



wwPDB EM Validation Summary Report ⓘ

Dec 8, 2025 – 02:53 pm GMT

PDB ID : 9H22 / pdb_00009h22
EMDB ID : EMD-51788
Title : Cryo EM structure of RC-dLH complex model II from Gemmatimonas groenlandica
Authors : Gardiner, A.T.; Jing, Y.; Bina, D.; Mujakic, I.; Gardian, Z.; Kaftan, D.; Joosten, M.; Jakobi, A.; Castro-Hartmann, P.; Qian, P.; Koblizek, M.
Deposited on : 2024-10-10
Resolution : 2.30 Å (reported)
Based on initial model : .

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:

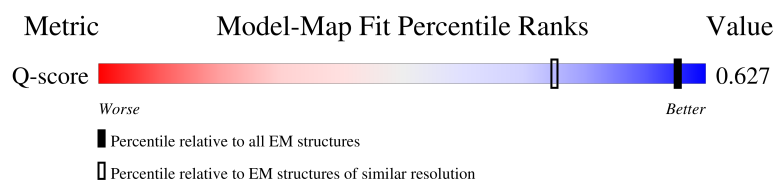
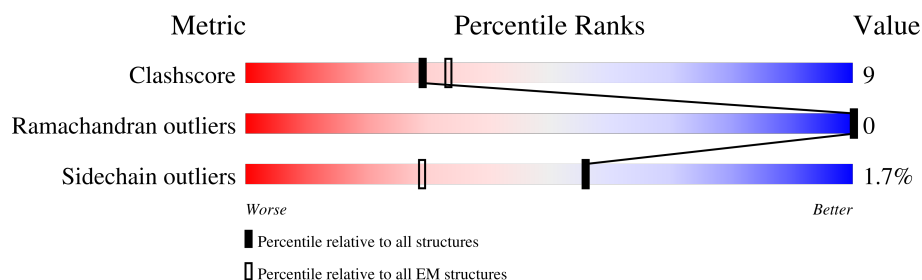
EMDB validation analysis : 0.0.1.dev129
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up 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) : 2.47

1 Overall quality at a glance

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

The reported resolution of this entry is 2.30 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
Q-score	-	25397	4254 (1.80 - 2.80)

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	S	204	
2	L	274	
3	M	392	

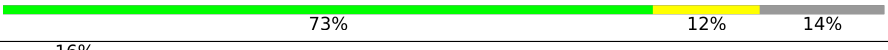
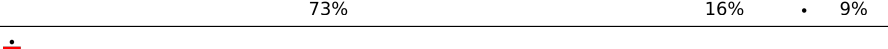
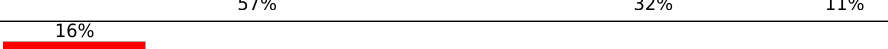
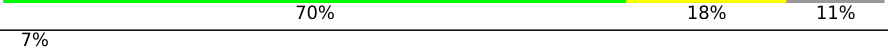
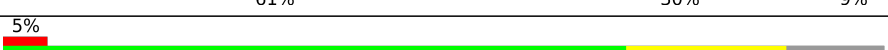
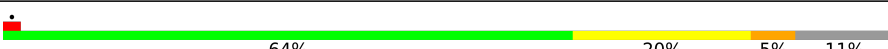
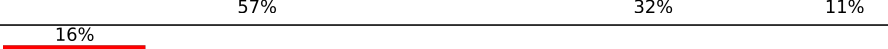
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Mol	Chain	Length	Quality of chain
4	H	66	
5	K	180	
6	C	373	
7	AA	56	
7	AB	56	
7	AC	56	
7	AD	56	
7	AE	56	
7	AF	56	
7	AG	56	
7	AH	56	
7	AI	56	
7	AJ	56	
7	AK	56	
7	AL	56	
7	AM	56	
7	AN	56	
7	AO	56	
7	AP	56	
7	AQ	56	
7	AR	56	
7	AS	56	
7	AT	56	
7	AU	56	
7	AV	56	

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Mol	Chain	Length	Quality of chain
7	AW	56	
7	AX	56	
8	BA	44	
8	BB	44	
8	BC	44	
8	BD	44	
8	BE	44	
8	BF	44	
8	BG	44	
8	BH	44	
8	BI	44	
8	BJ	44	
8	BK	44	
8	BL	44	
8	BM	44	
8	BN	44	
8	BO	44	
8	BP	44	
8	BQ	44	
8	BR	44	
8	BS	44	
8	BT	44	
8	BU	44	
8	BV	44	
8	BW	44	

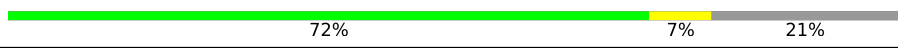
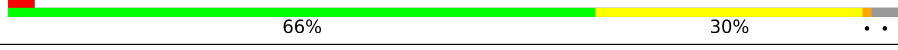
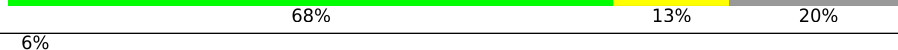
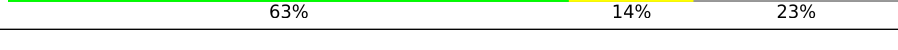
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Mol	Chain	Length	Quality of chain
8	BX	44	
8	Ba	44	
8	Bb	44	
8	Bc	44	
8	Bd	44	
8	Be	44	
8	Bf	44	
8	Bg	44	
8	Bh	44	
8	Bi	44	
8	Bj	44	
8	Bk	44	
8	Bl	44	
8	Bm	44	
8	Bn	44	
8	Bo	44	
8	Bp	44	
9	Aa	71	
9	Ab	71	
9	Ac	71	
9	Ad	71	
9	Ae	71	
9	Af	71	
9	Ag	71	
9	Ah	71	

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Mol	Chain	Length	Quality of chain
9	Ai	71	
9	Aj	71	
9	Ak	71	
9	Al	71	
9	Am	71	
9	An	71	
9	Ao	71	
9	Ap	71	

2 Entry composition

There are 20 unique types of molecules in this entry. The entry contains 49816 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 reaction centre S sub unit.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	S	103	Total	C	N	O	S	0	0
			800	498	150	148	4		

- Molecule 2 is a protein called Reaction center protein L chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	L	271	Total	C	N	O	S	0	0
			2134	1435	346	342	11		

- Molecule 3 is a protein called Reaction center protein M chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	M	335	Total	C	N	O	S	0	0
			2697	1789	441	457	10		

- Molecule 4 is a protein called reaction centre Ht su unit.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	H	60	Total	C	N	O	S	0	0
			510	338	85	85	2		

- Molecule 5 is a protein called reaction centre Hc sub unit.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	K	179	Total	C	N	O	S	0	0
			1373	873	231	262	7		

- Molecule 6 is a protein called Photosynthetic reaction center cytochrome c subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	C	298	Total	C	N	O	S	0	0
			2330	1463	421	429	17		

- Molecule 7 is a protein called Light-harvesting protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	AA	48	Total	C	N	O	S	0	0
			391	262	65	60	4		
7	AB	48	Total	C	N	O	S	0	0
			391	262	65	60	4		
7	AC	48	Total	C	N	O	S	0	0
			391	262	65	60	4		
7	AD	49	Total	C	N	O	S	0	0
			400	267	67	62	4		
7	AE	49	Total	C	N	O	S	0	0
			400	267	67	62	4		
7	AF	49	Total	C	N	O	S	0	0
			400	267	67	62	4		
7	AG	49	Total	C	N	O	S	0	0
			400	267	67	62	4		
7	AH	49	Total	C	N	O	S	0	0
			400	267	67	62	4		
7	AI	49	Total	C	N	O	S	0	0
			400	267	67	62	4		
7	AJ	48	Total	C	N	O	S	0	0
			391	262	65	60	4		
7	AK	48	Total	C	N	O	S	0	0
			392	262	66	61	3		
7	AL	48	Total	C	N	O	S	0	0
			391	262	65	60	4		
7	AM	49	Total	C	N	O	S	0	0
			400	267	67	62	4		
7	AN	48	Total	C	N	O	S	0	0
			392	262	66	61	3		
7	AO	48	Total	C	N	O	S	0	0
			391	262	65	60	4		
7	AP	48	Total	C	N	O	S	0	0
			391	262	65	60	4		
7	AQ	49	Total	C	N	O	S	0	0
			400	267	67	62	4		
7	AR	48	Total	C	N	O	S	0	0
			391	262	65	60	4		
7	AS	49	Total	C	N	O	S	0	0
			400	267	67	62	4		
7	AT	48	Total	C	N	O	S	0	0
			392	262	66	61	3		
7	AU	48	Total	C	N	O	S	0	0
			392	262	66	61	3		

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Mol	Chain	Residues	Atoms					AltConf	Trace
7	AV	48	Total	C	N	O	S	0	0
			391	262	65	60	4		
7	AW	49	Total	C	N	O	S	0	0
			400	267	67	62	4		
7	AX	48	Total	C	N	O	S	0	0
			391	262	65	60	4		

- Molecule 8 is a protein called Light-harvesting protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	BA	40	Total	C	N	O	S	0	0
			332	222	57	52	1		
8	BB	39	Total	C	N	O	S	0	0
			328	220	56	51	1		
8	BC	40	Total	C	N	O	S	0	0
			332	222	57	52	1		
8	BD	40	Total	C	N	O	S	0	0
			332	222	57	52	1		
8	BE	38	Total	C	N	O	S	0	0
			324	218	55	50	1		
8	BF	39	Total	C	N	O	S	0	0
			328	220	56	51	1		
8	BG	39	Total	C	N	O	S	0	0
			328	220	56	51	1		
8	BH	39	Total	C	N	O	S	0	0
			328	220	56	51	1		
8	BI	38	Total	C	N	O	S	0	0
			324	218	55	50	1		
8	BJ	40	Total	C	N	O	S	0	0
			332	222	57	52	1		
8	BK	39	Total	C	N	O	S	0	0
			328	220	56	51	1		
8	BL	39	Total	C	N	O	S	0	0
			328	220	56	51	1		
8	BM	40	Total	C	N	O	S	0	0
			332	222	57	52	1		
8	BN	39	Total	C	N	O	S	0	0
			328	220	56	51	1		
8	BO	39	Total	C	N	O	S	0	0
			328	220	56	51	1		
8	BP	40	Total	C	N	O	S	0	0
			332	222	57	52	1		

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Mol	Chain	Residues	Atoms					AltConf	Trace
8	BQ	39	Total	C	N	O	S	0	0
			328	220	56	51	1		
8	BR	39	Total	C	N	O	S	0	0
			328	220	56	51	1		
8	BS	39	Total	C	N	O	S	0	0
			328	220	56	51	1		
8	BT	39	Total	C	N	O	S	0	0
			328	220	56	51	1		
8	BU	39	Total	C	N	O	S	0	0
			328	220	56	51	1		
8	BV	41	Total	C	N	O	S	0	0
			341	228	59	53	1		
8	BW	40	Total	C	N	O	S	0	0
			332	222	57	52	1		
8	BX	40	Total	C	N	O	S	0	0
			332	222	57	52	1		
8	Ba	38	Total	C	N	O	S	0	0
			324	218	55	50	1		
8	Bb	38	Total	C	N	O	S	0	0
			324	218	55	50	1		
8	Bc	38	Total	C	N	O	S	0	0
			324	218	55	50	1		
8	Bd	37	Total	C	N	O		0	0
			316	213	54	49			
8	Be	38	Total	C	N	O	S	0	0
			324	218	55	50	1		
8	Bf	34	Total	C	N	O		0	0
			292	200	51	41			
8	Bg	38	Total	C	N	O	S	0	0
			324	218	55	50	1		
8	Bh	36	Total	C	N	O		0	0
			309	209	53	47			
8	Bi	38	Total	C	N	O	S	0	0
			324	218	55	50	1		
8	Bj	38	Total	C	N	O	S	0	0
			324	218	55	50	1		
8	Bk	38	Total	C	N	O	S	0	0
			324	218	55	50	1		
8	Bl	38	Total	C	N	O	S	0	0
			324	218	55	50	1		
8	Bm	38	Total	C	N	O	S	0	0
			324	218	55	50	1		

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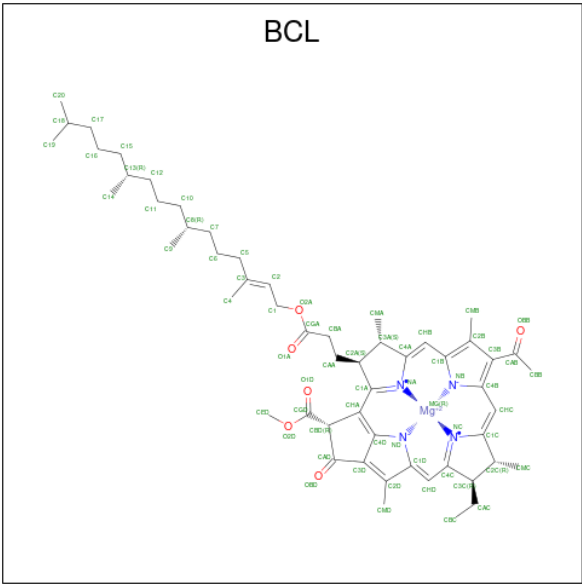
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Mol	Chain	Residues	Atoms					AltConf	Trace
8	Bn	38	Total	C	N	O	S	0	0
			324	218	55	50	1		
8	Bo	38	Total	C	N	O	S	0	0
			324	218	55	50	1		
8	Bp	35	Total	C	N	O		0	0
			300	204	52	44			

- Molecule 9 is a protein called Light-harvesting protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	Aa	69	Total	C	N	O	S	0	0
			520	340	90	86	4		
9	Ab	56	Total	C	N	O	S	0	0
			437	287	77	70	3		
9	Ac	56	Total	C	N	O	S	0	0
			440	289	77	70	4		
9	Ad	54	Total	C	N	O	S	0	0
			426	281	75	67	3		
9	Ae	59	Total	C	N	O	S	0	0
			454	298	80	73	3		
9	Af	56	Total	C	N	O	S	0	0
			440	289	77	70	4		
9	Ag	57	Total	C	N	O	S	0	0
			445	292	78	71	4		
9	Ah	53	Total	C	N	O	S	0	0
			411	272	69	67	3		
9	Ai	57	Total	C	N	O	S	0	0
			445	292	78	71	4		
9	Aj	56	Total	C	N	O	S	0	0
			437	287	77	70	3		
9	Ak	56	Total	C	N	O	S	0	0
			440	289	77	70	4		
9	Al	69	Total	C	N	O	S	0	0
			520	340	90	86	4		
9	Am	52	Total	C	N	O	S	0	0
			417	276	73	65	3		
9	An	56	Total	C	N	O	S	0	0
			440	289	77	70	4		
9	Ao	57	Total	C	N	O	S	0	0
			445	292	78	71	4		
9	Ap	55	Total	C	N	O	S	0	0
			432	284	76	69	3		

- Molecule 10 is BACTERIOCHLOROPHYLL A (CCD ID: BCL) (formula: C₅₅H₇₄MgN₄O₆) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
10	L	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	L	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	M	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	M	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BA	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BB	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AB	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AC	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BC	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BD	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AD	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AE	1	Total 66	C 55	Mg 1	N 4	O 6	0

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Mol	Chain	Residues	Atoms					AltConf
10	BE	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BF	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AF	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BG	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AH	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BH	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AI	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BI	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BJ	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AK	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BK	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AL	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BL	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AM	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BM	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BN	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AN	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AO	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BO	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BP	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BP	1	Total 66	C 55	Mg 1	N 4	O 6	0

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Mol	Chain	Residues	Atoms					AltConf
10	AP	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AQ	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AQ	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BQ	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BR	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AR	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BS	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BT	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AT	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AT	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AU	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AU	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AV	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BV	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AW	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BW	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	AX	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	BX	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Aa	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Ba	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Ac	1	Total 66	C 55	Mg 1	N 4	O 6	0

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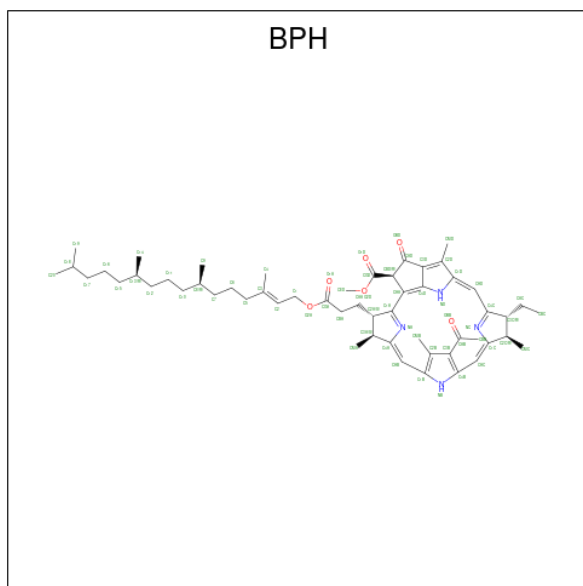
Mol	Chain	Residues	Atoms					AltConf
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10	Bd	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Bd	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Ae	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Be	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Af	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Bf	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Bf	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Ag	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Bg	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Ah	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Bh	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Bh	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Ai	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Bi	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Aj	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Bj	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Ak	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Bk	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Al	1	Total 66	C 55	Mg 1	N 4	O 6	0
10	Bl	1	Total 66	C 55	Mg 1	N 4	O 6	0

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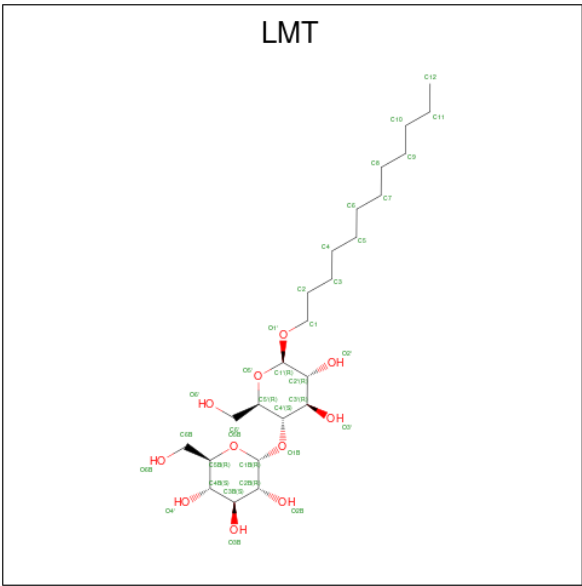
Mol	Chain	Residues	Atoms					AltConf
10	Bl	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
10	Am	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
10	Bm	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
10	An	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
10	Bn	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
10	Ao	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
10	Bo	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
10	Bp	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
10	Bp	1	Total	C	Mg	N	O	0
			66	55	1	4	6	

- Molecule 11 is BACTERIOPHEOPHYTIN A (CCD ID: BPH) (formula: $C_{55}H_{76}N_4O_6$).



Mol	Chain	Residues	Atoms				AltConf
11	L	1	Total	C	N	O	0
			65	55	4	6	
11	M	1	Total	C	N	O	0
			65	55	4	6	

- Molecule 12 is DODECYL-BETA-D-MALTOSE (CCD ID: LMT) (formula: C₂₄H₄₆O₁₁).



Mol	Chain	Residues	Atoms			AltConf
12	L	1	Total	C	O	0
			35	24	11	
12	L	1	Total	C	O	0
			35	24	11	
12	L	1	Total	C	O	0
			35	24	11	
12	L	1	Total	C	O	0
			35	24	11	
12	L	1	Total	C	O	0
			35	24	11	
12	L	1	Total	C	O	0
			35	24	11	
12	M	1	Total	C	O	0
			35	24	11	
12	BA	1	Total	C	O	0
			35	24	11	
12	BB	1	Total	C	O	0
			35	24	11	
12	AB	1	Total	C	O	0
			35	24	11	
12	BC	1	Total	C	O	0
			35	24	11	
12	BD	1	Total	C	O	0
			35	24	11	
12	BF	1	Total	C	O	0
			35	24	11	

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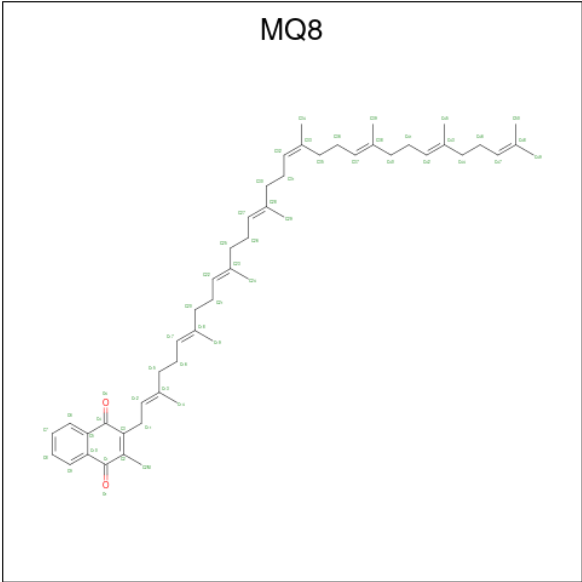
Mol	Chain	Residues	Atoms			AltConf
12	BG	1	Total	C	O	0
			35	24	11	
12	BG	1	Total	C	O	0
			35	24	11	
12	BH	1	Total	C	O	0
			35	24	11	
12	BI	1	Total	C	O	0
			35	24	11	
12	BI	1	Total	C	O	0
			35	24	11	
12	AK	1	Total	C	O	0
			35	24	11	
12	BK	1	Total	C	O	0
			35	24	11	
12	BK	1	Total	C	O	0
			35	24	11	
12	BL	1	Total	C	O	0
			35	24	11	
12	BM	1	Total	C	O	0
			35	24	11	
12	BN	1	Total	C	O	0
			35	24	11	
12	BO	1	Total	C	O	0
			35	24	11	
12	BP	1	Total	C	O	0
			35	24	11	
12	AQ	1	Total	C	O	0
			35	24	11	
12	BQ	1	Total	C	O	0
			35	24	11	
12	BR	1	Total	C	O	0
			35	24	11	
12	BS	1	Total	C	O	0
			35	24	11	
12	BT	1	Total	C	O	0
			35	24	11	
12	BU	1	Total	C	O	0
			35	24	11	
12	BV	1	Total	C	O	0
			35	24	11	
12	BX	1	Total	C	O	0
			35	24	11	

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Mol	Chain	Residues	Atoms			AltConf
12	BX	1	Total	C	O	0
			35	24	11	
12	Ba	1	Total	C	O	0
			35	24	11	
12	Bc	1	Total	C	O	0
			35	24	11	
12	Bc	1	Total	C	O	0
			35	24	11	
12	Bd	1	Total	C	O	0
			35	24	11	
12	Bg	1	Total	C	O	0
			35	24	11	
12	Bg	1	Total	C	O	0
			35	24	11	
12	Bi	1	Total	C	O	0
			35	24	11	
12	Bj	1	Total	C	O	0
			35	24	11	
12	Bk	1	Total	C	O	0
			35	24	11	
12	Bl	1	Total	C	O	0
			35	24	11	
12	Bm	1	Total	C	O	0
			35	24	11	
12	Bo	1	Total	C	O	0
			35	24	11	
12	Bp	1	Total	C	O	0
			35	24	11	

- Molecule 13 is MENAQUINONE 8 (CCD ID: MQ8) (formula: C₅₁H₇₂O₂).

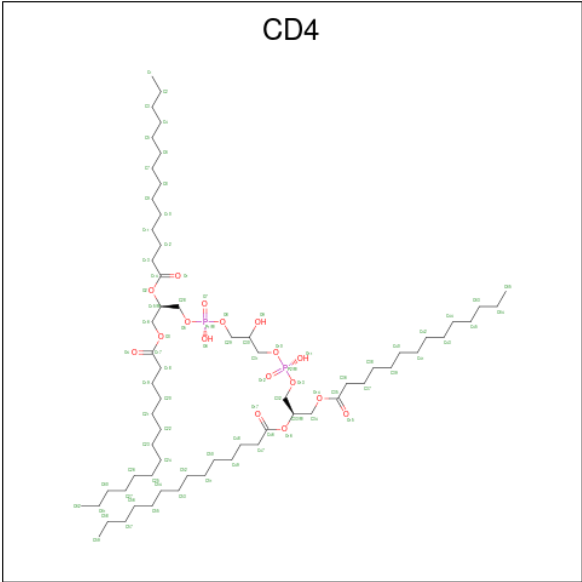


Mol	Chain	Residues	Atoms			AltConf
13	L	1	Total	C	O	0
			53	51	2	
13	M	1	Total	C	O	0
			53	51	2	
13	Ad	1	Total	C	O	0
			53	51	2	

- Molecule 14 is FE (III) ION (CCD ID: FE) (formula: Fe).

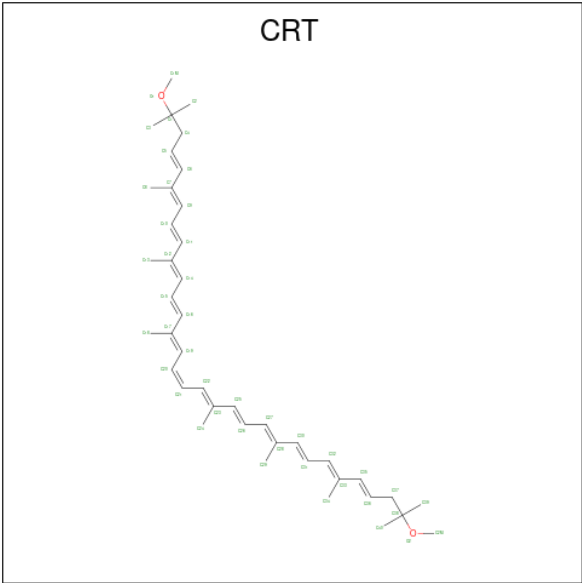
Mol	Chain	Residues	Atoms		AltConf
14	M	1	Total	Fe	0
			1	1	

- Molecule 15 is (2R,5R,11R,14R)-5,8,11-trihydroxy-5,11-dioxido-17-oxo-2,14-bis(tetradecanoyloxy)-4,6,10,12,16-pentaoxa-5,11-diphosphatriacont-1-yl tetradecanoate (CCD ID: CD4) (formula: C₆₅H₁₂₆O₁₇P₂).



Mol	Chain	Residues	Atoms				AltConf
15	M	1	Total	C	O	P	0
			84	65	17	2	
15	Af	1	Total	C	O	P	0
			84	65	17	2	

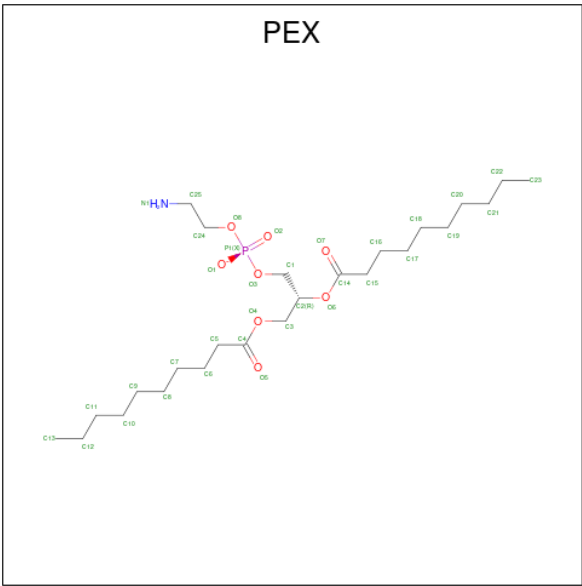
- Molecule 16 is SPIRILLOXANTHIN (CCD ID: CRT) (formula: C₄₂H₆₀O₂).



Mol	Chain	Residues	Atoms				AltConf
16	M	1	Total	C	O		0
			44	42	2		

- Molecule 17 is 1,2-DIDECANOYL-SN-GLYCERO-3-PHOSPHOETHANOLAMINE (CCD

ID: PEX) (formula: C₂₅H₄₉NO₈P).



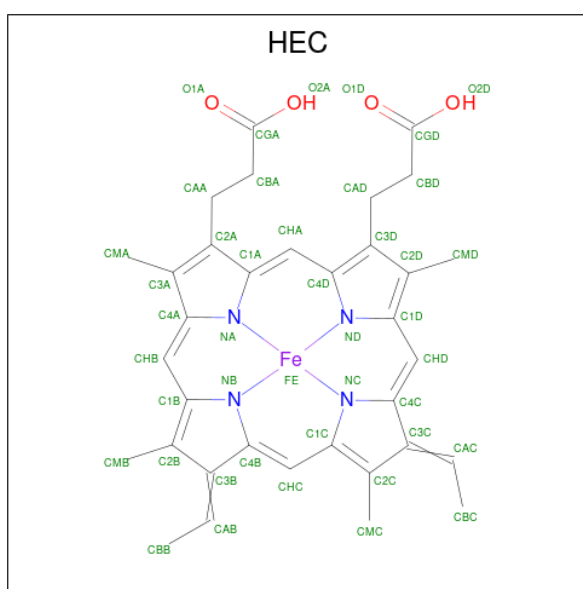
Mol	Chain	Residues	Atoms					AltConf
17	M	1	Total	C	N	O	P	0
			35	25	1	8	1	
17	AG	1	Total	C	N	O	P	0
			35	25	1	8	1	
17	AO	1	Total	C	N	O	P	0
			35	25	1	8	1	
17	AT	1	Total	C	N	O	P	0
			35	25	1	8	1	
17	Ba	1	Total	C	N	O	P	0
			35	25	1	8	1	
17	Bb	1	Total	C	N	O	P	0
			35	25	1	8	1	
17	Bd	1	Total	C	N	O	P	0
			35	25	1	8	1	
17	Be	1	Total	C	N	O	P	0
			35	25	1	8	1	
17	Bf	1	Total	C	N	O	P	0
			35	25	1	8	1	
17	Bg	1	Total	C	N	O	P	0
			35	25	1	8	1	
17	Bi	1	Total	C	N	O	P	0
			35	25	1	8	1	
17	Bj	1	Total	C	N	O	P	0
			35	25	1	8	1	
17	Bk	1	Total	C	N	O	P	0
			35	25	1	8	1	

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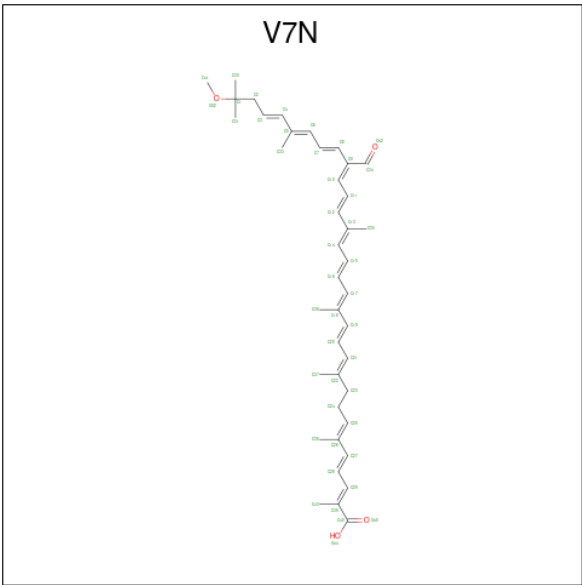
Mol	Chain	Residues	Atoms					AltConf
17	Bl	1	Total	C	N	O	P	0
			35	25	1	8	1	
17	Bm	1	Total	C	N	O	P	0
			35	25	1	8	1	
17	Bn	1	Total	C	N	O	P	0
			35	25	1	8	1	
17	Bp	1	Total	C	N	O	P	0
			35	25	1	8	1	

- Molecule 18 is HEME C (CCD ID: HEC) (formula: $C_{34}H_{34}FeN_4O_4$).



Mol	Chain	Residues	Atoms					AltConf
18	C	1	Total	C	Fe	N	O	0
			43	34	1	4	4	
18	C	1	Total	C	Fe	N	O	0
			43	34	1	4	4	
18	C	1	Total	C	Fe	N	O	0
			43	34	1	4	4	
18	C	1	Total	C	Fe	N	O	0
			43	34	1	4	4	

- Molecule 19 is (2 {E},4 {E},6 {E},10 {E},12 {E},14 {E},16 {E},18 {E},20 {E},22 {Z},24 {E},26 {E},28 {E})-23-methanoyl-31-methoxy-2,6,10,14,19,27,31-heptamethyl-dotriaconta-2,4,6,10,12,14,16,18,20,22,24,26,28-tridecaenoic acid (CCD ID: V7N) (formula: $C_{41}H_{54}O_4$).



Mol	Chain	Residues	Atoms			AltConf
19	BB	1	Total	C	O	0
			45	41	4	
19	BC	1	Total	C	O	0
			45	41	4	
19	BD	1	Total	C	O	0
			45	41	4	
19	BE	1	Total	C	O	0
			45	41	4	
19	BF	1	Total	C	O	0
			45	41	4	
19	AF	1	Total	C	O	0
			45	41	4	
19	AH	1	Total	C	O	0
			45	41	4	
19	AI	1	Total	C	O	0
			45	41	4	
19	AI	1	Total	C	O	0
			45	41	4	
19	BK	1	Total	C	O	0
			45	41	4	
19	AL	1	Total	C	O	0
			45	41	4	
19	BL	1	Total	C	O	0
			45	41	4	
19	BN	1	Total	C	O	0
			45	41	4	
19	BO	1	Total	C	O	0
			45	41	4	

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Mol	Chain	Residues	Atoms			AltConf
19	BP	1	Total	C	O	0
			45	41	4	
19	AP	1	Total	C	O	0
			45	41	4	
19	BR	1	Total	C	O	0
			45	41	4	
19	BS	1	Total	C	O	0
			45	41	4	
19	BT	1	Total	C	O	0
			45	41	4	
19	AT	1	Total	C	O	0
			45	41	4	
19	BV	1	Total	C	O	0
			45	41	4	
19	BW	1	Total	C	O	0
			45	41	4	
19	AX	1	Total	C	O	0
			45	41	4	
19	BX	1	Total	C	O	0
			45	41	4	
19	Ba	1	Total	C	O	0
			45	41	4	
19	Bb	1	Total	C	O	0
			45	41	4	
19	Bc	1	Total	C	O	0
			45	41	4	
19	Ad	1	Total	C	O	0
			45	41	4	
19	Bd	1	Total	C	O	0
			45	41	4	
19	Bf	1	Total	C	O	0
			45	41	4	
19	Ag	1	Total	C	O	0
			45	41	4	
19	Bg	1	Total	C	O	0
			45	41	4	
19	Bi	1	Total	C	O	0
			45	41	4	
19	Bj	1	Total	C	O	0
			45	41	4	
19	Bk	1	Total	C	O	0
			45	41	4	

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Mol	Chain	Residues	Atoms			AltConf
19	Bl	1	Total	C	O	0
			45	41	4	
19	Am	1	Total	C	O	0
			45	41	4	
19	Bm	1	Total	C	O	0
			45	41	4	
19	An	1	Total	C	O	0
			45	41	4	
19	Bp	1	Total	C	O	0
			45	41	4	

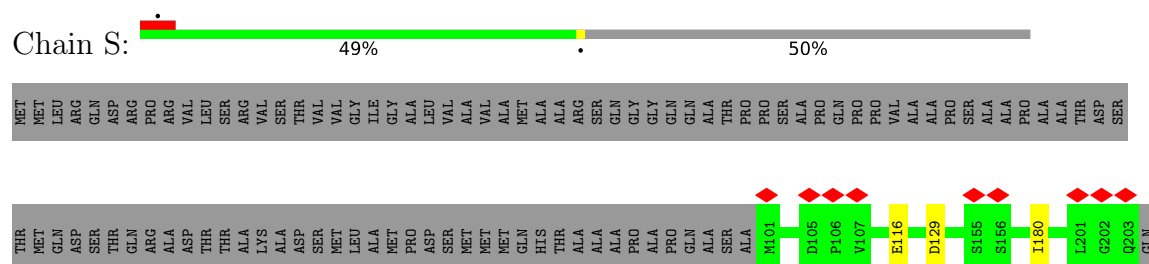
- Molecule 20 is water.

Mol	Chain	Residues	Atoms		AltConf
20	S	4	Total	O	0
			4	4	
20	L	11	Total	O	0
			11	11	
20	M	12	Total	O	0
			12	12	
20	K	1	Total	O	0
			1	1	
20	C	1	Total	O	0
			1	1	
20	Ad	1	Total	O	0
			1	1	
20	Ae	1	Total	O	0
			1	1	
20	Ah	1	Total	O	0
			1	1	
20	Aj	1	Total	O	0
			1	1	
20	Ak	2	Total	O	0
			2	2	
20	Al	1	Total	O	0
			1	1	
20	Am	2	Total	O	0
			2	2	

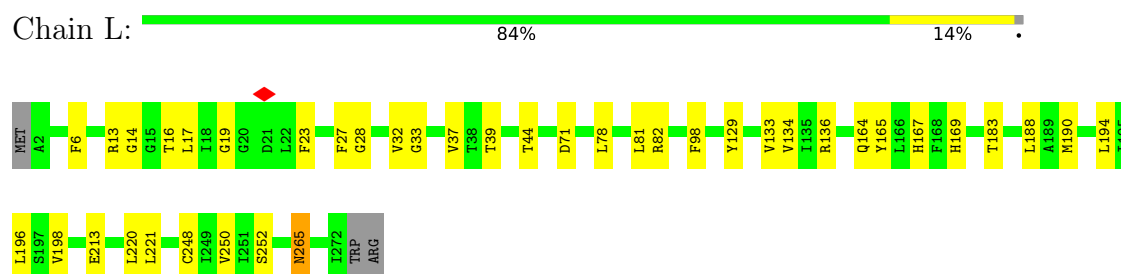
3 Residue-property plots

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

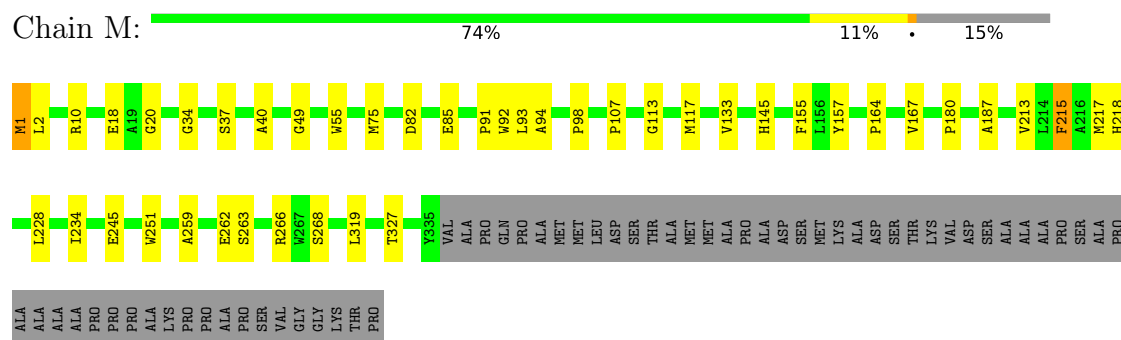
- Molecule 1: reaction centre S sub unit



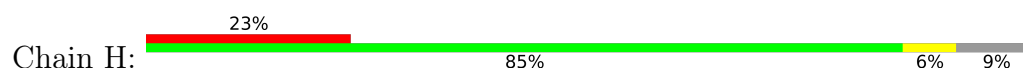
- Molecule 2: Reaction center protein L chain

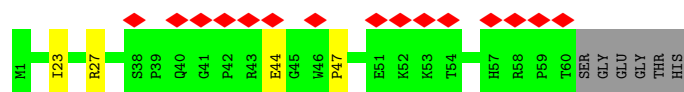


- Molecule 3: Reaction center protein M chain

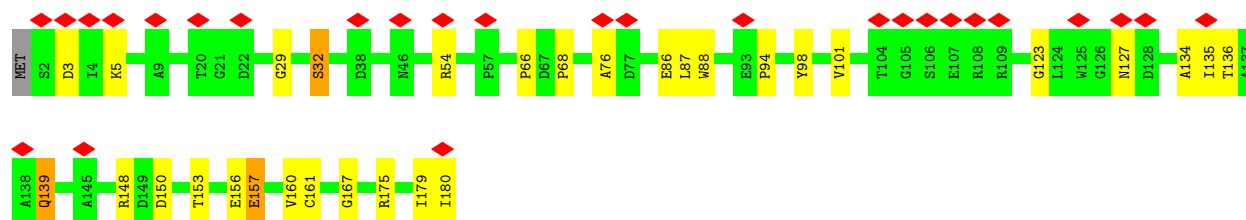
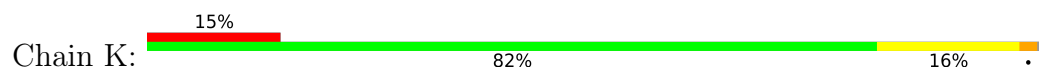


- Molecule 4: reaction centre Ht su unit

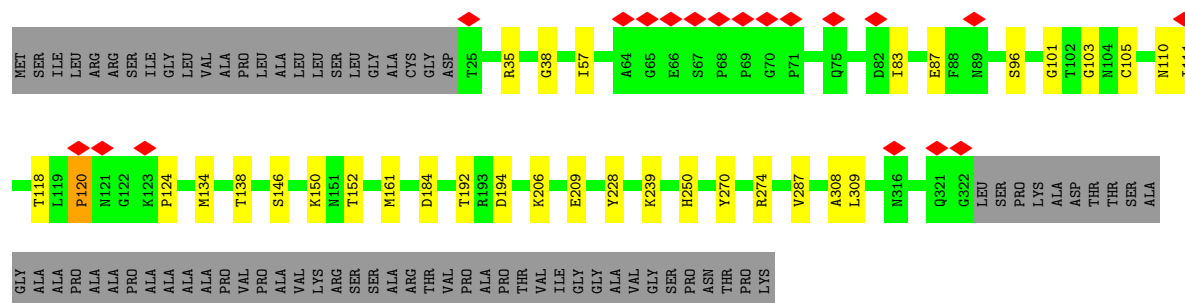




- Molecule 5: reaction centre Hc sub unit



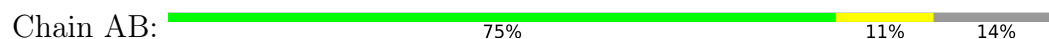
- Molecule 6: Photosynthetic reaction center cytochrome c subunit



- Molecule 7: Light-harvesting protein



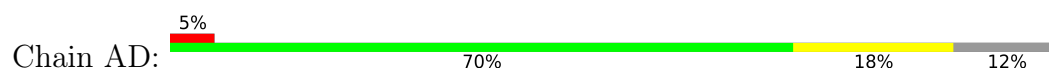
- Molecule 7: Light-harvesting protein



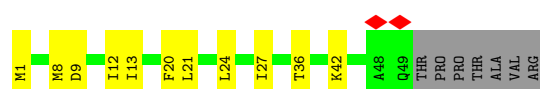
- Molecule 7: Light-harvesting protein



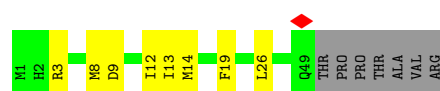
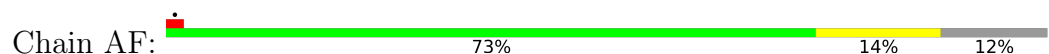
• Molecule 7: Light-harvesting protein



• Molecule 7: Light-harvesting protein



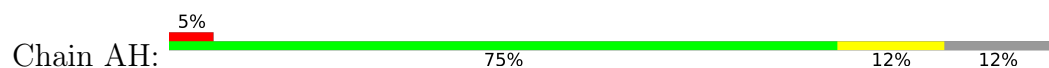
• Molecule 7: Light-harvesting protein



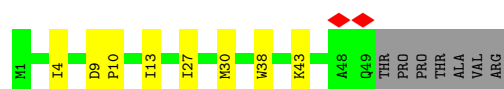
• Molecule 7: Light-harvesting protein



• Molecule 7: Light-harvesting protein



• Molecule 7: Light-harvesting protein

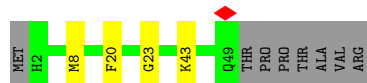
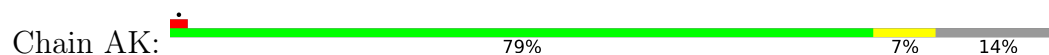


• Molecule 7: Light-harvesting protein





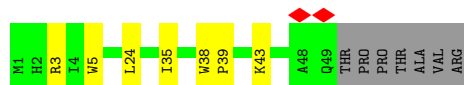
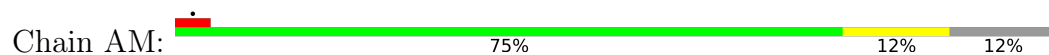
- Molecule 7: Light-harvesting protein



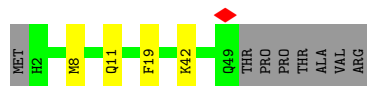
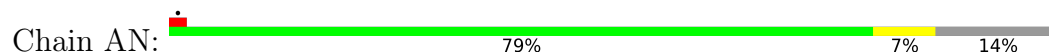
- Molecule 7: Light-harvesting protein



- Molecule 7: Light-harvesting protein



- Molecule 7: Light-harvesting protein



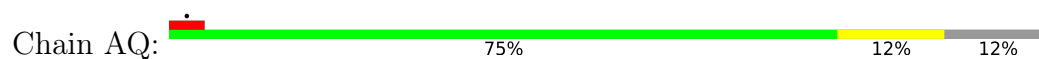
- Molecule 7: Light-harvesting protein



- Molecule 7: Light-harvesting protein



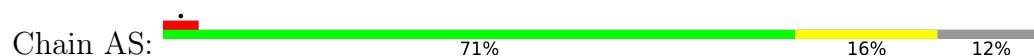
- Molecule 7: Light-harvesting protein



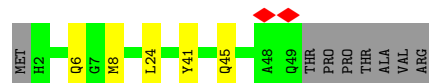
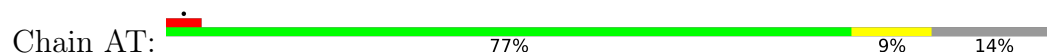
- Molecule 7: Light-harvesting protein



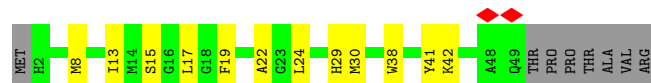
- Molecule 7: Light-harvesting protein



- Molecule 7: Light-harvesting protein



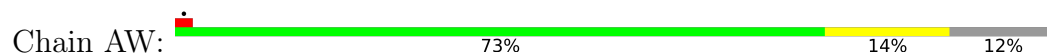
- Molecule 7: Light-harvesting protein



- Molecule 7: Light-harvesting protein

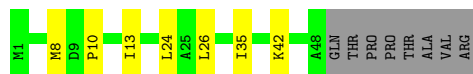


- Molecule 7: Light-harvesting protein



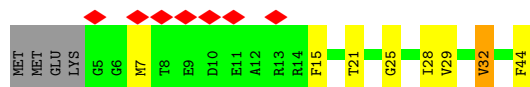
- Molecule 7: Light-harvesting protein

Chain AX:  73% 12% 14%



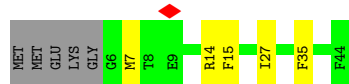
- Molecule 8: Light-harvesting protein

Chain BA:  16% 73% 16% 9%



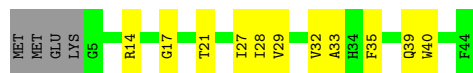
- Molecule 8: Light-harvesting protein

Chain BB:  77% 11% 11%



- Molecule 8: Light-harvesting protein

Chain BC:  66% 25% 9%



- Molecule 8: Light-harvesting protein

Chain BD:  7% 73% 18% 9%



- Molecule 8: Light-harvesting protein

Chain BE:  5% 64% 20% 14%

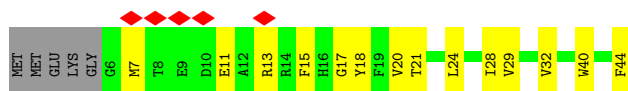


- Molecule 8: Light-harvesting protein

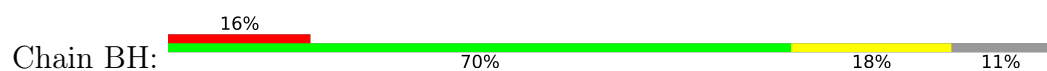
Chain BF:  5% 64% 25% 11%



- Molecule 8: Light-harvesting protein



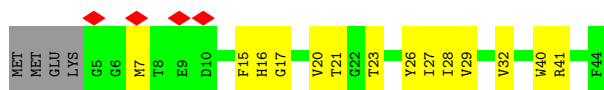
- Molecule 8: Light-harvesting protein



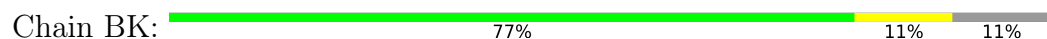
- Molecule 8: Light-harvesting protein



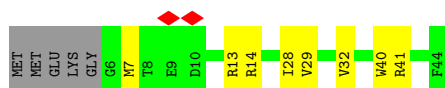
- Molecule 8: Light-harvesting protein



- Molecule 8: Light-harvesting protein



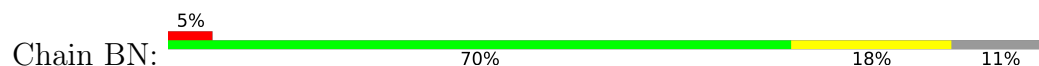
- Molecule 8: Light-harvesting protein



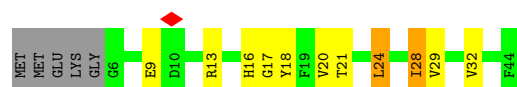
- Molecule 8: Light-harvesting protein



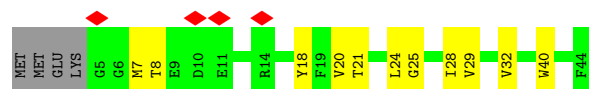
- Molecule 8: Light-harvesting protein



- Molecule 8: Light-harvesting protein



- Molecule 8: Light-harvesting protein



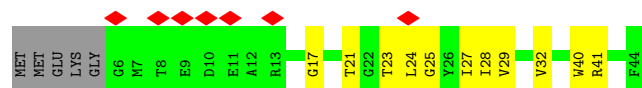
- Molecule 8: Light-harvesting protein



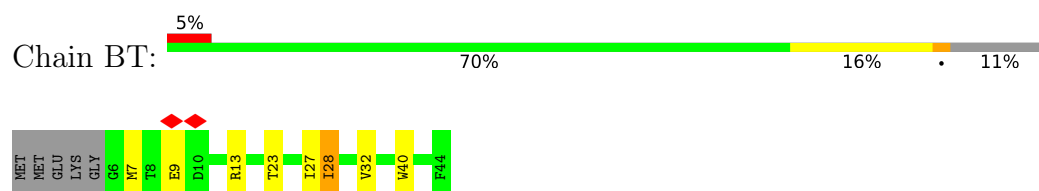
- Molecule 8: Light-harvesting protein



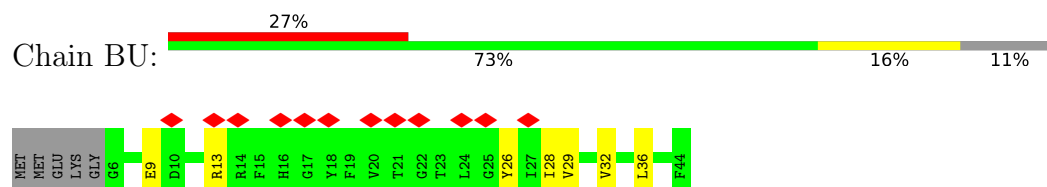
- Molecule 8: Light-harvesting protein



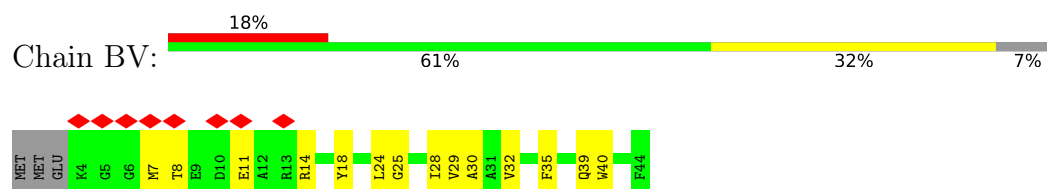
- Molecule 8: Light-harvesting protein



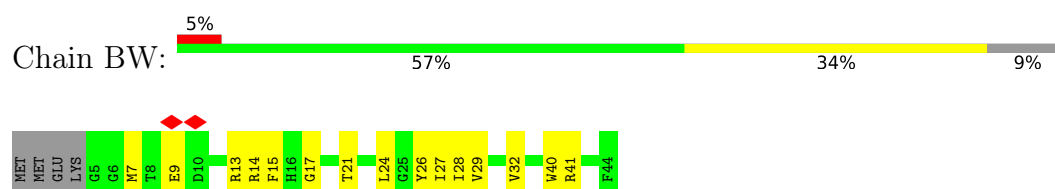
- Molecule 8: Light-harvesting protein



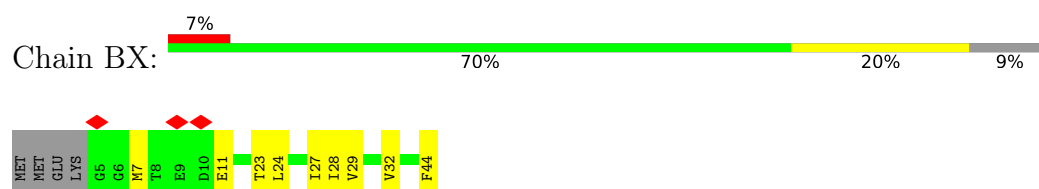
- Molecule 8: Light-harvesting protein



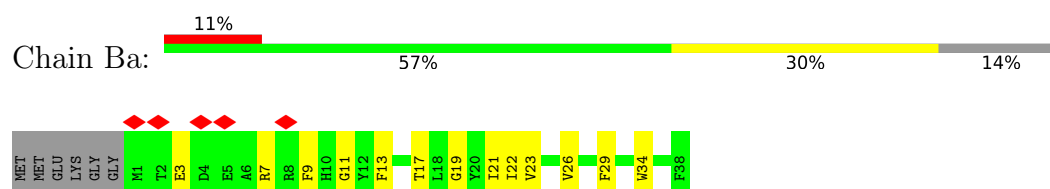
- Molecule 8: Light-harvesting protein



- Molecule 8: Light-harvesting protein

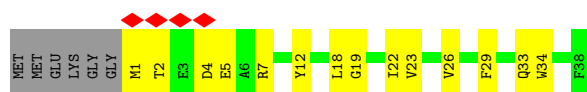


- Molecule 8: Light-harvesting protein



- Molecule 8: Light-harvesting protein





- Molecule 8: Light-harvesting protein



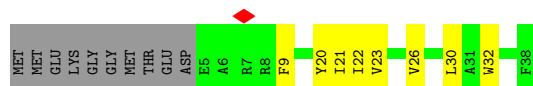
- Molecule 8: Light-harvesting protein



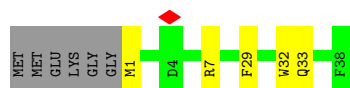
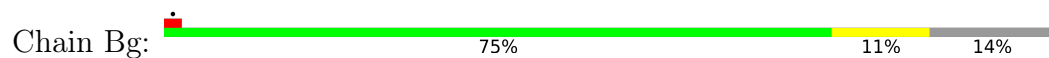
- Molecule 8: Light-harvesting protein



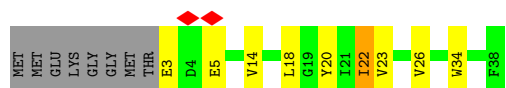
- Molecule 8: Light-harvesting protein



- Molecule 8: Light-harvesting protein



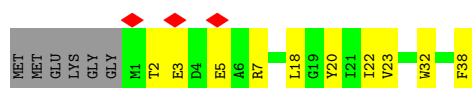
- Molecule 8: Light-harvesting protein



- Molecule 8: Light-harvesting protein



- Molecule 8: Light-harvesting protein



- Molecule 8: Light-harvesting protein



- Molecule 8: Light-harvesting protein



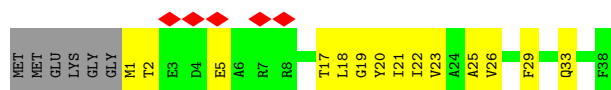
- Molecule 8: Light-harvesting protein



- Molecule 8: Light-harvesting protein



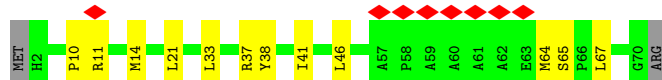
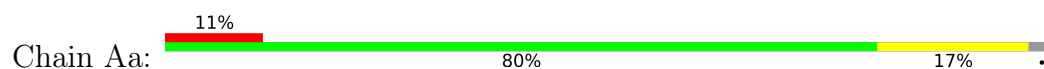
- Molecule 8: Light-harvesting protein



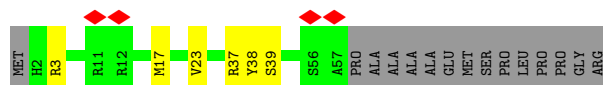
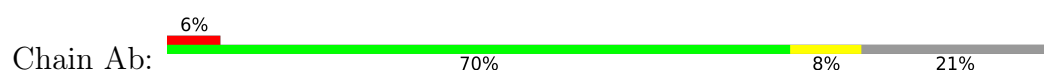
- Molecule 8: Light-harvesting protein



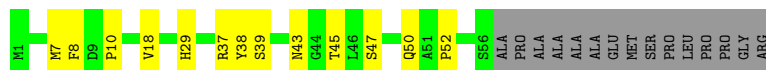
- Molecule 9: Light-harvesting protein



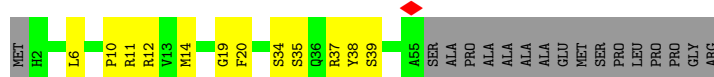
- Molecule 9: Light-harvesting protein



- Molecule 9: Light-harvesting protein



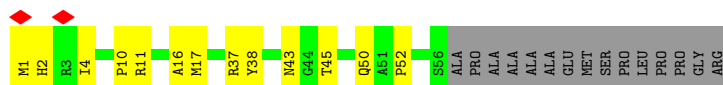
- Molecule 9: Light-harvesting protein



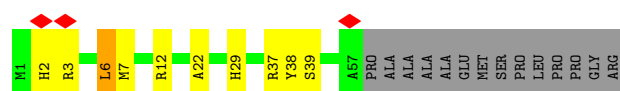
- Molecule 9: Light-harvesting protein



- Molecule 9: Light-harvesting protein



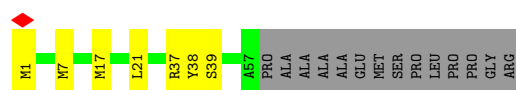
- Molecule 9: Light-harvesting protein



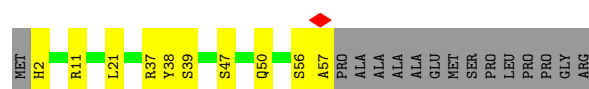
- Molecule 9: Light-harvesting protein



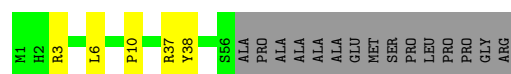
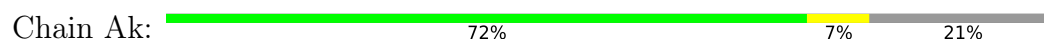
- Molecule 9: Light-harvesting protein



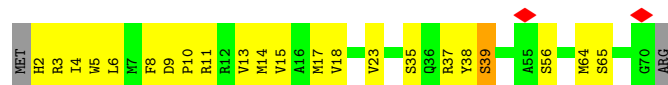
- Molecule 9: Light-harvesting protein



- Molecule 9: Light-harvesting protein



- Molecule 9: Light-harvesting protein

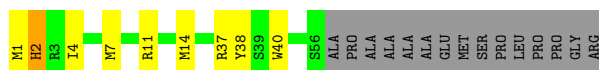


- Molecule 9: Light-harvesting protein

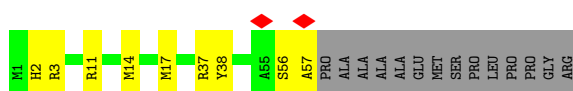




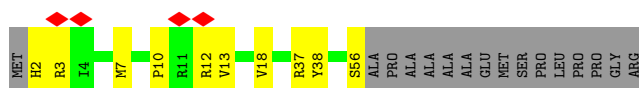
- Molecule 9: Light-harvesting protein



- Molecule 9: Light-harvesting protein



- Molecule 9: Light-harvesting protein



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	116858	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION; CTF collection was performed within cryosparc	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	60	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2400	Depositor
Magnification	165000	Depositor
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	0.547	Depositor
Minimum map value	-0.226	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.012	Depositor
Recommended contour level	0.0687	Depositor
Map size (Å)	439.19998, 439.19998, 439.19998	wwPDB
Map dimensions	600, 600, 600	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.732, 0.732, 0.732	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: BCL, LMT, PEX, MQ8, V7N, CRT, CD4, BPH, HEC, FE

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	S	0.14	0/819	0.26	0/1112
2	L	0.18	0/2217	0.33	0/3031
3	M	0.20	0/2796	0.36	0/3821
4	H	0.15	0/529	0.34	0/716
5	K	0.15	0/1408	0.34	0/1925
6	C	0.36	3/2395 (0.1%)	0.66	3/3268 (0.1%)
7	AA	0.20	0/405	0.39	0/547
7	AB	0.20	0/405	0.35	0/547
7	AC	0.20	0/405	0.39	0/547
7	AD	0.20	0/414	0.40	0/559
7	AE	0.19	0/414	0.34	0/559
7	AF	0.22	0/414	0.43	0/559
7	AG	0.19	0/414	0.40	0/559
7	AH	0.19	0/414	0.34	0/559
7	AI	0.19	0/414	0.41	0/559
7	AJ	0.23	0/405	0.48	0/547
7	AK	0.21	0/406	0.42	0/549
7	AL	0.20	0/405	0.40	0/547
7	AM	0.20	0/414	0.39	0/559
7	AN	0.26	0/406	0.53	0/549
7	AO	0.20	0/405	0.39	0/547
7	AP	0.20	0/405	0.41	0/547
7	AQ	0.18	0/414	0.34	0/559
7	AR	0.21	0/405	0.40	0/547
7	AS	0.24	0/414	0.41	0/559
7	AT	0.20	0/406	0.41	0/549
7	AU	0.22	0/406	0.39	0/549
7	AV	0.20	0/405	0.40	0/547
7	AW	0.20	0/414	0.41	0/559
7	AX	0.18	0/405	0.34	0/547
8	BA	0.18	0/346	0.33	0/471
8	BB	0.18	0/342	0.28	0/466

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
8	BC	0.19	0/346	0.31	0/471
8	BD	0.19	0/346	0.36	0/471
8	BE	0.20	0/338	0.35	0/461
8	BF	0.17	0/342	0.30	0/466
8	BG	0.21	0/342	0.43	0/466
8	BH	0.21	0/342	0.35	0/466
8	BI	0.22	0/338	0.38	0/461
8	BJ	0.19	0/346	0.33	0/471
8	BK	0.21	0/342	0.38	0/466
8	BL	0.20	0/342	0.33	0/466
8	BM	0.20	0/346	0.31	0/471
8	BN	0.19	0/342	0.30	0/466
8	BO	0.20	0/342	0.38	0/466
8	BP	0.18	0/346	0.37	0/471
8	BQ	0.18	0/342	0.38	0/466
8	BR	0.21	0/342	0.41	0/466
8	BS	0.19	0/342	0.38	0/466
8	BT	0.17	0/342	0.34	0/466
8	BU	0.20	0/342	0.40	0/466
8	BV	0.19	0/355	0.45	0/482
8	BW	0.22	0/346	0.40	0/471
8	BX	0.20	0/346	0.33	0/471
8	Ba	0.20	0/338	0.32	0/461
8	Bb	0.20	0/338	0.39	0/461
8	Bc	0.21	0/338	0.31	0/461
8	Bd	0.26	0/330	0.42	0/451
8	Be	0.21	0/338	0.43	0/461
8	Bf	0.22	0/306	0.42	0/418
8	Bg	0.20	0/338	0.28	0/461
8	Bh	0.20	0/323	0.39	0/441
8	Bi	0.25	0/338	0.35	0/461
8	Bj	0.31	0/338	0.45	0/461
8	Bk	0.21	0/338	0.29	0/461
8	Bl	0.24	0/338	0.59	3/461 (0.7%)
8	Bm	0.19	0/338	0.27	0/461
8	Bn	0.19	0/338	0.29	0/461
8	Bo	0.21	0/338	0.38	0/461
8	Bp	0.27	0/314	0.68	2/429 (0.5%)
9	Aa	0.18	0/535	0.35	0/731
9	Ab	0.17	0/448	0.29	0/609
9	Ac	0.19	0/451	0.33	0/612
9	Ad	0.20	0/437	0.36	0/594
9	Ae	0.20	0/466	0.33	0/635

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
9	Af	0.19	0/451	0.38	0/612
9	Ag	0.19	0/456	0.34	0/619
9	Ah	0.18	0/421	0.31	0/573
9	Ai	0.18	0/456	0.36	0/619
9	Aj	0.18	0/448	0.33	0/609
9	Ak	0.19	0/451	0.31	0/612
9	Al	0.21	0/535	0.34	0/731
9	Am	0.22	0/428	0.32	0/582
9	An	0.20	0/451	0.35	0/612
9	Ao	0.18	0/456	0.28	0/619
9	Ap	0.17	0/443	0.30	0/602
All	All	0.21	3/40885 (0.0%)	0.39	8/55601 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
7	AN	0	1
8	Bl	0	1
All	All	0	2

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	C	120	PRO	CG-CD	-11.97	1.10	1.50
6	C	120	PRO	N-CA	5.98	1.55	1.47
6	C	120	PRO	CB-CG	-5.03	1.24	1.49

The worst 5 of 8 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	C	120	PRO	N-CD-CG	-20.45	72.53	103.20
6	C	120	PRO	CA-CB-CG	-18.07	70.17	104.50
6	C	120	PRO	CB-CG-CD	15.47	155.61	106.10
8	Bp	21	ILE	CA-C-N	-6.29	112.71	122.09
8	Bp	21	ILE	C-N-CA	-6.29	112.71	122.09

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
7	AN	19	PHE	Sidechain
8	BI	22	ILE	Peptide

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	S	800	0	793	3	0
2	L	2134	0	2107	30	0
3	M	2697	0	2621	39	0
4	H	510	0	500	3	0
5	K	1373	0	1347	21	0
6	C	2330	0	2253	23	0
7	AA	391	0	394	7	0
7	AB	391	0	394	6	0
7	AC	391	0	394	8	0
7	AD	400	0	402	8	0
7	AE	400	0	402	13	0
7	AF	400	0	402	10	0
7	AG	400	0	402	10	0
7	AH	400	0	402	7	0
7	AI	400	0	402	8	0
7	AJ	391	0	394	8	0
7	AK	392	0	390	4	0
7	AL	391	0	394	12	0
7	AM	400	0	402	10	0
7	AN	392	0	390	2	0
7	AO	391	0	394	11	0
7	AP	391	0	394	10	0
7	AQ	400	0	402	7	0
7	AR	391	0	394	14	0
7	AS	400	0	402	10	0
7	AT	392	0	390	4	0
7	AU	392	0	390	10	0
7	AV	391	0	394	12	0
7	AW	400	0	402	10	0
7	AX	391	0	394	7	0
8	BA	332	0	308	7	0
8	BB	328	0	305	4	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
8	BC	332	0	308	9	0
8	BD	332	0	308	7	0
8	BE	324	0	305	10	0
8	BF	328	0	305	10	0
8	BG	328	0	305	12	0
8	BH	328	0	305	8	0
8	BI	324	0	305	13	0
8	BJ	332	0	308	9	0
8	BK	328	0	305	5	0
8	BL	328	0	305	7	0
8	BM	332	0	308	11	0
8	BN	328	0	305	6	0
8	BO	328	0	305	7	0
8	BP	332	0	308	11	0
8	BQ	328	0	305	11	0
8	BR	328	0	305	14	0
8	BS	328	0	305	10	0
8	BT	328	0	305	7	0
8	BU	328	0	305	5	0
8	BV	341	0	321	10	0
8	BW	332	0	308	13	0
8	BX	332	0	308	7	0
8	Ba	324	0	305	14	0
8	Bb	324	0	305	13	0
8	Bc	324	0	305	6	0
8	Bd	316	0	293	6	0
8	Be	324	0	305	10	0
8	Bf	292	0	276	10	0
8	Bg	324	0	305	4	0
8	Bh	309	0	286	11	0
8	Bi	324	0	305	12	0
8	Bj	324	0	305	15	0
8	Bk	324	0	305	6	0
8	Bl	324	0	305	14	0
8	Bm	324	0	305	5	0
8	Bn	324	0	305	6	0
8	Bo	324	0	305	12	0
8	Bp	300	0	280	11	0
9	Aa	520	0	532	13	0
9	Ab	437	0	450	6	0
9	Ac	440	0	457	9	0
9	Ad	426	0	440	12	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
9	Ae	454	0	467	12	0
9	Af	440	0	457	17	0
9	Ag	445	0	462	9	0
9	Ah	411	0	425	6	0
9	Ai	445	0	462	4	0
9	Aj	437	0	450	6	0
9	Ak	440	0	457	4	0
9	Al	520	0	532	18	0
9	Am	417	0	432	10	0
9	An	440	0	457	8	0
9	Ao	445	0	462	7	0
9	Ap	432	0	445	8	0
10	AB	66	0	71	4	0
10	AC	66	0	74	3	0
10	AD	66	0	70	2	0
10	AE	66	0	74	4	0
10	AF	66	0	74	5	0
10	AH	66	0	74	2	0
10	AI	66	0	74	4	0
10	AK	66	0	74	5	0
10	AL	66	0	74	2	0
10	AM	66	0	74	4	0
10	AN	66	0	74	1	0
10	AO	66	0	74	7	0
10	AP	66	0	72	5	0
10	AQ	132	0	142	9	0
10	AR	66	0	74	6	0
10	AT	132	0	145	2	0
10	AU	132	0	146	6	0
10	AV	66	0	74	3	0
10	AW	66	0	74	4	0
10	AX	66	0	74	2	0
10	Aa	66	0	74	7	0
10	Ac	66	0	74	4	0
10	Ae	66	0	74	2	0
10	Af	66	0	74	4	0
10	Ag	66	0	74	1	0
10	Ah	66	0	74	6	0
10	Ai	66	0	74	3	0
10	Aj	66	0	74	6	0
10	Ak	66	0	72	1	0
10	Al	66	0	74	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
10	Am	66	0	74	2	0
10	An	66	0	74	4	0
10	Ao	66	0	74	1	0
10	BA	66	0	74	0	0
10	BB	66	0	74	2	0
10	BC	66	0	74	1	0
10	BD	66	0	74	2	0
10	BE	66	0	74	2	0
10	BF	66	0	74	2	0
10	BG	66	0	74	1	0
10	BH	66	0	74	1	0
10	BI	66	0	74	2	0
10	BJ	66	0	74	0	0
10	BK	66	0	74	0	0
10	BL	66	0	74	2	0
10	BM	66	0	74	2	0
10	BN	66	0	74	2	0
10	BO	66	0	74	1	0
10	BP	132	0	147	6	0
10	BQ	66	0	74	2	0
10	BR	66	0	74	2	0
10	BS	66	0	74	2	0
10	BT	66	0	74	0	0
10	BV	66	0	74	3	0
10	BW	66	0	74	2	0
10	BX	66	0	74	1	0
10	Ba	66	0	74	6	0
10	Bc	66	0	72	6	0
10	Bd	132	0	143	4	0
10	Be	66	0	72	4	0
10	Bf	132	0	146	14	0
10	Bg	66	0	74	4	0
10	Bh	132	0	146	9	0
10	Bi	66	0	74	6	0
10	Bj	66	0	72	11	0
10	Bk	66	0	74	4	0
10	Bl	132	0	146	8	0
10	Bm	66	0	74	5	0
10	Bn	66	0	74	6	0
10	Bo	66	0	74	4	0
10	Bp	132	0	146	22	0
10	L	132	0	148	6	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
10	M	132	0	148	7	0
11	L	65	0	76	3	0
11	M	65	0	76	3	0
12	AB	35	0	45	1	0
12	AK	35	0	44	2	0
12	AQ	35	0	44	1	0
12	BA	35	0	45	0	0
12	BB	35	0	41	0	0
12	BC	35	0	44	2	0
12	BD	35	0	44	1	0
12	BF	35	0	45	0	0
12	BG	70	0	90	2	0
12	BH	35	0	45	0	0
12	BI	70	0	89	5	0
12	BK	70	0	89	2	0
12	BL	35	0	44	2	0
12	BM	35	0	46	1	0
12	BN	35	0	44	2	0
12	BO	35	0	45	2	0
12	BP	35	0	44	1	0
12	BQ	35	0	45	0	0
12	BR	35	0	45	2	0
12	BS	35	0	46	2	0
12	BT	35	0	44	3	0
12	BU	35	0	45	2	0
12	BV	35	0	45	0	0
12	BX	70	0	90	2	0
12	Ba	35	0	44	1	0
12	Bc	70	0	88	2	0
12	Bd	35	0	45	0	0
12	Bg	70	0	89	2	0
12	Bi	35	0	45	3	0
12	Bj	35	0	45	3	0
12	Bk	35	0	44	1	0
12	Bl	35	0	45	1	0
12	Bm	35	0	44	2	0
12	Bo	35	0	43	0	0
12	Bp	35	0	44	2	0
12	L	210	0	273	2	0
12	M	35	0	44	0	0
13	Ad	53	0	72	6	0
13	L	53	0	72	6	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
13	M	53	0	72	10	0
14	M	1	0	0	0	0
15	Af	84	0	124	11	0
15	M	84	0	124	3	0
16	M	44	0	60	0	0
17	AG	35	0	49	2	0
17	AO	35	0	49	4	0
17	AT	35	0	47	3	0
17	Ba	35	0	46	2	0
17	Bb	35	0	49	4	0
17	Bd	35	0	49	1	0
17	Be	35	0	47	5	0
17	Bf	35	0	49	4	0
17	Bg	35	0	49	3	0
17	Bi	35	0	49	5	0
17	Bj	35	0	49	3	0
17	Bk	35	0	47	4	0
17	Bl	35	0	49	3	0
17	Bm	35	0	49	3	0
17	Bn	35	0	49	2	0
17	Bp	35	0	49	1	0
17	M	35	0	49	0	0
18	C	172	0	121	2	0
19	AF	45	0	0	0	0
19	AH	45	0	0	0	0
19	AI	90	0	0	0	0
19	AL	45	0	0	0	0
19	AP	45	0	0	0	0
19	AT	45	0	0	0	0
19	AX	45	0	0	0	0
19	Ad	45	0	0	0	0
19	Ag	45	0	0	0	0
19	Am	45	0	0	1	0
19	An	45	0	0	0	0
19	BB	45	0	0	1	0
19	BC	45	0	0	2	0
19	BD	45	0	0	0	0
19	BE	45	0	0	0	0
19	BF	45	0	0	0	0
19	BK	45	0	0	0	0
19	BL	45	0	0	0	0
19	BN	45	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
19	BO	45	0	0	0	0
19	BP	45	0	0	0	0
19	BR	45	0	0	0	0
19	BS	45	0	0	0	0
19	BT	45	0	0	0	0
19	BV	45	0	0	1	0
19	BW	45	0	0	0	0
19	BX	45	0	0	0	0
19	Ba	45	0	0	0	0
19	Bb	45	0	0	0	0
19	Bc	45	0	0	0	0
19	Bd	45	0	0	1	0
19	Bf	45	0	0	1	0
19	Bg	45	0	0	0	0
19	Bi	45	0	0	0	0
19	Bj	45	0	0	0	0
19	Bk	45	0	0	0	0
19	Bl	45	0	0	0	0
19	Bm	45	0	0	0	0
19	Bp	45	0	0	1	0
20	Ad	1	0	0	0	0
20	Ae	1	0	0	0	0
20	Ah	1	0	0	0	0
20	Aj	1	0	0	0	0
20	Ak	2	0	0	0	0
20	Al	1	0	0	0	0
20	Am	2	0	0	0	0
20	C	1	0	0	0	0
20	K	1	0	0	1	0
20	L	11	0	0	0	0
20	M	12	0	0	1	0
20	S	4	0	0	0	0
All	All	49816	0	48619	894	0

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

The worst 5 of 894 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)
10:Bp:1001:BCL:C15	10:Bp:1001:BCL:C16	1.76	1.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:Bp:1001:BCL:C16	10:Bp:1001:BCL:C13	2.21	1.17
10:Bp:1001:BCL:H162	10:Bp:1001:BCL:H122	1.40	1.04
3:M:259:ALA:H	13:M:409:MQ8:H2M3	1.19	1.03
10:AQ:103:BCL:H172	8:Bb:19:GLY:HA3	1.57	0.87

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	S	101/204 (50%)	98 (97%)	3 (3%)	0	100	100
2	L	269/274 (98%)	262 (97%)	7 (3%)	0	100	100
3	M	333/392 (85%)	328 (98%)	5 (2%)	0	100	100
4	H	58/66 (88%)	57 (98%)	1 (2%)	0	100	100
5	K	177/180 (98%)	171 (97%)	6 (3%)	0	100	100
6	C	296/373 (79%)	280 (95%)	16 (5%)	0	100	100
7	AA	46/56 (82%)	46 (100%)	0	0	100	100
7	AB	46/56 (82%)	46 (100%)	0	0	100	100
7	AC	46/56 (82%)	45 (98%)	1 (2%)	0	100	100
7	AD	47/56 (84%)	46 (98%)	1 (2%)	0	100	100
7	AE	47/56 (84%)	47 (100%)	0	0	100	100
7	AF	47/56 (84%)	47 (100%)	0	0	100	100
7	AG	47/56 (84%)	47 (100%)	0	0	100	100
7	AH	47/56 (84%)	47 (100%)	0	0	100	100
7	AI	47/56 (84%)	47 (100%)	0	0	100	100
7	AJ	46/56 (82%)	45 (98%)	1 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
7	AK	46/56 (82%)	46 (100%)	0	0	100	100
7	AL	46/56 (82%)	46 (100%)	0	0	100	100
7	AM	47/56 (84%)	46 (98%)	1 (2%)	0	100	100
7	AN	46/56 (82%)	46 (100%)	0	0	100	100
7	AO	46/56 (82%)	45 (98%)	1 (2%)	0	100	100
7	AP	46/56 (82%)	44 (96%)	2 (4%)	0	100	100
7	AQ	47/56 (84%)	47 (100%)	0	0	100	100
7	AR	46/56 (82%)	45 (98%)	1 (2%)	0	100	100
7	AS	47/56 (84%)	47 (100%)	0	0	100	100
7	AT	46/56 (82%)	46 (100%)	0	0	100	100
7	AU	46/56 (82%)	46 (100%)	0	0	100	100
7	AV	46/56 (82%)	44 (96%)	2 (4%)	0	100	100
7	AW	47/56 (84%)	46 (98%)	1 (2%)	0	100	100
7	AX	46/56 (82%)	46 (100%)	0	0	100	100
8	BA	38/44 (86%)	36 (95%)	2 (5%)	0	100	100
8	BB	37/44 (84%)	37 (100%)	0	0	100	100
8	BC	38/44 (86%)	38 (100%)	0	0	100	100
8	BD	38/44 (86%)	36 (95%)	2 (5%)	0	100	100
8	BE	36/44 (82%)	36 (100%)	0	0	100	100
8	BF	37/44 (84%)	37 (100%)	0	0	100	100
8	BG	37/44 (84%)	37 (100%)	0	0	100	100
8	BH	37/44 (84%)	37 (100%)	0	0	100	100
8	BI	36/44 (82%)	36 (100%)	0	0	100	100
8	BJ	38/44 (86%)	36 (95%)	2 (5%)	0	100	100
8	BK	37/44 (84%)	37 (100%)	0	0	100	100
8	BL	37/44 (84%)	37 (100%)	0	0	100	100
8	BM	38/44 (86%)	36 (95%)	2 (5%)	0	100	100
8	BN	37/44 (84%)	37 (100%)	0	0	100	100
8	BO	37/44 (84%)	37 (100%)	0	0	100	100
8	BP	38/44 (86%)	37 (97%)	1 (3%)	0	100	100
8	BQ	37/44 (84%)	37 (100%)	0	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
8	BR	37/44 (84%)	37 (100%)	0	0	100	100
8	BS	37/44 (84%)	37 (100%)	0	0	100	100
8	BT	37/44 (84%)	35 (95%)	2 (5%)	0	100	100
8	BU	37/44 (84%)	37 (100%)	0	0	100	100
8	BV	39/44 (89%)	37 (95%)	2 (5%)	0	100	100
8	BW	38/44 (86%)	36 (95%)	2 (5%)	0	100	100
8	BX	38/44 (86%)	36 (95%)	2 (5%)	0	100	100
8	Ba	36/44 (82%)	36 (100%)	0	0	100	100
8	Bb	36/44 (82%)	35 (97%)	1 (3%)	0	100	100
8	Bc	36/44 (82%)	35 (97%)	1 (3%)	0	100	100
8	Bd	35/44 (80%)	35 (100%)	0	0	100	100
8	Be	36/44 (82%)	35 (97%)	1 (3%)	0	100	100
8	Bf	32/44 (73%)	32 (100%)	0	0	100	100
8	Bg	36/44 (82%)	36 (100%)	0	0	100	100
8	Bh	34/44 (77%)	33 (97%)	1 (3%)	0	100	100
8	Bi	36/44 (82%)	35 (97%)	1 (3%)	0	100	100
8	Bj	36/44 (82%)	36 (100%)	0	0	100	100
8	Bk	36/44 (82%)	36 (100%)	0	0	100	100
8	Bl	36/44 (82%)	36 (100%)	0	0	100	100
8	Bm	36/44 (82%)	36 (100%)	0	0	100	100
8	Bn	36/44 (82%)	36 (100%)	0	0	100	100
8	Bo	36/44 (82%)	36 (100%)	0	0	100	100
8	Bp	33/44 (75%)	33 (100%)	0	0	100	100
9	Aa	67/71 (94%)	66 (98%)	1 (2%)	0	100	100
9	Ab	54/71 (76%)	53 (98%)	1 (2%)	0	100	100
9	Ac	54/71 (76%)	51 (94%)	3 (6%)	0	100	100
9	Ad	52/71 (73%)	52 (100%)	0	0	100	100
9	Ae	57/71 (80%)	57 (100%)	0	0	100	100
9	Af	54/71 (76%)	51 (94%)	3 (6%)	0	100	100
9	Ag	55/71 (78%)	55 (100%)	0	0	100	100
9	Ah	51/71 (72%)	48 (94%)	3 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
9	Ai	55/71 (78%)	53 (96%)	2 (4%)	0	100	100
9	Aj	54/71 (76%)	53 (98%)	1 (2%)	0	100	100
9	Ak	54/71 (76%)	54 (100%)	0	0	100	100
9	Al	67/71 (94%)	63 (94%)	4 (6%)	0	100	100
9	Am	50/71 (70%)	50 (100%)	0	0	100	100
9	An	54/71 (76%)	53 (98%)	1 (2%)	0	100	100
9	Ao	55/71 (78%)	55 (100%)	0	0	100	100
9	Ap	53/71 (75%)	53 (100%)	0	0	100	100
All	All	4696/5729 (82%)	4606 (98%)	90 (2%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	S	84/158 (53%)	84 (100%)	0	100	100
2	L	213/216 (99%)	205 (96%)	8 (4%)	28	42
3	M	272/311 (88%)	270 (99%)	2 (1%)	81	90
4	H	51/55 (93%)	51 (100%)	0	100	100
5	K	146/147 (99%)	142 (97%)	4 (3%)	40	57
6	C	251/302 (83%)	247 (98%)	4 (2%)	58	74
7	AA	38/45 (84%)	38 (100%)	0	100	100
7	AB	38/45 (84%)	38 (100%)	0	100	100
7	AC	38/45 (84%)	36 (95%)	2 (5%)	19	28
7	AD	39/45 (87%)	38 (97%)	1 (3%)	41	58
7	AE	39/45 (87%)	39 (100%)	0	100	100
7	AF	39/45 (87%)	39 (100%)	0	100	100
7	AG	39/45 (87%)	39 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
7	AH	39/45 (87%)	39 (100%)	0	100	100
7	AI	39/45 (87%)	38 (97%)	1 (3%)	41	58
7	AJ	38/45 (84%)	35 (92%)	3 (8%)	10	13
7	AK	38/45 (84%)	38 (100%)	0	100	100
7	AL	38/45 (84%)	37 (97%)	1 (3%)	41	58
7	AM	39/45 (87%)	39 (100%)	0	100	100
7	AN	38/45 (84%)	37 (97%)	1 (3%)	41	58
7	AO	38/45 (84%)	38 (100%)	0	100	100
7	AP	38/45 (84%)	38 (100%)	0	100	100
7	AQ	39/45 (87%)	38 (97%)	1 (3%)	41	58
7	AR	38/45 (84%)	38 (100%)	0	100	100
7	AS	39/45 (87%)	39 (100%)	0	100	100
7	AT	38/45 (84%)	38 (100%)	0	100	100
7	AU	38/45 (84%)	37 (97%)	1 (3%)	41	58
7	AV	38/45 (84%)	37 (97%)	1 (3%)	41	58
7	AW	39/45 (87%)	39 (100%)	0	100	100
7	AX	38/45 (84%)	38 (100%)	0	100	100
8	BA	30/34 (88%)	28 (93%)	2 (7%)	13	19
8	BB	30/34 (88%)	30 (100%)	0	100	100
8	BC	30/34 (88%)	30 (100%)	0	100	100
8	BD	30/34 (88%)	29 (97%)	1 (3%)	33	48
8	BE	30/34 (88%)	29 (97%)	1 (3%)	33	48
8	BF	30/34 (88%)	30 (100%)	0	100	100
8	BG	30/34 (88%)	30 (100%)	0	100	100
8	BH	30/34 (88%)	30 (100%)	0	100	100
8	BI	30/34 (88%)	30 (100%)	0	100	100
8	BJ	30/34 (88%)	30 (100%)	0	100	100
8	BK	30/34 (88%)	30 (100%)	0	100	100
8	BL	30/34 (88%)	30 (100%)	0	100	100
8	BM	30/34 (88%)	29 (97%)	1 (3%)	33	48
8	BN	30/34 (88%)	30 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
8	BO	30/34 (88%)	28 (93%)	2 (7%)	13	19
8	BP	30/34 (88%)	30 (100%)	0	100	100
8	BQ	30/34 (88%)	30 (100%)	0	100	100
8	BR	30/34 (88%)	30 (100%)	0	100	100
8	BS	30/34 (88%)	30 (100%)	0	100	100
8	BT	30/34 (88%)	29 (97%)	1 (3%)	33	48
8	BU	30/34 (88%)	30 (100%)	0	100	100
8	BV	31/34 (91%)	30 (97%)	1 (3%)	34	50
8	BW	30/34 (88%)	30 (100%)	0	100	100
8	BX	30/34 (88%)	29 (97%)	1 (3%)	33	48
8	Ba	30/34 (88%)	30 (100%)	0	100	100
8	Bb	30/34 (88%)	30 (100%)	0	100	100
8	Bc	30/34 (88%)	30 (100%)	0	100	100
8	Bd	29/34 (85%)	28 (97%)	1 (3%)	32	47
8	Be	30/34 (88%)	29 (97%)	1 (3%)	33	48
8	Bf	26/34 (76%)	26 (100%)	0	100	100
8	Bg	30/34 (88%)	30 (100%)	0	100	100
8	Bh	28/34 (82%)	26 (93%)	2 (7%)	12	17
8	Bi	30/34 (88%)	30 (100%)	0	100	100
8	Bj	30/34 (88%)	30 (100%)	0	100	100
8	Bk	30/34 (88%)	30 (100%)	0	100	100
8	Bl	30/34 (88%)	28 (93%)	2 (7%)	13	19
8	Bm	30/34 (88%)	29 (97%)	1 (3%)	33	48
8	Bn	30/34 (88%)	30 (100%)	0	100	100
8	Bo	30/34 (88%)	30 (100%)	0	100	100
8	Bp	27/34 (79%)	26 (96%)	1 (4%)	29	43
9	Aa	53/55 (96%)	53 (100%)	0	100	100
9	Ab	45/55 (82%)	44 (98%)	1 (2%)	47	65
9	Ac	46/55 (84%)	44 (96%)	2 (4%)	25	36
9	Ad	44/55 (80%)	43 (98%)	1 (2%)	45	63
9	Ae	46/55 (84%)	46 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
9	Af	46/55 (84%)	46 (100%)	0	100	100
9	Ag	46/55 (84%)	43 (94%)	3 (6%)	14	20
9	Ah	43/55 (78%)	42 (98%)	1 (2%)	45	63
9	Ai	46/55 (84%)	43 (94%)	3 (6%)	14	20
9	Aj	45/55 (82%)	44 (98%)	1 (2%)	47	65
9	Ak	46/55 (84%)	46 (100%)	0	100	100
9	Al	53/55 (96%)	50 (94%)	3 (6%)	17	25
9	Am	44/55 (80%)	43 (98%)	1 (2%)	45	63
9	An	46/55 (84%)	44 (96%)	2 (4%)	25	36
9	Ao	46/55 (84%)	46 (100%)	0	100	100
9	Ap	45/55 (82%)	44 (98%)	1 (2%)	47	65
All	All	3870/4509 (86%)	3803 (98%)	67 (2%)	56	72

