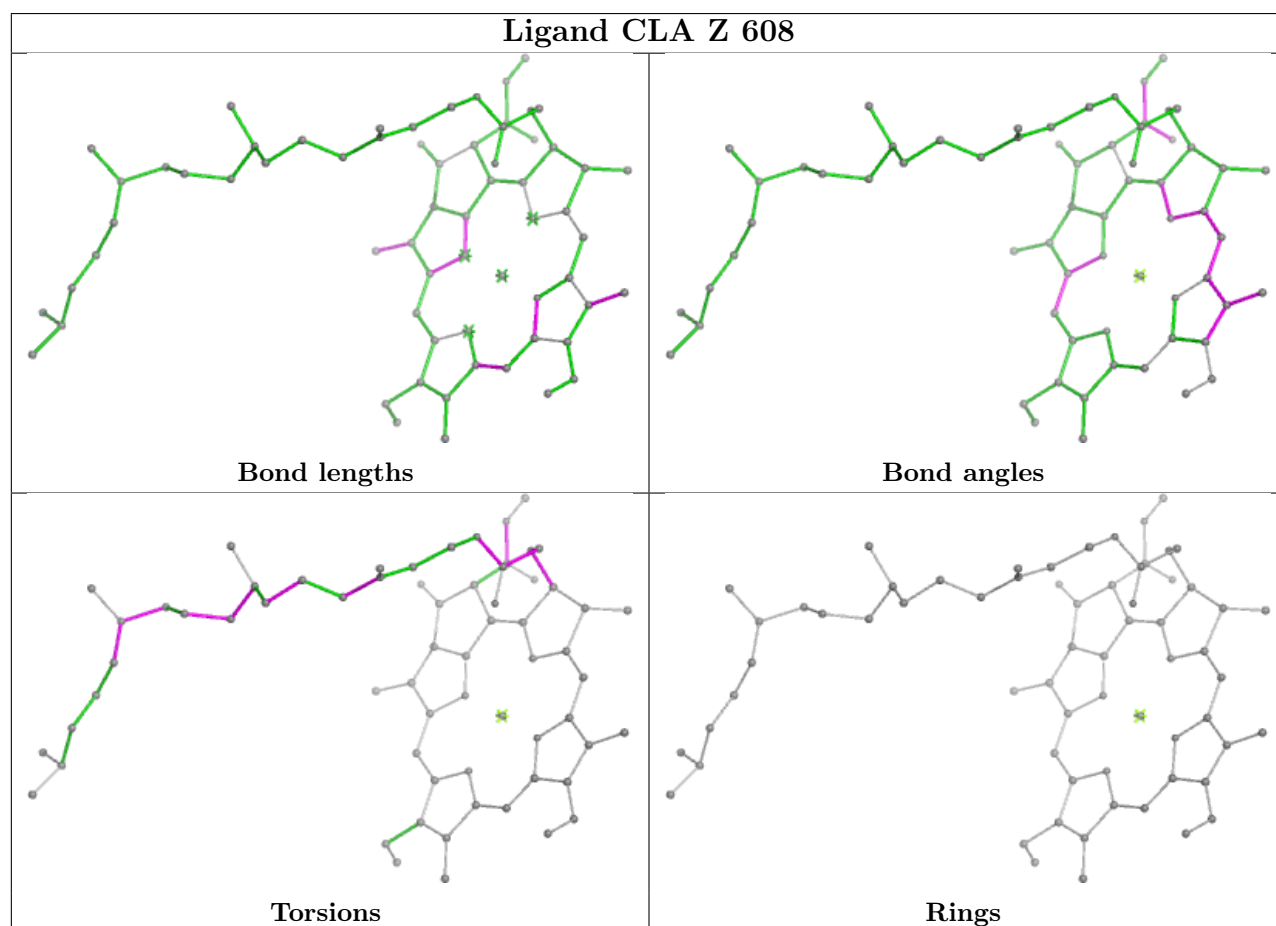
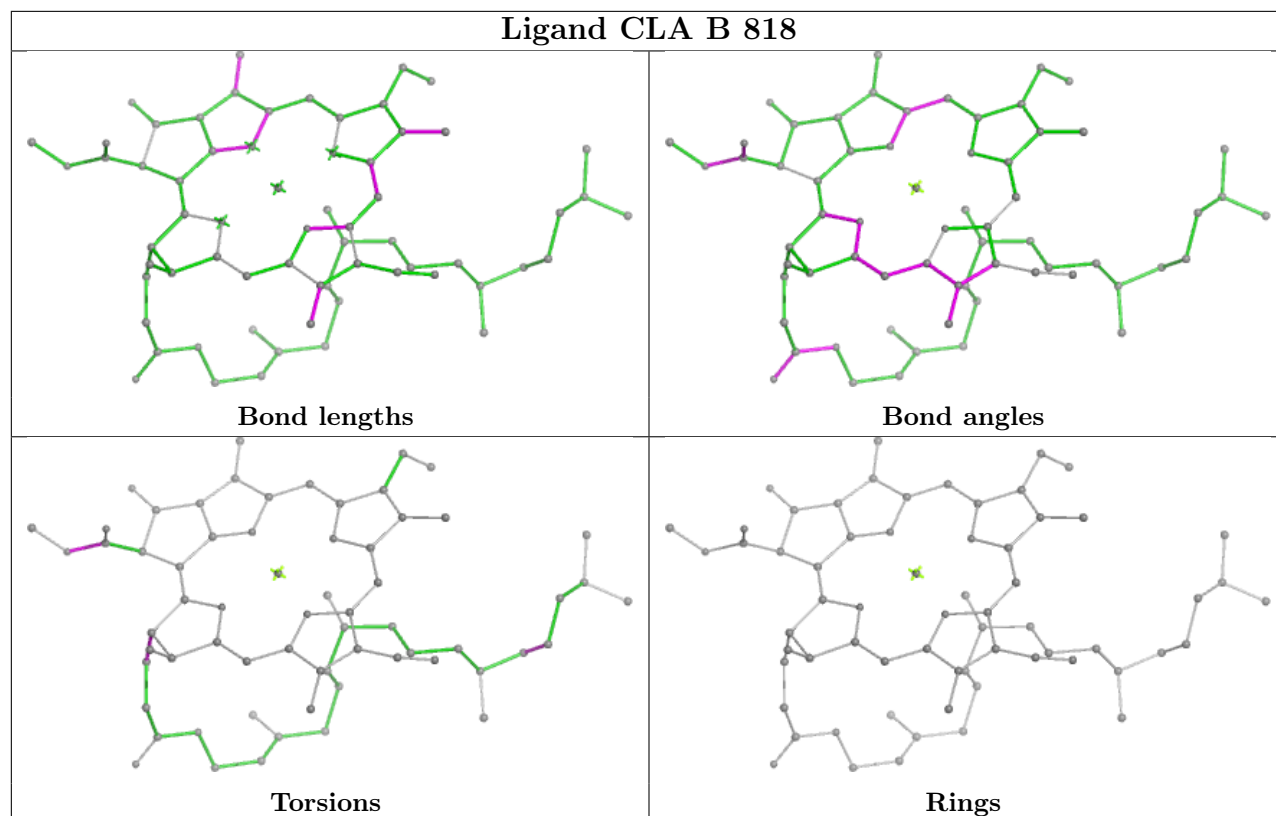


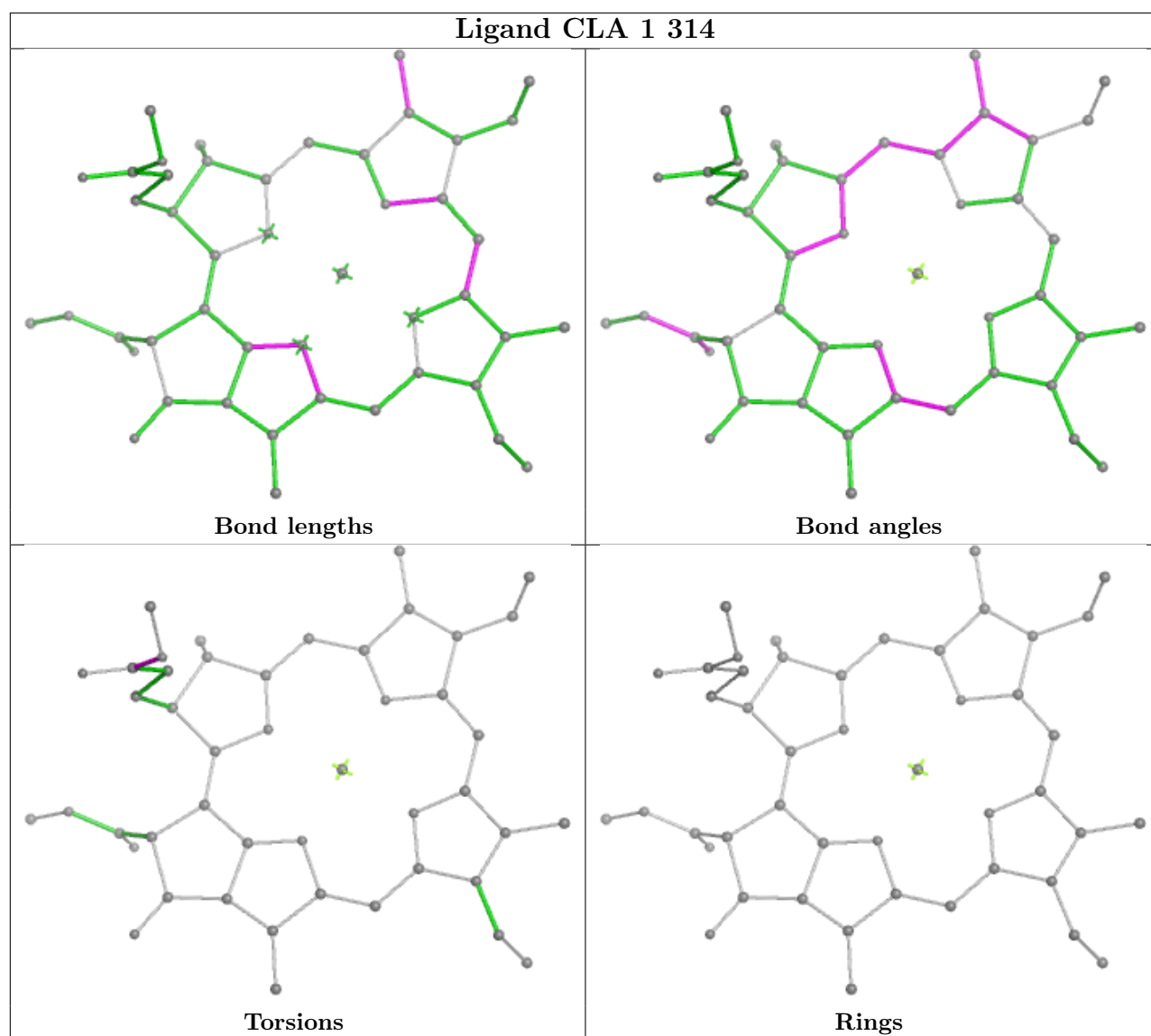


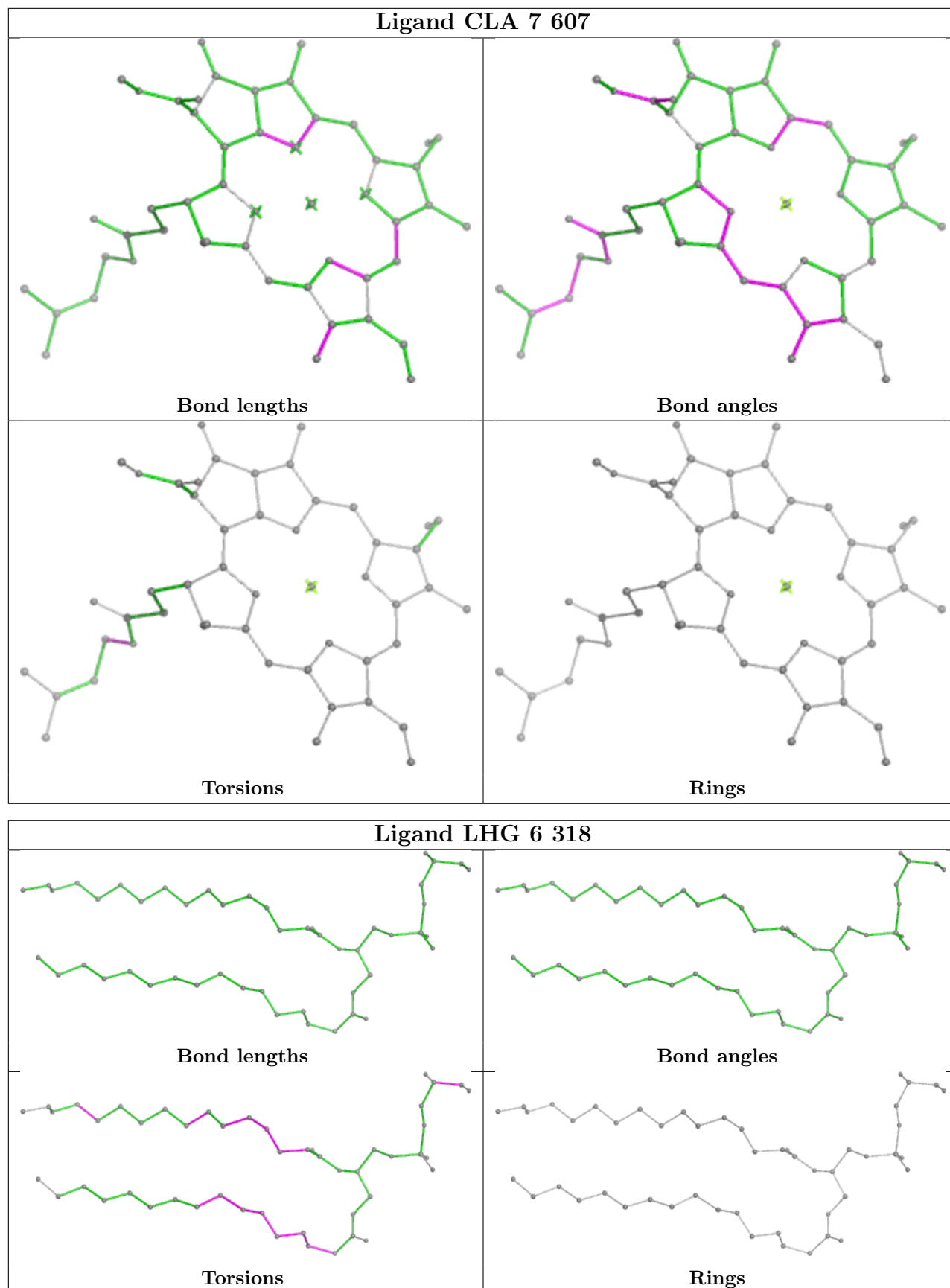


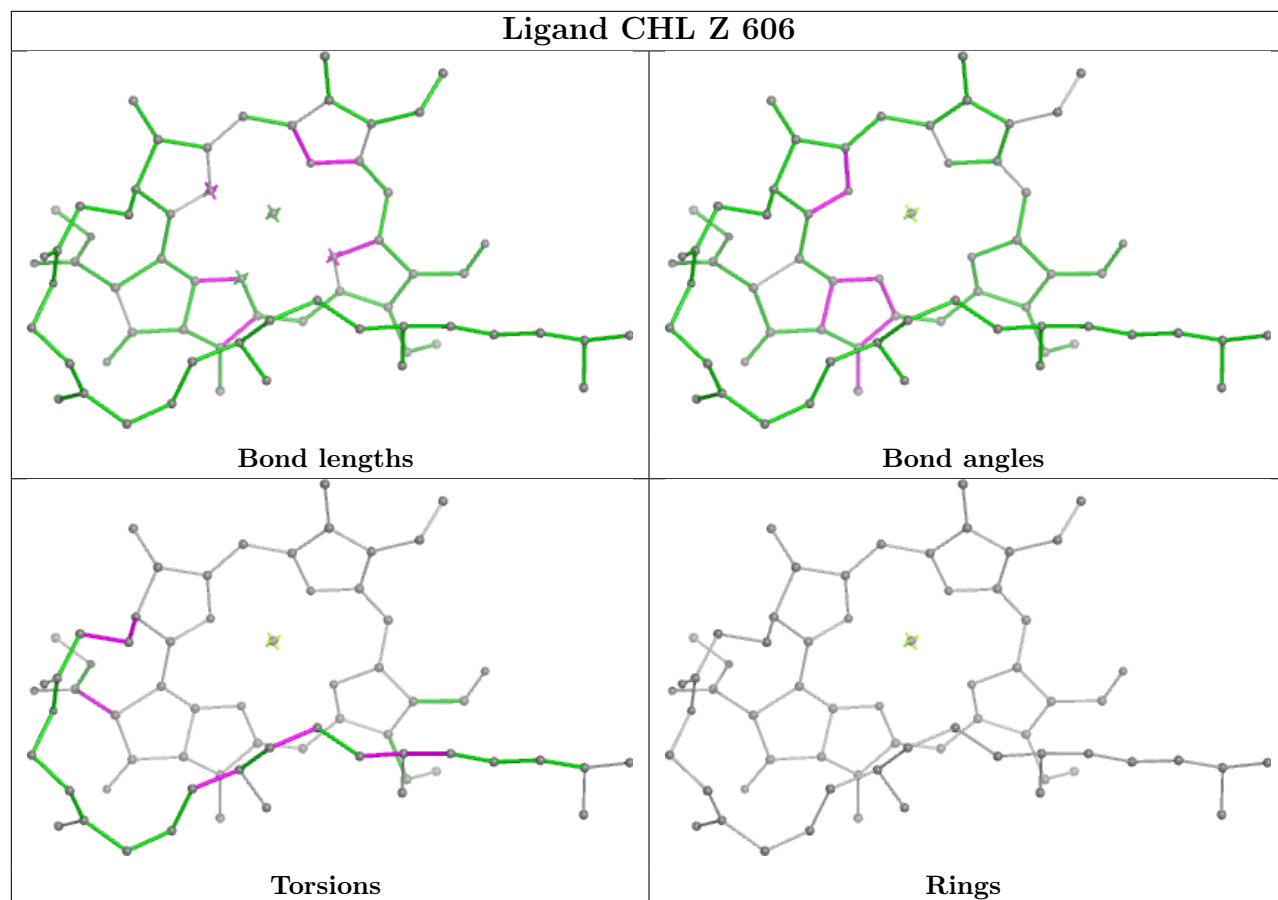


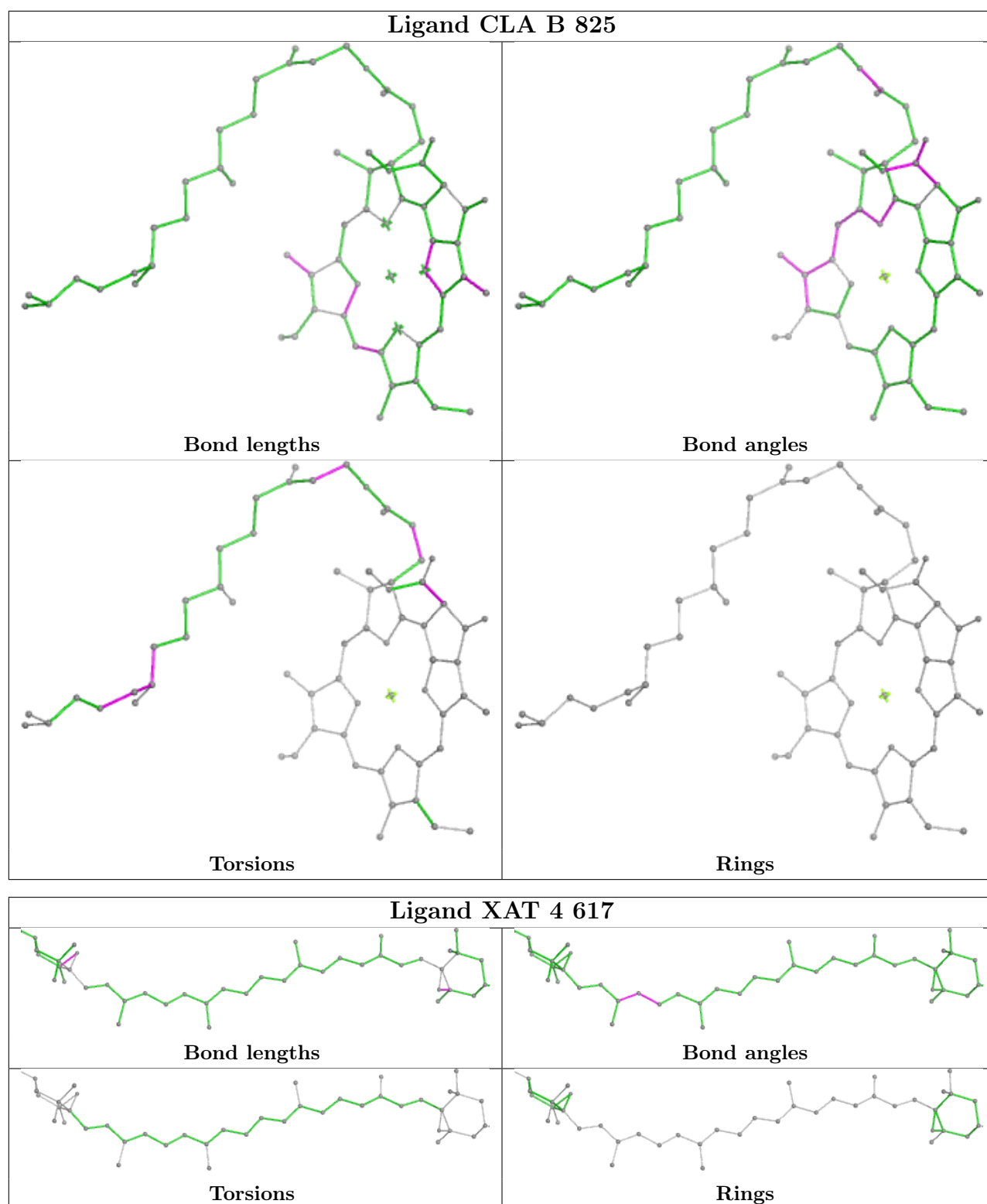




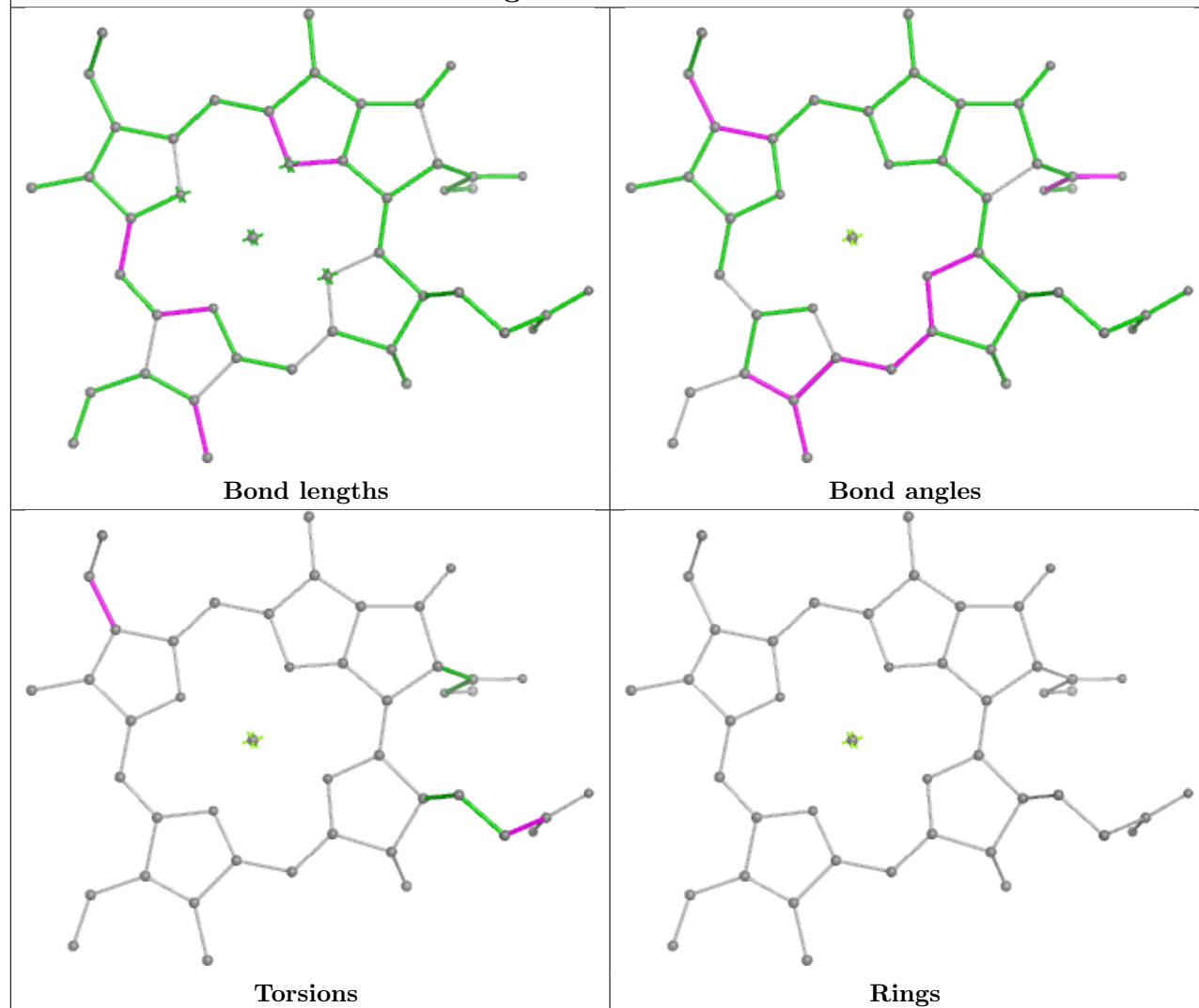




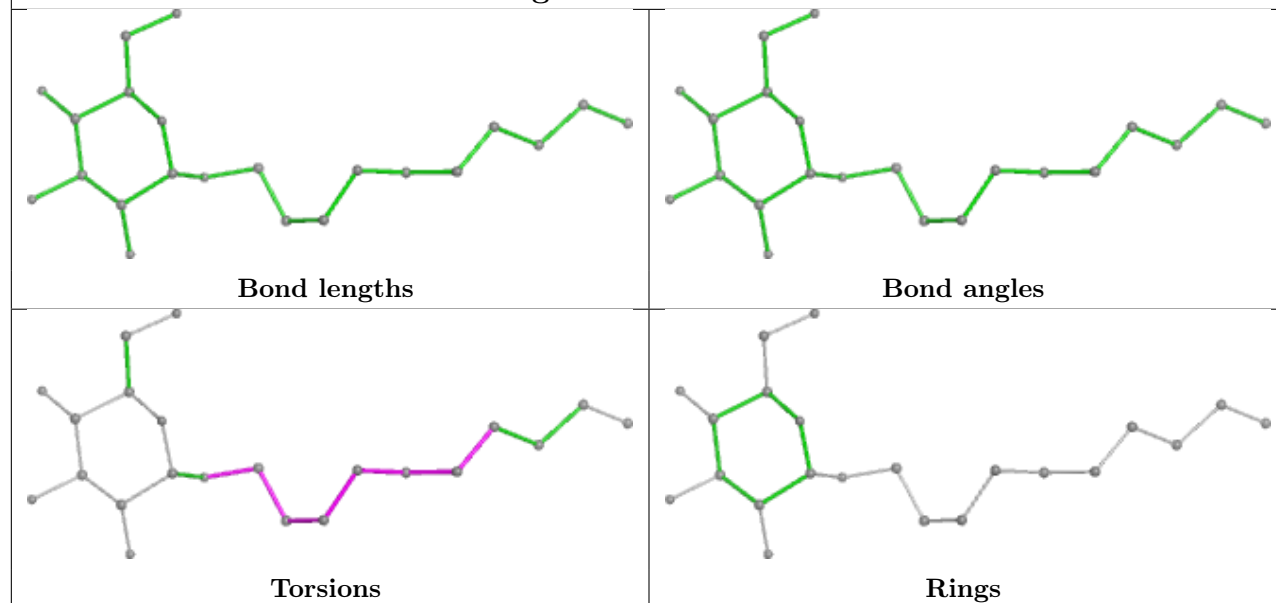


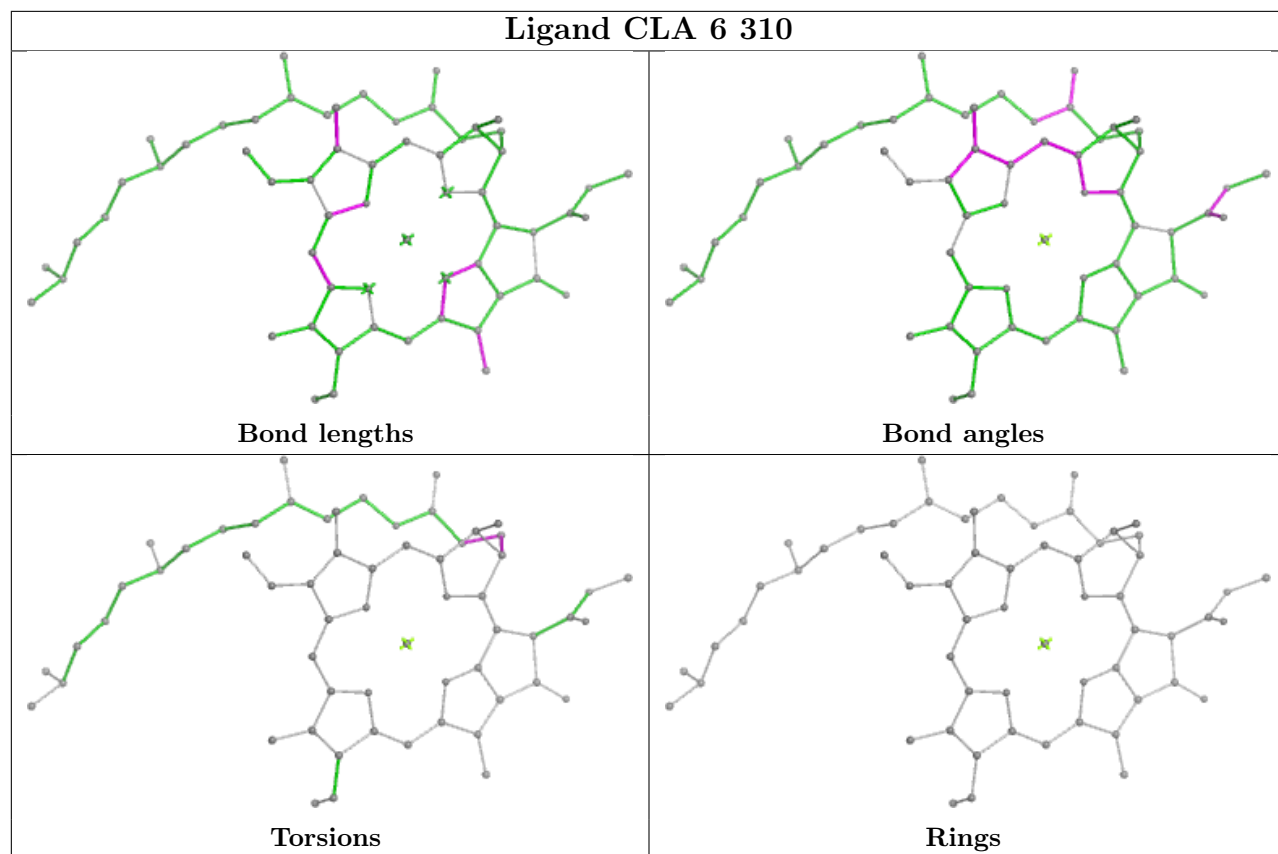


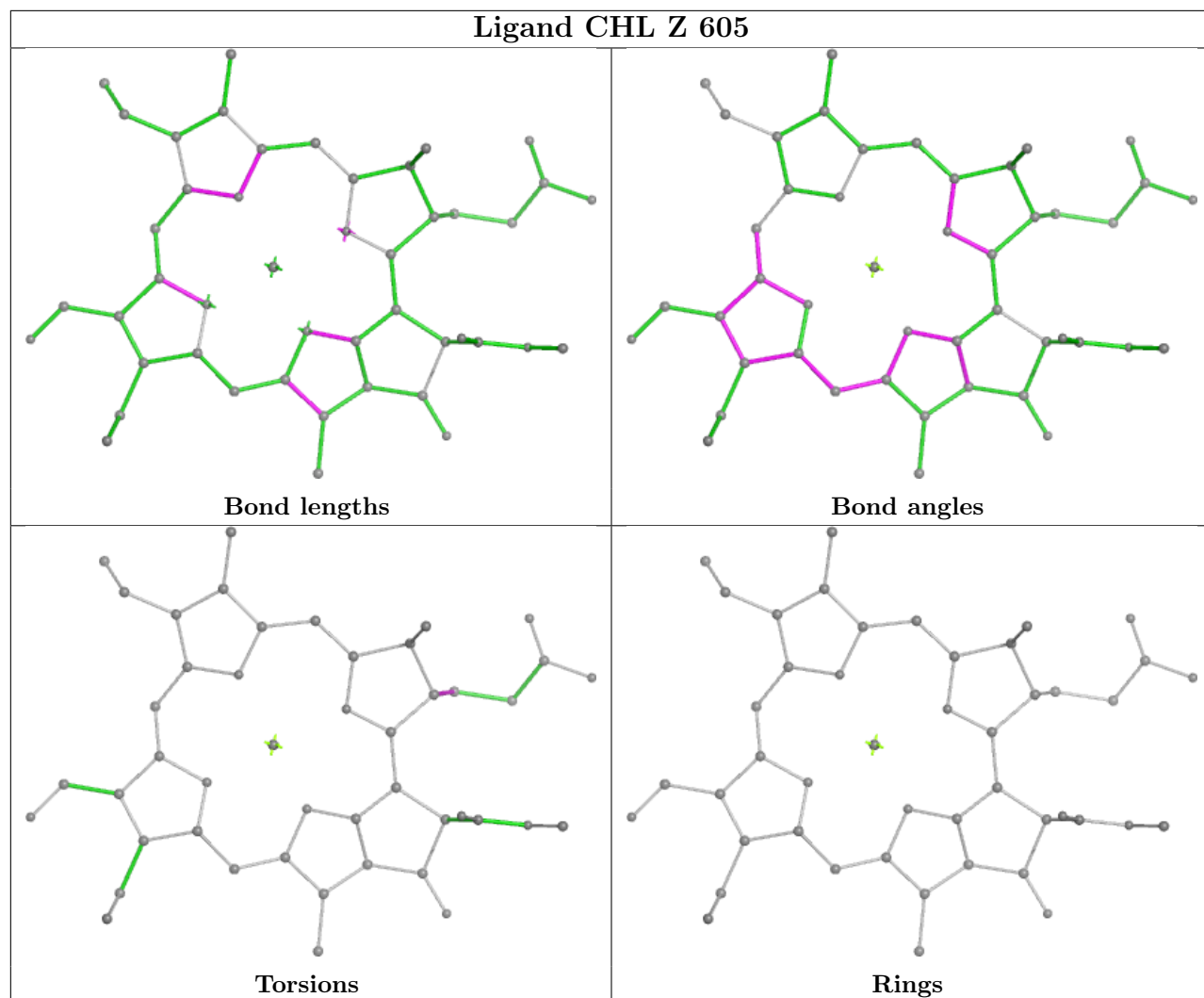
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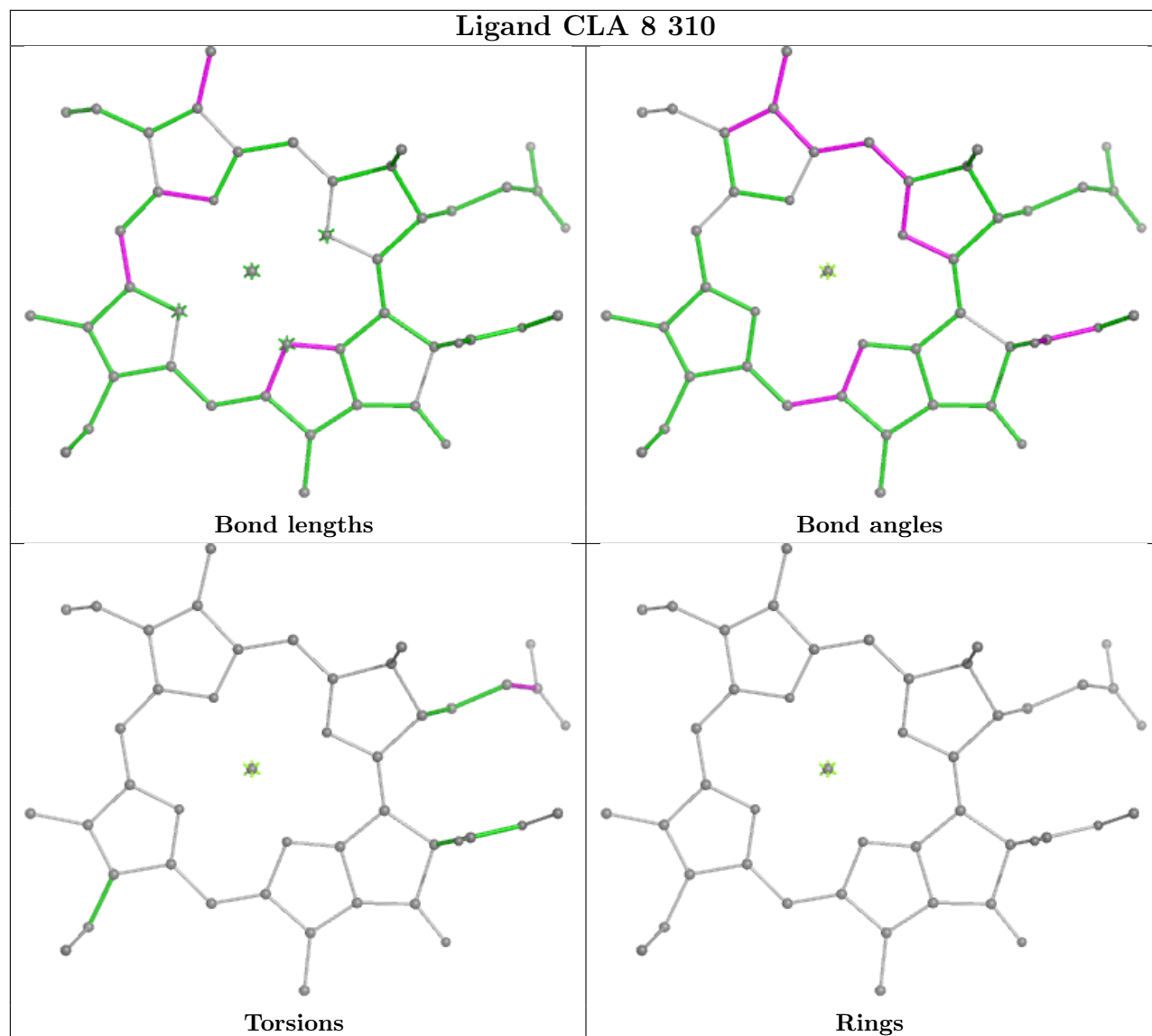


