



wwPDB EM Validation Summary Report ⓘ

Feb 24, 2025 – 11:30 AM EST

PDB ID : 9DM1
EMDB ID : EMD-46995
Title : Mycobacterial supercomplex malate:quinone oxidoreductase assembly
Authors : Di Trani, J.M.; Rubinstein, J.L.
Deposited on : 2024-09-11
Resolution : 3.20 Å (reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev117
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.41.4

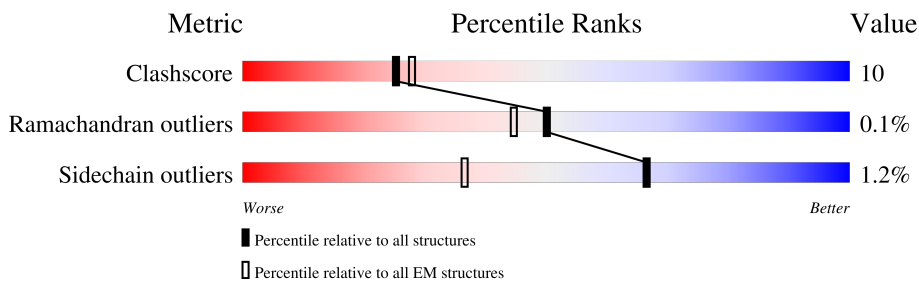
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.20 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 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	L	566	
1	R	566	
2	E	535	
2	F	535	
3	D	216	
3	G	216	
4	K	312	
4	Q	312	

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Mol	Chain	Length	Quality of chain
5	S	203	
5	X	203	
6	T	139	
6	Z	139	
7	U	79	
7	a	79	
7			
8	V	145	
8	b	145	
9	J	100	
9	P	100	
10	I	223	
10	O	223	
11	W	159	
11	c	159	
12	M	382	
12	Y	382	
13	A	510	

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
16	CDL	R	604	-	-	X	-
16	CDL	S	301	-	-	X	-
16	CDL	T	201	-	-	X	-
16	CDL	X	301	-	-	X	-
16	CDL	X	302	-	-	X	-
16	CDL	Z	202	-	-	X	-
16	CDL	Z	203	-	-	X	-

2 Entry composition i

There are 24 unique types of molecules in this entry. The entry contains 51339 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 Cytochrome c oxidase subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	R	552	4370	2937	695	712	26	0	0
1	L	552	4370	2937	695	712	26	0	0

There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
R	32	ILE	VAL	conflict	UNP A0A0K0XH24
R	47	VAL	ALA	conflict	UNP A0A0K0XH24
R	54	VAL	ILE	conflict	UNP A0A0K0XH24
R	357	THR	SER	conflict	UNP A0A0K0XH24
R	452	LEU	VAL	conflict	UNP A0A0K0XH24
R	467	THR	SER	conflict	UNP A0A0K0XH24
R	476	ILE	VAL	conflict	UNP A0A0K0XH24
R	479	VAL	ILE	conflict	UNP A0A0K0XH24
L	32	ILE	VAL	conflict	UNP A0A0K0XH24
L	47	VAL	ALA	conflict	UNP A0A0K0XH24
L	54	VAL	ILE	conflict	UNP A0A0K0XH24
L	357	THR	SER	conflict	UNP A0A0K0XH24
L	452	LEU	VAL	conflict	UNP A0A0K0XH24
L	467	THR	SER	conflict	UNP A0A0K0XH24
L	476	ILE	VAL	conflict	UNP A0A0K0XH24
L	479	VAL	ILE	conflict	UNP A0A0K0XH24

- Molecule 2 is a protein called Cytochrome bc1 complex cytochrome b subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	E	535	4181	2751	711	701	18	0	0
2	F	535	4181	2751	711	701	18	0	0

- Molecule 3 is a protein called Superoxide dismutase [Cu-Zn].

Mol	Chain	Residues	Atoms					AltConf	Trace
3	D	216	Total	C	N	O	S	0	0
			1092	645	217	229	1		
3	G	216	Total	C	N	O	S	0	0
			1092	645	217	229	1		

- Molecule 4 is a protein called Cytochrome aa3 subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	Q	312	Total	C	N	O	S	0	0
			2465	1592	412	451	10		
4	K	312	Total	C	N	O	S	0	0
			2465	1592	412	451	10		

- Molecule 5 is a protein called Cytochrome aa3 subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	S	203	Total	C	N	O	S	0	0
			1560	1039	253	260	8		
5	X	203	Total	C	N	O	S	0	0
			1560	1039	253	260	8		

- Molecule 6 is a protein called Cytochrome c oxidase polypeptide 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	T	139	Total	C	N	O	S	0	0
			1077	719	167	188	3		
6	Z	139	Total	C	N	O	S	0	0
			1077	719	167	188	3		

- Molecule 7 is a protein called Cytochrome c oxidase subunit CtaJ.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	U	79	Total	C	N	O	S	0	0
			591	381	107	101	2		
7	a	79	Total	C	N	O	S	0	0
			591	381	107	101	2		

- Molecule 8 is a protein called Uncharacterized protein MSMEG_4692/MSMEI_4575.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	V	145	Total	C	N	O	S	0	0
			1041	658	176	205	2		
8	b	145	Total	C	N	O	S	0	0
			1041	658	176	205	2		

- Molecule 9 is a protein called Conserved transmembrane protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	P	92	Total	C	N	O	S	0	0
			736	471	136	124	5		
9	J	92	Total	C	N	O	S	0	0
			736	471	136	124	5		

- Molecule 10 is a protein called Cytochrome bc1 complex cytochrome c subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	O	223	Total	C	N	O	S	0	0
			1623	1008	289	314	12		
10	I	223	Total	C	N	O	S	0	0
			1623	1008	289	314	12		

- Molecule 11 is a protein called LpqE protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	c	158	Total	C	N	O	S	0	0
			1149	708	192	248	1		
11	W	158	Total	C	N	O	S	0	0
			1149	708	192	248	1		

- Molecule 12 is a protein called Cytochrome bc1 complex Rieske iron-sulfur subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	Y	382	Total	C	N	O	S	0	0
			2977	1924	504	538	11		
12	M	382	Total	C	N	O	S	0	0
			2977	1924	504	538	11		

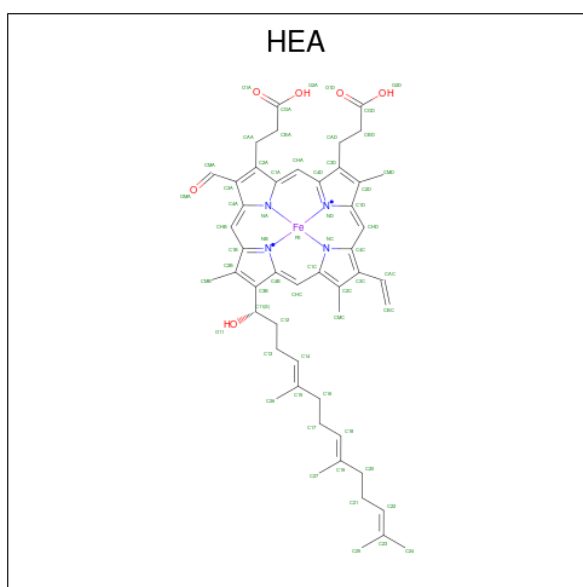
- Molecule 13 is a protein called Probable malate:quinone oxidoreductase.

Mol	Chain	Residues	Atoms				AltConf	Trace
13	A	485	Total	C	N	O	0	0
			2377	1407	485	485		

- Molecule 14 is COPPER (II) ION (three-letter code: CU) (formula: Cu).

Mol	Chain	Residues	Atoms		AltConf
14	R	1	Total	Cu	0
			1	1	
14	L	1	Total	Cu	0
			1	1	
14	Q	2	Total	Cu	0
			2	2	
14	K	2	Total	Cu	0
			2	2	

- Molecule 15 is HEME-A (three-letter code: HEA) (formula: C₄₉H₅₆FeN₄O₆).



Mol	Chain	Residues	Atoms				AltConf	
15	R	1	Total	C	Fe	N	O	0
			60	49	1	4	6	
15	R	1	Total	C	Fe	N	O	0
			60	49	1	4	6	
15	L	1	Total	C	Fe	N	O	0
			60	49	1	4	6	
15	L	1	Total	C	Fe	N	O	0
			60	49	1	4	6	

- Molecule 16 is CARDIOLIPIN (three-letter code: CDL) (formula: C₈₁H₁₅₆O₁₇P₂).



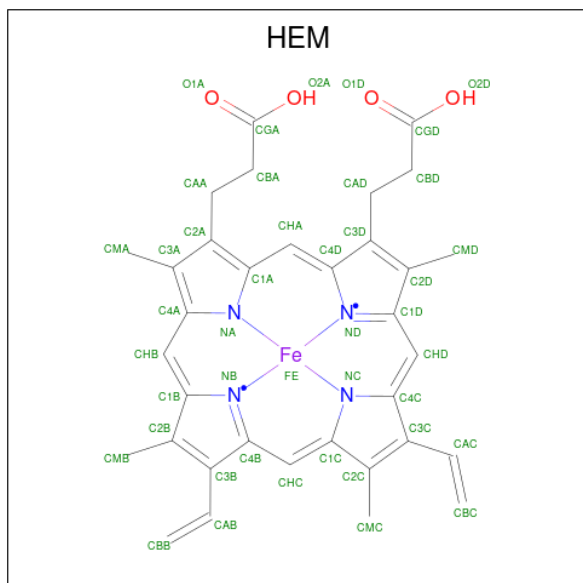
Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
16	R	1	76	57	17	2	0
16	E	1	76	57	17	2	0
16	E	1	76	57	17	2	0
16	F	1	76	57	17	2	0
16	F	1	76	57	17	2	0
16	L	1	76	57	17	2	0
16	S	1	76	57	17	2	0
16	T	1	76	57	17	2	0
16	T	1	76	57	17	2	0
16	T	1	76	57	17	2	0
16	P	1	76	57	17	2	0
16	X	1	76	57	17	2	0
16	X	1	76	57	17	2	0
16	Z	1	76	57	17	2	0

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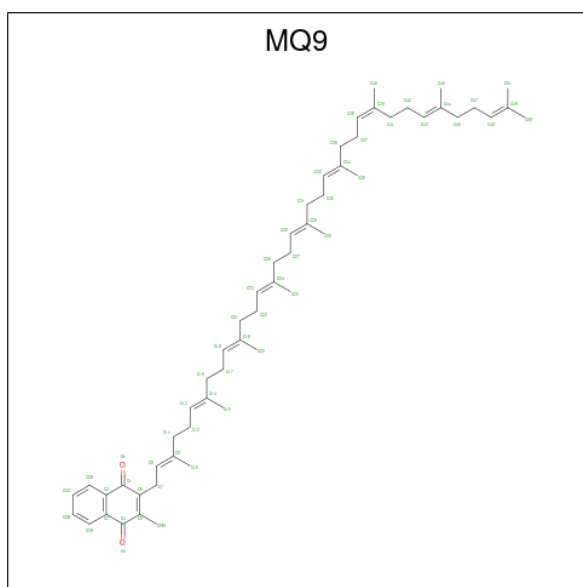
Mol	Chain	Residues	Atoms				AltConf
16	Z	1	Total	C	O	P	0
			76	57	17	2	
16	J	1	Total	C	O	P	0
			76	57	17	2	

- Molecule 17 is PROTOPORPHYRIN IX CONTAINING FE (three-letter code: HEM) (formula: $C_{34}H_{32}FeN_4O_4$).



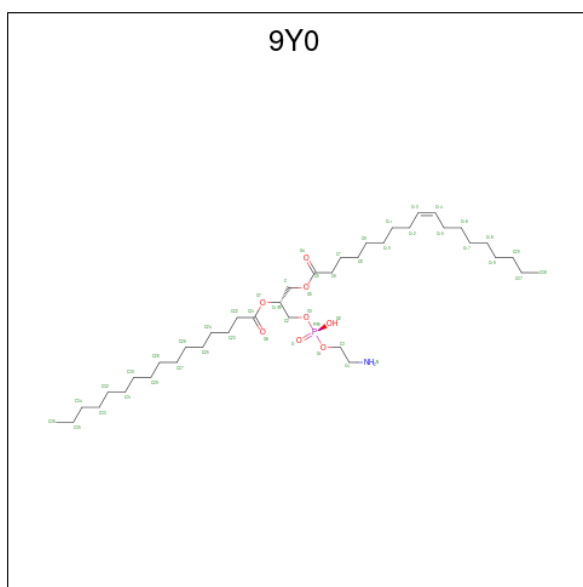
Mol	Chain	Residues	Atoms					AltConf
17	E	1	Total	C	Fe	N	O	0
			42	33	1	4	4	
17	E	1	Total	C	Fe	N	O	0
			43	34	1	4	4	
17	F	1	Total	C	Fe	N	O	0
			42	33	1	4	4	
17	F	1	Total	C	Fe	N	O	0
			43	34	1	4	4	

- Molecule 18 is MENAQUINONE-9 (three-letter code: MQ9) (formula: $C_{56}H_{80}O_2$).



Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
18	E	1	58	56	2	0
18	E	1	58	56	2	0
18	F	1	58	56	2	0
18	F	1	58	56	2	0
18	F	1	58	56	2	0
18	F	1	58	56	2	0
18	Z	1	58	56	2	0
18	I	1	58	56	2	0

- Molecule 19 is (2R)-3-(((2-aminoethoxy)(hydroxy)phosphoryl)oxy)-2-(palmitoyloxy)propyl (E)-octadec-9-enoate (three-letter code: 9Y0) (formula: C₃₉H₇₆NO₈P).



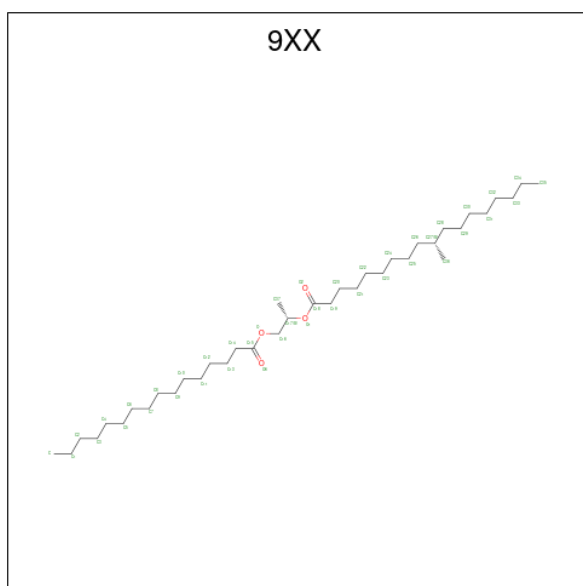
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
19	F	1	49	39	1	8	1	0
19	S	1	49	39	1	8	1	0
19	P	1	49	39	1	8	1	0
19	X	1	49	39	1	8	1	0
19	J	1	49	39	1	8	1	0
19	J	1	49	39	1	8	1	0

- Molecule 20 is PALMITIC ACID (three-letter code: PLM) (formula: C₁₆H₃₂O₂).



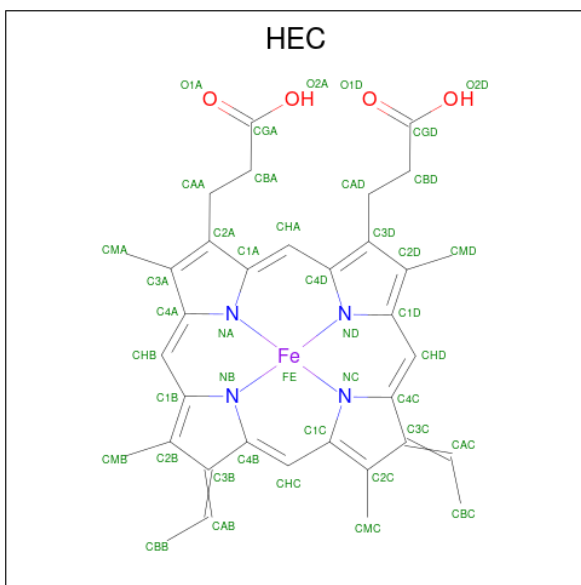
Mol	Chain	Residues	Atoms			AltConf
20	D	1	Total	C	O	0
			11	10	1	
20	G	1	Total	C	O	0
			11	10	1	
20	c	1	Total	C	O	0
			17	16	1	
20	W	1	Total	C	O	0
			17	16	1	

- Molecule 21 is (2S)-1-(hexadecanoyloxy)propan-2-yl (10S)-10-methyloctadecanoate (three-letter code: 9XX) (formula: C₃₈H₇₄O₄).



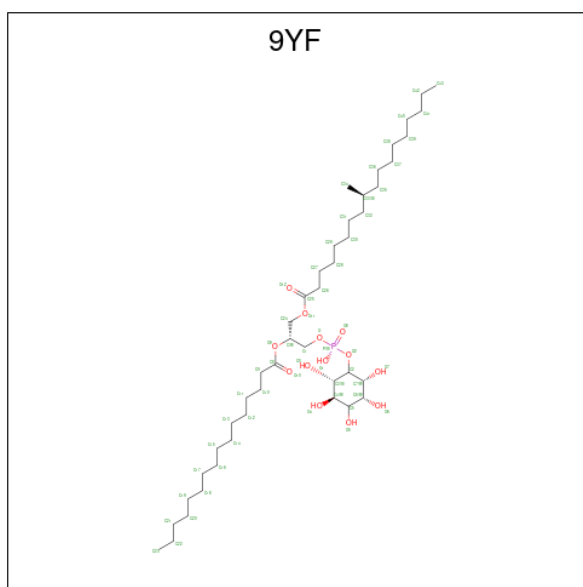
Mol	Chain	Residues	Atoms			AltConf
21	D	1	Total	C	O	0
			32	28	4	
21	G	1	Total	C	O	0
			32	28	4	
21	c	1	Total	C	O	0
			42	38	4	
21	W	1	Total	C	O	0
			42	38	4	

- Molecule 22 is HEME C (three-letter code: HEC) (formula: $C_{34}H_{34}FeN_4O_4$).



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

- Molecule 23 is (2R)-2-(hexadecanoyloxy)-3-[(S)-hydroxy{[(1R,2R,3R,4R,5R,6S)-2,3,4,5,6-pentahydroxycyclohexyl]oxy}phosphoryl]oxy}propyl (9S)-9-methyloctadecanoate (three-letter code: 9YF) (formula: $C_{44}H_{85}O_{13}P$).



Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
23	O	1	58	44	13	1	0
23	c	1	58	44	13	1	0
23	I	1	58	44	13	1	0
23	Y	1	58	44	13	1	0
23	Y	1	58	44	13	1	0
23	W	1	58	44	13	1	0
23	M	1	58	44	13	1	0
23	M	1	58	44	13	1	0

- Molecule 24 is FE2/S2 (INORGANIC) CLUSTER (three-letter code: FES) (formula: Fe₂S₂).

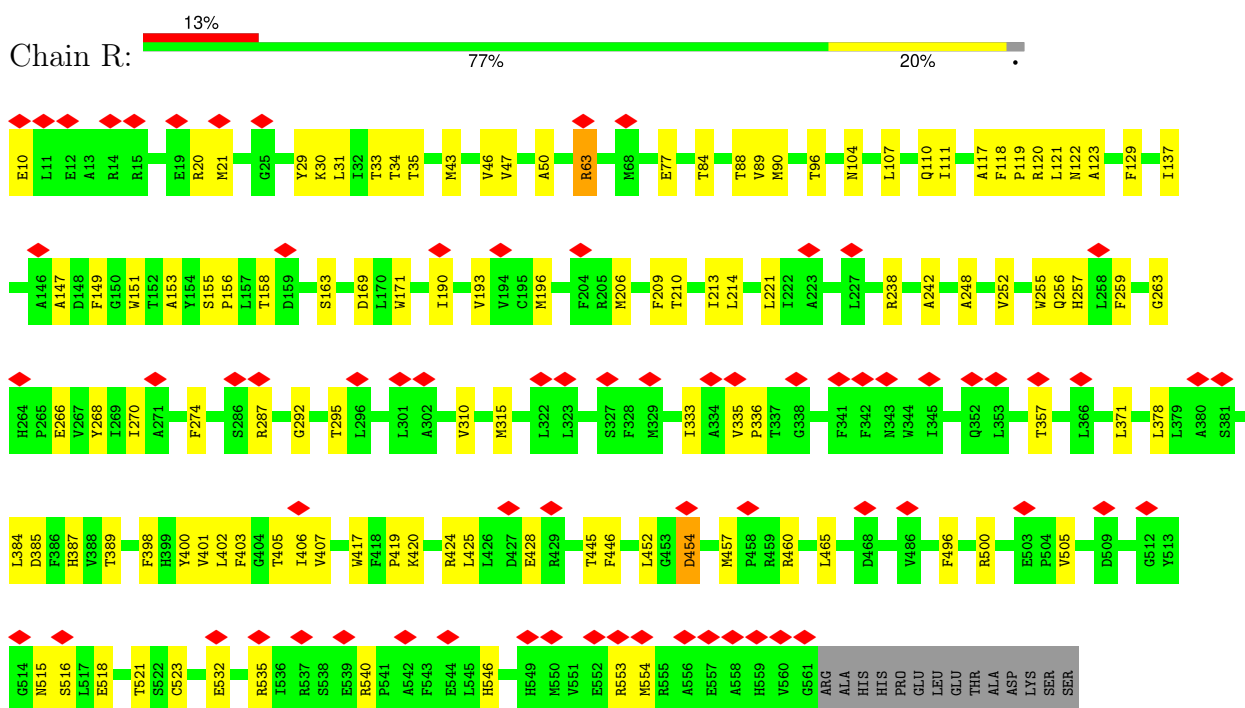


Mol	Chain	Residues	Atoms			AltConf
			Total	Fe	S	
24	Y	1	4	2	2	0
24	M	1	4	2	2	0

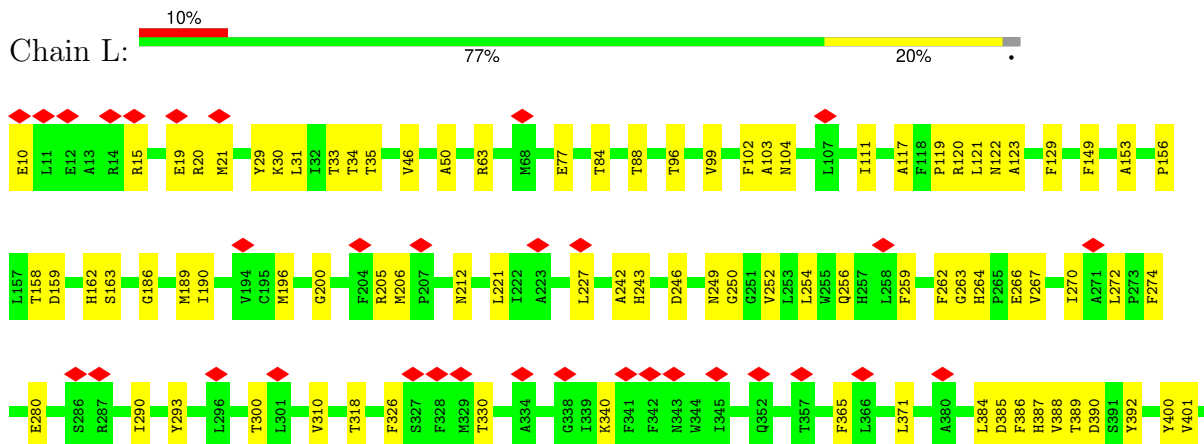
3 Residue-property plots

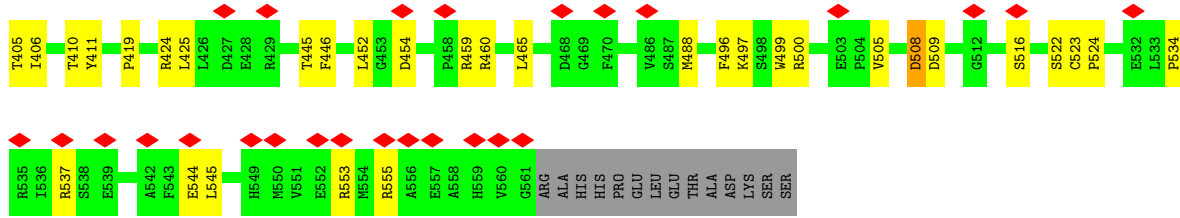
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: Cytochrome c oxidase subunit 1

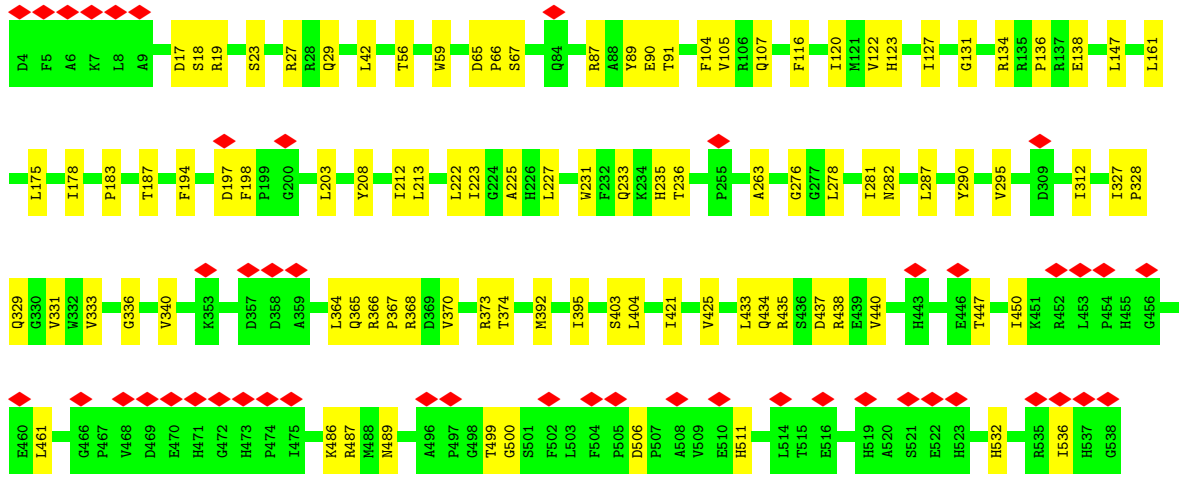
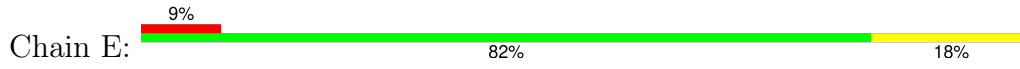


- Molecule 1: Cytochrome c oxidase subunit 1

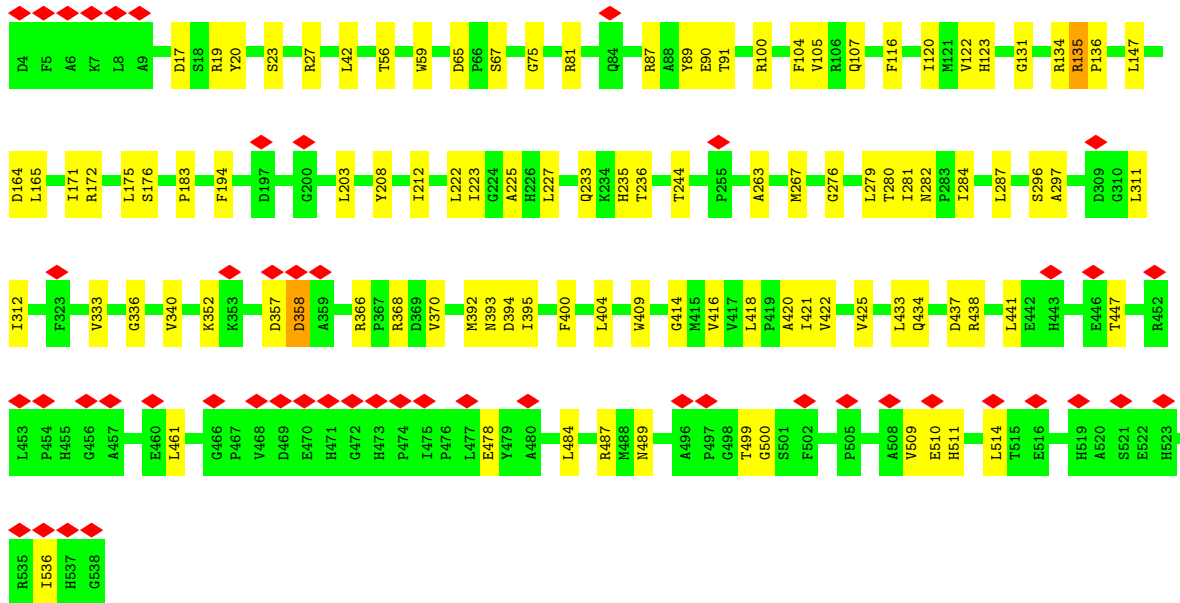
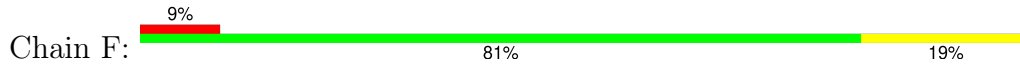




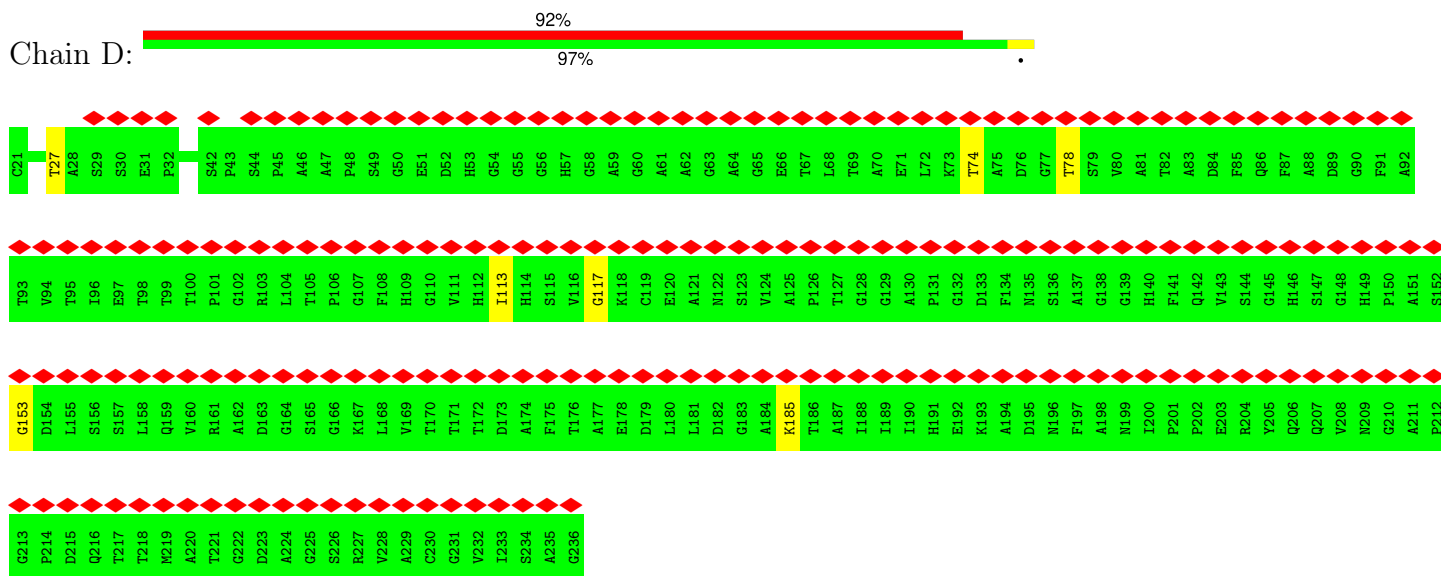
• Molecule 2: Cytochrome bc1 complex cytochrome b subunit



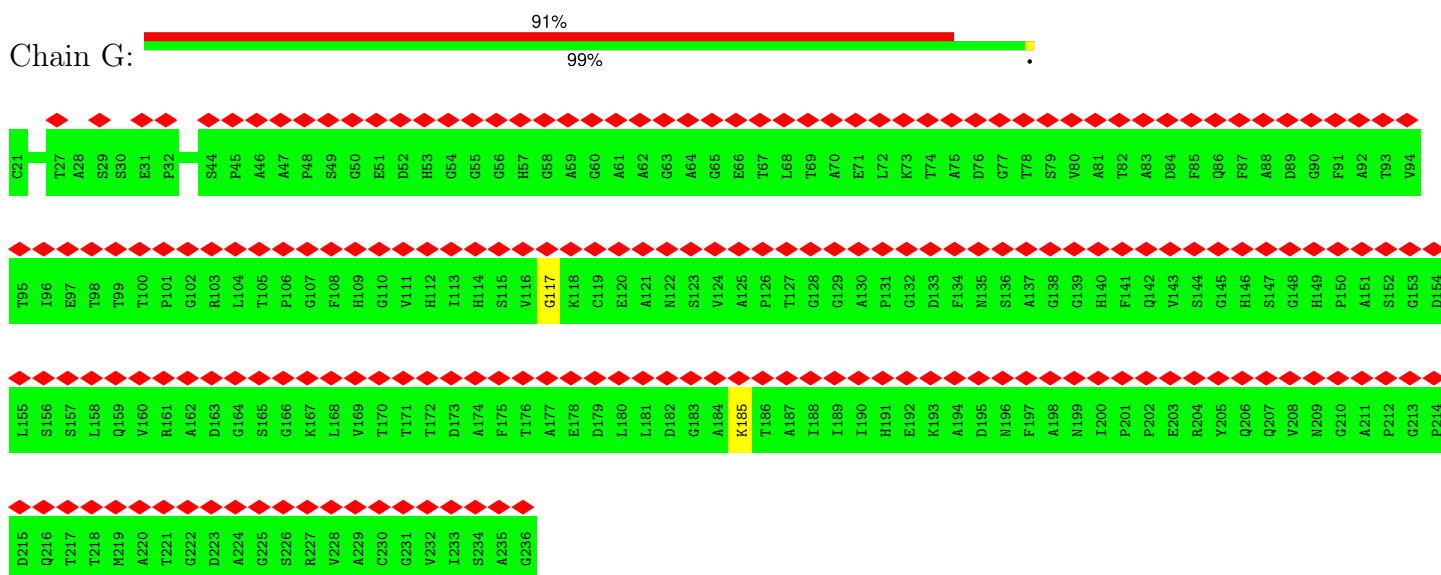
• Molecule 2: Cytochrome bc1 complex cytochrome b subunit



