



Full wwPDB EM Validation Report ⓘ

Mar 17, 2026 – 02:39 PM UTC

PDB ID : 8IX1 / pdb_00008ix1
EMDB ID : EMD-35786
Title : Cryo-EM structure of protonated LHCII nanodisc at low pH value
Authors : Ruan, M.X.; Ding, W.
Deposited on : 2023-03-31
Resolution : 2.63 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev132
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

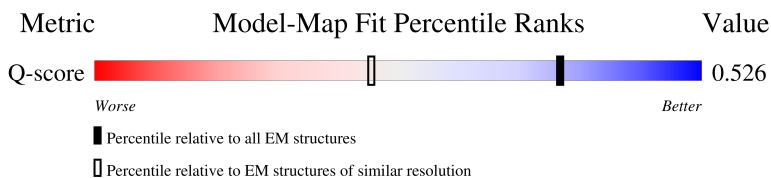
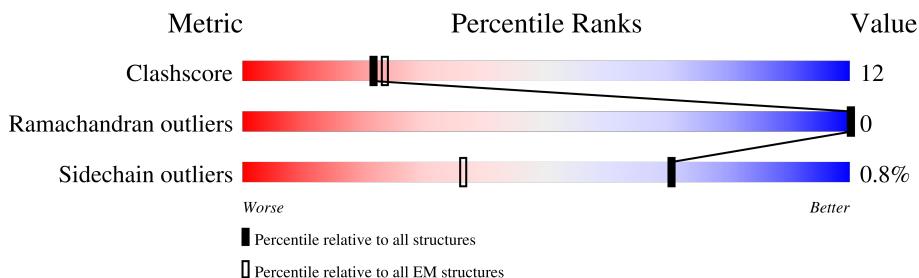
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.63 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	8888 (2.13 - 3.13)

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

Mol	Chain	Length	Quality of chain
1	G	218	
1	N	218	
1	Y	218	

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
2	CHL	G	601	X	-	-	-
2	CHL	G	605	X	-	-	-
2	CHL	G	606	X	-	-	-
2	CHL	G	607	X	-	-	-
2	CHL	G	608	X	-	-	-
2	CHL	G	619	X	-	-	-
2	CHL	N	301	X	-	-	-
2	CHL	N	302	X	-	-	-
2	CHL	N	306	X	-	-	-
2	CHL	N	307	X	-	-	-
2	CHL	N	308	X	-	-	-
2	CHL	N	309	X	-	-	-
2	CHL	N	310	X	-	-	-
2	CHL	Y	601	X	-	-	-
2	CHL	Y	605	X	-	-	-
2	CHL	Y	606	X	-	-	-
2	CHL	Y	607	X	-	-	-
2	CHL	Y	608	X	-	-	-
3	CLA	G	602	X	-	-	-
3	CLA	G	603	X	-	-	-
3	CLA	G	604	X	-	-	-
3	CLA	G	609	X	-	-	-
3	CLA	G	610	X	-	-	-
3	CLA	G	611	X	-	-	-
3	CLA	G	612	X	-	-	-
3	CLA	G	613	X	-	-	-
3	CLA	N	303	X	-	-	-
3	CLA	N	304	X	-	-	-
3	CLA	N	305	X	-	-	-
3	CLA	N	311	X	-	-	-
3	CLA	N	312	X	-	-	-
3	CLA	N	313	X	-	-	-
3	CLA	N	315	X	-	-	-
3	CLA	Y	603	X	-	-	-
3	CLA	Y	604	X	-	-	-
3	CLA	Y	609	X	-	-	-
3	CLA	Y	610	X	-	-	-
3	CLA	Y	611	X	-	-	-
3	CLA	Y	613	X	-	-	-

2 Entry composition [i](#)

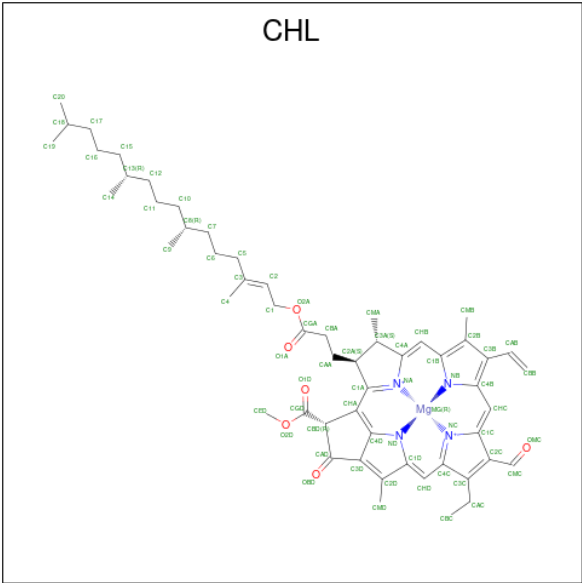
There are 7 unique types of molecules in this entry. The entry contains 7896 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Chlorophyll a-b binding protein, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	G	218	Total	C	N	O	S	0	0
			1661	1079	270	305	7		
1	N	218	Total	C	N	O	S	0	0
			1661	1079	270	305	7		
1	Y	218	Total	C	N	O	S	0	0
			1661	1079	270	305	7		

- Molecule 2 is CHLOROPHYLL B (CCD ID: CHL) (formula: $C_{55}H_{70}MgN_4O_6$) (labeled as "Ligand of Interest" by depositor).



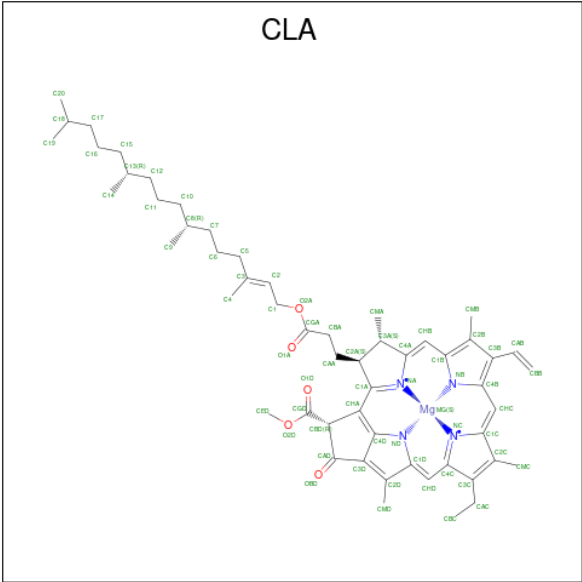
Mol	Chain	Residues	Atoms					AltConf
2	G	1	Total	C	Mg	N	O	0
			51	40	1	4	6	
2	G	1	Total	C	Mg	N	O	0
			48	37	1	4	6	
2	G	1	Total	C	Mg	N	O	0
			50	39	1	4	6	

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Mol	Chain	Residues	Atoms					AltConf
2	G	1	Total	C	Mg	N	O	0
			50	39	1	4	6	
2	G	1	Total	C	Mg	N	O	0
			50	39	1	4	6	
2	G	1	Total	C	Mg	N	O	0
			50	39	1	4	6	
2	N	1	Total	C	Mg	N	O	0
			50	39	1	4	6	
2	N	1	Total	C	Mg	N	O	0
			50	39	1	4	6	
2	N	1	Total	C	Mg	N	O	0
			48	37	1	4	6	
2	N	1	Total	C	Mg	N	O	0
			50	39	1	4	6	
2	N	1	Total	C	Mg	N	O	0
			51	40	1	4	6	
2	N	1	Total	C	Mg	N	O	0
			50	39	1	4	6	
2	N	1	Total	C	Mg	N	O	0
			50	39	1	4	6	
2	Y	1	Total	C	Mg	N	O	0
			49	38	1	4	6	
2	Y	1	Total	C	Mg	N	O	0
			48	37	1	4	6	
2	Y	1	Total	C	Mg	N	O	0
			50	39	1	4	6	
2	Y	1	Total	C	Mg	N	O	0
			50	39	1	4	6	
2	Y	1	Total	C	Mg	N	O	0
			53	42	1	4	6	

- Molecule 3 is CHLOROPHYLL A (CCD ID: CLA) (formula: $C_{55}H_{72}MgN_4O_5$) (labeled as "Ligand of Interest" by depositor).



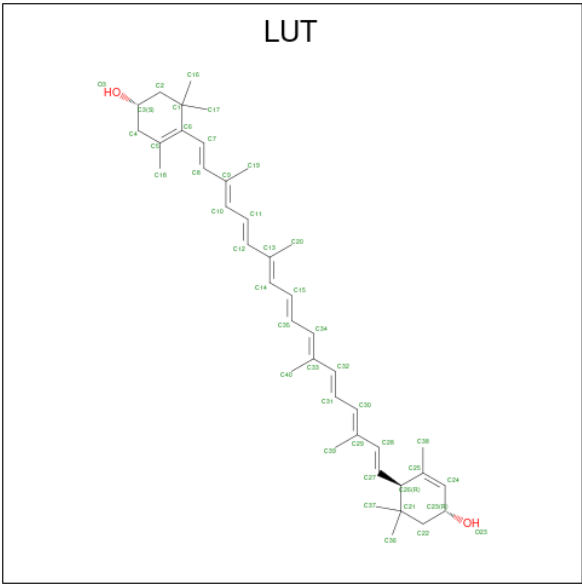
Mol	Chain	Residues	Atoms					AltConf
3	G	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
3	G	1	Total	C	Mg	N	O	0
			49	39	1	4	5	
3	G	1	Total	C	Mg	N	O	0
			49	39	1	4	5	
3	G	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
3	G	1	Total	C	Mg	N	O	0
			49	39	1	4	5	
3	G	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
3	G	1	Total	C	Mg	N	O	0
			49	39	1	4	5	
3	N	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
3	N	1	Total	C	Mg	N	O	0
			49	39	1	4	5	
3	N	1	Total	C	Mg	N	O	0
			49	39	1	4	5	
3	N	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
3	N	1	Total	C	Mg	N	O	0
			49	39	1	4	5	
3	N	1	Total	C	Mg	N	O	0
			65	55	1	4	5	

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Mol	Chain	Residues	Atoms					AltConf
3	N	1	Total	C	Mg	N	O	0
			49	39	1	4	5	
3	N	1	Total	C	Mg	N	O	0
			49	39	1	4	5	
3	Y	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
3	Y	1	Total	C	Mg	N	O	0
			49	39	1	4	5	
3	Y	1	Total	C	Mg	N	O	0
			49	39	1	4	5	
3	Y	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
3	Y	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
3	Y	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
3	Y	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
3	Y	1	Total	C	Mg	N	O	0
			49	39	1	4	5	

- Molecule 4 is (3R,3'R,6S)-4,5-DIDEHYDRO-5,6-DIHYDRO-BETA,BETA-CAROTENE-3, 3'-DIOL (CCD ID: LUT) (formula: C₄₀H₅₆O₂).



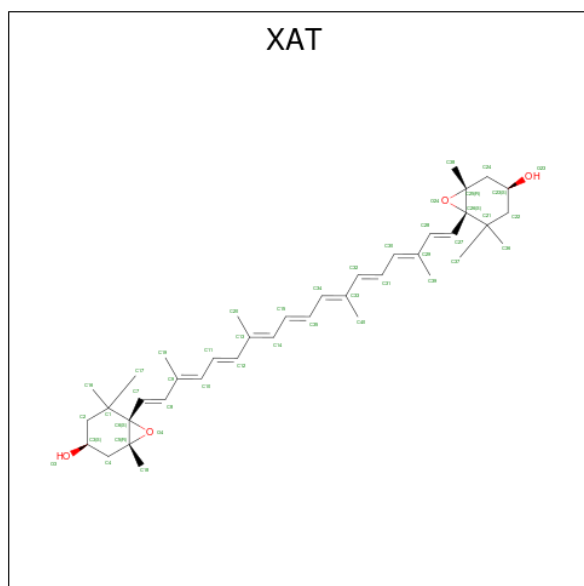
Mol	Chain	Residues	Atoms			AltConf
4	G	1	Total	C	O	0
			42	40	2	

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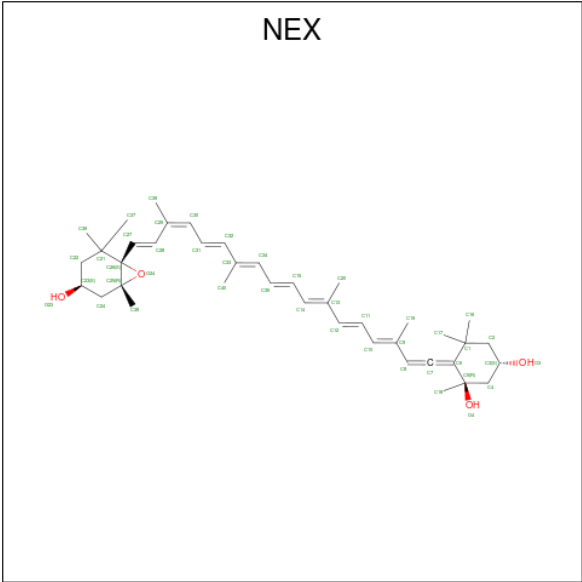
Mol	Chain	Residues	Atoms			AltConf
4	G	1	Total	C	O	0
			42	40	2	
4	N	1	Total	C	O	0
			42	40	2	
4	N	1	Total	C	O	0
			42	40	2	
4	Y	1	Total	C	O	0
			42	40	2	
4	Y	1	Total	C	O	0
			42	40	2	

- Molecule 5 is (3S,5R,6S,3'S,5'R,6'S)-5,6,5',6'-DIEPOXY-5,6,5',6'- TETRAHYDRO-BETA, BETA-CAROTENE-3,3'-DIOL (CCD ID: XAT) (formula: C₄₀H₅₆O₄).



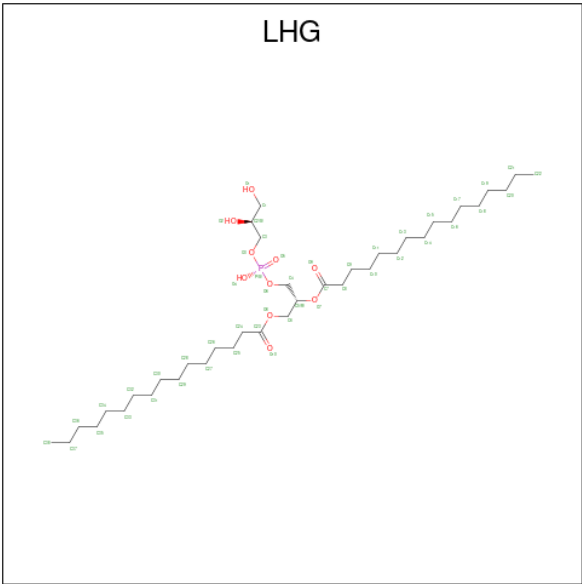
Mol	Chain	Residues	Atoms			AltConf
5	G	1	Total	C	O	0
			44	40	4	
5	N	1	Total	C	O	0
			44	40	4	
5	N	1	Total	C	O	0
			44	40	4	

- Molecule 6 is (1R,3R)-6-{(3E,5E,7E,9E,11E,13E,15E,17E)-18-[(1S,4R,6R)-4-HYDROXY-2,2,6-TRIMETHYL-7-OXABICYCLO[4.1.0]HEPT-1-YL]-3,7,12,16-TETRAMETHYLOCTADECA-1,3,5,7,9,11,13,15,17-NONAENYLIDENE}-1,5,5-TRIMETHYLCYCLOHEXANE-1,3-DIOL (CCD ID: NEX) (formula: C₄₀H₅₆O₄) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			AltConf
6	G	1	Total	C	O	0
			44	40	4	
6	N	1	Total	C	O	0
			44	40	4	
6	Y	1	Total	C	O	0
			44	40	4	

- Molecule 7 is 1,2-DIPALMITOYL-PHOSPHATIDYL-GLYCEROLE (CCD ID: LHG) (formula: C₃₈H₇₅O₁₀P).