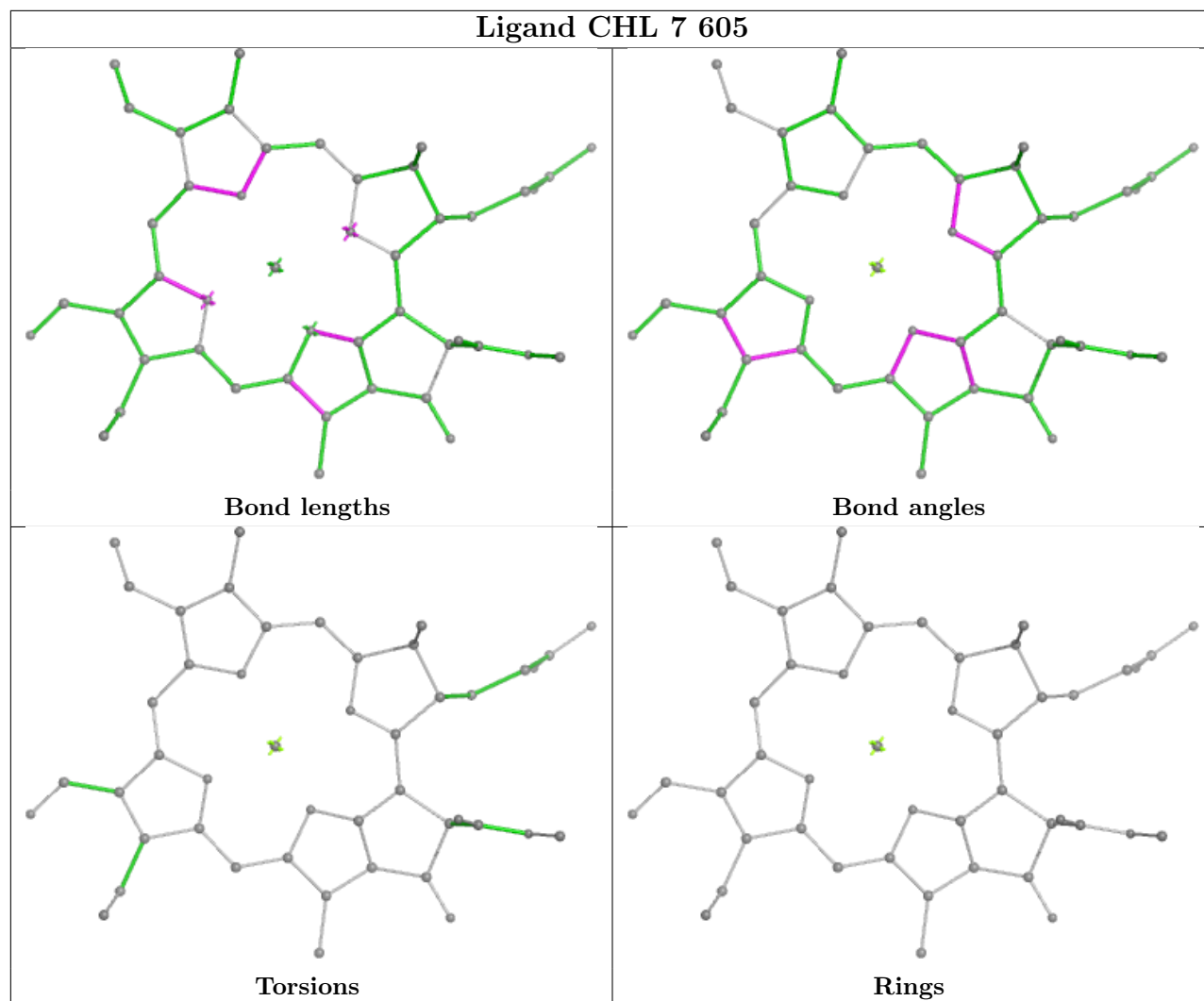
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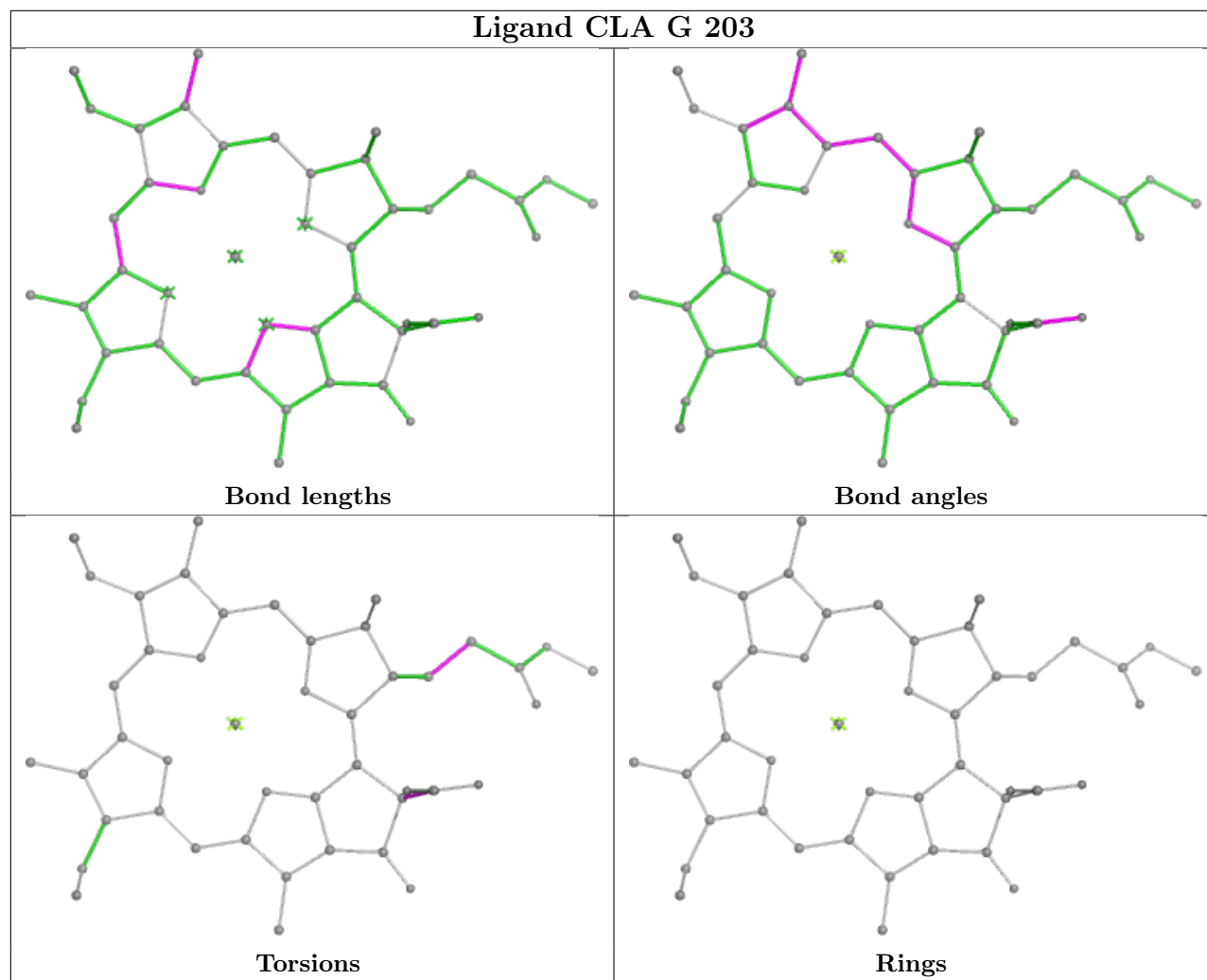


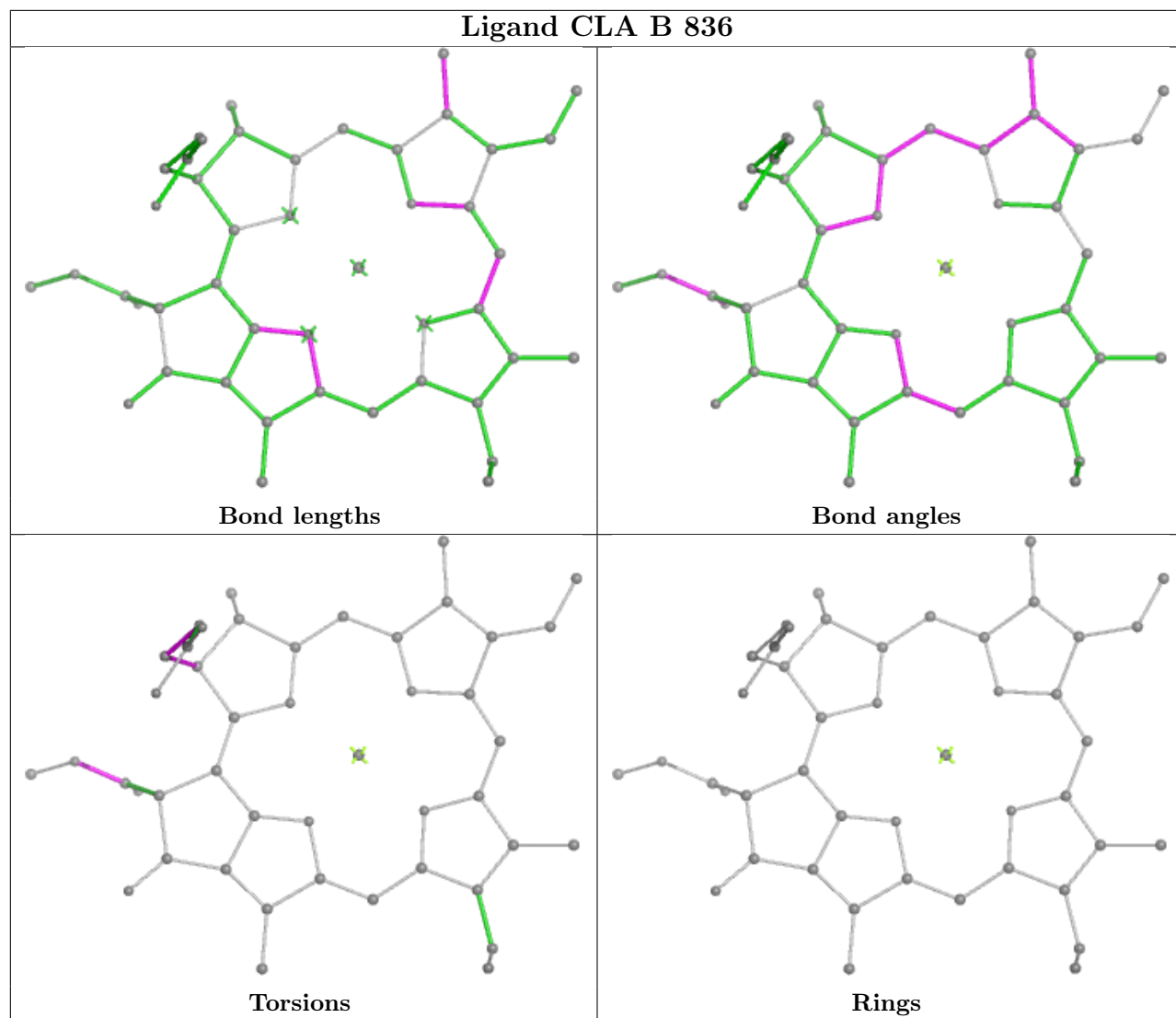


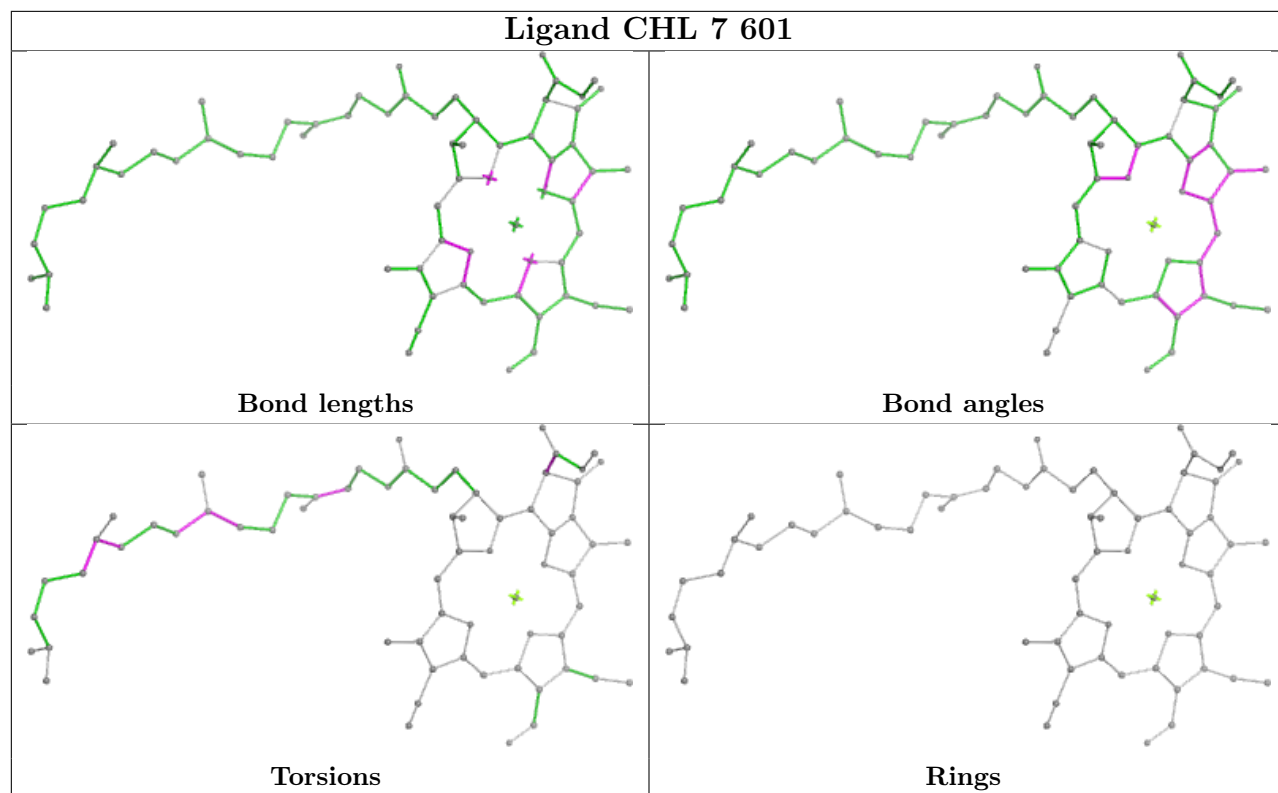


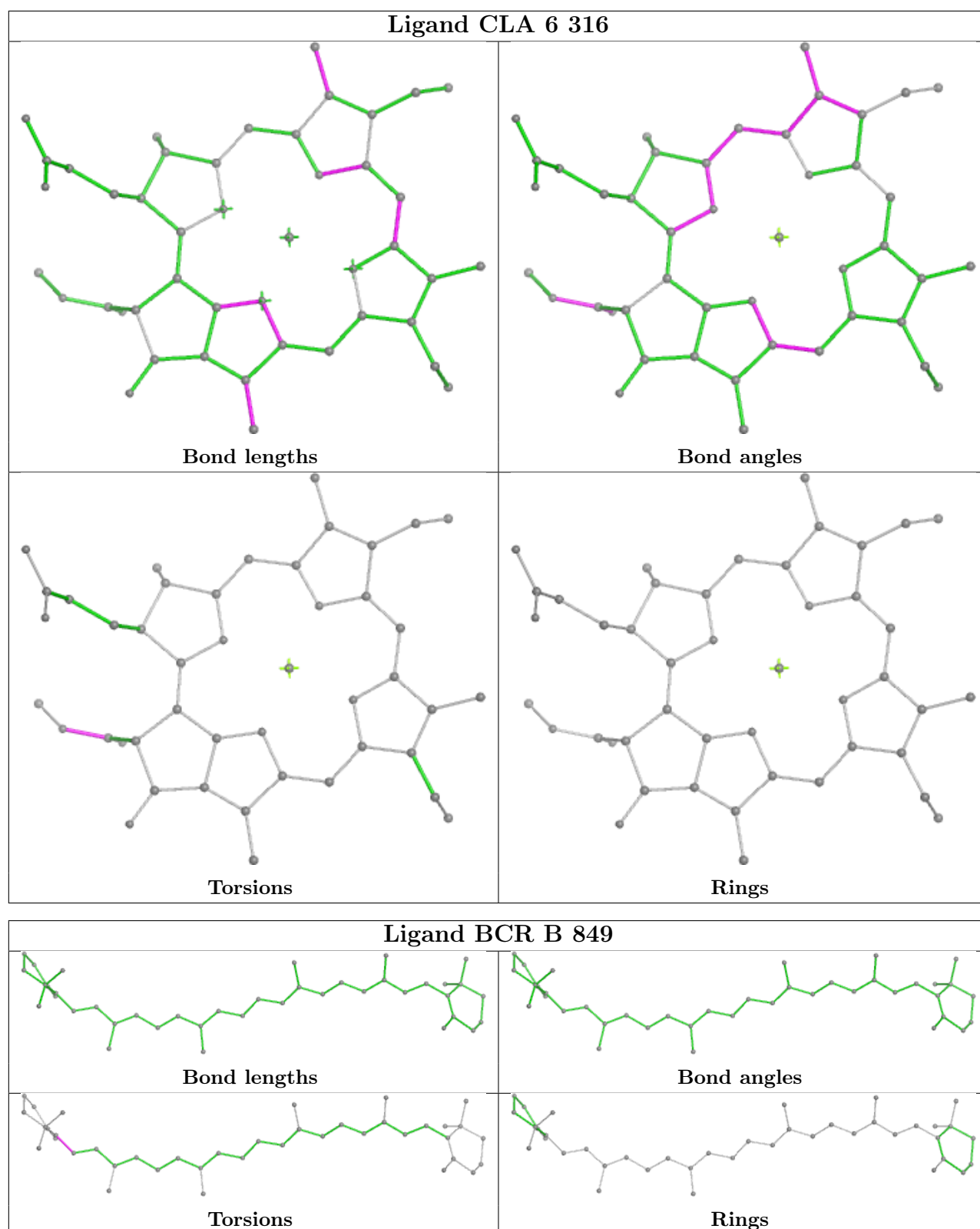


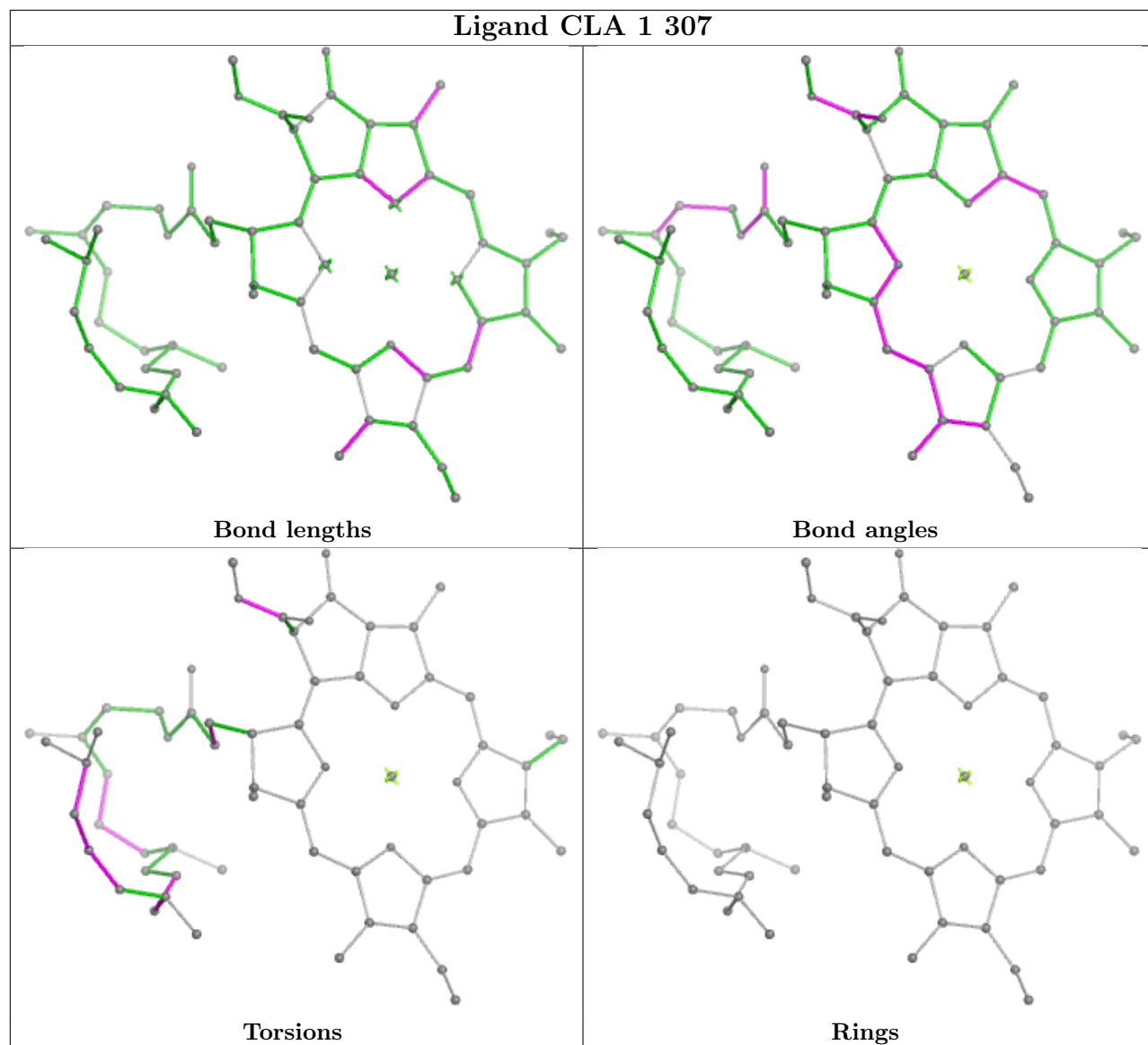


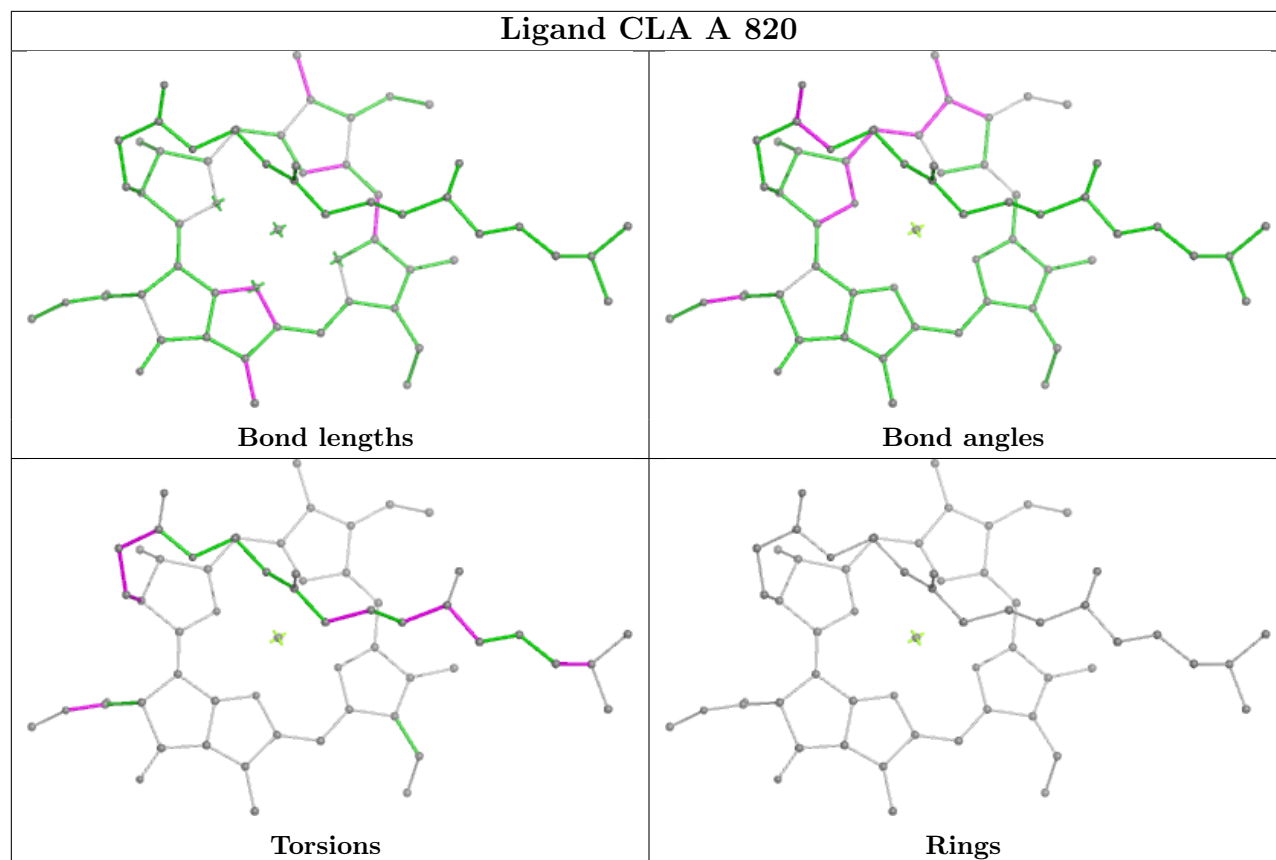


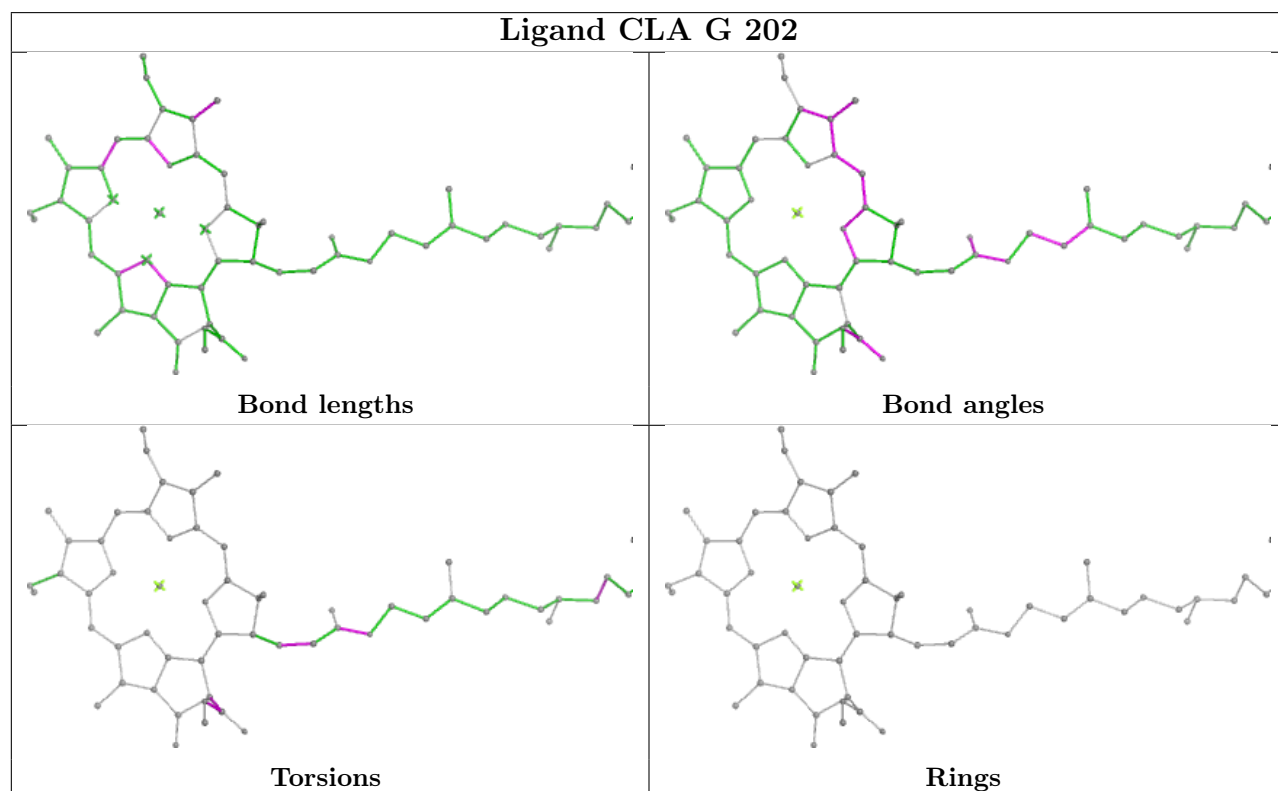
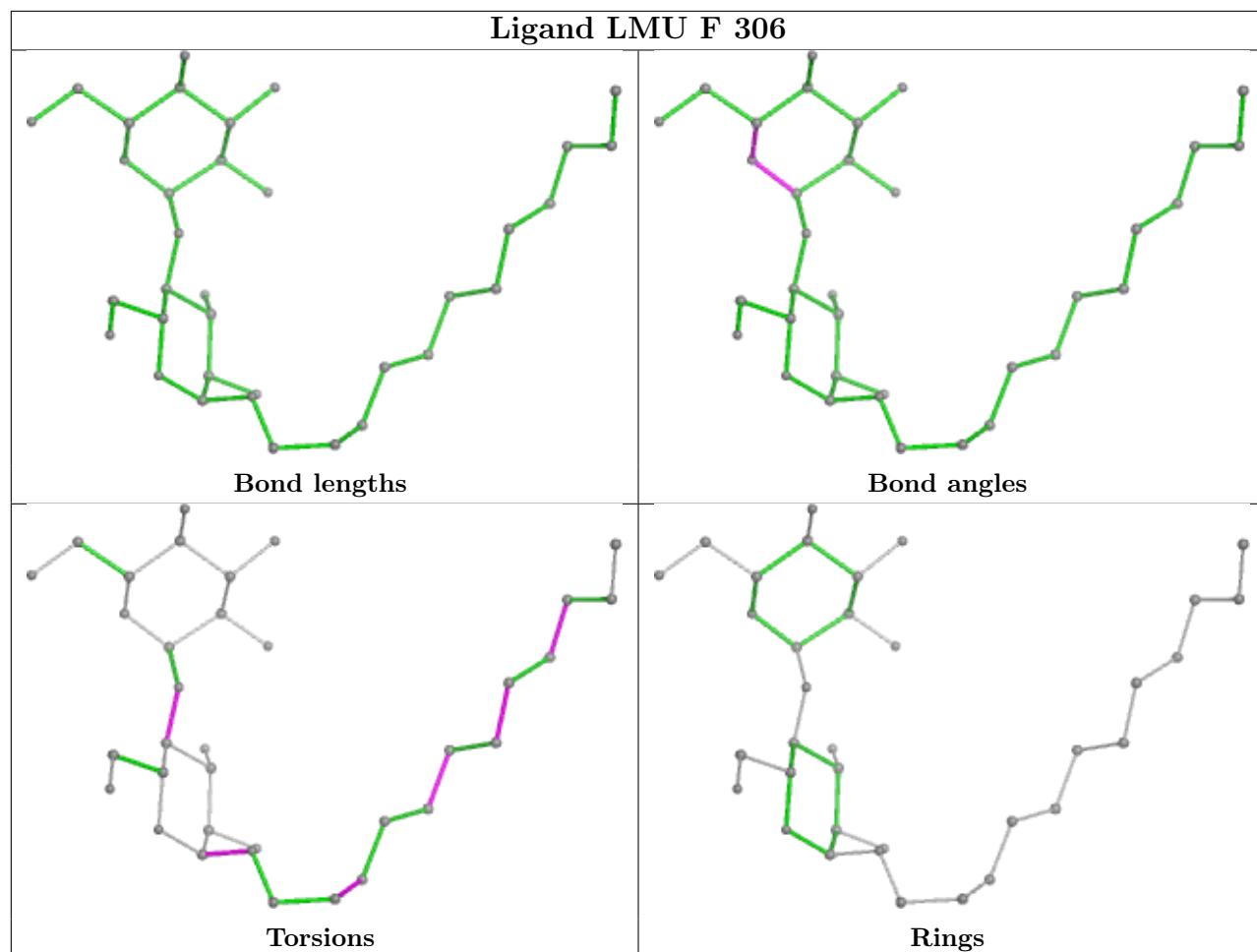


