



wwPDB X-ray Structure Validation Summary Report ⓘ

Sep 18, 2023 – 12:53 PM EDT

PDB ID : 8GCQ
Title : SFX structure of oxidized cytochrome c oxidase at 2.38 Angstrom resolution
Authors : Ishigami, I.; Yeh, S.-R.; Rousseau, D.L.
Deposited on : 2023-03-02
Resolution : 2.38 Å(reported)

This is a wwPDB X-ray Structure 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/XrayValidationReportHelp>

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:

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.35.1
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.35.1

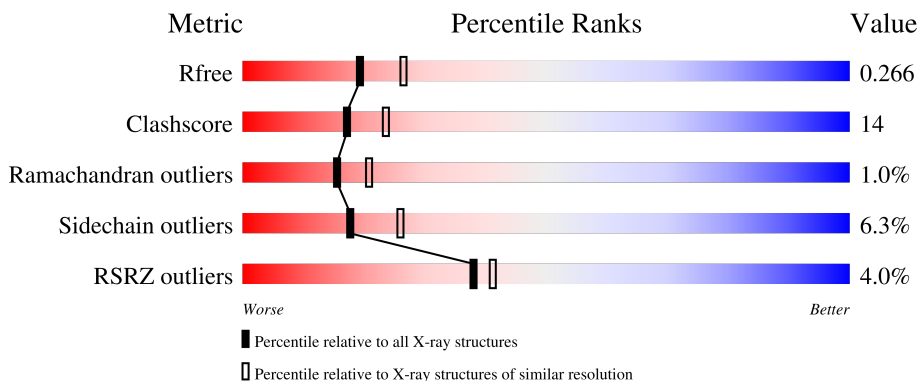
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.38 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.



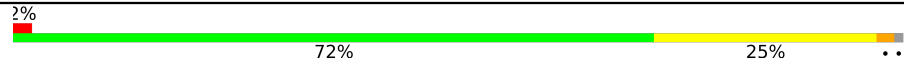

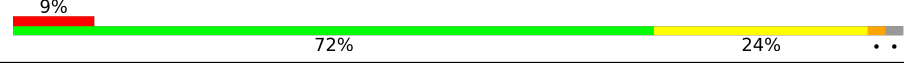
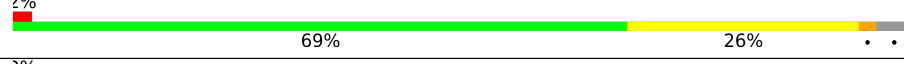

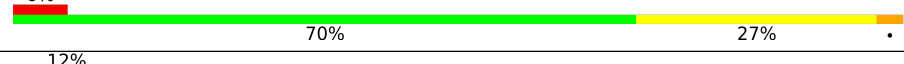


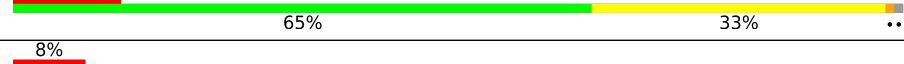


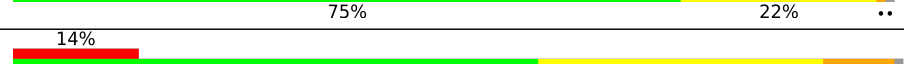

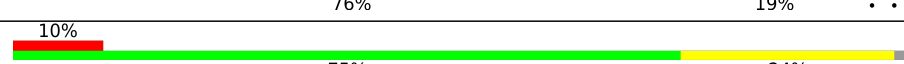
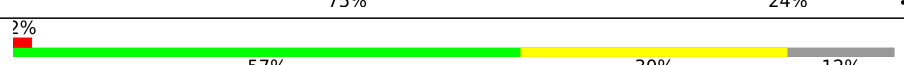
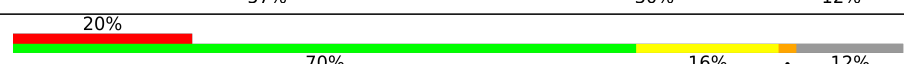
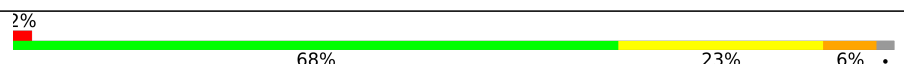
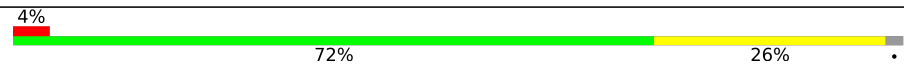
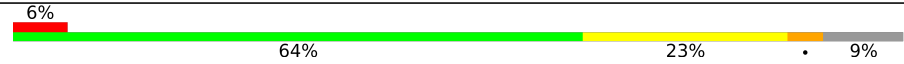


Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	5509 (2.40-2.36)
Clashscore	141614	6082 (2.40-2.36)
Ramachandran outliers	138981	5973 (2.40-2.36)
Sidechain outliers	138945	5975 (2.40-2.36)
RSRZ outliers	127900	5397 (2.40-2.36)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower 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 electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	514	63% (green), 35% (yellow), . (grey)
1	N	514	3% (red), 60% (green), 39% (yellow), . (grey)
2	B	227	3% (red), 64% (green), 32% (yellow), . (grey)
2	O	227	3% (red), 70% (green), 27% (yellow), . (grey)
3	C	261	72% (green), 25% (yellow), .. (grey)

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Mol	Chain	Length	Quality of chain
3	P	261	
4	D	147	
4	Q	147	
5	E	109	
5	R	109	
6	F	98	
6	S	98	
7	G	85	
7	T	85	
8	H	85	
8	U	85	
9	I	73	
9	V	73	
10	J	59	
10	W	59	
11	K	56	
11	X	56	
12	L	47	
12	Y	47	
13	M	47	
13	Z	47	

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
18	HEA	A	605	X	-	-	-
18	HEA	A	606	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
18	HEA	N	606	X	-	-	-
18	HEA	N	607	X	-	-	-
22	PSC	B	303	-	-	-	X
22	PSC	V	101	-	-	-	X
23	CHD	T	103	X	-	-	-
23	CHD	Y	101	X	-	-	-
26	DMU	C	309	X	-	-	-
26	DMU	C	310	X	-	-	-
26	DMU	G	101	X	-	-	-
26	DMU	M	101	X	-	-	-
26	DMU	P	302	X	-	-	-
26	DMU	Q	201	X	-	-	-
7	TPO	G	11	-	-	-	X

2 Entry composition [i](#)

There are 29 unique types of molecules in this entry. The entry contains 31457 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, 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					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	514	4027	2691	623	678	35	0	0	0
1	N	514	4027	2691	623	678	35	0	0	0

- Molecule 2 is a protein called Cytochrome c oxidase subunit 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	227	1824	1185	281	340	18	0	0	0
2	O	227	1824	1185	281	340	18	0	0	0

- Molecule 3 is a protein called Cytochrome c oxidase subunit 3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	C	259	2110	1412	336	350	12	0	0	0
3	P	259	2110	1412	336	350	12	0	0	0

- Molecule 4 is a protein called Cytochrome c oxidase subunit 4 isoform 1, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	D	144	1195	777	196	218	4	0	0	0
4	Q	144	1195	777	196	218	4	0	0	0

- Molecule 5 is a protein called Cytochrome c oxidase subunit 5A, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	E	105	Total	C	N	O	S	0	0	0
			852	544	144	162	2			
5	R	105	Total	C	N	O	S	0	0	0
			852	544	144	162	2			

- Molecule 6 is a protein called Cytochrome c oxidase subunit 5B, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
6	F	98	Total	C	N	O	S	0	0	0
			748	464	134	145	5			
6	S	98	Total	C	N	O	S	0	0	0
			748	464	134	145	5			

- Molecule 7 is a protein called Cytochrome c oxidase subunit 6A2, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace	
7	G	84	Total	C	N	O	P	S	0	0	0
			675	431	129	113	1	1			
7	T	84	Total	C	N	O	P	S	0	0	0
			675	431	129	113	1	1			

- Molecule 8 is a protein called Cytochrome c oxidase subunit 6B1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
8	H	79	Total	C	N	O	S	0	0	0
			662	417	121	119	5			
8	U	79	Total	C	N	O	S	0	0	0
			662	417	121	119	5			

- Molecule 9 is a protein called Cytochrome c oxidase subunit 6C.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
9	I	72	Total	C	N	O	S	0	0	0
			592	385	106	97	4			
9	V	72	Total	C	N	O	S	0	0	0
			592	385	106	97	4			

- Molecule 10 is a protein called Cytochrome c oxidase subunit 7A1, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
10	J	58	Total	C	N	O	S	0	0	0
			460	297	78	82	3			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
10	W	58	Total	C	N	O	S	0	0	0
			460	297	78	82	3			

- Molecule 11 is a protein called Cytochrome c oxidase subunit 7B, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
11	K	49	Total	C	N	O	S	0	0	0
			384	250	65	67	2			
11	X	49	Total	C	N	O	S	0	0	0
			384	250	65	67	2			

- Molecule 12 is a protein called Cytochrome c oxidase subunit 7C, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
12	L	46	Total	C	N	O	S	0	0	0
			380	254	64	60	2			
12	Y	46	Total	C	N	O	S	0	0	0
			380	254	64	60	2			

- Molecule 13 is a protein called Cytochrome c oxidase subunit 8B, mitochondrial.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
13	M	43	Total	C	N	O	0	0	0
			335	223	53	59			
13	Z	43	Total	C	N	O	0	0	0
			335	223	53	59			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
M	0	SER	-	expression tag	UNP P10175
Z	0	SER	-	expression tag	UNP P10175

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

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
14	A	1	Total	Cu	0	0
			1	1		
14	N	1	Total	Cu	0	0
			1	1		

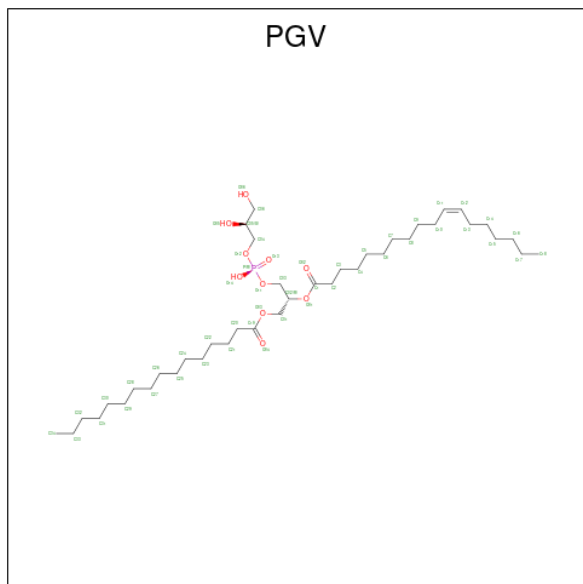
- Molecule 15 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
15	A	1	Total Mg 1 1	0	0
15	N	1	Total Mg 1 1	0	0

- Molecule 16 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
16	A	1	Total Na 1 1	0	0
16	N	1	Total Na 1 1	0	0

- Molecule 17 is (1R)-2-{{{[(2S)-2,3-DIHYDROXYPROPYL]OXY}(HYDROXY)PHOSPHORYL]OXY}-1-[(PALMITOYLOXY)METHYL]ETHYL (11E)-OCTADEC-11-ENATE (three-letter code: PGV) (formula: C₄₀H₇₇O₁₀P) (labeled as "Ligand of Interest" by depositor).



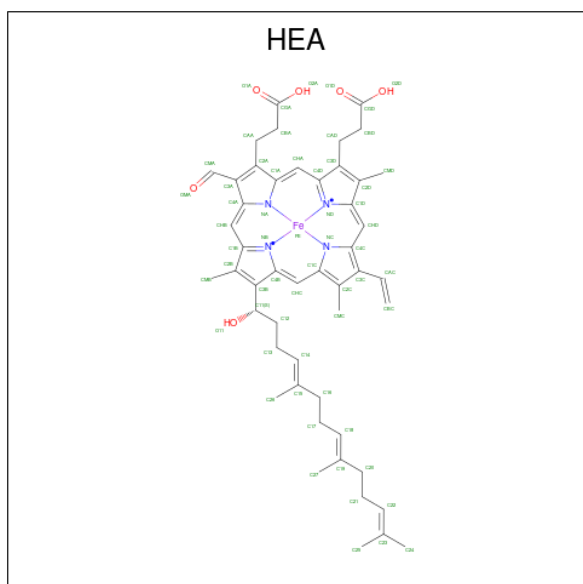
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
17	A	1	Total C O P 51 40 10 1	0	0
17	C	1	Total C O P 51 40 10 1	0	0
17	C	1	Total C O P 51 40 10 1	0	0
17	H	1	Total C O P 51 40 10 1	0	0

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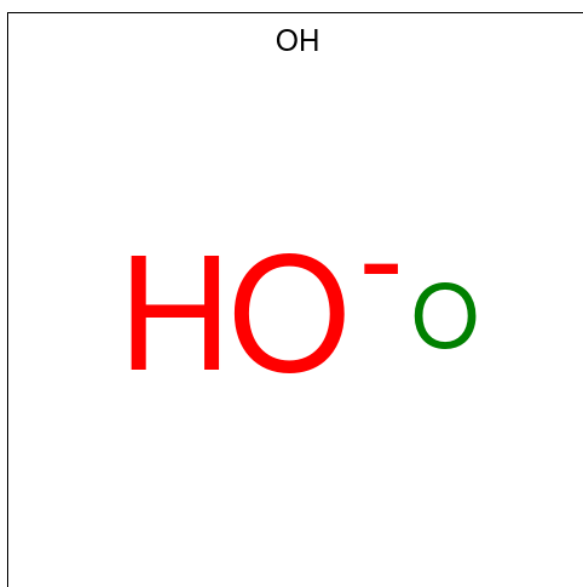
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
17	N	1	Total	C	O	P	0	0
			51	40	10	1		
17	N	1	Total	C	O	P	0	0
			51	40	10	1		
17	P	1	Total	C	O	P	0	0
			51	40	10	1		
17	P	1	Total	C	O	P	0	0
			51	40	10	1		

- Molecule 18 is HEME-A (three-letter code: HEA) (formula: $C_{49}H_{56}FeN_4O_6$) (labeled as "Ligand of Interest" by depositor).



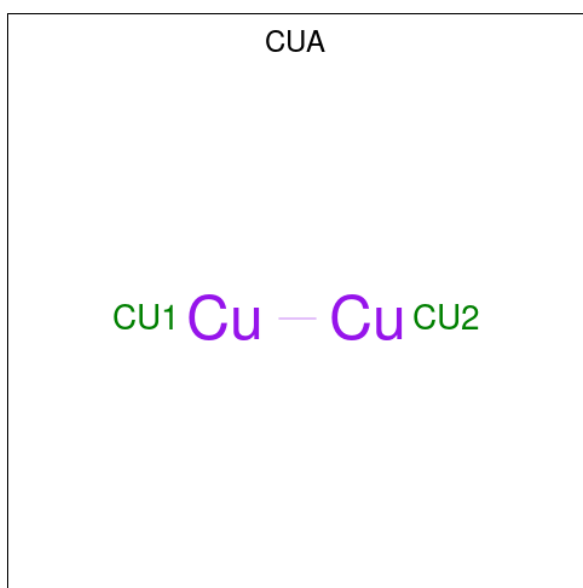
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
18	A	1	Total	C	Fe	N	O	0	0
			60	49	1	4	6		
18	A	1	Total	C	Fe	N	O	0	0
			60	49	1	4	6		
18	N	1	Total	C	Fe	N	O	0	0
			60	49	1	4	6		
18	N	1	Total	C	Fe	N	O	0	0
			60	49	1	4	6		

- Molecule 19 is HYDROXIDE ION (three-letter code: OH) (formula: HO).



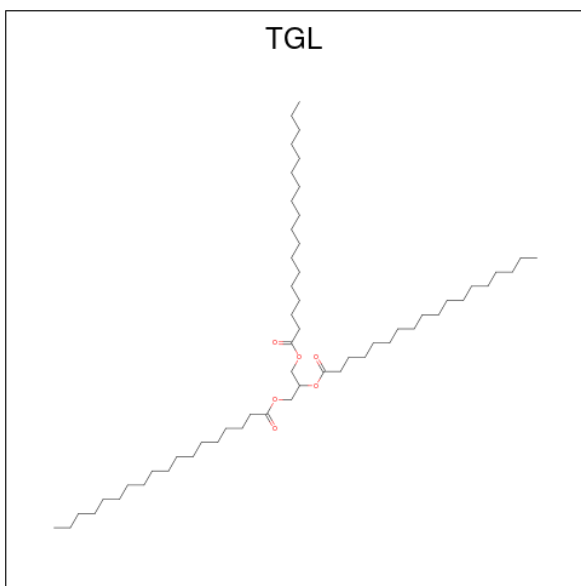
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
19	A	1	Total O 1 1	0	0
19	N	1	Total O 1 1	0	0

- Molecule 20 is DINUCLEAR COPPER ION (three-letter code: CUA) (formula: Cu₂).



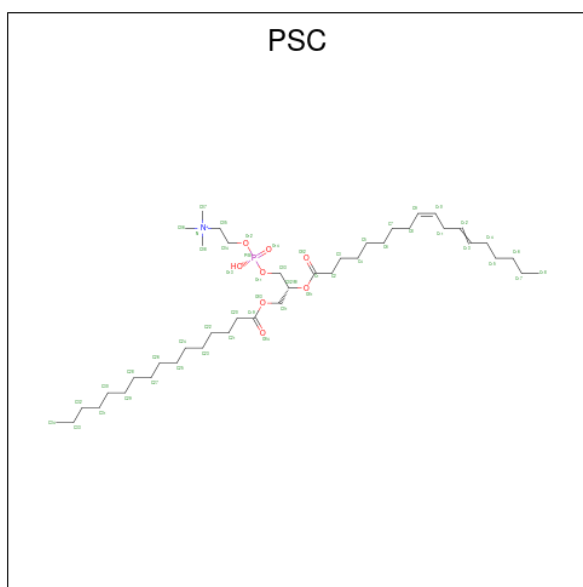
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
20	B	1	Total Cu 2 2	0	0
20	O	1	Total Cu 2 2	0	0

- Molecule 21 is TRISTEAROYLGLYCEROL (three-letter code: TGL) (formula: $C_{57}H_{110}O_6$).



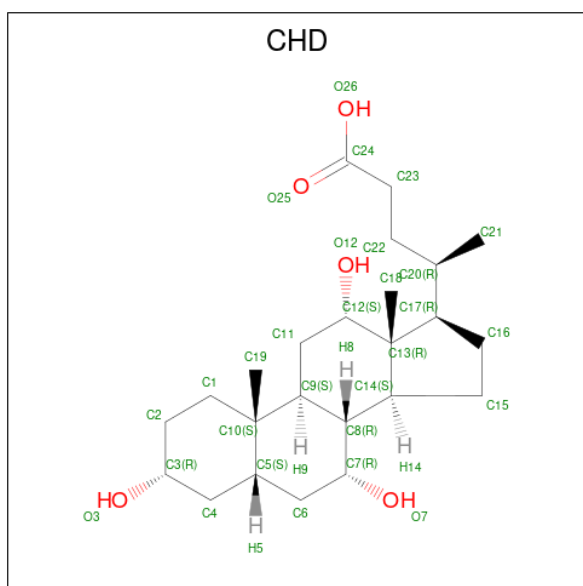
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
21	B	1	Total	C	O	0	0
			63	57	6		
21	D	1	Total	C	O	0	0
			63	57	6		
21	L	1	Total	C	O	0	0
			63	57	6		
21	N	1	Total	C	O	0	0
			63	57	6		
21	N	1	Total	C	O	0	0
			63	57	6		
21	O	1	Total	C	O	0	0
			63	57	6		

- Molecule 22 is (7R,17E,20E)-4-HYDROXY-N,N,N-TRIMETHYL-9-OXO-7-[(PALMITOYLOXY)METHYL]-3,5,8-TRIOXA-4-PHOSPHAHEXACOSA-17,20-DIEN-1-AMINIUM 4-OXIDE (three-letter code: PSC) (formula: $C_{42}H_{81}NO_8P$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
22	B	1	Total	C	N	O	P	0	0
			52	42	1	8	1		
22	V	1	Total	C	N	O	P	0	0
			52	42	1	8	1		

- Molecule 23 is CHOLIC ACID (three-letter code: CHD) (formula: $C_{24}H_{40}O_5$) (labeled as "Ligand of Interest" by depositor).



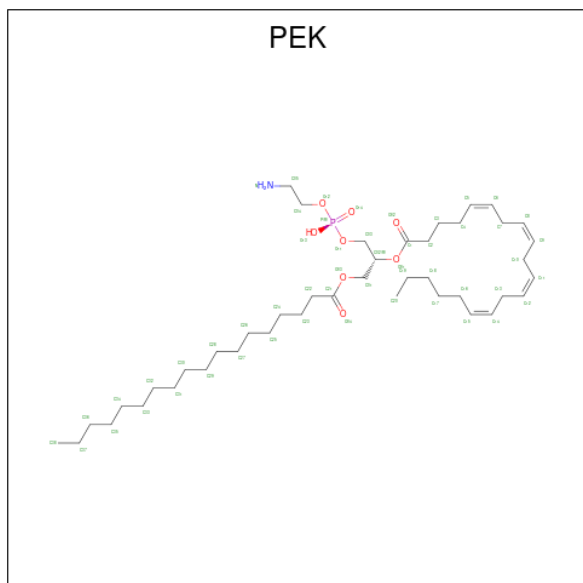
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
23	C	1	Total	C	O	0	0
			29	24	5		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
23	C	1	Total	C	O	0	0
			29	24	5		
23	J	1	Total	C	O	0	0
			29	24	5		
23	O	1	Total	C	O	0	0
			29	24	5		
23	P	1	Total	C	O	0	0
			29	24	5		
23	P	1	Total	C	O	0	0
			29	24	5		
23	T	1	Total	C	O	0	0
			29	24	5		
23	T	1	Total	C	O	0	0
			29	24	5		
23	W	1	Total	C	O	0	0
			29	24	5		
23	Y	1	Total	C	O	0	0
			29	24	5		

- Molecule 24 is (1S)-2-[[[(2-AMINOETHOXY)(HYDROXY)PHOSPHORYL]OXY}-1-[(STEAROYLOXY)METHYL]ETHYL (5E,8E,11E,14E)-ICOSA-5,8,11,14-TETRAENOATE (three-letter code: PEK) (formula: C₄₃H₇₈NO₈P).



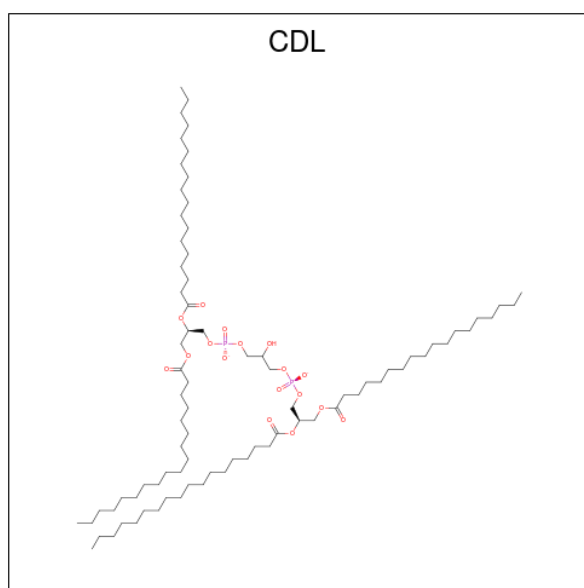
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
24	C	1	Total	C	N	O	P	0	0
			53	43	1	8	1		

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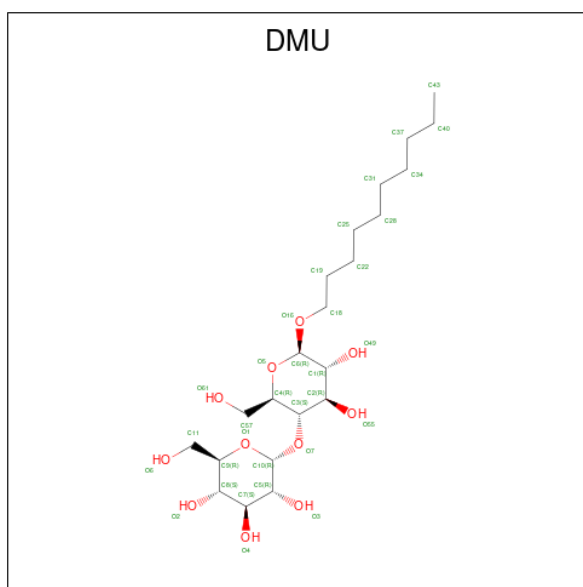
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
24	C	1	Total 53	C 43	N 1	O 8	P 1	0	0
24	C	1	Total 53	C 43	N 1	O 8	P 1	0	0
24	P	1	Total 53	C 43	N 1	O 8	P 1	0	0
24	P	1	Total 53	C 43	N 1	O 8	P 1	0	0
24	T	1	Total 53	C 43	N 1	O 8	P 1	0	0

- Molecule 25 is CARDIOLIPIN (three-letter code: CDL) (formula: $C_{81}H_{156}O_{17}P_2$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	O	P		
25	C	1	Total 100	C 81	O 17	P 2	0	0
25	C	1	Total 100	C 81	O 17	P 2	0	0
25	P	1	Total 100	C 81	O 17	P 2	0	0
25	P	1	Total 100	C 81	O 17	P 2	0	0

- Molecule 26 is DECYL-BETA-D-MALTOPYRANOSIDE (three-letter code: DMU) (formula: $C_{22}H_{42}O_{11}$) (labeled as "Ligand of Interest" by depositor).

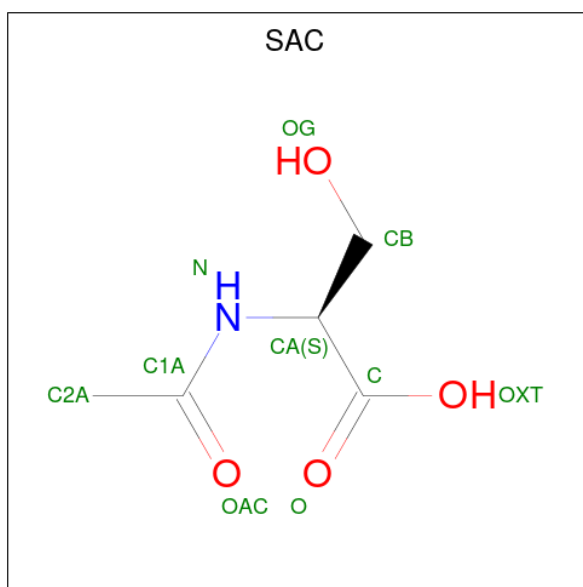


Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
26	C	1	Total C O 33 22 11	0	0
26	C	1	Total C O 33 22 11	0	0
26	G	1	Total C O 33 22 11	0	0
26	M	1	Total C O 33 22 11	0	0
26	P	1	Total C O 33 22 11	0	0
26	Q	1	Total C O 33 22 11	0	0

- Molecule 27 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
27	F	1	Total Zn 1 1	0	0
27	S	1	Total Zn 1 1	0	0

- Molecule 28 is N-ACETYL-SERINE (three-letter code: SAC) (formula: C₅H₉NO₄) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
28	I	1	9	5	1	3	0	0
28	V	1	9	5	1	3	0	0

- Molecule 29 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
29	A	104	104	104	0	0
29	B	46	46	46	0	0
29	C	44	44	44	0	0
29	D	23	23	23	0	0
29	E	23	23	23	0	0
29	F	20	20	20	0	0
29	G	13	13	13	0	0
29	H	26	26	26	0	0
29	I	8	8	8	0	0
29	J	11	11	11	0	0

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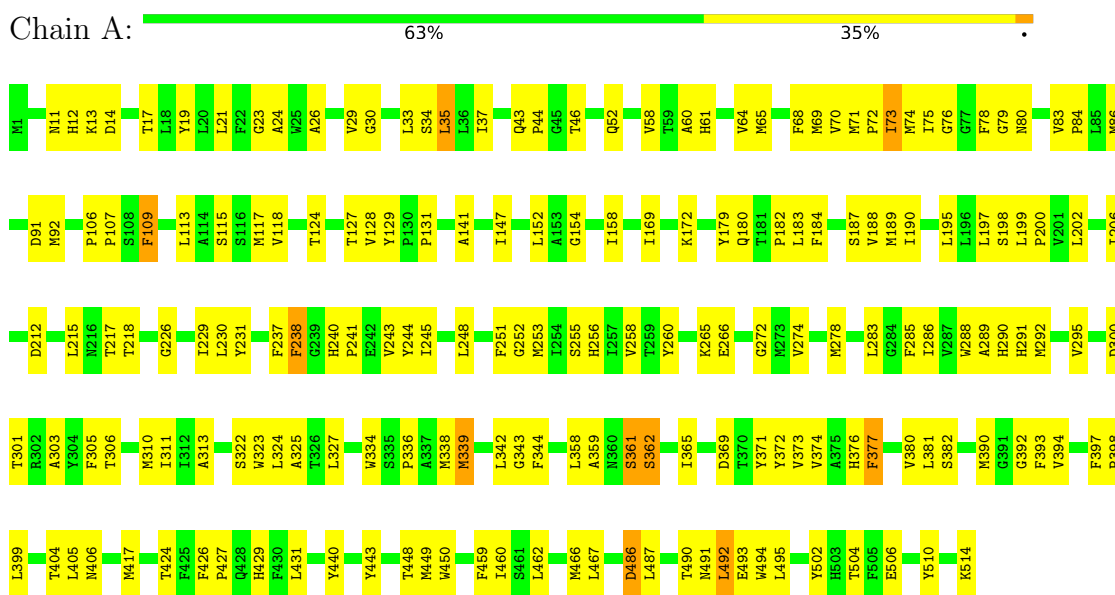
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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
29	K	8	Total O 8 8	0	0
29	L	13	Total O 13 13	0	0
29	M	7	Total O 7 7	0	0
29	N	74	Total O 74 74	0	0
29	O	39	Total O 39 39	0	0
29	P	40	Total O 40 40	0	0
29	Q	28	Total O 28 28	0	0
29	R	8	Total O 8 8	0	0
29	S	19	Total O 19 19	0	0
29	T	17	Total O 17 17	0	0
29	U	7	Total O 7 7	0	0
29	V	6	Total O 6 6	0	0
29	W	5	Total O 5 5	0	0
29	X	8	Total O 8 8	0	0
29	Y	1	Total O 1 1	0	0
29	Z	3	Total O 3 3	0	0

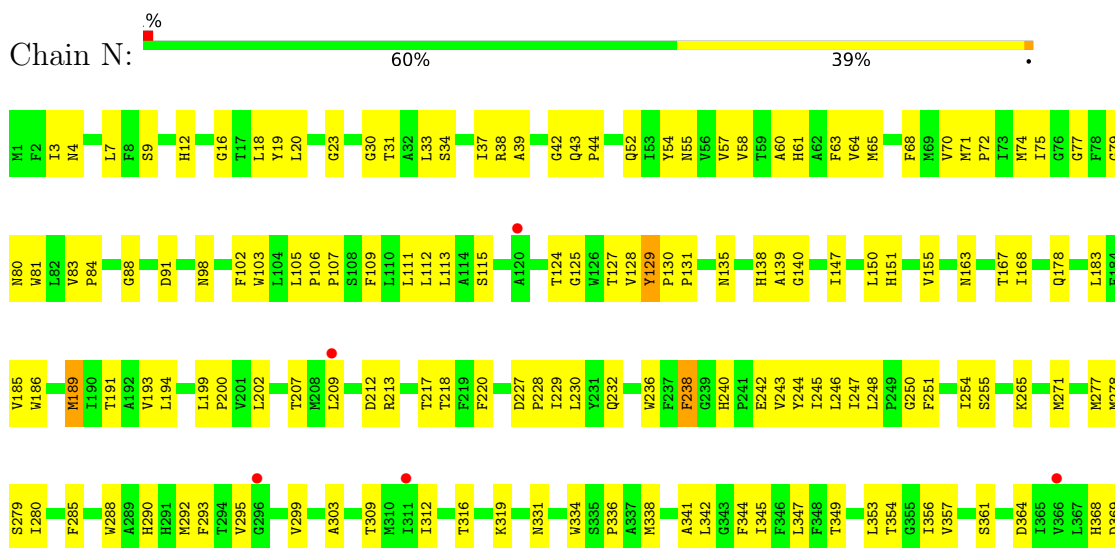
3 Residue-property plots

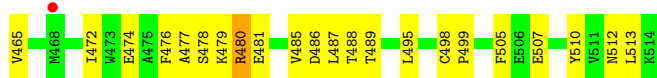
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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 dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). 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

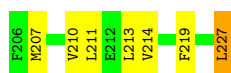


- Molecule 1: Cytochrome c oxidase subunit 1





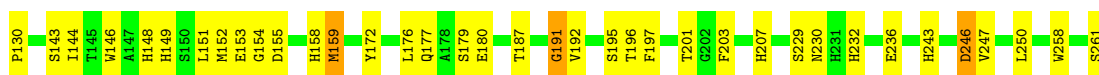
● Molecule 2: Cytochrome c oxidase subunit 2



● Molecule 2: Cytochrome c oxidase subunit 2

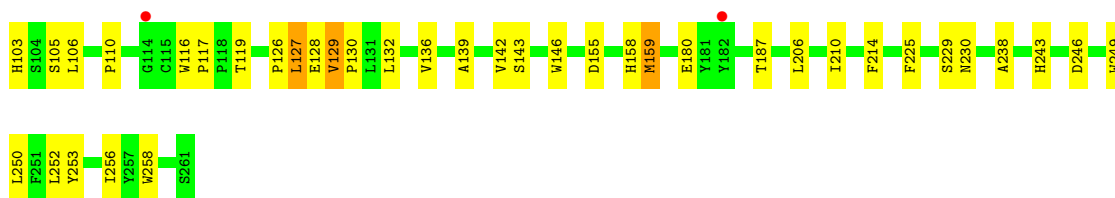


● Molecule 3: Cytochrome c oxidase subunit 3

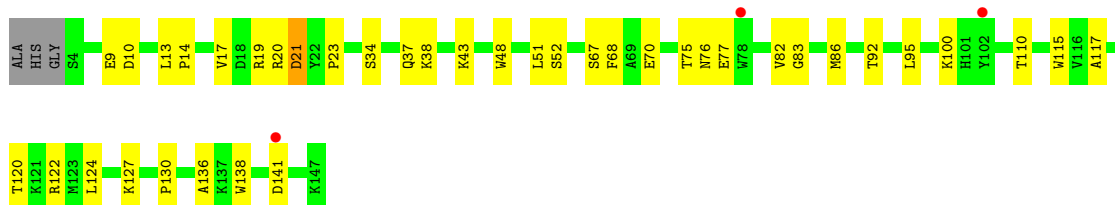


● Molecule 3: Cytochrome c oxidase subunit 3

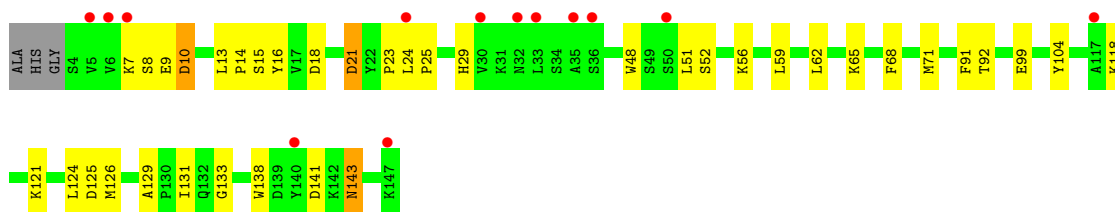




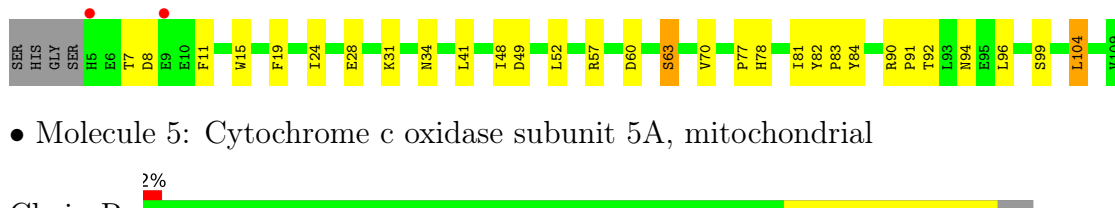
- Molecule 4: Cytochrome c oxidase subunit 4 isoform 1, mitochondrial