5 of 67 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
9	Al	23	VAL
8	Bl	2	THR
9	Ap	13	VAL
8	BE	22	ILE
7	AD	1	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 34 such sidechains are listed below:

Mol	Chain	Res	Type
9	Ac	36	GLN
9	Ac	50	GLN
9	An	36	GLN
8	BA	16	HIS
6	C	293	ASN

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](#)

Of 202 ligands modelled in this entry, 1 is monoatomic - leaving 201 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
12	LMT	BX	101	-	36,36,36	1.17	5 (13%)	47,47,47	0.99	2 (4%)
19	V7N	AI	103	-	43,44,44	1.97	9 (20%)	44,54,54	1.59	8 (18%)
10	BCL	BP	101	-	64,74,74	1.23	5 (7%)	78,115,115	1.55	12 (15%)
10	BCL	Ao	101	-	64,74,74	1.31	6 (9%)	78,115,115	1.68	12 (15%)
12	LMT	BQ	102	-	36,36,36	1.19	6 (16%)	47,47,47	0.95	2 (4%)
12	LMT	Bi	1201	-	36,36,36	1.18	6 (16%)	47,47,47	1.12	2 (4%)
19	V7N	Ad	102	-	43,44,44	1.99	10 (23%)	44,54,54	1.52	8 (18%)
10	BCL	AI	102	-	64,74,74	1.25	7 (10%)	78,115,115	1.61	14 (17%)
19	V7N	BK	104	-	43,44,44	1.99	10 (23%)	44,54,54	1.59	9 (20%)
12	LMT	BF	101	-	36,36,36	1.19	6 (16%)	47,47,47	1.01	2 (4%)
10	BCL	BN	101	-	64,74,74	1.26	6 (9%)	78,115,115	1.52	13 (16%)
10	BCL	Bf	101	-	64,74,74	1.32	7 (10%)	78,115,115	1.74	12 (15%)
12	LMT	BM	102	-	36,36,36	1.21	7 (19%)	47,47,47	1.03	3 (6%)
13	MQ8	M	409	-	54,54,54	0.52	1 (1%)	66,69,69	0.50	1 (1%)
10	BCL	Bp	1004	-	64,74,74	1.30	5 (7%)	78,115,115	1.45	10 (12%)
12	LMT	M	407	-	36,36,36	1.24	6 (16%)	47,47,47	1.01	3 (6%)
12	LMT	BL	103	-	36,36,36	1.20	6 (16%)	47,47,47	1.01	2 (4%)
10	BCL	BK	102	-	64,74,74	1.21	6 (9%)	78,115,115	1.58	12 (15%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
10	BCL	AD	101	10	64,74,74	1.28	5 (7%)	78,115,115	1.50	12 (15%)
17	PEX	Bf	104	-	34,34,34	0.53	0	37,39,39	0.66	0
12	LMT	Bg	1205	-	36,36,36	1.19	6 (16%)	47,47,47	0.96	1 (2%)
19	V7N	Bl	102	-	43,44,44	2.00	10 (23%)	44,54,54	1.51	8 (18%)
10	BCL	Bj	101	-	64,74,74	1.26	5 (7%)	78,115,115	1.84	18 (23%)
18	HEC	C	1000	6	32,50,50	2.25	3 (9%)	24,82,82	1.39	3 (12%)
10	BCL	AN	101	-	64,74,74	1.26	7 (10%)	78,115,115	1.48	9 (11%)
19	V7N	Am	102	-	43,44,44	1.96	9 (20%)	44,54,54	1.61	10 (22%)
17	PEX	Bn	102	-	34,34,34	0.54	0	37,39,39	0.49	0
10	BCL	Ac	101	-	64,74,74	1.27	5 (7%)	78,115,115	1.72	12 (15%)
19	V7N	BD	103	-	43,44,44	2.00	10 (23%)	44,54,54	1.57	9 (20%)
19	V7N	BX	102	-	43,44,44	1.97	9 (20%)	44,54,54	1.66	9 (20%)
10	BCL	BD	101	-	64,74,74	1.25	5 (7%)	78,115,115	1.52	12 (15%)
12	LMT	BT	103	-	36,36,36	1.20	6 (16%)	47,47,47	0.99	2 (4%)
19	V7N	Bm	101	-	43,44,44	1.97	10 (23%)	44,54,54	1.62	11 (25%)
13	MQ8	Ad	101	-	54,54,54	0.31	0	66,69,69	0.54	1 (1%)
19	V7N	BW	101	-	43,44,44	1.98	10 (23%)	44,54,54	1.56	8 (18%)
12	LMT	Bl	105	-	36,36,36	1.18	6 (16%)	47,47,47	1.08	2 (4%)
10	BCL	Bd	101	10	64,74,74	1.39	7 (10%)	78,115,115	1.73	13 (16%)
10	BCL	Bn	101	-	64,74,74	1.30	6 (9%)	78,115,115	1.63	15 (19%)
10	BCL	AW	101	-	64,74,74	1.26	6 (9%)	78,115,115	1.51	10 (12%)
10	BCL	Bf	103	-	64,74,74	1.27	5 (7%)	78,115,115	1.51	11 (14%)
12	LMT	L	309	-	36,36,36	1.19	6 (16%)	47,47,47	1.03	3 (6%)
12	LMT	AK	102	-	36,36,36	1.21	6 (16%)	47,47,47	1.05	2 (4%)
11	BPH	M	405	-	51,70,70	0.88	1 (1%)	52,101,101	1.01	4 (7%)
12	LMT	AB	102	-	36,36,36	1.20	6 (16%)	47,47,47	1.09	4 (8%)
10	BCL	AC	101	-	64,74,74	1.28	6 (9%)	78,115,115	1.63	12 (15%)
10	BCL	AF	101	-	64,74,74	1.27	7 (10%)	78,115,115	1.51	9 (11%)
18	HEC	C	1002	6	32,50,50	2.15	3 (9%)	24,82,82	1.59	3 (12%)
10	BCL	AH	101	-	64,74,74	1.27	7 (10%)	78,115,115	1.56	11 (14%)
10	BCL	Ak	101	10	64,74,74	1.26	6 (9%)	78,115,115	1.56	11 (14%)
10	BCL	Bi	1203	-	64,74,74	1.26	5 (7%)	78,115,115	1.49	11 (14%)
12	LMT	BN	102	-	36,36,36	1.21	6 (16%)	47,47,47	1.01	3 (6%)
19	V7N	Bc	1202	-	43,44,44	1.98	10 (23%)	44,54,54	1.55	10 (22%)
10	BCL	BH	102	-	64,74,74	1.23	5 (7%)	78,115,115	1.59	12 (15%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
10	BCL	AV	1001	-	64,74,74	1.26	6 (9%)	78,115,115	1.51	10 (12%)
17	PEX	Bj	104	-	34,34,34	0.54	0	37,39,39	0.50	0
12	LMT	BB	103	10	36,36,36	1.19	6 (16%)	47,47,47	0.98	2 (4%)
17	PEX	Bb	102	-	34,34,34	0.56	0	37,39,39	0.51	0
12	LMT	Ba	104	-	36,36,36	1.18	5 (13%)	47,47,47	1.04	3 (6%)
10	BCL	AX	102	-	64,74,74	1.29	7 (10%)	78,115,115	1.53	10 (12%)
17	PEX	Ba	103	10	34,34,34	0.55	0	37,39,39	0.51	0
19	V7N	BS	103	-	43,44,44	2.02	9 (20%)	44,54,54	1.54	9 (20%)
10	BCL	BB	101	-	64,74,74	1.26	5 (7%)	78,115,115	1.57	15 (19%)
12	LMT	Bg	1201	-	36,36,36	1.18	6 (16%)	47,47,47	1.07	3 (6%)
10	BCL	AR	101	-	64,74,74	1.24	7 (10%)	78,115,115	1.60	14 (17%)
10	BCL	BO	102	-	64,74,74	1.26	5 (7%)	78,115,115	1.50	13 (16%)
10	BCL	Aj	101	-	64,74,74	1.29	6 (9%)	78,115,115	1.59	10 (12%)
12	LMT	L	306	-	36,36,36	1.15	5 (13%)	47,47,47	1.03	4 (8%)
10	BCL	AO	101	-	64,74,74	1.26	6 (9%)	78,115,115	1.59	12 (15%)
19	V7N	Bi	1202	-	43,44,44	2.01	9 (20%)	44,54,54	1.57	11 (25%)
10	BCL	BR	101	-	64,74,74	1.26	6 (9%)	78,115,115	1.56	13 (16%)
17	PEX	Bd	104	-	34,34,34	0.55	0	37,39,39	0.50	0
10	BCL	Bh	102	-	64,74,74	1.25	5 (7%)	78,115,115	1.49	11 (14%)
12	LMT	BU	101	-	36,36,36	1.13	5 (13%)	47,47,47	0.94	1 (2%)
19	V7N	AL	102	-	43,44,44	2.02	9 (20%)	44,54,54	1.50	8 (18%)
10	BCL	M	403	-	64,74,74	1.28	5 (7%)	78,115,115	1.50	10 (12%)
10	BCL	An	101	-	64,74,74	1.30	6 (9%)	78,115,115	1.63	12 (15%)
10	BCL	BV	102	-	64,74,74	1.22	5 (7%)	78,115,115	1.49	10 (12%)
10	BCL	Al	101	-	64,74,74	1.31	6 (9%)	78,115,115	1.56	10 (12%)
10	BCL	AK	101	-	64,74,74	1.28	6 (9%)	78,115,115	1.59	13 (16%)
12	LMT	BG	103	-	36,36,36	1.20	6 (16%)	47,47,47	0.99	2 (4%)
10	BCL	Bk	1203	-	64,74,74	1.28	5 (7%)	78,115,115	1.46	9 (11%)
10	BCL	BW	102	-	64,74,74	1.25	6 (9%)	78,115,115	1.59	11 (14%)
10	BCL	BG	102	-	64,74,74	1.23	5 (7%)	78,115,115	1.47	11 (14%)
19	V7N	AT	102	-	43,44,44	1.94	9 (20%)	44,54,54	1.69	9 (20%)
19	V7N	An	102	-	43,44,44	2.00	10 (23%)	44,54,54	1.52	10 (22%)
10	BCL	BL	102	-	64,74,74	1.24	6 (9%)	78,115,115	1.55	12 (15%)
12	LMT	Bc	1204	-	36,36,36	1.20	6 (16%)	47,47,47	1.03	3 (6%)
12	LMT	L	305	-	36,36,36	1.16	5 (13%)	47,47,47	1.00	2 (4%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
10	BCL	BE	102	-	64,74,74	1.23	6 (9%)	78,115,115	1.48	10 (12%)
12	LMT	BI	1101	-	36,36,36	1.19	5 (13%)	47,47,47	0.95	1 (2%)
12	LMT	BP	102	-	36,36,36	1.22	6 (16%)	47,47,47	0.97	2 (4%)
10	BCL	Am	101	-	64,74,74	1.27	7 (10%)	78,115,115	1.60	13 (16%)
17	PEX	Bk	1204	10	34,34,34	0.57	0	37,39,39	0.54	0
15	CD4	M	402	-	83,83,83	0.53	1 (1%)	89,95,95	0.40	0
10	BCL	AM	101	-	64,74,74	1.27	6 (9%)	78,115,115	1.56	10 (12%)
12	LMT	Bd	105	-	36,36,36	1.20	6 (16%)	47,47,47	1.01	2 (4%)
12	LMT	BC	102	-	36,36,36	1.24	6 (16%)	47,47,47	0.93	2 (4%)
17	PEX	AO	102	-	34,34,34	0.55	0	37,39,39	0.53	0
19	V7N	AX	101	-	43,44,44	2.04	9 (20%)	44,54,54	1.57	6 (13%)
10	BCL	BA	101	-	64,74,74	1.27	6 (9%)	78,115,115	1.52	13 (16%)
19	V7N	BB	102	-	43,44,44	1.95	10 (23%)	44,54,54	1.66	10 (22%)
12	LMT	BX	104	-	36,36,36	1.17	6 (16%)	47,47,47	0.98	2 (4%)
19	V7N	Bj	103	-	43,44,44	2.01	10 (23%)	44,54,54	1.66	10 (22%)
10	BCL	Bo	1202	-	64,74,74	1.26	4 (6%)	78,115,115	1.46	12 (15%)
10	BCL	BC	101	-	64,74,74	1.25	6 (9%)	78,115,115	1.54	13 (16%)
10	BCL	AP	102	-	64,74,74	1.29	6 (9%)	78,115,115	1.60	14 (17%)
10	BCL	Ag	101	-	64,74,74	1.29	6 (9%)	78,115,115	1.61	13 (16%)
10	BCL	Ai	101	-	64,74,74	1.28	6 (9%)	78,115,115	1.49	10 (12%)
19	V7N	AP	101	-	43,44,44	2.01	10 (23%)	44,54,54	1.68	9 (20%)
19	V7N	Bg	1202	-	43,44,44	1.99	10 (23%)	44,54,54	1.63	9 (20%)
15	CD4	Af	101	-	83,83,83	0.39	0	89,95,95	0.38	0
12	LMT	BS	102	-	36,36,36	1.18	6 (16%)	47,47,47	0.98	1 (2%)
10	BCL	BF	102	-	64,74,74	1.24	5 (7%)	78,115,115	1.48	12 (15%)
12	LMT	BO	103	-	36,36,36	1.20	6 (16%)	47,47,47	0.99	2 (4%)
17	PEX	M	408	-	34,34,34	0.54	0	37,39,39	0.63	1 (2%)
12	LMT	BK	103	-	36,36,36	1.20	6 (16%)	47,47,47	0.88	0
12	LMT	Bj	102	-	36,36,36	1.21	6 (16%)	47,47,47	0.97	2 (4%)
19	V7N	BL	101	-	43,44,44	2.03	10 (23%)	44,54,54	1.54	9 (20%)
19	V7N	AI	101	-	43,44,44	1.99	10 (23%)	44,54,54	1.61	9 (20%)
12	LMT	L	304	-	36,36,36	1.14	5 (13%)	47,47,47	0.92	1 (2%)
10	BCL	BJ	101	-	64,74,74	1.25	5 (7%)	78,115,115	1.53	12 (15%)
19	V7N	BE	101	-	43,44,44	2.00	10 (23%)	44,54,54	1.68	9 (20%)
19	V7N	BR	103	-	43,44,44	1.94	9 (20%)	44,54,54	1.61	9 (20%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
10	BCL	Bd	103	-	64,74,74	1.28	7 (10%)	78,115,115	1.47	10 (12%)
19	V7N	Bp	1003	-	43,44,44	2.02	10 (23%)	44,54,54	1.51	9 (20%)
10	BCL	L	302	-	64,74,74	1.28	6 (9%)	78,115,115	1.59	10 (12%)
12	LMT	Bk	1201	-	36,36,36	1.17	6 (16%)	47,47,47	1.17	3 (6%)
10	BCL	Ah	101	-	64,74,74	1.34	7 (10%)	78,115,115	1.57	12 (15%)
10	BCL	L	301	10	64,74,74	1.24	5 (7%)	78,115,115	1.52	11 (14%)
12	LMT	BG	101	-	36,36,36	1.22	6 (16%)	47,47,47	0.95	2 (4%)
10	BCL	AQ	103	-	64,74,74	1.29	7 (10%)	78,115,115	1.60	13 (16%)
10	BCL	Aa	101	-	64,74,74	1.28	5 (7%)	78,115,115	1.60	13 (16%)
18	HEC	C	1001	6	32,50,50	2.16	3 (9%)	24,82,82	1.52	4 (16%)
12	LMT	L	308	-	36,36,36	1.17	5 (13%)	47,47,47	0.98	1 (2%)
13	MQ8	L	310	-	54,54,54	0.34	0	66,69,69	0.58	1 (1%)
10	BCL	M	404	10	64,74,74	1.26	6 (9%)	78,115,115	1.77	15 (19%)
12	LMT	Bm	104	-	36,36,36	1.17	6 (16%)	47,47,47	1.14	3 (6%)
10	BCL	Bl	103	-	64,74,74	1.24	6 (9%)	78,115,115	1.71	12 (15%)
17	PEX	AT	103	-	34,34,34	0.54	0	37,39,39	0.73	2 (5%)
19	V7N	BC	103	-	43,44,44	1.92	10 (23%)	44,54,54	1.70	9 (20%)
10	BCL	BT	101	-	64,74,74	1.24	5 (7%)	78,115,115	1.47	10 (12%)
12	LMT	BD	102	-	36,36,36	1.23	6 (16%)	47,47,47	1.00	3 (6%)
19	V7N	Bf	102	-	43,44,44	2.02	10 (23%)	44,54,54	1.66	11 (25%)
17	PEX	AG	1101	-	34,34,34	0.54	0	37,39,39	0.47	0
19	V7N	Bb	101	-	43,44,44	1.97	10 (23%)	44,54,54	1.57	9 (20%)
17	PEX	Bm	103	-	34,34,34	0.55	0	37,39,39	0.46	0
10	BCL	AE	101	-	64,74,74	1.27	7 (10%)	78,115,115	1.56	12 (15%)
10	BCL	AU	101	-	64,74,74	1.27	5 (7%)	78,115,115	1.55	13 (16%)
17	PEX	Bp	1005	-	34,34,34	0.54	0	37,39,39	0.48	0
10	BCL	BI	1102	-	64,74,74	1.28	6 (9%)	78,115,115	1.65	13 (16%)
10	BCL	AQ	101	17	64,74,74	1.26	6 (9%)	78,115,115	1.61	12 (15%)
19	V7N	BF	103	-	43,44,44	1.93	10 (23%)	44,54,54	1.69	8 (18%)
17	PEX	Bi	1204	-	34,34,34	0.55	0	37,39,39	0.58	0
12	LMT	BK	101	-	36,36,36	1.18	6 (16%)	47,47,47	1.04	3 (6%)
11	BPH	L	303	-	51,70,70	0.89	1 (1%)	52,101,101	1.05	4 (7%)
12	LMT	Bo	1201	-	36,36,36	1.20	6 (16%)	47,47,47	1.02	3 (6%)
12	LMT	BH	101	-	36,36,36	1.18	6 (16%)	47,47,47	1.04	2 (4%)
19	V7N	Ag	102	-	43,44,44	2.08	10 (23%)	44,54,54	1.42	9 (20%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
12	LMT	BV	103	-	36,36,36	1.17	6 (16%)	47,47,47	0.93	1 (2%)
10	BCL	BQ	101	-	64,74,74	1.25	5 (7%)	78,115,115	1.50	11 (14%)
16	CRT	M	406	-	41,43,43	0.39	0	50,54,54	0.78	2 (4%)
19	V7N	Ba	101	-	43,44,44	1.98	10 (23%)	44,54,54	1.69	11 (25%)
10	BCL	Af	102	-	64,74,74	1.28	6 (9%)	78,115,115	1.80	14 (17%)
17	PEX	Bl	104	-	34,34,34	0.55	0	37,39,39	0.48	0
12	LMT	BR	102	-	36,36,36	1.21	6 (16%)	47,47,47	0.98	2 (4%)
10	BCL	Ba	102	-	64,74,74	1.26	5 (7%)	78,115,115	1.71	13 (16%)
10	BCL	AT	101	-	64,74,74	1.26	5 (7%)	78,115,115	1.52	10 (12%)
19	V7N	Bd	102	-	43,44,44	1.96	10 (23%)	44,54,54	1.68	9 (20%)
12	LMT	AQ	102	-	36,36,36	1.17	6 (16%)	47,47,47	1.06	2 (4%)
10	BCL	AB	101	12,17	64,74,74	1.29	7 (10%)	78,115,115	1.52	12 (15%)
10	BCL	Bp	1001	-	64,74,74	1.51	7 (10%)	78,115,115	2.06	16 (20%)
12	LMT	BA	102	-	36,36,36	1.19	6 (16%)	47,47,47	0.97	2 (4%)
10	BCL	Bm	102	-	64,74,74	1.28	5 (7%)	78,115,115	1.46	11 (14%)
10	BCL	AT	104	-	64,74,74	1.29	6 (9%)	78,115,115	1.59	12 (15%)
19	V7N	BT	102	-	43,44,44	2.00	10 (23%)	44,54,54	1.52	8 (18%)
10	BCL	Ae	101	-	64,74,74	1.28	5 (7%)	78,115,115	1.54	11 (14%)
10	BCL	Bc	1203	10	64,74,74	1.29	6 (9%)	78,115,115	1.53	11 (14%)
10	BCL	AL	101	-	64,74,74	1.26	5 (7%)	78,115,115	1.46	10 (12%)
10	BCL	BS	101	-	64,74,74	1.25	5 (7%)	78,115,115	1.47	10 (12%)
10	BCL	Bg	1203	-	64,74,74	1.27	6 (9%)	78,115,115	1.51	11 (14%)
10	BCL	BM	101	-	64,74,74	1.27	6 (9%)	78,115,115	1.52	10 (12%)
10	BCL	BP	104	-	64,74,74	1.30	6 (9%)	78,115,115	1.56	11 (14%)
12	LMT	Bp	1002	-	36,36,36	1.20	6 (16%)	47,47,47	0.98	2 (4%)
19	V7N	BP	103	-	43,44,44	1.98	10 (23%)	44,54,54	1.53	8 (18%)
17	PEX	Bg	1204	-	34,34,34	0.53	0	37,39,39	0.55	0
19	V7N	AF	102	-	43,44,44	2.00	10 (23%)	44,54,54	1.55	8 (18%)
12	LMT	BI	1103	-	36,36,36	1.20	6 (16%)	47,47,47	0.98	1 (2%)
10	BCL	Bl	101	-	64,74,74	1.44	8 (12%)	78,115,115	1.80	12 (15%)
10	BCL	Bh	101	-	64,74,74	1.34	8 (12%)	78,115,115	1.77	12 (15%)
19	V7N	AH	102	-	43,44,44	2.01	10 (23%)	44,54,54	1.56	7 (15%)
10	BCL	Be	101	17	64,74,74	1.25	5 (7%)	78,115,115	1.50	11 (14%)
12	LMT	Bc	1201	-	36,36,36	1.19	6 (16%)	47,47,47	1.03	3 (6%)
10	BCL	AU	102	-	64,74,74	1.22	6 (9%)	78,115,115	1.56	10 (12%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
18	HEC	C	1003	6	32,50,50	2.14	3 (9%)	24,82,82	1.54	3 (12%)
12	LMT	L	307	-	36,36,36	1.13	5 (13%)	47,47,47	0.96	0
10	BCL	BX	103	-	64,74,74	1.24	5 (7%)	78,115,115	1.58	12 (15%)
19	V7N	Bk	1202	-	43,44,44	1.96	9 (20%)	44,54,54	1.57	8 (18%)
19	V7N	BO	101	-	43,44,44	1.98	8 (18%)	44,54,54	1.63	10 (22%)
17	PEX	Be	102	10	34,34,34	0.54	0	37,39,39	0.56	0
19	V7N	BN	103	-	43,44,44	1.98	10 (23%)	44,54,54	1.56	8 (18%)
19	V7N	BV	101	-	43,44,44	1.98	10 (23%)	44,54,54	1.62	9 (20%)

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
12	LMT	BX	101	-	-	11/21/61/61	0/2/2/2
19	V7N	AI	103	-	-	12/53/53/53	-
10	BCL	BP	101	-	-	2/37/137/137	-
10	BCL	Ao	101	-	-	5/37/137/137	-
12	LMT	BQ	102	-	-	9/21/61/61	0/2/2/2
12	LMT	Bi	1201	-	-	11/21/61/61	0/2/2/2
19	V7N	Ad	102	-	-	18/53/53/53	-
10	BCL	AI	102	-	-	4/37/137/137	-
19	V7N	BK	104	-	-	11/53/53/53	-
12	LMT	BF	101	-	-	10/21/61/61	0/2/2/2
10	BCL	BN	101	-	-	3/37/137/137	-
10	BCL	Bf	101	-	-	7/37/137/137	-
12	LMT	BM	102	-	-	5/21/61/61	0/2/2/2
13	MQ8	M	409	-	-	25/47/67/67	0/2/2/2
10	BCL	Bp	1004	-	-	5/37/137/137	-
12	LMT	M	407	-	-	10/21/61/61	0/2/2/2
12	LMT	BL	103	-	-	10/21/61/61	0/2/2/2
10	BCL	BK	102	-	-	2/37/137/137	-
10	BCL	AD	101	10	-	12/37/137/137	-
17	PEX	Bf	104	-	-	21/38/38/38	-
12	LMT	Bg	1205	-	-	3/21/61/61	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
19	V7N	Bl	102	-	-	12/53/53/53	-
10	BCL	Bj	101	-	-	7/37/137/137	-
18	HEC	C	1000	6	-	2/10/54/54	-
10	BCL	AN	101	-	-	10/37/137/137	-
19	V7N	Am	102	-	-	18/53/53/53	-
17	PEX	Bn	102	-	-	16/38/38/38	-
10	BCL	Ac	101	-	-	7/37/137/137	-
19	V7N	BD	103	-	-	6/53/53/53	-
19	V7N	BX	102	-	-	14/53/53/53	-
10	BCL	BD	101	-	-	1/37/137/137	-
12	LMT	BT	103	-	-	7/21/61/61	0/2/2/2
19	V7N	Bm	101	-	-	13/53/53/53	-
13	MQ8	Ad	101	-	-	26/47/67/67	0/2/2/2
19	V7N	BW	101	-	-	6/53/53/53	-
12	LMT	Bl	105	-	-	12/21/61/61	0/2/2/2
10	BCL	Bd	101	10	-	8/37/137/137	-
10	BCL	Bn	101	-	-	10/37/137/137	-
10	BCL	AW	101	-	-	8/37/137/137	-
10	BCL	Bf	103	-	-	9/37/137/137	-
12	LMT	L	309	-	-	9/21/61/61	0/2/2/2
12	LMT	AK	102	-	-	8/21/61/61	0/2/2/2
11	BPH	M	405	-	-	8/37/105/105	0/5/6/6
12	LMT	AB	102	-	-	9/21/61/61	0/2/2/2
10	BCL	AC	101	-	-	9/37/137/137	-
10	BCL	AF	101	-	-	9/37/137/137	-
18	HEC	C	1002	6	-	0/10/54/54	-
10	BCL	AH	101	-	-	6/37/137/137	-
10	BCL	Ak	101	10	-	5/37/137/137	-
10	BCL	Bi	1203	-	-	4/37/137/137	-
12	LMT	BN	102	-	-	11/21/61/61	0/2/2/2
19	V7N	Bc	1202	-	-	16/53/53/53	-
10	BCL	BH	102	-	-	4/37/137/137	-
10	BCL	AV	1001	-	-	1/37/137/137	-
17	PEX	Bj	104	-	-	17/38/38/38	-
12	LMT	BB	103	10	-	9/21/61/61	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
17	PEX	Bb	102	-	-	15/38/38/38	-
12	LMT	Ba	104	-	-	11/21/61/61	0/2/2/2
10	BCL	AX	102	-	-	4/37/137/137	-
17	PEX	Ba	103	10	-	18/38/38/38	-
19	V7N	BS	103	-	-	6/53/53/53	-
10	BCL	BB	101	-	-	4/37/137/137	-
12	LMT	Bg	1201	-	-	5/21/61/61	0/2/2/2
10	BCL	AR	101	-	-	7/37/137/137	-
10	BCL	BO	102	-	-	5/37/137/137	-
10	BCL	Aj	101	-	-	7/37/137/137	-
12	LMT	L	306	-	-	11/21/61/61	0/2/2/2
10	BCL	AO	101	-	-	4/37/137/137	-
19	V7N	Bi	1202	-	-	14/53/53/53	-
10	BCL	BR	101	-	-	4/37/137/137	-
17	PEX	Bd	104	-	-	16/38/38/38	-
10	BCL	Bh	102	-	-	4/37/137/137	-
12	LMT	BU	101	-	-	7/21/61/61	0/2/2/2
19	V7N	AL	102	-	-	8/53/53/53	-
10	BCL	M	403	-	-	3/37/137/137	-
10	BCL	An	101	-	-	10/37/137/137	-
10	BCL	BV	102	-	-	7/37/137/137	-
10	BCL	Al	101	-	-	1/37/137/137	-
10	BCL	AK	101	-	-	5/37/137/137	-
12	LMT	BG	103	-	-	1/21/61/61	0/2/2/2
10	BCL	Bk	1203	-	-	5/37/137/137	-
10	BCL	BW	102	-	-	4/37/137/137	-
10	BCL	BG	102	-	-	2/37/137/137	-
19	V7N	AT	102	-	-	5/53/53/53	-
19	V7N	An	102	-	-	18/53/53/53	-
10	BCL	BL	102	-	-	7/37/137/137	-
12	LMT	Bc	1204	-	-	8/21/61/61	0/2/2/2
12	LMT	L	305	-	-	5/21/61/61	0/2/2/2
10	BCL	BE	102	-	-	5/37/137/137	-
12	LMT	BI	1101	-	-	7/21/61/61	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
12	LMT	BP	102	-	-	11/21/61/61	0/2/2/2
10	BCL	Am	101	-	-	6/37/137/137	-
17	PEX	Bk	1204	10	-	17/38/38/38	-
15	CD4	M	402	-	-	19/94/94/94	-
10	BCL	AM	101	-	-	6/37/137/137	-
12	LMT	Bd	105	-	-	3/21/61/61	0/2/2/2
12	LMT	BC	102	-	-	11/21/61/61	0/2/2/2
17	PEX	AO	102	-	-	15/38/38/38	-
19	V7N	AX	101	-	-	14/53/53/53	-
10	BCL	BA	101	-	-	3/37/137/137	-
19	V7N	BB	102	-	-	5/53/53/53	-
12	LMT	BX	104	-	-	7/21/61/61	0/2/2/2
19	V7N	Bj	103	-	-	13/53/53/53	-
10	BCL	Bo	1202	-	-	9/37/137/137	-
10	BCL	BC	101	-	-	2/37/137/137	-
10	BCL	AP	102	-	-	4/37/137/137	-
10	BCL	Ag	101	-	-	3/37/137/137	-
10	BCL	Ai	101	-	-	6/37/137/137	-
19	V7N	AP	101	-	-	6/53/53/53	-
19	V7N	Bg	1202	-	-	13/53/53/53	-
15	CD4	Af	101	-	-	24/94/94/94	-
12	LMT	BS	102	-	-	7/21/61/61	0/2/2/2
10	BCL	BF	102	-	-	4/37/137/137	-
12	LMT	BO	103	-	-	11/21/61/61	0/2/2/2
17	PEX	M	408	-	-	13/38/38/38	-
12	LMT	BK	103	-	-	9/21/61/61	0/2/2/2
12	LMT	Bj	102	-	-	5/21/61/61	0/2/2/2
19	V7N	BL	101	-	-	12/53/53/53	-
19	V7N	AI	101	-	-	12/53/53/53	-
12	LMT	L	304	-	-	9/21/61/61	0/2/2/2
10	BCL	BJ	101	-	-	3/37/137/137	-
19	V7N	BE	101	-	-	10/53/53/53	-
19	V7N	BR	103	-	-	5/53/53/53	-
10	BCL	Bd	103	-	-	6/37/137/137	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
19	V7N	Bp	1003	-	-	9/53/53/53	-
10	BCL	L	302	-	-	3/37/137/137	-
12	LMT	Bk	1201	-	-	6/21/61/61	0/2/2/2
10	BCL	Ah	101	-	-	7/37/137/137	-
10	BCL	L	301	10	-	2/37/137/137	-
12	LMT	BG	101	-	-	6/21/61/61	0/2/2/2
10	BCL	AQ	103	-	-	4/37/137/137	-
10	BCL	Aa	101	-	-	9/37/137/137	-
18	HEC	C	1001	6	-	3/10/54/54	-
12	LMT	L	308	-	-	9/21/61/61	0/2/2/2
13	MQ8	L	310	-	-	25/47/67/67	0/2/2/2
10	BCL	M	404	10	-	0/37/137/137	-
12	LMT	Bm	104	-	-	3/21/61/61	0/2/2/2
10	BCL	Bl	103	-	-	2/37/137/137	-
17	PEX	AT	103	-	-	18/38/38/38	-
19	V7N	BC	103	-	-	4/53/53/53	-
10	BCL	BT	101	-	-	5/37/137/137	-
12	LMT	BD	102	-	-	10/21/61/61	0/2/2/2
19	V7N	Bf	102	-	-	13/53/53/53	-
17	PEX	AG	1101	-	-	23/38/38/38	-
19	V7N	Bb	101	-	-	11/53/53/53	-
17	PEX	Bm	103	-	-	16/38/38/38	-
10	BCL	AE	101	-	-	4/37/137/137	-
10	BCL	AU	101	-	-	8/37/137/137	-
17	PEX	Bp	1005	-	-	18/38/38/38	-
10	BCL	BI	1102	-	-	5/37/137/137	-
10	BCL	AQ	101	17	-	7/37/137/137	-
19	V7N	BF	103	-	-	5/53/53/53	-
17	PEX	Bi	1204	-	-	11/38/38/38	-
12	LMT	BK	101	-	-	7/21/61/61	0/2/2/2
11	BPH	L	303	-	-	6/37/105/105	0/5/6/6
12	LMT	Bo	1201	-	-	11/21/61/61	0/2/2/2
12	LMT	BH	101	-	-	7/21/61/61	0/2/2/2
19	V7N	Ag	102	-	-	16/53/53/53	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
12	LMT	BV	103	-	-	9/21/61/61	0/2/2/2
10	BCL	BQ	101	-	-	2/37/137/137	-
16	CRT	M	406	-	-	3/51/51/51	-
19	V7N	Ba	101	-	-	17/53/53/53	-
10	BCL	Af	102	-	-	5/37/137/137	-
17	PEX	Bl	104	-	-	21/38/38/38	-
12	LMT	BR	102	-	-	5/21/61/61	0/2/2/2
10	BCL	Ba	102	-	-	7/37/137/137	-
10	BCL	AT	101	-	-	5/37/137/137	-
19	V7N	Bd	102	-	-	15/53/53/53	-
12	LMT	AQ	102	-	-	4/21/61/61	0/2/2/2
10	BCL	AB	101	12,17	-	11/37/137/137	-
10	BCL	Bp	1001	-	-	7/37/137/137	-
12	LMT	BA	102	-	-	8/21/61/61	0/2/2/2
10	BCL	Bm	102	-	-	6/37/137/137	-
10	BCL	AT	104	-	-	8/37/137/137	-
19	V7N	BT	102	-	-	6/53/53/53	-
10	BCL	Ae	101	-	-	4/37/137/137	-
10	BCL	Bc	1203	10	-	10/37/137/137	-
10	BCL	AL	101	-	-	6/37/137/137	-
10	BCL	BS	101	-	-	4/37/137/137	-
10	BCL	Bg	1203	-	-	14/37/137/137	-
10	BCL	BM	101	-	-	3/37/137/137	-
10	BCL	BP	104	-	-	8/37/137/137	-
12	LMT	Bp	1002	-	-	8/21/61/61	0/2/2/2
19	V7N	BP	103	-	-	6/53/53/53	-
17	PEX	Bg	1204	-	-	22/38/38/38	-
19	V7N	AF	102	-	-	7/53/53/53	-
12	LMT	BI	1103	-	-	11/21/61/61	0/2/2/2
10	BCL	Bl	101	-	-	11/37/137/137	-
10	BCL	Bh	101	-	-	8/37/137/137	-
19	V7N	AH	102	-	-	7/53/53/53	-
10	BCL	Be	101	17	-	6/37/137/137	-
12	LMT	Bc	1201	-	-	6/21/61/61	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
10	BCL	AU	102	-	-	4/37/137/137	-
18	HEC	C	1003	6	-	0/10/54/54	-
12	LMT	L	307	-	-	9/21/61/61	0/2/2/2
10	BCL	BX	103	-	-	3/37/137/137	-
19	V7N	Bk	1202	-	-	10/53/53/53	-
19	V7N	BO	101	-	-	4/53/53/53	-
17	PEX	Be	102	10	-	12/38/38/38	-
19	V7N	BN	103	-	-	4/53/53/53	-
19	V7N	BV	101	-	-	8/53/53/53	-

The worst 5 of 1174 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
19	Ag	102	V7N	C28-C27	7.08	1.52	1.34
19	Bi	1202	V7N	C28-C27	6.94	1.52	1.34
19	Am	102	V7N	C28-C27	6.89	1.52	1.34
19	Ad	102	V7N	C28-C27	6.89	1.52	1.34
19	BO	101	V7N	C28-C27	6.88	1.52	1.34

The worst 5 of 1475 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	Bp	1001	BCL	C16-C15-C13	-10.34	82.49	115.92
10	Bl	101	BCL	C17-C16-C15	-7.07	80.76	113.24
10	Bl	103	BCL	C1-C2-C3	-6.53	114.75	126.04
10	Bf	101	BCL	C16-C15-C13	6.52	137.00	115.92
19	AP	101	V7N	C28-C27-C26	-6.40	108.43	126.42

There are no chirality outliers.

5 of 1686 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
10	L	302	BCL	C1A-C2A-CAA-CBA
10	L	302	BCL	C3A-C2A-CAA-CBA
10	AC	101	BCL	C2A-CAA-CBA-CGA
10	AD	101	BCL	C2-C3-C5-C6
10	AD	101	BCL	C4-C3-C5-C6

There are no ring outliers.

145 monomers are involved in 392 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
12	BX	101	LMT	1	0
10	BP	101	BCL	1	0
10	Ao	101	BCL	1	0
12	Bi	1201	LMT	3	0
10	AI	102	BCL	4	0
10	BN	101	BCL	2	0
10	Bf	101	BCL	7	0
12	BM	102	LMT	1	0
13	M	409	MQ8	10	0
10	Bp	1004	BCL	6	0
12	BL	103	LMT	2	0
10	AD	101	BCL	2	0
17	Bf	104	PEX	4	0
12	Bg	1205	LMT	1	0
10	Bj	101	BCL	11	0
10	AN	101	BCL	1	0
19	Am	102	V7N	1	0
17	Bn	102	PEX	2	0
10	Ac	101	BCL	4	0
10	BD	101	BCL	2	0
12	BT	103	LMT	3	0
13	Ad	101	MQ8	6	0
12	Bl	105	LMT	1	0
10	Bd	101	BCL	4	0
10	Bn	101	BCL	6	0
10	AW	101	BCL	4	0
10	Bf	103	BCL	7	0
12	L	309	LMT	1	0
12	AK	102	LMT	2	0
11	M	405	BPH	3	0
12	AB	102	LMT	1	0
10	AC	101	BCL	3	0
10	AF	101	BCL	5	0
10	AH	101	BCL	2	0
10	Ak	101	BCL	1	0
10	Bi	1203	BCL	6	0
12	BN	102	LMT	2	0
10	BH	102	BCL	1	0
10	AV	1001	BCL	3	0
17	Bj	104	PEX	3	0
17	Bb	102	PEX	4	0
12	Ba	104	LMT	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
10	AX	102	BCL	2	0
17	Ba	103	PEX	2	0
10	BB	101	BCL	2	0
12	Bg	1201	LMT	1	0
10	AR	101	BCL	6	0
10	BO	102	BCL	1	0
10	Aj	101	BCL	6	0
10	AO	101	BCL	7	0
10	BR	101	BCL	2	0
17	Bd	104	PEX	1	0
10	Bh	102	BCL	2	0
12	BU	101	LMT	2	0
10	M	403	BCL	4	0
10	An	101	BCL	4	0
10	BV	102	BCL	3	0
10	Al	101	BCL	1	0
10	AK	101	BCL	5	0
12	BG	103	LMT	1	0
10	Bk	1203	BCL	4	0
10	BW	102	BCL	2	0
10	BG	102	BCL	1	0
10	BL	102	BCL	2	0
10	BE	102	BCL	2	0
12	BI	1101	LMT	3	0
12	BP	102	LMT	1	0
10	Am	101	BCL	2	0
17	Bk	1204	PEX	4	0
15	M	402	CD4	3	0
10	AM	101	BCL	4	0
12	BC	102	LMT	2	0
17	AO	102	PEX	4	0
19	BB	102	V7N	1	0
12	BX	104	LMT	1	0
10	Bo	1202	BCL	4	0
10	BC	101	BCL	1	0
10	AP	102	BCL	5	0
10	Ag	101	BCL	1	0
10	Ai	101	BCL	3	0
15	Af	101	CD4	11	0
12	BS	102	LMT	2	0
10	BF	102	BCL	2	0
12	BO	103	LMT	2	0

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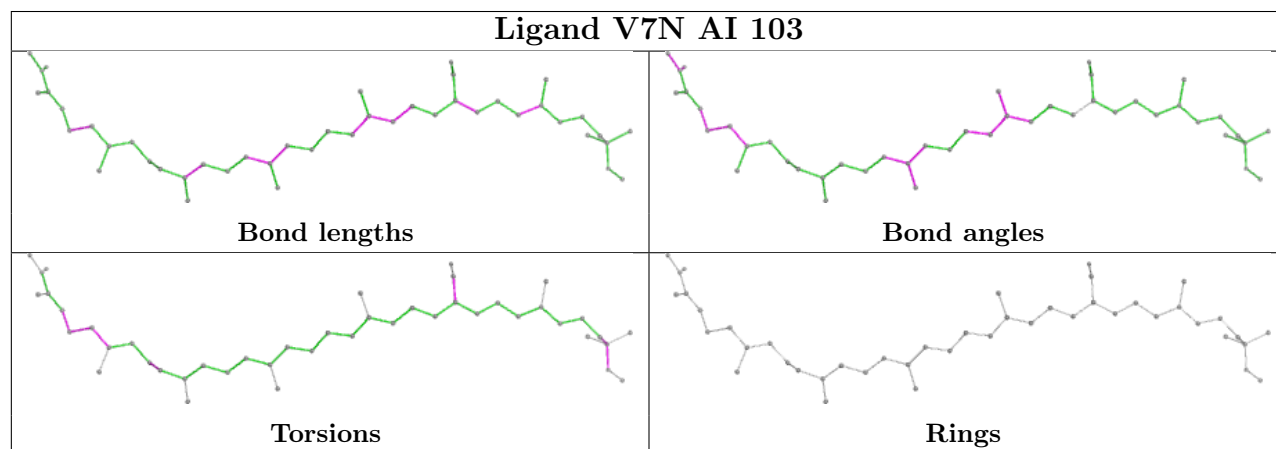
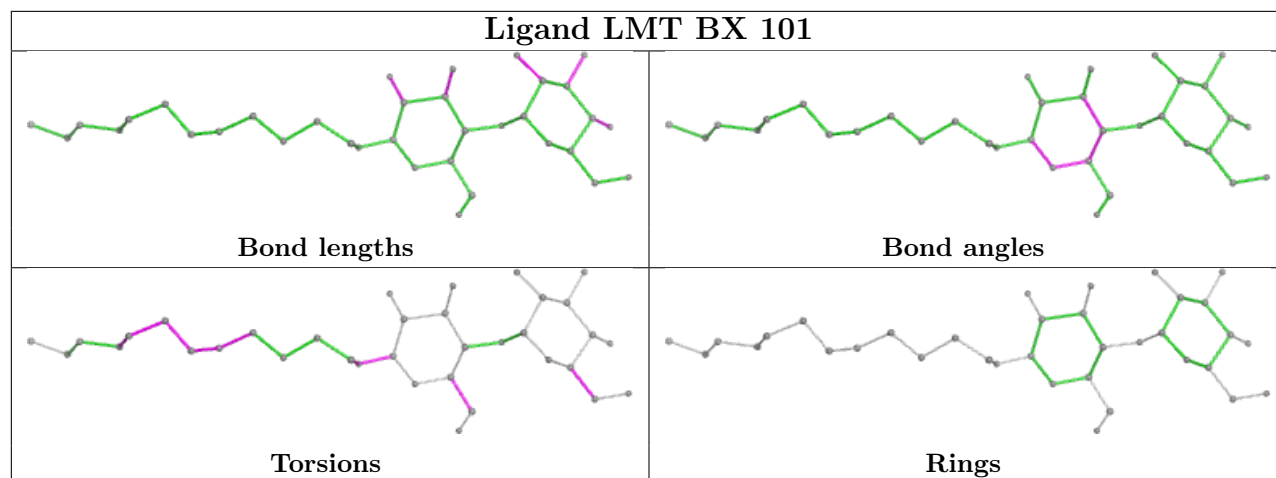
Mol	Chain	Res	Type	Clashes	Symm-Clashes
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12	Bj	102	LMT	3	0
12	L	304	LMT	1	0
19	Bp	1003	V7N	1	0
10	L	302	BCL	3	0
12	Bk	1201	LMT	1	0
10	Ah	101	BCL	6	0
10	L	301	BCL	4	0
12	BG	101	LMT	1	0
10	AQ	103	BCL	3	0
10	Aa	101	BCL	7	0
18	C	1001	HEC	1	0
13	L	310	MQ8	6	0
10	M	404	BCL	4	0
12	Bm	104	LMT	2	0
10	Bl	103	BCL	1	0
17	AT	103	PEX	3	0
19	BC	103	V7N	2	0
12	BD	102	LMT	1	0
19	Bf	102	V7N	1	0
17	AG	1101	PEX	2	0
17	Bm	103	PEX	3	0
10	AE	101	BCL	4	0
10	AU	101	BCL	3	0
17	Bp	1005	PEX	1	0
10	BI	1102	BCL	2	0
10	AQ	101	BCL	6	0
17	Bi	1204	PEX	5	0
12	BK	101	LMT	1	0
11	L	303	BPH	3	0
10	BQ	101	BCL	2	0
10	Af	102	BCL	4	0
17	Bl	104	PEX	3	0
12	BR	102	LMT	2	0
10	Ba	102	BCL	6	0
19	Bd	102	V7N	1	0
12	AQ	102	LMT	1	0
10	AB	101	BCL	4	0
10	Bp	1001	BCL	16	0
10	Bm	102	BCL	5	0
10	AT	104	BCL	2	0
10	Ae	101	BCL	2	0

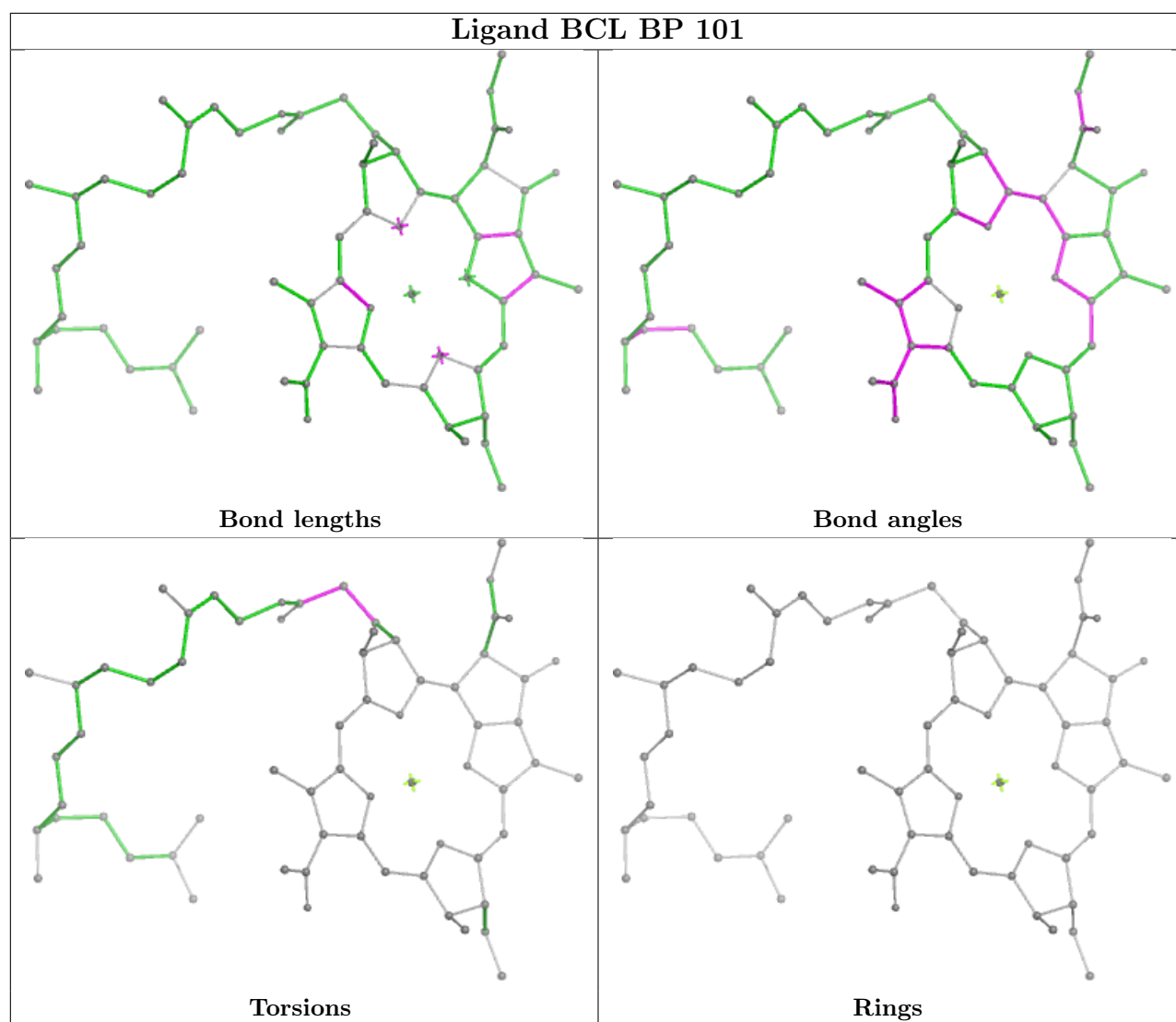
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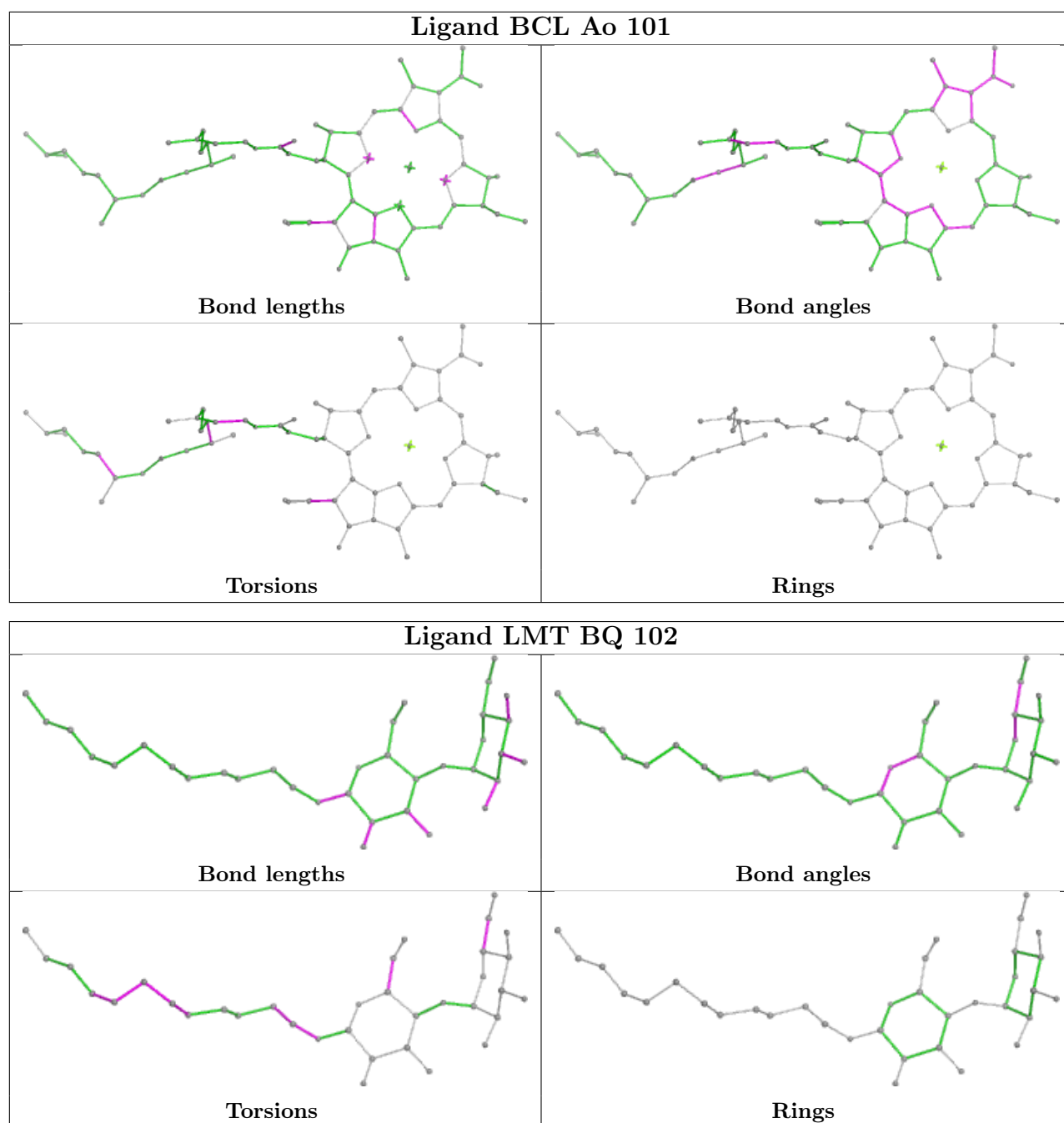
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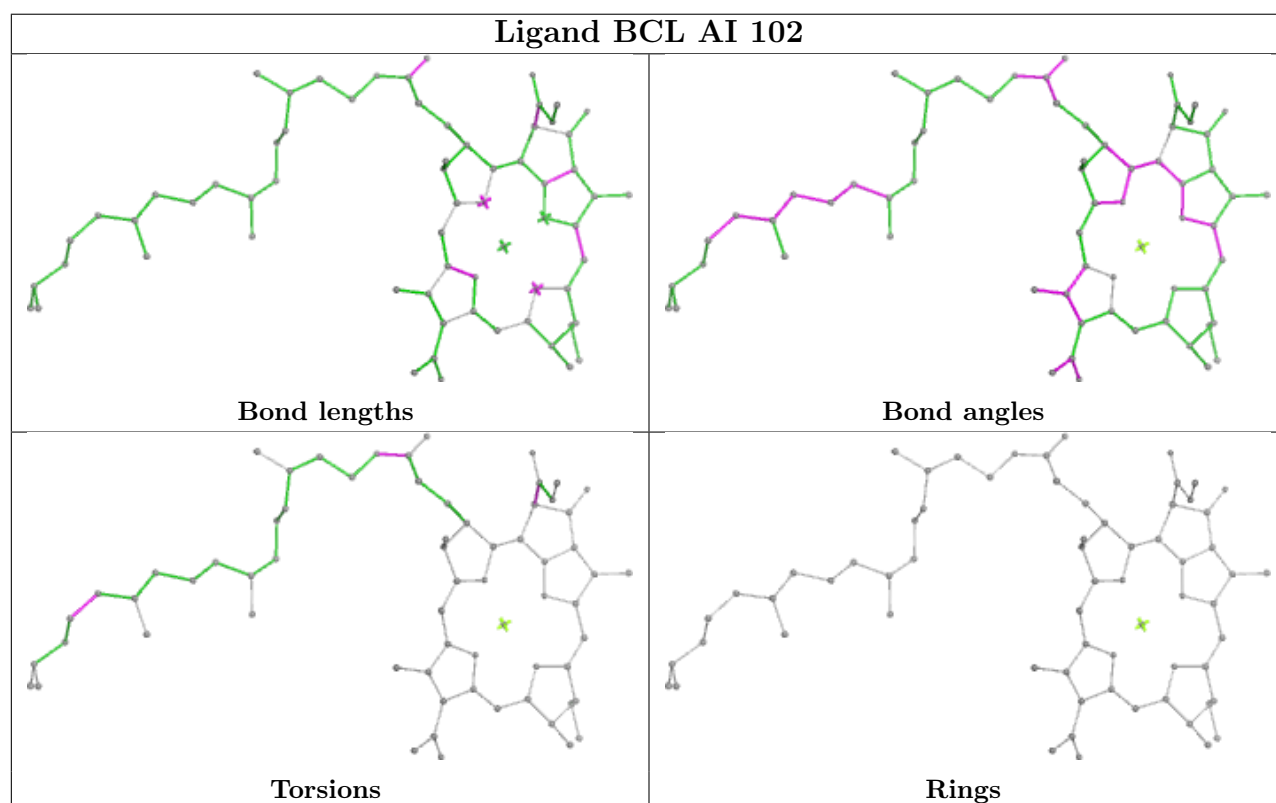
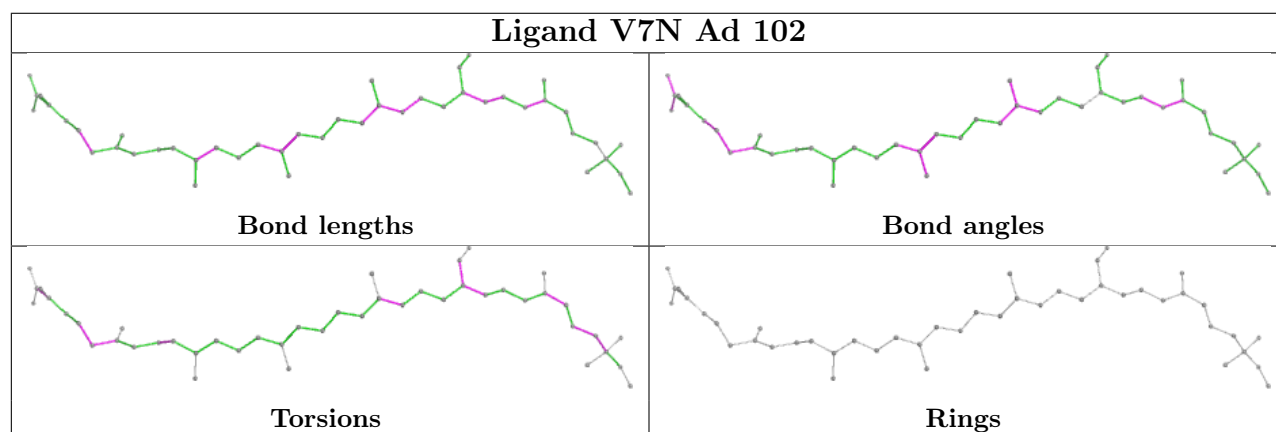
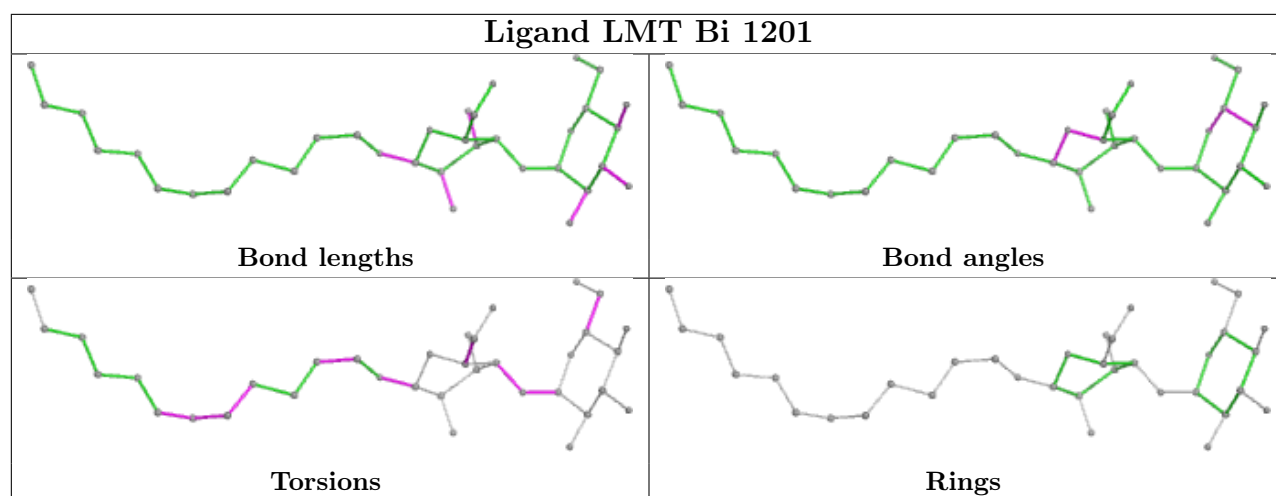
Mol	Chain	Res	Type	Clashes	Symm-Clashes
10	Bc	1203	BCL	6	0
10	AL	101	BCL	2	0
10	BS	101	BCL	2	0
10	Bg	1203	BCL	4	0
10	BM	101	BCL	2	0
10	BP	104	BCL	5	0
12	Bp	1002	LMT	2	0
17	Bg	1204	PEX	3	0
12	BI	1103	LMT	2	0
10	Bl	101	BCL	7	0
10	Bh	101	BCL	7	0
10	Be	101	BCL	4	0
12	Bc	1201	LMT	2	0
10	AU	102	BCL	3	0
18	C	1003	HEC	1	0
10	BX	103	BCL	1	0
17	Be	102	PEX	5	0
19	BN	103	V7N	1	0
19	BV	101	V7N	1	0

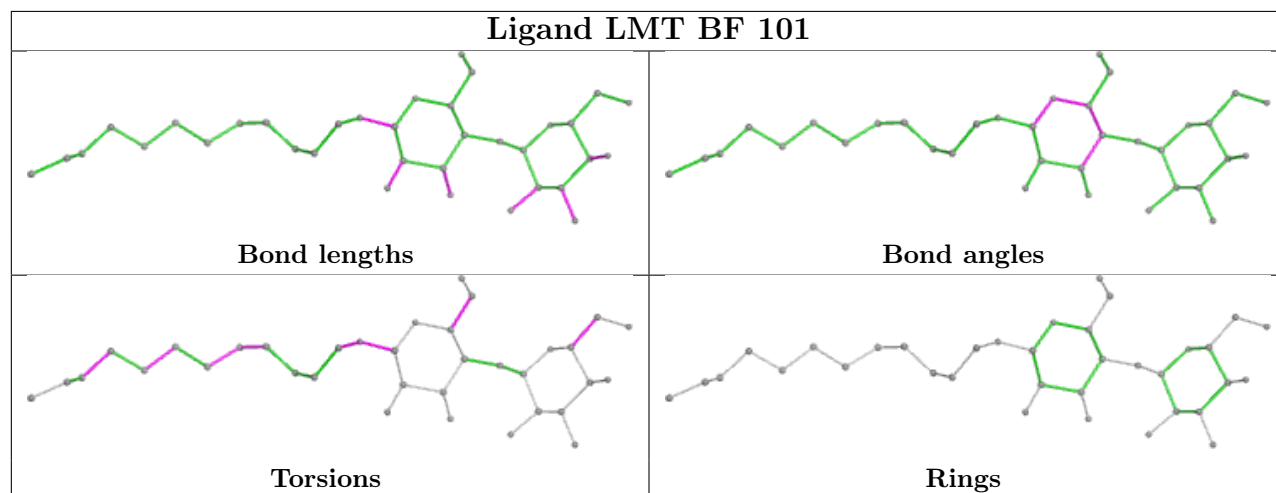
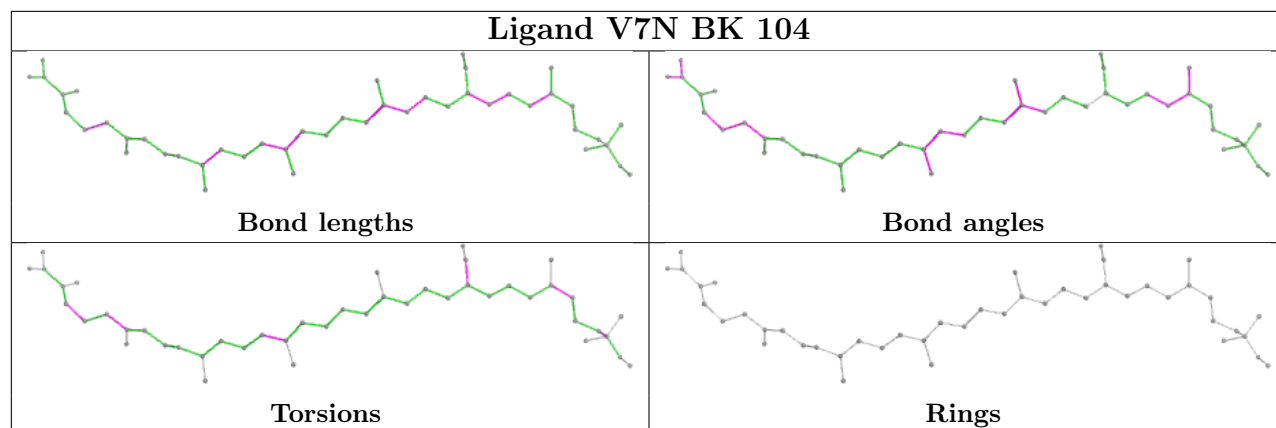
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

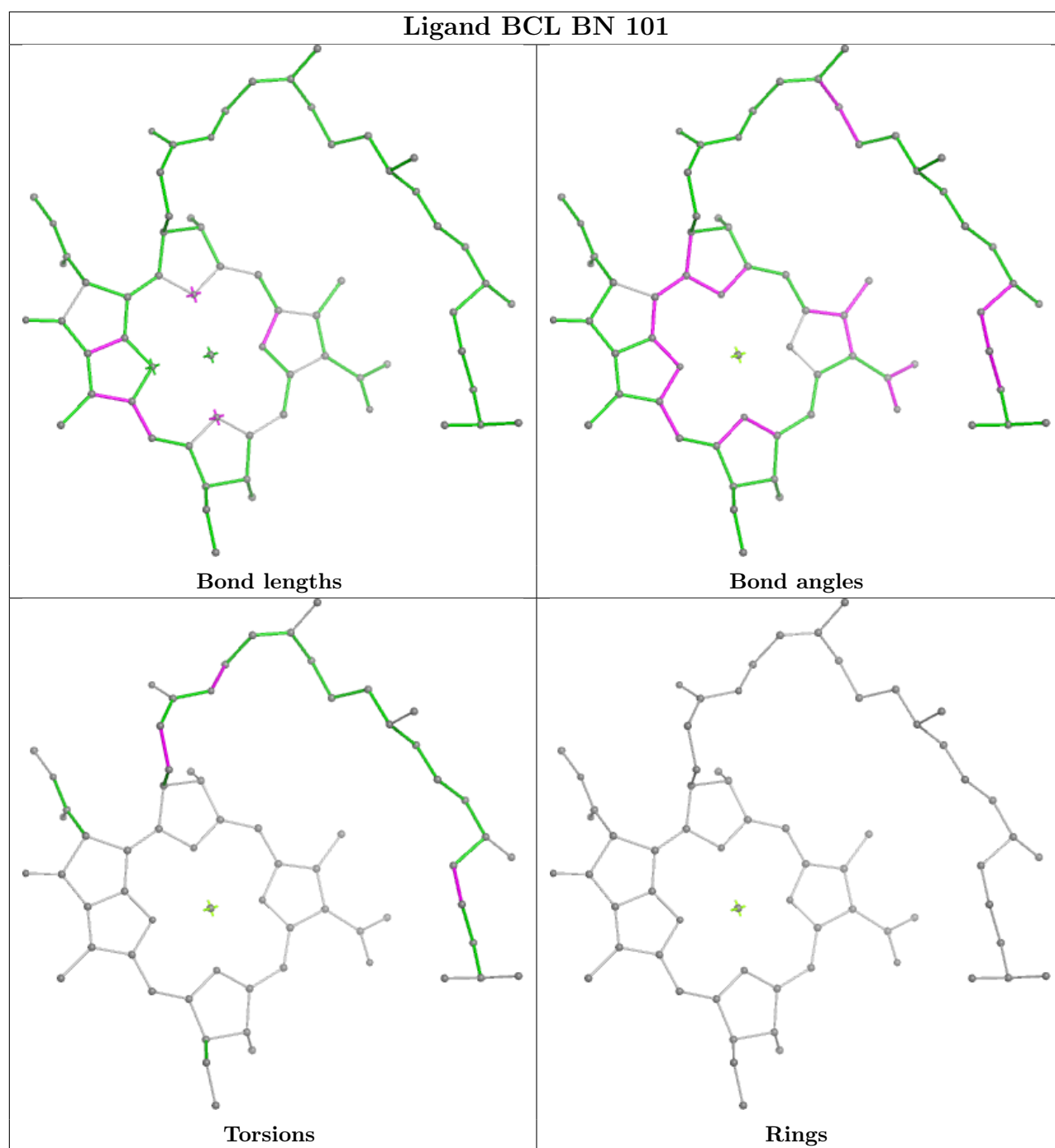


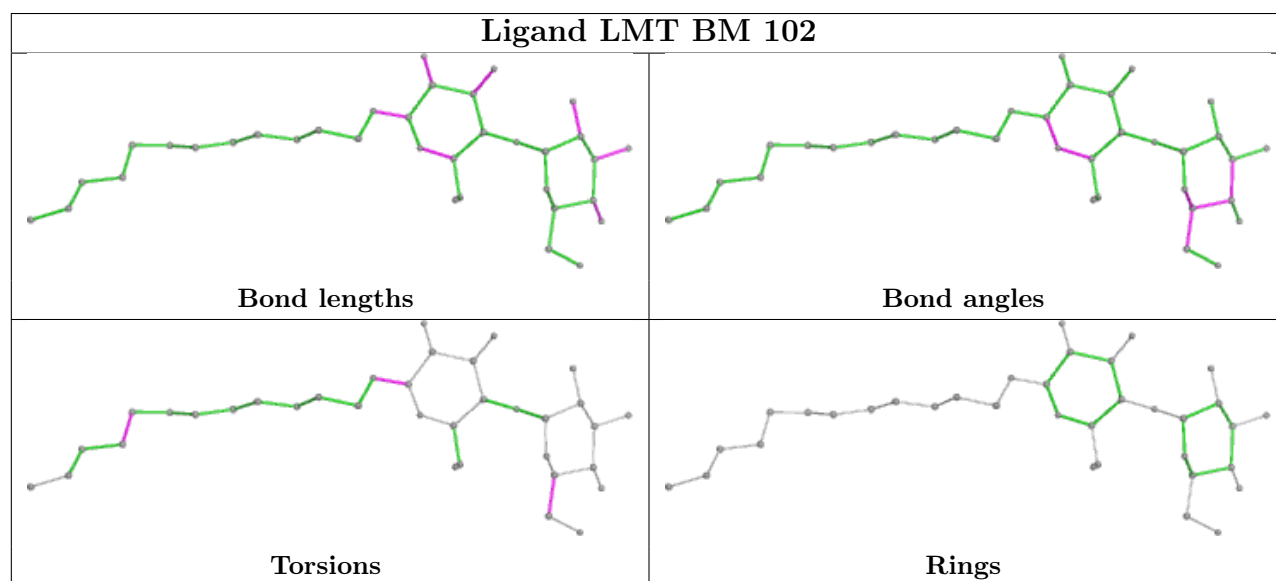
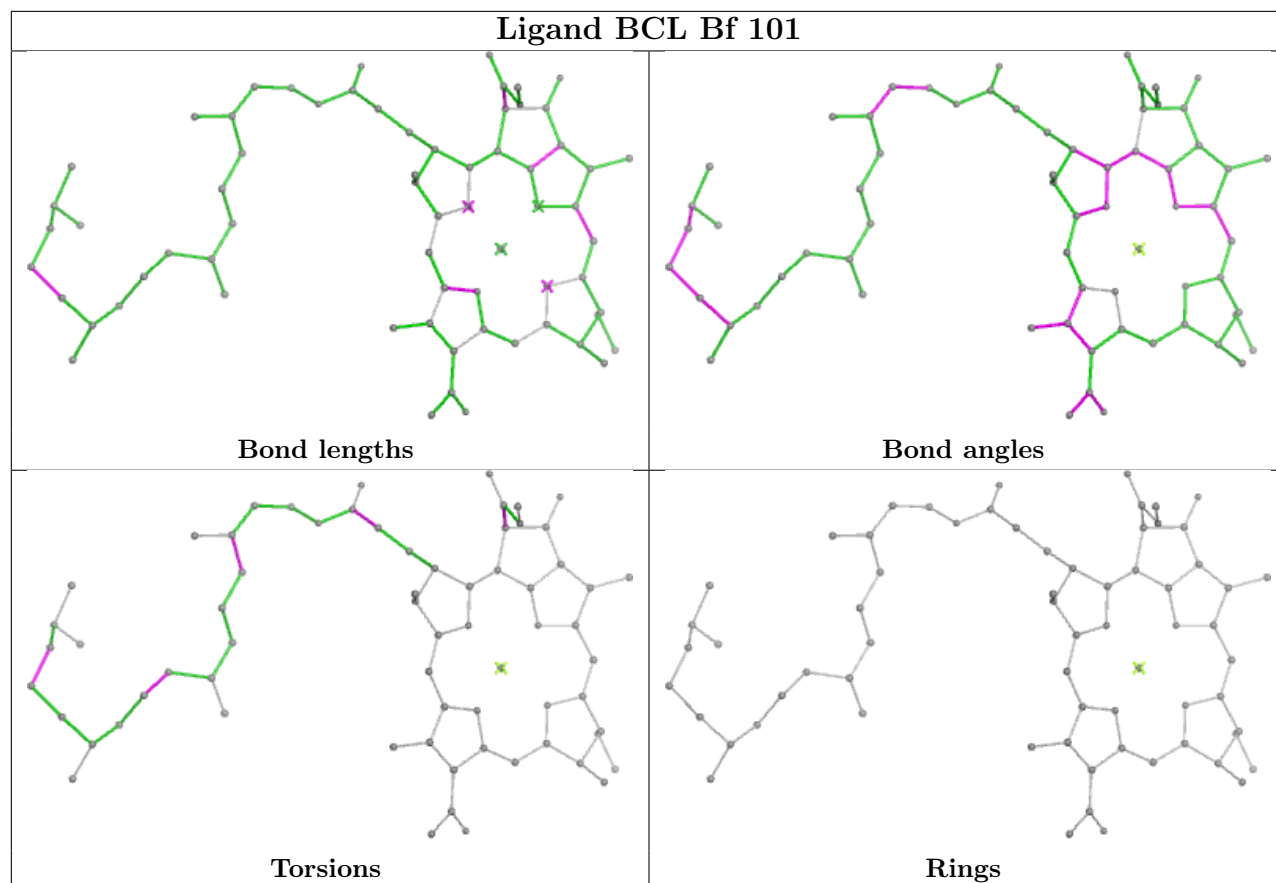


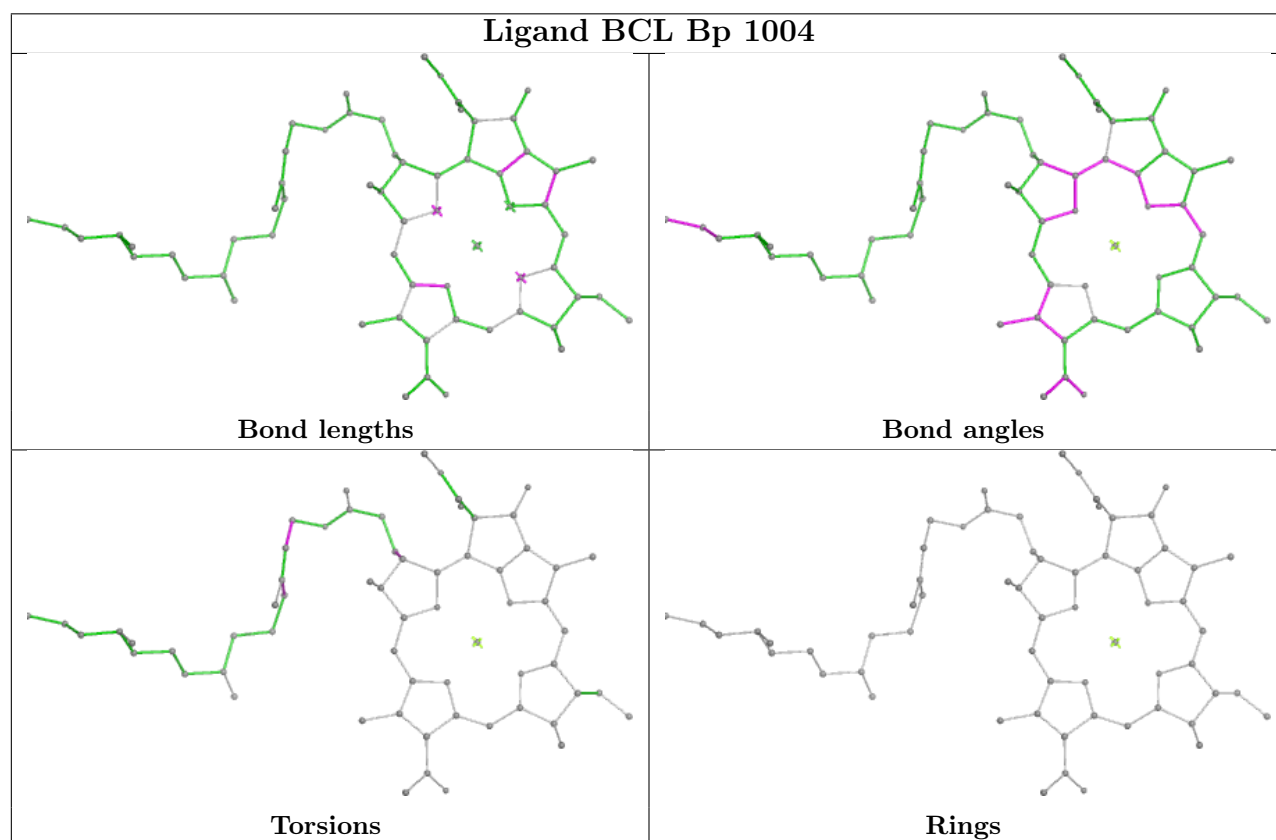
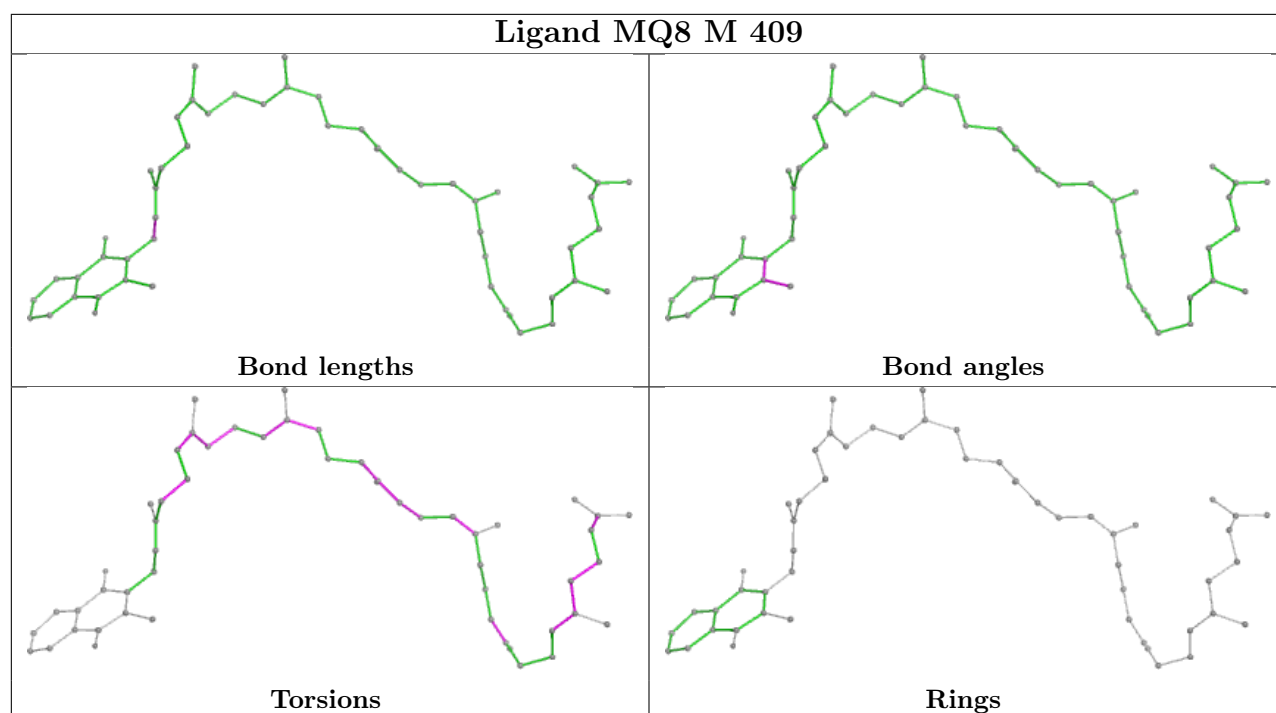


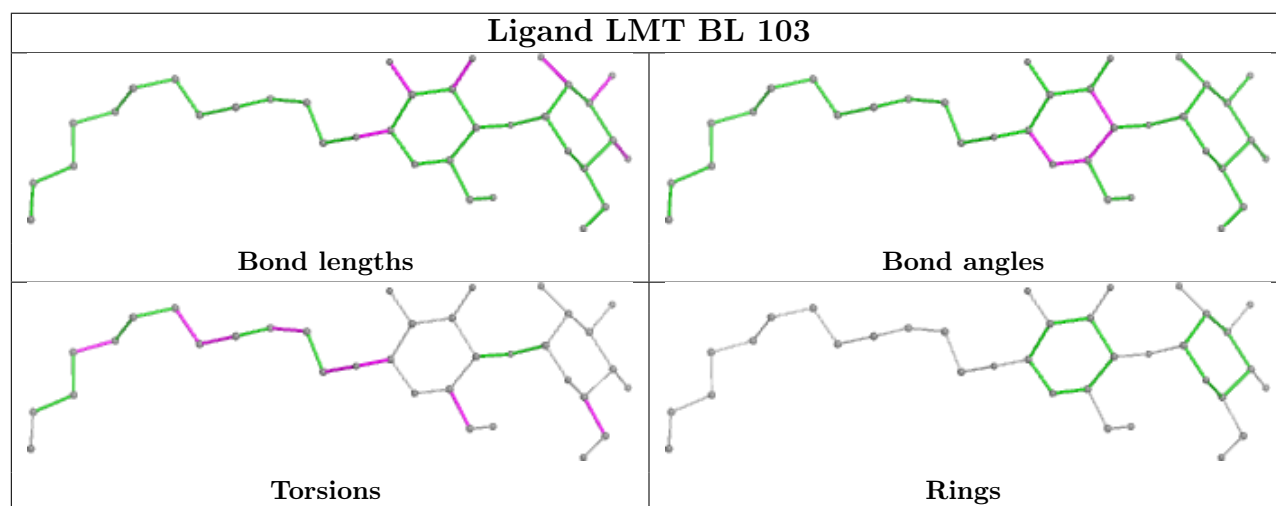
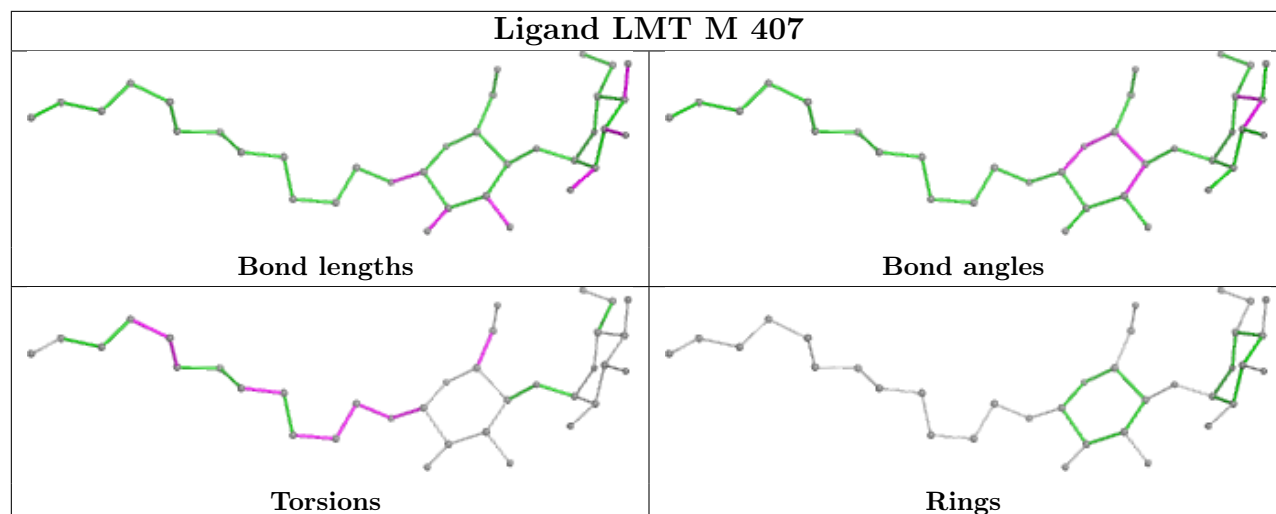