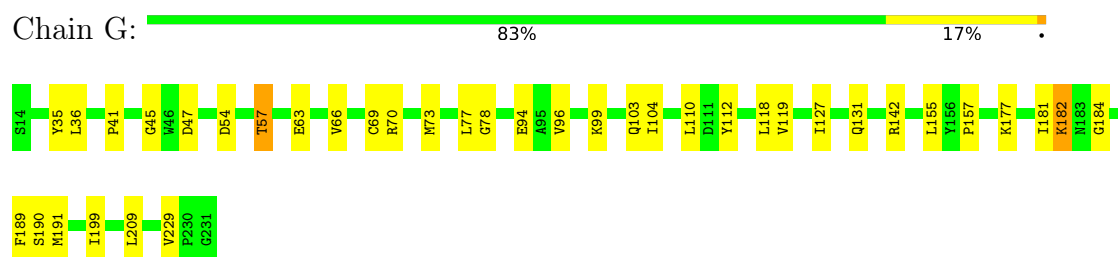


Mol	Chain	Residues	Atoms				AltConf
7	G	1	Total 49	C 38	O 10	P 1	0
7	N	1	Total 49	C 38	O 10	P 1	0
7	Y	1	Total 49	C 38	O 10	P 1	0

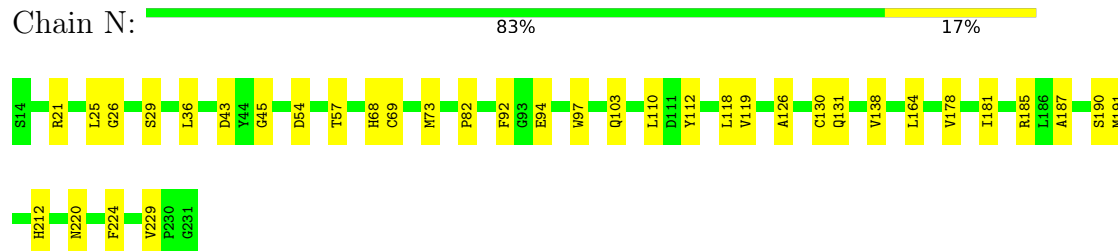
3 Residue-property plots

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

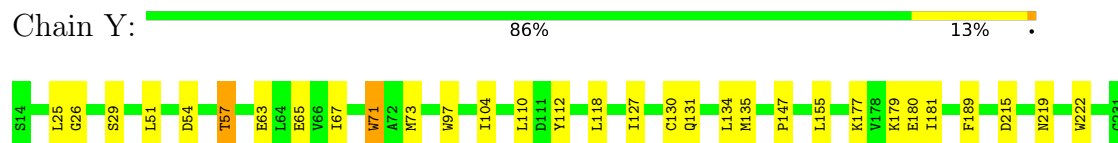
- Molecule 1: Chlorophyll a-b binding protein, chloroplastic



- Molecule 1: Chlorophyll a-b binding protein, chloroplastic



- Molecule 1: Chlorophyll a-b binding protein, chloroplastic



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	860690	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	60	Depositor
Minimum defocus (nm)	1800	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	22500	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.570	Depositor
Minimum map value	-0.196	Depositor
Average map value	0.003	Depositor
Map value standard deviation	0.022	Depositor
Recommended contour level	0.1	Depositor
Map size (Å)	220.0, 220.0, 220.0	wwPDB
Map dimensions	200, 200, 200	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.1, 1.1, 1.1	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: CHL, LHG, NEX, XAT, CLA, LUT

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	G	0.36	0/1713	0.64	0/2333
1	N	0.36	0/1713	0.64	0/2333
1	Y	0.36	0/1713	0.66	0/2333
All	All	0.36	0/5139	0.65	0/6999

There are no bond length outliers.

There are no bond angle outliers.

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	G	1661	0	1591	41	0
1	N	1661	0	1592	28	0
1	Y	1661	0	1592	38	0
2	G	299	0	218	15	0
2	N	349	0	255	8	0
2	Y	250	0	182	14	0
3	G	440	0	411	23	0
3	N	440	0	411	6	0
3	Y	472	0	477	25	0
4	G	84	0	112	12	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	N	84	0	112	11	0
4	Y	84	0	112	12	0
5	G	44	0	56	4	0
5	N	88	0	112	6	0
6	G	44	0	56	4	0
6	N	44	0	56	3	0
6	Y	44	0	56	5	0
7	G	49	0	74	4	0
7	N	49	0	74	1	0
7	Y	49	0	74	2	0
All	All	7896	0	7623	182	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 12.

All (182) 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:Y:54:ASP:HB2	1:Y:57:THR:CG2	1.51	1.39
1:G:54:ASP:HB2	1:G:57:THR:CG2	1.67	1.22
1:Y:54:ASP:HB2	1:Y:57:THR:HG21	1.38	1.04
1:Y:54:ASP:CB	1:Y:57:THR:CG2	2.40	0.99
3:Y:610:CLA:H122	3:Y:611:CLA:HBB1	1.46	0.97
1:Y:135:MET:HE3	2:Y:606:CHL:HMB3	1.49	0.95
1:Y:54:ASP:HB2	1:Y:57:THR:HG23	1.50	0.91
3:Y:609:CLA:H52	4:Y:614:LUT:H30	1.52	0.90
1:G:54:ASP:HB2	1:G:57:THR:HG23	1.50	0.90
1:G:127:ILE:O	1:G:131:GLN:HB2	1.76	0.86
1:Y:54:ASP:HB2	1:Y:57:THR:HG22	1.61	0.82
1:G:54:ASP:HB2	1:G:57:THR:HG21	1.67	0.76
1:Y:135:MET:HE3	2:Y:606:CHL:CMB	2.16	0.75
1:N:164:LEU:HD12	4:N:316:LUT:H222	1.70	0.73
1:G:54:ASP:HB2	1:G:57:THR:HG22	1.71	0.72
3:Y:612:CLA:C2B	4:Y:614:LUT:H183	2.20	0.71
3:Y:612:CLA:HMA3	4:Y:614:LUT:O3	1.91	0.69
1:Y:134:LEU:HD13	2:Y:606:CHL:H12	1.76	0.68
1:N:112:TYR:HB2	1:N:119:VAL:HG22	1.76	0.67
1:N:220:ASN:OD1	1:N:224:PHE:HB2	1.93	0.67
2:G:601:CHL:H42	7:G:618:LHG:H171	1.77	0.67
3:G:609:CLA:HAB	4:G:614:LUT:H32	1.77	0.66
1:N:94:GLU:HB2	1:N:103:GLN:HB2	1.78	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:N:187:ALA:O	1:N:191:MET:HG2	1.95	0.66
1:G:131:GLN:HE21	2:G:606:CHL:C4A	2.11	0.64
1:Y:54:ASP:CB	1:Y:57:THR:HG23	2.18	0.63
1:N:126:ALA:HB3	2:N:306:CHL:HMC	1.81	0.63
2:N:301:CHL:HAA2	5:N:321:XAT:H41	1.80	0.63
7:G:618:LHG:H281	7:G:618:LHG:HC91	1.81	0.62
1:Y:135:MET:CE	2:Y:606:CHL:HHB	2.30	0.62
1:Y:147:PRO:HG3	6:Y:616:NEX:H182	1.82	0.61
5:N:318:XAT:H393	7:Y:617:LHG:H101	1.81	0.61
3:G:609:CLA:H2	4:G:614:LUT:H28	1.81	0.60
1:Y:127:ILE:CD1	2:Y:605:CHL:HAC1	2.30	0.60
1:G:41:PRO:HG2	1:G:177:LYS:HD2	1.82	0.60
1:Y:179:LYS:HE2	3:Y:610:CLA:HED1	1.83	0.60
1:Y:135:MET:HE2	2:Y:606:CHL:HHB	1.84	0.59
3:N:311:CLA:H52	4:N:316:LUT:H30	1.85	0.59
1:G:94:GLU:HB2	1:G:103:GLN:HB2	1.84	0.58
1:G:77:LEU:HD22	3:G:609:CLA:H142	1.84	0.57
3:G:611:CLA:HMB3	3:G:611:CLA:H151	1.86	0.57
1:Y:71:TRP:HZ2	6:Y:616:NEX:H391	1.69	0.57
3:G:609:CLA:H122	4:G:614:LUT:H403	1.85	0.57
1:G:157:PRO:HB3	2:G:607:CHL:HBC2	1.86	0.57
1:G:54:ASP:CB	1:G:57:THR:HG23	2.30	0.56
1:N:164:LEU:HD12	4:N:316:LUT:C22	2.34	0.56
1:Y:51:LEU:HD12	3:Y:602:CLA:H11	1.88	0.56
1:Y:54:ASP:CB	1:Y:57:THR:HG22	2.28	0.56
3:G:609:CLA:H2A	3:G:609:CLA:O2D	2.06	0.56
1:G:73:MET:HB2	4:G:614:LUT:C35	2.35	0.56
3:G:602:CLA:H2	4:G:615:LUT:H26	1.88	0.56
1:Y:215:ASP:O	1:Y:219:ASN:ND2	2.39	0.55
3:Y:602:CLA:HAB	4:Y:615:LUT:H30	1.87	0.55
3:Y:610:CLA:HED3	3:Y:610:CLA:HAA1	1.88	0.54
1:G:104:ILE:HB	1:G:110:LEU:HD13	1.90	0.54
1:N:212:HIS:HD1	3:N:314:CLA:HAA2	1.72	0.54
3:Y:609:CLA:H2	4:Y:614:LUT:H28	1.88	0.54
2:G:607:CHL:H11	3:G:609:CLA:HMD2	1.89	0.54
1:G:73:MET:HB2	4:G:614:LUT:C34	2.38	0.53
1:G:110:LEU:HD21	3:G:604:CLA:HAA1	1.90	0.53
1:G:199:ILE:HG22	2:N:301:CHL:H42	1.91	0.53
3:G:604:CLA:H42	6:G:617:NEX:O24	2.09	0.53
1:N:181:ILE:O	1:N:185:ARG:HG3	2.09	0.52
1:G:112:TYR:HB2	1:G:119:VAL:HG22	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:N:26:GLY:O	1:N:29:SER:HB3	2.09	0.52
1:G:63:GLU:HA	1:G:155:LEU:HD11	1.92	0.52
3:G:612:CLA:H2A	3:G:612:CLA:HED3	1.92	0.52
1:G:70:ARG:HD2	3:G:609:CLA:C4C	2.40	0.52
1:Y:189:PHE:HE2	3:Y:612:CLA:H93	1.75	0.52
1:Y:63:GLU:HA	1:Y:155:LEU:HD11	1.92	0.52
1:G:209:LEU:HD13	4:G:614:LUT:H163	1.92	0.51
1:Y:54:ASP:O	1:Y:57:THR:HG23	2.10	0.51
1:N:69:CYS:O	1:N:73:MET:HG3	2.11	0.51
1:G:190:SER:HA	3:G:612:CLA:HBB1	1.91	0.50
3:N:313:CLA:HBB1	4:N:316:LUT:C14	2.41	0.50
1:G:96:VAL:HB	1:G:99:LYS:HB2	1.94	0.50
1:G:142:ARG:HA	2:G:607:CHL:C2C	2.41	0.50
1:Y:135:MET:HE1	6:Y:616:NEX:H30	1.94	0.50
1:Y:127:ILE:HD13	2:Y:605:CHL:HAC1	1.94	0.49
1:Y:26:GLY:O	1:Y:29:SER:HB3	2.12	0.49
1:N:164:LEU:CD1	4:N:316:LUT:H222	2.40	0.49
1:G:182:LYS:HB3	3:G:610:CLA:HMD1	1.95	0.49
2:G:608:CHL:H43	2:N:302:CHL:H11	1.95	0.48
1:N:21:ARG:NH1	1:N:43:ASP:O	2.45	0.48
2:N:302:CHL:HHC	2:N:302:CHL:HBB1	1.95	0.48
1:N:112:TYR:HB3	1:N:118:LEU:HD13	1.94	0.48
3:N:312:CLA:H3A	3:N:312:CLA:O1A	2.13	0.47
3:G:602:CLA:H92	3:G:603:CLA:HBB	1.96	0.47
3:N:311:CLA:H141	3:N:311:CLA:H162	1.57	0.47
1:Y:65:GLU:OE1	3:Y:602:CLA:NB	2.47	0.47
6:N:319:NEX:H191	6:N:319:NEX:H11	1.68	0.47
1:G:35:TYR:OH	1:G:47:ASP:OD2	2.30	0.47
1:G:36:LEU:HD12	1:G:45:GLY:HA2	1.96	0.47
1:G:229:VAL:HG11	2:G:619:CHL:HBD	1.96	0.47
1:G:54:ASP:O	1:G:57:THR:HG23	2.14	0.47
1:G:191:MET:HE2	4:G:615:LUT:H10	1.97	0.47
5:N:318:XAT:H15	5:N:318:XAT:H201	1.74	0.47
3:Y:609:CLA:CBB	4:Y:614:LUT:H32	2.44	0.47
1:Y:130:CYS:SG	1:Y:131:GLN:N	2.88	0.47
1:N:54:ASP:HB2	1:N:57:THR:HG23	1.97	0.46
1:G:104:ILE:HG21	2:G:606:CHL:HBC1	1.96	0.46
1:G:131:GLN:HG2	2:G:606:CHL:HMA3	1.96	0.46
1:N:97:TRP:HZ3	4:N:317:LUT:H173	1.81	0.46
1:Y:25:LEU:HB2	1:Y:29:SER:HA	1.97	0.46
1:Y:104:ILE:HB	1:Y:110:LEU:HD13	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:G:602:CLA:H93	3:G:602:CLA:H111	1.84	0.46
3:Y:610:CLA:H2	3:Y:611:CLA:C2D	2.46	0.46
3:Y:610:CLA:H92	3:Y:610:CLA:H61	1.71	0.46
7:N:320:LHG:H111	7:N:320:LHG:H281	1.97	0.45
2:Y:605:CHL:CHA	2:Y:605:CHL:HBA1	2.46	0.45
3:Y:612:CLA:H111	3:Y:612:CLA:H152	1.70	0.45
1:N:190:SER:HB3	4:N:316:LUT:H182	1.98	0.45
2:G:601:CHL:HMA1	5:G:616:XAT:H403	1.99	0.45
3:G:609:CLA:H52	4:G:614:LUT:H30	1.99	0.45
1:Y:73:MET:SD	3:Y:609:CLA:HAB	2.57	0.45
3:Y:612:CLA:CMB	4:Y:614:LUT:H183	2.46	0.45
2:G:605:CHL:HBB1	2:G:605:CHL:HHC	1.99	0.45
1:N:229:VAL:HG11	2:N:301:CHL:HBD	1.99	0.45
3:Y:602:CLA:H2	4:Y:615:LUT:H26	1.98	0.45
5:G:616:XAT:H12	7:G:618:LHG:H211	1.98	0.45
1:G:131:GLN:HE21	2:G:606:CHL:CHB	2.29	0.45
1:N:36:LEU:HD12	1:N:45:GLY:HA2	1.99	0.45
1:N:178:VAL:HA	1:N:181:ILE:HG22	1.99	0.44
5:G:616:XAT:H201	5:G:616:XAT:H15	1.65	0.44
1:Y:181:ILE:HD12	1:Y:181:ILE:HA	1.87	0.44
1:Y:222:TRP:HE1	3:Y:613:CLA:HED2	1.83	0.44
1:G:112:TYR:HB3	1:G:118:LEU:HD23	1.98	0.44
1:G:131:GLN:NE2	2:G:606:CHL:CHB	2.80	0.44
2:G:619:CHL:HHB	2:Y:606:CHL:HBC2	1.99	0.44
1:N:68:HIS:HD2	2:N:310:CHL:HMD1	1.82	0.44
4:Y:614:LUT:H31	4:Y:614:LUT:H391	1.85	0.44
3:Y:610:CLA:H171	3:Y:610:CLA:H13	1.47	0.44
1:N:97:TRP:H	1:N:97:TRP:CD1	2.36	0.44
4:N:316:LUT:H31	4:N:316:LUT:H391	1.85	0.44
5:N:321:XAT:H31	5:N:321:XAT:H391	1.81	0.44
2:Y:606:CHL:HMB1	2:Y:608:CHL:HAC1	2.00	0.43
1:G:127:ILE:HD13	1:G:127:ILE:HA	1.76	0.43
4:Y:615:LUT:H15	4:Y:615:LUT:H201	1.88	0.43
1:N:25:LEU:HB2	1:N:29:SER:HA	2.00	0.43
6:Y:616:NEX:H191	6:Y:616:NEX:H11	1.72	0.43
1:G:78:GLY:HA3	3:G:604:CLA:C1C	2.48	0.43
3:G:609:CLA:H62	3:G:609:CLA:H41	1.84	0.43
6:G:617:NEX:H191	6:G:617:NEX:H11	1.67	0.43
3:Y:609:CLA:HBA1	4:Y:614:LUT:H382	2.00	0.43
1:Y:135:MET:CE	2:Y:606:CHL:HMB3	2.34	0.43
5:G:616:XAT:H11	5:G:616:XAT:H191	1.89	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:181:ILE:HD12	1:G:181:ILE:HA	1.91	0.42
1:N:97:TRP:CZ3	4:N:317:LUT:H173	2.54	0.42
4:N:317:LUT:H15	4:N:317:LUT:H201	1.74	0.42
2:Y:606:CHL:HAA1	6:Y:616:NEX:C28	2.48	0.42
1:G:66:VAL:O	1:G:70:ARG:HB2	2.19	0.42
1:G:78:GLY:HA3	3:G:604:CLA:C2C	2.49	0.42
5:N:318:XAT:H35	5:N:318:XAT:H401	1.94	0.42
3:G:609:CLA:H61	3:G:611:CLA:H91	2.00	0.42
7:Y:617:LHG:H242	7:Y:617:LHG:H272	1.71	0.42
3:N:305:CLA:C1C	6:N:319:NEX:H222	2.50	0.42
1:Y:54:ASP:C	1:Y:57:THR:HG23	2.45	0.42
3:Y:610:CLA:HBA2	3:Y:611:CLA:HMD3	2.02	0.42
1:N:103:GLN:HG2	1:N:110:LEU:HA	2.02	0.42
4:G:615:LUT:H35	4:G:615:LUT:H401	1.83	0.42
2:Y:607:CHL:HBB1	2:Y:607:CHL:HHC	2.02	0.42
1:G:69:CYS:HB3	1:G:184:GLY:HA3	2.02	0.41
6:G:617:NEX:H35	6:G:617:NEX:H401	1.82	0.41
1:G:189:PHE:HZ	7:G:618:LHG:H141	1.85	0.41
3:G:609:CLA:H121	3:G:611:CLA:H203	2.03	0.41
1:N:138:VAL:HG23	6:N:319:NEX:H201	2.01	0.41
1:N:82:PRO:HB3	1:N:92:PHE:HE2	1.85	0.41
1:N:130:CYS:SG	1:N:131:GLN:N	2.93	0.41
3:Y:609:CLA:H141	3:Y:609:CLA:H161	1.84	0.41
1:Y:67:ILE:HD13	1:Y:67:ILE:HA	1.94	0.41
1:Y:127:ILE:HD11	2:Y:605:CHL:HAC1	2.01	0.41
5:N:318:XAT:H11	5:N:318:XAT:H191	1.85	0.41
1:Y:97:TRP:CD1	1:Y:97:TRP:H	2.38	0.41
1:Y:177:LYS:HA	1:Y:180:GLU:HG2	2.03	0.41
4:G:614:LUT:H31	4:G:614:LUT:H391	1.85	0.41
1:Y:112:TYR:HB3	1:Y:118:LEU:HD23	2.03	0.41
3:Y:610:CLA:H152	3:Y:611:CLA:CBB	2.51	0.40
4:N:317:LUT:H35	4:N:317:LUT:H401	1.83	0.40
3:Y:602:CLA:H52	4:Y:615:LUT:H28	2.04	0.40
3:G:602:CLA:HBA1	4:G:615:LUT:H382	2.03	0.40
2:G:606:CHL:HMC	2:N:301:CHL:CHD	2.51	0.40
6:G:617:NEX:H201	6:G:617:NEX:H15	1.74	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	G	216/218 (99%)	208 (96%)	8 (4%)	0	100	100
1	N	216/218 (99%)	205 (95%)	11 (5%)	0	100	100
1	Y	216/218 (99%)	207 (96%)	9 (4%)	0	100	100
All	All	648/654 (99%)	620 (96%)	28 (4%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	G	168/168 (100%)	166 (99%)	2 (1%)	63	78
1	N	168/168 (100%)	168 (100%)	0	100	100
1	Y	168/168 (100%)	166 (99%)	2 (1%)	63	78
All	All	504/504 (100%)	500 (99%)	4 (1%)	70	84