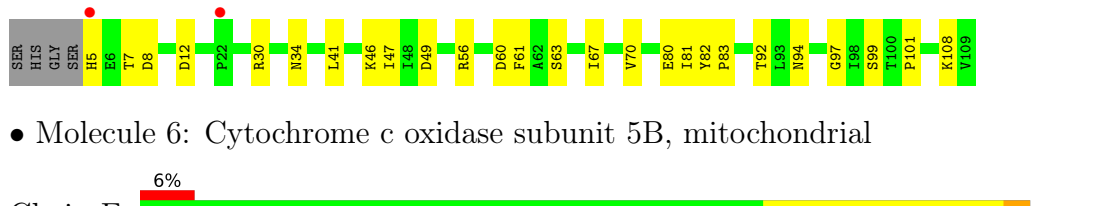
- Molecule 4: Cytochrome c oxidase subunit 4 isoform 1, mitochondrial



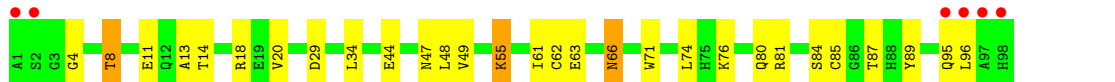
- Molecule 5: Cytochrome c oxidase subunit 5A, mitochondrial



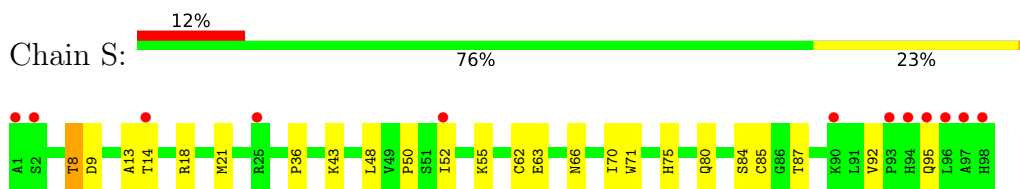
- Molecule 5: Cytochrome c oxidase subunit 5A, mitochondrial



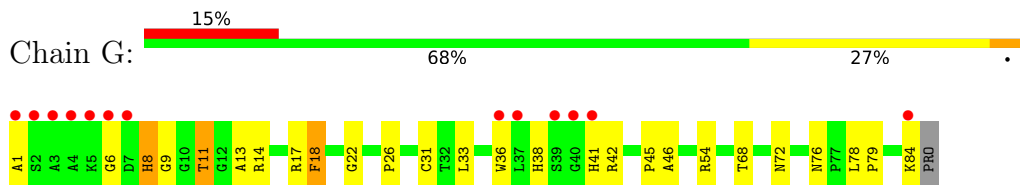
- Molecule 6: Cytochrome c oxidase subunit 5B, mitochondrial



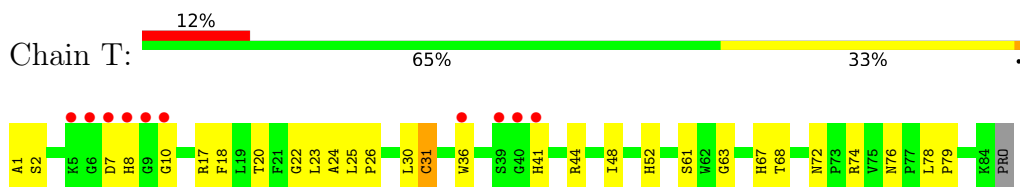
- Molecule 6: Cytochrome c oxidase subunit 5B, mitochondrial



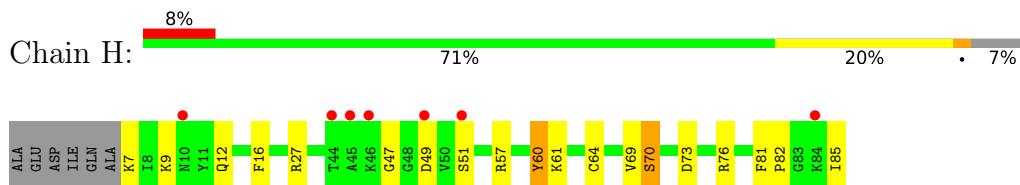
- Molecule 7: Cytochrome c oxidase subunit 6A2, mitochondrial



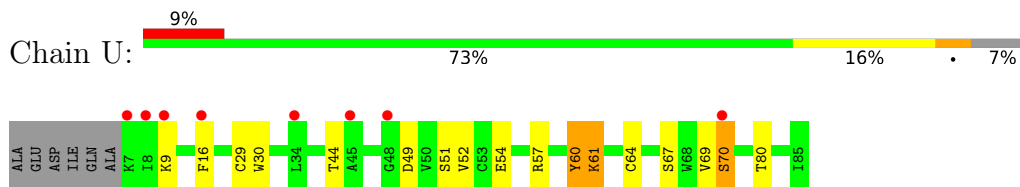
- Molecule 7: Cytochrome c oxidase subunit 6A2, mitochondrial



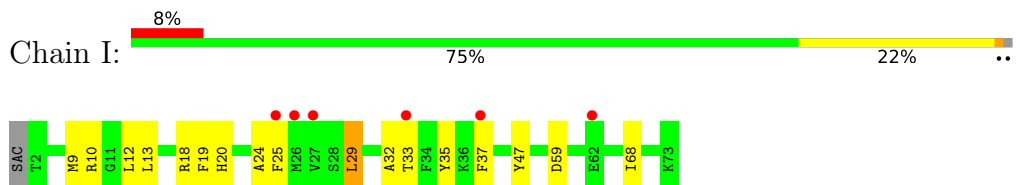
- Molecule 8: Cytochrome c oxidase subunit 6B1



- Molecule 8: Cytochrome c oxidase subunit 6B1



- Molecule 9: Cytochrome c oxidase subunit 6C

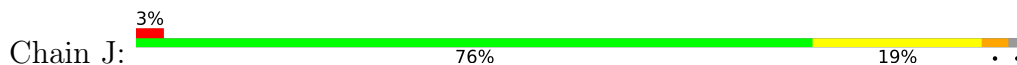


- Molecule 9: Cytochrome c oxidase subunit 6C

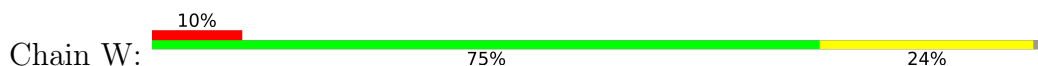




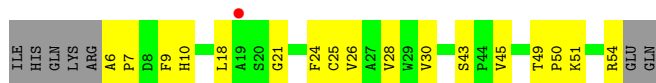
- Molecule 10: Cytochrome c oxidase subunit 7A1, mitochondrial



- Molecule 10: Cytochrome c oxidase subunit 7A1, mitochondrial



- Molecule 11: Cytochrome c oxidase subunit 7B, mitochondrial



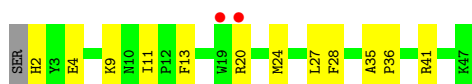
- Molecule 11: Cytochrome c oxidase subunit 7B, mitochondrial



- Molecule 12: Cytochrome c oxidase subunit 7C, mitochondrial



- Molecule 12: Cytochrome c oxidase subunit 7C, mitochondrial



- Molecule 13: Cytochrome c oxidase subunit 8B, mitochondrial



- Molecule 13: Cytochrome c oxidase subunit 8B, mitochondrial



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	178.60Å 189.50Å 211.10Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	33.00 – 2.38 32.80 – 2.38	Depositor EDS
% Data completeness (in resolution range)	99.9 (33.00-2.38) 99.8 (32.80-2.38)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.71 (at 2.39Å)	Xtrriage
Refinement program	REFMAC 5.8.0267	Depositor
R, R_{free}	0.232 , 0.266 0.234 , 0.266	Depositor DCC
R_{free} test set	14182 reflections (4.98%)	wwPDB-VP
Wilson B-factor (Å ²)	29.9	Xtrriage
Anisotropy	0.109	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.25 , 37.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.88	EDS
Total number of atoms	31457	wwPDB-VP
Average B, all atoms (Å ²)	34.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.36% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

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: MG, PEK, SAC, FME, ZN, CUA, OH, TGL, CU, HEA, NA, PSC, DMU, CHD, PGV, TPO, CDL

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.78	0/4156	0.95	0/5678
1	N	0.73	0/4156	0.89	3/5678 (0.1%)
2	B	0.77	0/1860	0.95	0/2534
2	O	0.69	0/1860	0.87	0/2534
3	C	0.71	0/2197	0.88	0/3005
3	P	0.71	0/2197	0.86	1/3005 (0.0%)
4	D	0.74	0/1229	0.88	0/1658
4	Q	0.71	0/1229	0.78	0/1658
5	E	0.70	0/871	0.87	0/1182
5	R	0.68	0/871	0.82	0/1182
6	F	0.77	0/765	0.90	0/1038
6	S	0.75	0/765	0.87	0/1038
7	G	0.67	0/690	0.86	0/937
7	T	0.67	0/690	0.83	0/937
8	H	0.75	0/682	0.88	0/921
8	U	0.67	0/682	0.82	0/921
9	I	0.69	0/605	0.87	0/802
9	V	0.68	0/605	0.84	0/802
10	J	0.72	0/471	0.89	0/636
10	W	0.74	0/471	0.83	0/636
11	K	0.74	0/398	0.86	0/546
11	X	0.69	0/398	0.79	0/546
12	L	0.74	0/393	0.87	0/526
12	Y	0.69	0/393	0.81	0/526
13	M	0.76	0/345	0.87	0/470
13	Z	0.69	0/345	0.76	0/470
All	All	0.73	0/29324	0.88	4/39866 (0.0%)

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	N	129	TYR	CB-CG-CD1	5.93	124.56	121.00
1	N	61	HIS	CB-CA-C	5.64	121.69	110.40
3	P	128	GLU	CB-CA-C	5.14	120.69	110.40
1	N	129	TYR	CB-CG-CD2	-5.05	117.97	121.00

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	A	4027	0	4002	199	0
1	N	4027	0	4002	172	0
2	B	1824	0	1833	70	0
2	O	1824	0	1833	56	0
3	C	2110	0	2027	55	0
3	P	2110	0	2027	59	0
4	D	1195	0	1183	31	0
4	Q	1195	0	1183	36	0
5	E	852	0	845	23	0
5	R	852	0	845	19	0
6	F	748	0	728	17	0
6	S	748	0	728	18	0
7	G	675	0	643	20	0
7	T	675	0	643	25	0
8	H	662	0	623	16	0
8	U	662	0	623	10	0
9	I	592	0	604	13	0
9	V	592	0	604	19	0
10	J	460	0	459	11	0
10	W	460	0	459	10	0
11	K	384	0	366	14	0
11	X	384	0	366	7	0
12	L	380	0	380	11	0
12	Y	380	0	380	9	0
13	M	335	0	352	8	0
13	Z	335	0	352	7	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
14	A	1	0	0	0	0
14	N	1	0	0	0	0
15	A	1	0	0	0	0
15	N	1	0	0	0	0
16	A	1	0	0	0	0
16	N	1	0	0	0	0
17	A	51	0	76	3	0
17	C	102	0	152	2	0
17	H	51	0	76	1	0
17	N	102	0	152	2	0
17	P	102	0	152	2	0
18	A	120	0	108	14	0
18	N	120	0	108	14	0
19	A	1	0	0	0	0
19	N	1	0	0	0	0
20	B	2	0	0	0	0
20	O	2	0	0	0	0
21	B	63	0	110	2	0
21	D	63	0	110	2	0
21	L	63	0	110	7	0
21	N	126	0	220	7	0
21	O	63	0	110	0	0
22	B	52	0	80	1	0
22	V	52	0	80	2	0
23	C	58	0	78	3	0
23	J	29	0	39	1	0
23	O	29	0	39	0	0
23	P	58	0	78	2	0
23	T	58	0	78	3	0
23	W	29	0	39	0	0
23	Y	29	0	39	2	0
24	C	159	0	231	7	0
24	P	106	0	154	3	0
24	T	53	0	77	1	0
25	C	200	0	312	3	0
25	P	200	0	312	9	0
26	C	66	0	84	5	0
26	G	33	0	42	0	0
26	M	33	0	42	1	0
26	P	33	0	42	0	0
26	Q	33	0	42	0	0
27	F	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
27	S	1	0	0	0	0
28	I	9	0	8	0	0
28	V	9	0	8	1	0
29	A	104	0	0	68	0
29	B	46	0	0	15	0
29	C	44	0	0	9	0
29	D	23	0	0	10	0
29	E	23	0	0	4	0
29	F	20	0	0	2	0
29	G	13	0	0	5	0
29	H	26	0	0	10	0
29	I	8	0	0	4	0
29	J	11	0	0	8	0
29	K	8	0	0	5	0
29	L	13	0	0	6	0
29	M	7	0	0	2	0
29	N	74	0	0	46	0
29	O	39	0	0	13	0
29	P	40	0	0	21	0
29	Q	28	0	0	12	0
29	R	8	0	0	0	0
29	S	19	0	0	2	0
29	T	17	0	0	4	0
29	U	7	0	0	0	0
29	V	6	0	0	0	0
29	W	5	0	0	1	0
29	X	8	0	0	5	0
29	Y	1	0	0	0	0
29	Z	3	0	0	0	0
All	All	31457	0	31478	865	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 14.

The worst 5 of 865 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)
1:A:240:HIS:NE2	1:A:244:TYR:CE2	1.81	1.47
1:A:240:HIS:NE2	1:A:244:TYR:HE2	0.90	1.37
1:N:240:HIS:NE2	1:N:244:TYR:HE2	1.27	1.30
1:A:394:VAL:HA	29:A:722:HOH:O	1.31	1.28

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:N:240:HIS:NE2	1:N:244:TYR:CE2	2.04	1.26

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 X-ray entries followed by that with respect to entries of similar resolution.

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	512/514 (100%)	455 (89%)	52 (10%)	5 (1%)	15	21
1	N	512/514 (100%)	451 (88%)	60 (12%)	1 (0%)	47	61
2	B	225/227 (99%)	199 (88%)	22 (10%)	4 (2%)	8	9
2	O	225/227 (99%)	194 (86%)	27 (12%)	4 (2%)	8	9
3	C	257/261 (98%)	240 (93%)	15 (6%)	2 (1%)	19	27
3	P	257/261 (98%)	226 (88%)	30 (12%)	1 (0%)	34	46
4	D	142/147 (97%)	124 (87%)	17 (12%)	1 (1%)	22	30
4	Q	142/147 (97%)	130 (92%)	10 (7%)	2 (1%)	11	14
5	E	103/109 (94%)	93 (90%)	9 (9%)	1 (1%)	15	21
5	R	103/109 (94%)	99 (96%)	4 (4%)	0	100	100
6	F	96/98 (98%)	86 (90%)	9 (9%)	1 (1%)	15	21
6	S	96/98 (98%)	89 (93%)	7 (7%)	0	100	100
7	G	81/85 (95%)	68 (84%)	12 (15%)	1 (1%)	13	17
7	T	81/85 (95%)	66 (82%)	13 (16%)	2 (2%)	5	5
8	H	77/85 (91%)	70 (91%)	5 (6%)	2 (3%)	5	4
8	U	77/85 (91%)	65 (84%)	10 (13%)	2 (3%)	5	4
9	I	70/73 (96%)	64 (91%)	5 (7%)	1 (1%)	11	14
9	V	70/73 (96%)	62 (89%)	7 (10%)	1 (1%)	11	14
10	J	56/59 (95%)	50 (89%)	5 (9%)	1 (2%)	8	9

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
10	W	56/59 (95%)	53 (95%)	3 (5%)	0	100	100
11	K	47/56 (84%)	44 (94%)	3 (6%)	0	100	100
11	X	47/56 (84%)	43 (92%)	4 (8%)	0	100	100
12	L	44/47 (94%)	39 (89%)	4 (9%)	1 (2%)	6	6
12	Y	44/47 (94%)	41 (93%)	2 (4%)	1 (2%)	6	6
13	M	41/47 (87%)	35 (85%)	4 (10%)	2 (5%)	2	1
13	Z	41/47 (87%)	37 (90%)	4 (10%)	0	100	100
All	All	3502/3616 (97%)	3123 (89%)	343 (10%)	36 (1%)	15	21

5 of 36 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	59	GLN
2	B	89	GLU
7	G	41	HIS
10	J	26	ALA
12	L	46	LYS

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 X-ray entries followed by that with respect to entries of similar resolution.

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	426/426 (100%)	405 (95%)	21 (5%)	25	38
1	N	426/426 (100%)	407 (96%)	19 (4%)	27	41
2	B	210/210 (100%)	198 (94%)	12 (6%)	20	30
2	O	210/210 (100%)	197 (94%)	13 (6%)	18	27
3	C	224/226 (99%)	214 (96%)	10 (4%)	27	41
3	P	224/226 (99%)	214 (96%)	10 (4%)	27	41
4	D	128/129 (99%)	119 (93%)	9 (7%)	15	21
4	Q	128/129 (99%)	119 (93%)	9 (7%)	15	21
5	E	92/95 (97%)	87 (95%)	5 (5%)	22	33

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
5	R	92/95 (97%)	87 (95%)	5 (5%)	22	33
6	F	81/81 (100%)	73 (90%)	8 (10%)	8	10
6	S	81/81 (100%)	77 (95%)	4 (5%)	25	38
7	G	67/68 (98%)	58 (87%)	9 (13%)	4	4
7	T	67/68 (98%)	63 (94%)	4 (6%)	19	28
8	H	71/75 (95%)	69 (97%)	2 (3%)	43	61
8	U	71/75 (95%)	65 (92%)	6 (8%)	10	14
9	I	57/57 (100%)	51 (90%)	6 (10%)	7	8
9	V	57/57 (100%)	46 (81%)	11 (19%)	1	1
10	J	49/50 (98%)	47 (96%)	2 (4%)	30	45
10	W	49/50 (98%)	45 (92%)	4 (8%)	11	15
11	K	39/46 (85%)	37 (95%)	2 (5%)	24	36
11	X	39/46 (85%)	36 (92%)	3 (8%)	13	18
12	L	39/40 (98%)	34 (87%)	5 (13%)	4	4
12	Y	39/40 (98%)	37 (95%)	2 (5%)	24	36
13	M	37/39 (95%)	33 (89%)	4 (11%)	6	8
13	Z	37/39 (95%)	31 (84%)	6 (16%)	2	2
All	All	3040/3084 (99%)	2849 (94%)	191 (6%)	18	26

5 of 191 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	O	37	LEU
4	Q	62	LEU
2	O	110	TYR
3	P	47	LEU
5	R	108	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 51 such sidechains are listed below:

Mol	Chain	Res	Type
2	O	24	HIS
4	Q	101	HIS
10	W	29	ASN
2	O	91	ASN

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Mol	Chain	Res	Type
3	P	3	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

6 non-standard protein/DNA/RNA residues are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
1	FME	A	1	1	8,9,10	0.62	0	7,9,11	1.02	0
2	FME	O	1	2	8,9,10	0.66	0	7,9,11	1.00	1 (14%)
7	TPO	T	11	7	8,10,11	0.82	0	10,14,16	0.78	0
2	FME	B	1	2	8,9,10	0.37	0	7,9,11	1.12	0
1	FME	N	1	1	8,9,10	0.51	0	7,9,11	0.90	0
7	TPO	G	11	7	8,10,11	0.92	1 (12%)	10,14,16	0.96	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
1	FME	A	1	1	-	3/7/9/11	-
2	FME	O	1	2	-	2/7/9/11	-
7	TPO	T	11	7	-	5/9/11/13	-
2	FME	B	1	2	-	1/7/9/11	-
1	FME	N	1	1	-	3/7/9/11	-
7	TPO	G	11	7	-	7/9/11/13	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	G	11	TPO	P-OG1	2.14	1.63	1.59

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	O	1	FME	C-CA-N	2.00	113.34	109.73

There are no chirality outliers.

5 of 21 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	1	FME	C-CA-CB-CG
2	B	1	FME	CB-CA-N-CN
7	G	11	TPO	N-CA-CB-CG2
7	G	11	TPO	N-CA-CB-OG1
7	G	11	TPO	C-CA-CB-CG2

There are no ring outliers.

3 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	O	1	FME	4	0
2	B	1	FME	2	0
7	G	11	TPO	2	0

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 60 ligands modelled in this entry, 8 are monoatomic and 2 are modelled with single atom - leaving 50 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	$\# Z > 2$
24	PEK	C	311	-	52,52,52	0.38	0	55,57,57	0.45	0
17	PGV	N	610	-	50,50,50	0.32	0	53,56,56	0.38	0
21	TGL	N	604	-	62,62,62	0.22	0	65,65,65	0.34	0
26	DMU	C	310	-	34,34,34	0.83	1 (2%)	45,45,45	1.28	6 (13%)
23	CHD	T	101	-	32,32,32	0.64	0	51,51,51	1.44	11 (21%)
28	SAC	V	102	-	7,8,9	0.52	0	8,9,11	1.36	1 (12%)
21	TGL	N	609	-	62,62,62	0.27	0	65,65,65	0.24	0
24	PEK	C	303	-	52,52,52	0.29	0	55,57,57	0.65	0
17	PGV	C	301	-	50,50,50	0.33	0	53,56,56	0.67	2 (3%)
22	PSC	V	101	-	51,51,51	0.30	0	57,59,59	0.45	0
24	PEK	T	102	-	52,52,52	0.33	0	55,57,57	0.71	1 (1%)
25	CDL	P	307	-	99,99,99	0.31	0	105,111,111	0.46	1 (0%)
26	DMU	P	302	-	34,34,34	0.63	1 (2%)	45,45,45	1.28	6 (13%)
17	PGV	P	305	-	50,50,50	0.33	0	53,56,56	0.52	0
24	PEK	C	304	-	52,52,52	0.29	0	55,57,57	0.38	0
25	CDL	P	309	-	99,99,99	0.31	0	105,111,111	0.37	0
26	DMU	C	309	-	34,34,34	0.92	1 (2%)	45,45,45	1.38	7 (15%)
21	TGL	B	302	-	62,62,62	0.35	0	65,65,65	0.39	0
26	DMU	G	101	-	34,34,34	0.83	1 (2%)	45,45,45	1.09	3 (6%)
17	PGV	C	305	-	50,50,50	0.37	0	53,56,56	0.55	0
23	CHD	T	103	-	32,32,32	0.62	0	51,51,51	0.92	2 (3%)
22	PSC	B	303	-	51,51,51	0.29	0	57,59,59	0.37	0
17	PGV	N	605	-	50,50,50	0.31	0	53,56,56	0.74	2 (3%)
21	TGL	O	301	-	62,62,62	0.28	0	65,65,65	0.36	0
23	CHD	P	308	-	32,32,32	0.56	0	51,51,51	0.91	1 (1%)
17	PGV	H	101	-	50,50,50	0.31	0	53,56,56	0.41	0
23	CHD	Y	101	-	32,32,32	0.61	0	51,51,51	0.96	1 (1%)
21	TGL	L	101	-	62,62,62	0.28	0	65,65,65	0.33	0
17	PGV	P	306	-	50,50,50	0.32	0	53,56,56	0.39	0
28	SAC	I	101	-	7,8,9	0.55	0	8,9,11	1.03	1 (12%)
18	HEA	N	607	1	57,67,67	2.13	16 (28%)	61,103,103	2.61	26 (42%)
23	CHD	C	307	-	32,32,32	0.62	0	51,51,51	1.05	2 (3%)
23	CHD	W	101	-	32,32,32	0.58	0	51,51,51	0.71	0
21	TGL	D	201	-	62,62,62	0.23	0	65,65,65	0.28	0
23	CHD	P	303	-	32,32,32	0.64	1 (3%)	51,51,51	1.13	3 (5%)
20	CUA	O	302	2	0,1,1	-	-	-	-	-

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
23	CHD	J	101	-	32,32,32	0.61	0	51,51,51	1.07	3 (5%)
18	HEA	N	606	1,19	57,67,67	2.19	18 (31%)	61,103,103	2.44	21 (34%)
26	DMU	M	101	-	34,34,34	0.67	0	45,45,45	1.54	8 (17%)
18	HEA	A	606	1	57,67,67	1.95	16 (28%)	61,103,103	2.57	25 (40%)
26	DMU	Q	201	-	34,34,34	0.65	1 (2%)	45,45,45	1.14	5 (11%)
25	CDL	C	306	-	99,99,99	0.30	0	105,111,111	0.37	0
24	PEK	P	304	-	52,52,52	0.29	0	55,57,57	0.51	0
25	CDL	C	308	-	99,99,99	0.32	0	105,111,111	0.38	0
18	HEA	A	605	1,19	57,67,67	2.13	18 (31%)	61,103,103	2.83	27 (44%)
17	PGV	A	604	-	50,50,50	0.32	0	53,56,56	0.50	0
24	PEK	P	301	-	52,52,52	0.31	0	55,57,57	0.36	0
23	CHD	O	303	-	32,32,32	0.54	0	51,51,51	1.04	3 (5%)
20	CUA	B	301	2	0,1,1	-	-	-	-	-
23	CHD	C	302	-	32,32,32	0.65	0	51,51,51	0.94	1 (1%)

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
24	PEK	C	311	-	-	25/56/56/56	-
17	PGV	N	610	-	-	36/55/55/55	-
26	DMU	C	310	-	2/2/10/10	9/19/59/59	0/2/2/2
21	TGL	N	604	-	-	37/65/65/65	-
23	CHD	T	101	-	-	7/9/74/74	0/4/4/4
28	SAC	V	102	-	-	2/7/8/10	-
21	TGL	N	609	-	-	34/65/65/65	-
24	PEK	C	303	-	-	18/56/56/56	-
17	PGV	C	301	-	-	16/55/55/55	-
26	DMU	P	302	-	2/2/10/10	9/19/59/59	0/2/2/2
22	PSC	V	101	-	-	30/55/55/55	-
24	PEK	T	102	-	-	35/56/56/56	-
25	CDL	P	307	-	-	62/110/110/110	-
17	PGV	P	305	-	-	25/55/55/55	-
24	PEK	C	304	-	-	25/56/56/56	-
25	CDL	P	309	-	-	50/110/110/110	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
26	DMU	C	309	-	2/2/10/10	9/19/59/59	0/2/2/2
26	DMU	G	101	-	2/2/10/10	13/19/59/59	0/2/2/2
21	TGL	B	302	-	-	36/65/65/65	-
17	PGV	C	305	-	-	18/55/55/55	-
23	CHD	T	103	-	1/1/12/12	3/9/74/74	1/4/4/4
17	PGV	N	605	-	-	22/55/55/55	-
21	TGL	O	301	-	-	35/65/65/65	-
23	CHD	P	308	-	-	3/9/74/74	1/4/4/4
23	CHD	Y	101	-	1/1/12/12	5/9/74/74	0/4/4/4
17	PGV	H	101	-	-	30/55/55/55	-
21	TGL	L	101	-	-	34/65/65/65	-
17	PGV	P	306	-	-	33/55/55/55	-
28	SAC	I	101	-	-	2/7/8/10	-
18	HEA	N	607	1	3/3/7/16	5/32/76/76	-
23	CHD	C	307	-	-	6/9/74/74	0/4/4/4
23	CHD	W	101	-	-	1/9/74/74	0/4/4/4
21	TGL	D	201	-	-	39/65/65/65	-
23	CHD	P	303	-	-	7/9/74/74	0/4/4/4
23	CHD	J	101	-	-	3/9/74/74	0/4/4/4
18	HEA	N	606	1,19	3/3/7/16	7/32/76/76	-
26	DMU	M	101	-	2/2/10/10	8/19/59/59	0/2/2/2
18	HEA	A	606	1	3/3/7/16	9/32/76/76	-
26	DMU	Q	201	-	2/2/10/10	10/19/59/59	0/2/2/2
25	CDL	C	306	-	-	60/110/110/110	-
24	PEK	P	304	-	-	21/56/56/56	-
25	CDL	C	308	-	-	60/110/110/110	-
18	HEA	A	605	1,19	3/3/7/16	8/32/76/76	-
17	PGV	A	604	-	-	31/55/55/55	-
24	PEK	P	301	-	-	32/56/56/56	-
23	CHD	O	303	-	-	2/9/74/74	0/4/4/4
22	PSC	B	303	-	-	28/55/55/55	-
23	CHD	C	302	-	-	3/9/74/74	0/4/4/4

The worst 5 of 74 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
18	N	607	HEA	C3B-C2B	6.43	1.49	1.34
18	N	607	HEA	C3D-C2D	5.51	1.48	1.36
18	N	606	HEA	CHC-C4B	5.50	1.49	1.35
18	N	606	HEA	C3D-C2D	5.48	1.48	1.36
18	A	605	HEA	C3A-C2A	5.47	1.48	1.40

The worst 5 of 169 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
18	A	605	HEA	C1D-C2D-C3D	-7.55	99.02	106.96
18	N	607	HEA	C2D-C1D-ND	7.31	118.50	109.84
18	A	605	HEA	CMD-C2D-C1D	7.29	136.15	125.04
18	N	606	HEA	C3D-C4D-ND	6.74	116.88	110.36
18	A	605	HEA	CAD-CBD-CGD	-6.63	99.34	113.60

5 of 26 chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
18	A	605	HEA	NA
18	A	605	HEA	NB
18	A	605	HEA	ND
18	A	606	HEA	NA
18	A	606	HEA	NB

5 of 1003 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
17	A	604	PGV	C04-O12-P-O11
17	A	604	PGV	C04-O12-P-O13
17	A	604	PGV	C04-O12-P-O14
17	A	604	PGV	C04-C05-C06-O06
17	A	604	PGV	O02-C1-O01-C02

All (2) ring outliers are listed below:

Mol	Chain	Res	Type	Atoms
23	T	103	CHD	C1-C10-C2-C3-C4-C5
23	P	308	CHD	C1-C10-C2-C3-C4-C5

39 monomers are involved in 97 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
24	C	311	PEK	2	0