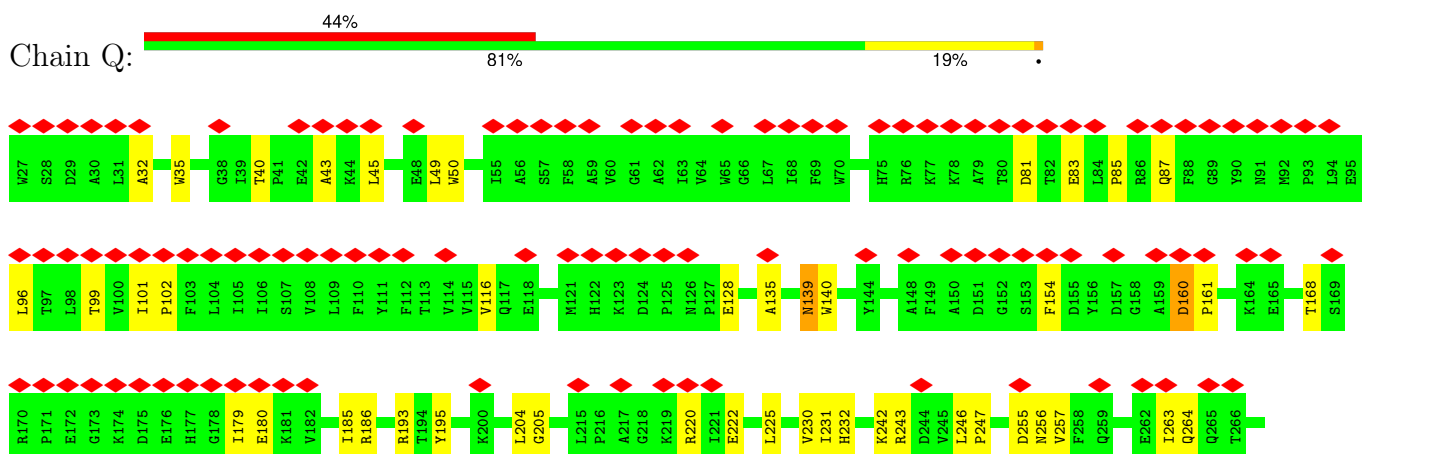
• Molecule 3: Superoxide dismutase [Cu-Zn]

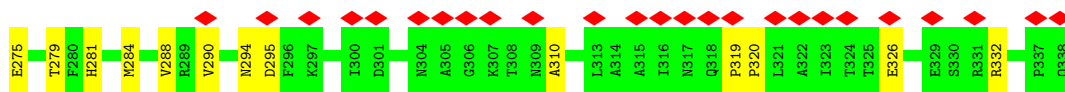


• Molecule 3: Superoxide dismutase [Cu-Zn]

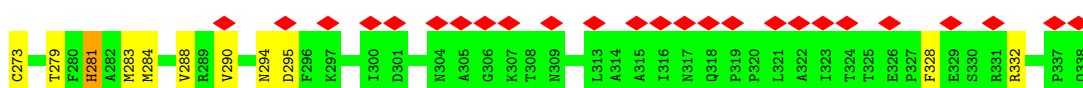
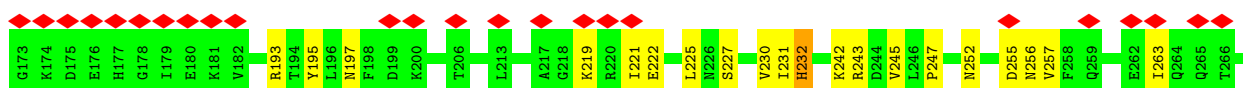
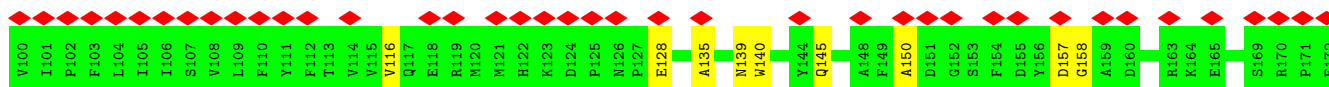
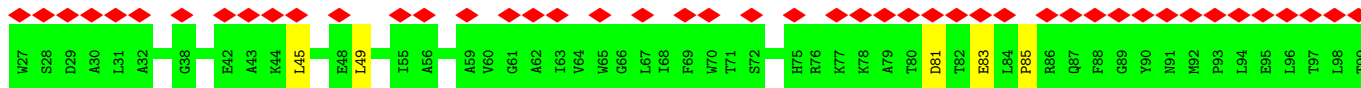
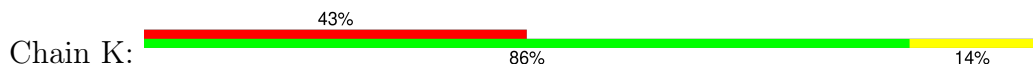


• Molecule 4: Cytochrome aa3 subunit 2

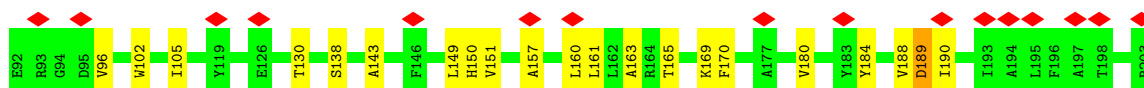
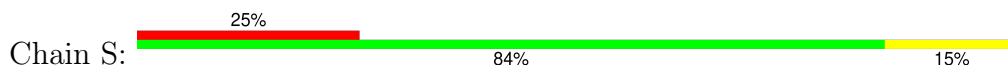




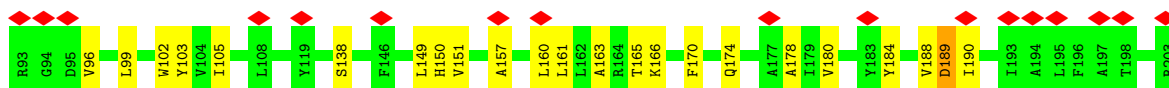
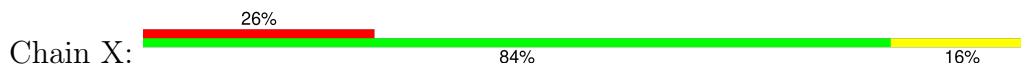
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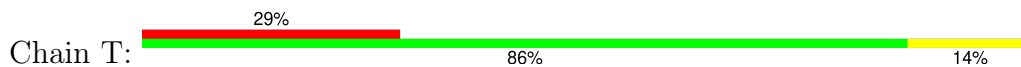
- Molecule 5: Cytochrome aa3 subunit 3

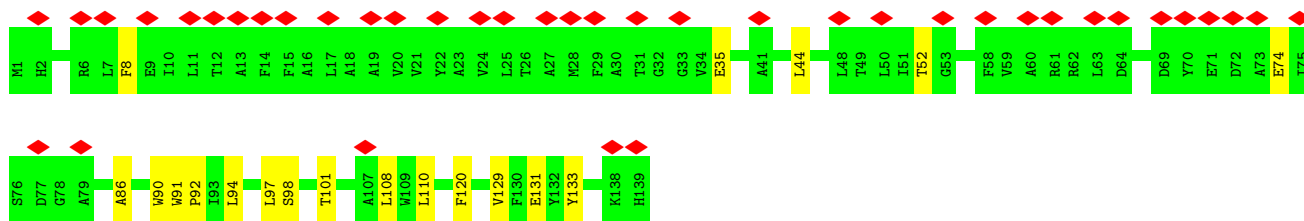


- Molecule 5: Cytochrome aa3 subunit 3

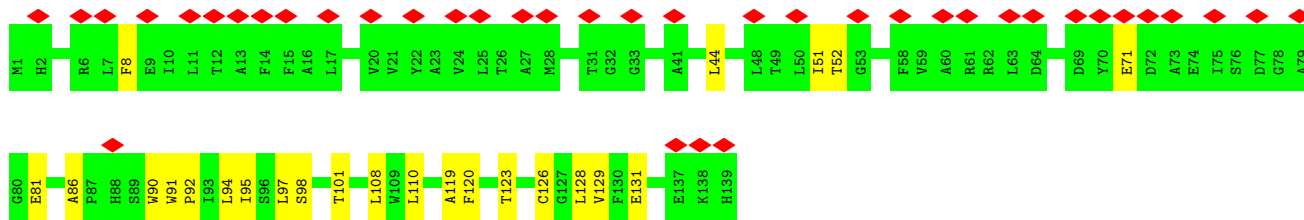
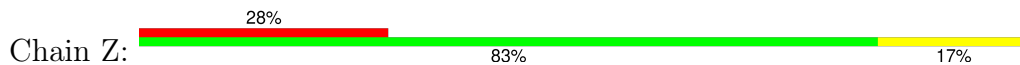


- Molecule 6: Cytochrome c oxidase polypeptide 4

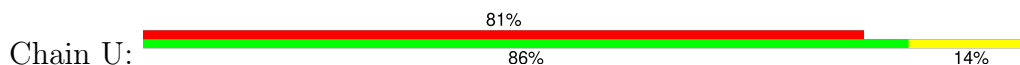




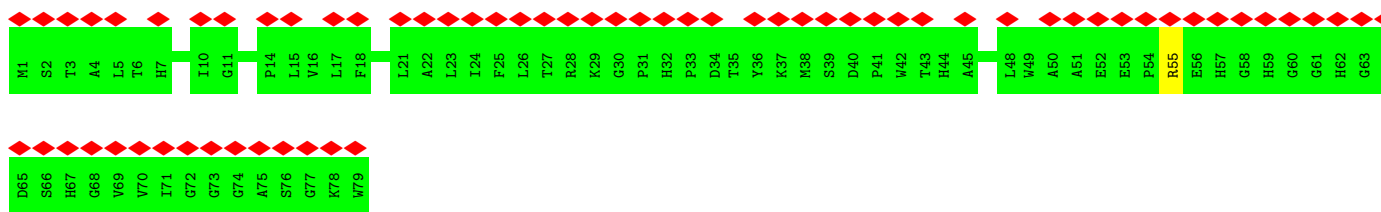
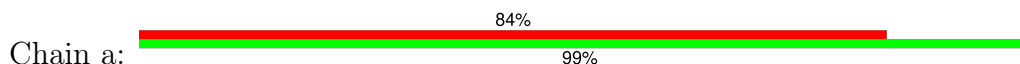
• Molecule 6: Cytochrome c oxidase polypeptide 4



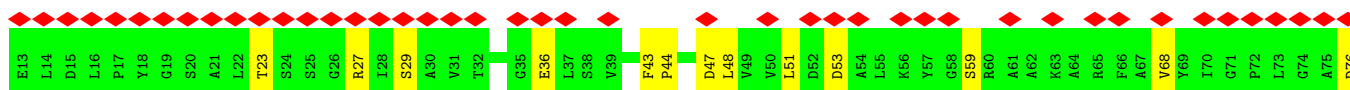
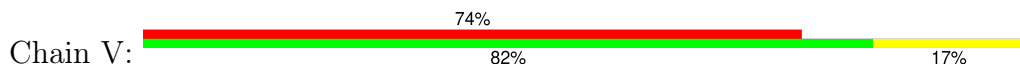
• Molecule 7: Cytochrome c oxidase subunit CtaJ

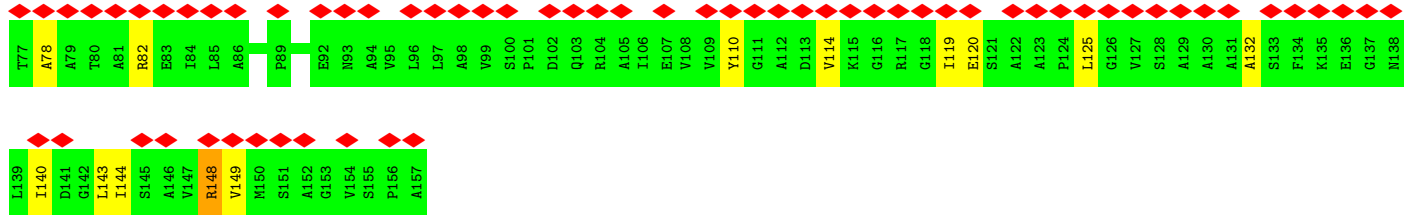


• Molecule 7: Cytochrome c oxidase subunit CtaJ

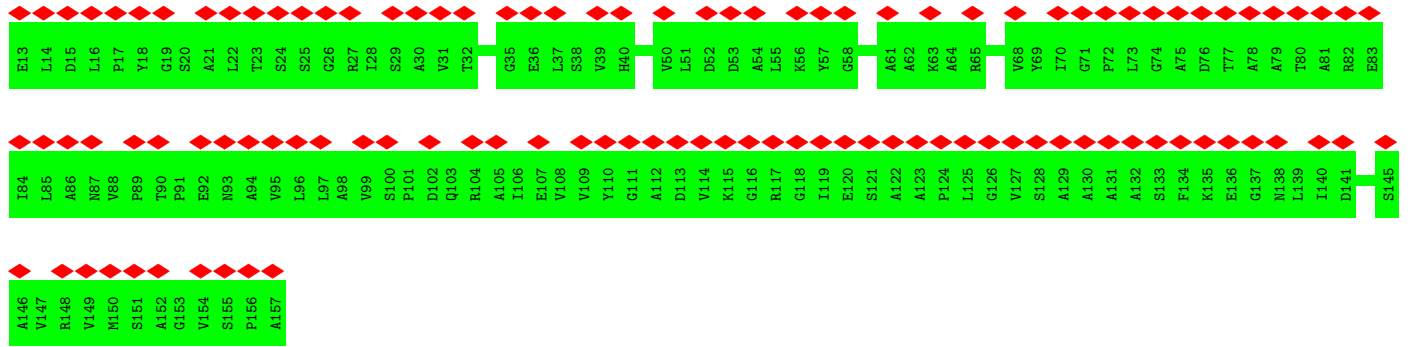
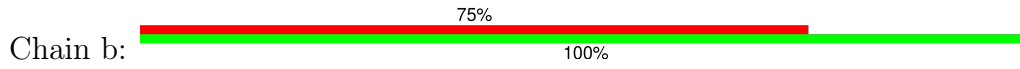


• Molecule 8: Uncharacterized protein MSMEG_4692/MSMEI_4575

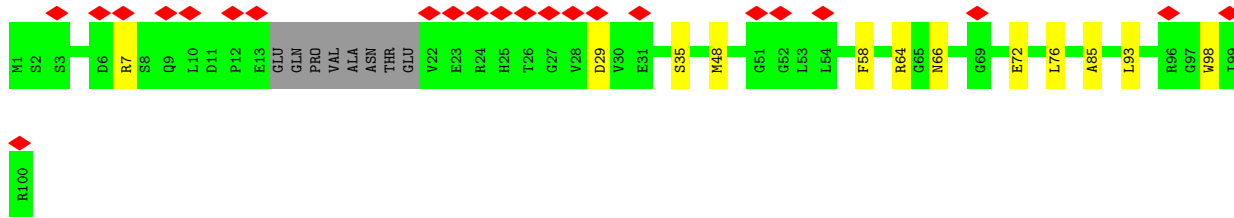
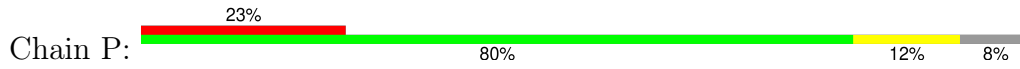




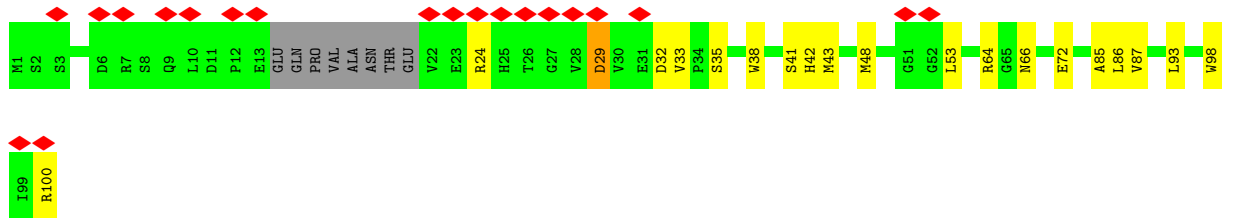
• Molecule 8: Uncharacterized protein MSMEG_4692/MSMEI_4575



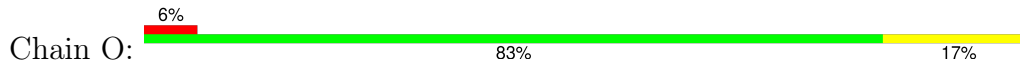
• Molecule 9: Conserved transmembrane protein

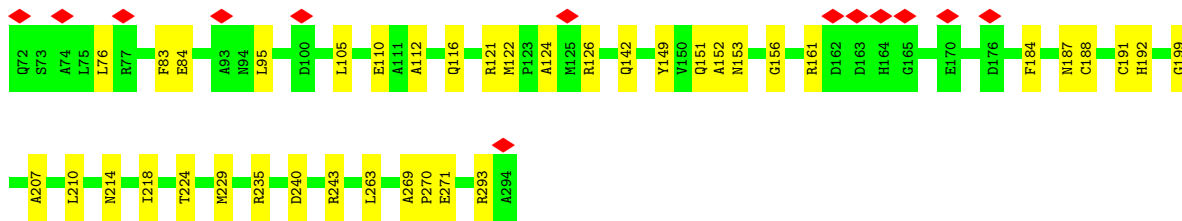


• Molecule 9: Conserved transmembrane protein

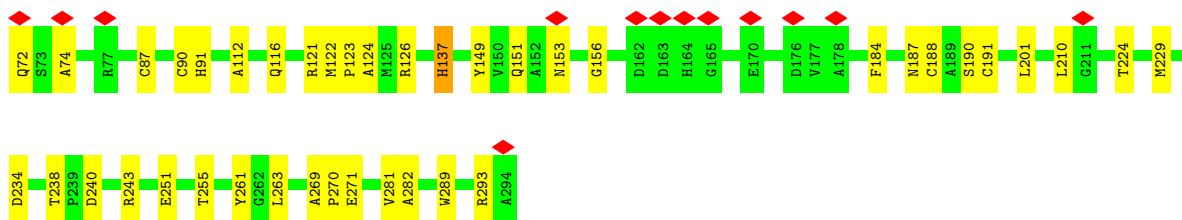
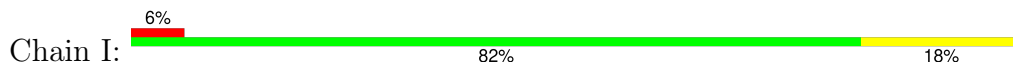


• Molecule 10: Cytochrome bc1 complex cytochrome c subunit

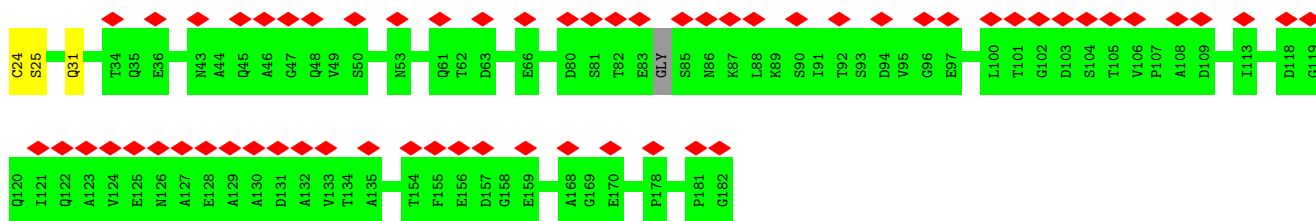




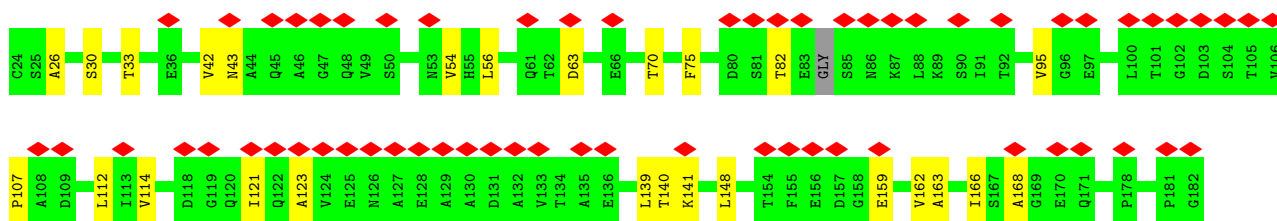
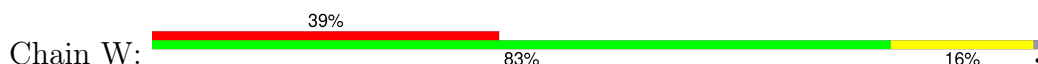
• Molecule 10: Cytochrome bc1 complex cytochrome c subunit



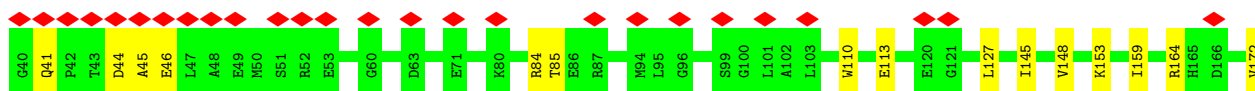
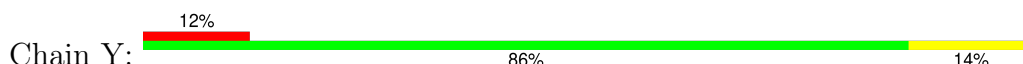
• Molecule 11: LpqE protein

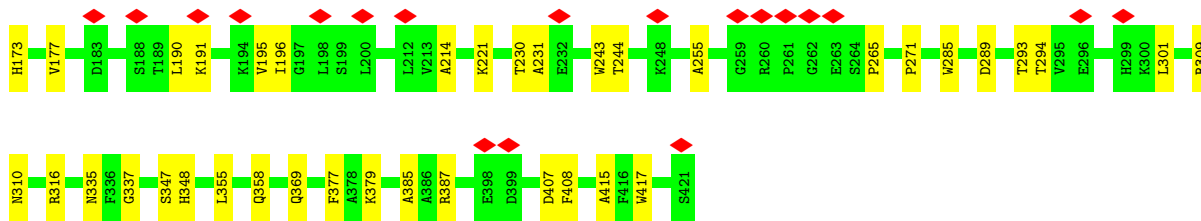


• Molecule 11: LpqE protein

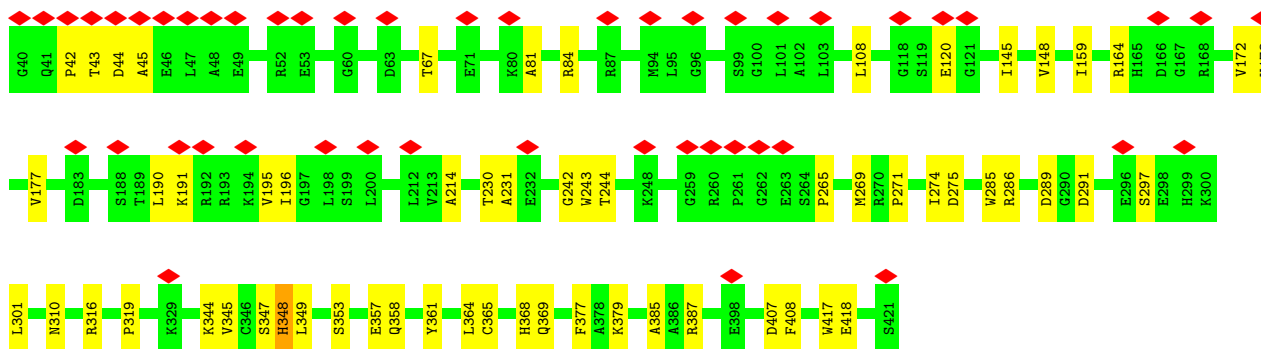
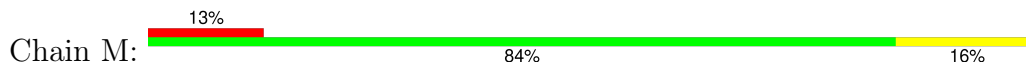


• Molecule 12: Cytochrome bc1 complex Rieske iron-sulfur subunit

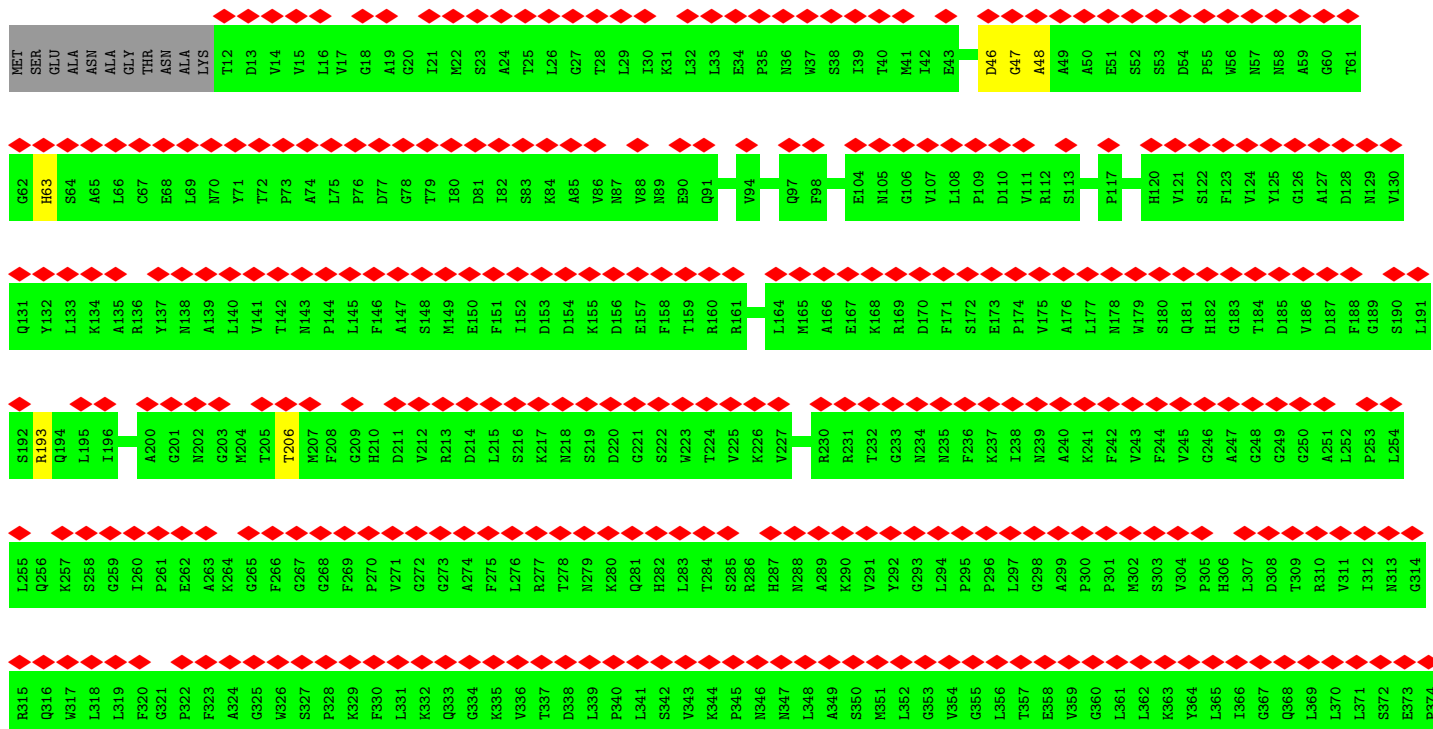
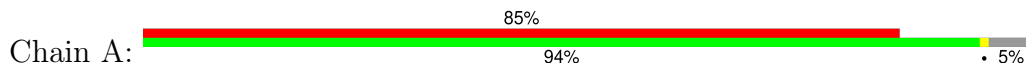




• Molecule 12: Cytochrome bc1 complex Rieske iron-sulfur subunit



• Molecule 13: Probable malate:quinone oxidoreductase



A375	R376	V377	E378	T379	L380	R381	E382	F383	A384	P385	S386	A387	V388	D389	S390	D391	V392	E393	L394	D395	I396	A397	G398	Q399	R400	V401	Q402	V403	I404	R405	R406	K407	G408	A409	G410	G411	V412	L413	E414	F415	G416	T417	T418	V419	L420	A421	A422	A423	D424	G425	S426	I427	A428	G429	L430	L431	G432	A433	S434
P435	G436	A437	S438	T439	A440	V441	P442	A443	M444	L445	D446	V447	L448	Q449	R450	A453	D454	R455	Y456	Q457	A458	W459	T460	P461	K462	L463	K464	E465	M466	V467	P468	S469	L470	G471	T472	K473	L474	S475	D476	E477	P478	K479	L480	F481	E482	E483	V484	W485	S486	W487	G488	T489	K490	V491	L492	K493	L494	D495	
V496	GLN	ALA	ASN	THR	ALA	GLU	ALA	ALA	ALA	ASN	ALA	PRO	ALA	THR	VAL																																												

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	145585	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	41.5	Depositor
Minimum defocus (nm)	900	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	2.130	Depositor
Minimum map value	-1.579	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.058	Depositor
Recommended contour level	0.335	Depositor
Map size (Å)	374.91998, 374.91998, 374.91998	wwPDB
Map dimensions	364, 364, 364	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.03, 1.03, 1.03	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: MQ9, FES, PLM, HEA, CDL, 9Y0, HEC, CU, 9XX, 9YF, HEM

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	L	0.28	0/4530	0.46	0/6188
1	R	0.28	0/4530	0.46	0/6188
2	E	0.28	0/4314	0.50	0/5882
2	F	0.29	0/4314	0.50	0/5882
3	D	0.26	0/1099	0.47	0/1519
3	G	0.25	0/1099	0.47	0/1519
4	K	0.28	0/2534	0.50	0/3451
4	Q	0.27	0/2534	0.50	0/3451
5	S	0.28	0/1608	0.46	0/2195
5	X	0.29	0/1608	0.47	0/2195
6	T	0.33	0/1112	0.56	0/1524
6	Z	0.28	0/1112	0.46	0/1524
7	U	0.25	0/613	0.43	0/836
7	a	0.25	0/613	0.44	0/836
8	V	0.28	0/1059	0.52	0/1446
8	b	0.28	0/1059	0.55	0/1446
9	J	0.24	0/757	0.51	0/1027
9	P	0.27	0/757	0.53	0/1027
10	I	0.27	0/1660	0.52	0/2250
10	O	0.35	0/1660	0.60	0/2250
11	W	0.26	0/1166	0.51	0/1599
11	c	0.26	0/1166	0.51	0/1599
12	M	0.30	0/3056	0.54	1/4142 (0.0%)
12	Y	0.29	0/3056	0.51	0/4142
13	A	0.36	0/2376	0.71	0/3296
All	All	0.29	0/49392	0.51	1/67414 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
12	M	214	ALA	CB-CA-C	5.09	117.74	110.10

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	L	4370	0	4346	90	0
1	R	4370	0	4345	103	0
2	E	4181	0	4202	84	0
2	F	4181	0	4199	83	0
3	D	1092	0	640	3	0
3	G	1092	0	640	1	0
4	K	2465	0	2392	32	0
4	Q	2465	0	2392	48	0
5	S	1560	0	1547	62	0
5	X	1560	0	1547	82	0
6	T	1077	0	1058	49	0
6	Z	1077	0	1058	63	0
7	U	591	0	576	8	0
7	a	591	0	576	0	0
8	V	1041	0	1052	50	0
8	b	1041	0	1052	0	0
9	J	736	0	717	13	0
9	P	736	0	717	11	0
10	I	1623	0	1564	38	0
10	O	1623	0	1564	36	0
11	W	1149	0	1110	22	0
11	c	1149	0	1110	0	0
12	M	2977	0	2984	46	0
12	Y	2977	0	2984	40	0
13	A	2377	0	1117	32	0
14	K	2	0	0	0	0
14	L	1	0	0	0	0
14	Q	2	0	0	0	0
14	R	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
15	L	120	0	108	7	0
15	R	120	0	108	5	0
16	E	152	0	192	13	0
16	F	152	0	192	20	0
16	J	76	0	96	11	0
16	L	76	0	96	18	0
16	P	76	0	96	10	0
16	R	76	0	96	22	0
16	S	76	0	96	49	0
16	T	228	0	288	50	0
16	X	152	0	192	96	0
16	Z	152	0	192	80	0
17	E	85	0	57	4	0
17	F	85	0	57	5	0
18	E	116	0	160	7	0
18	F	232	0	320	7	0
18	I	58	0	80	0	0
18	Z	58	0	80	5	0
19	F	49	0	0	0	0
19	J	98	0	0	0	0
19	P	49	0	0	0	0
19	S	49	0	0	0	0
19	X	49	0	0	0	0
20	D	11	0	16	0	0
20	G	11	0	16	0	0
20	W	17	0	31	2	0
20	c	17	0	31	0	0
21	D	32	0	0	0	0
21	G	32	0	0	0	0
21	W	42	0	0	0	0
21	c	42	0	0	0	0
22	I	86	0	64	16	0
22	O	86	0	64	14	0
23	I	58	0	0	5	0
23	M	116	0	0	0	0
23	O	58	0	0	0	0
23	W	58	0	0	1	0
23	Y	116	0	0	5	0
23	c	58	0	0	0	0
24	M	4	0	0	1	0
24	Y	4	0	0	1	0
All	All	51339	0	48217	969	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 10.