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	G	57	THR
1	G	182	LYS
1	Y	57	THR
1	Y	71	TRP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
1	G	131	GLN
1	N	88	ASN
1	N	120	HIS
1	N	197	GLN
1	N	208	ASN
1	Y	61	ASN
1	Y	68	HIS
1	Y	197	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

57 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
4	LUT	G	614	-	42,43,43	1.34	4 (9%)	51,60,60	1.40	9 (17%)
3	CLA	G	609	1	69,73,73	1.16	8 (11%)	82,113,113	1.33	8 (9%)
6	NEX	G	617	-	40,46,46	1.22	3 (7%)	50,70,70	2.87	16 (32%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	CLA	N	311	-	69,73,73	1.16	7 (10%)	82,113,113	1.10	5 (6%)
3	CLA	Y	603	-	53,57,73	1.34	7 (13%)	61,93,113	1.45	5 (8%)
3	CLA	G	612	-	53,57,73	1.32	8 (15%)	61,93,113	1.27	5 (8%)
7	LHG	Y	617	3	48,48,48	0.88	2 (4%)	51,54,54	1.04	1 (1%)
2	CHL	N	310	-	44,58,74	2.65	10 (22%)	37,94,114	1.80	14 (37%)
3	CLA	G	603	-	53,57,73	1.34	7 (13%)	61,93,113	1.47	7 (11%)
2	CHL	G	601	-	45,59,74	2.61	9 (20%)	40,96,114	1.69	13 (32%)
6	NEX	N	319	-	40,46,46	1.03	3 (7%)	50,70,70	2.29	16 (32%)
7	LHG	G	618	-	48,48,48	0.93	2 (4%)	51,54,54	0.94	2 (3%)
3	CLA	N	303	1	69,73,73	1.19	8 (11%)	82,113,113	1.11	5 (6%)
3	CLA	Y	612	-	69,73,73	1.19	8 (11%)	82,113,113	1.16	6 (7%)
3	CLA	Y	613	-	53,57,73	1.34	5 (9%)	61,93,113	1.39	9 (14%)
4	LUT	N	317	-	42,43,43	0.92	1 (2%)	51,60,60	2.13	14 (27%)
2	CHL	Y	605	-	42,56,74	2.62	13 (30%)	36,92,114	1.83	11 (30%)
3	CLA	N	313	1	69,73,73	1.17	8 (11%)	82,113,113	1.14	6 (7%)
3	CLA	G	613	-	53,57,73	1.37	8 (15%)	61,93,113	1.17	5 (8%)
3	CLA	Y	604	-	53,57,73	1.33	8 (15%)	61,93,113	1.34	7 (11%)
2	CHL	G	605	1	42,56,74	2.75	11 (26%)	36,92,114	2.09	12 (33%)
3	CLA	Y	611	-	69,73,73	1.30	9 (13%)	82,113,113	1.13	5 (6%)
6	NEX	Y	616	-	40,46,46	0.97	2 (5%)	50,70,70	2.41	15 (30%)
2	CHL	Y	601	-	43,57,74	2.69	9 (20%)	37,93,114	1.81	12 (32%)
3	CLA	G	610	-	53,57,73	1.29	8 (15%)	61,93,113	1.43	7 (11%)
3	CLA	N	304	-	53,57,73	1.35	7 (13%)	61,93,113	1.39	5 (8%)
5	XAT	G	616	-	41,47,47	0.98	2 (4%)	54,74,74	2.60	19 (35%)
4	LUT	Y	614	-	42,43,43	1.34	4 (9%)	51,60,60	1.39	8 (15%)
4	LUT	N	316	-	42,43,43	1.34	4 (9%)	51,60,60	1.39	8 (15%)
3	CLA	G	604	-	53,57,73	1.32	8 (15%)	61,93,113	1.30	5 (8%)
2	CHL	G	606	-	44,58,74	2.56	12 (27%)	37,94,114	1.90	15 (40%)
4	LUT	Y	615	-	42,43,43	0.74	0	51,60,60	1.70	16 (31%)
2	CHL	N	302	-	44,58,74	2.75	9 (20%)	37,94,114	1.74	12 (32%)
3	CLA	N	312	7	53,57,73	1.32	6 (11%)	61,93,113	1.37	5 (8%)
2	CHL	N	307	-	44,58,74	2.67	10 (22%)	37,94,114	1.99	12 (32%)
2	CHL	N	308	-	45,59,74	2.67	10 (22%)	40,96,114	1.78	12 (30%)
2	CHL	Y	608	1	47,61,74	2.50	13 (27%)	41,98,114	1.79	12 (29%)
3	CLA	G	611	-	69,73,73	1.17	9 (13%)	82,113,113	1.25	7 (8%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	CHL	N	306	-	42,56,74	2.64	10 (23%)	36,92,114	2.10	13 (36%)
2	CHL	N	309	-	44,58,74	2.70	9 (20%)	37,94,114	1.80	11 (29%)
4	LUT	G	615	-	42,43,43	0.69	0	51,60,60	1.84	19 (37%)
3	CLA	N	305	-	53,57,73	1.33	8 (15%)	61,93,113	1.30	6 (9%)
3	CLA	Y	610	7	69,73,73	1.13	8 (11%)	82,113,113	1.18	8 (9%)
2	CHL	Y	606	-	44,58,74	2.58	10 (22%)	37,94,114	1.72	12 (32%)
7	LHG	N	320	3	48,48,48	0.88	2 (4%)	51,54,54	1.13	4 (7%)
2	CHL	G	607	-	44,58,74	2.60	12 (27%)	37,94,114	1.89	11 (29%)
3	CLA	Y	602	1	69,73,73	1.17	7 (10%)	82,113,113	1.19	8 (9%)
5	XAT	N	318	-	41,47,47	0.91	2 (4%)	54,74,74	2.70	21 (38%)
2	CHL	N	301	-	44,58,74	2.71	10 (22%)	37,94,114	2.02	15 (40%)
3	CLA	N	315	-	53,57,73	1.34	7 (13%)	61,93,113	1.17	5 (8%)
2	CHL	G	619	-	44,58,74	2.67	10 (22%)	37,94,114	1.88	12 (32%)
3	CLA	Y	609	-	69,73,73	1.18	7 (10%)	82,113,113	1.30	8 (9%)
2	CHL	G	608	1	44,58,74	2.75	10 (22%)	37,94,114	1.83	12 (32%)
2	CHL	Y	607	-	44,58,74	2.67	10 (22%)	37,94,114	1.74	11 (29%)
3	CLA	G	602	1	69,73,73	1.18	6 (8%)	82,113,113	1.19	5 (6%)
5	XAT	N	321	-	41,47,47	0.97	2 (4%)	54,74,74	2.67	19 (35%)
3	CLA	N	314	-	53,57,73	1.31	8 (15%)	61,93,113	1.29	5 (8%)

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
4	LUT	G	614	-	-	7/29/67/67	0/2/2/2
3	CLA	G	609	1	1/1/15/20	13/39/115/115	-
6	NEX	G	617	-	-	7/27/83/83	0/3/3/3
3	CLA	N	311	-	1/1/15/20	12/39/115/115	-
3	CLA	Y	603	-	1/1/11/20	6/20/96/115	-
3	CLA	G	612	-	1/1/11/20	8/20/96/115	-
7	LHG	Y	617	3	-	21/53/53/53	-
2	CHL	N	310	-	3/3/16/26	8/20/118/137	-
3	CLA	G	603	-	1/1/11/20	8/20/96/115	-
2	CHL	G	601	-	3/3/17/26	0/21/119/137	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	NEX	N	319	-	-	6/27/83/83	0/3/3/3
7	LHG	G	618	-	-	7/53/53/53	-
3	CLA	N	303	1	1/1/15/20	8/39/115/115	-
3	CLA	Y	613	-	1/1/11/20	9/20/96/115	-
3	CLA	Y	612	-	-	15/39/115/115	-
4	LUT	N	317	-	-	3/29/67/67	0/2/2/2
2	CHL	Y	605	-	3/3/16/26	13/18/116/137	-
3	CLA	N	313	1	1/1/15/20	12/39/115/115	-
3	CLA	G	613	-	1/1/11/20	7/20/96/115	-
3	CLA	Y	604	-	1/1/11/20	6/20/96/115	-
2	CHL	G	605	1	3/3/16/26	6/18/116/137	-
3	CLA	Y	611	-	1/1/15/20	14/39/115/115	-
6	NEX	Y	616	-	-	3/27/83/83	0/3/3/3
2	CHL	Y	601	-	3/3/16/26	5/19/117/137	-
3	CLA	G	610	-	1/1/11/20	6/20/96/115	-
3	CLA	N	304	-	1/1/11/20	11/20/96/115	-
5	XAT	G	616	-	-	2/31/93/93	0/4/4/4
4	LUT	Y	614	-	-	7/29/67/67	0/2/2/2
4	LUT	N	316	-	-	7/29/67/67	0/2/2/2
3	CLA	G	604	-	1/1/11/20	10/20/96/115	-
2	CHL	G	606	-	3/3/16/26	5/20/118/137	-
4	LUT	Y	615	-	-	1/29/67/67	0/2/2/2
2	CHL	N	302	-	3/3/16/26	5/20/118/137	-
3	CLA	N	312	7	1/1/11/20	9/20/96/115	-
2	CHL	N	307	-	3/3/16/26	5/20/118/137	-
2	CHL	N	308	-	3/3/17/26	5/21/119/137	-
2	CHL	Y	608	1	3/3/17/26	9/24/122/137	-
3	CLA	G	611	-	1/1/15/20	22/39/115/115	-
2	CHL	N	306	-	3/3/16/26	8/18/116/137	-
2	CHL	N	309	-	3/3/16/26	5/20/118/137	-
4	LUT	G	615	-	-	1/29/67/67	0/2/2/2
3	CLA	N	305	-	1/1/11/20	8/20/96/115	-
3	CLA	Y	610	7	1/1/15/20	14/39/115/115	-
2	CHL	Y	606	-	3/3/16/26	11/20/118/137	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
7	LHG	N	320	3	-	26/53/53/53	-
2	CHL	G	607	-	3/3/16/26	10/20/118/137	-
3	CLA	Y	602	1	-	15/39/115/115	-
5	XAT	N	318	-	-	1/31/93/93	0/4/4/4
2	CHL	N	301	-	3/3/16/26	9/20/118/137	-
3	CLA	N	315	-	1/1/11/20	10/20/96/115	-
2	CHL	G	619	-	3/3/16/26	6/20/118/137	-
3	CLA	Y	609	-	1/1/15/20	10/39/115/115	-
2	CHL	G	608	1	3/3/16/26	8/20/118/137	-
2	CHL	Y	607	-	3/3/16/26	10/20/118/137	-
3	CLA	G	602	1	1/1/15/20	14/39/115/115	-
5	XAT	N	321	-	-	6/31/93/93	0/4/4/4
3	CLA	N	314	-	-	10/20/96/115	-