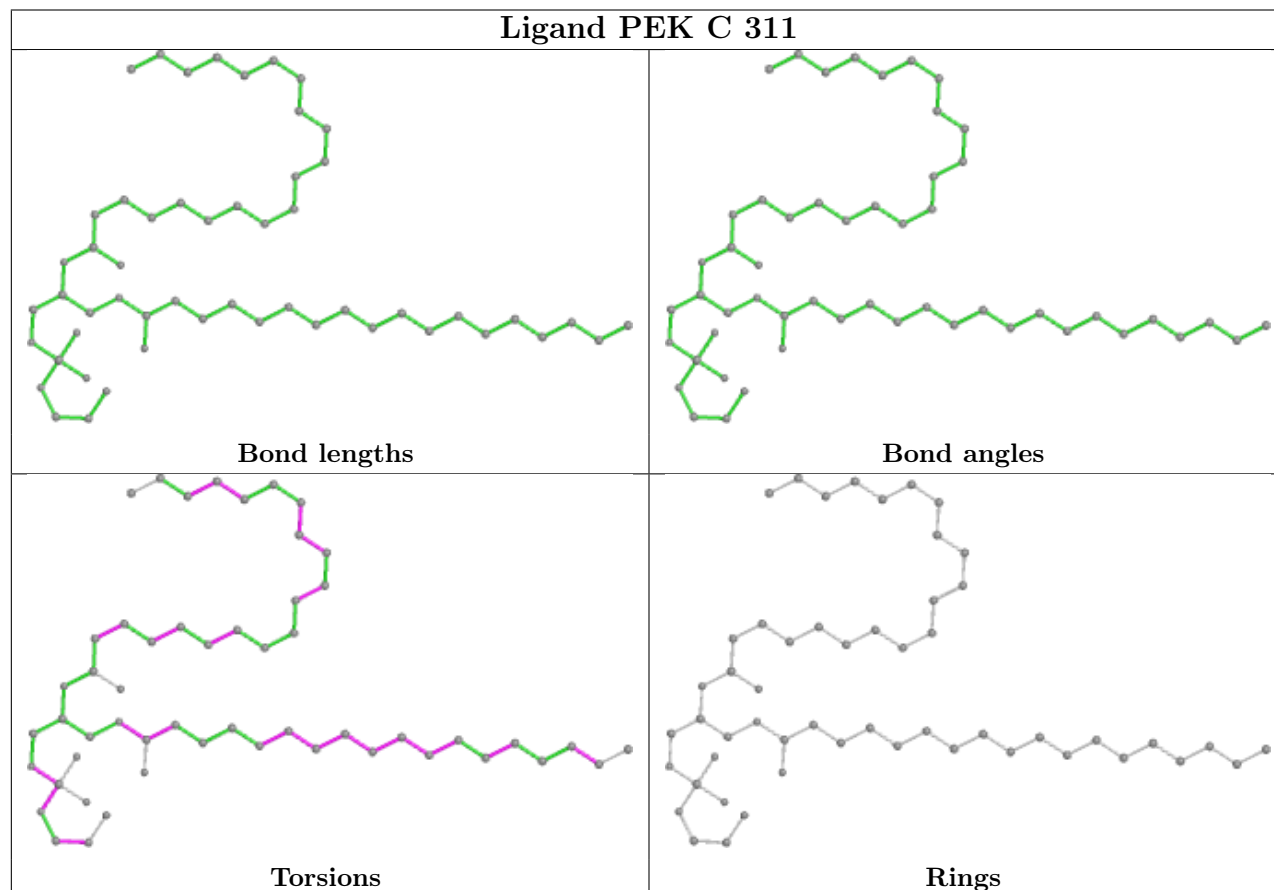
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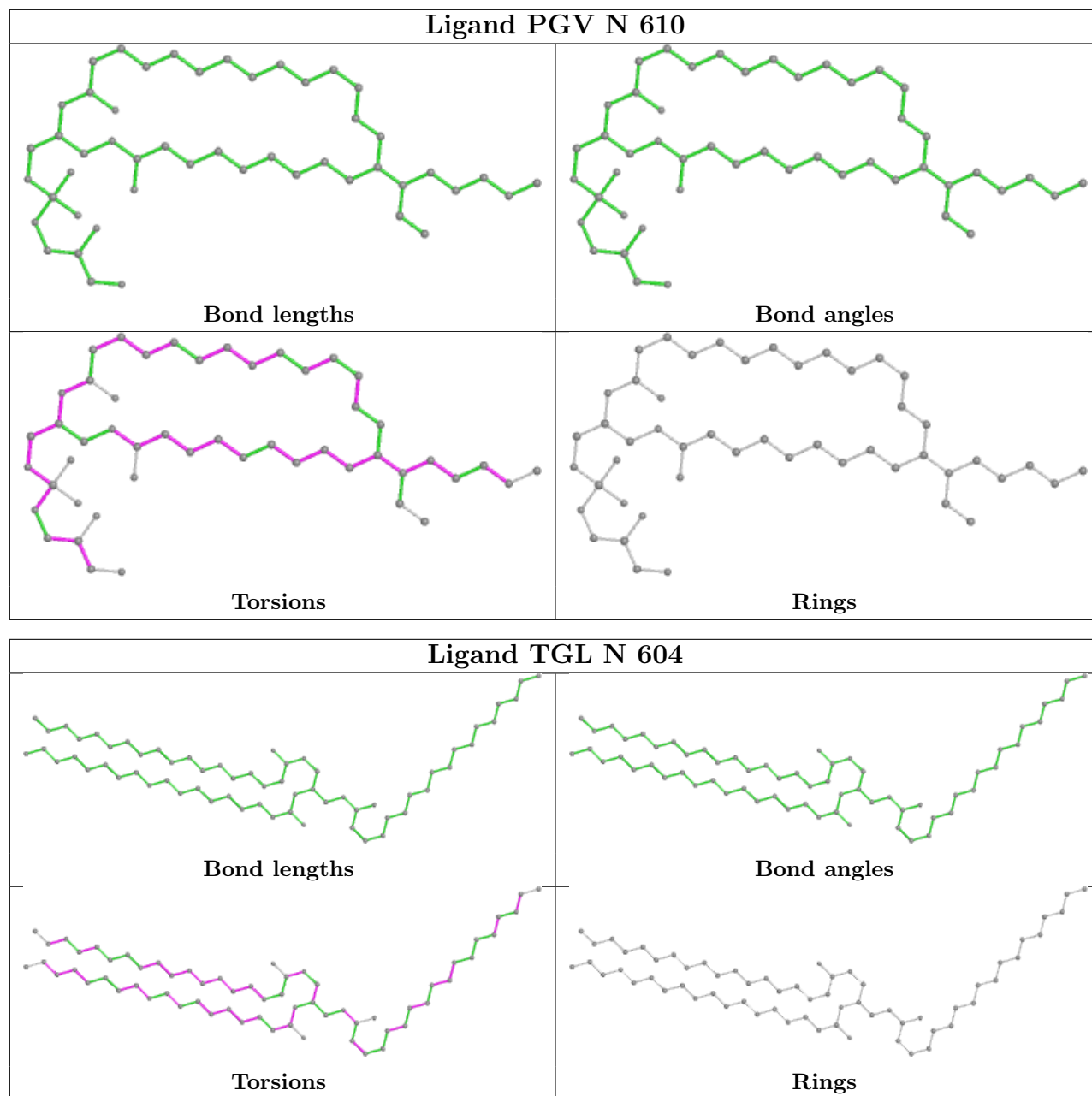
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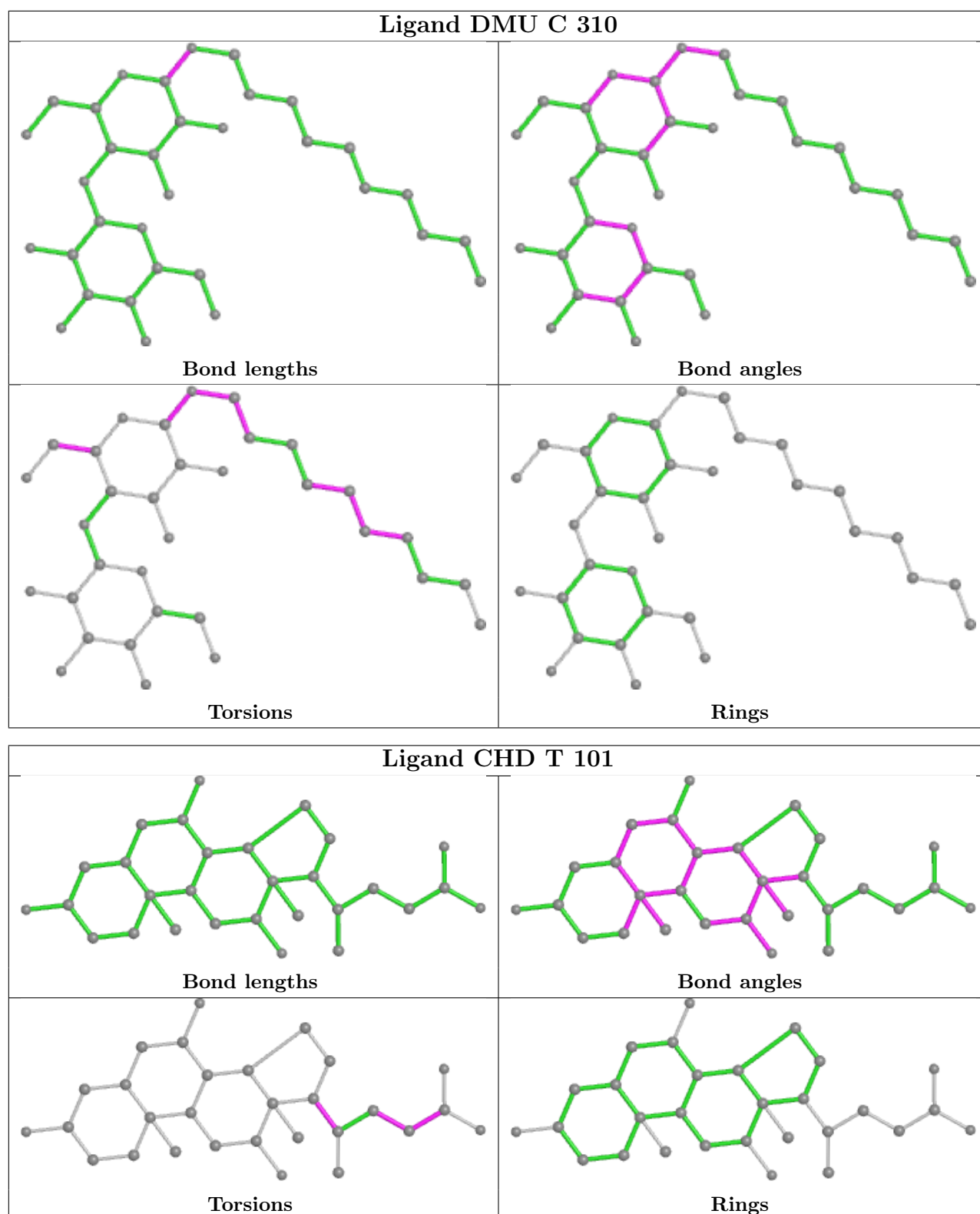
Mol	Chain	Res	Type	Clashes	Symm-Clashes
17	N	610	PGV	1	0
21	N	604	TGL	6	0
26	C	310	DMU	1	0
23	T	101	CHD	1	0
28	V	102	SAC	1	0
21	N	609	TGL	1	0
24	C	303	PEK	5	0
22	V	101	PSC	2	0
24	T	102	PEK	1	0
25	P	307	CDL	1	0
17	P	305	PGV	1	0
25	P	309	CDL	8	0
26	C	309	DMU	4	0
21	B	302	TGL	2	0
17	C	305	PGV	2	0
23	T	103	CHD	2	0
22	B	303	PSC	1	0
17	N	605	PGV	1	0
23	P	308	CHD	1	0
17	H	101	PGV	1	0
23	Y	101	CHD	2	0
21	L	101	TGL	7	0
17	P	306	PGV	1	0
18	N	607	HEA	9	0
23	C	307	CHD	1	0
21	D	201	TGL	2	0
23	P	303	CHD	1	0
23	J	101	CHD	1	0
18	N	606	HEA	5	0
26	M	101	DMU	1	0
18	A	606	HEA	9	0
25	C	306	CDL	1	0
24	P	304	PEK	2	0
25	C	308	CDL	2	0
18	A	605	HEA	5	0
17	A	604	PGV	3	0
24	P	301	PEK	1	0
23	C	302	CHD	2	0

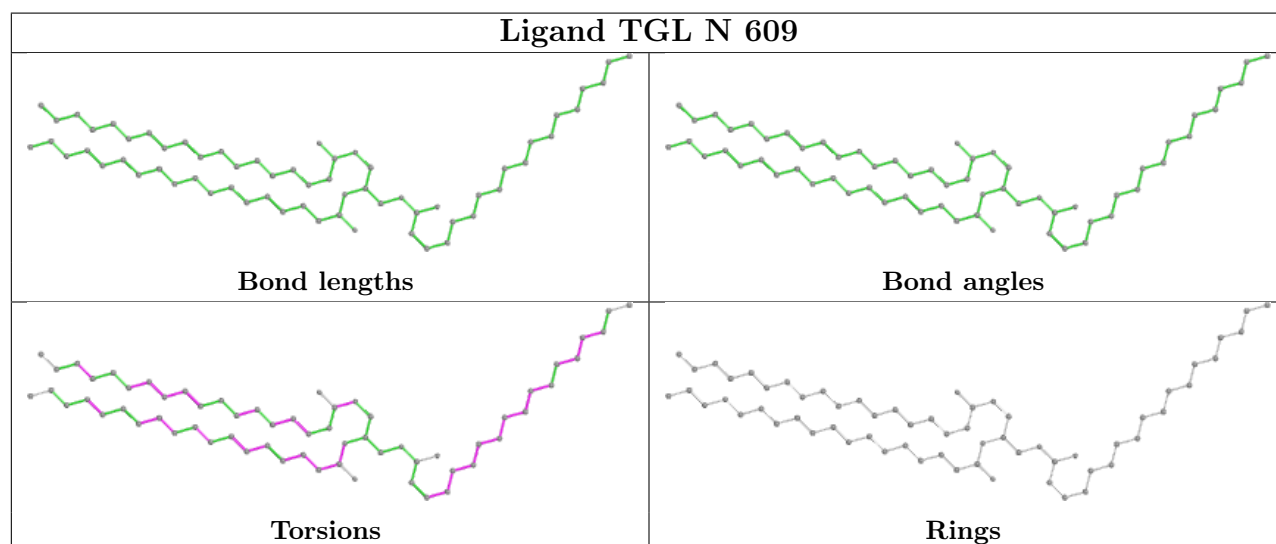
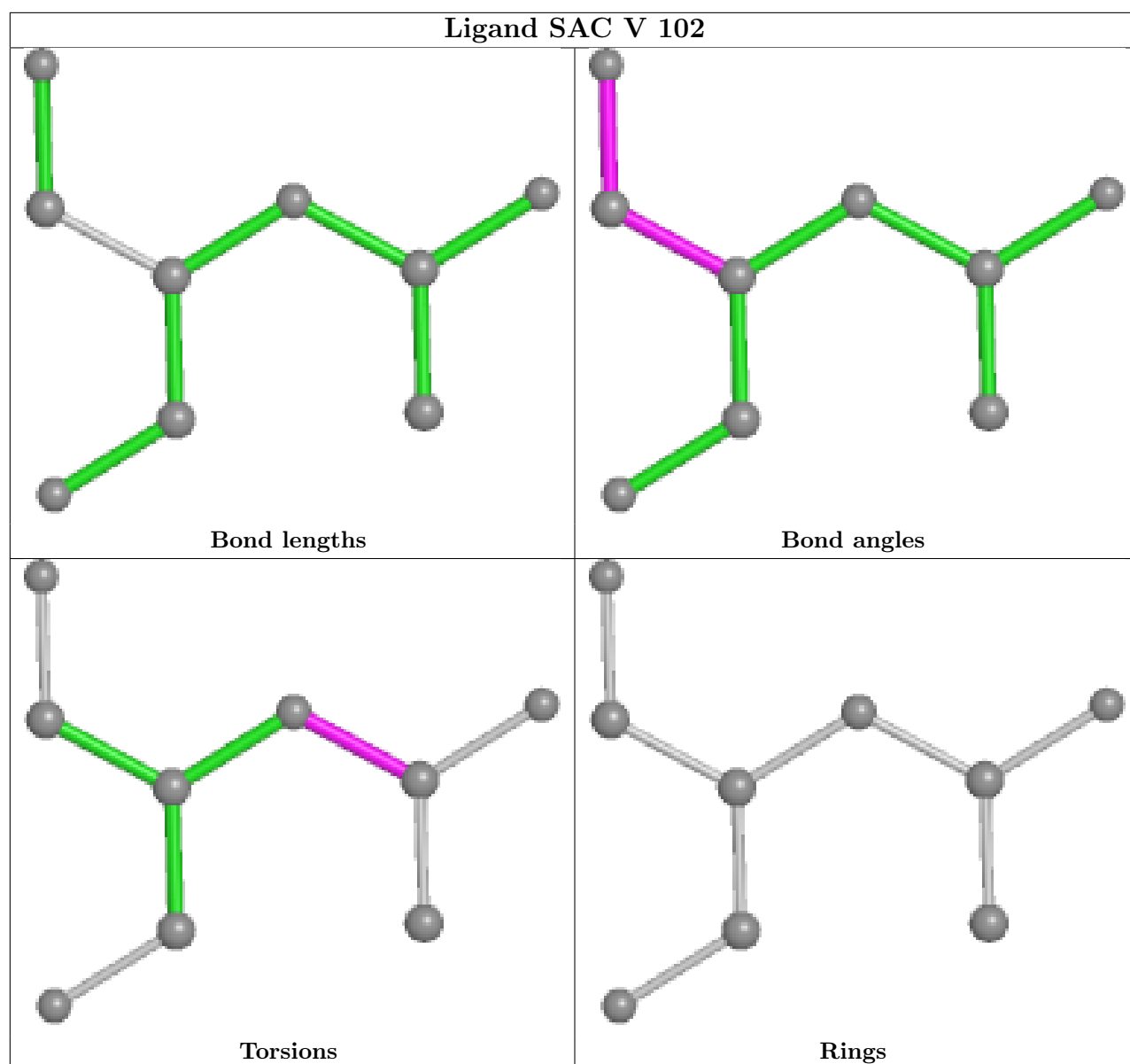
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is

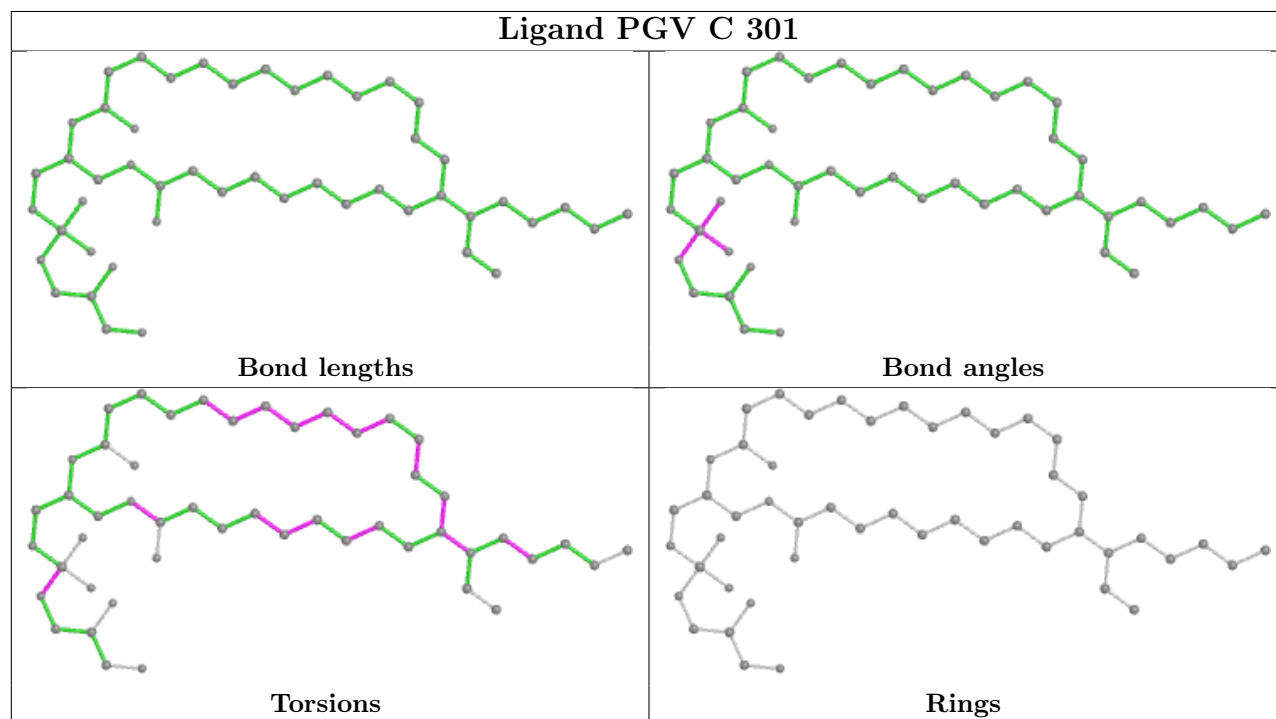
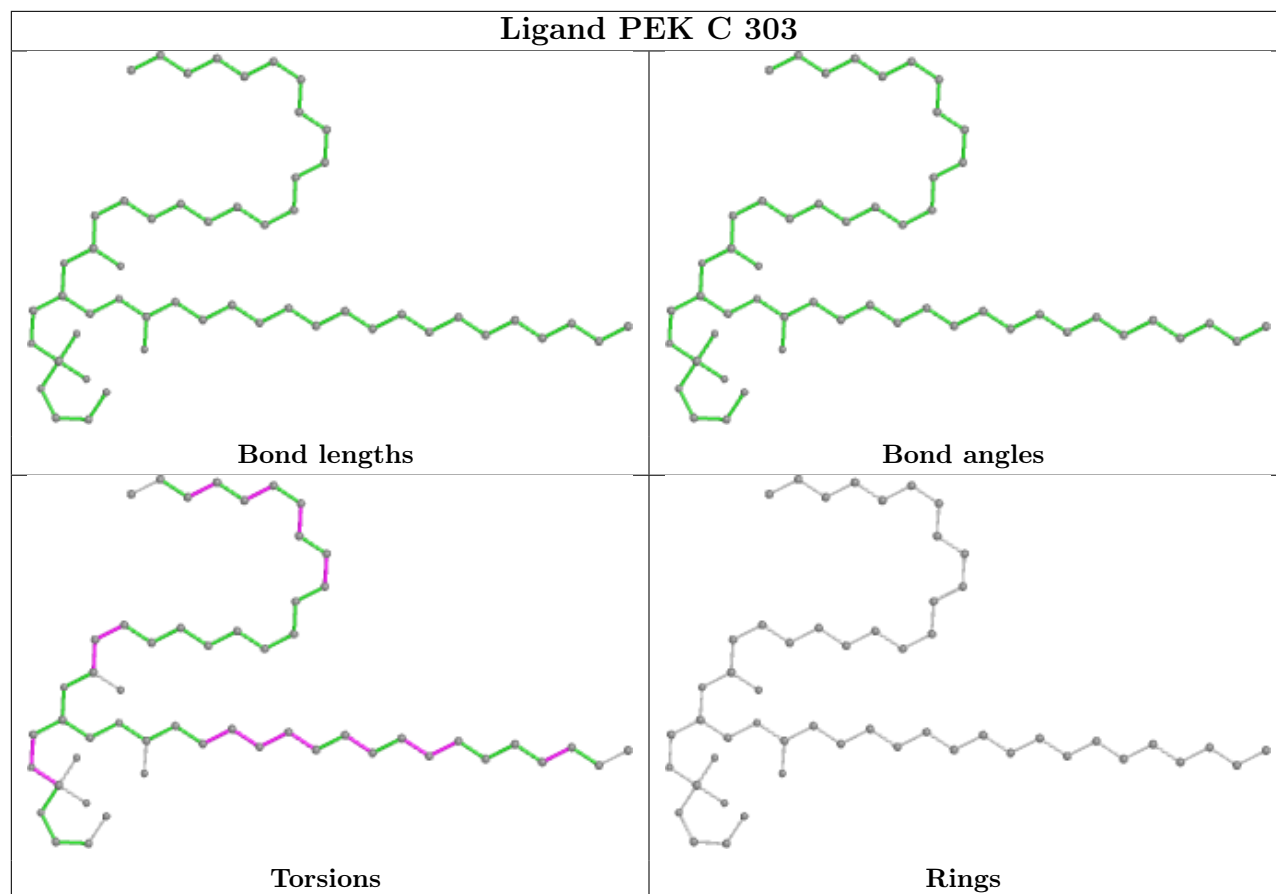
within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

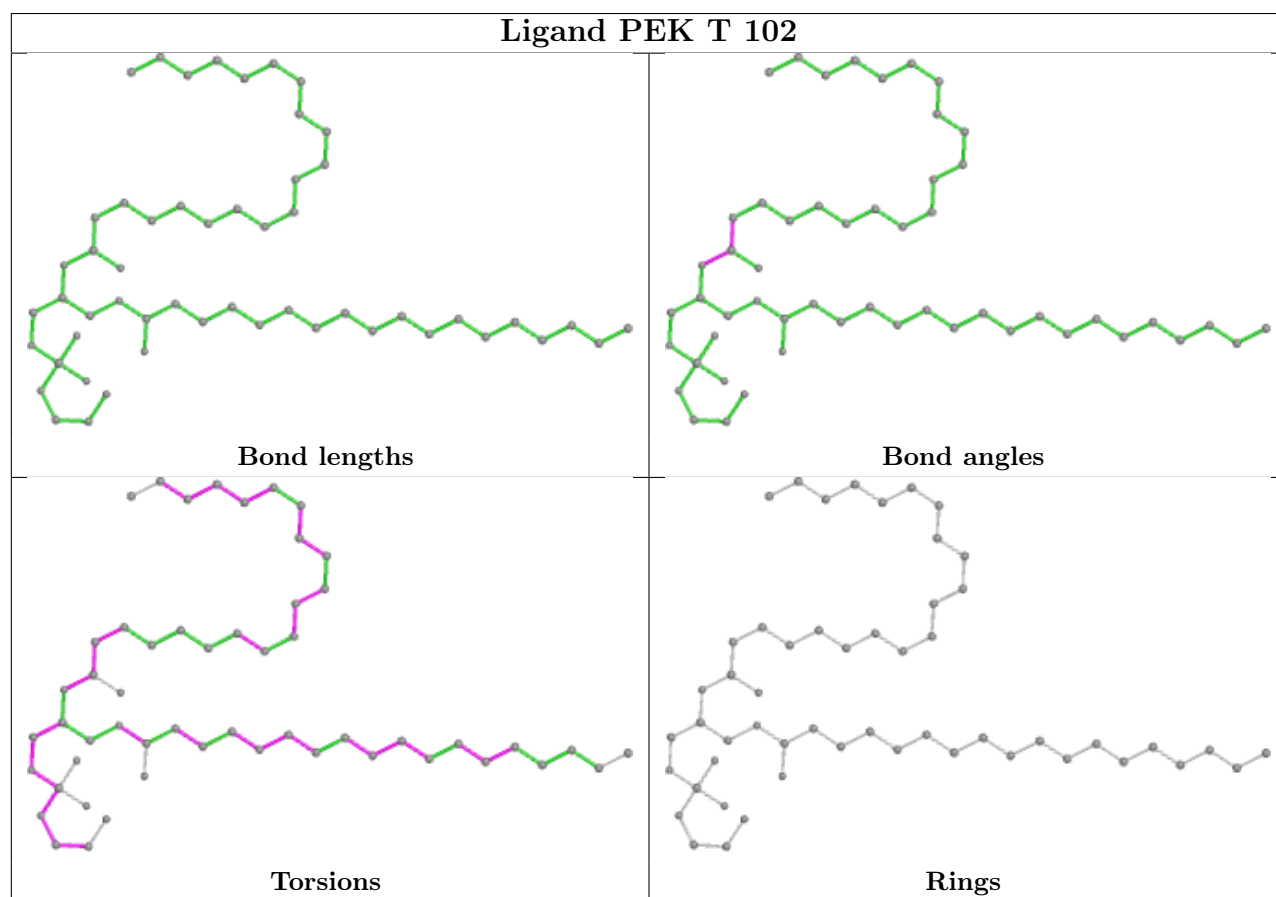
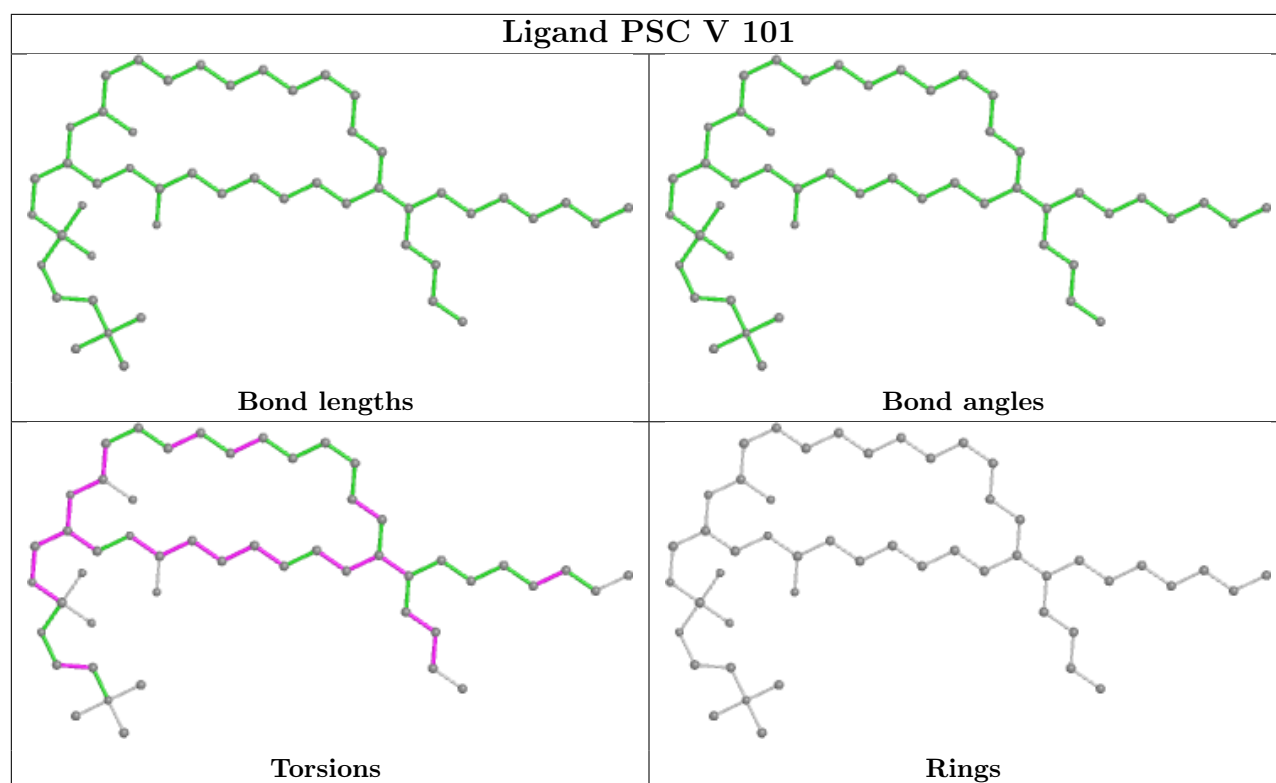


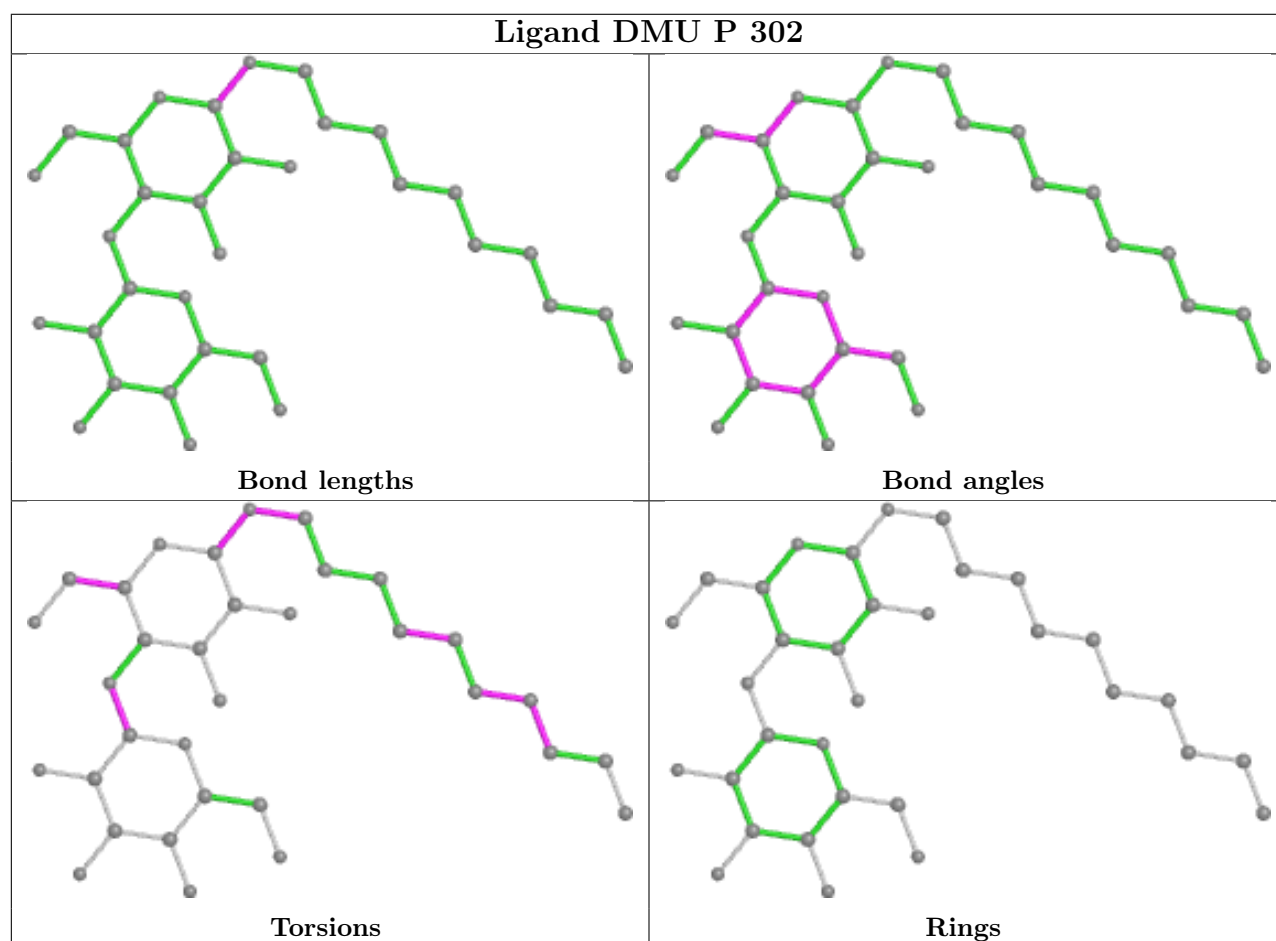
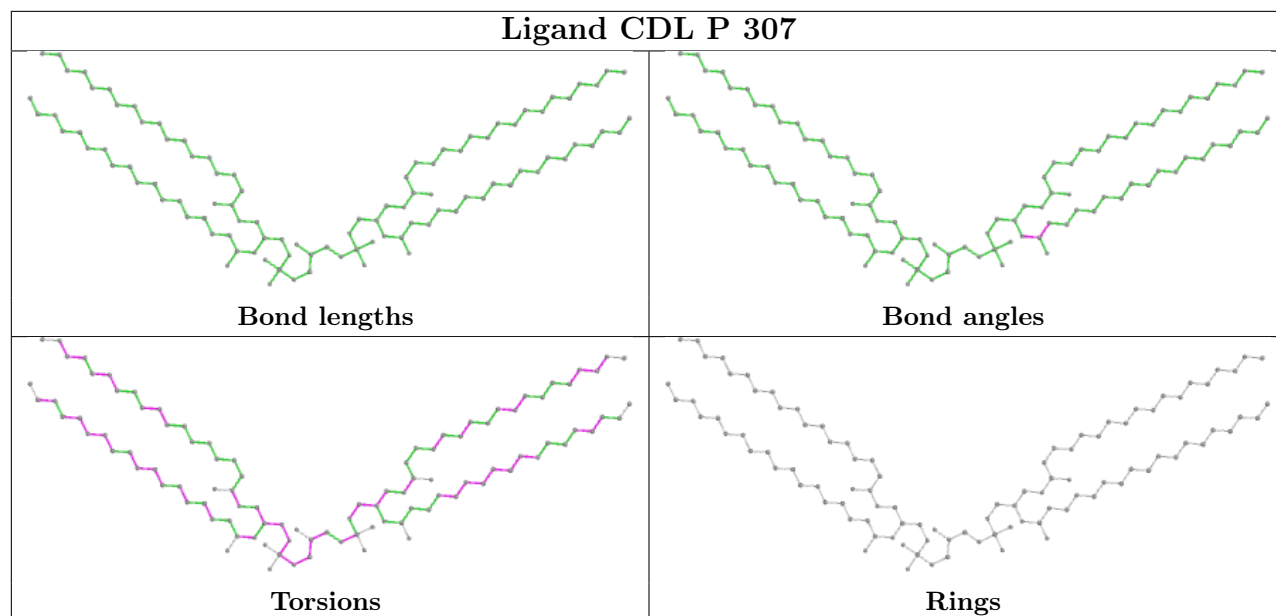


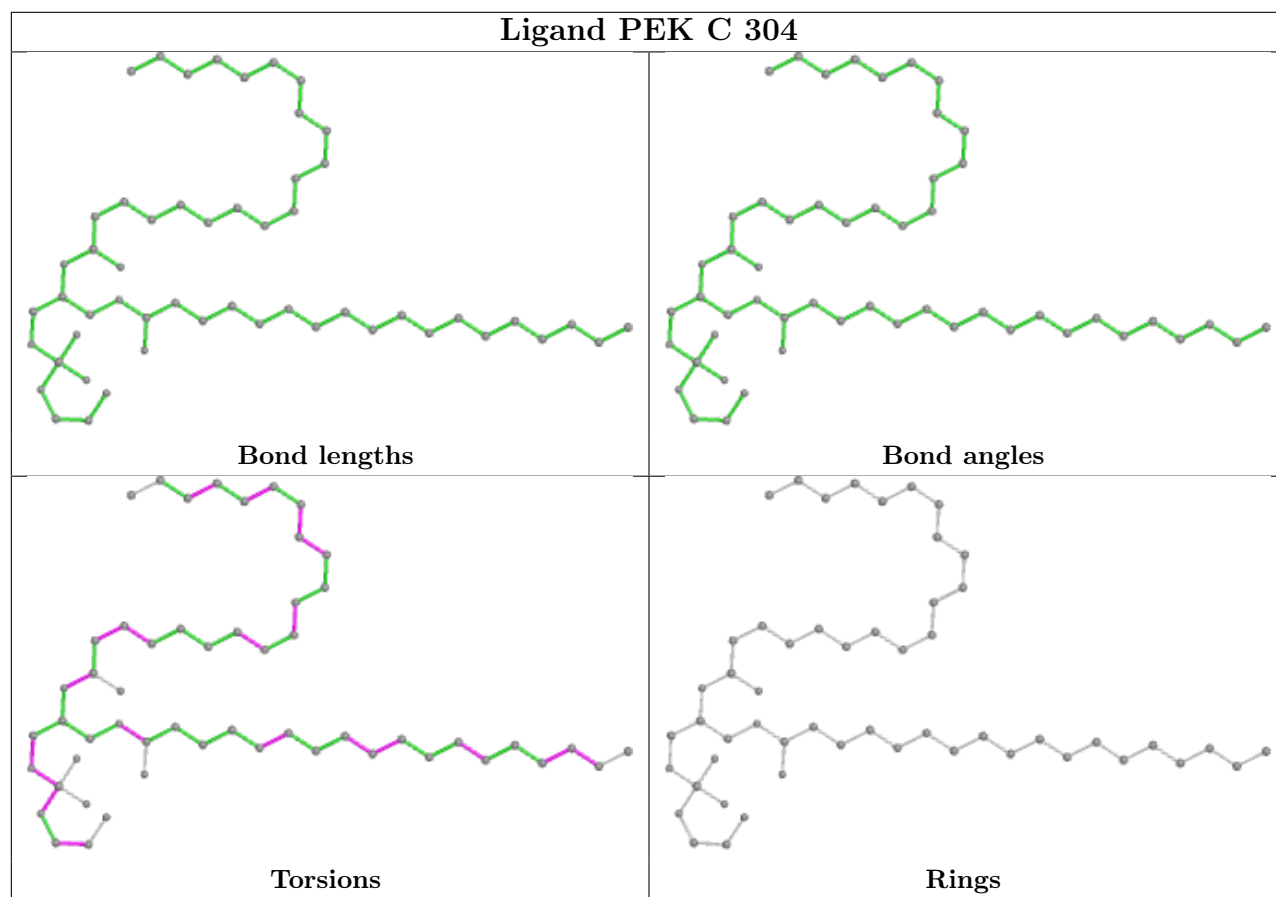
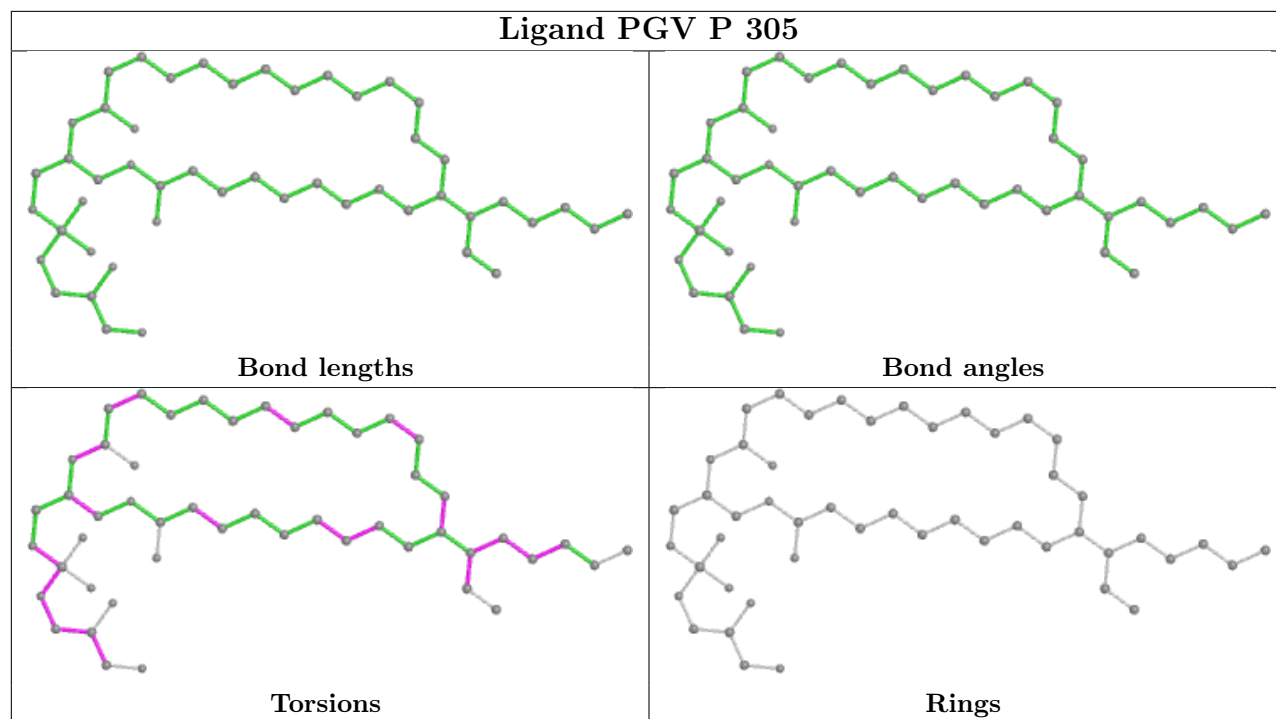