The worst 5 of 969 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:V:125:LEU:CD2	13:A:48:ALA:HB3	1.39	1.50
5:X:166:LYS:NZ	16:X:301:CDL:H112	1.28	1.48
16:Z:203:CDL:H631	23:I:304:9YF:C23	1.48	1.42
6:Z:120:PHE:CB	16:Z:202:CDL:H612	1.53	1.38
16:Z:203:CDL:C63	23:I:304:9YF:C23	2.03	1.37

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	L	550/566 (97%)	516 (94%)	34 (6%)	0	100	100
1	R	550/566 (97%)	518 (94%)	32 (6%)	0	100	100
2	E	533/535 (100%)	490 (92%)	43 (8%)	0	100	100
2	F	533/535 (100%)	489 (92%)	43 (8%)	1 (0%)	44	75
3	D	214/216 (99%)	193 (90%)	20 (9%)	1 (0%)	25	60
3	G	214/216 (99%)	187 (87%)	27 (13%)	0	100	100
4	K	310/312 (99%)	282 (91%)	28 (9%)	0	100	100
4	Q	310/312 (99%)	282 (91%)	28 (9%)	0	100	100
5	S	201/203 (99%)	193 (96%)	8 (4%)	0	100	100
5	X	201/203 (99%)	192 (96%)	9 (4%)	0	100	100
6	T	137/139 (99%)	129 (94%)	8 (6%)	0	100	100
6	Z	137/139 (99%)	130 (95%)	7 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
7	U	77/79 (98%)	70 (91%)	6 (8%)	1 (1%)	10	41
7	a	77/79 (98%)	70 (91%)	7 (9%)	0	100	100
8	V	143/145 (99%)	139 (97%)	4 (3%)	0	100	100
8	b	143/145 (99%)	138 (96%)	5 (4%)	0	100	100
9	J	88/100 (88%)	85 (97%)	3 (3%)	0	100	100
9	P	88/100 (88%)	84 (96%)	4 (4%)	0	100	100
10	I	221/223 (99%)	199 (90%)	22 (10%)	0	100	100
10	O	221/223 (99%)	199 (90%)	22 (10%)	0	100	100
11	W	154/159 (97%)	137 (89%)	17 (11%)	0	100	100
11	c	154/159 (97%)	135 (88%)	19 (12%)	0	100	100
12	M	380/382 (100%)	344 (90%)	36 (10%)	0	100	100
12	Y	380/382 (100%)	348 (92%)	31 (8%)	1 (0%)	37	69
13	A	483/510 (95%)	474 (98%)	7 (1%)	2 (0%)	30	64
All	All	6499/6628 (98%)	6023 (93%)	470 (7%)	6 (0%)	50	80

5 of 6 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	F	135	ARG
13	A	63	HIS
12	Y	113	GLU
3	D	27	THR
13	A	436	GLY

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	L	452/465 (97%)	442 (98%)	10 (2%)	47	73
1	R	452/465 (97%)	446 (99%)	6 (1%)	65	83
2	E	429/429 (100%)	425 (99%)	4 (1%)	75	89

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	F	429/429 (100%)	424 (99%)	5 (1%)	67	85
3	D	20/151 (13%)	20 (100%)	0	100	100
3	G	20/151 (13%)	20 (100%)	0	100	100
4	K	260/266 (98%)	256 (98%)	4 (2%)	60	81
4	Q	260/266 (98%)	257 (99%)	3 (1%)	67	85
5	S	155/161 (96%)	153 (99%)	2 (1%)	65	83
5	X	155/161 (96%)	153 (99%)	2 (1%)	65	83
6	T	106/106 (100%)	106 (100%)	0	100	100
6	Z	106/106 (100%)	106 (100%)	0	100	100
7	U	59/59 (100%)	59 (100%)	0	100	100
7	a	59/59 (100%)	58 (98%)	1 (2%)	56	78
8	V	107/107 (100%)	106 (99%)	1 (1%)	75	89
8	b	107/107 (100%)	107 (100%)	0	100	100
9	J	76/83 (92%)	70 (92%)	6 (8%)	10	38
9	P	76/83 (92%)	75 (99%)	1 (1%)	65	83
10	I	163/163 (100%)	160 (98%)	3 (2%)	54	77
10	O	163/163 (100%)	162 (99%)	1 (1%)	84	92
11	W	127/127 (100%)	127 (100%)	0	100	100
11	c	127/127 (100%)	124 (98%)	3 (2%)	44	71
12	M	312/312 (100%)	310 (99%)	2 (1%)	84	92
12	Y	312/312 (100%)	312 (100%)	0	100	100
All	All	4532/4858 (93%)	4478 (99%)	54 (1%)	66	85

5 of 54 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
5	S	130	THR
4	K	281	HIS
10	I	91	HIS
5	S	189	ASP
10	O	270	PRO

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
11	c	31	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 66 ligands modelled in this entry, 6 are monoatomic - leaving 60 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$
17	HEM	E	602	2	42,50,50	1.51	5 (11%)	46,82,82	1.34	7 (15%)
23	9YF	c	203	-	58,58,58	1.01	5 (8%)	68,71,71	1.13	3 (4%)
18	MQ9	Z	201	-	59,59,59	2.36	22 (37%)	73,75,75	1.63	16 (21%)
16	CDL	E	605	-	75,75,99	0.34	0	81,87,111	0.42	0
22	HEC	O	302	10	32,50,50	2.07	3 (9%)	30,82,82	2.13	8 (26%)
16	CDL	T	203	-	75,75,99	0.37	0	81,87,111	0.45	0
23	9YF	M	501	-	58,58,58	1.08	6 (10%)	68,71,71	1.30	7 (10%)
22	HEC	O	301	10	32,50,50	2.09	3 (9%)	30,82,82	2.13	7 (23%)
19	9Y0	X	303	-	48,48,48	1.17	3 (6%)	51,53,53	0.90	2 (3%)
16	CDL	Z	202	-	75,75,99	1.26	9 (12%)	81,87,111	1.83	15 (18%)
16	CDL	L	604	-	75,75,99	0.34	0	81,87,111	0.71	3 (3%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
23	9YF	O	303	-	58,58,58	1.05	5 (8%)	68,71,71	1.01	3 (4%)
15	HEA	L	602	1	58,67,67	1.62	11 (18%)	63,103,103	2.46	23 (36%)
16	CDL	J	201	-	75,75,99	0.33	0	81,87,111	0.45	0
22	HEC	I	302	10	32,50,50	2.16	3 (9%)	30,82,82	2.03	8 (26%)
18	MQ9	F	707	-	59,59,59	2.25	21 (35%)	73,75,75	1.73	21 (28%)
23	9YF	W	203	-	58,58,58	1.02	5 (8%)	68,71,71	1.13	3 (4%)
16	CDL	X	301	-	75,75,99	0.33	0	81,87,111	0.40	0
18	MQ9	F	701	-	59,59,59	2.44	23 (38%)	73,75,75	1.38	15 (20%)
17	HEM	E	601	2	41,49,50	1.24	4 (9%)	47,81,82	1.27	4 (8%)
21	9XX	G	302	3	31,31,41	1.12	3 (9%)	34,34,44	1.47	5 (14%)
18	MQ9	F	709	-	59,59,59	2.43	22 (37%)	73,75,75	1.54	15 (20%)
19	9Y0	P	202	-	48,48,48	1.19	3 (6%)	51,53,53	0.95	2 (3%)
18	MQ9	I	303	-	59,59,59	2.39	23 (38%)	73,75,75	1.43	18 (24%)
17	HEM	F	703	2	42,50,50	1.50	4 (9%)	46,82,82	1.38	7 (15%)
22	HEC	I	301	-	32,50,50	2.07	3 (9%)	30,82,82	2.22	5 (16%)
23	9YF	I	304	-	58,58,58	1.04	5 (8%)	68,71,71	1.01	3 (4%)
18	MQ9	E	603	-	59,59,59	2.44	23 (38%)	73,75,75	1.38	13 (17%)
19	9Y0	F	706	-	48,48,48	1.17	3 (6%)	51,53,53	0.87	2 (3%)
23	9YF	Y	503	-	58,58,58	1.09	5 (8%)	68,71,71	1.33	5 (7%)
18	MQ9	E	604	-	59,59,59	2.41	22 (37%)	73,75,75	1.53	16 (21%)
24	FES	Y	501	12	0,4,4	-	-	-	-	-
15	HEA	L	603	1	58,67,67	1.56	10 (17%)	63,103,103	1.85	13 (20%)
16	CDL	T	202	-	75,75,99	0.33	0	81,87,111	0.40	0
15	HEA	R	603	1	58,67,67	1.55	11 (18%)	63,103,103	2.03	12 (19%)
16	CDL	F	704	-	75,75,99	0.34	0	81,87,111	0.42	0
16	CDL	F	705	-	75,75,99	0.37	0	81,87,111	0.46	1 (1%)
16	CDL	P	201	-	75,75,99	0.33	0	81,87,111	0.45	0
21	9XX	W	202	-	41,41,41	1.10	4 (9%)	44,44,44	1.19	3 (6%)
20	PLM	G	301	3	9,10,17	0.54	0	8,9,17	0.43	0
23	9YF	Y	502	-	58,58,58	1.08	7 (12%)	68,71,71	1.30	7 (10%)
16	CDL	X	302	-	75,75,99	1.33	7 (9%)	81,87,111	1.99	9 (11%)
19	9Y0	J	203	-	48,48,48	1.16	3 (6%)	51,53,53	0.77	2 (3%)
19	9Y0	S	302	-	48,48,48	1.16	3 (6%)	51,53,53	0.87	2 (3%)
20	PLM	W	201	11	15,16,17	0.49	0	14,15,17	0.33	0
24	FES	M	503	12	0,4,4	-	-	-	-	-
19	9Y0	J	202	-	48,48,48	1.17	3 (6%)	51,53,53	0.90	2 (3%)
20	PLM	D	301	3	9,10,17	0.53	0	8,9,17	0.43	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
16	CDL	T	201	-	75,75,99	1.26	9 (12%)	81,87,111	1.83	15 (18%)
17	HEM	F	702	2	41,49,50	1.23	3 (7%)	47,81,82	1.26	3 (6%)
20	PLM	c	201	11	15,16,17	0.47	0	14,15,17	0.34	0
21	9XX	c	202	11	41,41,41	0.96	3 (7%)	44,44,44	1.18	4 (9%)
16	CDL	R	604	-	75,75,99	0.34	0	81,87,111	0.60	2 (2%)
16	CDL	S	301	-	75,75,99	1.32	7 (9%)	81,87,111	1.99	9 (11%)
21	9XX	D	302	-	31,31,41	1.11	3 (9%)	34,34,44	1.44	4 (11%)
15	HEA	R	602	1	58,67,67	1.62	10 (17%)	63,103,103	2.39	22 (34%)
16	CDL	Z	203	-	75,75,99	1.32	7 (9%)	81,87,111	2.04	9 (11%)
18	MQ9	F	708	-	59,59,59	2.30	22 (37%)	73,75,75	1.43	9 (12%)
23	9YF	M	502	-	58,58,58	1.09	5 (8%)	68,71,71	1.33	5 (7%)
16	CDL	E	606	-	75,75,99	0.37	0	81,87,111	0.42	0

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
17	HEM	E	602	2	-	2/12/54/54	-
23	9YF	c	203	-	-	22/54/78/78	0/1/1/1
18	MQ9	Z	201	-	-	11/53/73/73	0/2/2/2
16	CDL	E	605	-	-	49/86/86/110	-
22	HEC	O	302	10	-	2/10/54/54	-
16	CDL	T	203	-	-	47/86/86/110	-
23	9YF	M	501	-	-	23/54/78/78	0/1/1/1
22	HEC	O	301	10	-	2/10/54/54	-
19	9Y0	X	303	-	-	17/52/52/52	-
16	CDL	Z	202	-	-	34/86/86/110	-
16	CDL	L	604	-	-	48/86/86/110	-
23	9YF	O	303	-	-	28/54/78/78	0/1/1/1
15	HEA	L	602	1	-	12/32/76/76	-
16	CDL	J	201	-	-	48/86/86/110	-
22	HEC	I	302	10	-	0/10/54/54	-
18	MQ9	F	707	-	-	17/53/73/73	0/2/2/2
23	9YF	W	203	-	-	22/54/78/78	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
16	CDL	X	301	-	-	46/86/86/110	-
18	MQ9	F	701	-	-	6/53/73/73	0/2/2/2
17	HEM	E	601	2	-	2/12/52/54	-
21	9XX	G	302	3	-	10/33/33/43	-
18	MQ9	F	709	-	-	12/53/73/73	0/2/2/2
19	9Y0	P	202	-	-	22/52/52/52	-
18	MQ9	I	303	-	-	8/53/73/73	0/2/2/2
17	HEM	F	703	2	-	0/12/54/54	-
22	HEC	I	301	-	-	0/10/54/54	-
23	9YF	I	304	-	-	27/54/78/78	0/1/1/1
18	MQ9	E	603	-	-	6/53/73/73	0/2/2/2
19	9Y0	F	706	-	-	16/52/52/52	-
23	9YF	Y	503	-	-	27/54/78/78	0/1/1/1
18	MQ9	E	604	-	-	11/53/73/73	0/2/2/2
24	FES	Y	501	12	-	-	0/1/1/1
15	HEA	L	603	1	-	3/32/76/76	-
16	CDL	T	202	-	-	46/86/86/110	-
15	HEA	R	603	1	-	3/32/76/76	-
16	CDL	F	704	-	-	49/86/86/110	-
16	CDL	F	705	-	-	44/86/86/110	-
16	CDL	P	201	-	-	48/86/86/110	-
21	9XX	W	202	-	-	15/43/43/43	-
20	PLM	G	301	3	-	2/8/8/15	-
23	9YF	Y	502	-	-	23/54/78/78	0/1/1/1
16	CDL	X	302	-	-	43/86/86/110	-
19	9Y0	J	203	-	-	25/52/52/52	-
19	9Y0	S	302	-	-	19/52/52/52	-
20	PLM	W	201	11	-	4/14/14/15	-
24	FES	M	503	12	-	-	0/1/1/1
19	9Y0	J	202	-	-	19/52/52/52	-
20	PLM	D	301	3	-	3/8/8/15	-
16	CDL	T	201	-	-	34/86/86/110	-
17	HEM	F	702	2	-	4/12/52/54	-
20	PLM	c	201	11	-	5/14/14/15	-
21	9XX	c	202	11	-	16/43/43/43	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
16	CDL	R	604	-	-	47/86/86/110	-
16	CDL	S	301	-	-	43/86/86/110	-
21	9XX	D	302	-	-	9/33/33/43	-
15	HEA	R	602	1	-	7/32/76/76	-
16	CDL	Z	203	-	-	38/86/86/110	-
18	MQ9	F	708	-	-	11/53/73/73	0/2/2/2
23	9YF	M	502	-	-	27/54/78/78	0/1/1/1
16	CDL	E	606	-	-	40/86/86/110	-

The worst 5 of 361 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
18	E	604	MQ9	C6-C5	8.80	1.51	1.35
18	F	709	MQ9	C6-C5	8.77	1.50	1.35
18	F	708	MQ9	C6-C5	8.60	1.50	1.35
18	F	701	MQ9	C6-C5	8.58	1.50	1.35
18	I	303	MQ9	C6-C5	8.52	1.50	1.35

The worst 5 of 369 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
16	Z	203	CDL	CB6-CB4-CB3	-9.90	88.70	111.78
16	X	302	CDL	CB6-CB4-CB3	-9.67	89.24	111.78
16	S	301	CDL	CB6-CB4-CB3	-9.67	89.25	111.78
16	T	201	CDL	OB6-CB4-CB6	9.23	141.47	108.34
16	Z	202	CDL	OB6-CB4-CB6	9.23	141.45	108.34

There are no chirality outliers.

5 of 1204 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
15	R	602	HEA	C2D-C3D-CAD-CBD
15	R	602	HEA	C4D-C3D-CAD-CBD
15	L	602	HEA	C12-C11-C3B-C2B
16	R	604	CDL	CA3-OA5-PA1-OA2
16	R	604	CDL	CA3-OA5-PA1-OA3

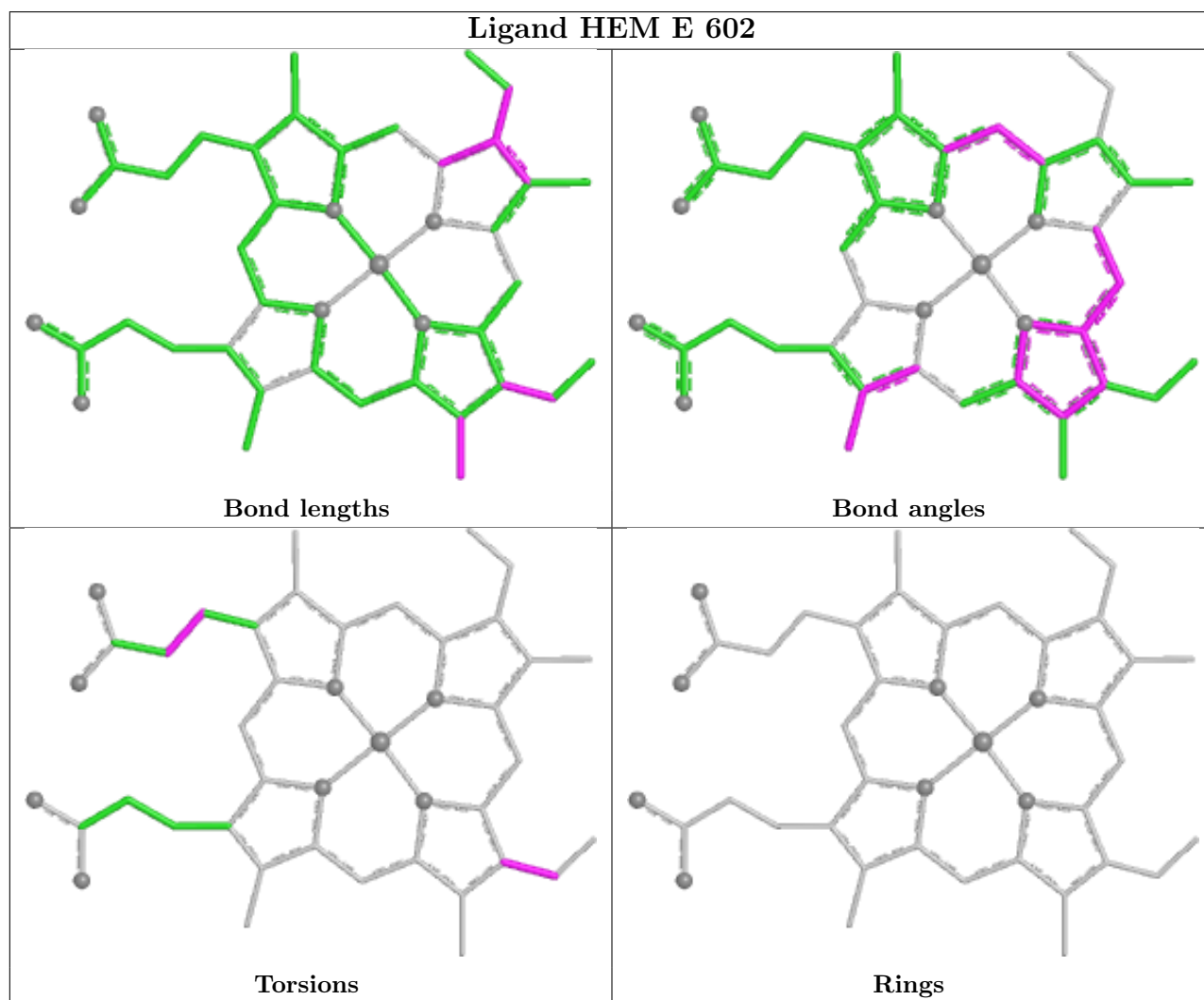
There are no ring outliers.

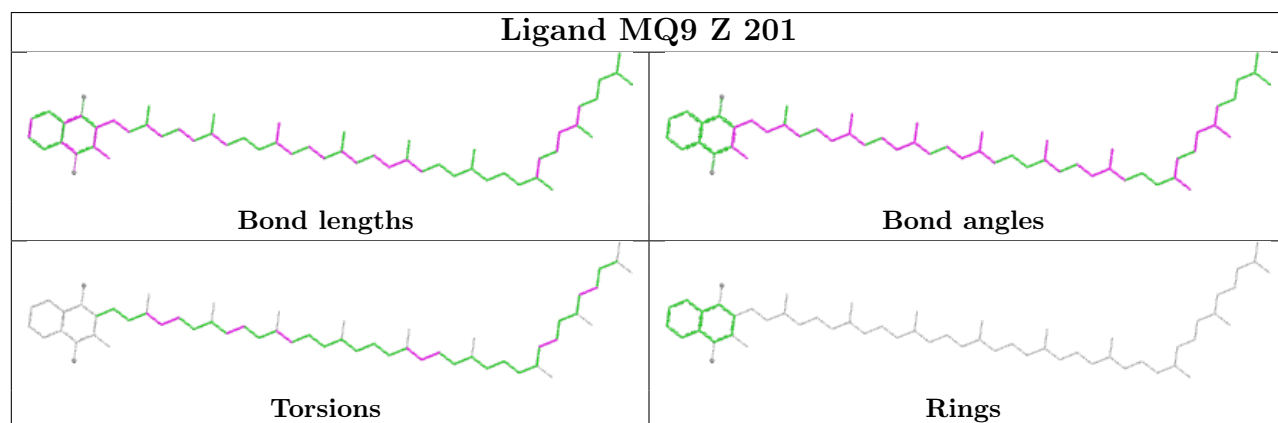
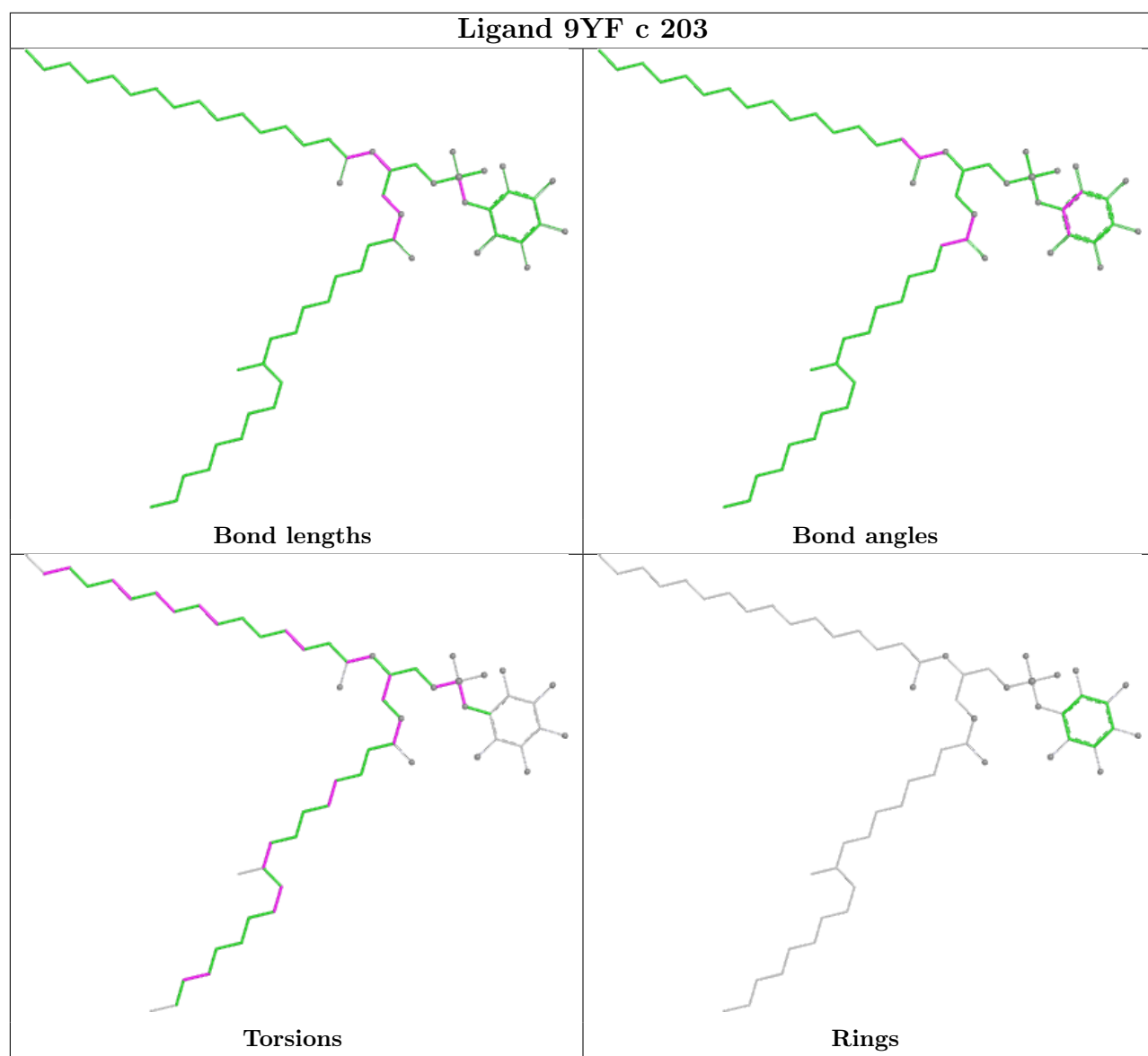
42 monomers are involved in 408 short contacts:

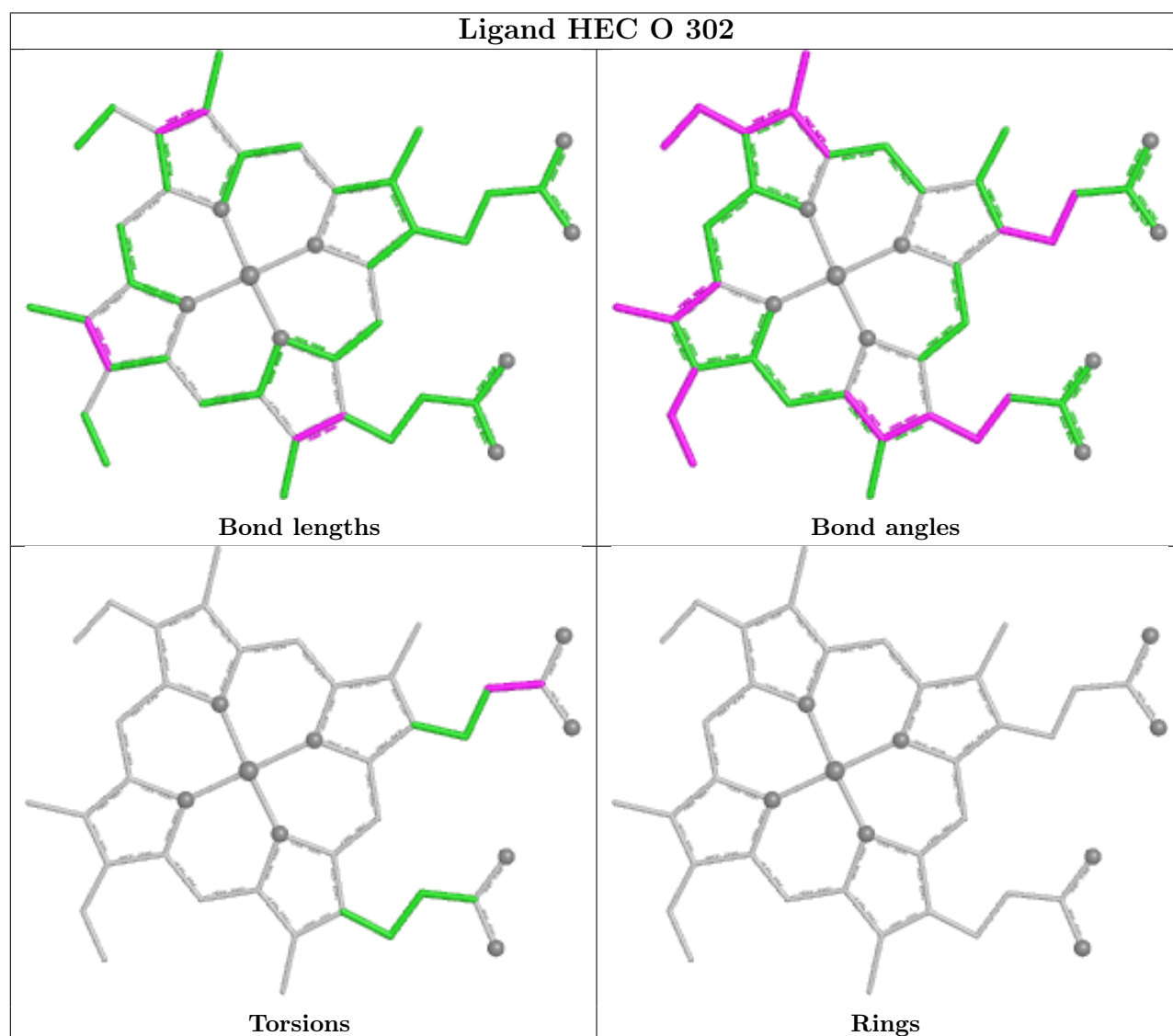
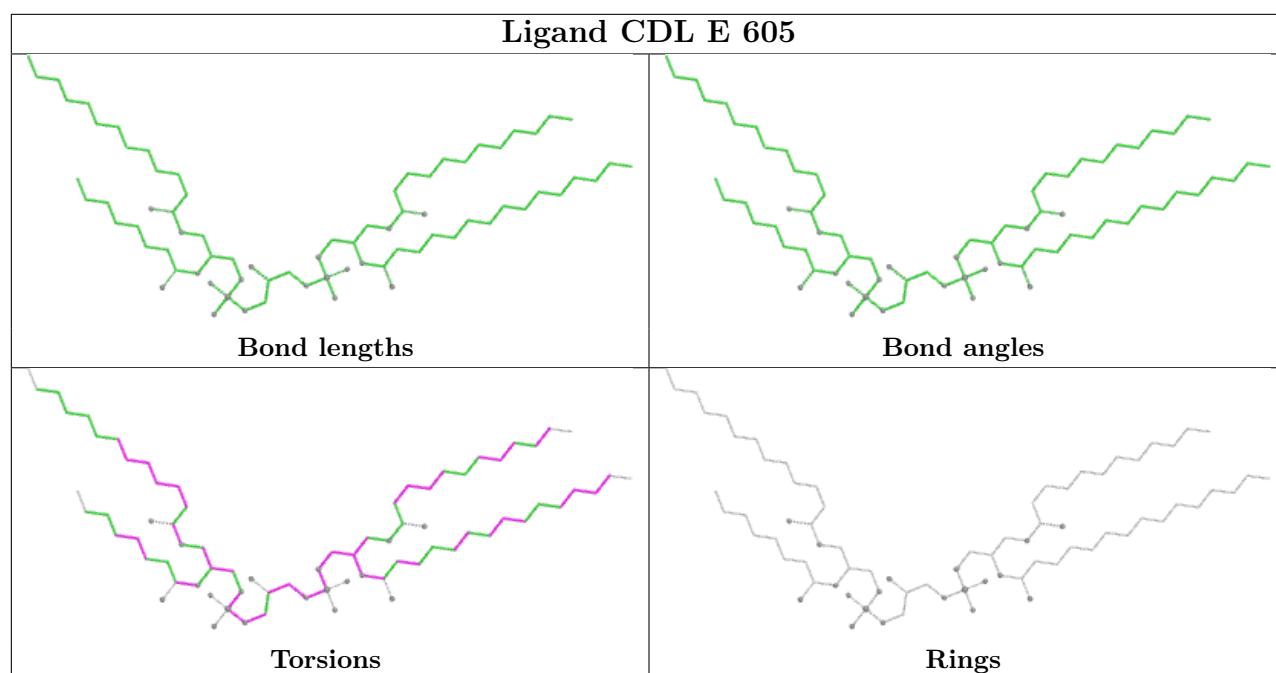
Mol	Chain	Res	Type	Clashes	Symm-Clashes
17	E	602	HEM	2	0
18	Z	201	MQ9	5	0
16	E	605	CDL	10	0
22	O	302	HEC	9	0
16	T	203	CDL	9	0
22	O	301	HEC	5	0
16	Z	202	CDL	36	0
16	L	604	CDL	18	0
15	L	602	HEA	3	0
16	J	201	CDL	11	0
22	I	302	HEC	11	0
18	F	707	MQ9	1	0
23	W	203	9YF	1	0
16	X	301	CDL	42	0
18	F	701	MQ9	1	0
17	E	601	HEM	2	0
18	F	709	MQ9	4	0
17	F	703	HEM	4	0
22	I	301	HEC	5	0
23	I	304	9YF	5	0
18	E	603	MQ9	2	0
23	Y	503	9YF	3	0
18	E	604	MQ9	5	0
24	Y	501	FES	1	0
15	L	603	HEA	4	0
16	T	202	CDL	9	0
15	R	603	HEA	4	0
16	F	704	CDL	10	0
16	F	705	CDL	10	0
16	P	201	CDL	10	0
23	Y	502	9YF	2	0
16	X	302	CDL	54	0
20	W	201	PLM	2	0
24	M	503	FES	1	0
16	T	201	CDL	34	0
17	F	702	HEM	1	0
16	R	604	CDL	22	0
16	S	301	CDL	49	0
15	R	602	HEA	1	0
16	Z	203	CDL	44	0
18	F	708	MQ9	1	0
16	E	606	CDL	3	0