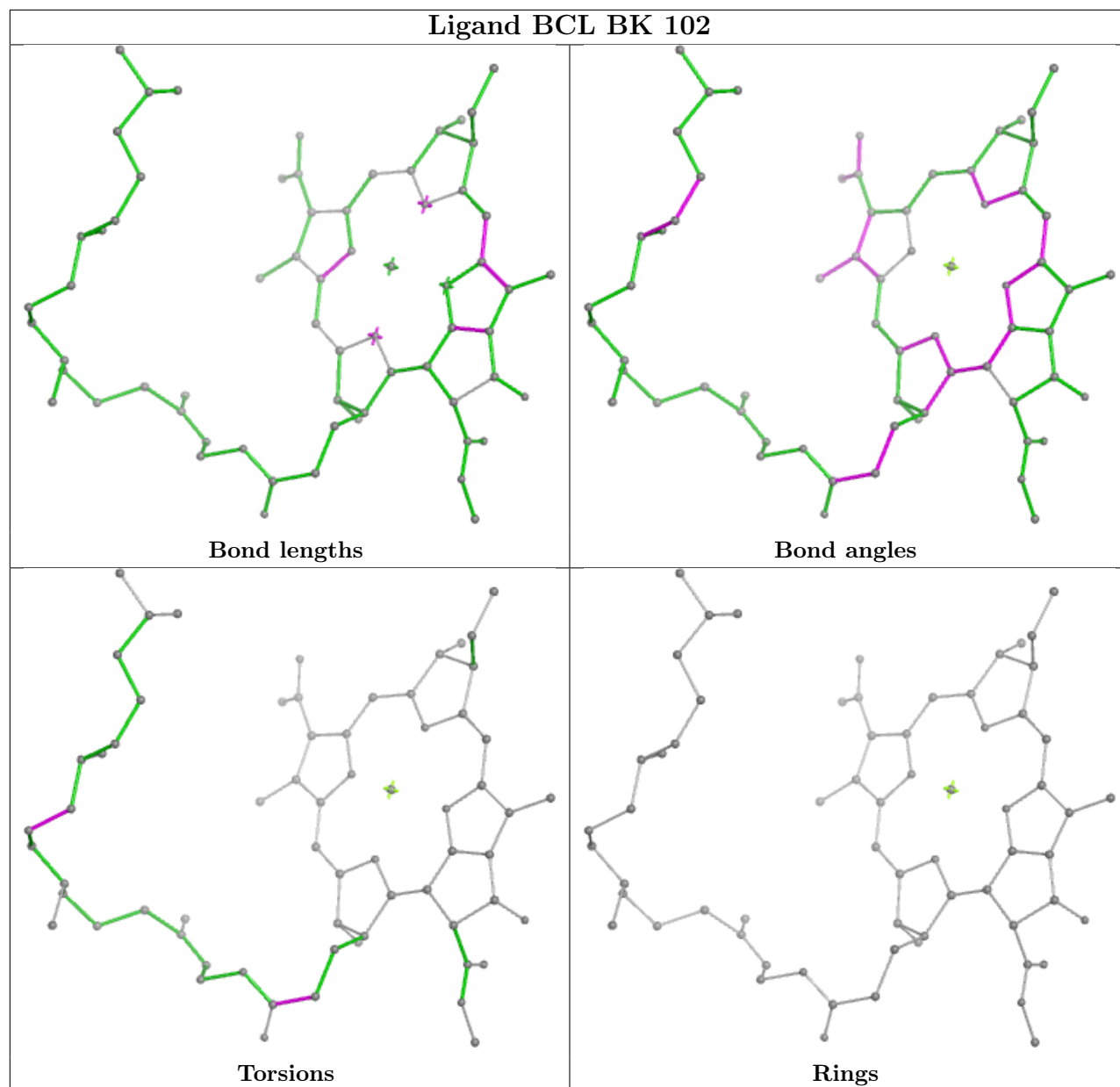


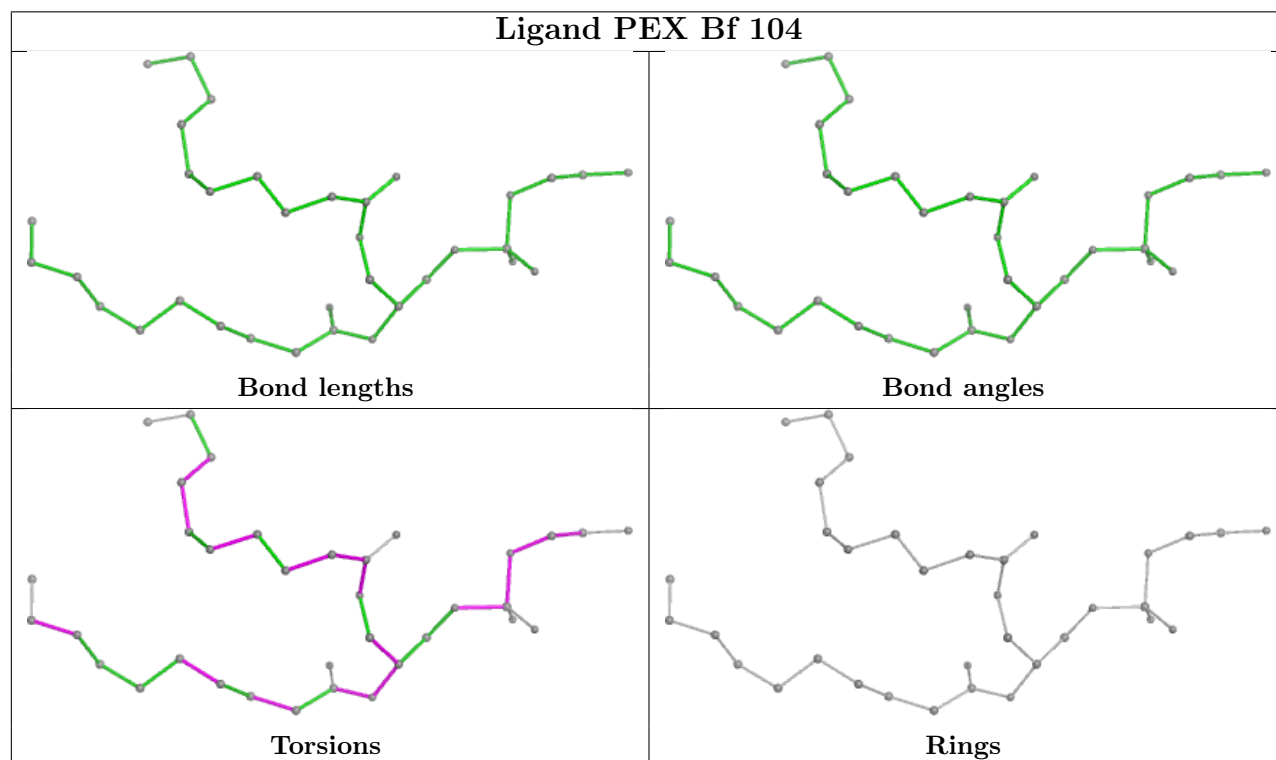
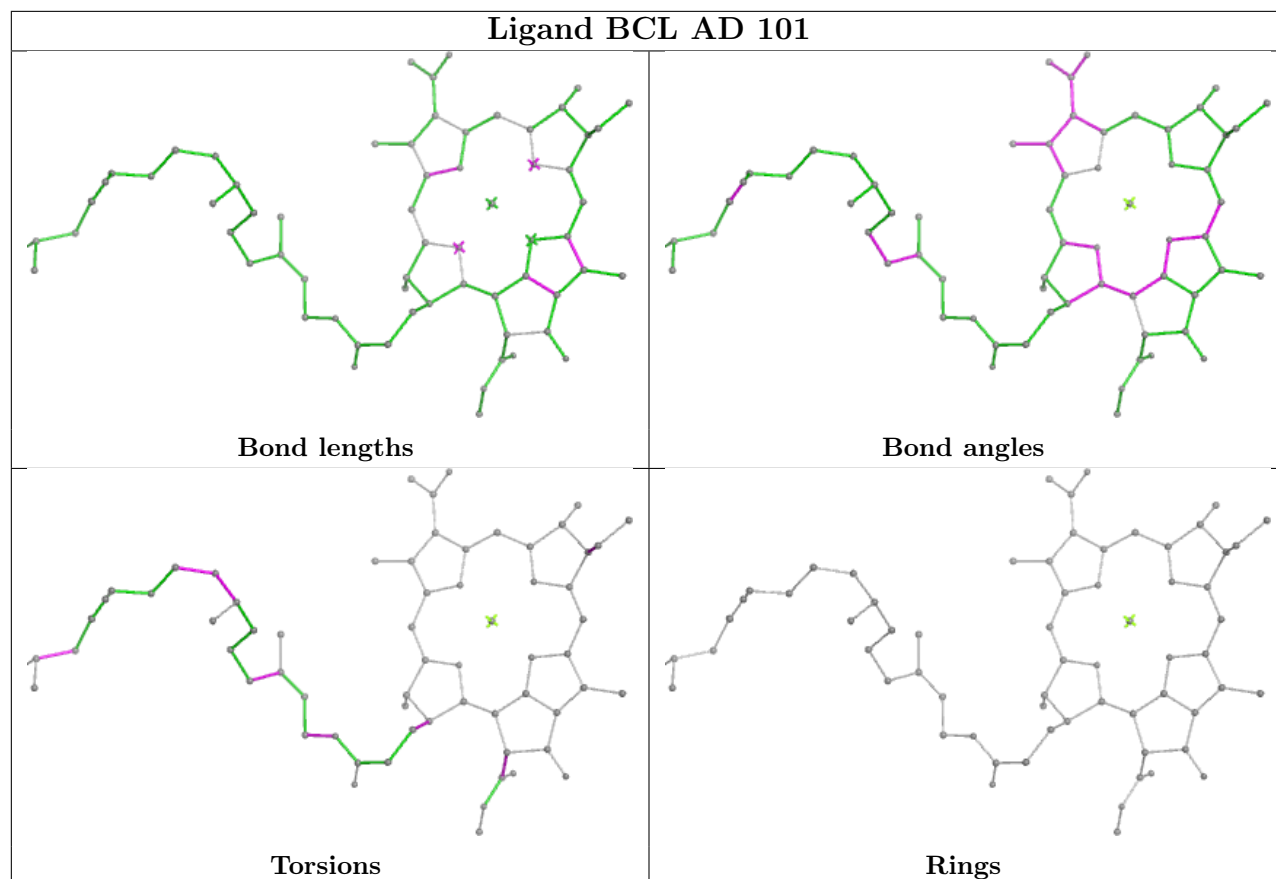


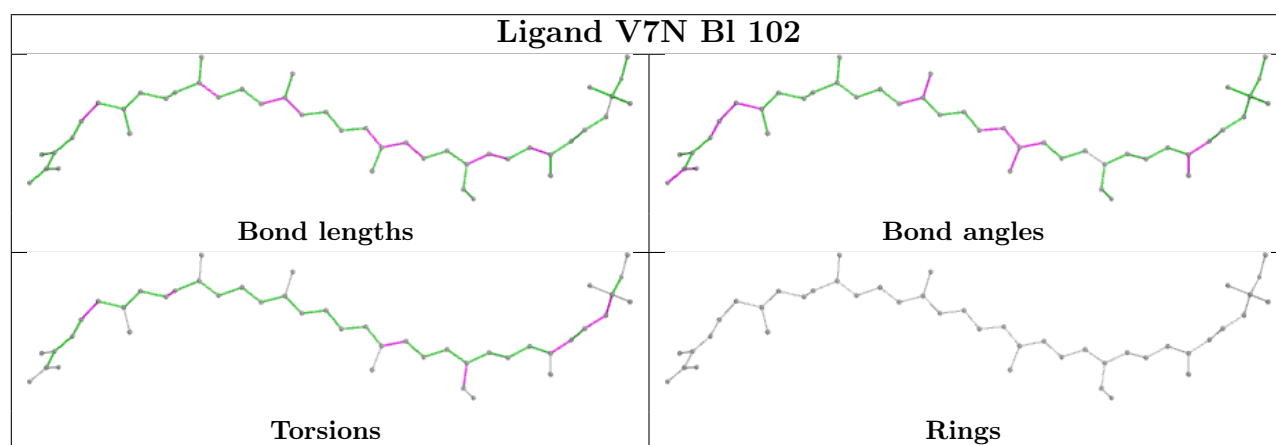
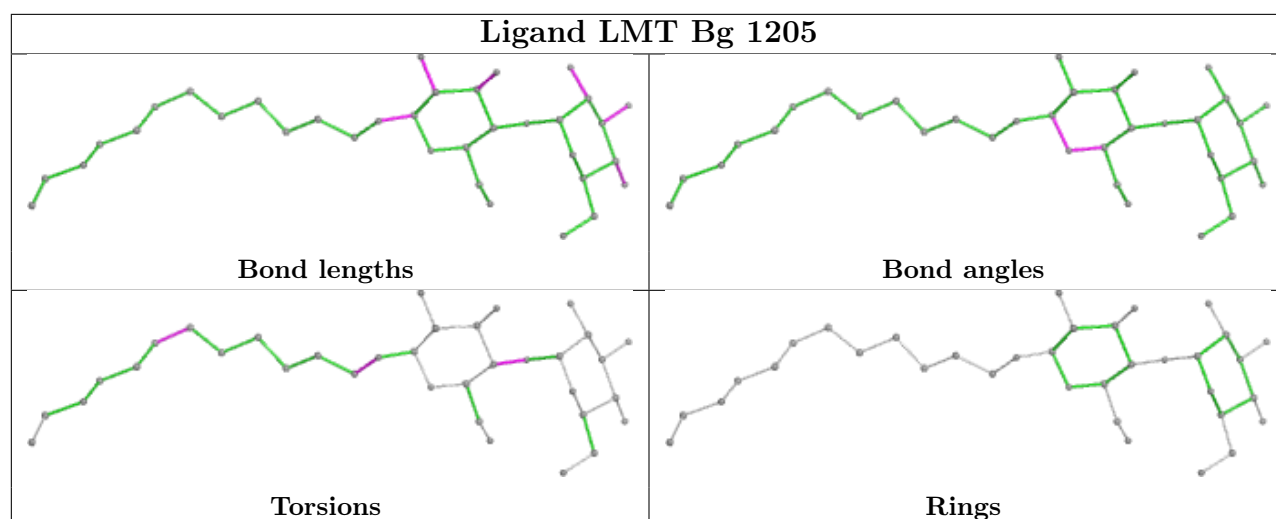


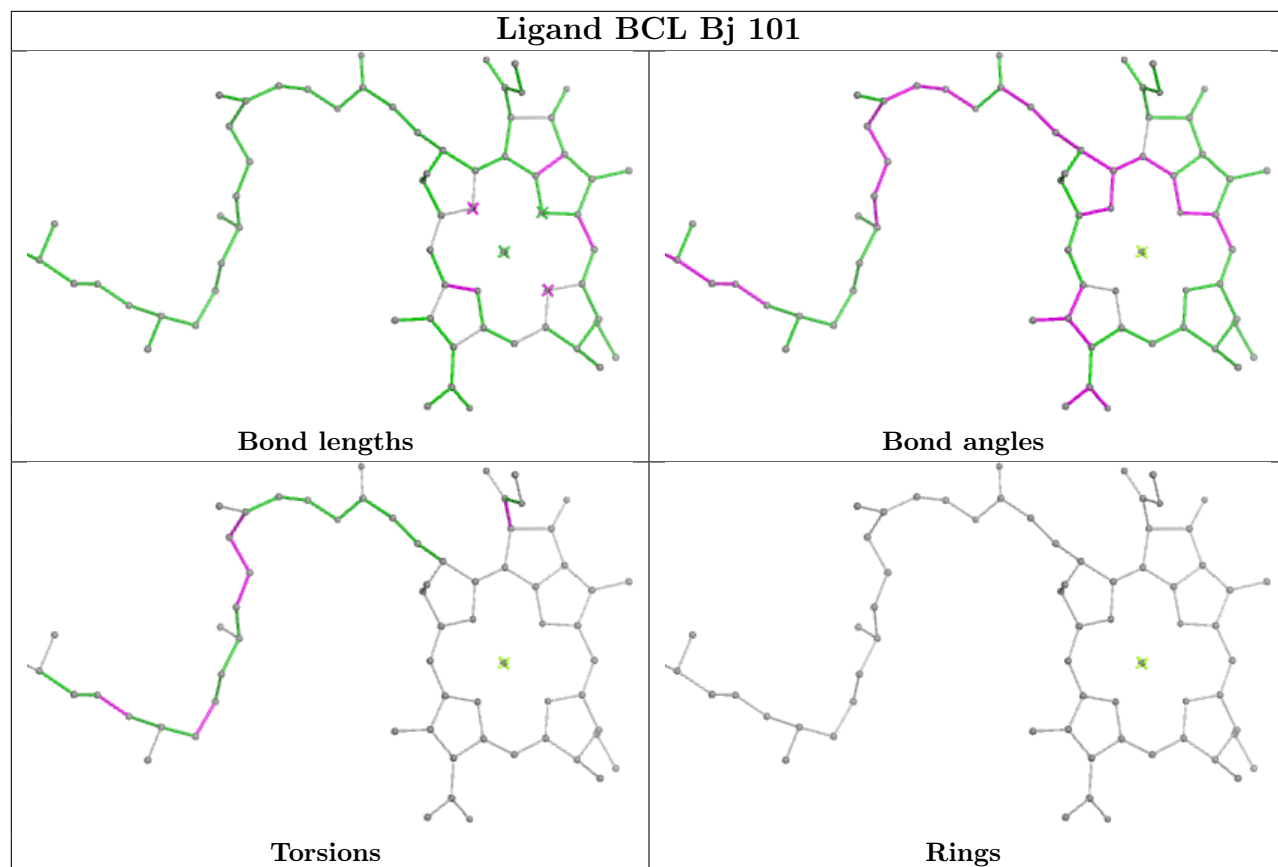


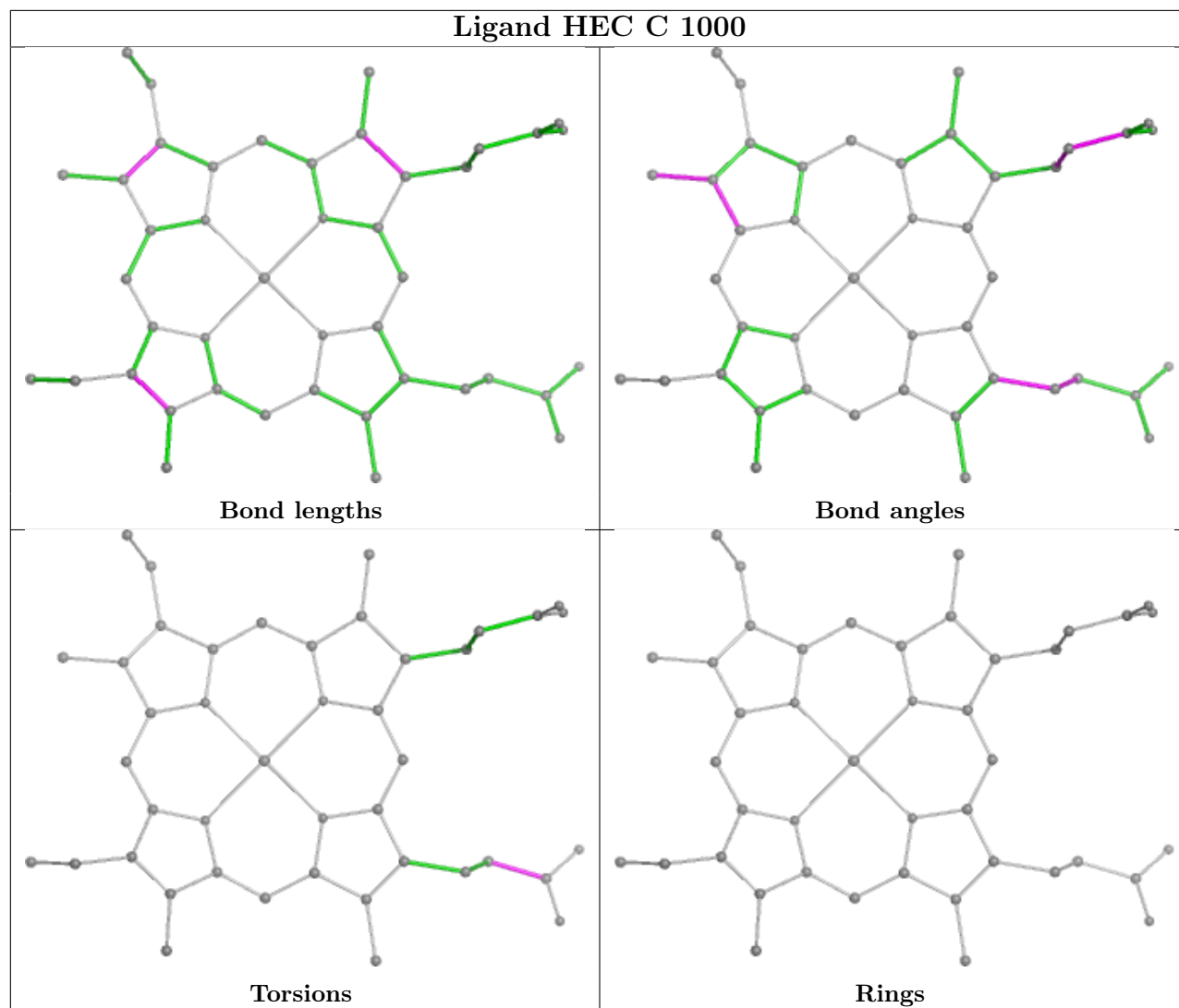
Ligand BCL BK 102

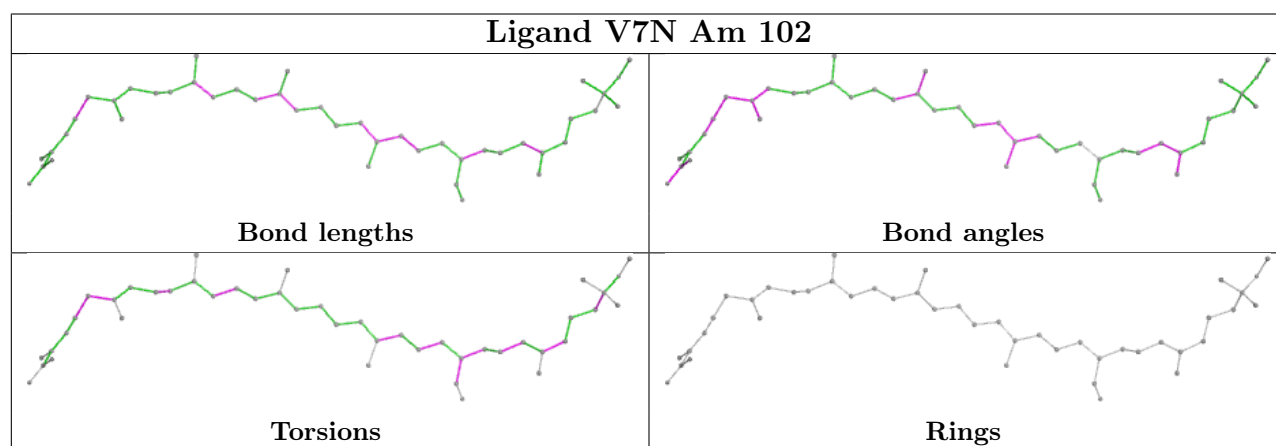
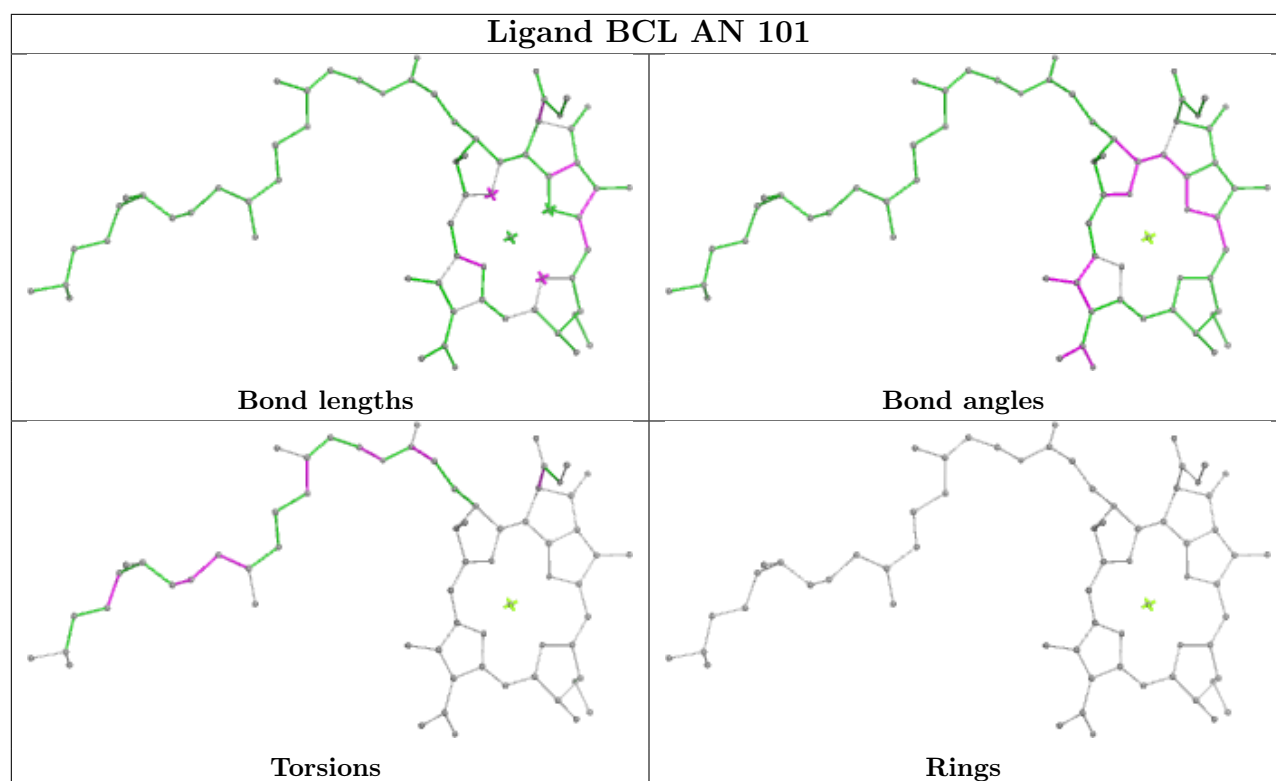


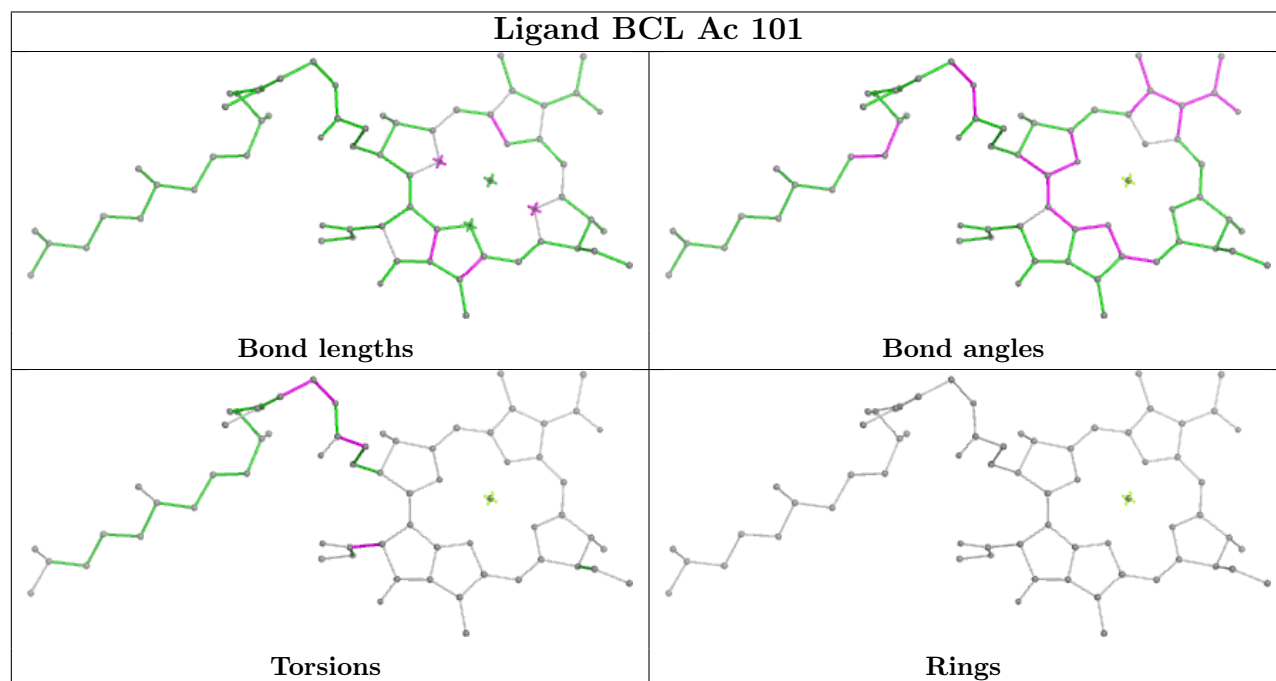
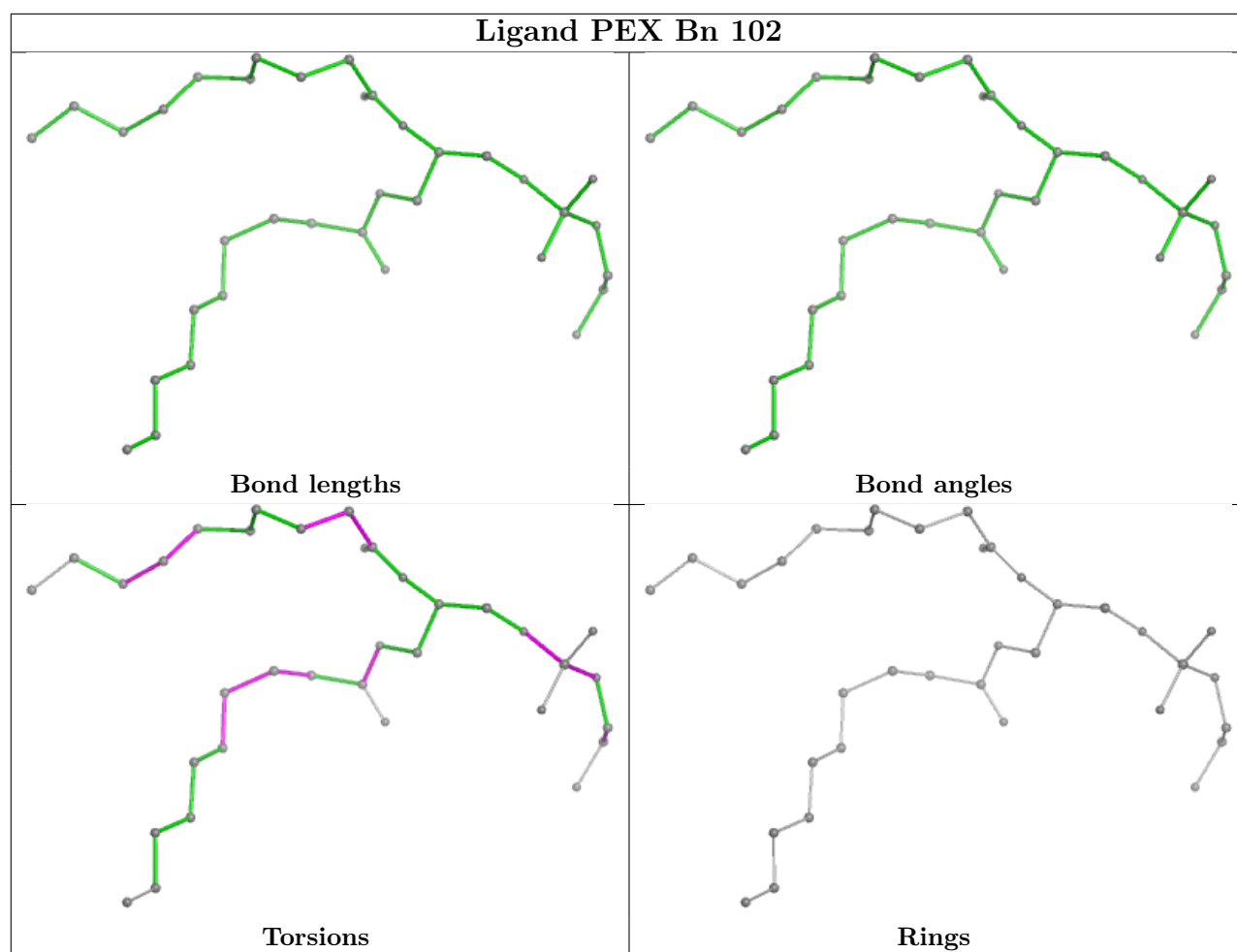


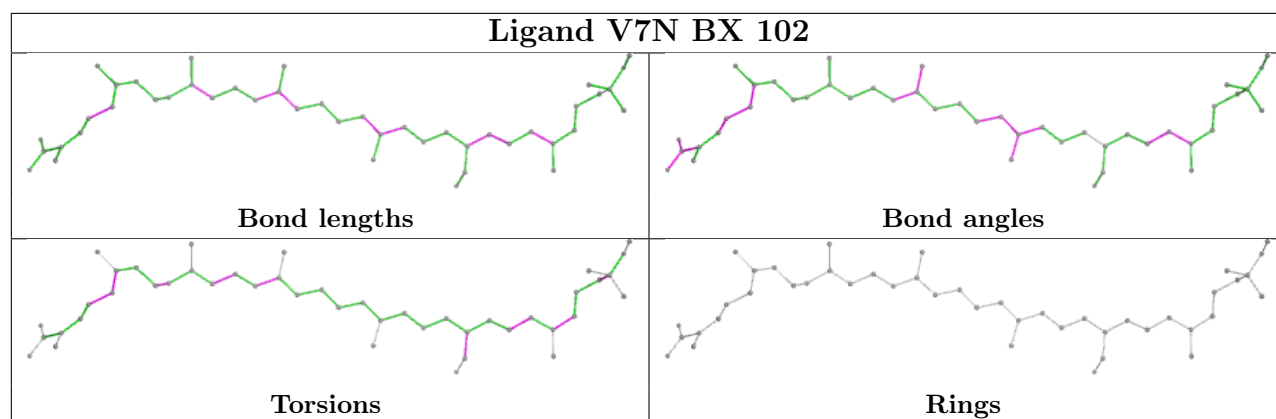
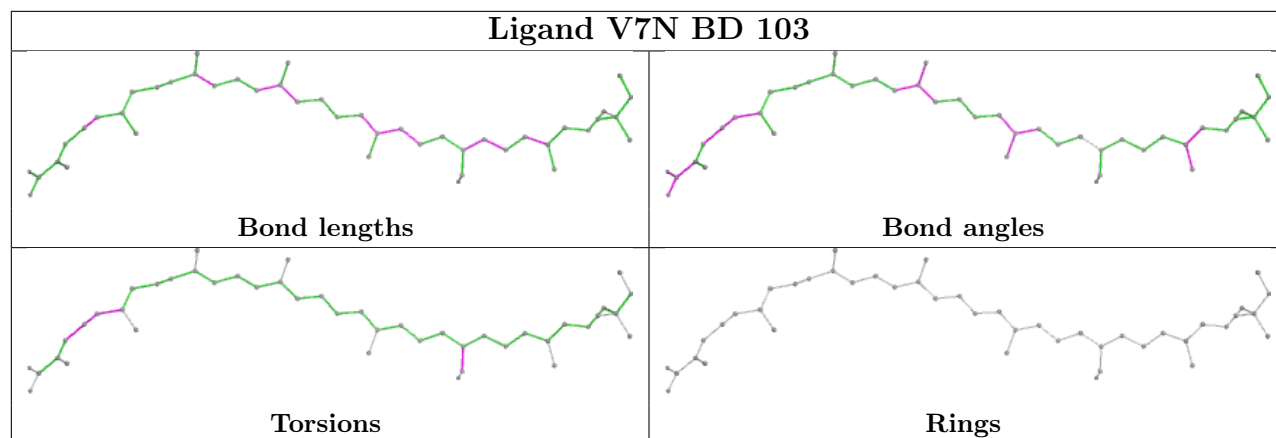




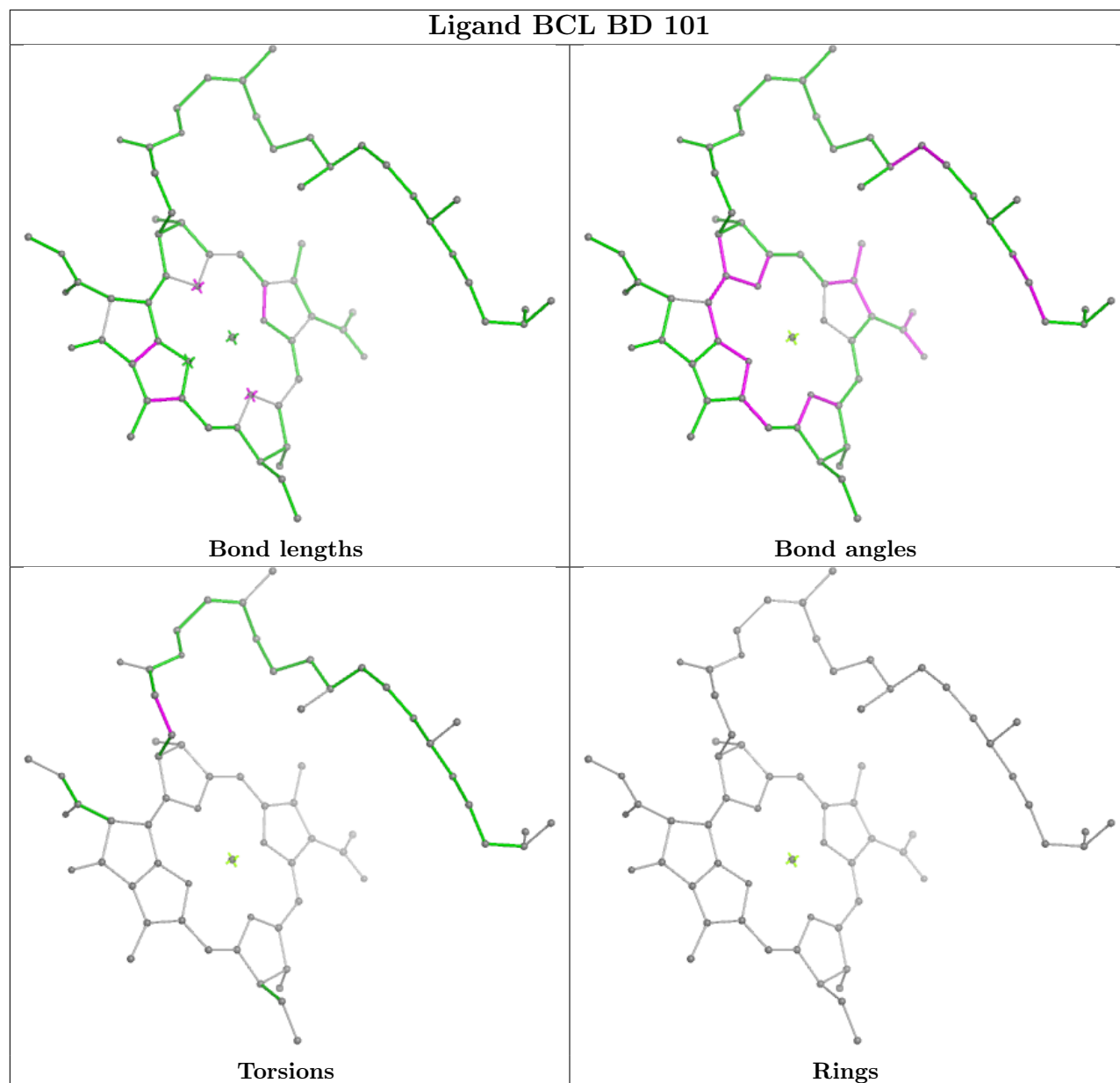




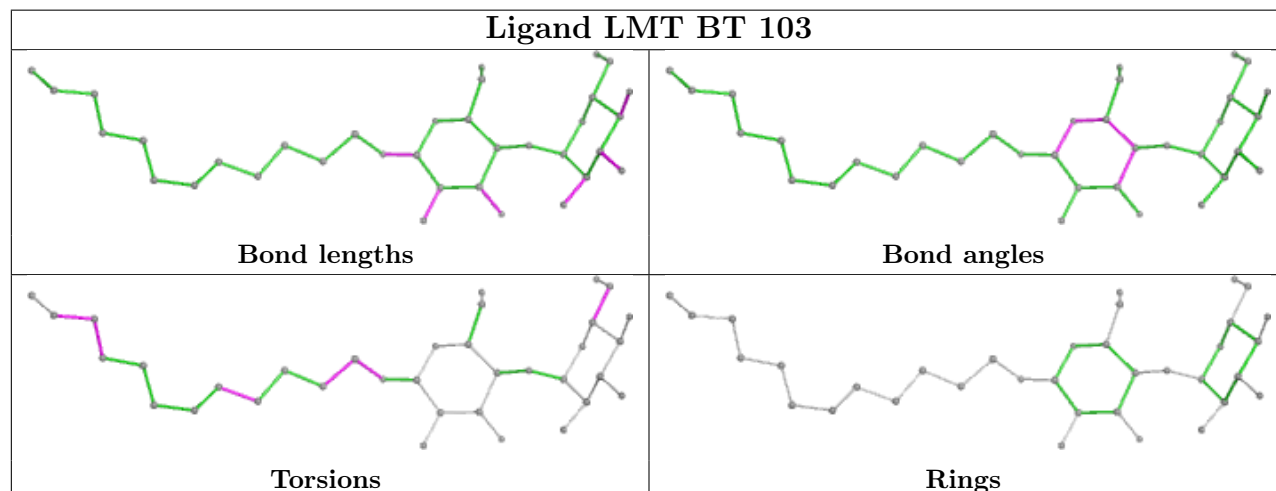


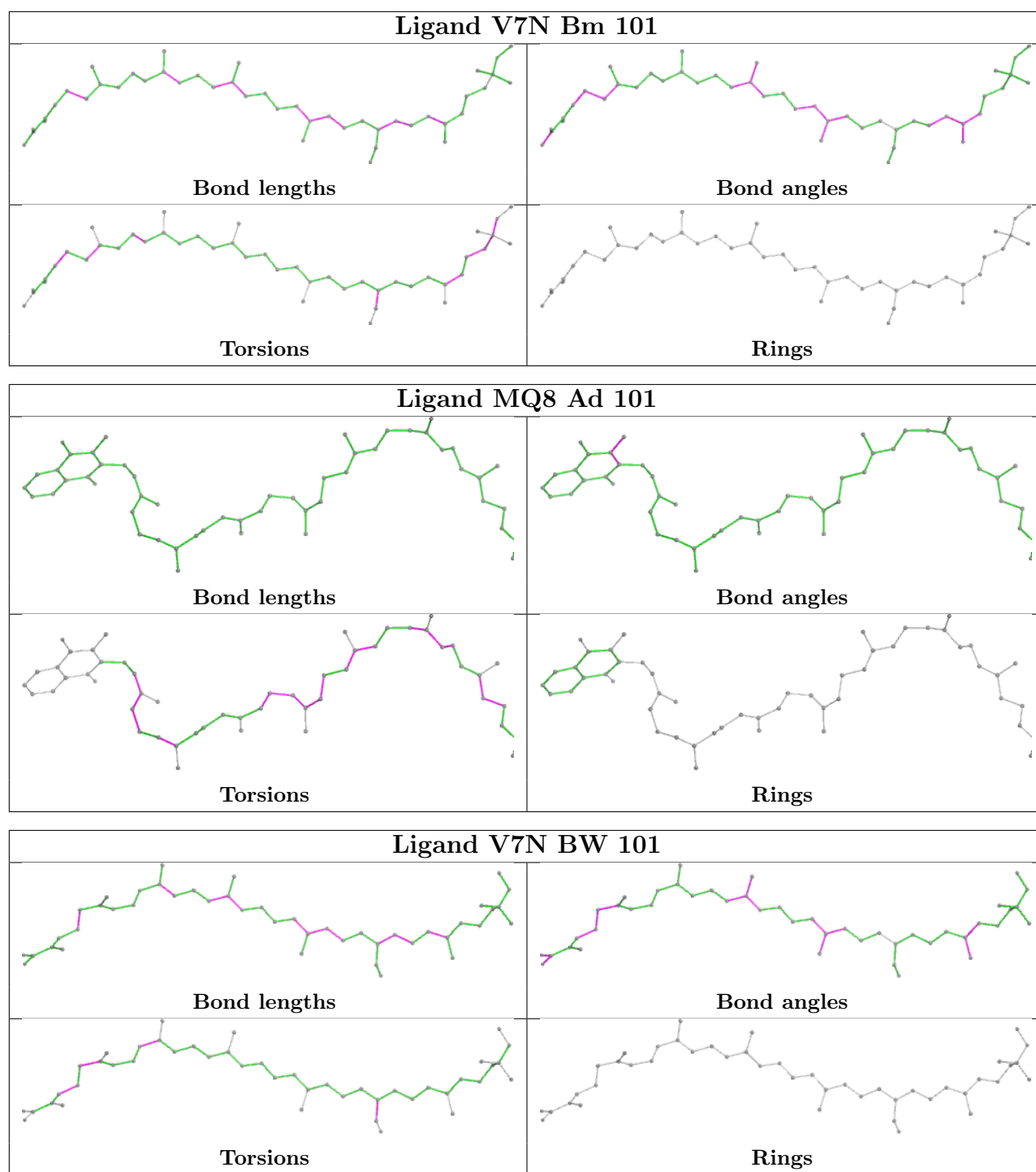


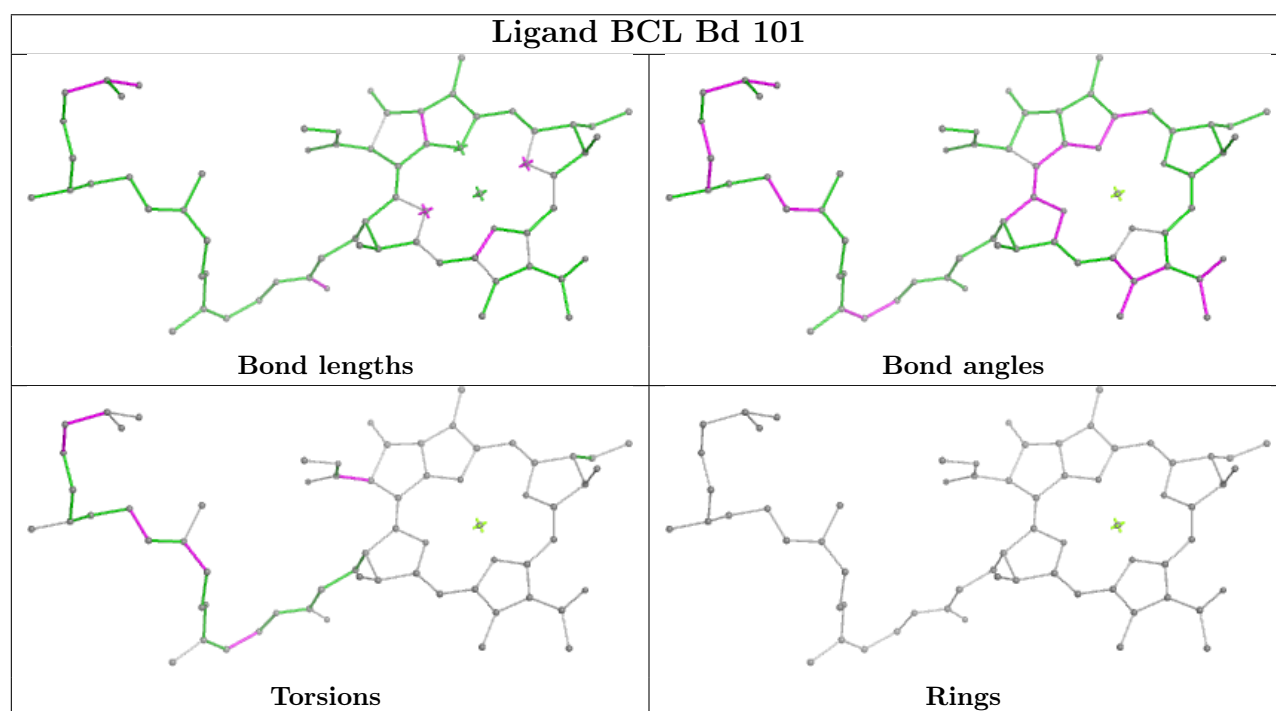
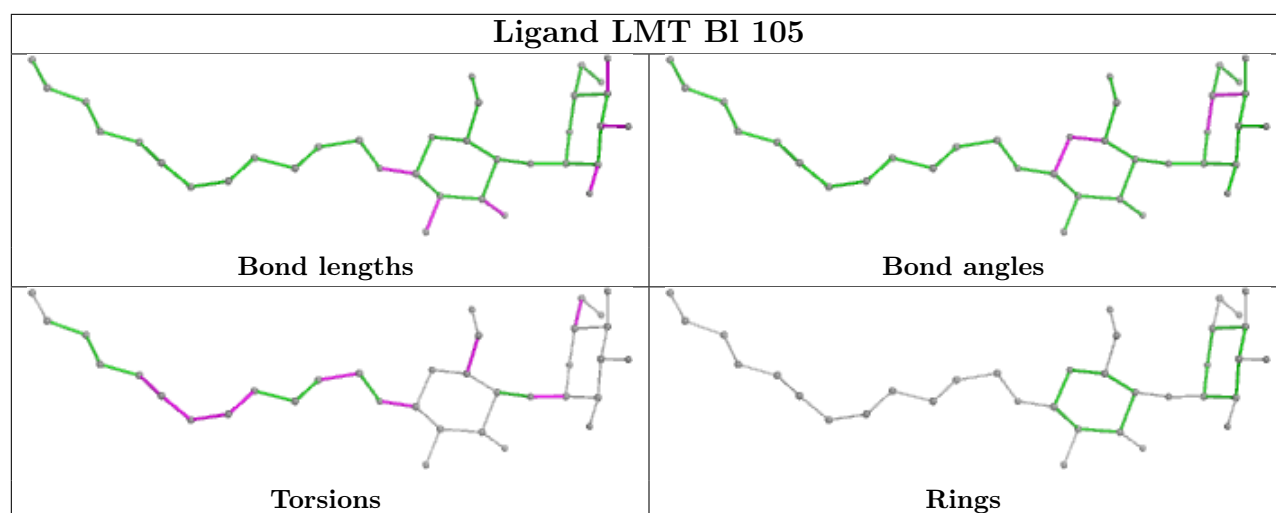
Ligand BCL BD 101

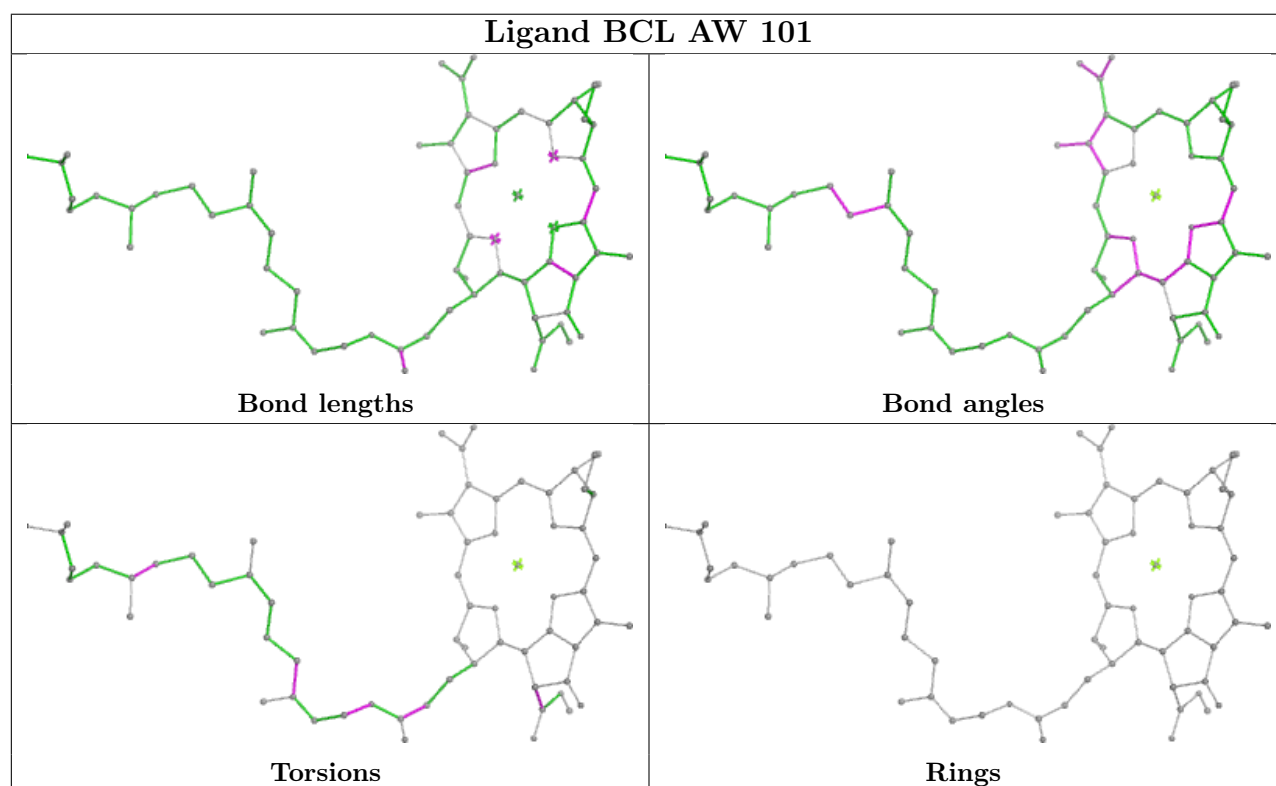
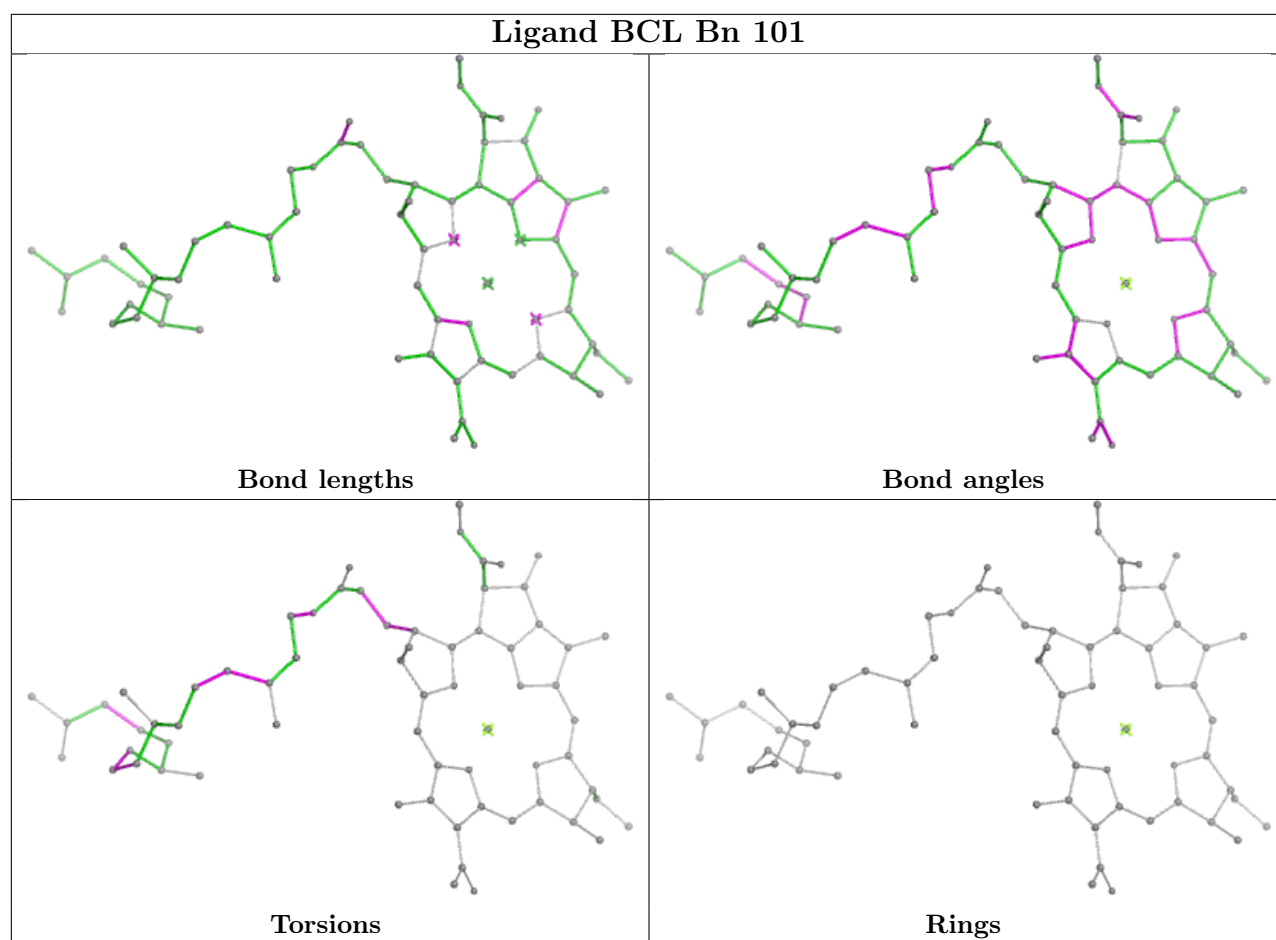


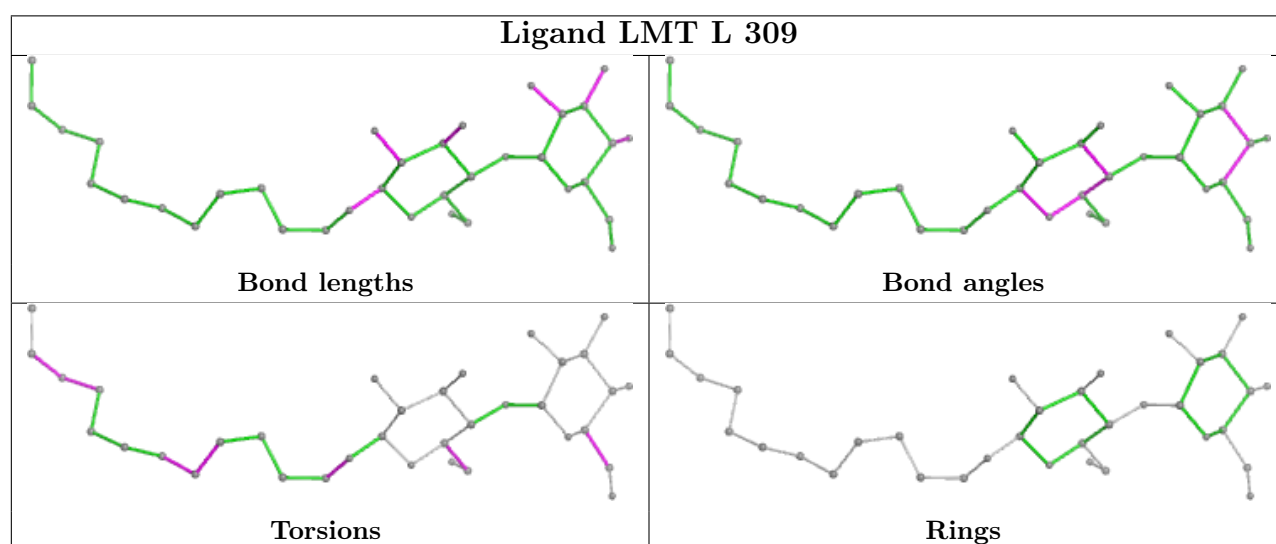
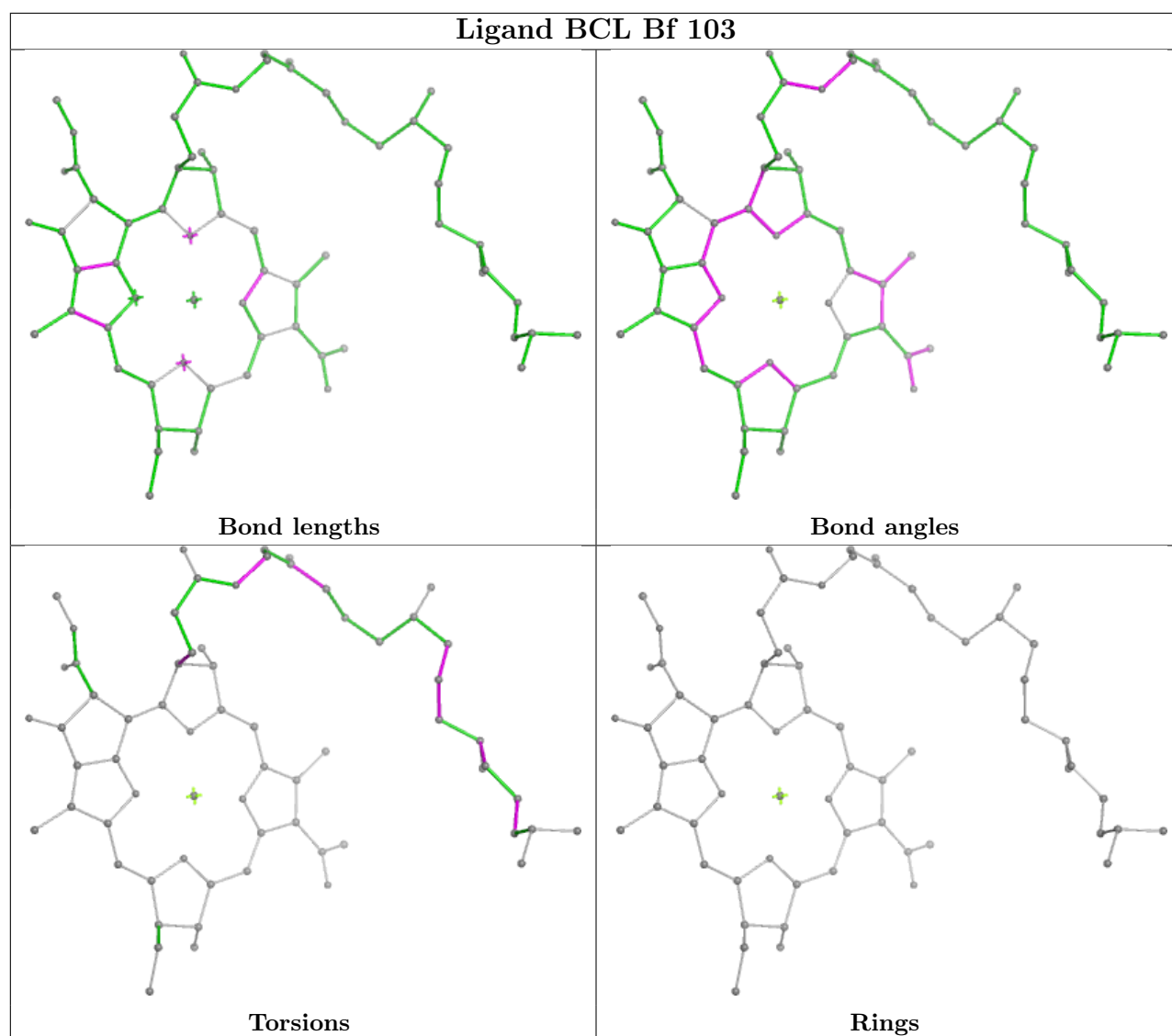
Ligand LMT BT 103

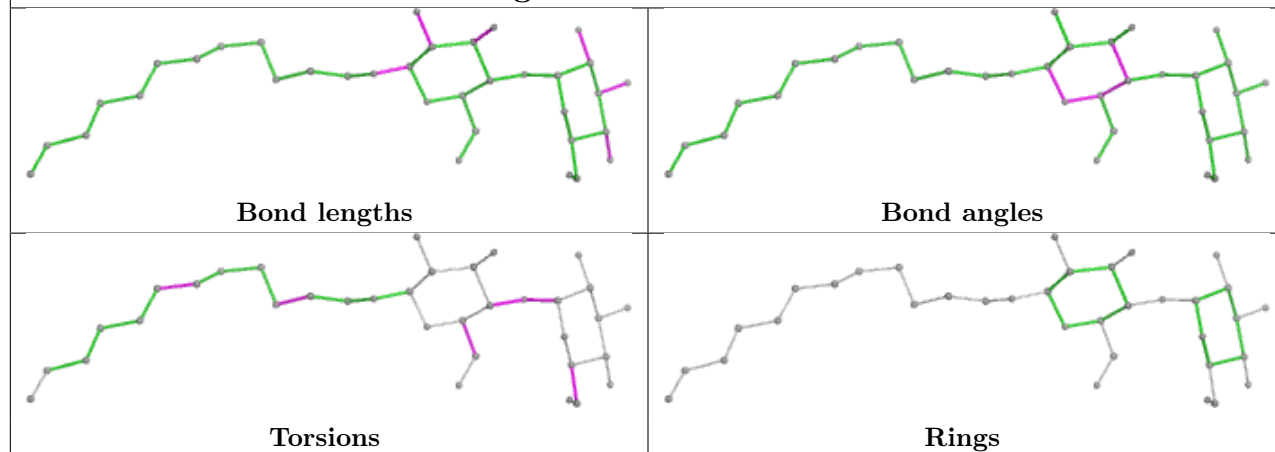
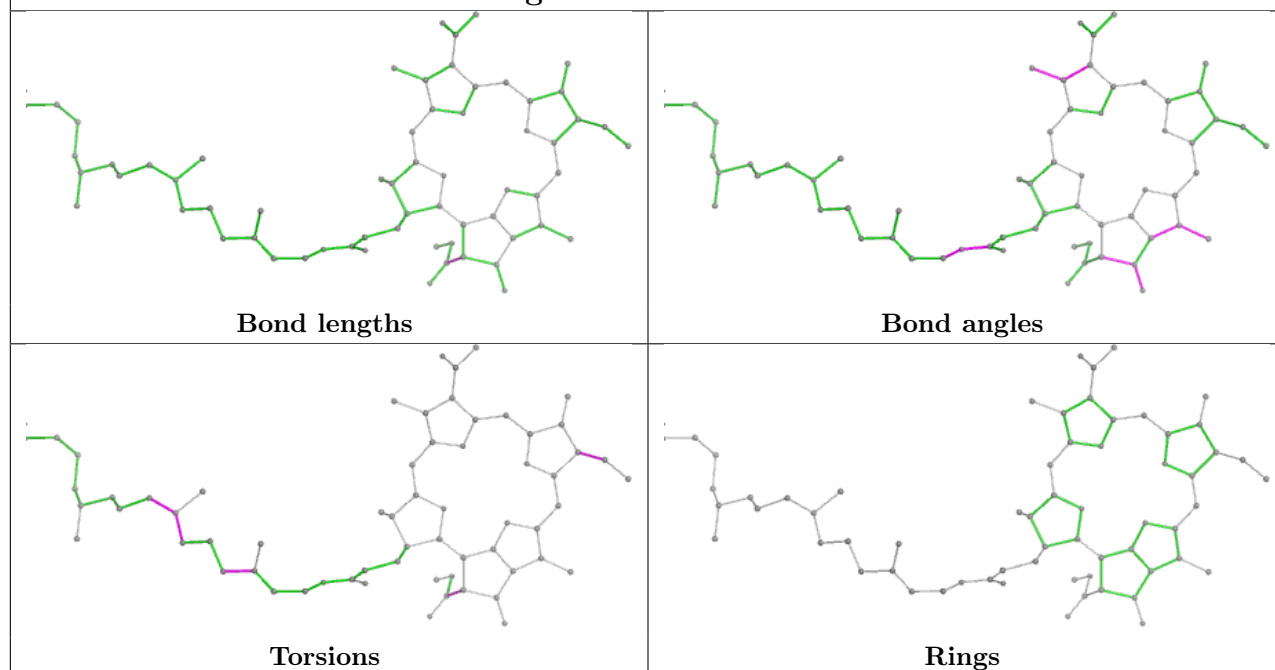
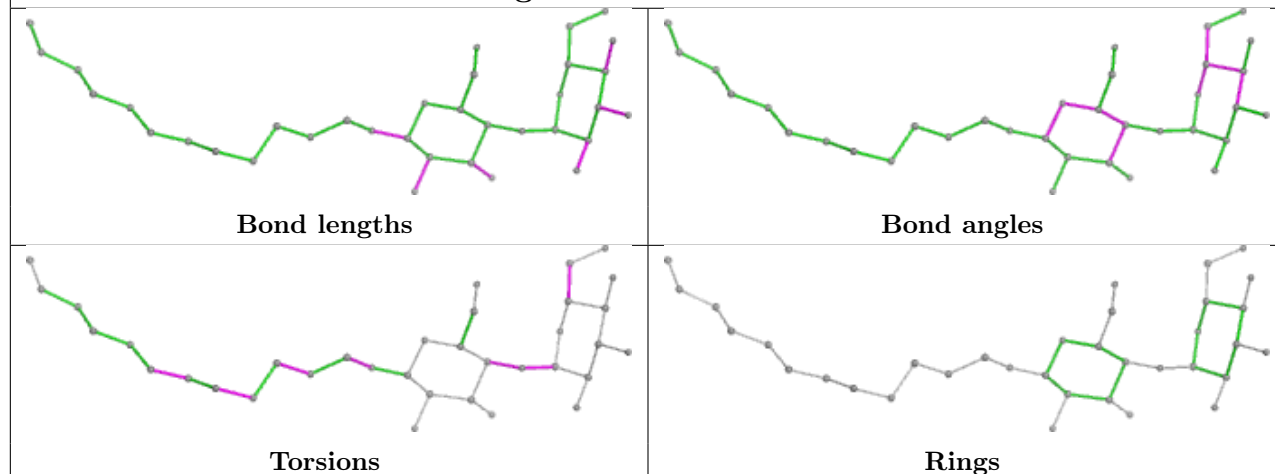


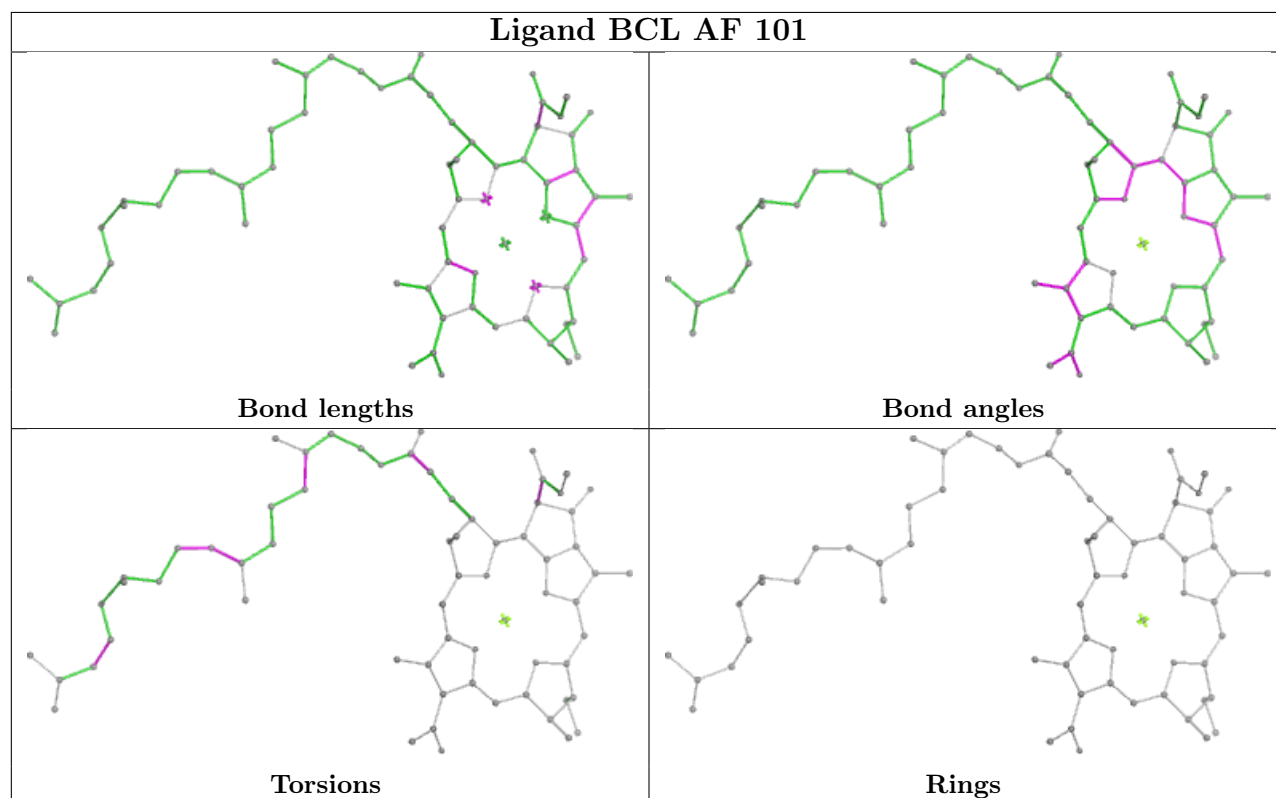
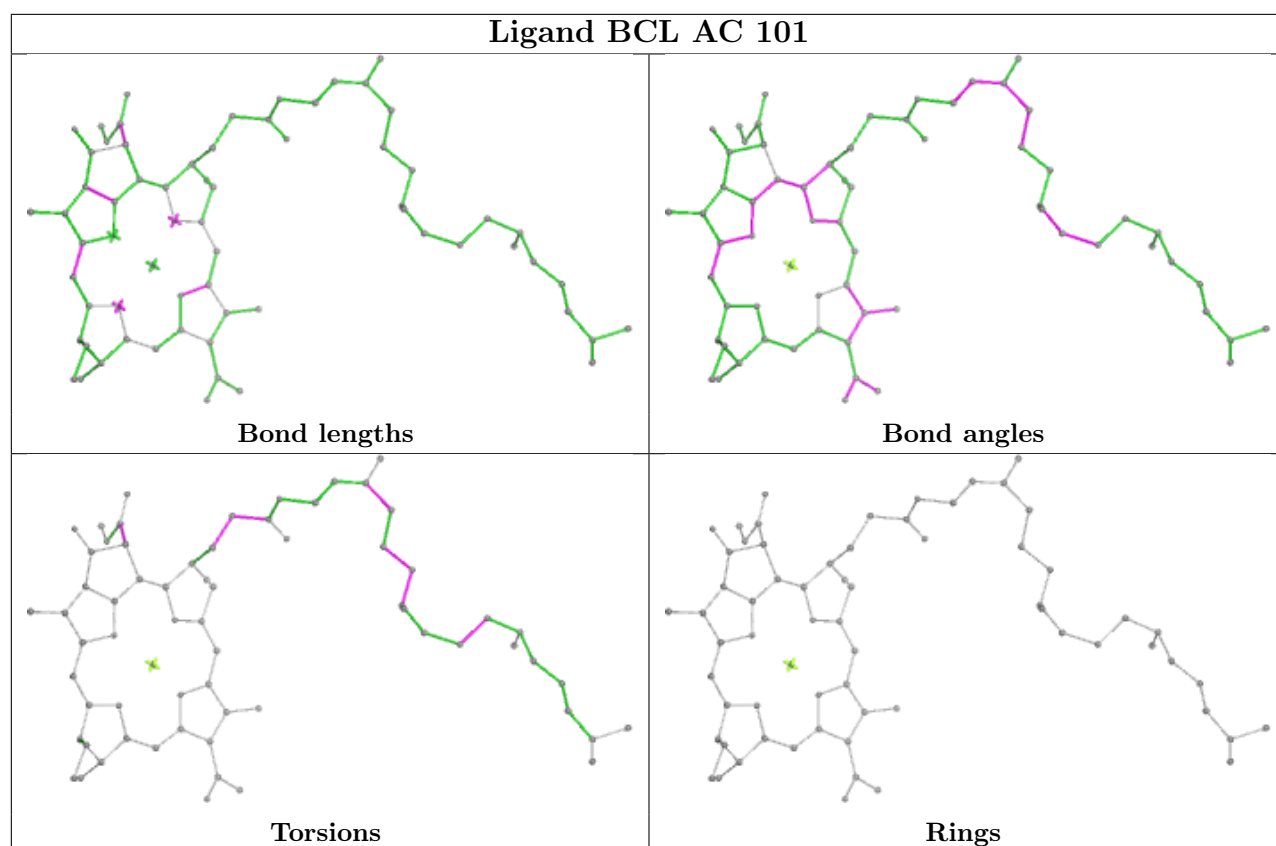


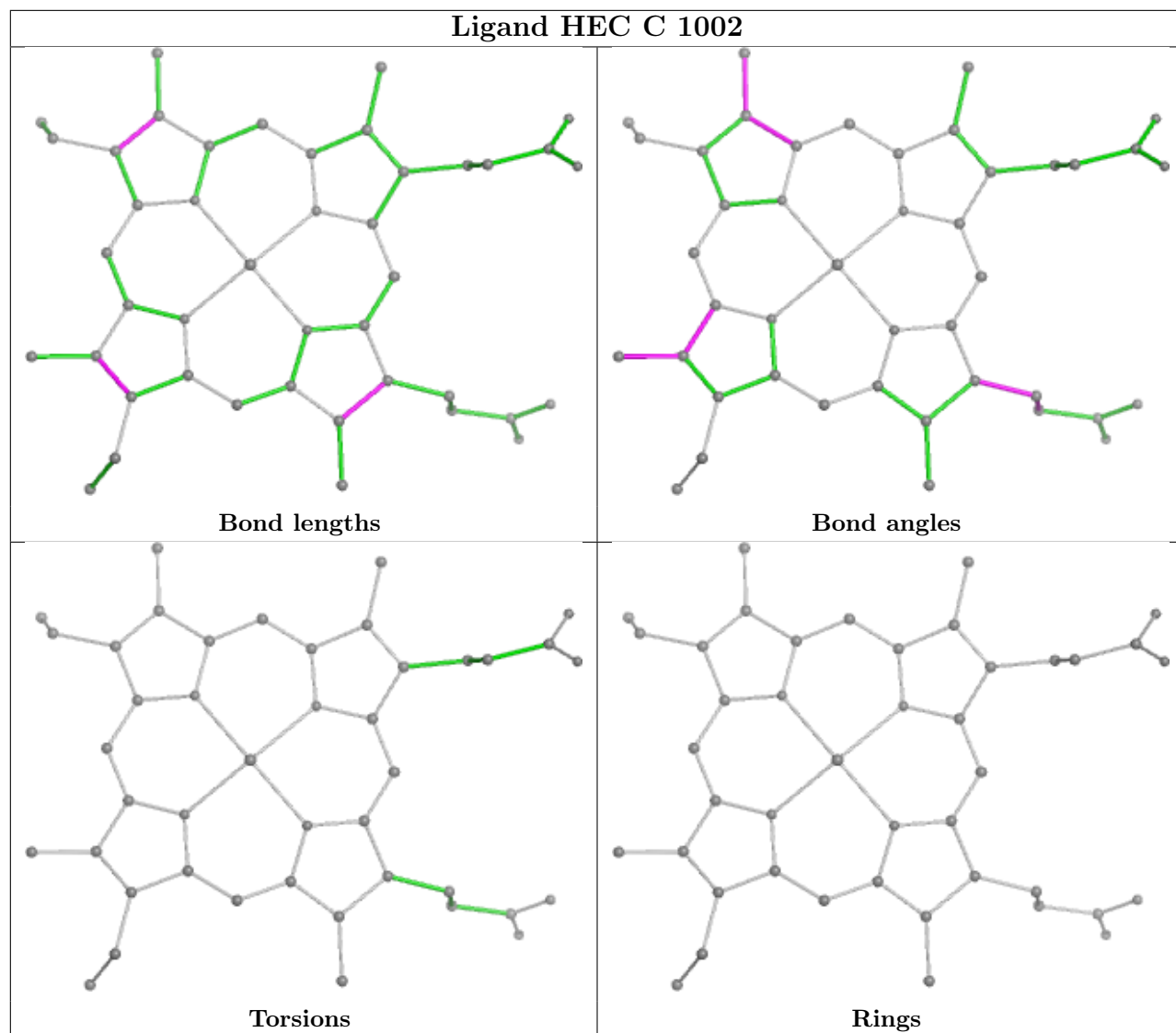


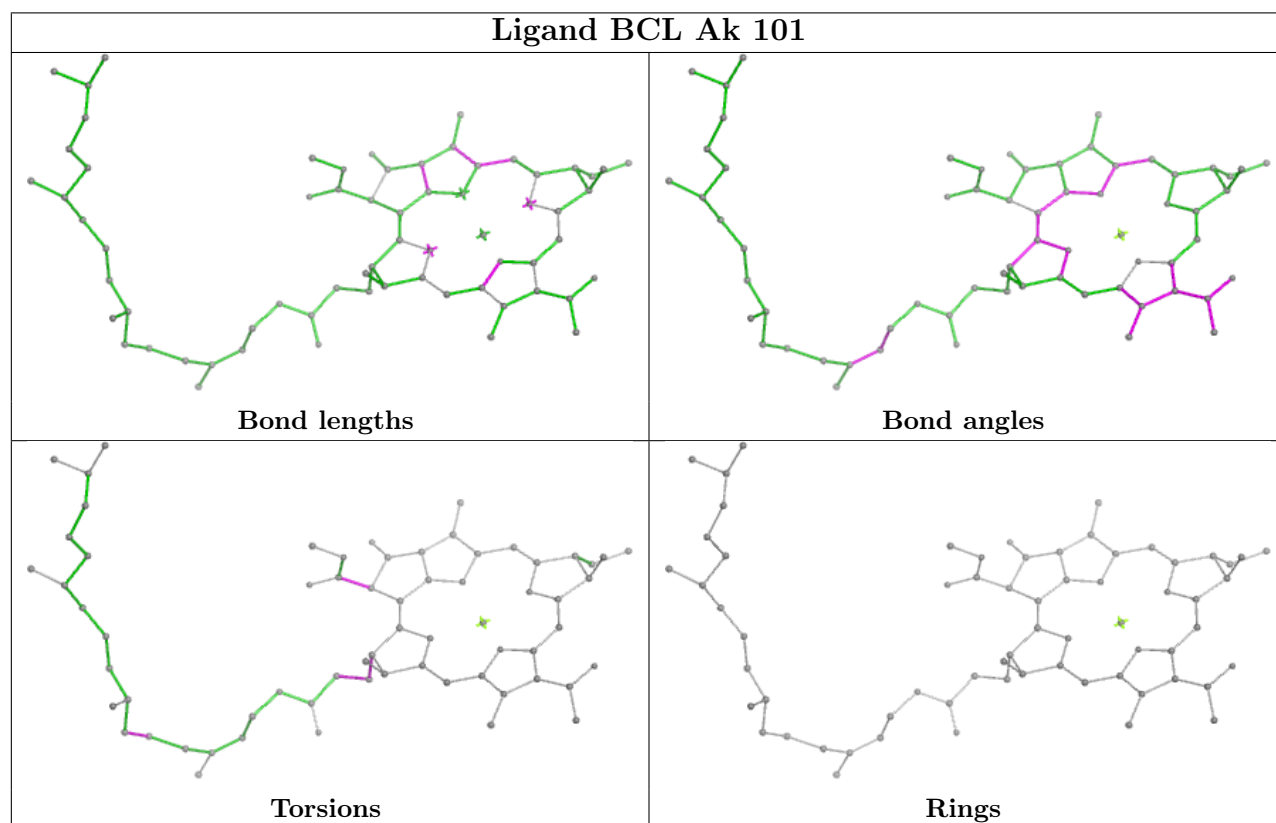
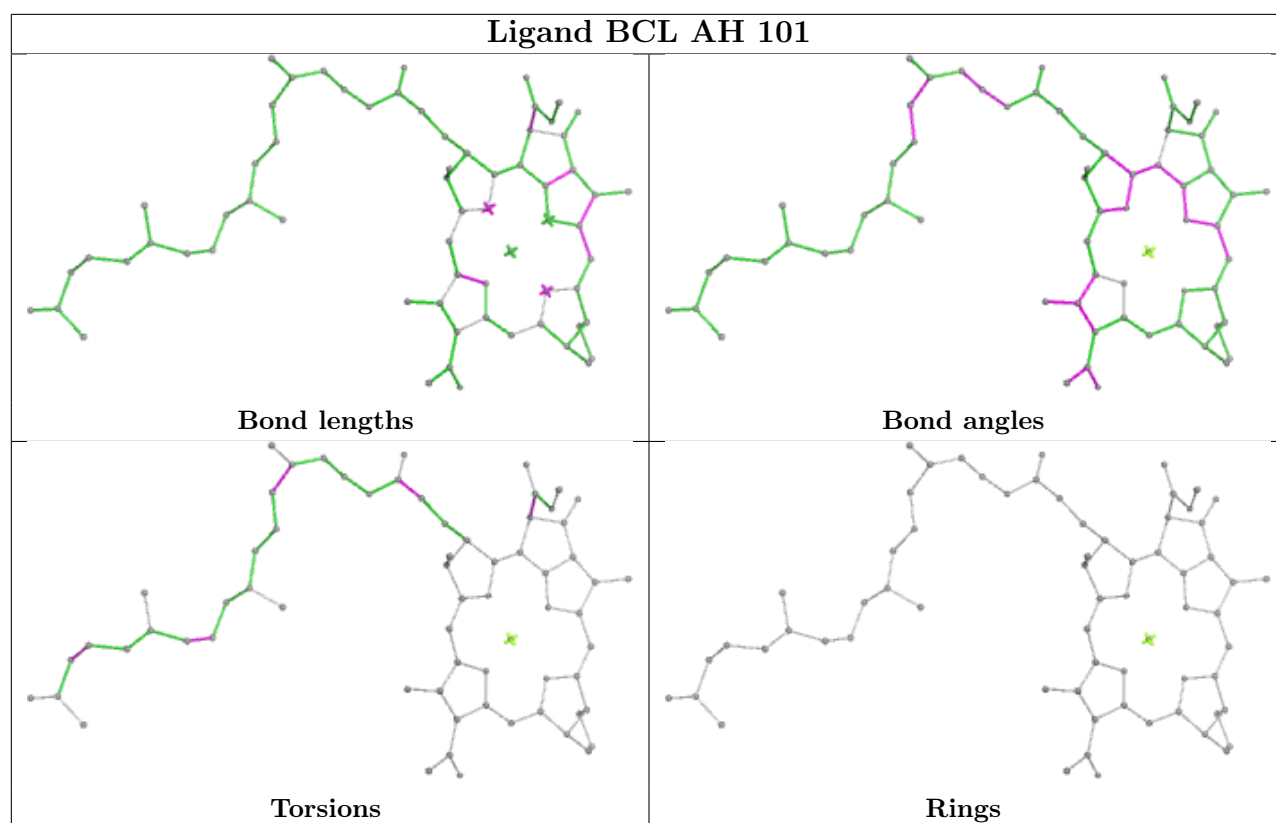


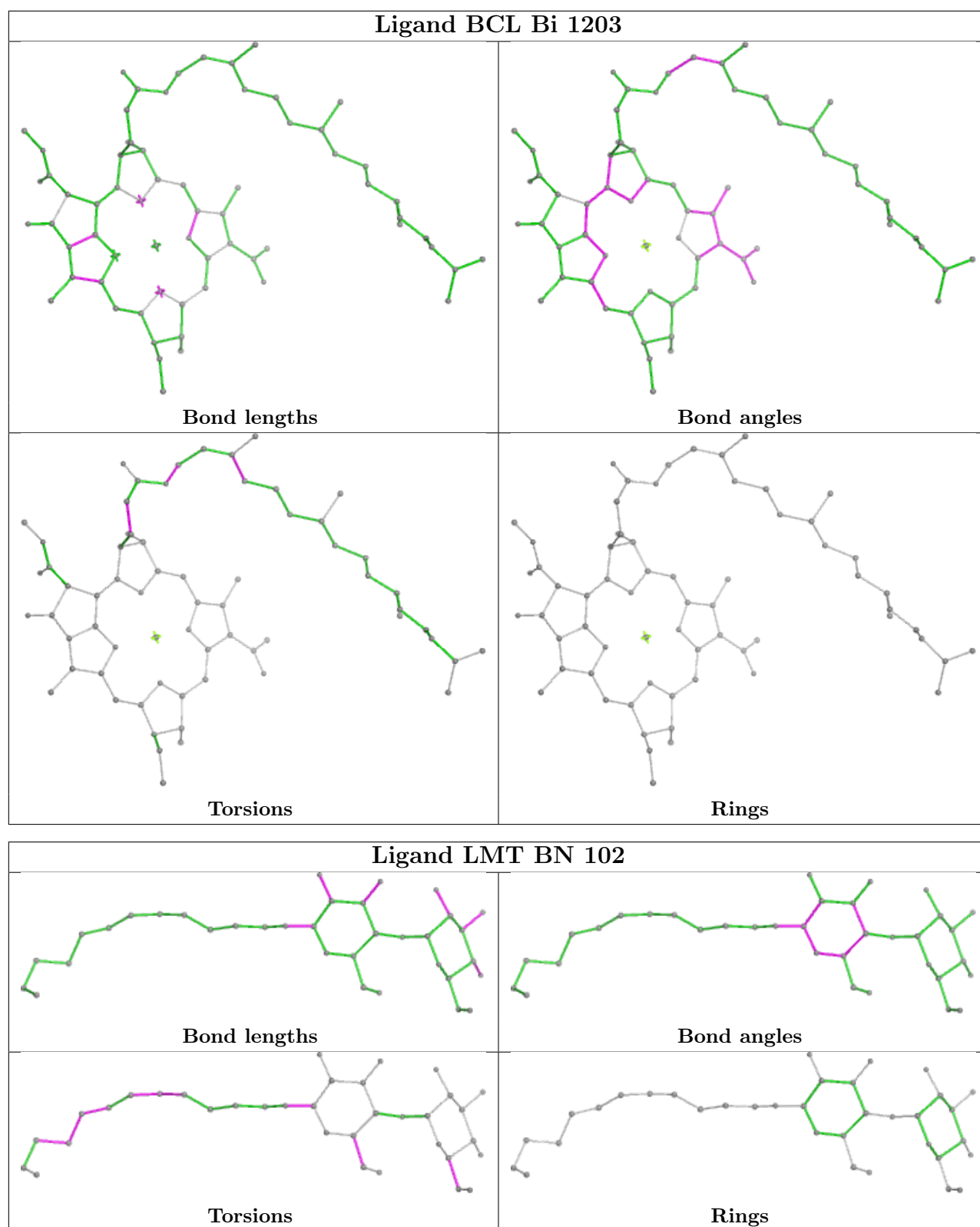


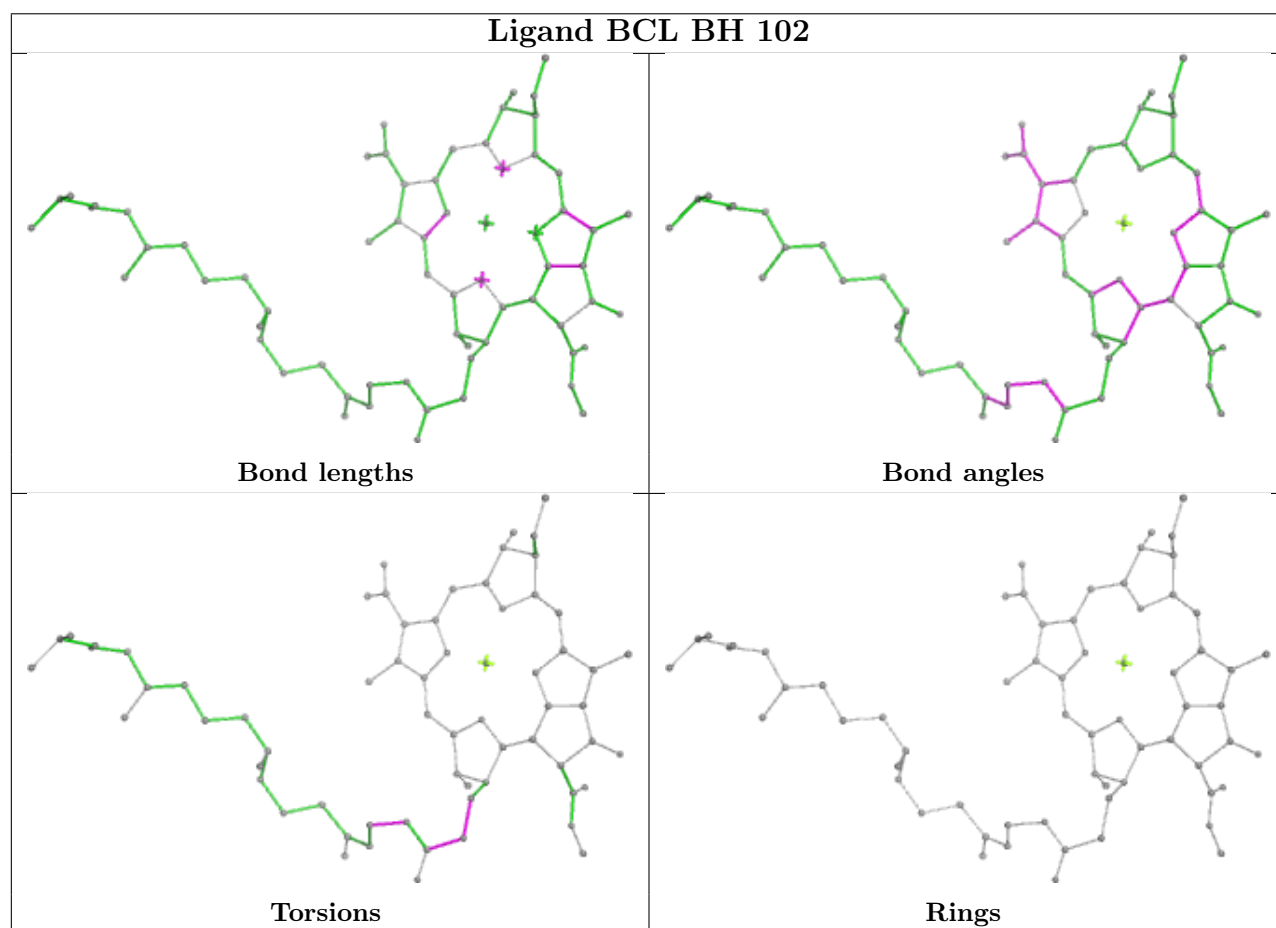
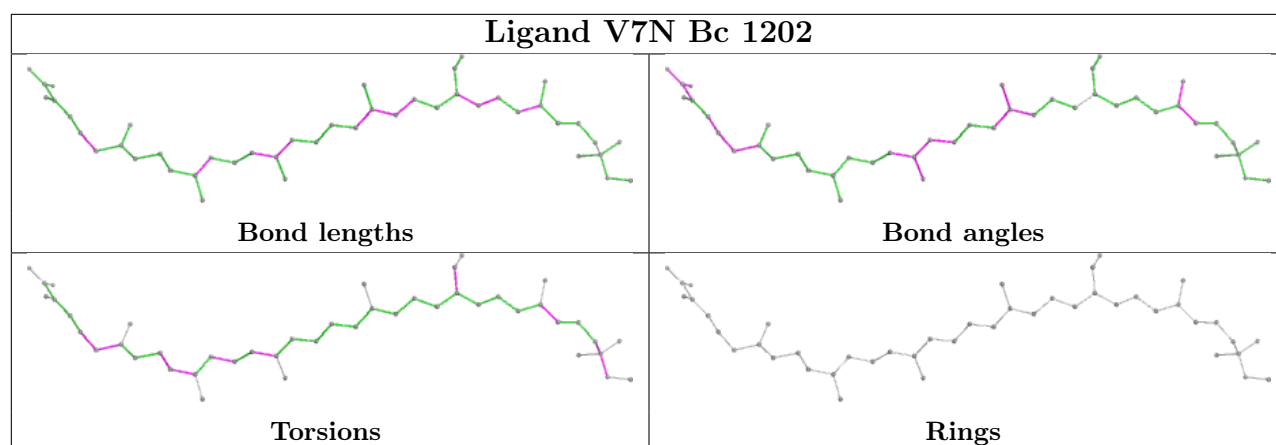
Ligand LMT AK 102**Ligand BPH M 405****Ligand LMT AB 102**