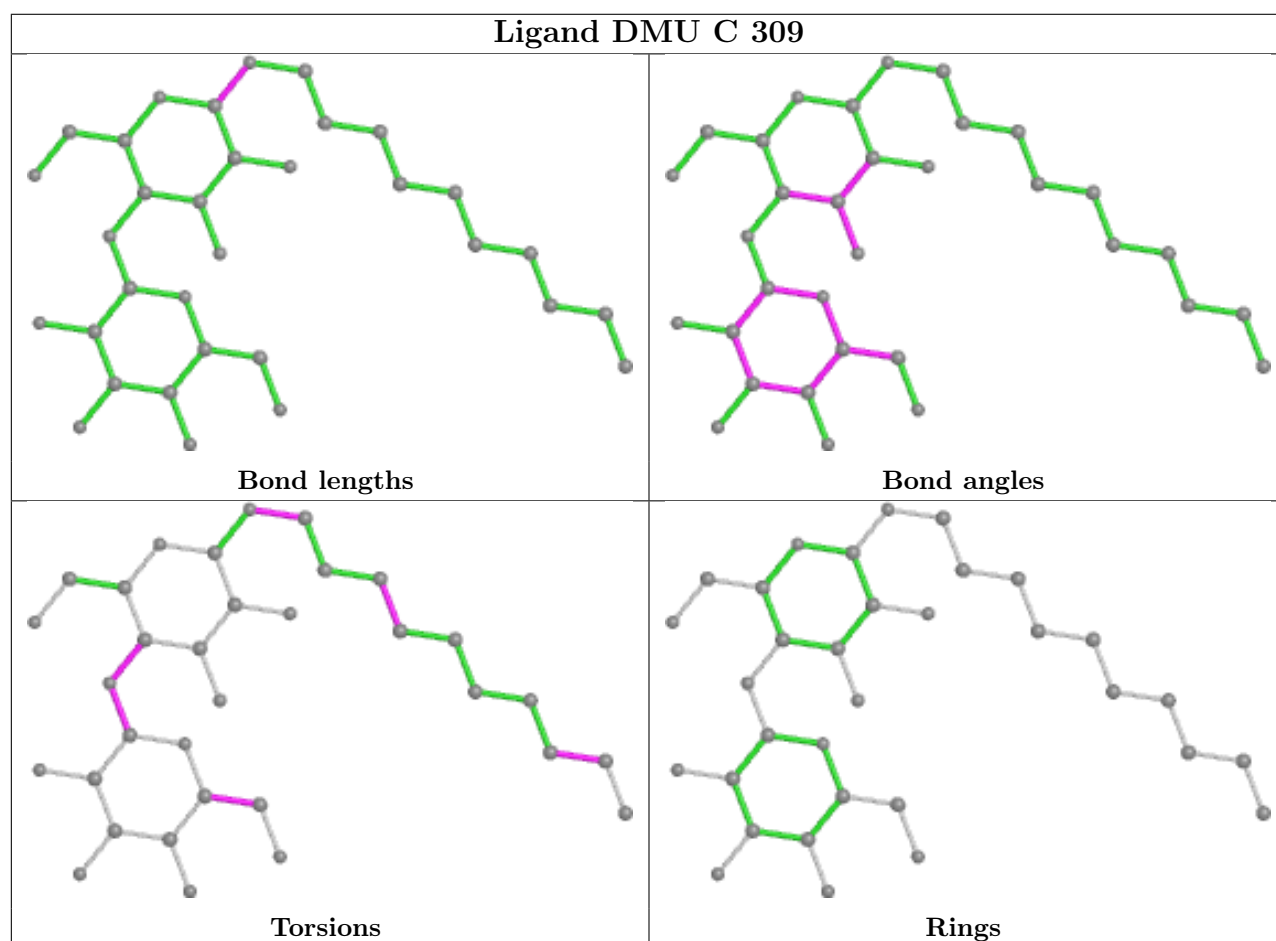
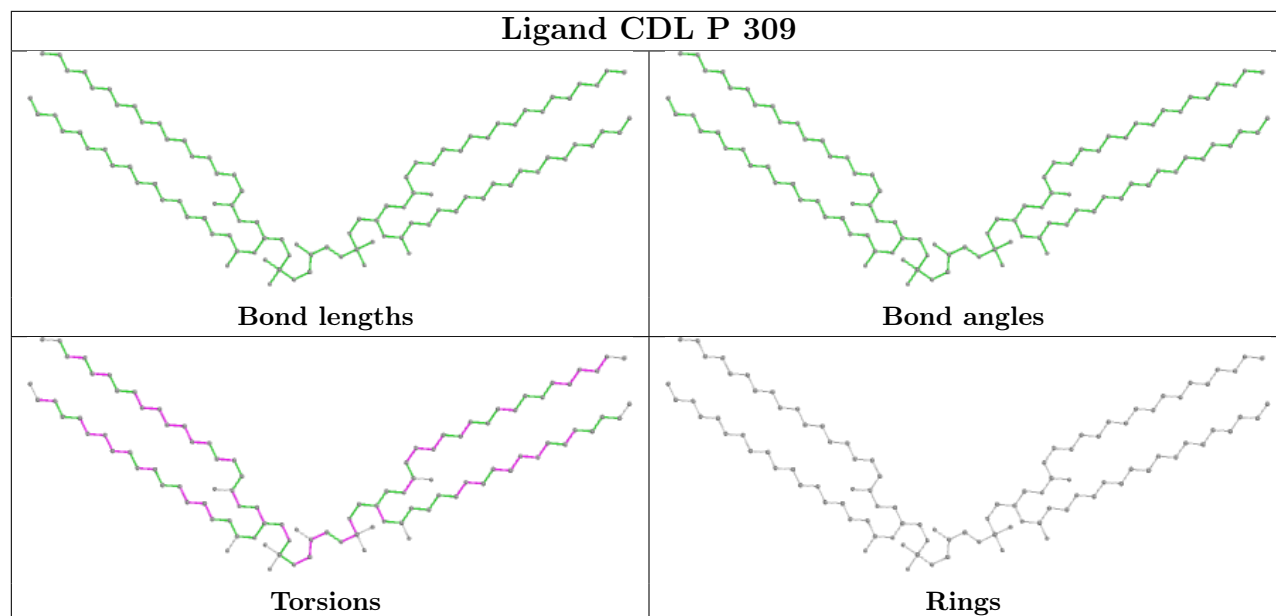


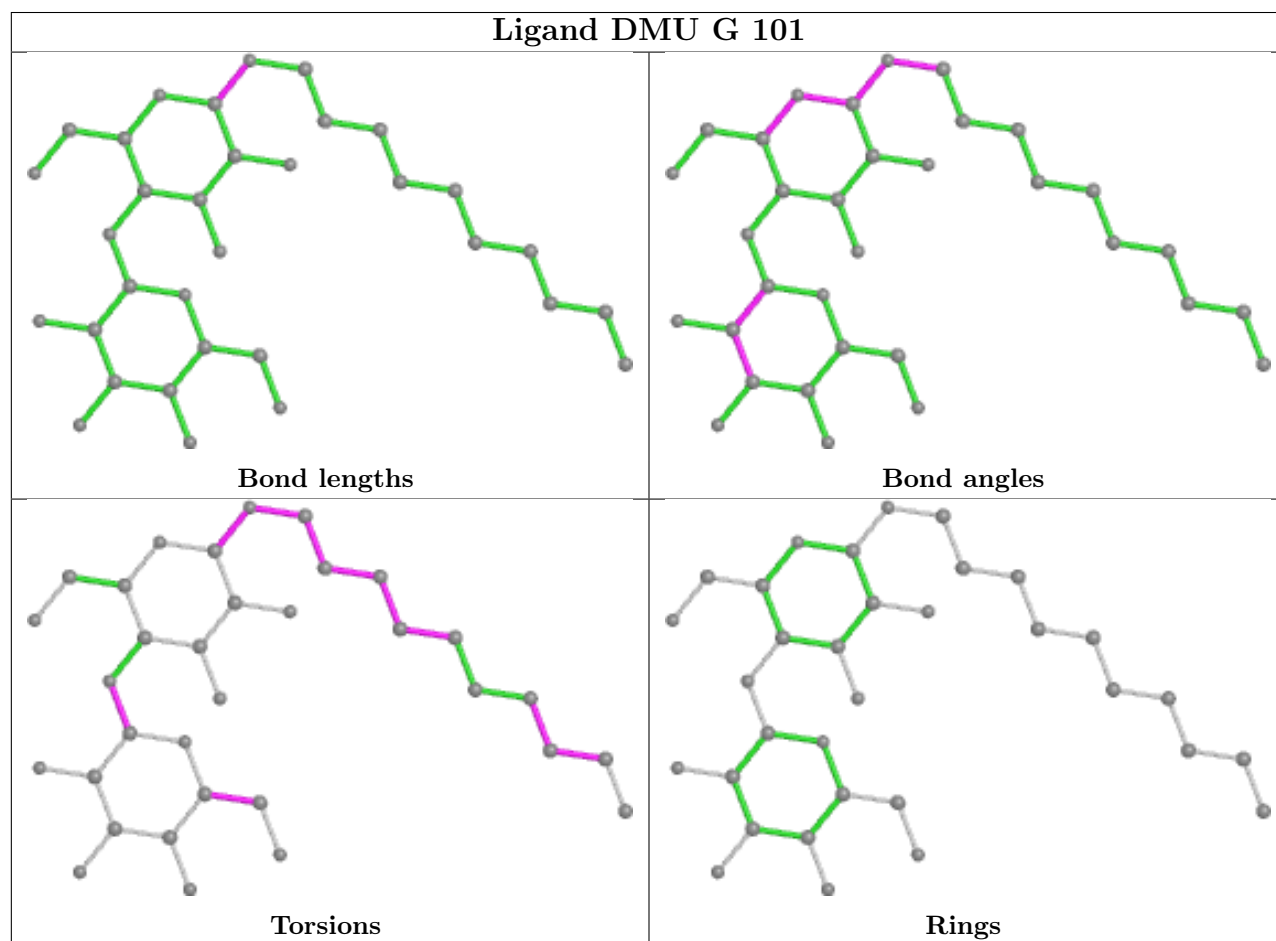
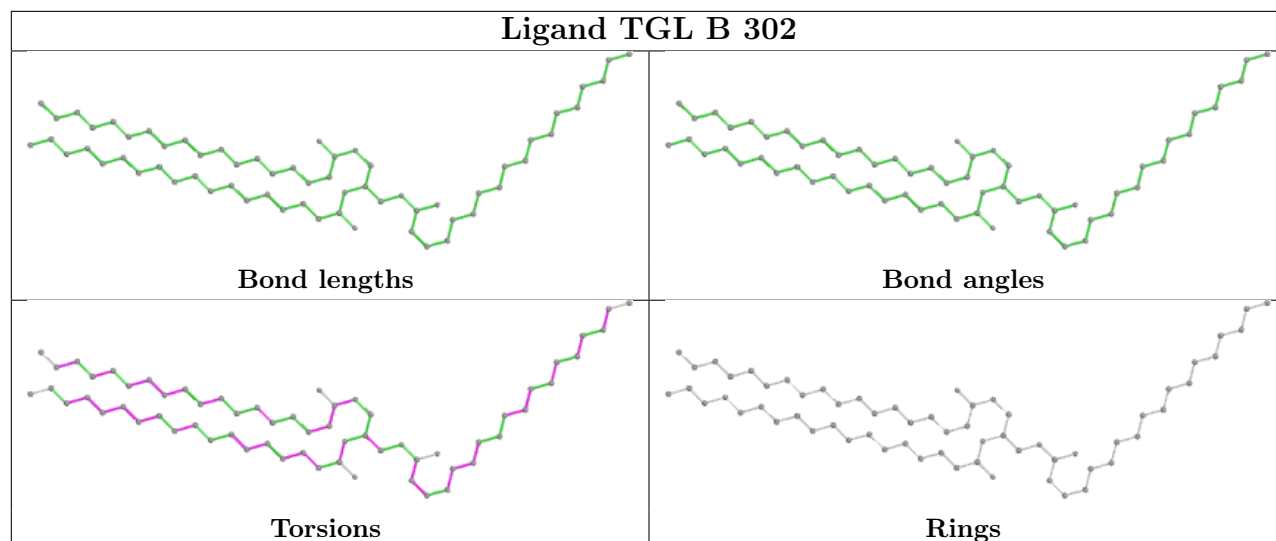


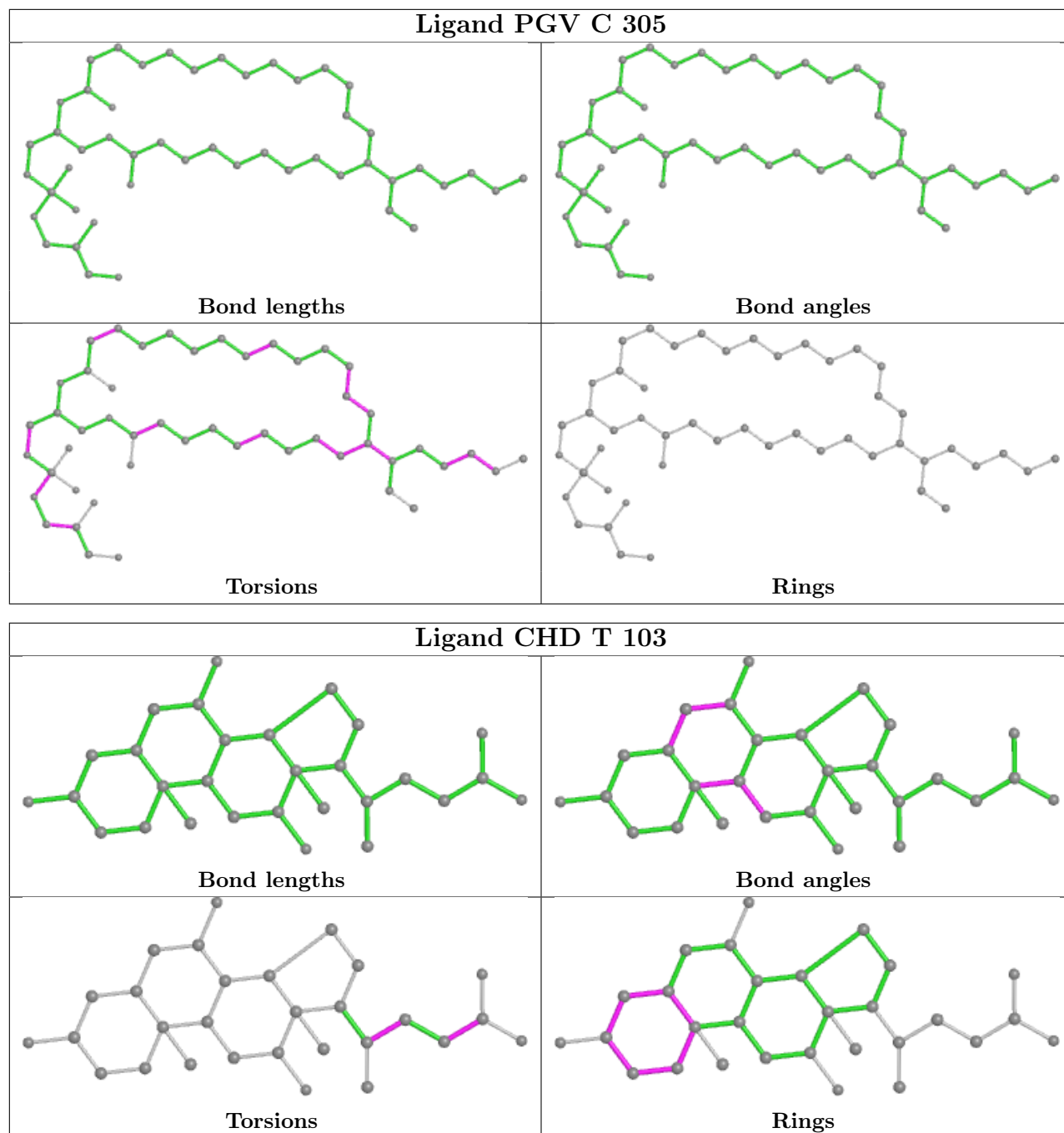


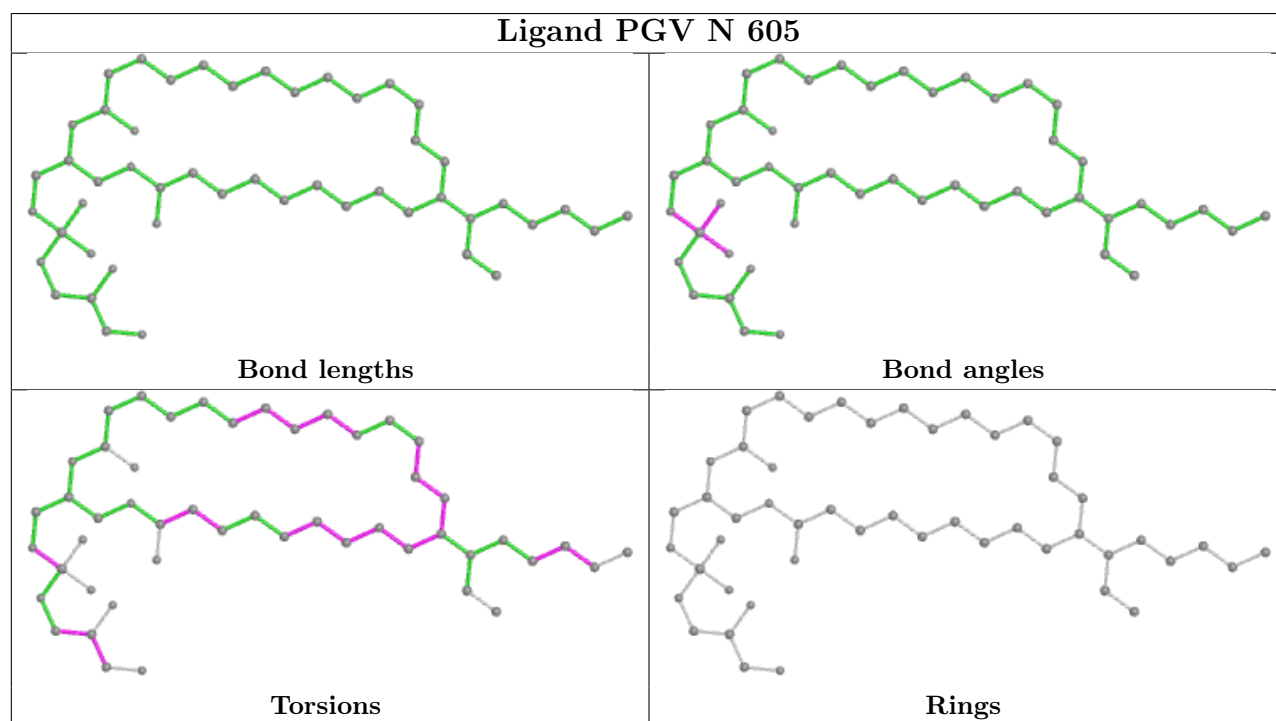
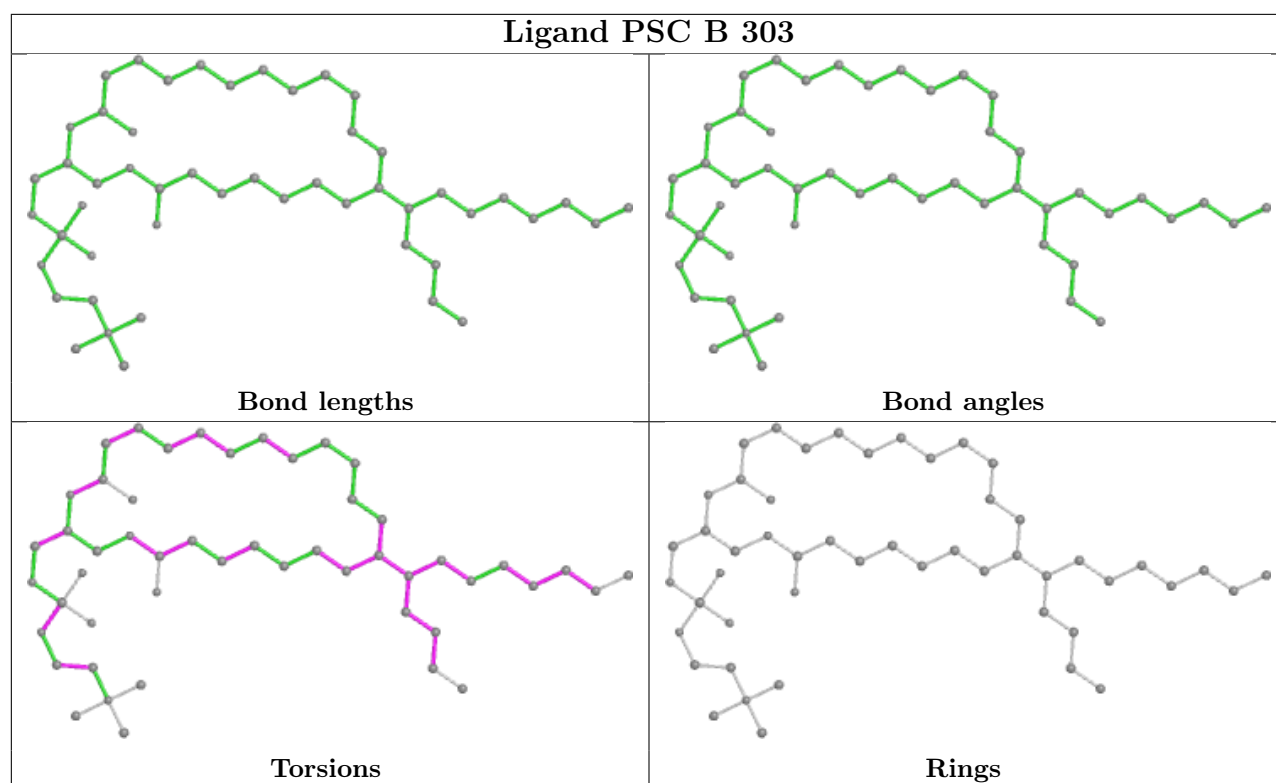


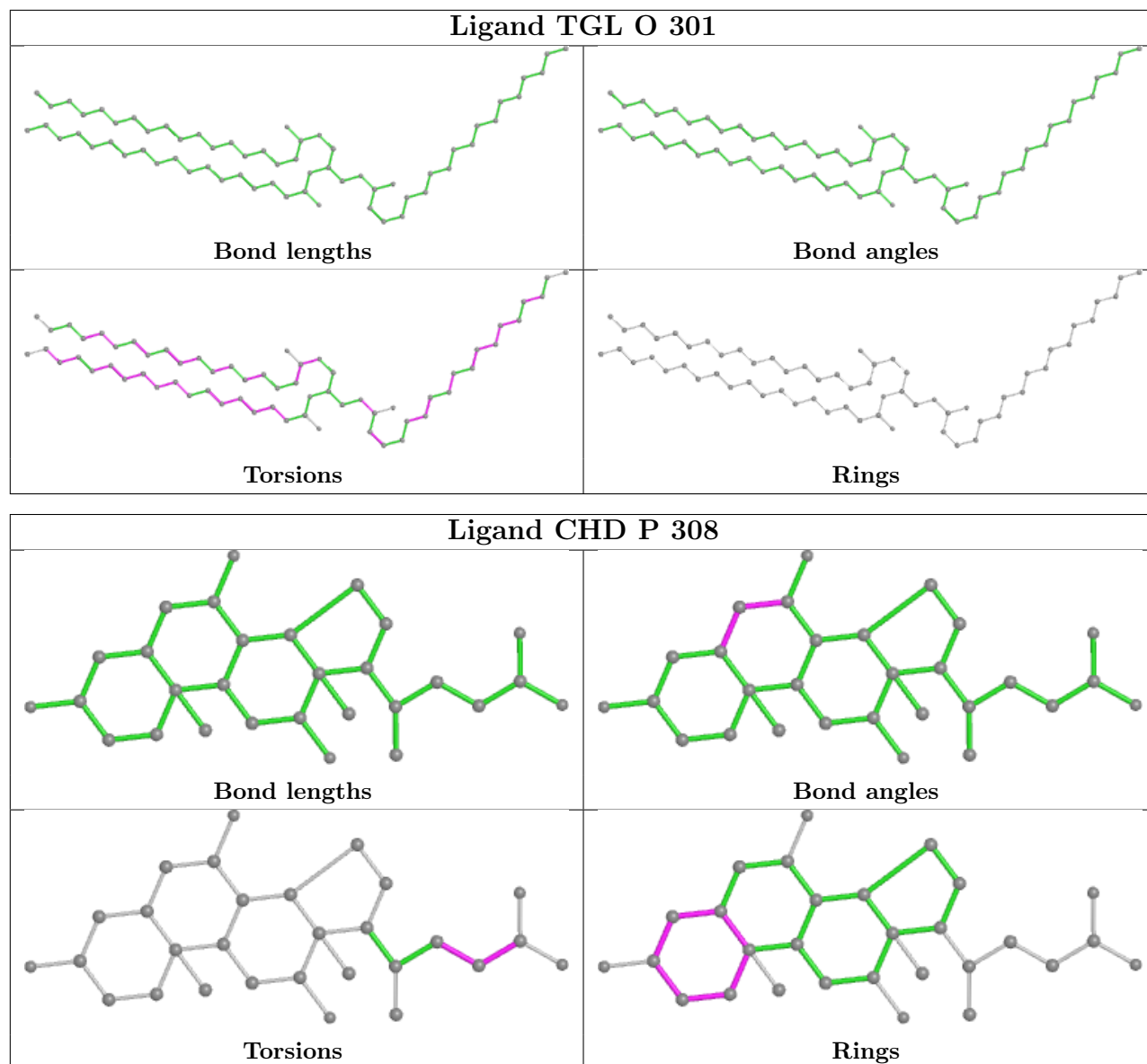


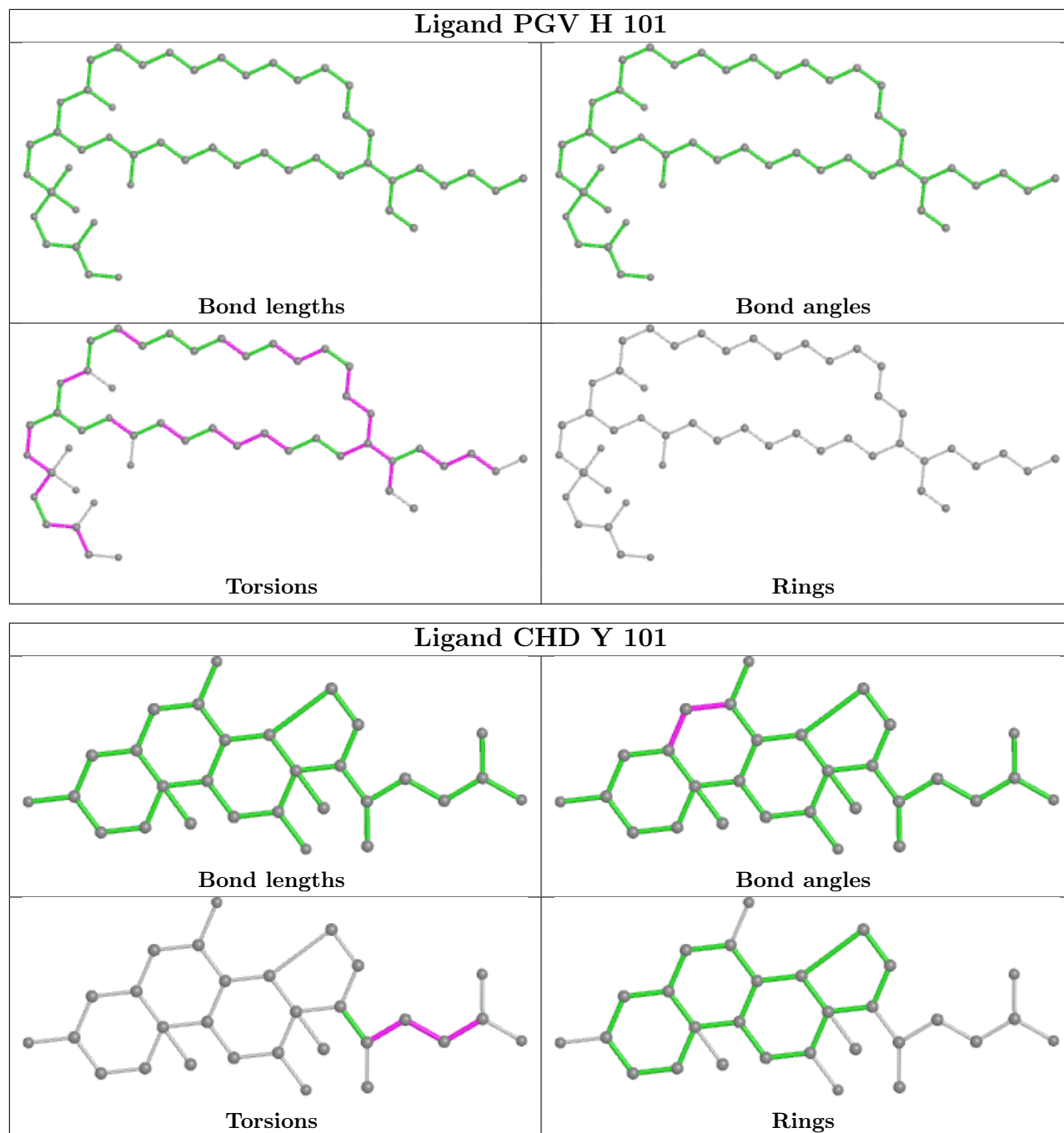


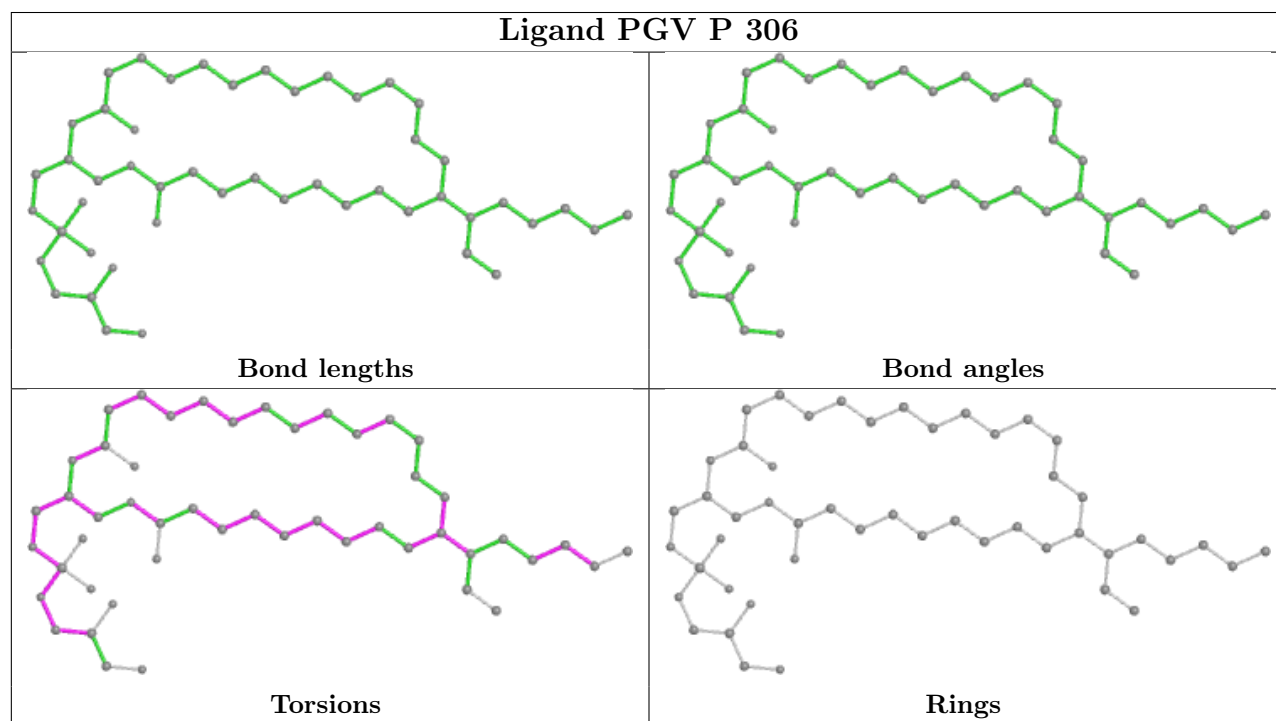
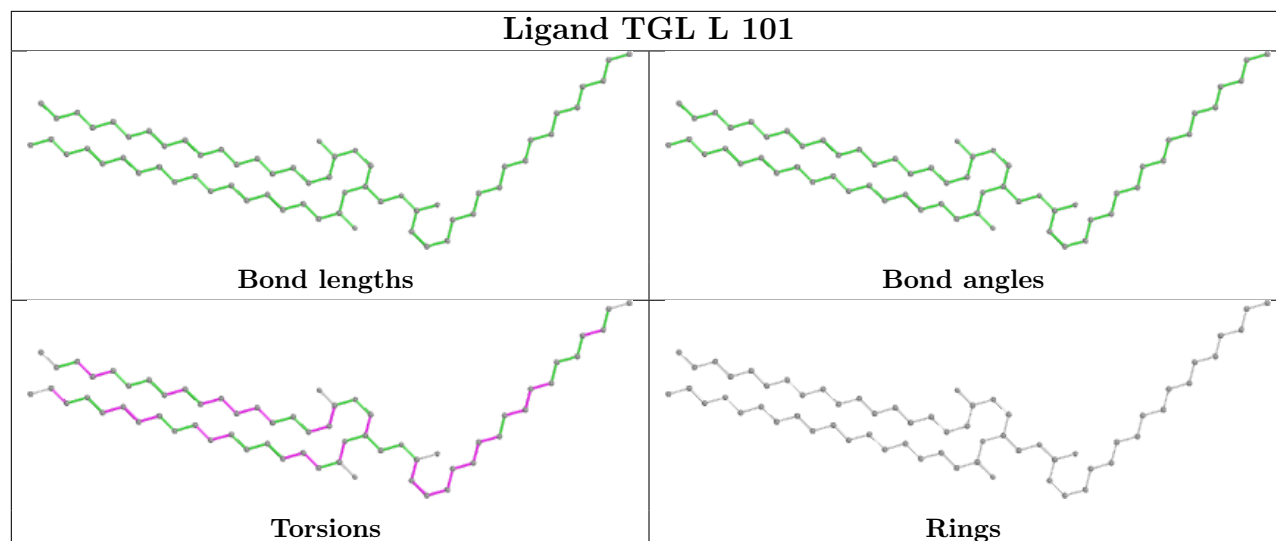