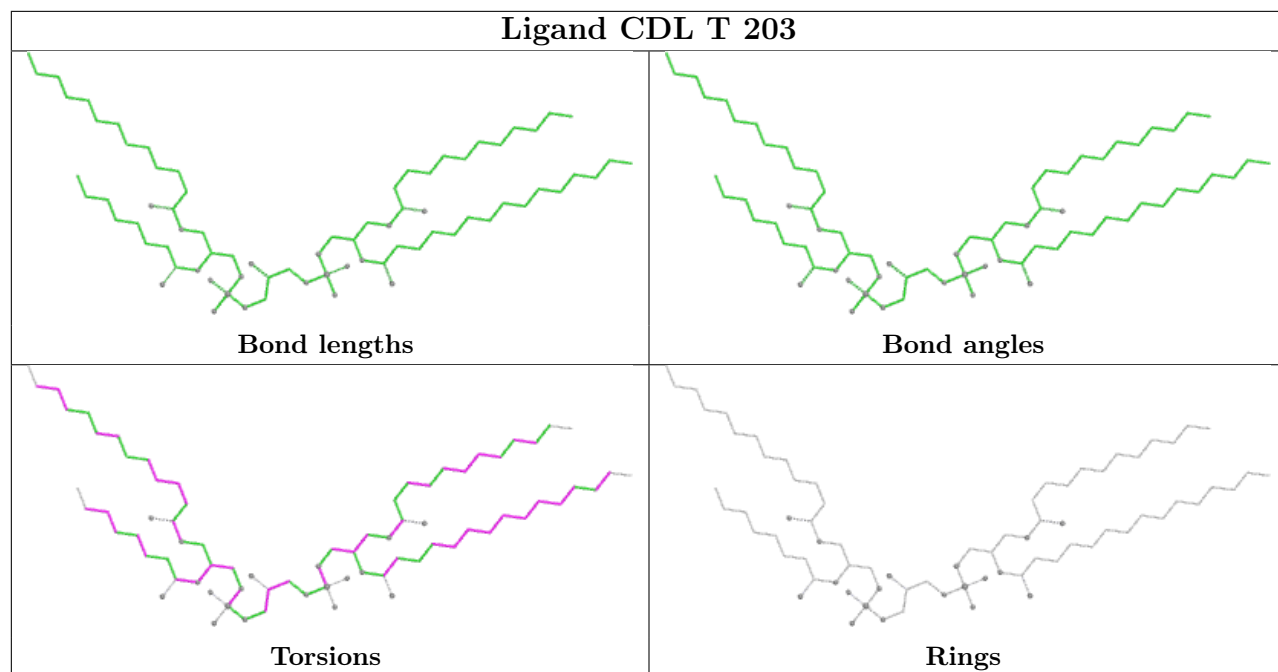
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths,

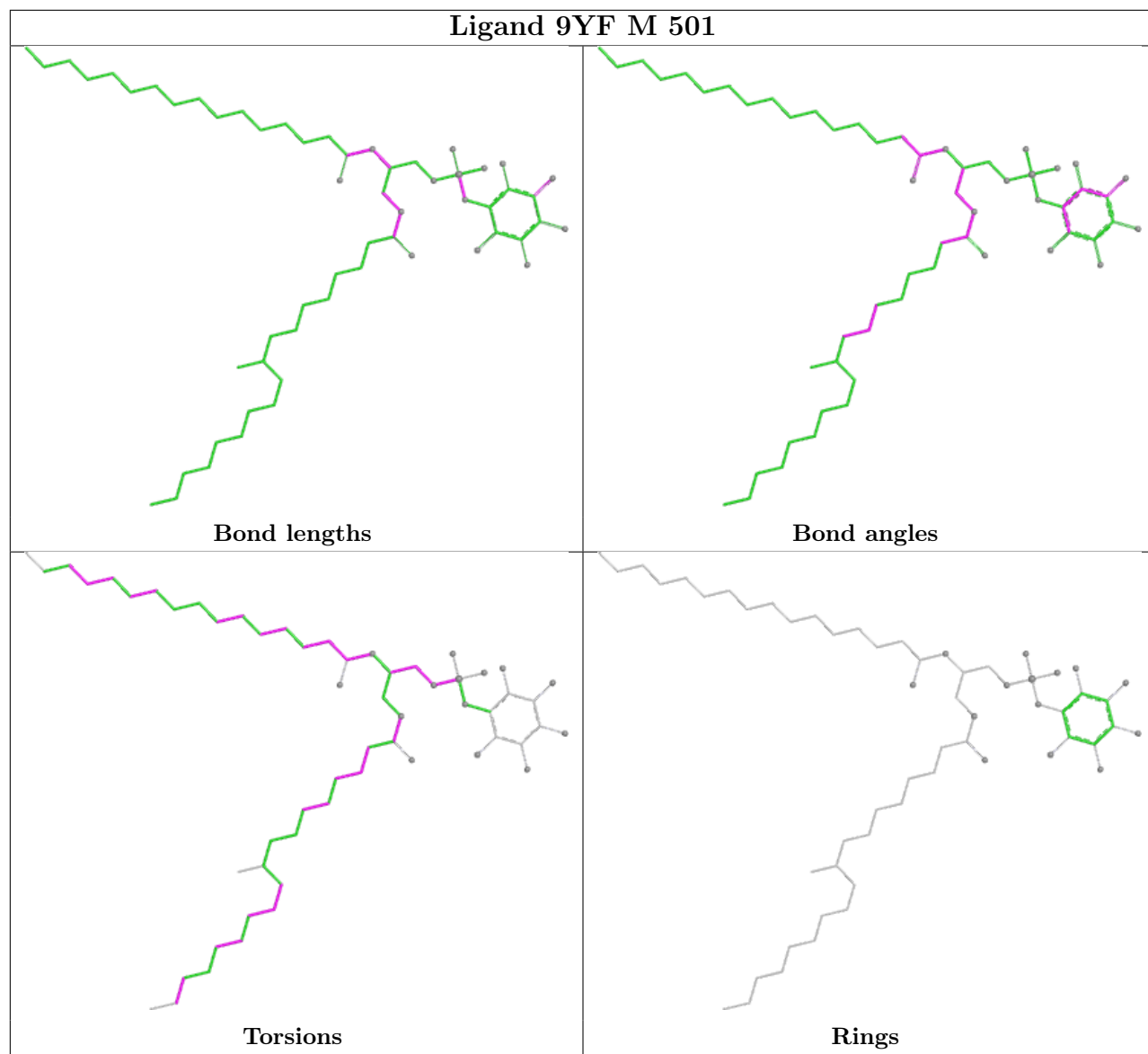
bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within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