All (400) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	N	307	CHL	C3B-C4B	10.17	1.51	1.41
2	N	302	CHL	C3B-C4B	10.16	1.51	1.41
2	G	607	CHL	C3B-C4B	10.10	1.51	1.41
2	N	309	CHL	C3B-C4B	10.05	1.51	1.41
2	G	619	CHL	C3B-C4B	9.99	1.51	1.41
2	N	308	CHL	C3B-C4B	9.86	1.51	1.41
2	N	301	CHL	C3B-C4B	9.80	1.50	1.41
2	G	601	CHL	C3B-C4B	9.75	1.50	1.41
2	Y	607	CHL	C3B-C4B	9.68	1.50	1.41
2	G	605	CHL	C3B-C4B	9.59	1.50	1.41
2	Y	601	CHL	C3B-C4B	9.58	1.50	1.41
2	G	606	CHL	C1B-C2B	9.26	1.50	1.39
2	G	608	CHL	C3B-C4B	9.08	1.50	1.41
2	N	310	CHL	C3B-C4B	8.89	1.50	1.41
2	N	306	CHL	C1B-C2B	8.82	1.49	1.39
2	G	608	CHL	C1D-C2D	8.63	1.49	1.39
2	G	605	CHL	C1B-C2B	8.63	1.49	1.39
2	N	310	CHL	C1B-C2B	8.60	1.49	1.39
2	Y	606	CHL	C1B-C2B	8.60	1.49	1.39
2	Y	605	CHL	C1B-C2B	8.54	1.49	1.39
2	Y	608	CHL	C1B-C2B	8.38	1.49	1.39
2	Y	601	CHL	C1B-C2B	8.35	1.49	1.39
2	Y	607	CHL	C1B-C2B	8.31	1.49	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	N	302	CHL	C1B-C2B	8.29	1.49	1.39
2	Y	606	CHL	C3B-C4B	8.26	1.49	1.41
2	N	306	CHL	C3B-C4B	8.23	1.49	1.41
2	G	601	CHL	C1B-C2B	8.22	1.48	1.39
2	G	608	CHL	C1B-C2B	8.22	1.48	1.39
2	N	308	CHL	C1B-C2B	8.18	1.48	1.39
2	N	301	CHL	C1B-C2B	8.00	1.48	1.39
2	N	309	CHL	C1B-C2B	7.99	1.48	1.39
2	Y	608	CHL	C3B-C4B	7.95	1.49	1.41
2	N	301	CHL	C1D-C2D	7.90	1.48	1.39
2	N	309	CHL	C1D-C2D	7.87	1.48	1.39
2	N	302	CHL	C1D-C2D	7.86	1.48	1.39
2	N	308	CHL	C1D-C2D	7.81	1.48	1.39
2	Y	605	CHL	C3B-C4B	7.77	1.49	1.41
2	Y	601	CHL	C1D-C2D	7.69	1.48	1.39
2	G	619	CHL	C1B-C2B	7.61	1.48	1.39
2	N	307	CHL	C1B-C2B	7.60	1.48	1.39
2	G	619	CHL	C1D-C2D	7.56	1.48	1.39
2	Y	608	CHL	C1D-C2D	7.48	1.48	1.39
2	N	310	CHL	C1D-C2D	7.44	1.48	1.39
2	Y	606	CHL	C1D-C2D	7.36	1.47	1.39
2	G	607	CHL	C1B-C2B	7.35	1.47	1.39
2	N	306	CHL	C1D-C2D	7.33	1.47	1.39
2	N	307	CHL	C1D-C2D	7.33	1.47	1.39
2	G	601	CHL	C1D-C2D	7.15	1.47	1.39
2	G	606	CHL	C1D-C2D	7.15	1.47	1.39
2	G	607	CHL	C1D-C2D	7.09	1.47	1.39
2	G	605	CHL	C1D-C2D	7.01	1.47	1.39
2	G	606	CHL	C3B-C4B	7.00	1.48	1.41
2	Y	605	CHL	C1D-C2D	7.00	1.47	1.39
2	Y	607	CHL	C1D-C2D	6.95	1.47	1.39
2	G	608	CHL	C2C-C3C	4.94	1.41	1.36
3	Y	611	CLA	MG-NB	-4.80	1.96	2.05
2	N	306	CHL	C3D-C4D	4.76	1.48	1.41
2	G	605	CHL	C3D-C4D	4.72	1.48	1.41
2	N	301	CHL	C2C-C3C	4.67	1.40	1.36
2	N	307	CHL	C3D-C4D	4.63	1.48	1.41
2	G	619	CHL	C3D-C4D	4.52	1.48	1.41
2	N	308	CHL	C3D-C4D	4.45	1.48	1.41
2	N	309	CHL	C3D-C4D	4.42	1.48	1.41
2	N	310	CHL	C3D-C4D	4.39	1.48	1.41
2	N	301	CHL	C3D-C4D	4.35	1.48	1.41

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	Y	601	CHL	C3D-C4D	4.31	1.48	1.41
2	Y	605	CHL	C3D-C4D	4.31	1.48	1.41
2	N	302	CHL	C3D-C4D	4.29	1.48	1.41
2	G	601	CHL	C3D-C4D	4.27	1.48	1.41
2	Y	608	CHL	C3D-C4D	4.19	1.47	1.41
2	G	606	CHL	C3D-C4D	4.19	1.47	1.41
2	N	302	CHL	C2C-C3C	4.19	1.40	1.36
2	Y	607	CHL	C2C-C3C	4.18	1.40	1.36
2	N	310	CHL	C2C-C3C	4.17	1.40	1.36
7	G	618	LHG	O8-C23	4.15	1.45	1.33
7	G	618	LHG	O7-C7	4.13	1.45	1.34
2	G	607	CHL	C3D-C4D	4.11	1.47	1.41
2	Y	606	CHL	C3D-C4D	4.10	1.47	1.41
2	G	608	CHL	C3D-C4D	4.09	1.47	1.41
2	Y	607	CHL	C3D-C4D	3.92	1.47	1.41
7	N	320	LHG	O8-C23	3.90	1.44	1.33
2	N	308	CHL	C2C-C3C	3.88	1.40	1.36
7	Y	617	LHG	O8-C23	3.86	1.44	1.33
2	G	619	CHL	C2C-C3C	3.80	1.40	1.36
7	N	320	LHG	O7-C7	3.79	1.45	1.34
7	Y	617	LHG	O7-C7	3.77	1.44	1.34
2	Y	605	CHL	C2C-C3C	3.76	1.40	1.36
3	Y	602	CLA	C1D-ND	3.74	1.42	1.37
3	G	613	CLA	C1D-ND	3.73	1.42	1.37
3	Y	611	CLA	C1D-ND	3.72	1.42	1.37
6	G	617	NEX	C7-C6	-3.68	1.26	1.30
3	N	304	CLA	C1D-ND	3.62	1.42	1.37
2	G	601	CHL	C2C-C3C	3.59	1.39	1.36
3	N	315	CLA	C1D-ND	3.59	1.42	1.37
2	N	306	CHL	C2C-C3C	3.57	1.39	1.36
3	G	613	CLA	C4B-NB	3.57	1.42	1.37
3	Y	603	CLA	C1D-ND	3.51	1.42	1.37
3	N	303	CLA	C1D-ND	3.51	1.42	1.37
3	Y	612	CLA	C4B-NB	3.50	1.42	1.37
3	N	304	CLA	C4B-NB	3.48	1.42	1.37
2	N	309	CHL	C2C-C3C	3.46	1.39	1.36
3	Y	613	CLA	C1D-ND	3.46	1.42	1.37
3	G	602	CLA	C1D-ND	3.45	1.42	1.37
3	G	603	CLA	C4B-NB	3.44	1.42	1.37
3	N	303	CLA	C4B-NB	3.44	1.42	1.37
3	N	305	CLA	C1D-ND	3.42	1.42	1.37
3	G	612	CLA	C1D-ND	3.41	1.42	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	Y	609	CLA	C1D-ND	3.39	1.42	1.37
3	N	313	CLA	C1D-ND	3.39	1.42	1.37
6	G	617	NEX	C7-C8	-3.39	1.26	1.31
3	G	604	CLA	C1D-ND	3.37	1.42	1.37
3	N	305	CLA	C4B-NB	3.36	1.42	1.37
3	Y	603	CLA	C4B-NB	3.35	1.42	1.37
3	N	315	CLA	C4B-NB	3.35	1.42	1.37
2	G	605	CHL	C2C-C3C	3.34	1.39	1.36
3	G	609	CLA	C1D-ND	3.33	1.42	1.37
2	Y	606	CHL	C2C-C3C	3.33	1.39	1.36
3	Y	604	CLA	C1D-ND	3.33	1.42	1.37
3	G	603	CLA	C1D-ND	3.32	1.42	1.37
3	Y	612	CLA	C1D-ND	3.32	1.42	1.37
3	G	612	CLA	C4B-NB	3.31	1.42	1.37
2	Y	608	CHL	C2C-C3C	3.31	1.39	1.36
3	Y	611	CLA	C4B-NB	3.28	1.42	1.37
3	G	611	CLA	C1D-ND	3.26	1.42	1.37
2	Y	601	CHL	C2C-C3C	3.24	1.39	1.36
3	N	312	CLA	C1D-ND	3.24	1.42	1.37
2	G	605	CHL	CAC-C3C	-3.24	1.46	1.51
3	N	314	CLA	C1D-ND	3.23	1.42	1.37
3	Y	604	CLA	C4B-NB	3.22	1.42	1.37
3	Y	602	CLA	C4B-NB	3.21	1.42	1.37
3	Y	613	CLA	C4B-NB	3.21	1.42	1.37
2	G	607	CHL	C2C-C3C	3.18	1.39	1.36
3	N	312	CLA	C4B-NB	3.17	1.42	1.37
3	G	602	CLA	C4B-NB	3.16	1.42	1.37
2	G	606	CHL	C2C-C3C	3.15	1.39	1.36
2	Y	606	CHL	C1A-CHA	-3.14	1.36	1.40
4	Y	614	LUT	C8-C9	-3.12	1.39	1.46
3	N	311	CLA	C1D-ND	3.11	1.41	1.37
4	G	614	LUT	C8-C9	-3.10	1.39	1.46
4	N	316	LUT	C8-C9	-3.10	1.39	1.46
3	G	610	CLA	C1D-ND	3.09	1.41	1.37
3	N	311	CLA	C4B-NB	3.09	1.41	1.37
3	G	604	CLA	C4B-NB	3.06	1.41	1.37
3	N	313	CLA	C4B-NB	3.06	1.41	1.37
2	N	307	CHL	C2C-C3C	3.04	1.39	1.36
3	N	314	CLA	C4B-NB	3.00	1.41	1.37
3	Y	609	CLA	C4B-NB	2.97	1.41	1.37
3	Y	609	CLA	MG-NA	2.94	2.13	2.06
6	N	319	NEX	C7-C8	-2.94	1.27	1.31