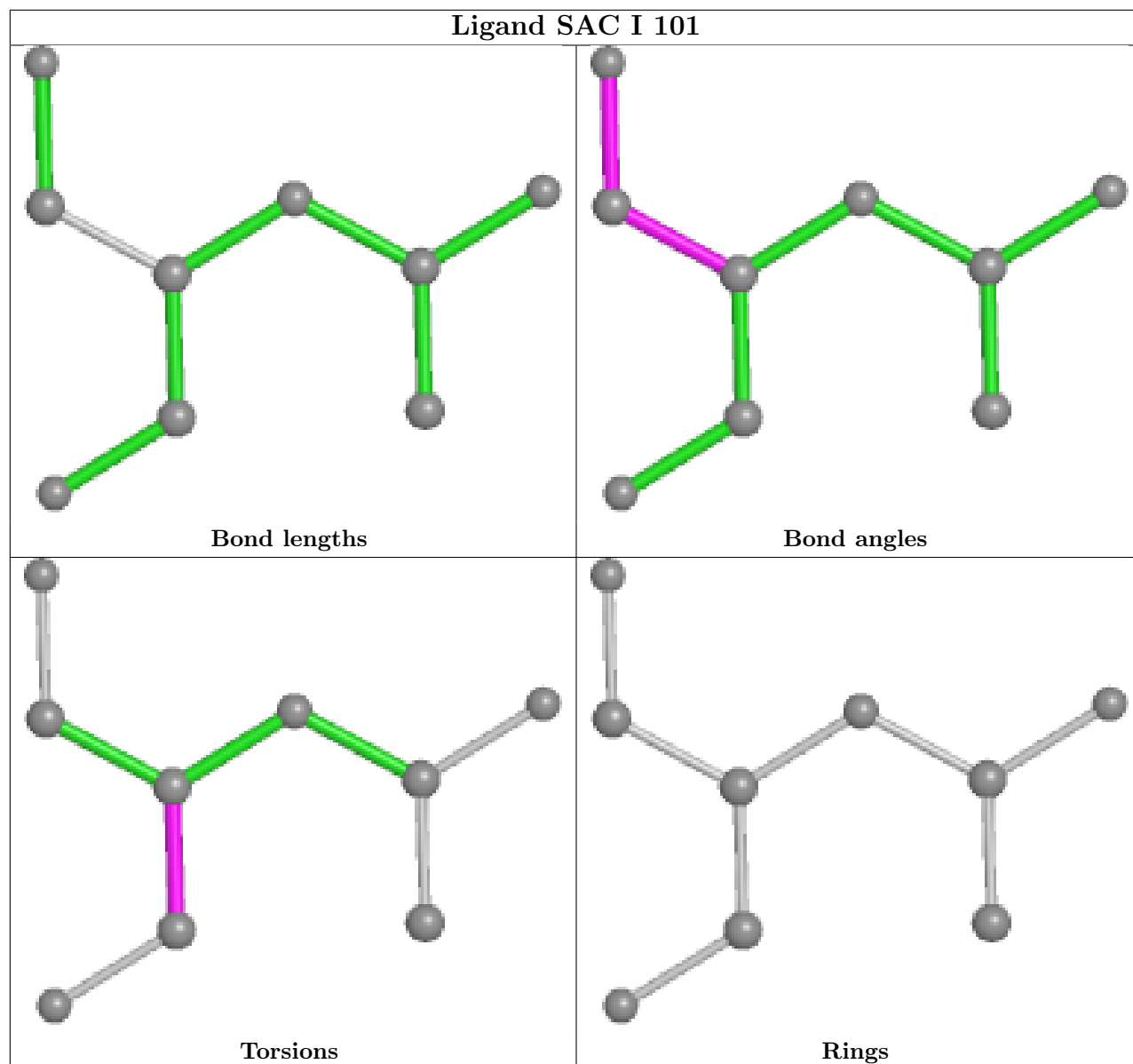


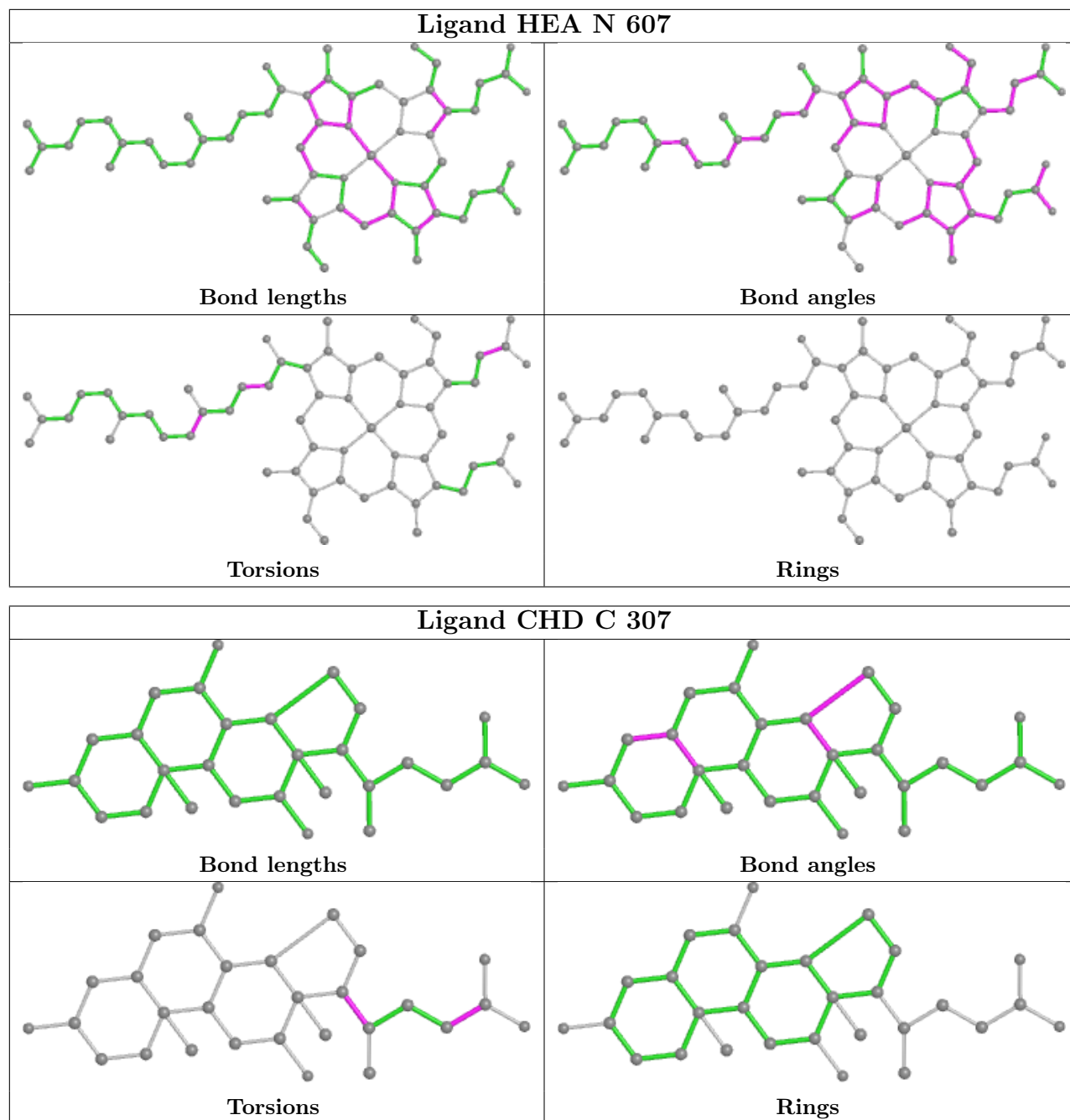


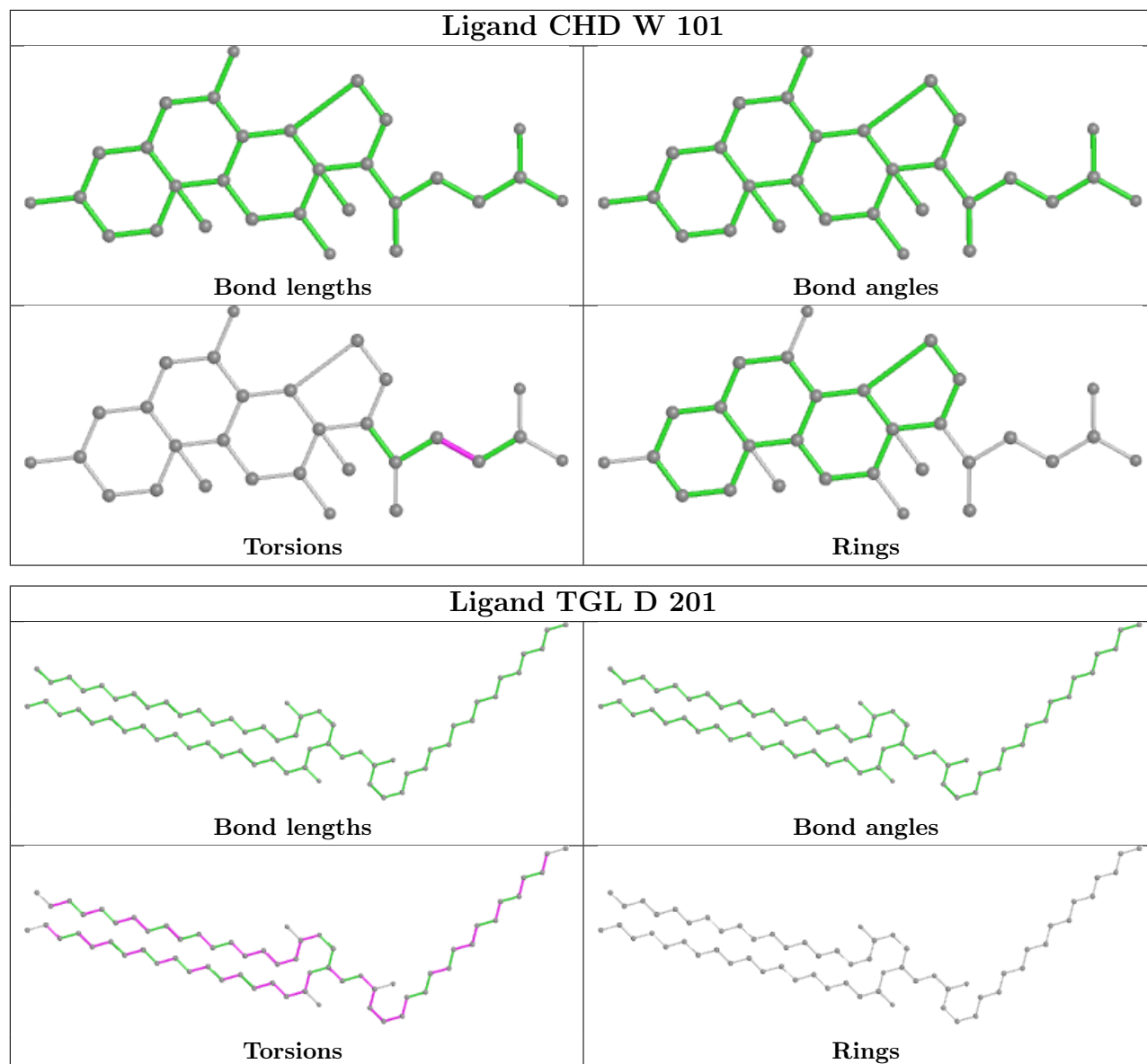


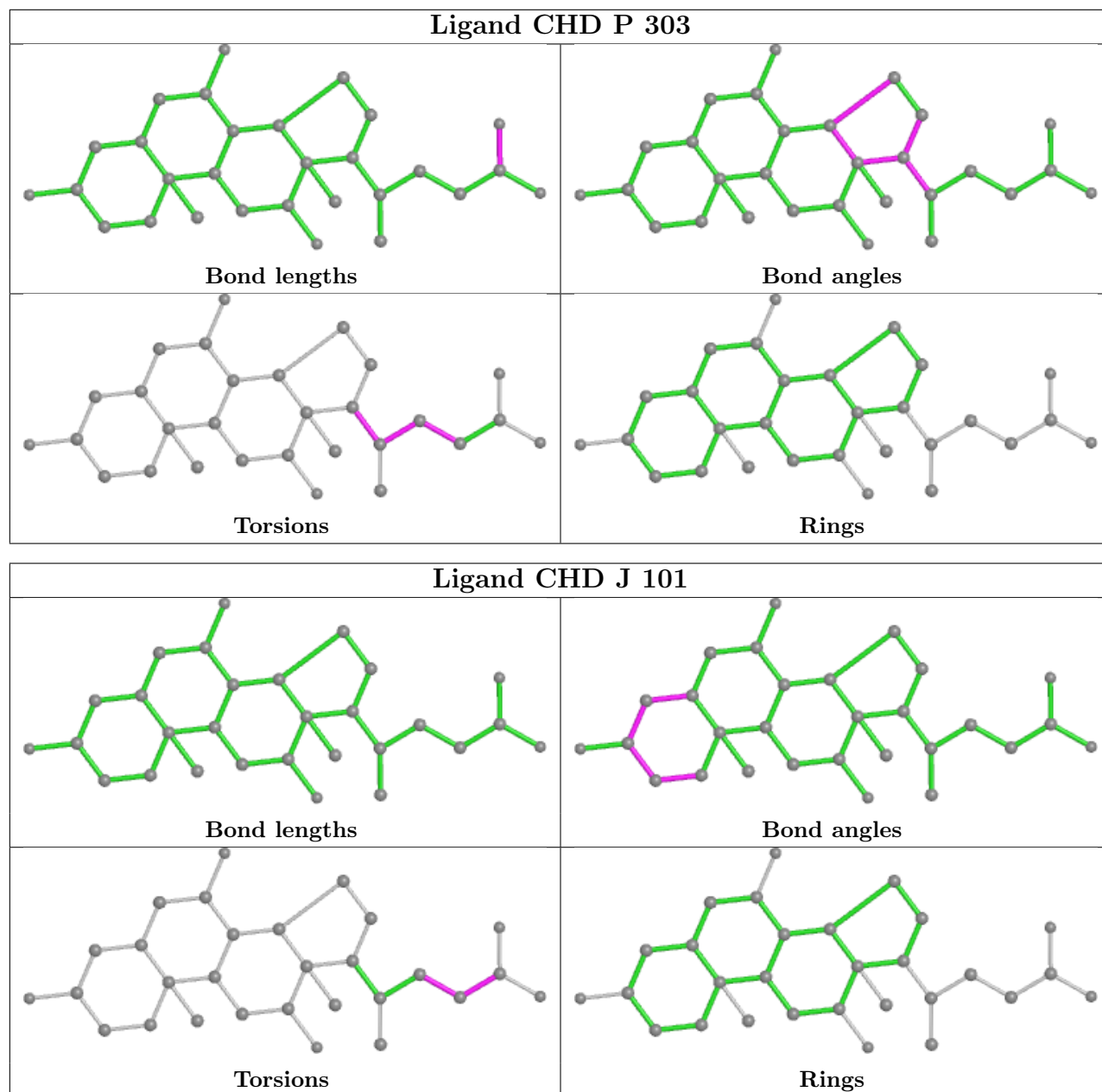


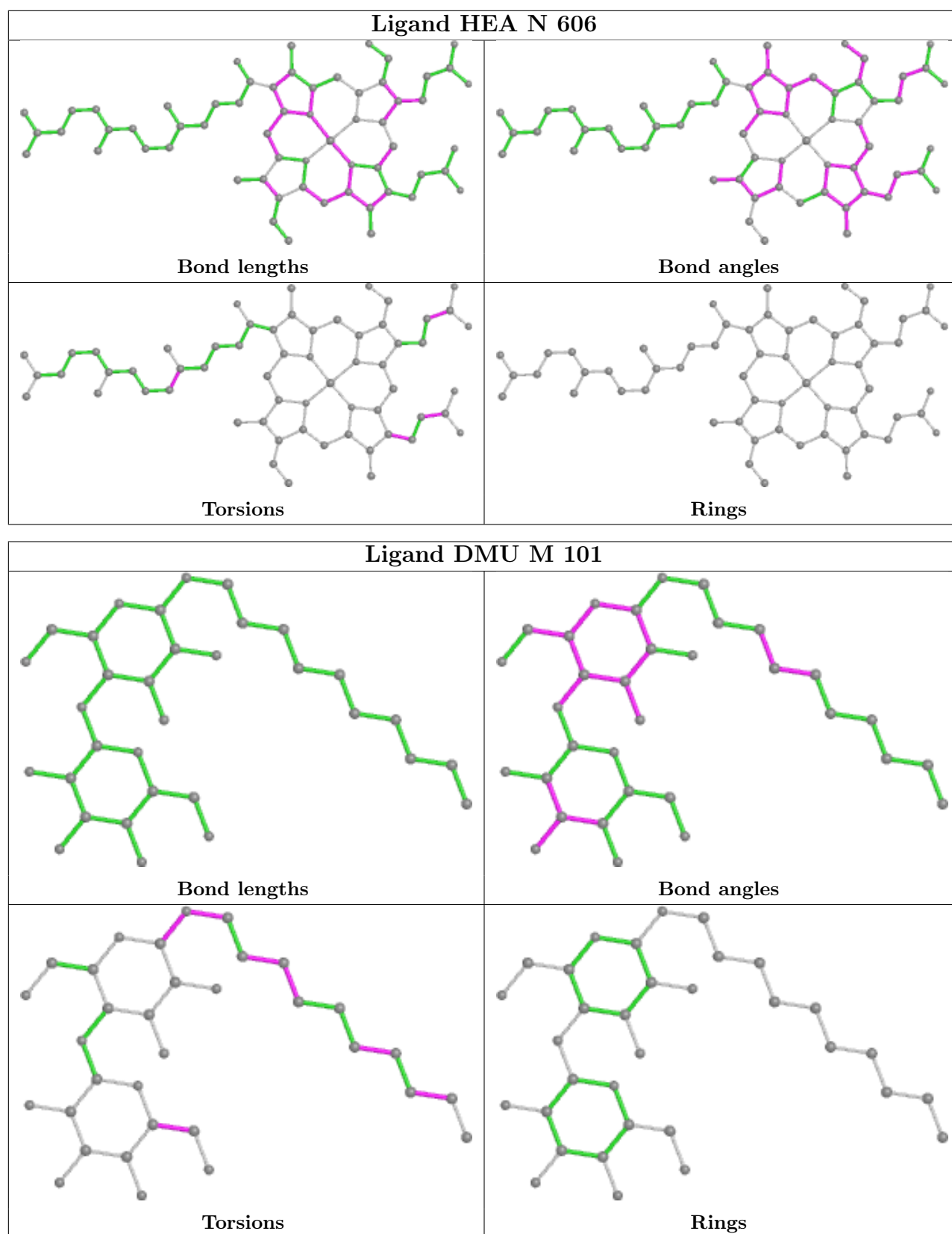


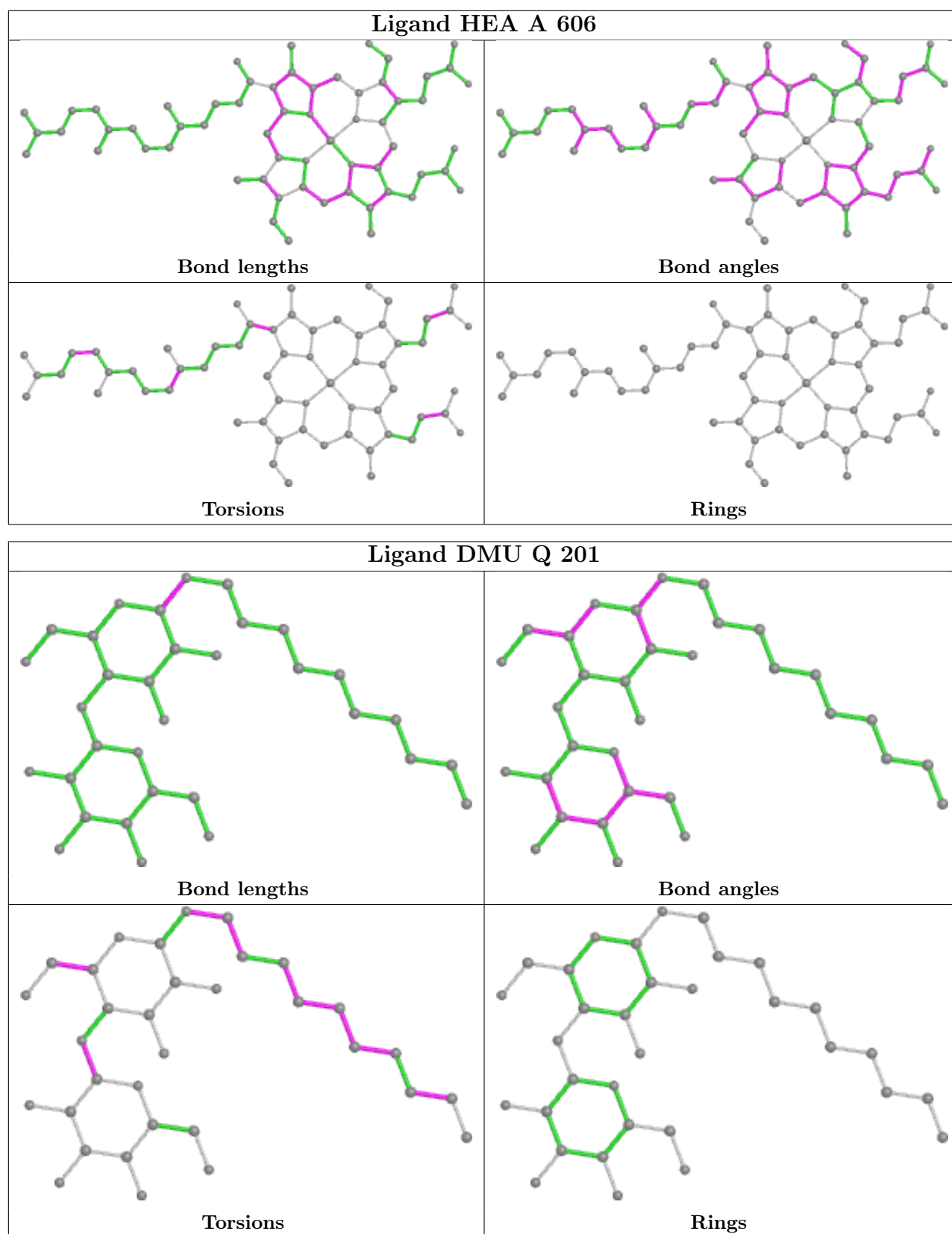


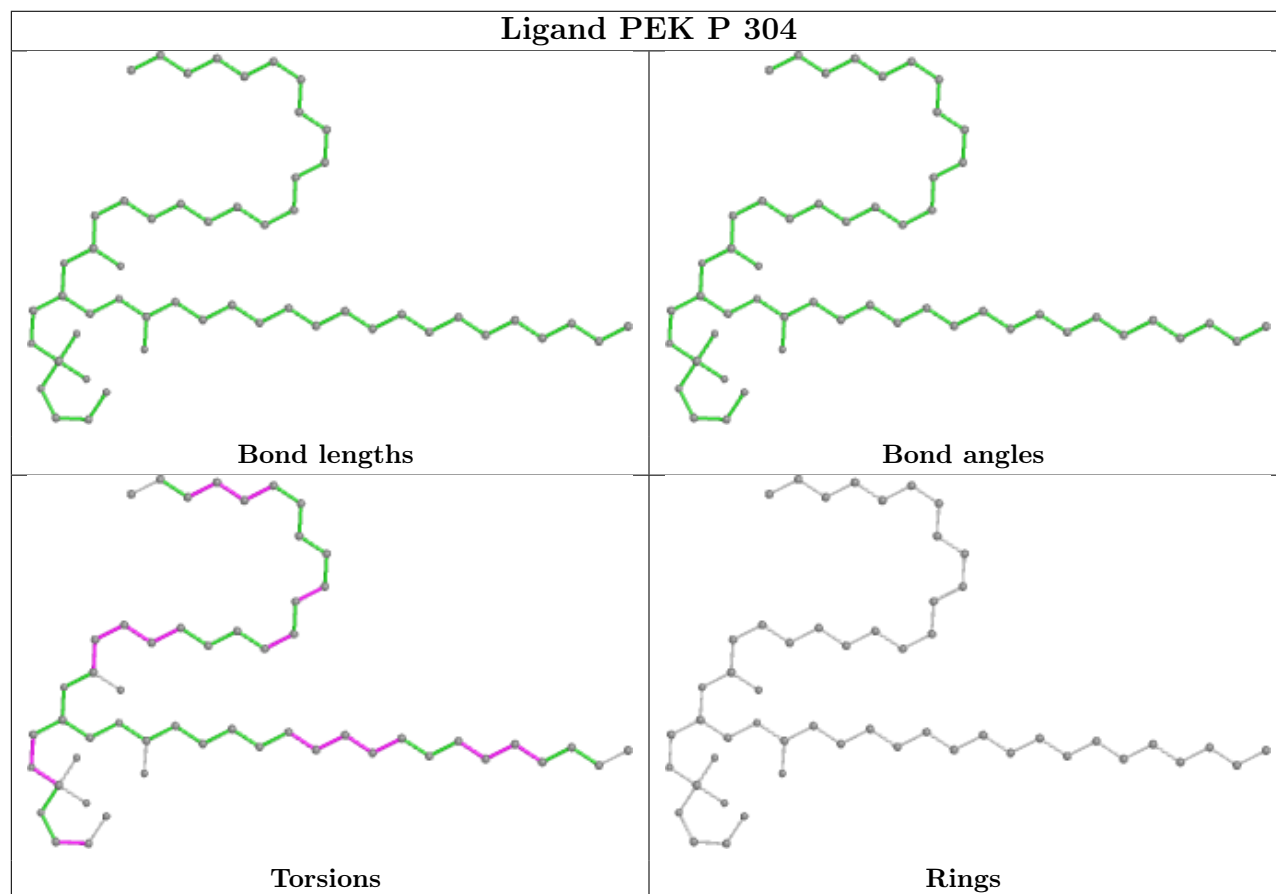
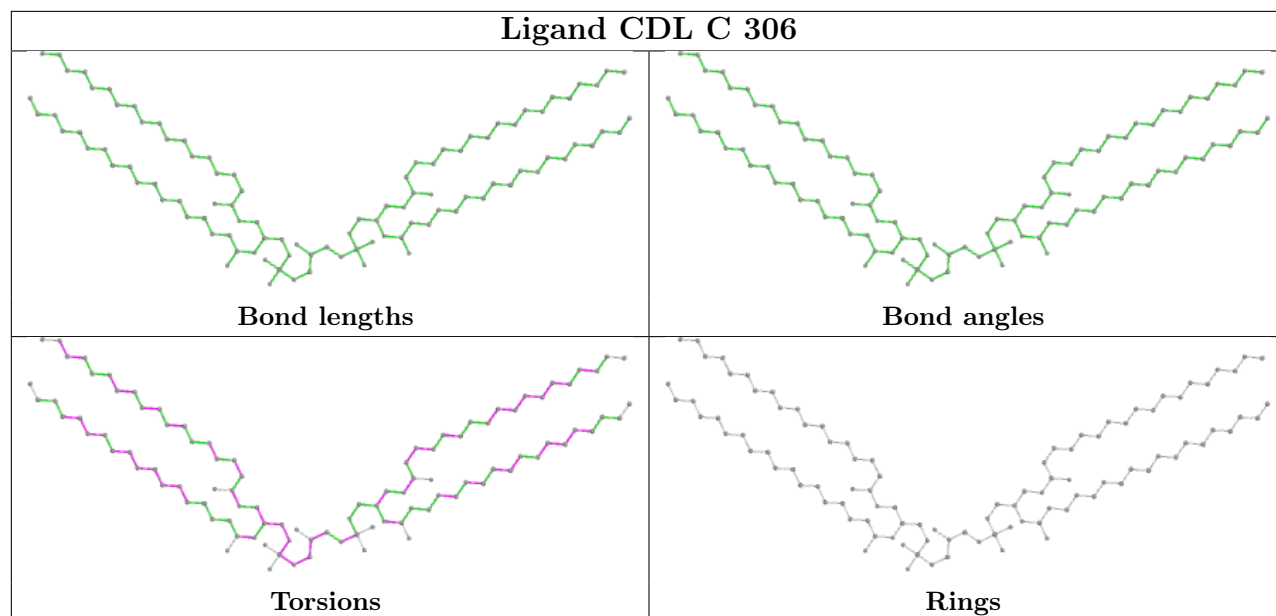


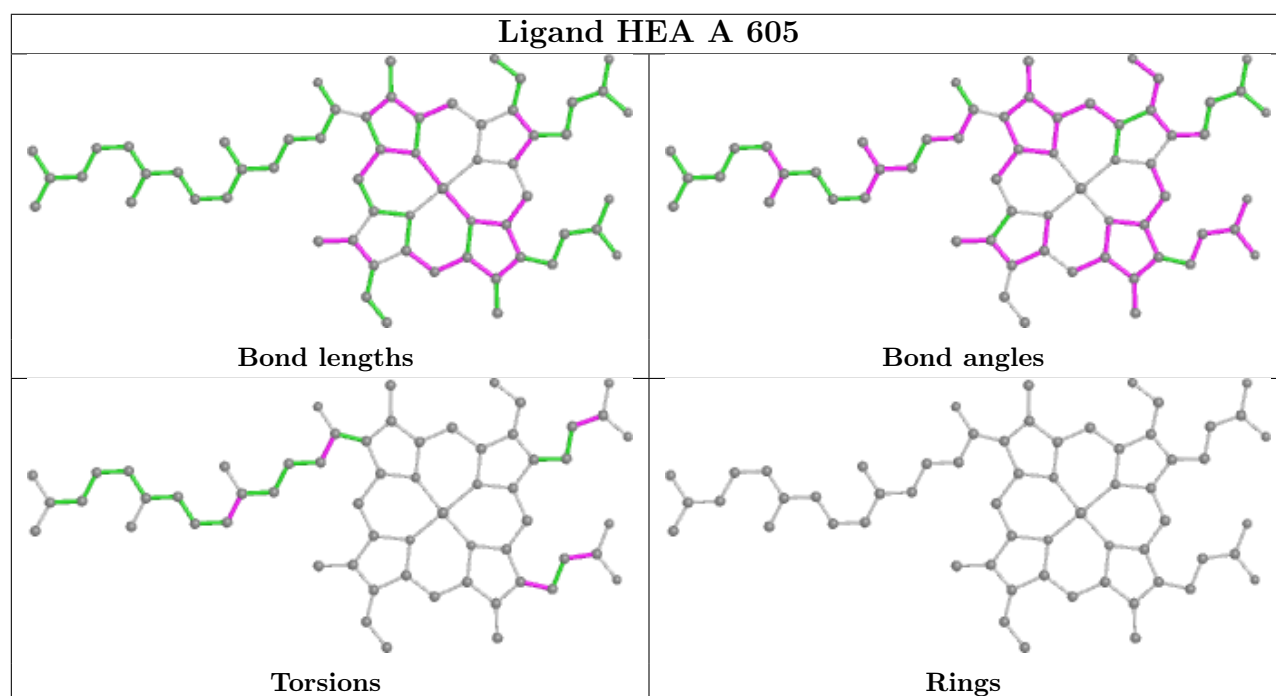
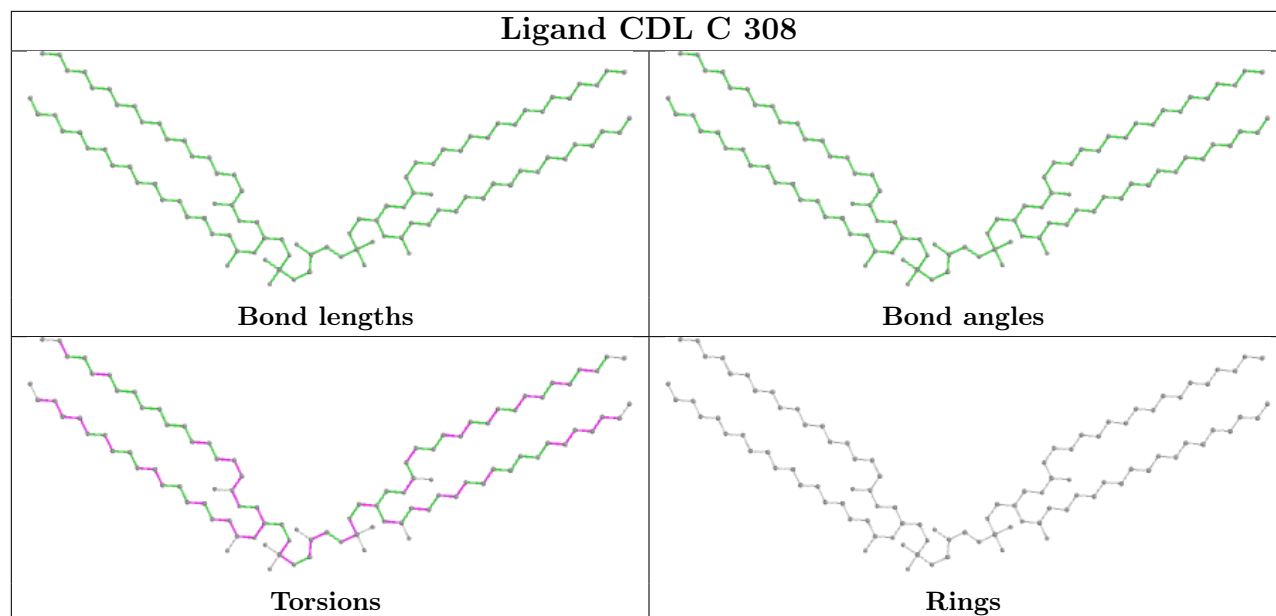