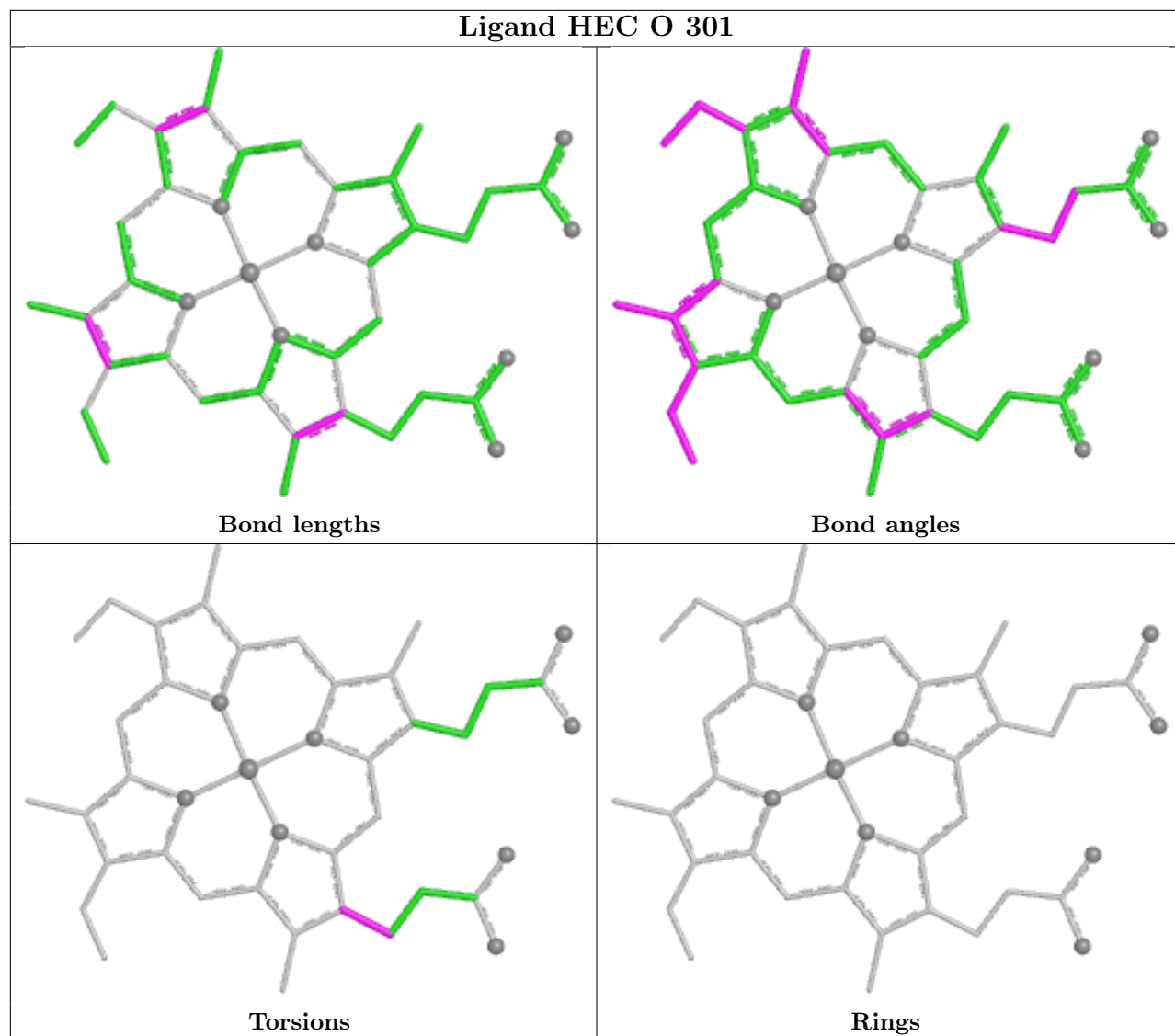


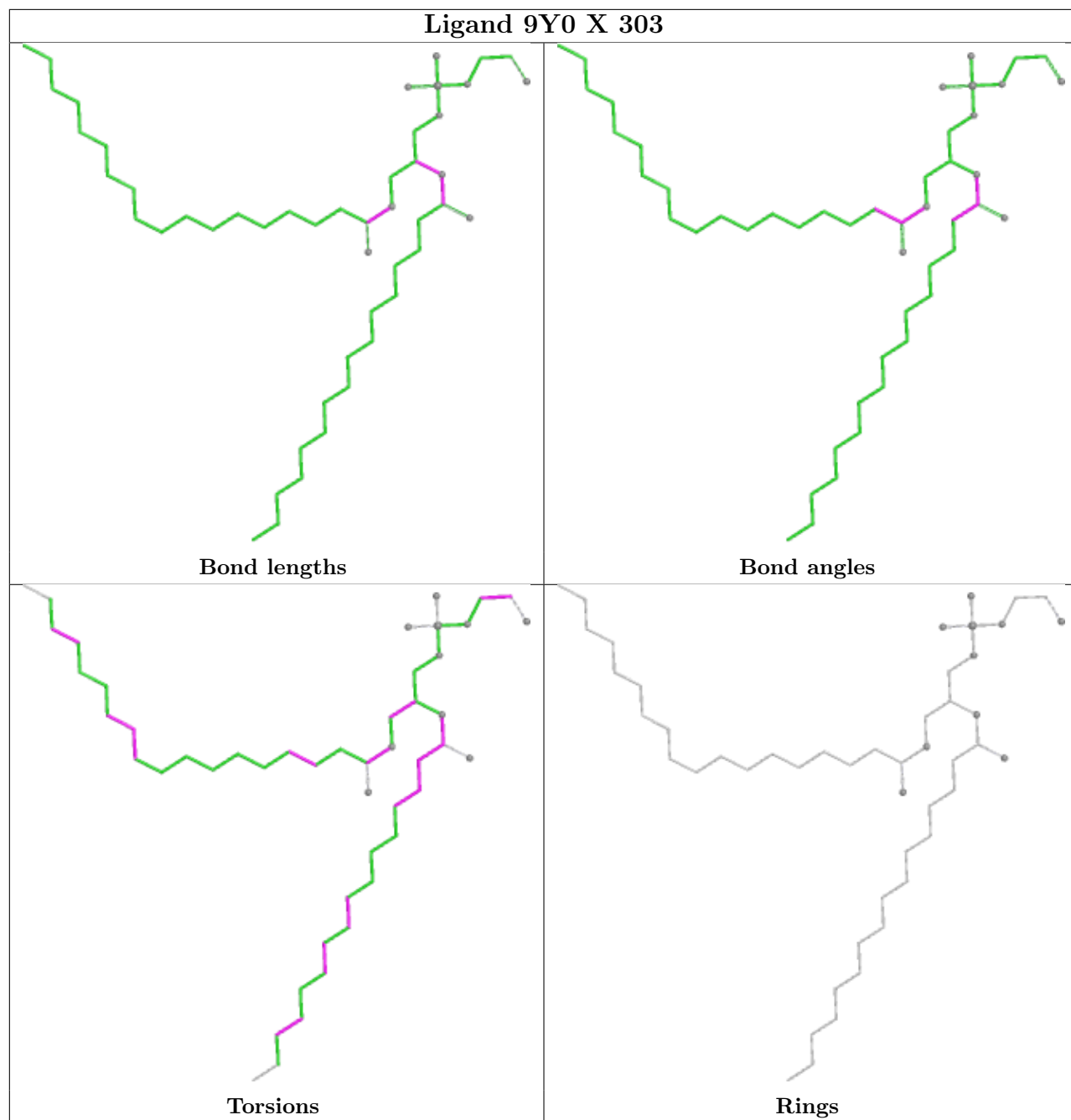


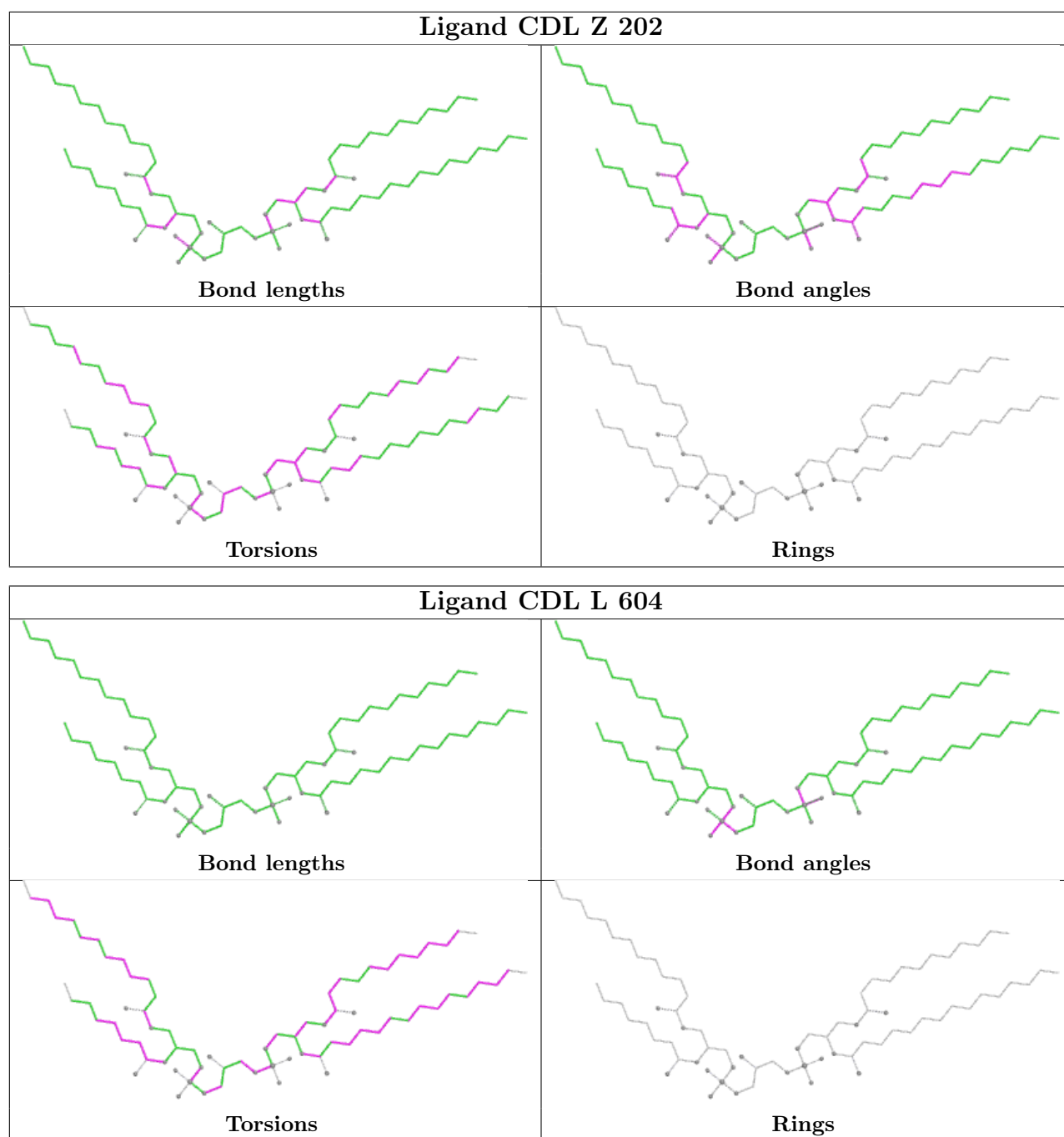


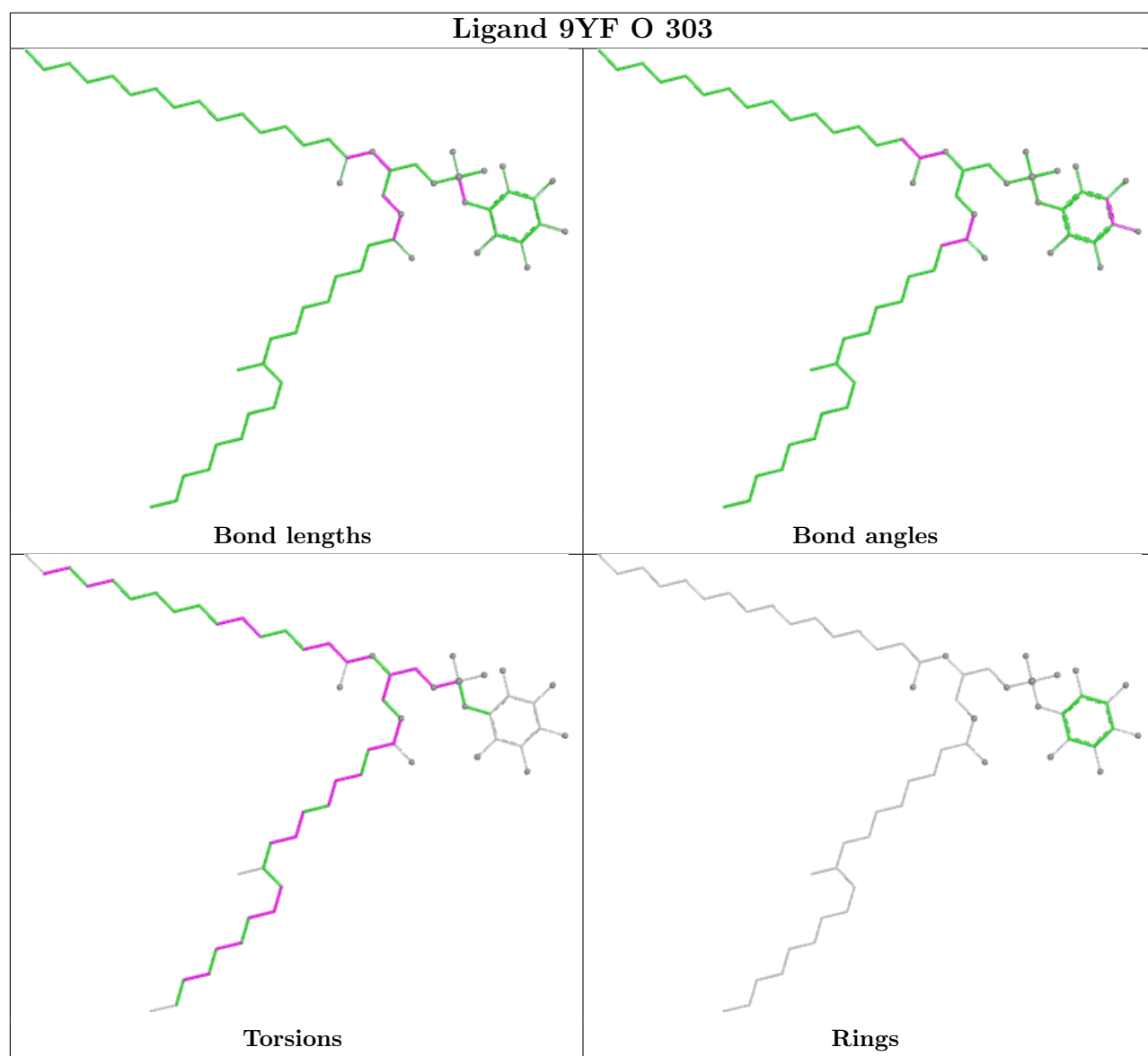


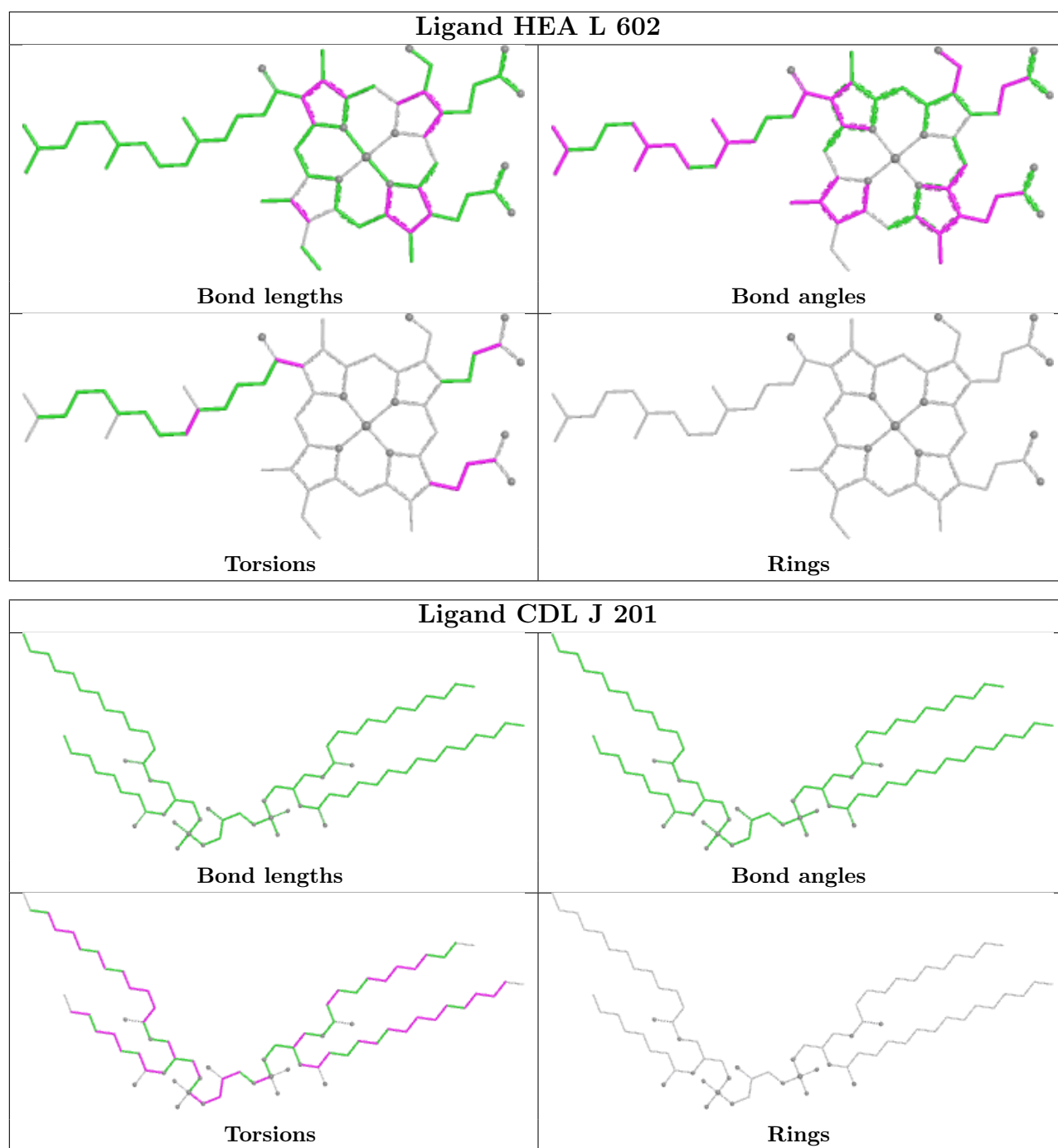


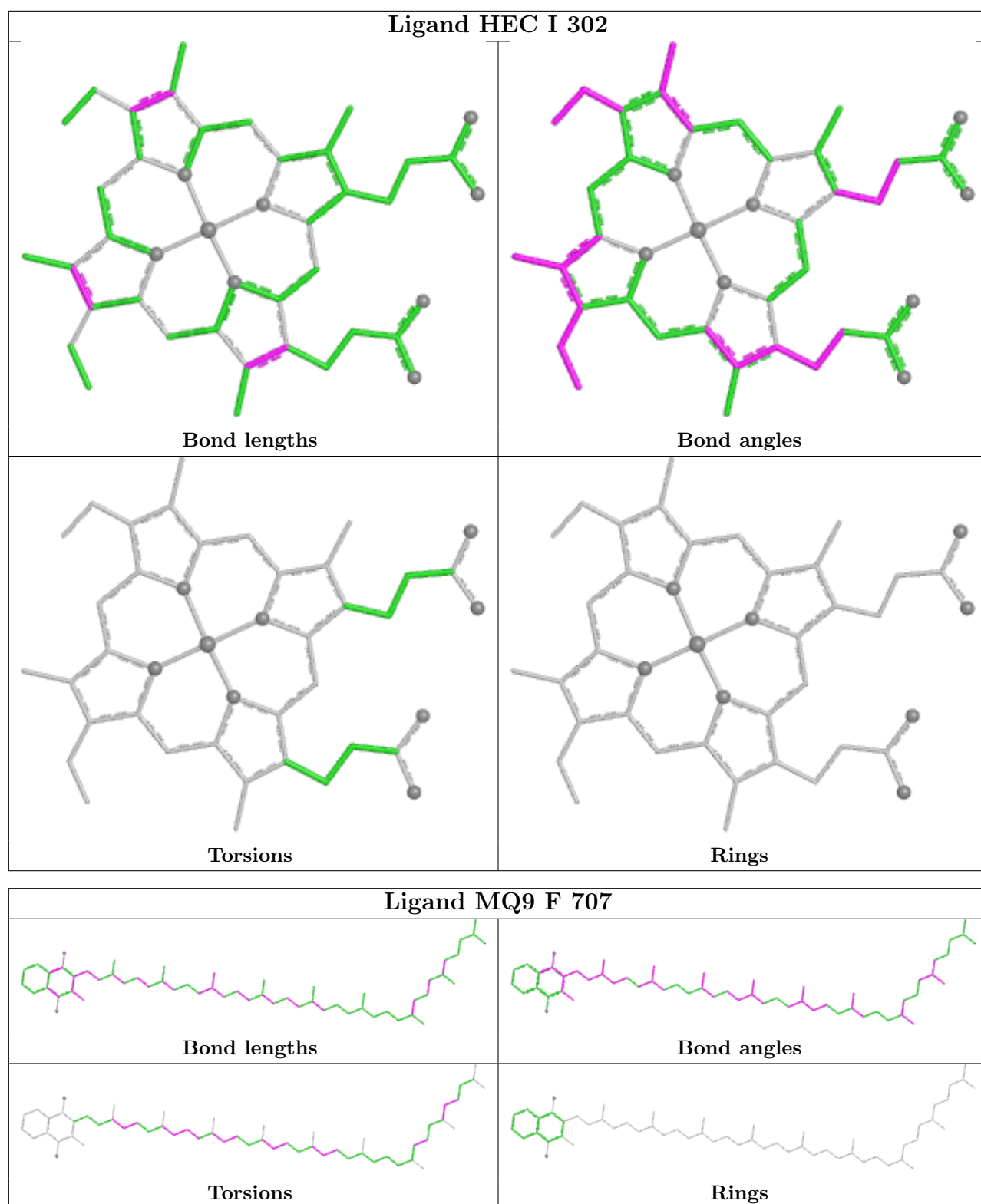


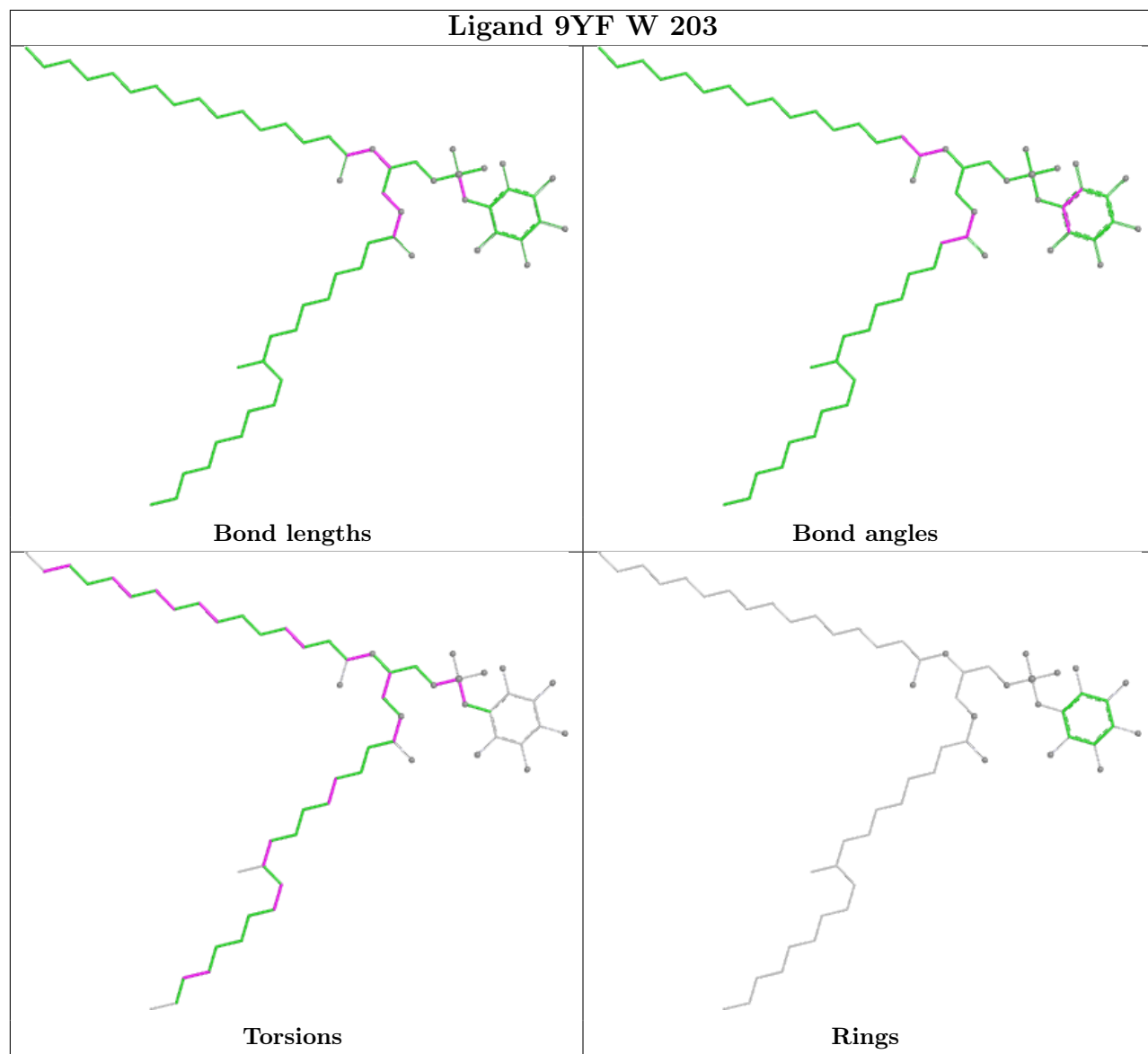


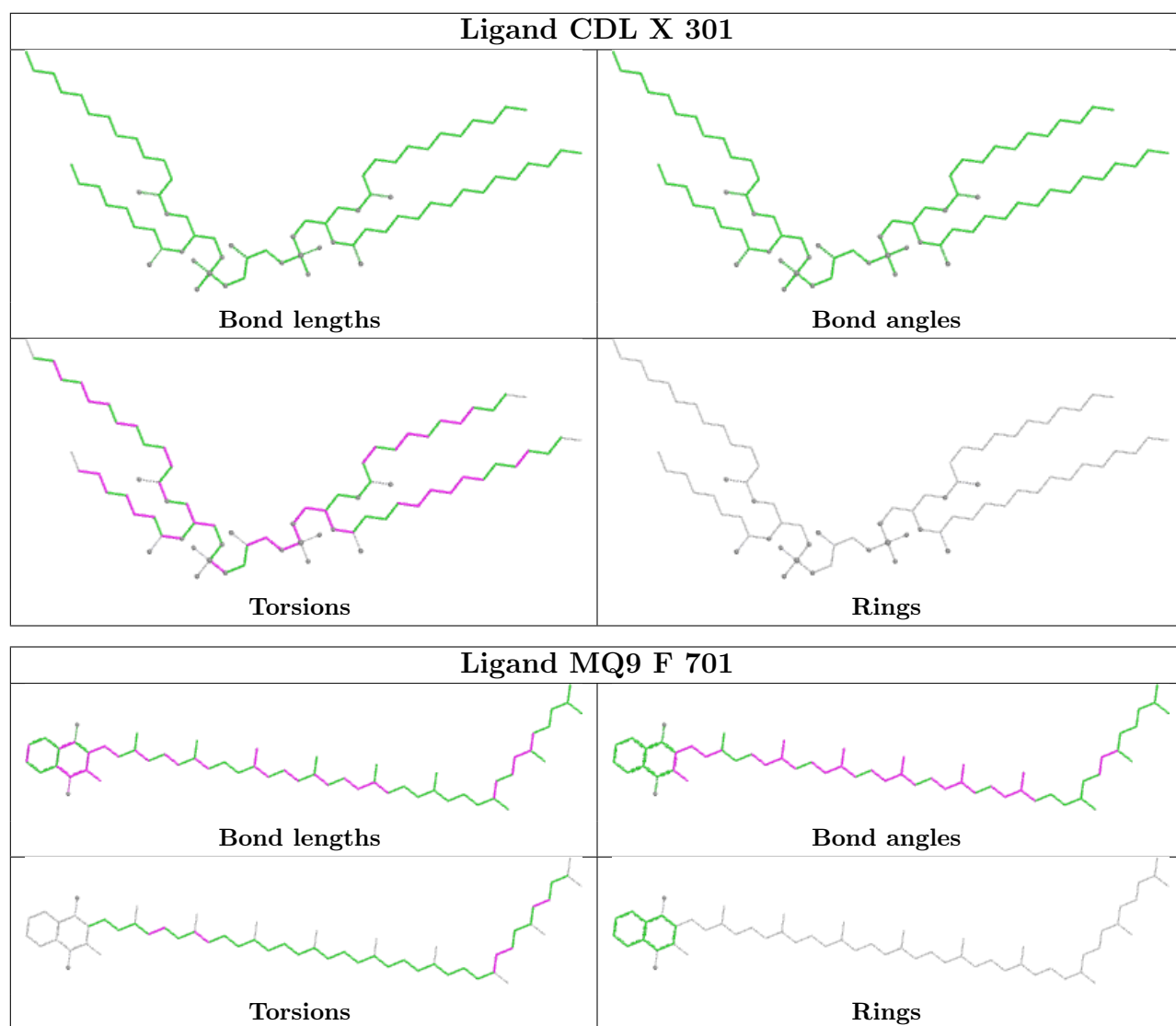


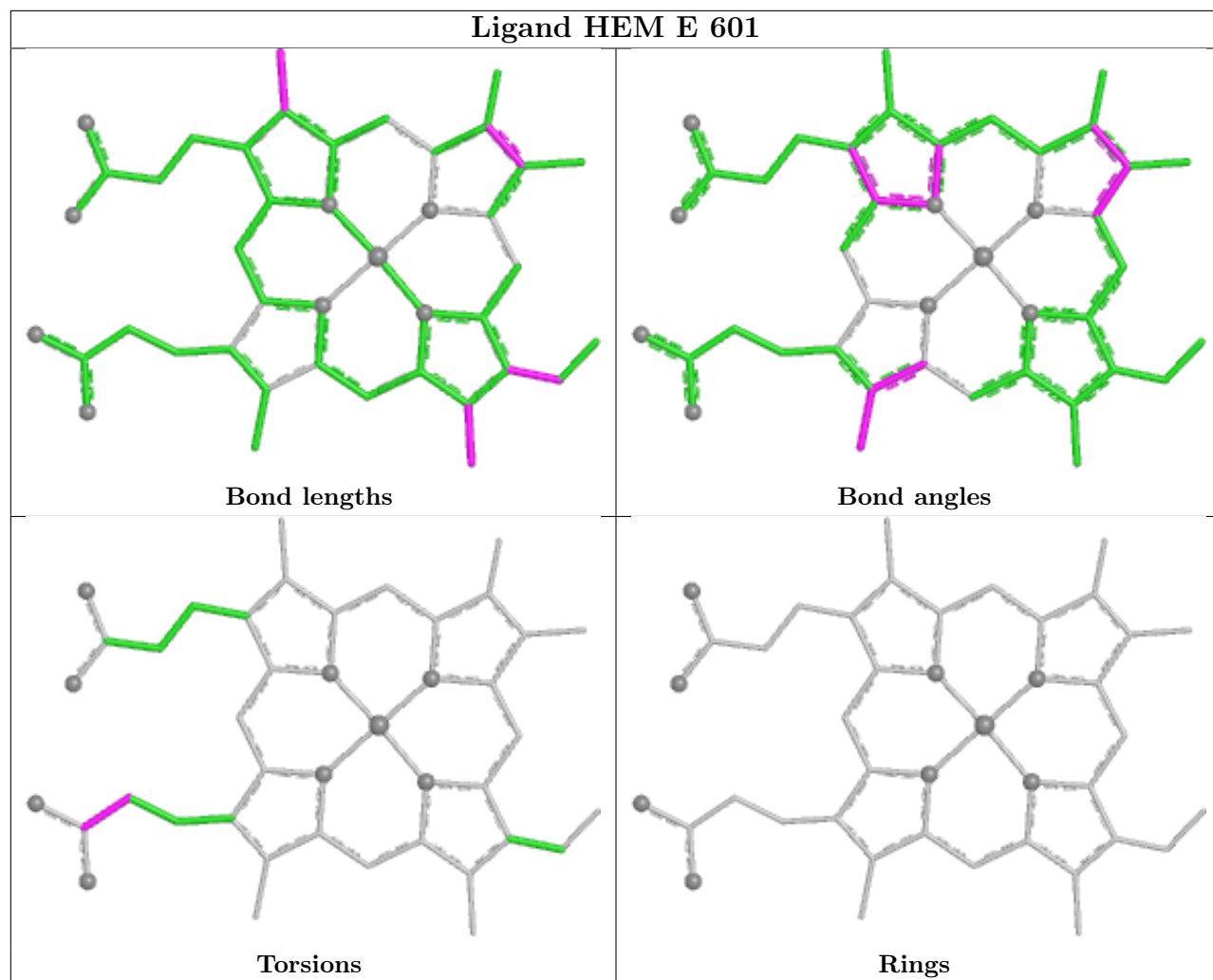


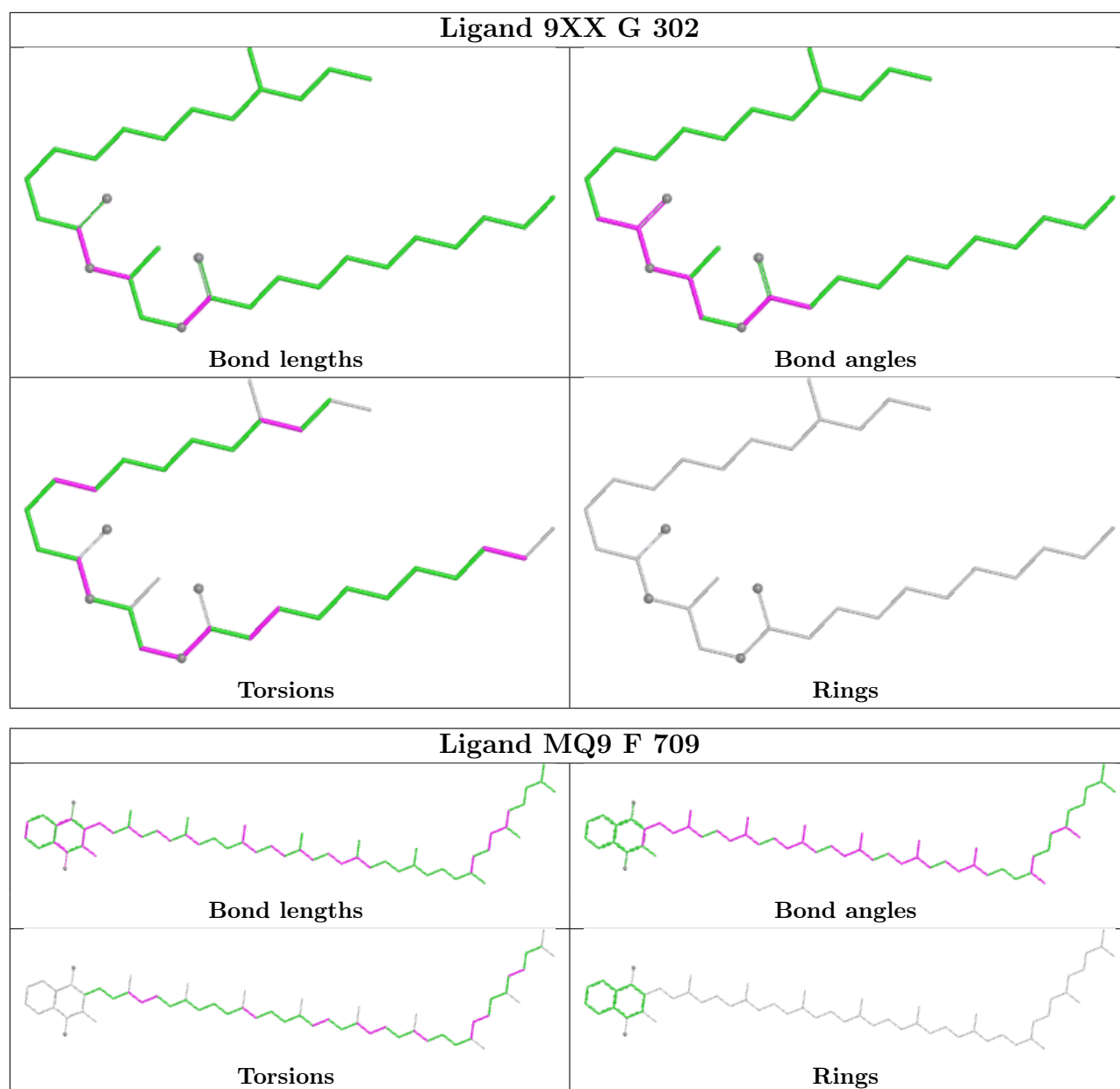


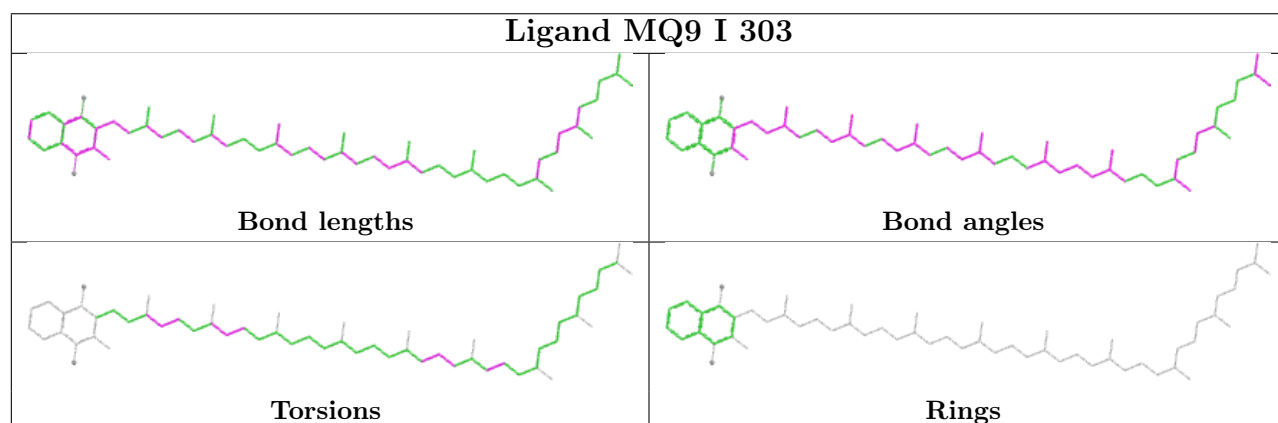
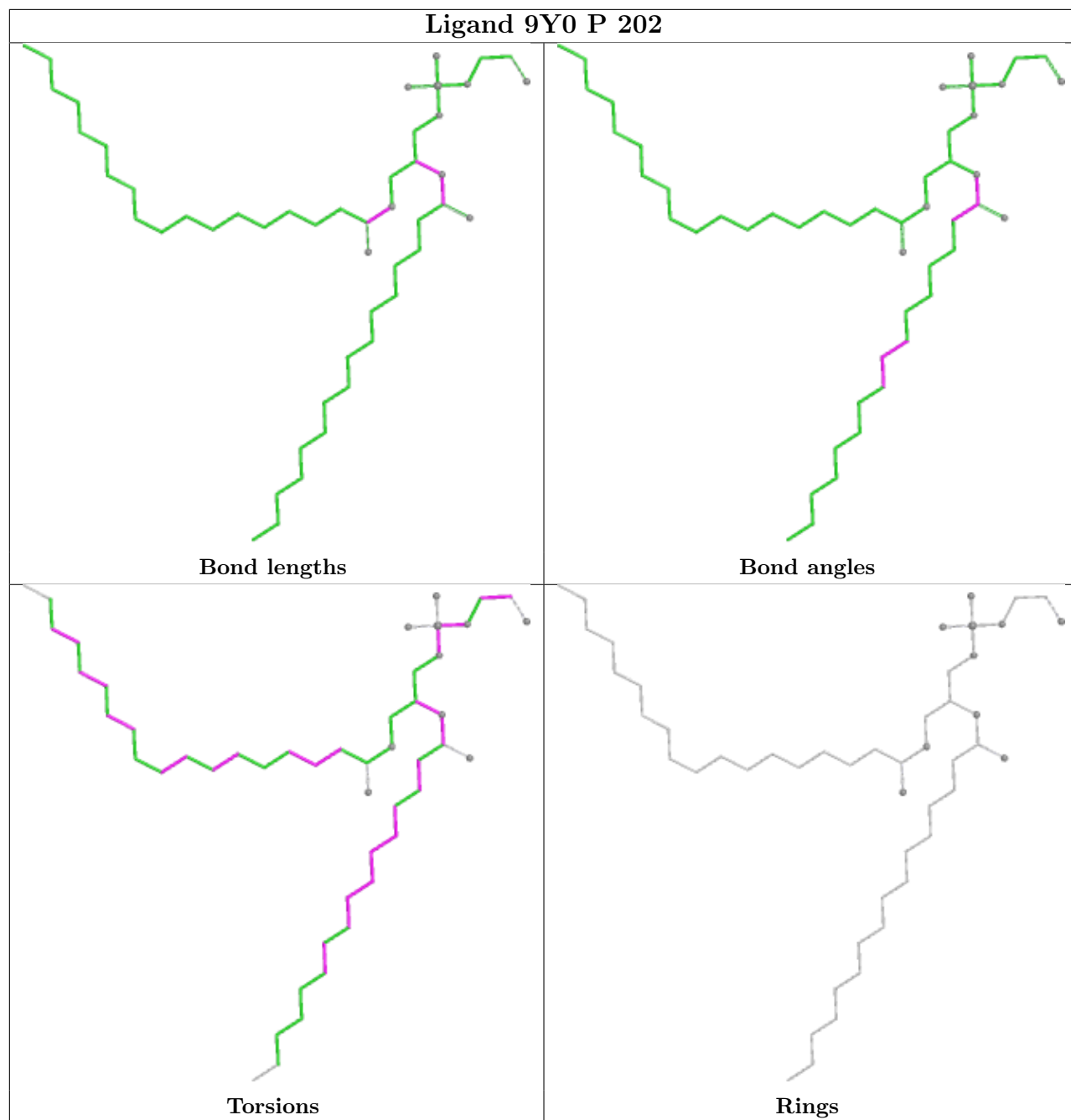


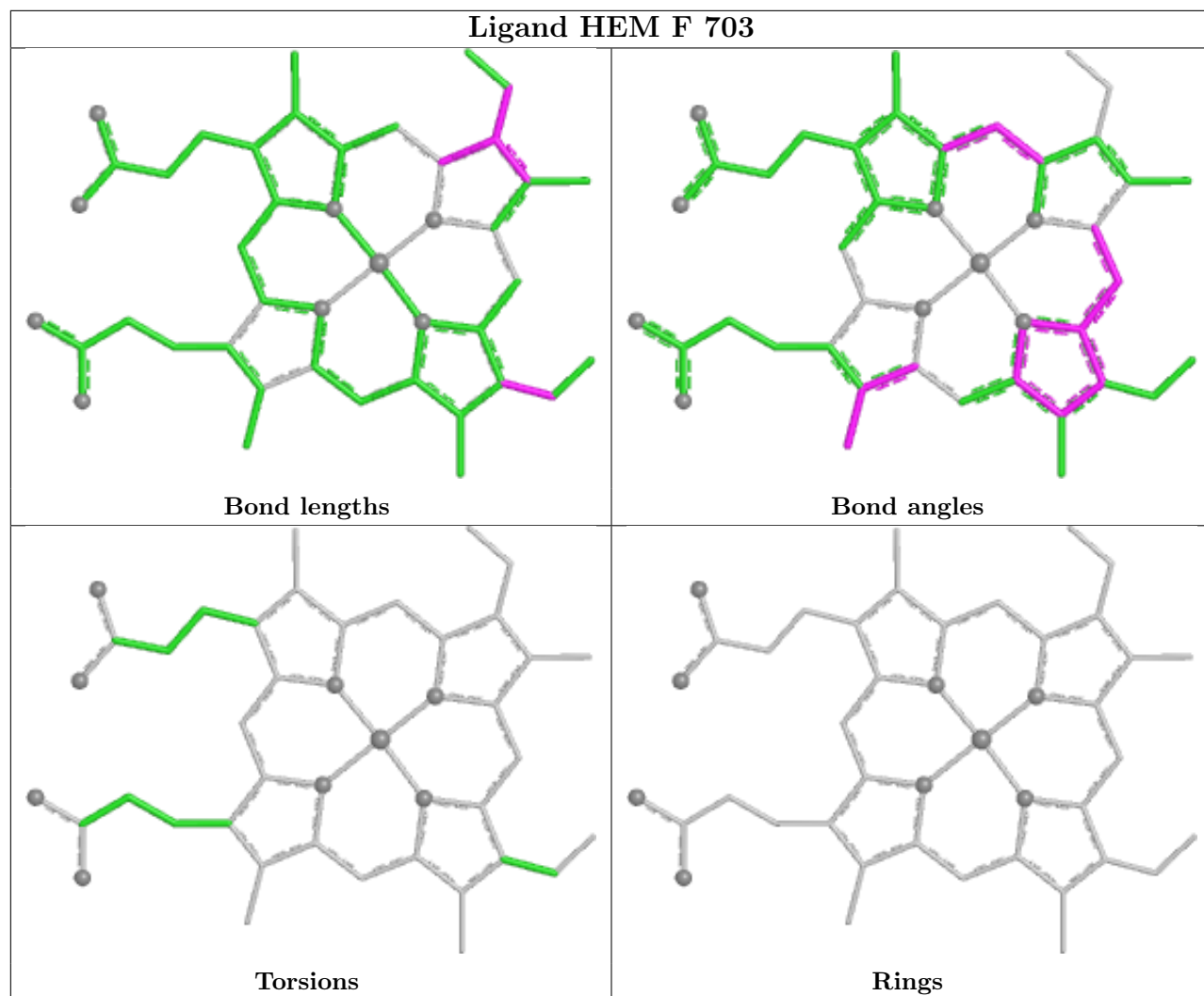


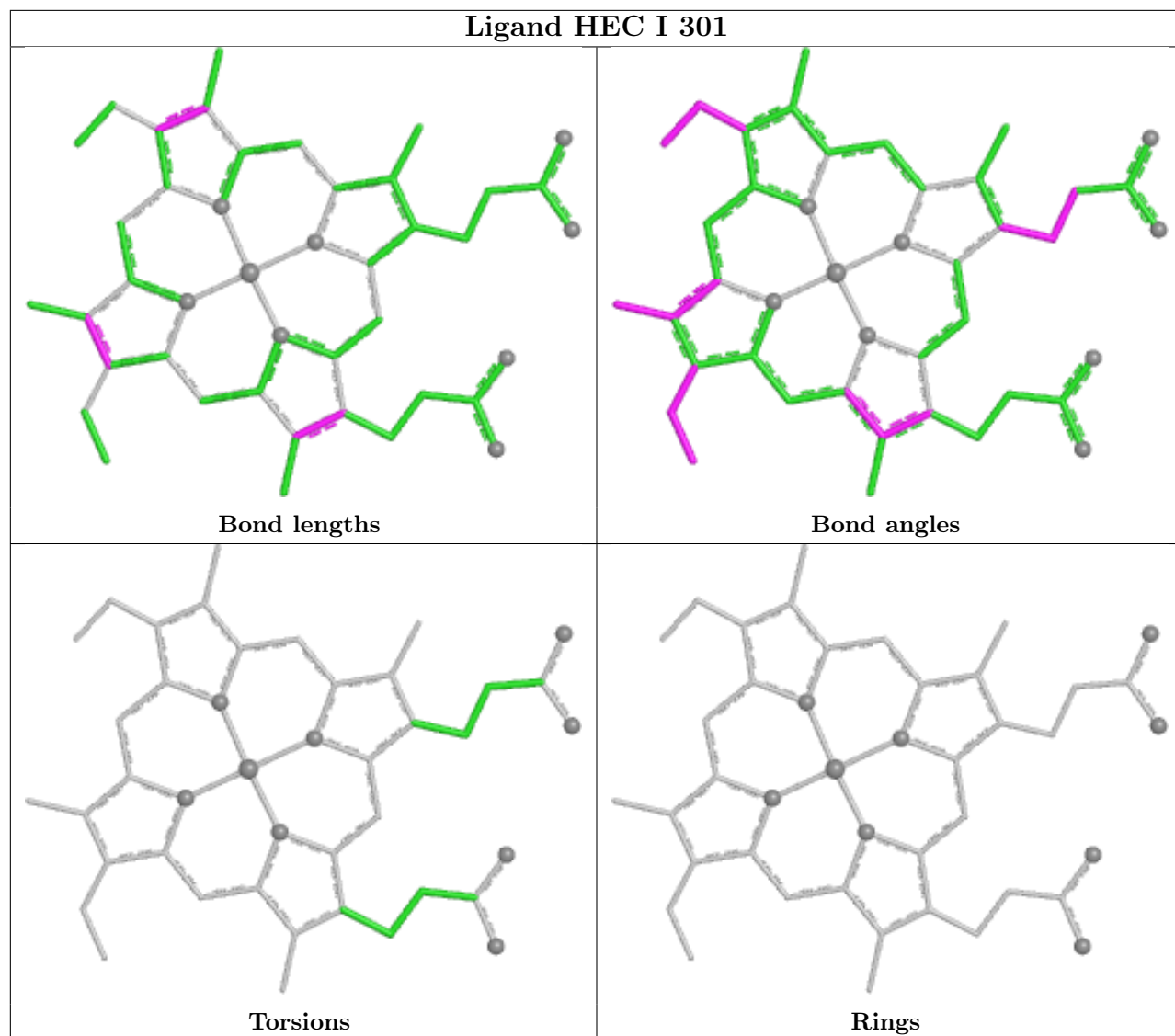


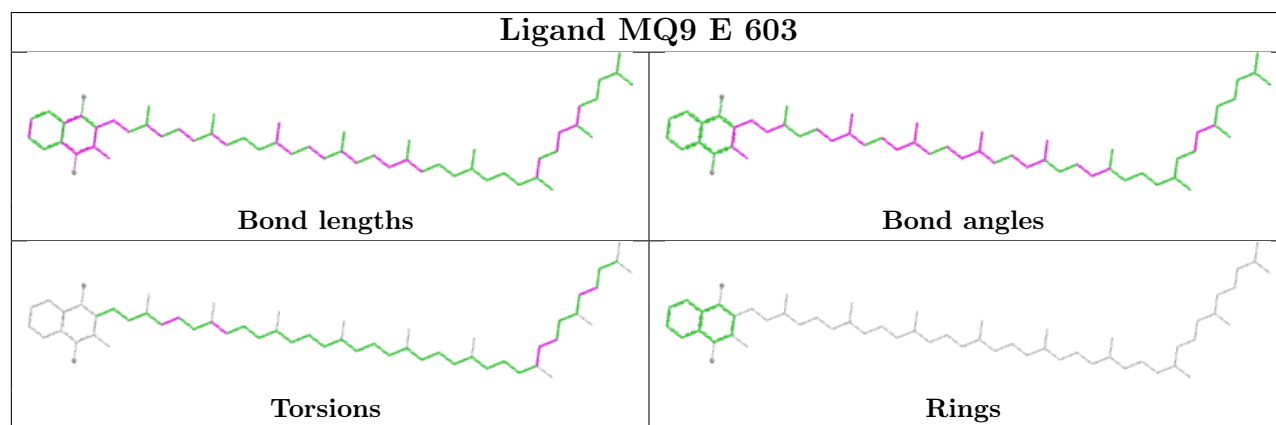
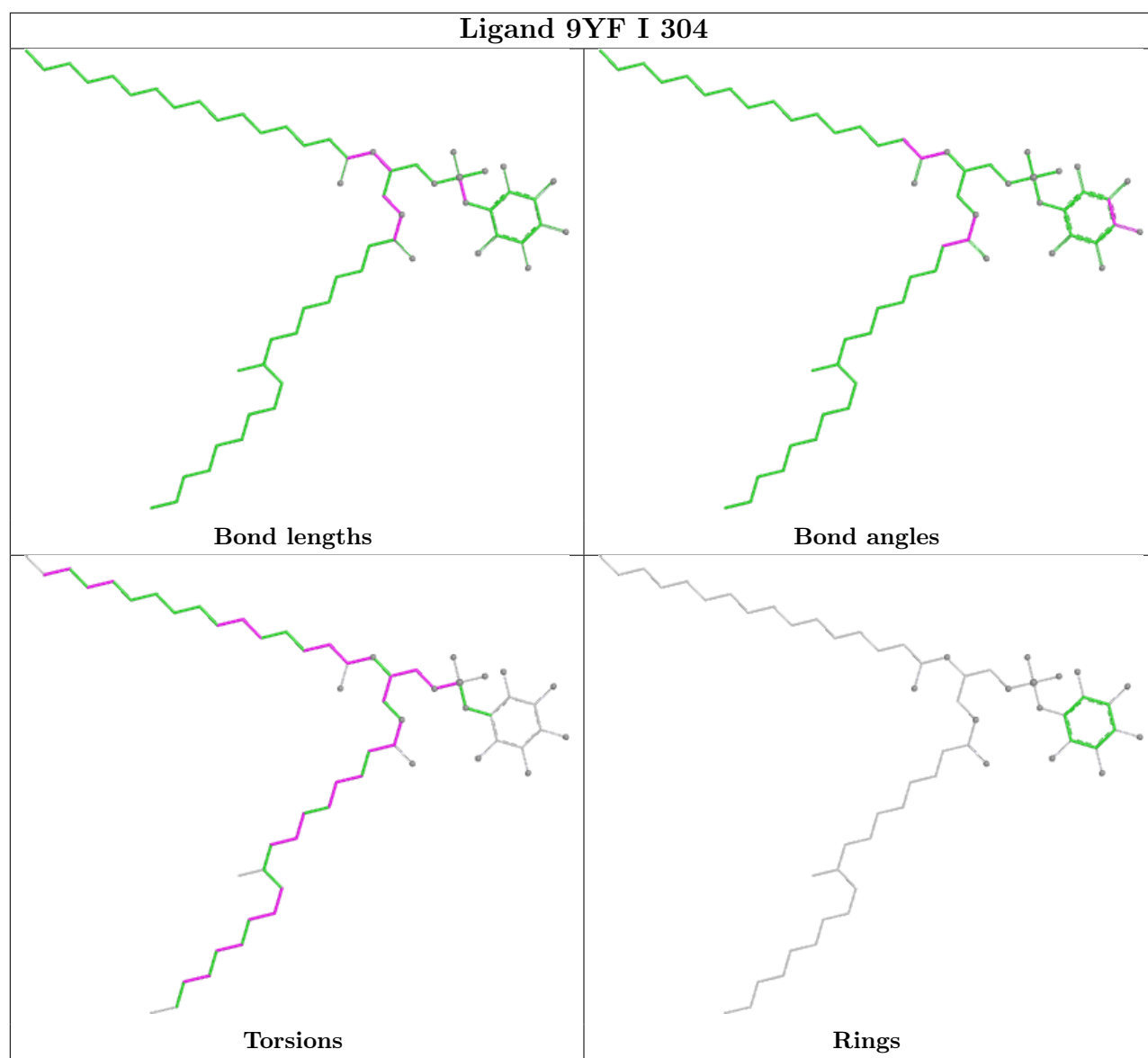


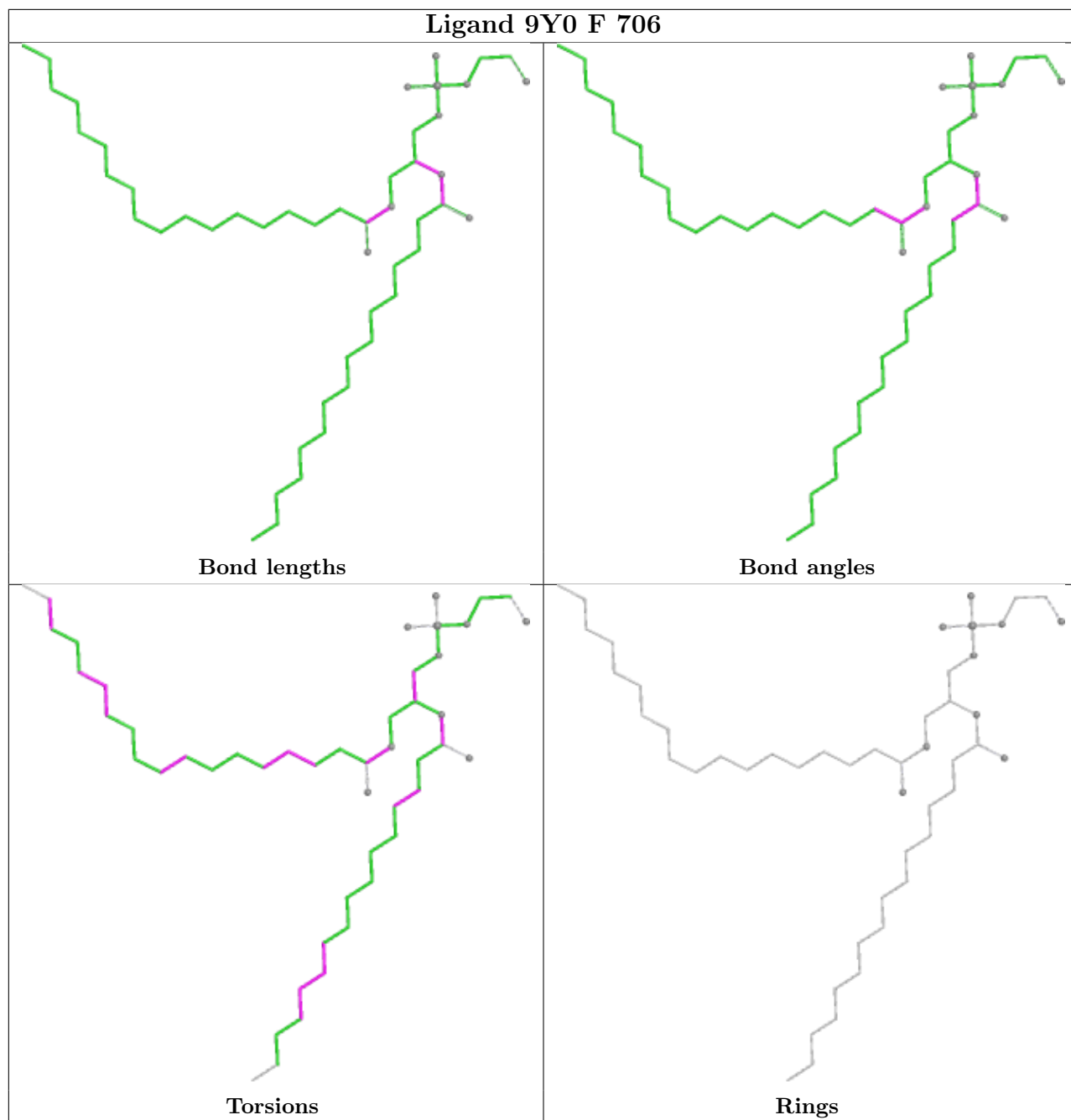


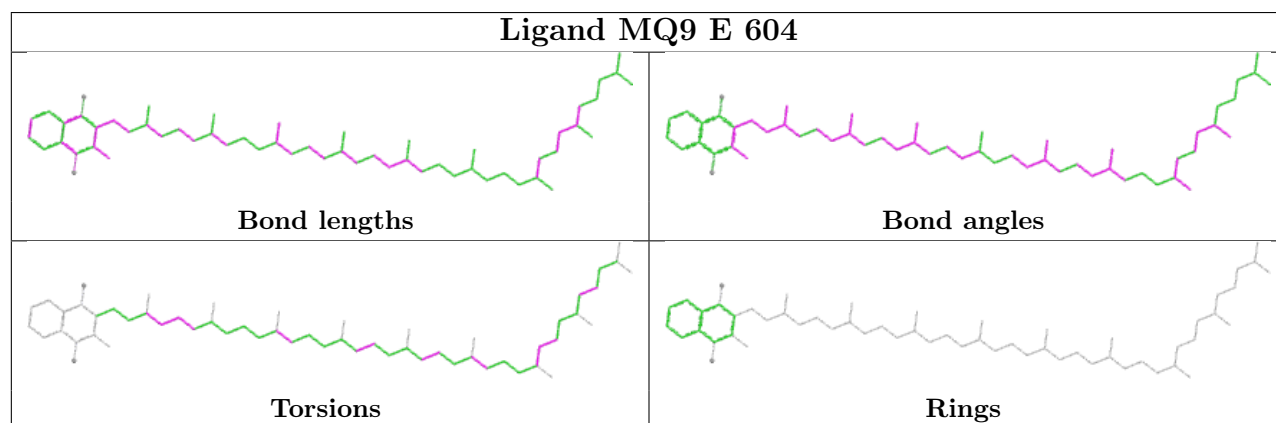
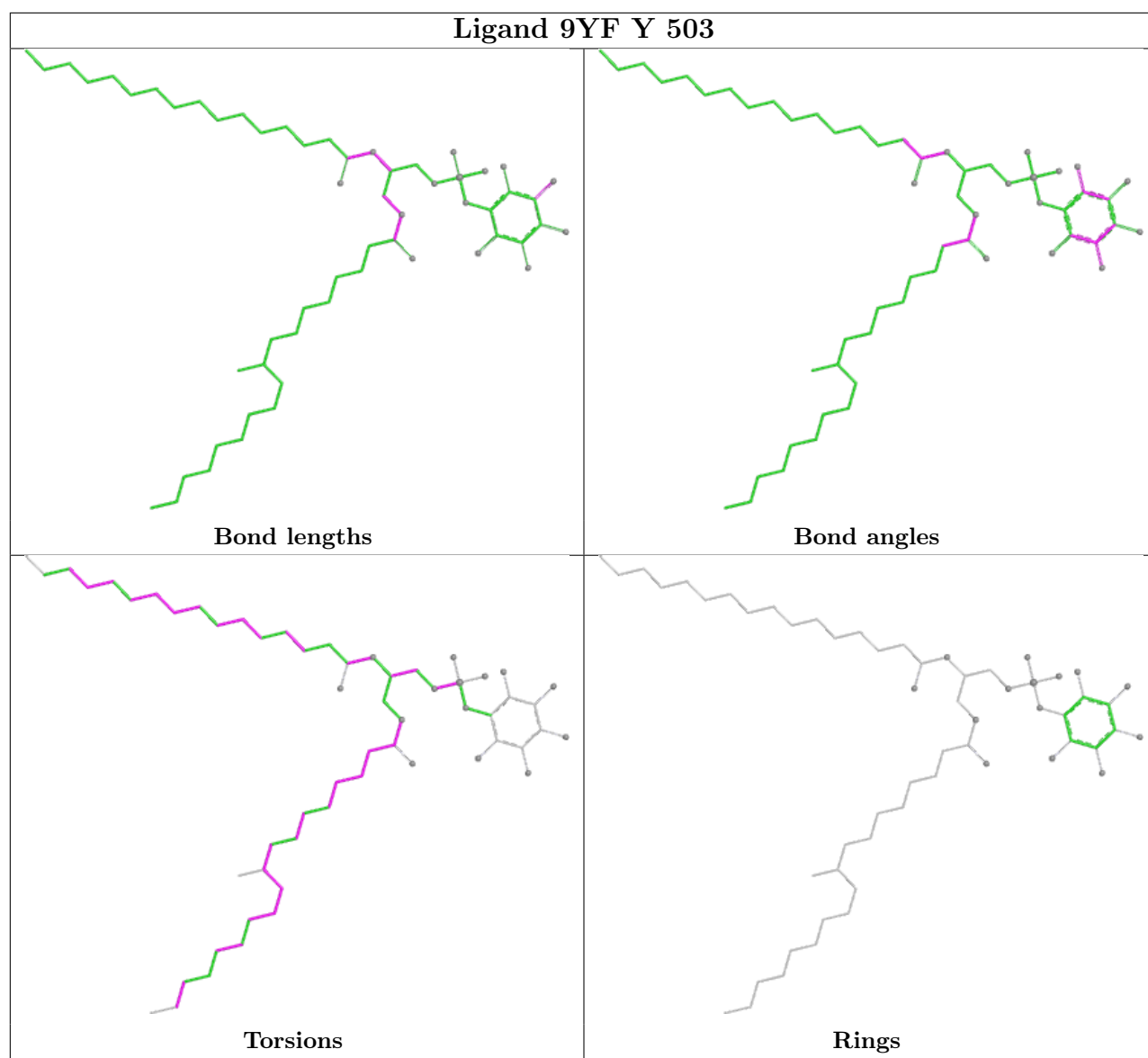