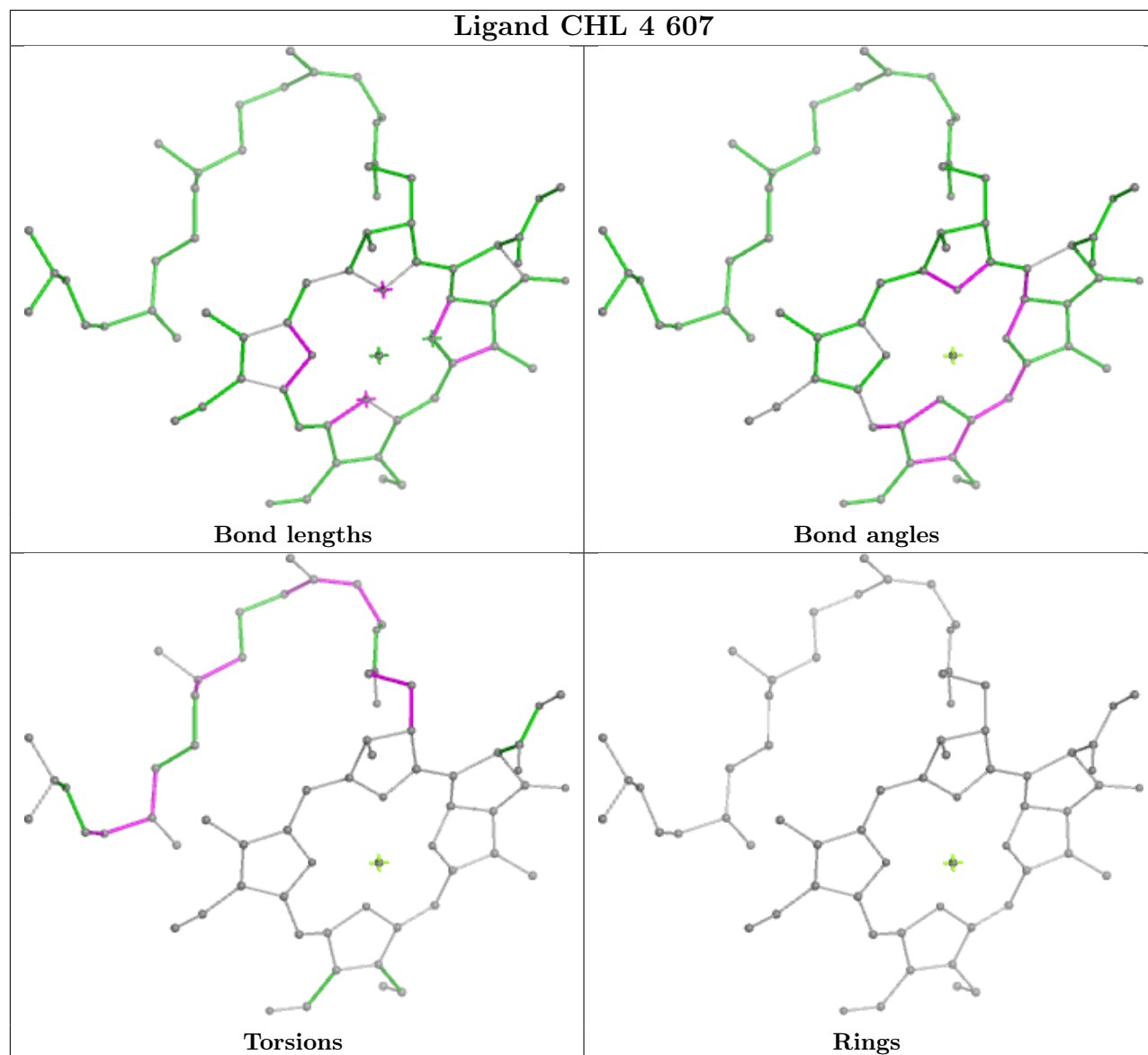


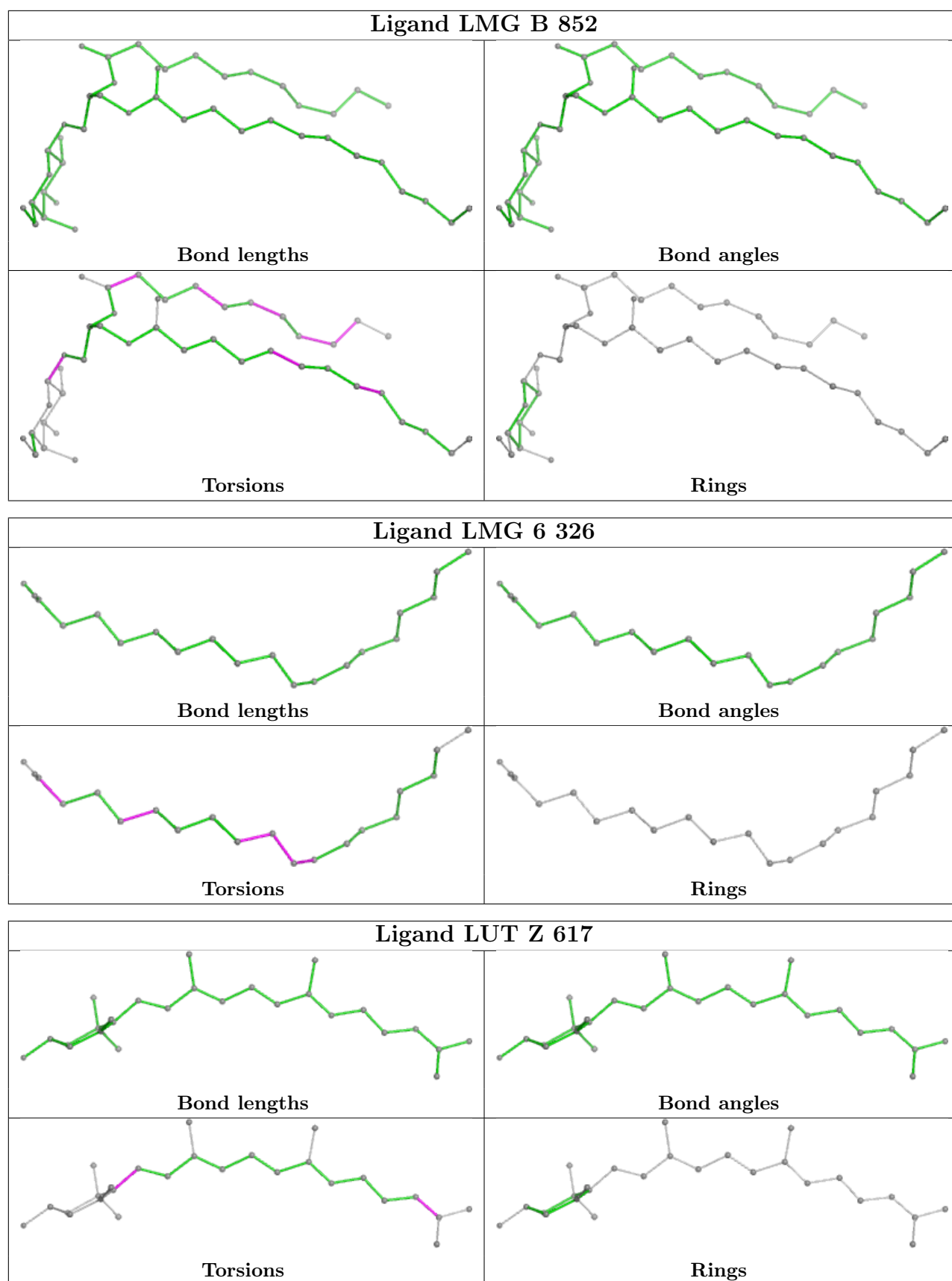


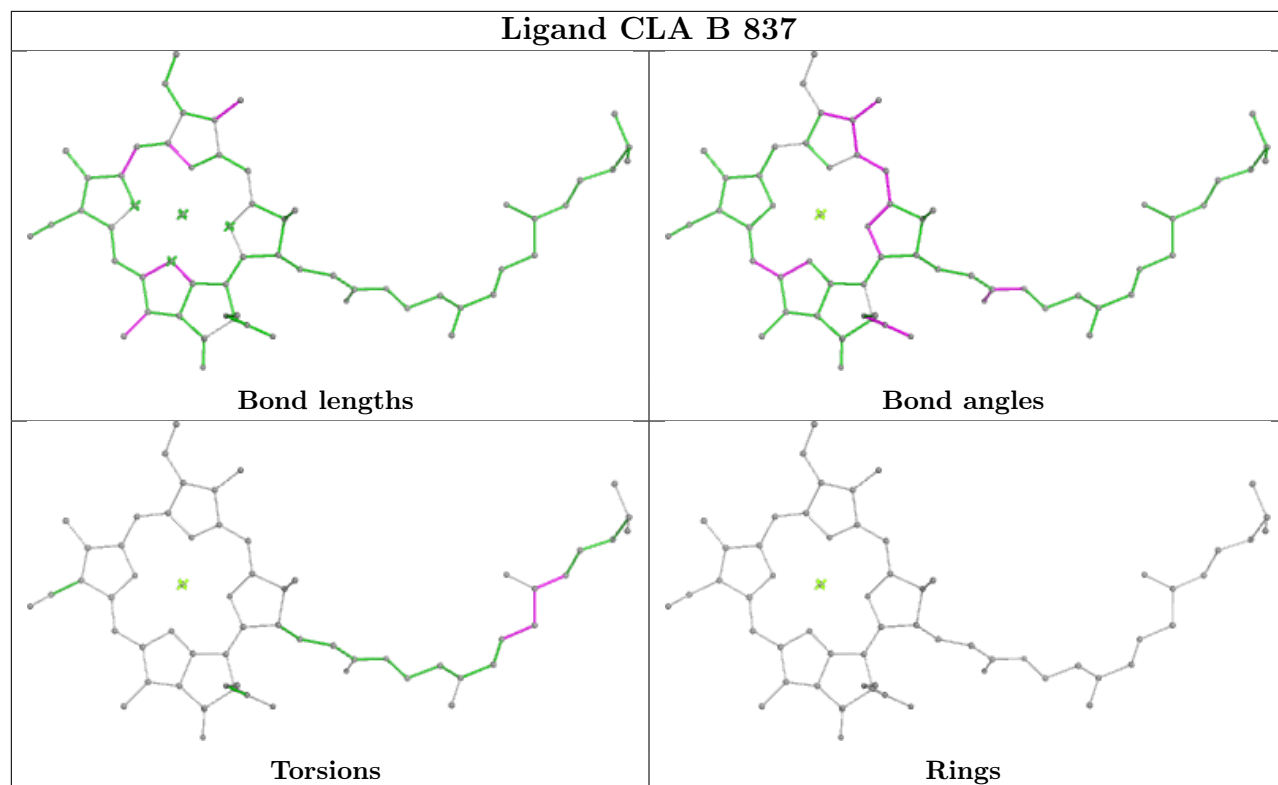


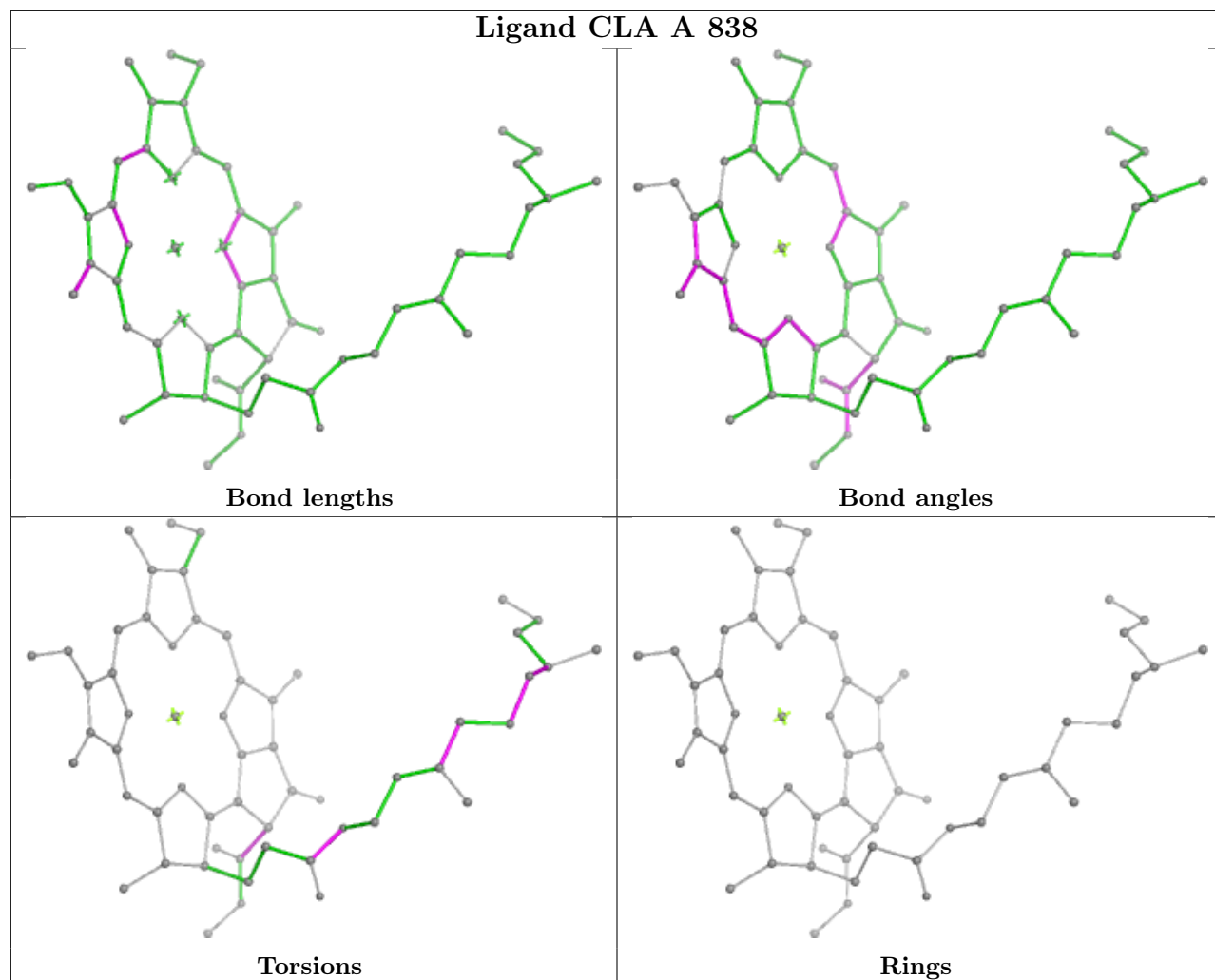


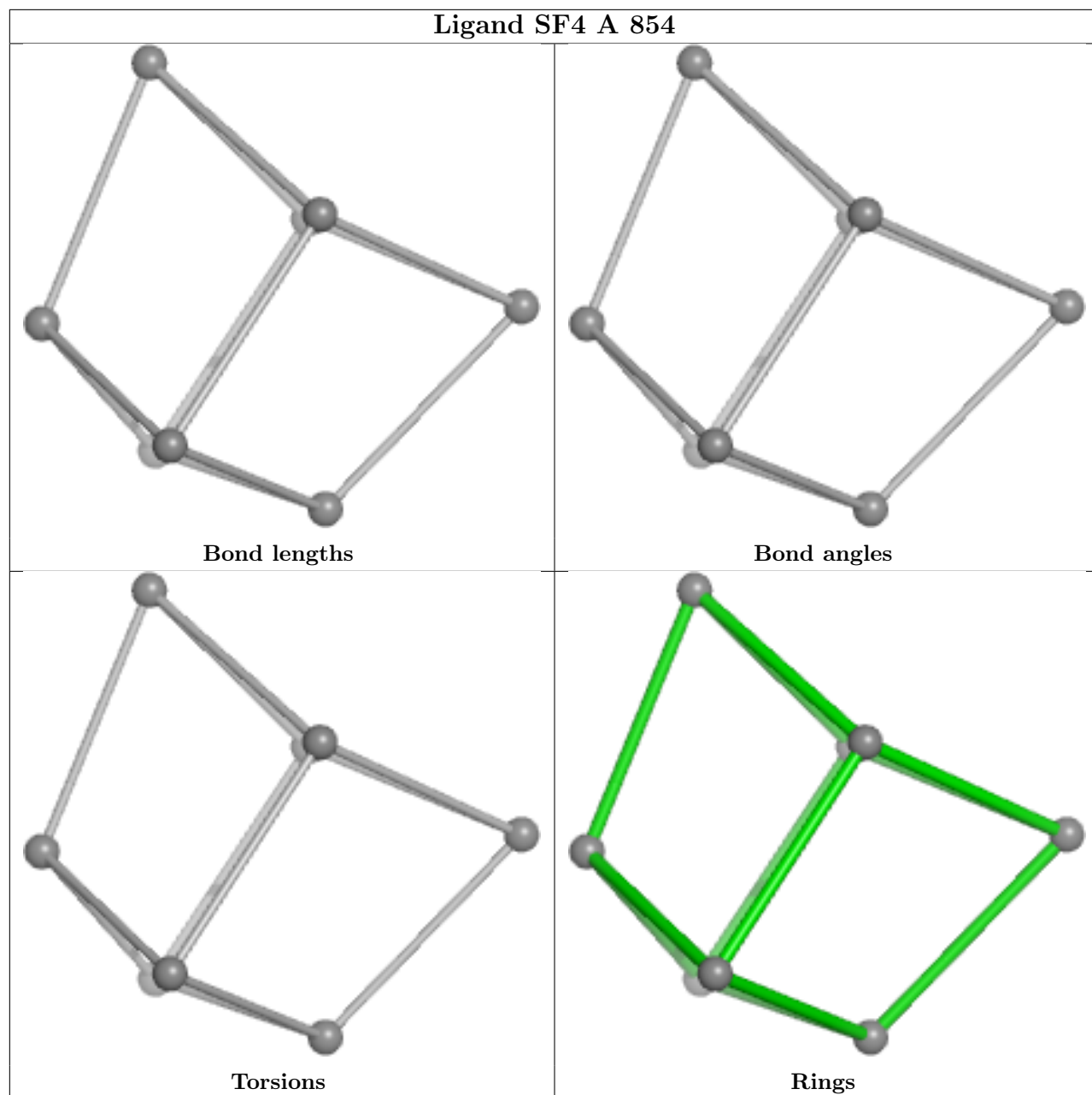


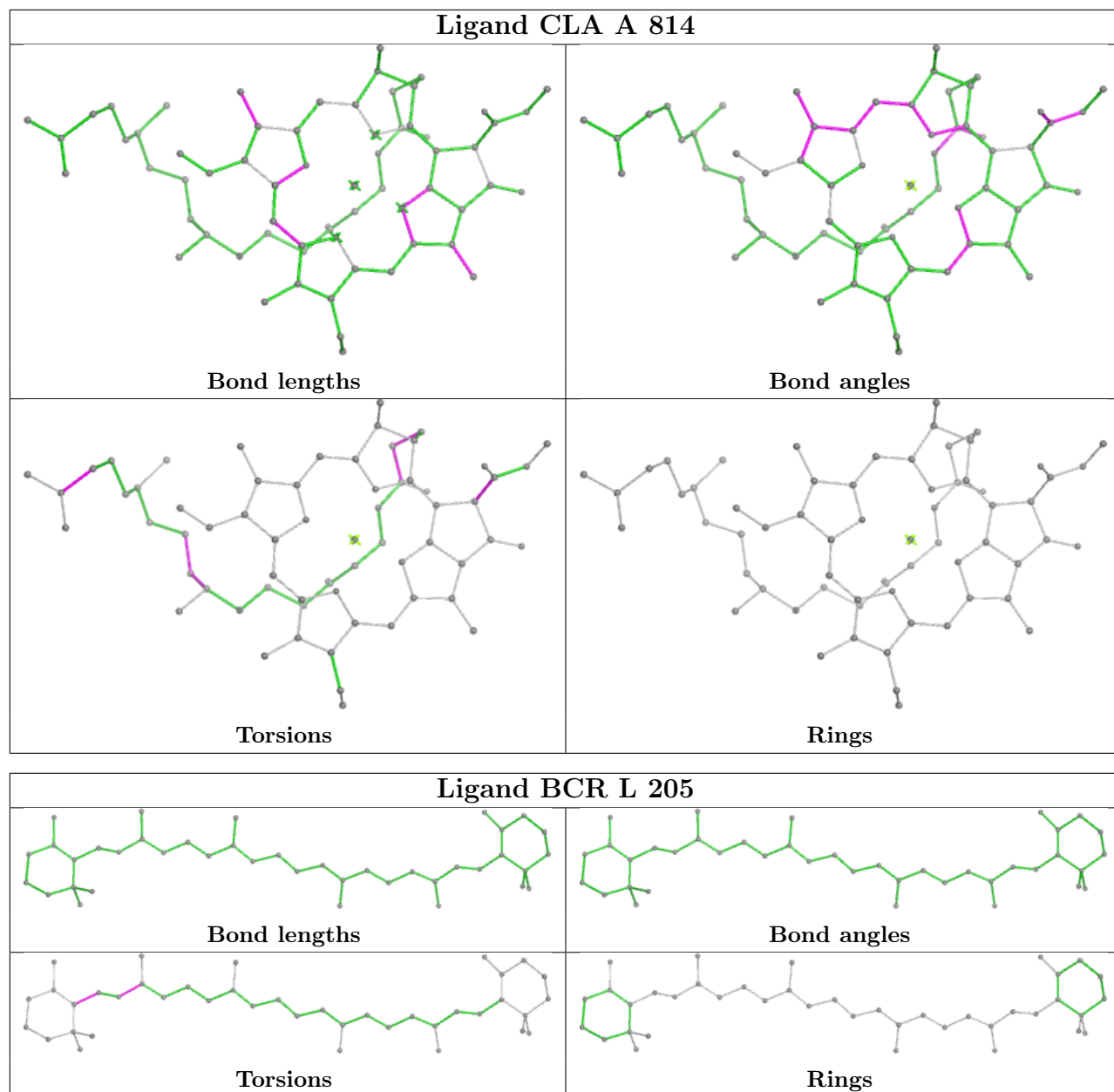


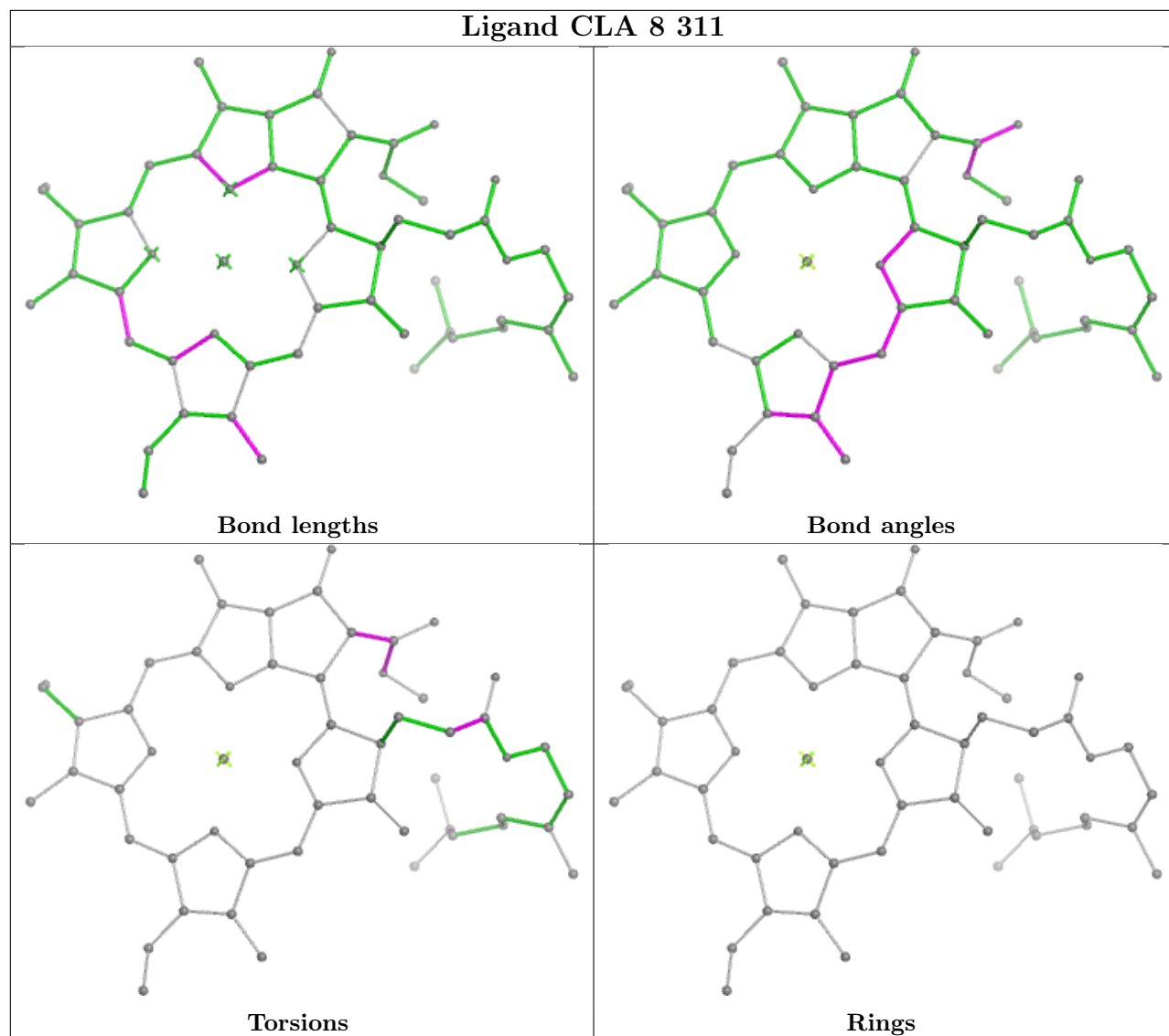


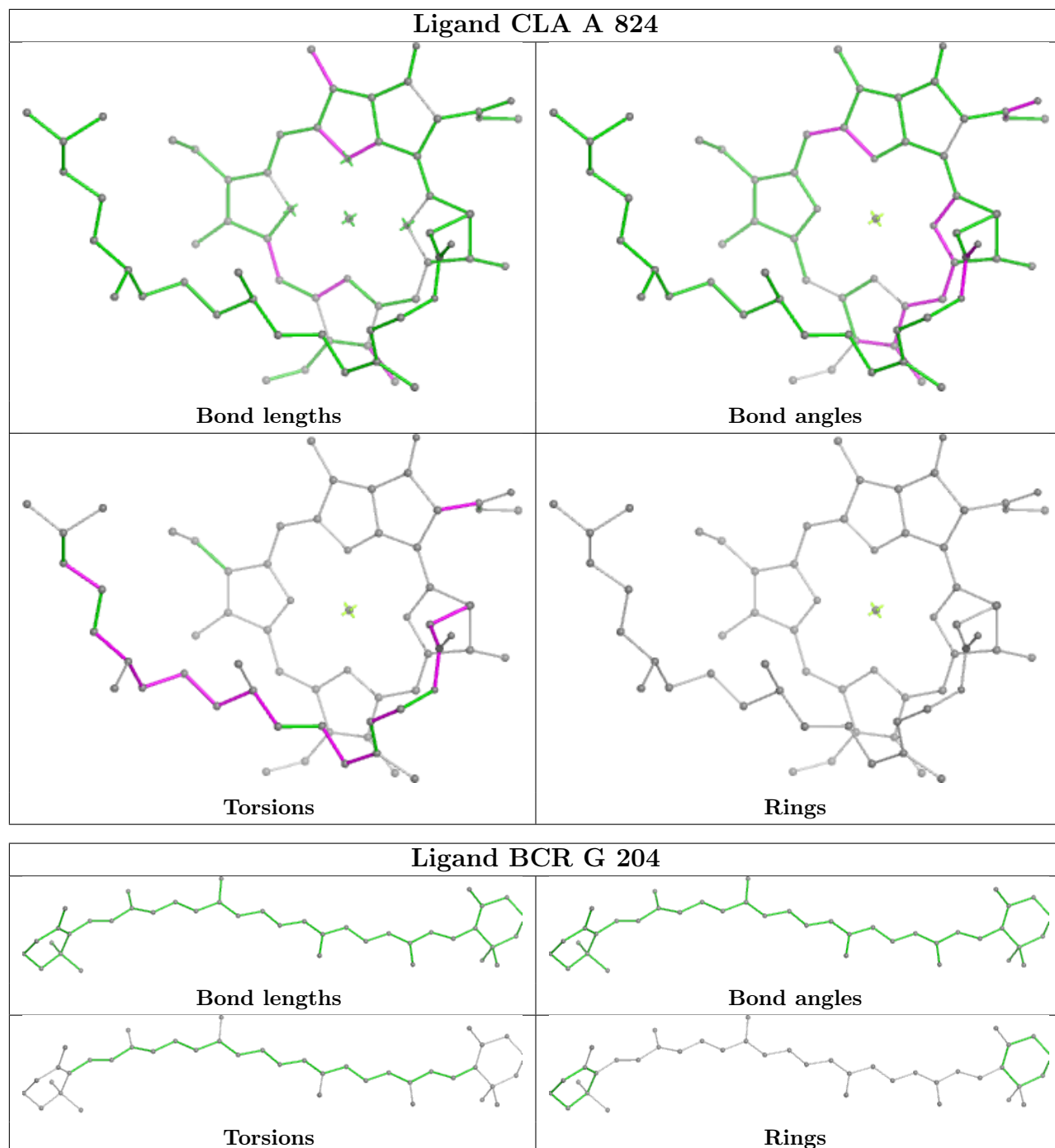


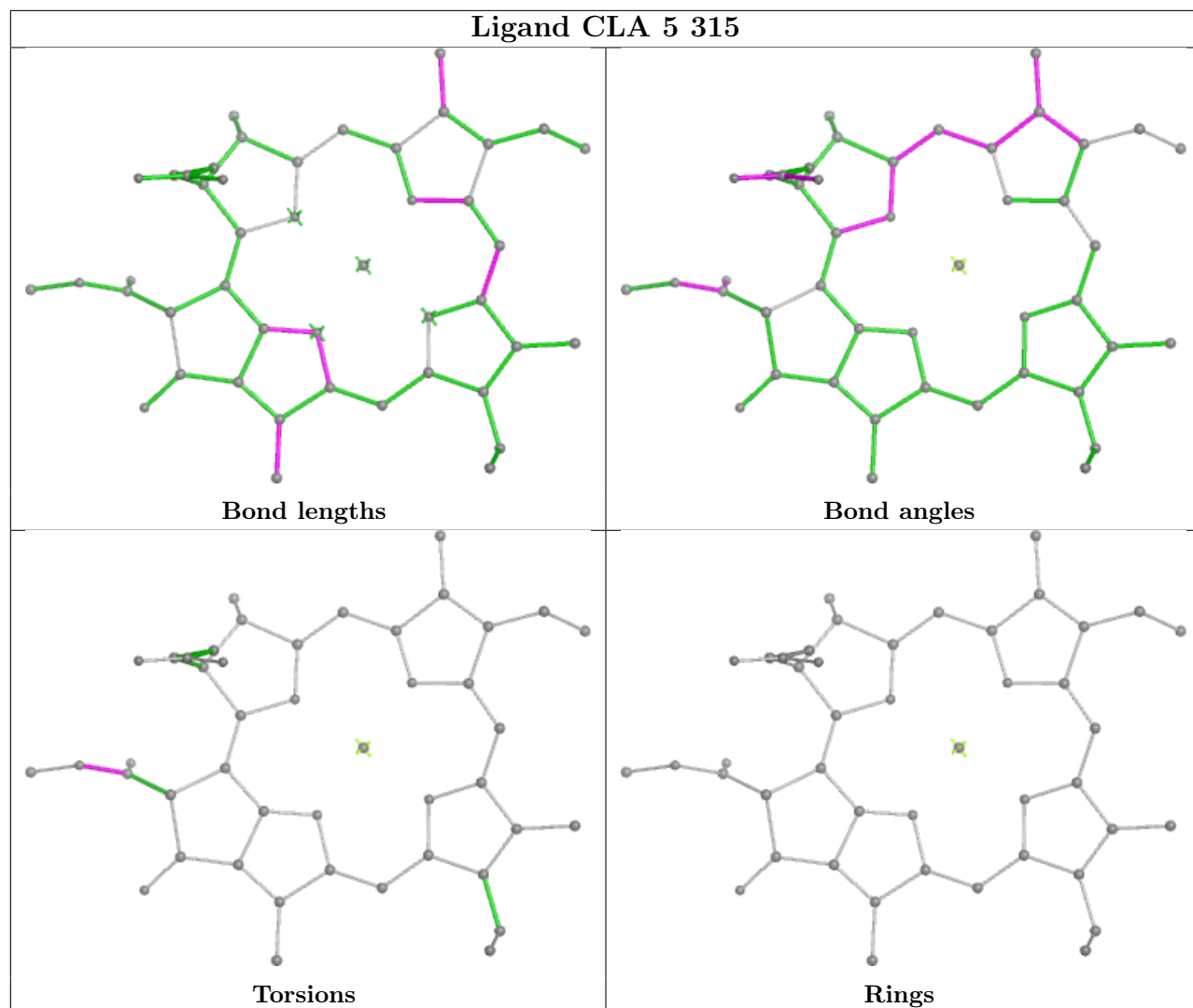


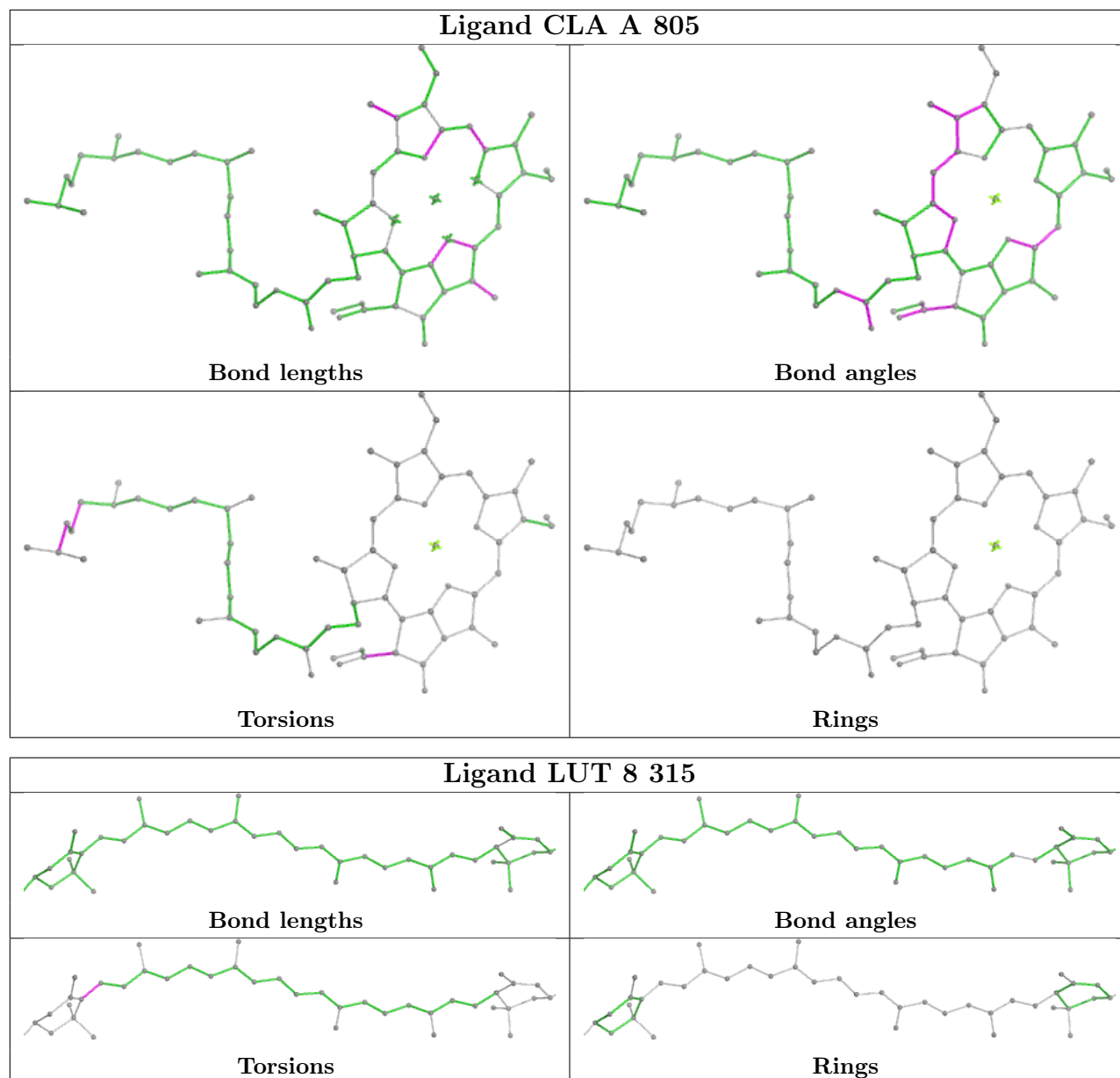


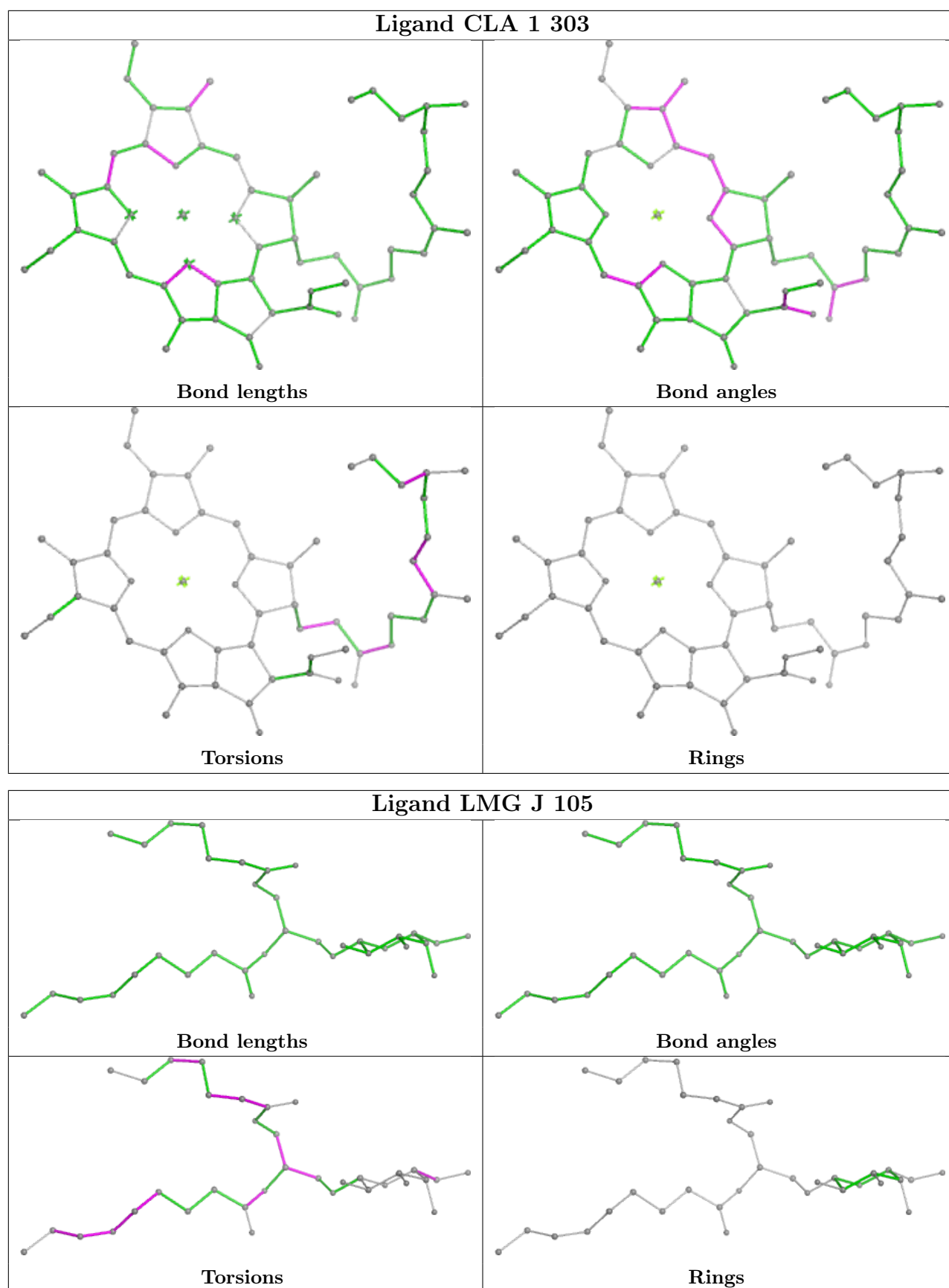


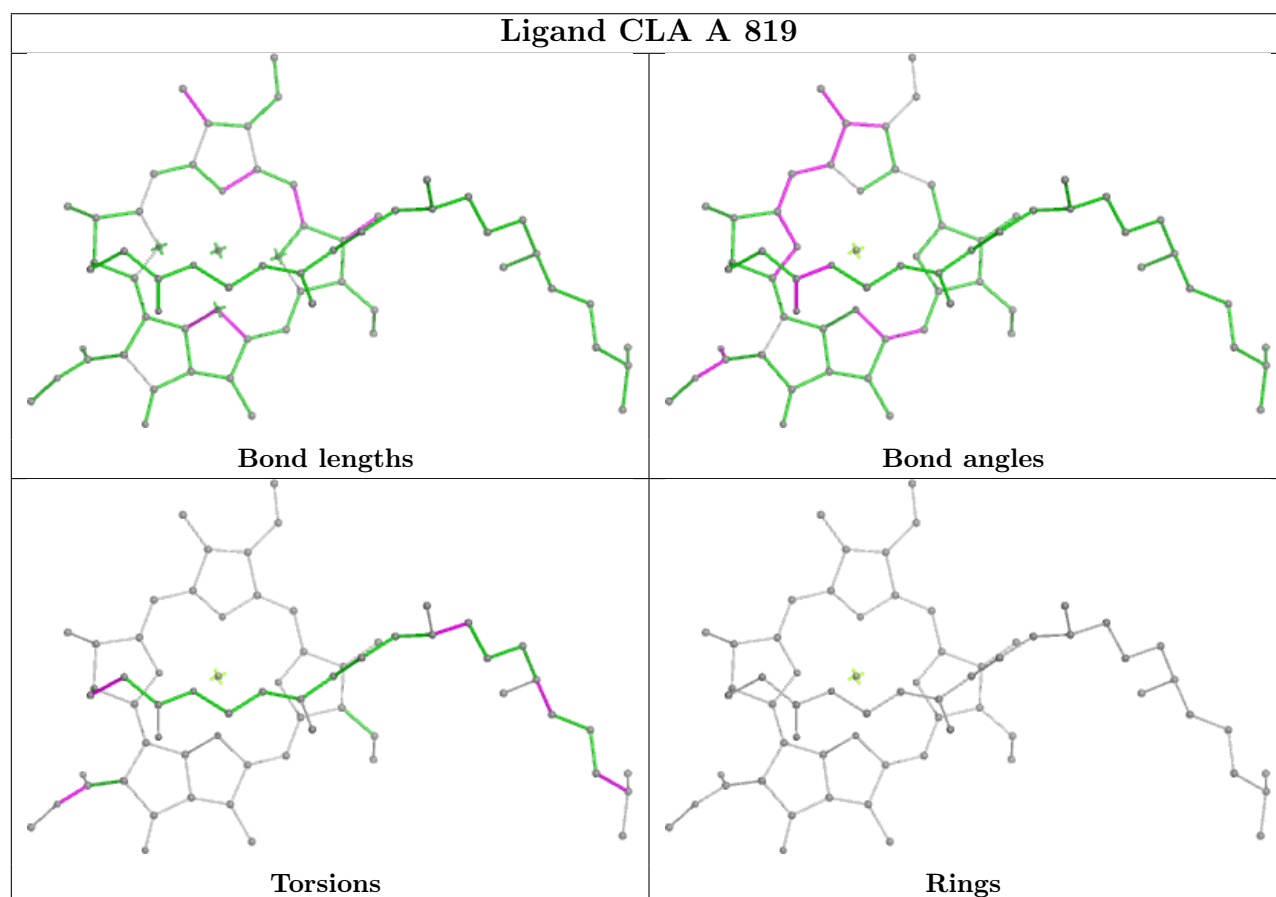
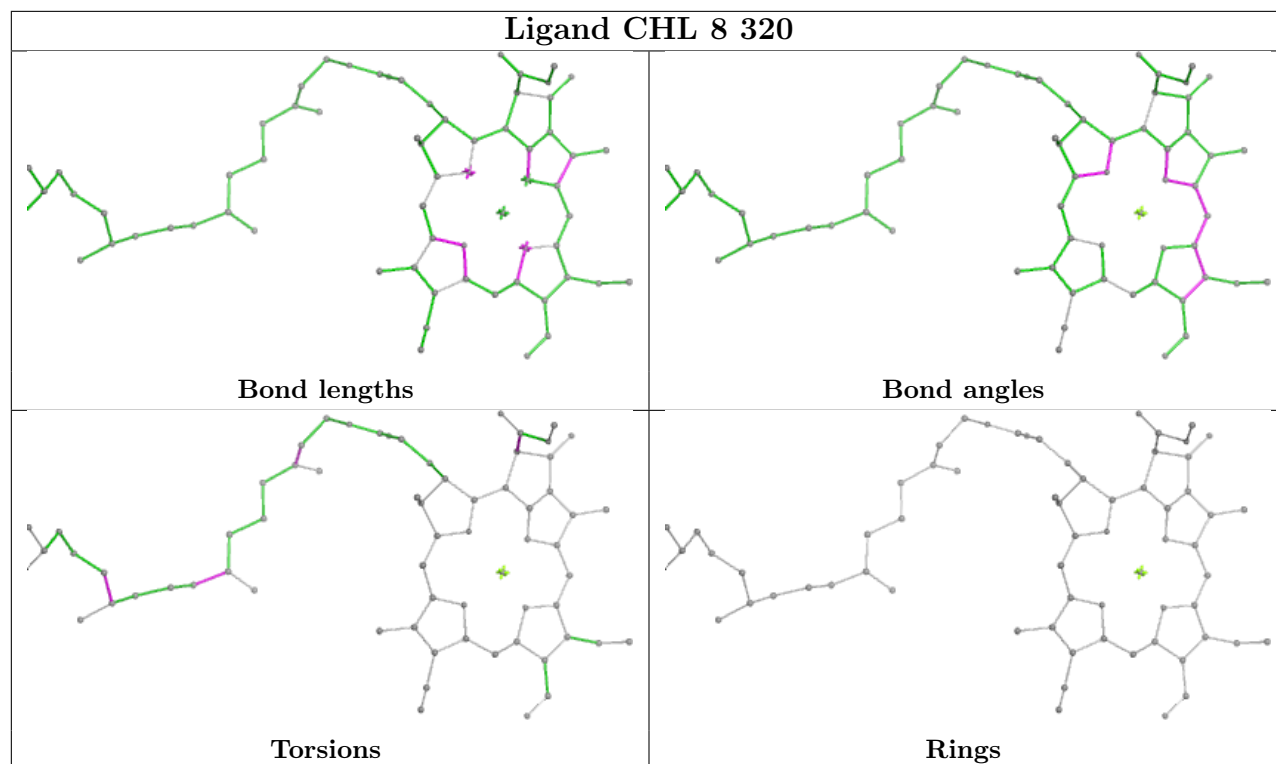


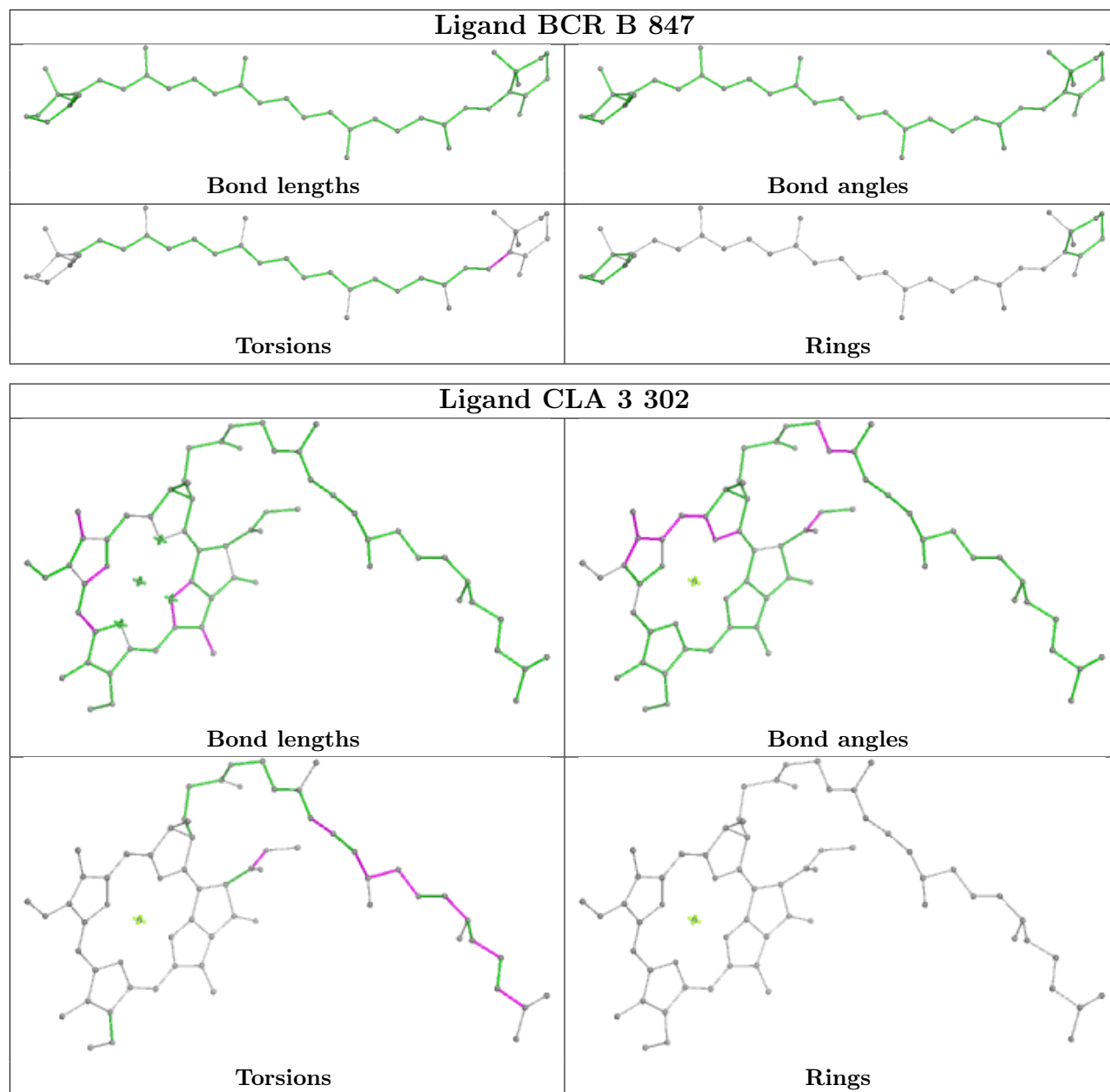


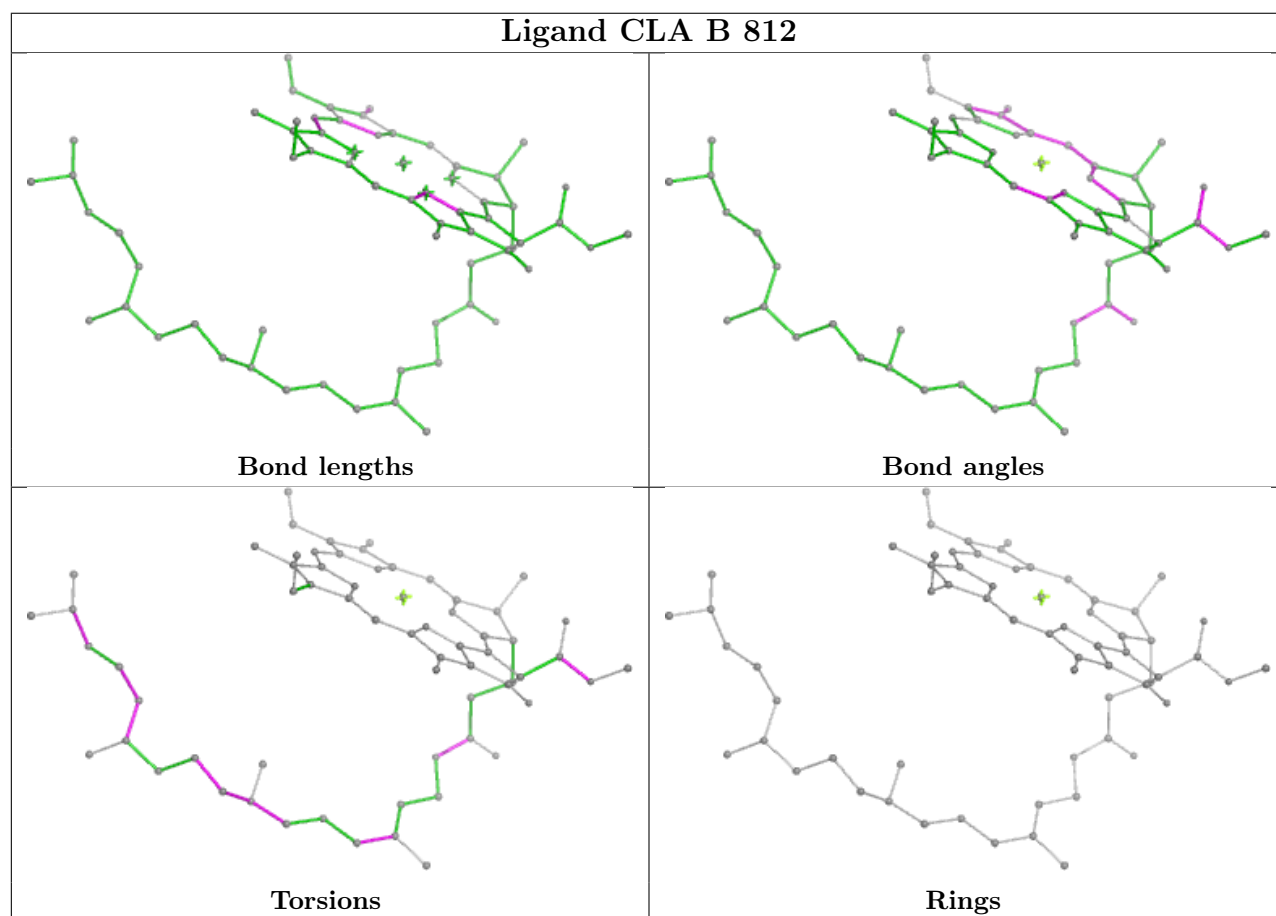
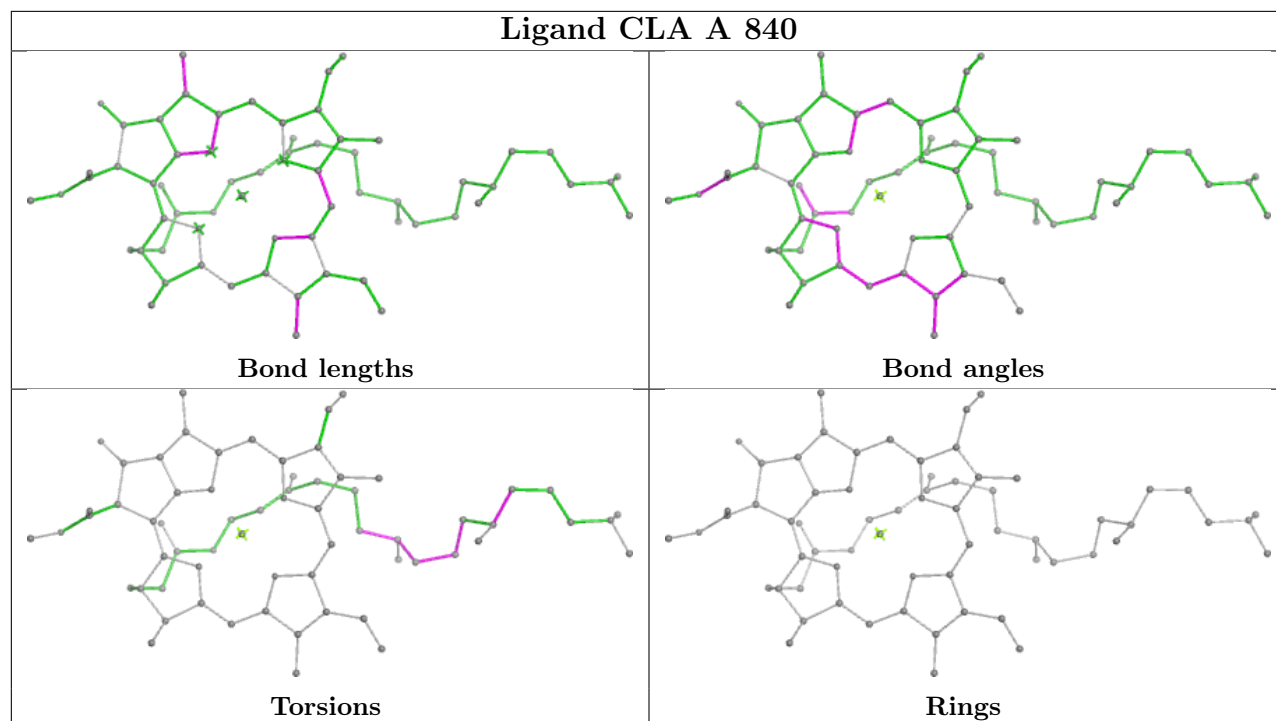