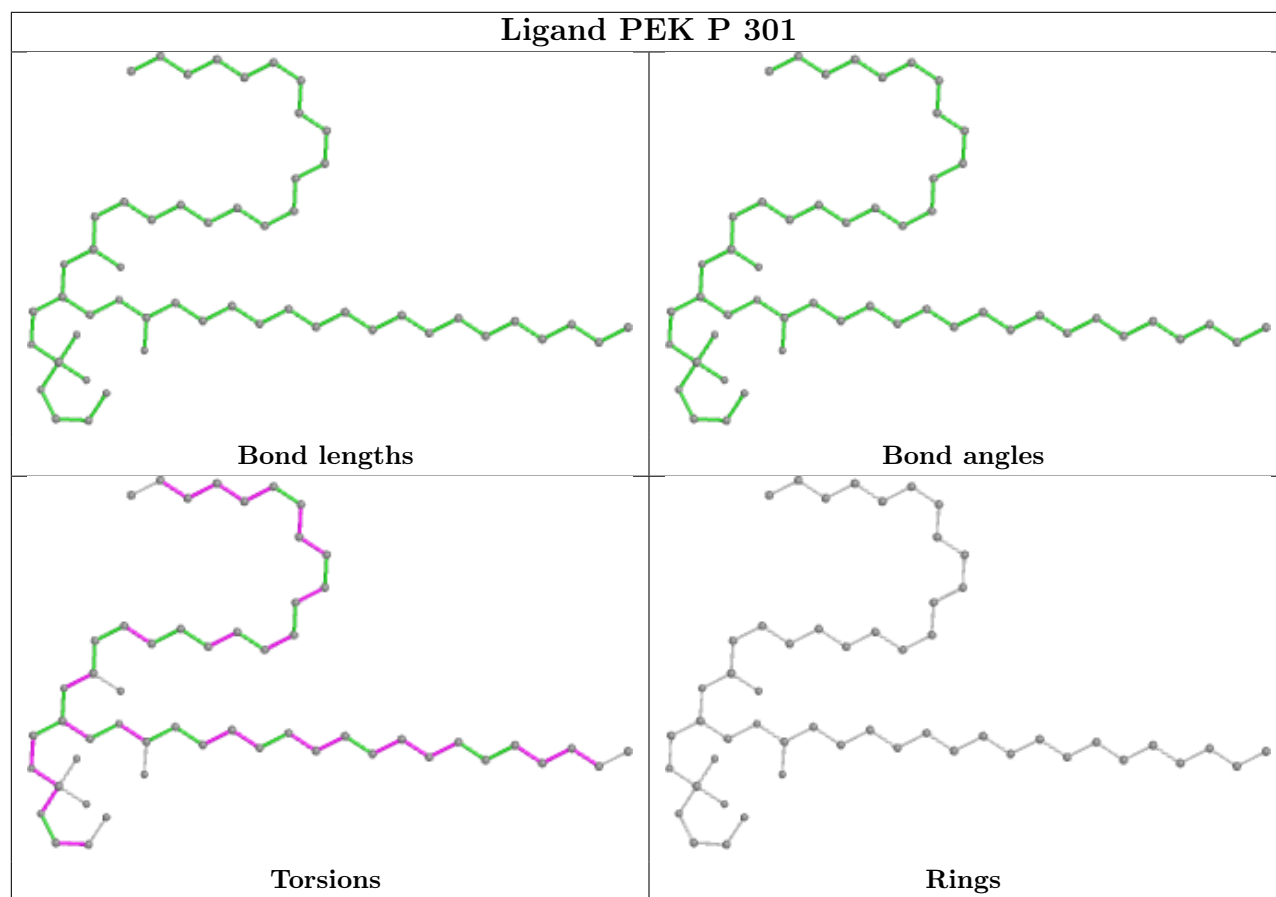
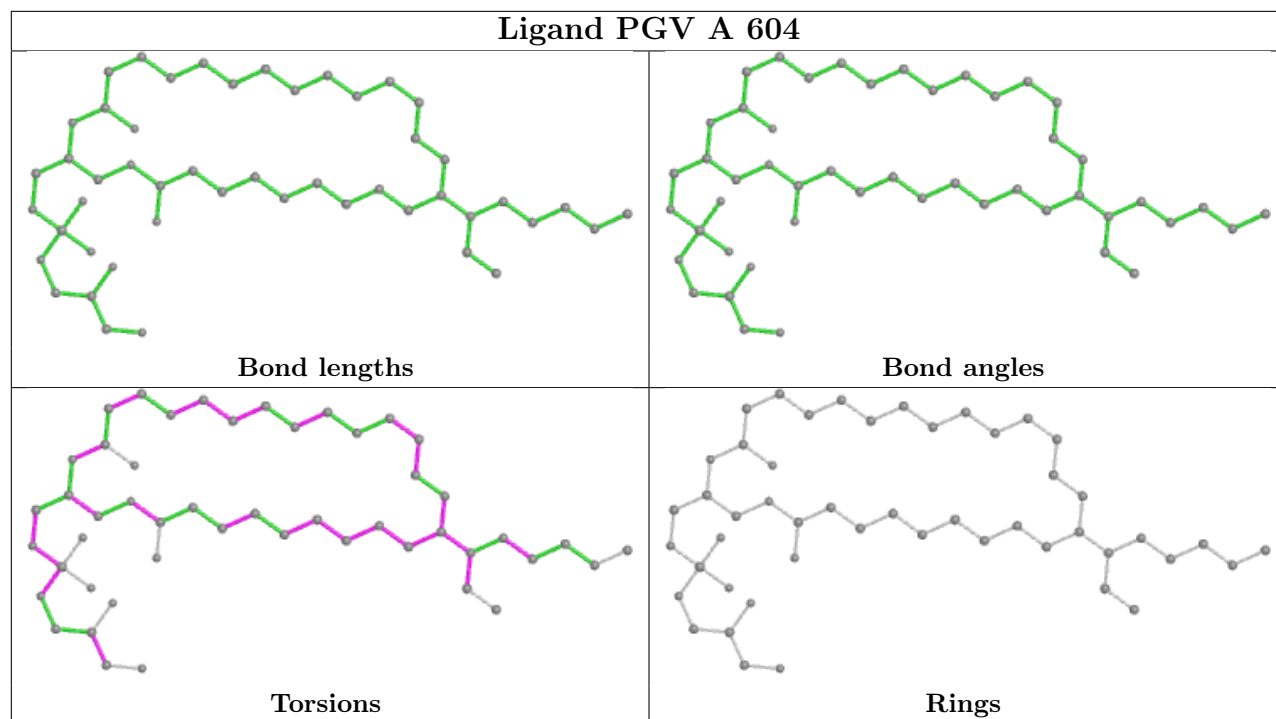


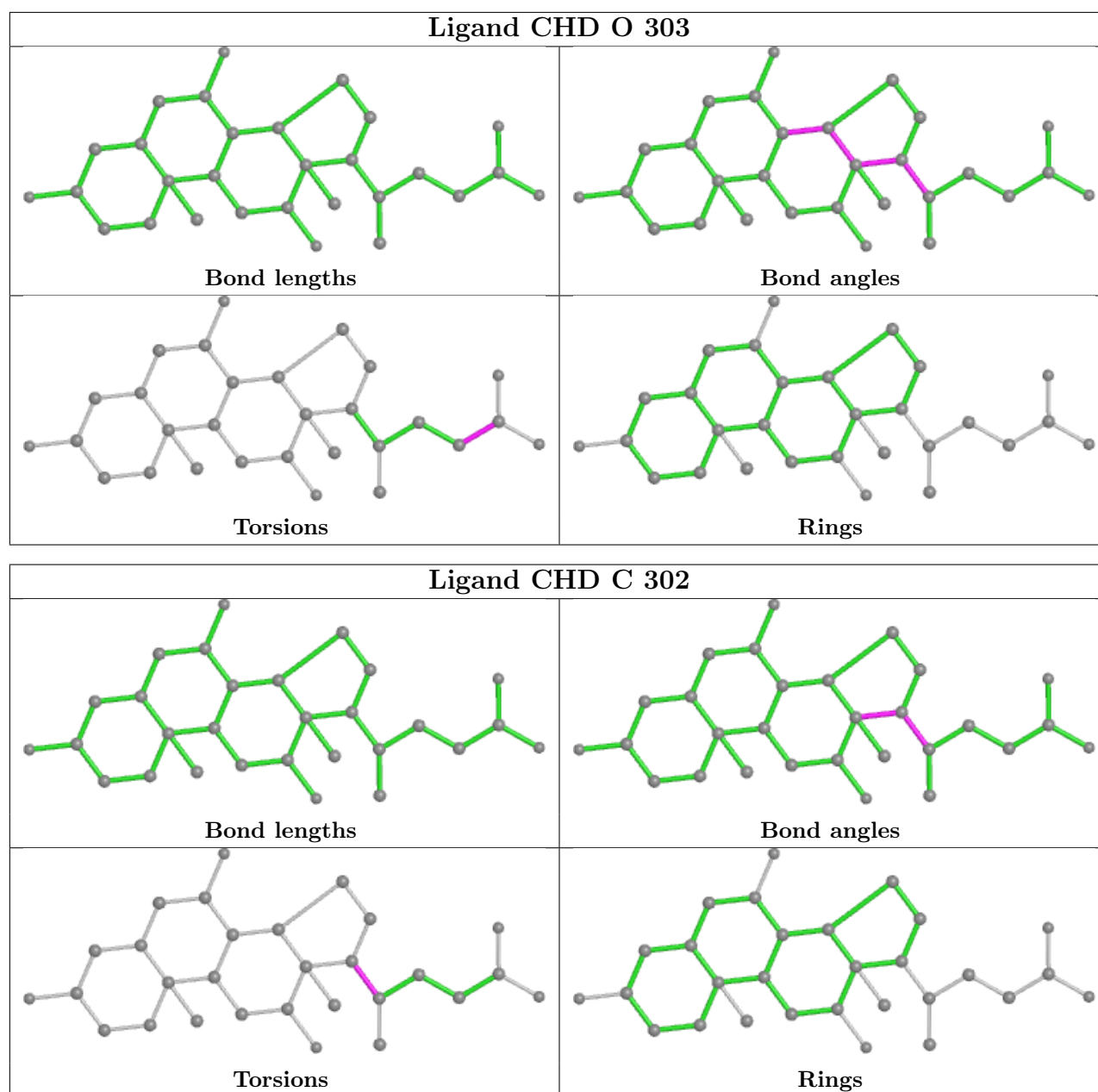












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data i

6.1 Protein, DNA and RNA chains i

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	513/514 (99%)	-0.40	0 100 100	5, 15, 24, 48	0
1	N	513/514 (99%)	-0.12	7 (1%) 75 77	12, 27, 44, 62	0
2	B	226/227 (99%)	-0.32	3 (1%) 77 78	8, 20, 45, 91	0
2	O	226/227 (99%)	0.11	6 (2%) 54 56	19, 39, 65, 116	0
3	C	259/261 (99%)	-0.39	0 100 100	10, 20, 33, 50	0
3	P	259/261 (99%)	-0.15	4 (1%) 73 75	13, 28, 49, 78	0
4	D	144/147 (97%)	-0.28	3 (2%) 63 65	12, 27, 47, 59	0
4	Q	144/147 (97%)	0.86	13 (9%) 9 10	24, 52, 76, 185	0
5	E	105/109 (96%)	-0.29	2 (1%) 66 68	15, 26, 53, 83	0
5	R	105/109 (96%)	-0.09	2 (1%) 66 68	23, 40, 58, 85	0
6	F	98/98 (100%)	-0.02	6 (6%) 21 23	13, 27, 78, 119	0
6	S	98/98 (100%)	0.82	12 (12%) 4 4	21, 37, 103, 151	0
7	G	83/85 (97%)	0.57	13 (15%) 2 2	15, 33, 100, 116	0
7	T	83/85 (97%)	0.58	10 (12%) 4 5	14, 43, 92, 121	0
8	H	79/85 (92%)	-0.03	7 (8%) 9 10	14, 28, 73, 83	0
8	U	79/85 (92%)	0.46	8 (10%) 7 7	29, 45, 87, 128	0
9	I	72/73 (98%)	0.12	6 (8%) 11 12	18, 36, 63, 76	0
9	V	72/73 (98%)	0.73	10 (13%) 2 3	30, 51, 72, 76	0
10	J	58/59 (98%)	0.05	2 (3%) 45 48	13, 31, 64, 92	0
10	W	58/59 (98%)	0.51	6 (10%) 6 7	32, 47, 89, 127	0
11	K	49/56 (87%)	-0.06	1 (2%) 65 66	15, 28, 43, 47	0
11	X	49/56 (87%)	0.82	11 (22%) 0 0	34, 46, 69, 83	0
12	L	46/47 (97%)	-0.45	1 (2%) 62 63	12, 20, 35, 77	0
12	Y	46/47 (97%)	0.17	2 (4%) 35 38	25, 41, 64, 76	0

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
13	M	43/47 (91%)	-0.20	3 (6%) 16 17	14, 21, 74, 85	0
13	Z	43/47 (91%)	0.58	5 (11%) 4 5	29, 43, 73, 82	0
All	All	3550/3616 (98%)	-0.02	143 (4%) 38 41	5, 28, 65, 185	0

The worst 5 of 143 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
4	Q	6	VAL	27.3
6	S	97	ALA	20.2
6	S	1	ALA	17.1
4	Q	5	VAL	15.2
6	S	98	HIS	9.5

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

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
7	TPO	G	11	11/12	0.66	0.44	81,114,143,143	0
1	FME	N	1	10/11	0.83	0.33	55,66,83,83	0
7	TPO	T	11	11/12	0.87	0.32	85,108,132,134	0
1	FME	A	1	10/11	0.92	0.16	31,37,45,48	0
2	FME	O	1	10/11	0.95	0.12	18,42,55,61	0
2	FME	B	1	10/11	0.96	0.15	23,25,26,26	0

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
28	SAC	I	101	9/10	0.45	0.34	82,90,98,99	0
26	DMU	G	101	33/33	0.54	0.35	41,106,120,123	0
22	PSC	V	101	52/52	0.60	0.41	56,102,190,205	0
24	PEK	T	102	53/53	0.61	0.34	47,76,131,143	0
26	DMU	C	310	33/33	0.68	0.36	47,78,102,105	0
24	PEK	C	304	53/53	0.70	0.34	33,89,176,203	0
24	PEK	P	301	53/53	0.70	0.31	44,86,182,202	0
21	TGL	N	609	63/63	0.70	0.28	46,78,101,118	0
25	CDL	P	309	100/100	0.73	0.29	53,91,123,125	0
26	DMU	P	302	33/33	0.73	0.30	45,87,96,102	0
26	DMU	Q	201	33/33	0.73	0.27	35,57,71,74	0
21	TGL	N	604	63/63	0.73	0.26	37,73,98,109	0
23	CHD	Y	101	29/29	0.74	0.27	63,140,155,157	0
24	PEK	C	311	53/53	0.74	0.32	39,70,95,114	0
22	PSC	B	303	52/52	0.75	0.43	48,102,189,190	0
25	CDL	P	307	100/100	0.75	0.24	36,78,106,118	0
25	CDL	C	308	100/100	0.76	0.27	28,85,117,123	0
25	CDL	C	306	100/100	0.76	0.21	35,69,129,133	0
23	CHD	T	103	29/29	0.78	0.21	58,120,126,132	0
26	DMU	C	309	33/33	0.79	0.27	23,71,87,95	0
23	CHD	W	101	29/29	0.79	0.34	58,83,95,96	0
17	PGV	N	610	51/51	0.79	0.38	38,85,153,163	0
21	TGL	D	201	63/63	0.81	0.20	36,60,93,97	0
17	PGV	H	101	51/51	0.81	0.23	57,69,86,88	0
28	SAC	V	102	9/10	0.82	0.33	60,74,78,79	0
17	PGV	A	604	51/51	0.83	0.25	30,60,146,150	0
21	TGL	L	101	63/63	0.85	0.18	13,53,77,82	0
23	CHD	J	101	29/29	0.85	0.23	53,61,64,69	0
17	PGV	P	306	51/51	0.86	0.21	45,64,98,114	0
21	TGL	O	301	63/63	0.87	0.18	33,61,87,93	0
21	TGL	B	302	63/63	0.87	0.21	21,56,94,98	0
23	CHD	P	308	29/29	0.90	0.14	52,72,76,80	0
23	CHD	C	307	29/29	0.91	0.19	32,50,56,60	0
23	CHD	P	303	29/29	0.92	0.13	16,24,28,30	0
23	CHD	O	303	29/29	0.92	0.12	24,27,30,33	0
16	NA	A	603	1/1	0.93	0.08	18,18,18,18	0
26	DMU	M	101	33/33	0.93	0.14	10,23,34,36	0
16	NA	N	603	1/1	0.93	0.07	30,30,30,30	0
17	PGV	P	305	51/51	0.94	0.19	18,31,64,74	0
17	PGV	N	605	51/51	0.94	0.18	21,34,68,73	0
23	CHD	T	101	29/29	0.95	0.11	11,13,15,17	0
24	PEK	P	304	53/53	0.95	0.16	23,49,81,83	0
24	PEK	C	303	53/53	0.95	0.19	20,44,104,113	0

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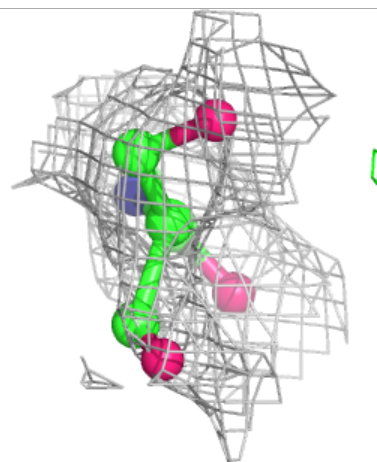
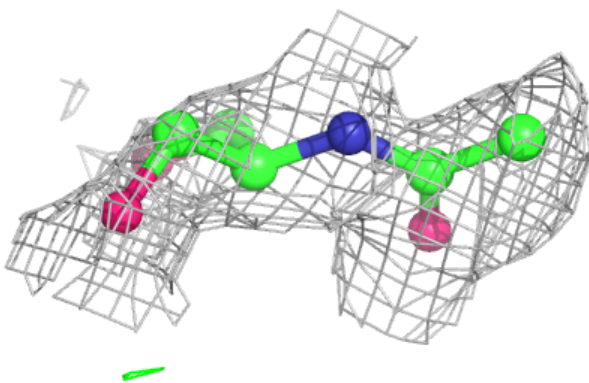
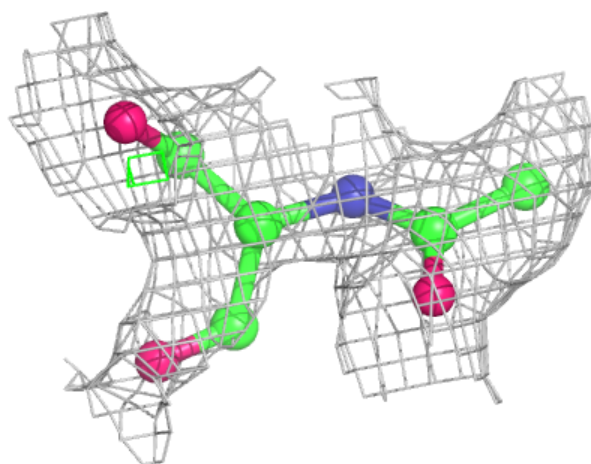
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
23	CHD	C	302	29/29	0.95	0.10	14,17,18,20	0
17	PGV	C	301	51/51	0.95	0.16	12,25,37,40	0
17	PGV	C	305	51/51	0.96	0.17	14,26,74,81	0
18	HEA	N	607	60/60	0.96	0.15	24,29,53,58	0
18	HEA	A	605	60/60	0.97	0.11	5,11,22,24	0
18	HEA	A	606	60/60	0.97	0.12	9,12,15,16	0
18	HEA	N	606	60/60	0.97	0.12	16,20,33,37	0
15	MG	N	602	1/1	0.97	0.06	26,26,26,26	0
15	MG	A	602	1/1	0.98	0.13	15,15,15,15	0
19	OH	N	608	1/1	0.99	0.12	14,14,14,14	0
20	CUA	B	301	2/2	0.99	0.08	19,19,19,19	0
20	CUA	O	302	2/2	0.99	0.07	29,29,29,34	0
14	CU	A	601	1/1	1.00	0.06	12,12,12,12	0
27	ZN	F	101	1/1	1.00	0.04	23,23,23,23	0
27	ZN	S	101	1/1	1.00	0.03	30,30,30,30	0
14	CU	N	601	1/1	1.00	0.05	29,29,29,29	0
19	OH	A	607	1/1	1.00	0.13	9,9,9,9	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

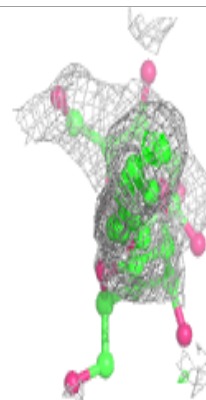
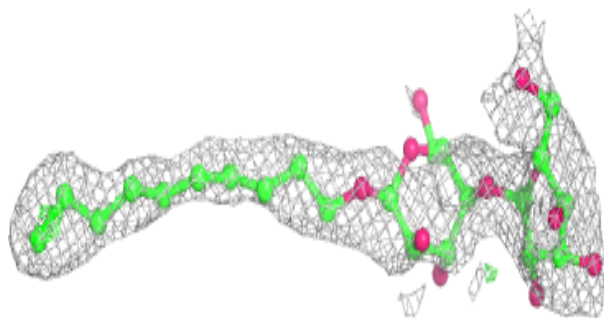
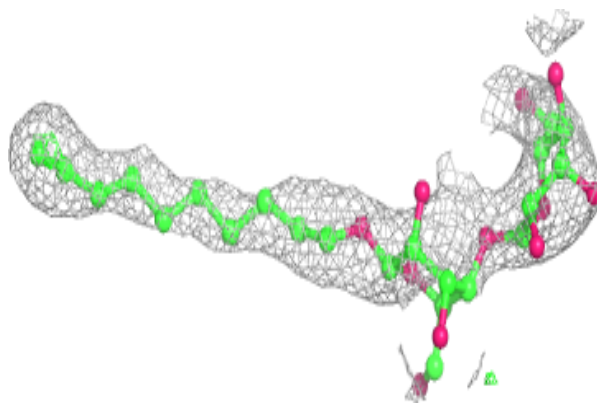
Electron density around SAC I 101:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

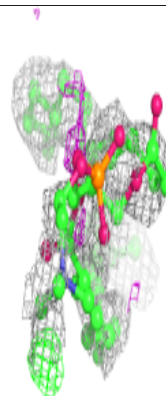
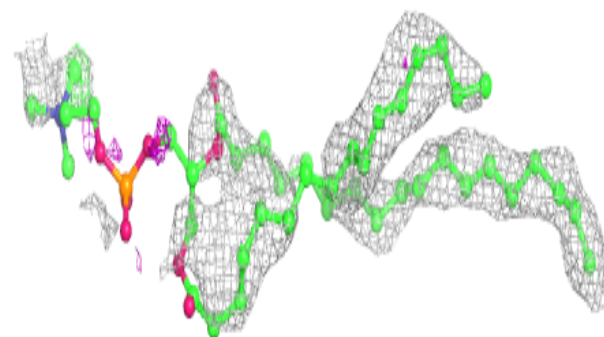
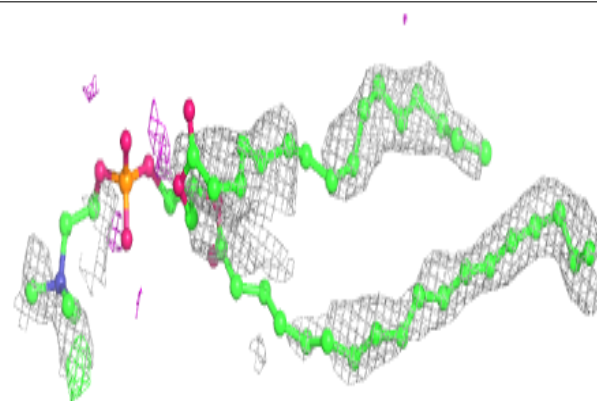


Electron density around DMU G 101:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

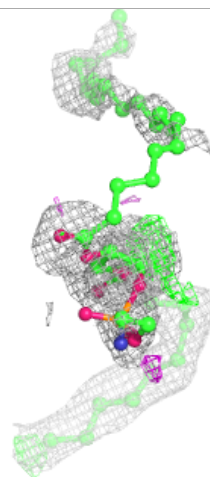
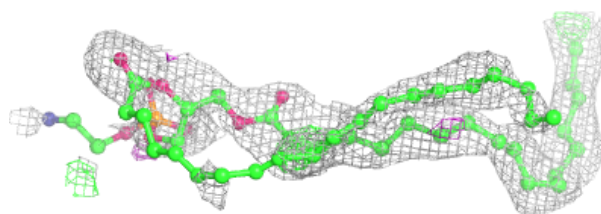
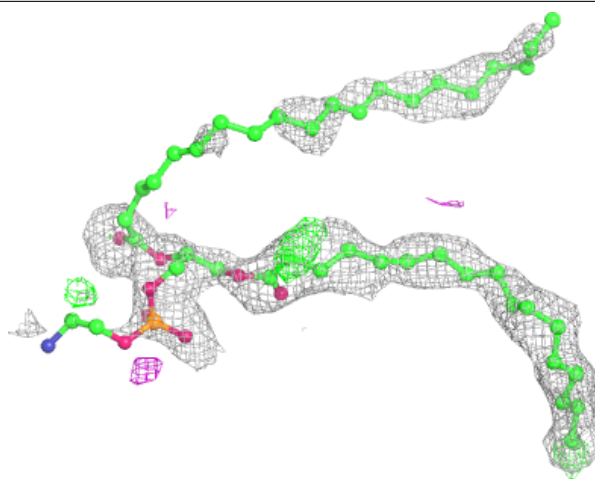
**Electron density around PSC V 101:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



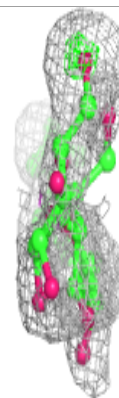
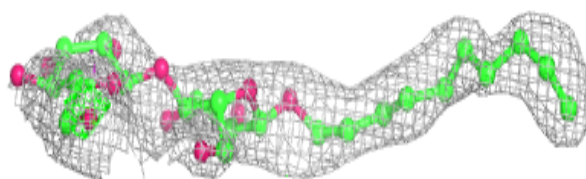
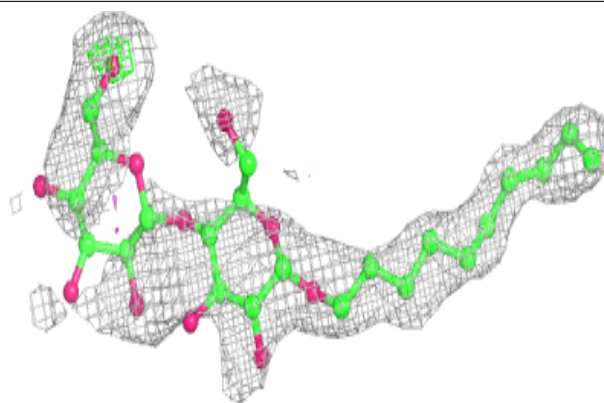
Electron density around PEK T 102:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

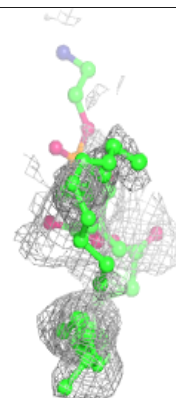
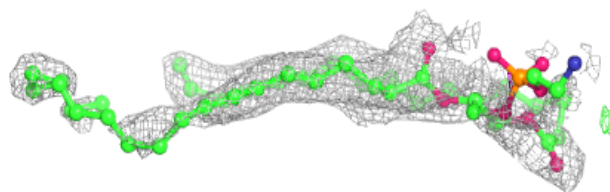
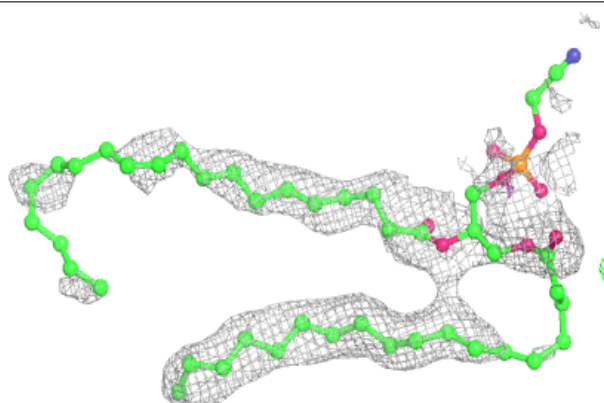


Electron density around DMU C 310:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

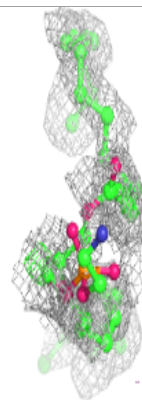
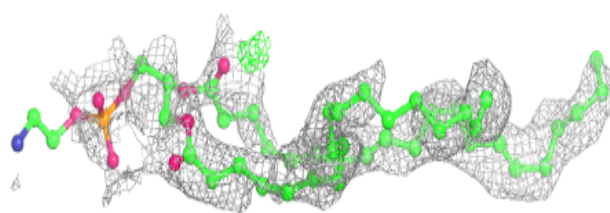
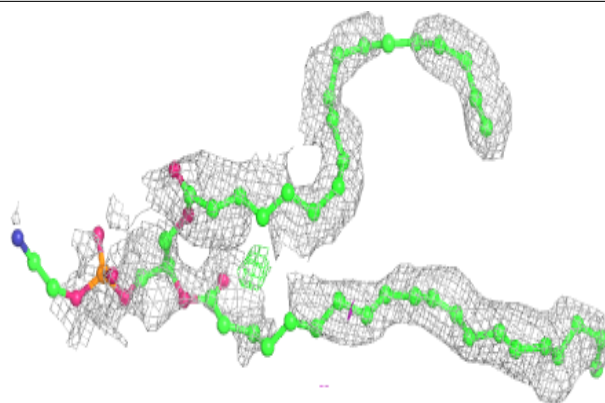
**Electron density around PEK C 304:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

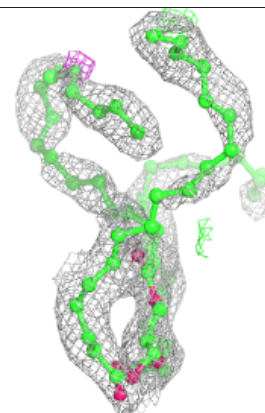
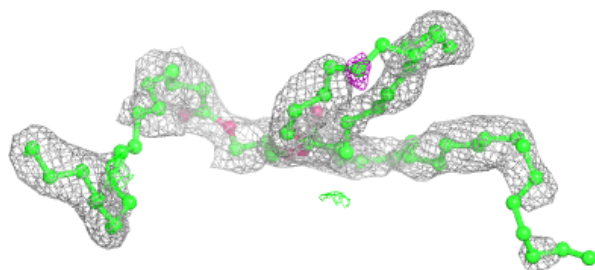
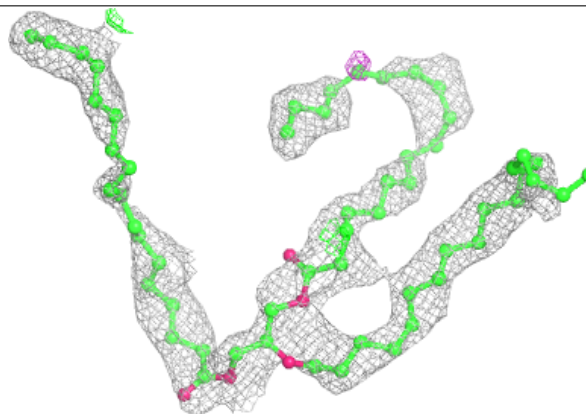


Electron density around PEK P 301:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

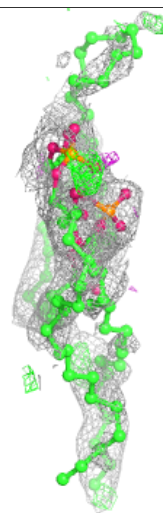
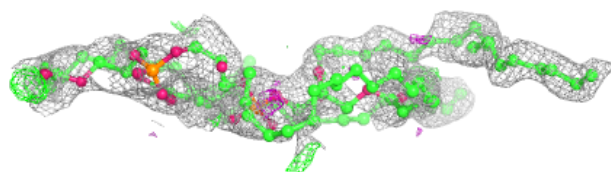
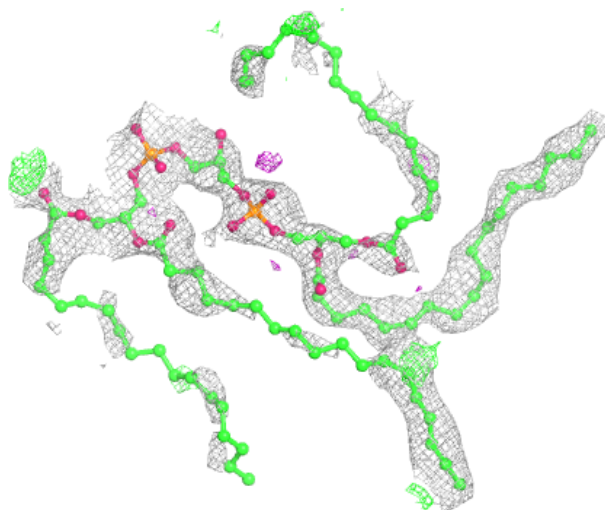
**Electron density around TGL N 609:**

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and green (positive)



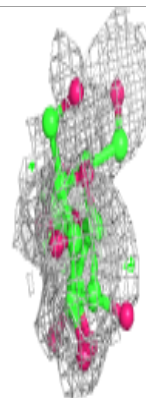
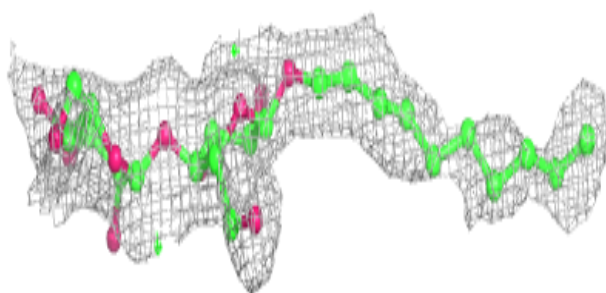
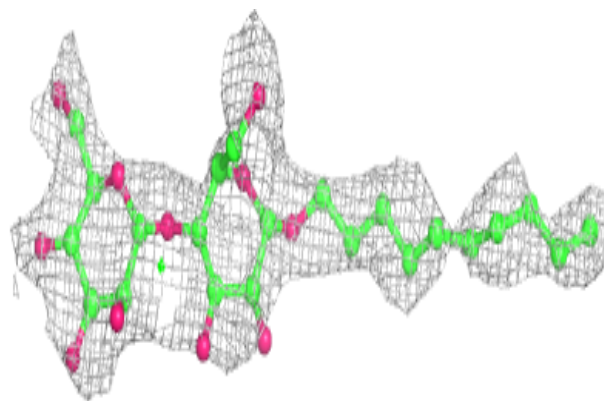
Electron density around CDL P 309:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

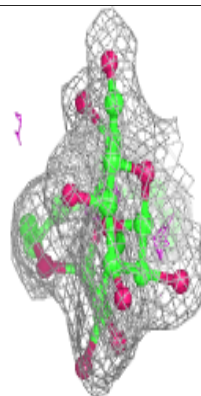
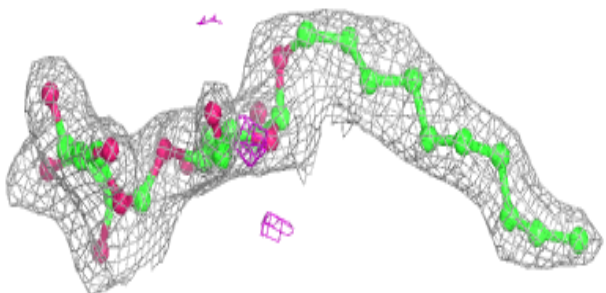
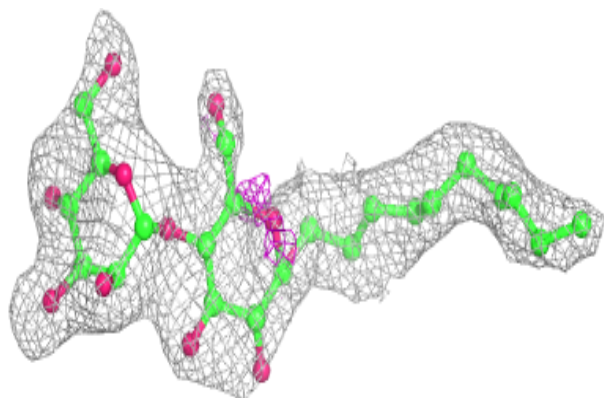