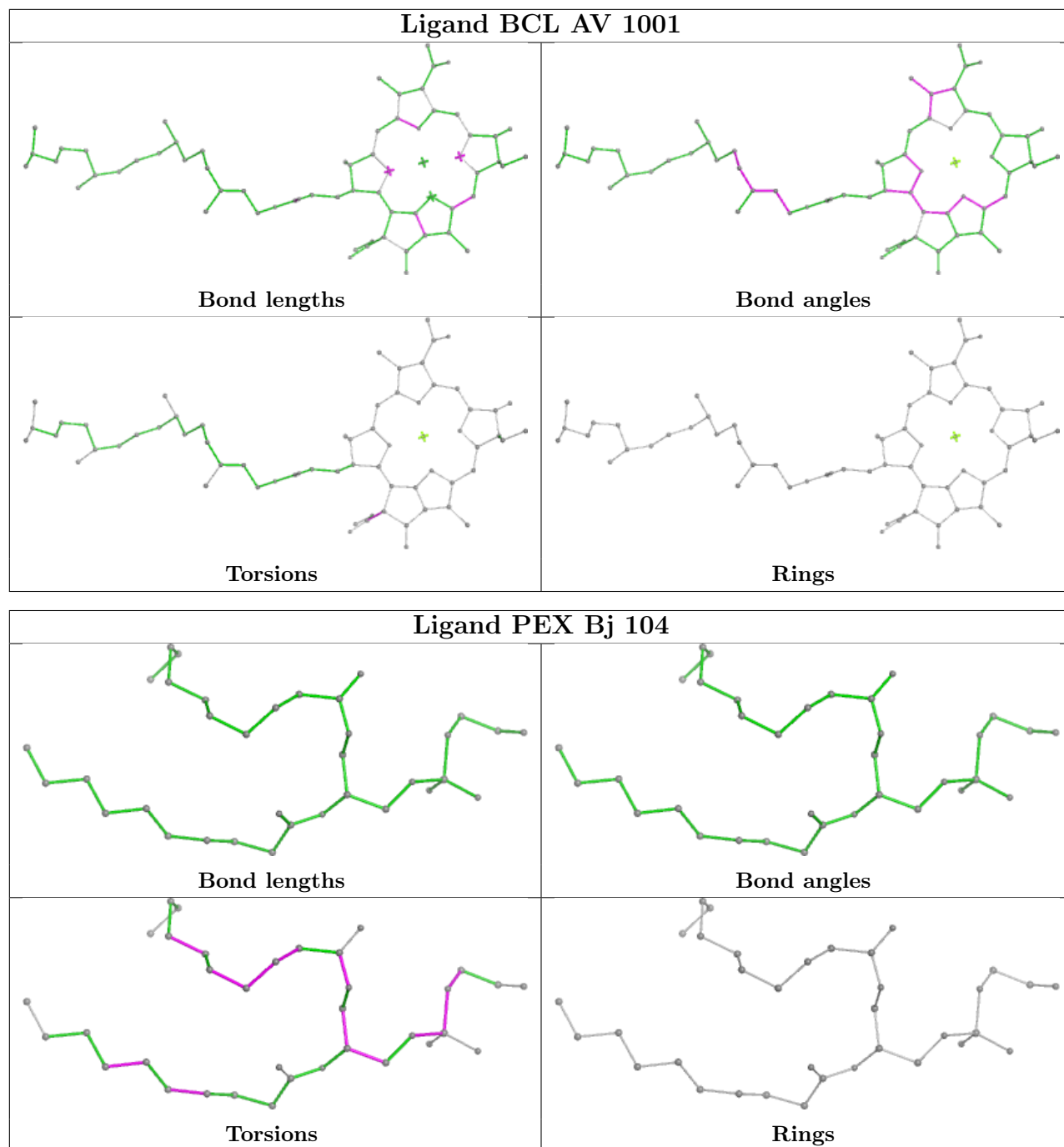


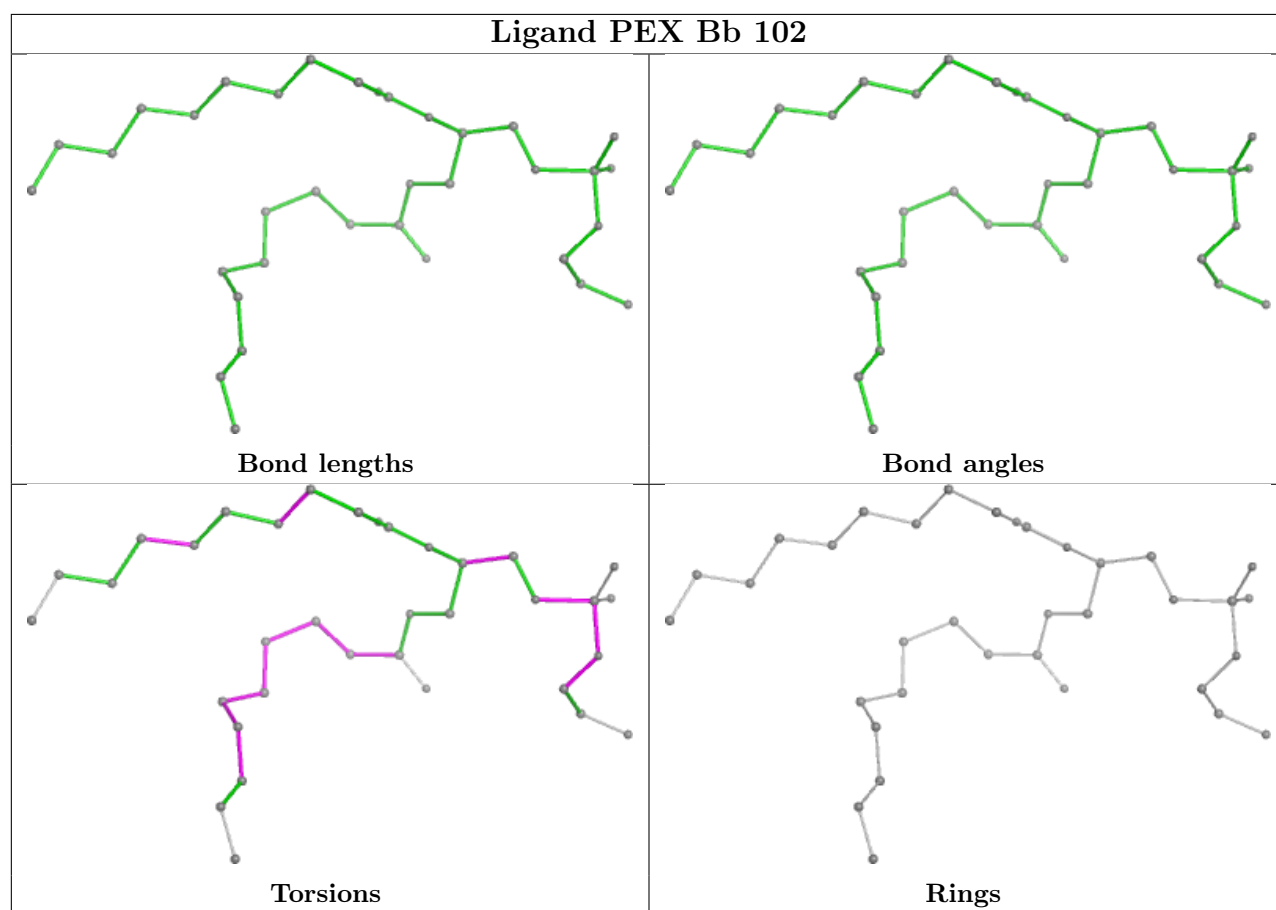
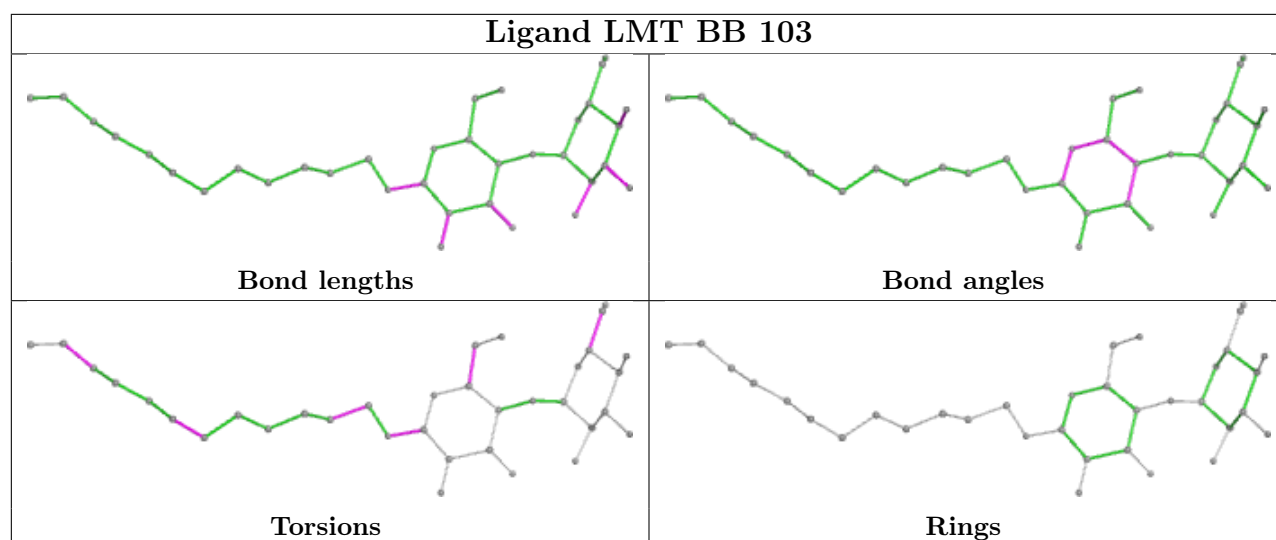


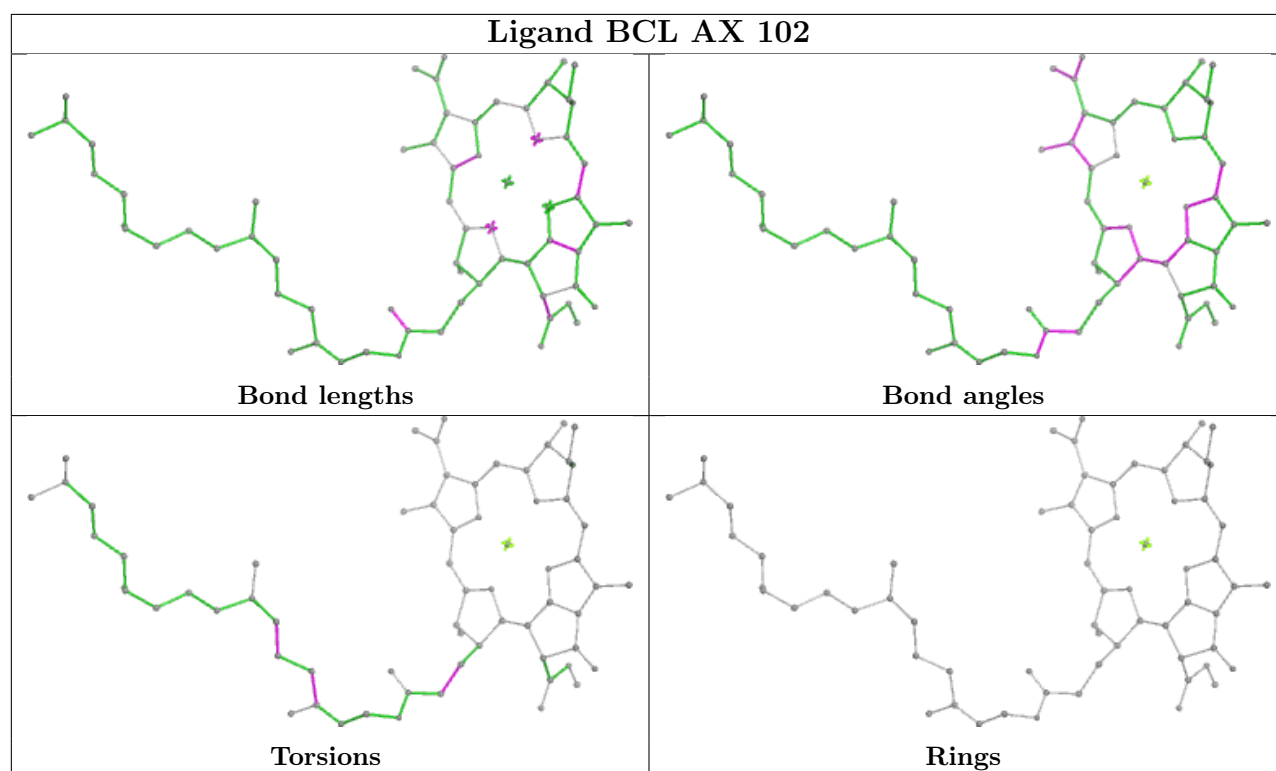
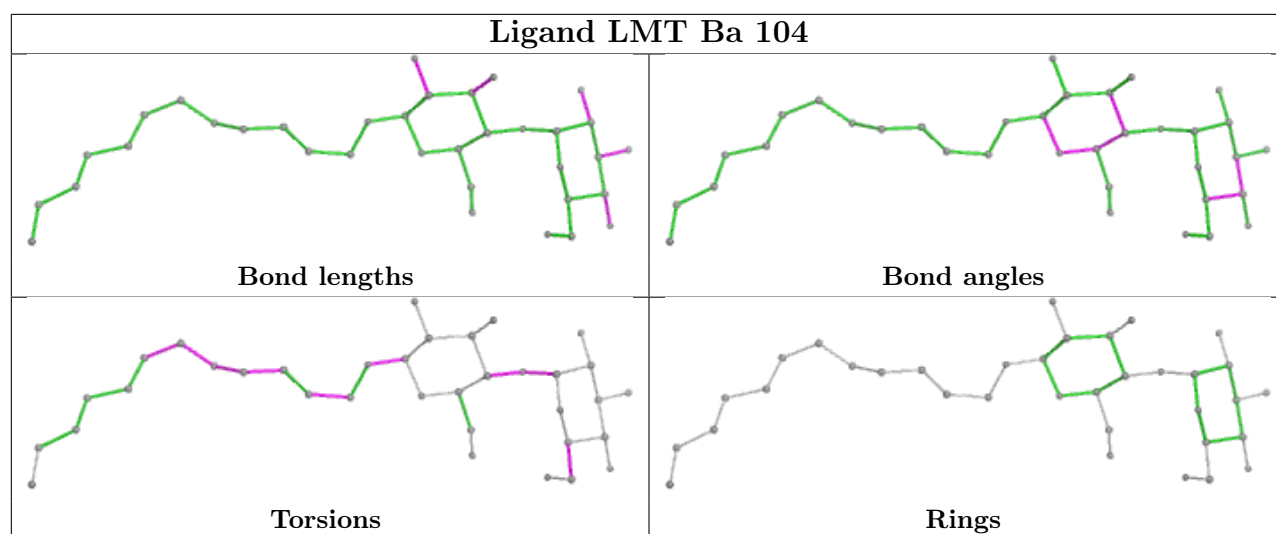


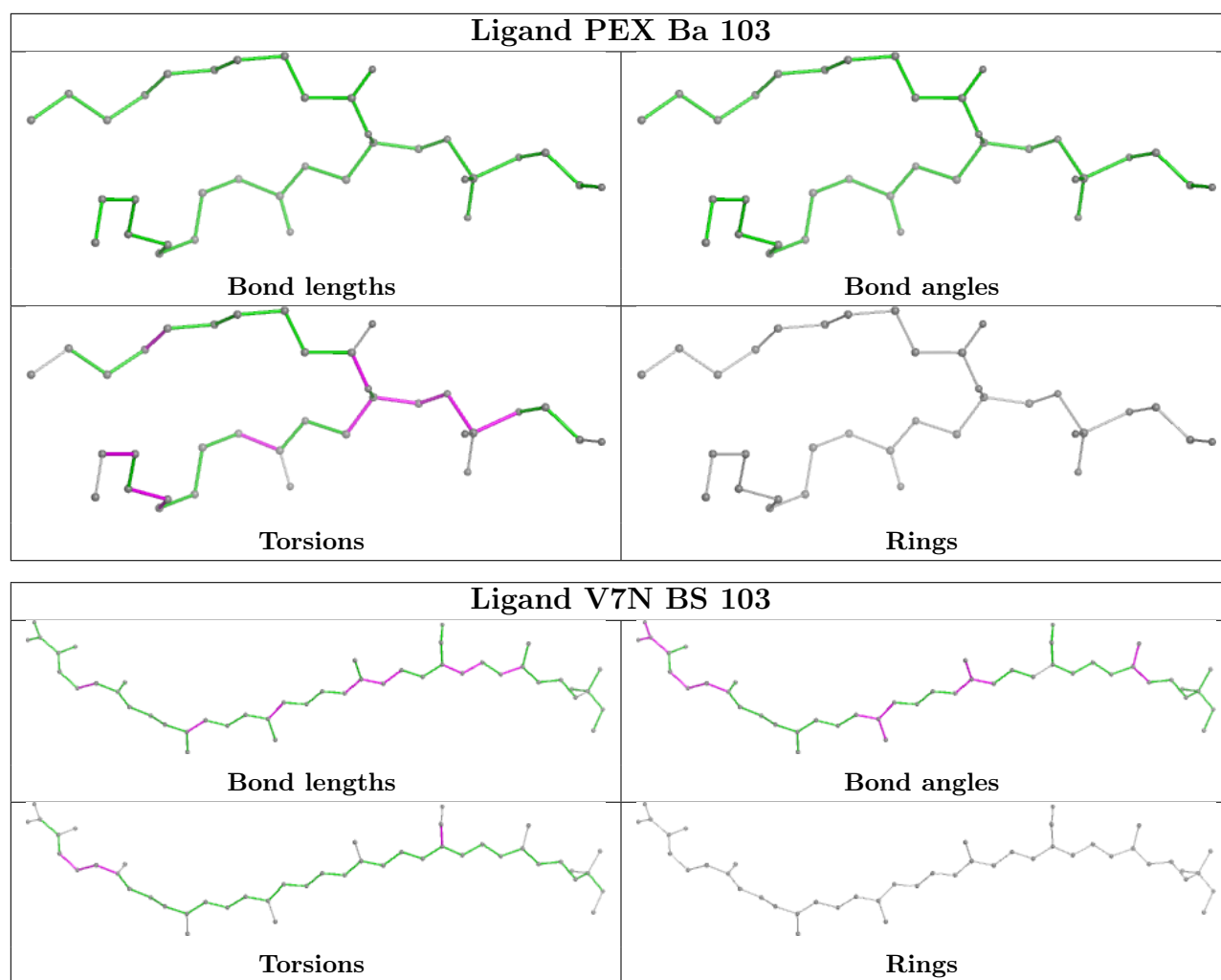


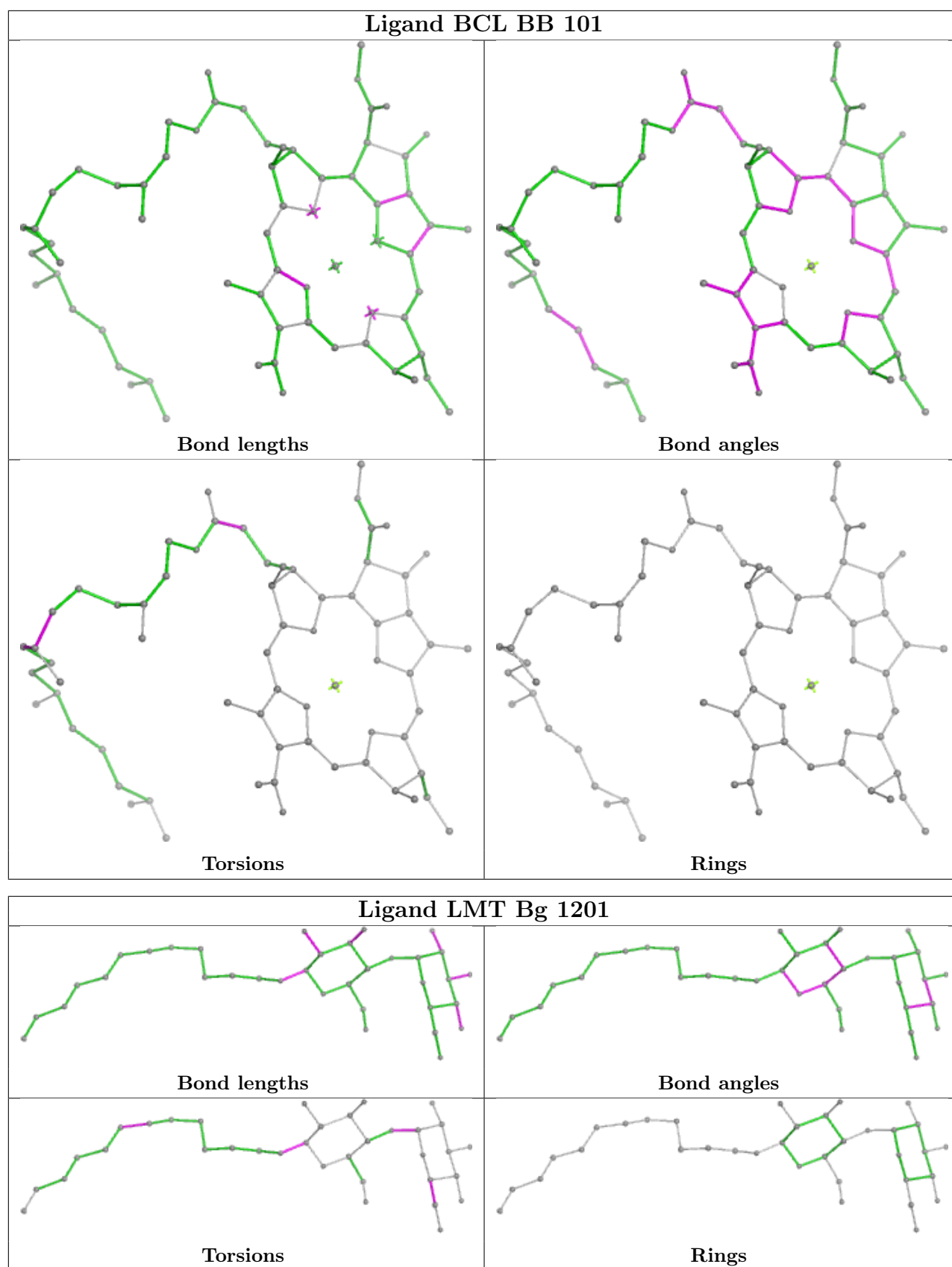


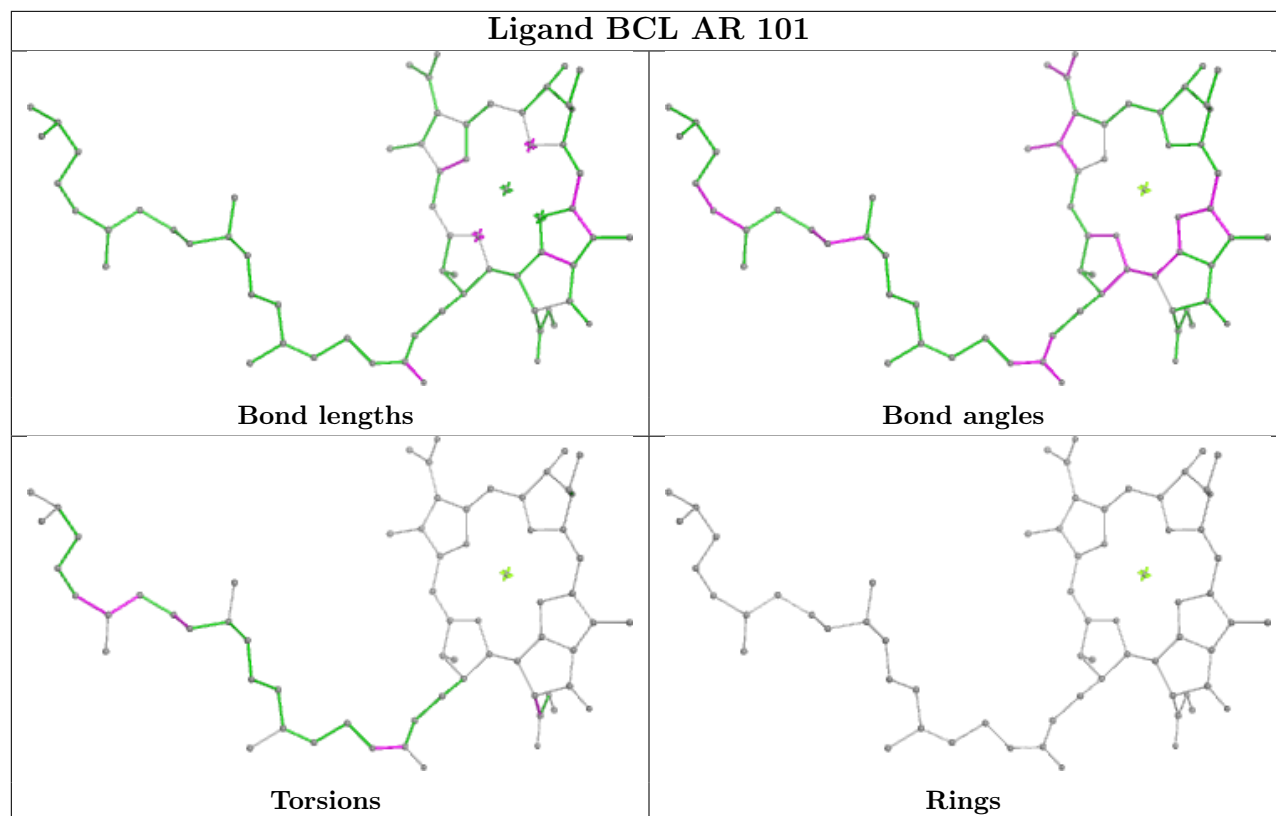


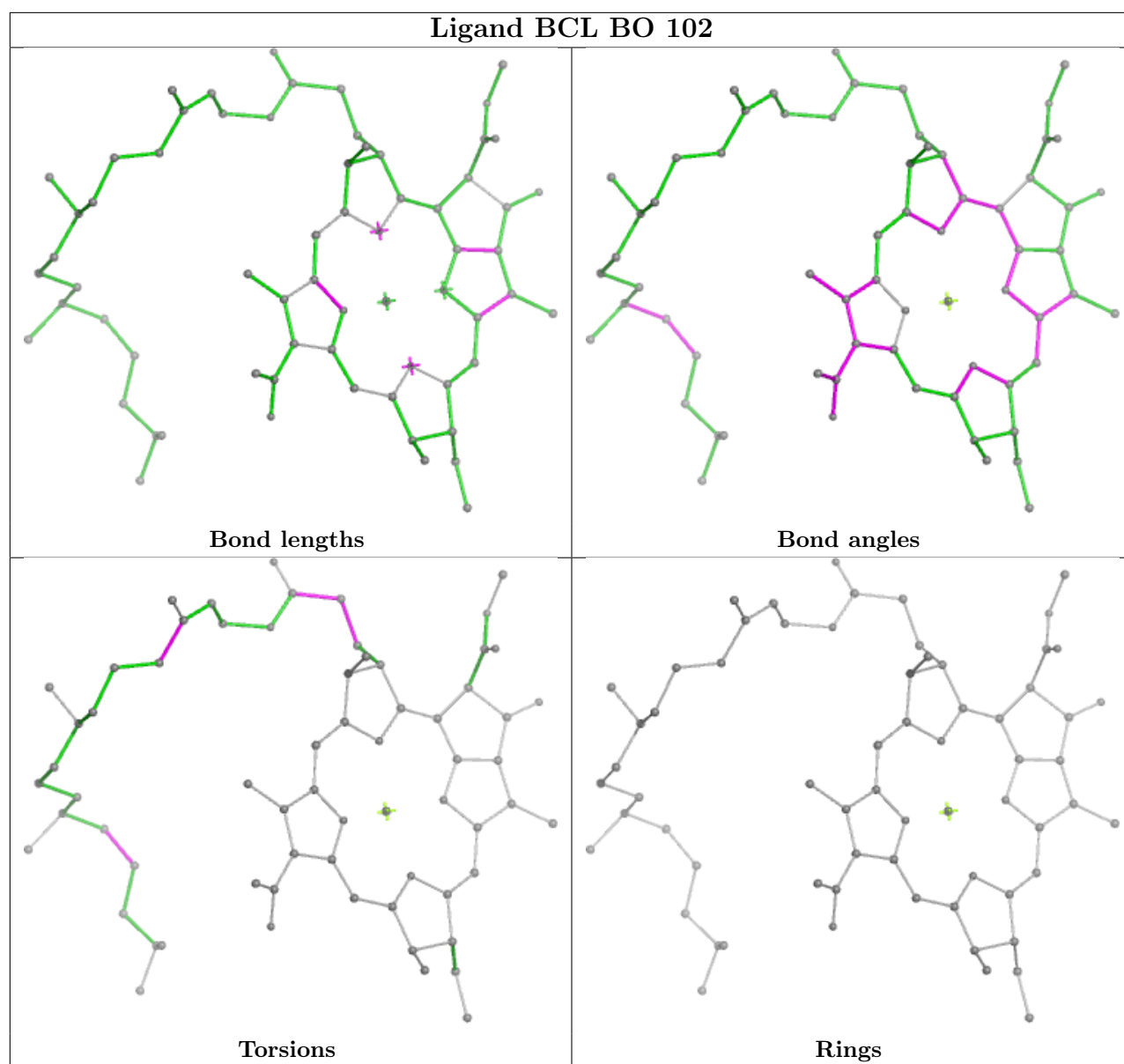


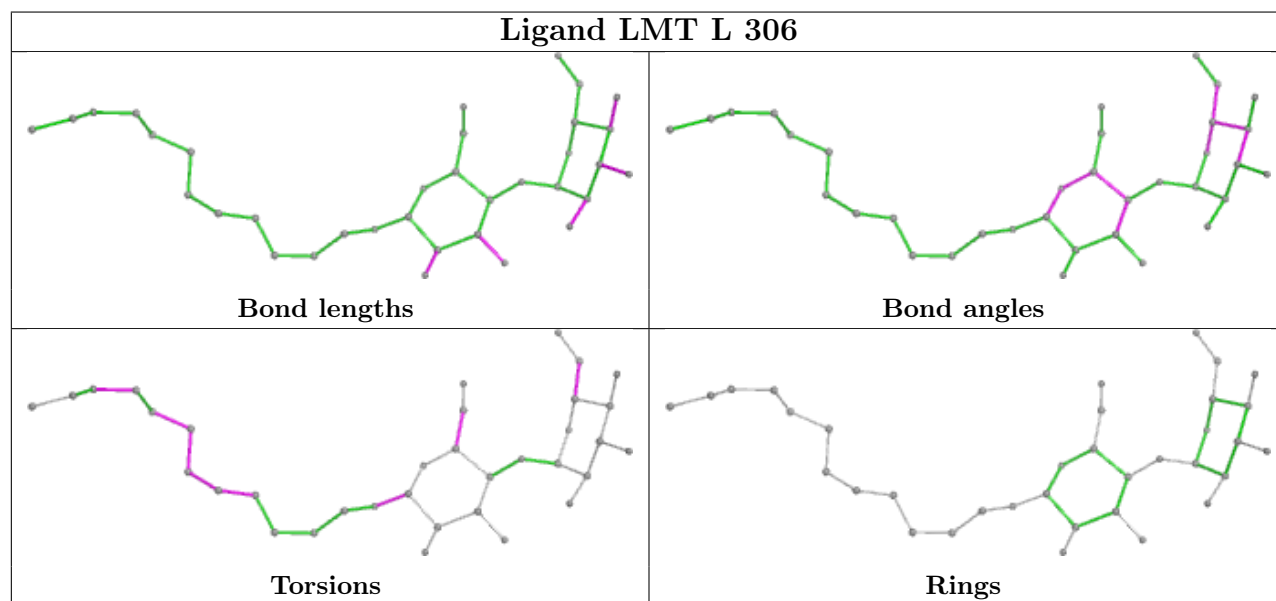
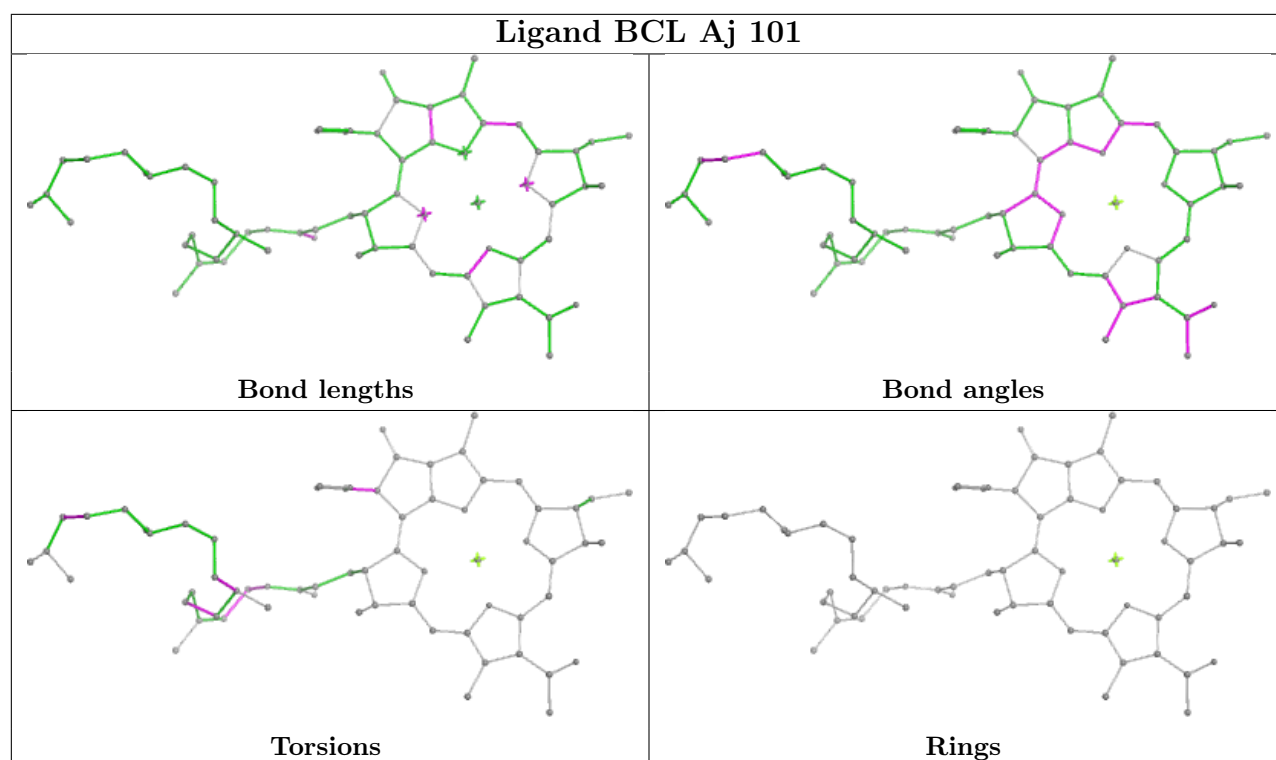


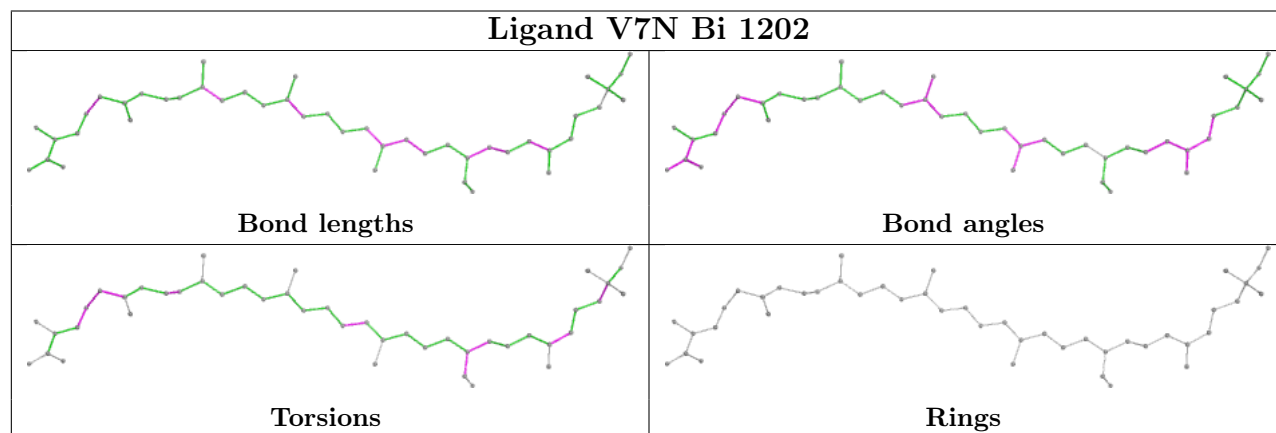
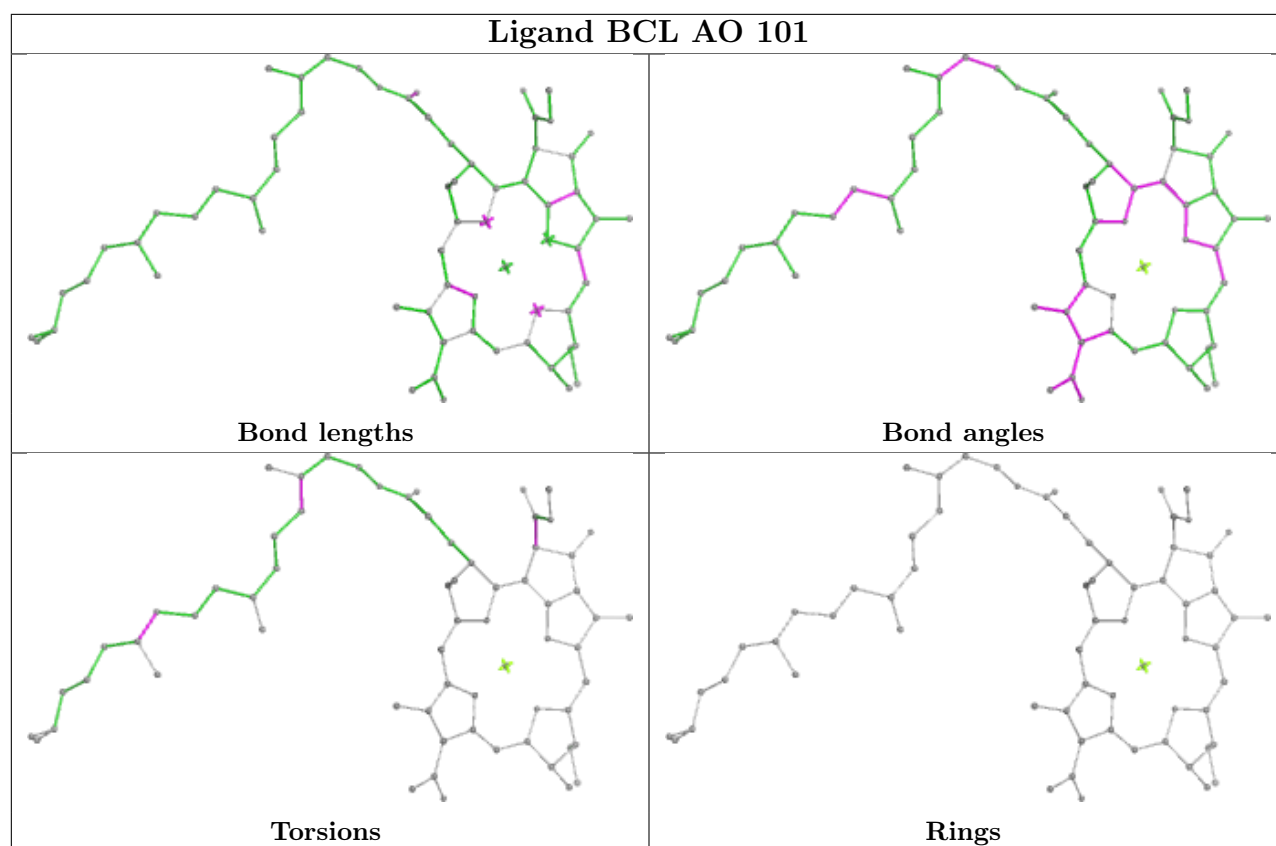




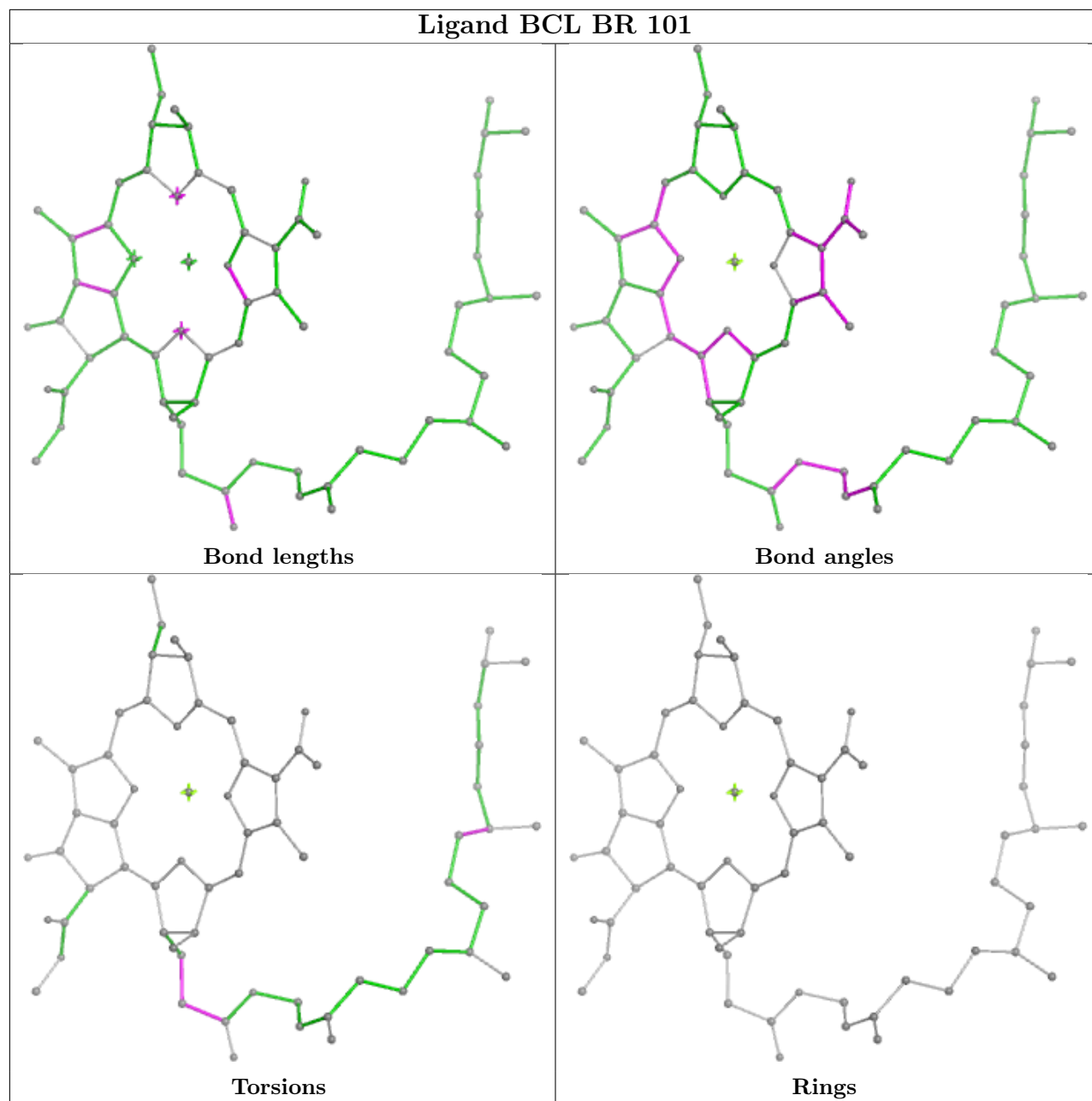


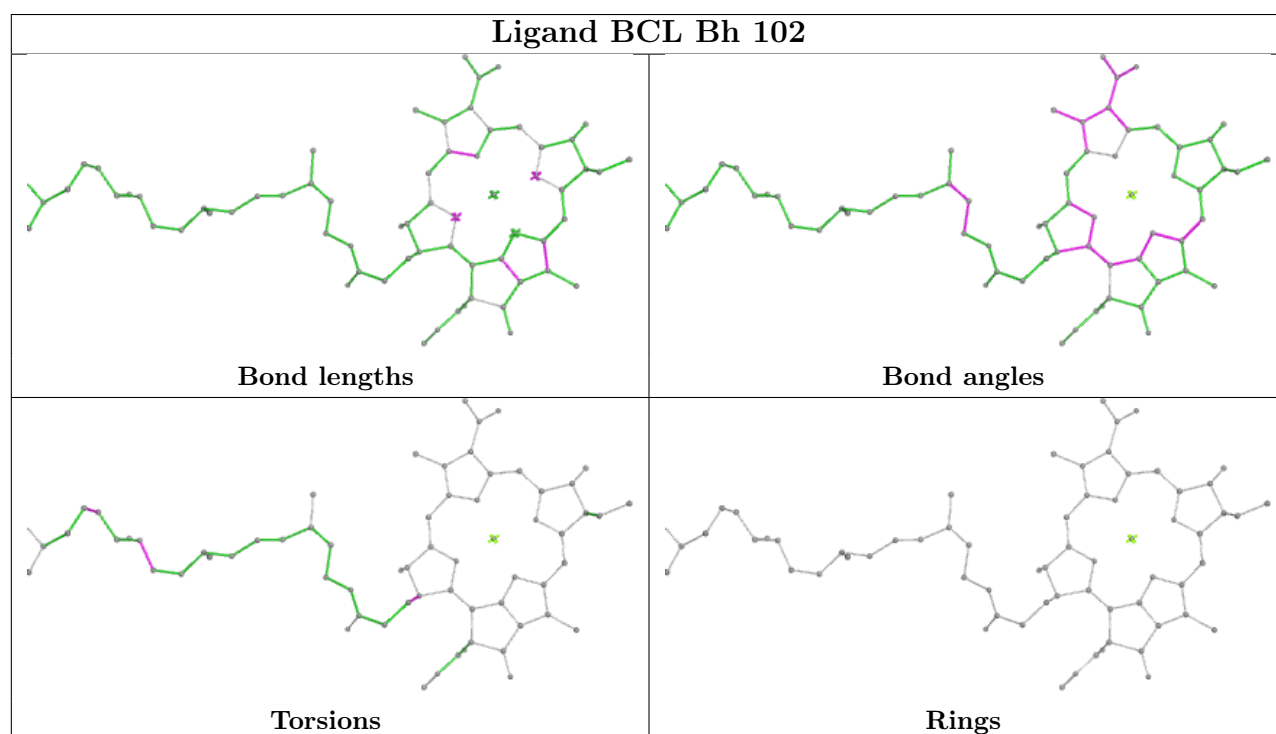
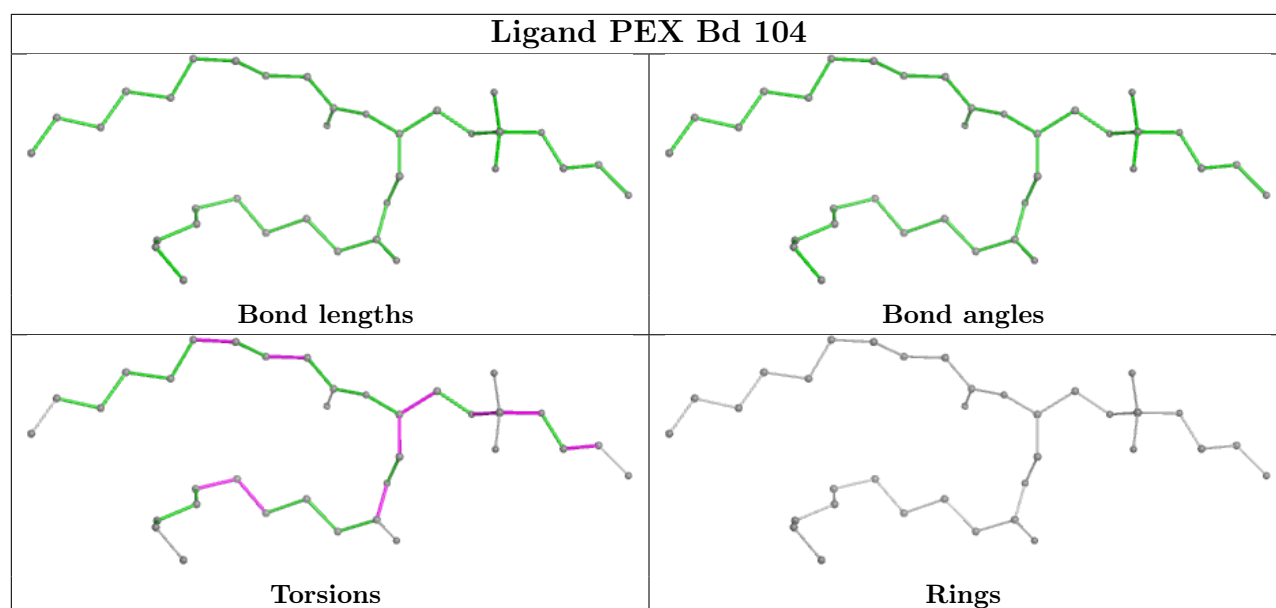




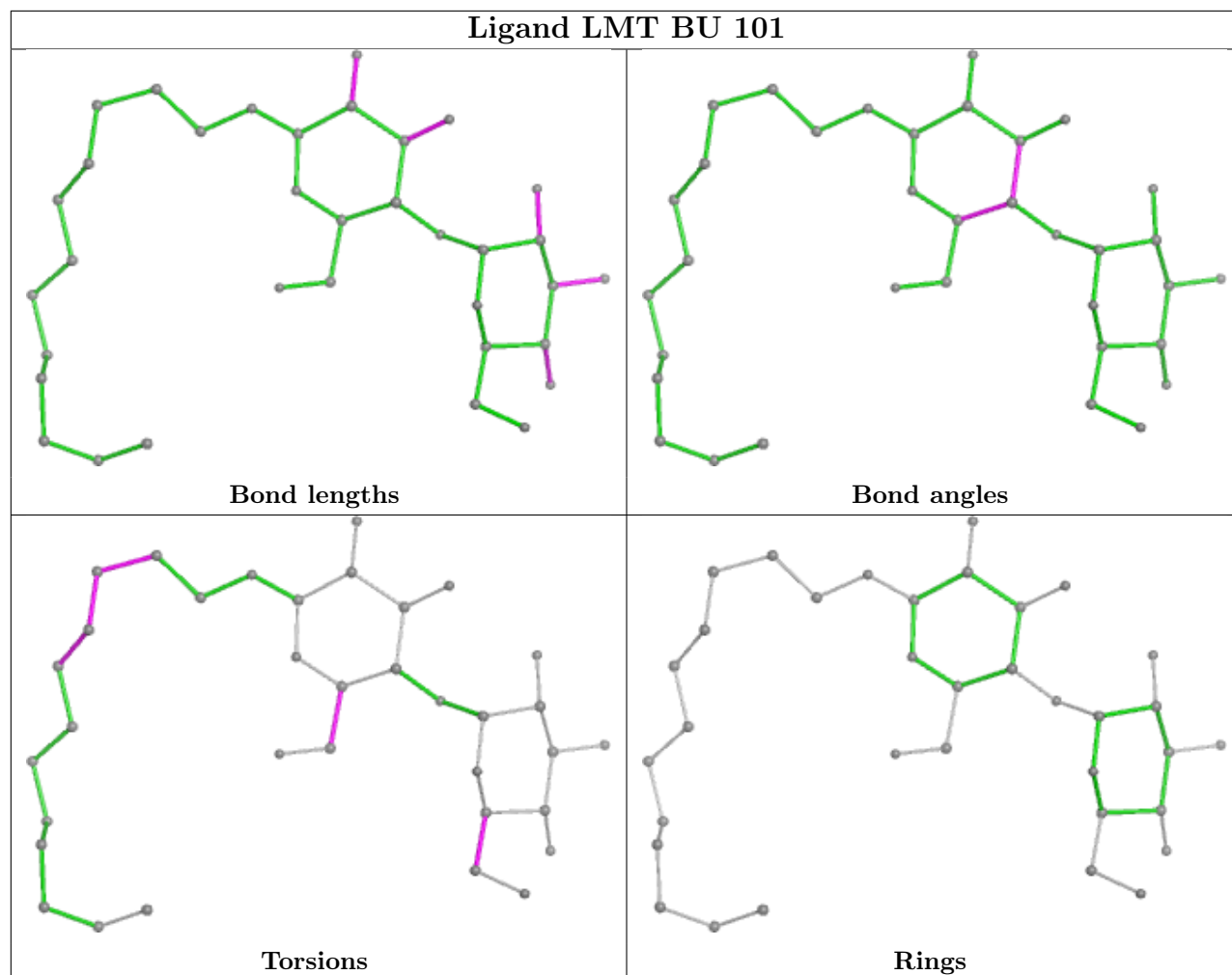


Ligand BCL BR 101

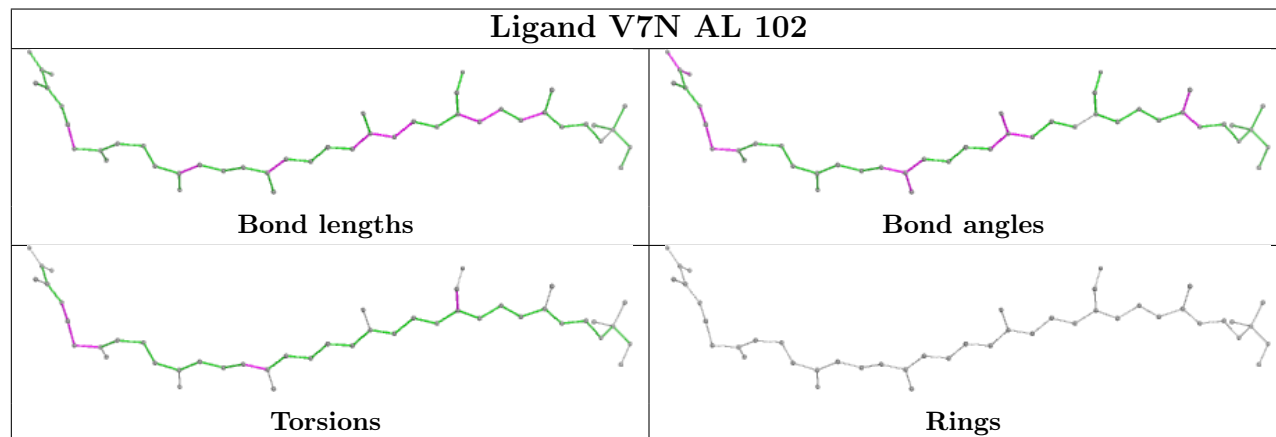


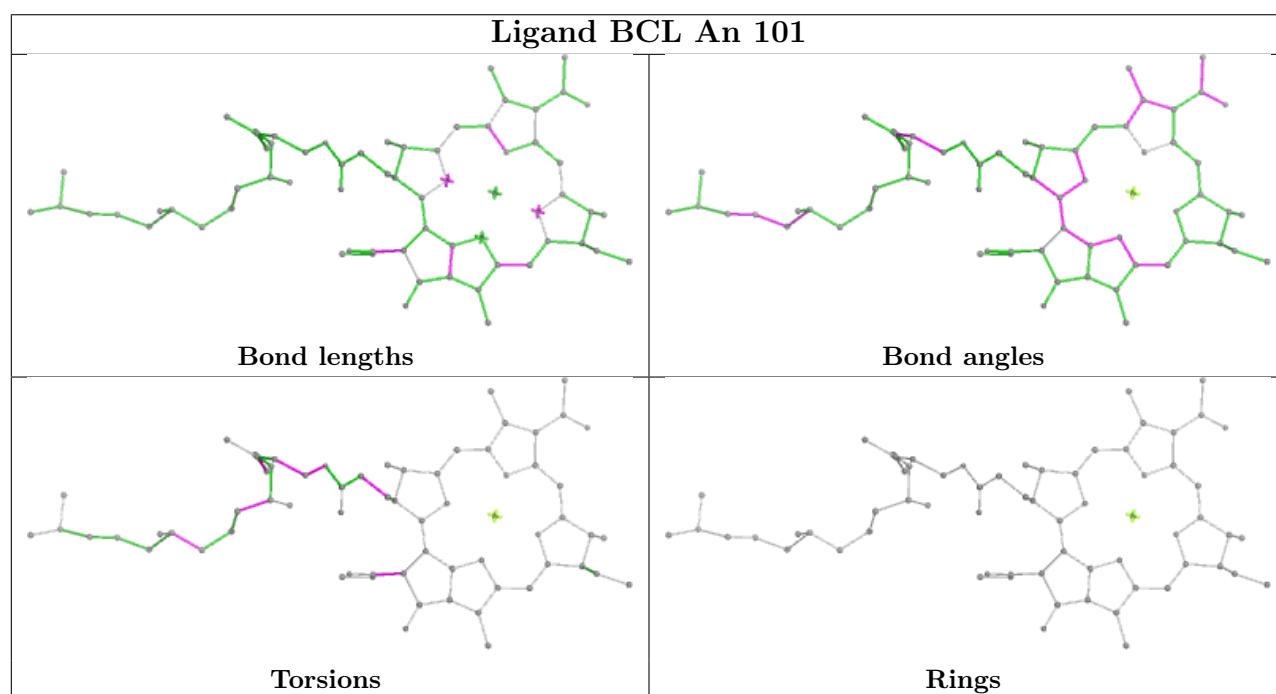
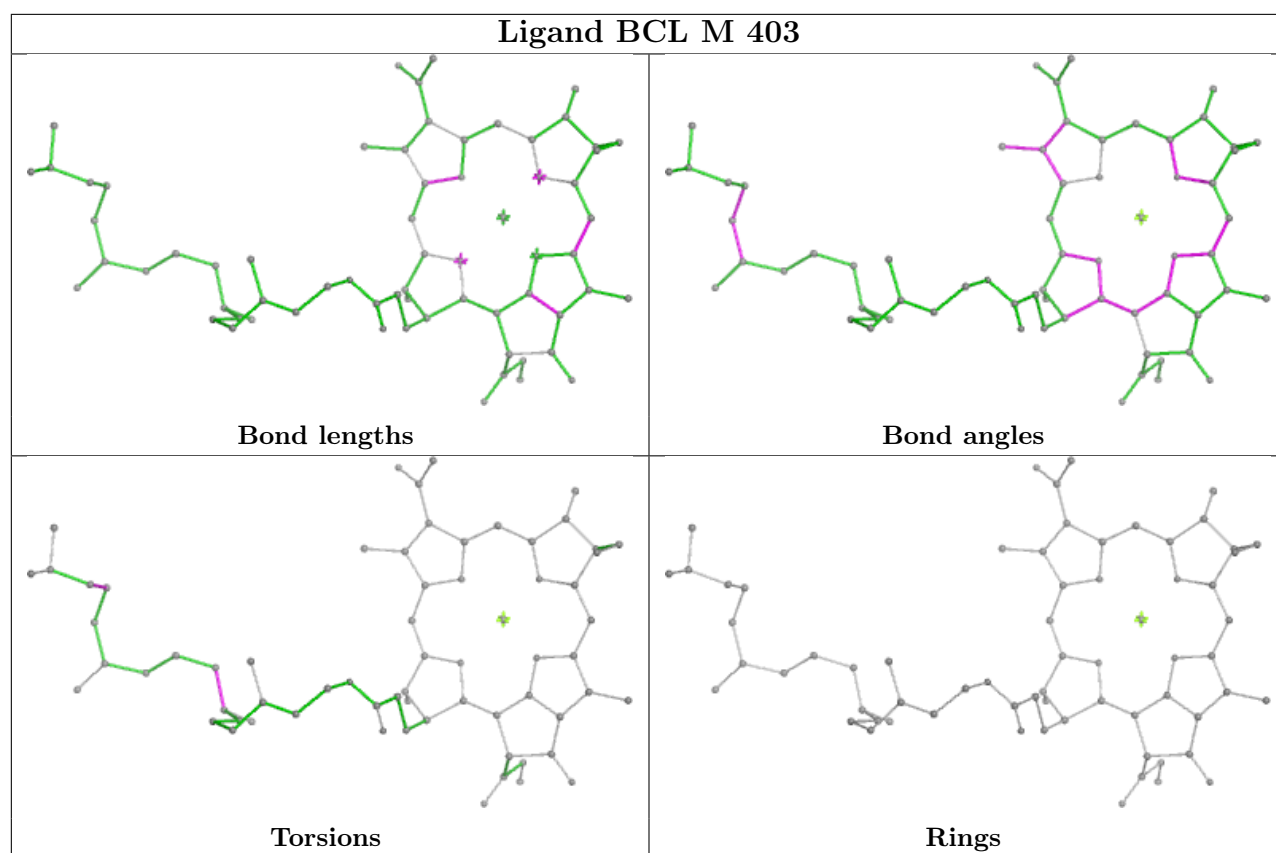


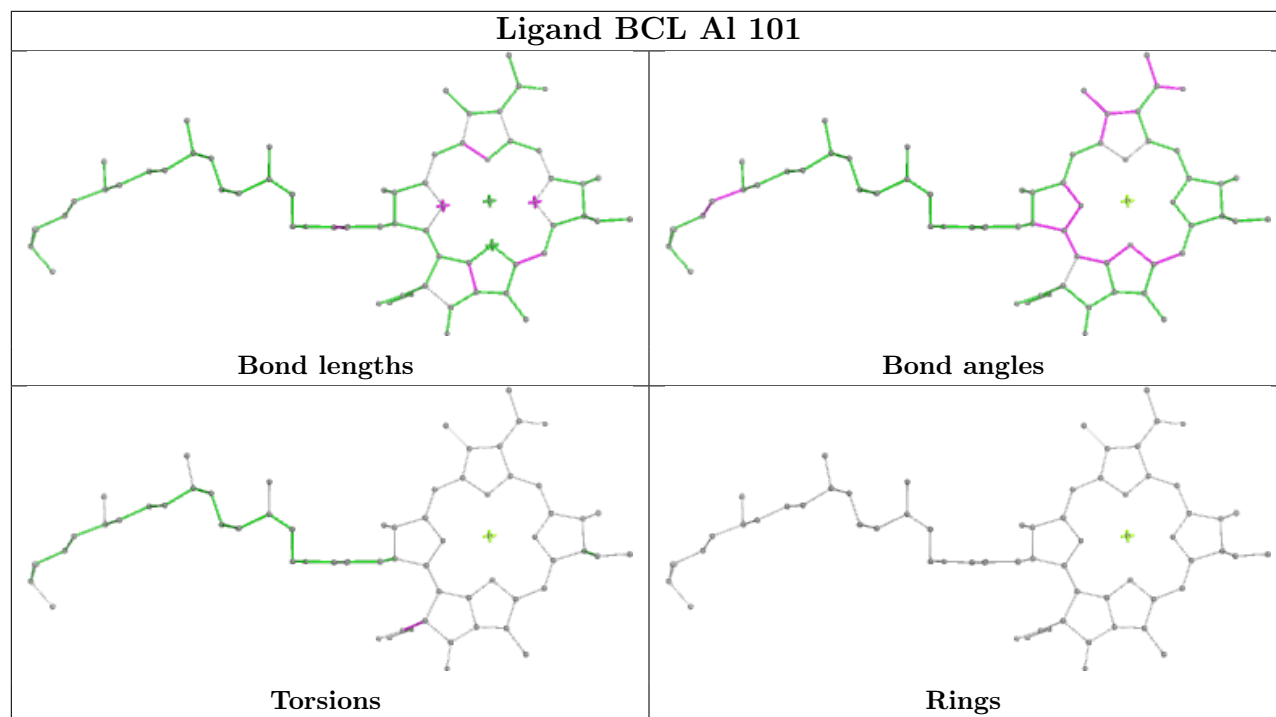
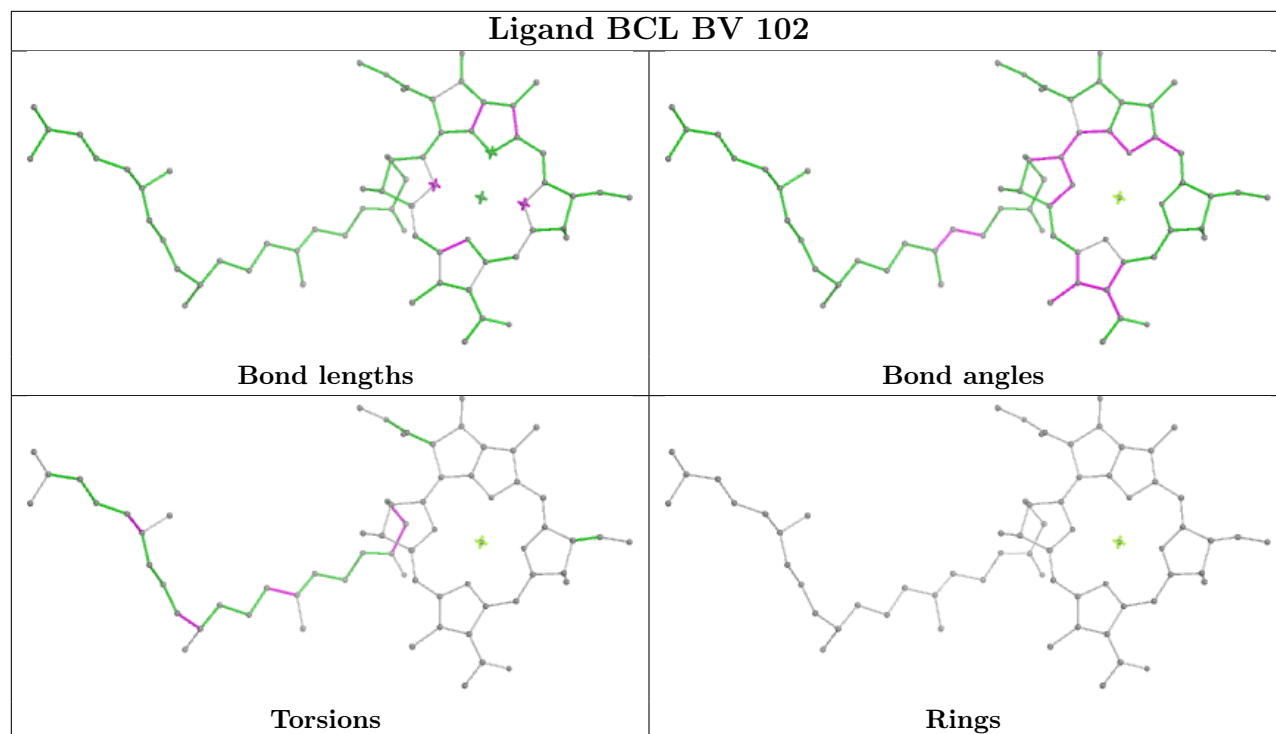
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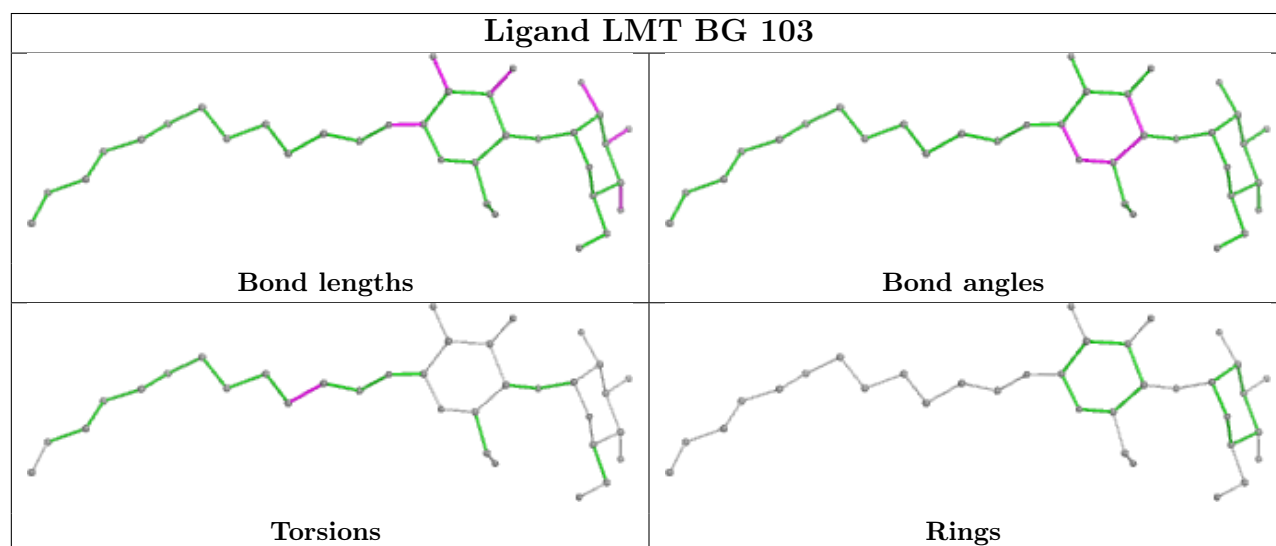
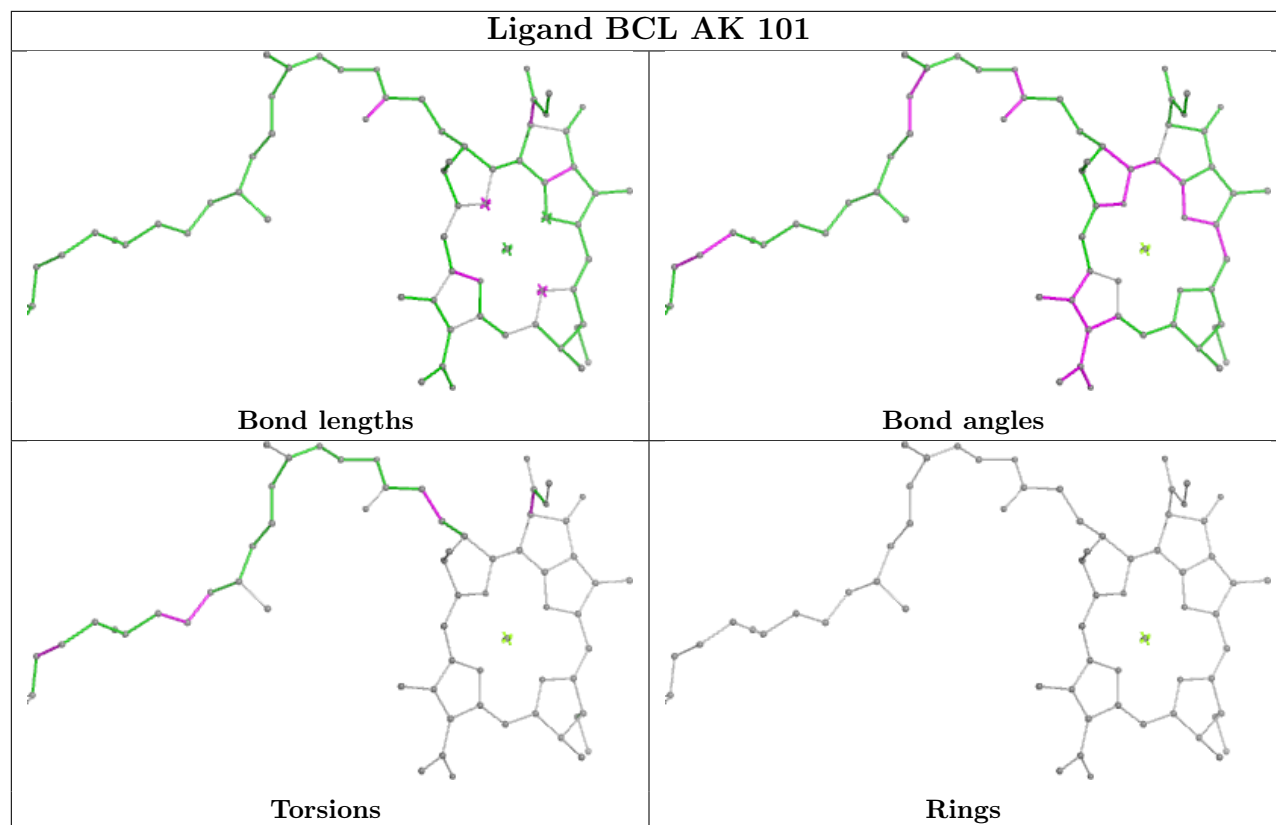


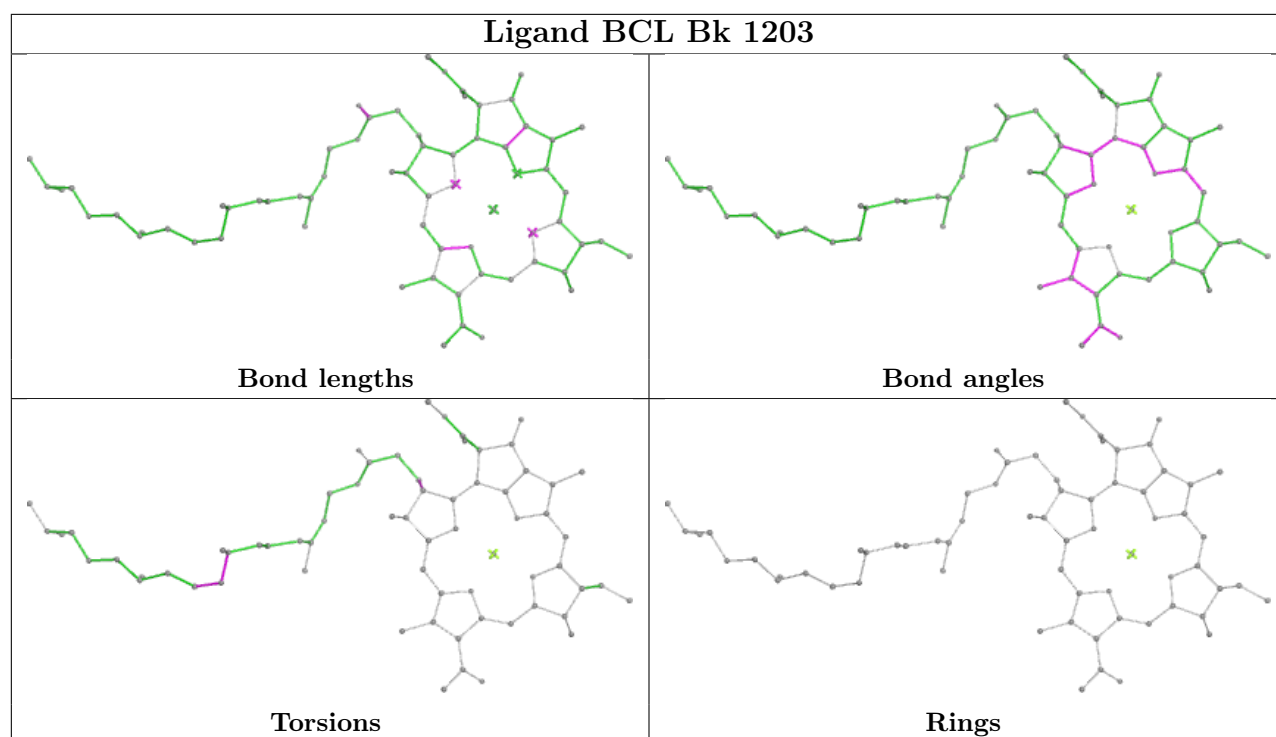
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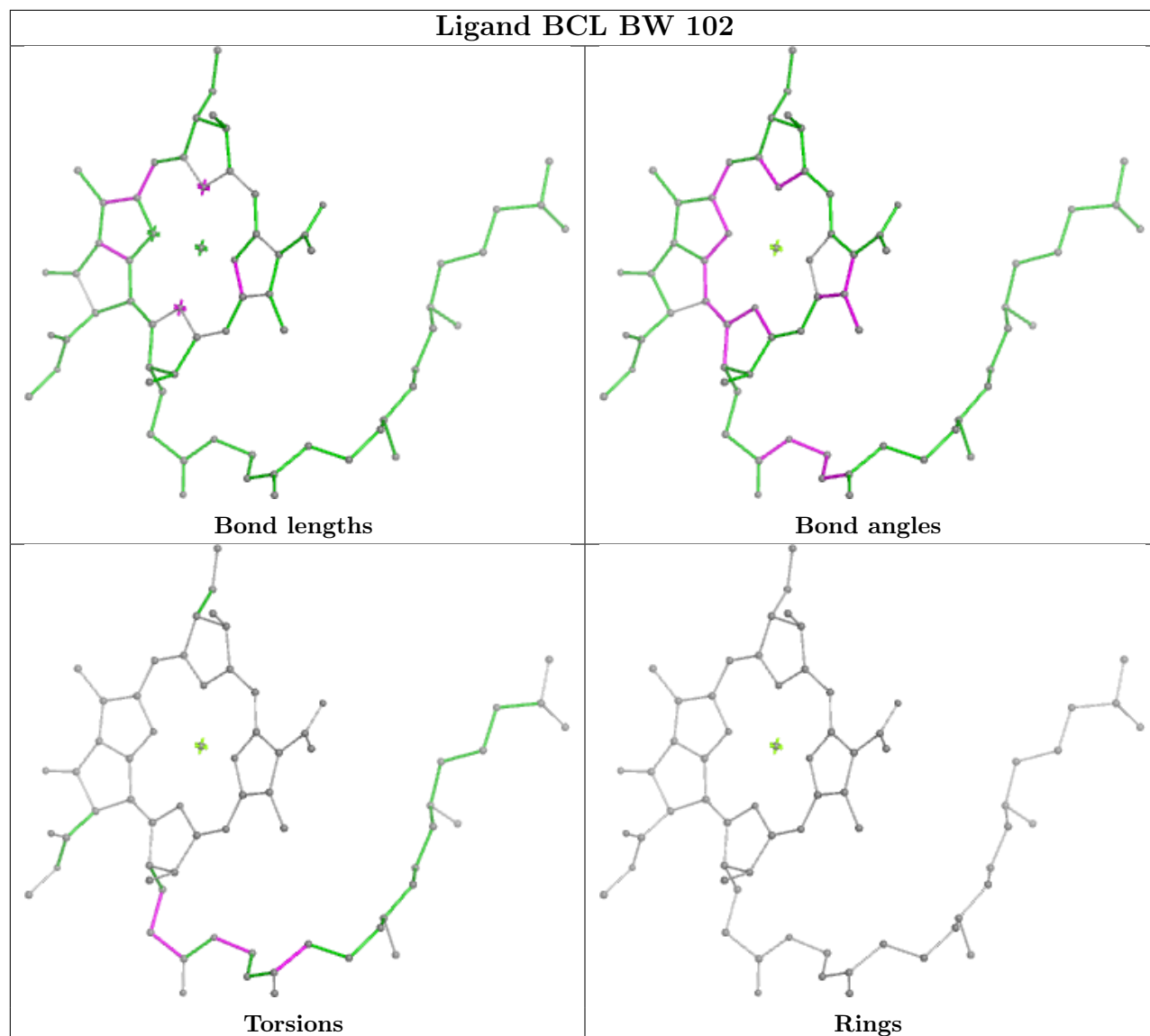




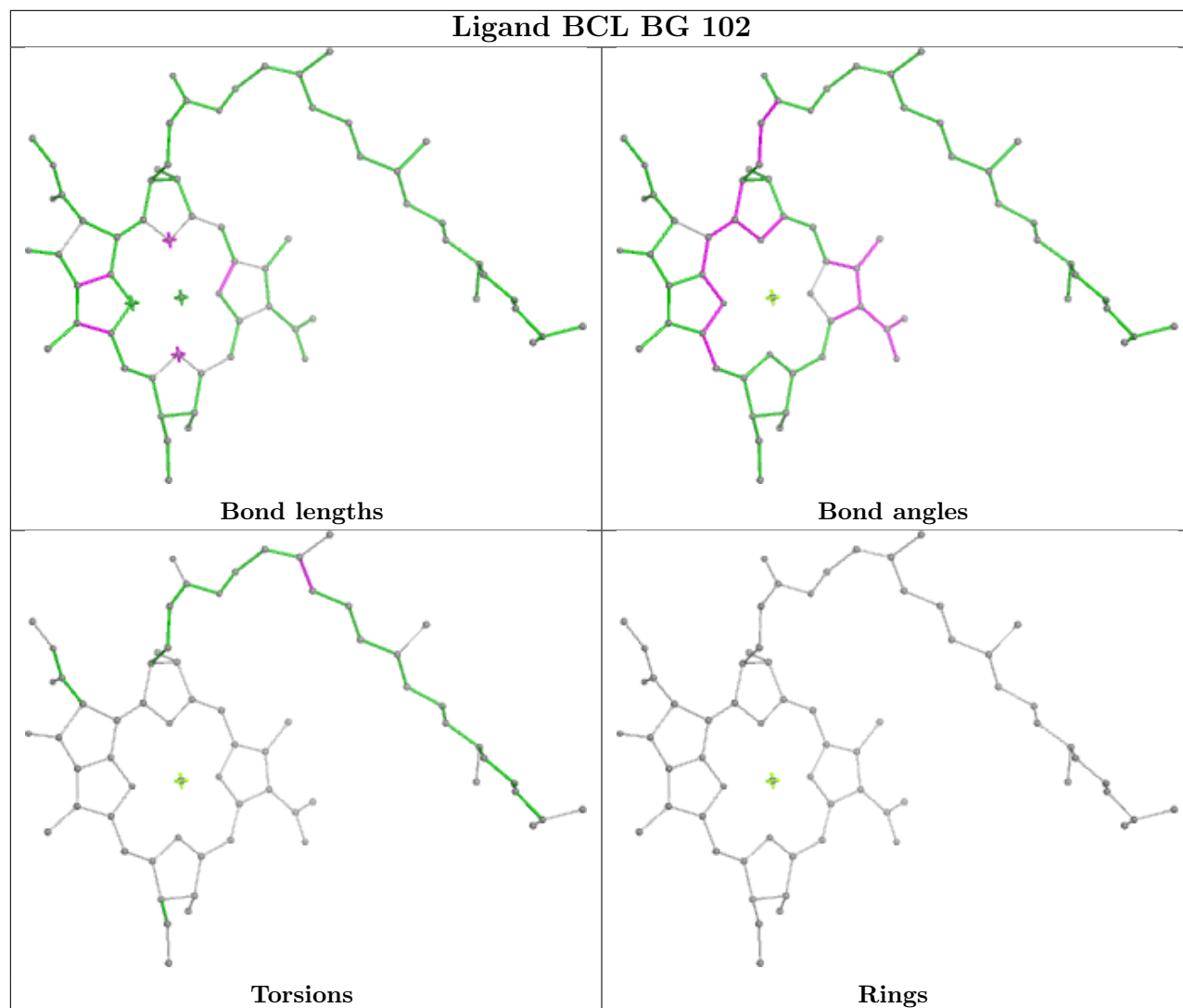




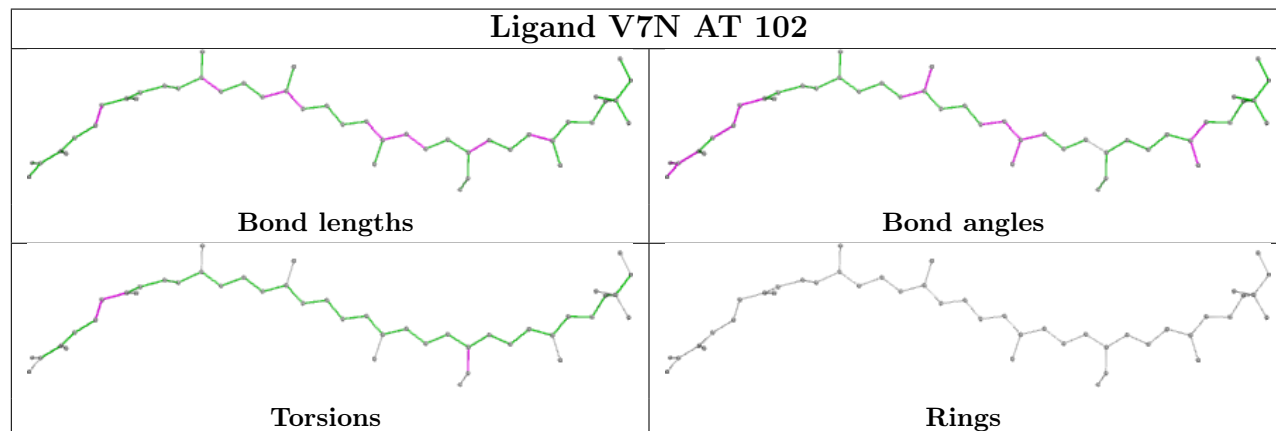
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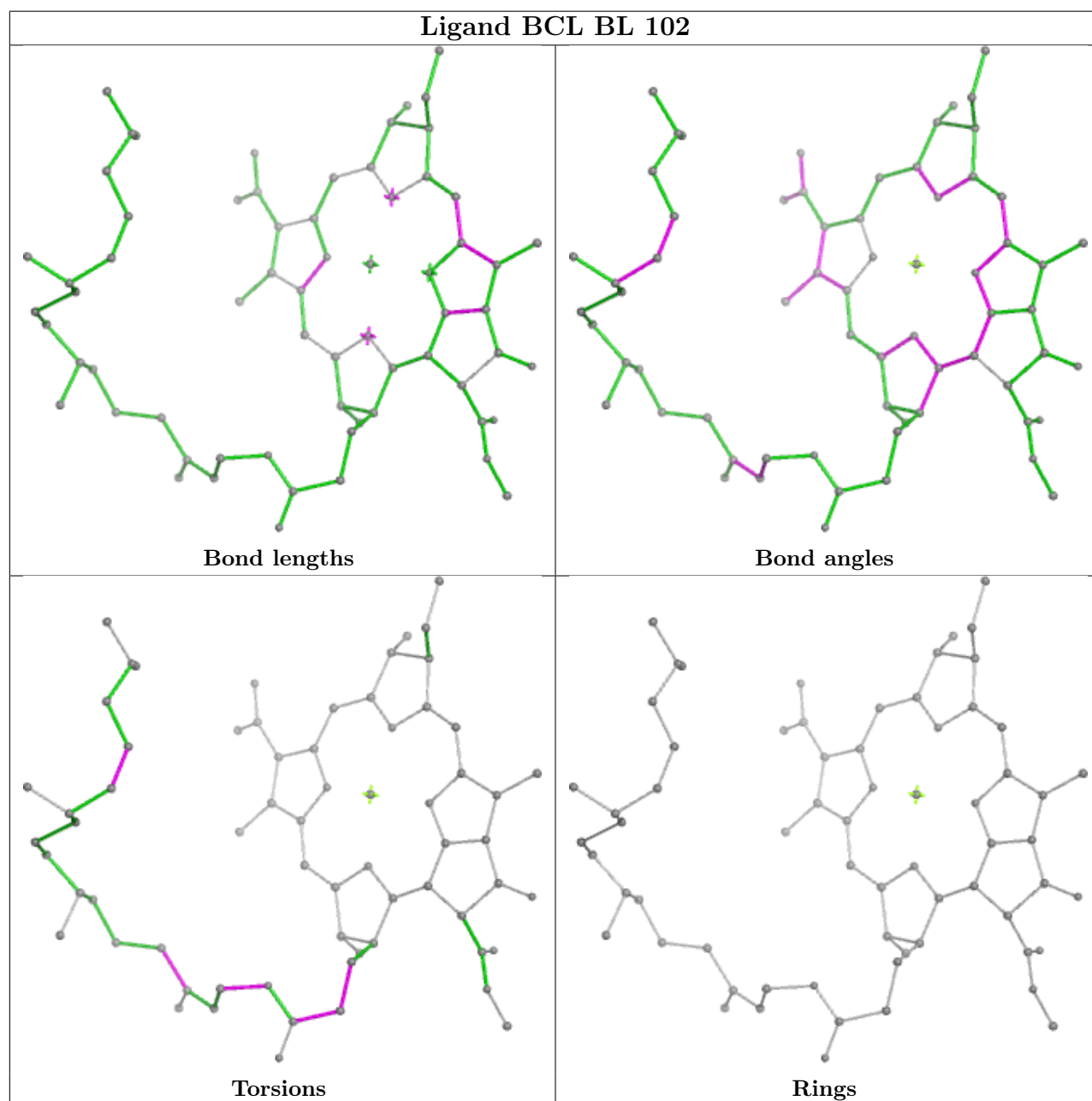
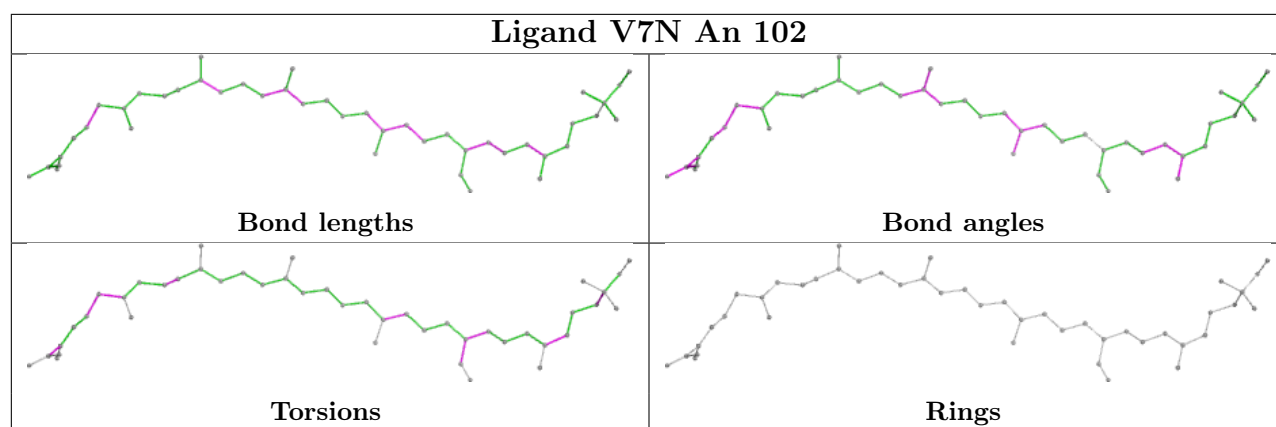