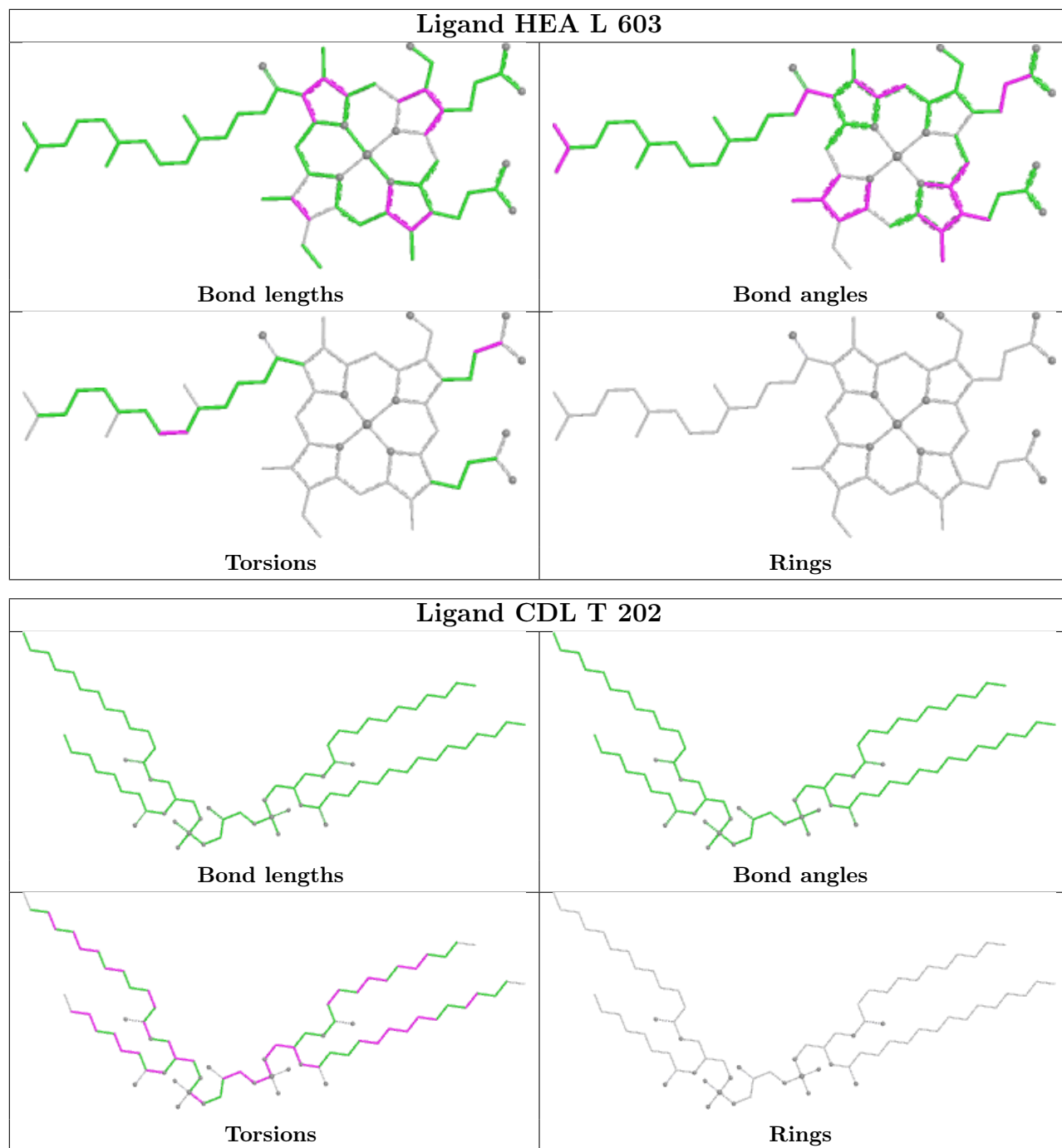


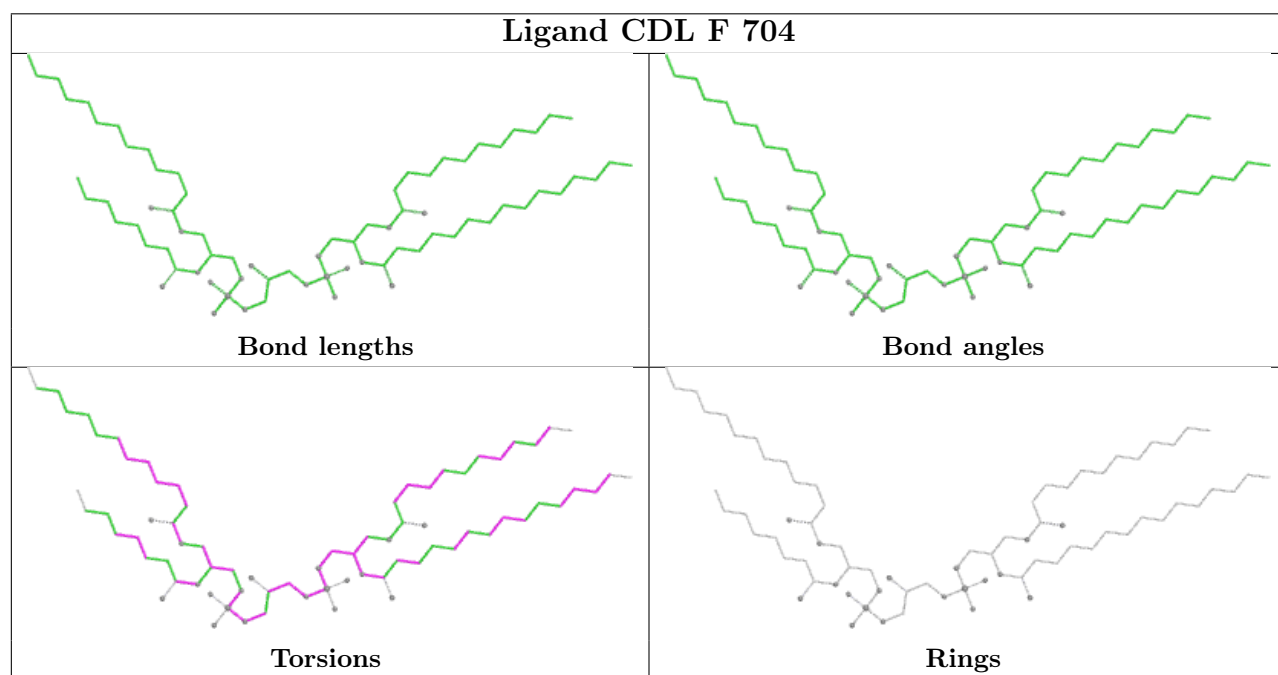
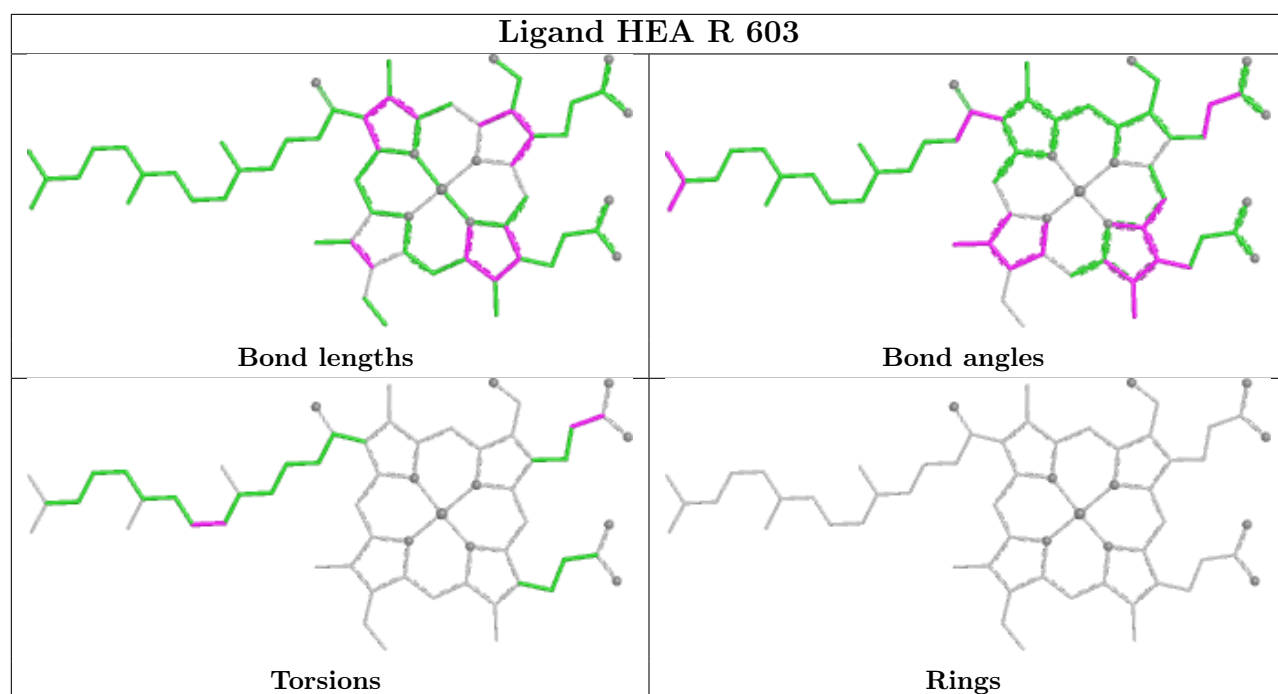