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	N	307	CHL	CMB-C2B	-2.92	1.45	1.51
4	N	317	LUT	C35-C15	2.91	1.44	1.36
2	G	605	CHL	CHA-CBD	2.91	1.55	1.51
3	G	611	CLA	C4B-NB	2.88	1.41	1.37
4	Y	614	LUT	C28-C29	-2.87	1.39	1.46
4	G	614	LUT	C28-C29	-2.86	1.39	1.46
4	N	316	LUT	C28-C29	-2.85	1.39	1.46
2	N	307	CHL	C3B-C2B	-2.85	1.36	1.40
2	N	310	CHL	CMD-C2D	-2.84	1.45	1.51
5	N	321	XAT	O4-C5	-2.84	1.42	1.46
3	Y	610	CLA	C1D-ND	2.83	1.41	1.37
2	G	608	CHL	CMB-C2B	-2.81	1.46	1.51
3	Y	610	CLA	C4B-NB	2.81	1.41	1.37
3	G	610	CLA	C4B-NB	2.80	1.41	1.37
3	G	603	CLA	C1B-C2B	2.79	1.49	1.43
3	Y	613	CLA	CMD-C2D	-2.79	1.45	1.50
3	G	602	CLA	C1B-C2B	2.78	1.49	1.43
4	G	614	LUT	C32-C33	-2.77	1.40	1.46
4	Y	614	LUT	C32-C33	-2.77	1.40	1.46
6	Y	616	NEX	C7-C8	-2.76	1.27	1.31
4	G	614	LUT	C12-C13	-2.76	1.40	1.46
4	N	316	LUT	C32-C33	-2.76	1.40	1.46
4	N	316	LUT	C12-C13	-2.76	1.40	1.46
2	Y	608	CHL	CMD-C2D	-2.76	1.46	1.51
2	G	606	CHL	C1A-CHA	-2.75	1.36	1.40
3	N	303	CLA	C3B-C4B	2.75	1.50	1.42
2	N	302	CHL	C1A-CHA	-2.74	1.36	1.40
6	N	319	NEX	C7-C6	-2.74	1.27	1.30
3	Y	613	CLA	C1B-C2B	2.73	1.49	1.43
4	Y	614	LUT	C12-C13	-2.72	1.40	1.46
2	G	606	CHL	CMD-C2D	-2.71	1.46	1.51
2	Y	605	CHL	CMB-C2B	-2.70	1.46	1.51
6	Y	616	NEX	C7-C6	-2.69	1.27	1.30
2	Y	605	CHL	CMD-C2D	-2.69	1.46	1.51
2	Y	605	CHL	CAC-C3C	-2.69	1.47	1.51
2	Y	608	CHL	CMB-C2B	-2.67	1.46	1.51
3	Y	604	CLA	CMB-C2B	-2.66	1.45	1.50
2	G	606	CHL	CMB-C2B	-2.66	1.46	1.51
2	Y	607	CHL	CMB-C2B	-2.65	1.46	1.51
2	N	309	CHL	CMD-C2D	-2.65	1.46	1.51
3	N	304	CLA	C1B-C2B	2.64	1.49	1.43
2	Y	606	CHL	CMB-C2B	-2.64	1.46	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	G	606	CHL	CHC-C4B	-2.63	1.35	1.39
3	Y	612	CLA	C1B-C2B	2.62	1.49	1.43
3	G	613	CLA	C3B-C4B	2.62	1.50	1.42
2	G	619	CHL	CMB-C2B	-2.61	1.46	1.51
3	Y	603	CLA	C1B-C2B	2.61	1.49	1.43
2	G	608	CHL	CMD-C2D	-2.61	1.46	1.51
2	N	307	CHL	CMD-C2D	-2.60	1.46	1.51
2	Y	606	CHL	CMD-C2D	-2.60	1.46	1.51
3	N	315	CLA	C1B-C2B	2.59	1.49	1.43
2	Y	601	CHL	CMD-C2D	-2.59	1.46	1.51
2	G	601	CHL	CMD-C2D	-2.59	1.46	1.51
3	Y	611	CLA	C1B-C2B	2.59	1.49	1.43
6	G	617	NEX	O24-C25	-2.58	1.42	1.46
3	N	305	CLA	C1B-C2B	2.58	1.49	1.43
3	Y	611	CLA	MG-NC	2.58	2.12	2.06
3	N	315	CLA	C3B-C4B	2.57	1.50	1.42
2	N	302	CHL	CMD-C2D	-2.57	1.46	1.51
3	G	612	CLA	C1B-C2B	2.57	1.49	1.43
2	G	607	CHL	CMD-C2D	-2.57	1.46	1.51
2	N	302	CHL	CMB-C2B	-2.55	1.46	1.51
2	N	306	CHL	CMD-C2D	-2.55	1.46	1.51
3	N	304	CLA	C3B-C4B	2.55	1.50	1.42
2	N	310	CHL	CMB-C2B	-2.54	1.46	1.51
3	N	312	CLA	CMD-C2D	-2.54	1.45	1.50
2	G	619	CHL	C3B-C2B	-2.54	1.36	1.40
2	N	301	CHL	CMB-C2B	-2.54	1.46	1.51
2	G	619	CHL	CMD-C2D	-2.54	1.46	1.51
2	Y	608	CHL	CAC-C3C	-2.54	1.47	1.51
3	N	314	CLA	C1B-C2B	2.53	1.49	1.43
2	Y	607	CHL	CMD-C2D	-2.53	1.46	1.51
3	G	603	CLA	C3B-C4B	2.53	1.50	1.42
2	G	605	CHL	CMB-C2B	-2.53	1.46	1.51
2	N	308	CHL	CMD-C2D	-2.53	1.46	1.51
3	N	312	CLA	C1B-C2B	2.53	1.49	1.43
3	G	613	CLA	C1B-C2B	2.52	1.49	1.43
2	Y	605	CHL	CBD-CGD	-2.52	1.49	1.52
3	G	604	CLA	C1B-C2B	2.52	1.49	1.43
2	G	606	CHL	CAC-C3C	-2.52	1.47	1.51
2	G	607	CHL	CMB-C2B	-2.52	1.46	1.51
2	G	601	CHL	CMB-C2B	-2.52	1.46	1.51
2	Y	608	CHL	CBD-CGD	-2.51	1.49	1.52
3	Y	611	CLA	C3B-C4B	2.51	1.50	1.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	N	308	CHL	CMB-C2B	-2.51	1.46	1.51
3	N	311	CLA	CMD-C2D	-2.51	1.45	1.50
2	N	309	CHL	CMB-C2B	-2.51	1.46	1.51
2	Y	601	CHL	CMB-C2B	-2.51	1.46	1.51
3	Y	610	CLA	CMD-C2D	-2.51	1.45	1.50
2	N	301	CHL	CMD-C2D	-2.50	1.46	1.51
3	N	303	CLA	C1B-C2B	2.50	1.49	1.43
3	Y	603	CLA	C3B-C4B	2.50	1.50	1.42
2	G	605	CHL	CMD-C2D	-2.49	1.46	1.51
3	G	611	CLA	C1B-C2B	2.48	1.49	1.43
5	N	321	XAT	O24-C25	-2.48	1.43	1.46
2	Y	608	CHL	C1A-CHA	-2.47	1.37	1.40
2	G	605	CHL	CHC-C4B	-2.46	1.35	1.39
2	Y	601	CHL	CAC-C3C	-2.46	1.47	1.51
3	Y	602	CLA	C1B-C2B	2.45	1.48	1.43
3	Y	612	CLA	CMB-C2B	-2.45	1.45	1.50
3	N	311	CLA	CMB-C2B	-2.45	1.45	1.50
2	N	306	CHL	CAC-C3C	-2.44	1.47	1.51
3	N	312	CLA	C3B-C4B	2.44	1.49	1.42
3	Y	609	CLA	CMD-C2D	-2.44	1.45	1.50
2	Y	607	CHL	C3D-CAD	-2.44	1.43	1.47
2	G	601	CHL	C1A-CHA	-2.43	1.37	1.40
3	Y	609	CLA	C3B-C4B	2.42	1.49	1.42
3	G	610	CLA	C1B-C2B	2.41	1.48	1.43
3	G	609	CLA	CMB-C2B	-2.40	1.45	1.50
3	N	313	CLA	C1B-C2B	2.39	1.48	1.43
2	N	306	CHL	CMB-C2B	-2.39	1.46	1.51
2	Y	607	CHL	MG-NB	-2.38	2.01	2.05
3	N	313	CLA	CMC-C2C	-2.38	1.45	1.50
2	Y	601	CHL	C1A-CHA	-2.36	1.37	1.40
3	G	609	CLA	C4B-NB	2.36	1.41	1.37
3	G	612	CLA	C3B-C4B	2.36	1.49	1.42
2	N	309	CHL	CAC-C3C	-2.36	1.47	1.51
3	N	314	CLA	CMB-C2B	-2.35	1.45	1.50
3	Y	612	CLA	C3B-C4B	2.35	1.49	1.42
2	N	310	CHL	CAC-C3C	-2.34	1.47	1.51
3	Y	602	CLA	C3B-C4B	2.34	1.49	1.42
2	Y	606	CHL	CAC-C3C	-2.34	1.47	1.51
3	N	305	CLA	C3B-C4B	2.32	1.49	1.42
3	Y	610	CLA	C1B-C2B	2.32	1.48	1.43
3	Y	604	CLA	C1B-C2B	2.32	1.48	1.43
2	N	309	CHL	CBD-CGD	-2.31	1.49	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	Y	605	CHL	CHC-C4B	-2.31	1.35	1.39
3	G	602	CLA	CMD-C2D	-2.30	1.46	1.50
2	N	308	CHL	CAC-C3C	-2.30	1.47	1.51
2	G	607	CHL	CAC-C3C	-2.30	1.47	1.51
2	N	307	CHL	CHC-C1C	2.30	1.43	1.39
5	G	616	XAT	O4-C5	-2.30	1.43	1.46
2	Y	608	CHL	MG-ND	-2.28	2.01	2.05
5	G	616	XAT	O24-C25	-2.28	1.43	1.46
3	G	609	CLA	MG-NA	2.28	2.11	2.06
3	G	604	CLA	C3B-C4B	2.27	1.49	1.42
3	G	602	CLA	C3B-C4B	2.27	1.49	1.42
3	N	313	CLA	CMB-C2B	-2.26	1.46	1.50
3	G	611	CLA	CMB-C2B	-2.25	1.46	1.50
3	G	613	CLA	CMD-C2D	-2.25	1.46	1.50
2	G	608	CHL	C1A-CHA	-2.25	1.37	1.40
2	G	606	CHL	MG-NB	-2.25	2.01	2.05
3	Y	603	CLA	CMD-C2D	-2.24	1.46	1.50
3	N	305	CLA	CMC-C2C	-2.24	1.46	1.50
3	N	313	CLA	CMD-C2D	-2.24	1.46	1.50
2	N	306	CHL	CHC-C4B	-2.24	1.36	1.39
2	Y	605	CHL	C1A-CHA	-2.24	1.37	1.40
3	G	610	CLA	CMD-C2D	-2.24	1.46	1.50
3	Y	610	CLA	CMC-C2C	-2.24	1.46	1.50
2	Y	607	CHL	CAC-C3C	-2.24	1.47	1.51
3	G	609	CLA	C1B-C2B	2.23	1.48	1.43
3	G	603	CLA	CMD-C2D	-2.23	1.46	1.50
3	N	305	CLA	CMD-C2D	-2.22	1.46	1.50
3	N	311	CLA	C1B-C2B	2.22	1.48	1.43
3	N	314	CLA	C3B-C4B	2.22	1.49	1.42
2	N	310	CHL	C1A-CHA	-2.22	1.37	1.40
3	N	315	CLA	CMD-C2D	-2.22	1.46	1.50
3	Y	613	CLA	C3B-C4B	2.21	1.49	1.42
3	N	314	CLA	CMC-C2C	-2.21	1.46	1.50
2	N	306	CHL	C1A-C2A	2.21	1.55	1.51
2	G	619	CHL	CAC-C3C	-2.21	1.47	1.51
3	N	313	CLA	C3B-C4B	2.20	1.49	1.42
3	G	609	CLA	C3B-C4B	2.20	1.49	1.42
2	N	302	CHL	CAC-C3C	-2.20	1.47	1.51
3	G	613	CLA	CHC-C1C	2.20	1.42	1.38
3	G	609	CLA	CMC-C2C	-2.20	1.46	1.50
6	N	319	NEX	O24-C25	-2.20	1.43	1.46
2	N	307	CHL	CAC-C3C	-2.20	1.47	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	Y	603	CLA	CMB-C2B	-2.19	1.46	1.50
5	N	318	XAT	O24-C25	-2.19	1.43	1.46
3	Y	612	CLA	CMD-C2D	-2.19	1.46	1.50
3	Y	610	CLA	C3B-C4B	2.19	1.49	1.42
3	G	611	CLA	C3B-C4B	2.19	1.49	1.42
3	G	603	CLA	CMB-C2B	-2.19	1.46	1.50
3	G	610	CLA	CMB-C2B	-2.19	1.46	1.50
3	G	611	CLA	CMD-C2D	-2.18	1.46	1.50
3	N	314	CLA	CMD-C2D	-2.18	1.46	1.50
2	Y	608	CHL	CHC-C4B	-2.18	1.36	1.39
3	G	610	CLA	MG-NB	-2.18	2.01	2.05
2	G	608	CHL	CHC-C4B	-2.18	1.36	1.39
3	G	604	CLA	CMB-C2B	-2.17	1.46	1.50
2	G	601	CHL	CAC-C3C	-2.17	1.47	1.51
2	N	310	CHL	CHC-C4B	-2.17	1.36	1.39
3	G	610	CLA	CMC-C2C	-2.17	1.46	1.50
3	Y	612	CLA	CMC-C2C	-2.17	1.46	1.50
3	G	613	CLA	MG-NA	2.17	2.11	2.06
3	Y	602	CLA	CHC-C1C	2.16	1.42	1.38
3	N	314	CLA	MG-NB	-2.16	2.01	2.05
2	G	606	CHL	CBD-CGD	-2.16	1.49	1.52
3	Y	609	CLA	C1B-C2B	2.16	1.48	1.43
2	Y	605	CHL	MG-NB	-2.15	2.01	2.05
3	Y	610	CLA	MG-NB	-2.15	2.01	2.05
3	G	609	CLA	CMD-C2D	-2.15	1.46	1.50
2	Y	608	CHL	MG-NB	-2.15	2.01	2.05
2	Y	606	CHL	MG-NB	-2.15	2.01	2.05
3	Y	612	CLA	CHC-C1C	2.15	1.42	1.38
2	G	607	CHL	MG-NB	-2.15	2.01	2.05
3	N	304	CLA	CMD-C2D	-2.14	1.46	1.50
2	G	619	CHL	CBD-CGD	-2.14	1.49	1.52
3	G	612	CLA	CHC-C1C	2.14	1.42	1.38
3	N	313	CLA	MG-NA	2.14	2.11	2.06
2	G	605	CHL	C3B-C2B	-2.14	1.37	1.40
3	N	303	CLA	CHC-C1C	2.14	1.42	1.38
2	G	608	CHL	MG-NB	-2.13	2.01	2.05
3	Y	604	CLA	CMC-C2C	-2.13	1.46	1.50
3	N	305	CLA	CMB-C2B	-2.13	1.46	1.50
3	Y	604	CLA	CMD-C2D	-2.13	1.46	1.50
3	N	305	CLA	CHC-C1C	2.13	1.42	1.38
3	G	610	CLA	C3B-C4B	2.13	1.48	1.42
2	N	301	CHL	C1A-CHA	-2.11	1.37	1.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	N	312	CLA	CMB-C2B	-2.11	1.46	1.50
2	N	308	CHL	CHC-C1C	2.11	1.43	1.39
2	G	607	CHL	C3D-CAD	-2.10	1.43	1.47
3	G	612	CLA	CMD-C2D	-2.10	1.46	1.50
2	N	308	CHL	C3B-C2B	-2.10	1.37	1.40
3	G	604	CLA	CHC-C1C	2.10	1.42	1.38
3	N	303	CLA	CMB-C2B	-2.10	1.46	1.50
3	N	304	CLA	CMB-C2B	-2.10	1.46	1.50
2	G	607	CHL	CHC-C1C	2.10	1.43	1.39
2	N	301	CHL	C3B-C2B	-2.09	1.37	1.40
3	G	611	CLA	CHC-C1C	2.09	1.42	1.38
3	G	611	CLA	MG-NB	-2.09	2.01	2.05
3	G	611	CLA	CMC-C2C	-2.08	1.46	1.50
3	Y	611	CLA	CMD-C2D	-2.08	1.46	1.50
3	G	612	CLA	CMB-C2B	-2.08	1.46	1.50
3	N	311	CLA	C3B-C4B	2.08	1.48	1.42
3	N	315	CLA	CMB-C2B	-2.07	1.46	1.50
3	N	303	CLA	CMC-C2C	-2.07	1.46	1.50
3	Y	604	CLA	C3B-C4B	2.07	1.48	1.42
3	Y	604	CLA	MG-NB	-2.06	2.01	2.05
5	N	318	XAT	O4-C5	-2.06	1.43	1.46
2	Y	605	CHL	C3B-C2B	-2.06	1.37	1.40
2	N	301	CHL	CHC-C1C	2.06	1.43	1.39
3	N	311	CLA	CMC-C2C	-2.05	1.46	1.50
3	Y	611	CLA	CMB-C2B	-2.05	1.46	1.50
3	G	612	CLA	CMC-C2C	-2.04	1.46	1.50
3	G	604	CLA	CMD-C2D	-2.04	1.46	1.50
3	N	303	CLA	CMD-C2D	-2.04	1.46	1.50
3	G	602	CLA	CHC-C1C	2.04	1.42	1.38
3	Y	602	CLA	CMD-C2D	-2.04	1.46	1.50
3	N	315	CLA	CMC-C2C	-2.03	1.46	1.50
3	N	304	CLA	CMC-C2C	-2.03	1.46	1.50
3	Y	609	CLA	CMC-C2C	-2.03	1.46	1.50
3	G	604	CLA	CMC-C2C	-2.02	1.46	1.50
3	Y	610	CLA	CMB-C2B	-2.02	1.46	1.50
2	G	607	CHL	MG-ND	-2.02	2.01	2.05
3	G	603	CLA	CMC-C2C	-2.02	1.46	1.50
3	G	613	CLA	CMB-C2B	-2.01	1.46	1.50
3	Y	611	CLA	CMC-C2C	-2.01	1.46	1.50
3	Y	603	CLA	CAC-C3C	-2.01	1.46	1.51
3	Y	602	CLA	CMB-C2B	-2.00	1.46	1.50

All (556) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	G	617	NEX	C38-C25-C26	-9.10	107.33	122.30
6	G	617	NEX	O24-C25-C24	8.47	121.42	113.49
5	G	616	XAT	O24-C25-C24	7.62	120.64	113.49
4	N	317	LUT	C15-C14-C13	-7.35	116.97	127.28
5	N	321	XAT	O24-C25-C24	7.27	120.31	113.49
3	G	603	CLA	C4A-NA-C1A	6.87	109.81	106.68
5	N	318	XAT	O4-C5-C4	6.78	119.85	113.49
5	G	616	XAT	O4-C5-C4	6.76	119.83	113.49
5	N	318	XAT	C31-C30-C29	-6.54	118.11	127.28
5	N	321	XAT	O4-C5-C4	6.54	119.62	113.49
3	N	312	CLA	C4A-NA-C1A	6.33	109.57	106.68
4	N	317	LUT	C35-C15-C14	-6.28	110.67	123.52
6	N	319	NEX	C11-C10-C9	-6.18	118.61	127.28
6	G	617	NEX	C11-C10-C9	-6.18	118.61	127.28
5	G	616	XAT	C15-C14-C13	-6.17	118.62	127.28
3	Y	603	CLA	C4A-NA-C1A	6.17	109.50	106.68
6	G	617	NEX	O24-C25-C38	6.10	121.87	115.05
3	G	610	CLA	C4A-NA-C1A	5.92	109.38	106.68
6	Y	616	NEX	C27-C28-C29	-5.90	116.37	125.53
2	N	306	CHL	C1B-CHB-C4A	5.79	125.05	121.32
6	N	319	NEX	O24-C25-C24	5.78	118.91	113.49
6	G	617	NEX	C15-C14-C13	-5.75	119.21	127.28
5	N	321	XAT	C35-C34-C33	-5.75	119.22	127.28
6	Y	616	NEX	C15-C14-C13	-5.71	119.28	127.28
6	Y	616	NEX	O24-C25-C24	5.64	118.78	113.49
3	Y	604	CLA	C4A-NA-C1A	5.58	109.23	106.68
3	N	304	CLA	C4A-NA-C1A	5.58	109.22	106.68
5	N	318	XAT	O24-C25-C24	5.47	118.61	113.49
5	N	318	XAT	C15-C14-C13	-5.46	119.62	127.28
3	Y	612	CLA	C4A-NA-C1A	5.35	109.12	106.68
3	N	305	CLA	C4A-NA-C1A	5.34	109.11	106.68
2	Y	601	CHL	C1B-CHB-C4A	5.32	124.75	121.32
6	G	617	NEX	C35-C34-C33	-5.30	119.84	127.28
2	G	619	CHL	O2D-CGD-CBD	5.26	116.73	110.95
6	N	319	NEX	C38-C25-C26	-5.24	113.68	122.30
3	N	314	CLA	C4A-NA-C1A	5.15	109.03	106.68
5	N	318	XAT	C38-C25-C26	-5.14	113.84	122.30
3	G	612	CLA	C4A-NA-C1A	5.11	109.01	106.68
5	N	318	XAT	O24-C25-C38	5.11	120.76	115.05
2	G	606	CHL	C1B-CHB-C4A	5.10	124.60	121.32
6	Y	616	NEX	C38-C25-C26	-5.09	113.93	122.30
6	Y	616	NEX	C31-C30-C29	-5.03	120.23	127.28
6	Y	616	NEX	O24-C25-C38	5.02	120.65	115.05