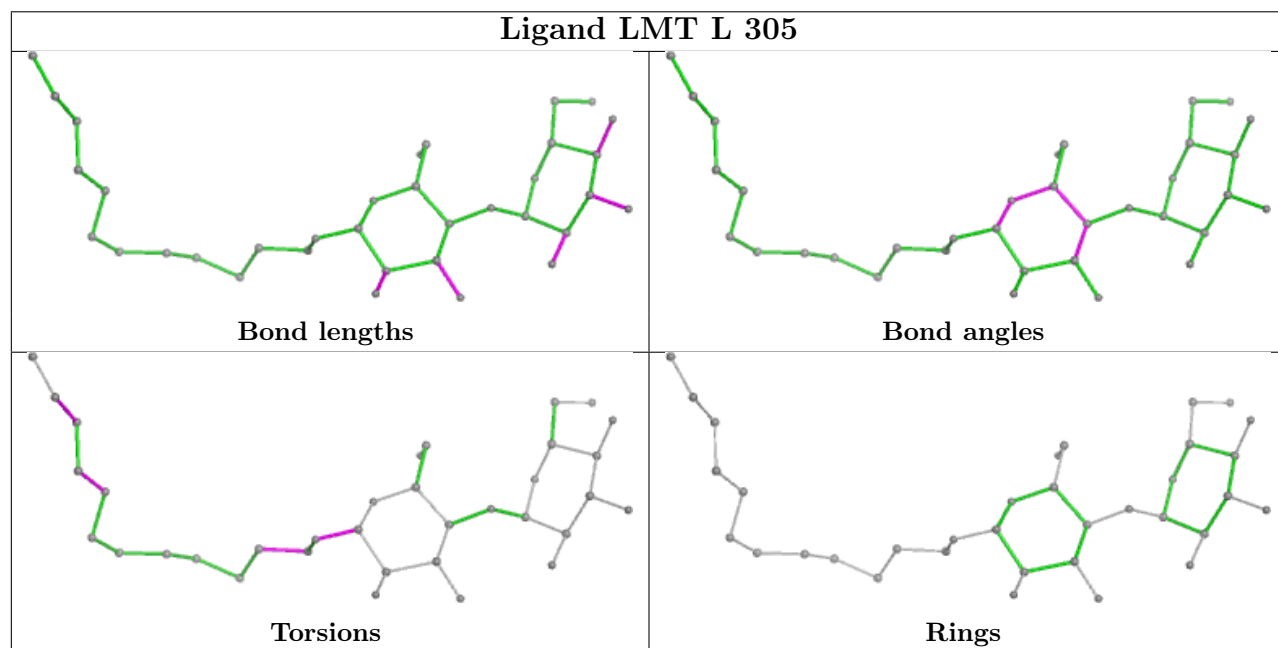
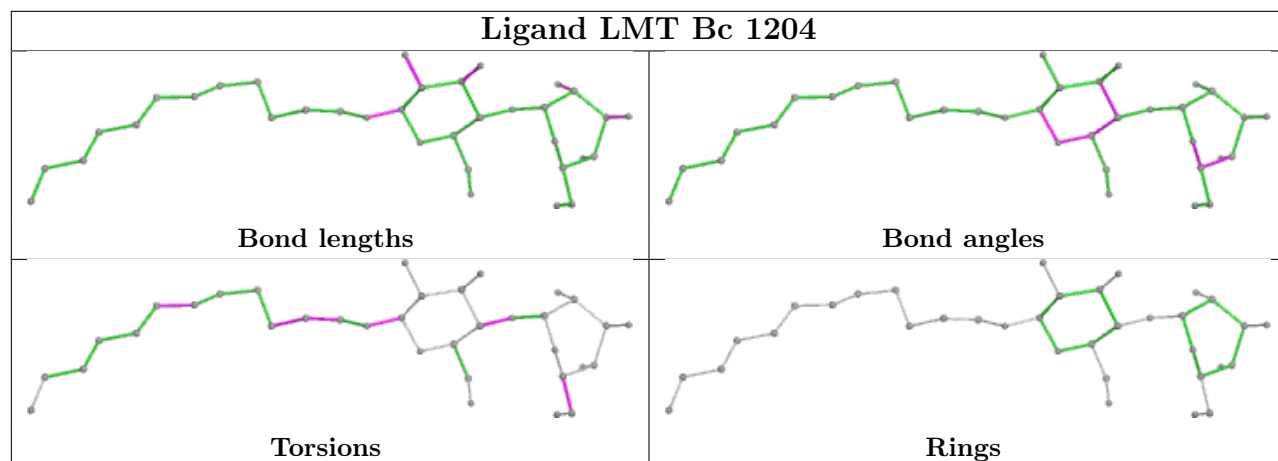
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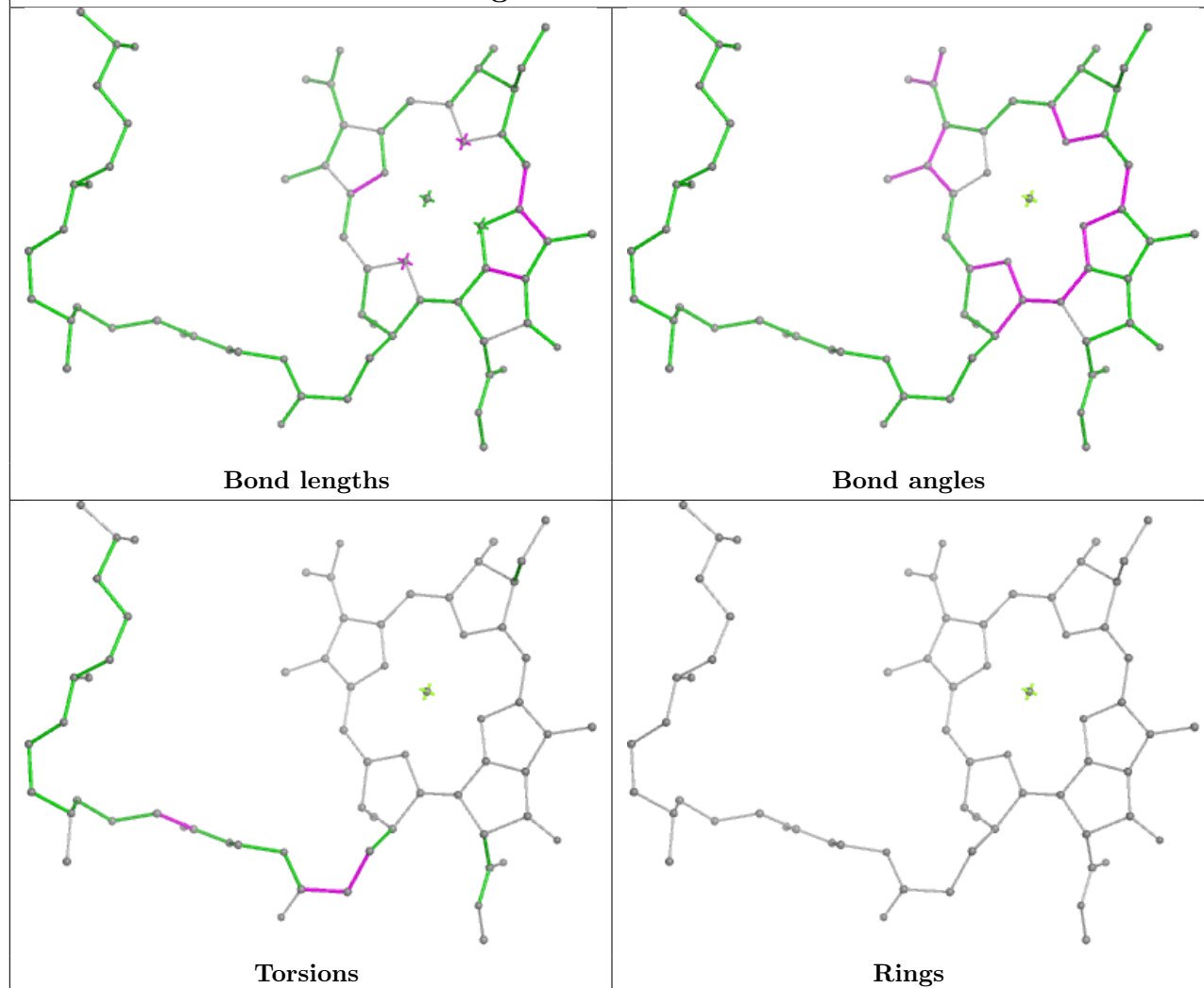
Ligand V7N AT 102



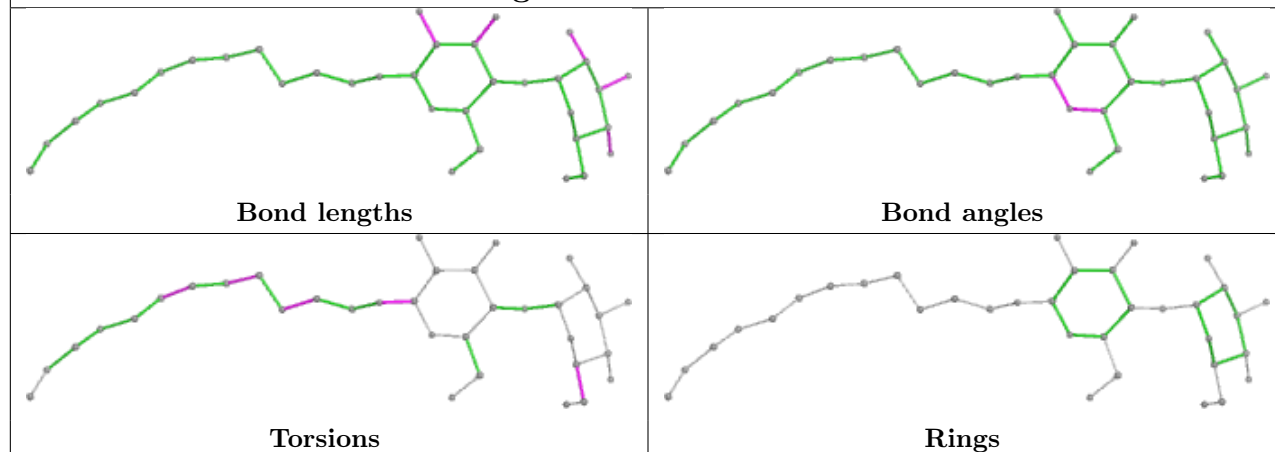


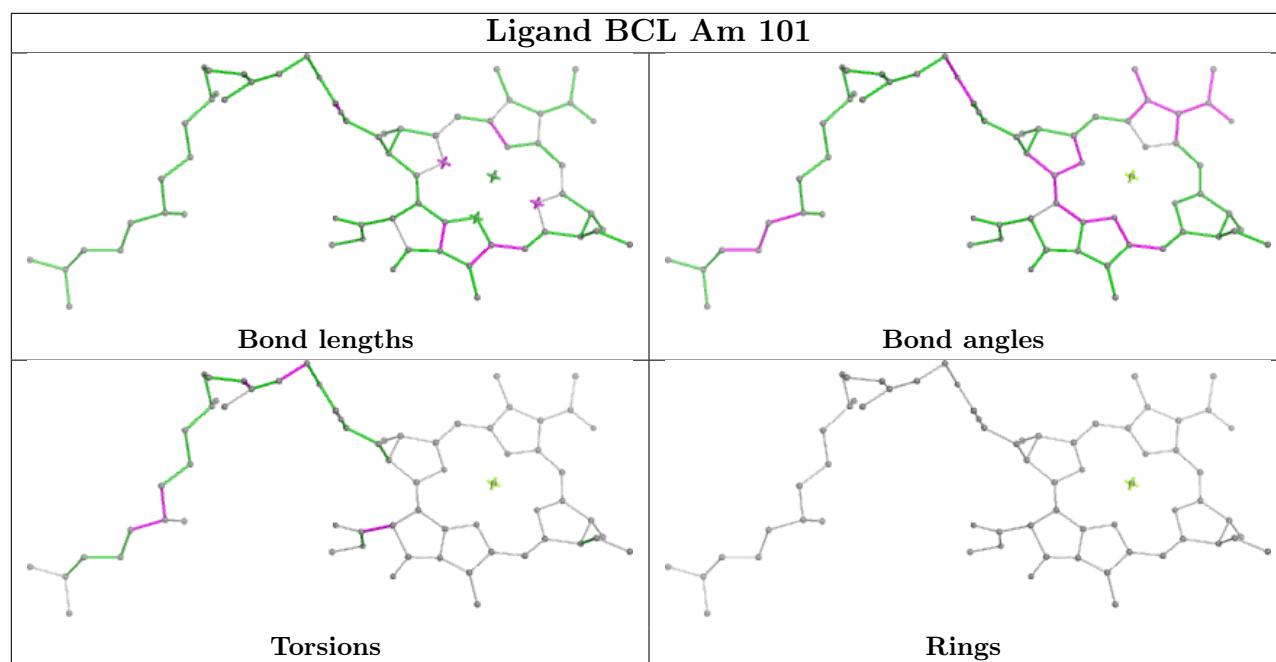
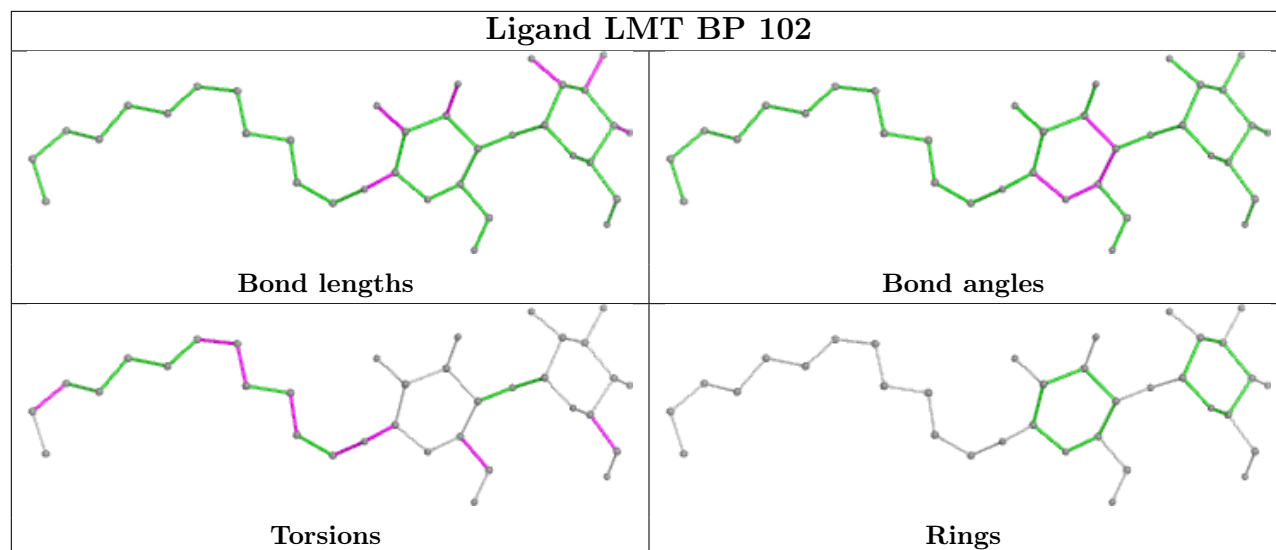


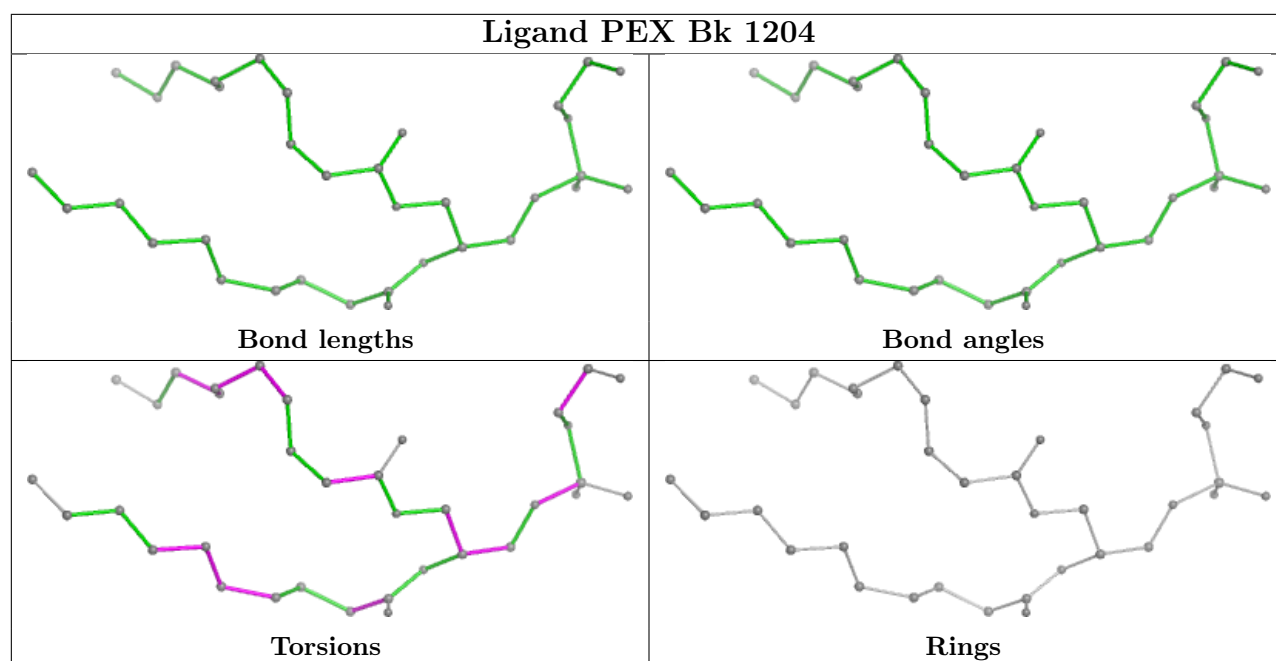
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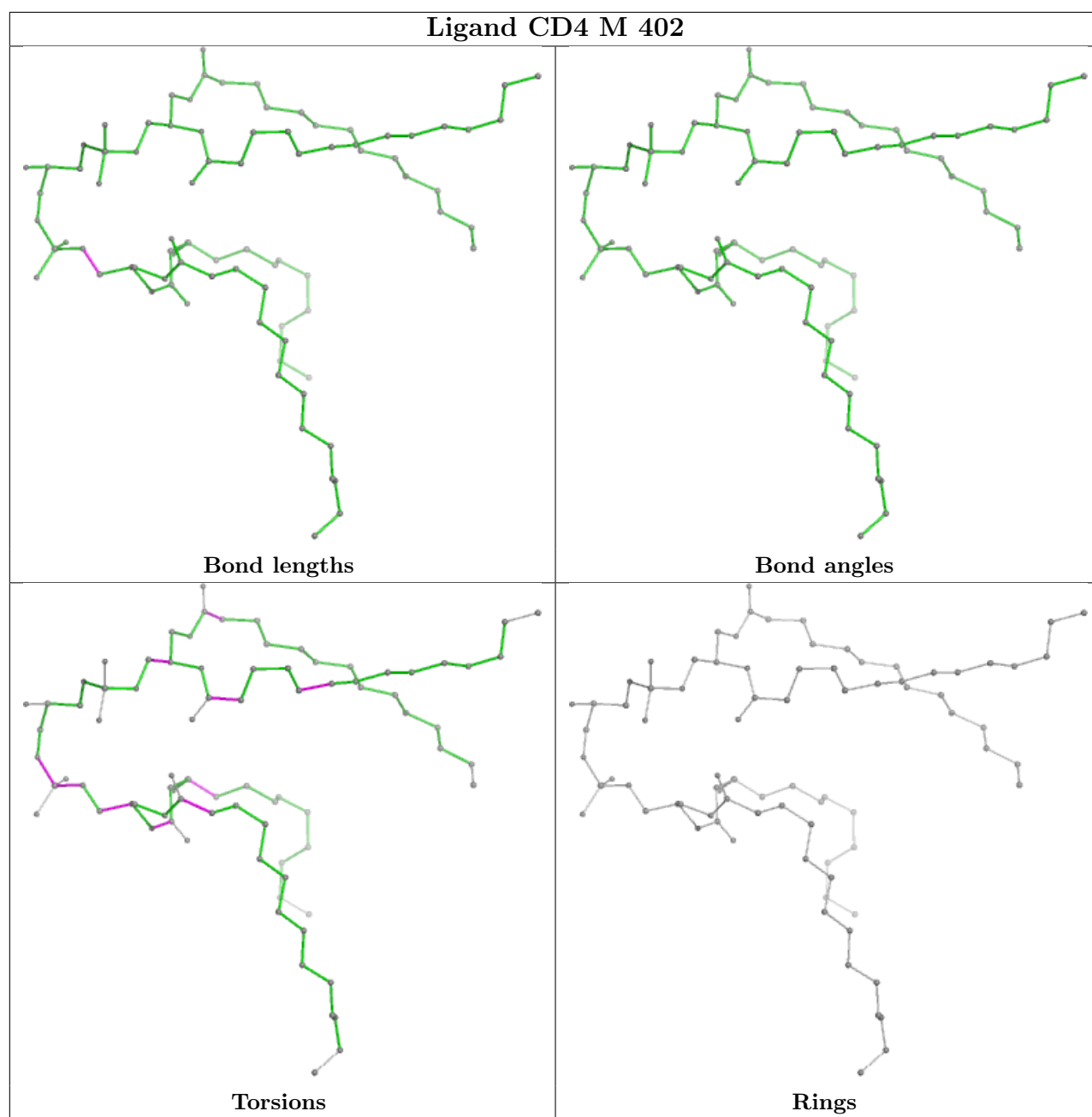


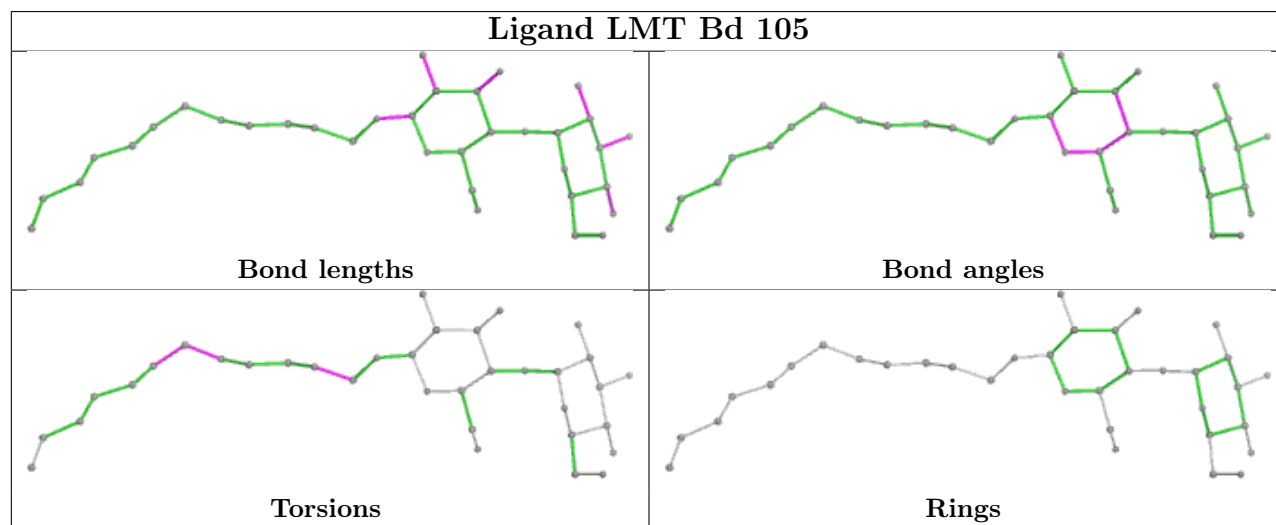
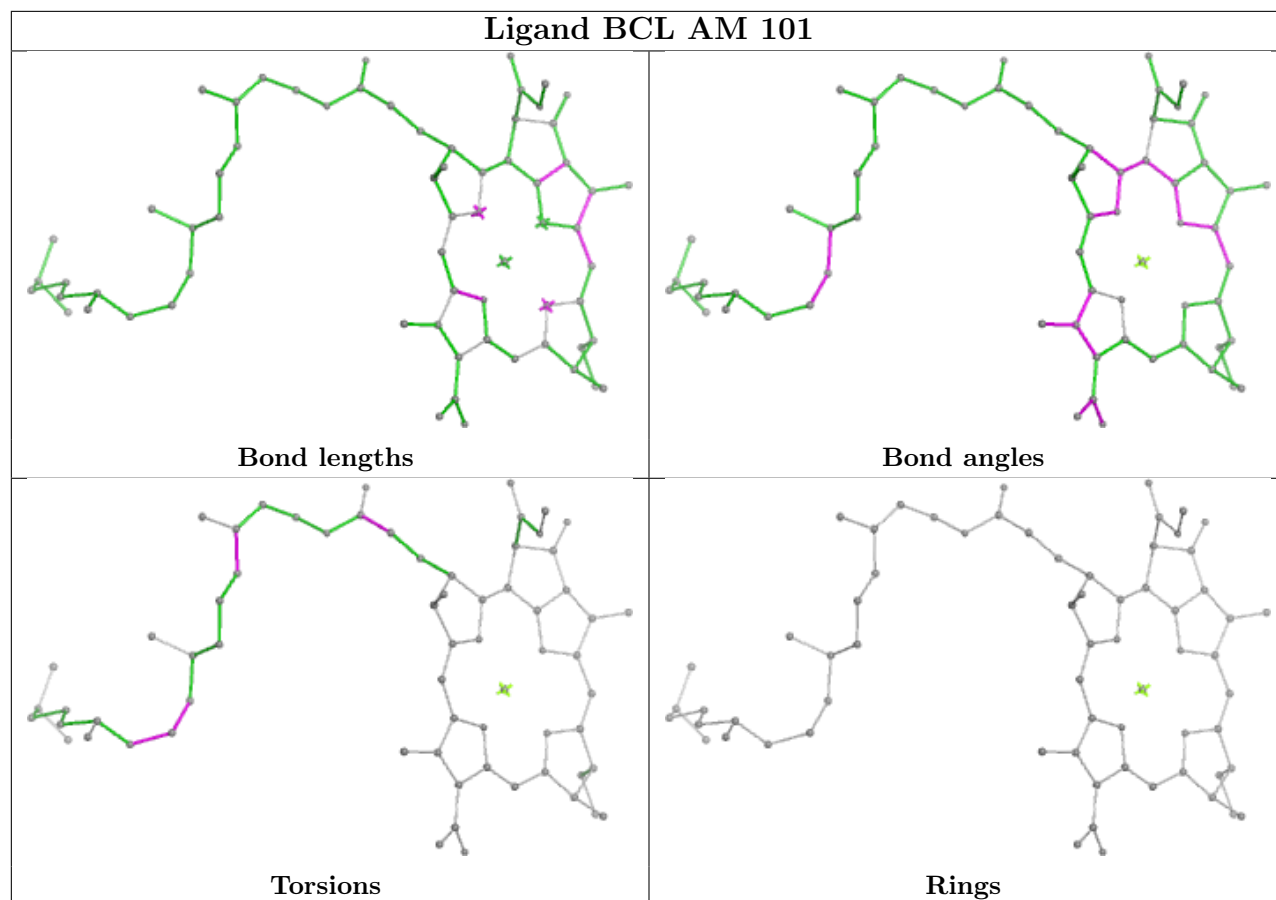
Ligand LMT BI 1101

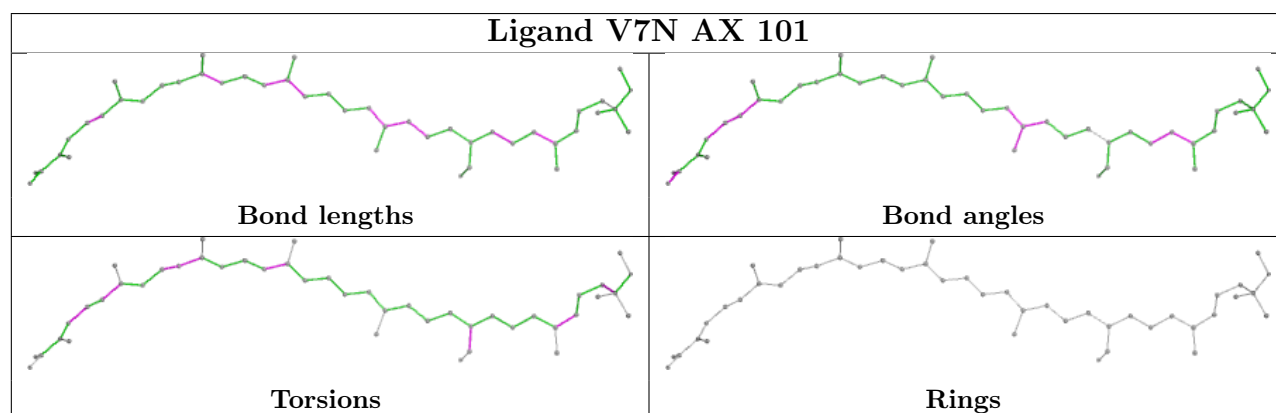
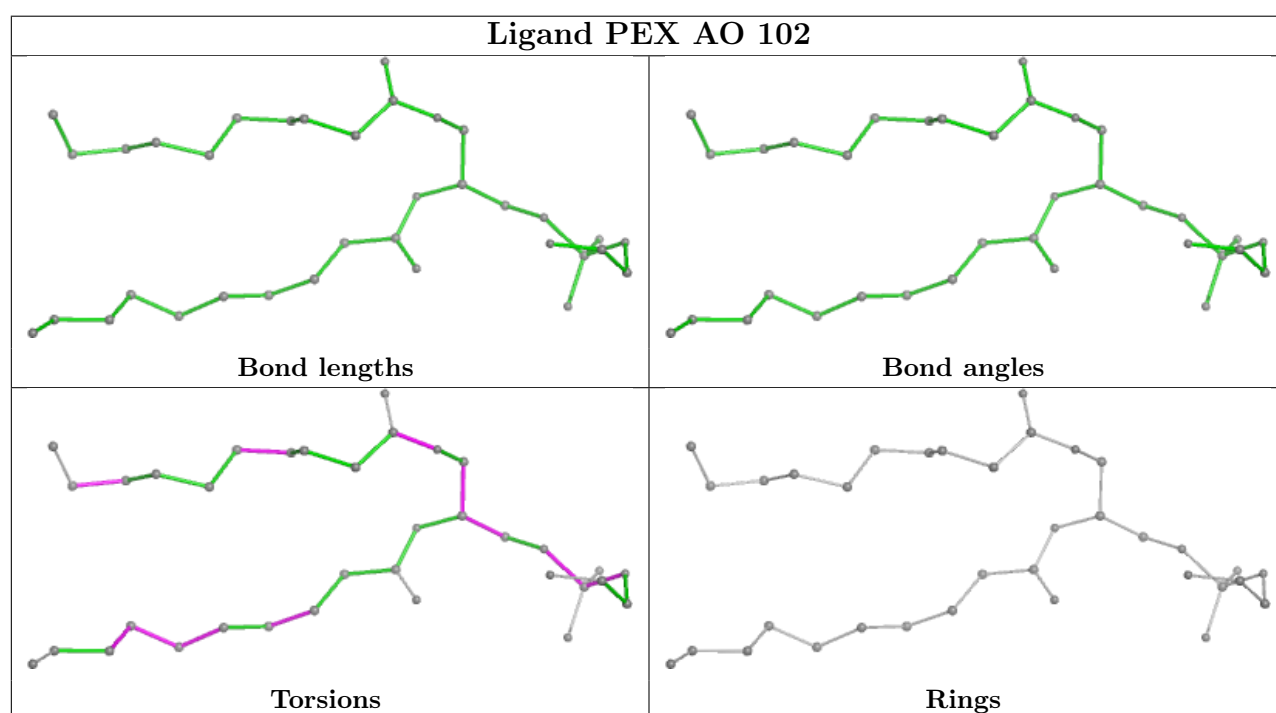
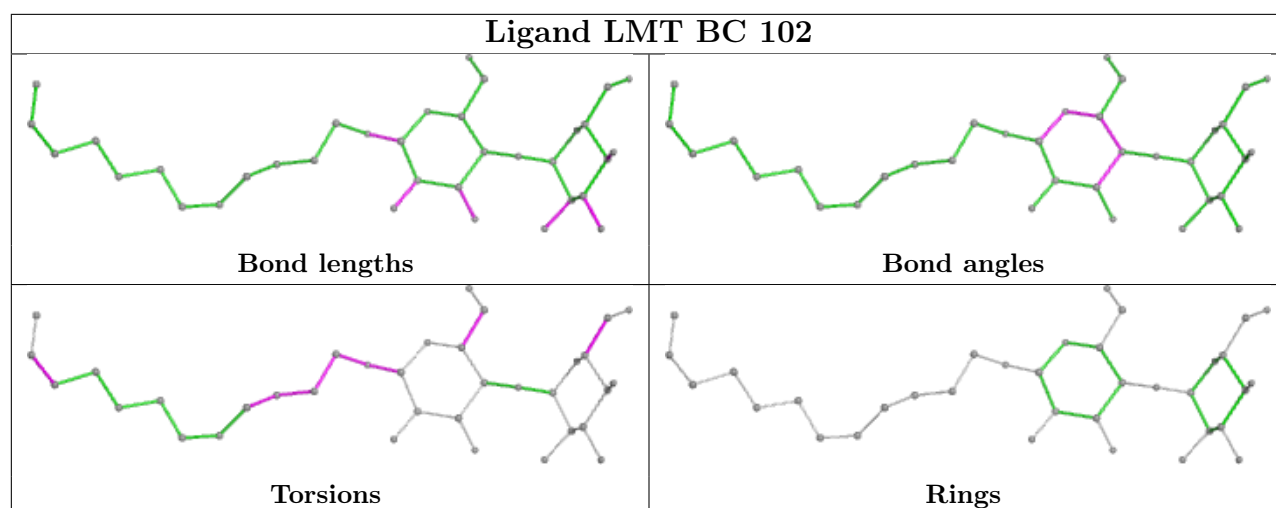


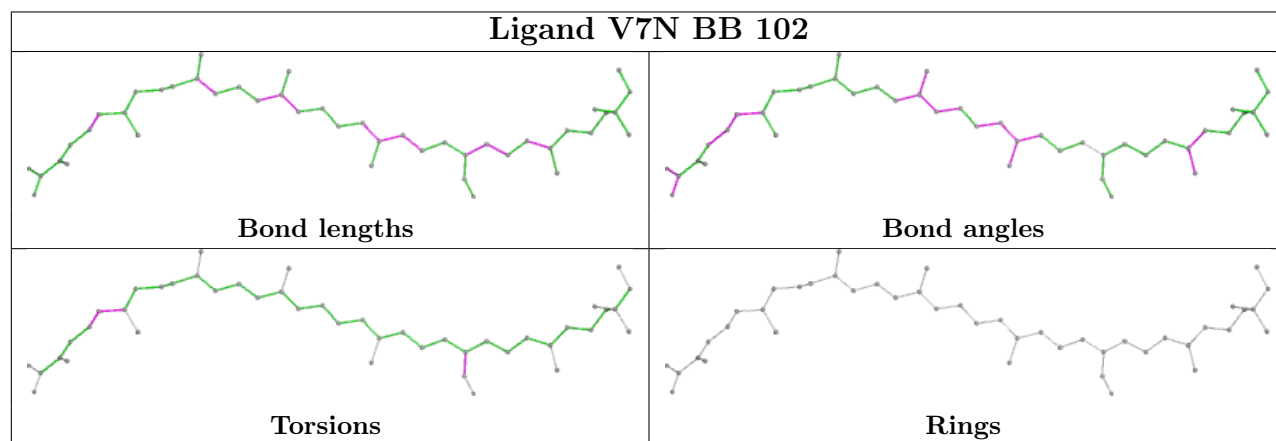
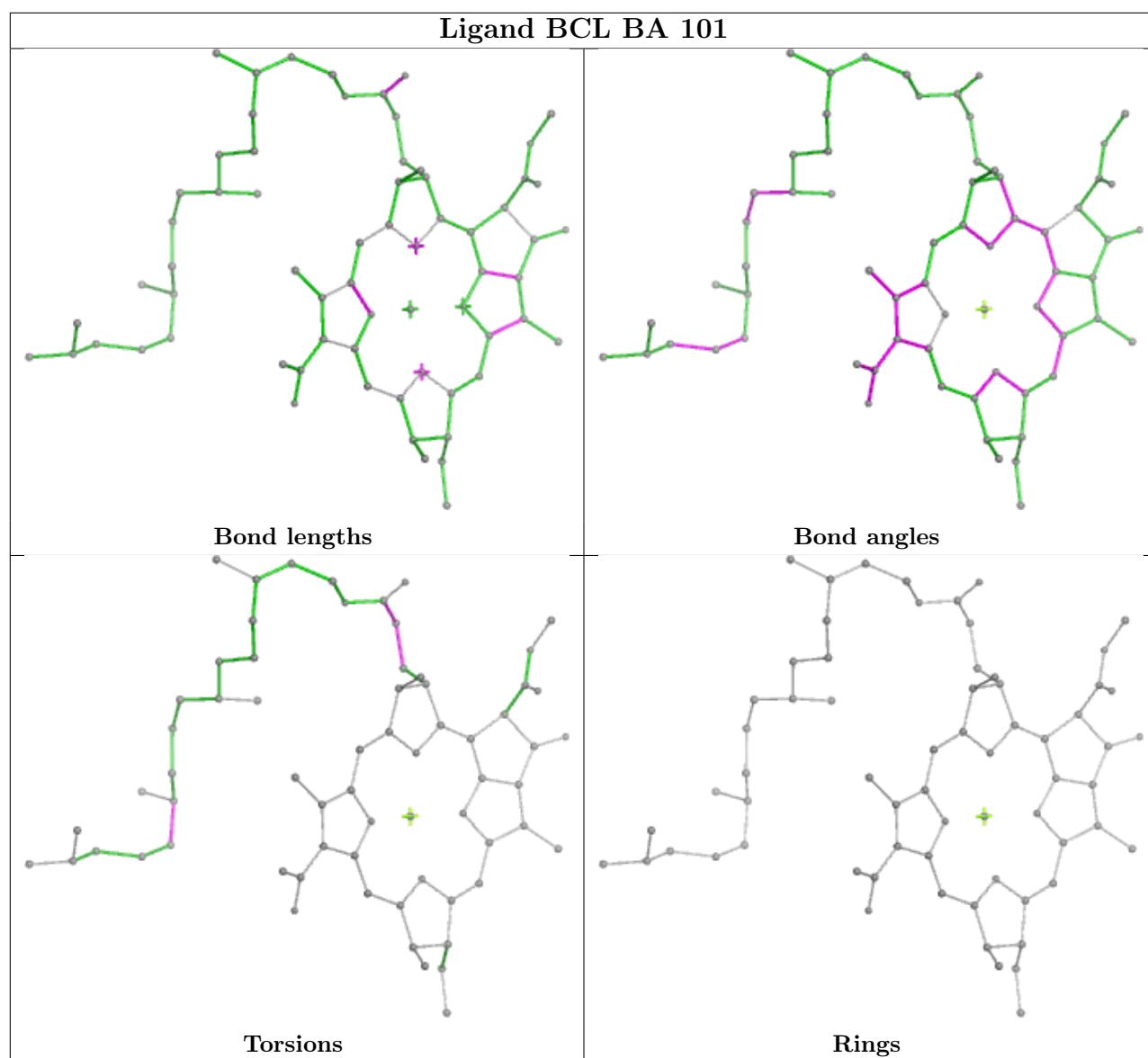


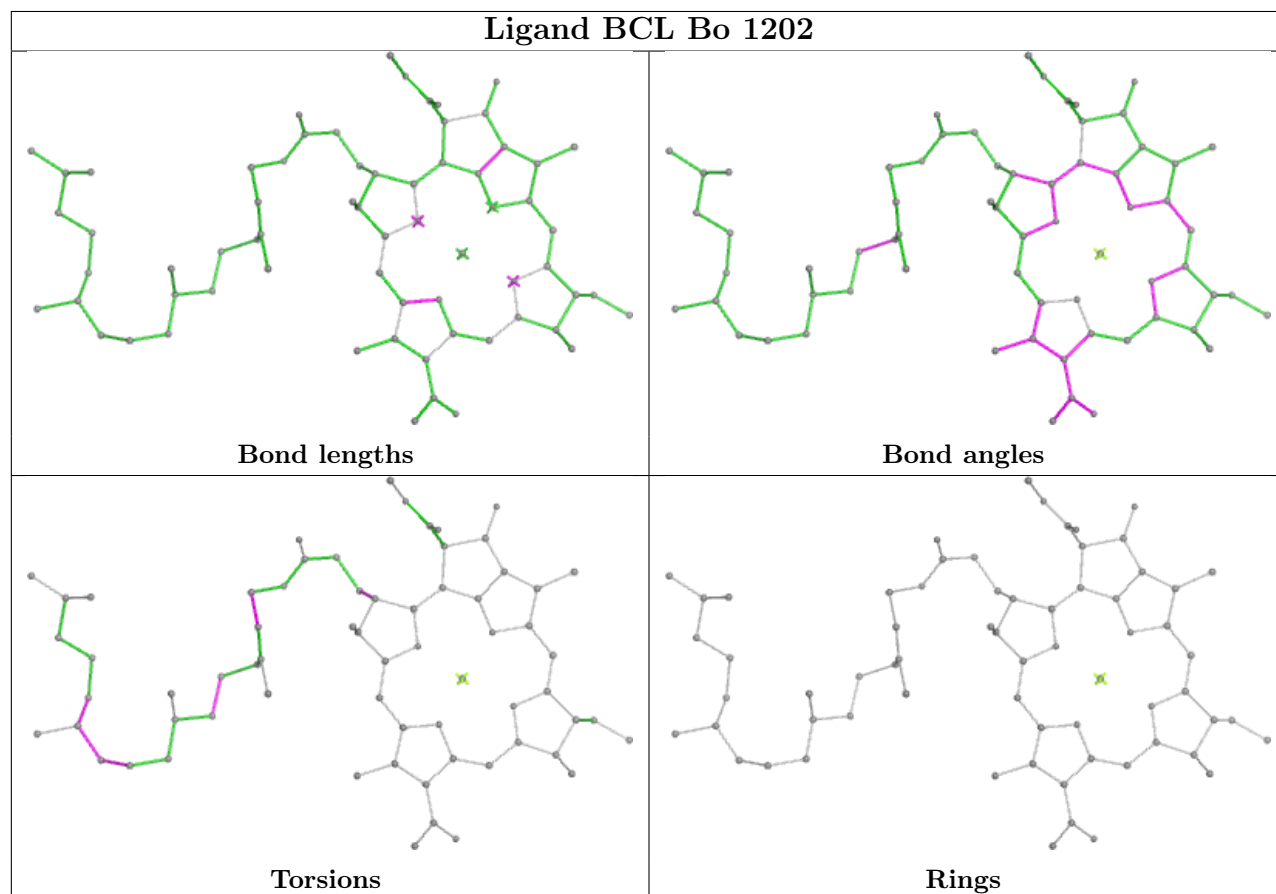
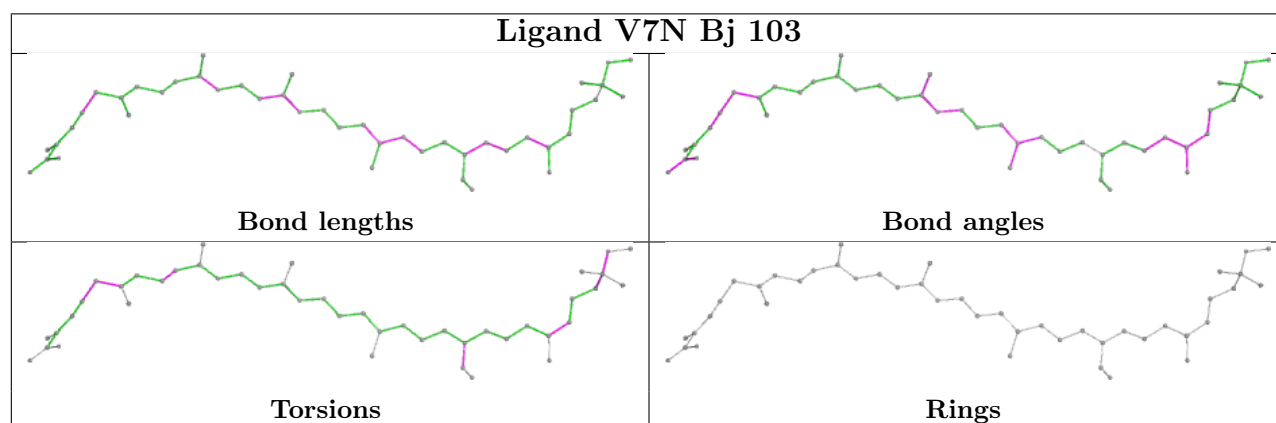
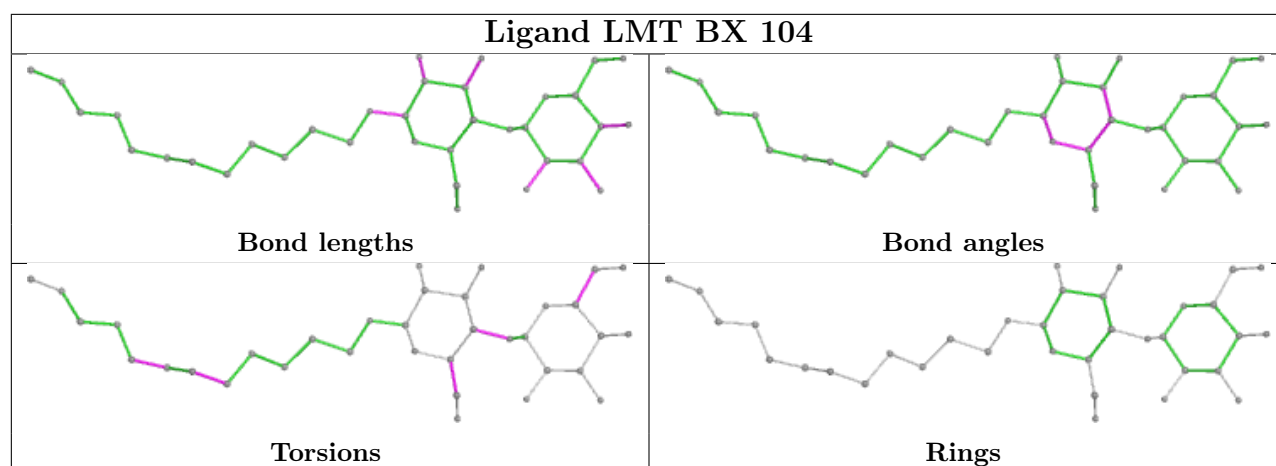




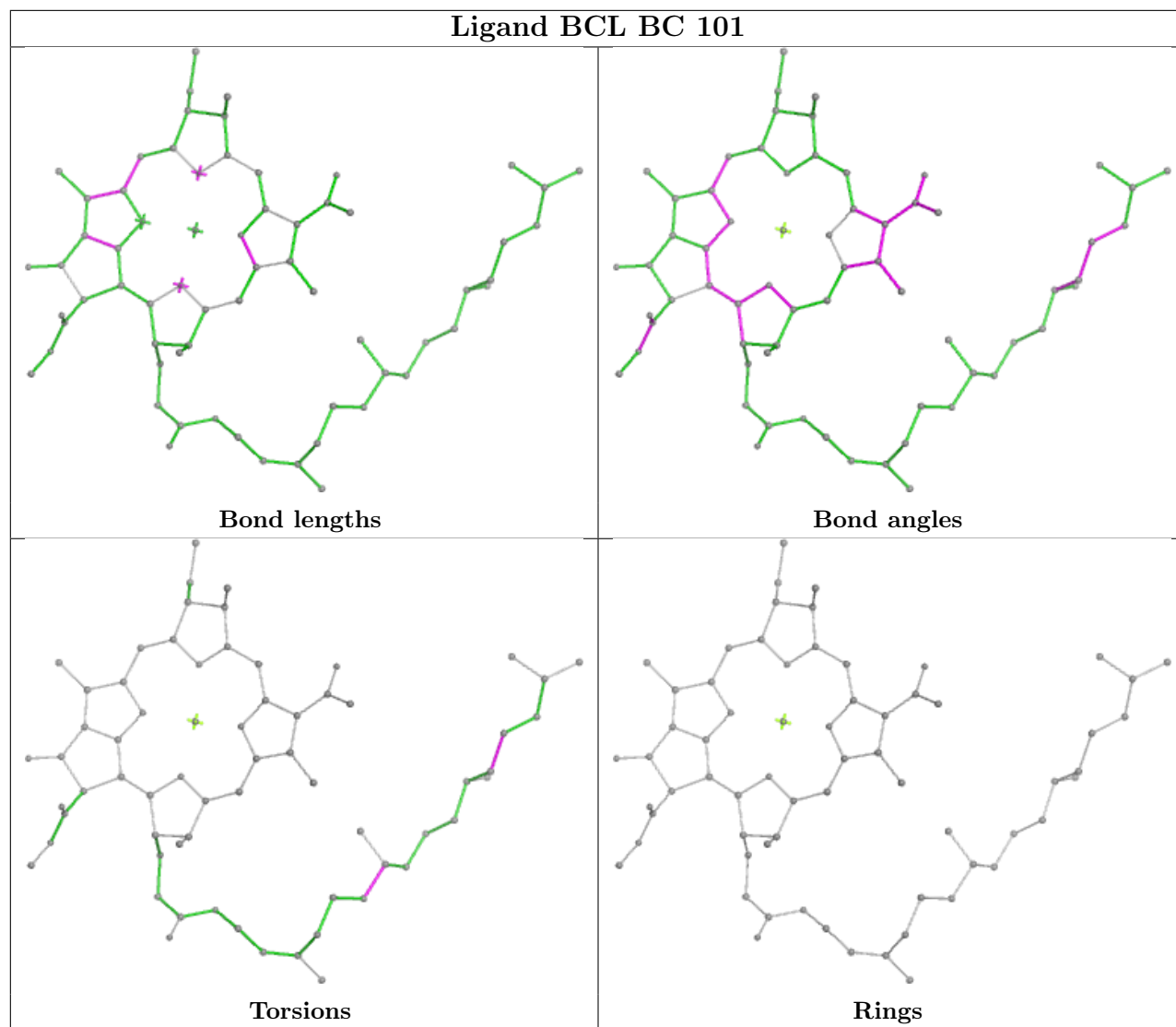


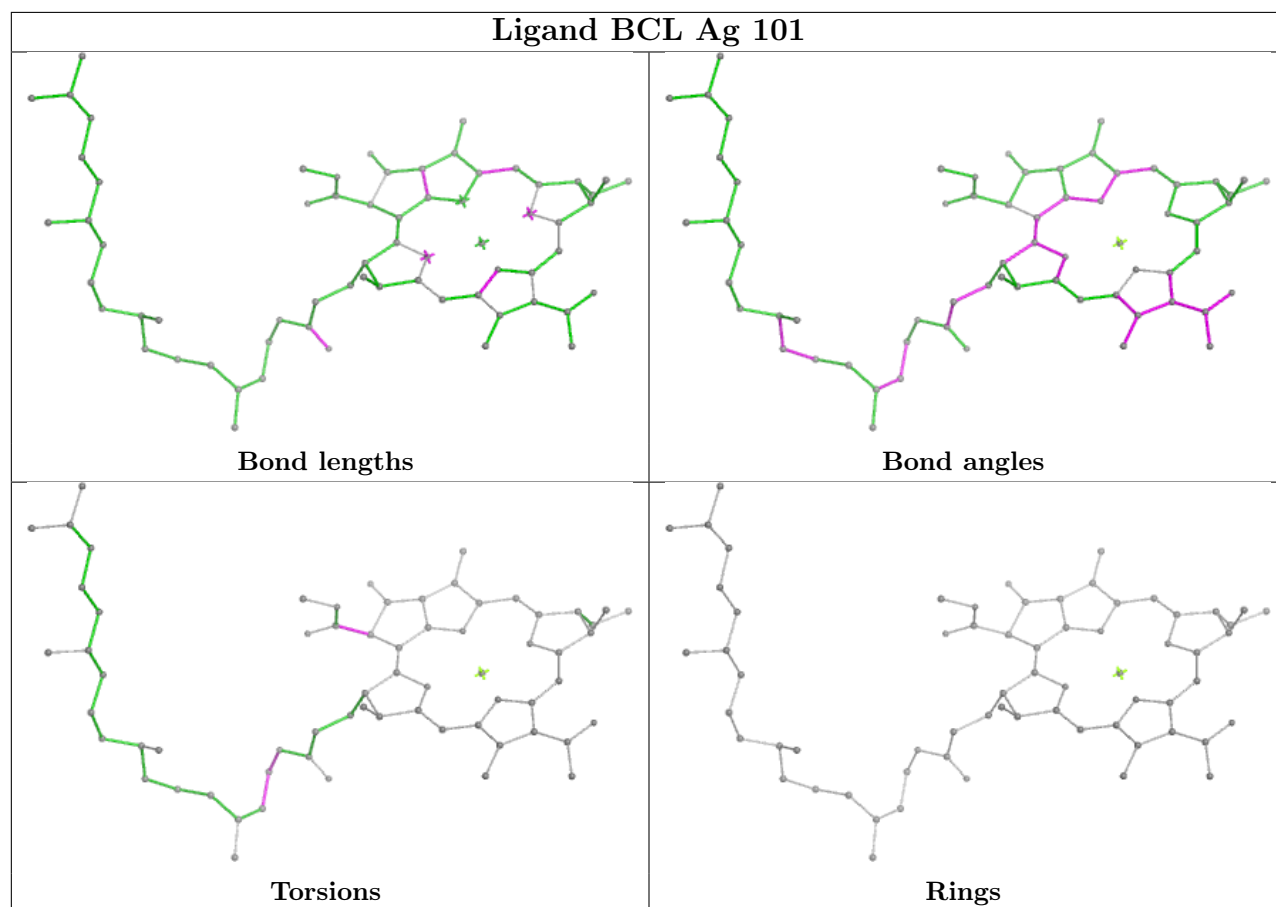
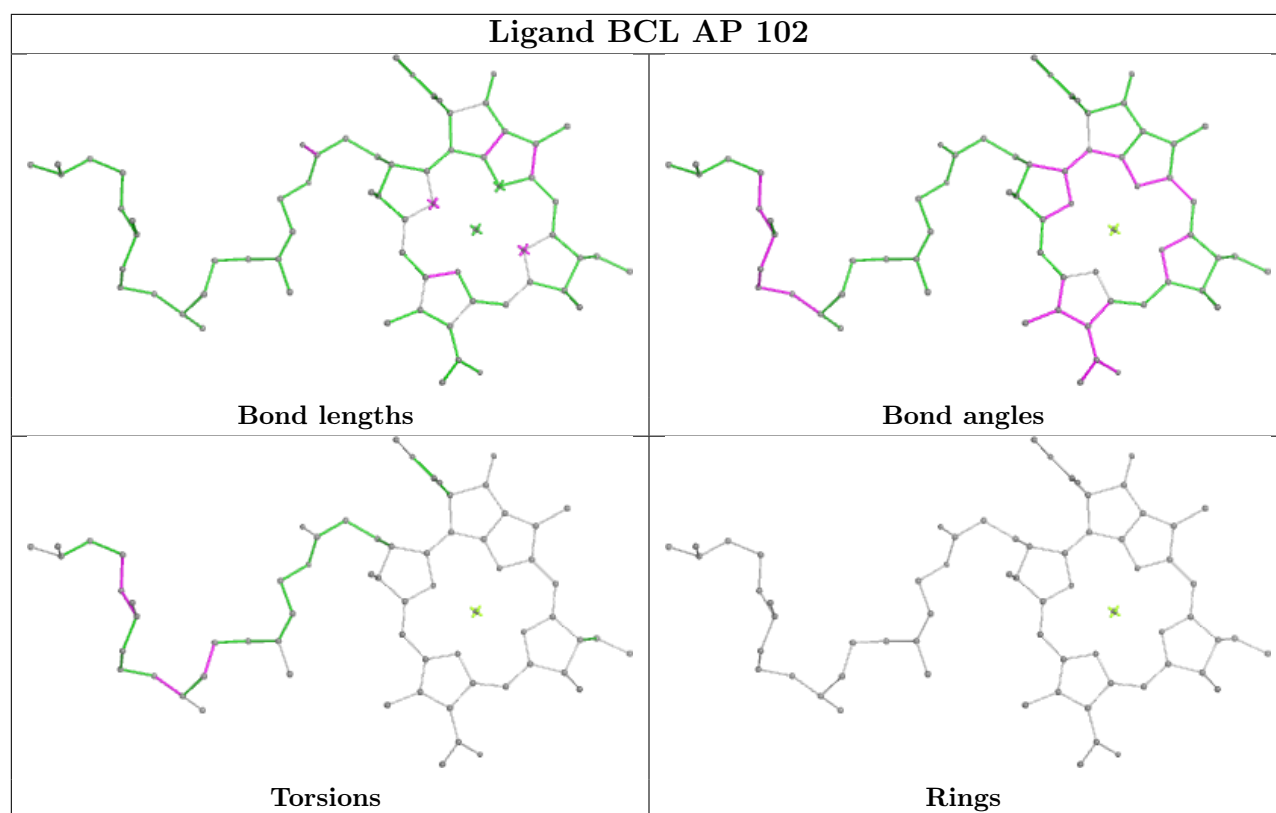


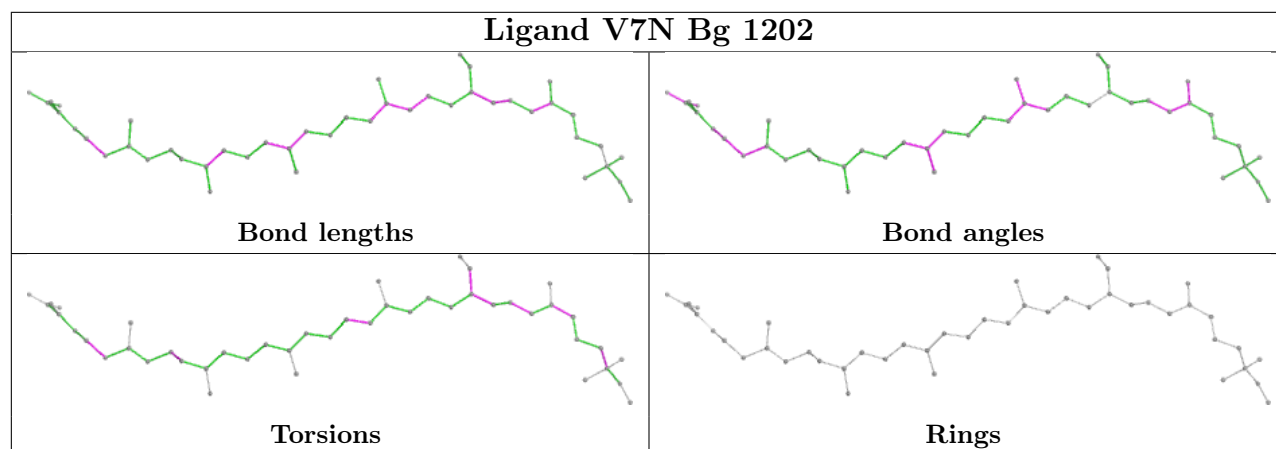
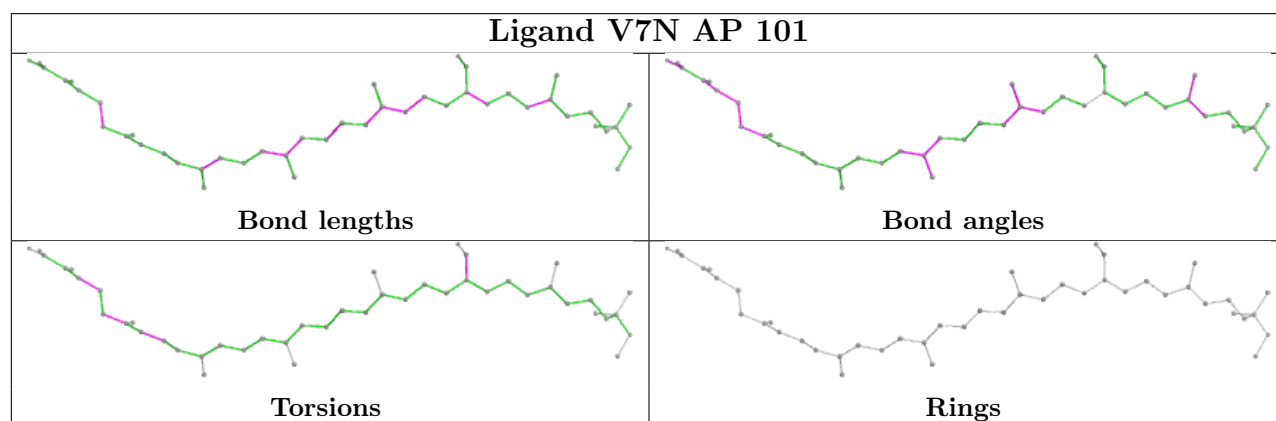
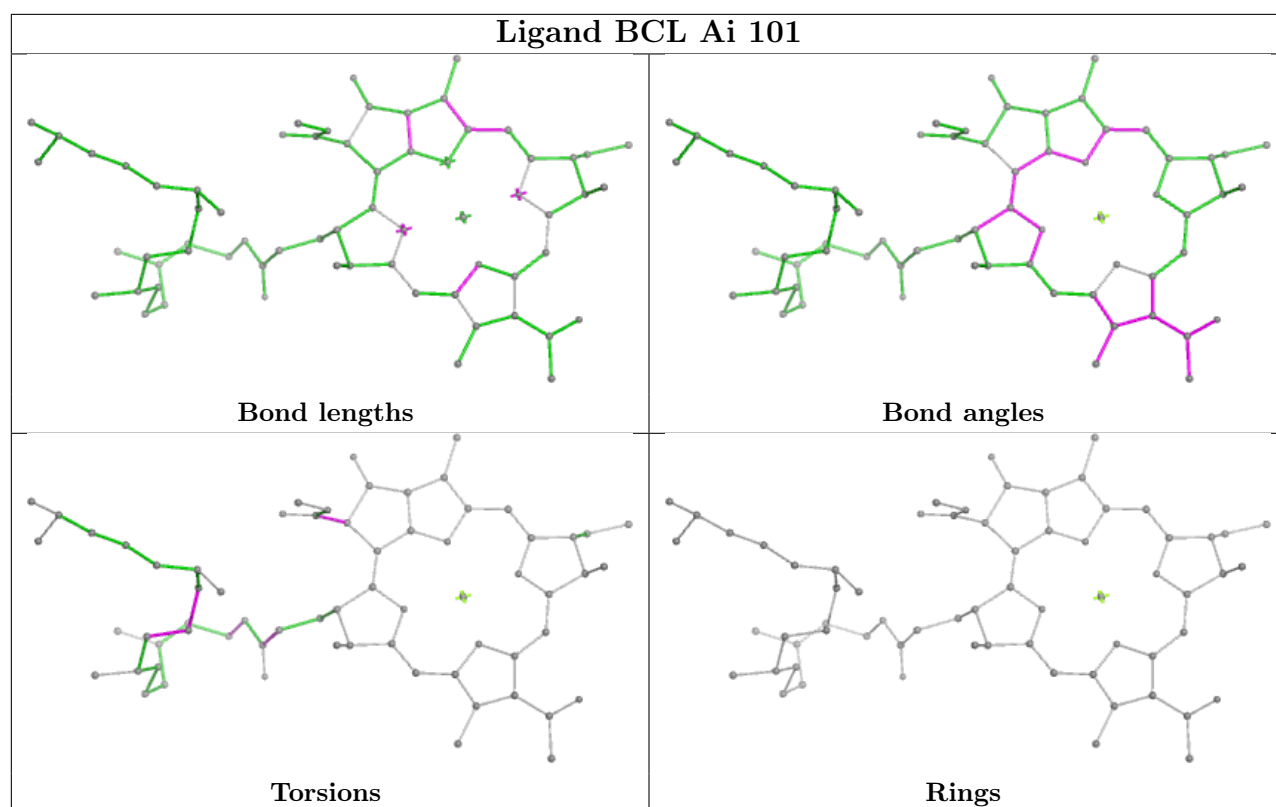


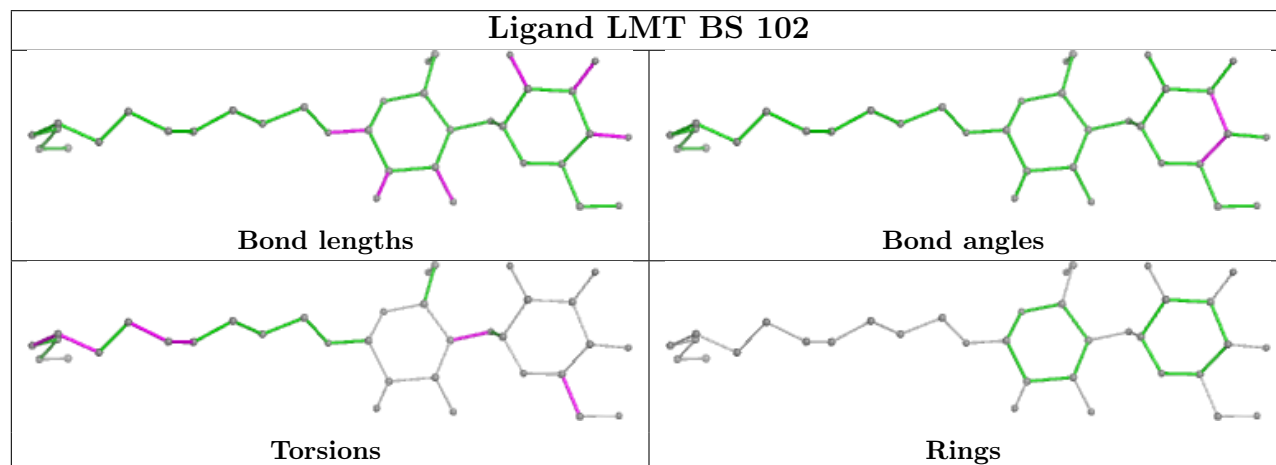
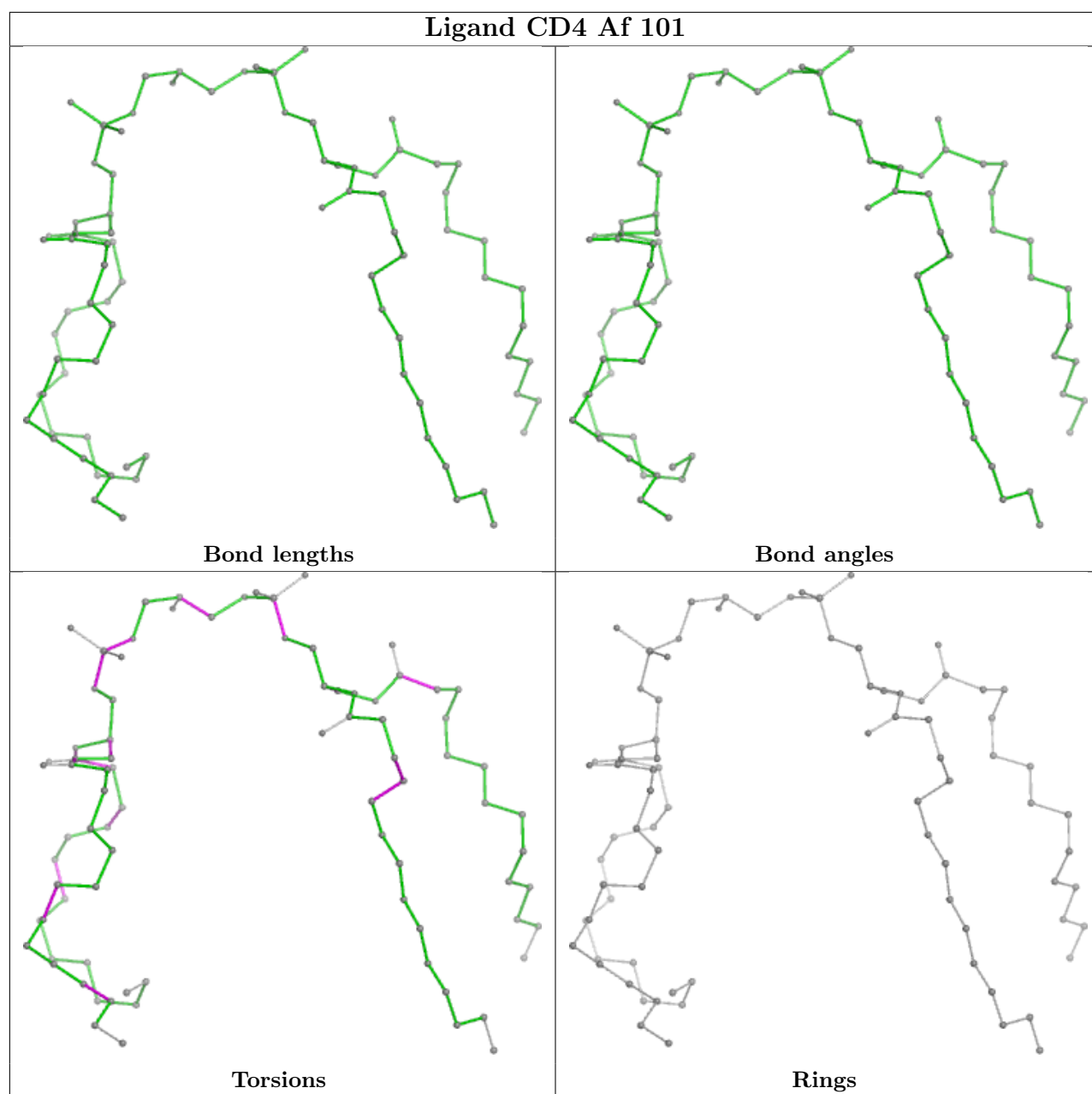


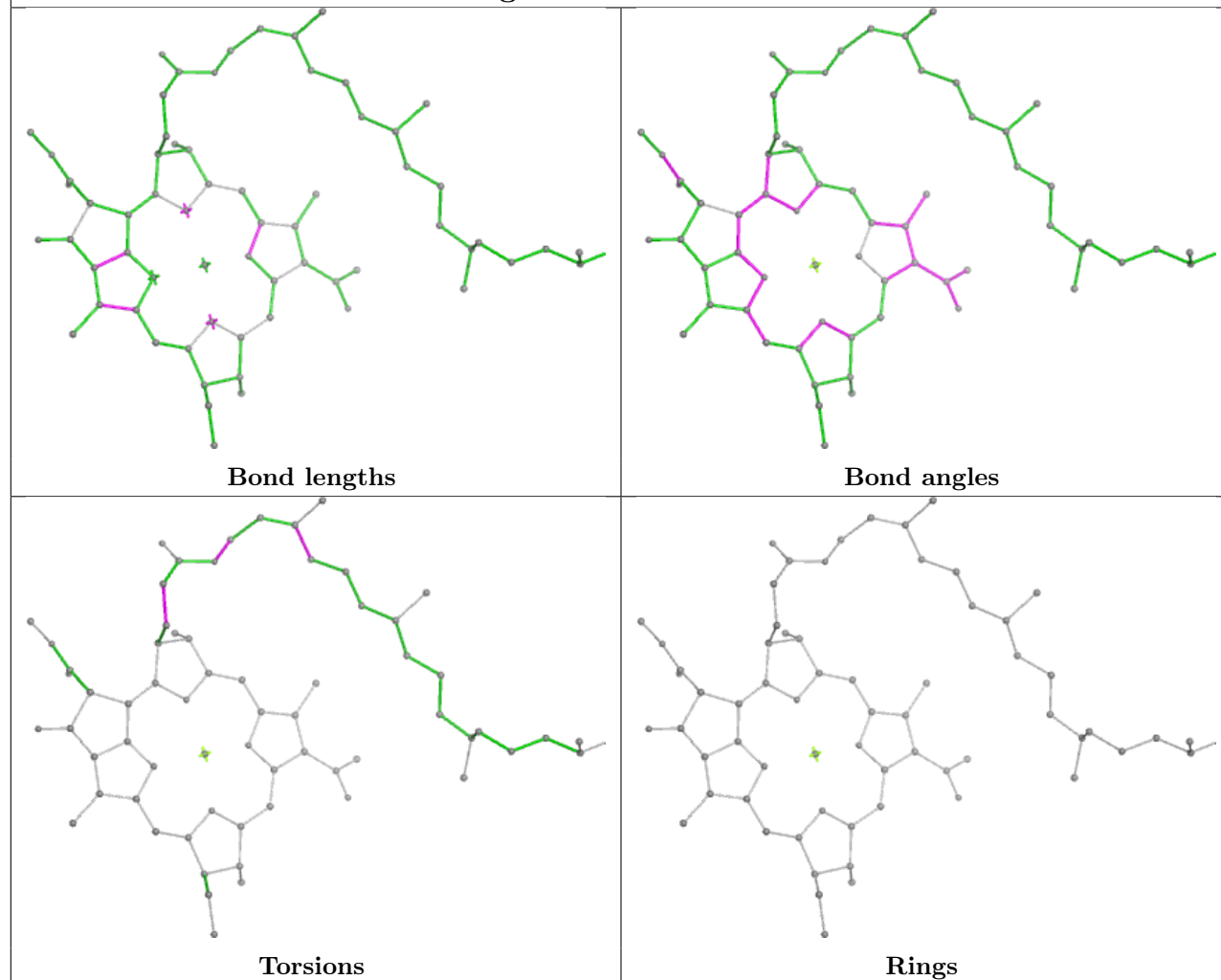
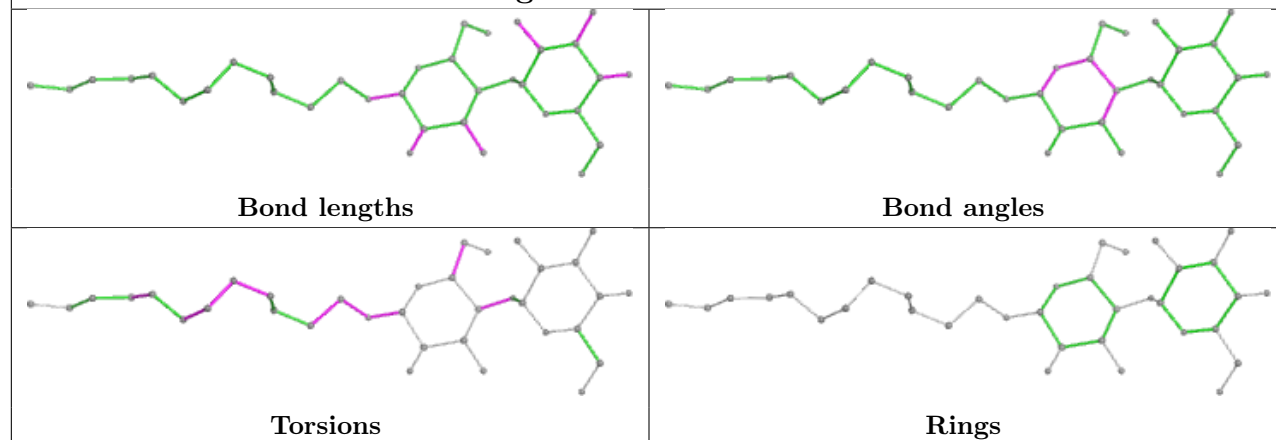
Ligand BCL BC 101

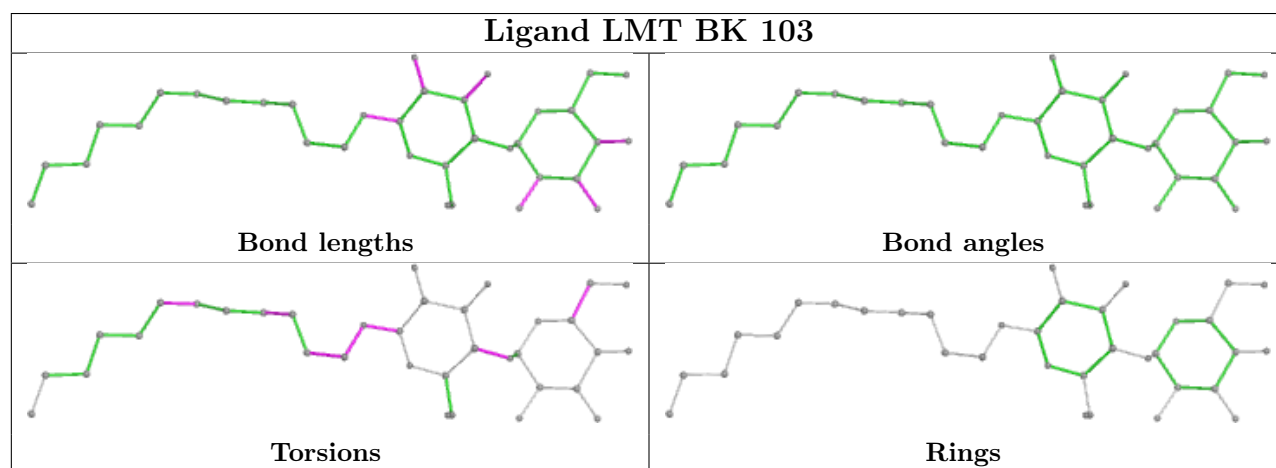
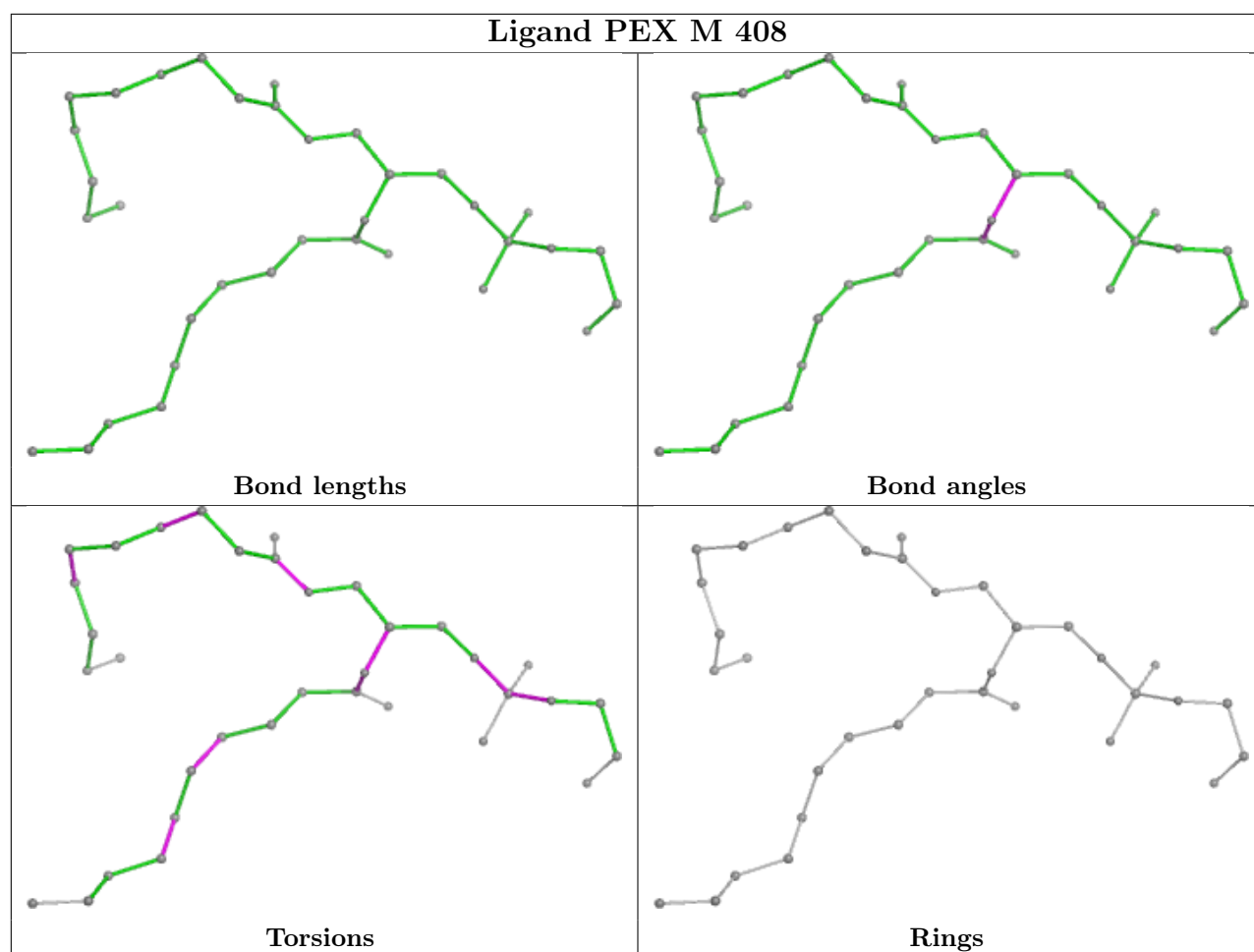