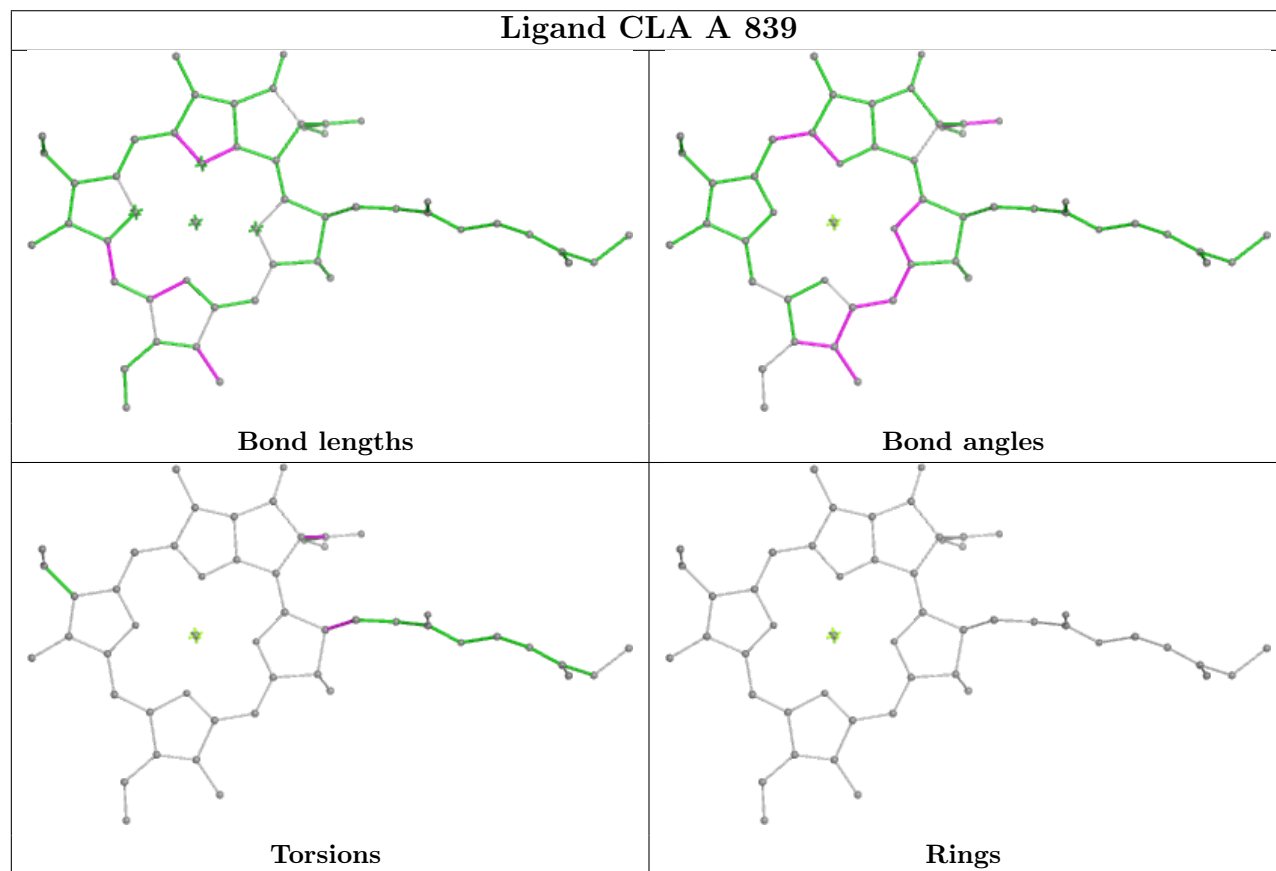
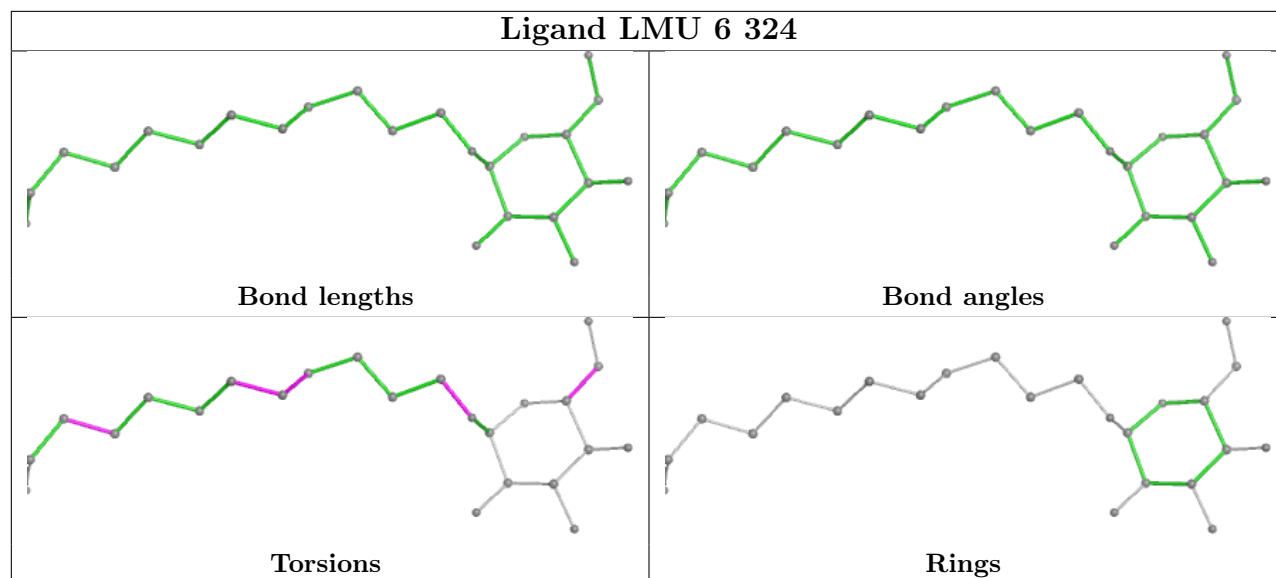


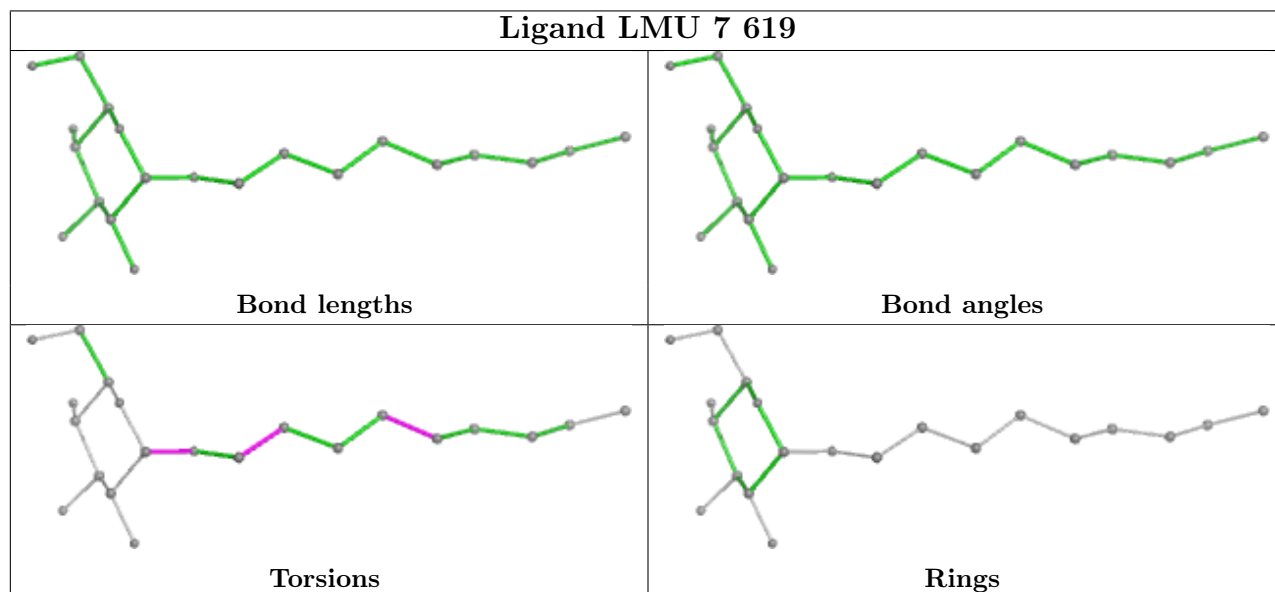
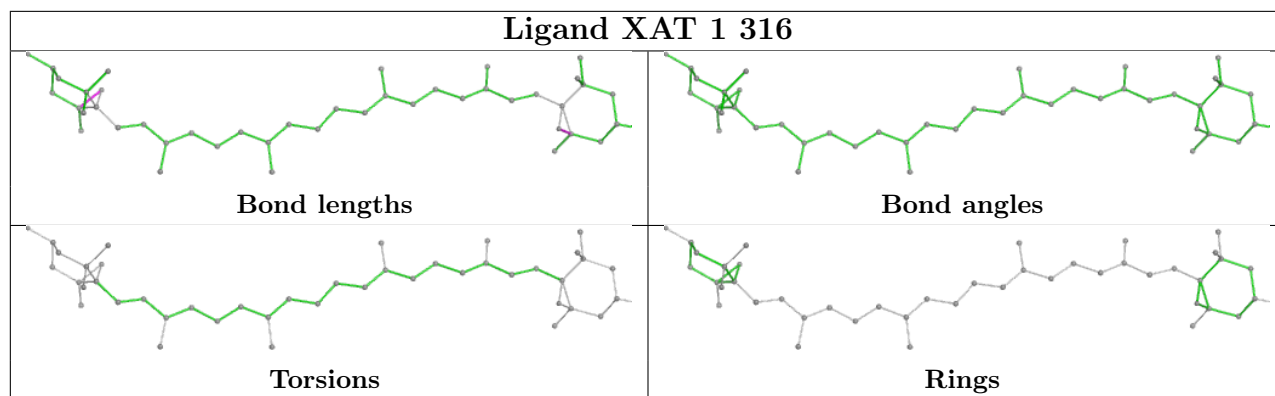


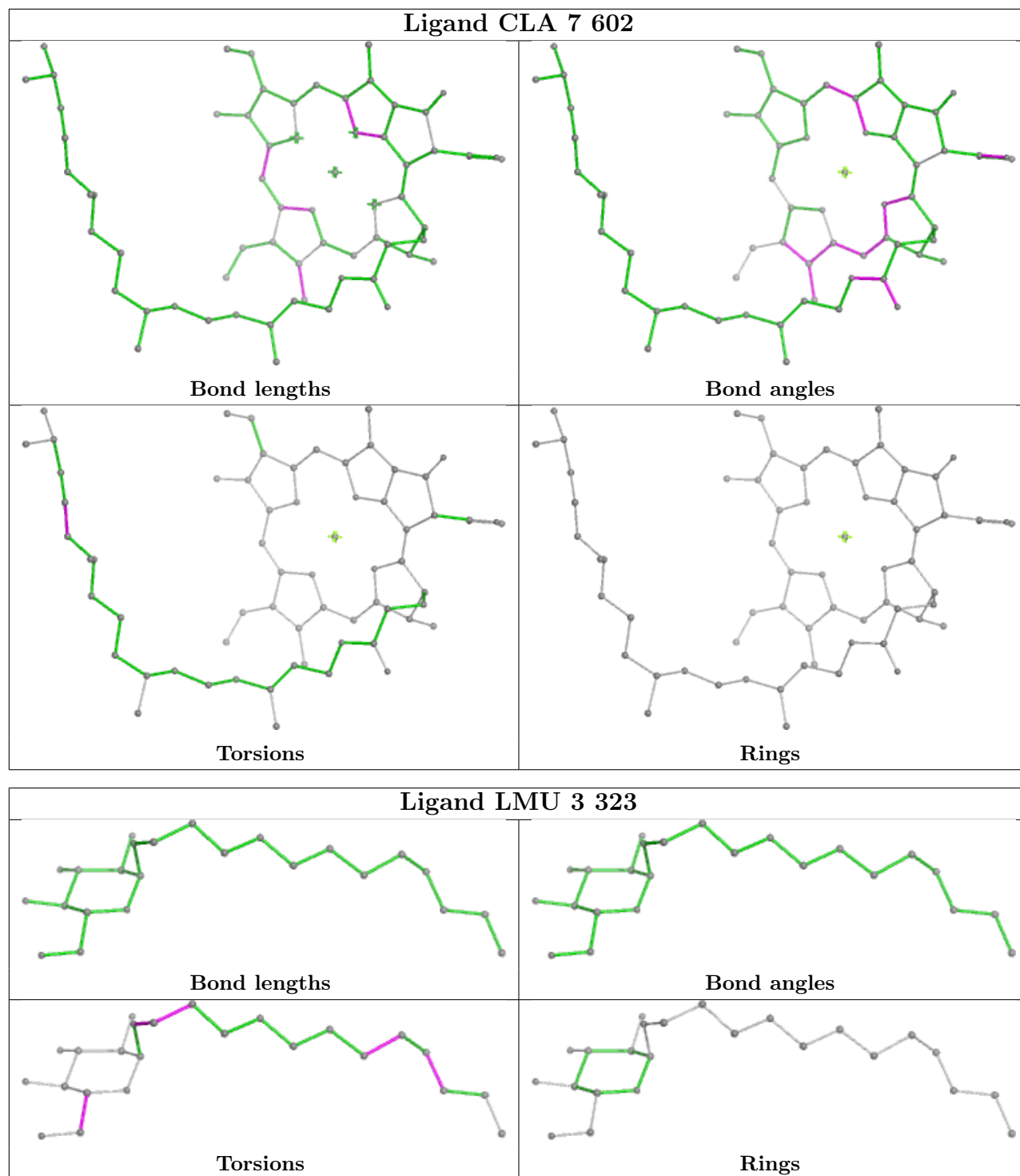


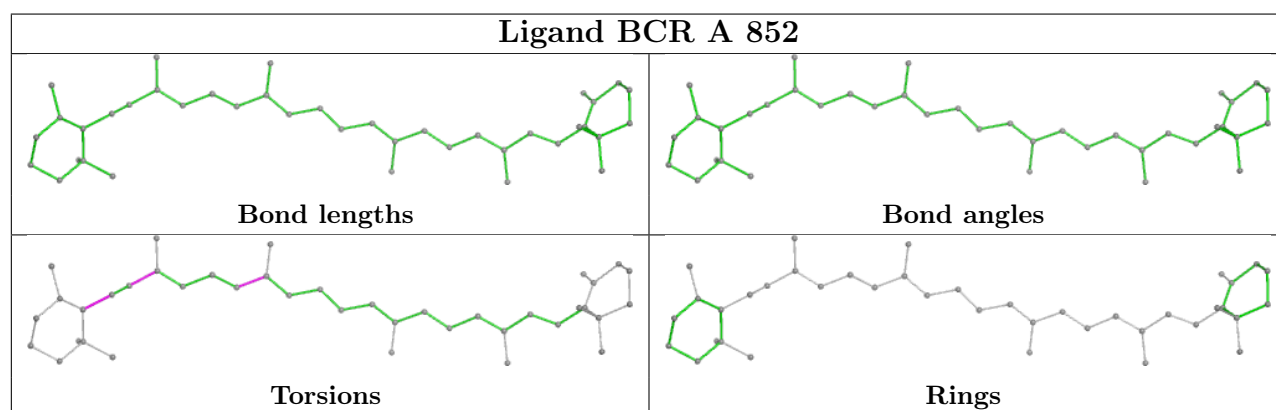
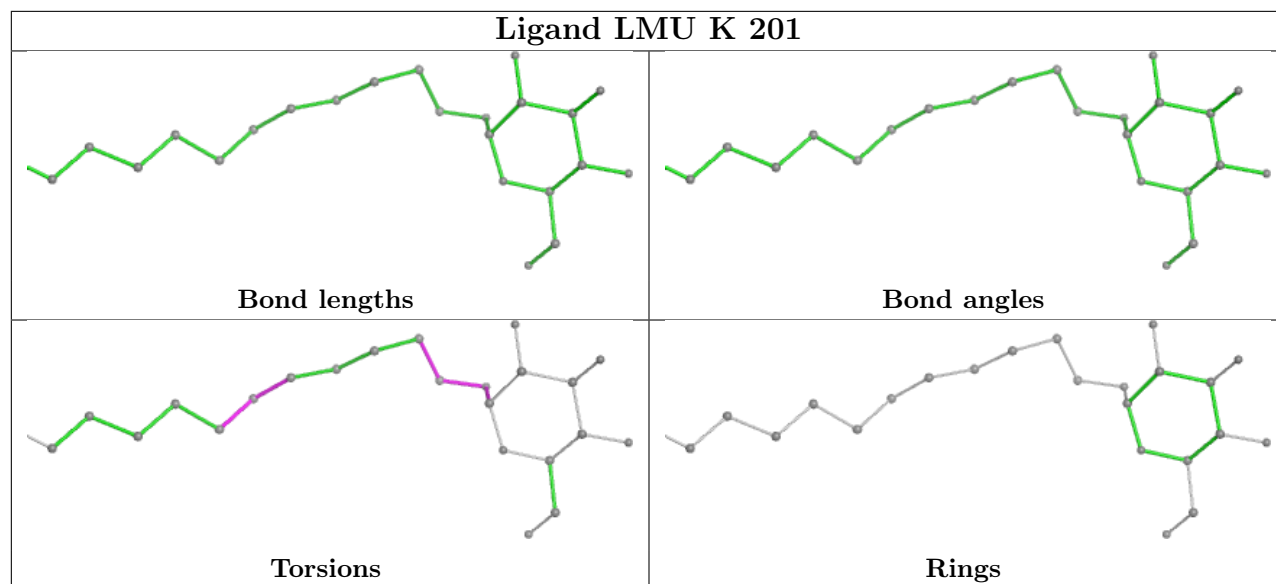