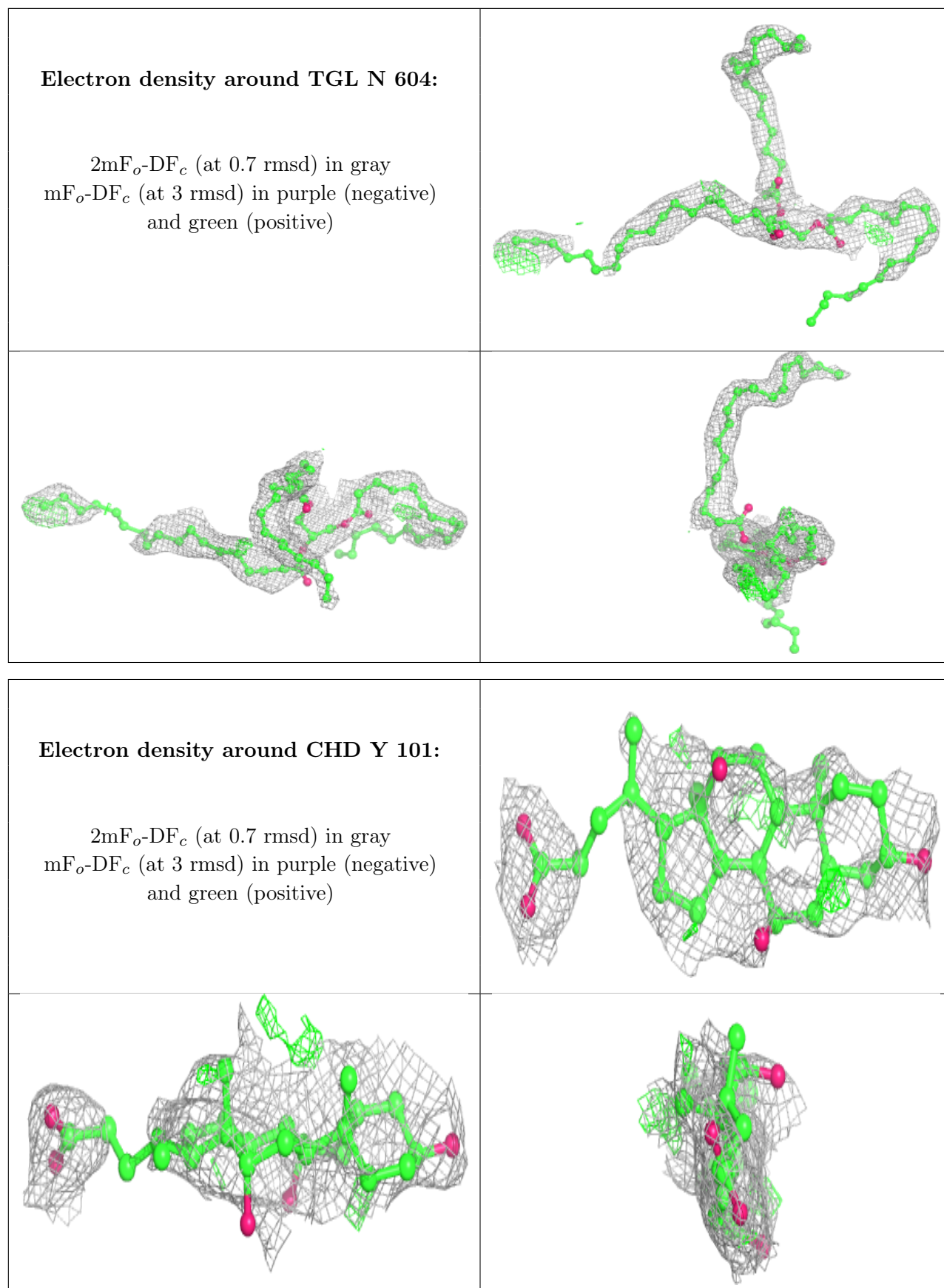
Electron density around DMU P 302:

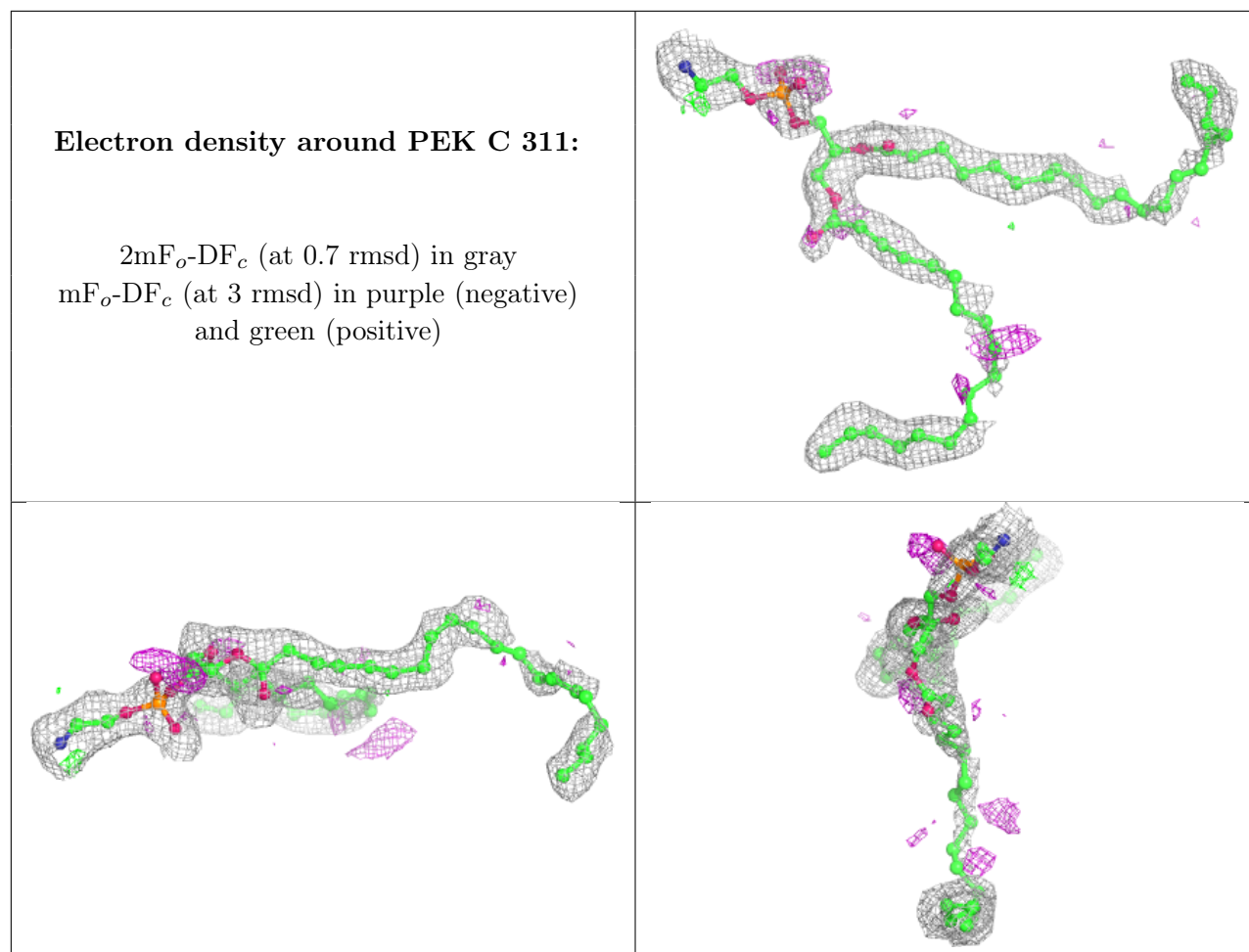
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

**Electron density around DMU Q 201:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

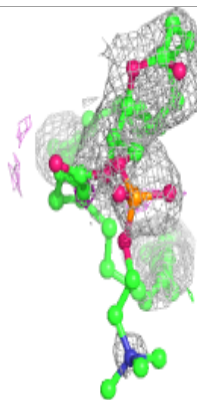
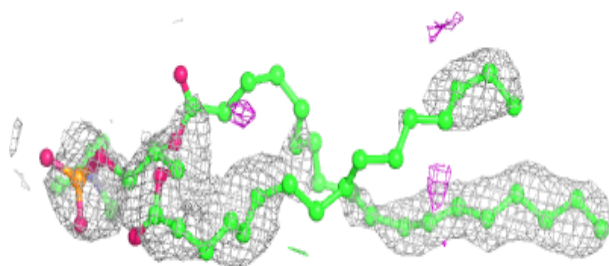
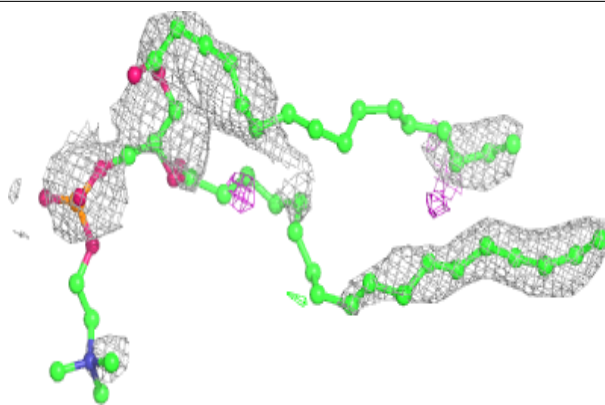




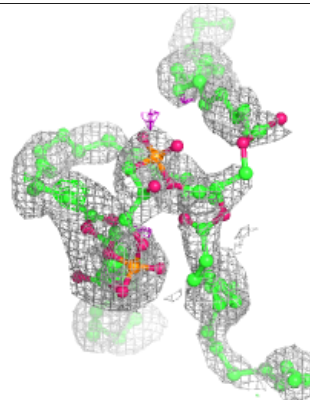
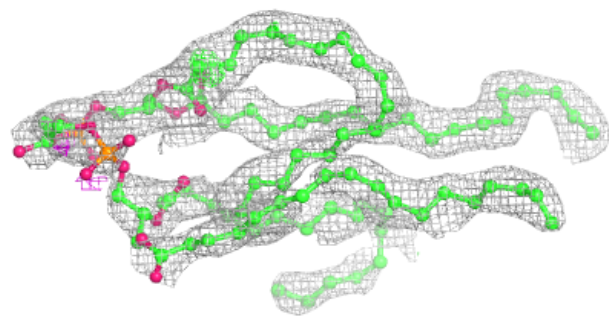
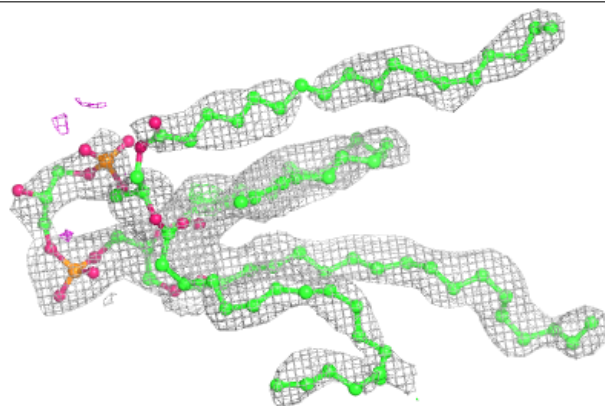


Electron density around PSC B 303:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

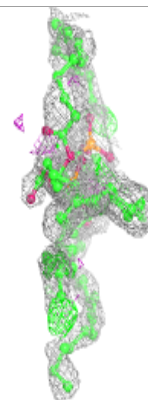
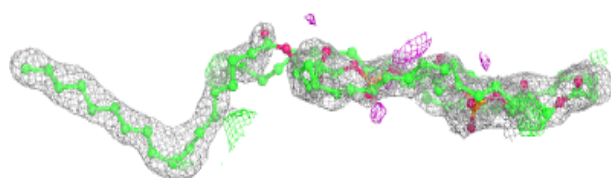
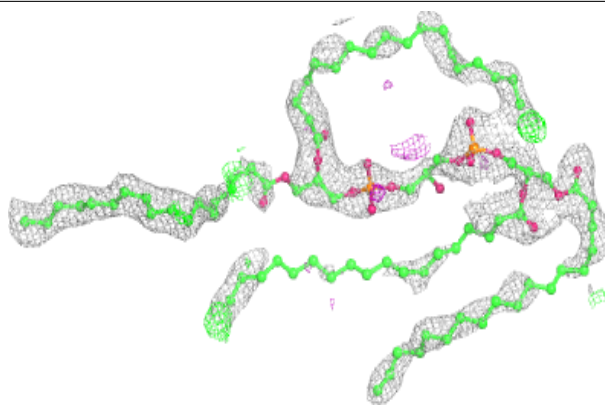
**Electron density around CDL P 307:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

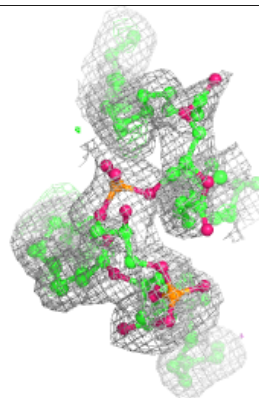
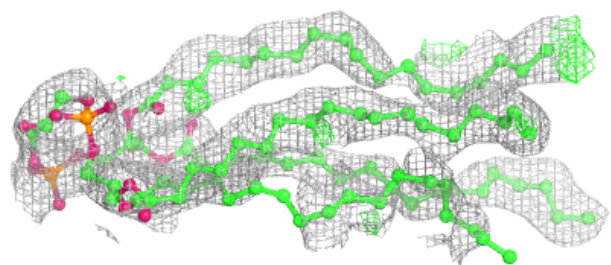
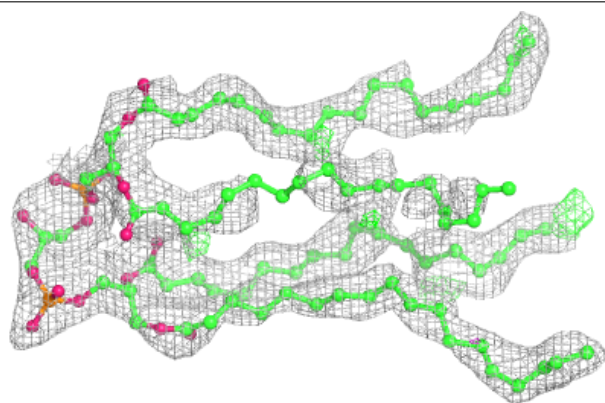


Electron density around CDL C 308:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

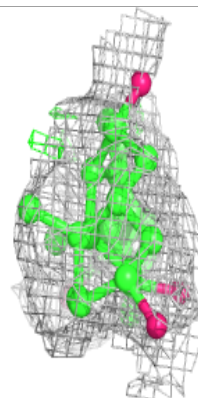
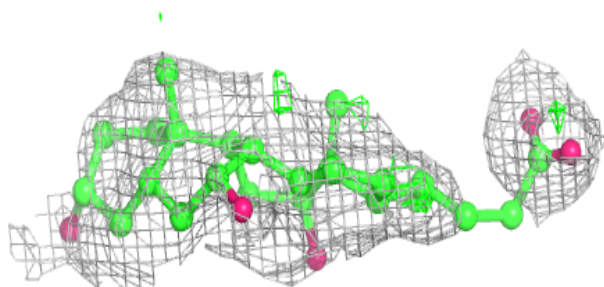
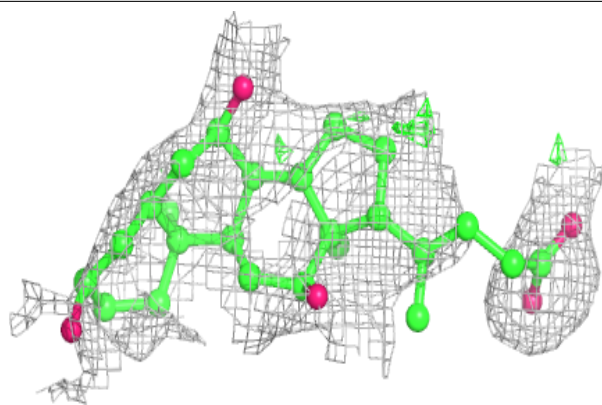
**Electron density around CDL C 306:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

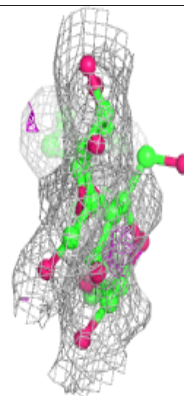
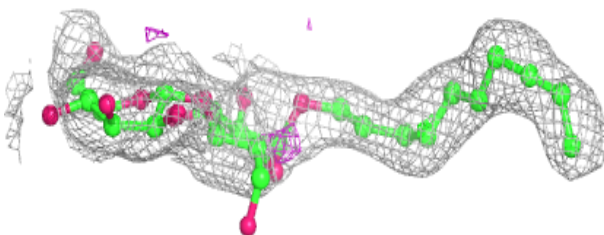
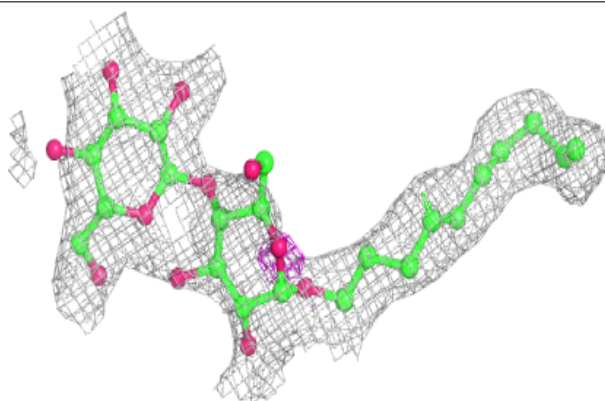


Electron density around CHD T 103:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

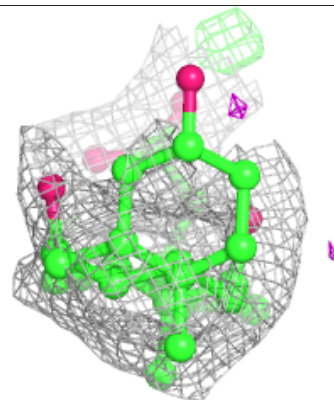
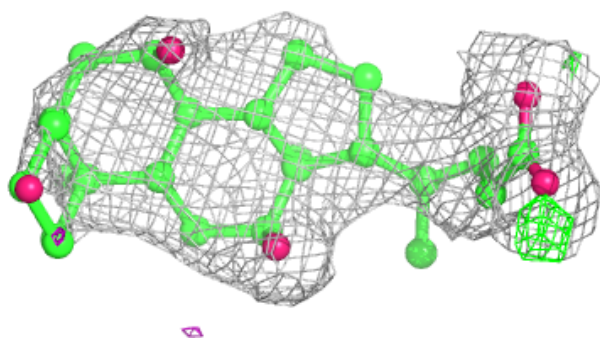
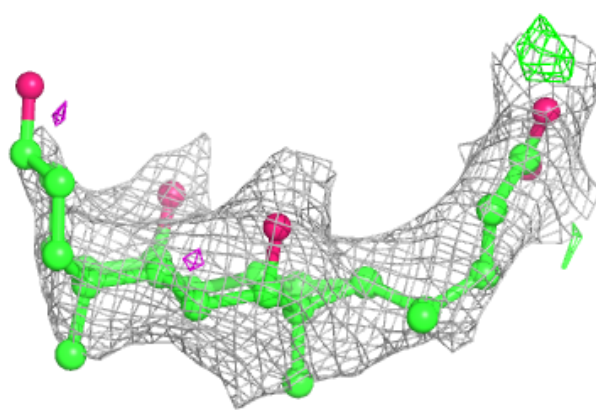
**Electron density around DMU C 309:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

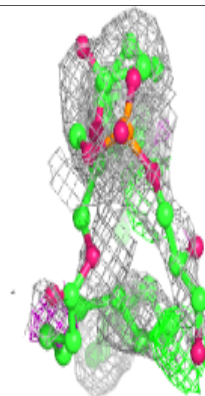
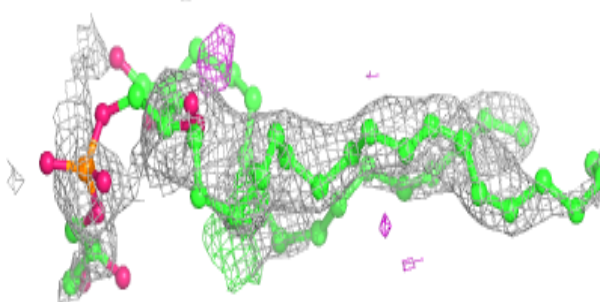
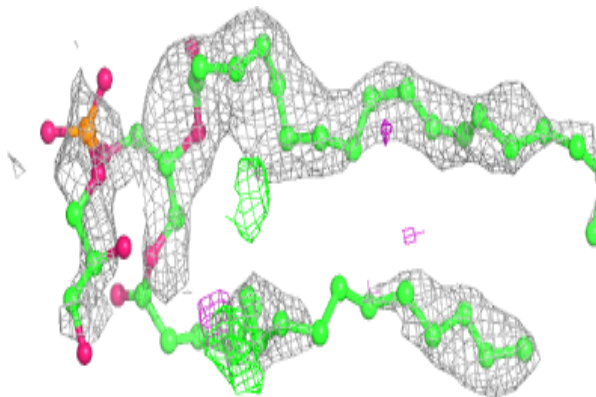


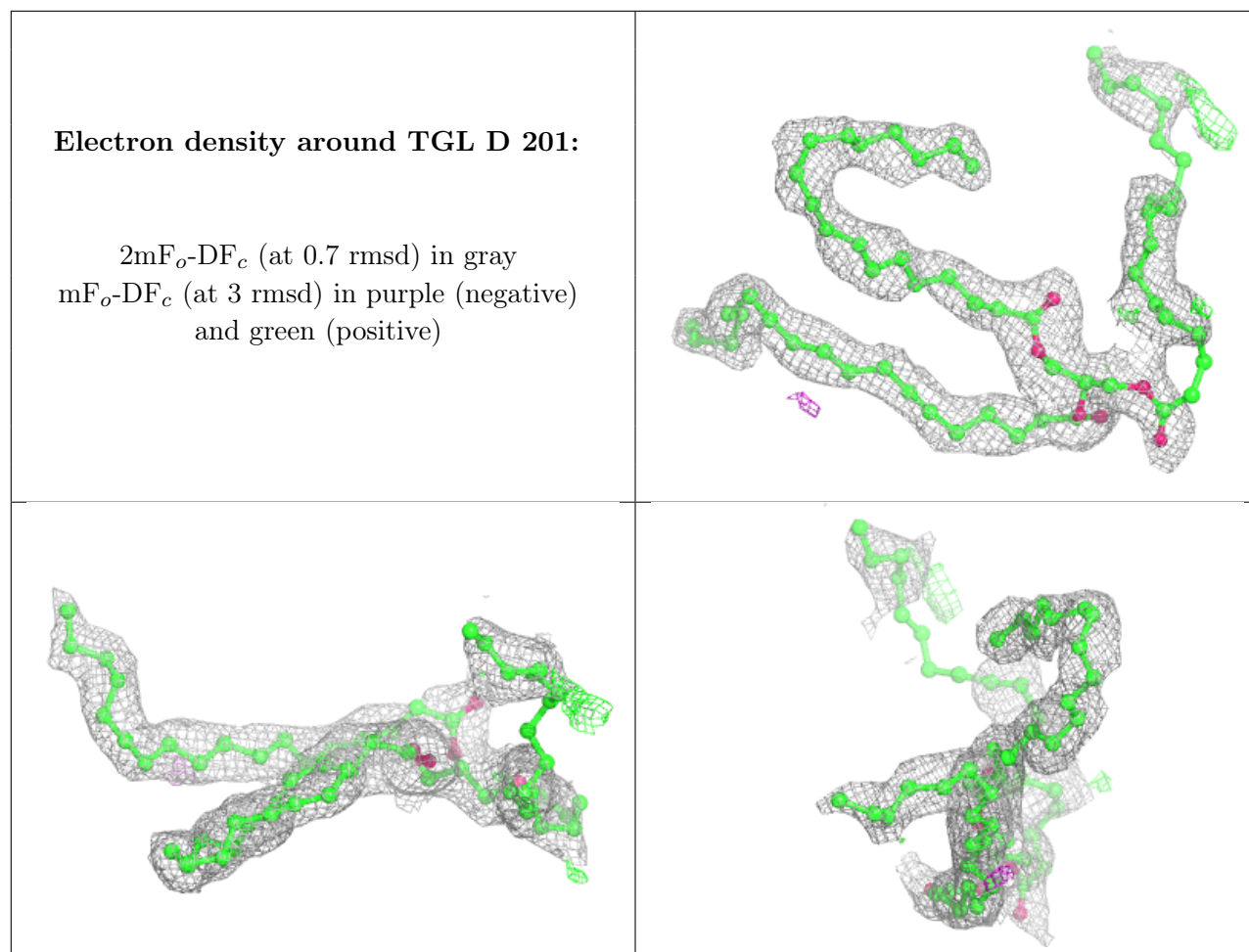
Electron density around CHD W 101:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

**Electron density around PGV N 610:**

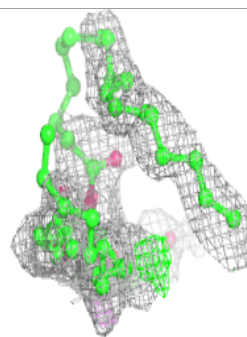
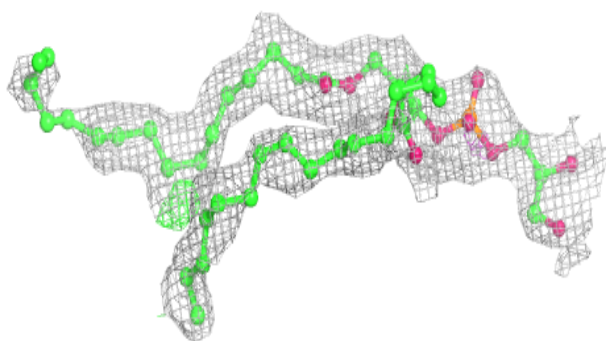
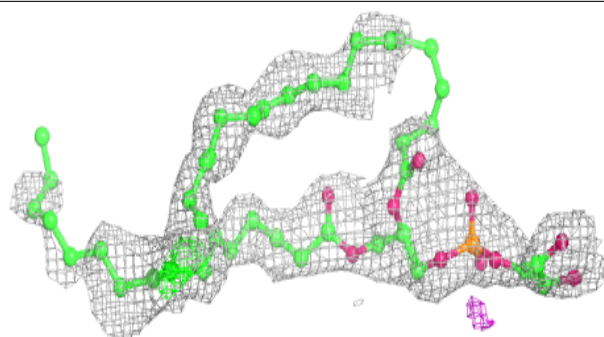
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



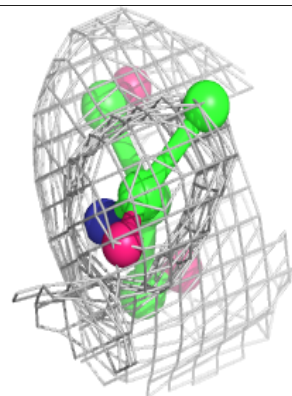
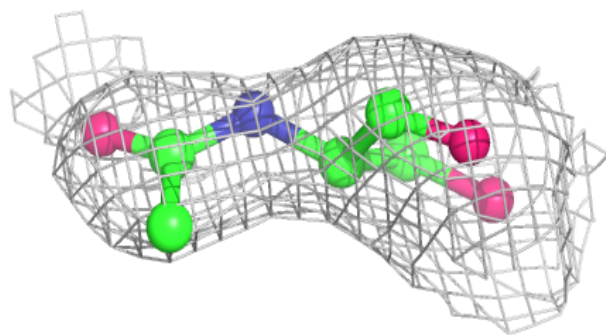
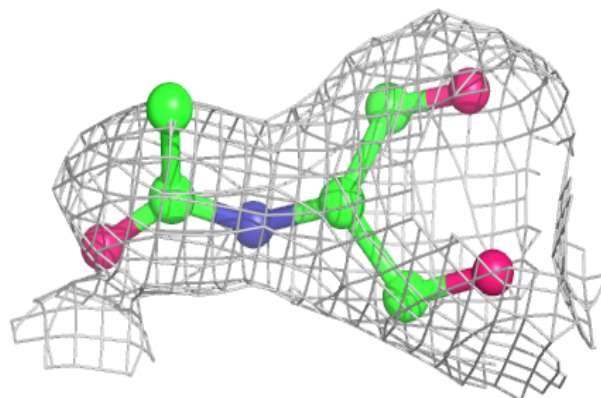


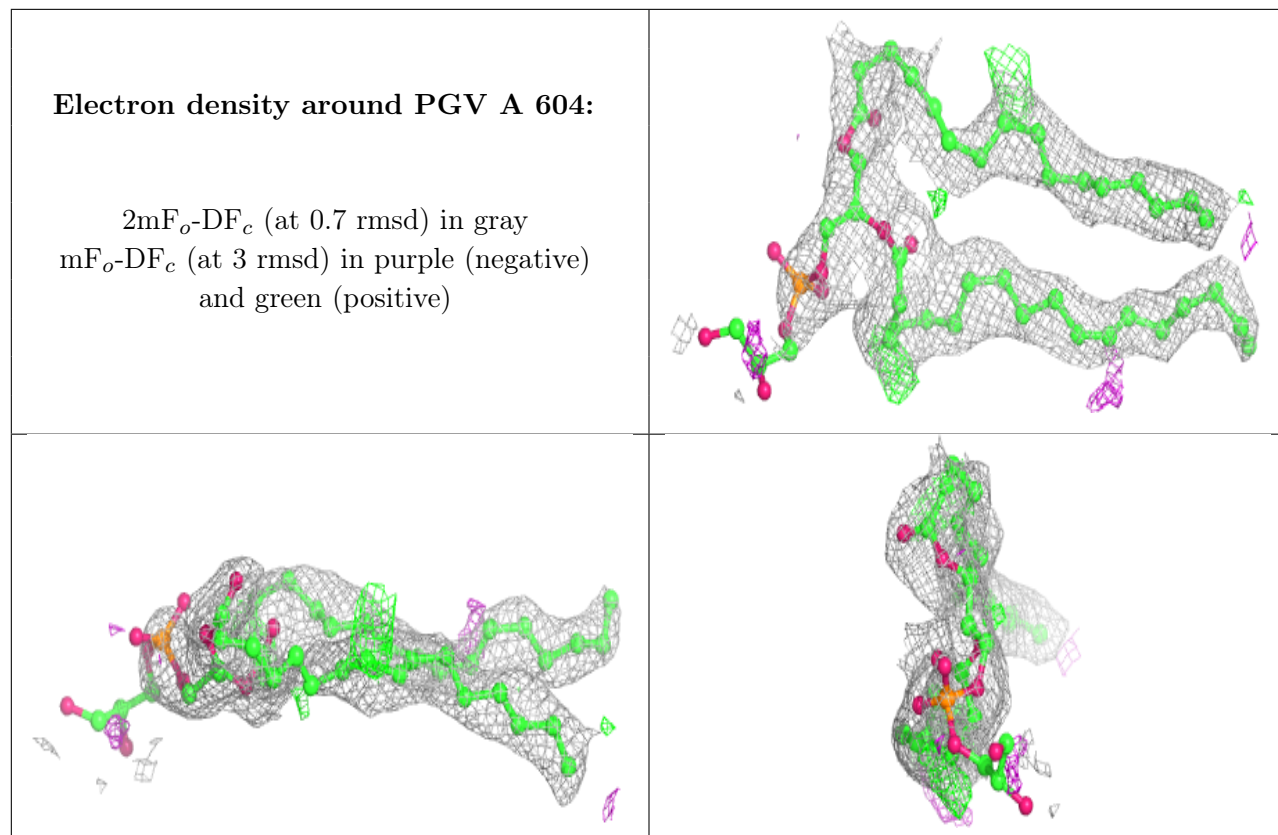
Electron density around PGV H 101:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

**Electron density around SAC V 102:**

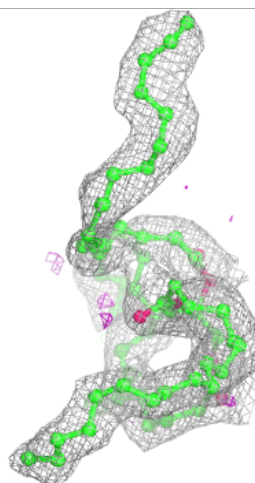
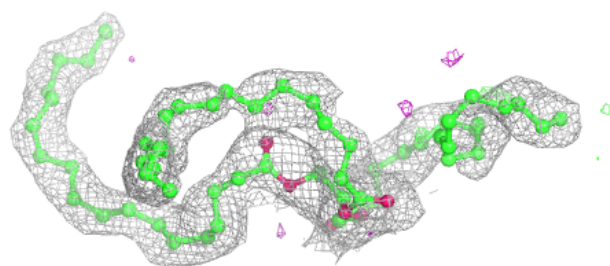
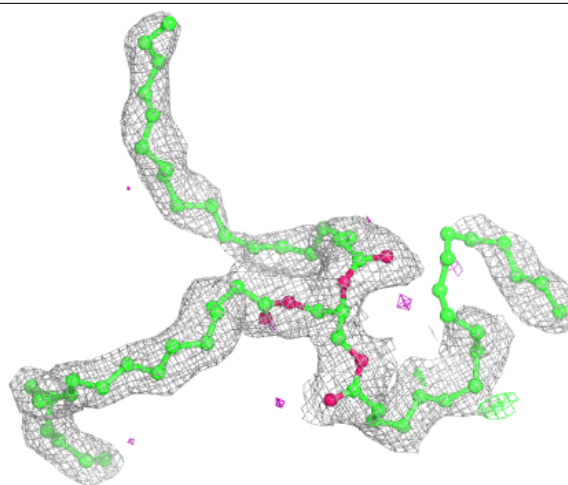
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





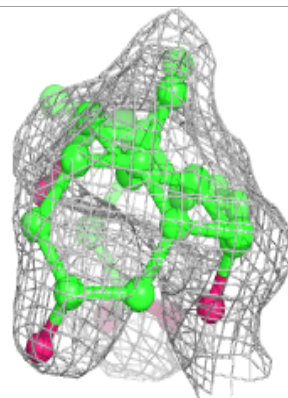
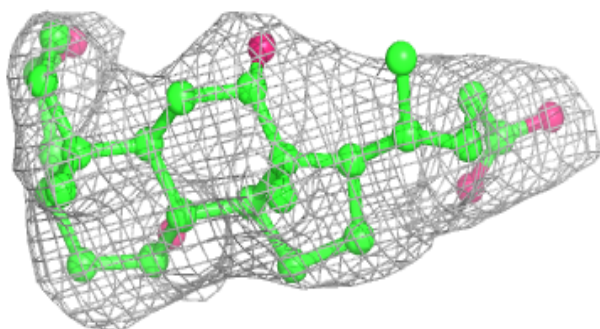
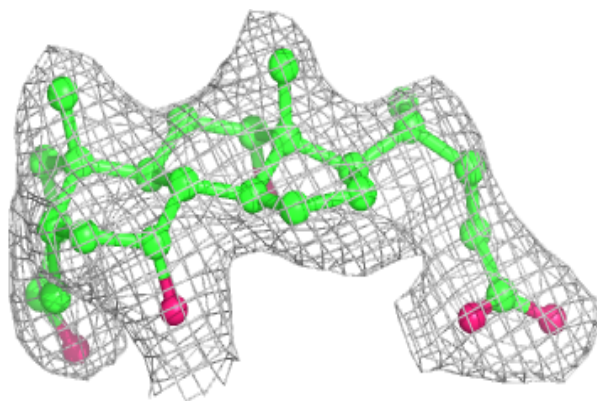
Electron density around TGL L 101:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