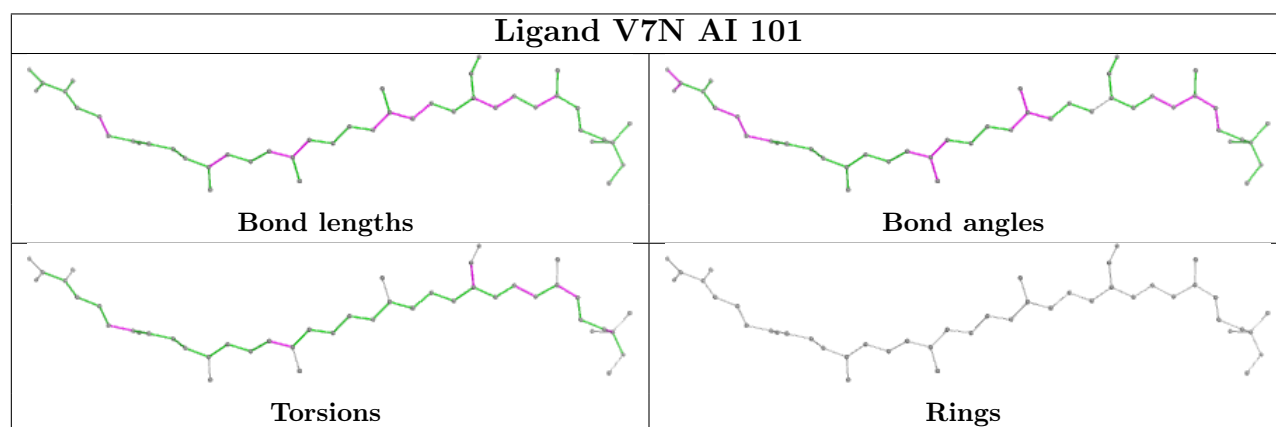
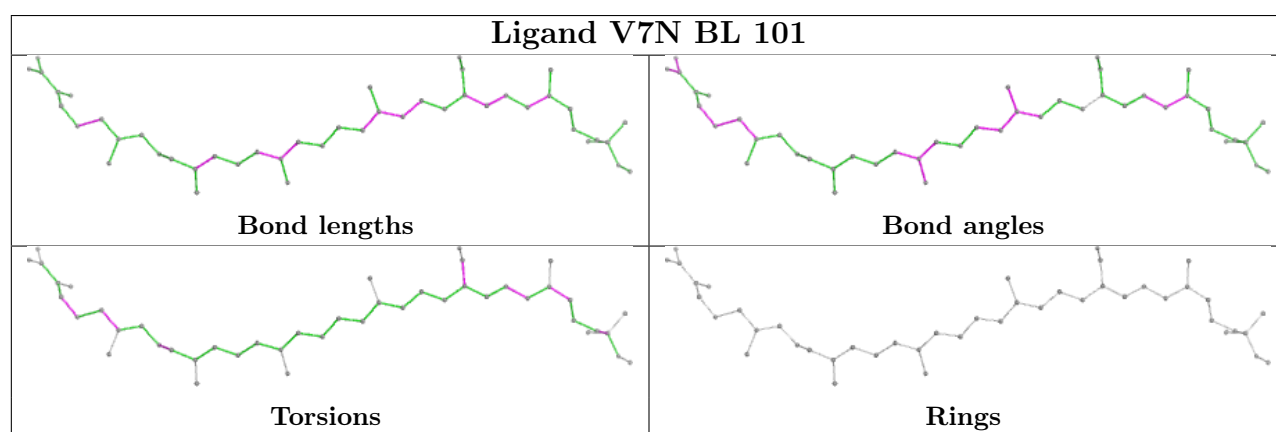
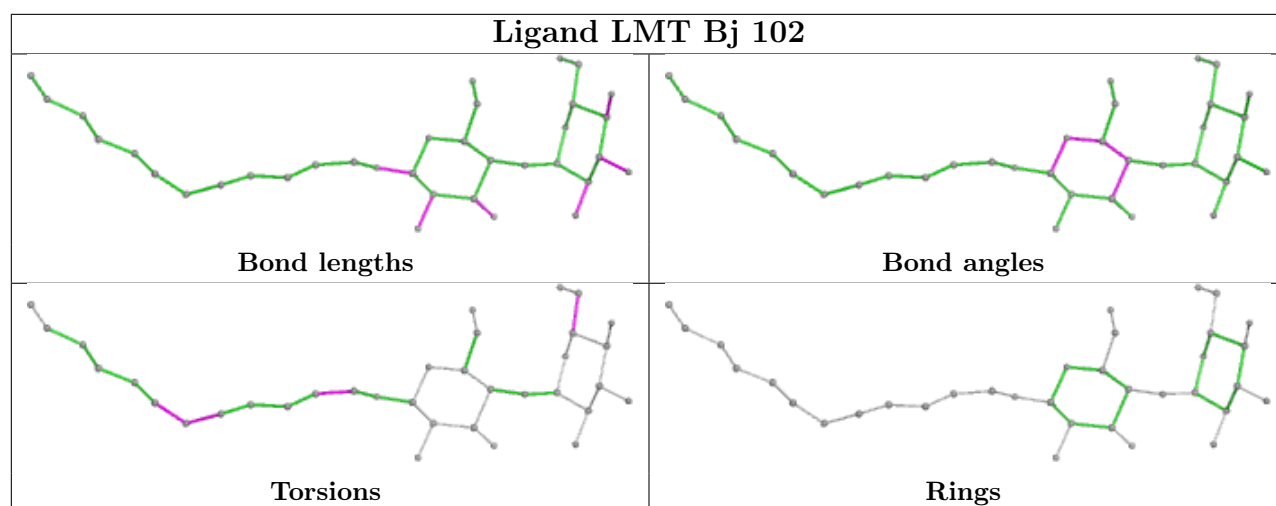


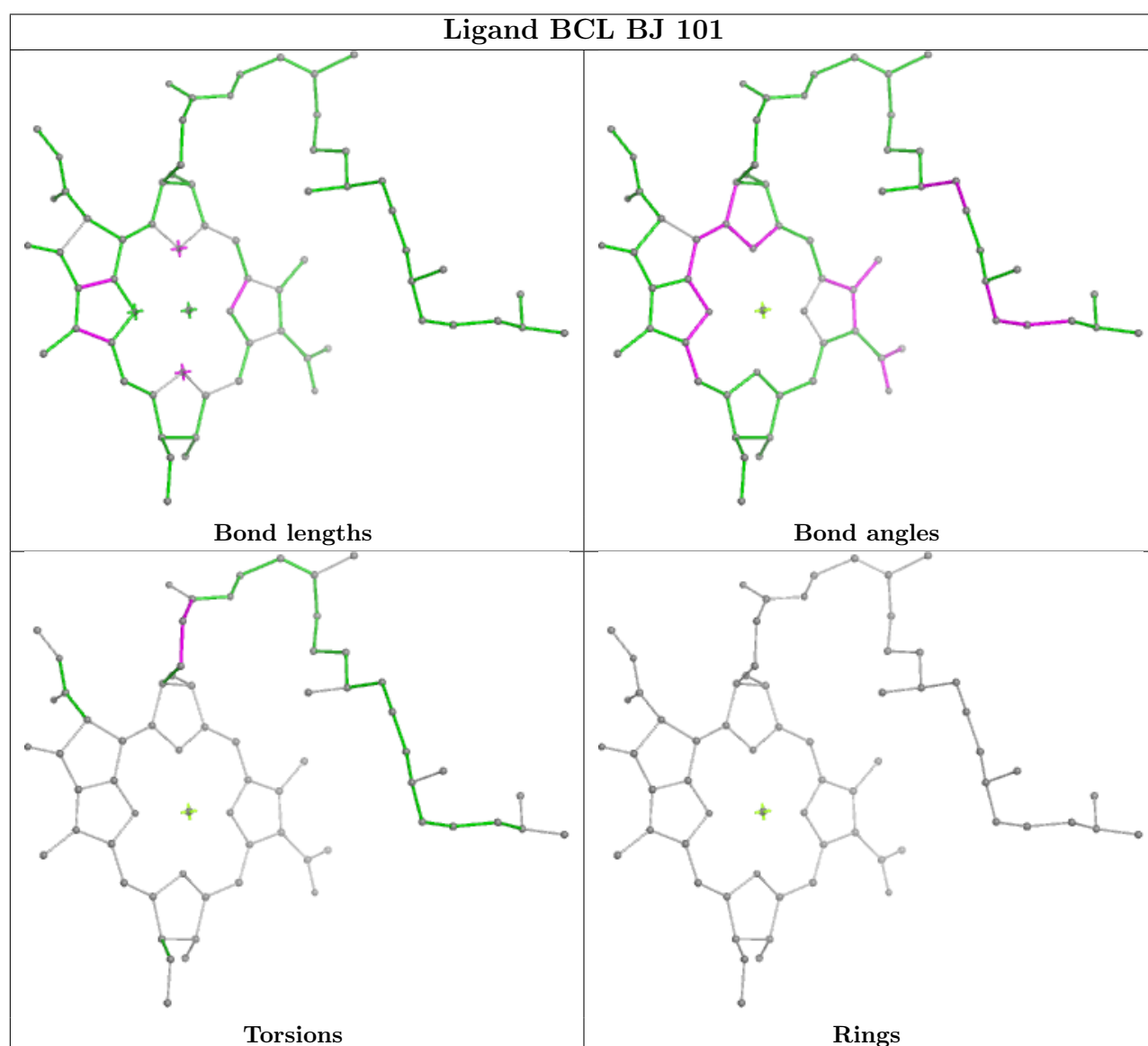
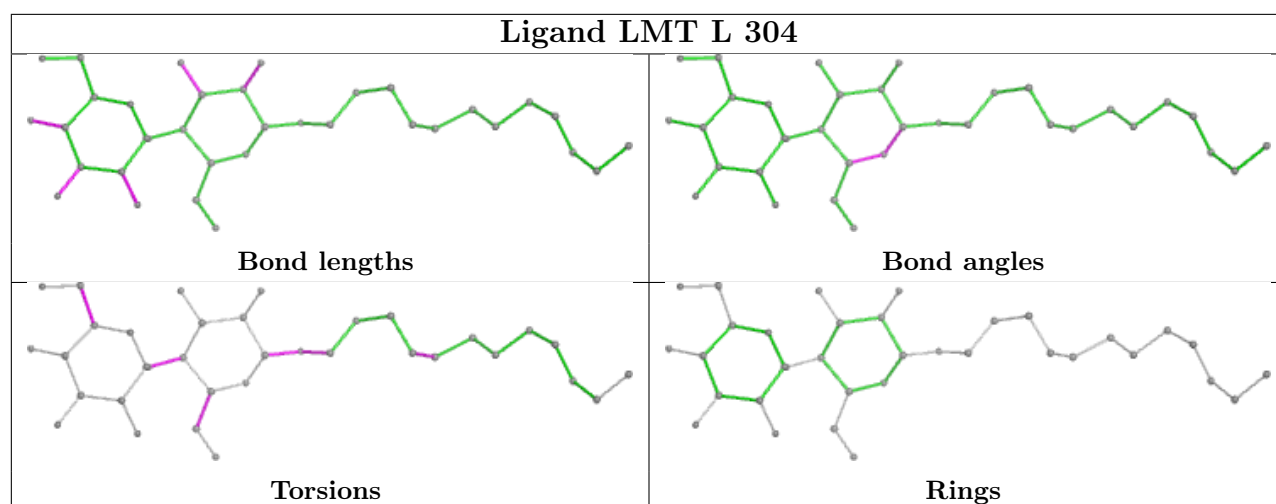


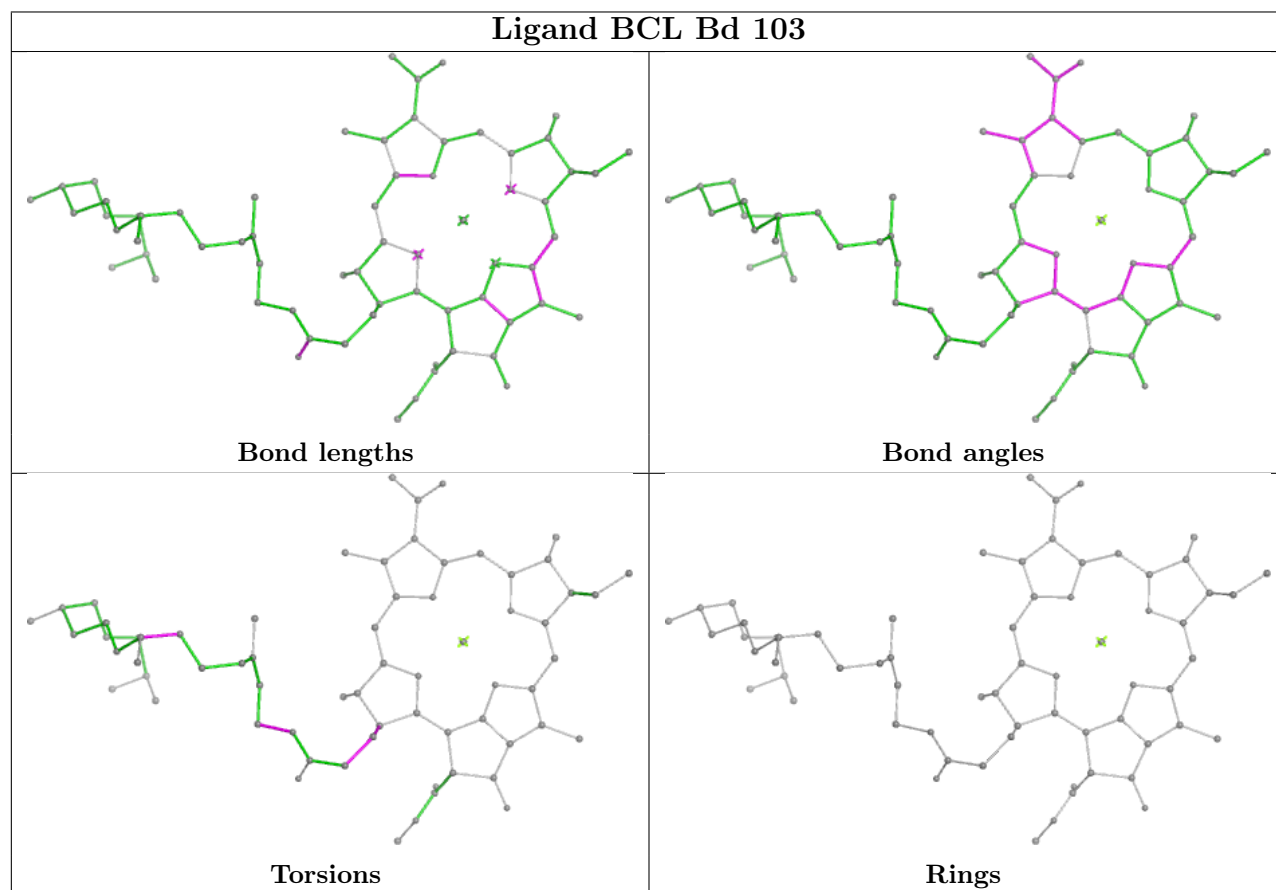
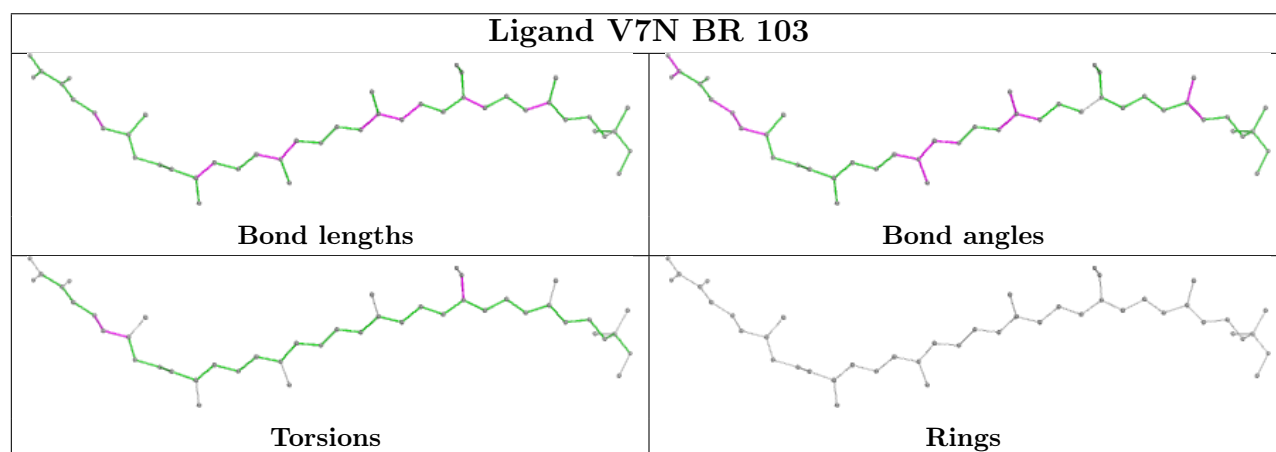
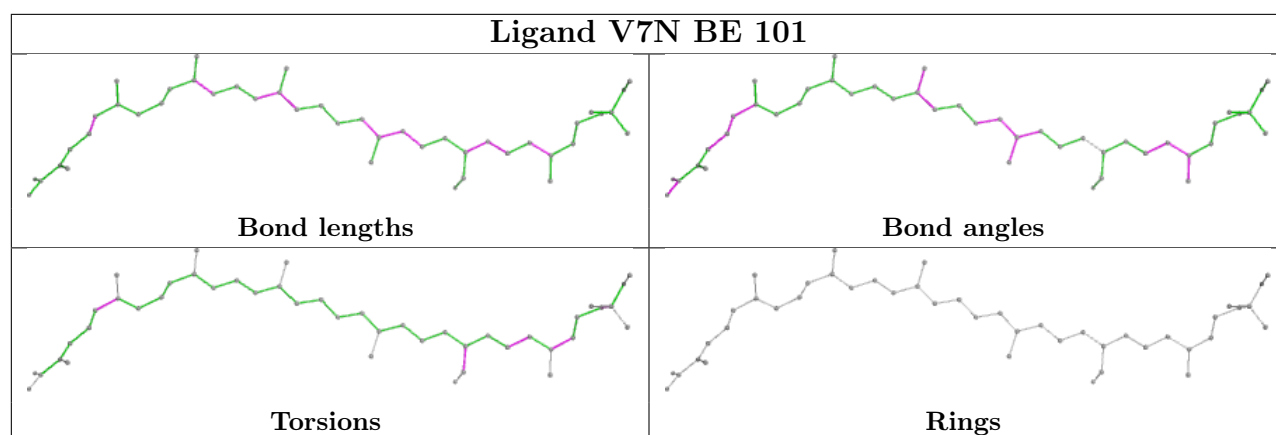


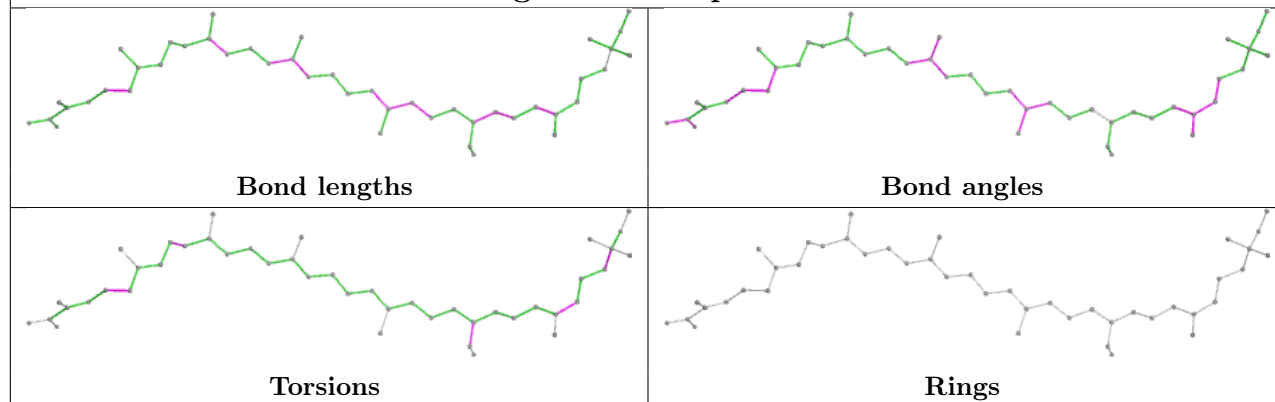
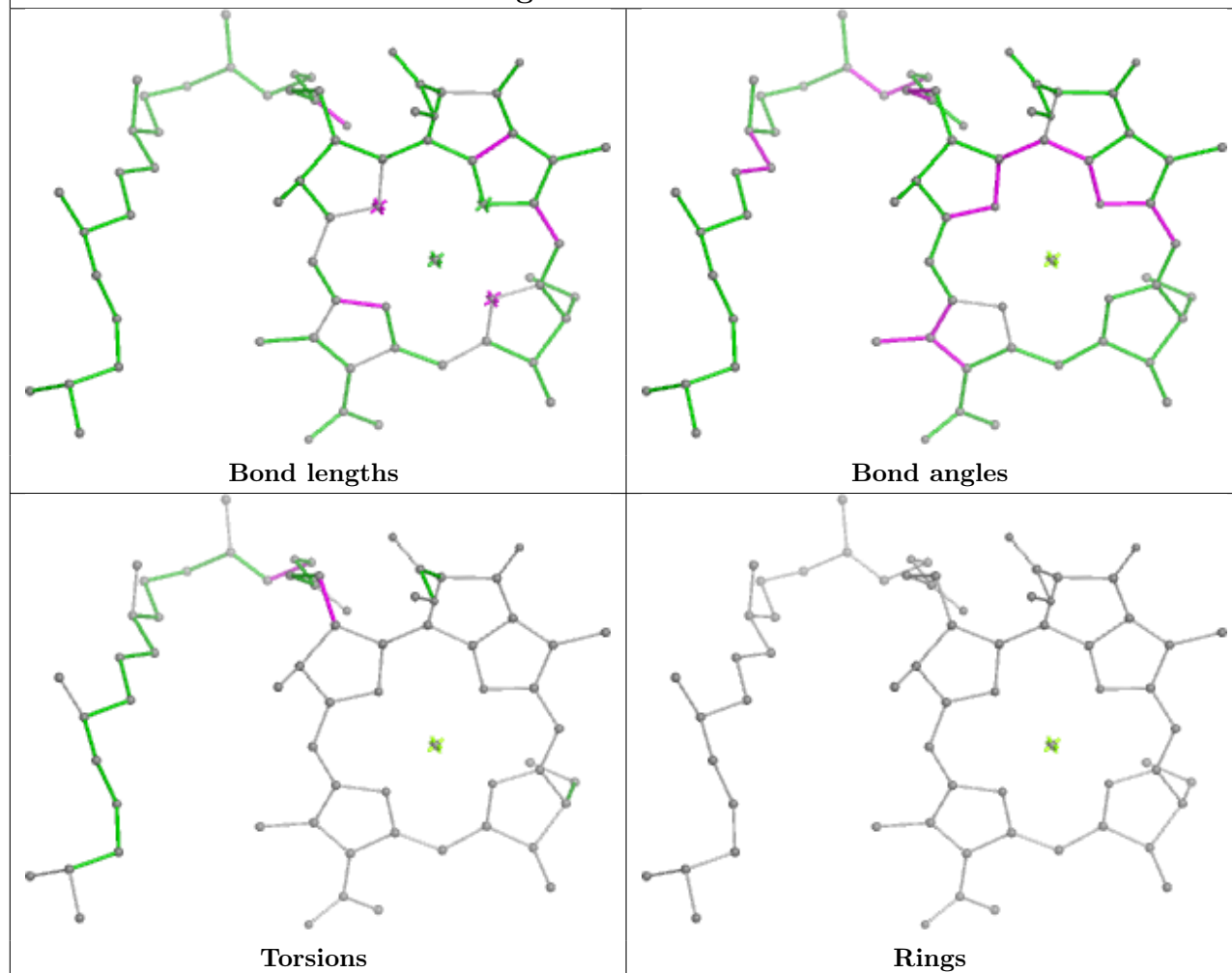
Ligand BCL BF 102**Ligand LMT BO 103**

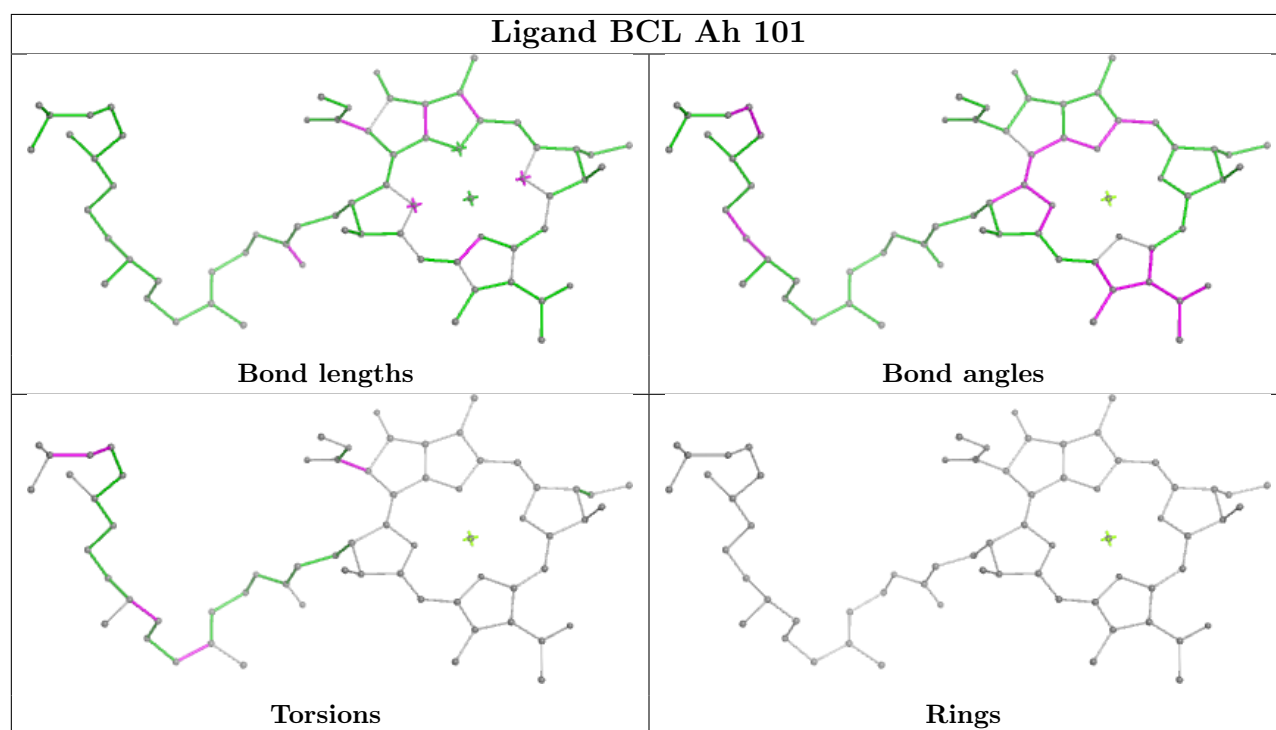
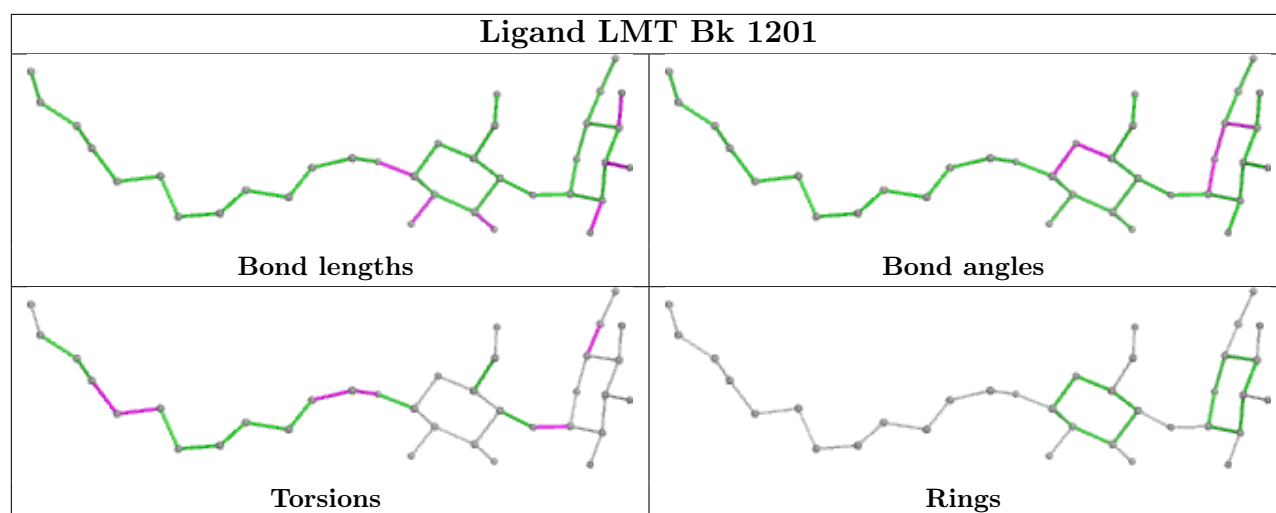


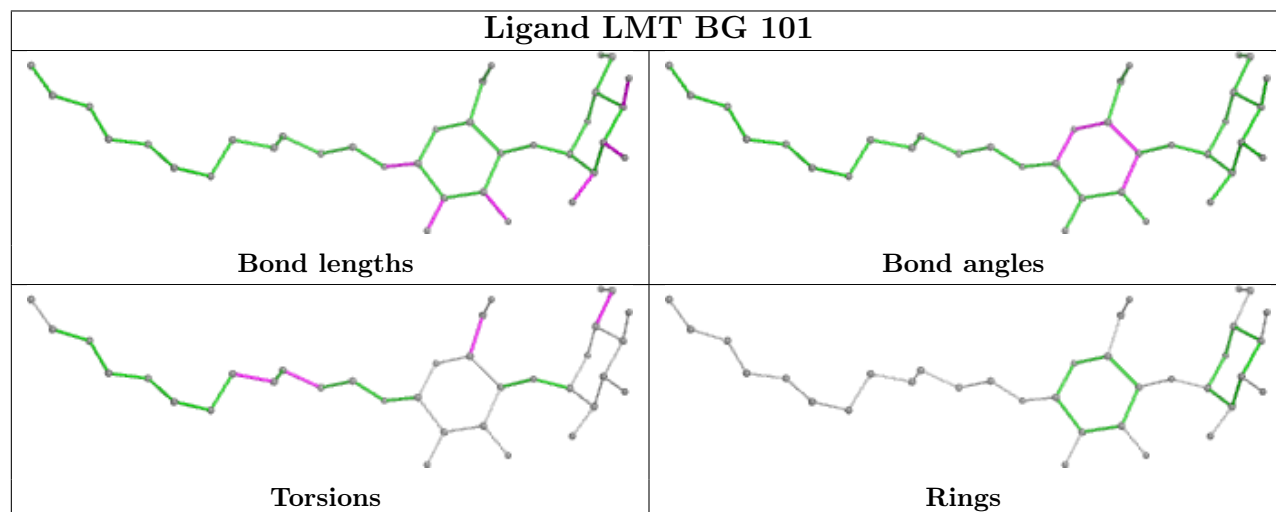
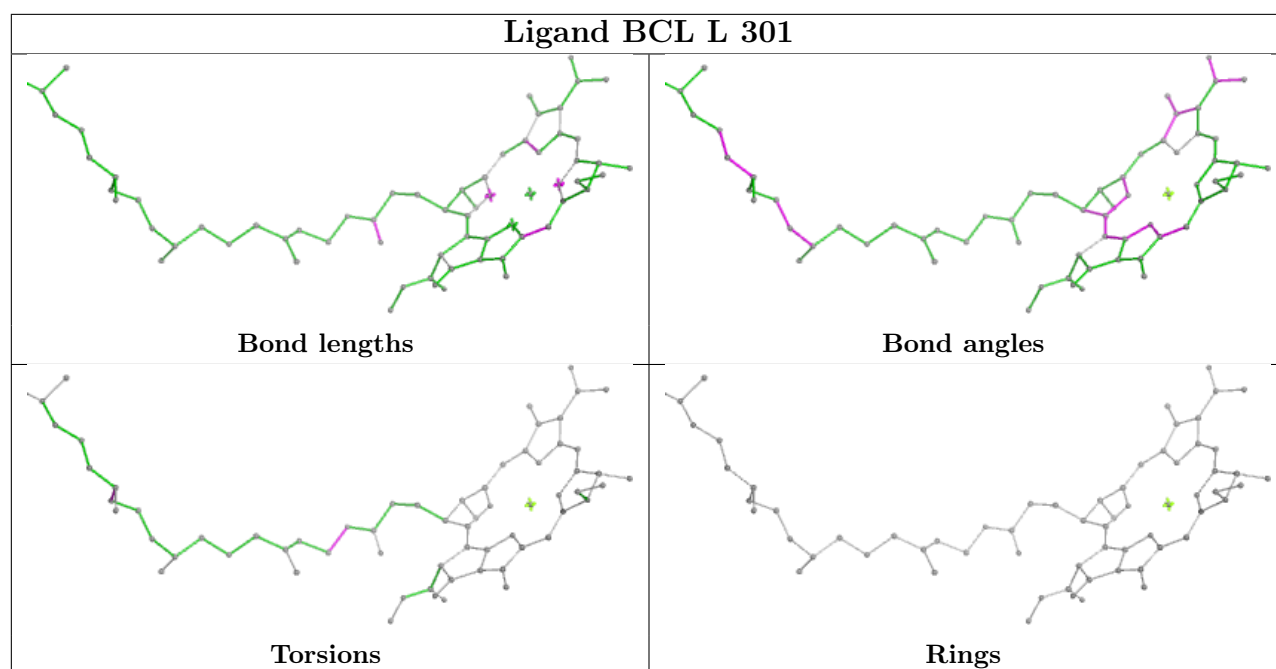


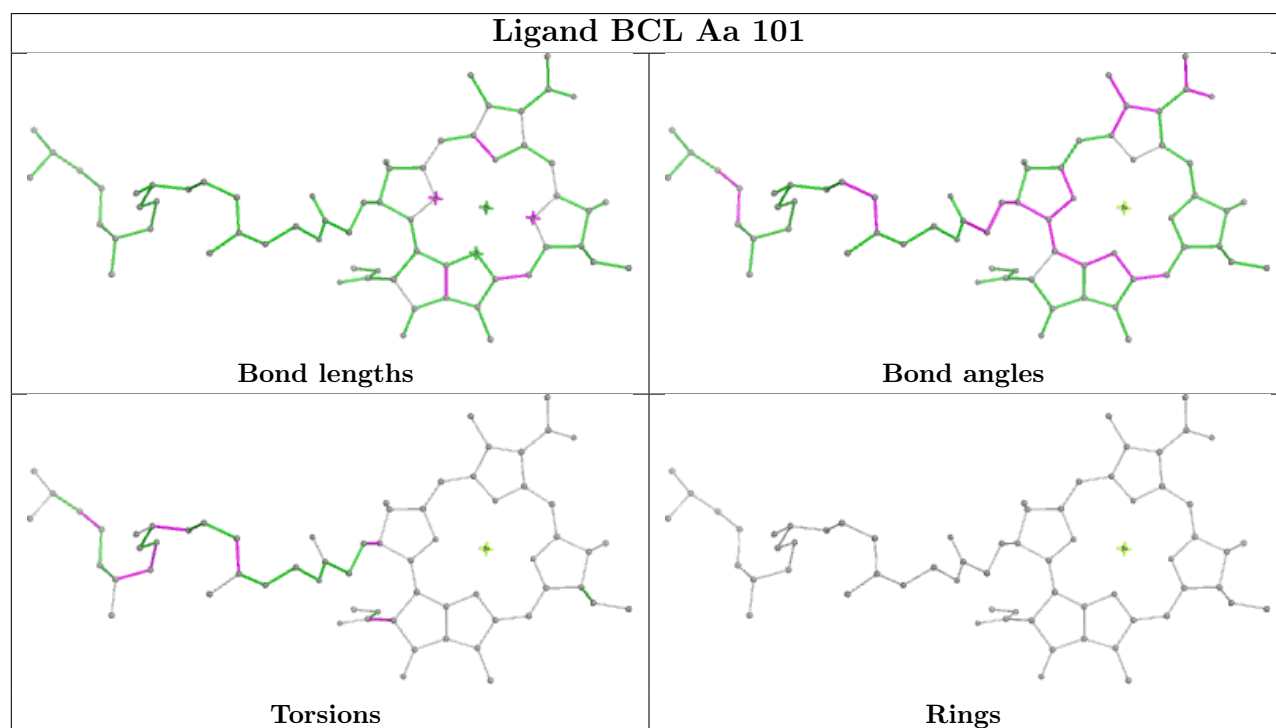
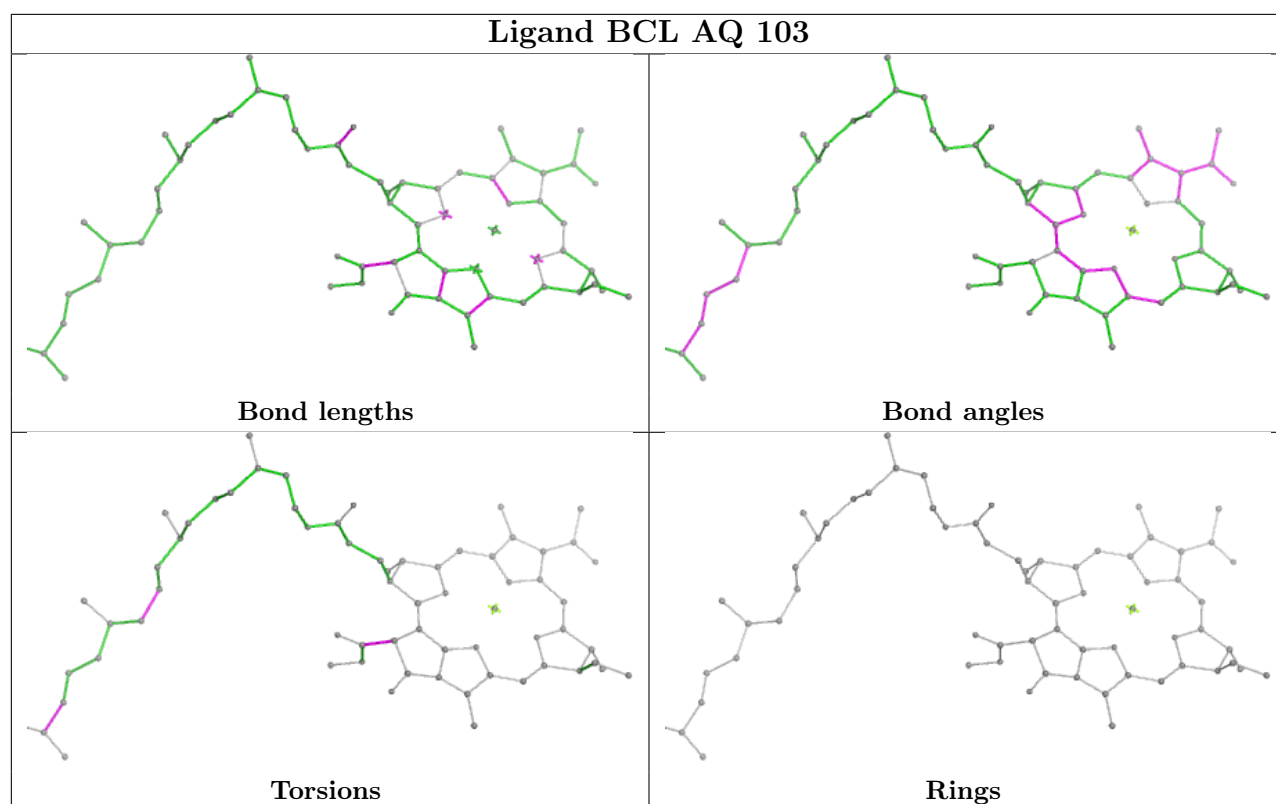


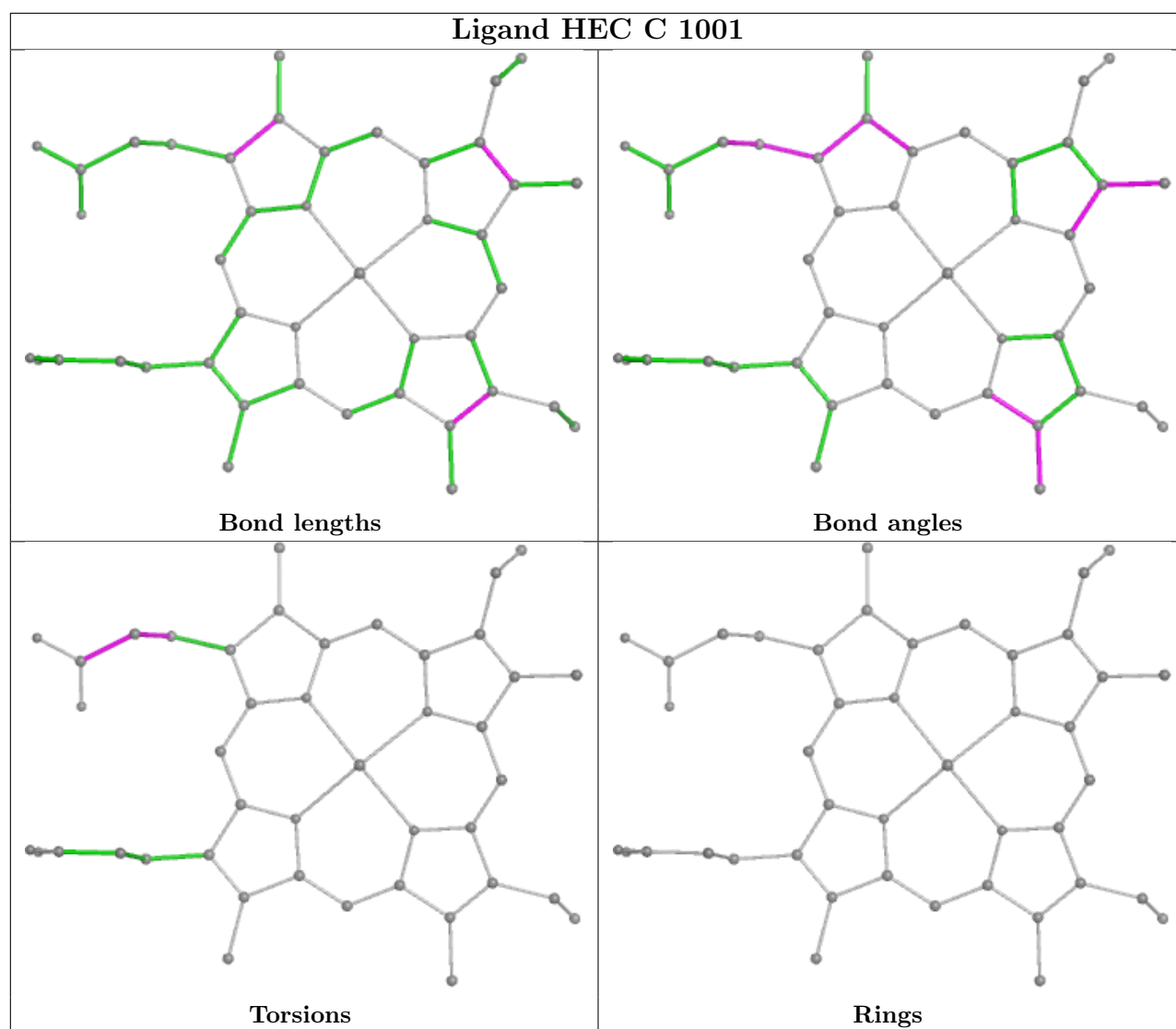


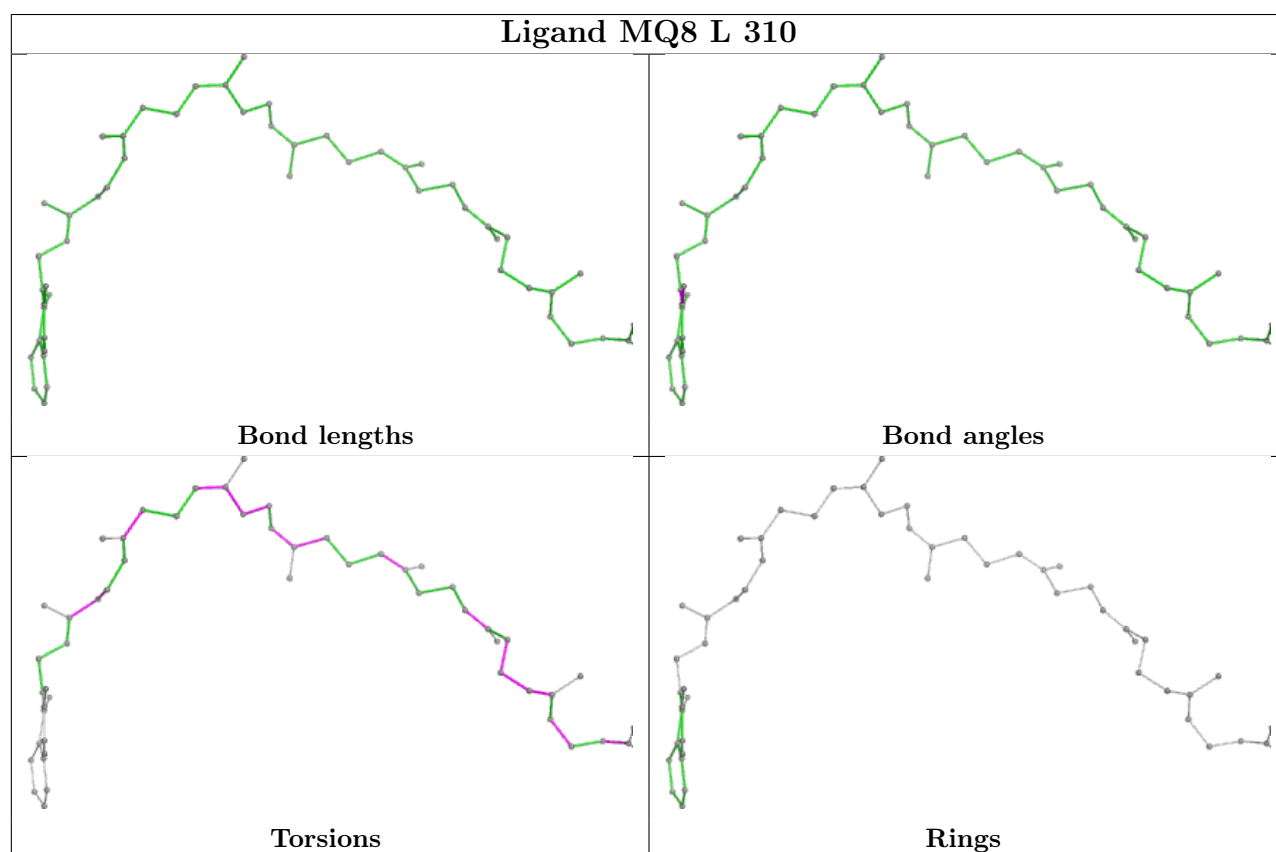
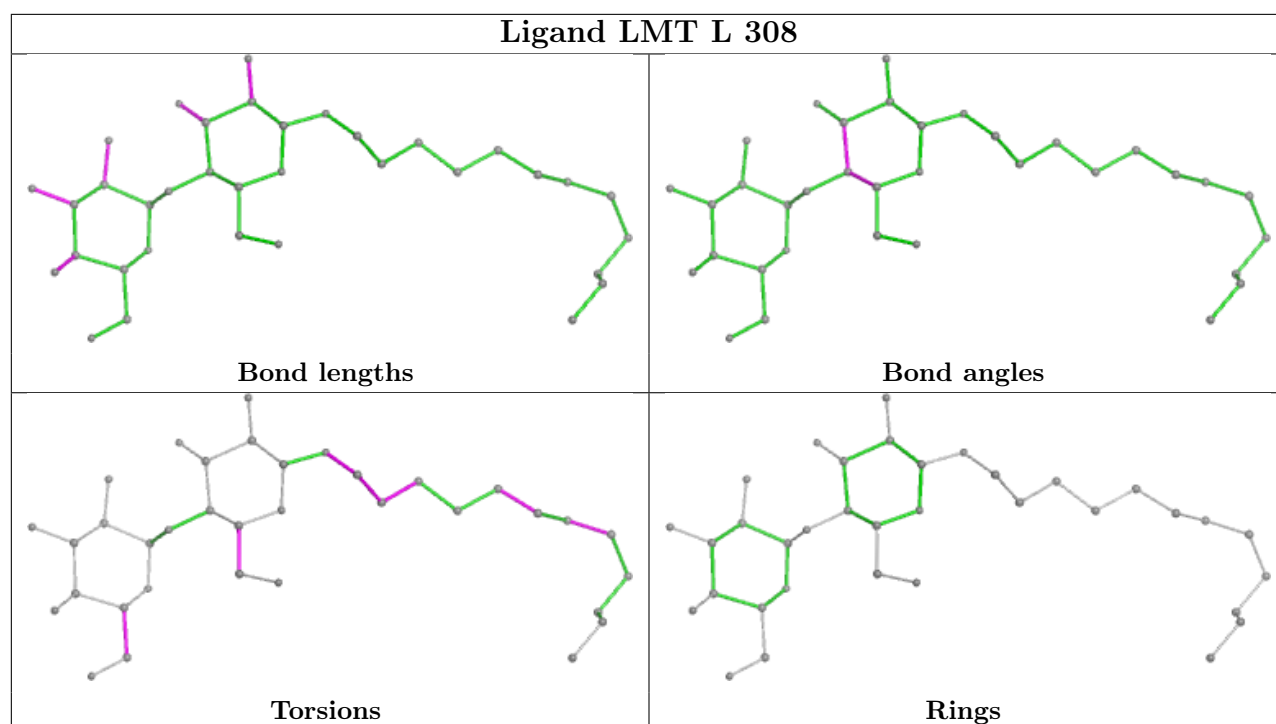
Ligand V7N Bp 1003**Ligand BCL L 302**

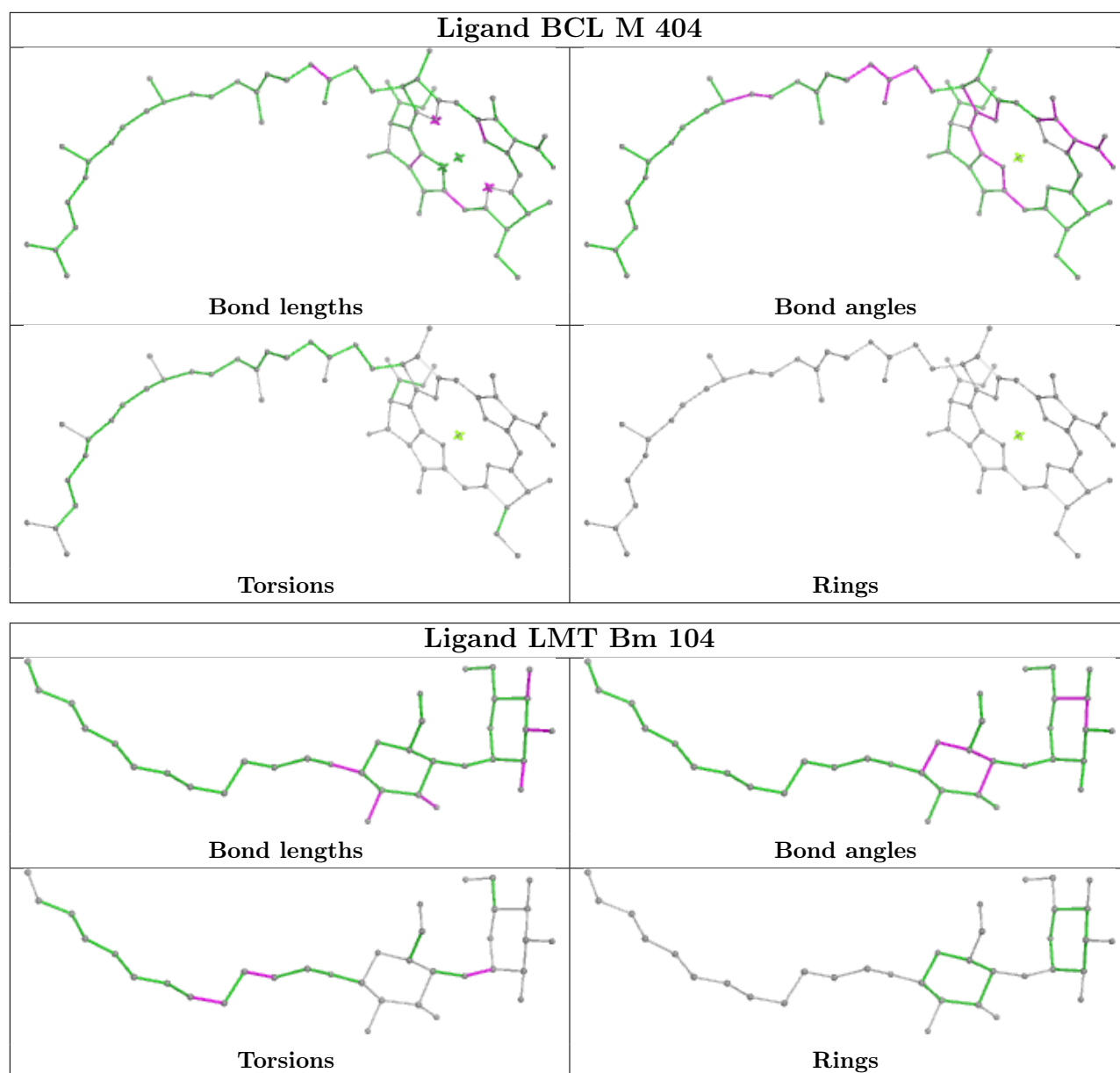


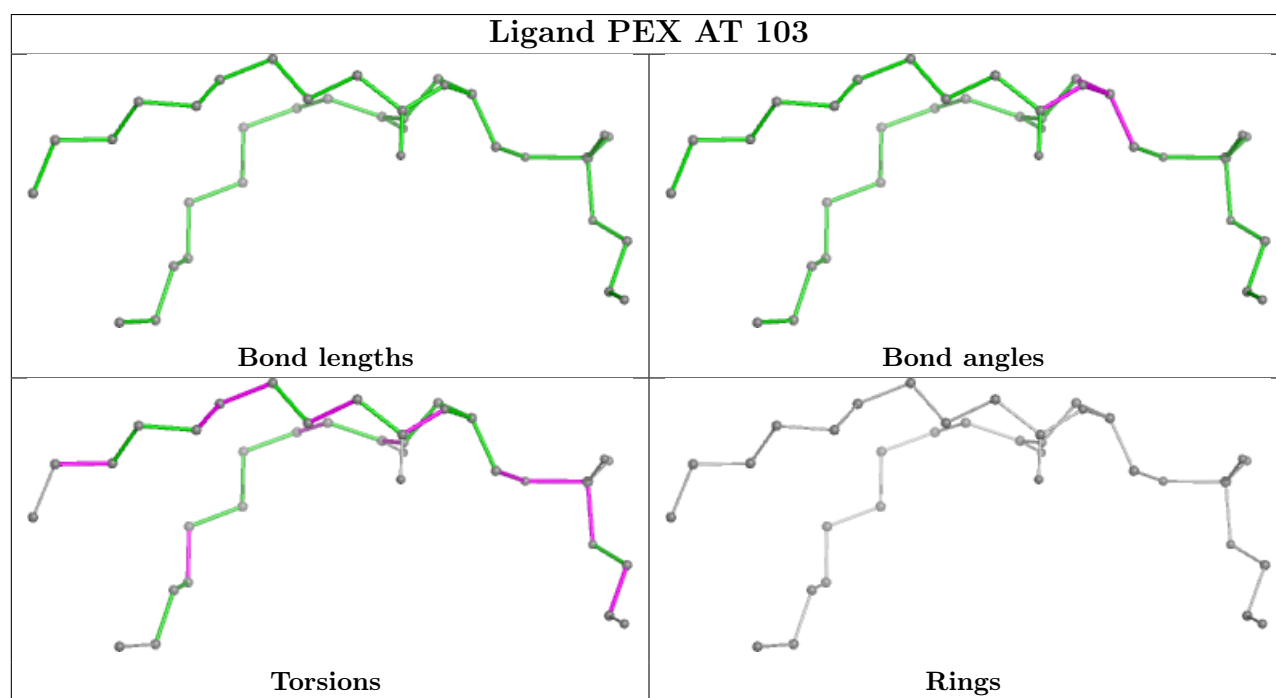
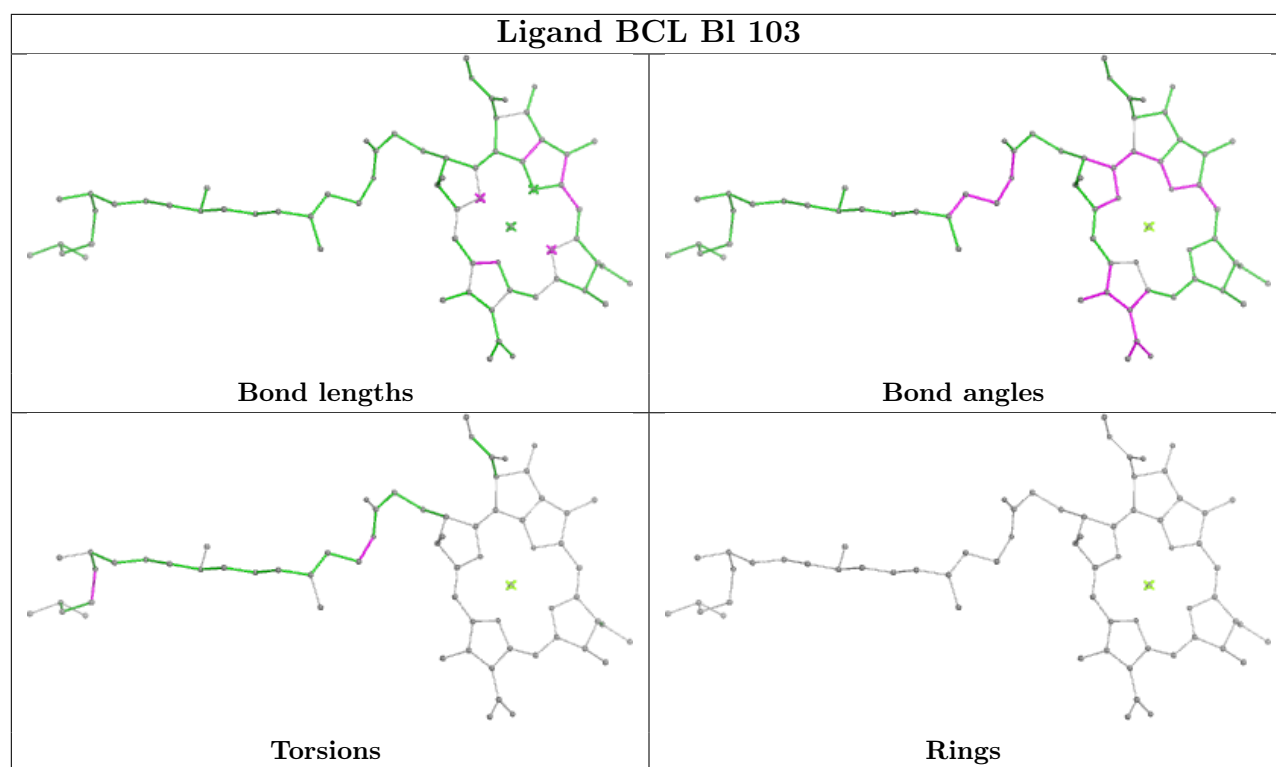


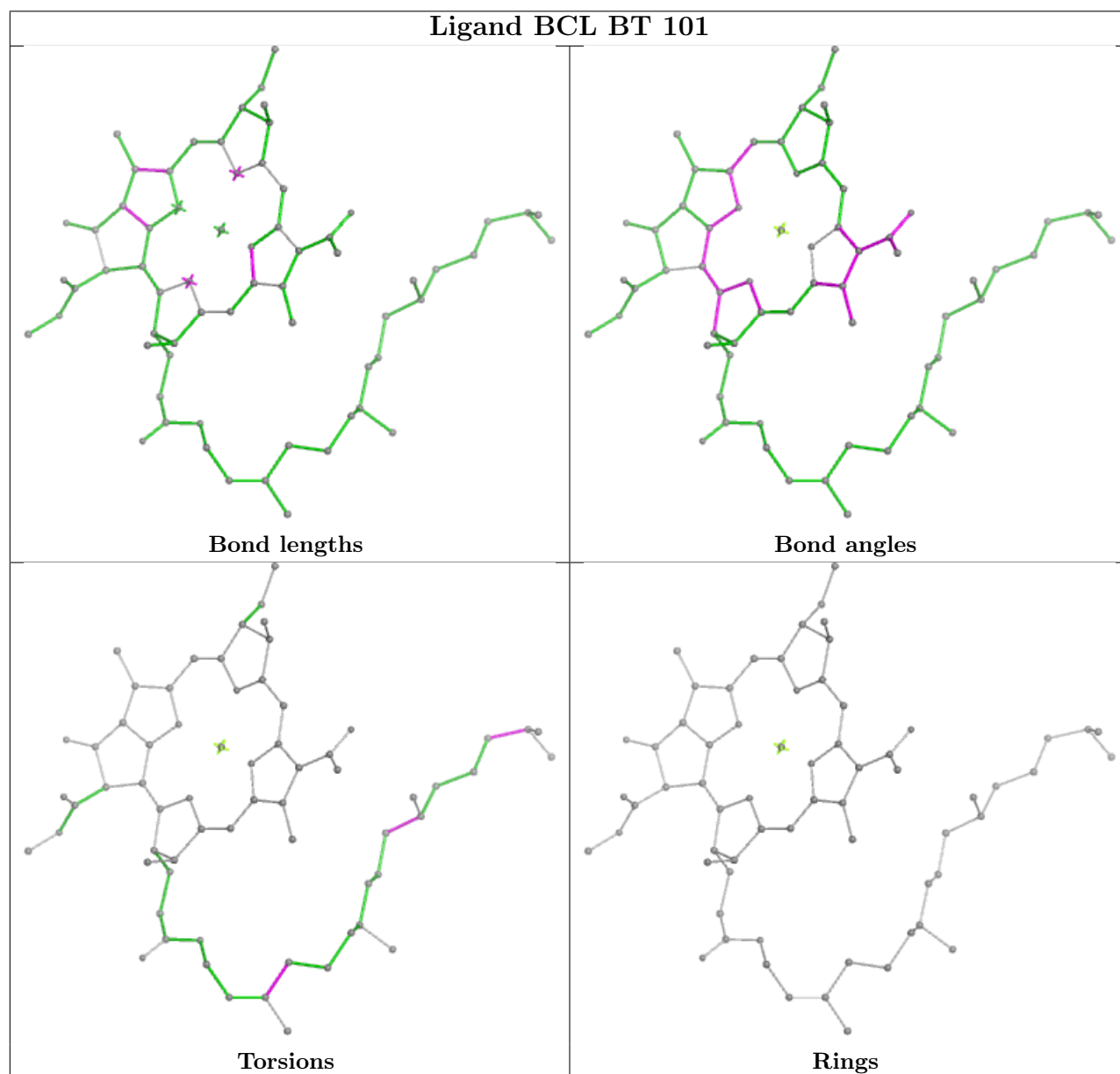
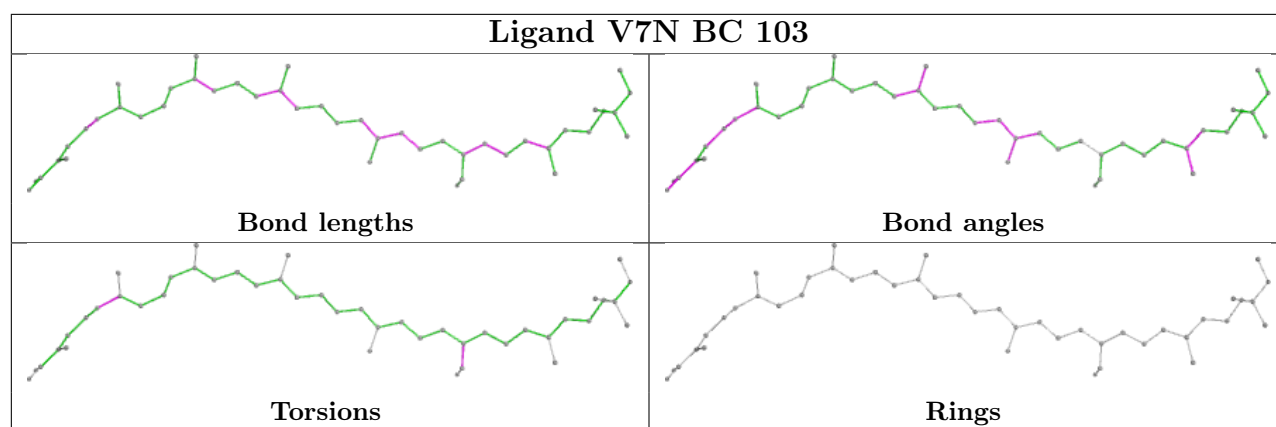


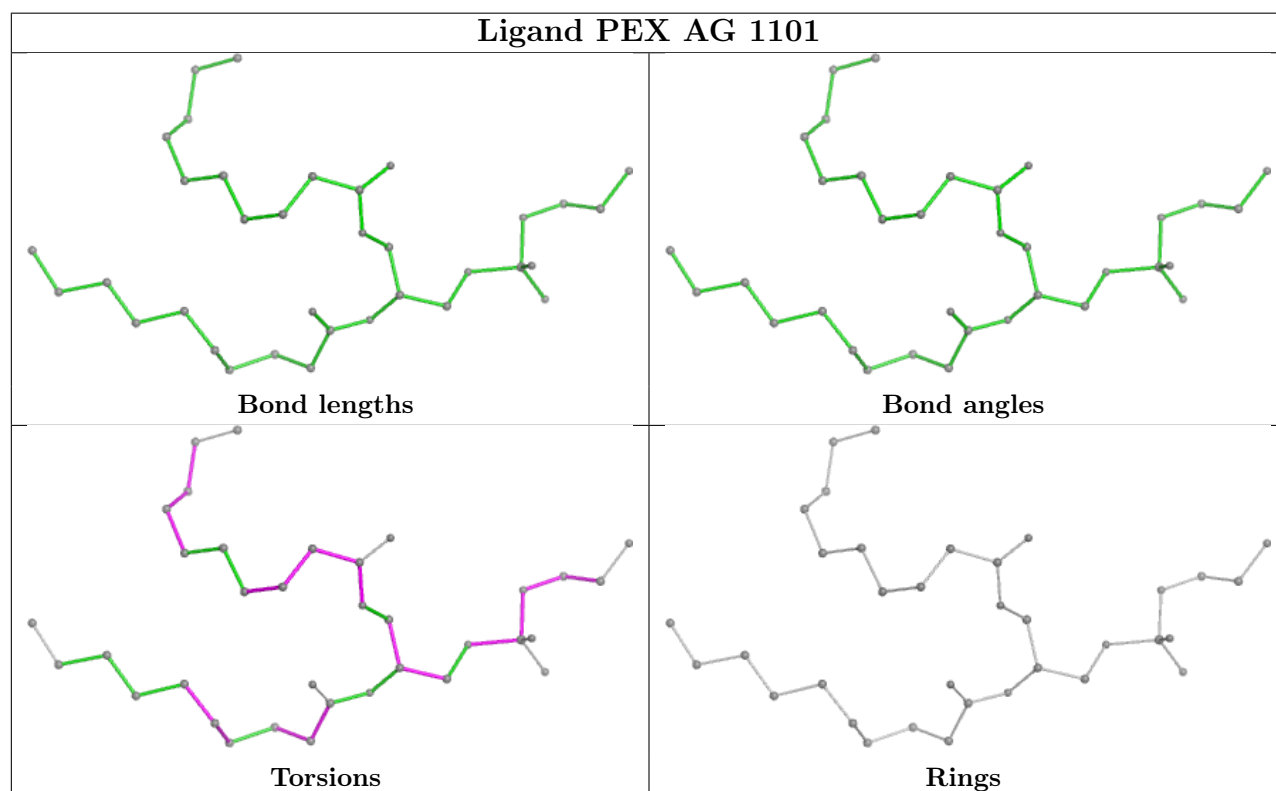
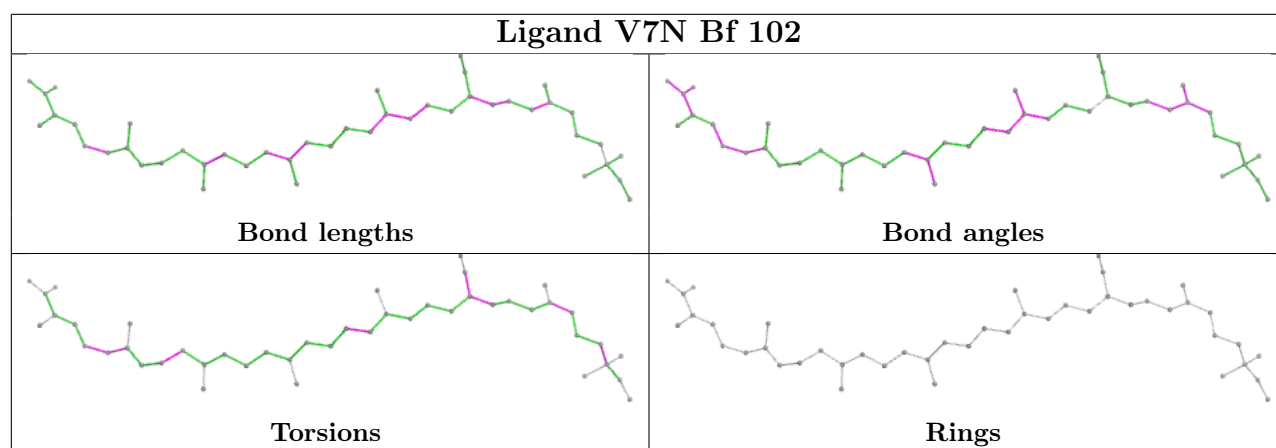
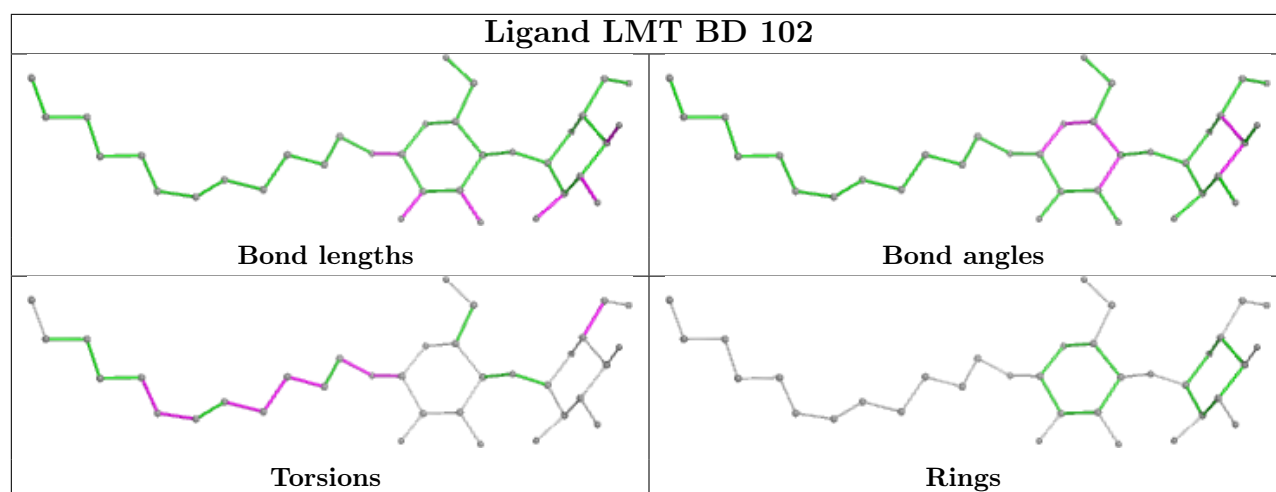


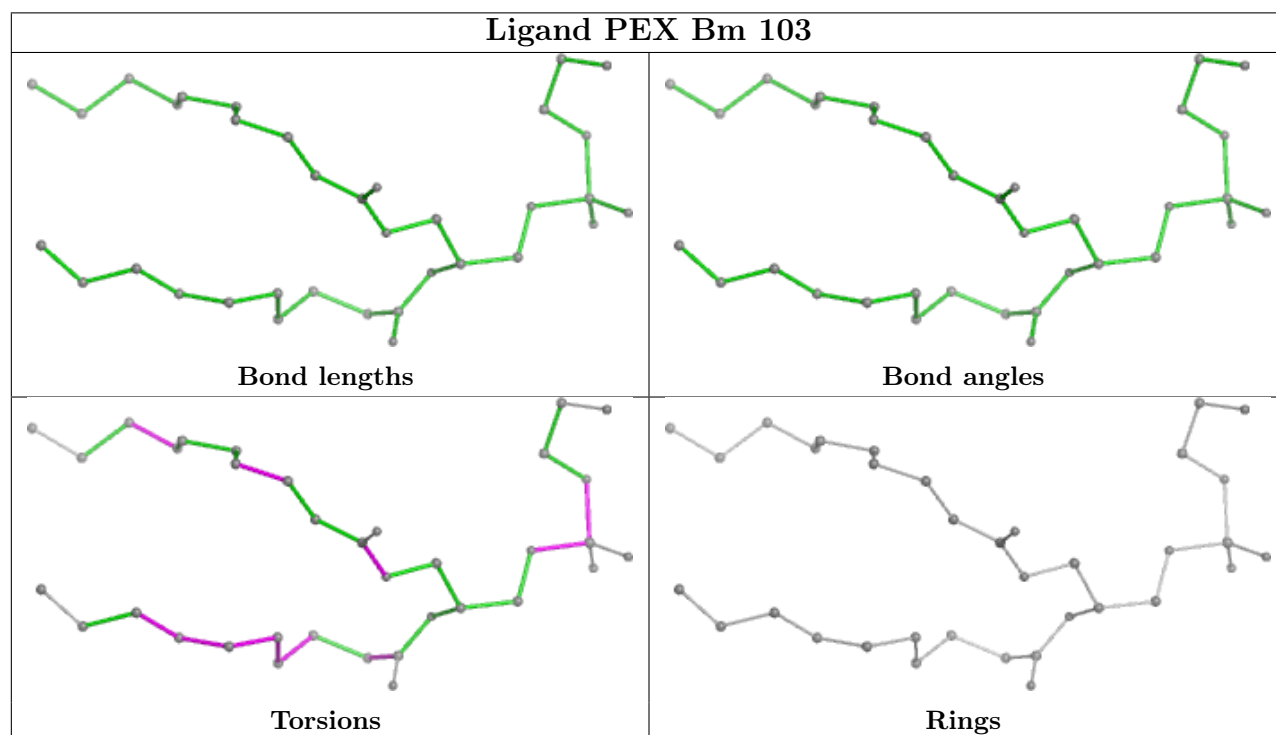
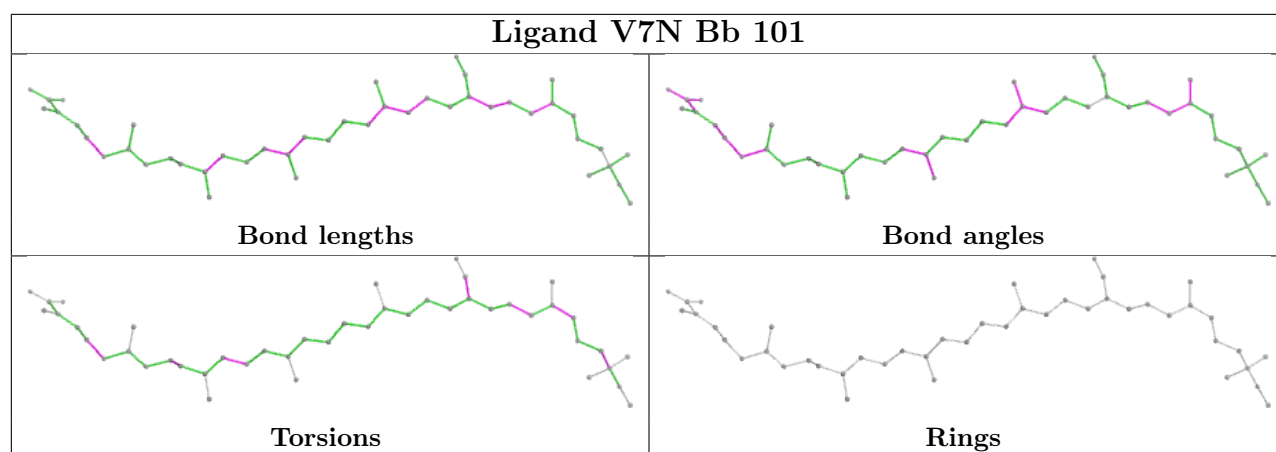


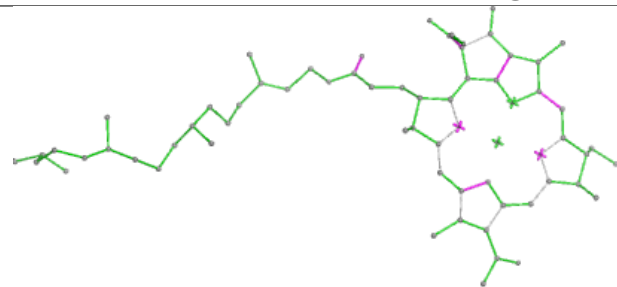
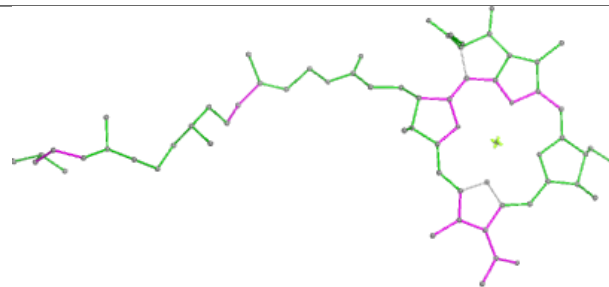
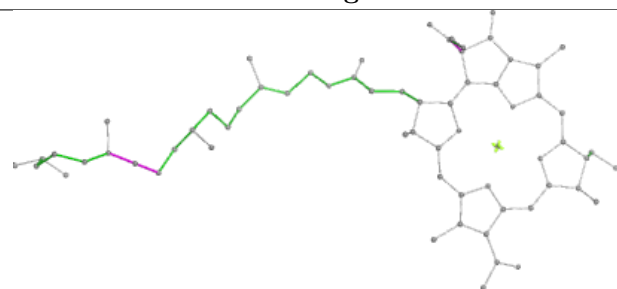
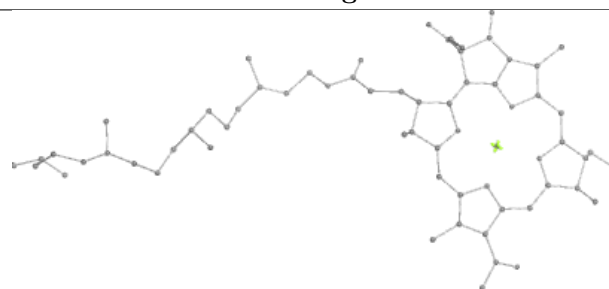
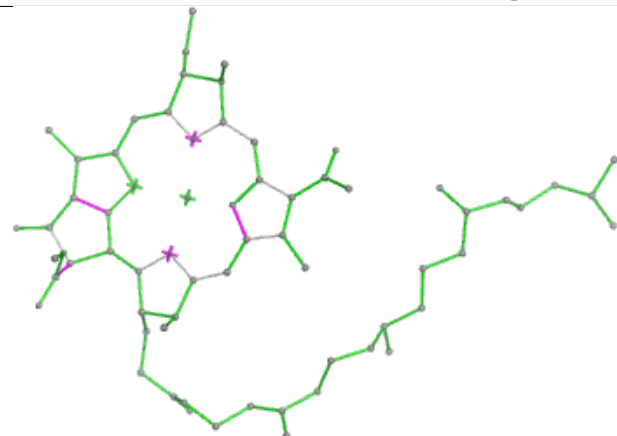
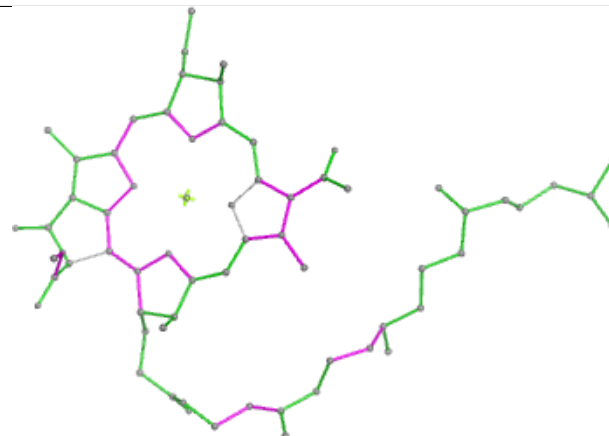
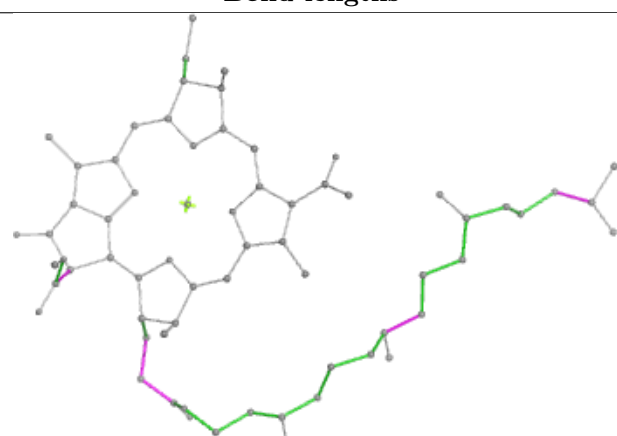
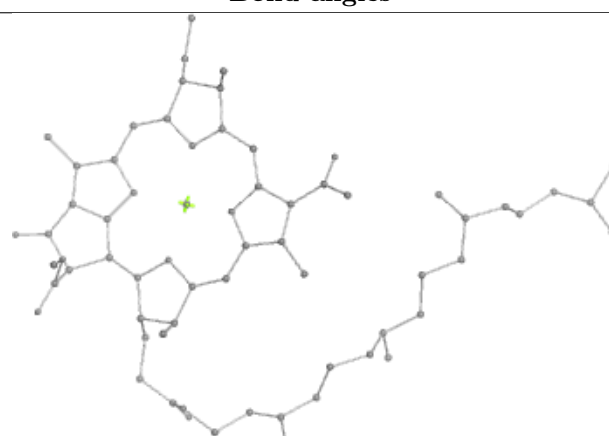


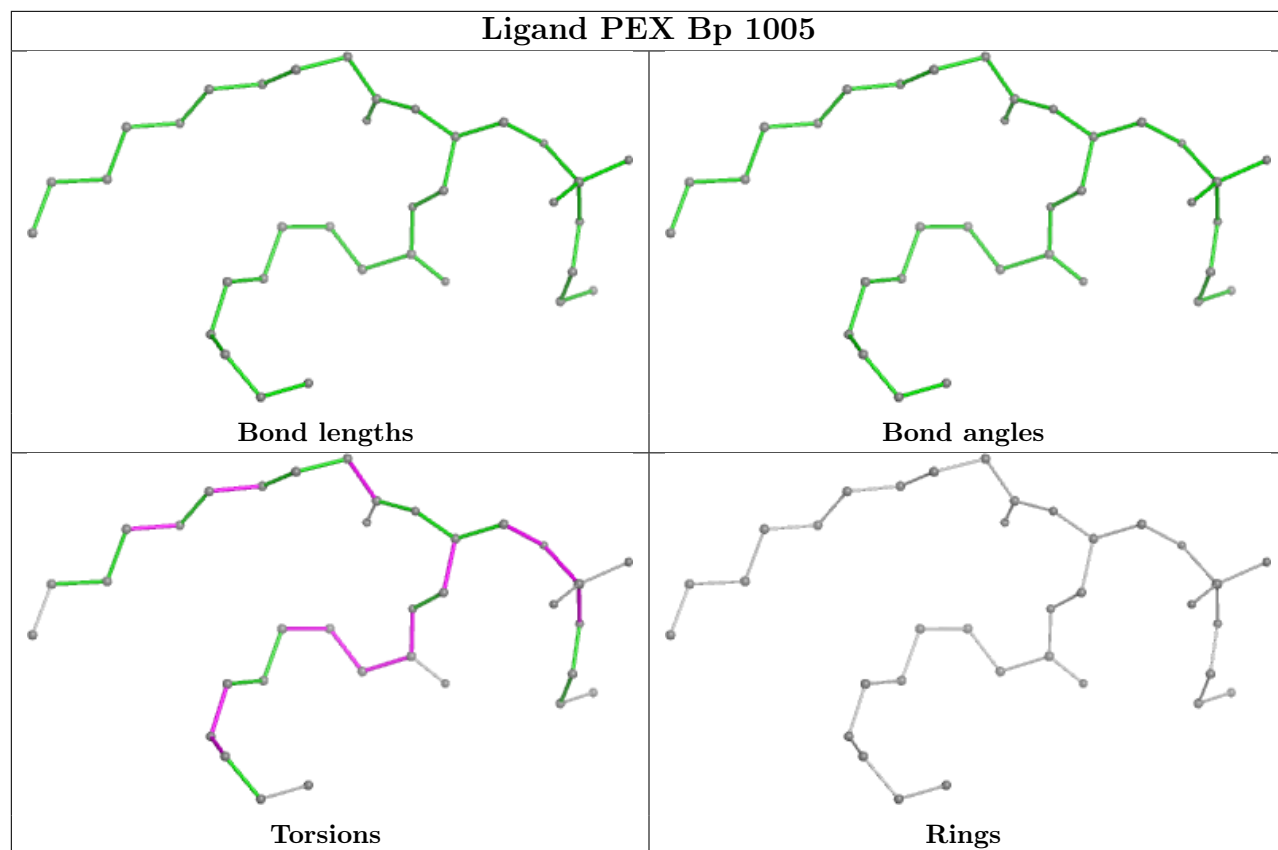


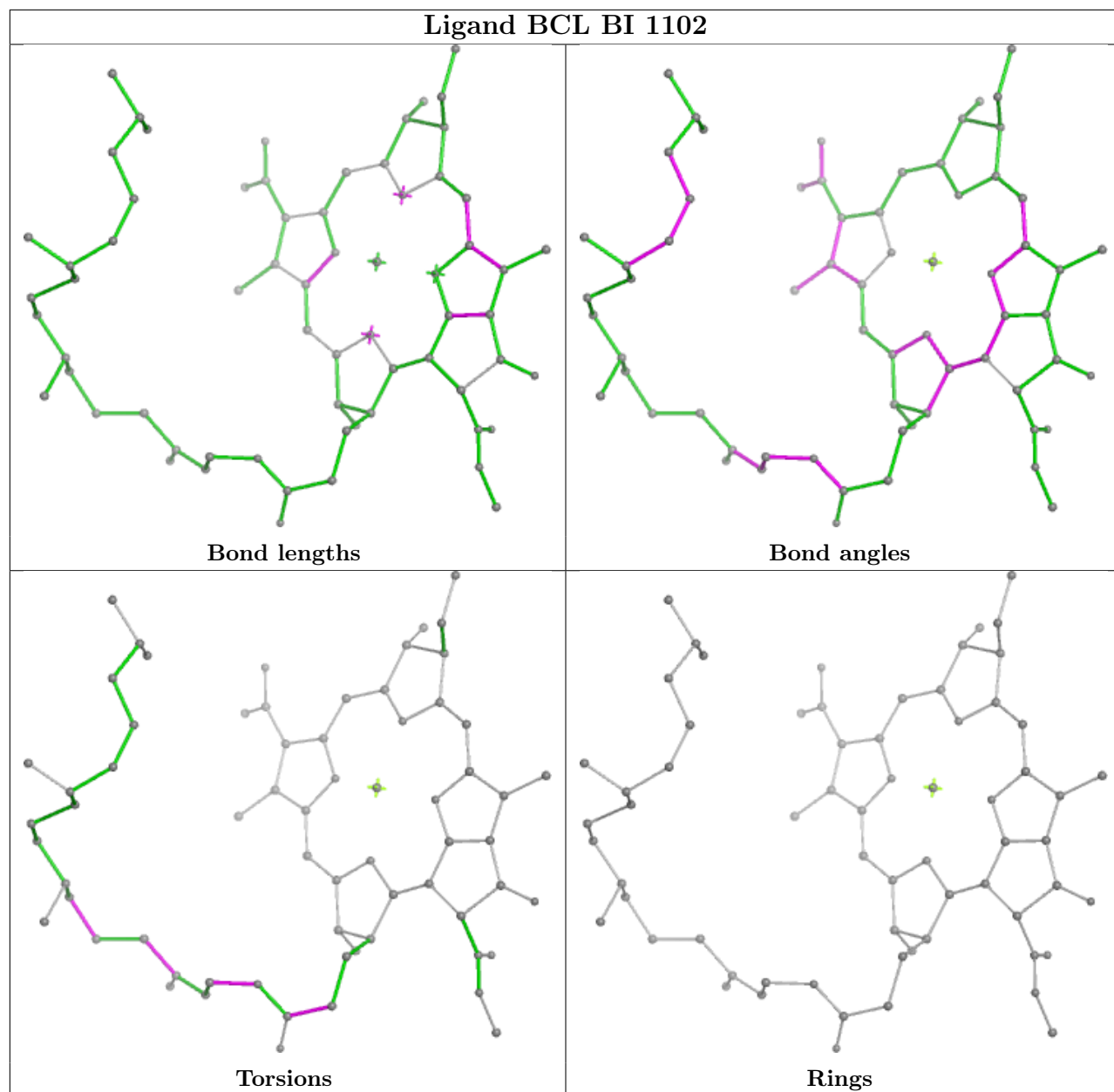


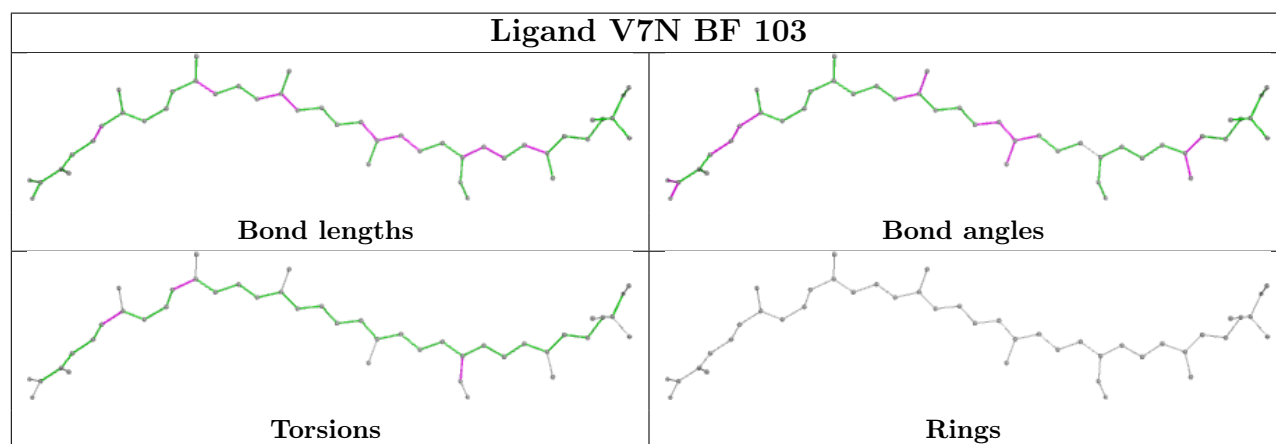
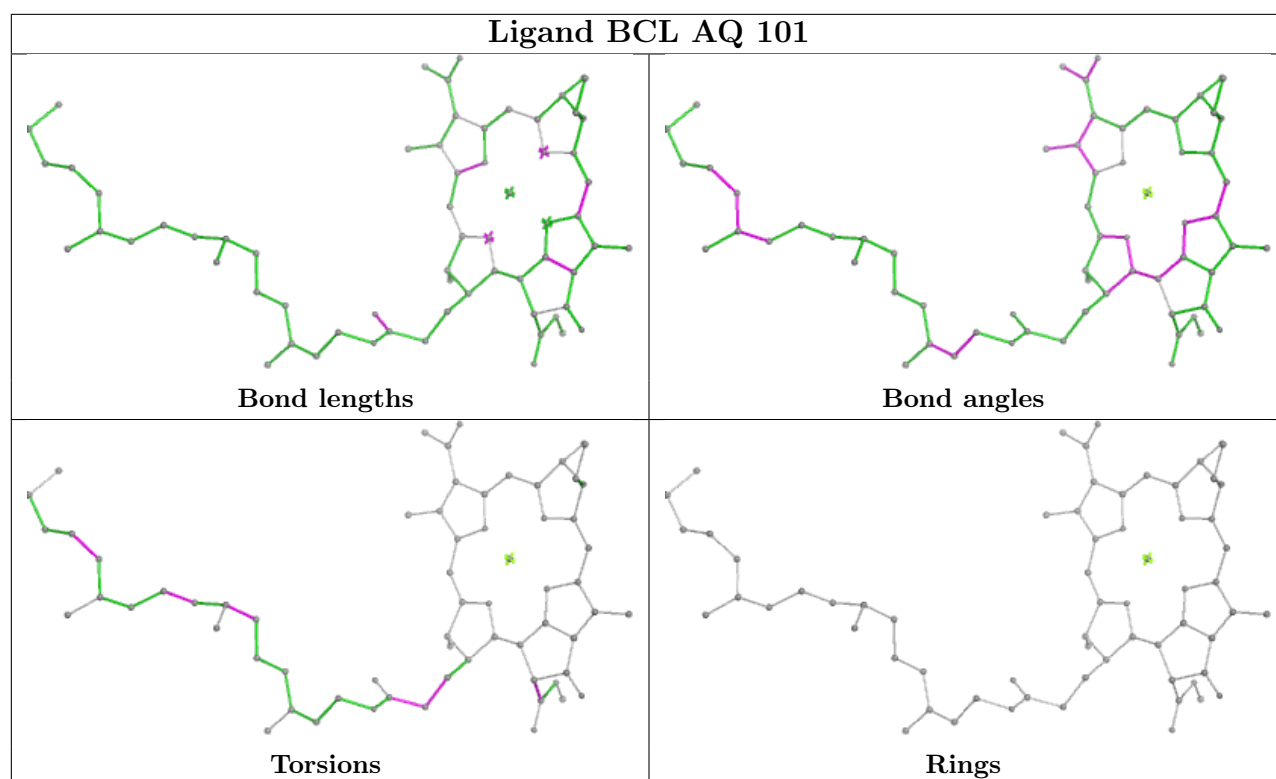