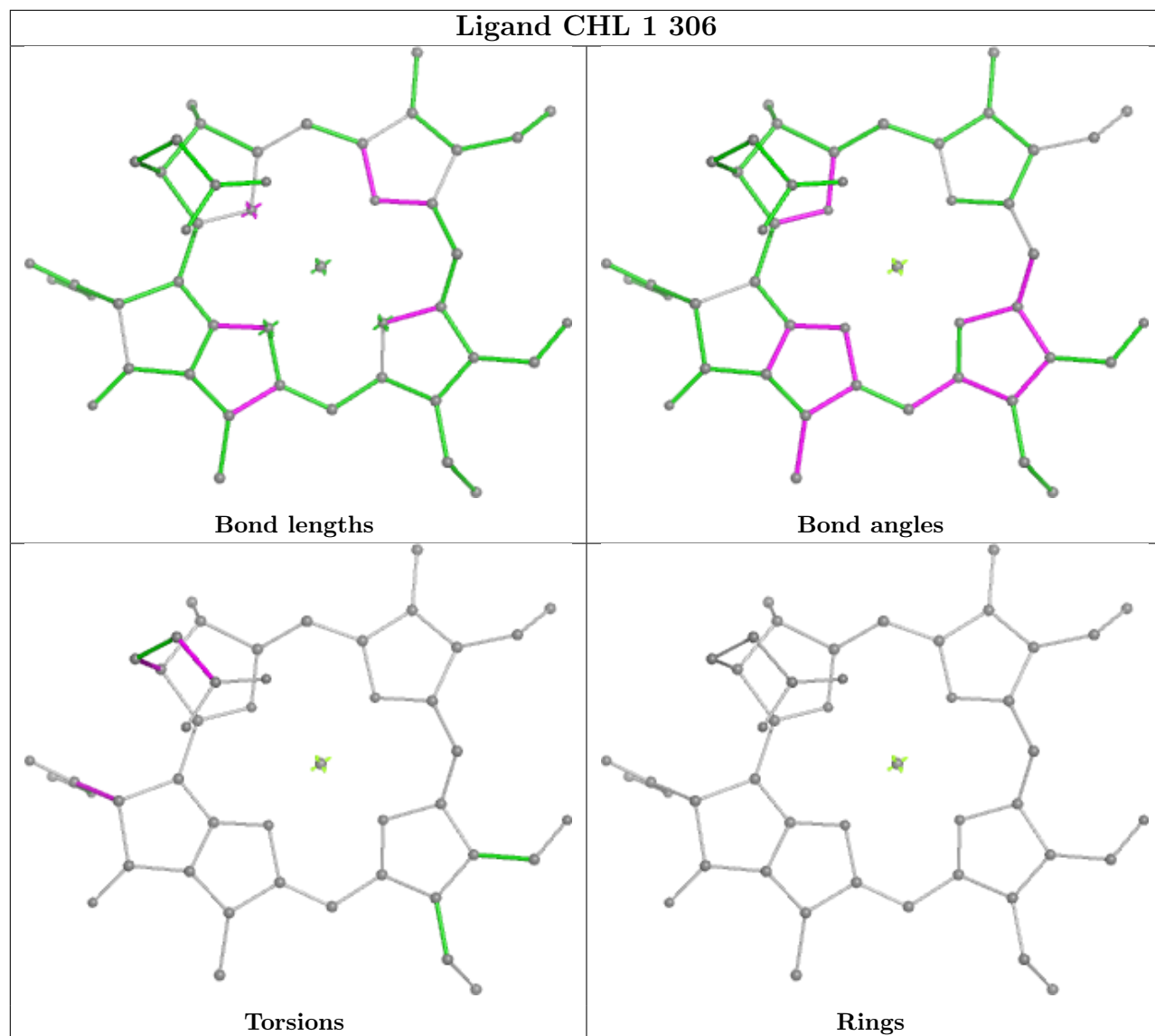


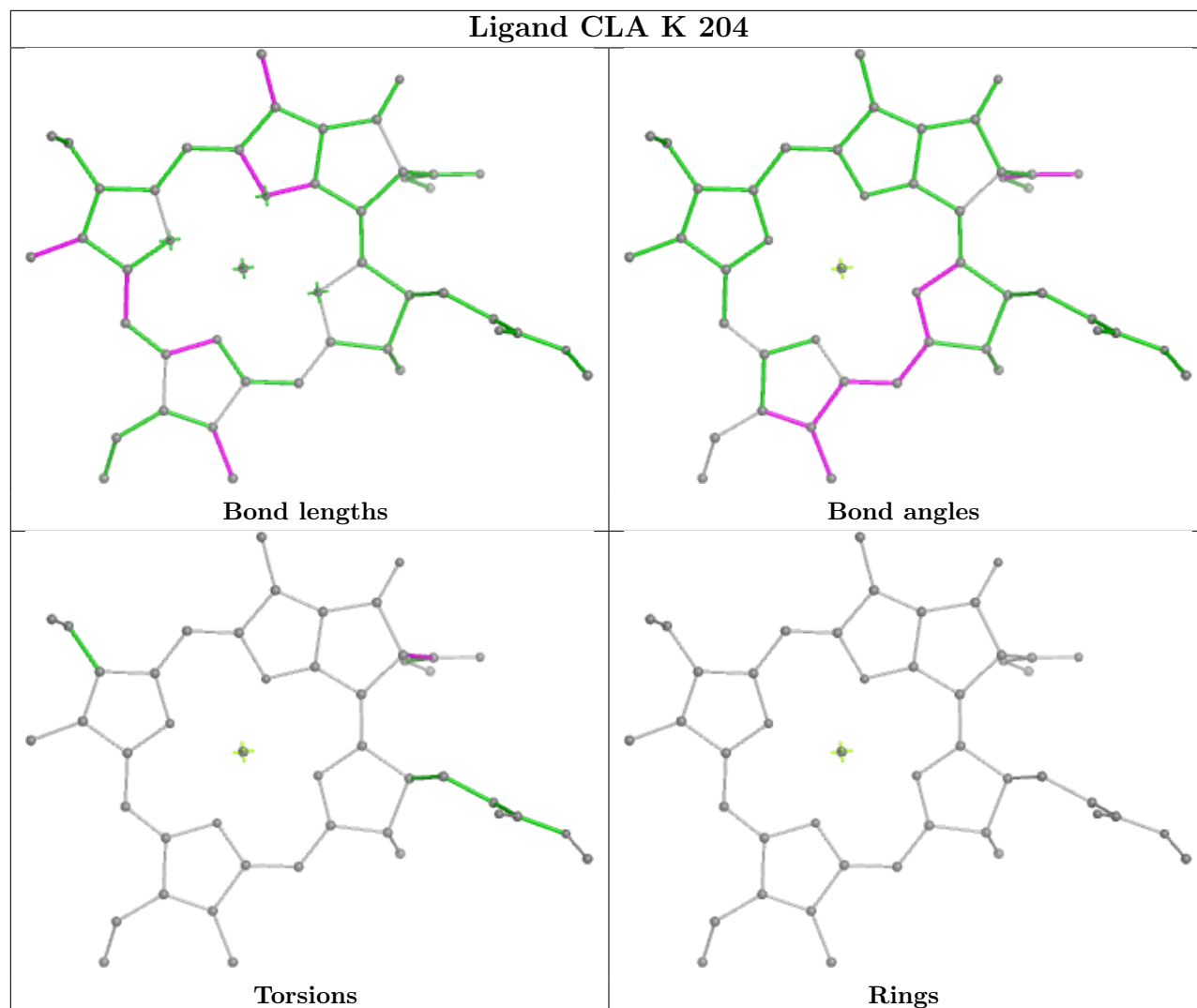


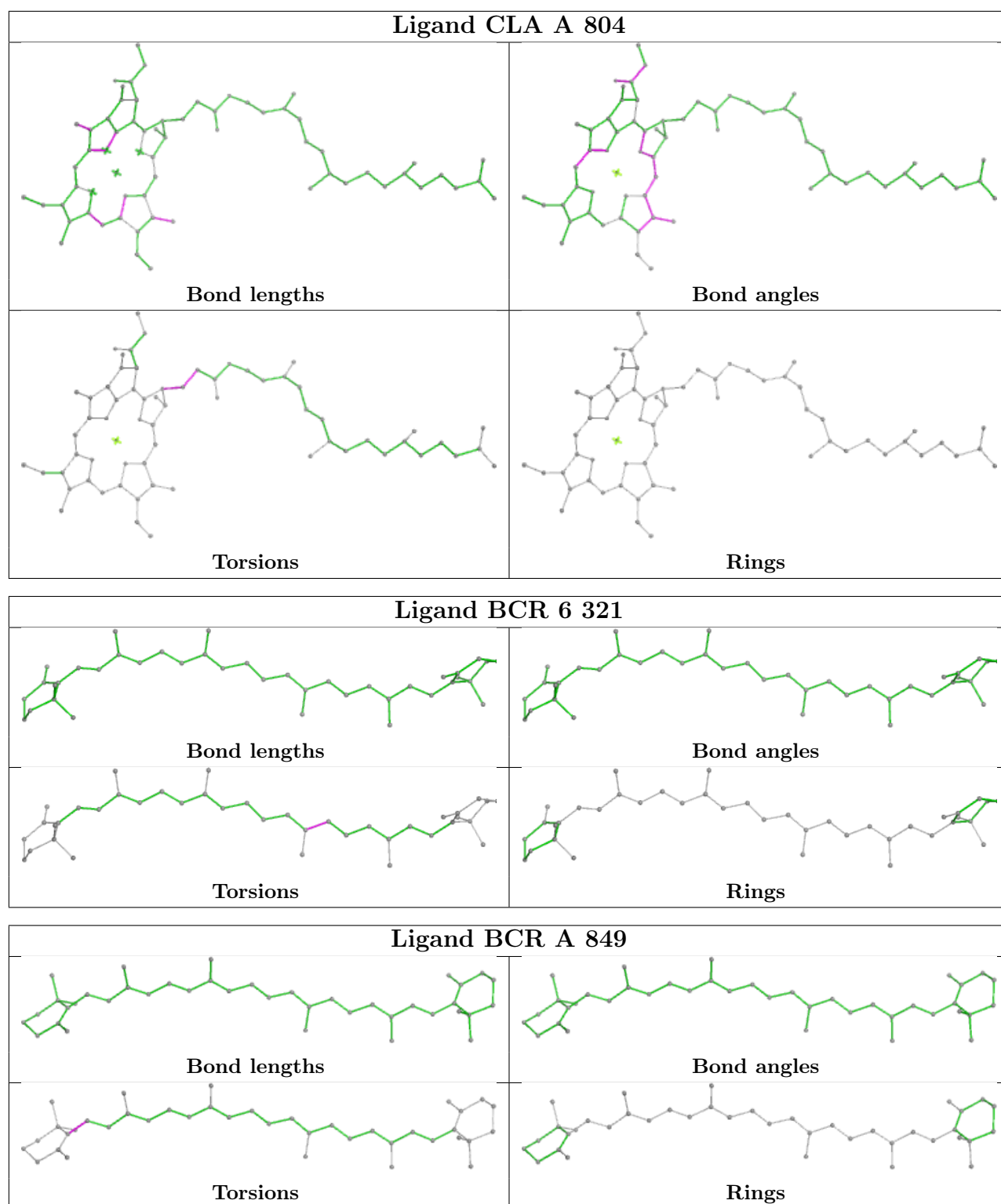


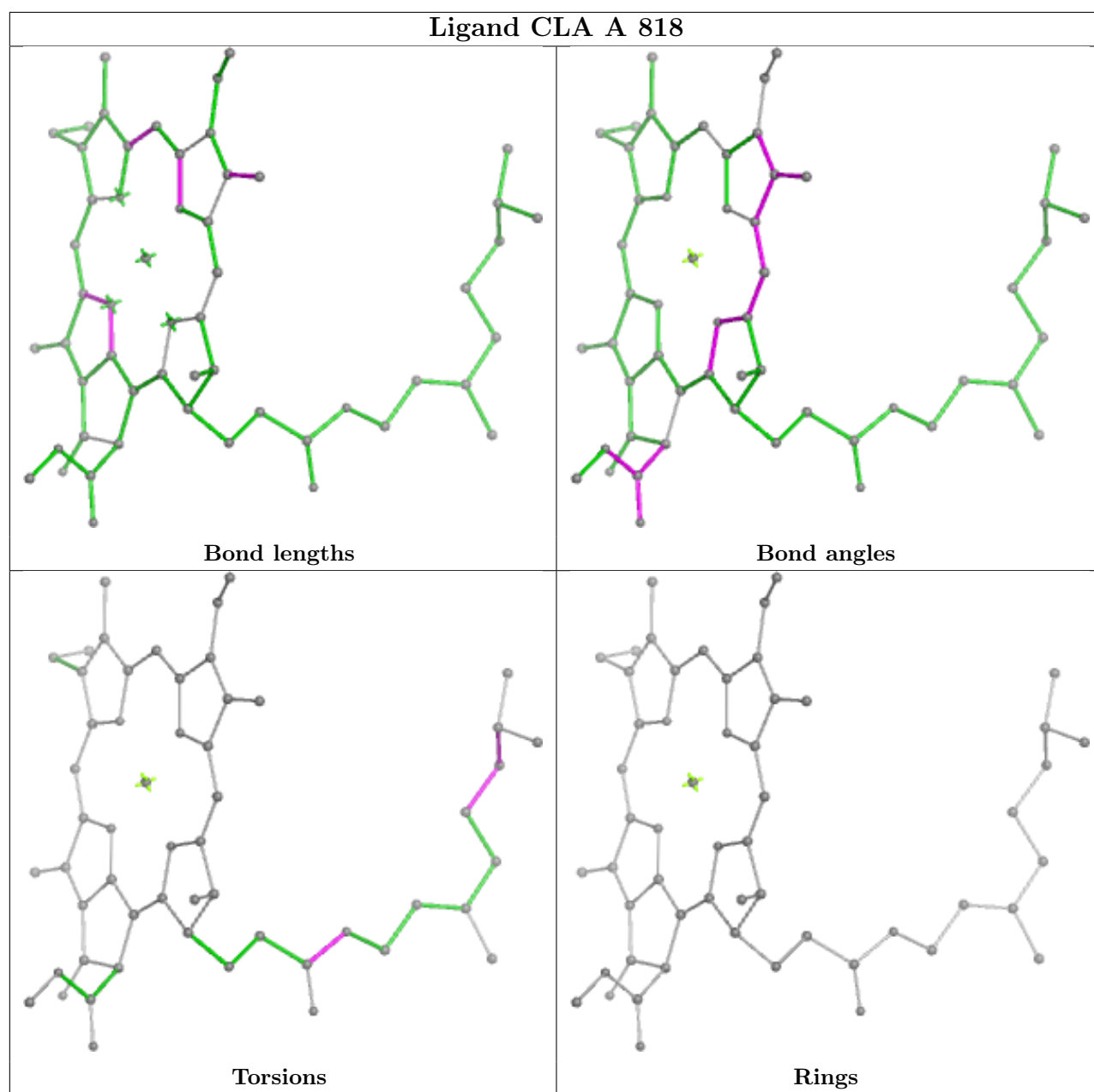


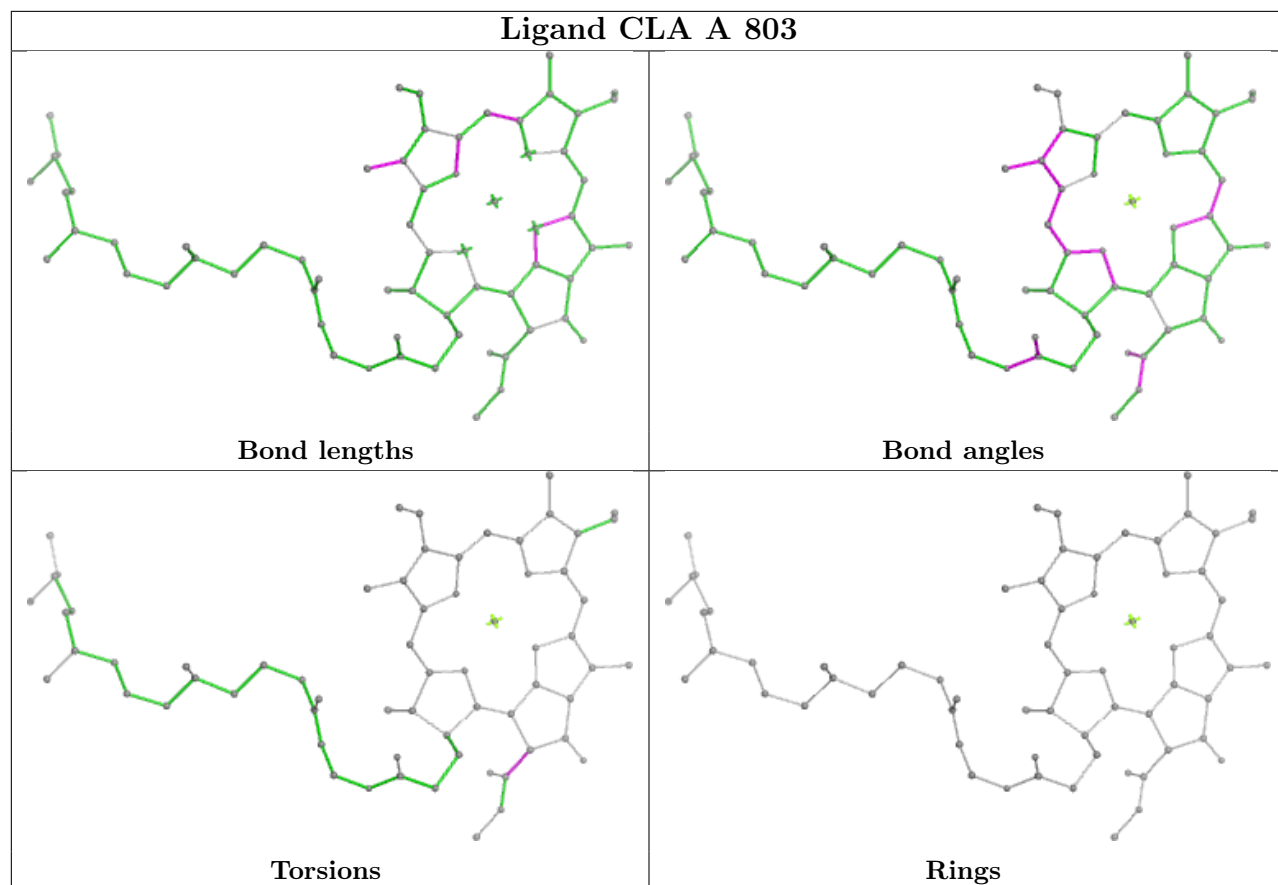


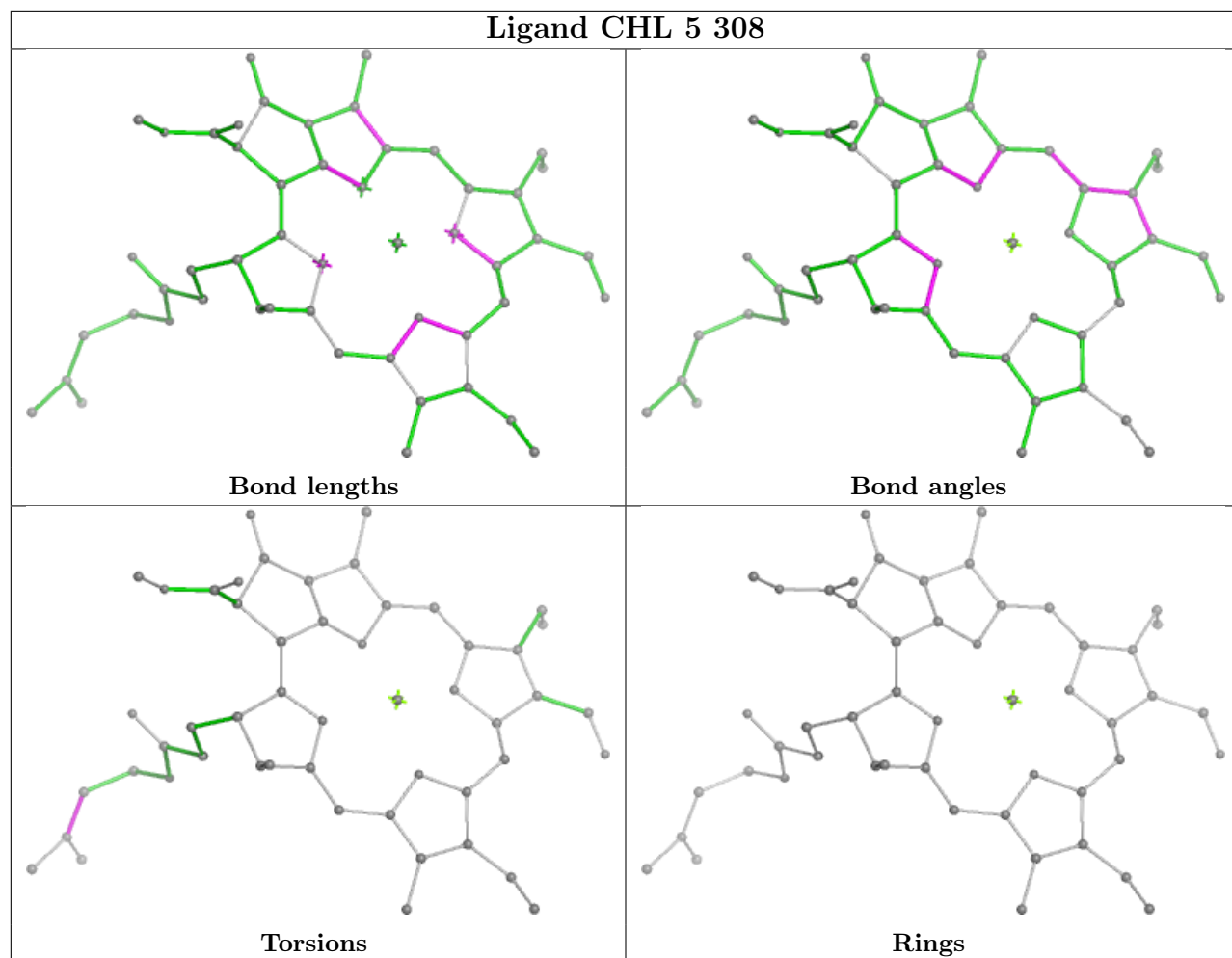


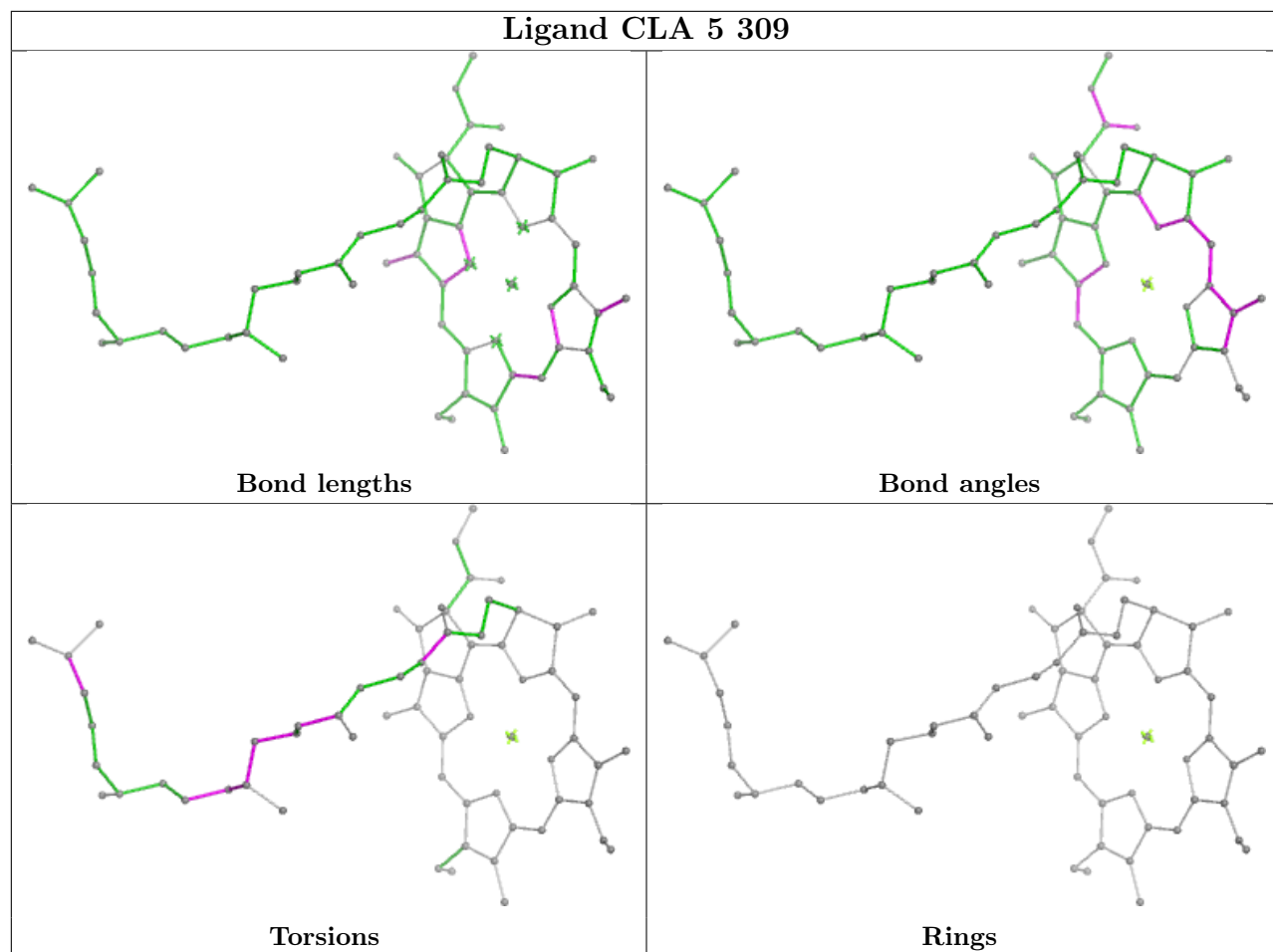


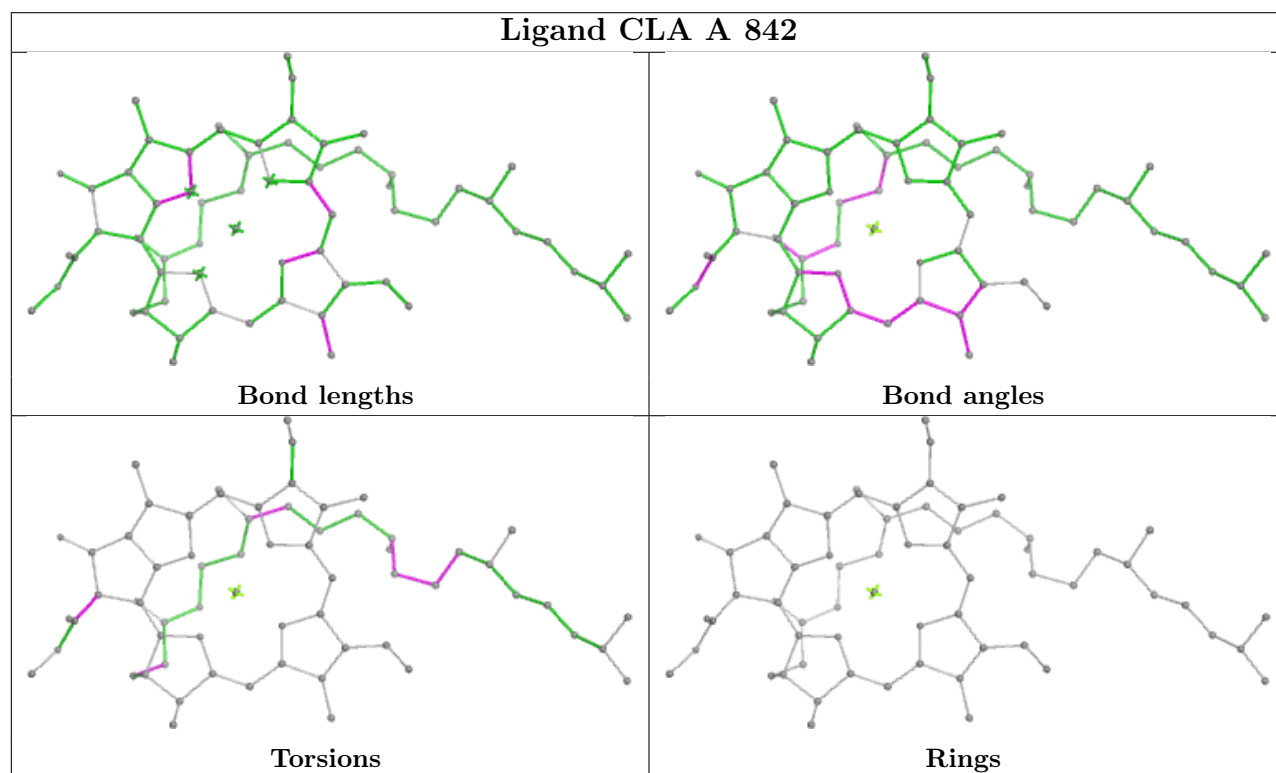
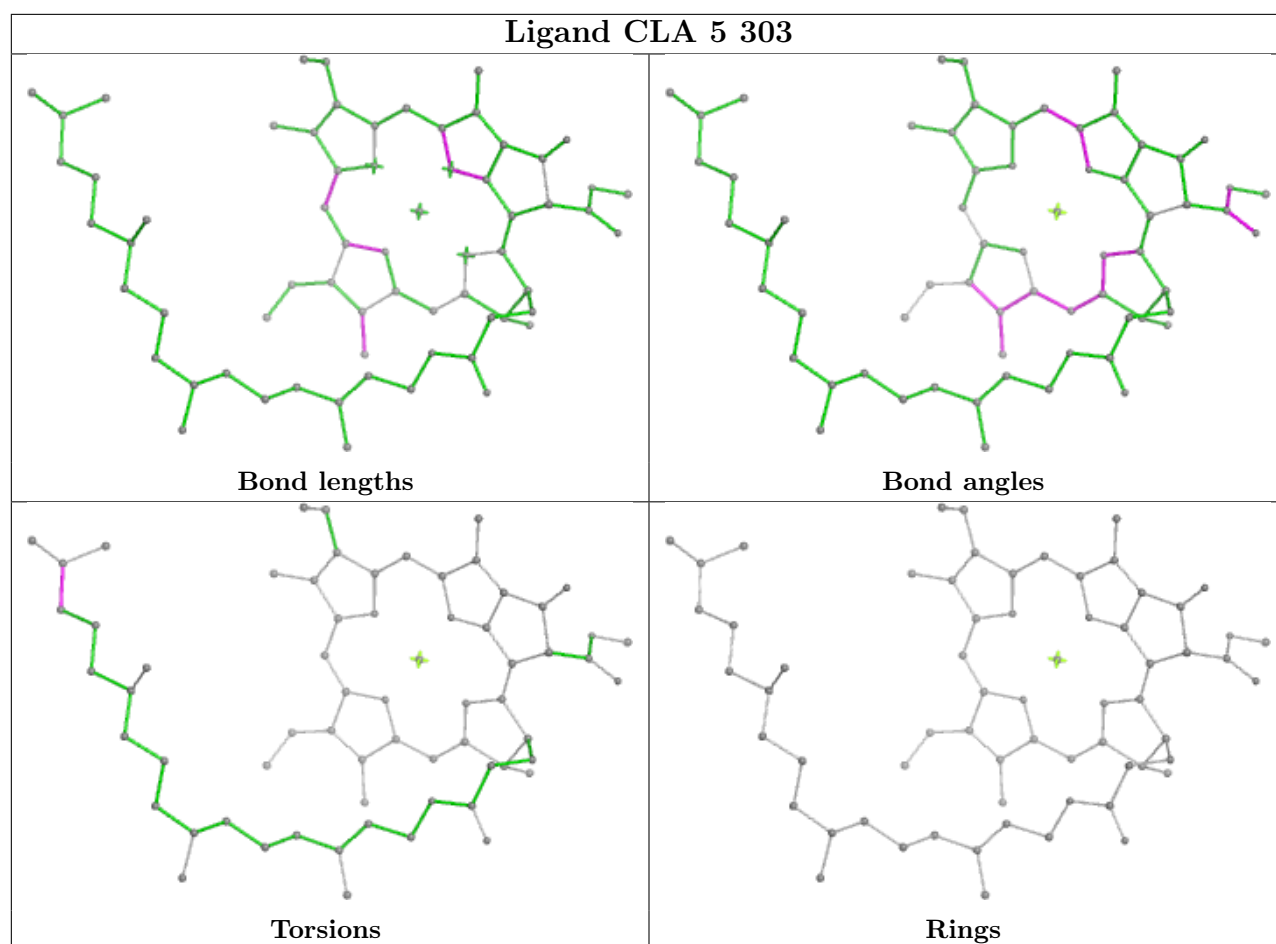


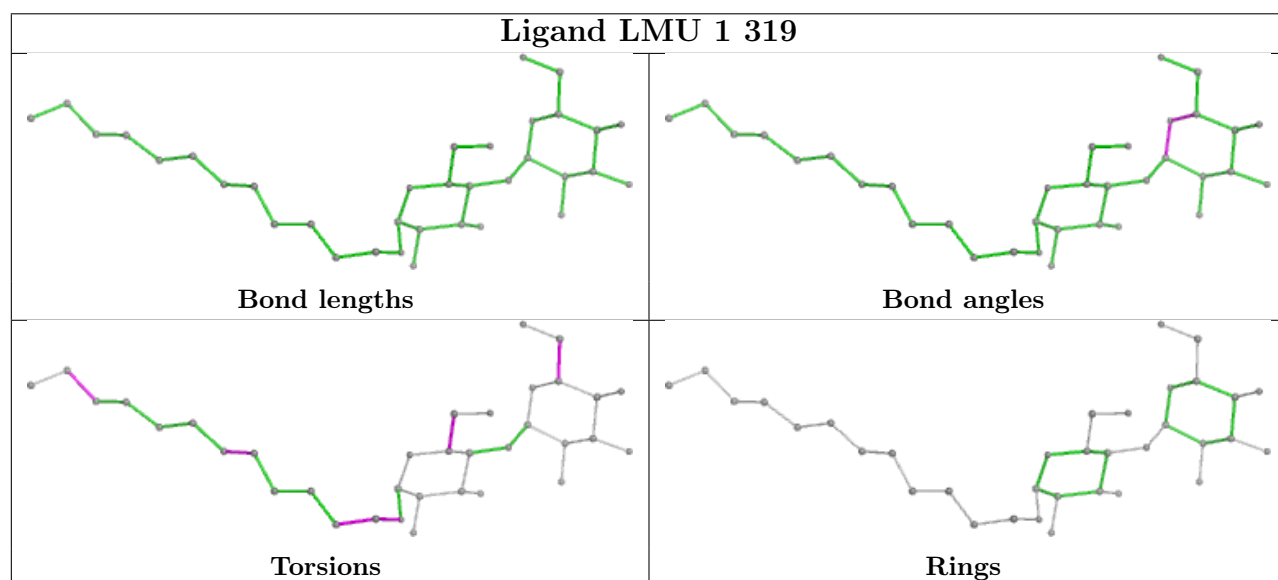
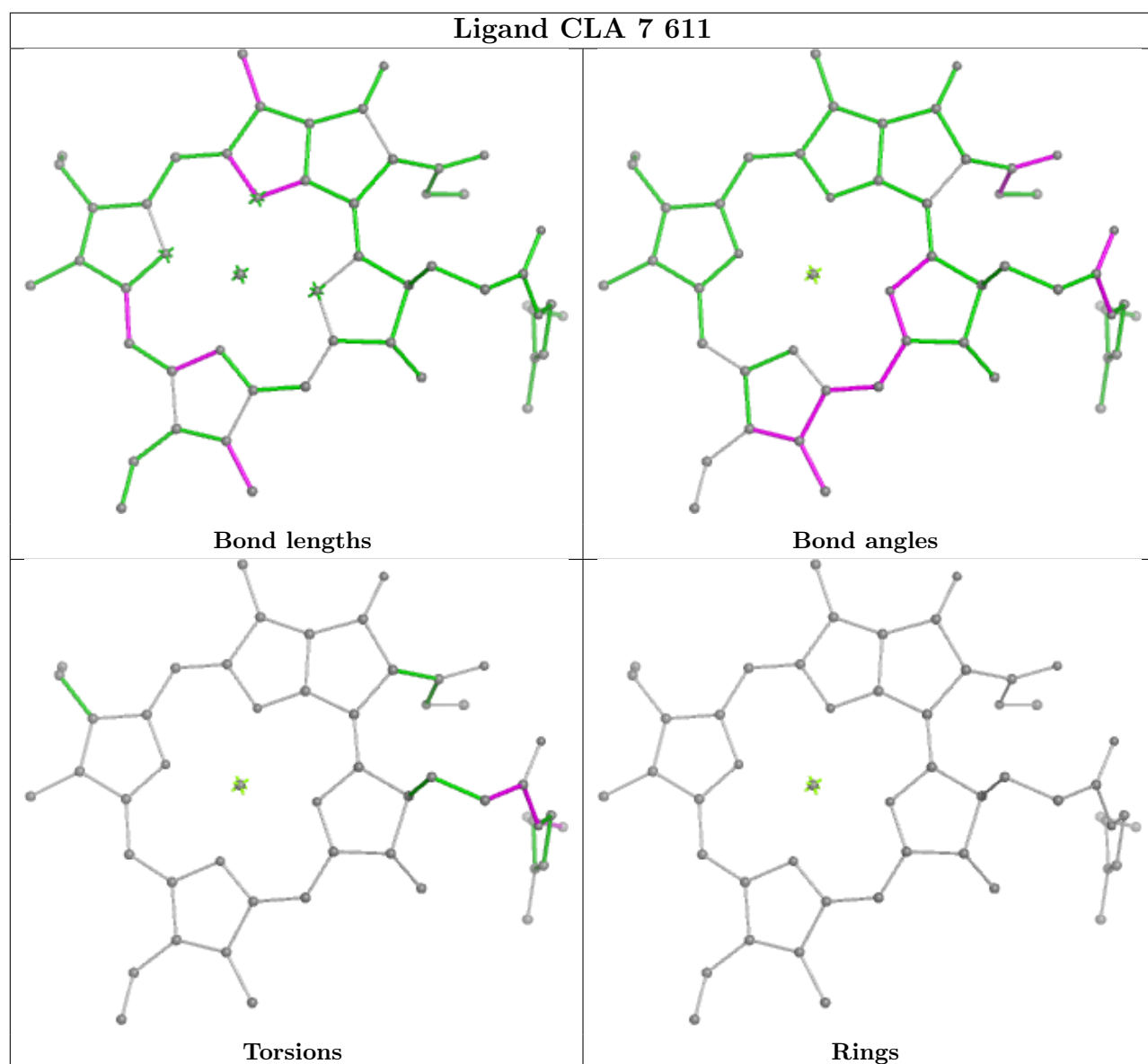


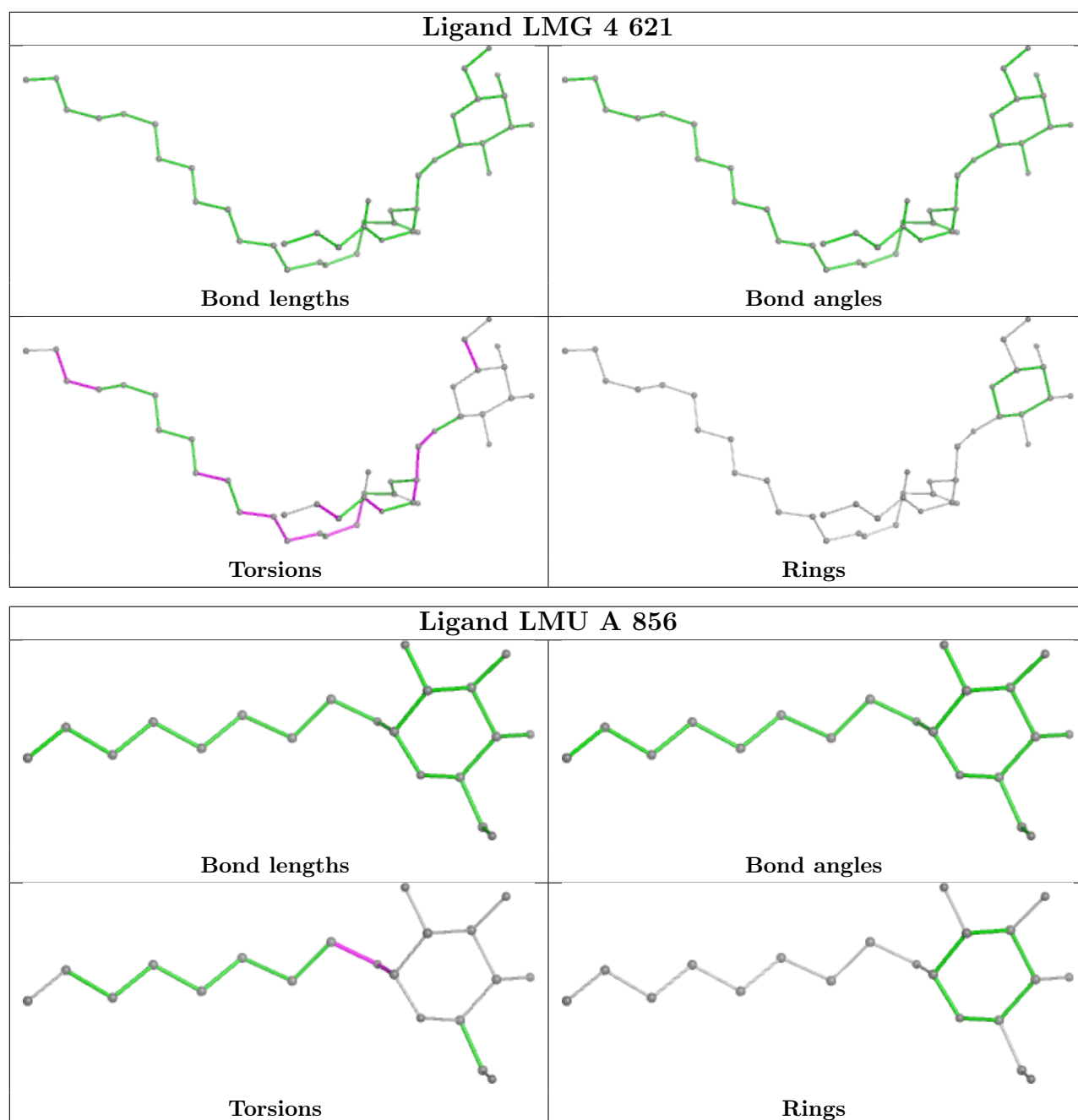


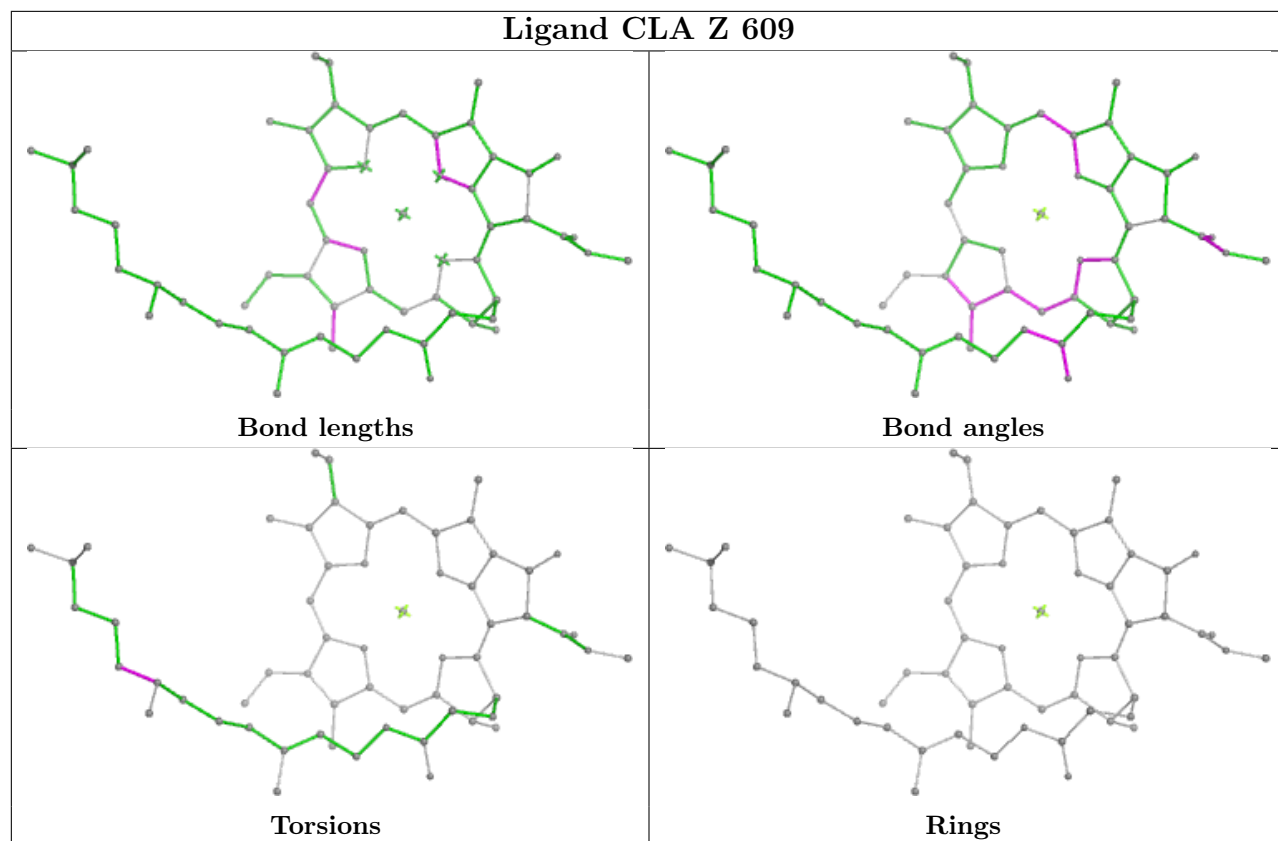


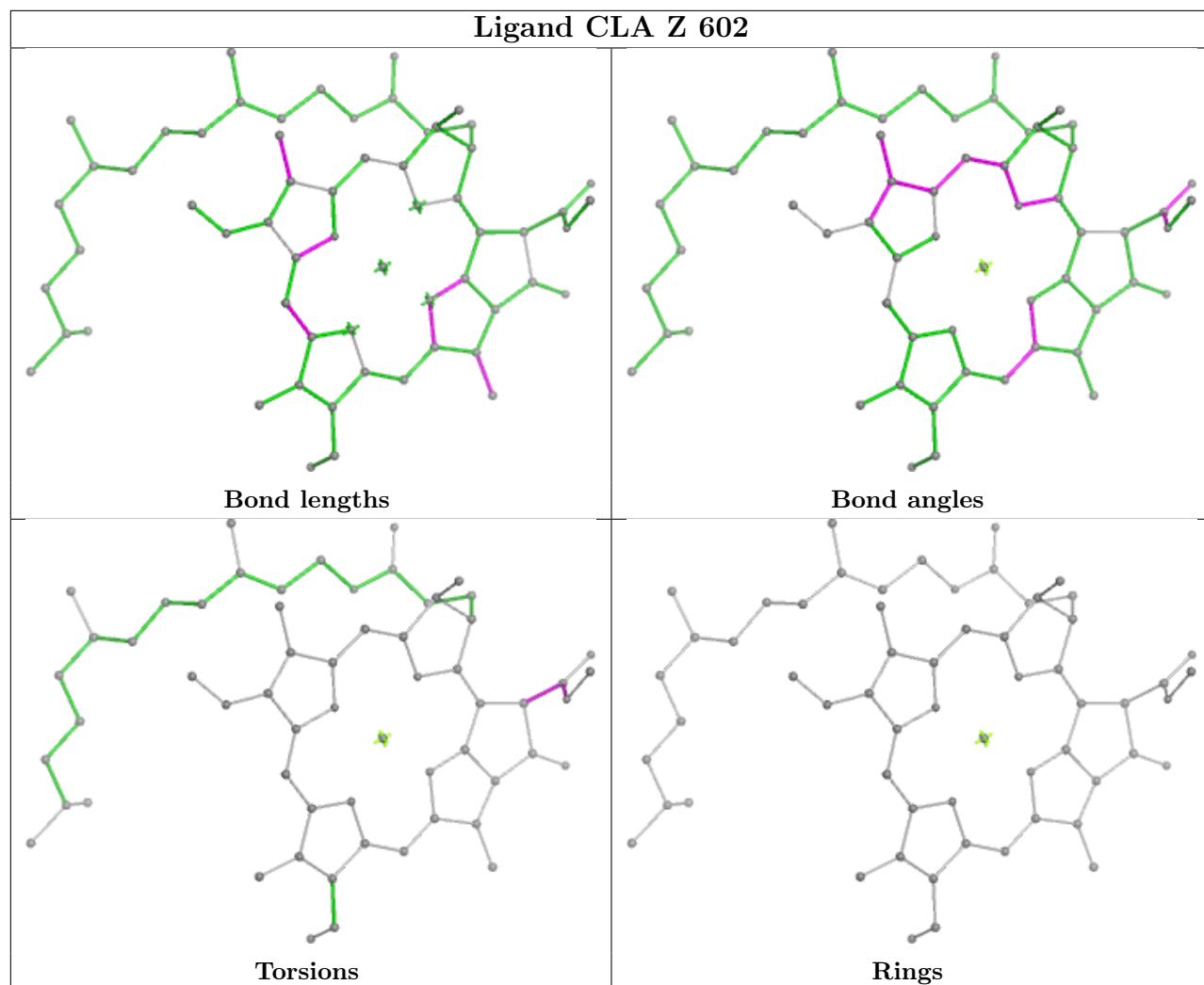


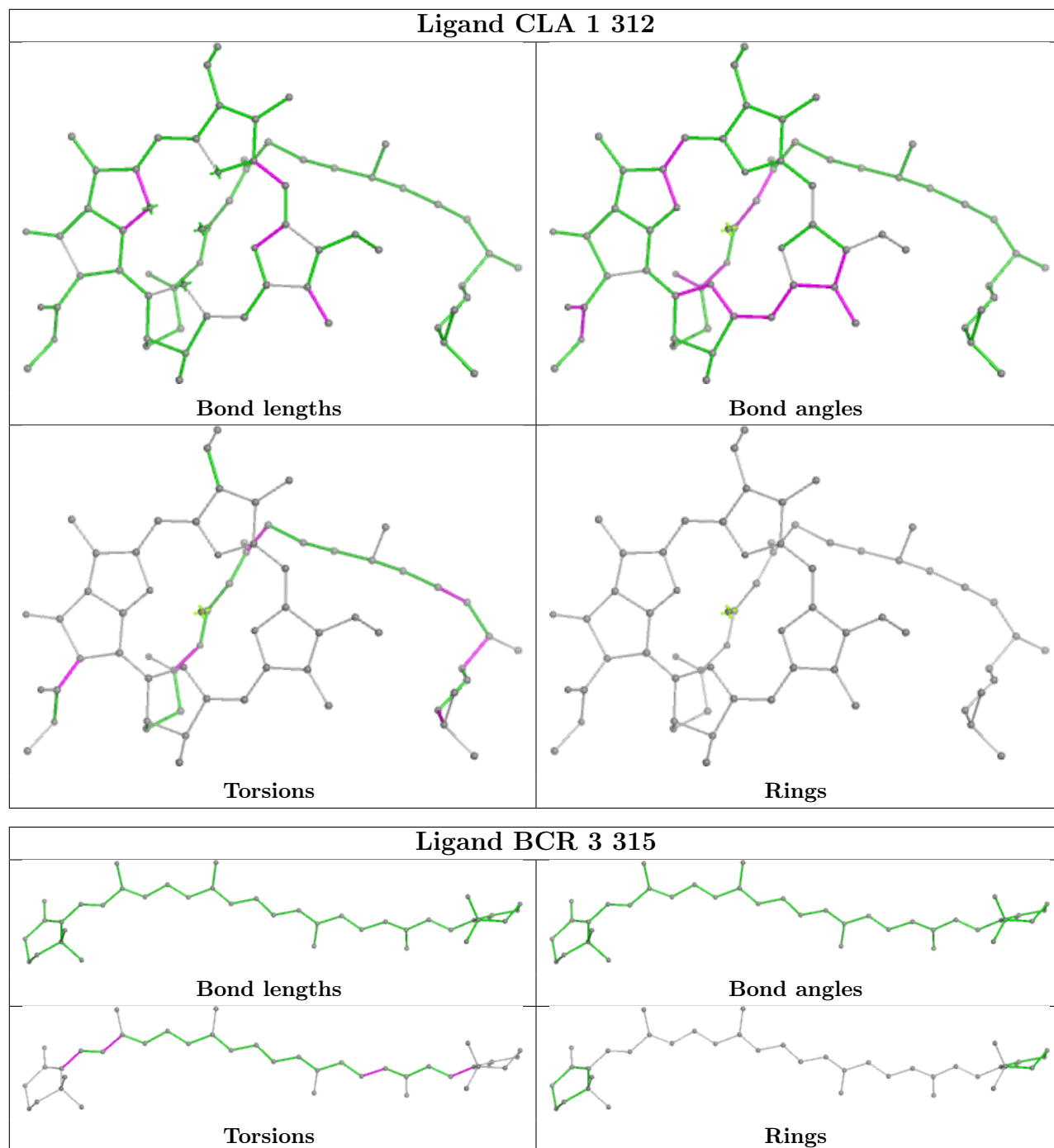


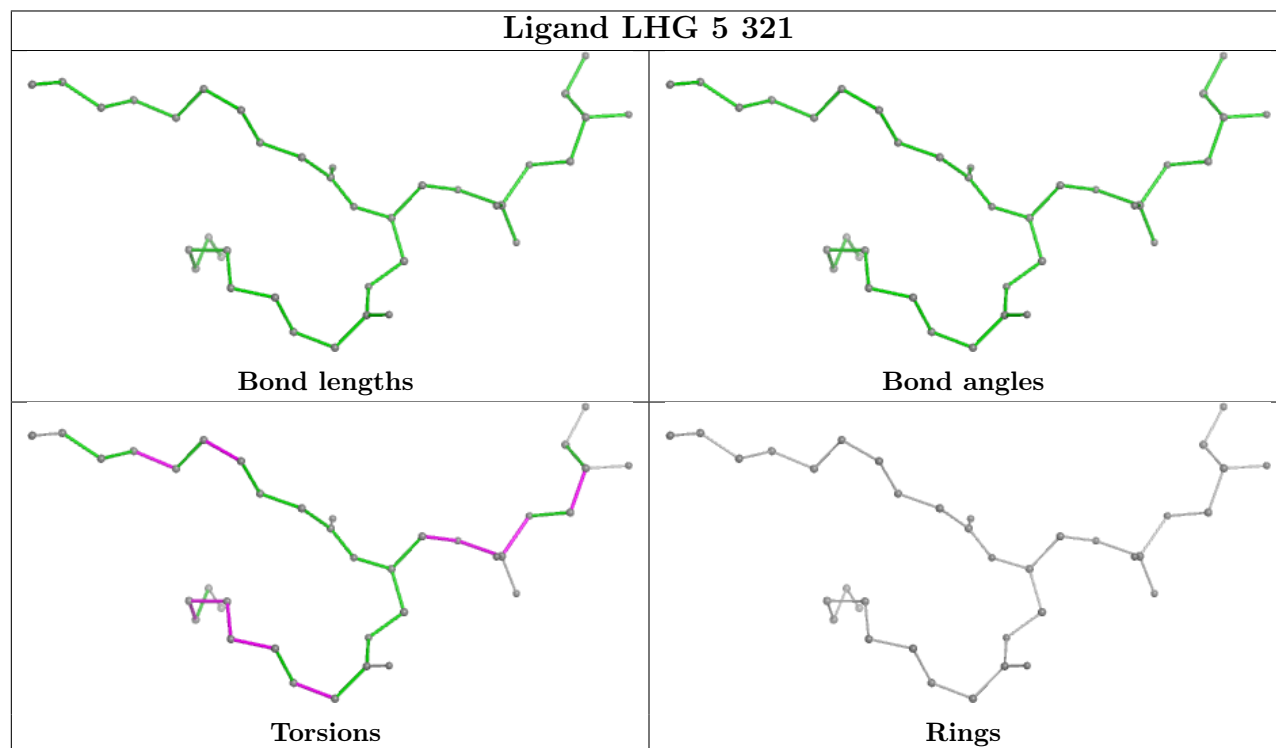
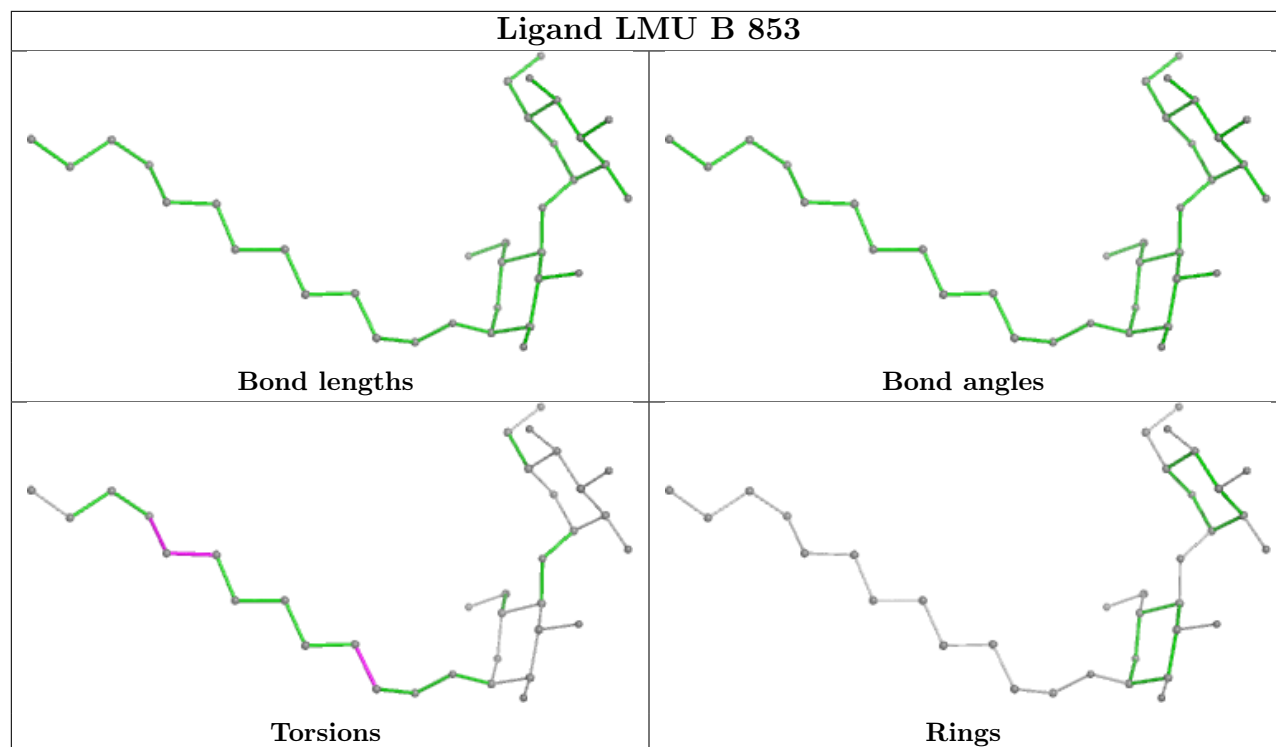


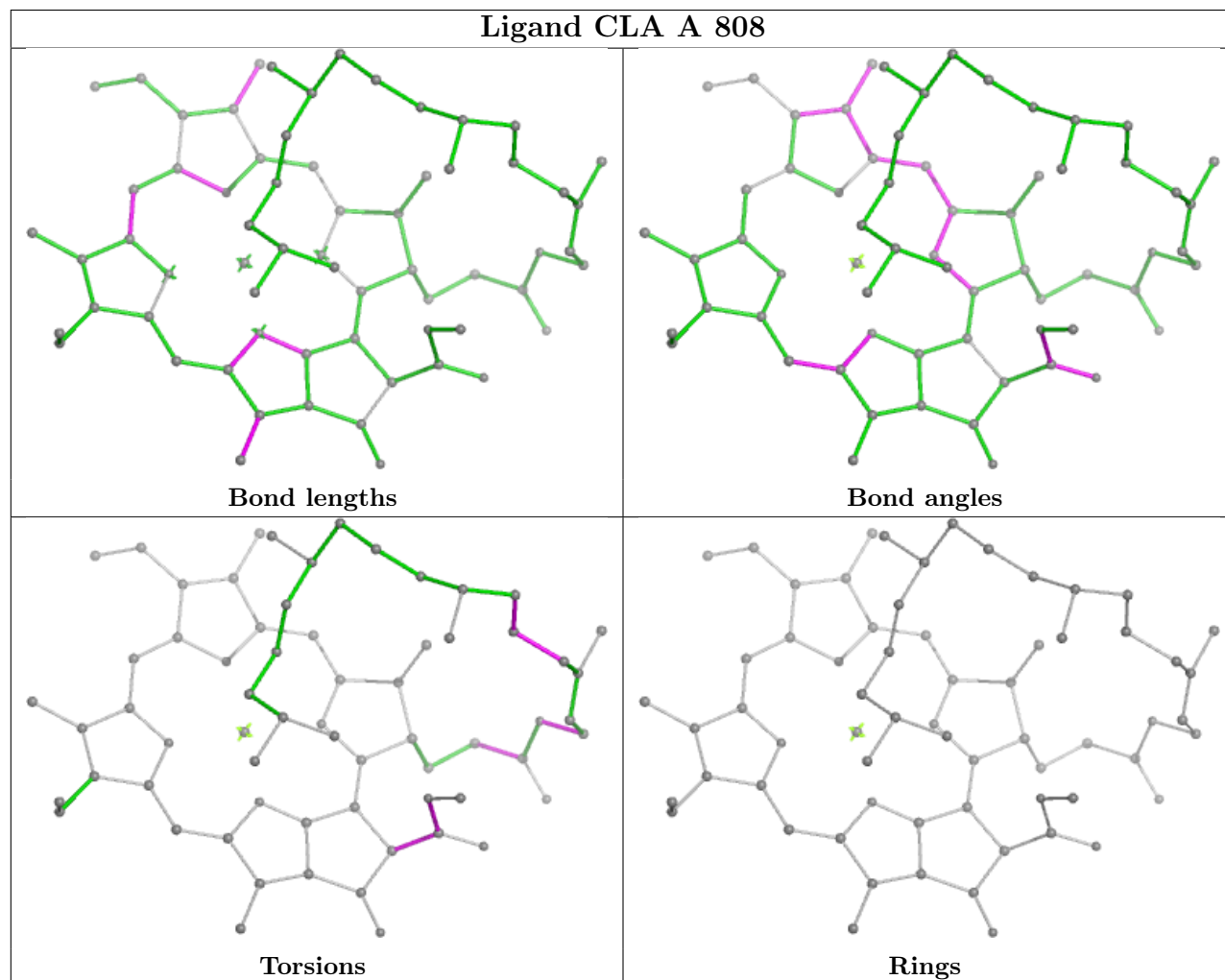
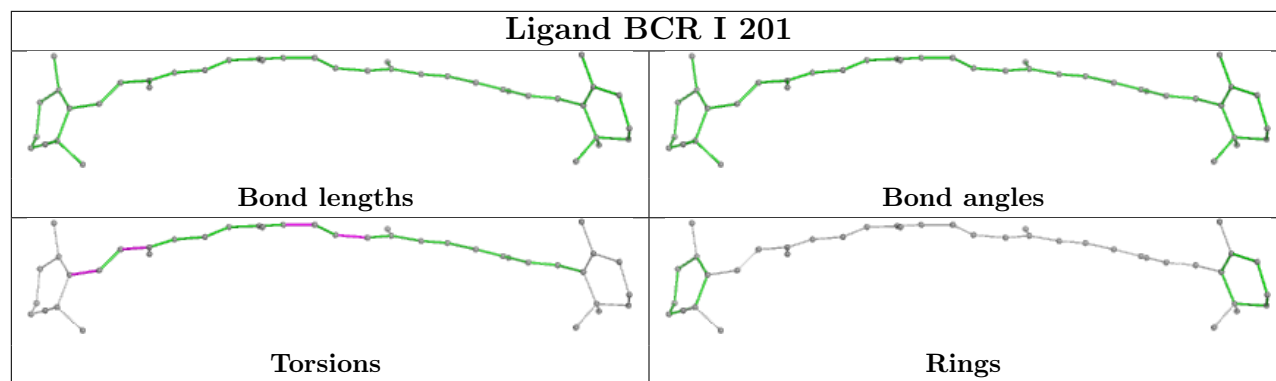