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	Y	613	CLA	C4A-NA-C1A	5.01	108.96	106.68
2	N	302	CHL	C1B-CHB-C4A	5.00	124.54	121.32
2	G	605	CHL	O2D-CGD-CBD	4.95	116.38	110.95
5	G	616	XAT	C38-C25-C26	-4.94	114.17	122.30
2	N	301	CHL	O2D-CGD-CBD	4.92	116.35	110.95
5	N	321	XAT	C6-C7-C8	-4.91	115.61	125.99
3	G	611	CLA	C4A-NA-C1A	4.87	108.90	106.68
6	N	319	NEX	C15-C14-C13	-4.84	120.49	127.28
2	G	605	CHL	O2D-CGD-O1D	-4.82	114.47	123.85
5	G	616	XAT	C18-C5-C6	-4.81	114.39	122.30
5	N	321	XAT	C31-C30-C29	-4.78	120.57	127.28
2	N	306	CHL	C4D-CHA-CBD	-4.76	104.17	108.97
6	Y	616	NEX	C11-C10-C9	-4.74	120.64	127.28
5	N	321	XAT	C11-C10-C9	-4.74	120.64	127.28
2	N	307	CHL	C1B-CHB-C4A	4.69	124.34	121.32
3	G	602	CLA	C4A-NA-C1A	4.64	108.80	106.68
6	G	617	NEX	C27-C28-C29	-4.63	118.34	125.53
2	N	308	CHL	C1B-CHB-C4A	4.62	124.29	121.32
6	N	319	NEX	O24-C25-C38	4.51	120.09	115.05
3	G	609	CLA	O2D-CGD-O1D	-4.51	115.07	123.85
2	Y	606	CHL	C1B-CHB-C4A	4.49	124.21	121.32
2	N	301	CHL	C1B-CHB-C4A	4.46	124.19	121.32
3	Y	602	CLA	C4A-NA-C1A	4.45	108.71	106.68
5	N	318	XAT	O4-C5-C18	4.43	120.00	115.05
3	Y	610	CLA	C4A-NA-C1A	4.39	108.68	106.68
6	Y	616	NEX	C35-C34-C33	-4.37	121.15	127.28
5	N	318	XAT	C18-C5-C6	-4.35	115.15	122.30
3	G	604	CLA	C4A-NA-C1A	4.32	108.65	106.68
2	G	607	CHL	CMB-C2B-C3B	4.32	133.32	124.68
5	G	616	XAT	C6-C7-C8	-4.28	116.94	125.99
3	N	303	CLA	C4A-NA-C1A	4.27	108.62	106.68
5	N	318	XAT	C27-C28-C29	-4.23	118.97	125.53
5	N	321	XAT	O4-C5-C18	4.21	119.75	115.05
2	G	607	CHL	C4D-CHA-CBD	-4.21	104.72	108.97
5	G	616	XAT	O4-C5-C18	4.19	119.73	115.05
3	Y	609	CLA	C4A-NA-C1A	-4.19	104.77	106.68
4	G	615	LUT	C35-C34-C33	-4.17	121.43	127.28
5	N	321	XAT	C15-C14-C13	-4.13	121.49	127.28
3	N	315	CLA	C4A-NA-C1A	4.07	108.54	106.68
6	N	319	NEX	C35-C34-C33	-4.06	121.58	127.28
5	G	616	XAT	C31-C30-C29	-4.06	121.59	127.28
5	N	318	XAT	C6-C7-C8	-4.05	117.43	125.99

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	N	307	CHL	C4D-CHA-CBD	-4.03	104.90	108.97
2	N	309	CHL	C1B-CHB-C4A	4.01	123.90	121.32
4	N	317	LUT	C35-C34-C33	-4.00	121.67	127.28
2	G	608	CHL	O2D-CGD-CBD	3.98	115.32	110.95
5	N	318	XAT	C15-C35-C34	-3.98	115.38	123.52
5	G	616	XAT	O24-C25-C38	3.94	119.45	115.05
5	N	321	XAT	C4-C3-C2	-3.88	103.53	110.79
5	N	321	XAT	O24-C25-C38	3.86	119.36	115.05
2	N	310	CHL	O2D-CGD-CBD	3.86	115.19	110.95
3	G	609	CLA	O2D-CGD-CBD	3.85	117.97	111.23
2	N	307	CHL	O2D-CGD-CBD	3.85	115.18	110.95
3	Y	611	CLA	C4A-NA-C1A	3.83	108.43	106.68
3	G	609	CLA	C1-C2-C3	-3.79	119.98	126.20
2	G	605	CHL	C1B-CHB-C4A	3.74	123.73	121.32
2	G	605	CHL	C4D-CHA-CBD	-3.73	105.20	108.97
2	Y	605	CHL	C1B-CHB-C4A	3.70	123.70	121.32
2	G	619	CHL	C4D-CHA-CBD	-3.67	105.27	108.97
5	N	318	XAT	C11-C10-C9	-3.65	122.16	127.28
6	G	617	NEX	C24-C23-C22	-3.64	103.99	110.79
3	Y	609	CLA	O2D-CGD-O1D	-3.63	116.79	123.85
2	N	306	CHL	CMB-C2B-C3B	3.61	131.90	124.68
4	G	615	LUT	C15-C14-C13	-3.60	122.23	127.28
2	G	619	CHL	C1C-CHC-C4B	3.60	128.95	116.07
4	G	614	LUT	C35-C15-C14	3.60	130.88	123.52
4	Y	614	LUT	C35-C15-C14	3.60	130.88	123.52
2	Y	607	CHL	C4D-CHA-CBD	-3.59	105.34	108.97
4	N	316	LUT	C35-C15-C14	3.59	130.87	123.52
6	N	319	NEX	C11-C12-C13	-3.58	116.53	126.36
2	N	309	CHL	C1C-CHC-C4B	3.55	128.77	116.07
5	G	616	XAT	C15-C35-C34	-3.53	116.31	123.52
2	N	301	CHL	O2D-CGD-O1D	-3.52	116.99	123.85
5	N	321	XAT	C18-C5-C6	-3.52	116.51	122.30
2	Y	607	CHL	C1C-CHC-C4B	3.51	128.63	116.07
2	N	301	CHL	C1C-CHC-C4B	3.50	128.61	116.07
7	G	618	LHG	O7-C7-C8	3.50	119.04	111.48
5	N	321	XAT	C38-C25-C26	-3.49	116.56	122.30
2	Y	605	CHL	C4D-CHA-CBD	-3.47	105.47	108.97
2	N	307	CHL	CAA-C2A-C3A	-3.47	103.62	113.00
4	G	614	LUT	C39-C29-C30	-3.46	117.21	122.82
4	Y	614	LUT	C39-C29-C30	-3.46	117.22	122.82
3	G	610	CLA	O2D-CGD-O1D	-3.45	117.14	123.85
4	N	316	LUT	C39-C29-C30	-3.44	117.25	122.82

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	608	CHL	C1C-CHC-C4B	3.42	128.32	116.07
4	G	615	LUT	C10-C11-C12	-3.42	113.28	123.20
4	G	614	LUT	C19-C9-C10	-3.40	117.31	122.82
4	G	615	LUT	C31-C30-C29	-3.39	122.53	127.28
2	N	310	CHL	C1C-CHC-C4B	3.39	128.19	116.07
2	G	608	CHL	CBC-CAC-C3C	3.39	117.72	112.87
3	N	314	CLA	O2D-CGD-O1D	-3.39	117.25	123.85
4	Y	614	LUT	C19-C9-C10	-3.39	117.33	122.82
2	G	601	CHL	C1B-CHB-C4A	3.38	123.50	121.32
2	N	309	CHL	C4D-CHA-CBD	-3.38	105.56	108.97
2	Y	608	CHL	O2D-CGD-CBD	3.38	114.66	110.95
5	G	616	XAT	C35-C34-C33	-3.37	122.56	127.28
4	N	316	LUT	C19-C9-C10	-3.36	117.38	122.82
3	G	611	CLA	O2D-CGD-O1D	-3.36	117.31	123.85
2	Y	607	CHL	O2D-CGD-CBD	3.33	114.61	110.95
6	G	617	NEX	C11-C12-C13	-3.33	117.23	126.36
4	Y	615	LUT	C15-C14-C13	-3.29	122.67	127.28
2	N	307	CHL	C1C-CHC-C4B	3.28	127.81	116.07
2	G	601	CHL	C1C-CHC-C4B	3.27	127.78	116.07
2	G	607	CHL	O2D-CGD-CBD	3.27	114.54	110.95
2	Y	605	CHL	OMC-CMC-C2C	-3.27	119.45	125.12
2	Y	608	CHL	C4D-CHA-CBD	-3.26	105.68	108.97
2	N	302	CHL	C1C-CHC-C4B	3.25	127.70	116.07
6	N	319	NEX	C27-C28-C29	-3.25	120.48	125.53
5	N	321	XAT	C26-C27-C28	-3.24	119.13	125.99
4	N	317	LUT	C15-C35-C34	-3.23	116.90	123.52
2	G	608	CHL	C4D-ND-C1D	3.23	107.67	105.22
3	Y	609	CLA	O2D-CGD-CBD	3.23	116.87	111.23
2	N	308	CHL	O2D-CGD-O1D	-3.23	117.57	123.85
4	Y	615	LUT	C10-C11-C12	-3.22	113.86	123.20
3	N	312	CLA	O2D-CGD-O1D	-3.22	117.58	123.85
2	G	606	CHL	C4D-CHA-CBD	-3.20	105.74	108.97
4	Y	615	LUT	C26-C27-C28	-3.19	119.61	124.58
2	Y	601	CHL	C1C-CHC-C4B	3.19	127.47	116.07
4	N	317	LUT	C26-C27-C28	-3.18	119.62	124.58
2	G	619	CHL	C1B-CHB-C4A	3.18	123.37	121.32
6	G	617	NEX	C15-C35-C34	-3.18	117.02	123.52
2	G	607	CHL	C3D-C4D-CHA	3.18	113.37	108.54
3	G	613	CLA	C4A-NA-C1A	3.17	108.12	106.68
6	N	319	NEX	C16-C1-C6	3.17	113.31	110.47
3	G	604	CLA	CMB-C2B-C1B	-3.16	120.61	125.42
4	Y	615	LUT	C11-C10-C9	-3.16	122.85	127.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	N	320	LHG	O7-C7-C8	3.15	118.29	111.48
2	G	606	CHL	CHA-C1A-C2A	-3.13	125.95	133.31
3	G	610	CLA	O2D-CGD-CBD	3.11	116.67	111.23
2	N	310	CHL	CHA-C1A-C2A	-3.09	126.06	133.31
2	G	607	CHL	C1C-CHC-C4B	3.08	127.10	116.07
6	N	319	NEX	C31-C30-C29	-3.08	122.96	127.28
2	Y	608	CHL	OMC-CMC-C2C	-3.07	119.79	125.12
4	G	615	LUT	C26-C27-C28	-3.06	119.81	124.58
3	N	305	CLA	O2D-CGD-O1D	-3.06	117.88	123.85
2	N	308	CHL	O2D-CGD-CBD	3.04	114.29	110.95
2	Y	607	CHL	C1B-CHB-C4A	3.04	123.28	121.32
7	Y	617	LHG	O7-C7-C8	3.03	118.04	111.48
4	N	317	LUT	C10-C11-C12	-3.03	114.42	123.20
5	G	616	XAT	C11-C10-C9	-3.03	123.03	127.28
5	G	616	XAT	C26-C27-C28	-3.00	119.65	125.99
2	N	309	CHL	O2D-CGD-CBD	3.00	114.24	110.95
3	G	604	CLA	O2D-CGD-O1D	-3.00	118.02	123.85
2	N	310	CHL	C1B-CHB-C4A	3.00	123.25	121.32
5	N	321	XAT	C35-C15-C14	-2.99	117.41	123.52
3	Y	613	CLA	O2D-CGD-O1D	-2.99	118.04	123.85
3	Y	611	CLA	O2D-CGD-O1D	-2.98	118.04	123.85
2	G	608	CHL	O2D-CGD-O1D	-2.97	118.07	123.85
3	N	303	CLA	C3B-C4B-NB	-2.96	107.89	110.53
2	Y	606	CHL	CHA-C1A-C2A	-2.95	126.38	133.31
2	N	308	CHL	C4D-CHA-CBD	-2.95	105.99	108.97
2	N	308	CHL	C1C-CHC-C4B	2.95	126.61	116.07
2	G	607	CHL	C4D-ND-C1D	2.94	107.45	105.22
5	N	318	XAT	C4-C3-C2	-2.94	105.29	110.79
5	N	321	XAT	C27-C28-C29	-2.94	120.97	125.53
2	N	310	CHL	O2D-CGD-O1D	-2.94	118.13	123.85
2	N	306	CHL	C3D-C4D-CHA	2.93	113.00	108.54
4	N	317	LUT	C30-C31-C32	-2.93	114.70	123.20
2	N	302	CHL	CHA-C1A-C2A	-2.93	126.43	133.31
3	N	304	CLA	O2D-CGD-O1D	-2.92	118.16	123.85
3	Y	609	CLA	C1-C2-C3	-2.92	121.41	126.20
2	N	310	CHL	CMD-C2D-C3D	2.92	130.52	124.68
2	Y	608	CHL	C3D-C4D-CHA	2.91	112.97	108.54
2	N	307	CHL	C3D-C4D-CHA	2.90	112.95	108.54
3	G	602	CLA	O2D-CGD-O1D	-2.90	118.20	123.85
2	G	619	CHL	O2D-CGD-O1D	-2.89	118.23	123.85
2	G	605	CHL	O1D-CGD-CBD	2.89	129.10	124.72
2	G	601	CHL	O2D-CGD-CBD	2.89	114.12	110.95

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	601	CHL	CMD-C2D-C3D	2.89	130.45	124.68
2	Y	601	CHL	CHA-C1A-C2A	-2.89	126.53	133.31
2	G	601	CHL	O2D-CGD-O1D	-2.89	118.23	123.85
3	Y	604	CLA	CMB-C2B-C1B	-2.87	121.04	125.42
3	Y	604	CLA	O2D-CGD-O1D	-2.87	118.26	123.85
5	N	321	XAT	C31-C32-C33	-2.87	118.50	126.36
2	Y	608	CHL	C4D-ND-C1D	2.86	107.39	105.22
2	N	306	CHL	O2D-CGD-CBD	2.86	114.09	110.95
3	G	613	CLA	O2D-CGD-O1D	-2.86	118.28	123.85
6	Y	616	NEX	C15-C35-C34	-2.86	117.67	123.52
4	N	317	LUT	C31-C30-C29	-2.85	123.29	127.28
3	Y	612	CLA	O2D-CGD-O1D	-2.84	118.32	123.85
3	G	612	CLA	O2D-CGD-O1D	-2.83	118.33	123.85
2	G	607	CHL	O2D-CGD-O1D	-2.83	118.33	123.85
3	Y	602	CLA	O2D-CGD-O1D	-2.83	118.34	123.85
3	Y	603	CLA	O2D-CGD-O1D	-2.83	118.34	123.85
2	Y	607	CHL	O2D-CGD-O1D	-2.83	118.34	123.85
2	N	306	CHL	O2D-CGD-O1D	-2.82	118.37	123.85
2	Y	606	CHL	CMB-C2B-C3B	2.81	130.31	124.68
4	Y	615	LUT	C7-C8-C9	-2.81	122.07	126.23
2	N	301	CHL	C4D-CHA-CBD	-2.81	106.13	108.97
3	N	304	CLA	CAA-C2A-C3A	-2.81	105.41	113.00
2	G	605	CHL	C1C-CHC-C4B	2.81	126.11	116.07
2	Y	605	CHL	CHA-C1A-C2A	-2.80	126.72	133.31
5	N	321	XAT	C7-C8-C9	-2.79	121.20	125.53
4	G	615	LUT	C7-C8-C9	-2.79	122.11	126.23
2	G	605	CHL	CAA-CBA-CGA	-2.78	105.30	113.21
2	G	608	CHL	CHA-C1A-C2A	-2.78	126.78	133.31
2	G	619	CHL	C3D-C4D-CHA	2.78	112.76	108.54
2	G	605	CHL	CHA-C1A-C2A	-2.78	126.79	133.31
2	Y	608	CHL	CHA-C1A-C2A	-2.77	126.80	133.31
4	Y	615	LUT	C35-C34-C33	-2.77	123.39	127.28
6	G	617	NEX	C26-C27-C28	-2.77	120.14	125.99
2	Y	608	CHL	CMB-C2B-C3B	2.77	130.22	124.68
2	G	608	CHL	CMB-C2B-C3B	2.76	130.21	124.68
2	Y	608	CHL	C1C-CHC-C4B	2.76	125.93	116.07
2	N	307	CHL	O2D-CGD-O1D	-2.75	118.49	123.85
3	N	313	CLA	O2D-CGD-O1D	-2.75	118.49	123.85
2	G	606	CHL	C3D-C4D-CHA	2.75	112.72	108.54
2	Y	601	CHL	O2D-CGD-O1D	-2.74	118.50	123.85
4	G	615	LUT	C30-C31-C32	-2.74	115.25	123.20
2	G	605	CHL	C3D-C4D-CHA	2.74	112.70	108.54