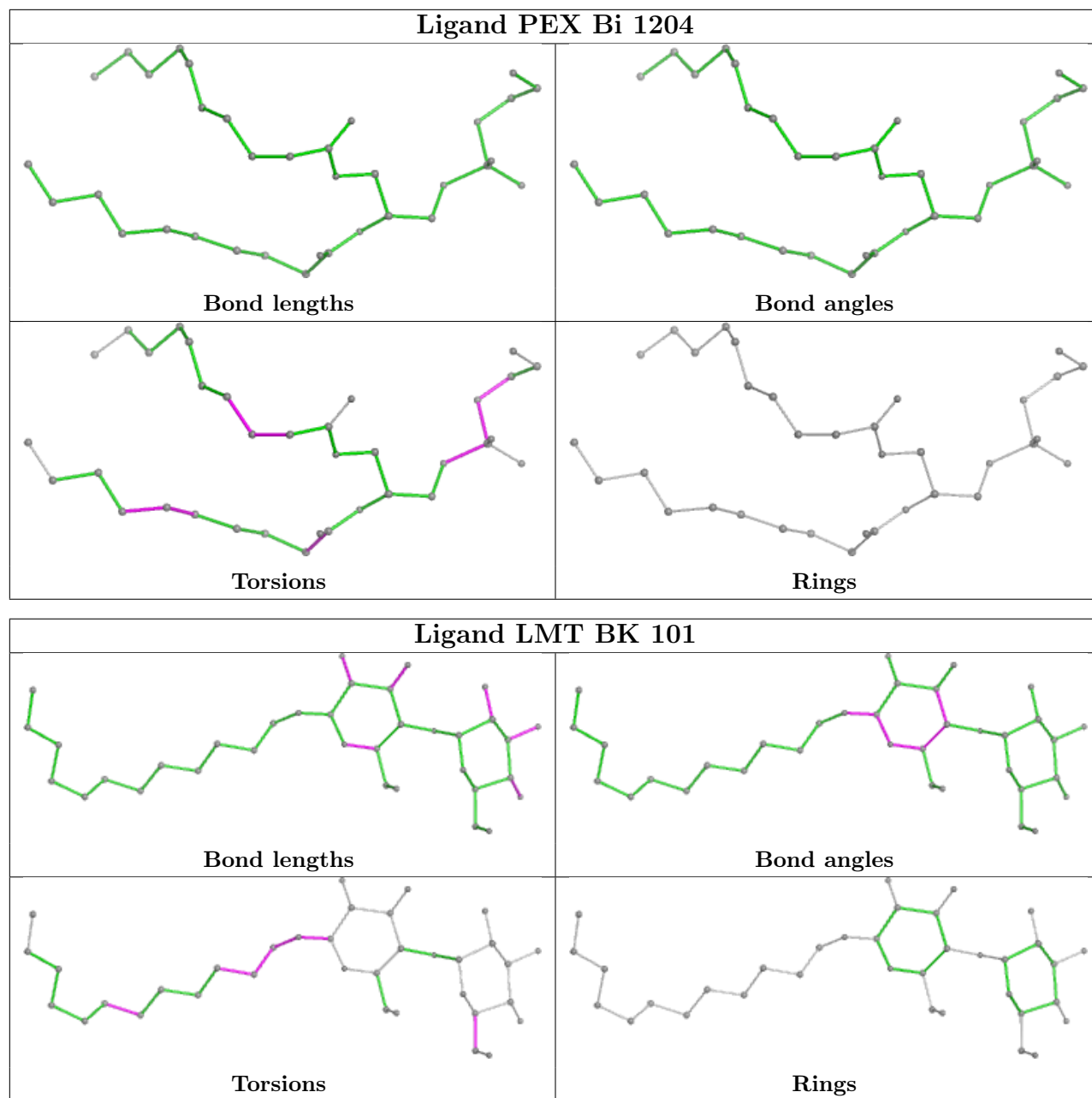


Ligand BCL AE 101**Bond lengths****Bond angles****Torsions****Rings****Ligand BCL AU 101****Bond lengths****Bond angles****Torsions****Rings**

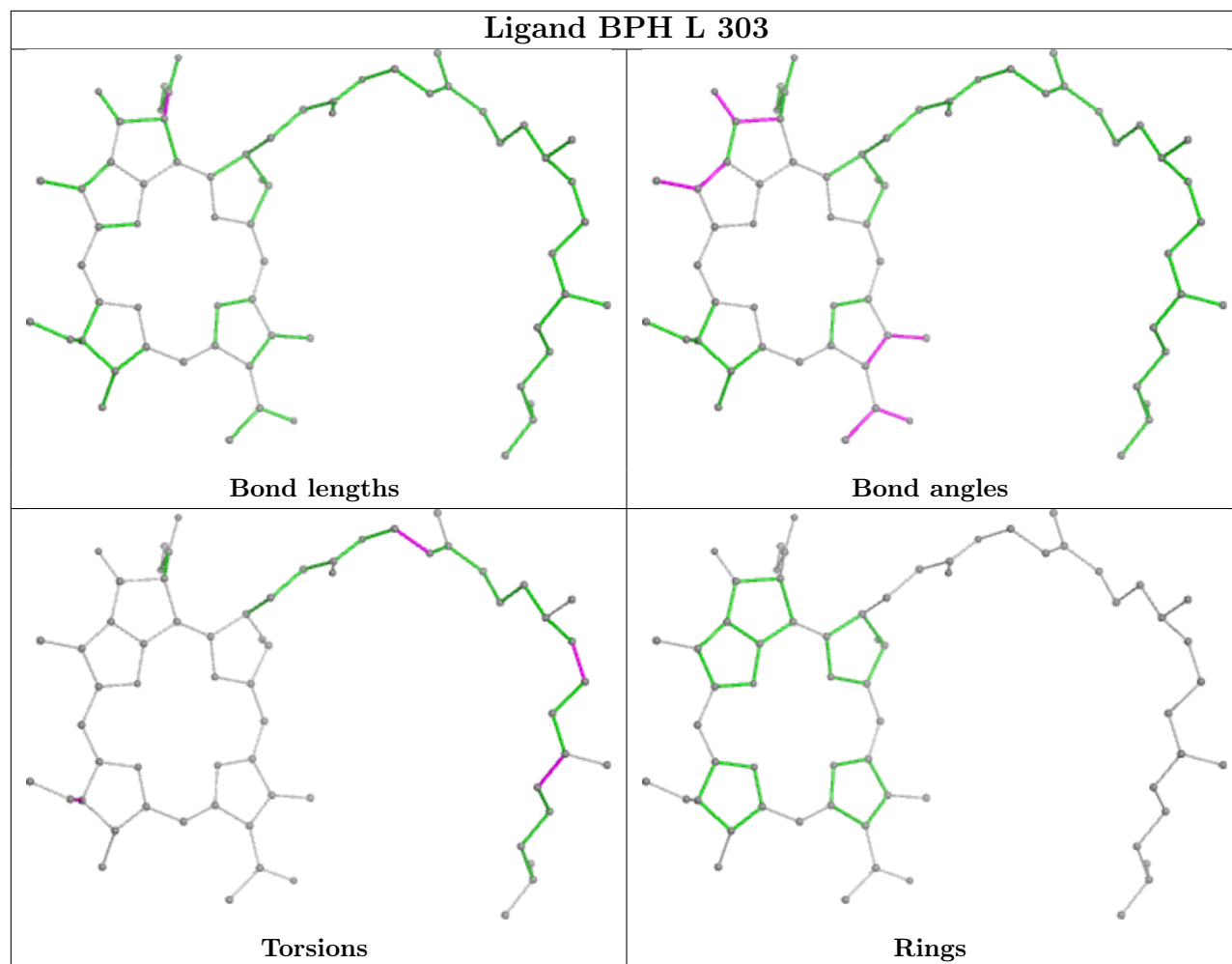




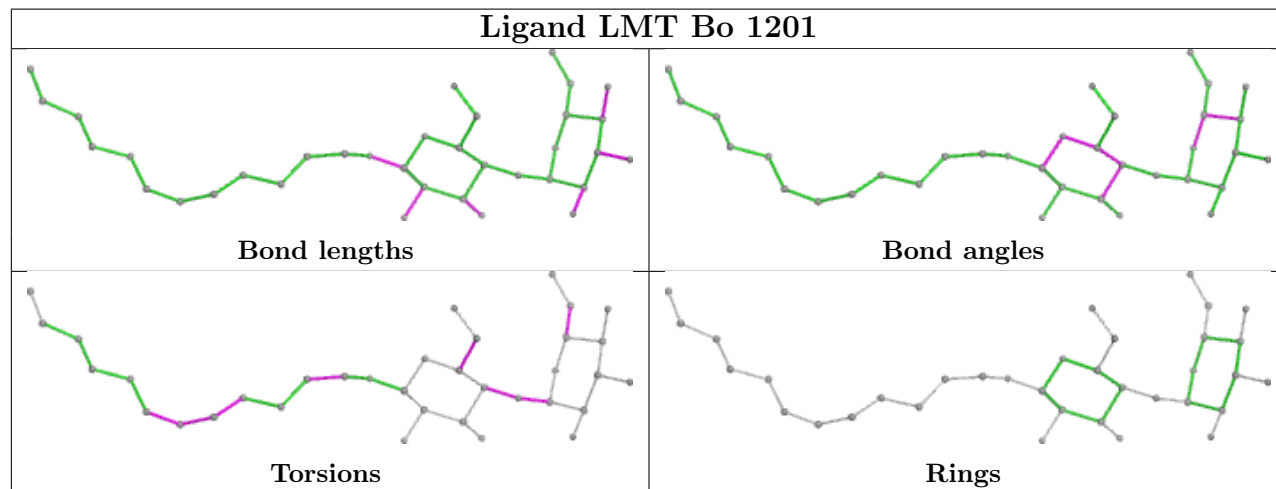


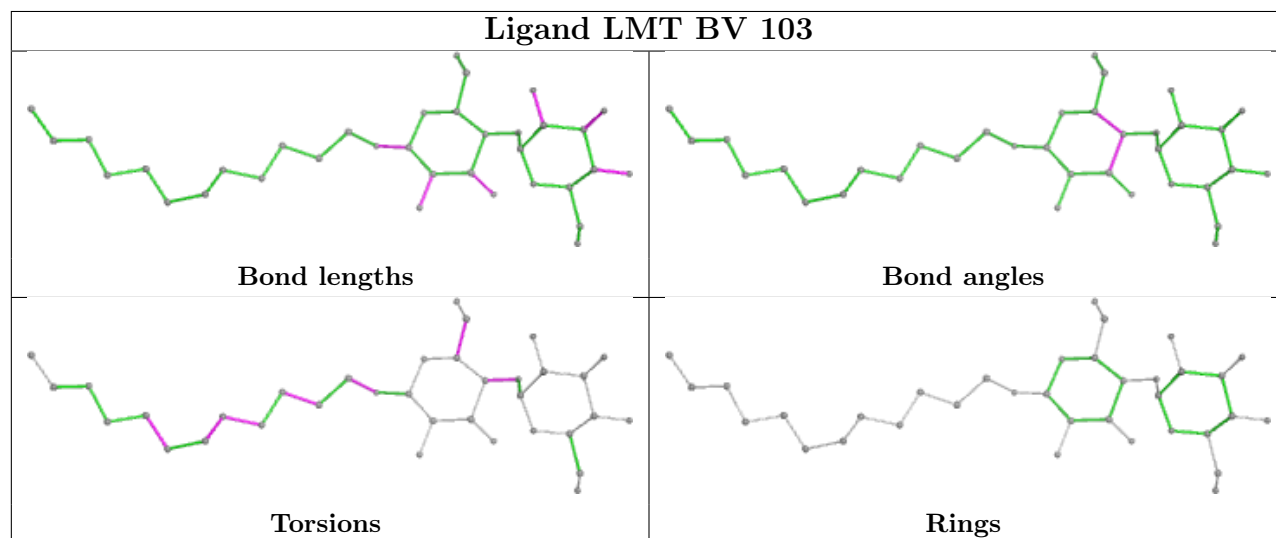
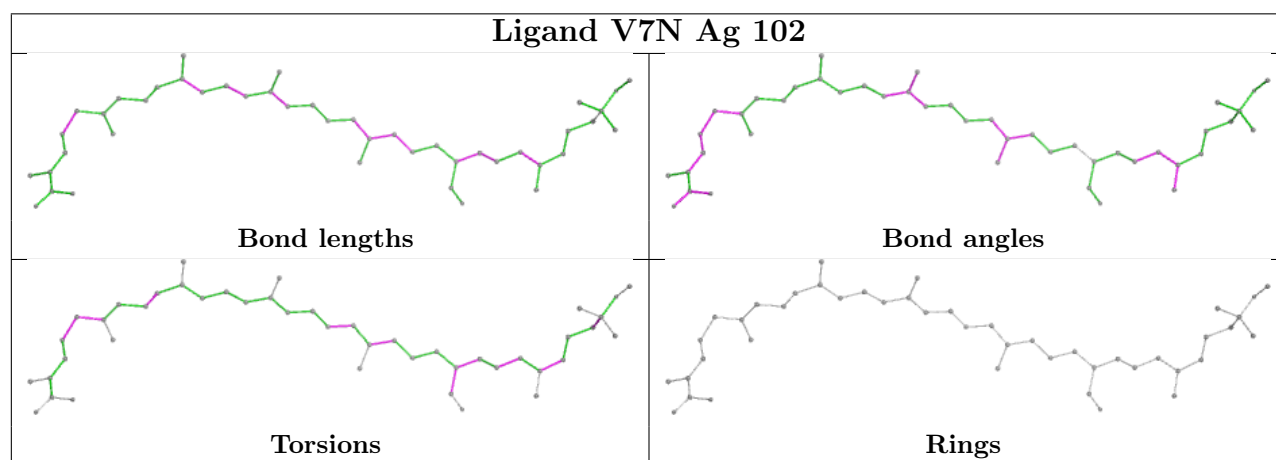
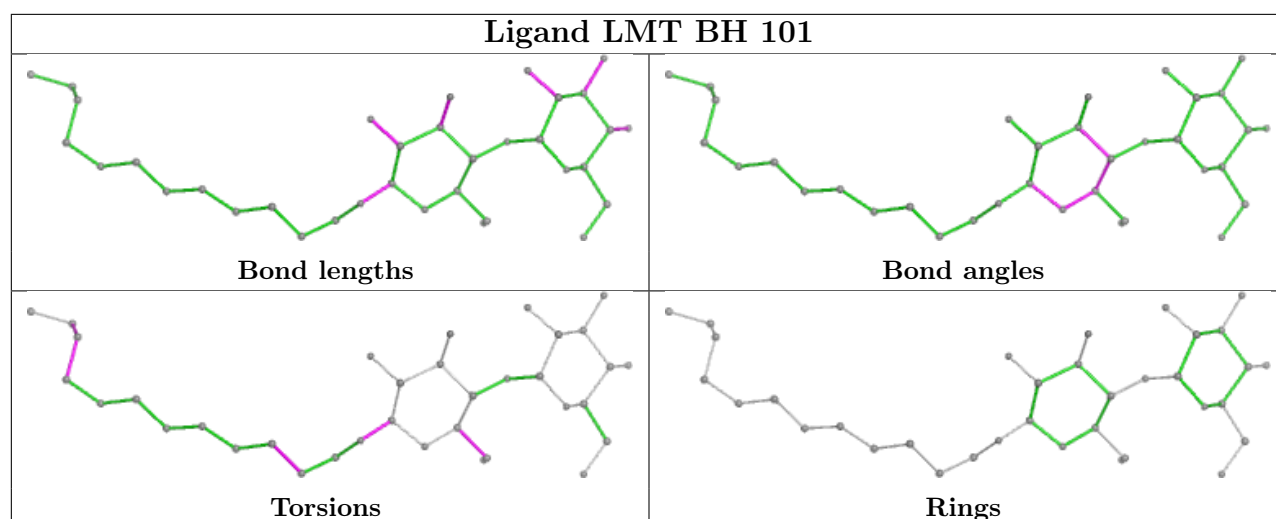


Ligand BPH L 303

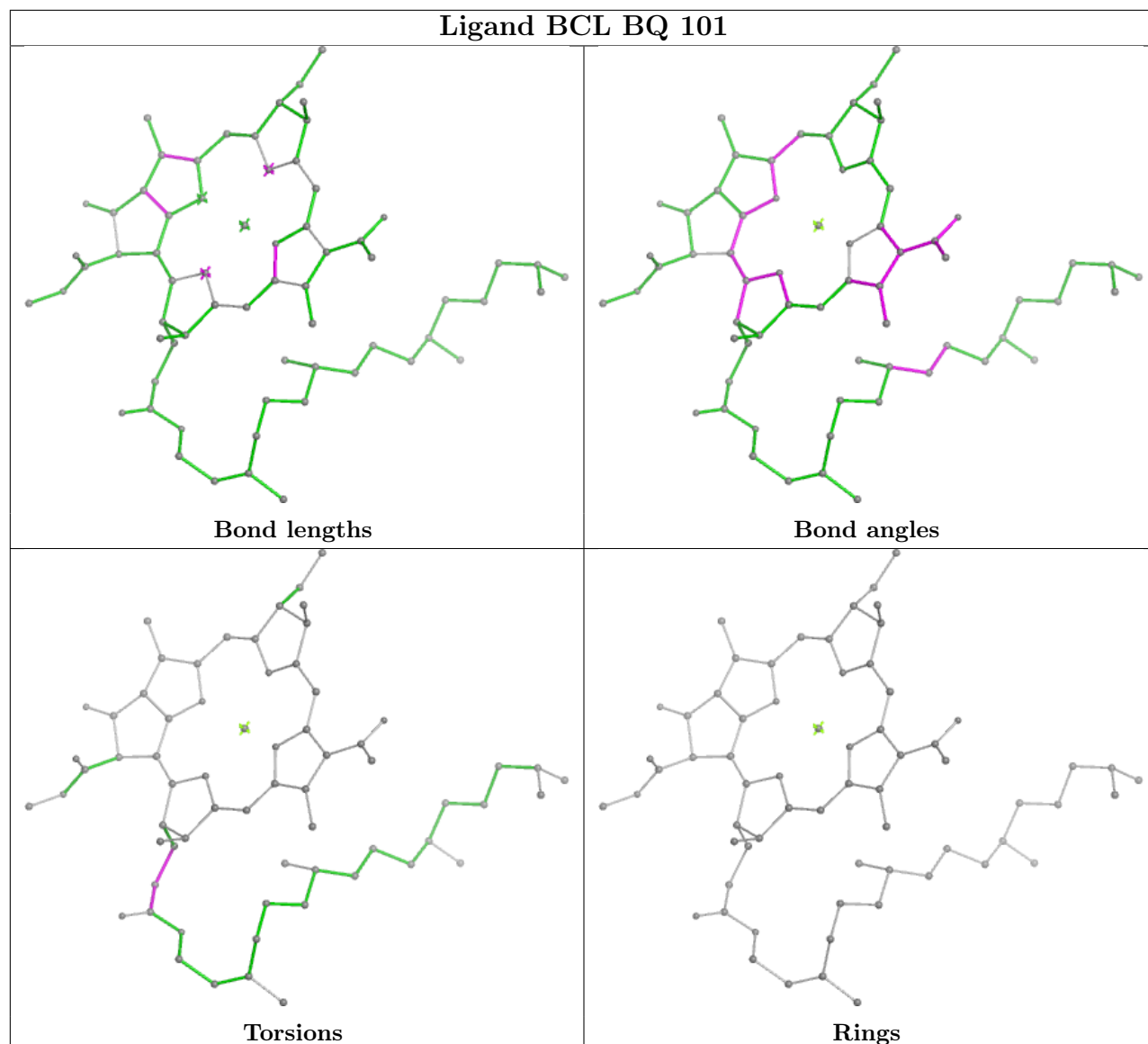


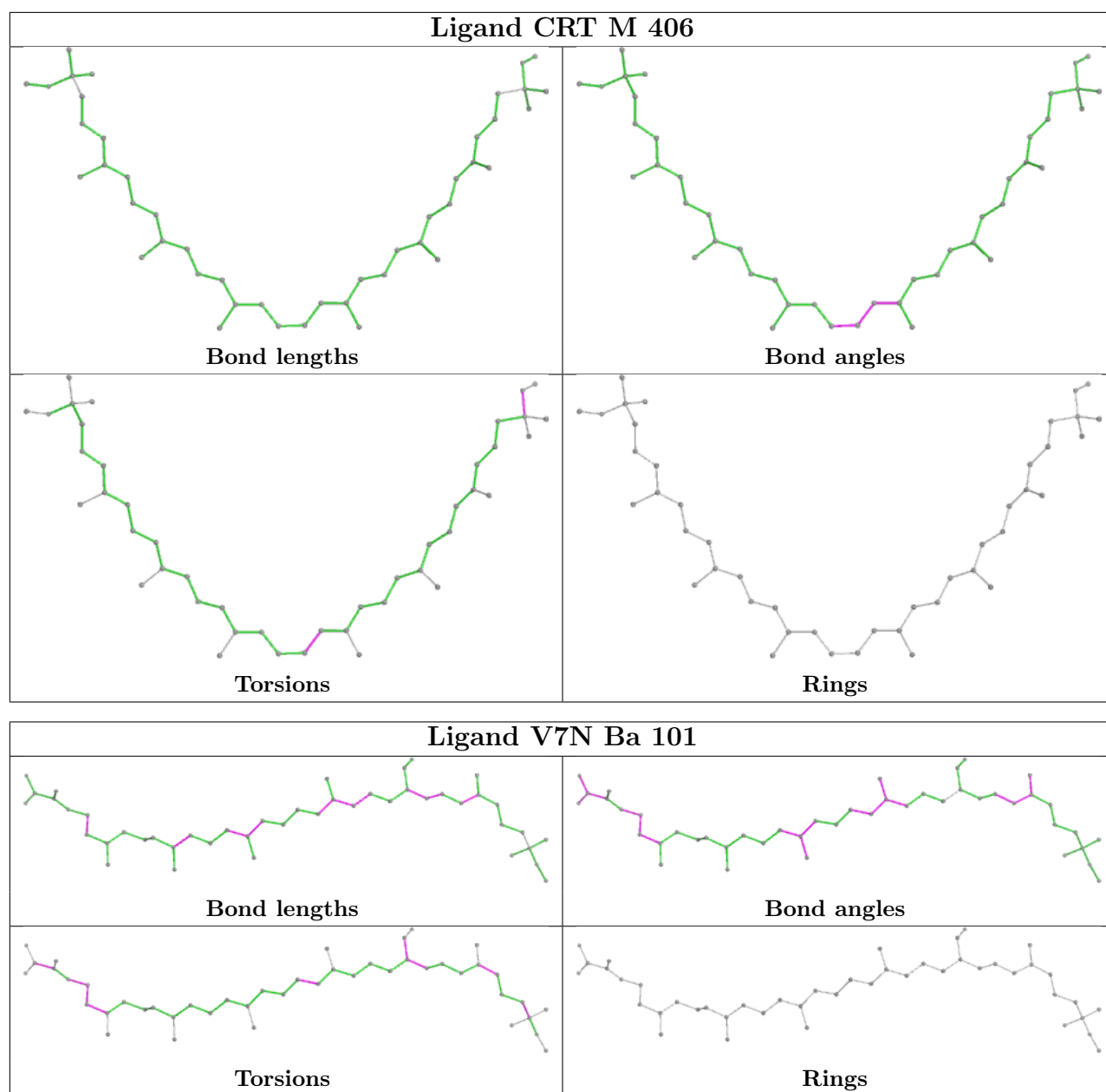
Ligand LMT Bo 1201

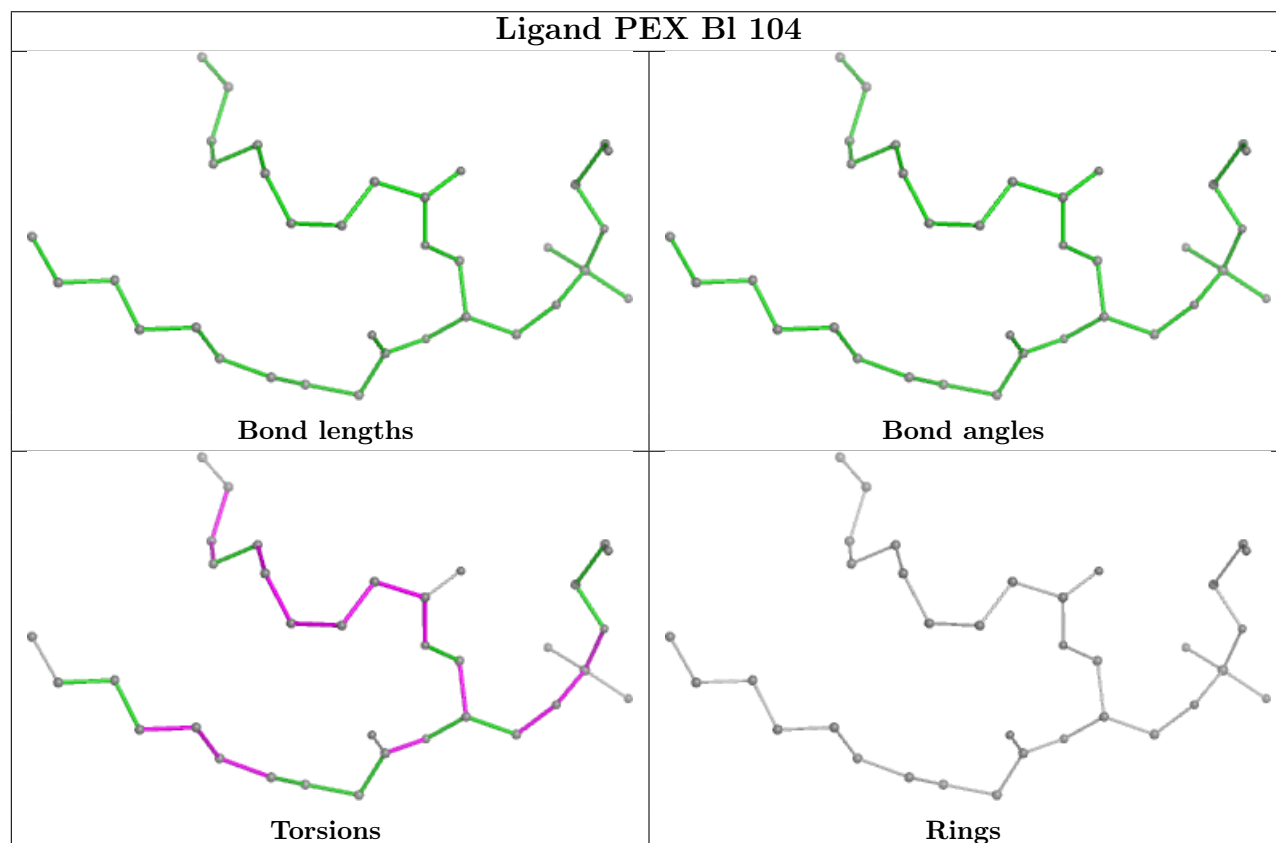
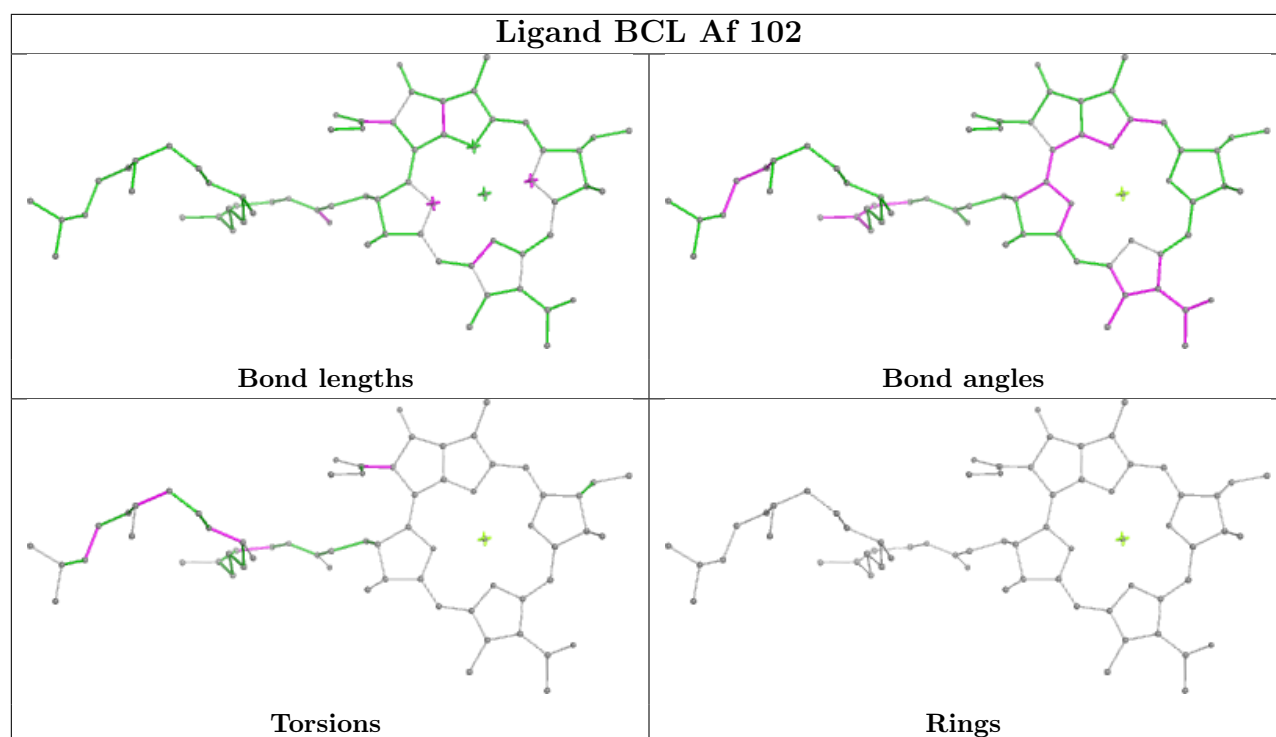


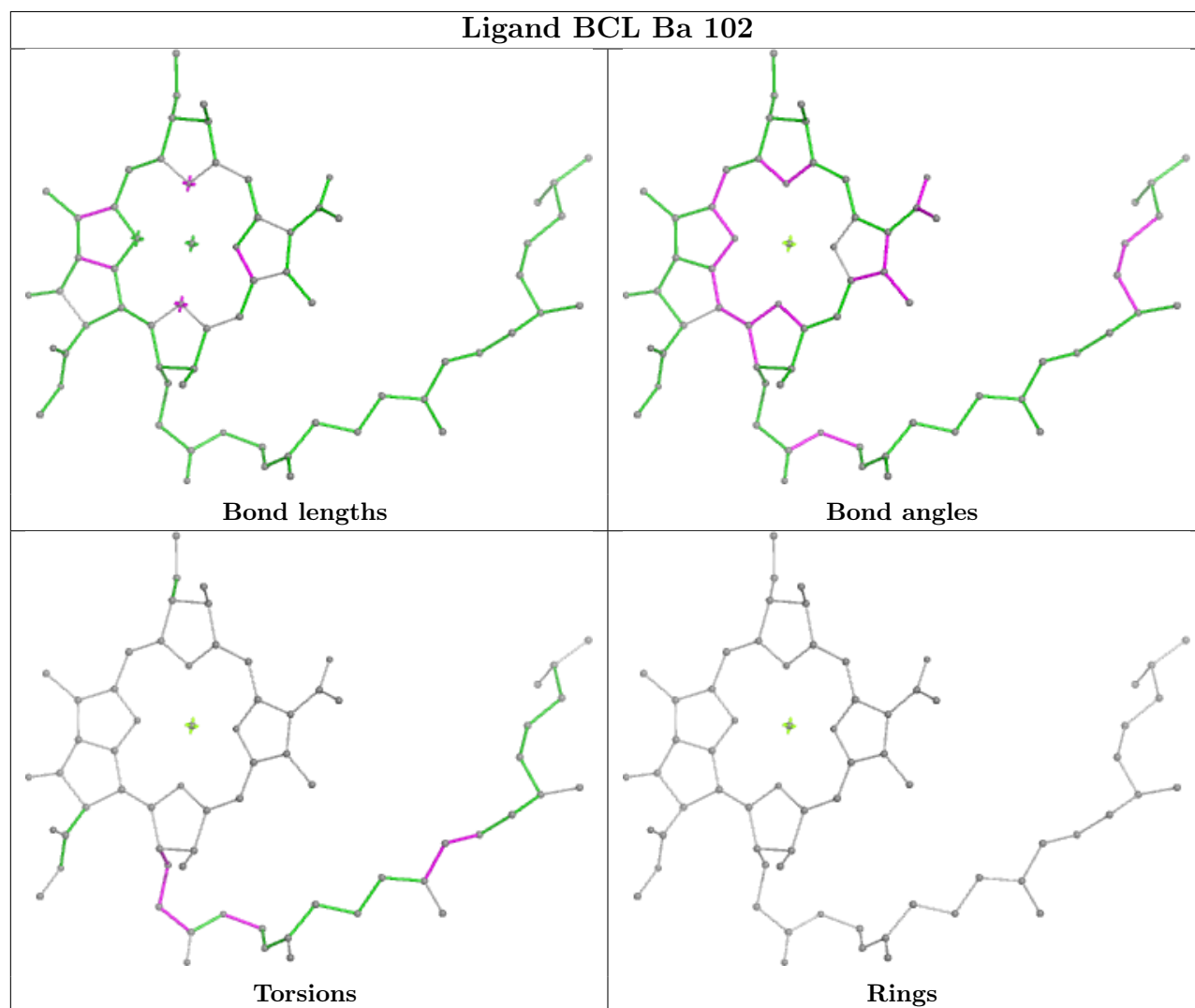
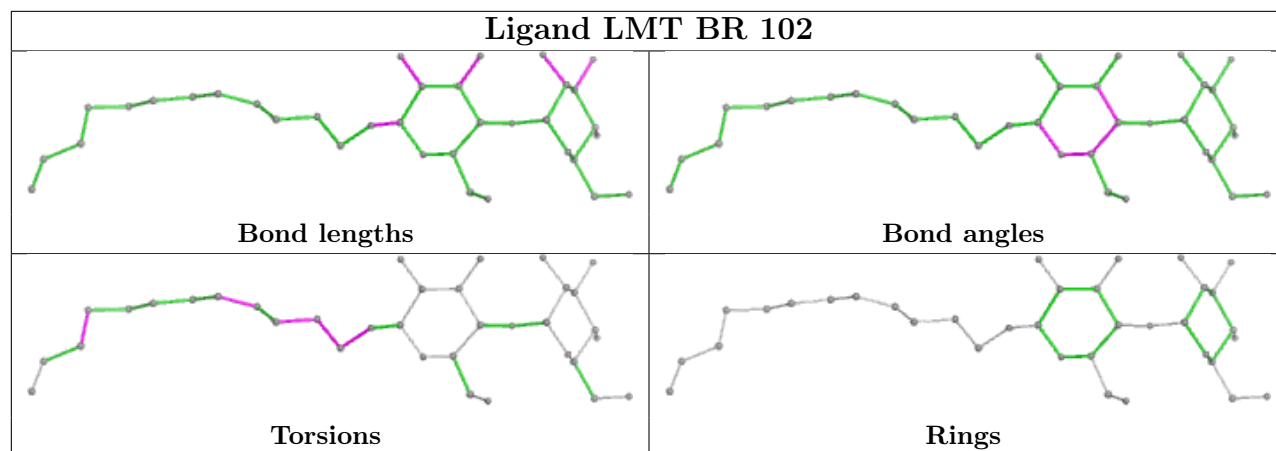


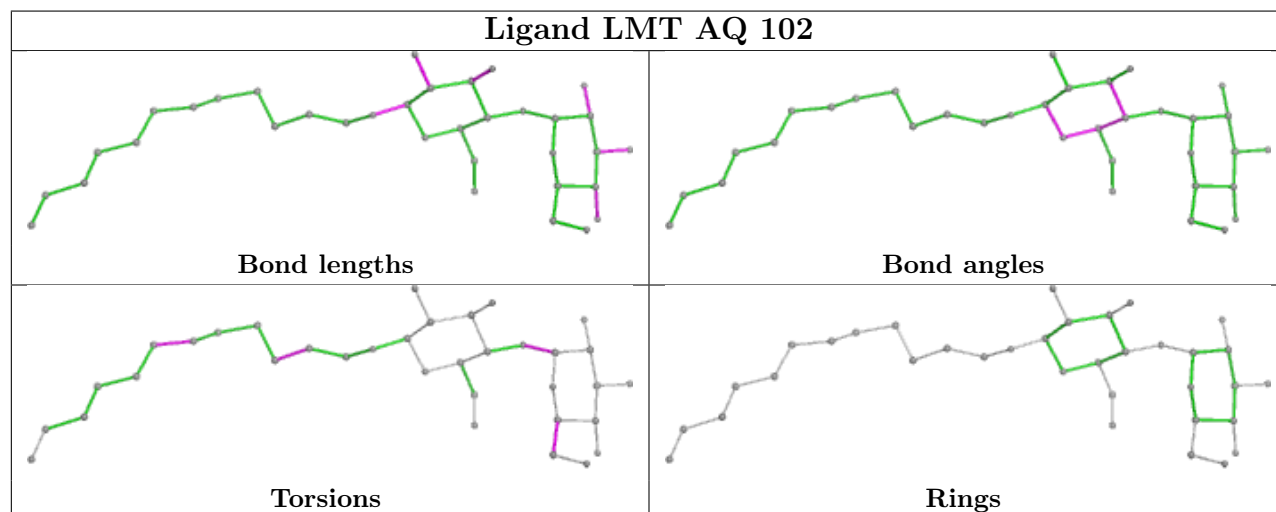
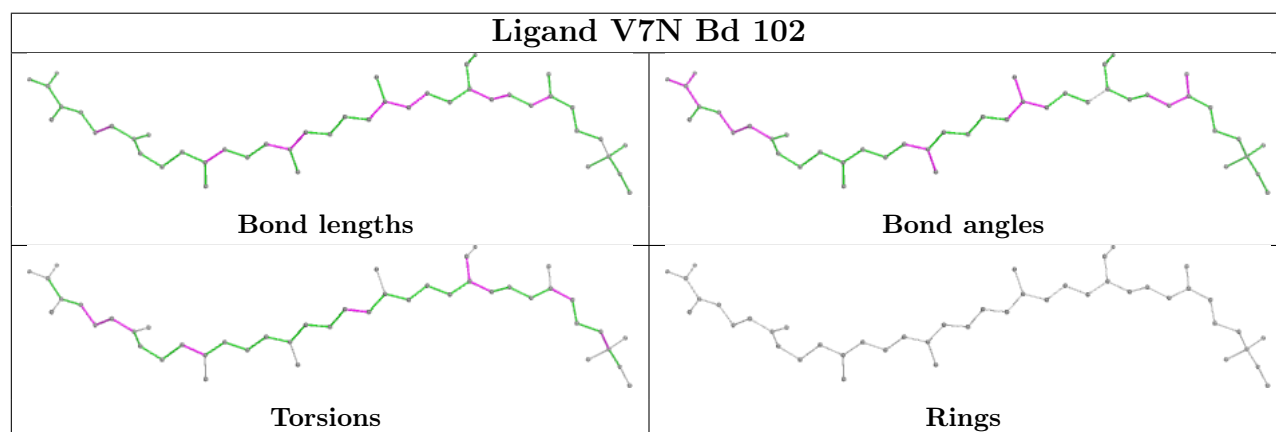
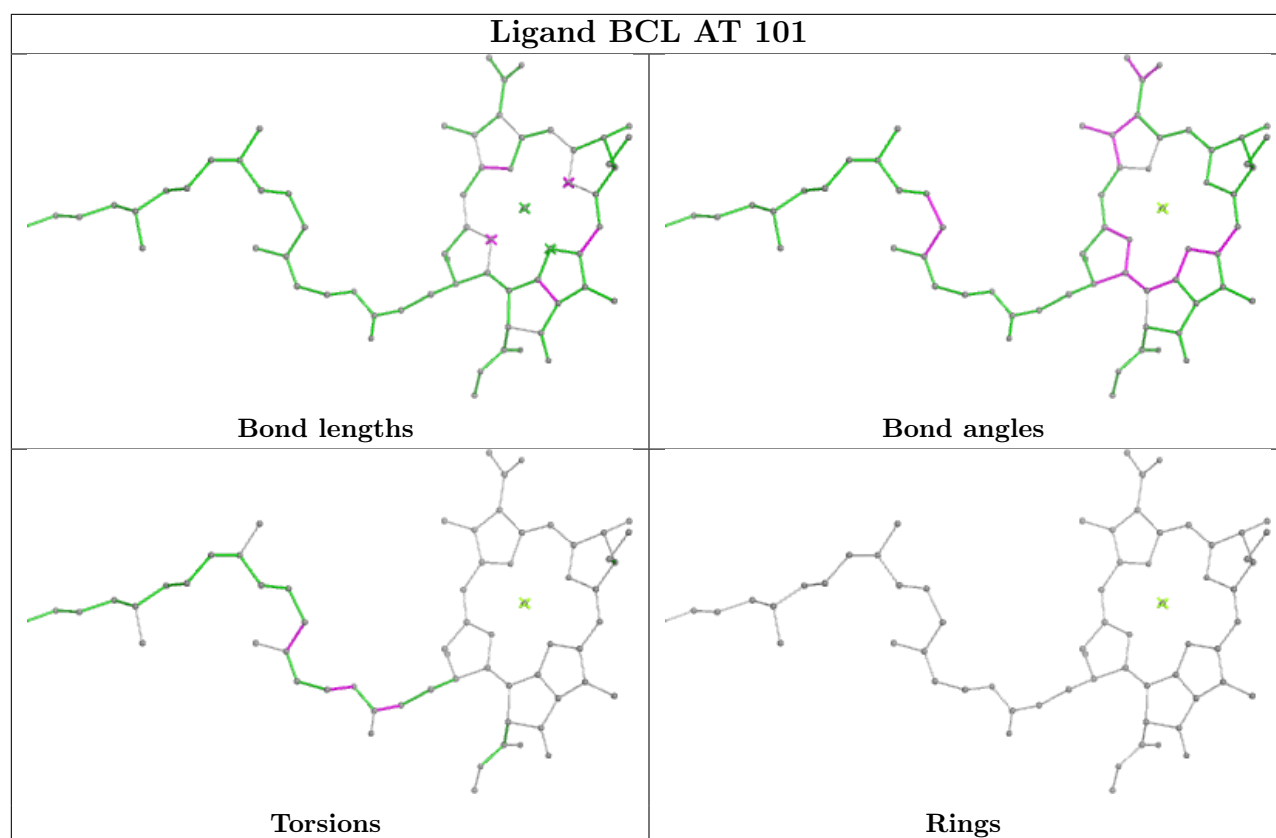
Ligand BCL BQ 101

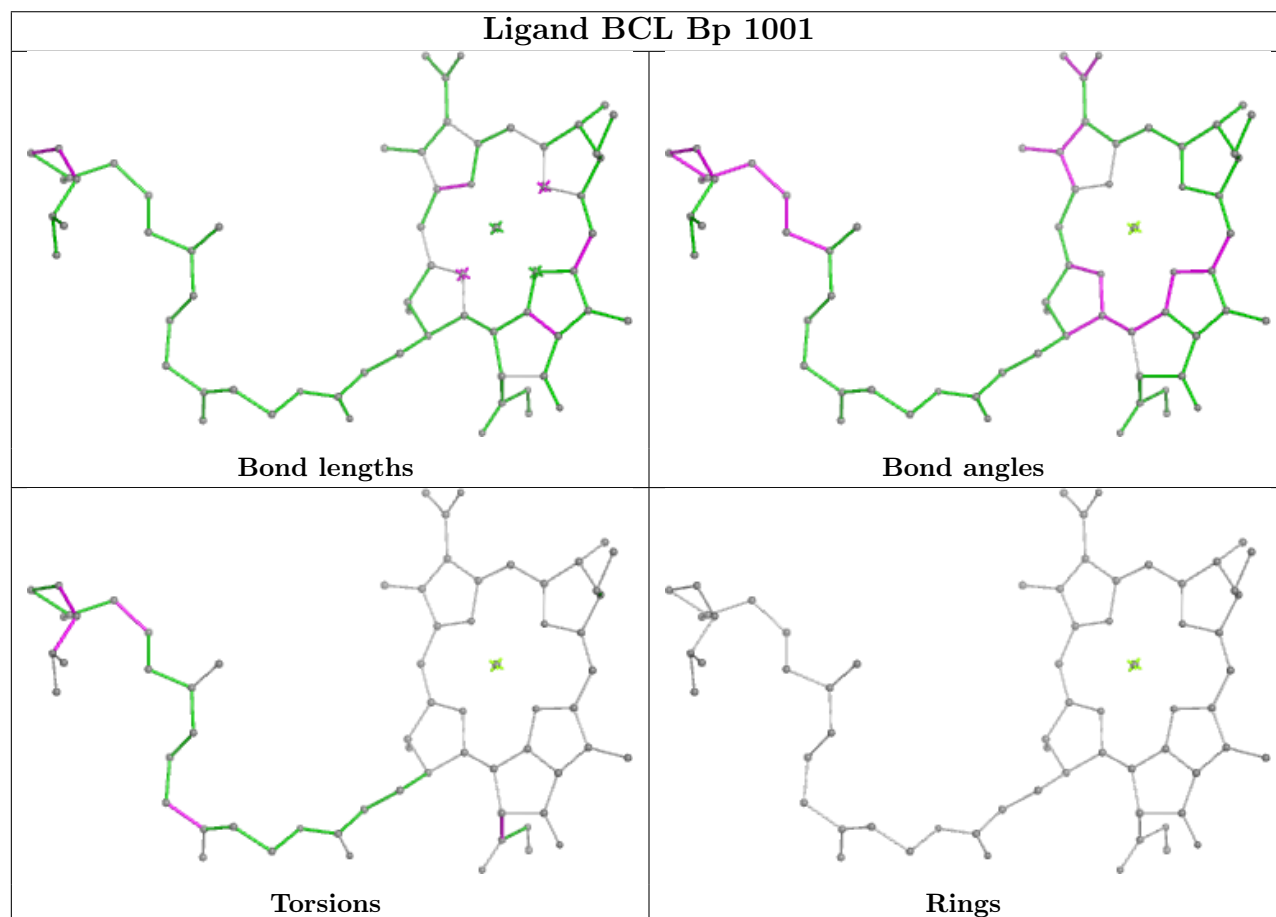
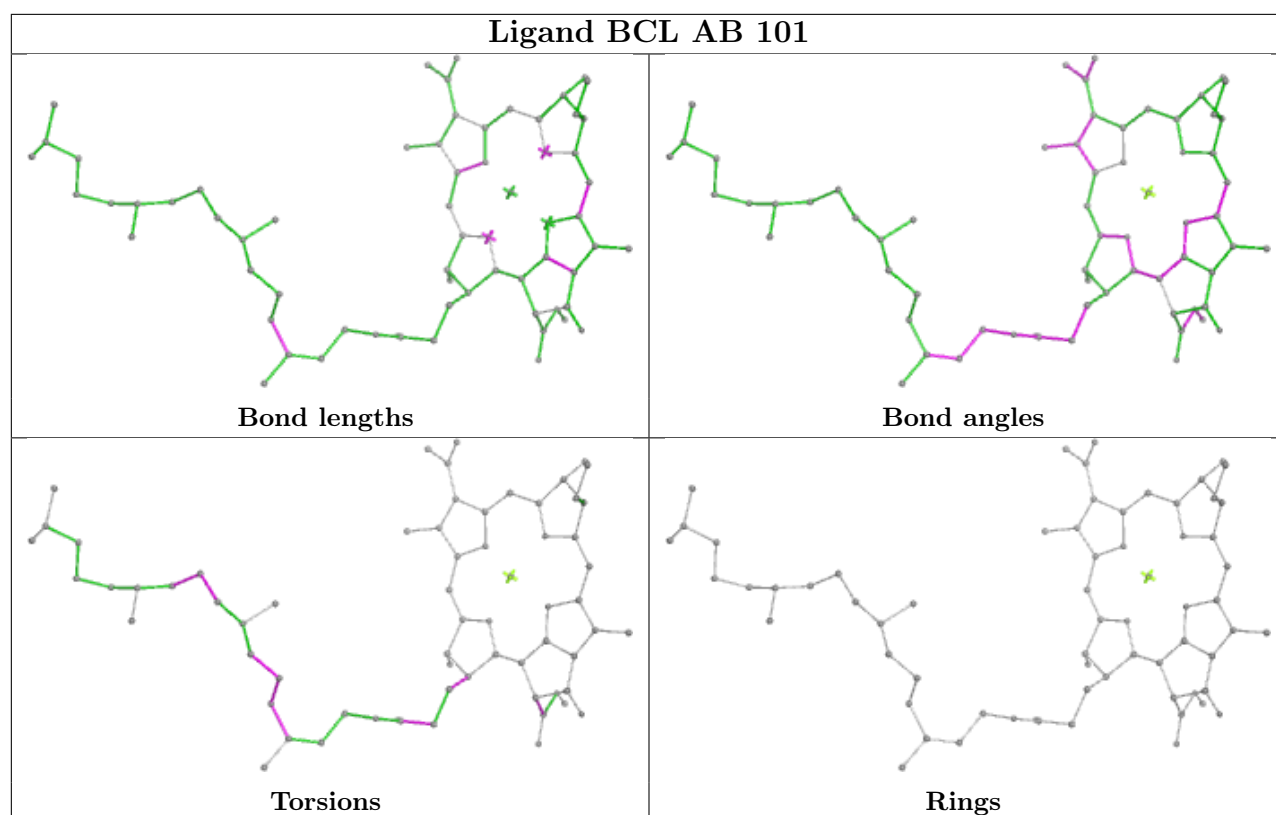


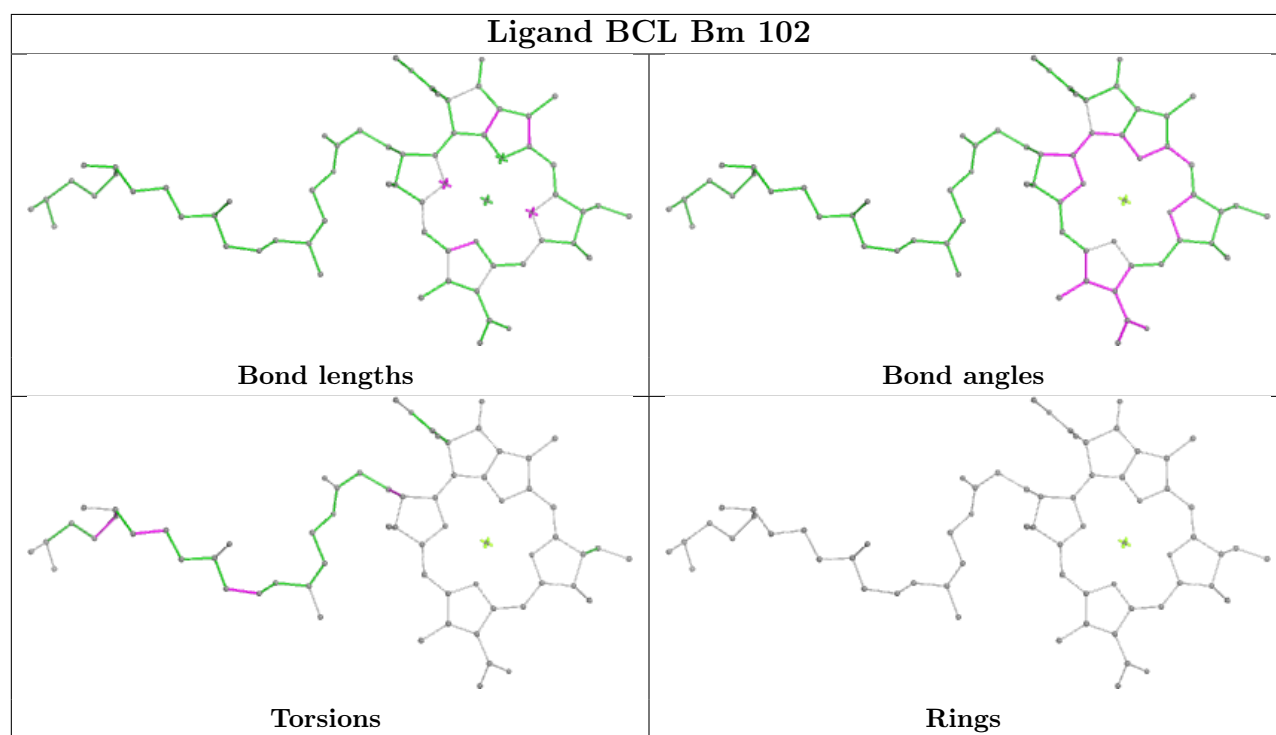
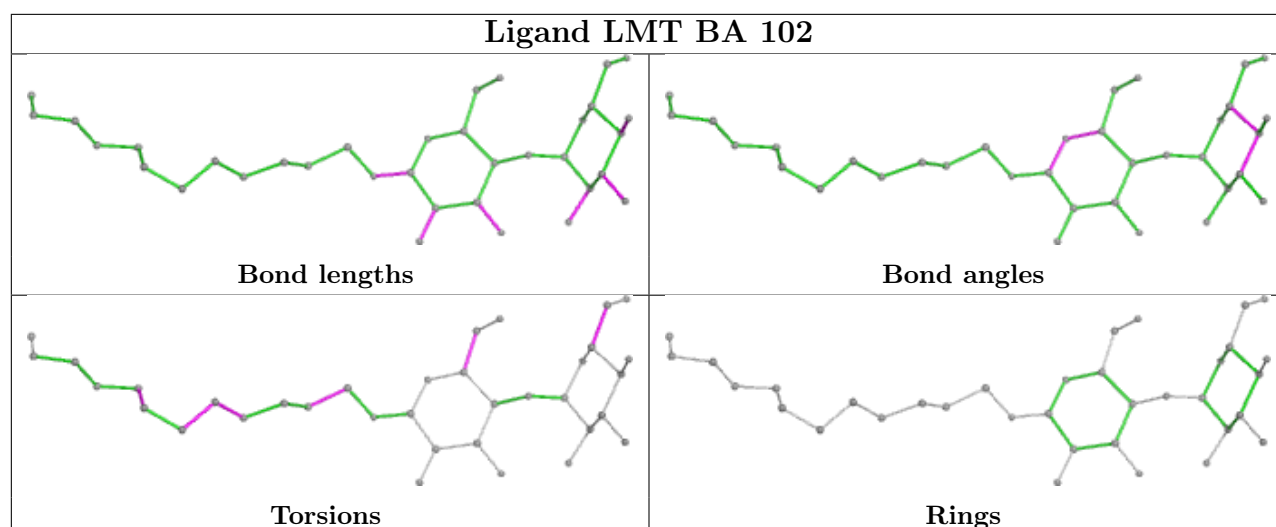


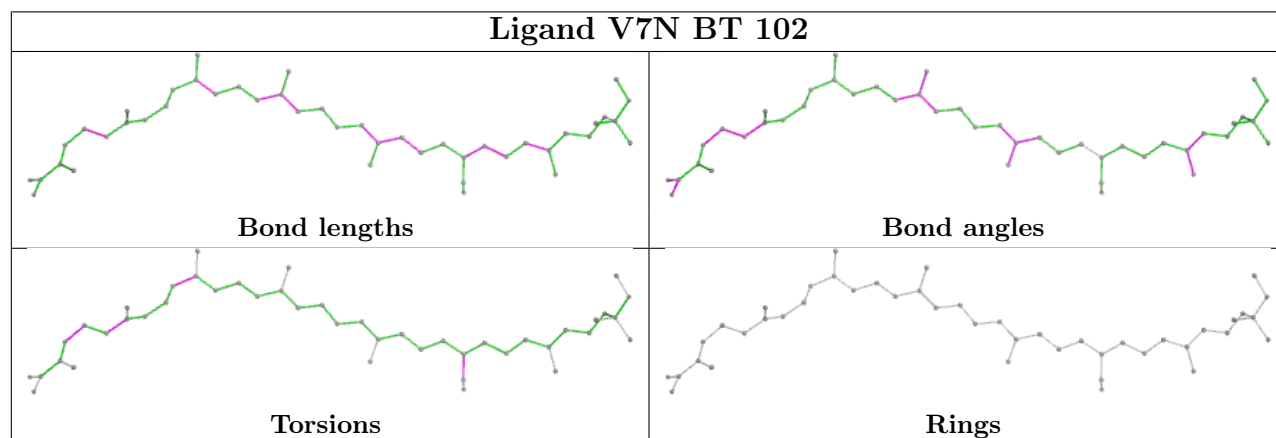
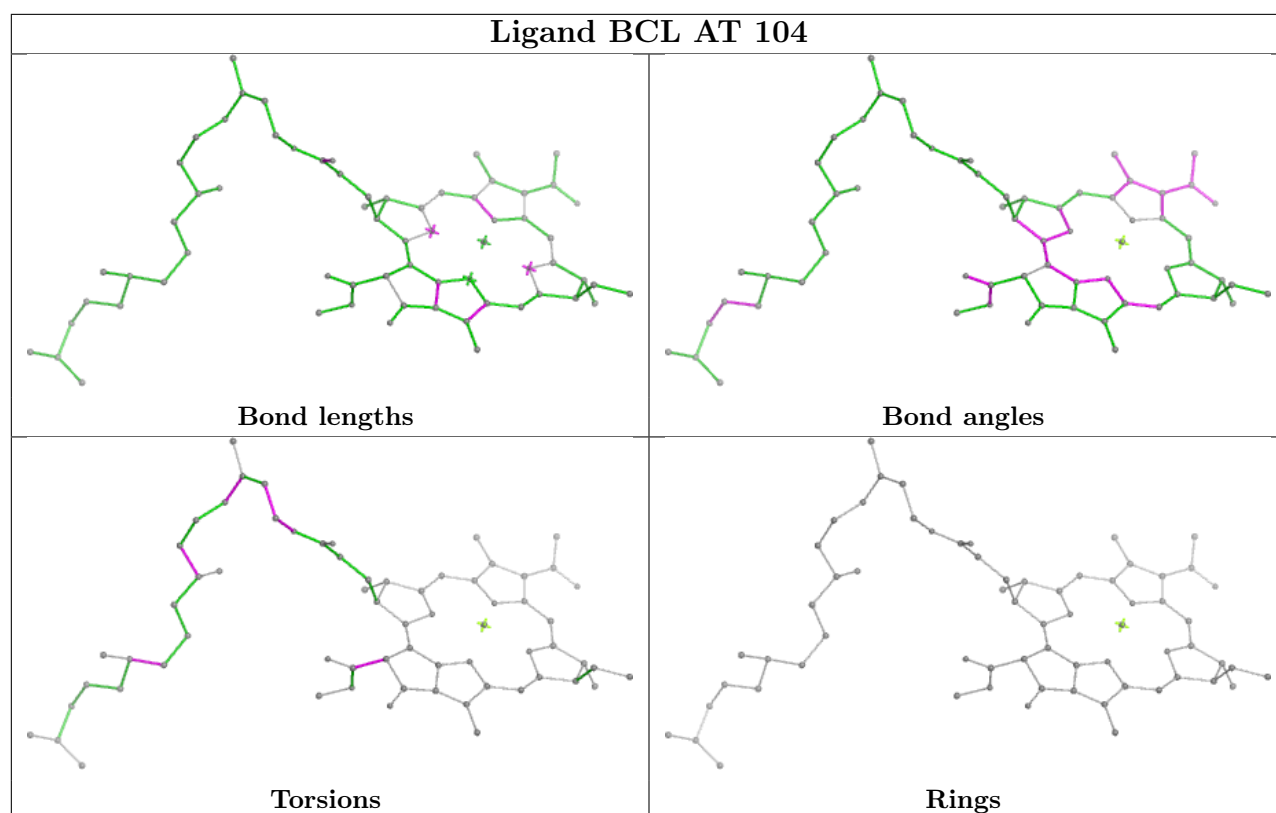


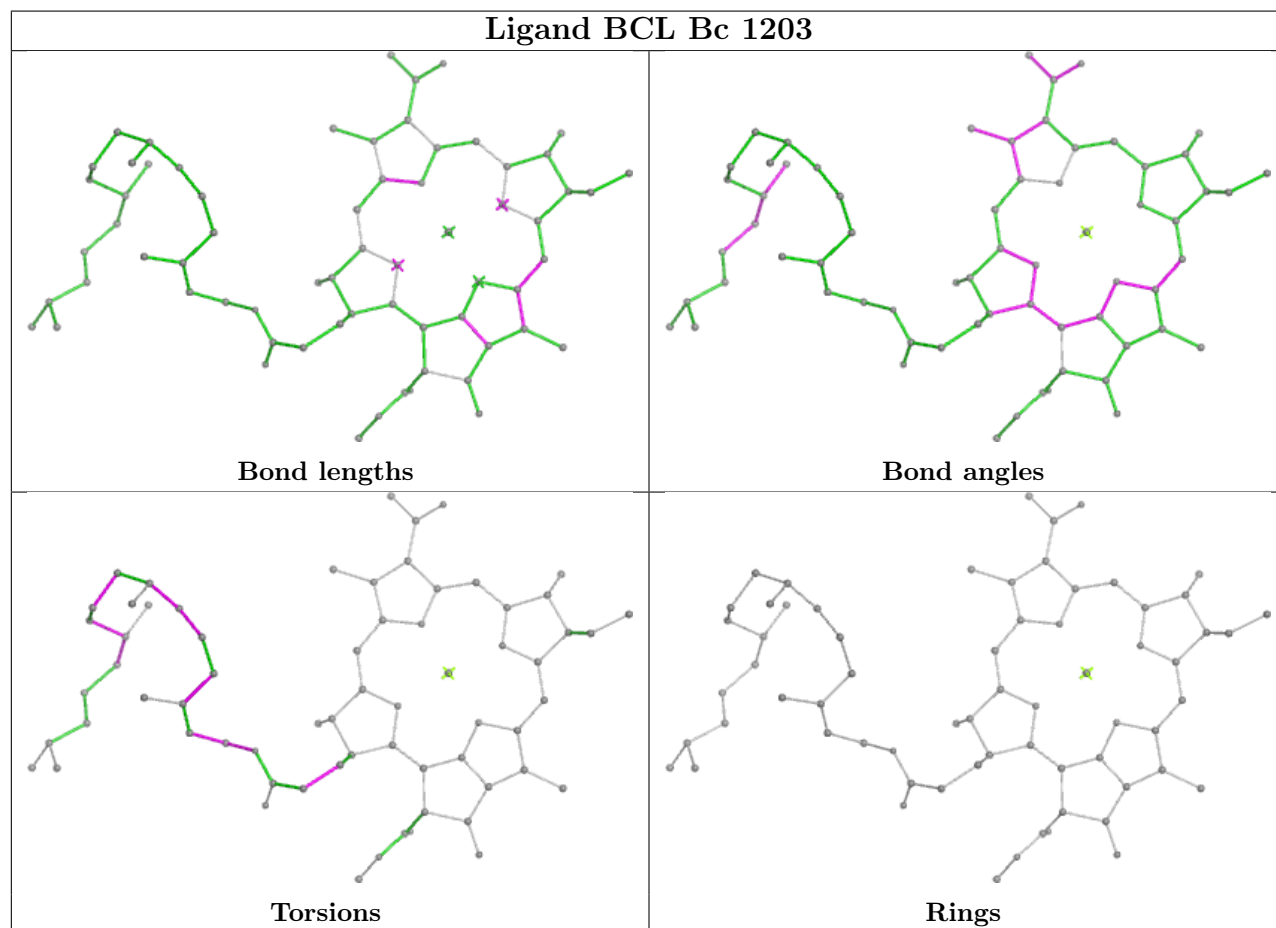
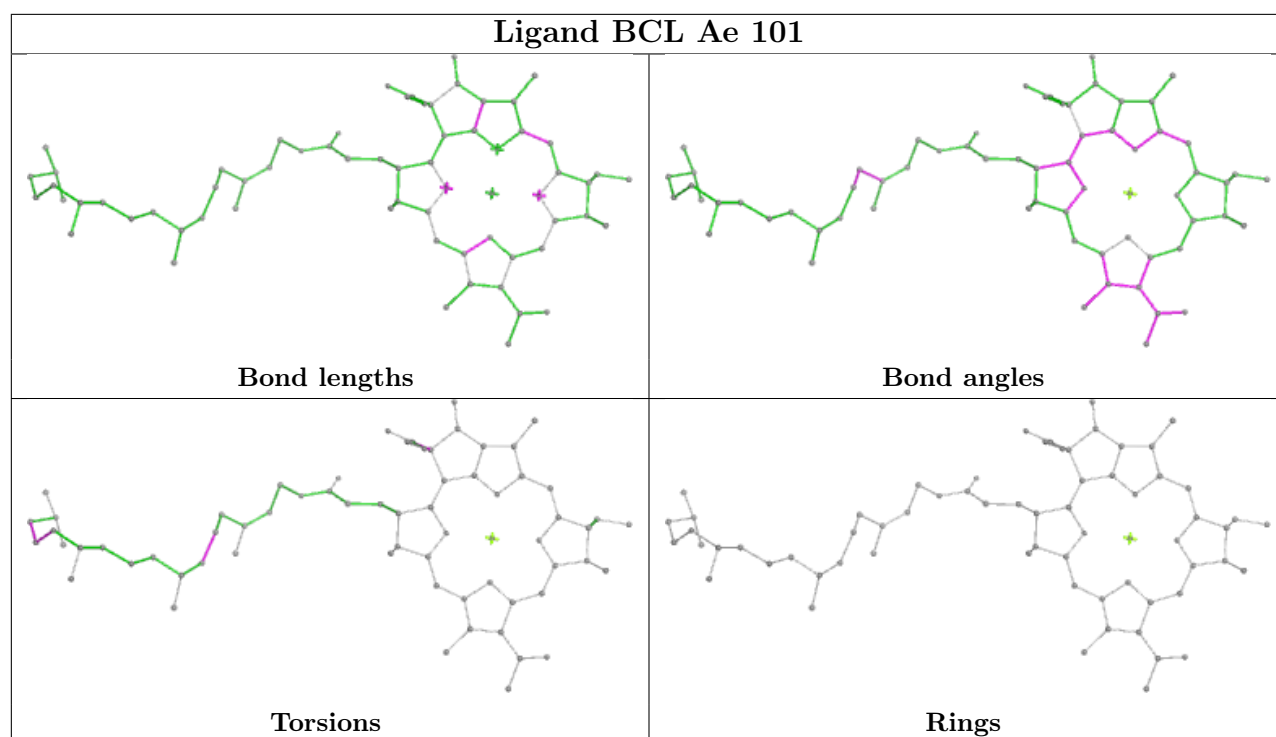


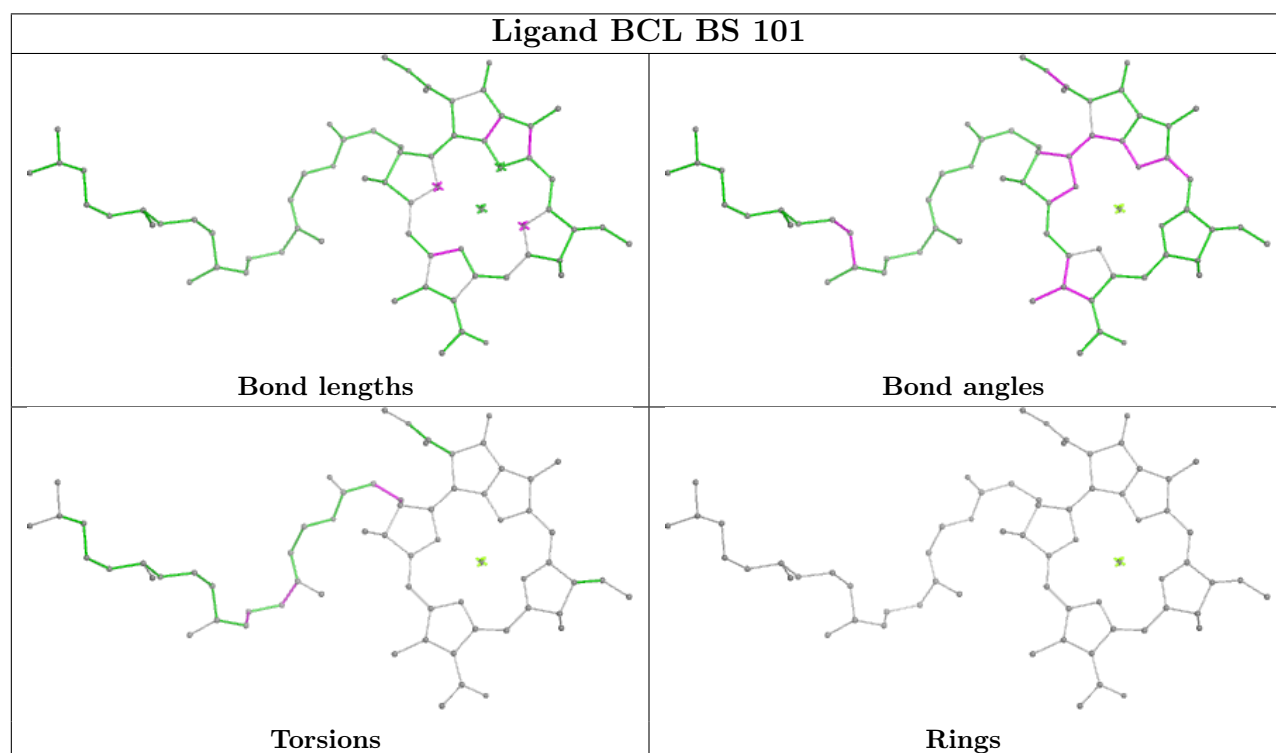
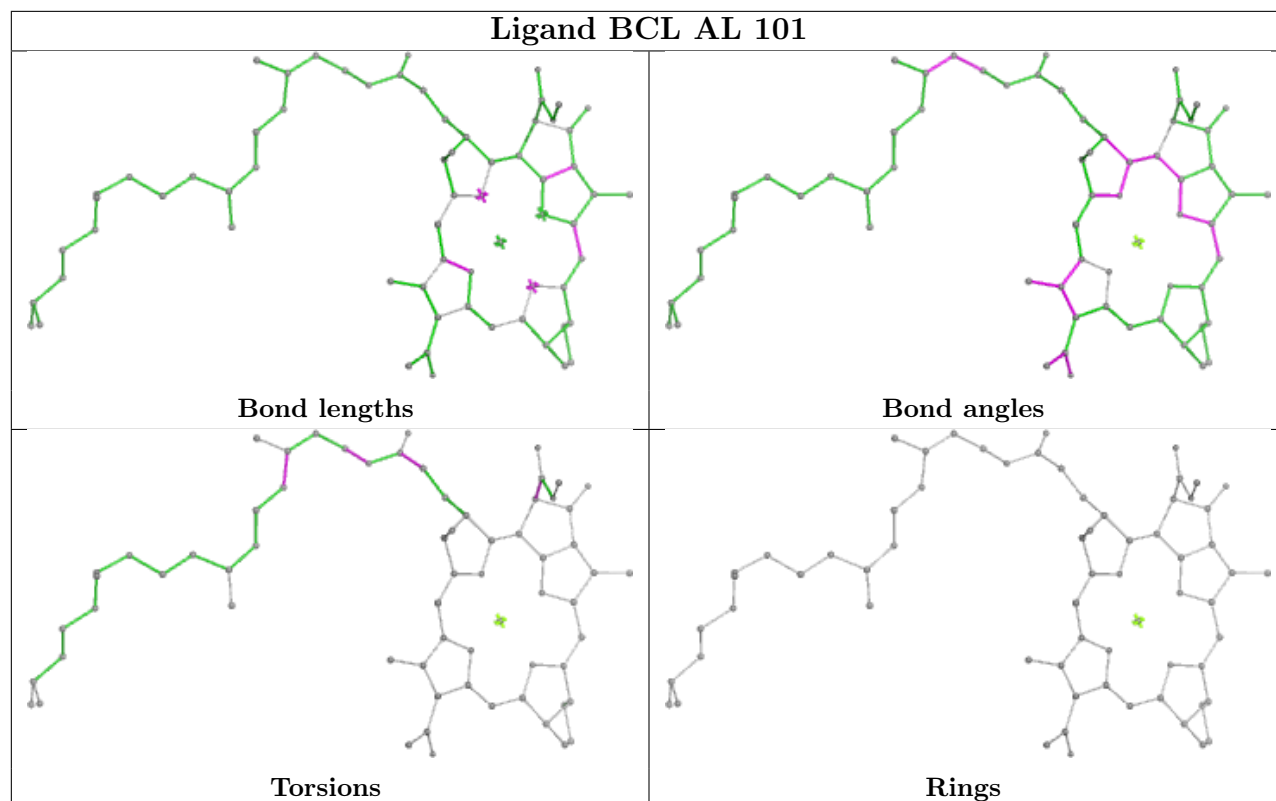


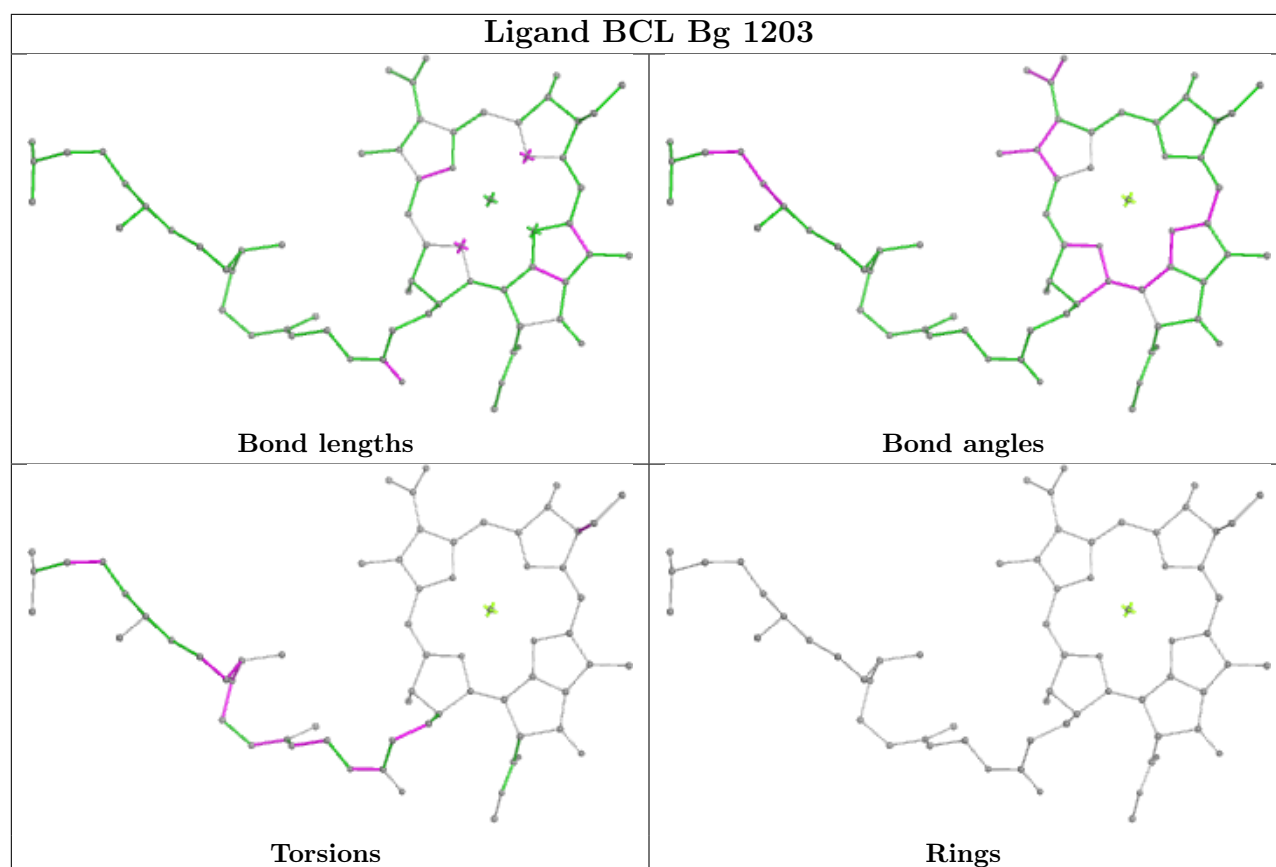




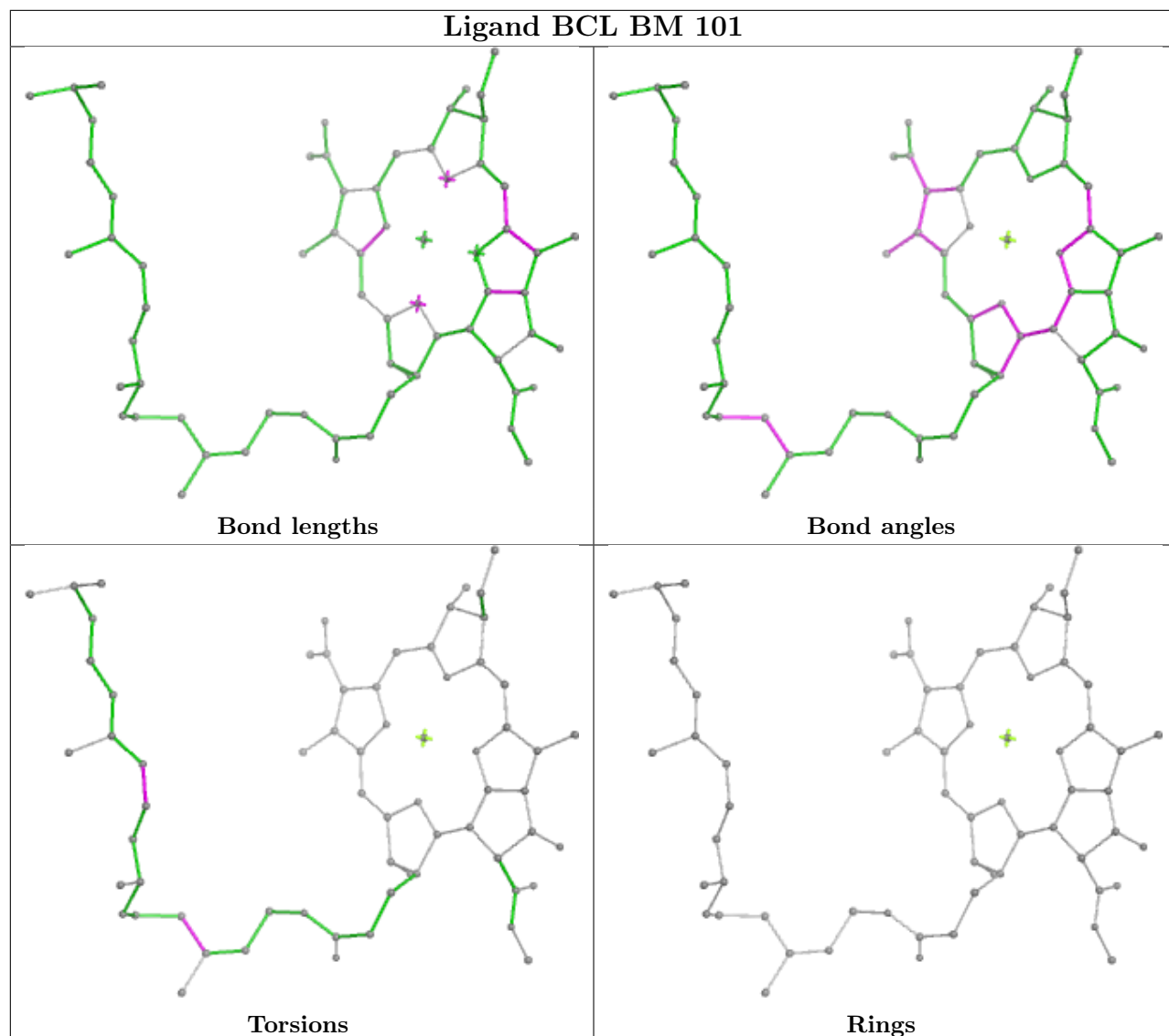


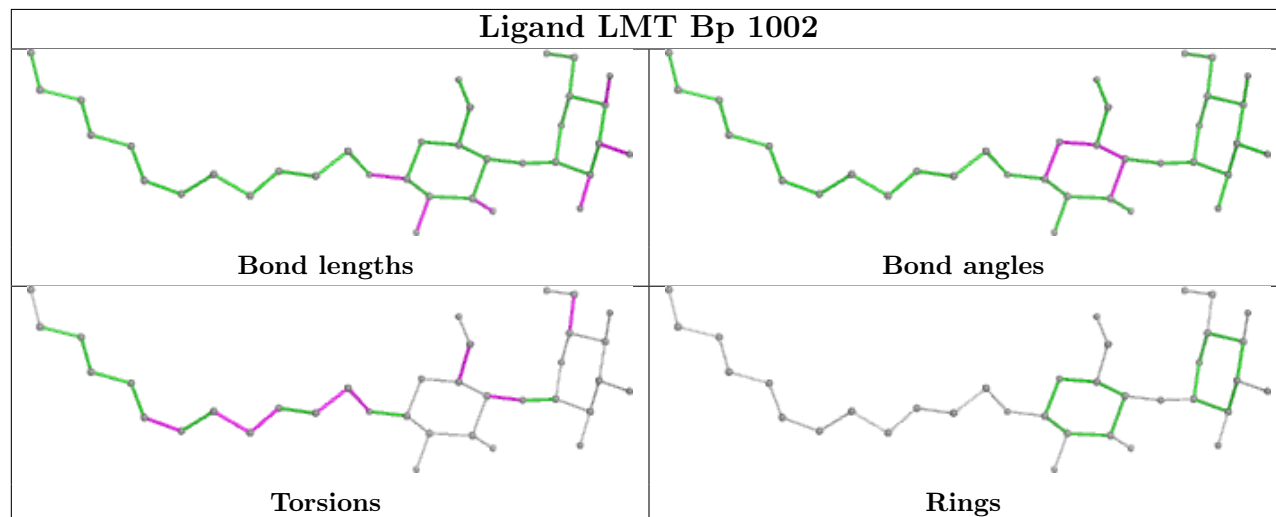
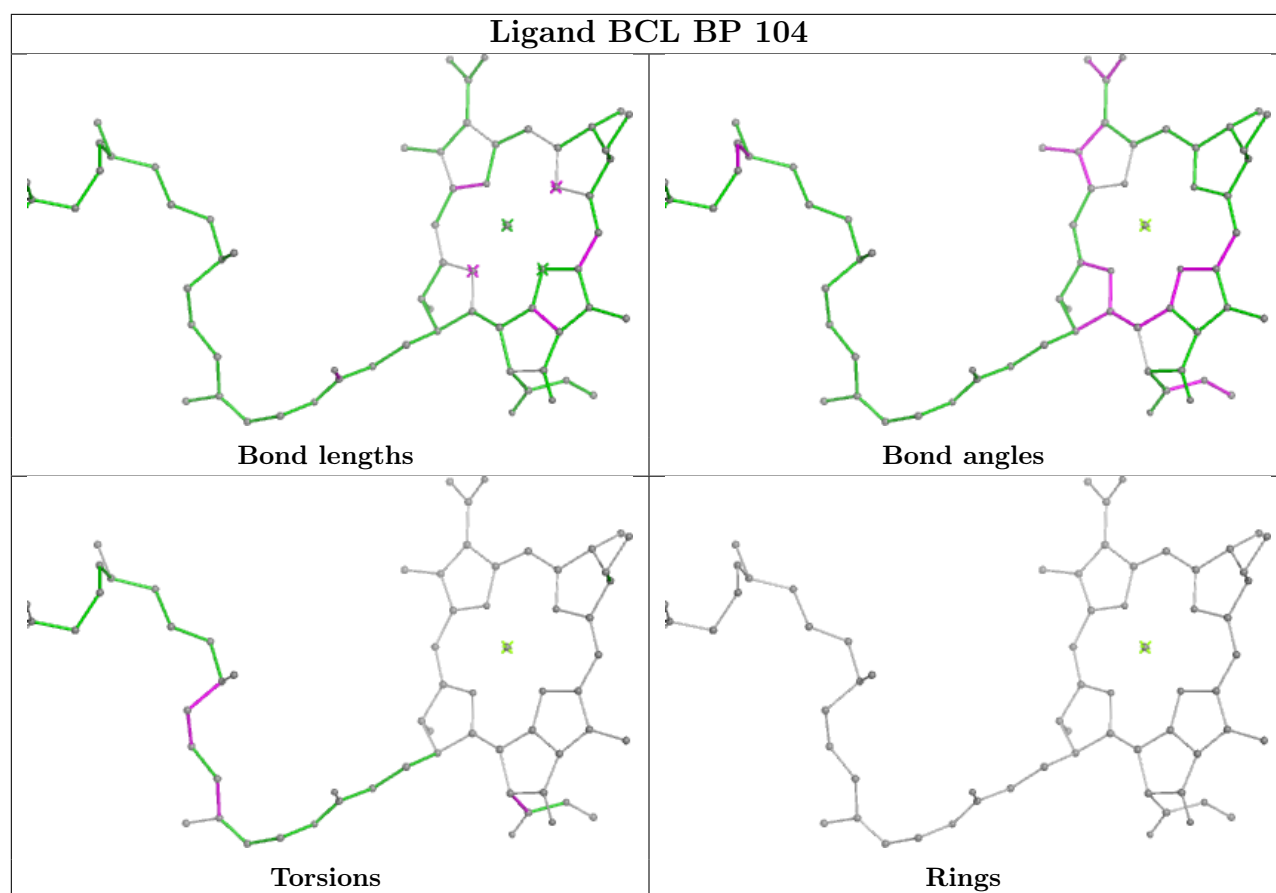