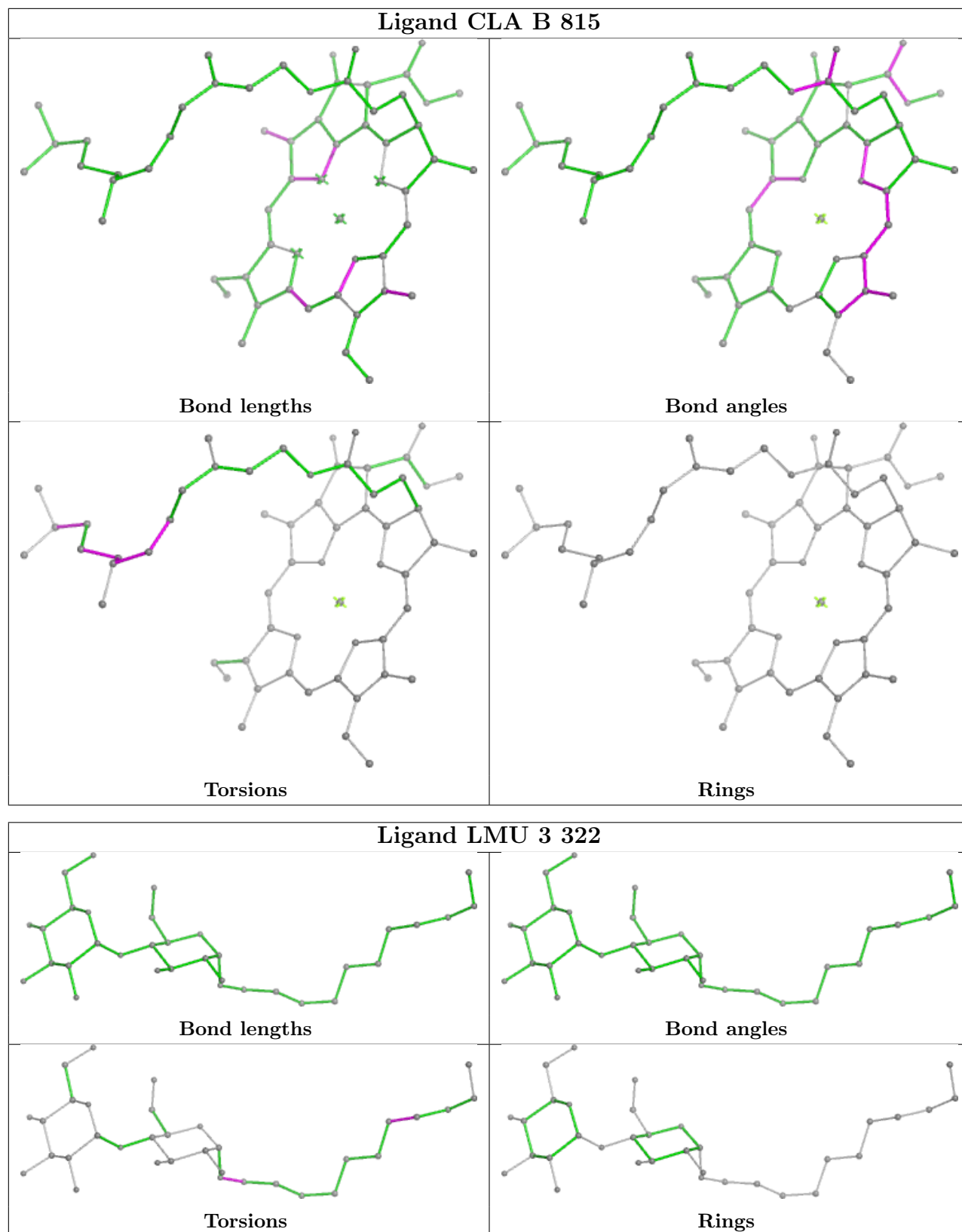


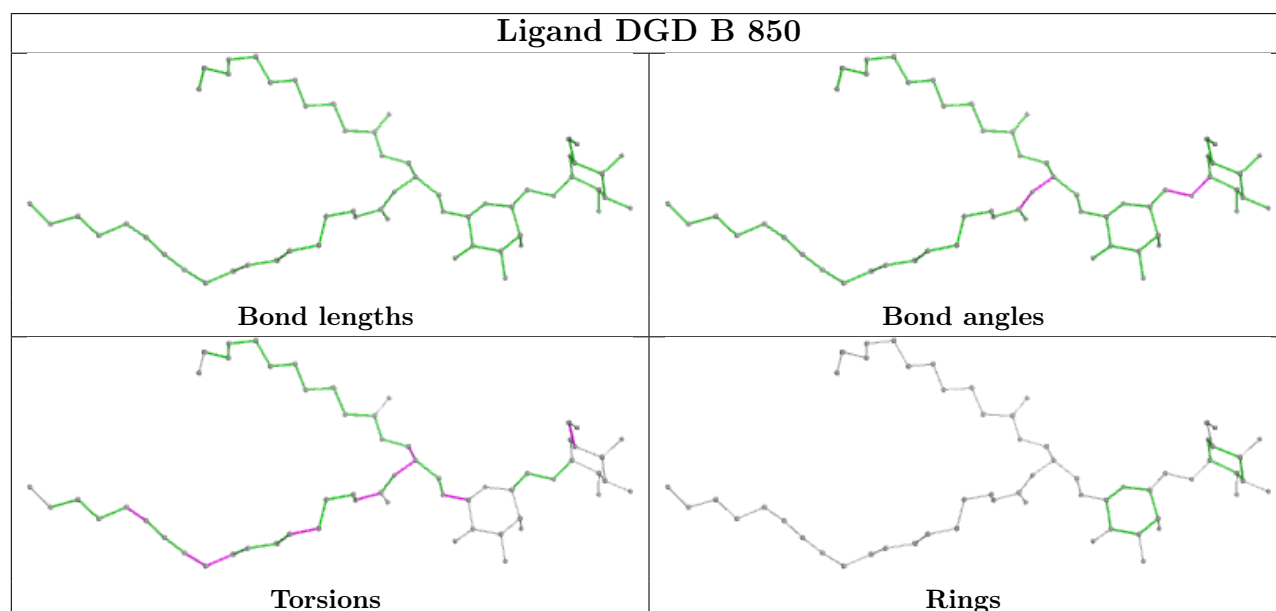
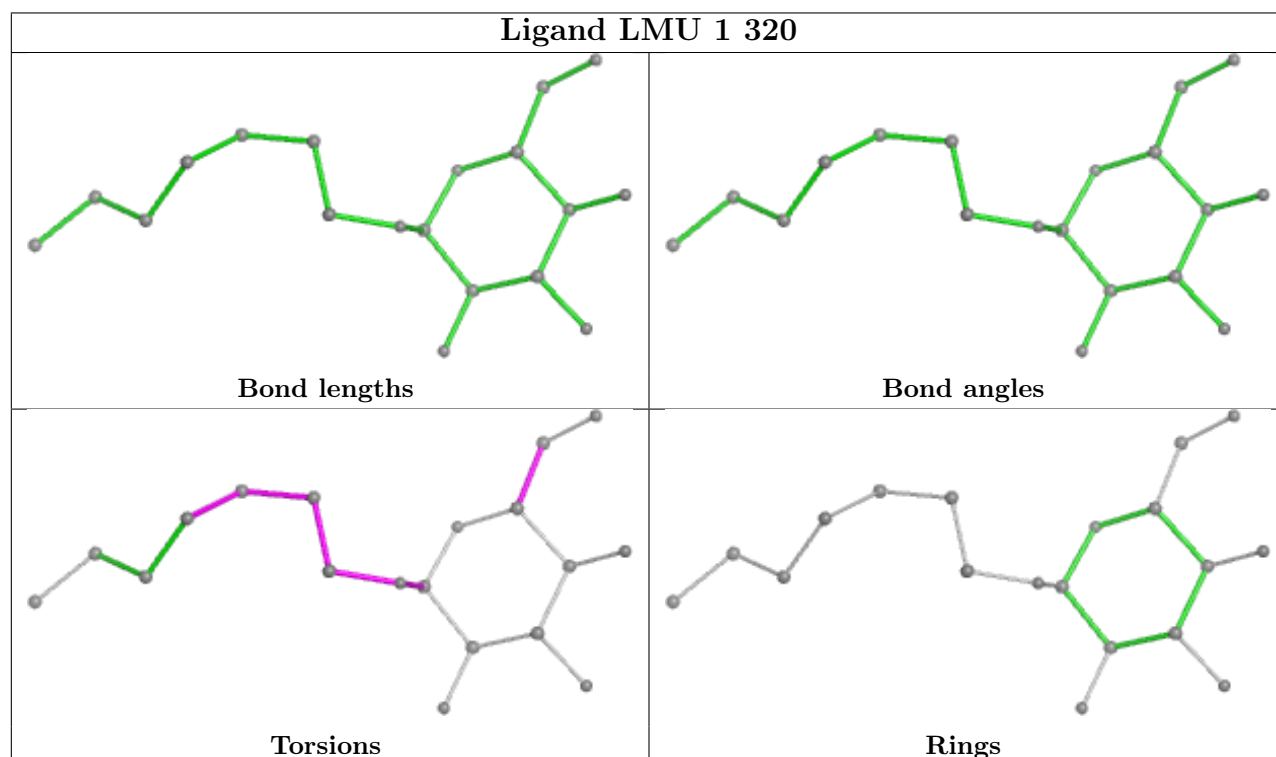
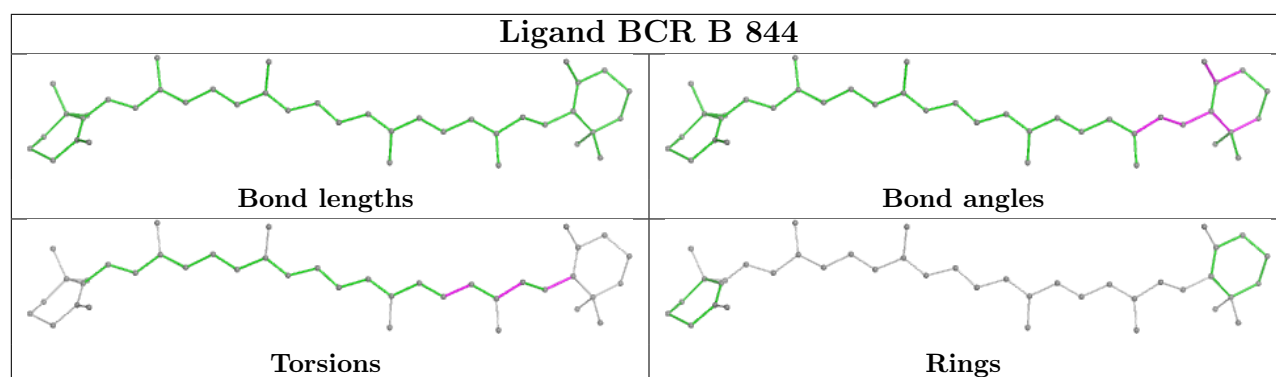


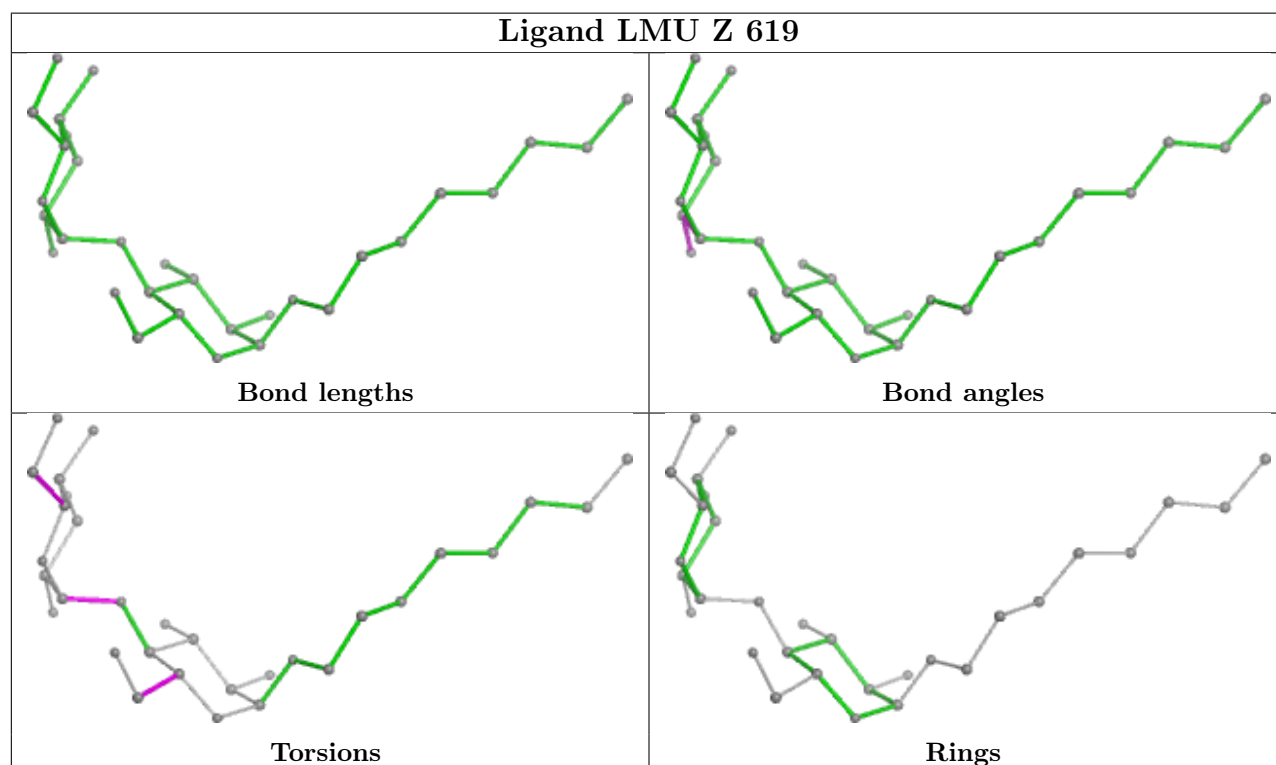
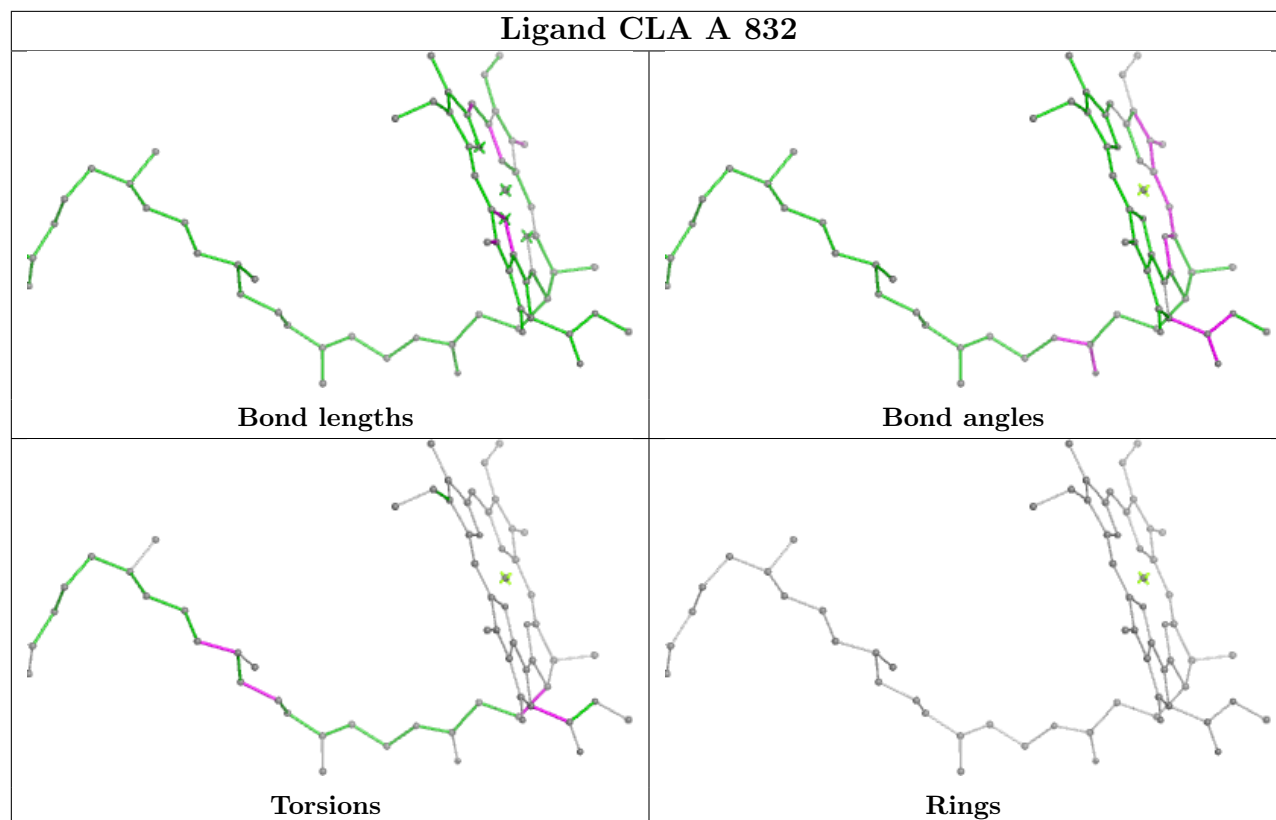


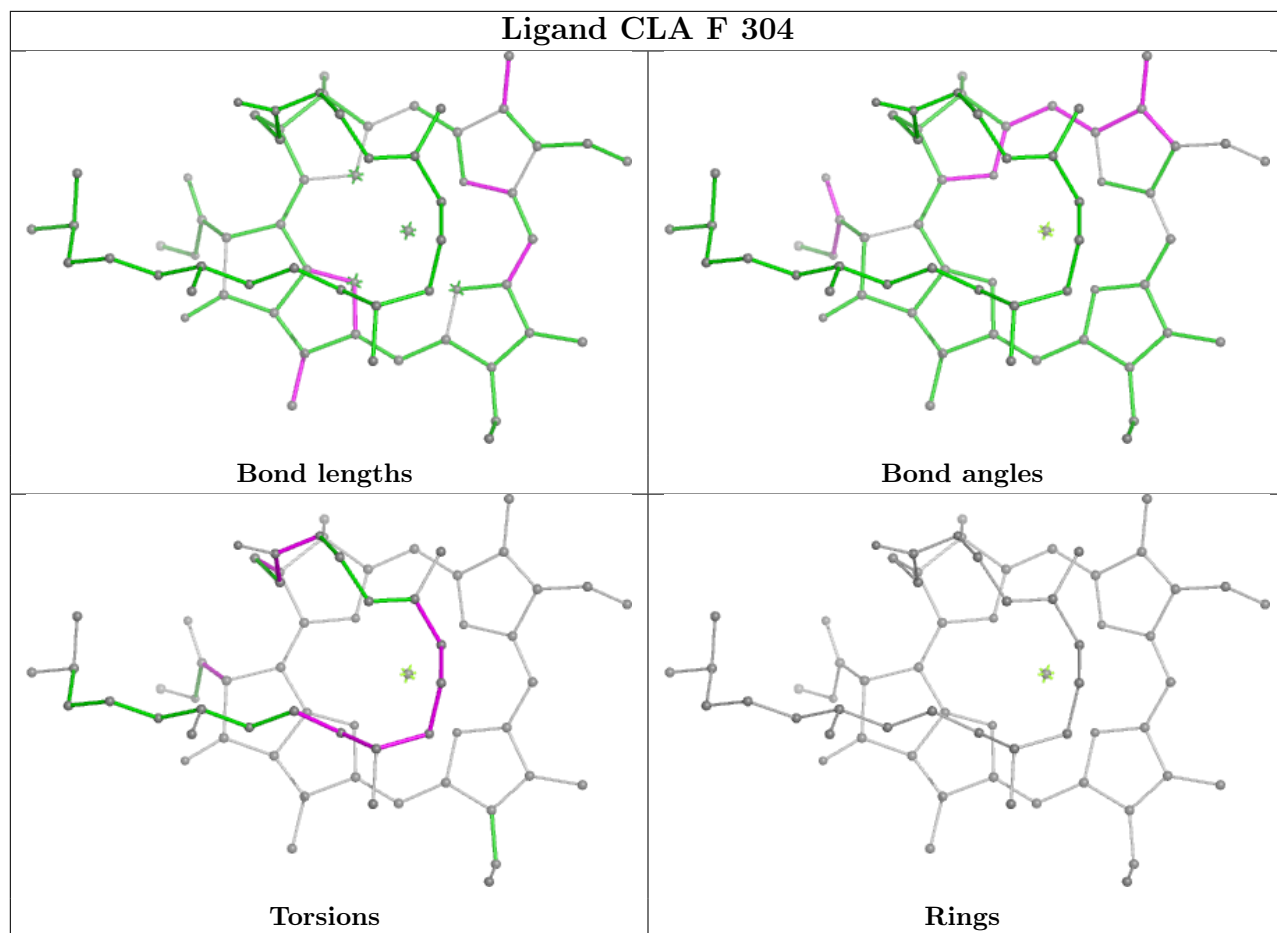


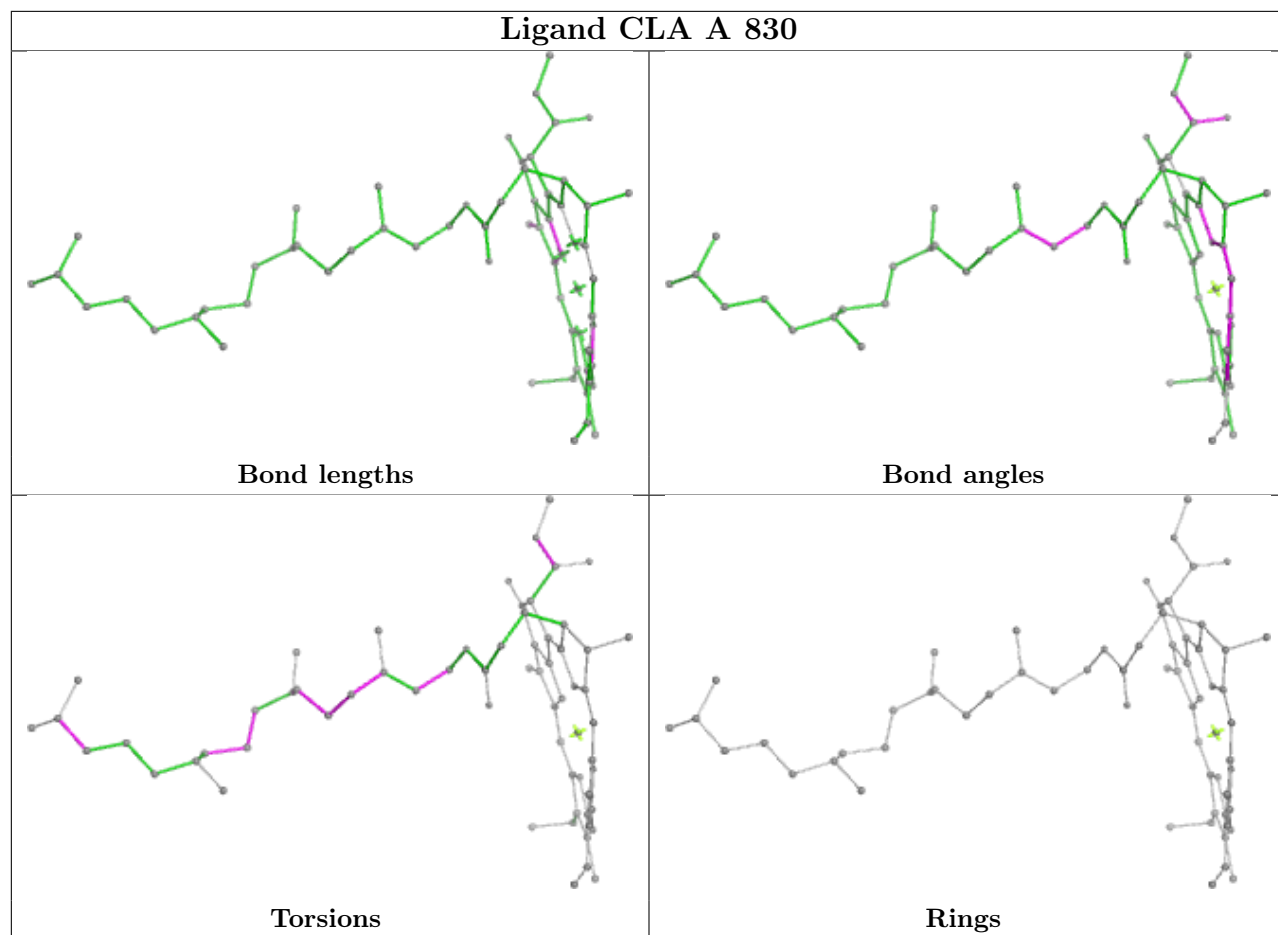


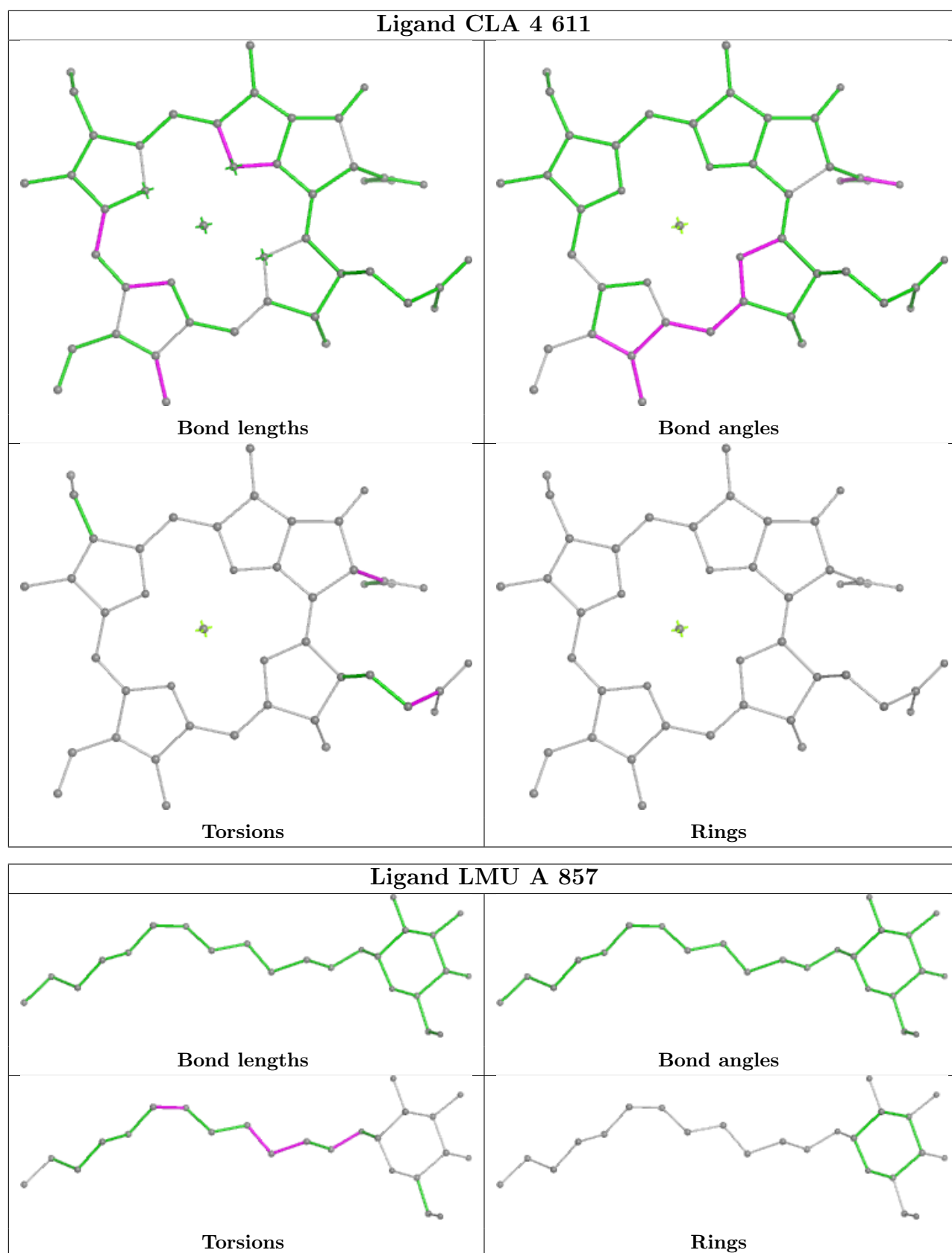


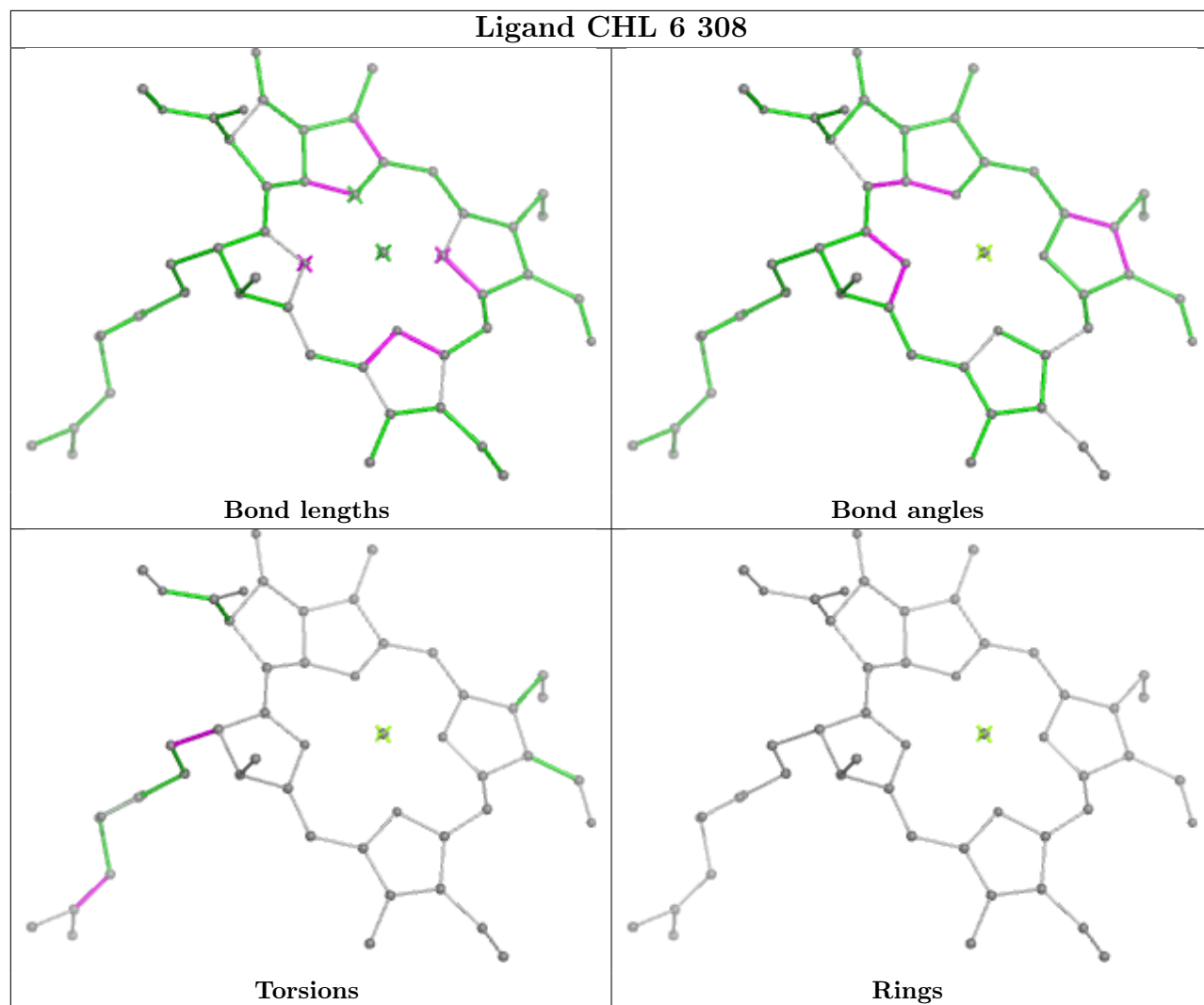


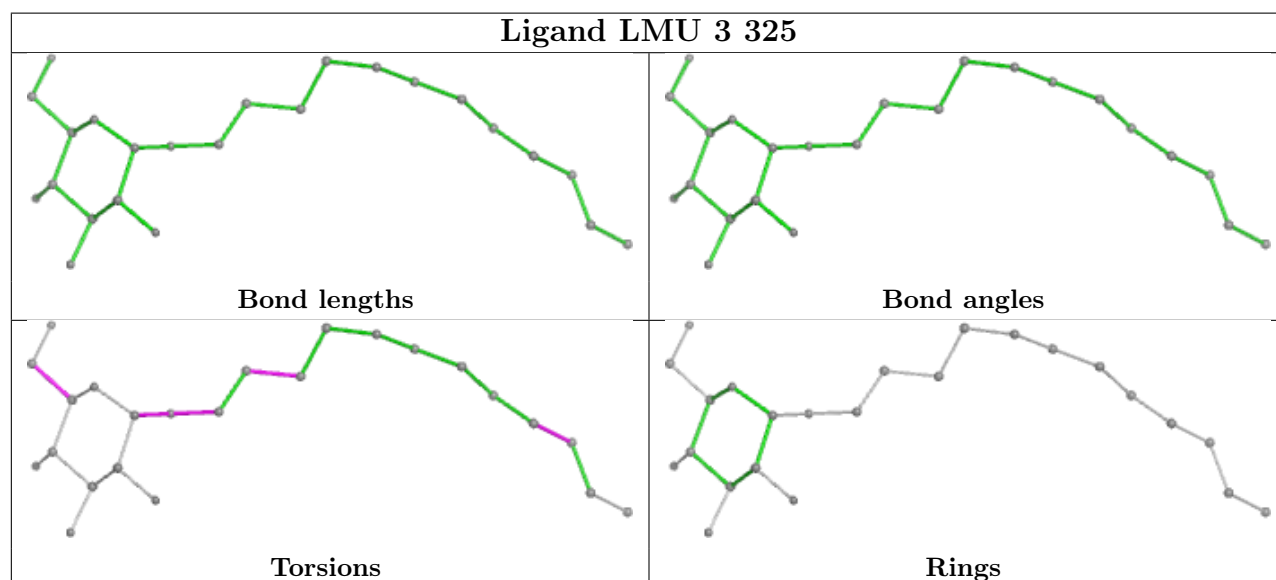
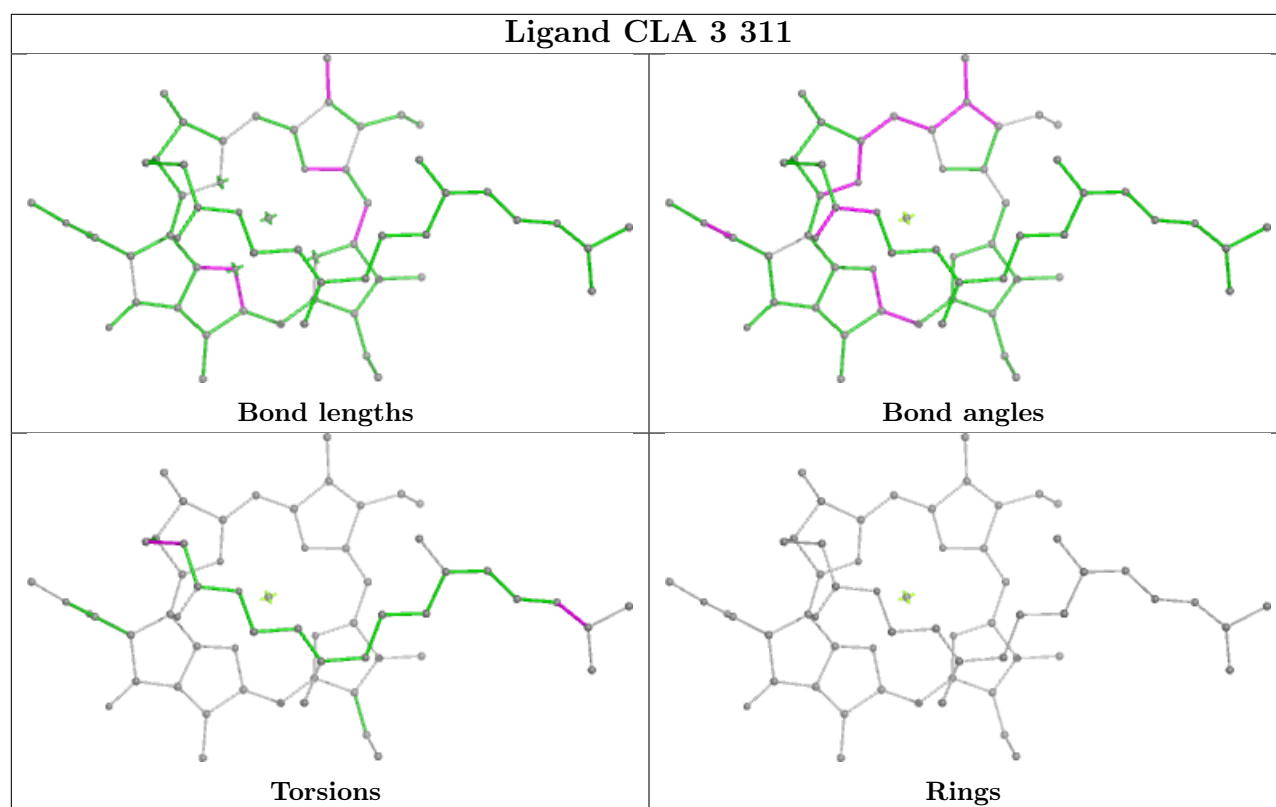


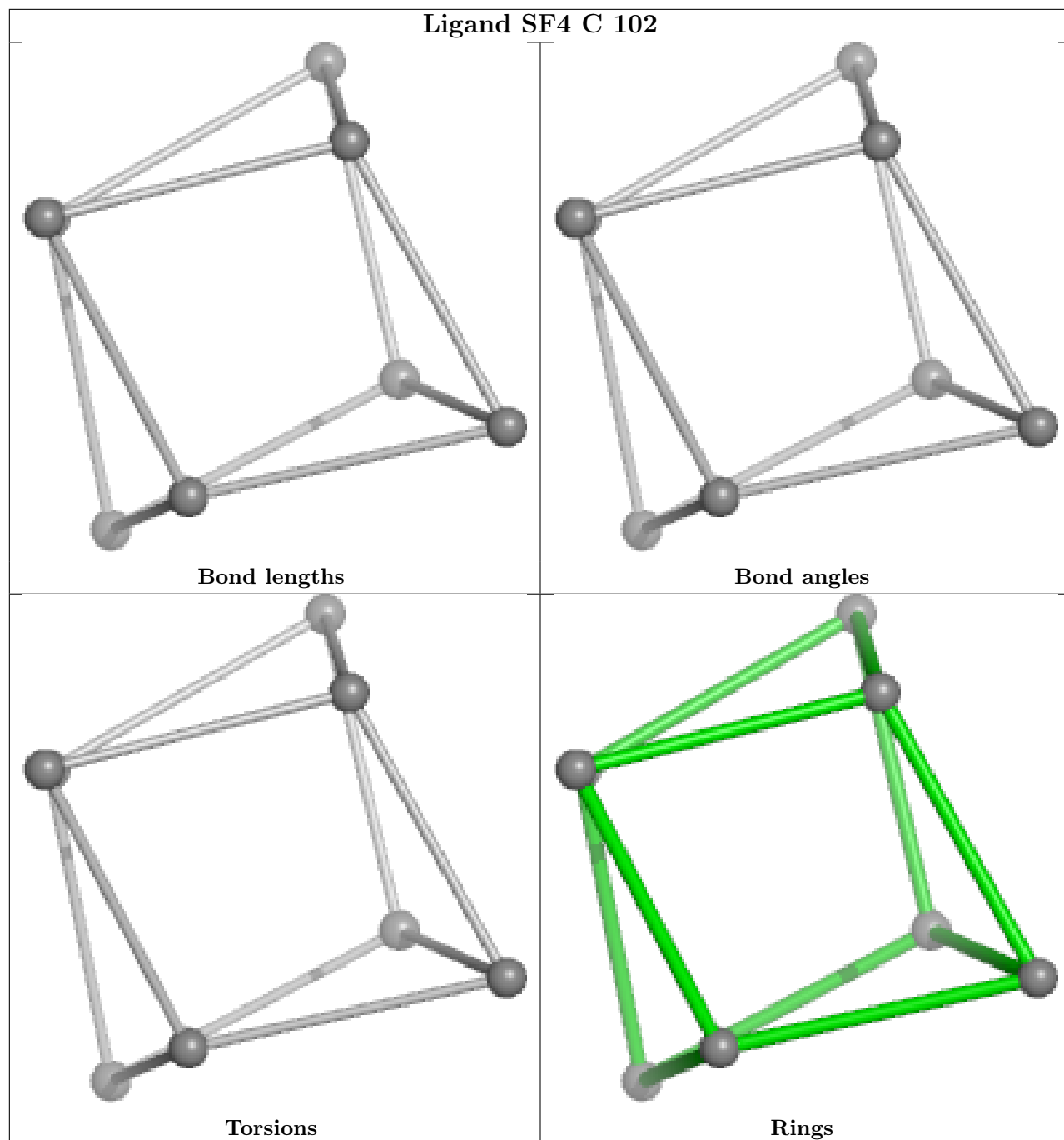


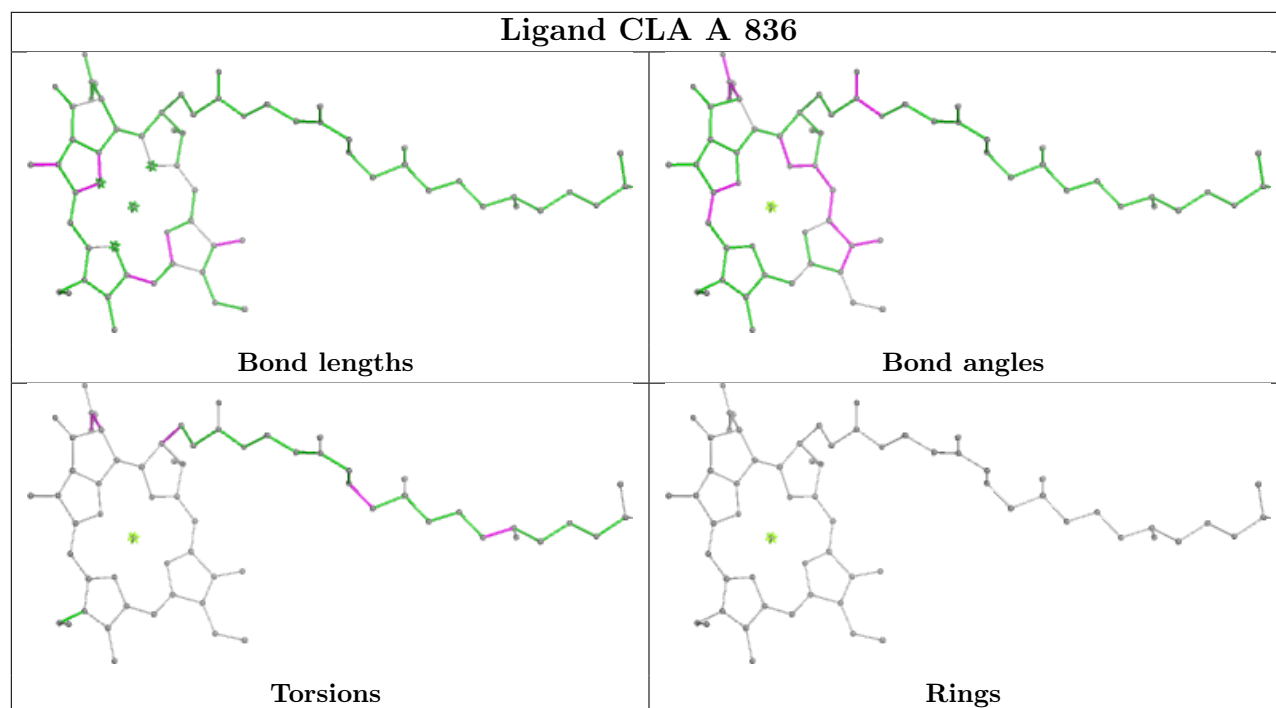
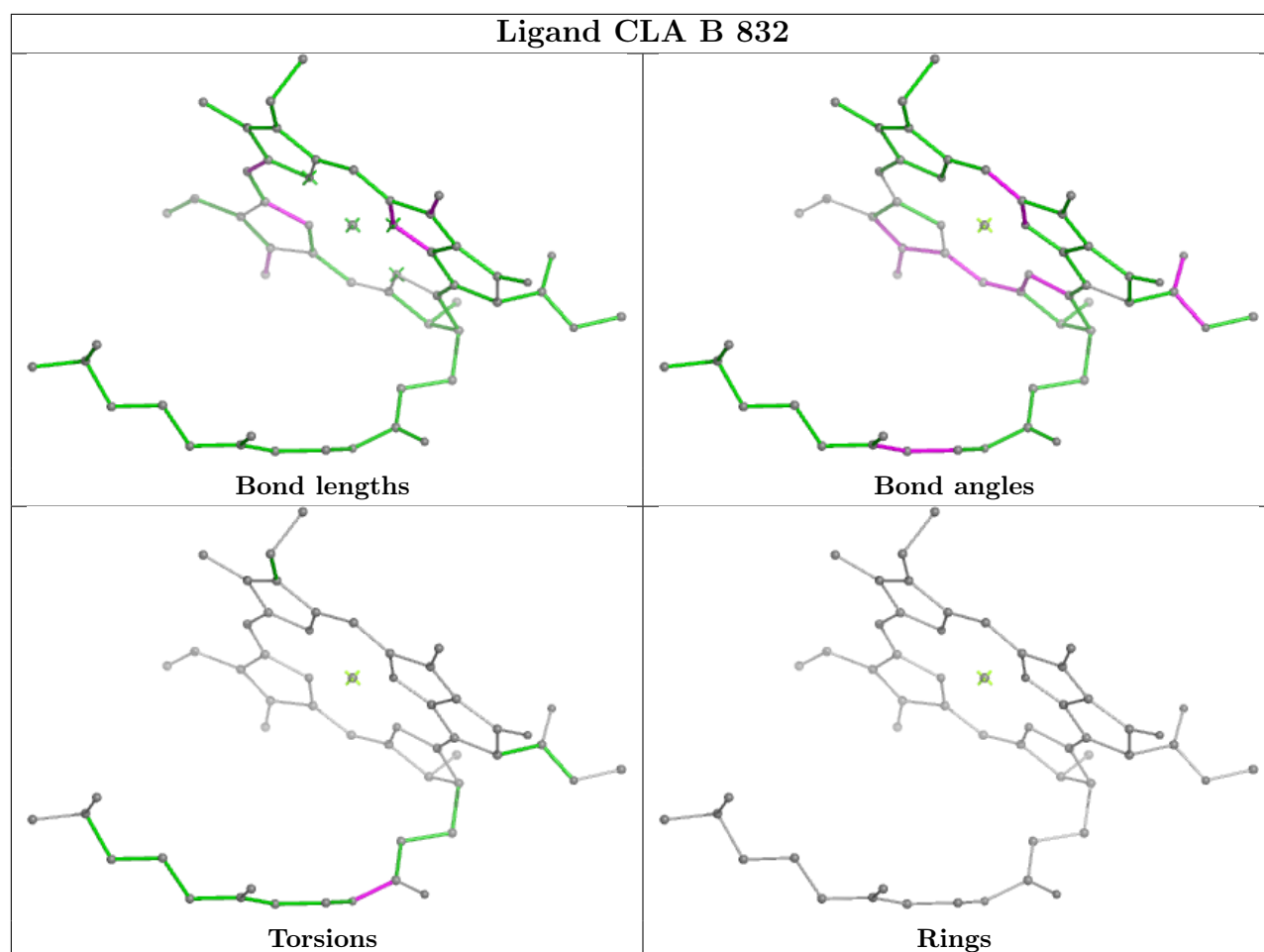