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	Y	608	CHL	O2D-CGD-O1D	-2.74	118.52	123.85
2	N	302	CHL	O2D-CGD-CBD	2.73	113.95	110.95
2	N	302	CHL	O2D-CGD-O1D	-2.73	118.53	123.85
2	Y	607	CHL	C3D-C4D-CHA	2.73	112.69	108.54
2	N	310	CHL	C4D-CHA-CBD	-2.72	106.22	108.97
2	G	606	CHL	C1C-CHC-C4B	2.72	125.81	116.07
5	N	318	XAT	C24-C23-C22	-2.71	105.72	110.79
2	Y	605	CHL	O2D-CGD-CBD	2.71	113.93	110.95
5	N	321	XAT	C10-C11-C12	-2.70	115.37	123.20
2	G	608	CHL	C3D-C4D-CHA	2.70	112.64	108.54
2	G	601	CHL	C3D-C4D-CHA	2.70	112.64	108.54
3	Y	612	CLA	C3B-C4B-NB	-2.70	108.12	110.53
3	Y	613	CLA	CMB-C2B-C1B	-2.69	121.32	125.42
5	G	616	XAT	C27-C28-C29	-2.69	121.36	125.53
4	G	614	LUT	C40-C33-C34	-2.68	118.47	122.82
7	N	320	LHG	O8-C6-C5	-2.68	100.67	108.40
2	Y	607	CHL	C4D-ND-C1D	2.68	107.25	105.22
4	Y	614	LUT	C40-C33-C34	-2.67	118.50	122.82
4	G	614	LUT	C20-C13-C14	-2.66	118.50	122.82
2	G	608	CHL	C3C-C4C-NC	-2.66	108.15	114.65
3	Y	609	CLA	CHB-C1B-NB	2.66	128.04	124.05
4	N	316	LUT	C20-C13-C14	-2.66	118.51	122.82
3	N	313	CLA	CHB-C1B-NB	2.66	128.04	124.05
6	G	617	NEX	O24-C25-C26	-2.66	56.82	58.93
3	G	610	CLA	CHB-C4A-NA	2.66	128.24	124.40
2	Y	605	CHL	C3D-C4D-CHA	2.66	112.58	108.54
6	Y	616	NEX	C24-C23-C22	-2.65	105.83	110.79
2	N	309	CHL	O2D-CGD-O1D	-2.65	118.69	123.85
2	Y	606	CHL	C1C-CHC-C4B	2.65	125.55	116.07
4	G	615	LUT	C19-C9-C8	2.65	122.14	118.09
2	G	601	CHL	C4D-CHA-CBD	-2.65	106.30	108.97
3	N	303	CLA	O2D-CGD-O1D	-2.64	118.70	123.85
3	N	314	CLA	O2D-CGD-CBD	2.64	115.85	111.23
2	Y	601	CHL	O2D-CGD-CBD	2.64	113.85	110.95
6	Y	616	NEX	C11-C12-C13	-2.64	119.12	126.36
3	G	609	CLA	CMB-C2B-C1B	-2.64	121.40	125.42
2	G	605	CHL	CMD-C2D-C3D	2.64	129.95	124.68
4	Y	614	LUT	C20-C13-C14	-2.64	118.55	122.82
2	N	301	CHL	CBC-CAC-C3C	2.63	116.64	112.87
3	N	305	CLA	CMB-C2B-C1B	-2.63	121.41	125.42
2	Y	601	CHL	C4D-CHA-CBD	-2.63	106.31	108.97
3	G	611	CLA	C3B-C4B-NB	-2.63	108.18	110.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	N	319	NEX	C24-C23-C22	-2.63	105.88	110.79
2	Y	608	CHL	C3C-C4C-NC	-2.63	108.23	114.65
4	N	316	LUT	C40-C33-C34	-2.63	118.56	122.82
2	N	309	CHL	CMB-C2B-C3B	2.63	129.93	124.68
4	G	614	LUT	C32-C33-C34	2.63	123.14	119.01
2	G	606	CHL	O2D-CGD-O1D	-2.62	118.74	123.85
2	N	310	CHL	C3D-C4D-CHA	2.62	112.52	108.54
2	N	301	CHL	C3D-C4D-CHA	2.61	112.51	108.54
2	Y	605	CHL	CMB-C2B-C3B	2.61	129.90	124.68
2	N	307	CHL	CMD-C2D-C3D	2.61	129.89	124.68
4	G	615	LUT	C21-C26-C27	-2.61	109.83	112.83
2	G	601	CHL	CMB-C2B-C3B	2.60	129.88	124.68
3	Y	603	CLA	CHB-C4A-NA	2.60	128.15	124.40
3	N	313	CLA	C1-C2-C3	-2.60	121.94	126.20
5	N	318	XAT	C26-C27-C28	-2.60	120.50	125.99
2	N	307	CHL	CHA-C1A-C2A	-2.59	127.21	133.31
2	N	309	CHL	C3D-C4D-CHA	2.59	112.48	108.54
3	G	611	CLA	C1-C2-C3	-2.59	121.95	126.20
3	Y	609	CLA	CHB-C1B-C2B	-2.59	119.91	127.43
4	Y	615	LUT	C15-C35-C34	-2.59	118.22	123.52
3	G	612	CLA	C3B-C4B-NB	-2.59	108.22	110.53
2	G	605	CHL	C3C-C4C-NC	-2.59	108.33	114.65
6	G	617	NEX	C39-C29-C30	-2.59	118.63	122.82
2	N	308	CHL	C3D-C4D-CHA	2.58	112.47	108.54
2	Y	608	CHL	CMD-C2D-C3D	2.58	129.85	124.68
4	N	316	LUT	C32-C33-C34	2.58	123.07	119.01
4	Y	614	LUT	C32-C33-C34	2.58	123.06	119.01
2	G	608	CHL	C4D-CHA-CBD	-2.58	106.37	108.97
3	G	613	CLA	C3B-C4B-NB	-2.58	108.23	110.53
2	Y	601	CHL	C3D-C4D-CHA	2.57	112.45	108.54
3	G	603	CLA	O2D-CGD-O1D	-2.57	118.84	123.85
3	G	604	CLA	CMB-C2B-C3B	2.57	132.59	126.55
2	N	309	CHL	C3C-C4C-NC	-2.57	108.38	114.65
2	N	308	CHL	CHA-C1A-C2A	-2.57	127.28	133.31
2	Y	605	CHL	O2D-CGD-O1D	-2.57	118.85	123.85
2	Y	606	CHL	C3D-C4D-CHA	2.57	112.44	108.54
2	Y	605	CHL	C1C-CHC-C4B	2.56	125.24	116.07
2	Y	606	CHL	O2D-CGD-O1D	-2.56	118.86	123.85
4	G	615	LUT	C36-C21-C26	2.56	113.42	109.55
2	N	309	CHL	CHA-C1A-C2A	-2.55	127.31	133.31
5	N	318	XAT	C35-C34-C33	-2.55	123.70	127.28
2	Y	606	CHL	CMD-C2D-C3D	2.54	129.76	124.68

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	601	CHL	CHA-C1A-C2A	-2.53	127.37	133.31
2	N	310	CHL	CMB-C2B-C3B	2.53	129.74	124.68
2	G	619	CHL	CHA-C1A-C2A	-2.53	127.37	133.31
3	Y	611	CLA	CHB-C4A-NA	2.53	128.04	124.40
2	Y	605	CHL	CMD-C2D-C3D	2.52	129.72	124.68
6	Y	616	NEX	C17-C1-C6	-2.52	108.22	110.47
3	N	313	CLA	CHB-C1B-C2B	-2.52	120.12	127.43
2	N	302	CHL	CMB-C2B-C3B	2.51	129.71	124.68
3	Y	602	CLA	C1-C2-C3	-2.51	122.08	126.20
3	N	311	CLA	O2D-CGD-O1D	-2.51	118.96	123.85
3	G	611	CLA	O2D-CGD-CBD	2.50	115.60	111.23
3	N	312	CLA	CHB-C4A-NA	2.49	128.00	124.40
2	N	306	CHL	C1C-CHC-C4B	2.49	124.98	116.07
3	Y	613	CLA	CHB-C4A-NA	2.49	127.99	124.40
3	N	315	CLA	O2D-CGD-O1D	-2.49	119.01	123.85
2	Y	607	CHL	CMB-C2B-C3B	2.48	129.63	124.68
2	N	301	CHL	CHA-C1A-C2A	-2.48	127.49	133.31
3	N	304	CLA	CHB-C4A-NA	2.47	127.97	124.40
3	N	313	CLA	CHB-C4A-NA	2.47	127.97	124.40
3	G	611	CLA	CHB-C4A-NA	2.47	127.97	124.40
4	G	614	LUT	C12-C13-C14	2.47	122.89	119.01
5	G	616	XAT	C4-C3-C2	-2.47	106.18	110.79
4	N	316	LUT	C12-C13-C14	2.46	122.88	119.01
2	N	306	CHL	CAA-C2A-C3A	-2.46	106.35	113.00
3	N	311	CLA	CHB-C4A-NA	2.46	127.95	124.40
3	G	604	CLA	CHB-C4A-NA	2.46	127.95	124.40
4	Y	615	LUT	C21-C26-C27	-2.46	110.00	112.83
2	Y	601	CHL	CMB-C2B-C3B	2.45	129.59	124.68
2	N	308	CHL	C4C-CHD-C1D	2.45	124.84	116.07
3	Y	610	CLA	CMB-C2B-C1B	-2.45	121.69	125.42
2	N	308	CHL	CMB-C2B-C3B	2.45	129.58	124.68
4	N	317	LUT	C36-C21-C26	2.45	113.25	109.55
2	Y	601	CHL	O2A-CGA-O1A	-2.44	117.52	123.63
2	G	619	CHL	CMB-C2B-C3B	2.44	129.55	124.68
2	G	607	CHL	CMD-C2D-C3D	2.43	129.55	124.68
4	Y	614	LUT	C12-C13-C14	2.43	122.84	119.01
3	G	610	CLA	C3B-C4B-NB	-2.43	108.36	110.53
2	G	606	CHL	C3C-C4C-NC	-2.43	108.71	114.65
4	Y	615	LUT	C19-C9-C8	2.42	121.79	118.09
4	G	615	LUT	C27-C28-C29	-2.42	121.13	126.32
2	G	619	CHL	CMD-C2D-C3D	2.42	129.51	124.68
2	Y	606	CHL	C4D-CHA-CBD	-2.41	106.53	108.97

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	N	301	CHL	CMB-C2B-C3B	2.41	129.50	124.68
2	N	306	CHL	CMD-C2D-C3D	2.41	129.50	124.68
3	Y	611	CLA	CAA-C2A-C3A	-2.41	106.49	113.00
7	G	618	LHG	O8-C23-C24	2.40	119.17	111.83
2	N	301	CHL	C4C-CHD-C1D	2.40	124.67	116.07
2	N	308	CHL	C3C-C4C-NC	-2.40	108.78	114.65
2	N	302	CHL	C3D-C4D-CHA	2.40	112.19	108.54
3	G	609	CLA	CAA-CBA-CGA	-2.40	106.39	113.21
2	Y	601	CHL	C4C-CHD-C1D	2.39	124.61	116.07
3	Y	613	CLA	CMB-C2B-C3B	2.39	132.16	126.55
4	G	615	LUT	C15-C35-C34	-2.38	118.64	123.52
2	Y	601	CHL	C3C-C4C-NC	-2.38	108.83	114.65
6	Y	616	NEX	C2-C1-C6	2.38	111.52	109.21
2	G	608	CHL	O2A-CGA-O1A	-2.38	117.68	123.63
2	Y	601	CHL	CMD-C2D-C3D	2.37	129.42	124.68
3	Y	610	CLA	C3B-C4B-NB	-2.37	108.42	110.53
2	N	302	CHL	C4C-CHD-C1D	2.37	124.53	116.07
3	G	603	CLA	CAA-C2A-C3A	-2.37	106.61	113.00
2	N	302	CHL	C3C-C4C-NC	-2.36	108.87	114.65
3	G	609	CLA	C1D-ND-C4D	-2.35	104.66	106.31
3	Y	610	CLA	O2A-CGA-O1A	-2.35	117.74	123.63
3	G	602	CLA	CHB-C4A-NA	2.35	127.79	124.40
4	N	317	LUT	C38-C25-C24	-2.34	117.81	123.36
3	Y	610	CLA	CHB-C4A-NA	2.34	127.78	124.40
3	N	314	CLA	C3B-C4B-NB	-2.34	108.44	110.53
2	G	606	CHL	CMD-C2D-C3D	2.34	129.35	124.68
6	N	319	NEX	C39-C29-C30	-2.34	119.03	122.82
5	N	318	XAT	C7-C8-C9	-2.34	121.91	125.53
7	N	320	LHG	O8-C23-C24	2.33	118.95	111.83
4	G	615	LUT	C11-C10-C9	-2.33	124.01	127.28
2	N	310	CHL	C3C-C4C-NC	-2.33	108.96	114.65
3	G	602	CLA	CMB-C2B-C1B	-2.33	121.88	125.42
4	Y	615	LUT	C36-C21-C26	2.32	113.06	109.55
3	N	303	CLA	C1-C2-C3	-2.32	122.39	126.20
6	G	617	NEX	C28-C29-C30	2.32	122.66	119.01
3	G	612	CLA	CHB-C4A-NA	2.32	127.75	124.40
3	G	603	CLA	CBC-CAC-C3C	-2.32	106.13	112.42
2	N	302	CHL	C4D-CHA-CBD	-2.32	106.63	108.97
2	Y	608	CHL	C4C-CHD-C1D	2.32	124.36	116.07
2	Y	607	CHL	C3C-C4C-NC	-2.31	109.00	114.65
3	Y	604	CLA	CHB-C4A-NA	2.31	127.74	124.40
3	G	609	CLA	CHB-C1B-NB	2.31	127.51	124.05

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	G	615	LUT	C35-C15-C14	-2.31	118.80	123.52
3	Y	603	CLA	CAA-C2A-C3A	-2.31	106.77	113.00
3	Y	609	CLA	CMB-C2B-C1B	-2.31	121.91	125.42
2	N	307	CHL	C4C-CHD-C1D	2.31	124.32	116.07
2	Y	606	CHL	O1D-CGD-CBD	2.30	128.21	124.72
3	Y	610	CLA	C1-C2-C3	-2.30	122.43	126.20
2	N	306	CHL	C4C-CHD-C1D	2.29	124.27	116.07
2	Y	606	CHL	C3C-C4C-NC	-2.29	109.05	114.65
6	N	319	NEX	C26-C27-C28	-2.29	121.15	125.99
2	G	607	CHL	C3C-C4C-NC	-2.29	109.05	114.65
2	N	308	CHL	CMD-C2D-C3D	2.29	129.26	124.68
2	N	306	CHL	O2A-CGA-O1A	-2.28	117.91	123.63
4	G	615	LUT	C38-C25-C24	-2.28	117.96	123.36
4	N	316	LUT	C15-C35-C34	2.28	128.19	123.52
4	G	614	LUT	C15-C35-C34	2.28	128.18	123.52
4	Y	614	LUT	C15-C35-C34	2.28	128.18	123.52
4	N	317	LUT	C21-C26-C27	-2.28	110.20	112.83
3	G	612	CLA	O2A-CGA-O1A	-2.28	117.94	123.63
2	N	301	CHL	CMD-C2D-C3D	2.27	129.22	124.68
2	G	606	CHL	O2D-CGD-CBD	2.27	113.44	110.95
2	N	306	CHL	OMC-CMC-C2C	-2.27	121.19	125.12
2	N	309	CHL	C4C-CHD-C1D	2.27	124.17	116.07
4	G	615	LUT	C20-C13-C12	2.26	121.55	118.09
5	N	318	XAT	C10-C11-C12	-2.26	116.66	123.20
4	N	317	LUT	C19-C9-C8	2.26	121.54	118.09
2	N	308	CHL	O1D-CGD-CBD	2.25	128.14	124.72
3	Y	609	CLA	CMB-C2B-C3B	2.25	131.84	126.55
3	Y	602	CLA	CHB-C1B-NB	2.25	127.42	124.05
2	Y	606	CHL	C4C-CHD-C1D	2.24	124.10	116.07
5	N	318	XAT	C40-C33-C32	2.24	121.51	118.09
5	N	318	XAT	C30-C31-C32	-2.24	116.71	123.20
6	Y	616	NEX	C31-C32-C33	-2.24	120.23	126.36
2	G	606	CHL	CMB-C2B-C3B	2.23	129.15	124.68
3	G	603	CLA	CHB-C4A-NA	2.23	127.62	124.40
3	N	312	CLA	C3B-C4B-NB	-2.23	108.54	110.53
3	G	609	CLA	CMB-C2B-C3B	2.23	131.79	126.55
2	G	601	CHL	C4C-CHD-C1D	2.23	124.04	116.07
3	N	315	CLA	O2D-CGD-CBD	2.23	115.12	111.23
3	Y	613	CLA	CAC-C3C-C4C	2.22	127.68	124.79
2	N	301	CHL	C3C-C4C-NC	-2.22	109.22	114.65
2	G	605	CHL	CMB-C2B-C3B	2.22	129.12	124.68
3	Y	610	CLA	CMB-C2B-C3B	2.22	131.76	126.55