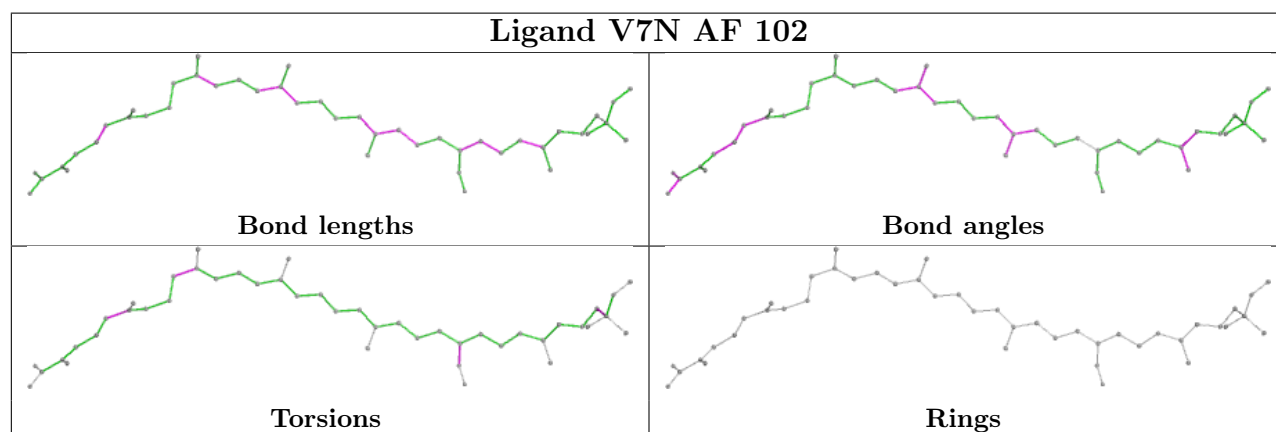
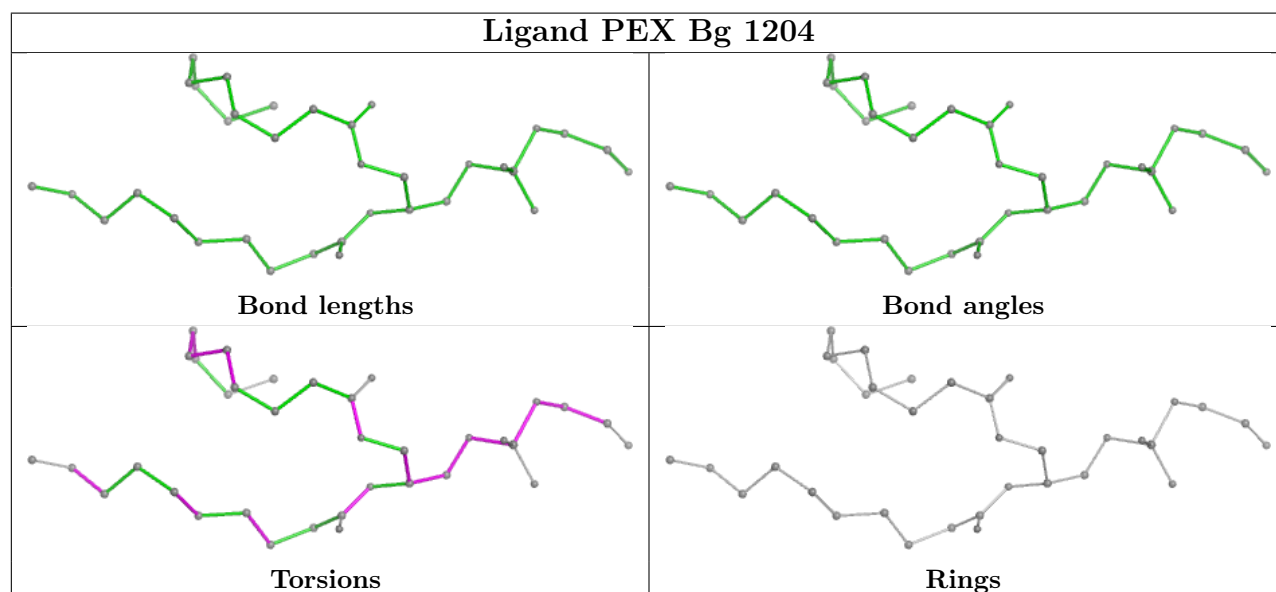
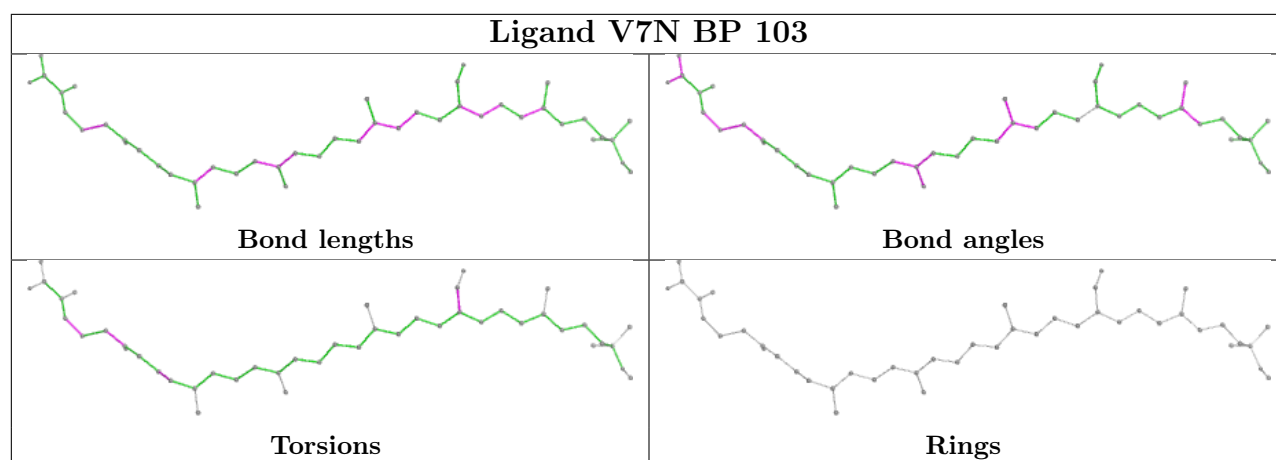


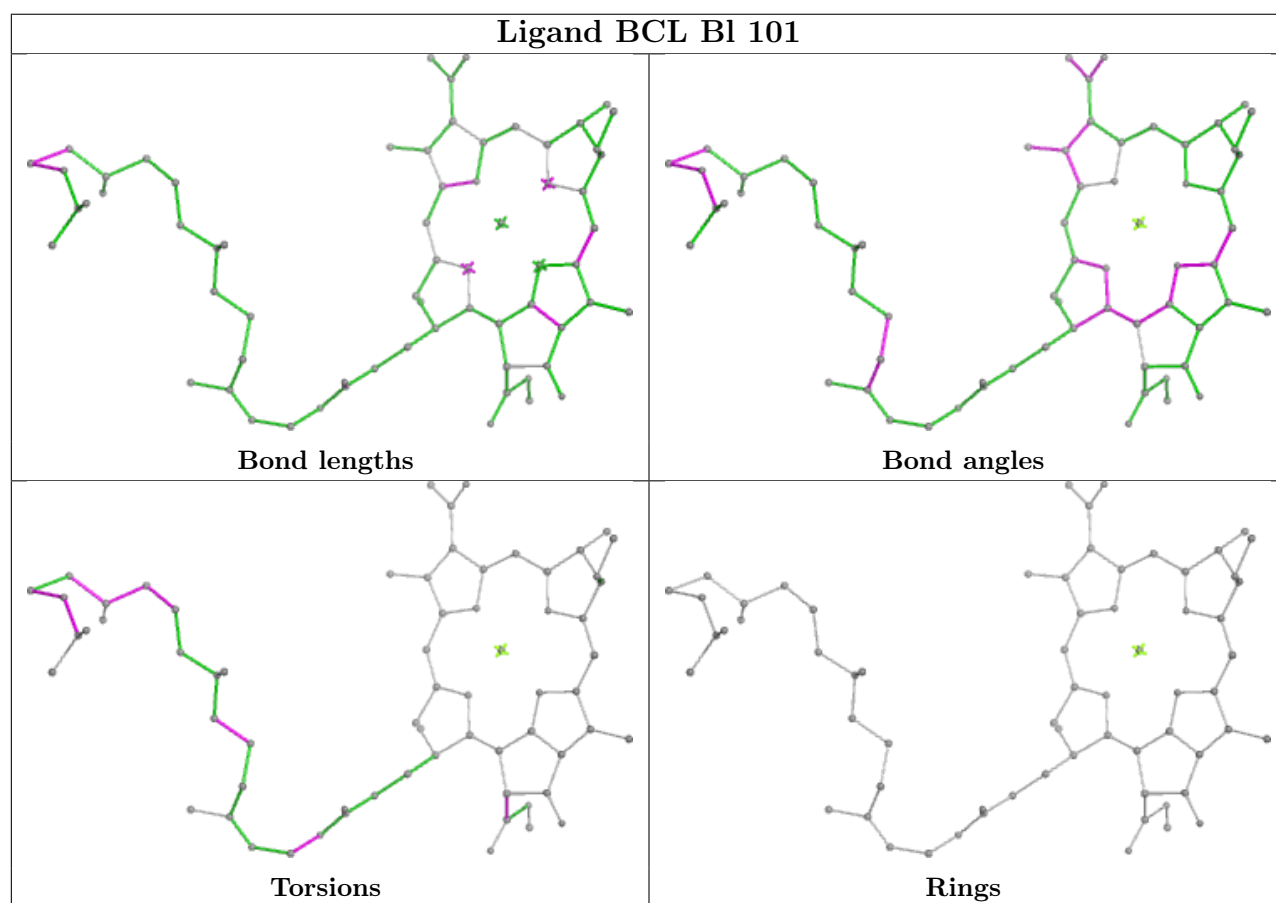
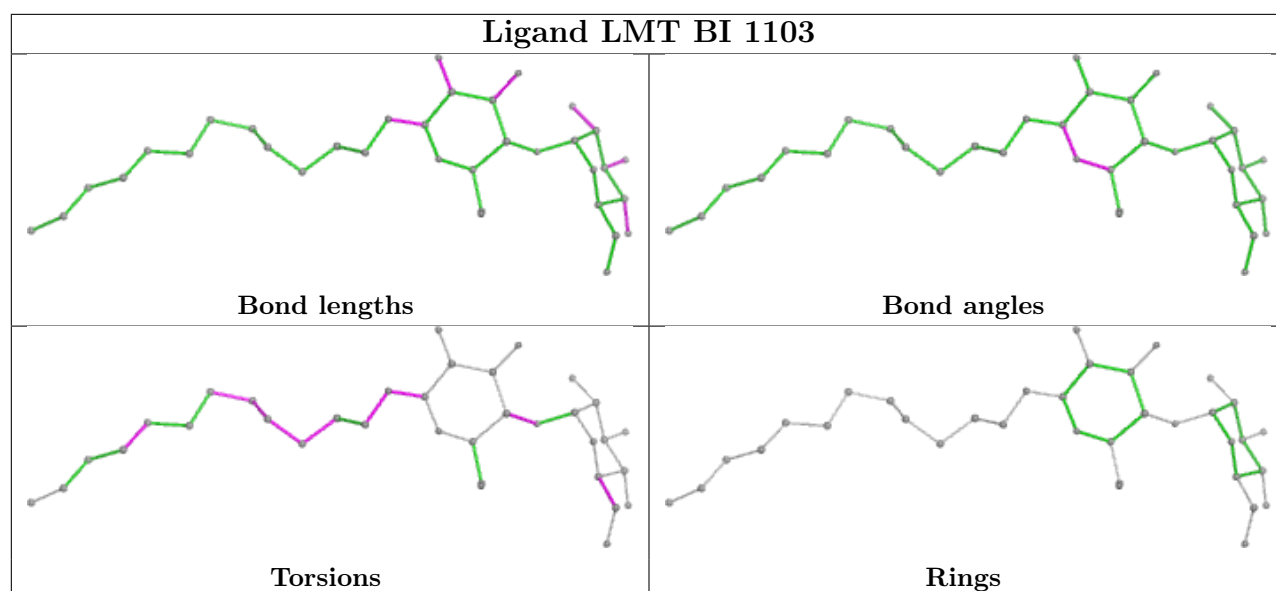


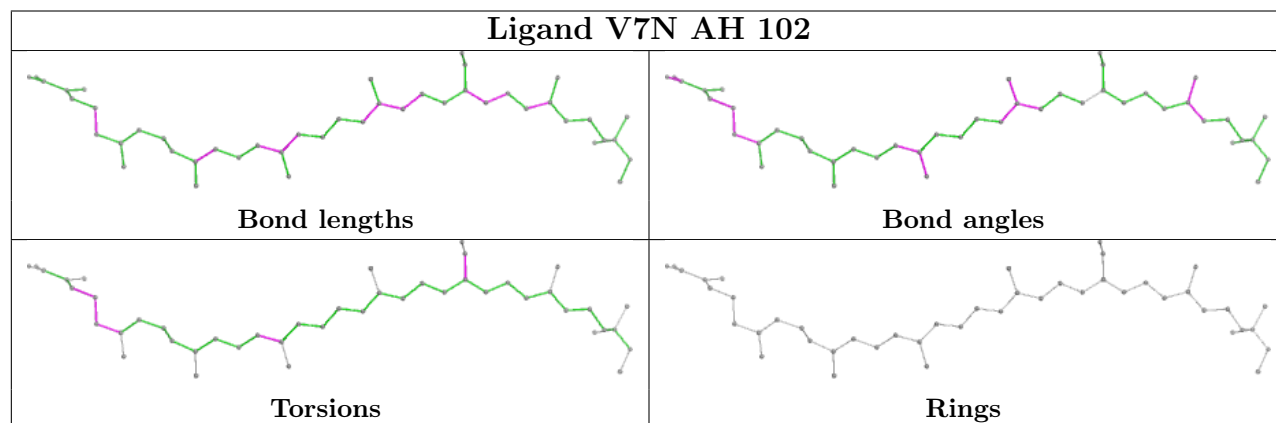
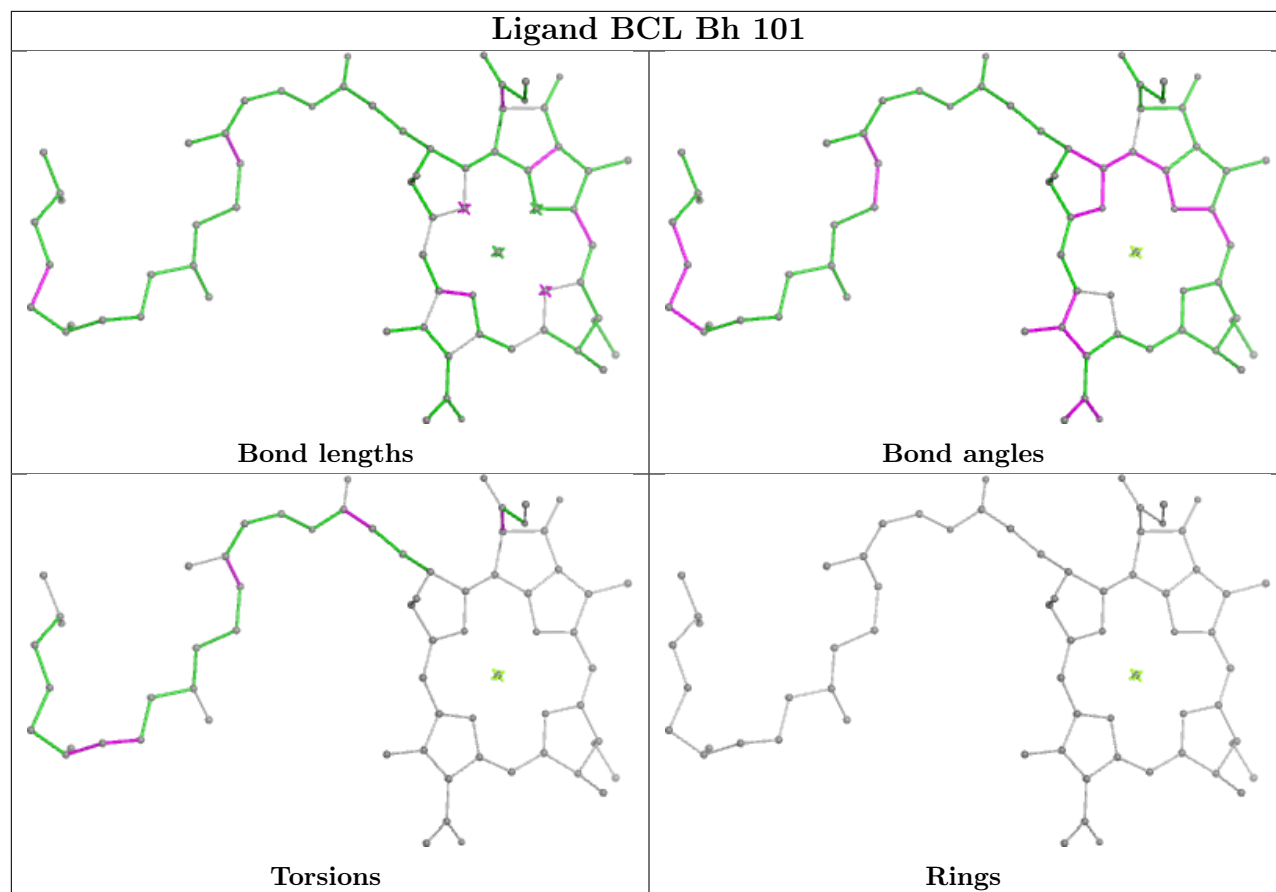
Ligand BCL BM 101

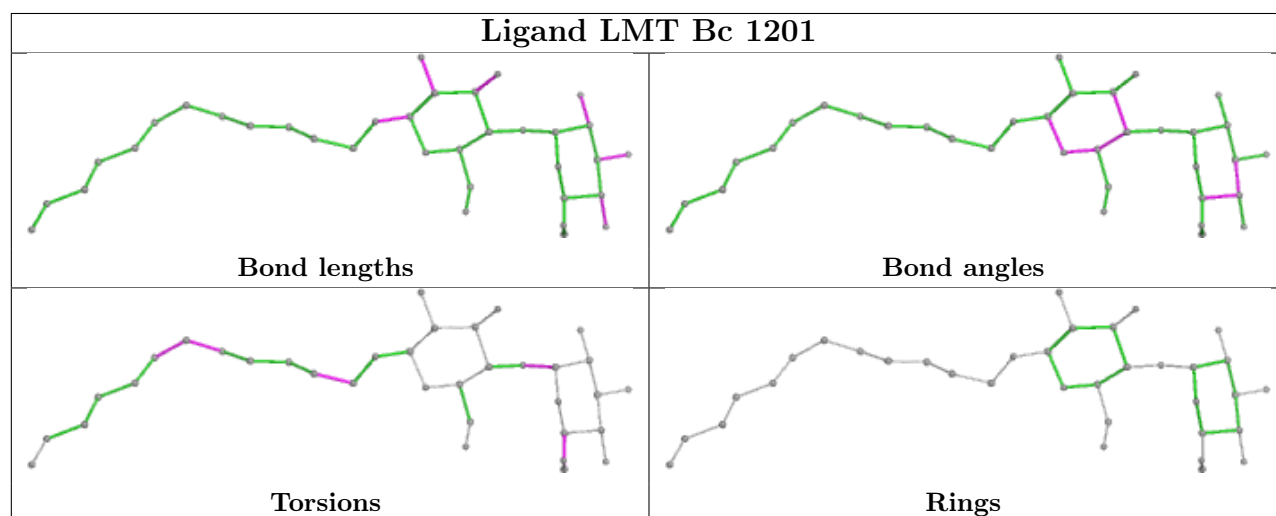
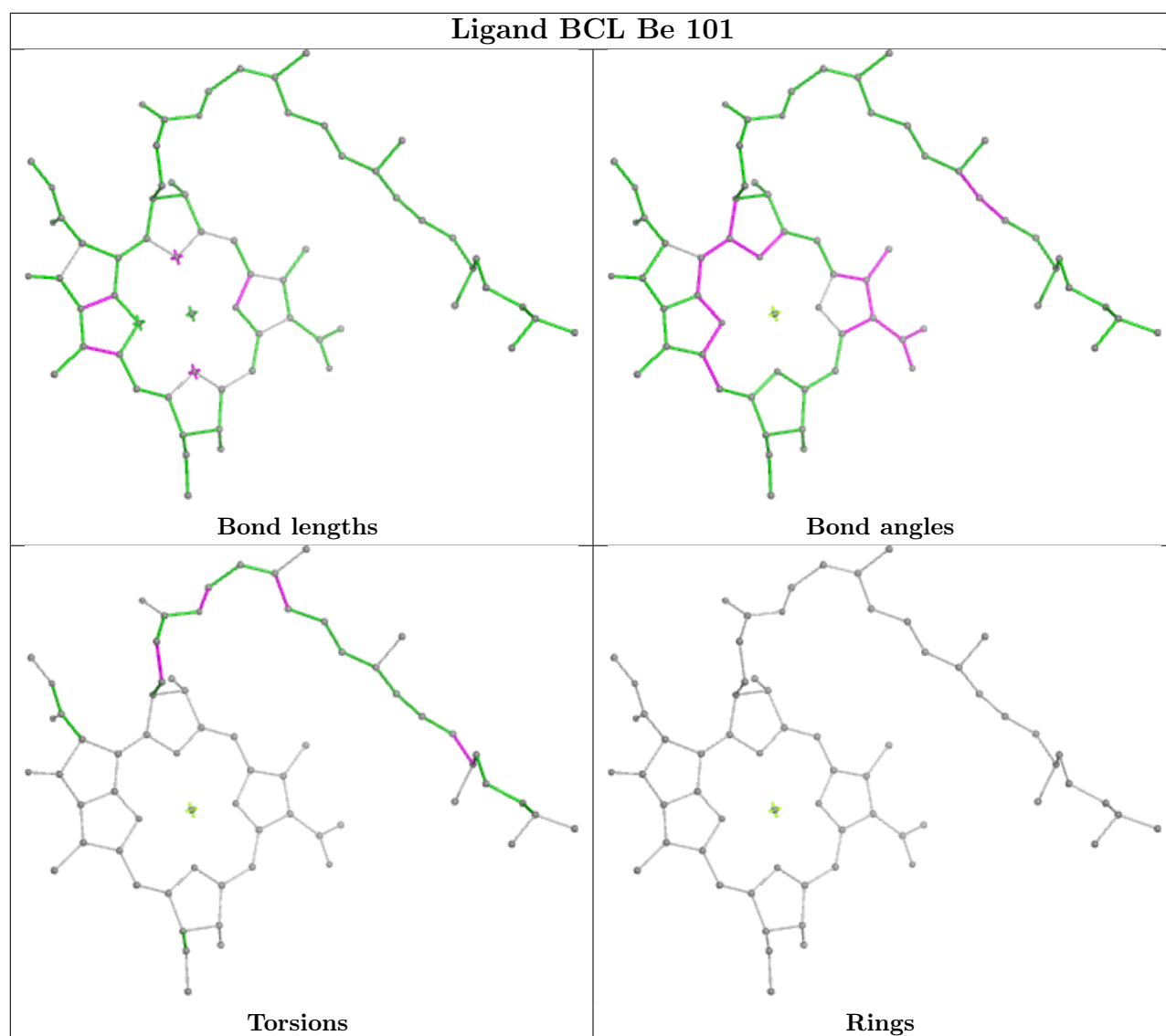


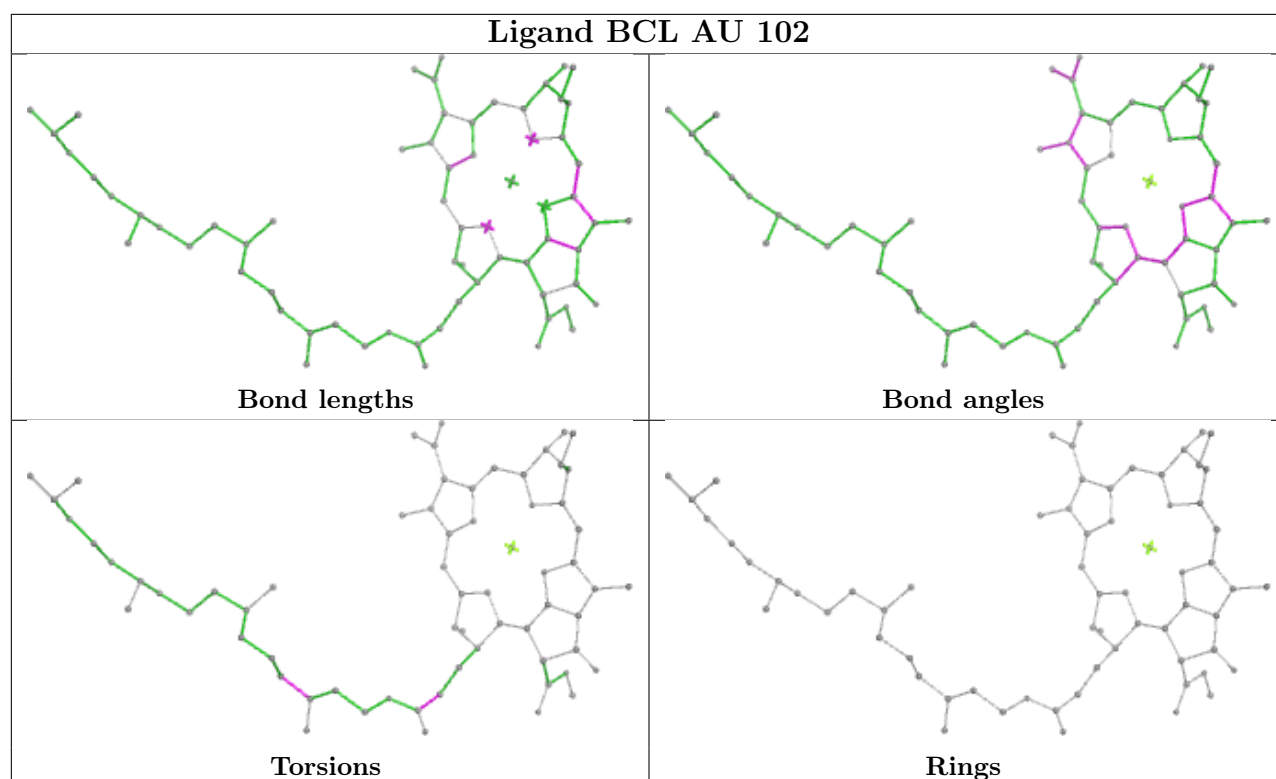


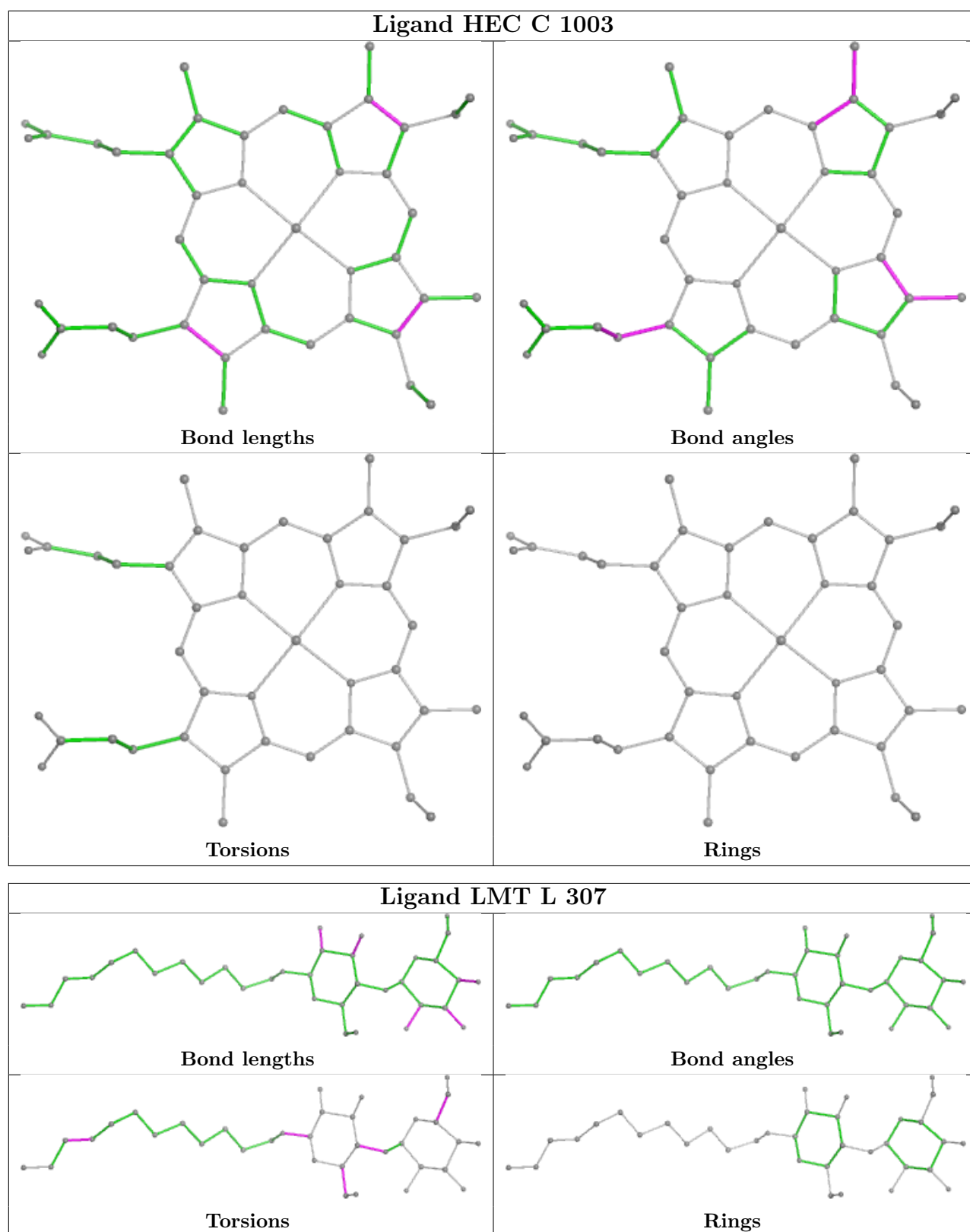


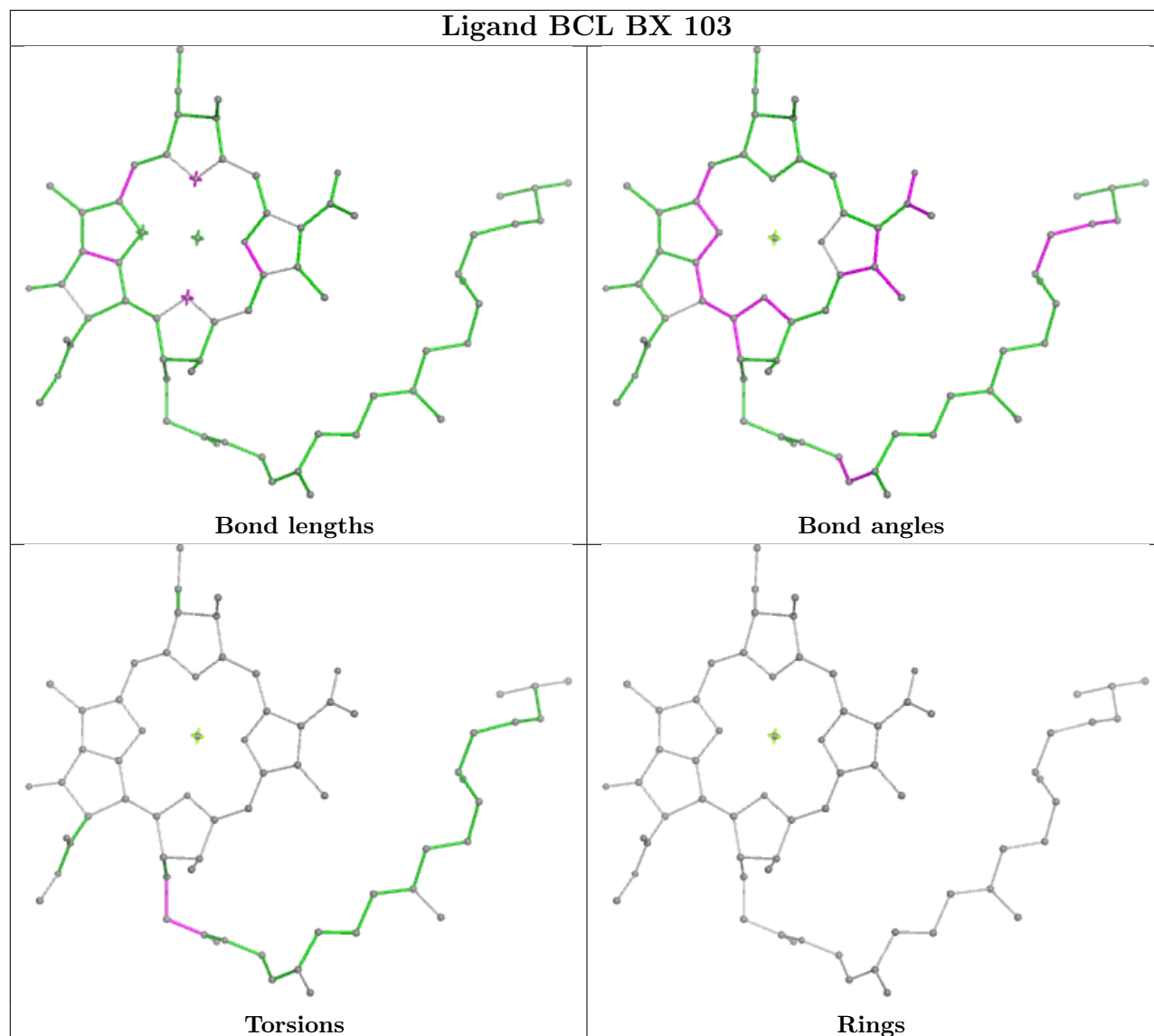
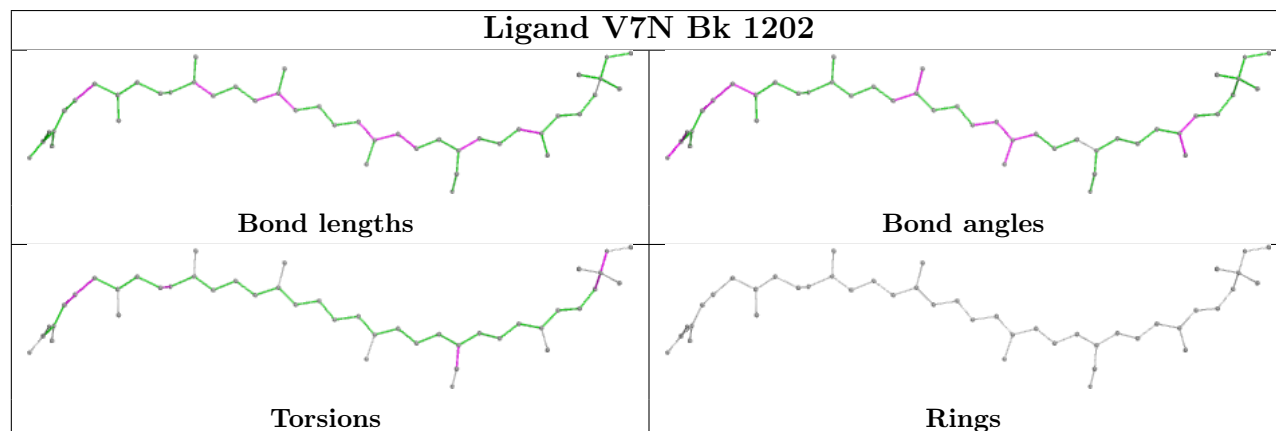


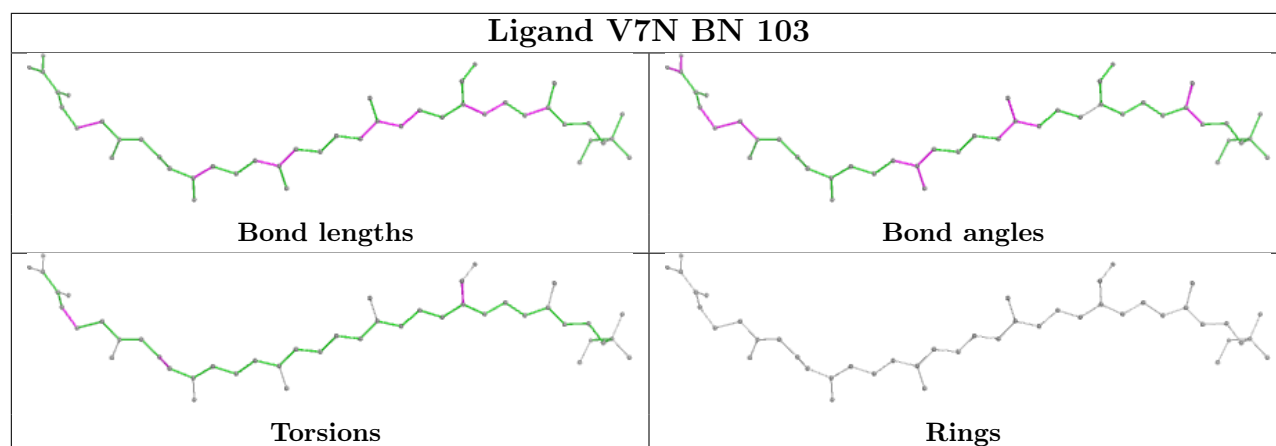
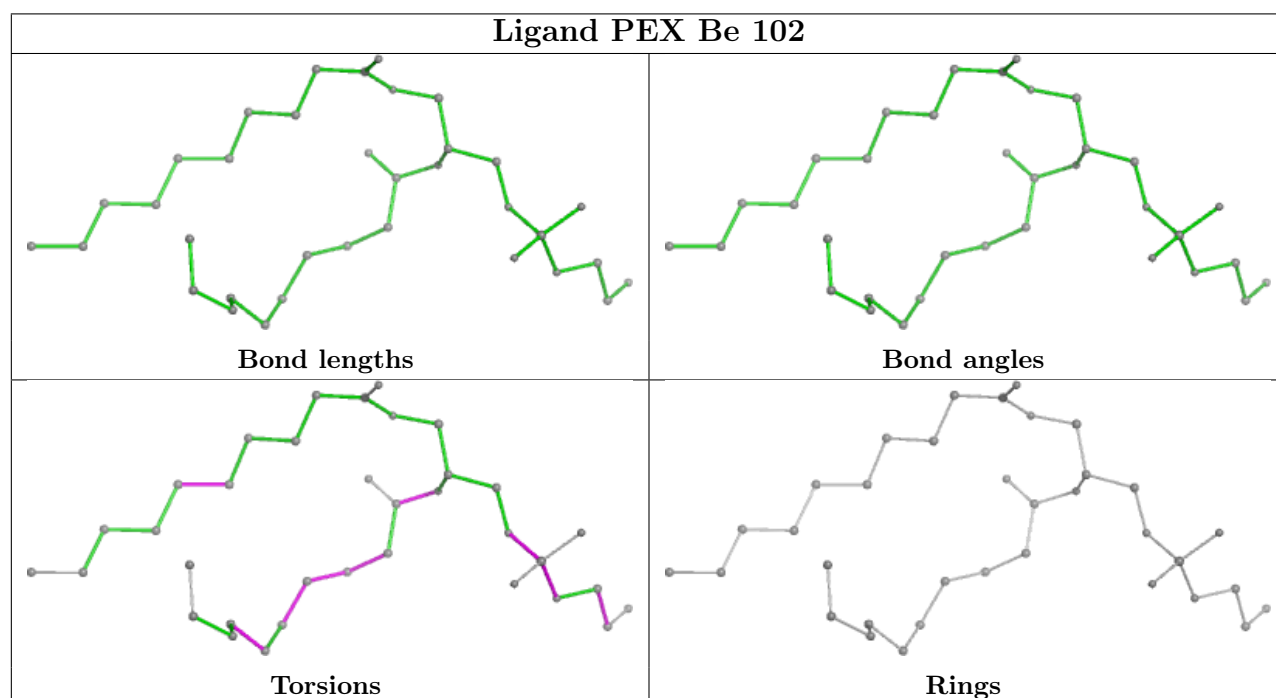
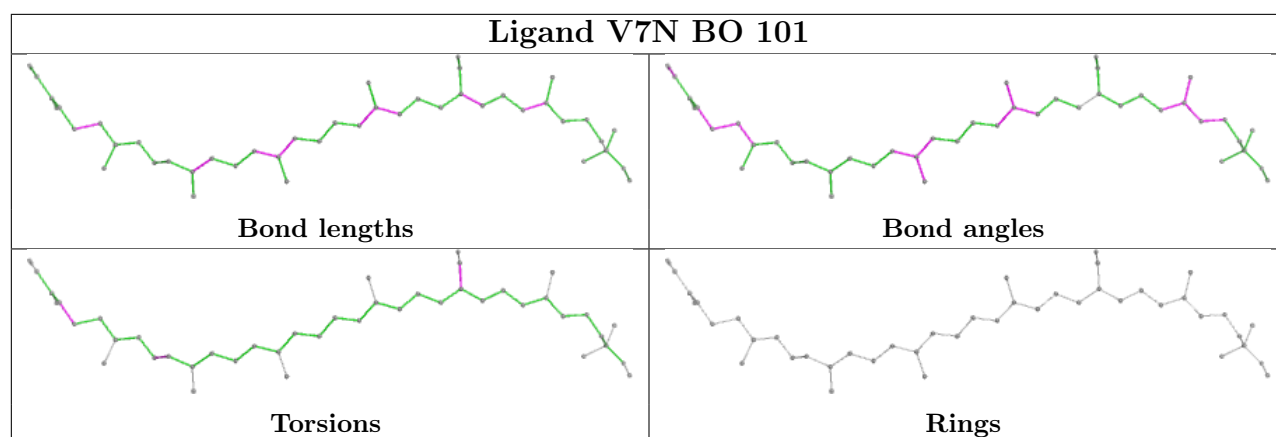


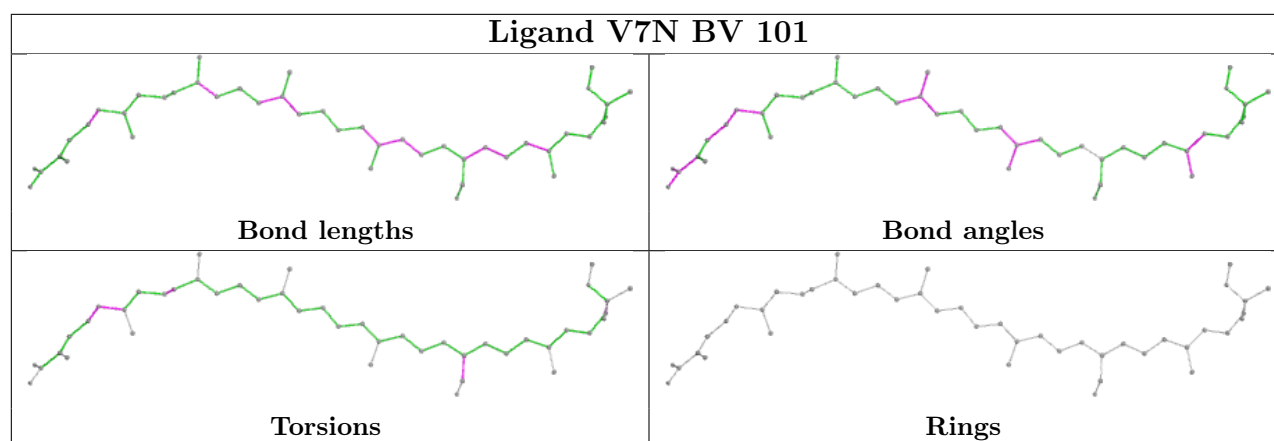






Ligand BCL BX 103**Ligand V7N Bk 1202**





5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

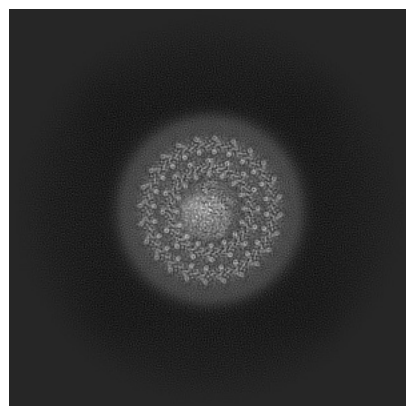
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-51788. These allow visual inspection of the internal detail of the map and identification of artifacts.

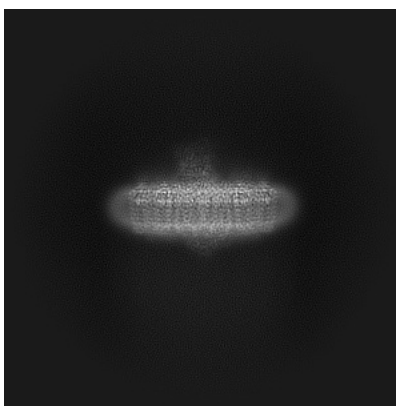
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

6.1.1 Primary map



X

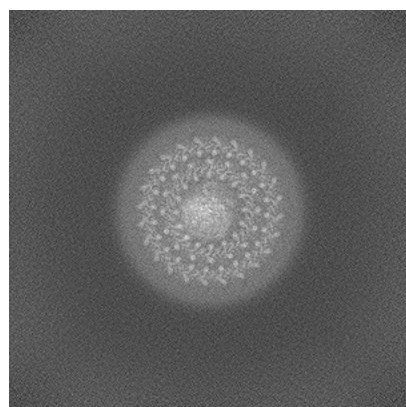


Y

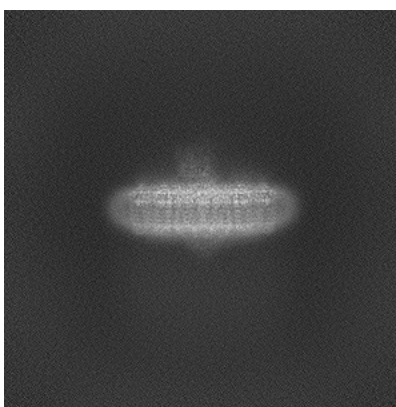


Z

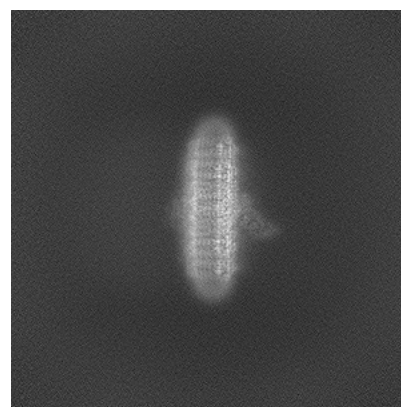
6.1.2 Raw map



X



Y

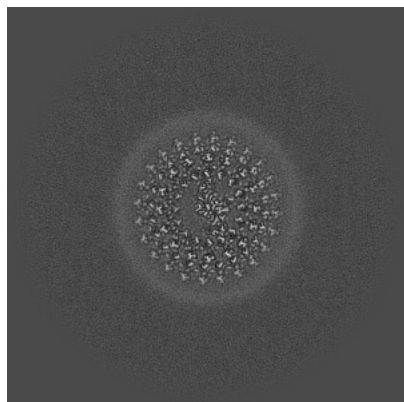


Z

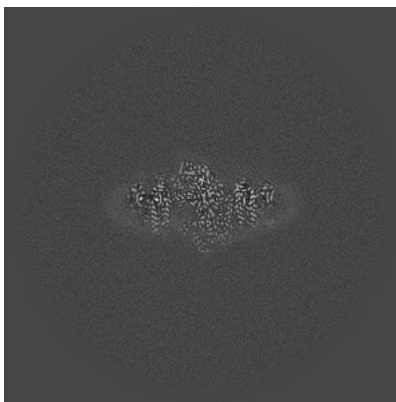
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

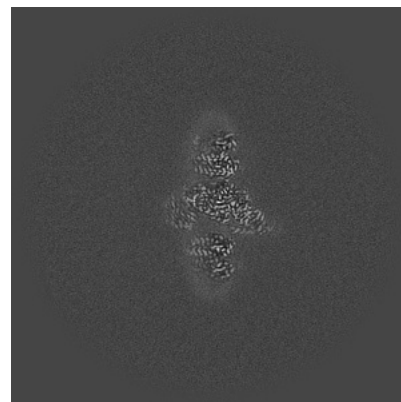
6.2.1 Primary map



X Index: 300

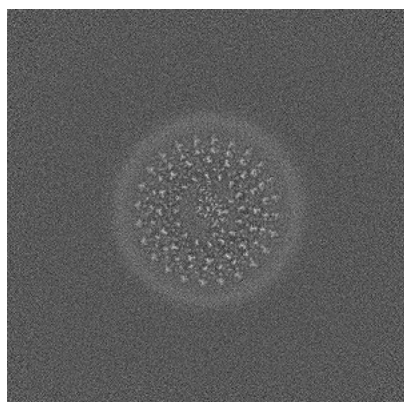


Y Index: 300

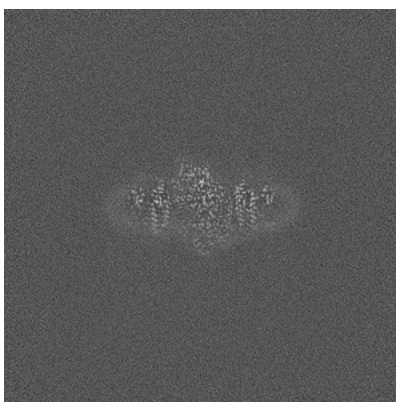


Z Index: 300

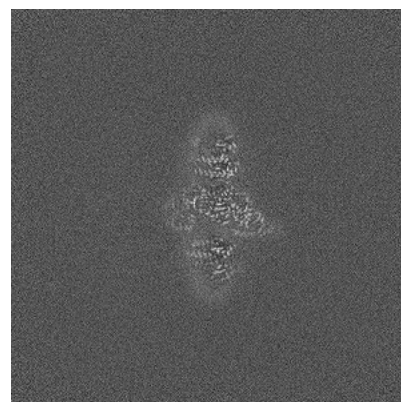
6.2.2 Raw map



X Index: 300



Y Index: 300

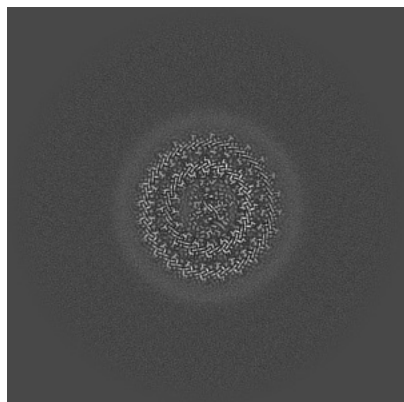


Z Index: 300

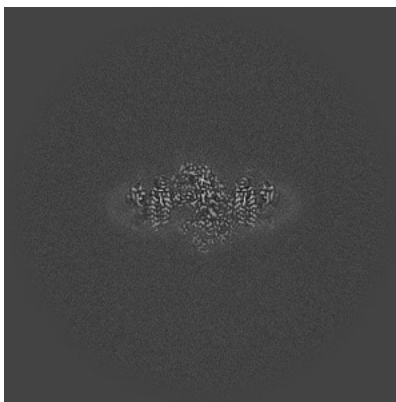
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

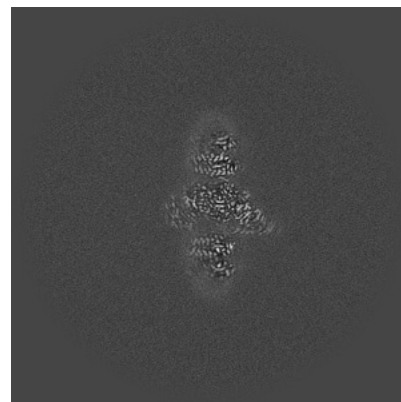
6.3.1 Primary map



X Index: 312

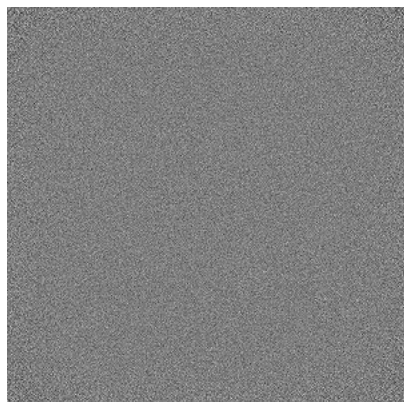


Y Index: 301

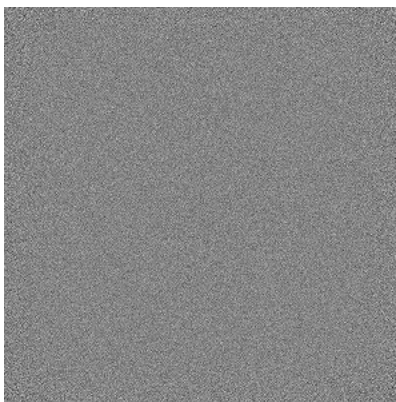


Z Index: 299

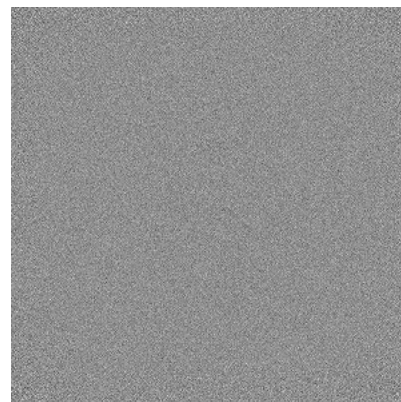
6.3.2 Raw map



X Index: 0



Y Index: 0

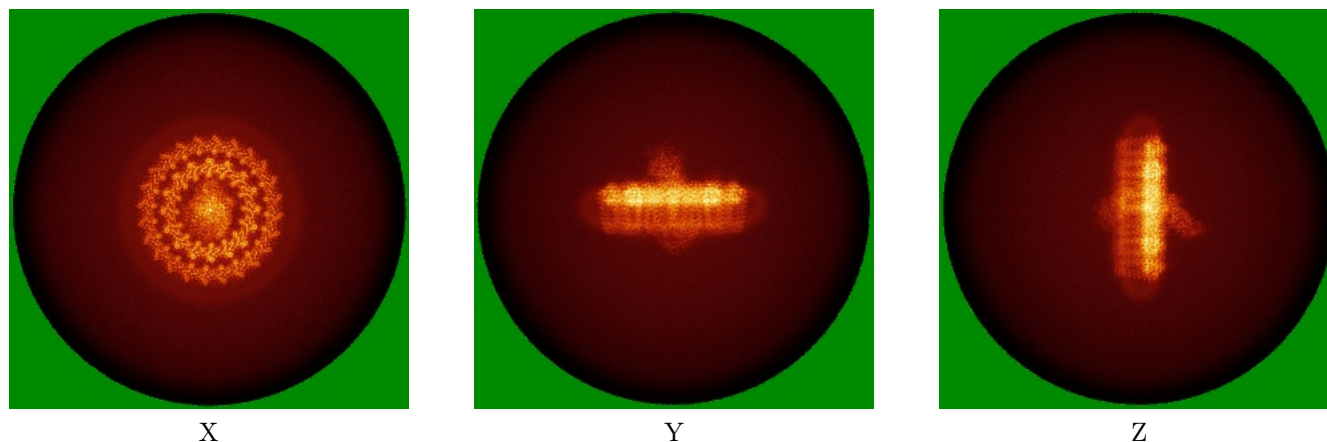


Z Index: 599

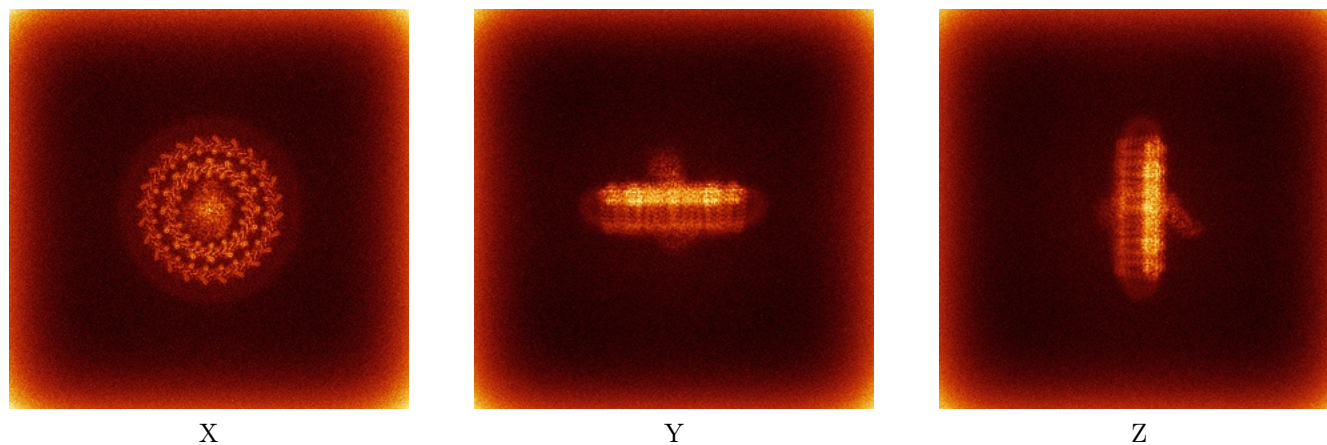
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1 Primary map



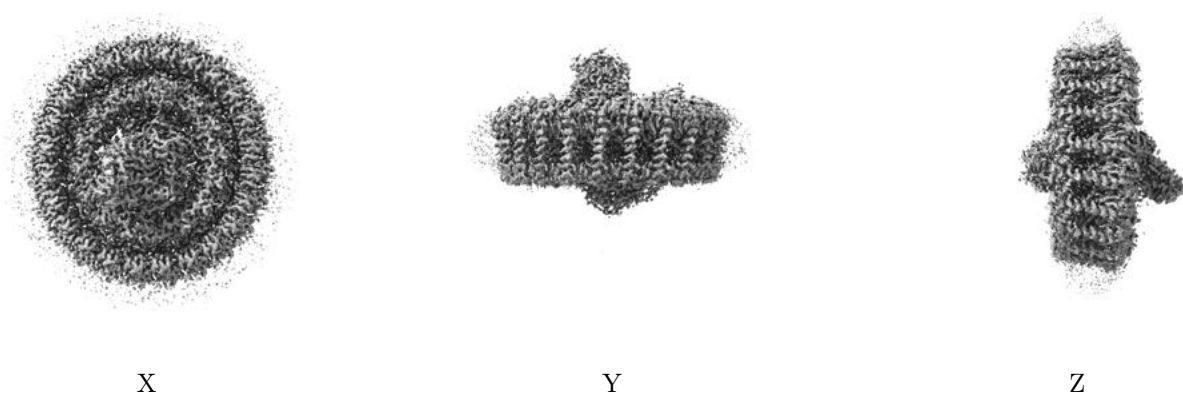
6.4.2 Raw map



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.

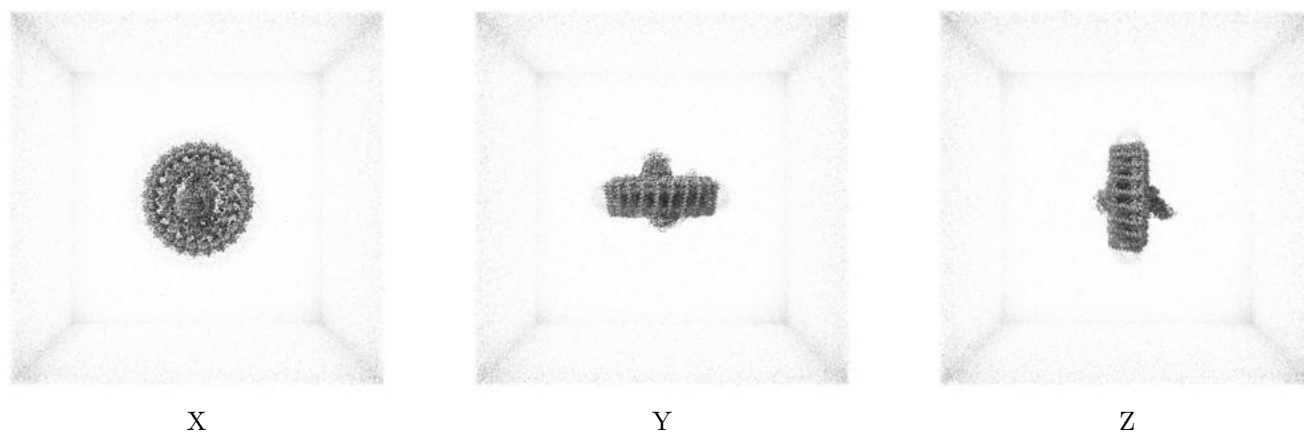
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.0687. 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.

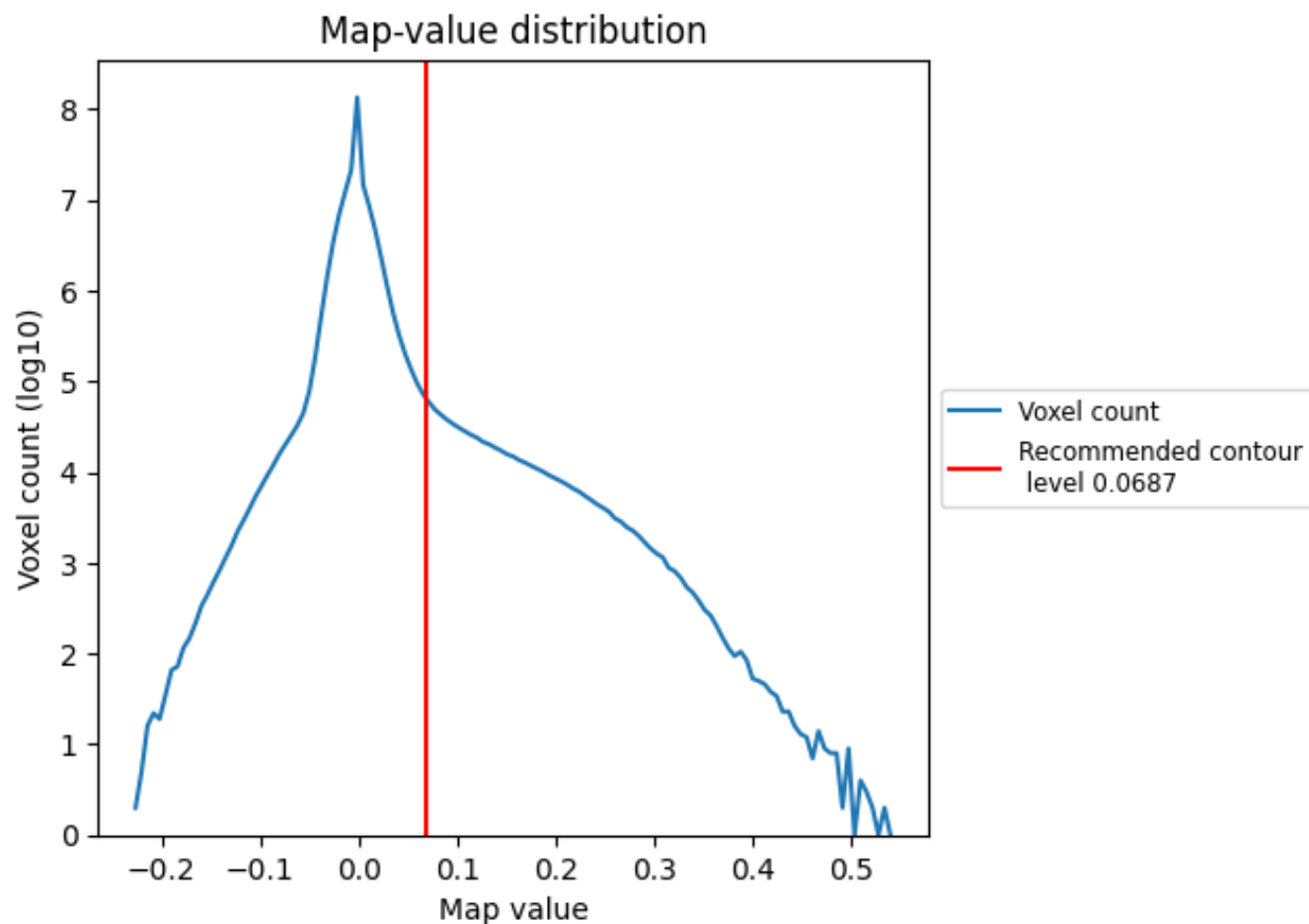
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

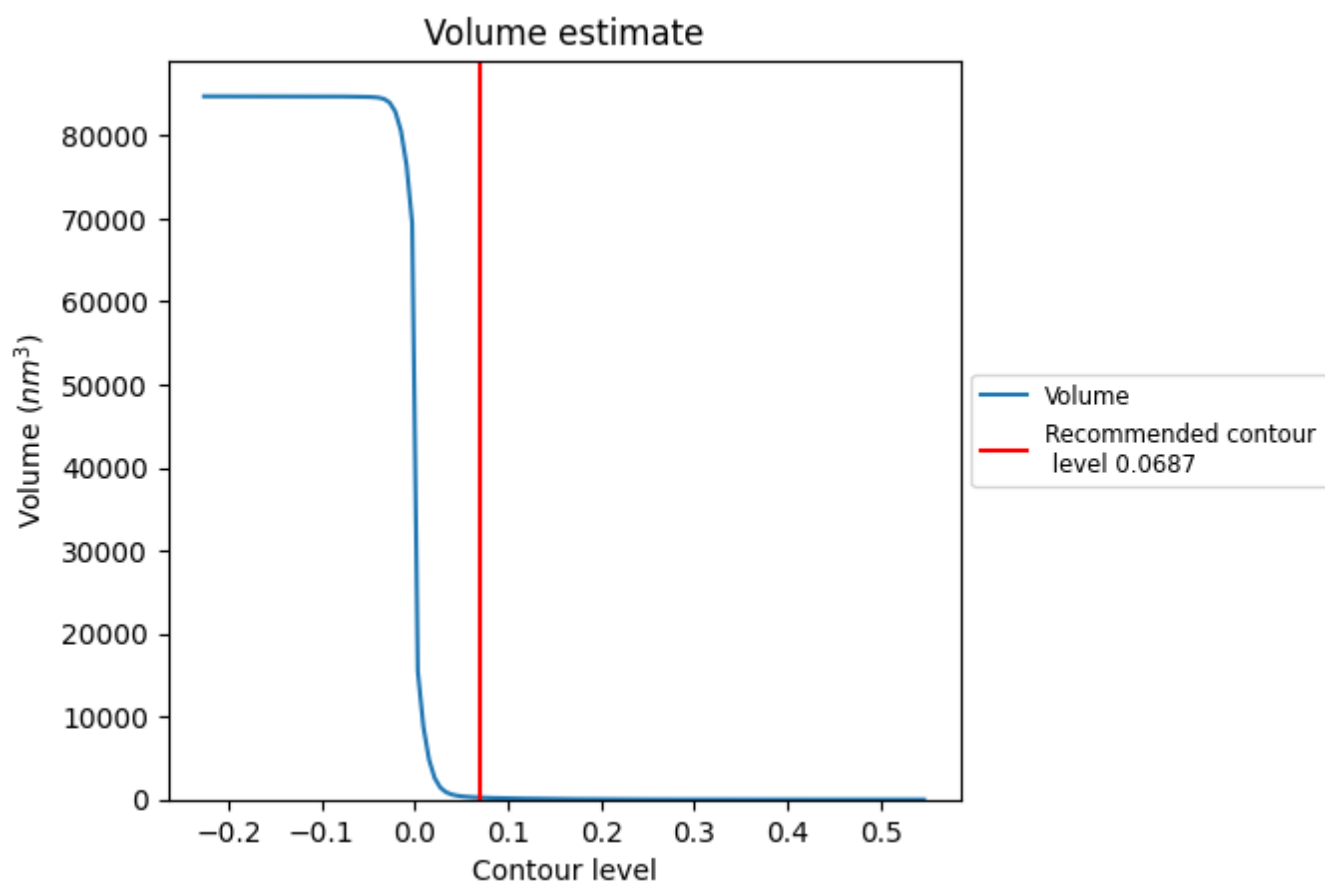
This section contains the results of statistical analysis of the map.

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.

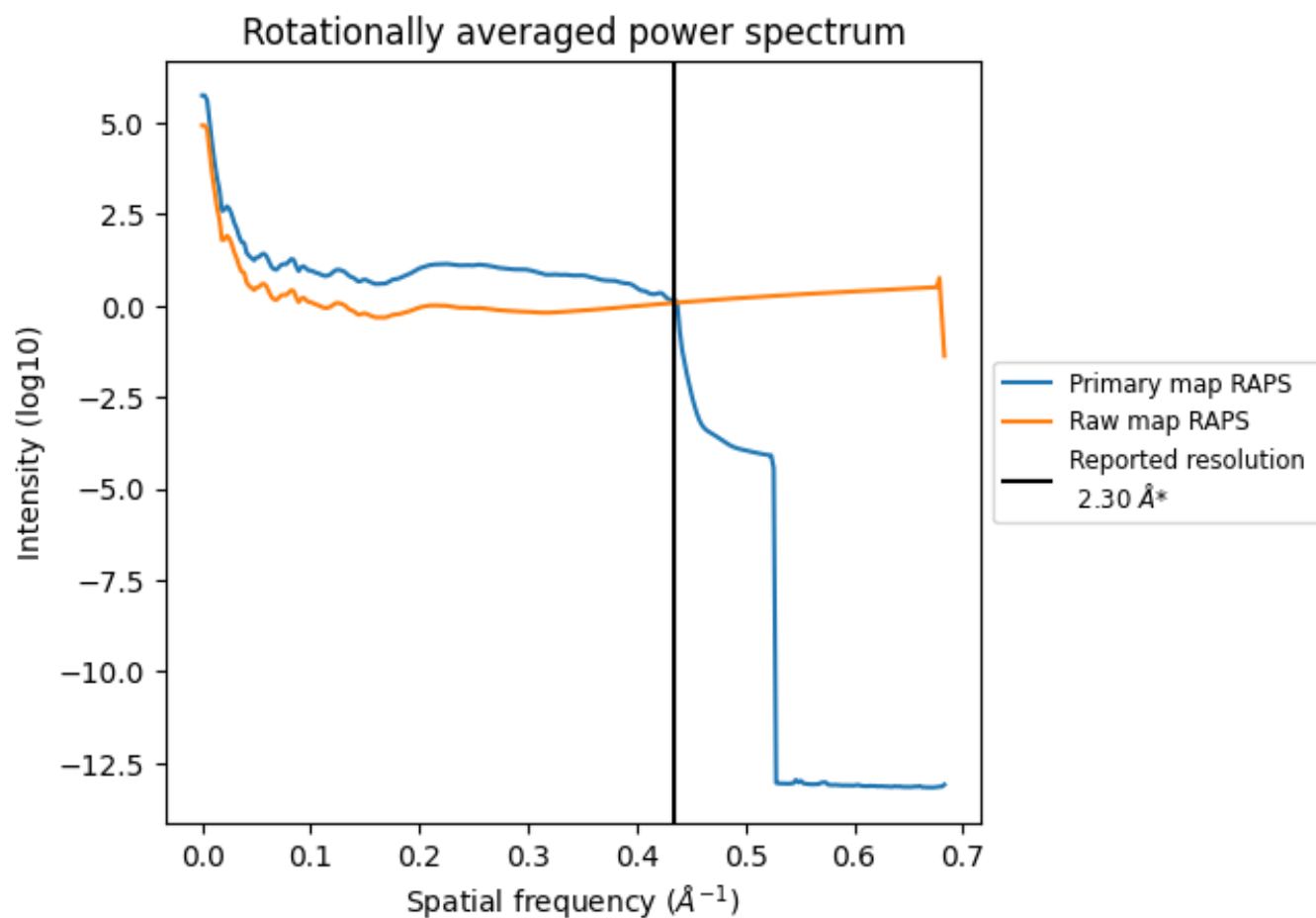
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 246 nm^3 ; this corresponds to an approximate mass of 222 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ

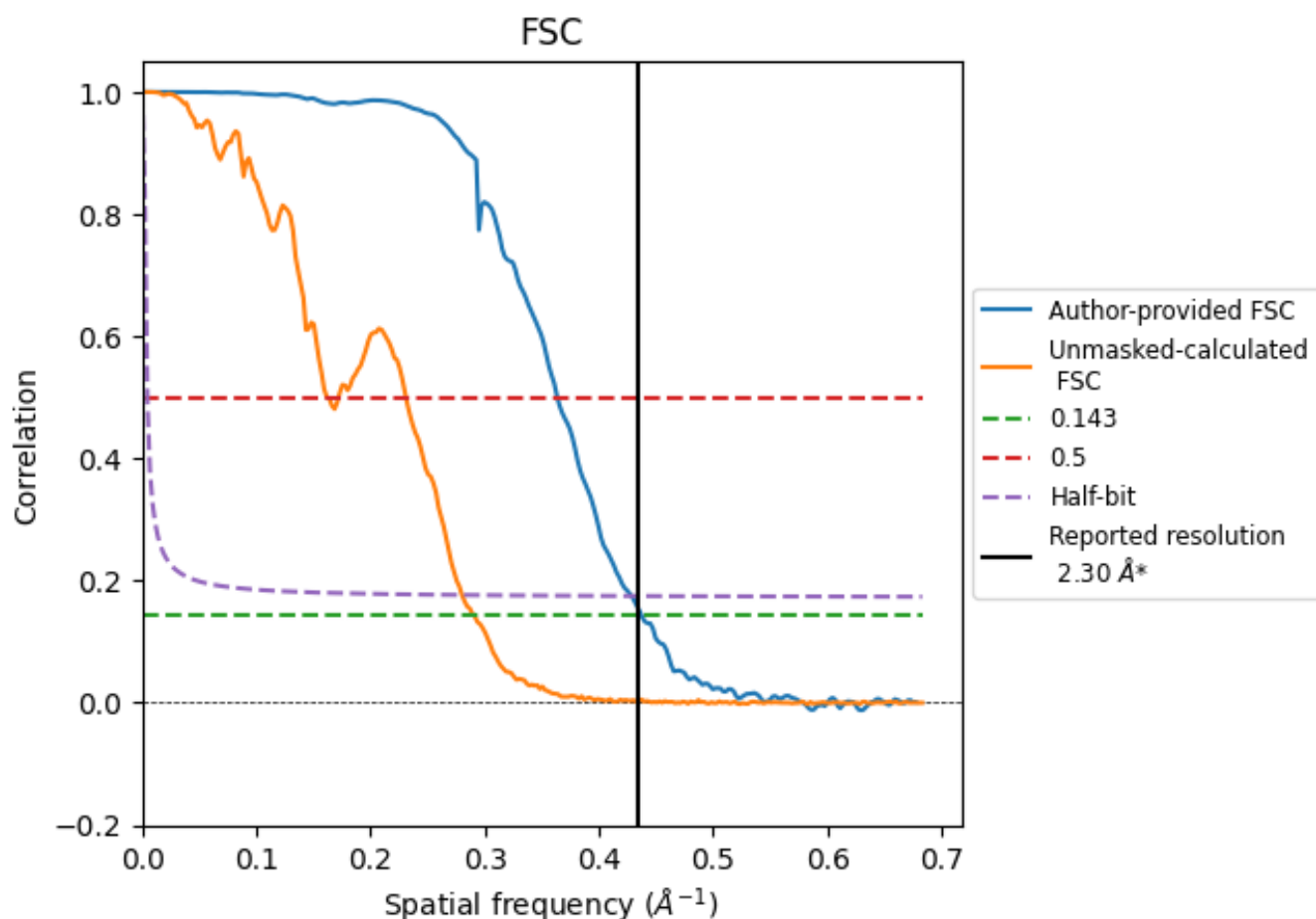


*Reported resolution corresponds to spatial frequency of 0.435 Å⁻¹

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 $0.435 \text{ \AA}^{-1}$

8.2 Resolution estimates [i](#)

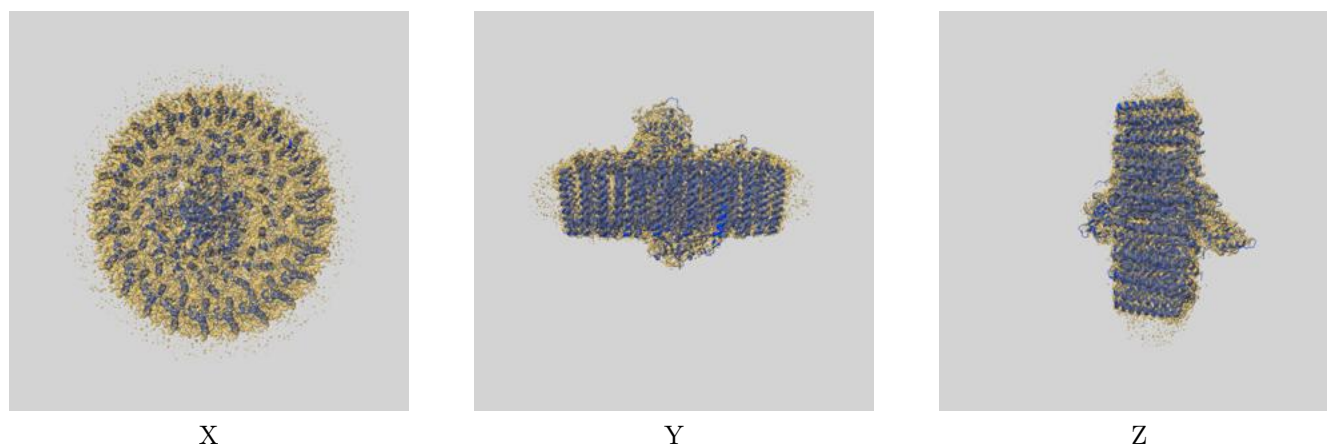
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.30	-	-
Author-provided FSC curve	2.29	2.75	2.33
Unmasked-calculated*	3.44	6.17	3.57

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.44 differs from the reported value 2.3 by more than 10 %

9 Map-model fit [i](#)

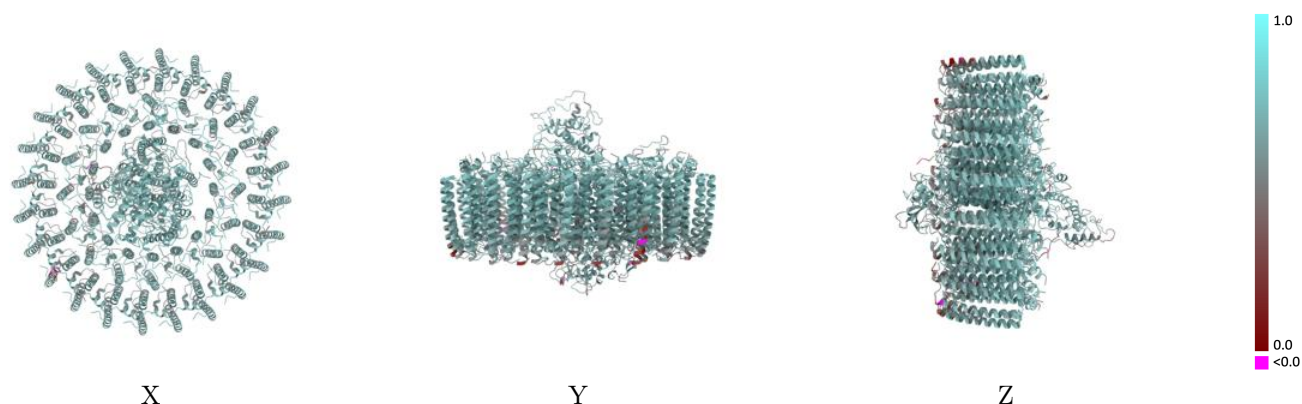
This section contains information regarding the fit between EMDB map EMD-51788 and PDB model 9H22. Per-residue inclusion information can be found in [section 3](#) on [page 27](#).

9.1 Map-model overlay [i](#)



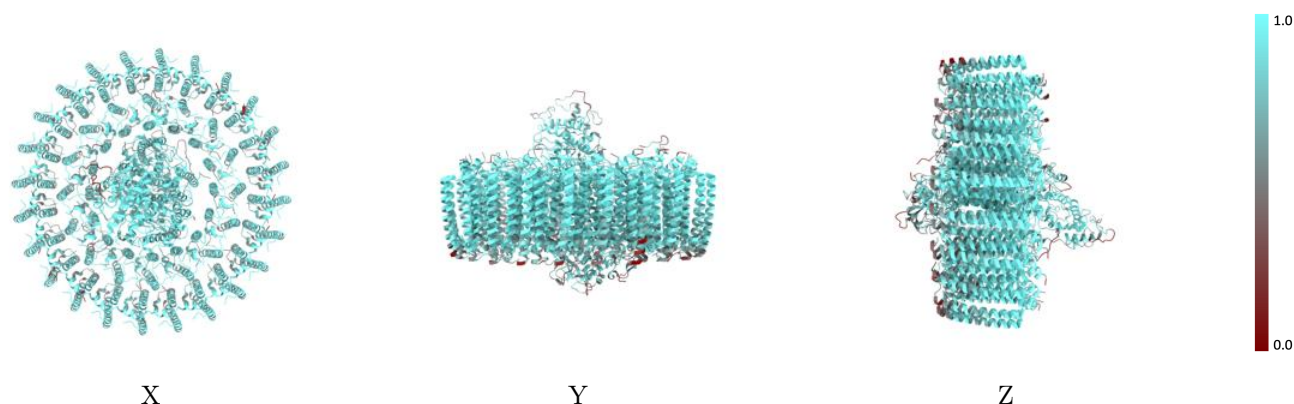
The images above show the 3D surface view of the map at the recommended contour level 0.0687 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



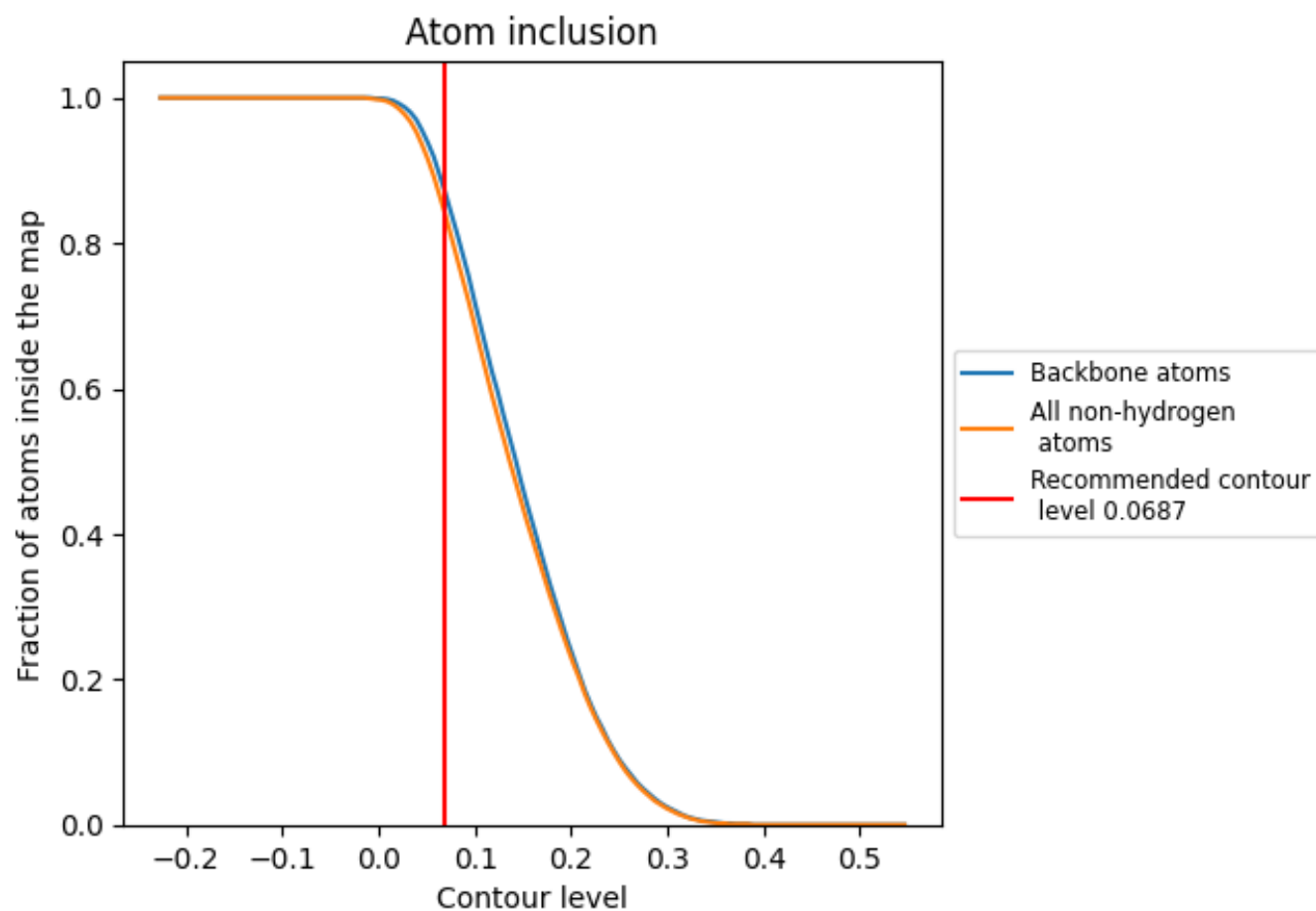
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0687).

9.4 Atom inclusion ⓘ



At the recommended contour level, 87% of all backbone atoms, 84% 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 (0.0687) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8430	 0.6270
AA	 0.8540	 0.6310
AB	 0.9020	 0.6520
AC	 0.9330	 0.6570
AD	 0.8150	 0.6160
AE	 0.8740	 0.6460
AF	 0.8920	 0.6490
AG	 0.8240	 0.6250
AH	 0.8740	 0.6380
AI	 0.8700	 0.6380
AJ	 0.8590	 0.6270
AK	 0.8840	 0.6380
AL	 0.9180	 0.6540
AM	 0.8330	 0.6190
AN	 0.8810	 0.6370
AO	 0.9020	 0.6400
AP	 0.8120	 0.6040
AQ	 0.8290	 0.6250
AR	 0.8850	 0.6320
AS	 0.8060	 0.6050
AT	 0.8090	 0.6090
AU	 0.8540	 0.6240
AV	 0.8160	 0.6160
AW	 0.8770	 0.6370
AX	 0.9260	 0.6600
Aa	 0.7850	 0.6030
Ab	 0.8730	 0.6440
Ac	 0.9100	 0.6610
Ad	 0.8340	 0.6280
Ae	 0.9090	 0.6530
Af	 0.8170	 0.6180
Ag	 0.8500	 0.6270
Ah	 0.8530	 0.6340
Ai	 0.8750	 0.6400
Aj	 0.8930	 0.6500



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Chain	Atom inclusion	Q-score
Ak	 0.9330	 0.6760
Al	 0.9190	 0.6620
Am	 0.9220	 0.6640
An	 0.9010	 0.6610
Ao	 0.8850	 0.6550
Ap	 0.8480	 0.6060
BA	 0.7580	 0.5470
BB	 0.8500	 0.6340
BC	 0.8470	 0.6300
BD	 0.7990	 0.5960
BE	 0.8410	 0.5970
BF	 0.8100	 0.5940
BG	 0.7620	 0.5900
BH	 0.6930	 0.4910
BI	 0.8200	 0.6060
BJ	 0.8090	 0.5950
BK	 0.8040	 0.6080
BL	 0.8580	 0.6260
BM	 0.7940	 0.6030
BN	 0.8540	 0.6370
BO	 0.8500	 0.6180
BP	 0.7350	 0.5560
BQ	 0.8210	 0.6040
BR	 0.8100	 0.6050
BS	 0.7230	 0.5380
BT	 0.8300	 0.5920
BU	 0.6020	 0.3810
BV	 0.7350	 0.5580
BW	 0.8390	 0.6030
BX	 0.7970	 0.5820
Ba	 0.7880	 0.5870
Bb	 0.8370	 0.6160
Bc	 0.8410	 0.6280
Bd	 0.8510	 0.6360
Be	 0.8830	 0.6460
Bf	 0.8540	 0.6370
Bg	 0.8080	 0.6180
Bh	 0.8510	 0.6290
Bi	 0.8000	 0.6090
Bj	 0.8310	 0.6270
Bk	 0.8960	 0.6590
Bl	 0.8350	 0.6300

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Chain	Atom inclusion	Q-score
Bm	 0.8590	 0.6500
Bn	 0.8830	 0.6440
Bo	 0.8050	 0.5950
Bp	 0.7990	 0.5980
C	 0.8800	 0.6520
H	 0.6980	 0.5850
K	 0.6920	 0.5910
L	 0.8940	 0.6590
M	 0.9300	 0.6770
S	 0.8390	 0.6700