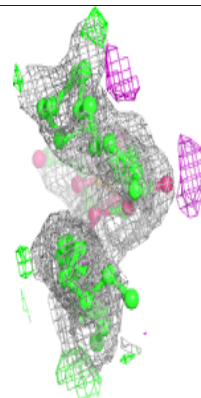
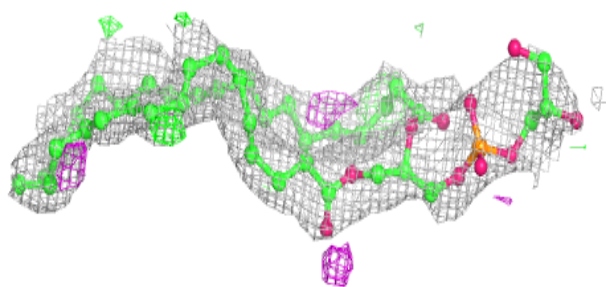
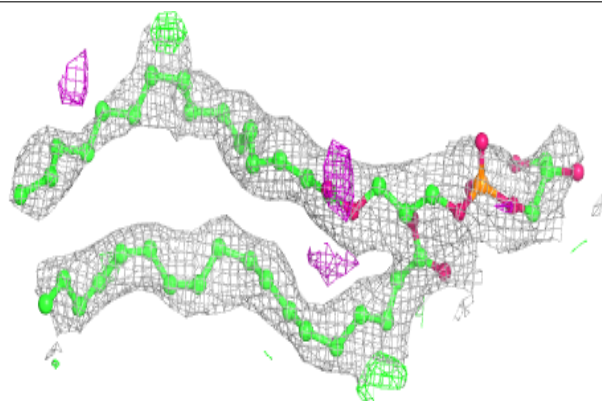


Electron density around CHD J 101:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

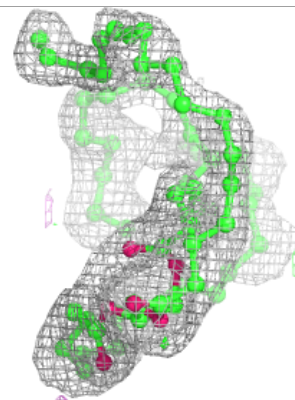
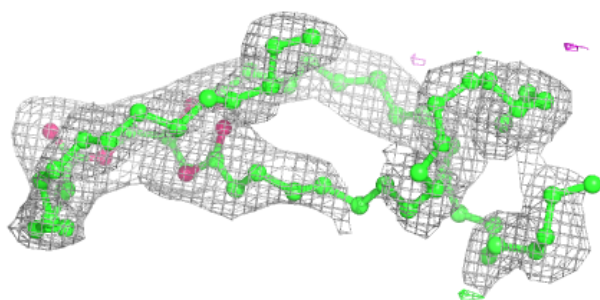
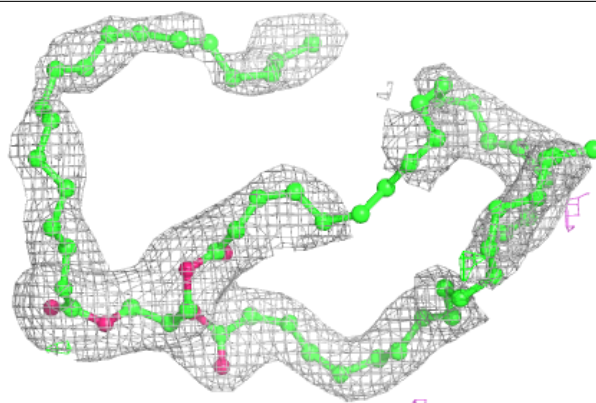
**Electron density around PGV P 306:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

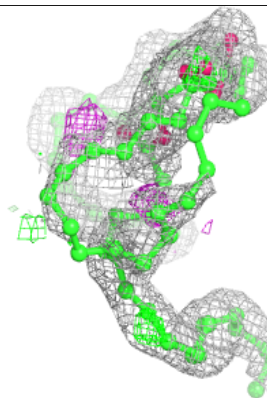
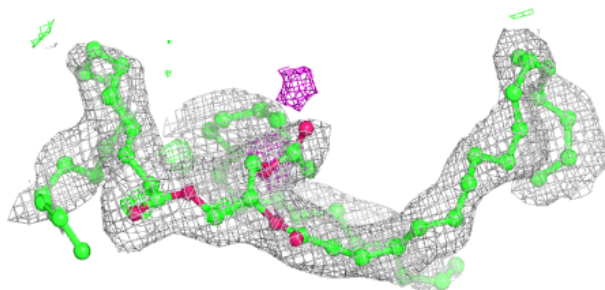
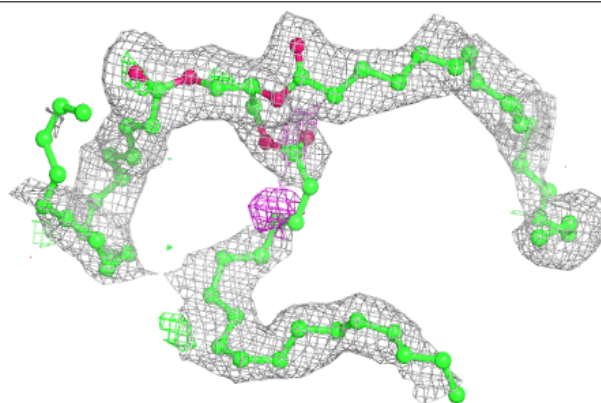


Electron density around TGL O 301:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

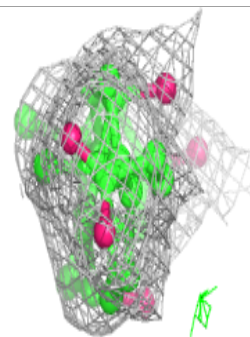
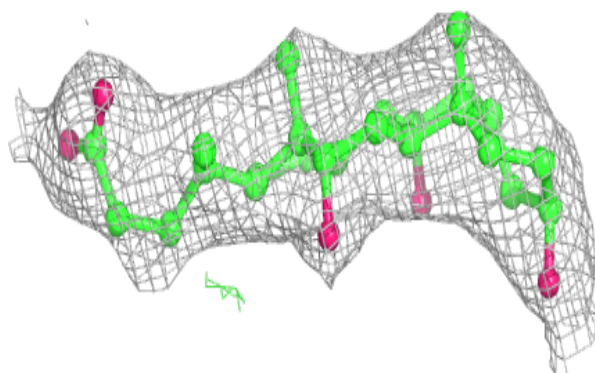
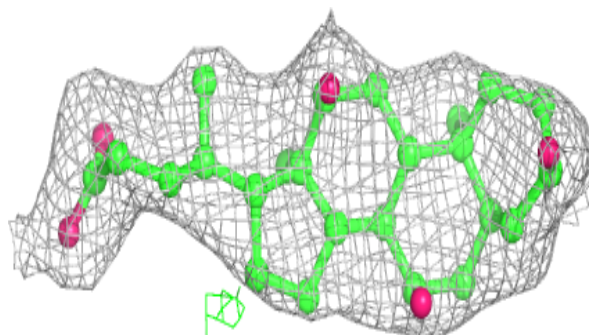
**Electron density around TGL B 302:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

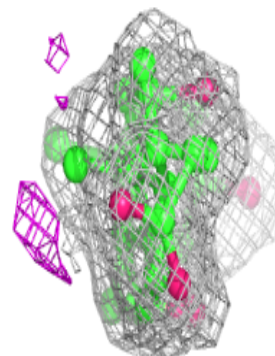
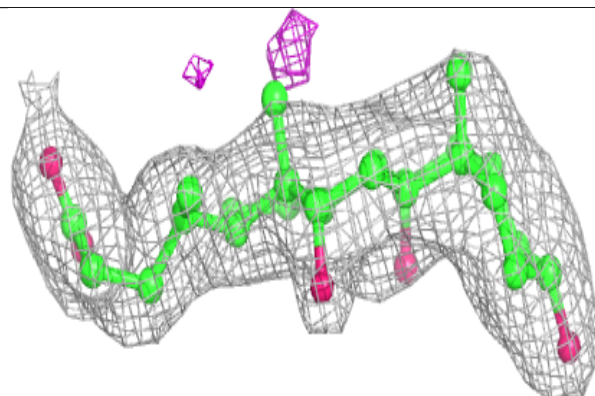
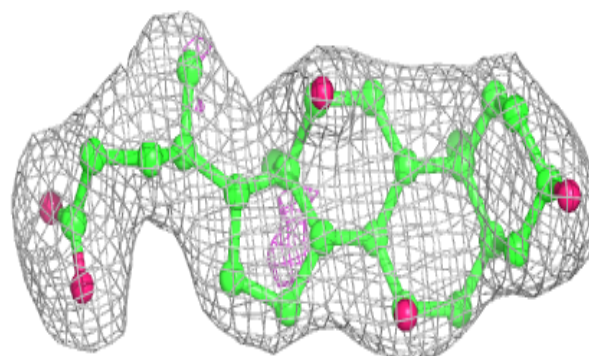


Electron density around CHD P 308:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

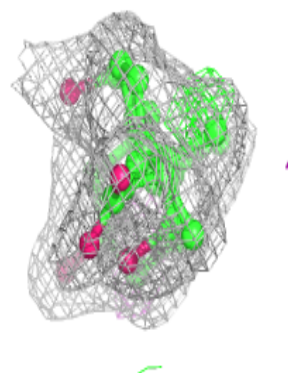
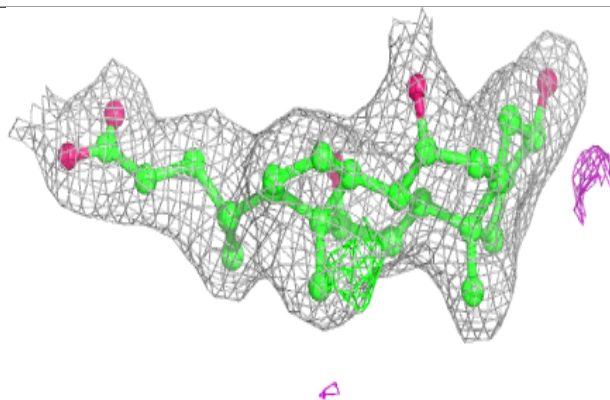
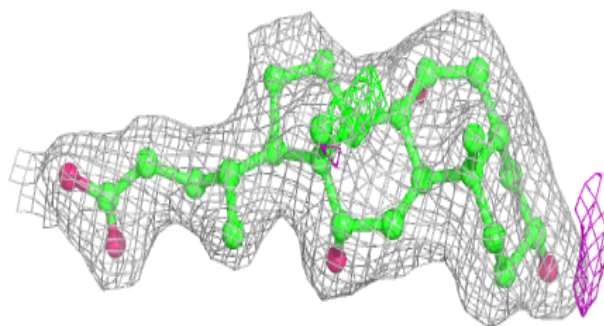
**Electron density around CHD C 307:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

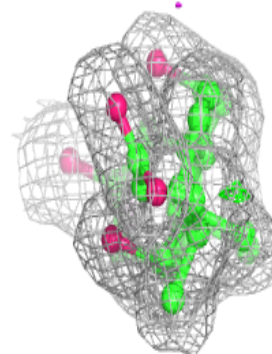
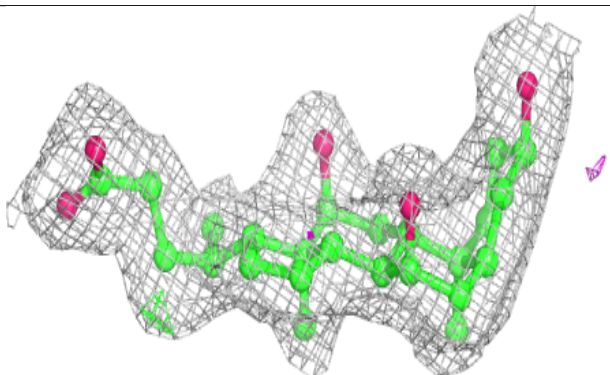
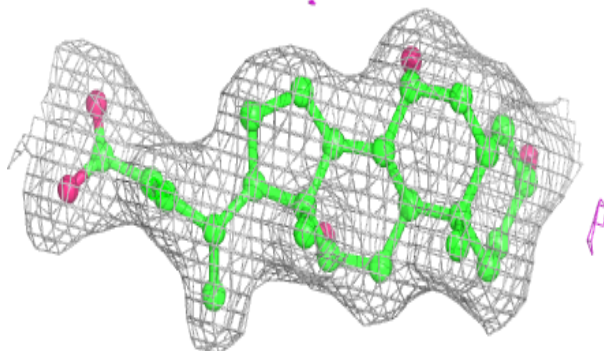


Electron density around CHD P 303:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

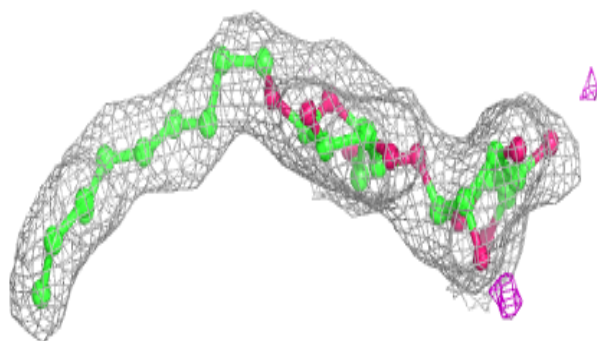
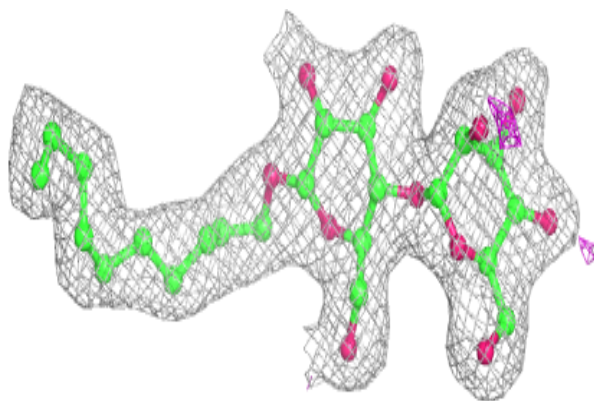
**Electron density around CHD O 303:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

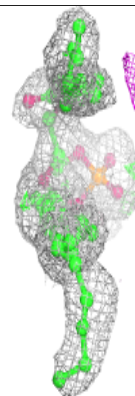
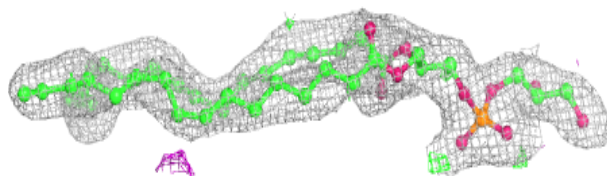
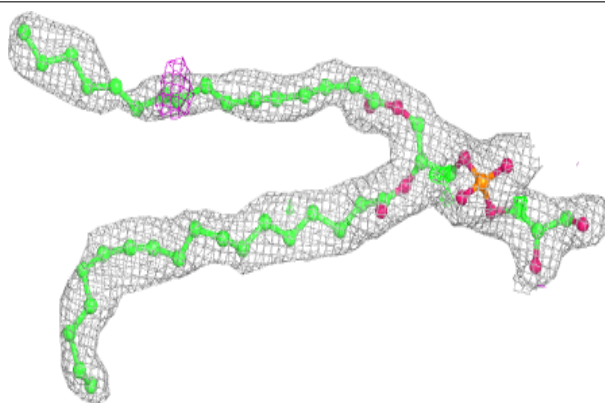


Electron density around DMU M 101:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

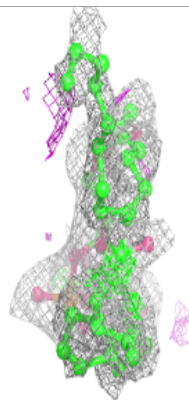
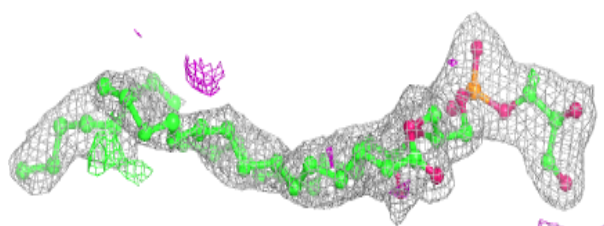
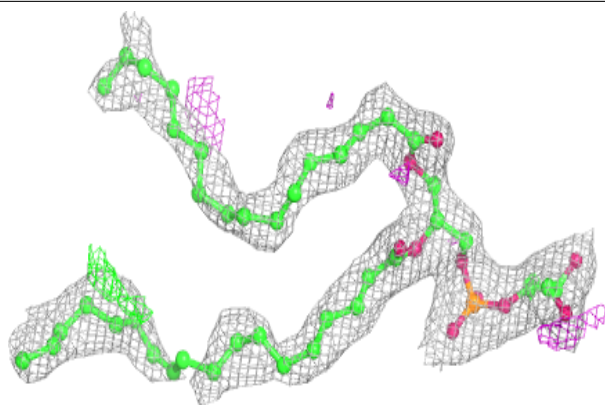
**Electron density around PGV P 305:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

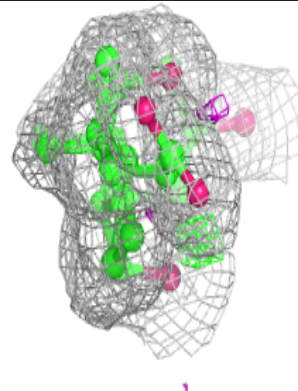
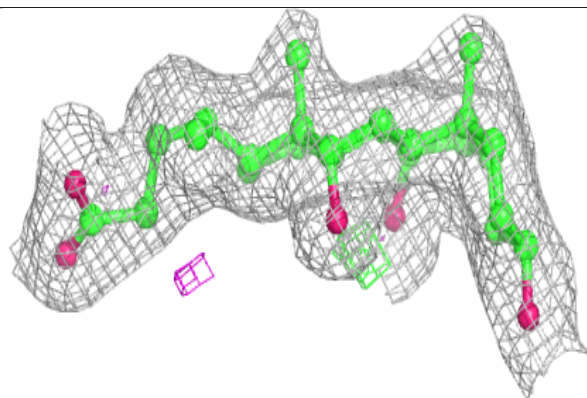
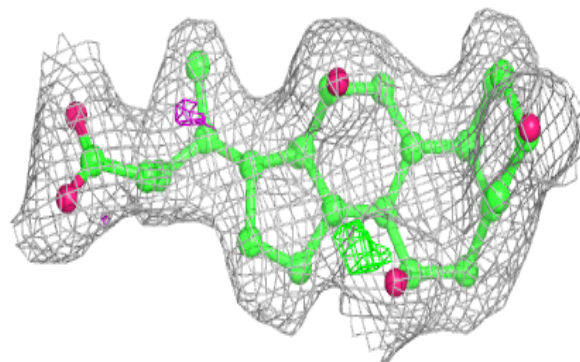


Electron density around PGV N 605:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

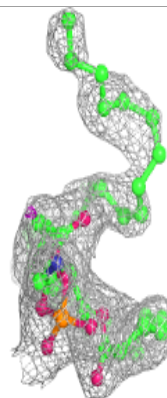
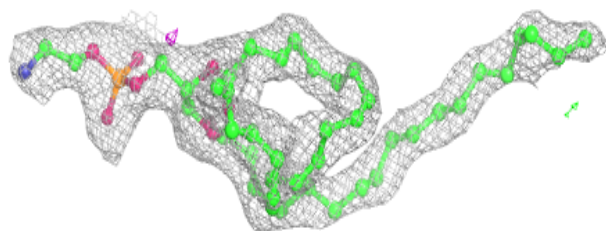
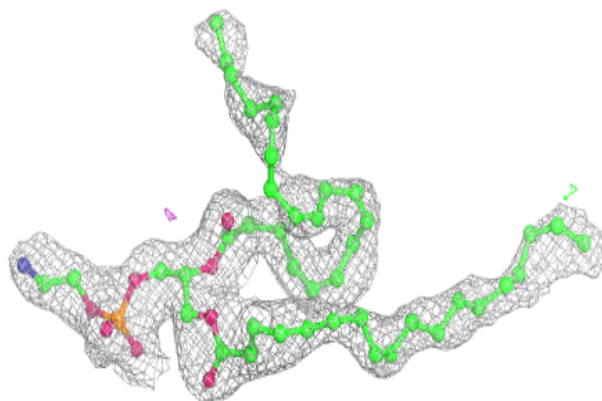
**Electron density around CHD T 101:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

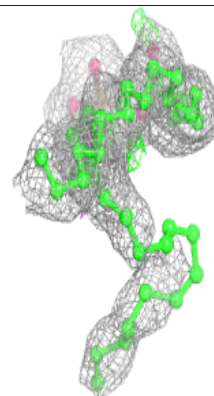
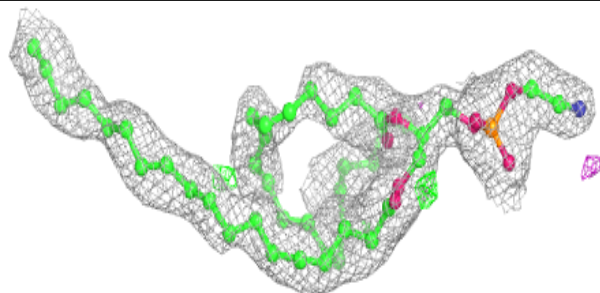
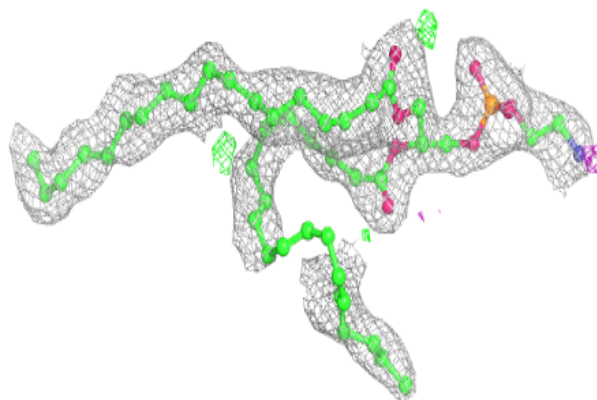


Electron density around PEK P 304:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

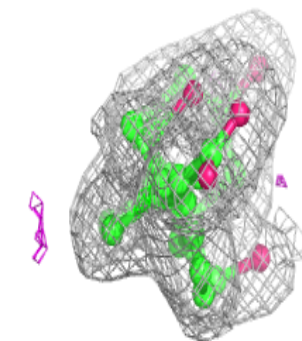
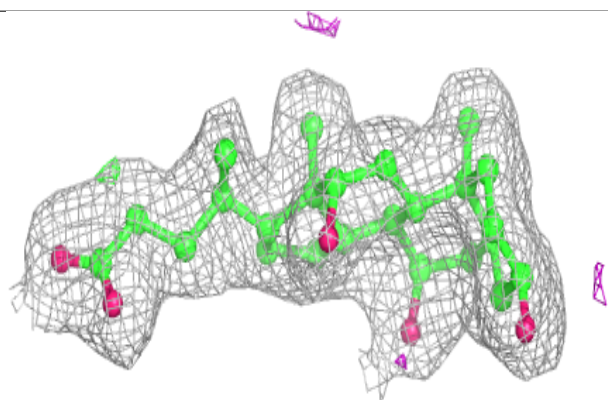
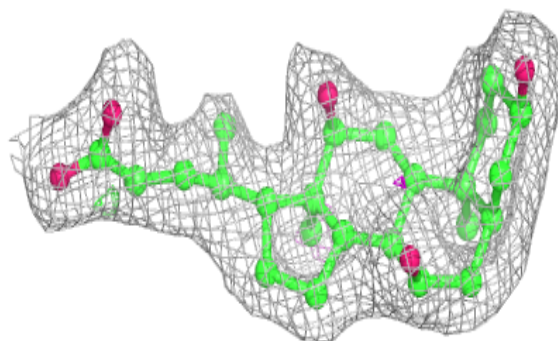
**Electron density around PEK C 303:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

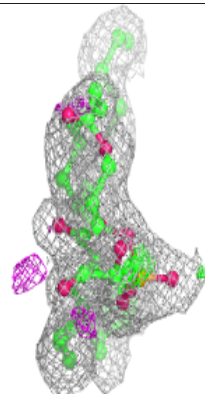
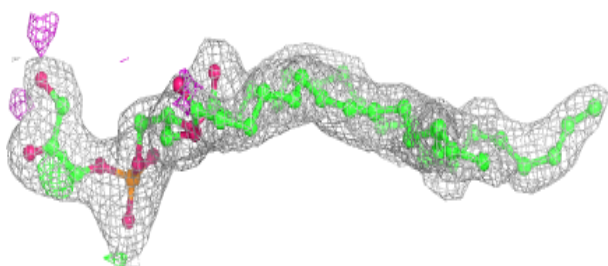
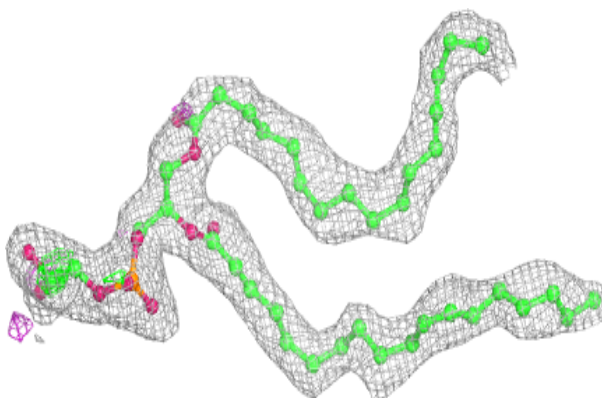


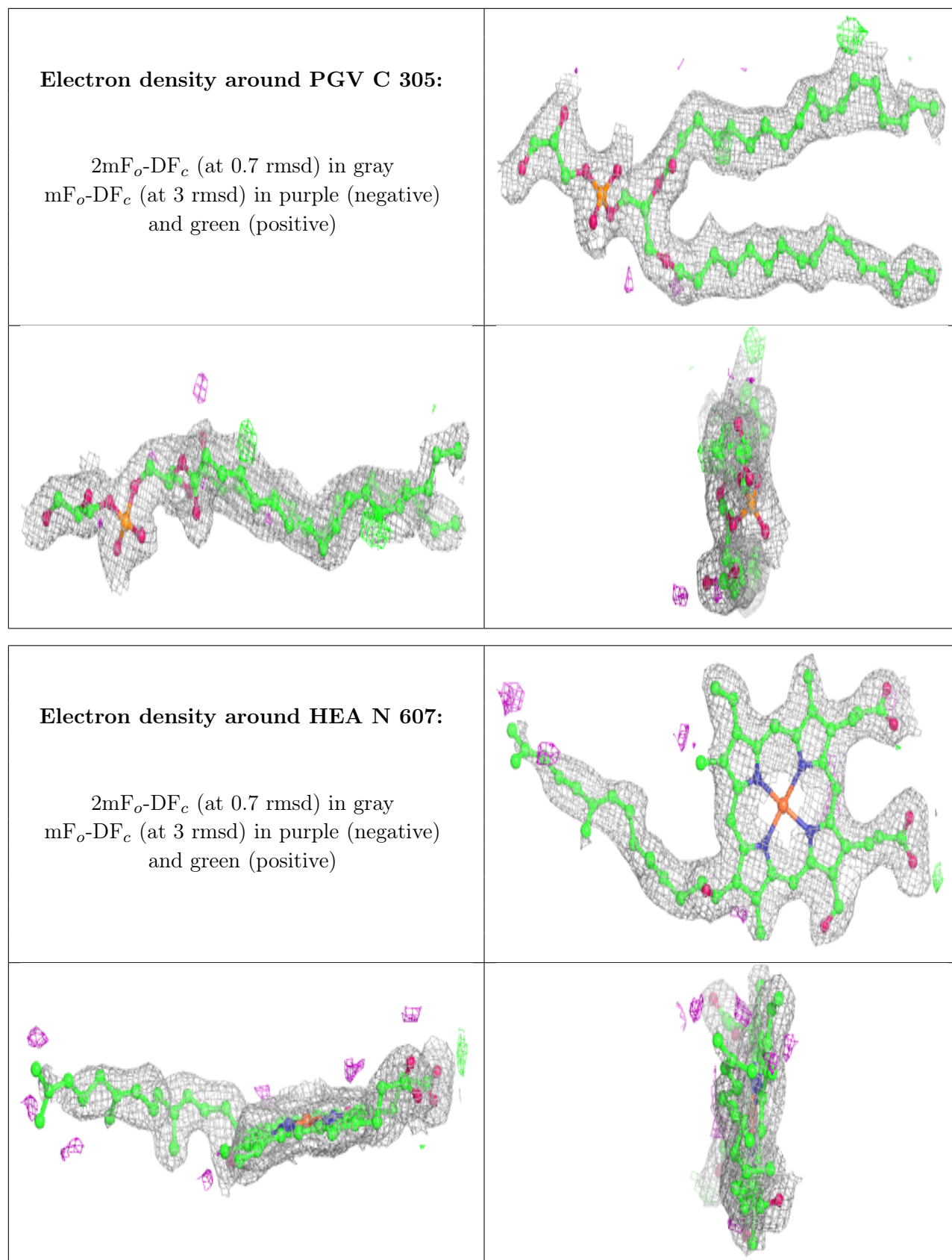
Electron density around CHD C 302:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

**Electron density around PGV C 301:**

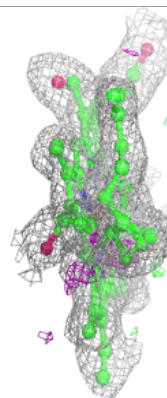
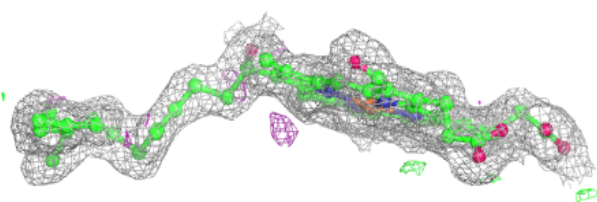
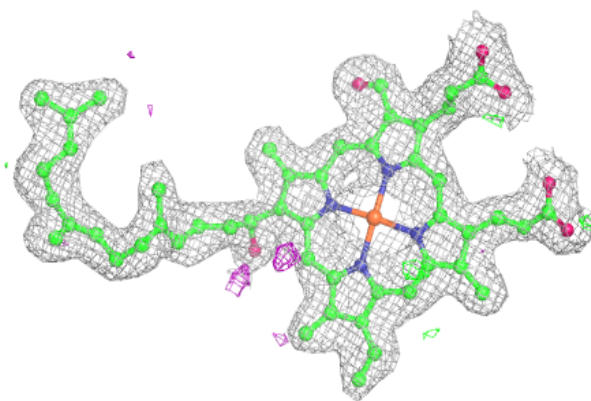
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



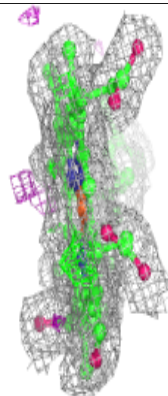
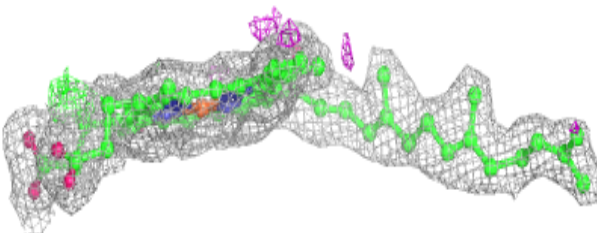
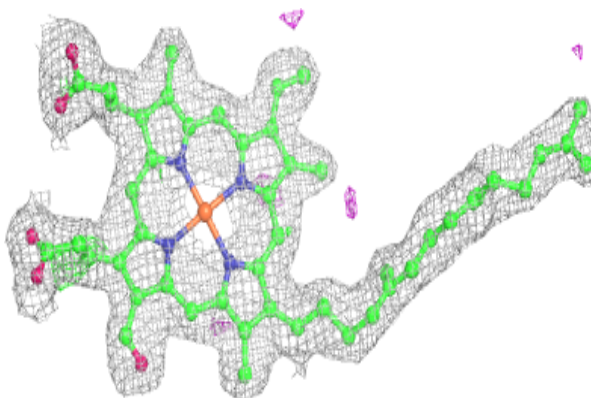


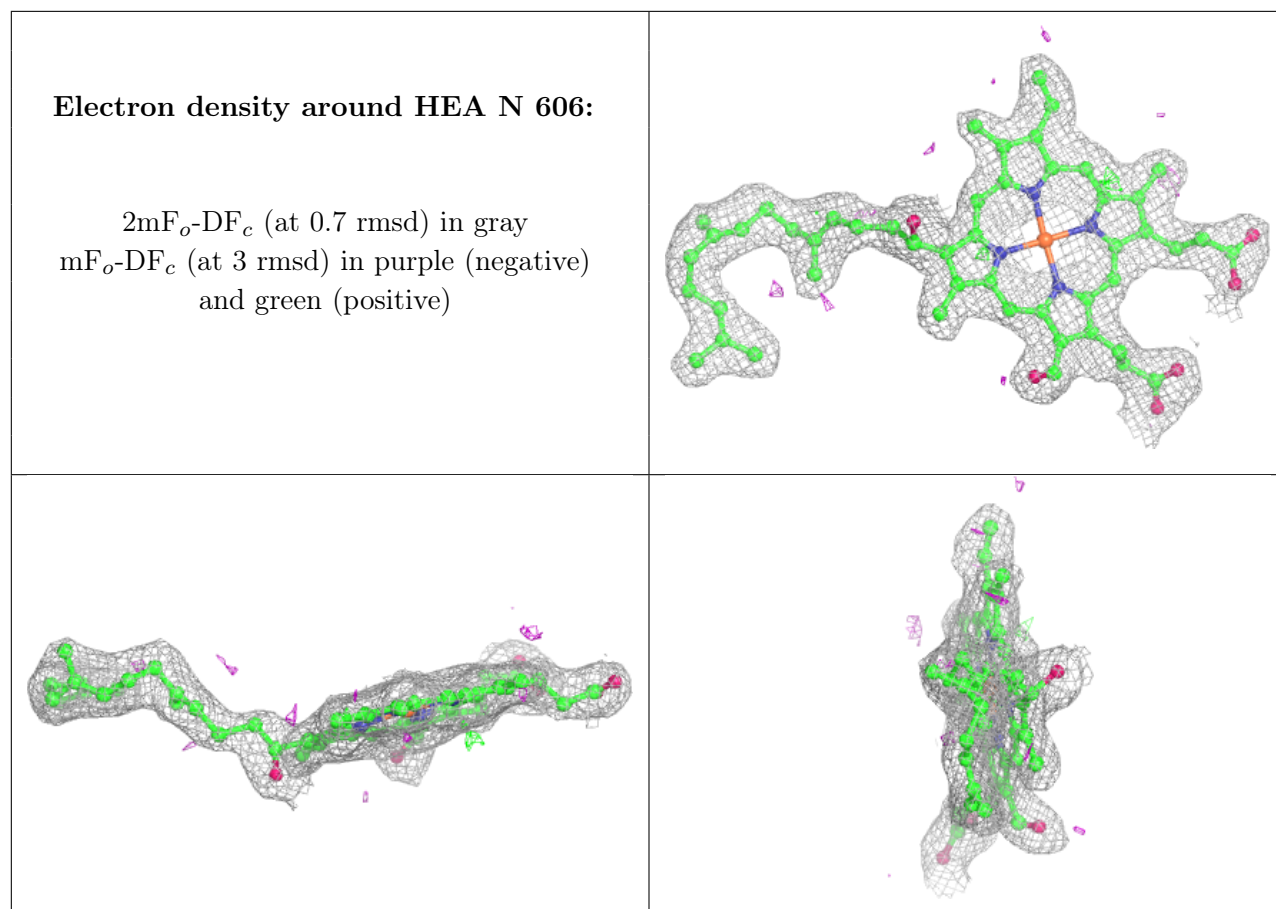
Electron density around HEA A 605:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

**Electron density around HEA A 606:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





6.5 Other polymers [i](#)

There are no such residues in this entry.