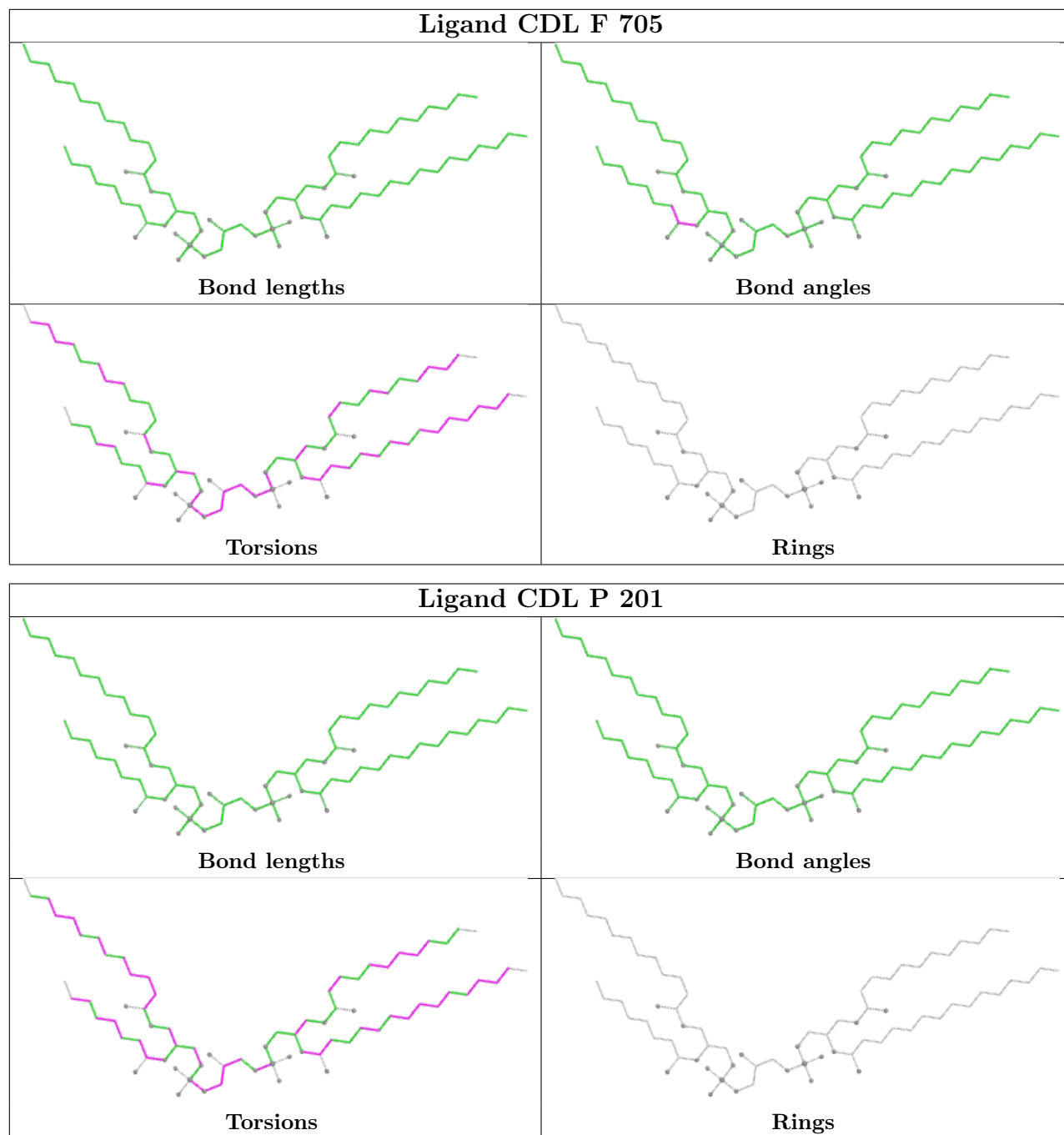


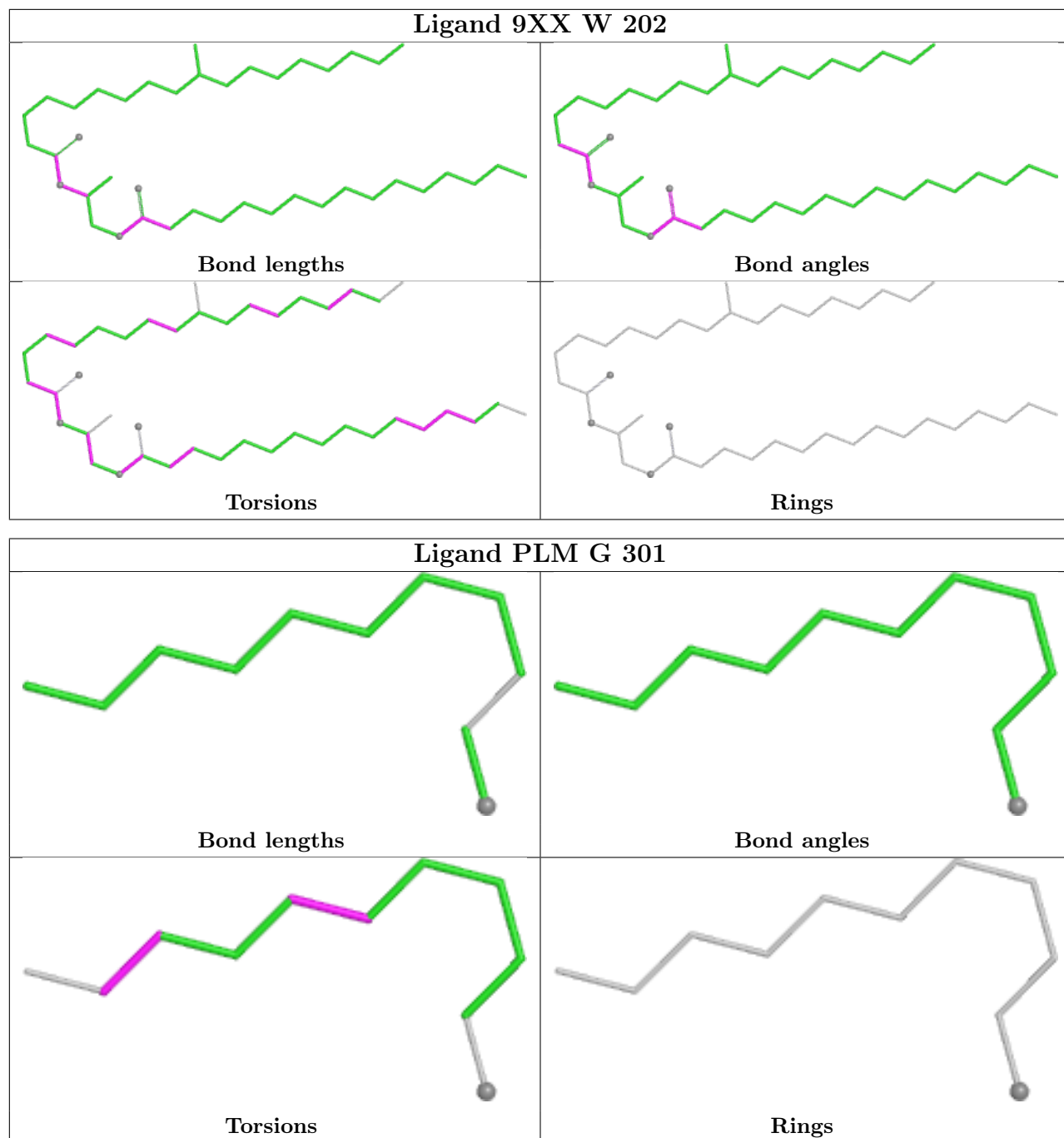


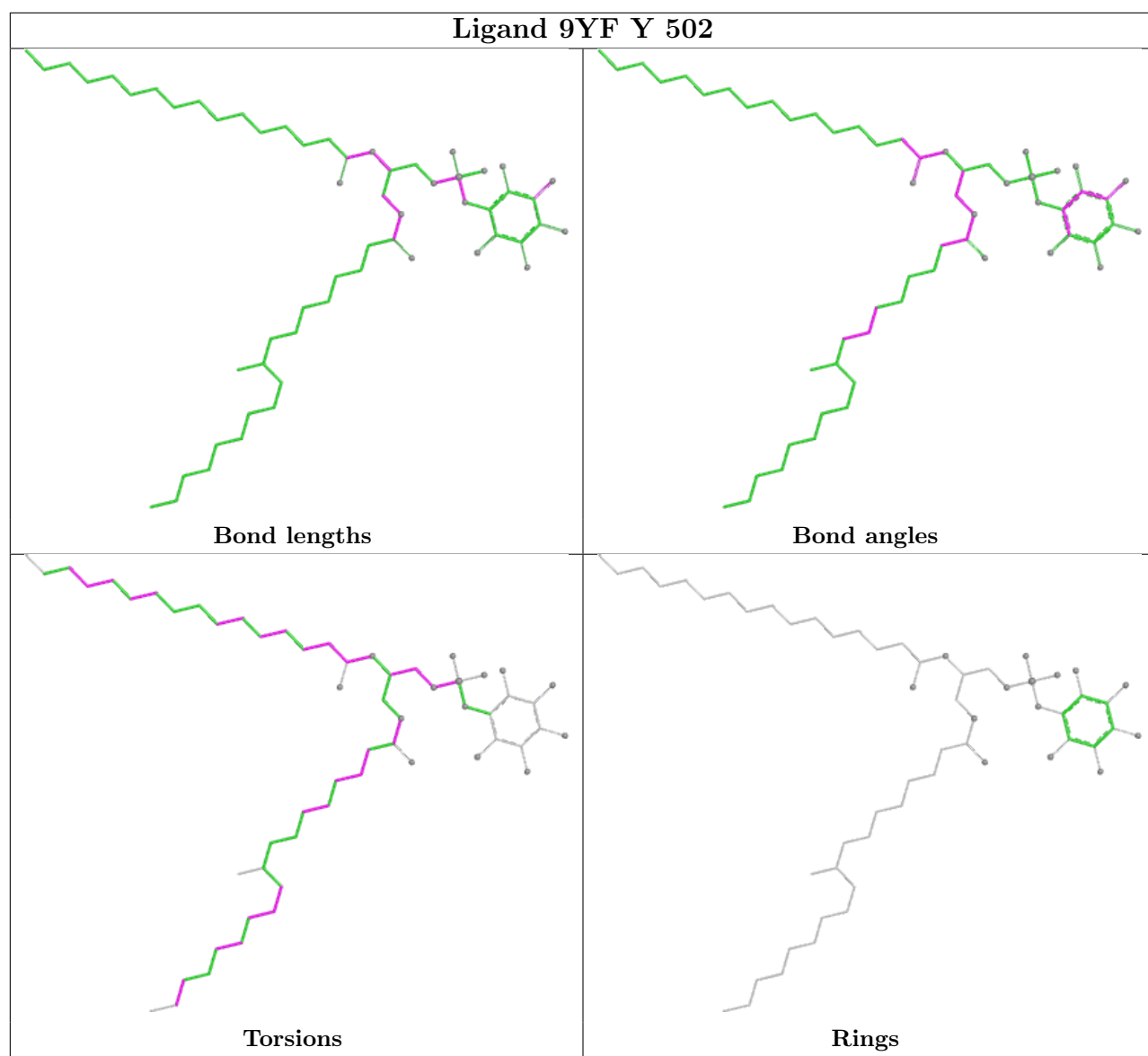


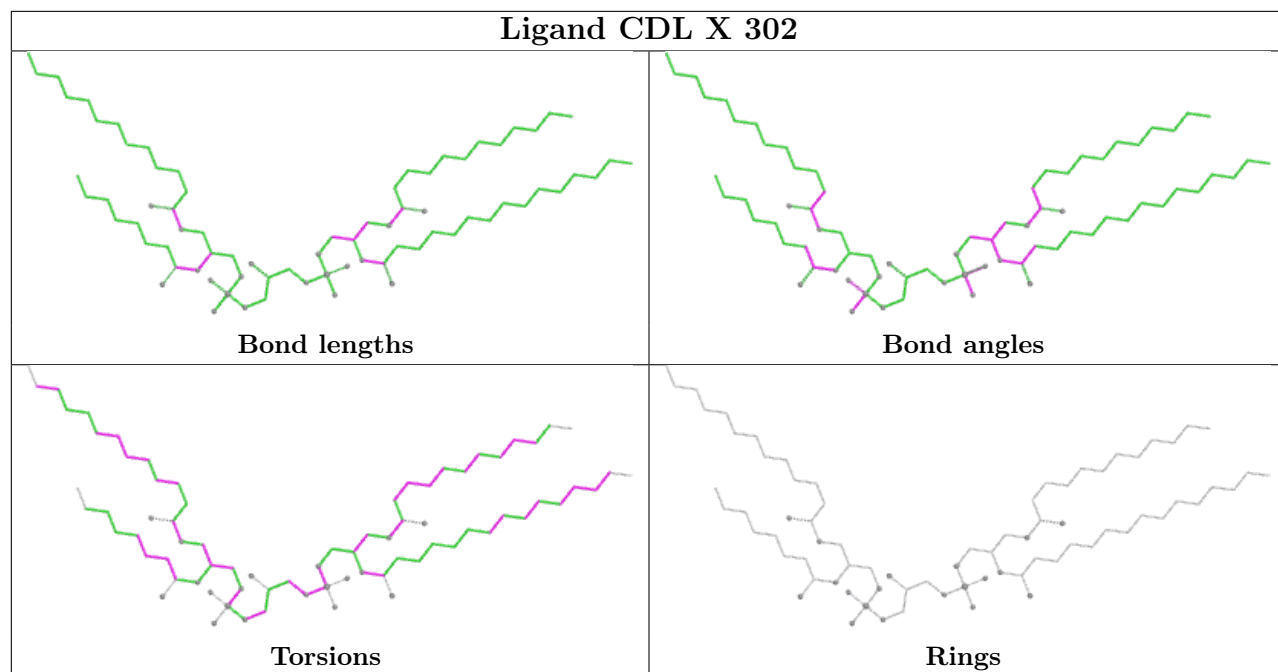


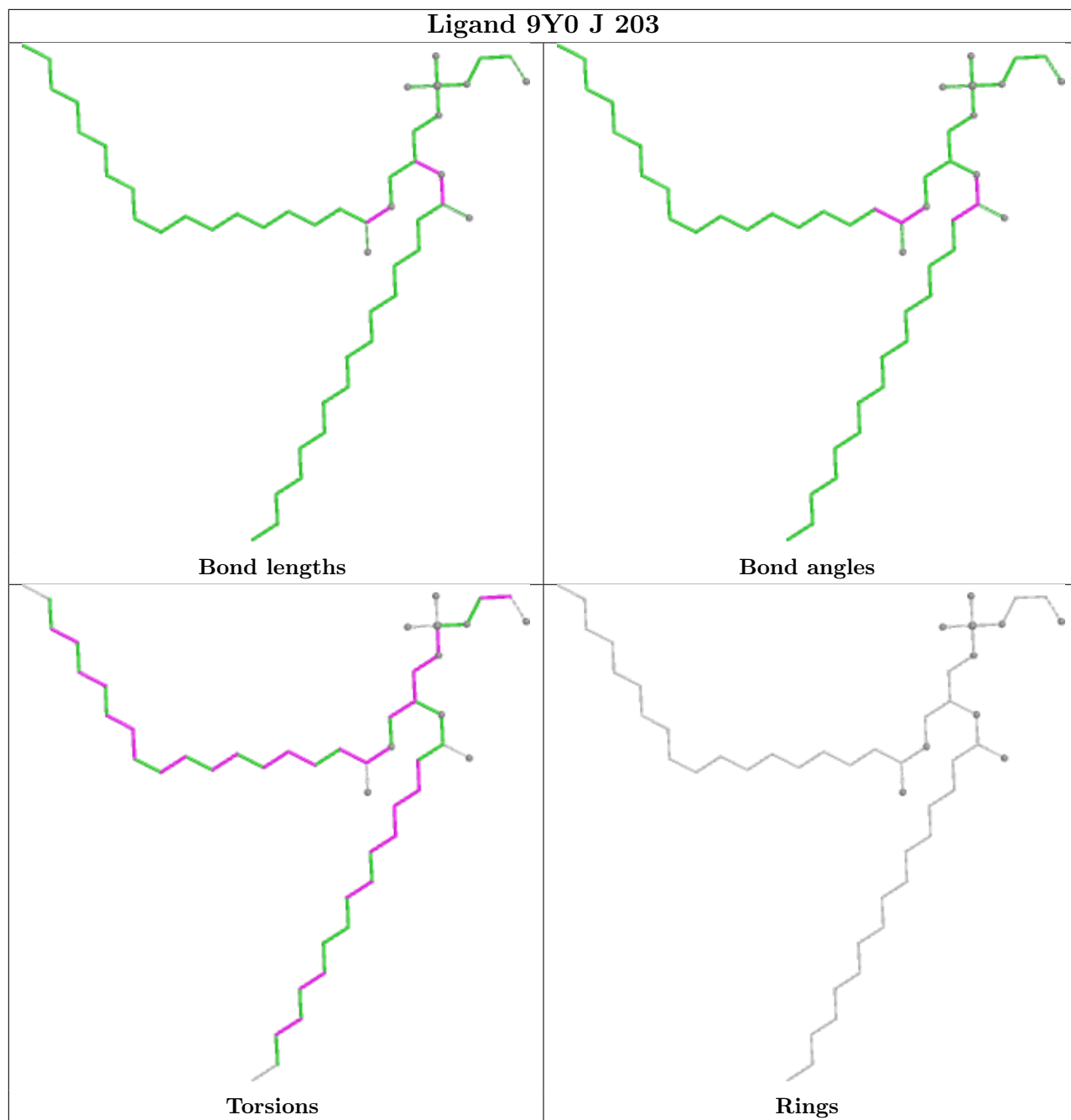


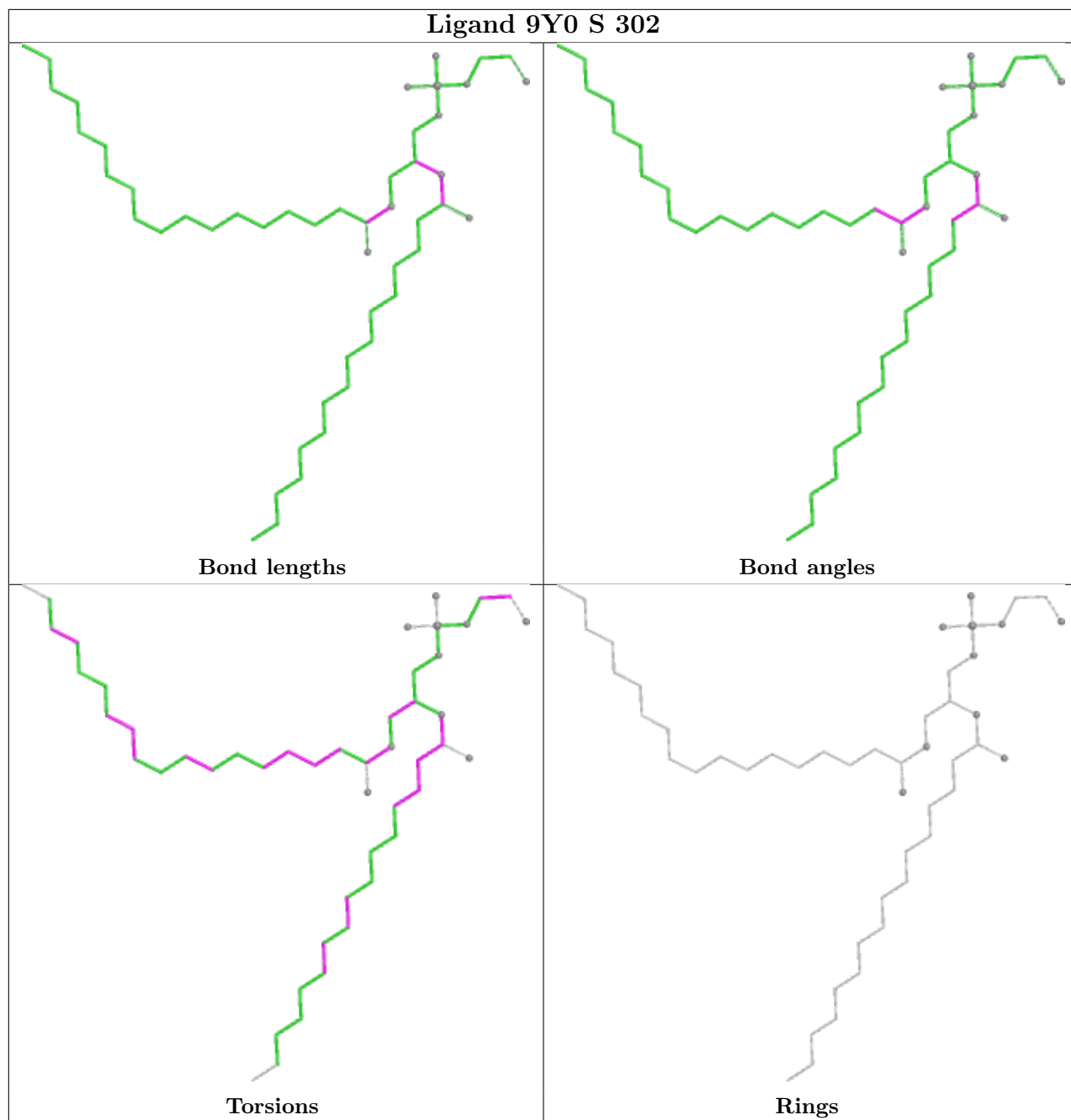


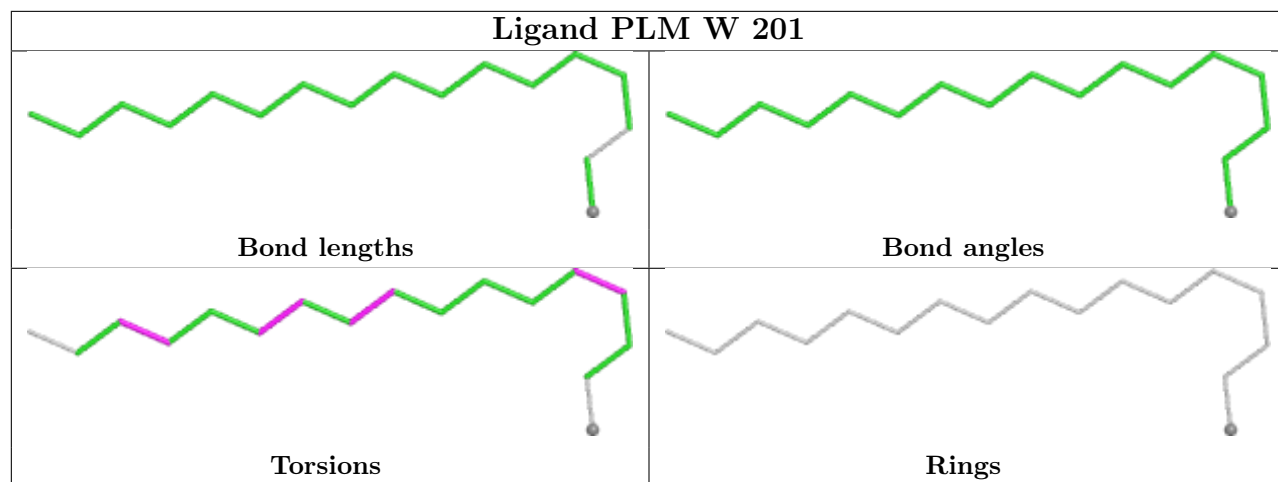


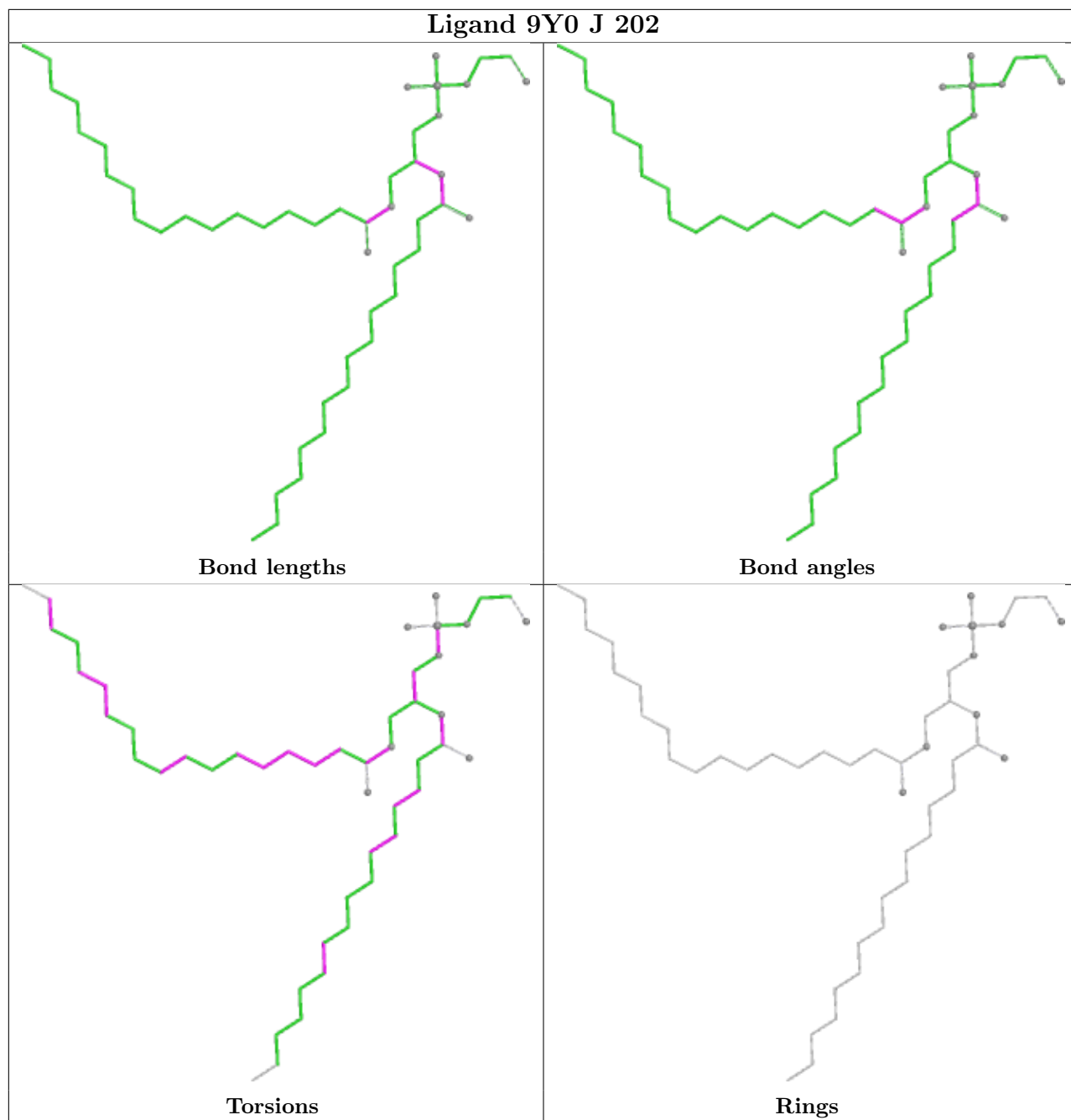


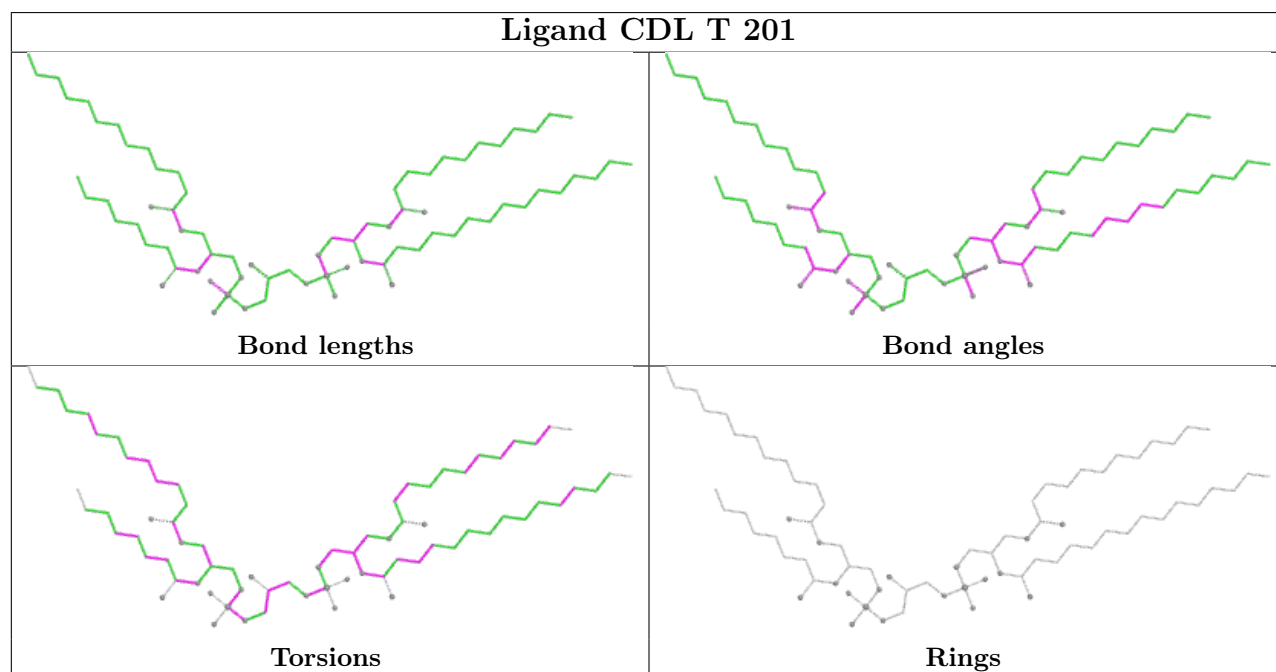
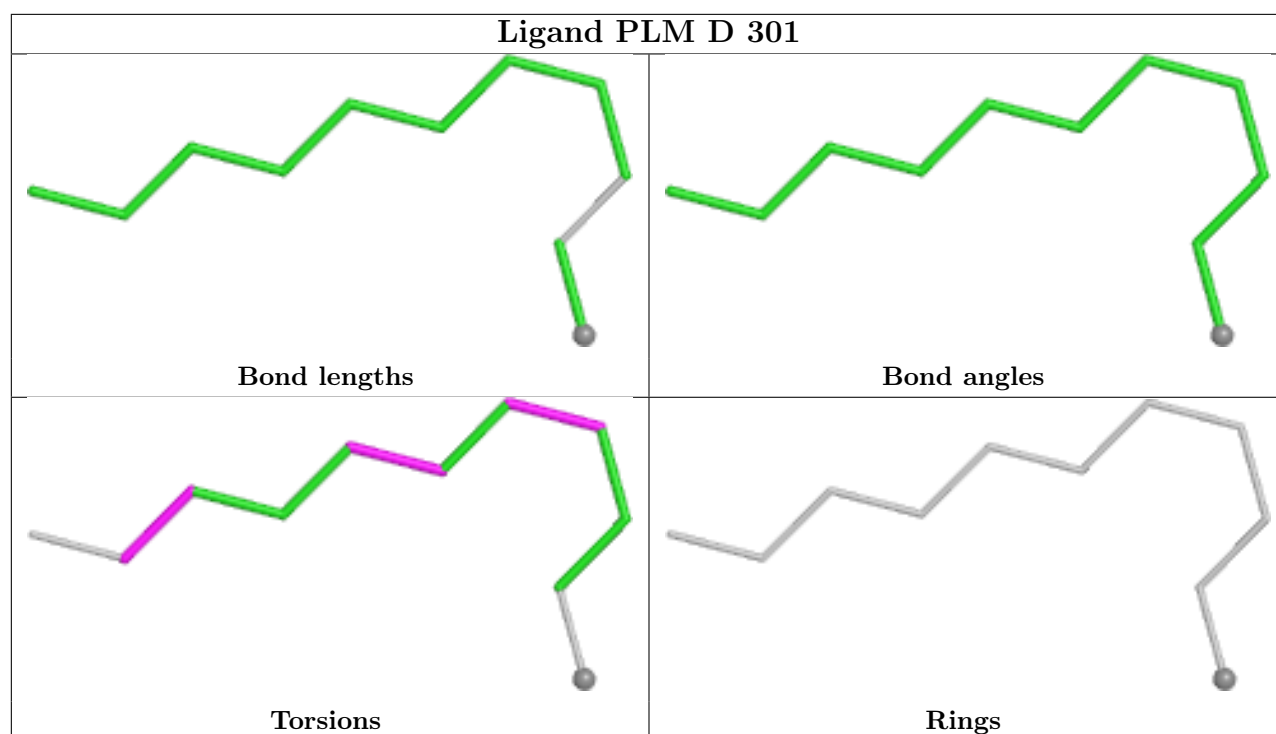


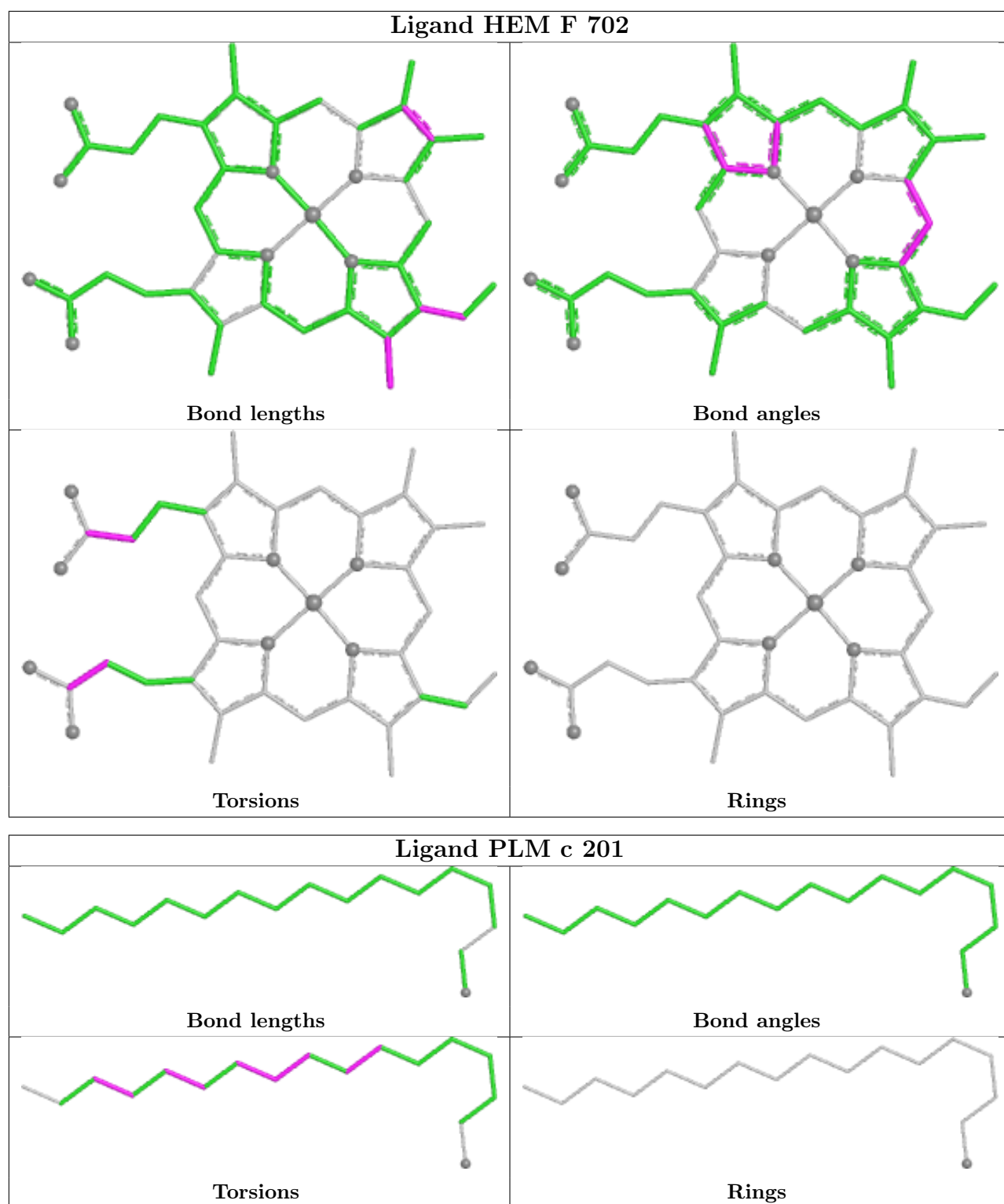


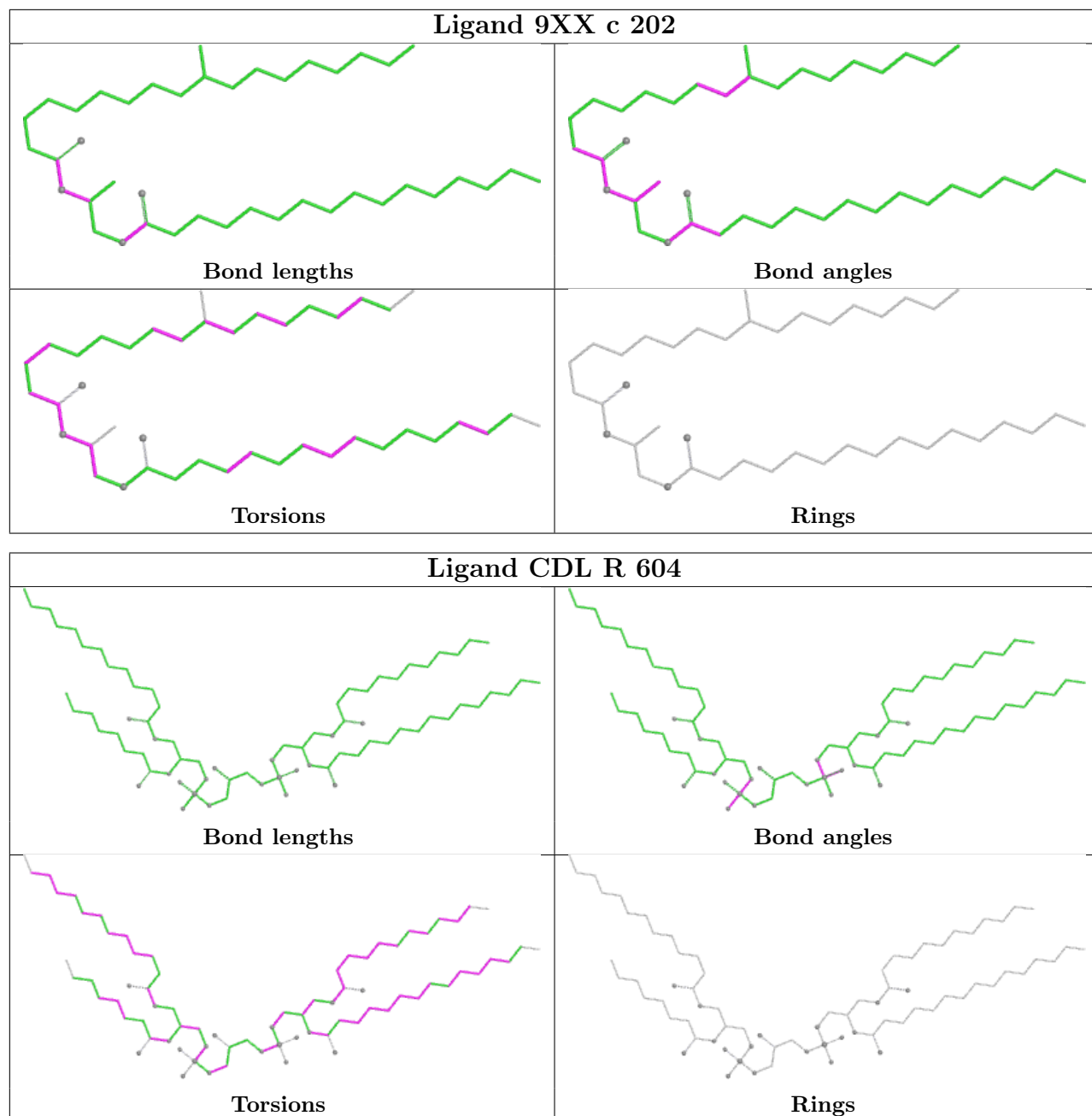


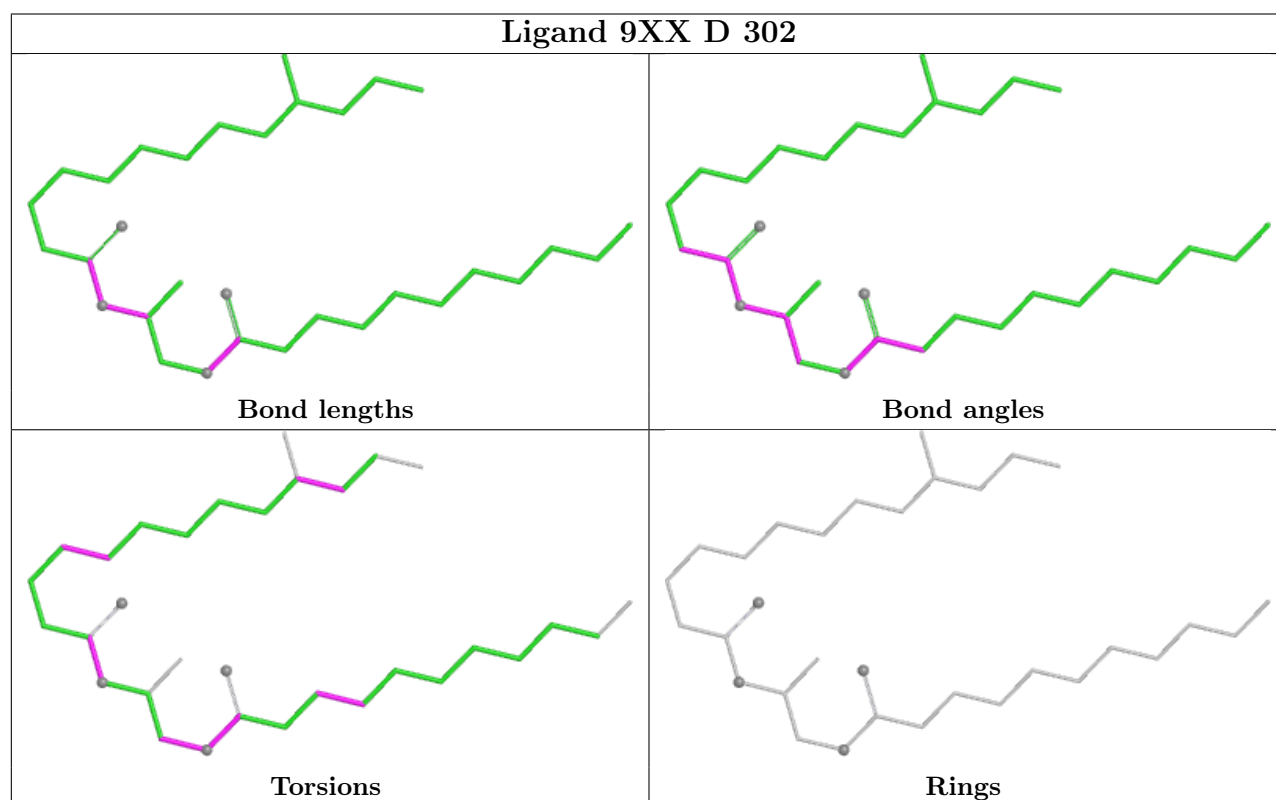
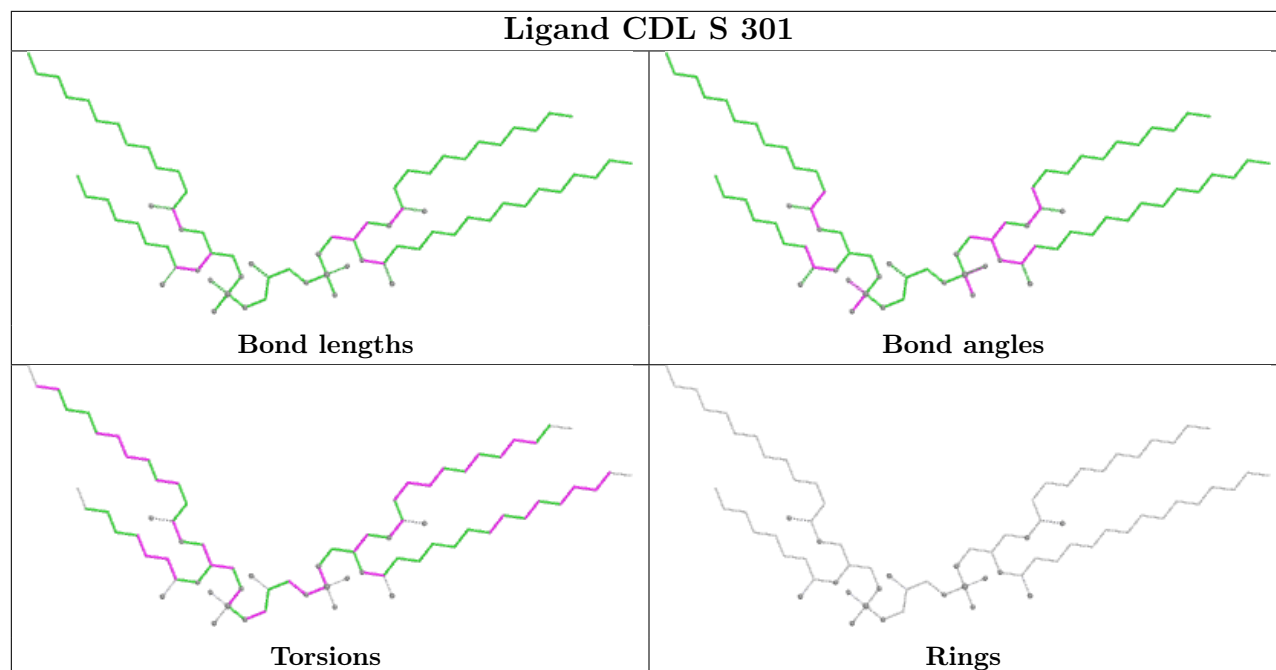


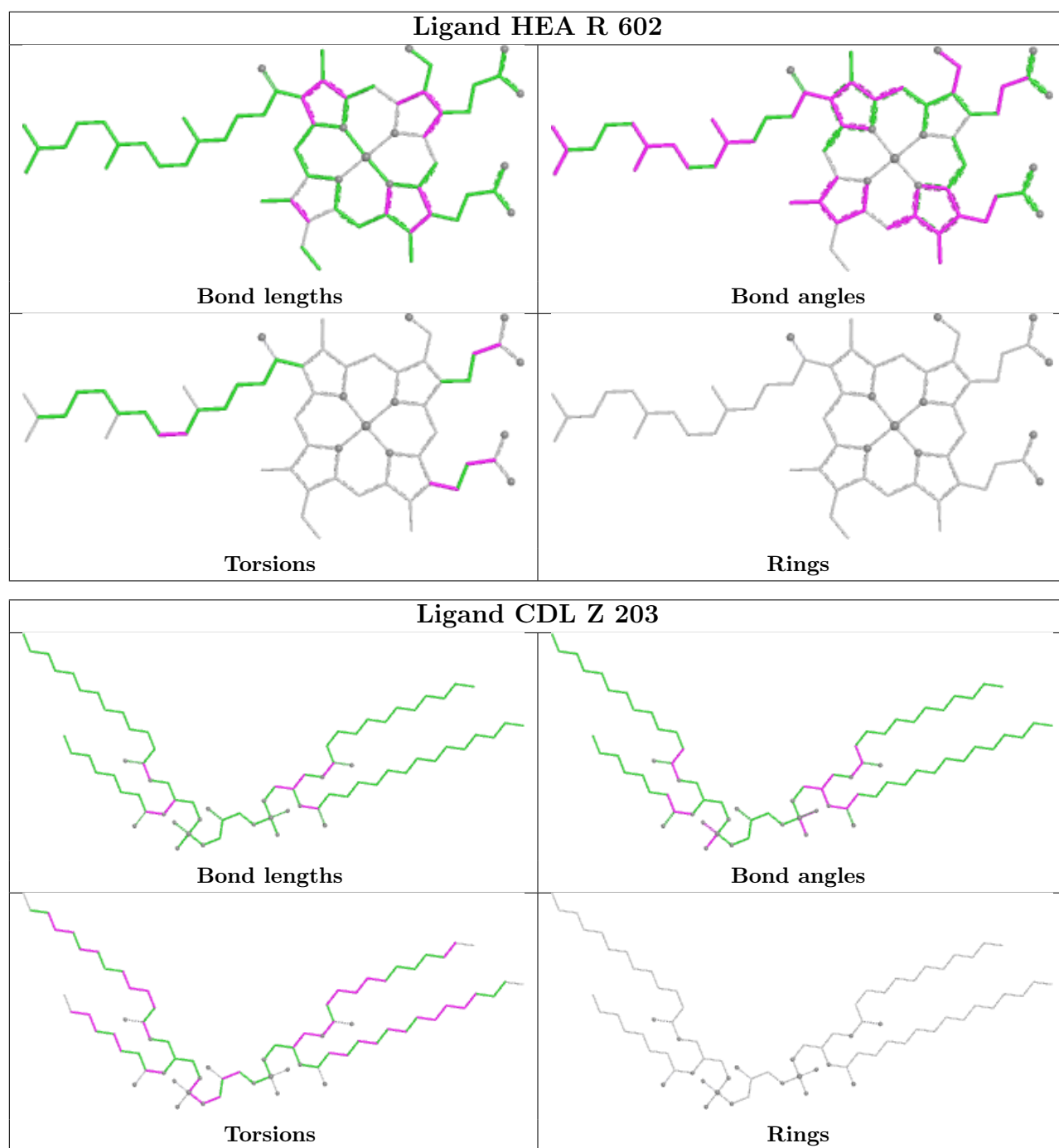


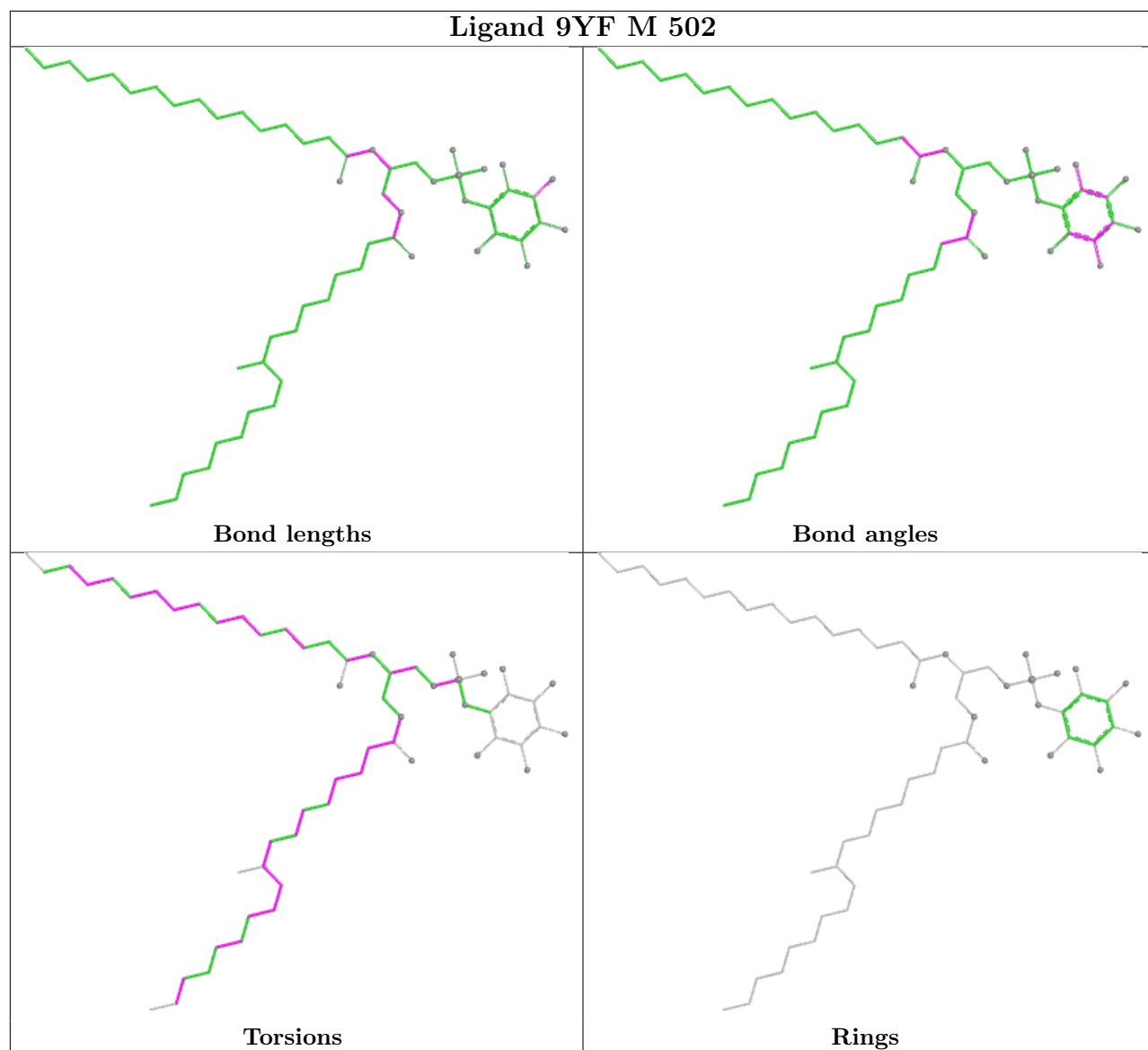
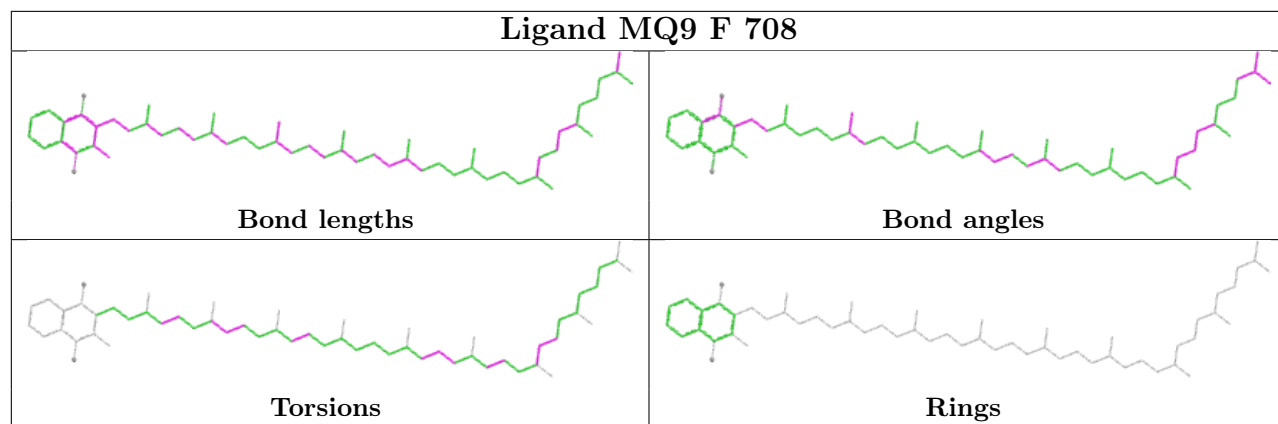


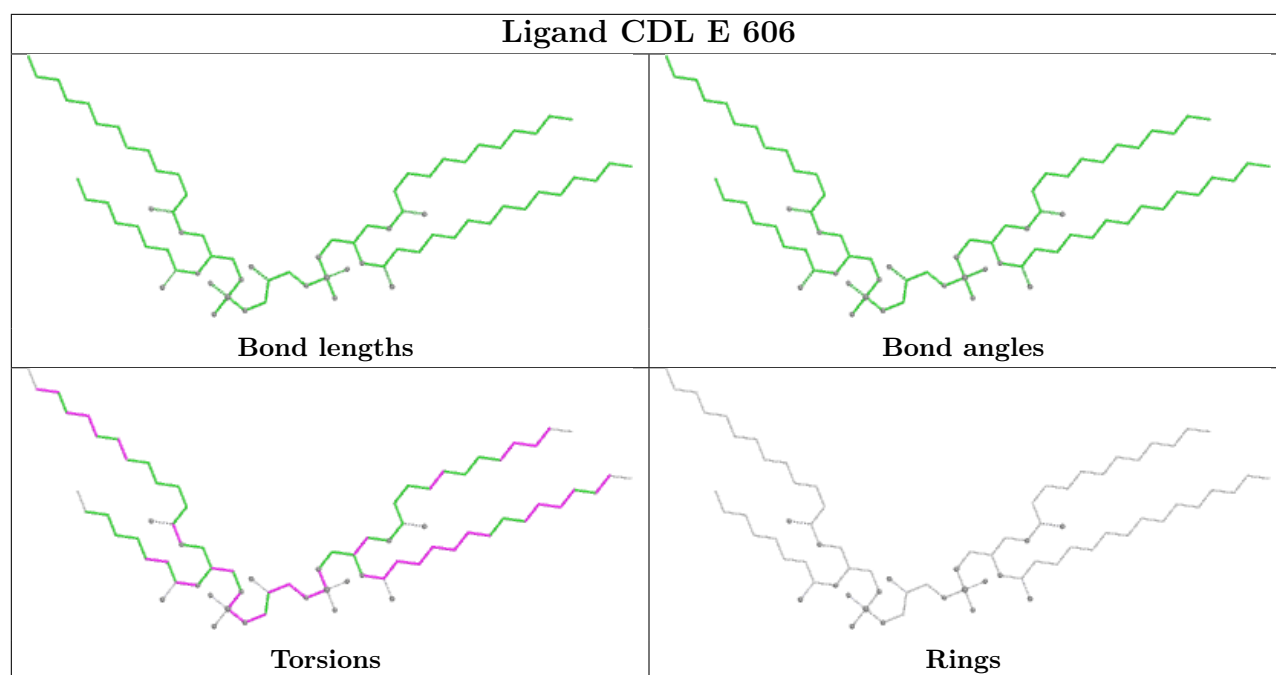












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

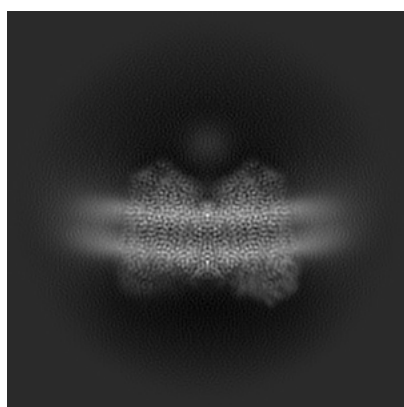
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-46995. These allow visual inspection of the internal detail of the map and identification of artifacts.