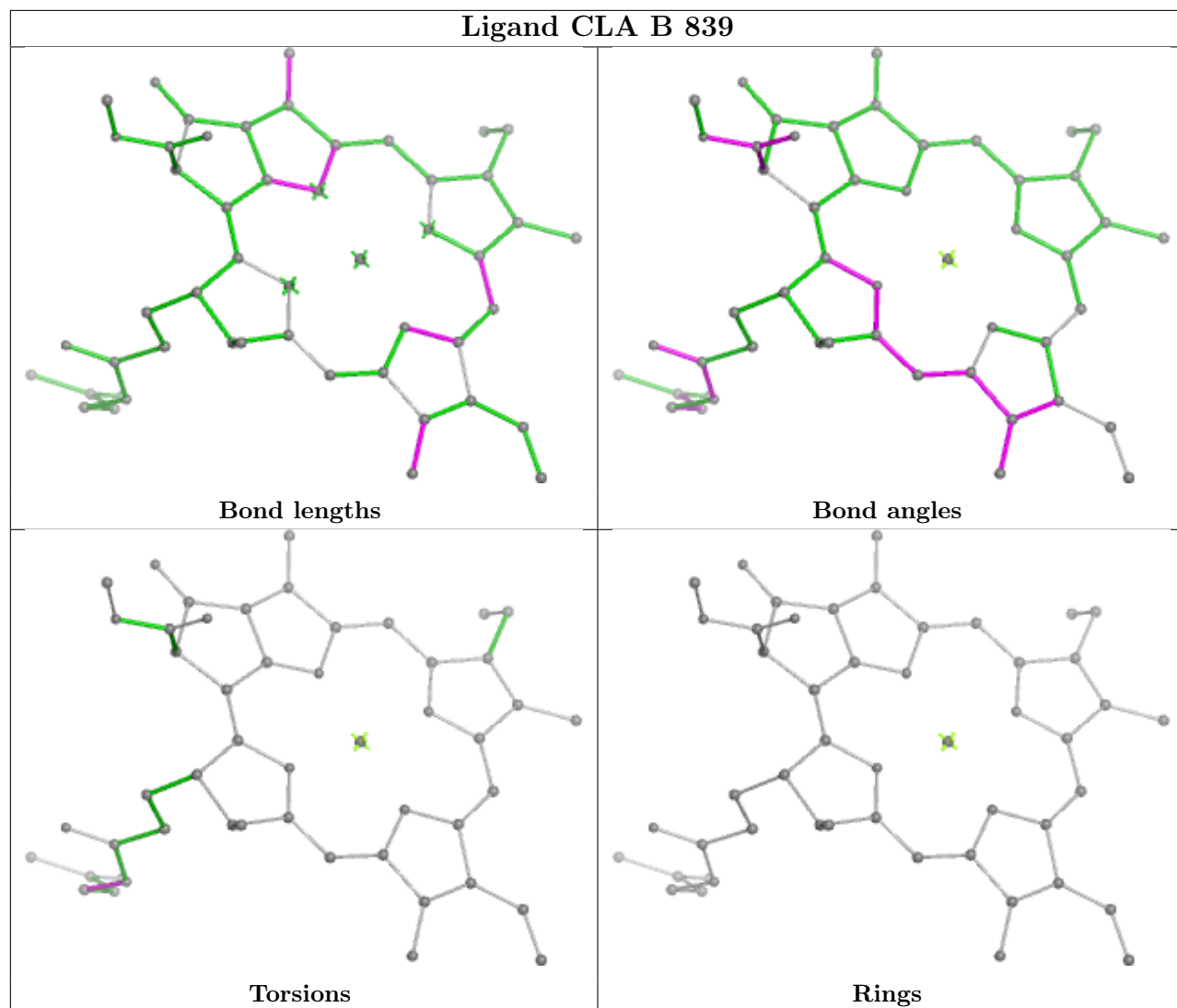


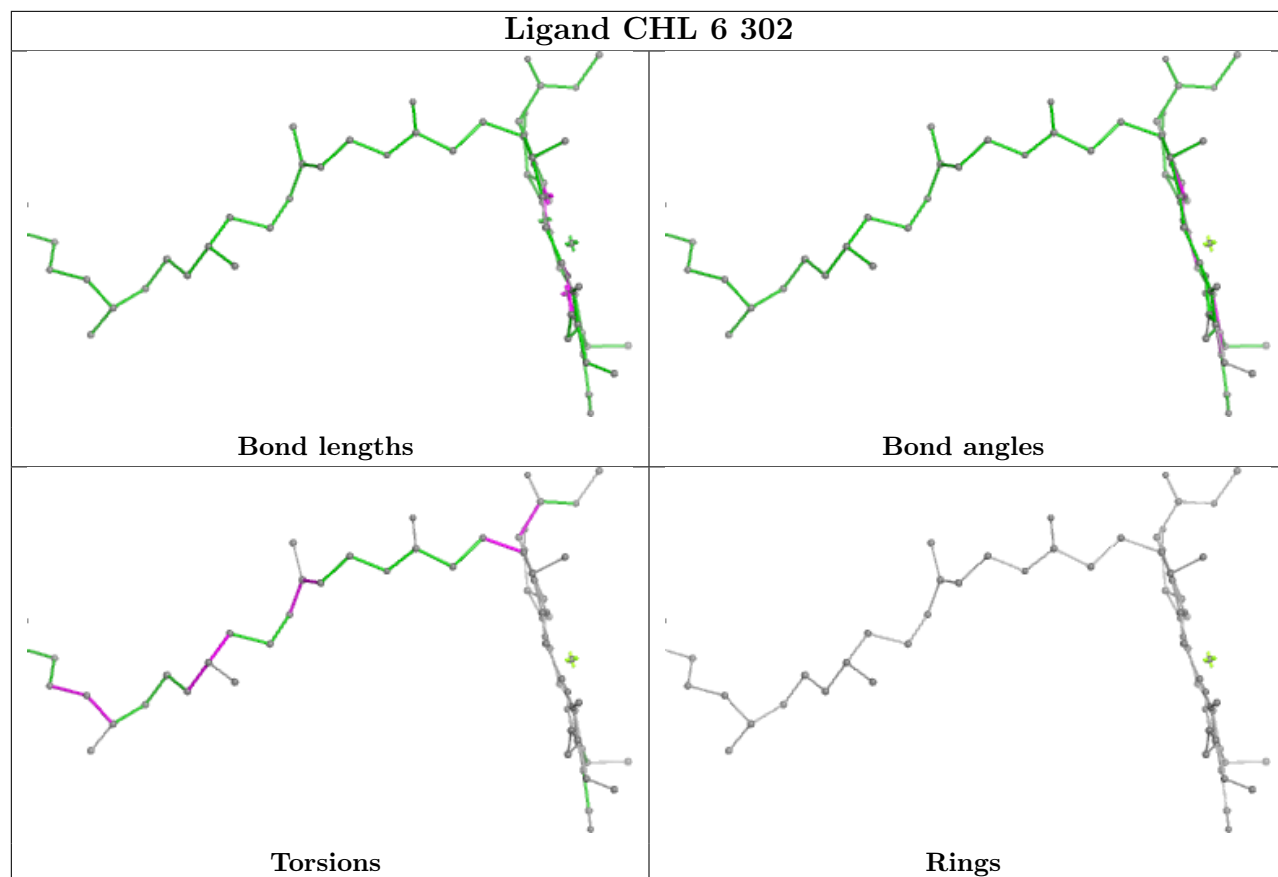


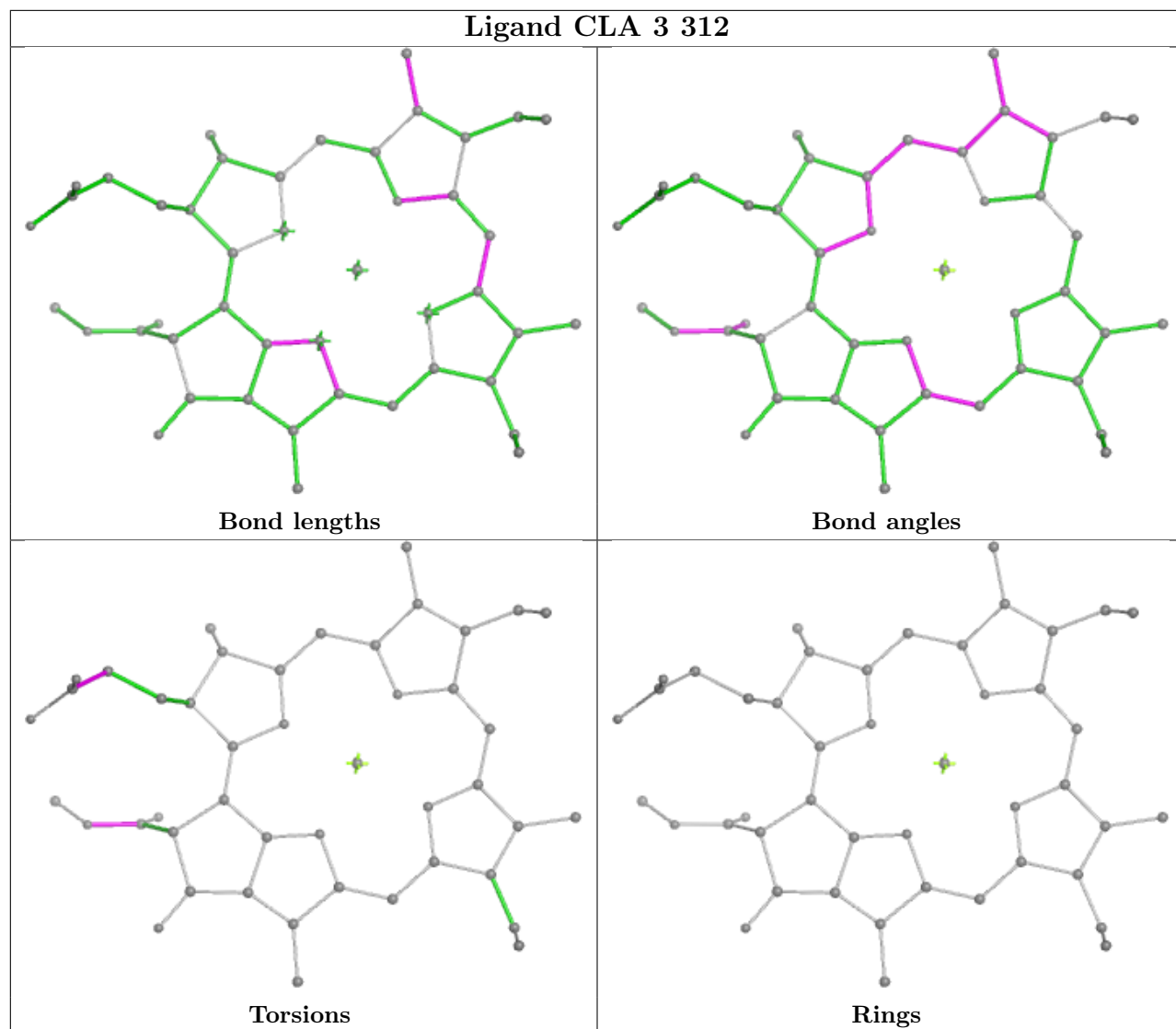


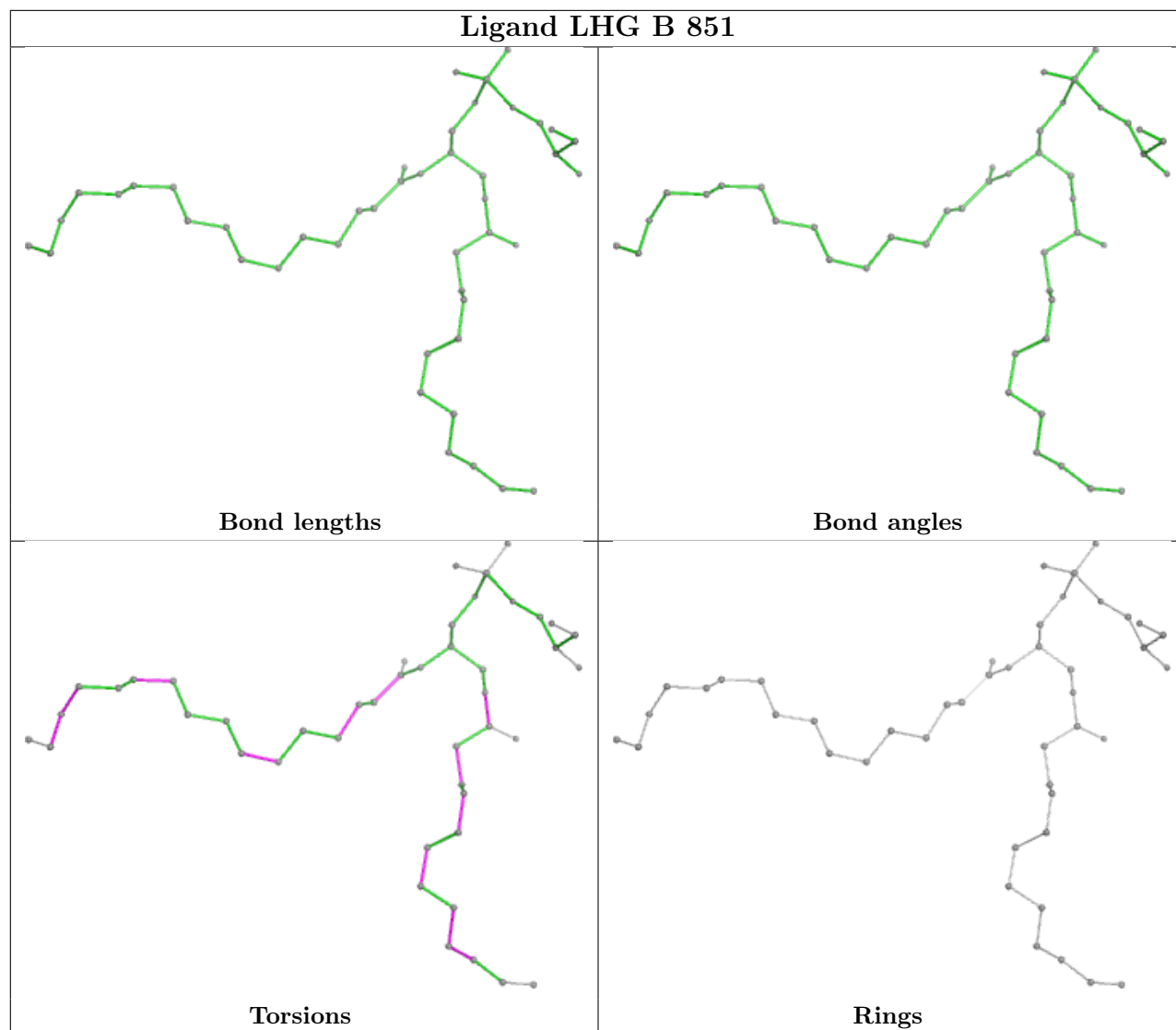


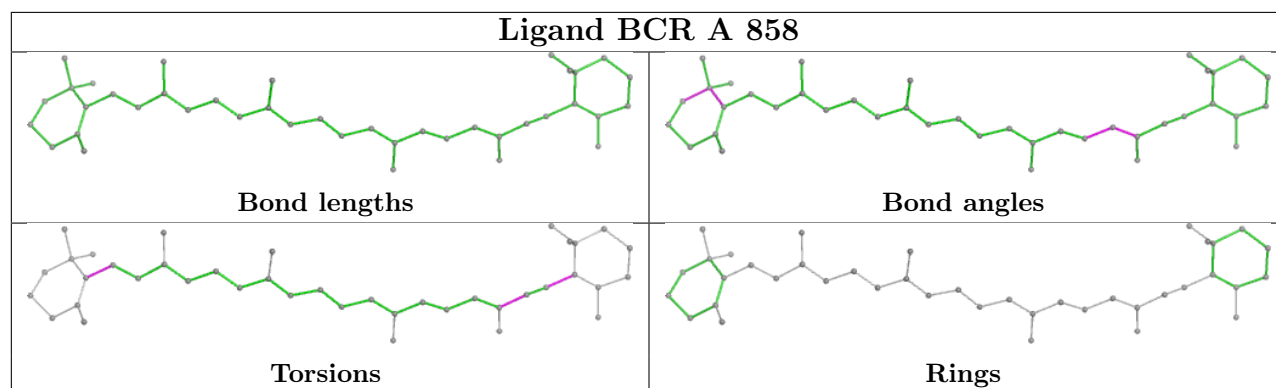
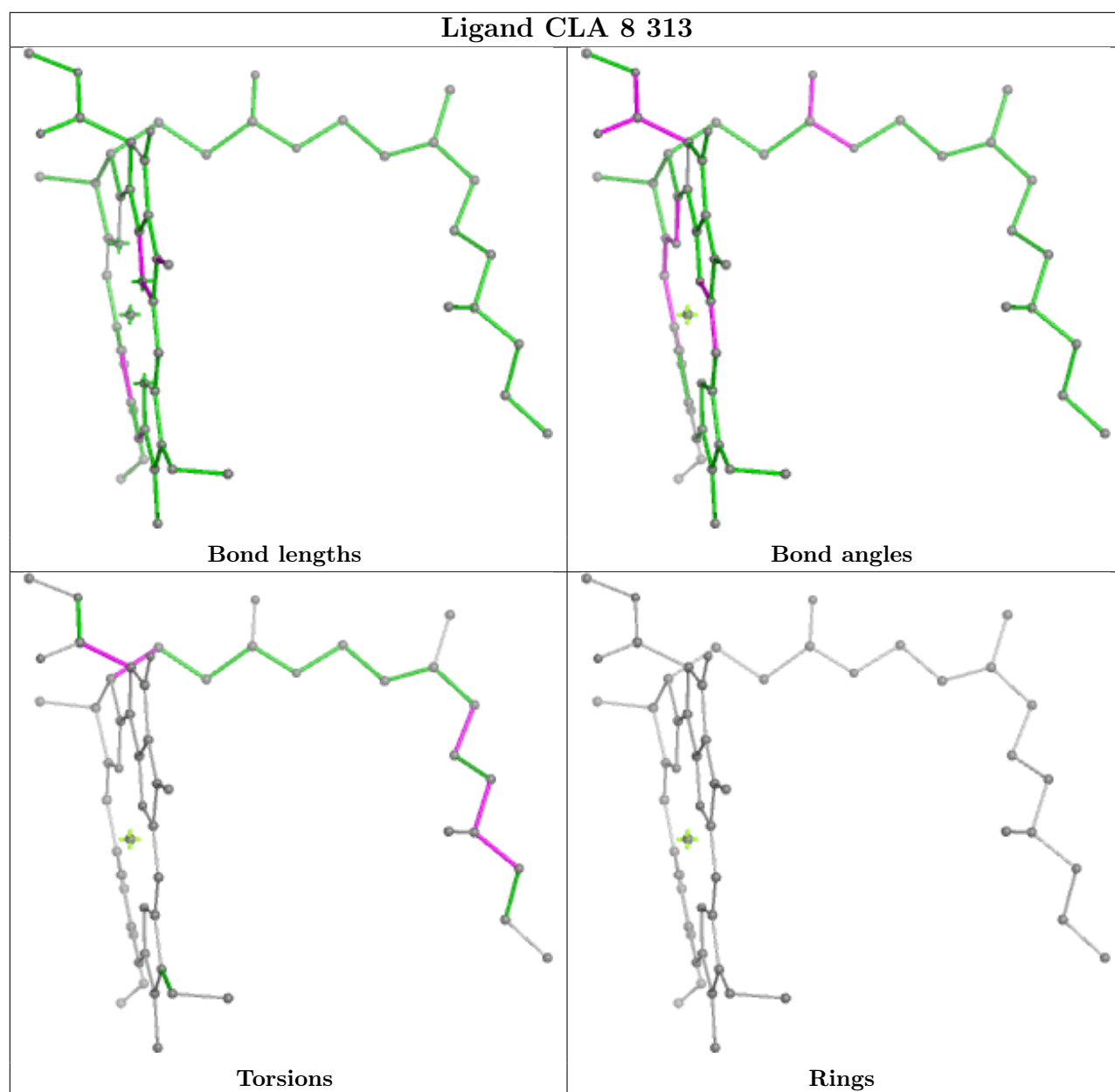


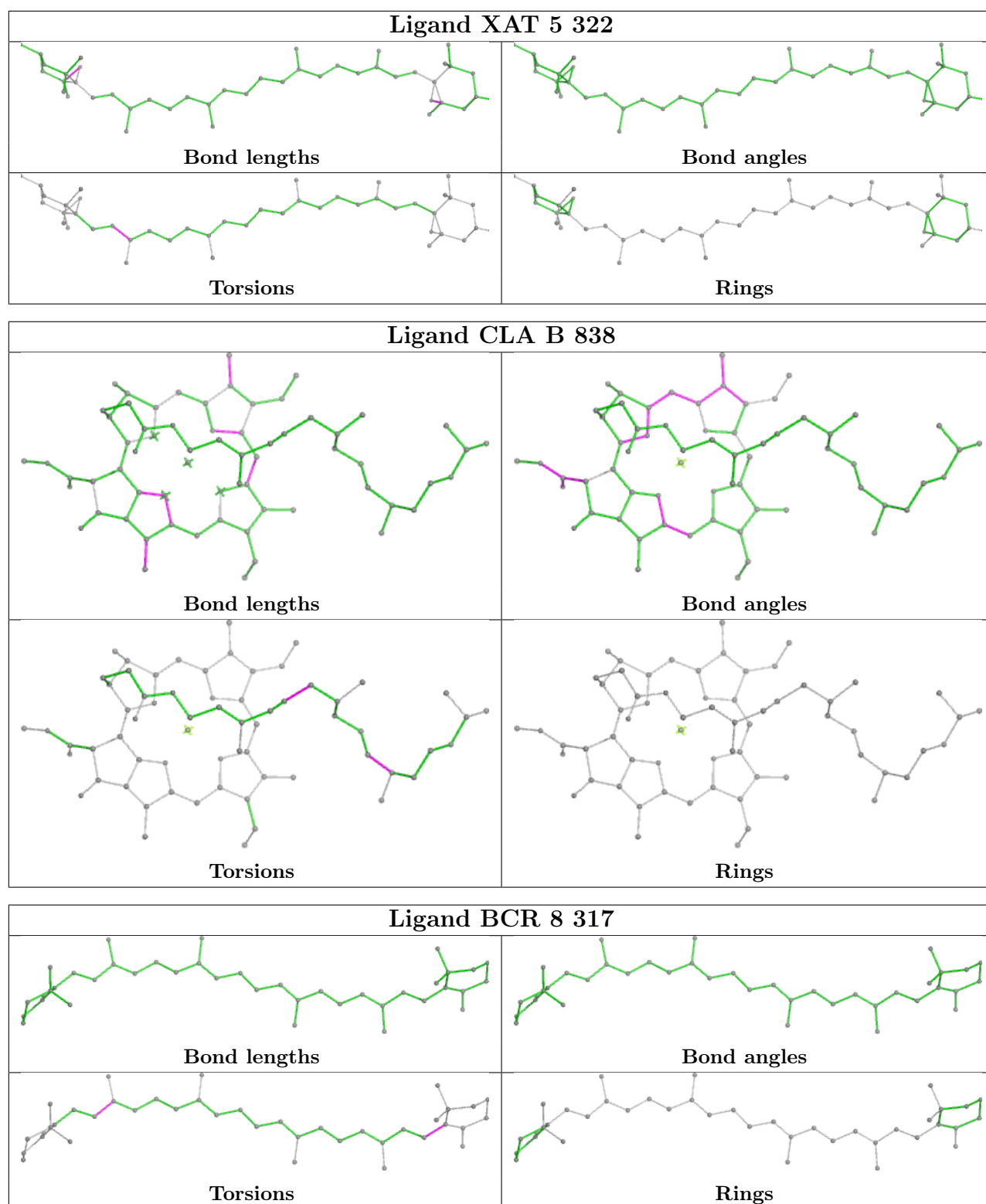


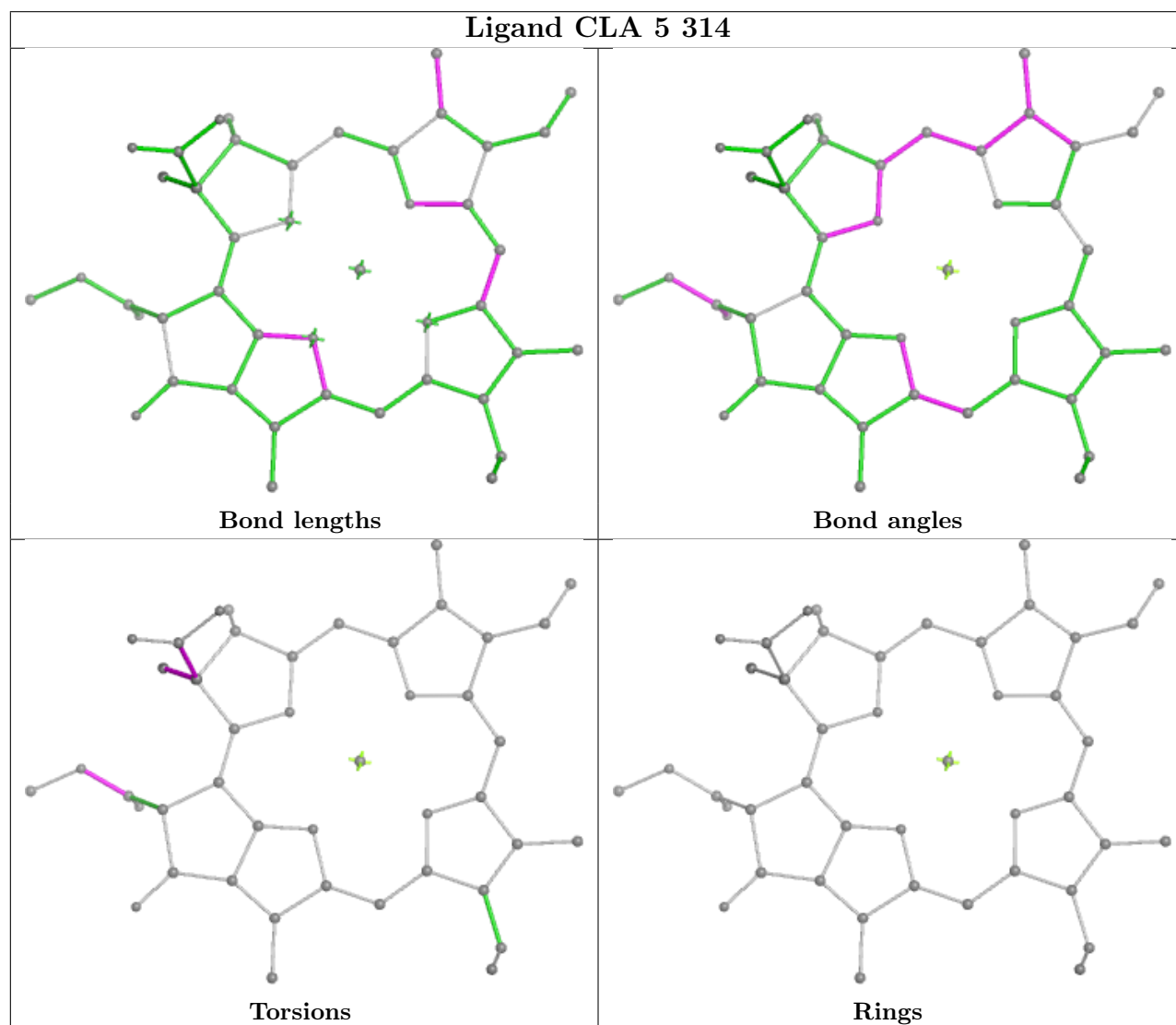
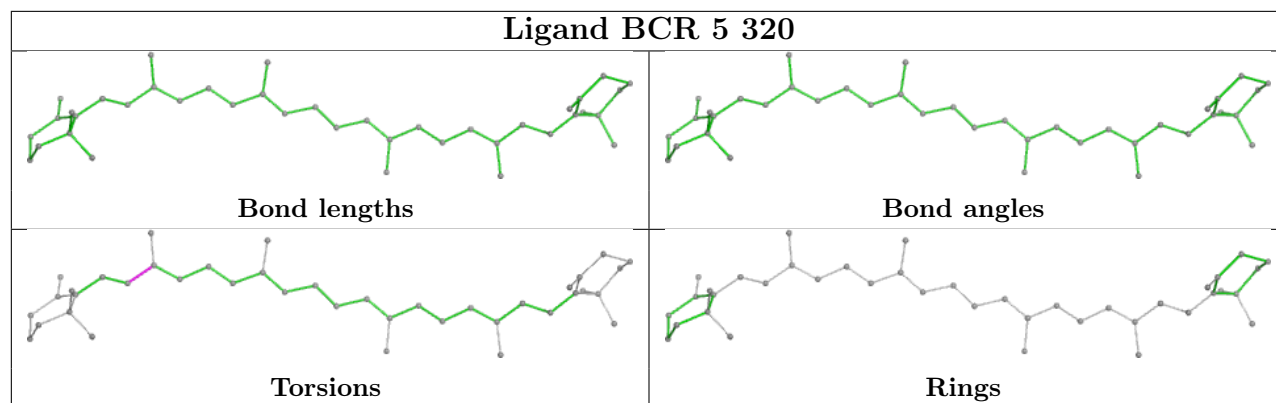


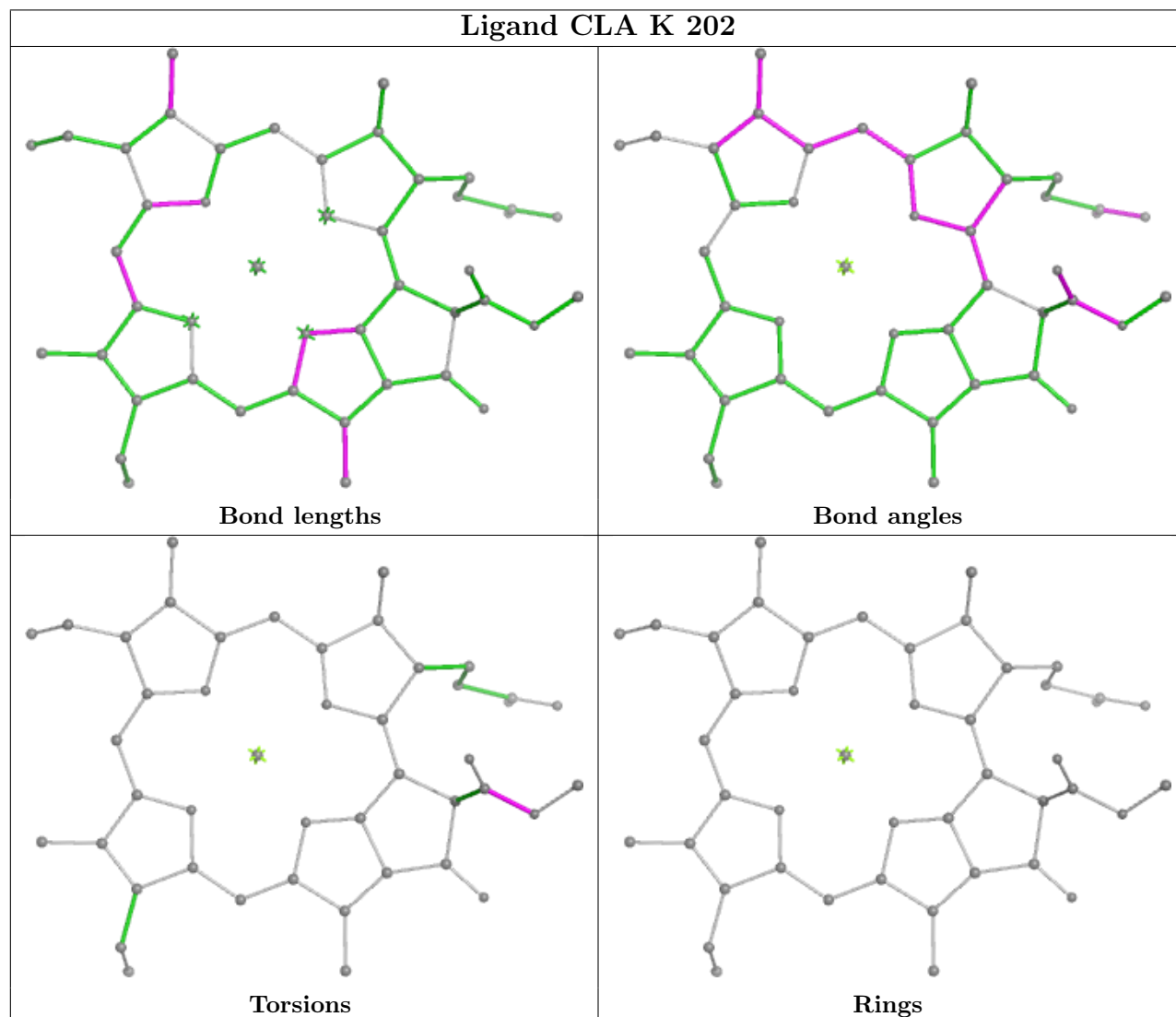
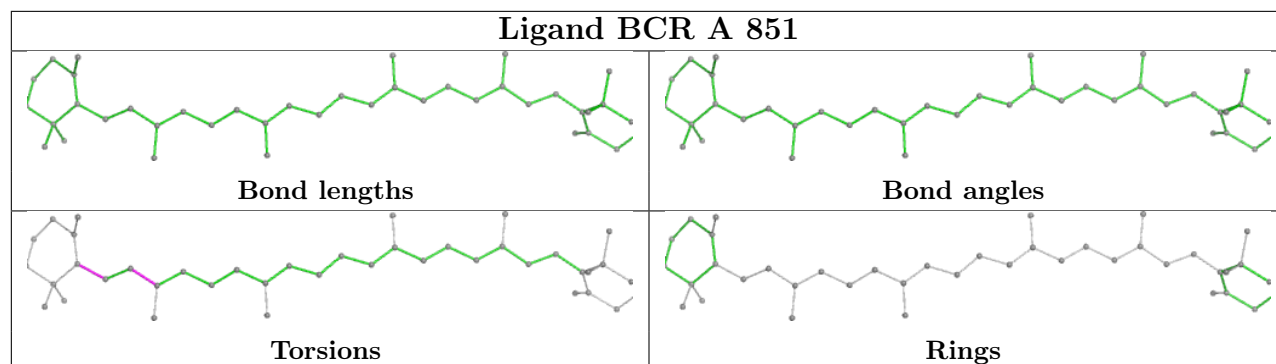


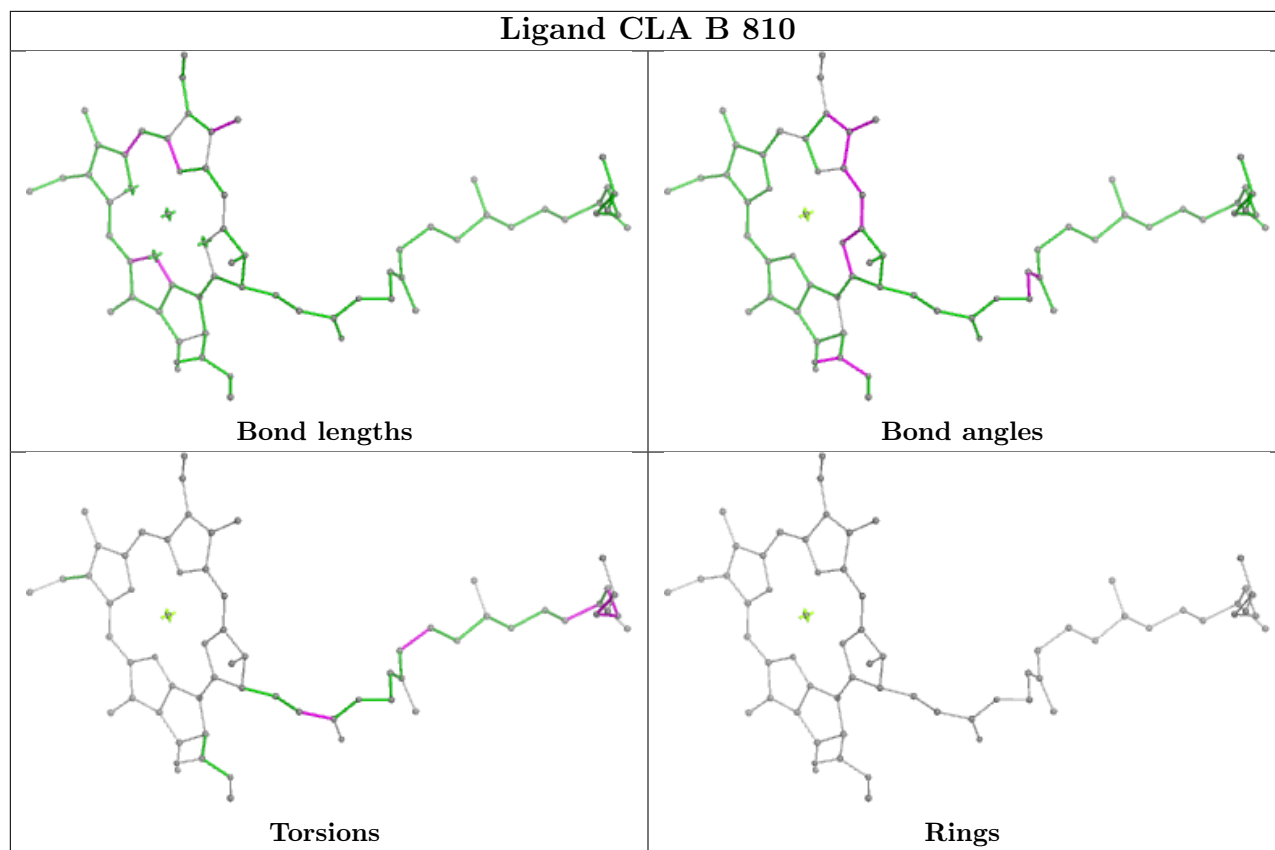












5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

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

The following chains have linkage breaks:

Mol	Chain	Number of breaks
18	L	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	L	142:SER	C	157:ALA	N	10.13

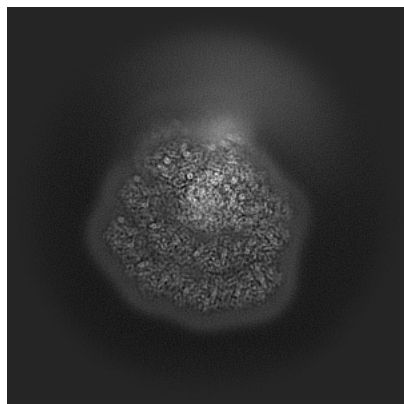
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-54803. These allow visual inspection of the internal detail of the map and identification of artifacts.