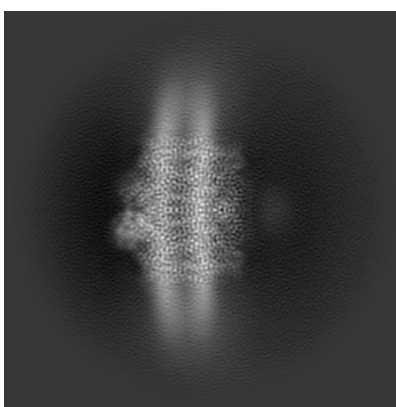
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

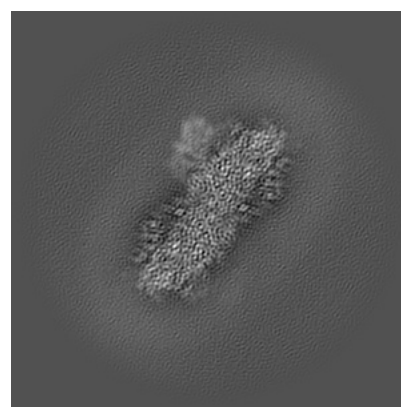
6.1.1 Primary map



X



Y

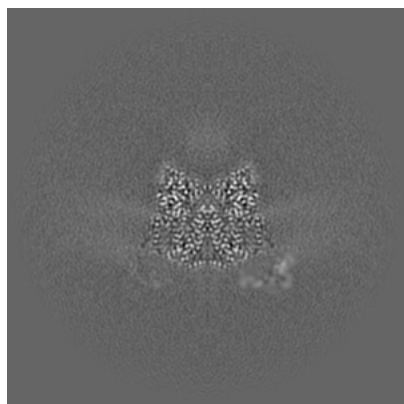


Z

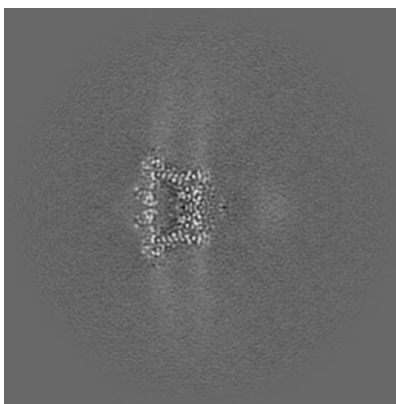
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

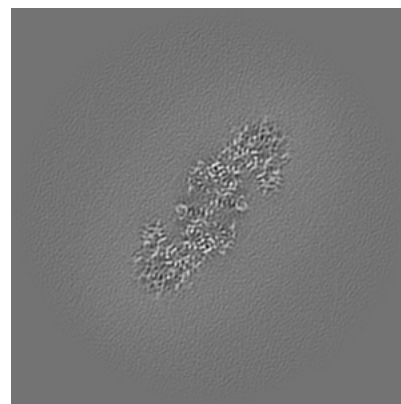
6.2.1 Primary map



X Index: 182



Y Index: 182

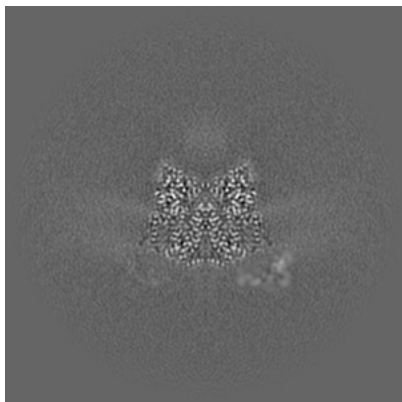


Z Index: 182

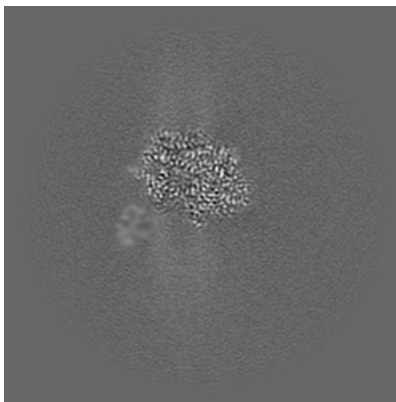
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

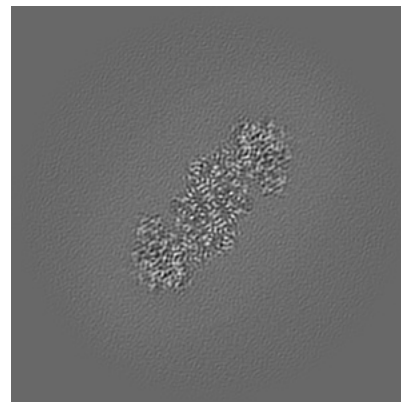
6.3.1 Primary map



X Index: 182



Y Index: 219

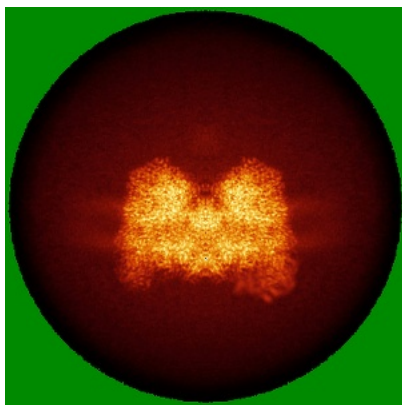


Z Index: 175

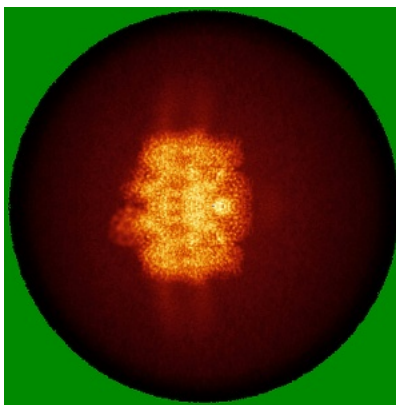
The images above show the largest variance slices of the map in three orthogonal directions.

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

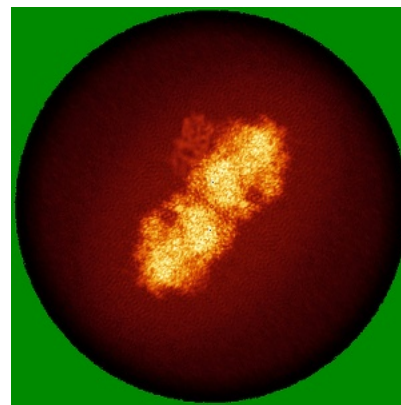
6.4.1 Primary map



X



Y

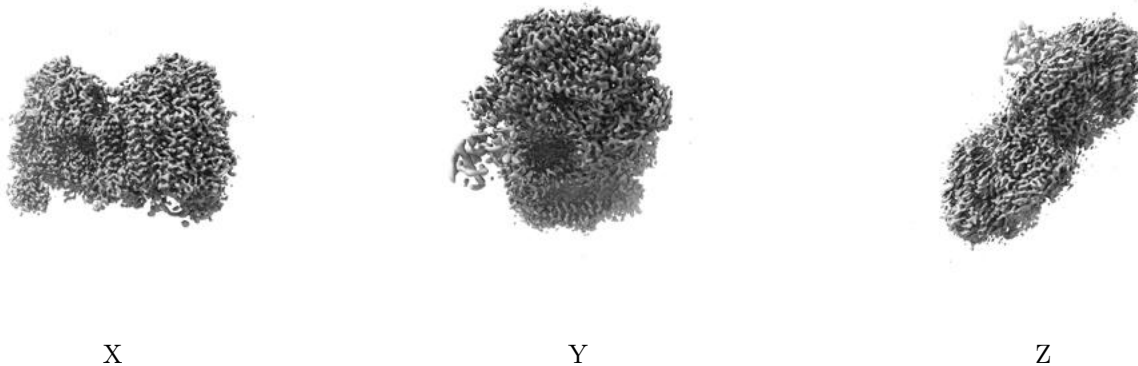


Z

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 0.335. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

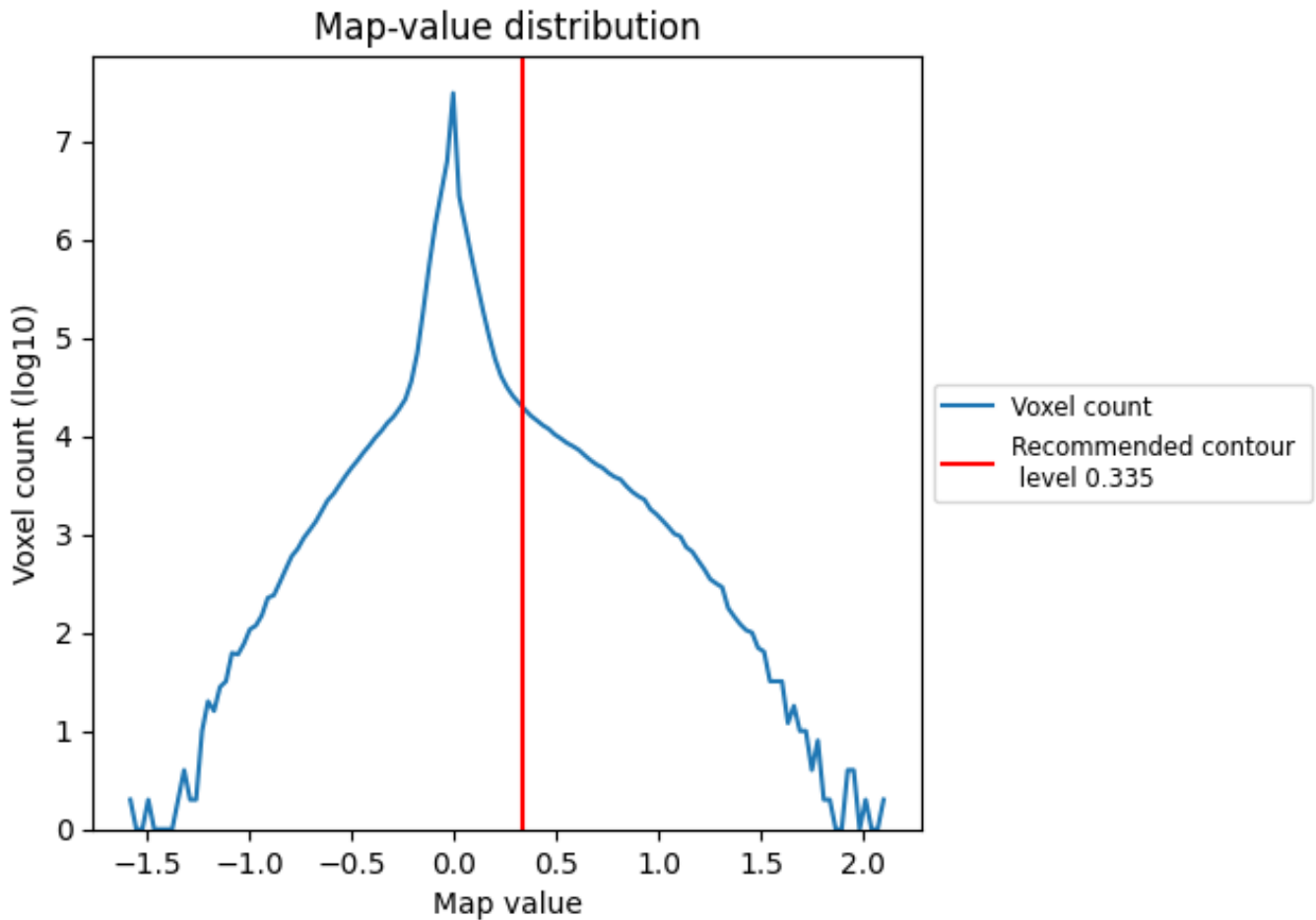
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

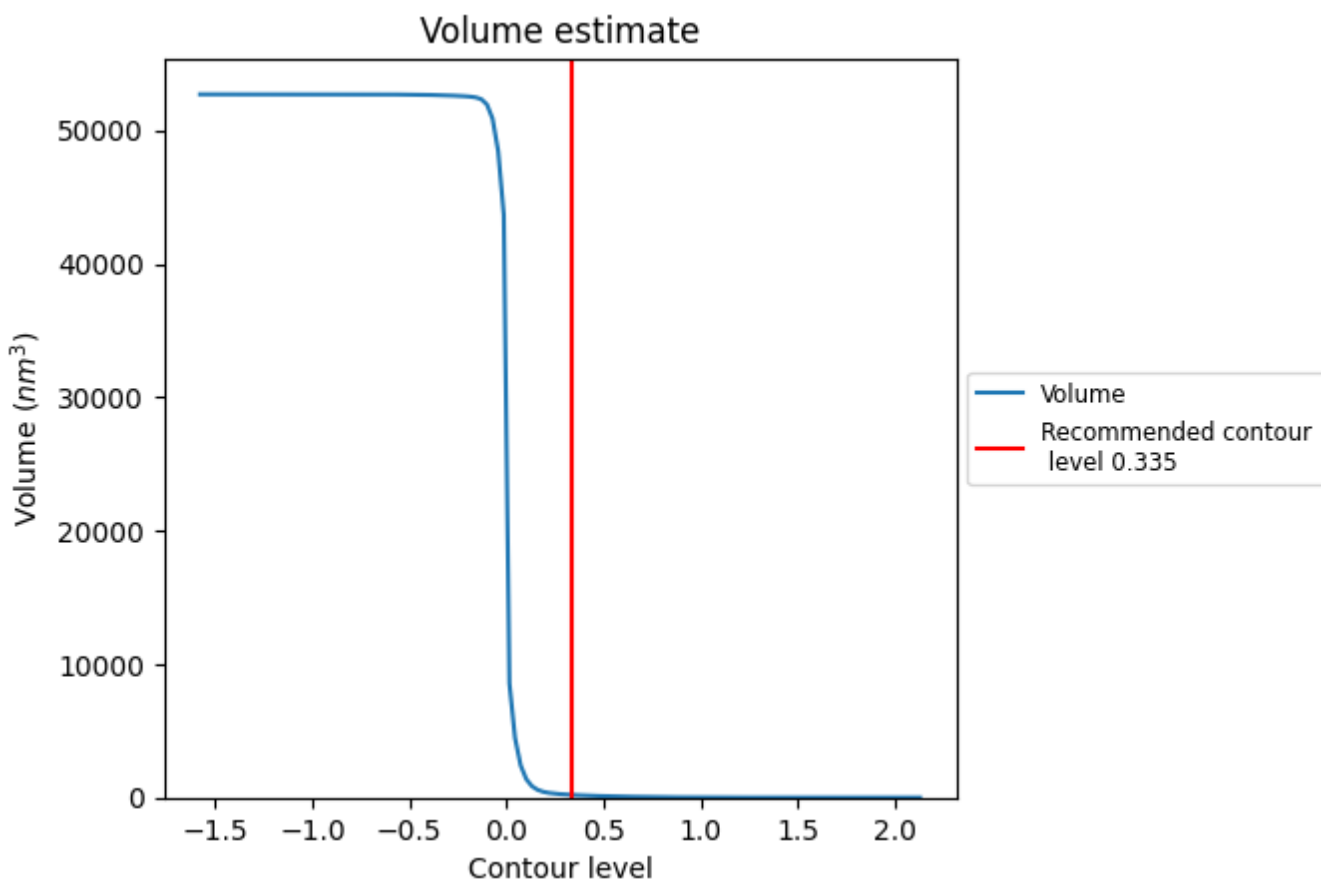
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

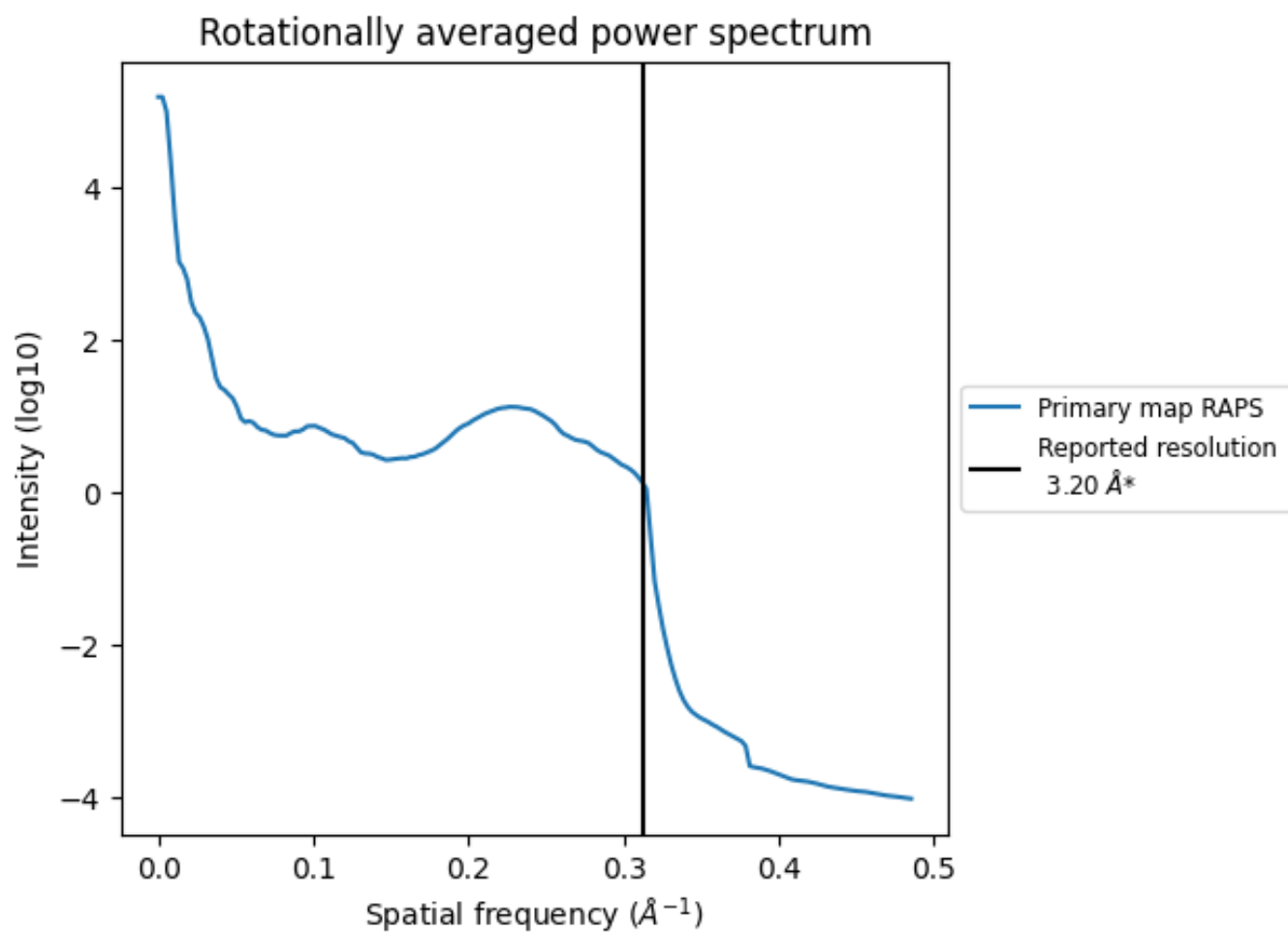
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 200 nm^3 ; this corresponds to an approximate mass of 181 kDa.

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

7.3 Rotationally averaged power spectrum [i](#)



*Reported resolution corresponds to spatial frequency of 0.312\AA^{-1}

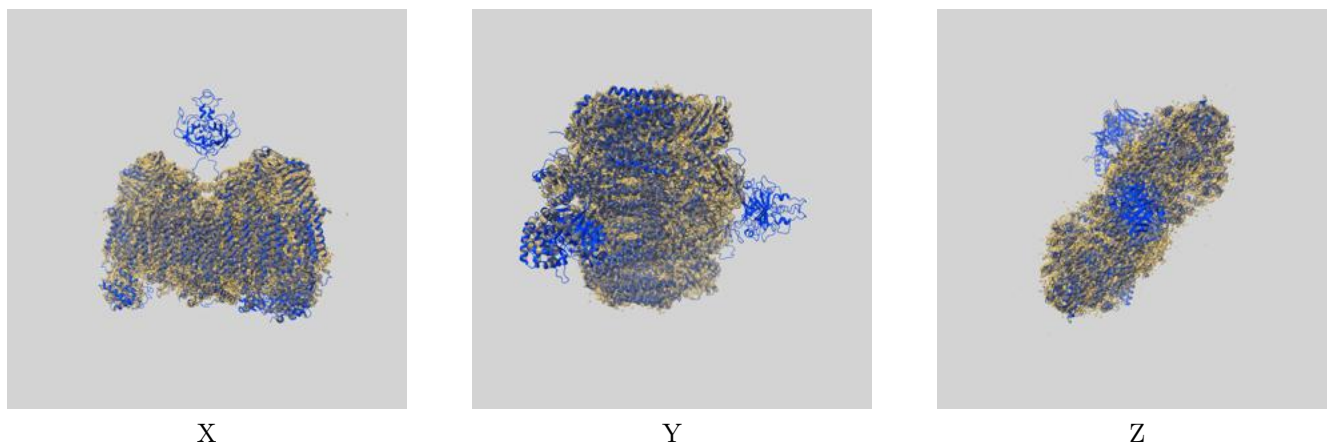
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

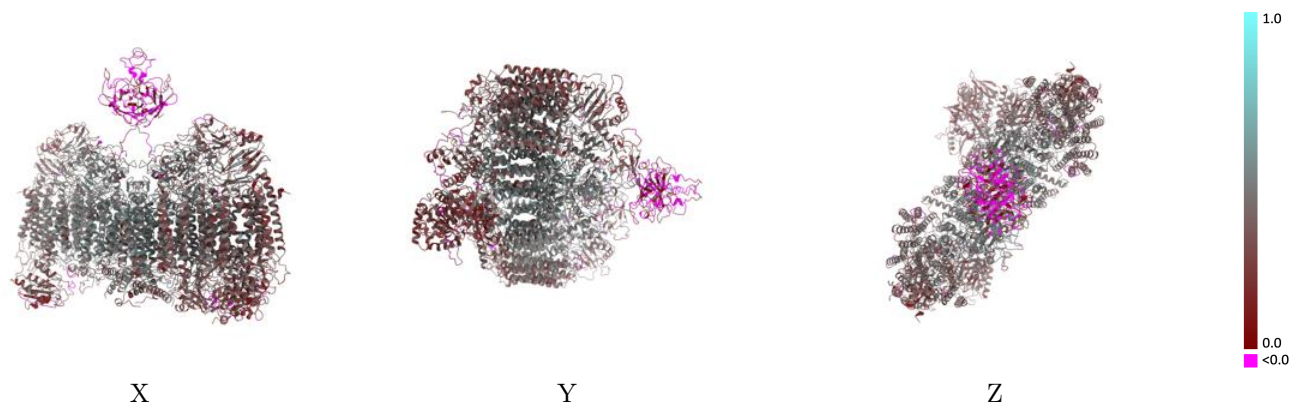
This section contains information regarding the fit between EMDB map EMD-46995 and PDB model 9DM1. Per-residue inclusion information can be found in section 3 on page 16.

9.1 Map-model overlay [i](#)



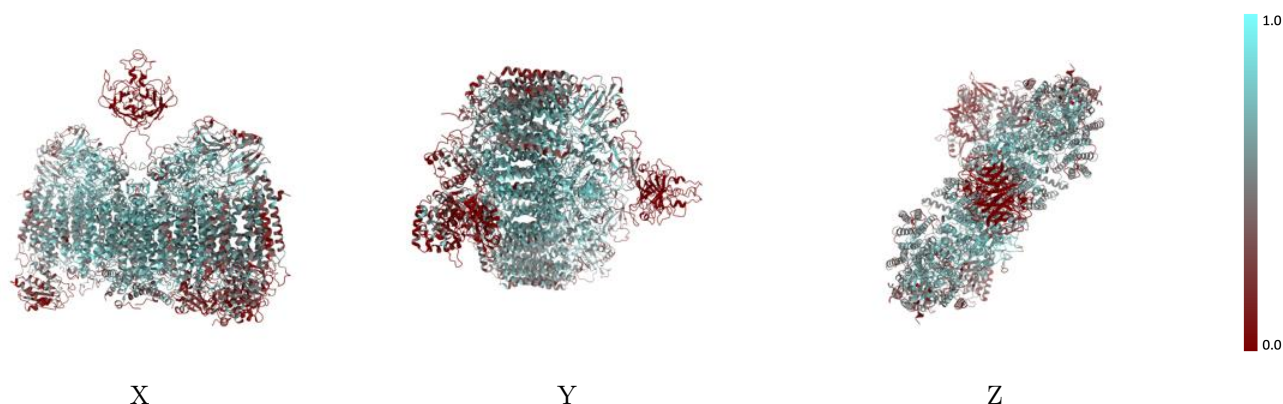
The images above show the 3D surface view of the map at the recommended contour level 0.335 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



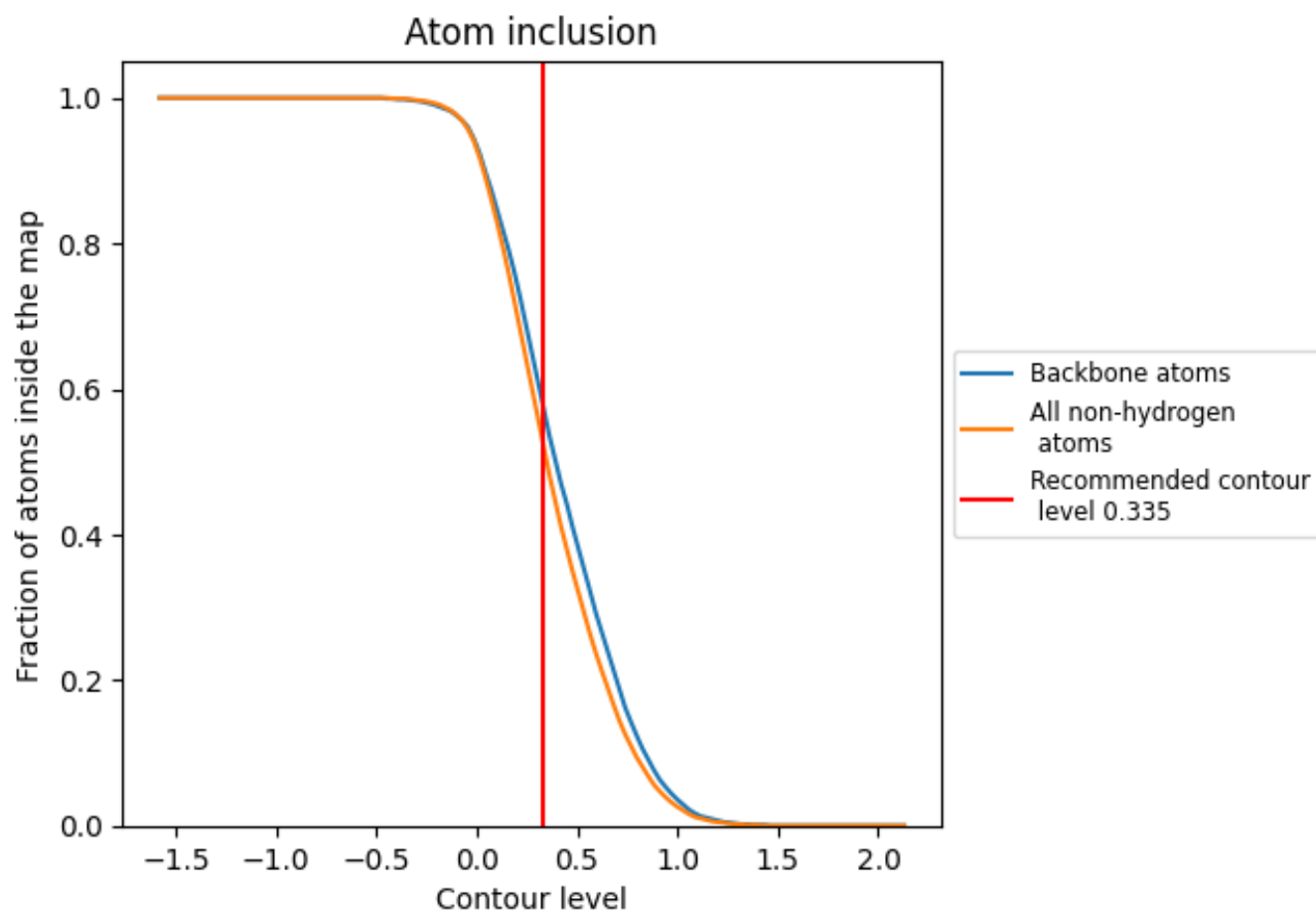
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.335).





















































9.4 Atom inclusion [i](#)



At the recommended contour level, 57% of all backbone atoms, 52% 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 (0.335) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5180	 0.3800
A	 0.1360	 0.2590
D	 0.0790	 0.0750
E	 0.6770	 0.4710
F	 0.6650	 0.4700
G	 0.0860	 0.0680
I	 0.6890	 0.4580
J	 0.5010	 0.3780
K	 0.4450	 0.3360
L	 0.6040	 0.4050
M	 0.6340	 0.4430
O	 0.6830	 0.4550
P	 0.5030	 0.3780
Q	 0.4460	 0.3330
R	 0.6010	 0.4050
S	 0.5180	 0.3590
T	 0.4840	 0.3780
U	 0.2070	 0.2670
V	 0.2750	 0.2860
W	 0.4470	 0.3430
X	 0.5010	 0.3510
Y	 0.6330	 0.4410
Z	 0.4860	 0.3760
a	 0.2040	 0.2620
b	 0.2730	 0.2940
c	 0.4510	 0.3510