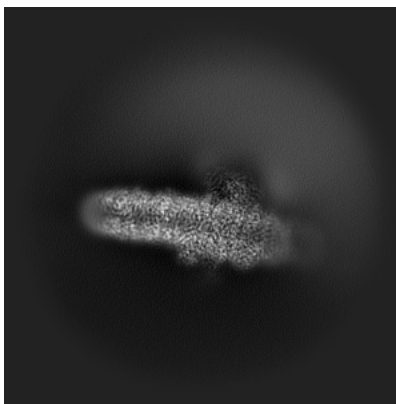
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

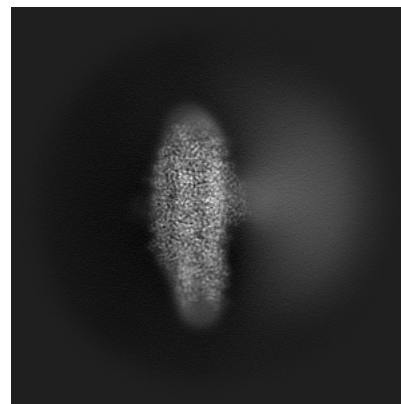
6.1.1 Primary map



X

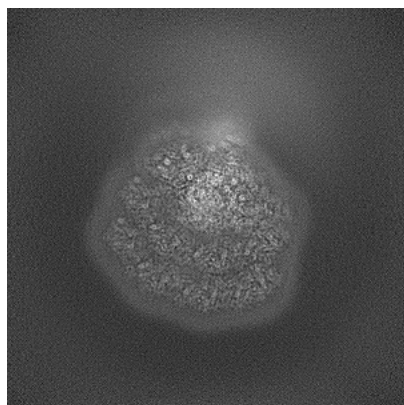


Y

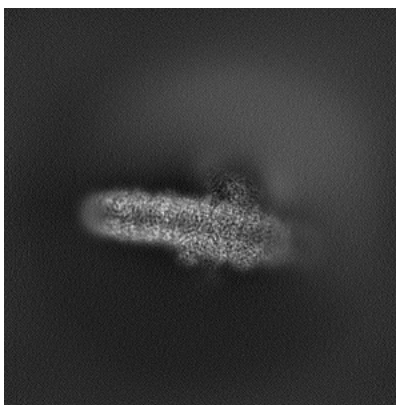


Z

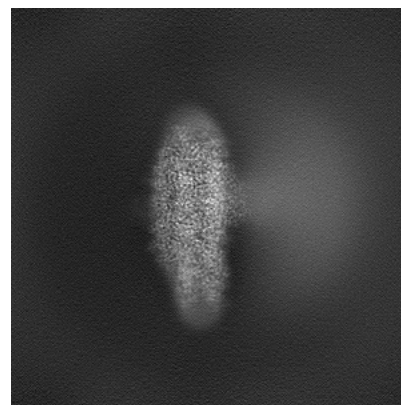
6.1.2 Raw map



X



Y

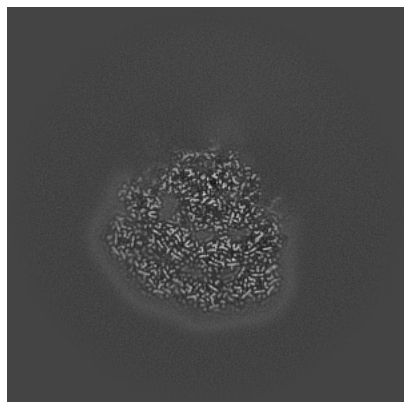


Z

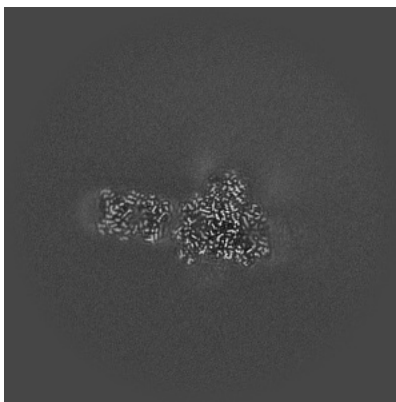
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

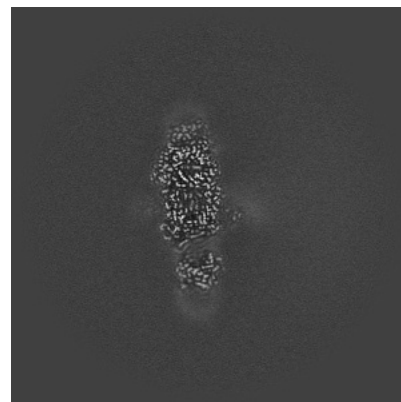
6.2.1 Primary map



X Index: 256

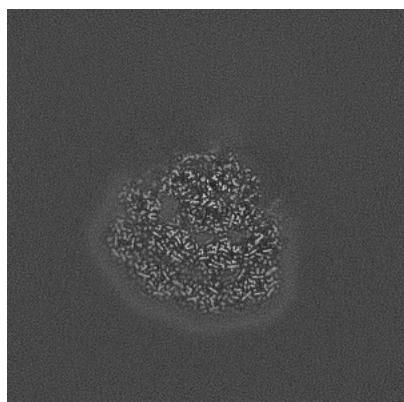


Y Index: 256

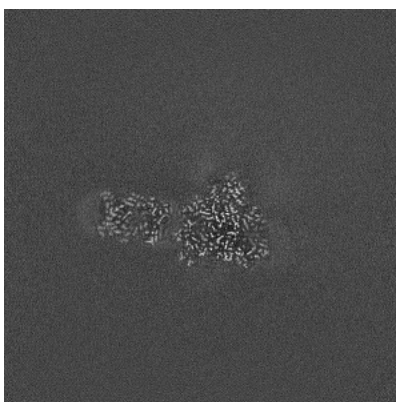


Z Index: 256

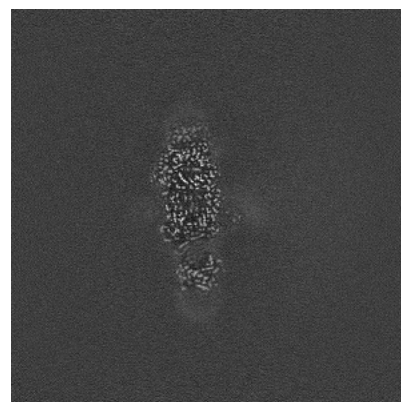
6.2.2 Raw map



X Index: 256



Y Index: 256

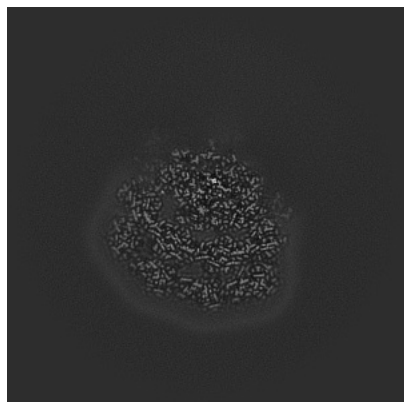


Z Index: 256

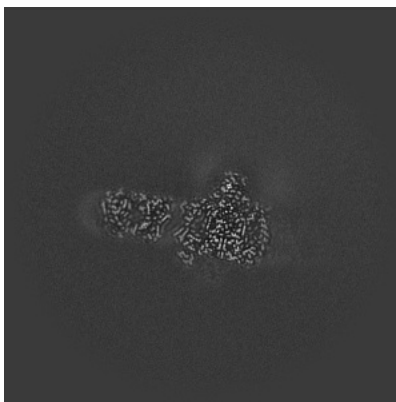
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

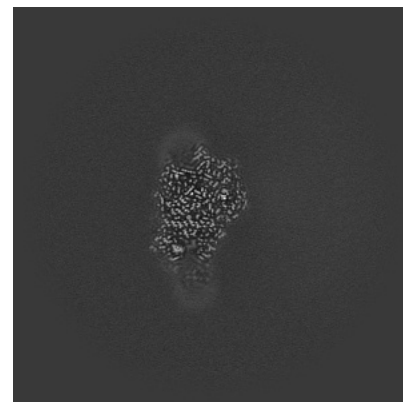
6.3.1 Primary map



X Index: 253

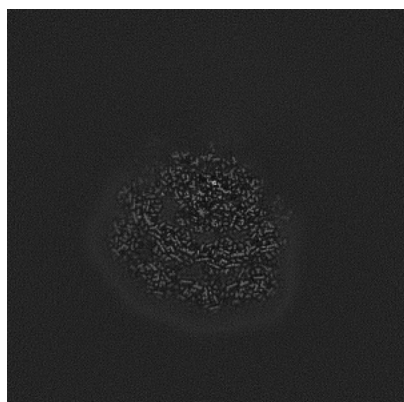


Y Index: 261

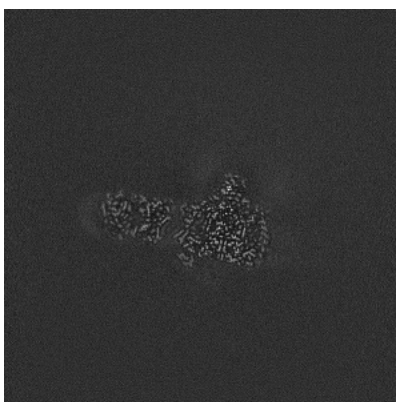


Z Index: 296

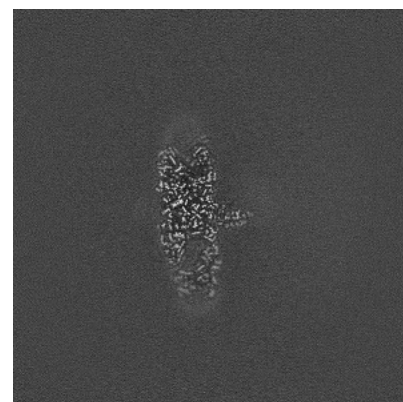
6.3.2 Raw map



X Index: 253



Y Index: 261

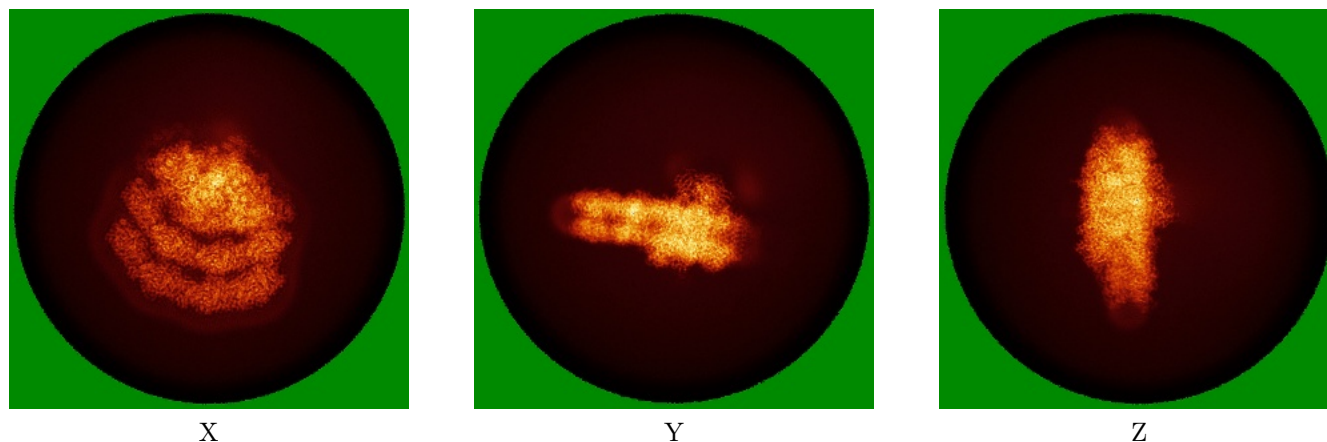


Z Index: 276

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

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

6.4.1 Primary map

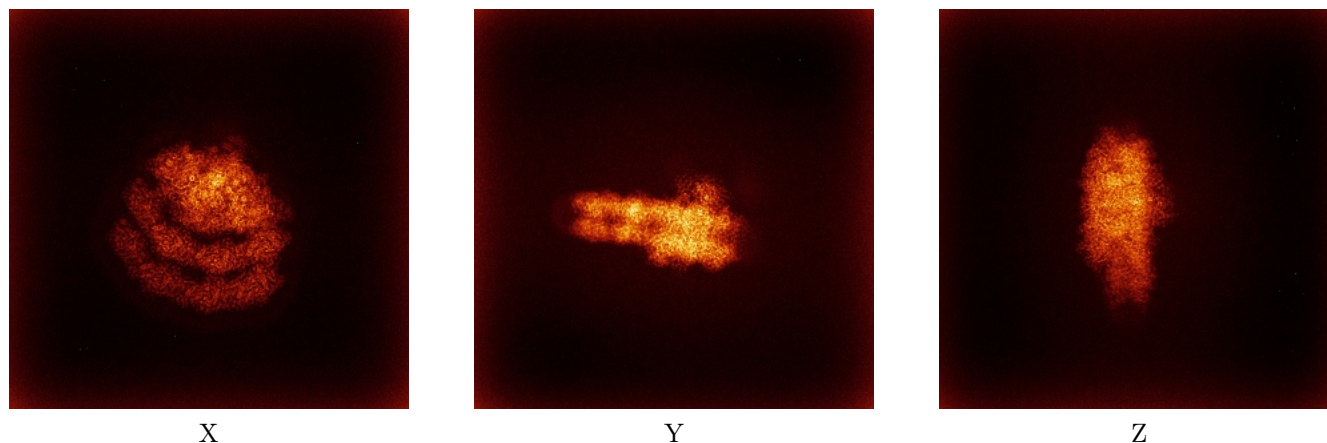


X

Y

Z

6.4.2 Raw map



X

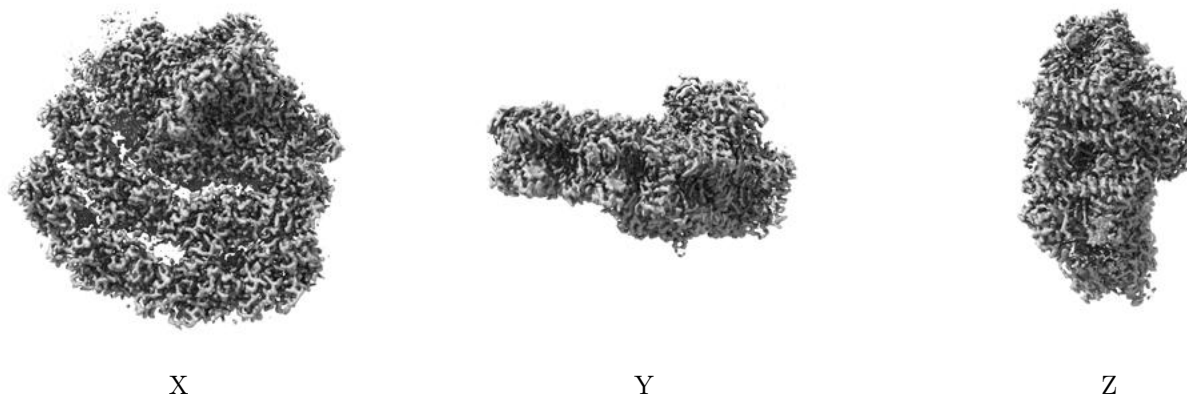
Y

Z

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

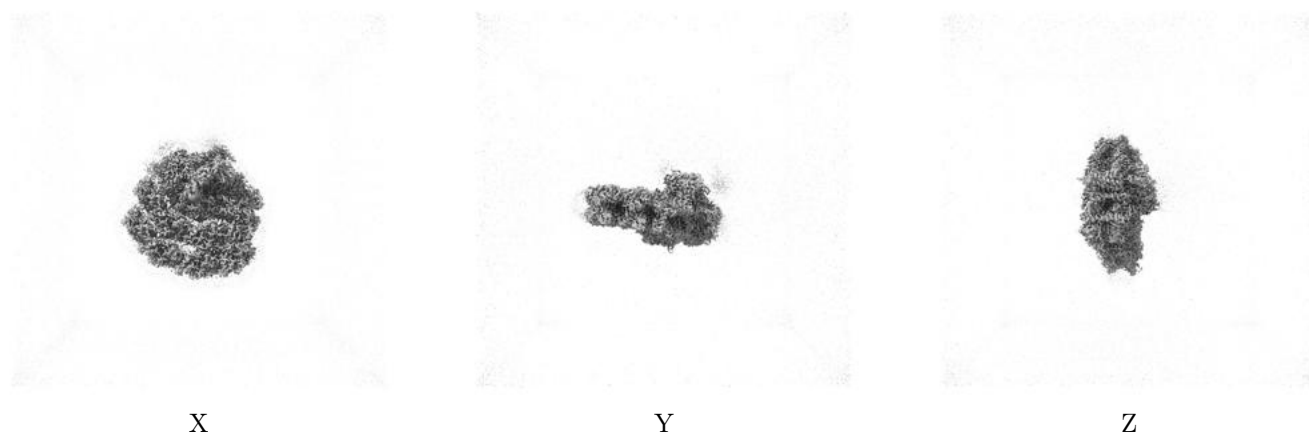
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.04. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

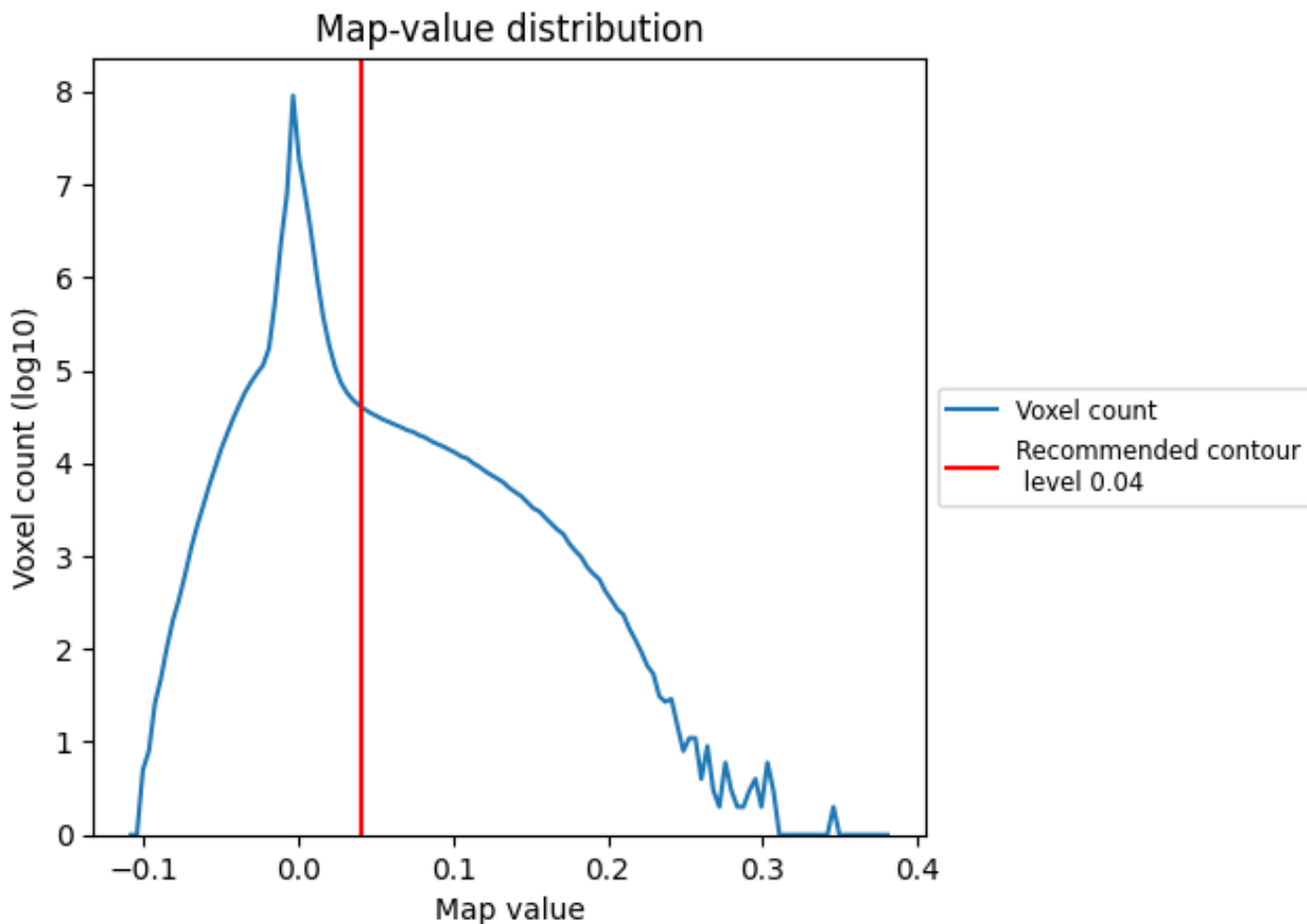
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

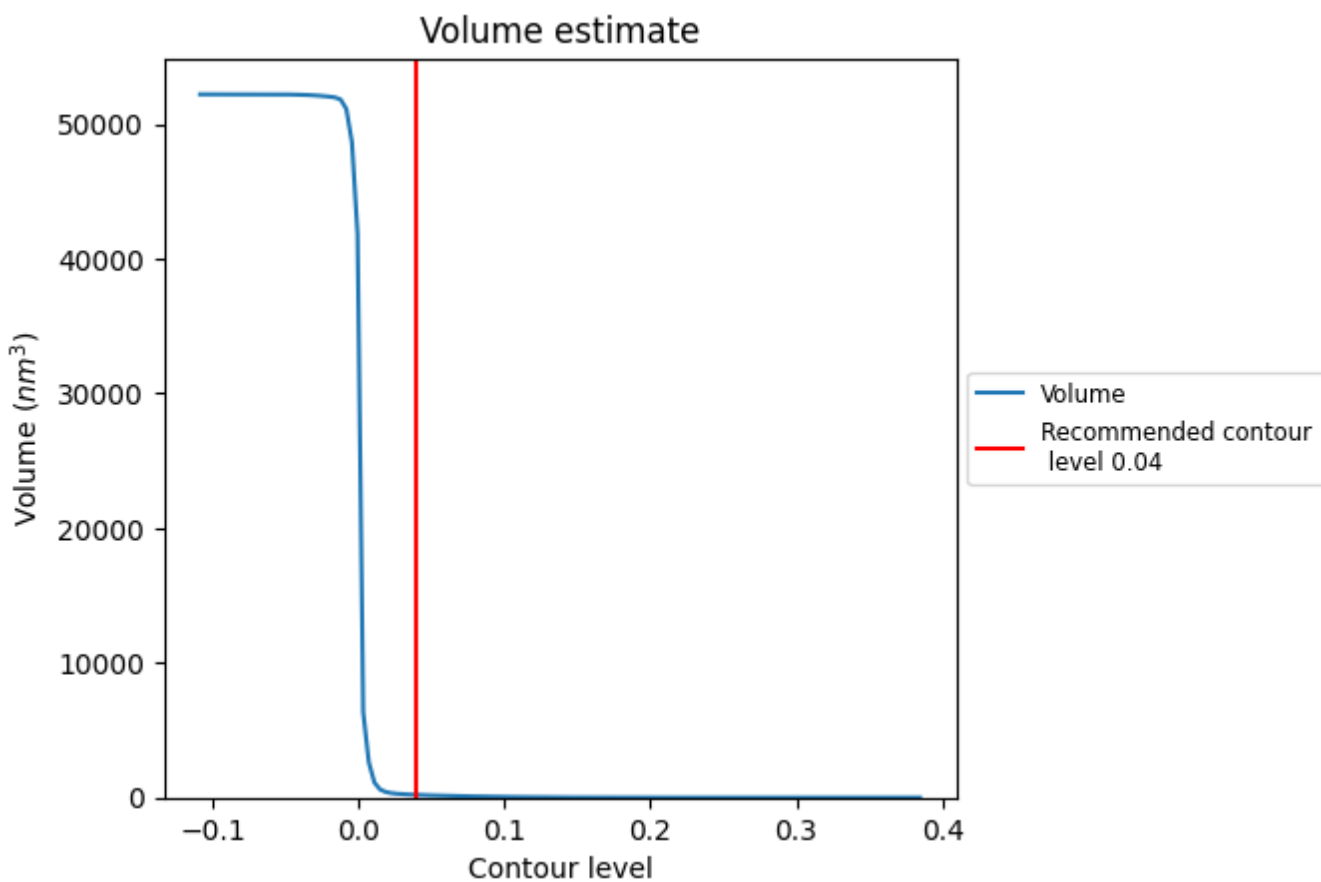
This section contains the results of statistical analysis of the map.

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.

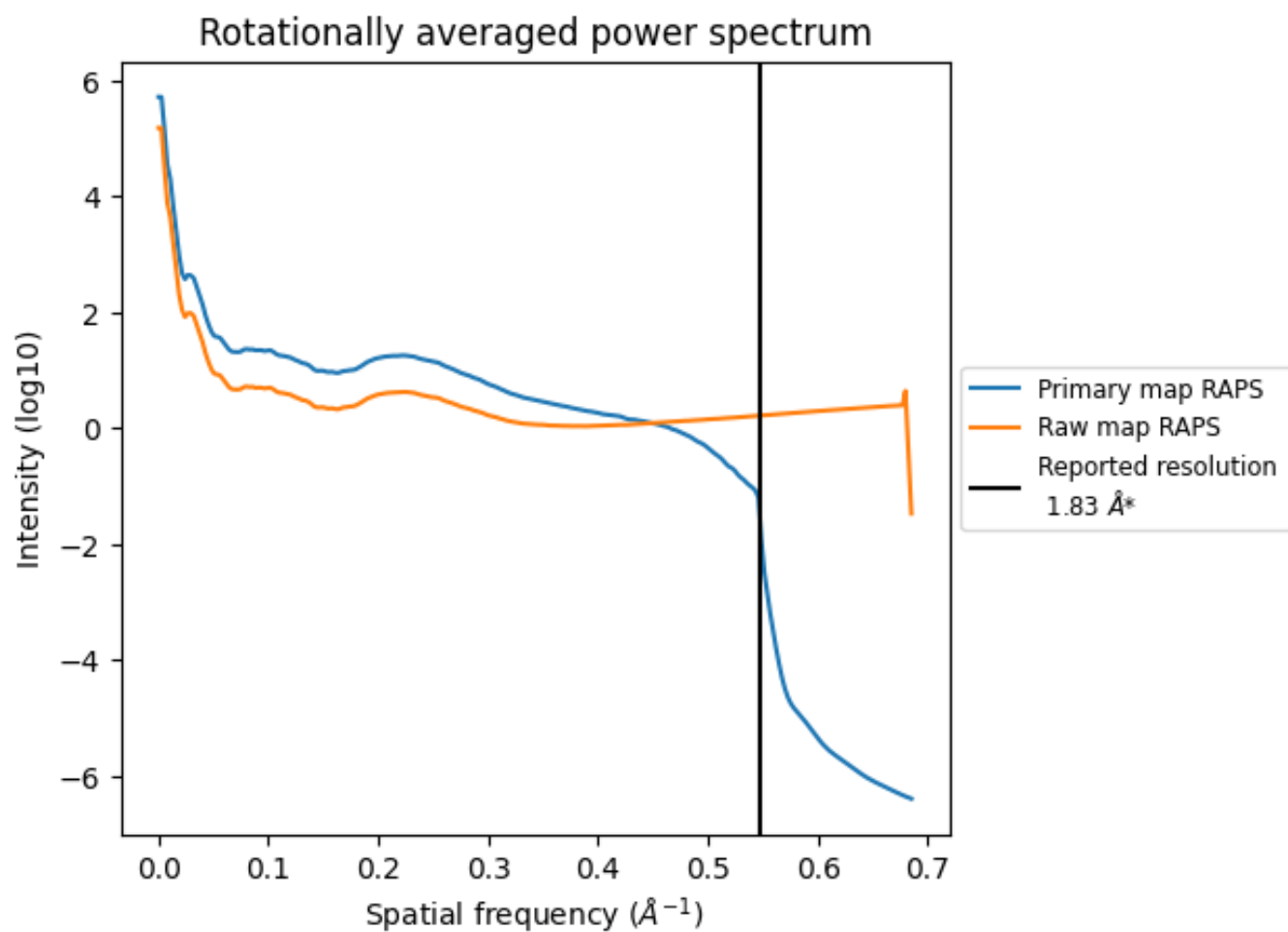
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 200 nm³; this corresponds to an approximate mass of 181 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

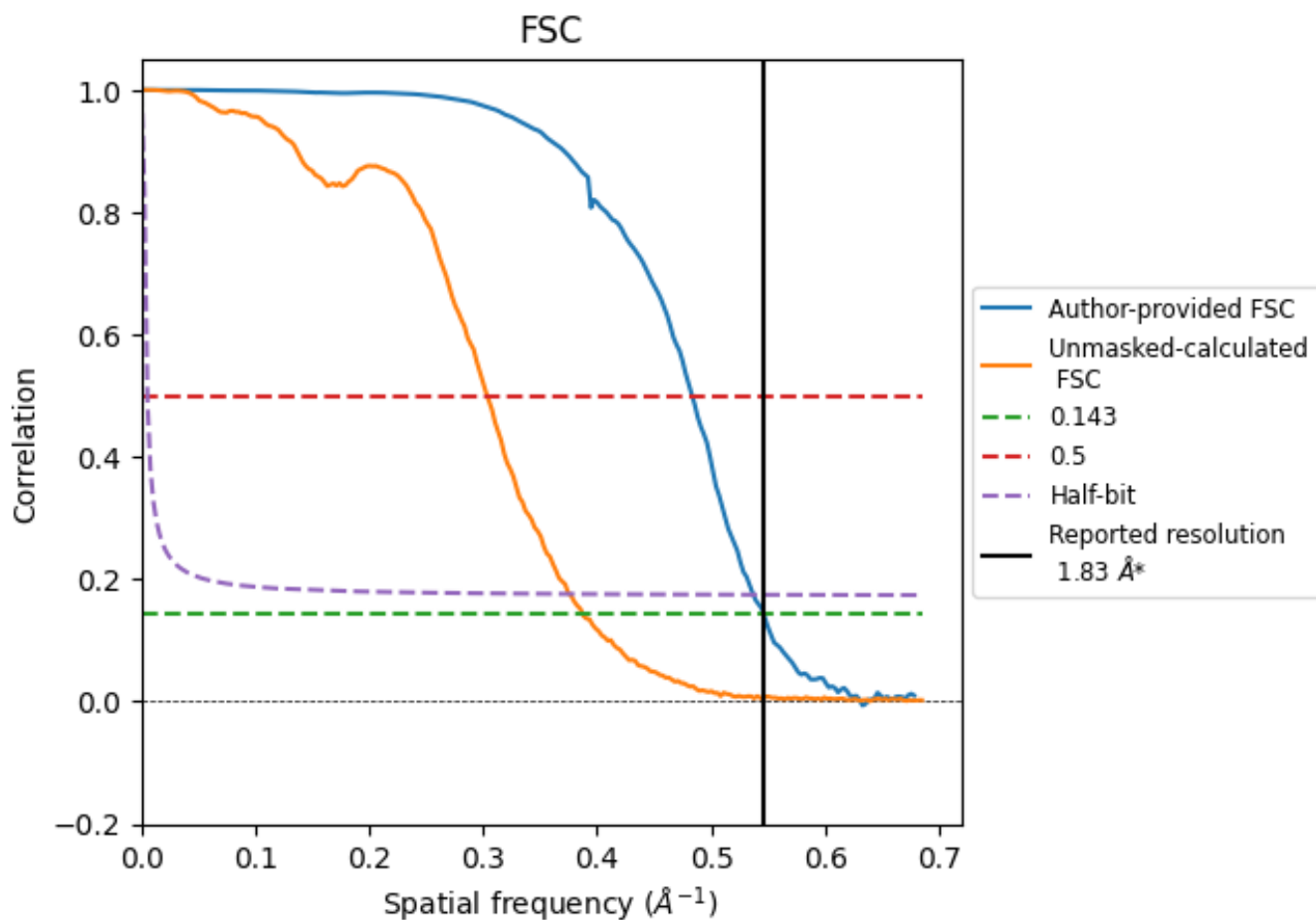


*Reported resolution corresponds to spatial frequency of 0.546 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.546 Å⁻¹

8.2 Resolution estimates [i](#)

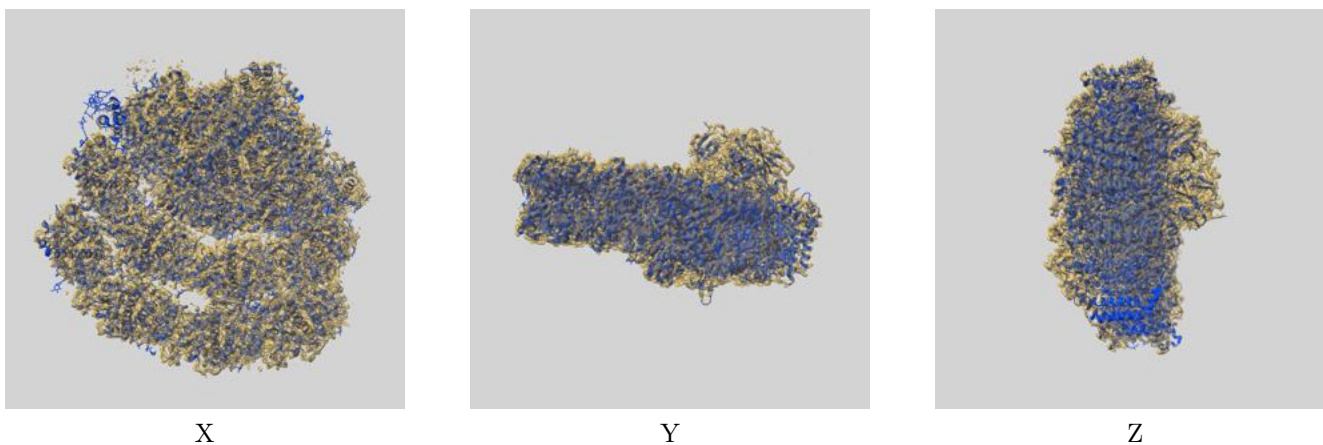
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	1.83	-	-
Author-provided FSC curve	1.83	2.07	1.86
Unmasked-calculated*	2.58	3.30	2.66

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 2.58 differs from the reported value 1.83 by more than 10 %

9 Map-model fit [i](#)

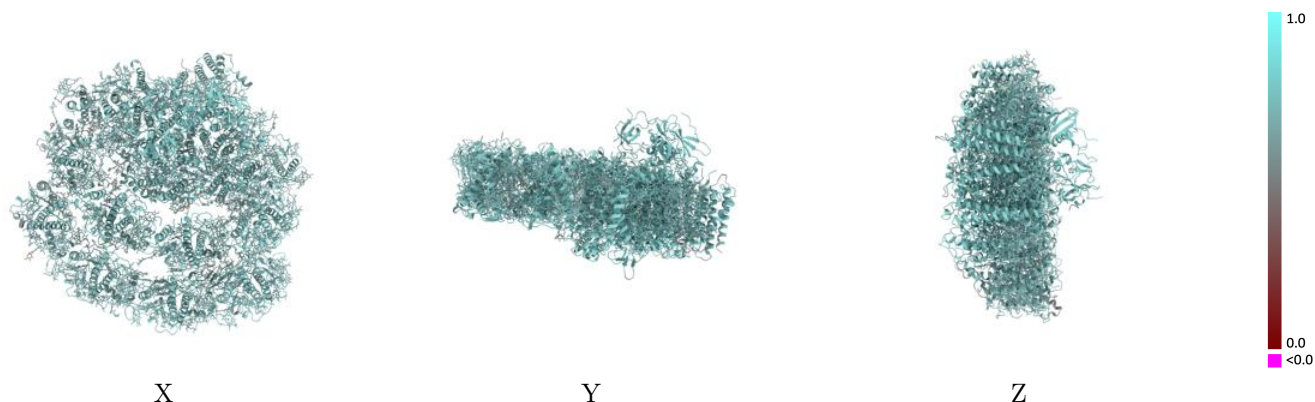
This section contains information regarding the fit between EMDB map EMD-54803 and PDB model 9SE6. Per-residue inclusion information can be found in section 3 on page 35.

9.1 Map-model overlay [i](#)



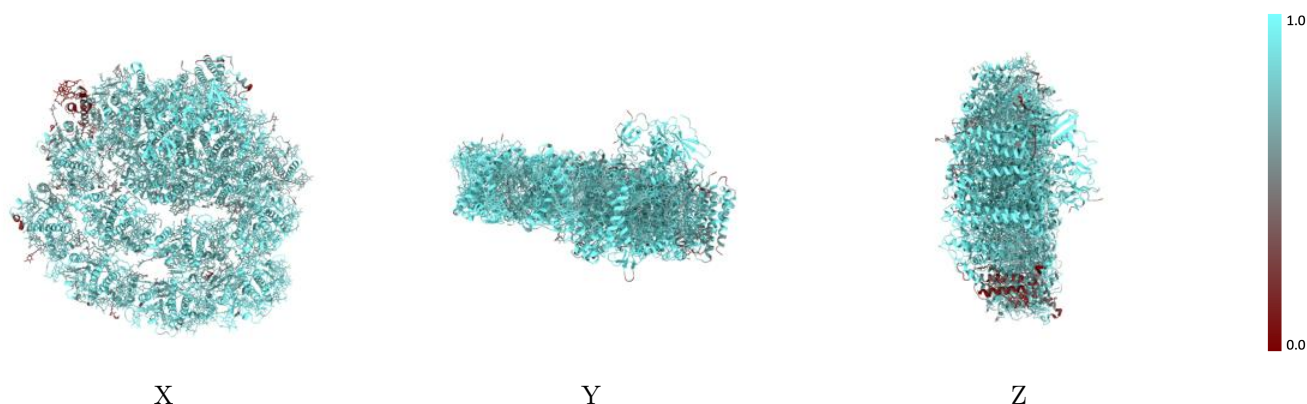
The images above show the 3D surface view of the map at the recommended contour level 0.04 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



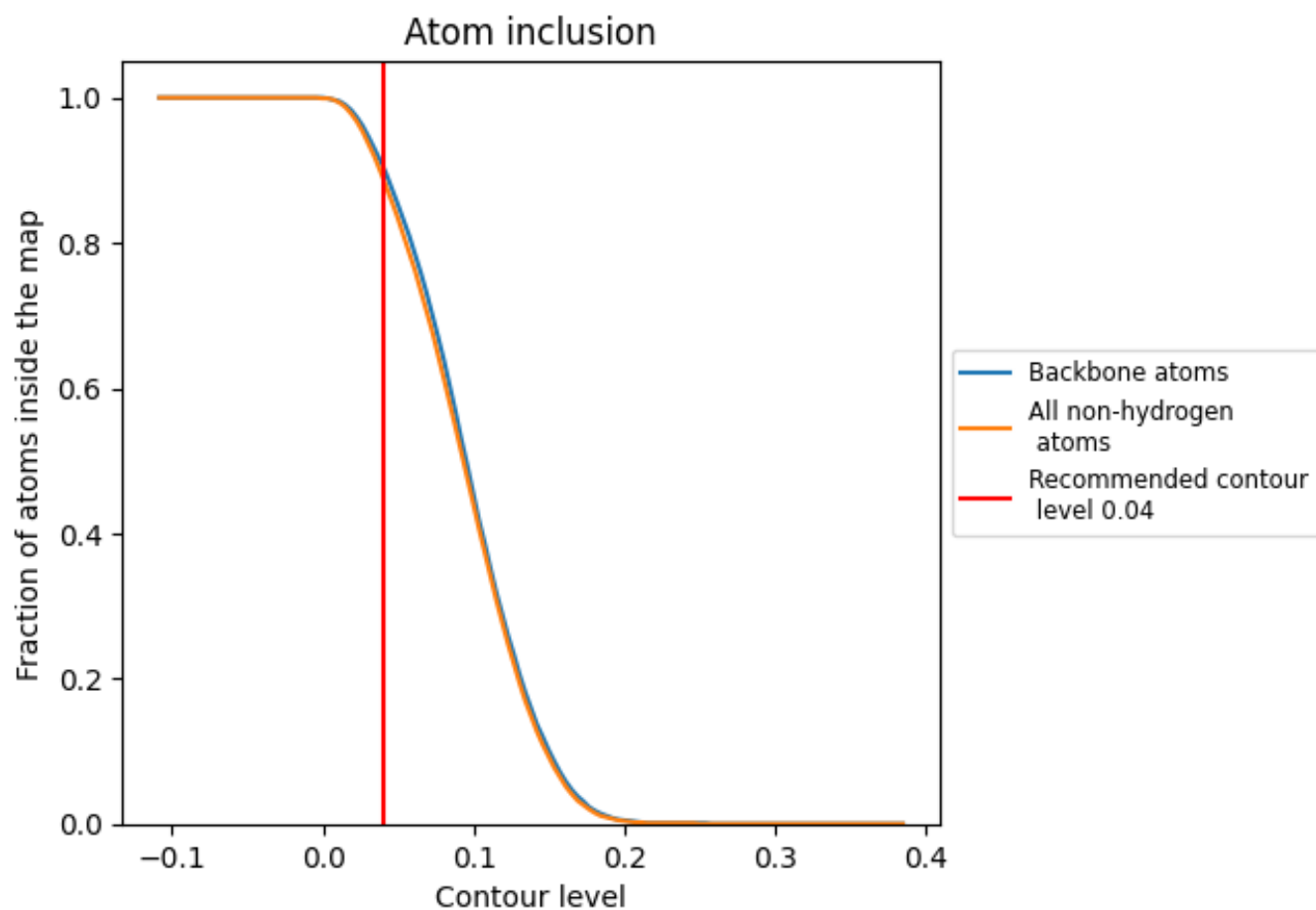
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.04).









































9.4 Atom inclusion [i](#)



At the recommended contour level, 90% of all backbone atoms, 89% 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 (0.04) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8890	 0.7200
1	 0.8090	 0.6830
3	 0.9120	 0.7230
4	 0.8430	 0.6810
5	 0.9080	 0.7020
6	 0.8810	 0.6960
7	 0.9240	 0.7300
8	 0.9120	 0.7250
A	 0.9490	 0.7540
B	 0.9300	 0.7430
C	 0.9820	 0.7630
D	 0.9240	 0.7400
E	 0.8900	 0.7250
F	 0.8920	 0.7270
G	 0.1770	 0.6260
I	 0.8650	 0.7140
J	 0.9100	 0.7350
K	 0.7540	 0.6890
L	 0.7230	 0.6770
Z	 0.7830	 0.6680