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	Y	615	LUT	C8-C7-C6	-2.22	121.08	127.00
2	G	606	CHL	OMC-CMC-C2C	-2.21	121.28	125.12
2	G	606	CHL	C4C-CHD-C1D	2.21	123.98	116.07
7	N	320	LHG	C5-O7-C7	-2.21	112.51	117.80
3	N	315	CLA	C3B-C4B-NB	-2.20	108.56	110.53
3	Y	610	CLA	O2D-CGD-O1D	-2.20	119.57	123.85
2	G	601	CHL	CBC-CAC-C3C	2.20	116.02	112.87
4	Y	615	LUT	C31-C30-C29	-2.19	124.20	127.28
2	N	307	CHL	C3C-C4C-NC	-2.19	109.29	114.65
5	G	616	XAT	O24-C25-C26	-2.19	57.19	58.93
2	G	619	CHL	C3C-C4C-NC	-2.19	109.30	114.65
5	N	321	XAT	C24-C23-C22	-2.19	106.69	110.79
3	N	315	CLA	CHB-C4A-NA	2.19	127.56	124.40
3	N	312	CLA	O2A-CGA-O1A	-2.19	118.16	123.63
4	Y	615	LUT	C40-C33-C32	2.18	121.42	118.09
3	N	314	CLA	CHB-C4A-NA	2.17	127.54	124.40
2	N	301	CHL	O2A-C1-C2	-2.17	103.82	108.99
3	G	602	CLA	C4-C3-C5	2.17	119.00	115.23
2	G	619	CHL	C4C-CHD-C1D	2.17	123.82	116.07
3	Y	612	CLA	CHD-C1D-ND	-2.16	121.76	124.80
2	Y	605	CHL	C3C-C4C-NC	-2.16	109.37	114.65
2	N	301	CHL	C1-O2A-CGA	2.16	121.87	116.65
3	Y	602	CLA	CHB-C4A-NA	2.16	127.51	124.40
2	N	310	CHL	OBD-CAD-CBD	-2.15	122.66	125.82
3	N	313	CLA	O2A-CGA-O1A	-2.15	118.24	123.63
6	G	617	NEX	C19-C9-C10	-2.15	119.33	122.82
2	N	306	CHL	C3C-C4C-NC	-2.15	109.39	114.65
3	G	613	CLA	CHB-C4A-NA	2.15	127.51	124.40
3	N	303	CLA	CHB-C4A-NA	2.15	127.51	124.40
2	N	309	CHL	O2A-CGA-O1A	-2.15	118.25	123.63
3	N	305	CLA	CHB-C4A-NA	2.14	127.49	124.40
2	G	608	CHL	C4C-CHD-C1D	2.14	123.72	116.07
2	N	310	CHL	O2A-CGA-O1A	-2.14	118.28	123.63
4	Y	615	LUT	C38-C25-C24	-2.14	118.31	123.36
3	Y	612	CLA	CHB-C4A-NA	2.14	127.48	124.40
3	Y	602	CLA	C3B-C4B-NB	-2.13	108.63	110.53
3	N	305	CLA	CMB-C2B-C3B	2.13	131.56	126.55
3	G	611	CLA	C3A-C2A-C1A	2.13	104.52	101.34
3	N	304	CLA	C3B-C4B-NB	-2.13	108.63	110.53
2	G	601	CHL	O2A-CGA-O1A	-2.12	118.32	123.63
3	N	311	CLA	CMB-C2B-C1B	-2.12	122.19	125.42
3	Y	604	CLA	CHB-C1B-NB	2.12	127.23	124.05

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	N	319	NEX	C15-C35-C34	-2.12	119.18	123.52
2	N	310	CHL	C4D-ND-C1D	2.12	106.83	105.22
2	N	302	CHL	CMD-C2D-C3D	2.12	128.91	124.68
3	Y	602	CLA	O2A-CGA-O1A	-2.12	118.33	123.63
5	N	318	XAT	C19-C9-C8	2.11	121.32	118.09
4	G	615	LUT	C3-C4-C5	-2.11	106.91	112.18
3	Y	613	CLA	CAA-CBA-CGA	-2.11	107.21	113.21
2	N	307	CHL	C1A-CHA-C4D	2.11	122.50	118.98
3	Y	604	CLA	CMB-C2B-C3B	2.11	131.51	126.55
3	Y	603	CLA	CBC-CAC-C3C	-2.11	106.71	112.42
6	N	319	NEX	O24-C25-C26	-2.10	57.27	58.93
3	Y	612	CLA	C11-C10-C8	-2.09	109.02	115.97
5	G	616	XAT	O4-C5-C6	-2.09	57.28	58.93
2	N	302	CHL	O2A-CGA-O1A	-2.08	118.42	123.63
2	G	606	CHL	O2A-CGA-O1A	-2.08	118.42	123.63
2	Y	607	CHL	C4C-CHD-C1D	2.08	123.50	116.07
3	N	311	CLA	C1-C2-C3	-2.07	122.81	126.20
3	G	610	CLA	CAA-CBA-CGA	-2.07	107.34	113.21
6	Y	616	NEX	O24-C25-C26	-2.07	57.29	58.93
3	G	613	CLA	O2A-CGA-O1A	-2.06	118.47	123.63
2	Y	607	CHL	CHA-C1A-C2A	-2.05	128.48	133.31
3	N	305	CLA	O2D-CGD-CBD	2.05	114.82	111.23
6	G	617	NEX	C31-C30-C29	-2.05	124.40	127.28
2	G	606	CHL	CAA-C2A-C3A	-2.05	107.46	113.00
2	G	607	CHL	C4C-CHD-C1D	2.05	123.39	116.07
2	G	606	CHL	O1D-CGD-CBD	2.04	127.82	124.72
6	N	319	NEX	C31-C32-C33	-2.04	120.76	126.36
2	N	301	CHL	C4D-ND-C1D	2.04	106.77	105.22
3	Y	602	CLA	CHB-C1B-C2B	-2.04	121.50	127.43
2	G	601	CHL	C3C-C4C-NC	-2.04	109.66	114.65
4	G	615	LUT	C39-C29-C28	2.04	121.20	118.09
3	Y	613	CLA	O2A-CGA-O1A	-2.04	118.53	123.63
4	G	615	LUT	C40-C33-C32	2.03	121.20	118.09
4	Y	615	LUT	C1-C2-C3	2.03	118.06	113.59
3	Y	604	CLA	C3B-C4B-NB	-2.03	108.72	110.53
2	N	310	CHL	C4C-CHD-C1D	2.03	123.33	116.07
2	Y	606	CHL	OMC-CMC-C2C	-2.03	121.60	125.12
3	N	311	CLA	C2D-C1D-ND	-2.03	108.12	110.13
3	Y	613	CLA	C2D-C1D-ND	-2.03	108.12	110.13
4	N	317	LUT	C3-C4-C5	-2.02	107.15	112.18
4	Y	615	LUT	C35-C15-C14	-2.02	119.39	123.52
3	G	603	CLA	O2A-CGA-O1A	-2.02	118.58	123.63

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	G	614	LUT	C8-C9-C10	2.02	122.18	119.01
3	Y	611	CLA	O2D-CGD-CBD	2.02	114.75	111.23
3	G	610	CLA	O2A-CGA-O1A	-2.01	118.59	123.63
2	G	607	CHL	O2A-CGA-O1A	-2.01	118.60	123.63
5	G	616	XAT	C31-C32-C33	-2.01	120.85	126.36
2	G	619	CHL	C4D-ND-C1D	2.01	106.74	105.22
4	N	317	LUT	C8-C7-C6	-2.01	121.64	127.00
3	G	603	CLA	C3B-C4B-NB	-2.01	108.74	110.53
5	G	616	XAT	C19-C9-C8	2.01	121.15	118.09

All (75) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
2	G	601	CHL	NC
2	G	601	CHL	ND
2	G	601	CHL	NA
2	G	605	CHL	NC
2	G	605	CHL	ND
2	G	605	CHL	NA
2	G	606	CHL	NC
2	G	606	CHL	ND
2	G	606	CHL	NA
2	G	607	CHL	NC
2	G	607	CHL	ND
2	G	607	CHL	NA
2	G	608	CHL	NC
2	G	608	CHL	ND
2	G	608	CHL	NA
2	G	619	CHL	NC
2	G	619	CHL	ND
2	G	619	CHL	NA
2	N	301	CHL	NC
2	N	301	CHL	ND
2	N	301	CHL	NA
2	N	302	CHL	NC
2	N	302	CHL	ND
2	N	302	CHL	NA
2	N	306	CHL	NC
2	N	306	CHL	ND
2	N	306	CHL	NA
2	N	307	CHL	NC
2	N	307	CHL	ND

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Mol	Chain	Res	Type	Atom
2	N	307	CHL	NA
2	N	308	CHL	NC
2	N	308	CHL	ND
2	N	308	CHL	NA
2	N	309	CHL	NC
2	N	309	CHL	ND
2	N	309	CHL	NA
2	N	310	CHL	NC
2	N	310	CHL	ND
2	N	310	CHL	NA
2	Y	601	CHL	NC
2	Y	601	CHL	ND
2	Y	601	CHL	NA
2	Y	605	CHL	NC
2	Y	605	CHL	ND
2	Y	605	CHL	NA
2	Y	606	CHL	NC
2	Y	606	CHL	ND
2	Y	606	CHL	NA
2	Y	607	CHL	NC
2	Y	607	CHL	ND
2	Y	607	CHL	NA
2	Y	608	CHL	NC
2	Y	608	CHL	ND
2	Y	608	CHL	NA
3	G	602	CLA	ND
3	G	603	CLA	ND
3	G	604	CLA	ND
3	G	609	CLA	ND
3	G	610	CLA	ND
3	G	611	CLA	ND
3	G	612	CLA	ND
3	G	613	CLA	ND
3	N	303	CLA	ND
3	N	304	CLA	ND
3	N	305	CLA	ND
3	N	311	CLA	ND
3	N	312	CLA	ND
3	N	313	CLA	ND
3	N	315	CLA	ND
3	Y	603	CLA	ND
3	Y	604	CLA	ND

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Mol	Chain	Res	Type	Atom
3	Y	609	CLA	ND
3	Y	610	CLA	ND
3	Y	611	CLA	ND
3	Y	613	CLA	ND

All (490) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	G	605	CHL	CAD-CBD-CGD-O1D
2	G	605	CHL	CAD-CBD-CGD-O2D
2	G	606	CHL	C1C-C2C-CMC-OMC
2	G	606	CHL	C3C-C2C-CMC-OMC
2	G	607	CHL	C1C-C2C-CMC-OMC
2	G	607	CHL	C3C-C2C-CMC-OMC
2	G	607	CHL	CBD-CGD-O2D-CED
2	G	608	CHL	C1C-C2C-CMC-OMC
2	G	608	CHL	C4C-C3C-CAC-CBC
2	N	301	CHL	C1C-C2C-CMC-OMC
2	N	301	CHL	C4C-C3C-CAC-CBC
2	N	306	CHL	C1C-C2C-CMC-OMC
2	N	306	CHL	C3C-C2C-CMC-OMC
2	N	308	CHL	C1C-C2C-CMC-OMC
2	N	308	CHL	C3C-C2C-CMC-OMC
2	Y	605	CHL	C1A-C2A-CAA-CBA
2	Y	605	CHL	C1C-C2C-CMC-OMC
2	Y	605	CHL	C3C-C2C-CMC-OMC
2	Y	606	CHL	C1C-C2C-CMC-OMC
2	Y	606	CHL	C3C-C2C-CMC-OMC
2	Y	607	CHL	CHA-CBD-CGD-O1D
2	Y	607	CHL	CHA-CBD-CGD-O2D
2	Y	608	CHL	C3A-C2A-CAA-CBA
2	Y	608	CHL	C1C-C2C-CMC-OMC
2	Y	608	CHL	C3C-C2C-CMC-OMC
3	G	609	CLA	C1A-C2A-CAA-CBA
3	G	609	CLA	CBD-CGD-O2D-CED
3	G	610	CLA	C2B-C3B-CAB-CBB
3	G	610	CLA	C4B-C3B-CAB-CBB
3	G	611	CLA	C2B-C3B-CAB-CBB
3	G	611	CLA	C4B-C3B-CAB-CBB
3	G	611	CLA	CHA-CBD-CGD-O1D
3	G	611	CLA	CHA-CBD-CGD-O2D
3	G	611	CLA	CBD-CGD-O2D-CED

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Mol	Chain	Res	Type	Atoms
3	G	611	CLA	C11-C12-C13-C15
3	G	612	CLA	C4B-C3B-CAB-CBB
3	N	305	CLA	CHA-CBD-CGD-O1D
3	N	305	CLA	CHA-CBD-CGD-O2D
3	N	312	CLA	CAD-CBD-CGD-O1D
3	N	312	CLA	CAD-CBD-CGD-O2D
3	N	313	CLA	C2B-C3B-CAB-CBB
3	N	313	CLA	C4B-C3B-CAB-CBB
3	N	314	CLA	CHA-CBD-CGD-O1D
3	N	314	CLA	CHA-CBD-CGD-O2D
3	N	314	CLA	CBD-CGD-O2D-CED
3	N	315	CLA	CAD-CBD-CGD-O1D
3	N	315	CLA	CAD-CBD-CGD-O2D
3	N	315	CLA	CBD-CGD-O2D-CED
3	Y	610	CLA	CBD-CGD-O2D-CED
3	Y	611	CLA	CHA-CBD-CGD-O2D
3	Y	612	CLA	C2B-C3B-CAB-CBB
3	Y	612	CLA	C4B-C3B-CAB-CBB
3	Y	612	CLA	CBD-CGD-O2D-CED
4	G	614	LUT	C6-C7-C8-C9
4	N	316	LUT	C6-C7-C8-C9
4	Y	614	LUT	C6-C7-C8-C9
5	N	321	XAT	O4-C6-C7-C8
5	N	321	XAT	O24-C26-C27-C28
5	N	321	XAT	C31-C32-C33-C34
6	G	617	NEX	C7-C8-C9-C10
6	G	617	NEX	C7-C8-C9-C19
6	G	617	NEX	O24-C26-C27-C28
7	G	618	LHG	C3-O3-P-O4
7	G	618	LHG	C3-O3-P-O6
7	G	618	LHG	C4-O6-P-O3
7	G	618	LHG	C4-O6-P-O4
7	G	618	LHG	C4-O6-P-O5
7	N	320	LHG	O1-C1-C2-C3
7	N	320	LHG	C3-O3-P-O4
7	N	320	LHG	C3-O3-P-O6
7	N	320	LHG	C4-O6-P-O3
7	N	320	LHG	C4-O6-P-O4
7	Y	617	LHG	O1-C1-C2-C3
7	Y	617	LHG	O7-C5-C6-O8
2	G	607	CHL	O1D-CGD-O2D-CED
3	G	604	CLA	O1D-CGD-O2D-CED

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Mol	Chain	Res	Type	Atoms
3	G	611	CLA	O1D-CGD-O2D-CED
3	N	314	CLA	O1D-CGD-O2D-CED
3	Y	610	CLA	O1D-CGD-O2D-CED
3	G	602	CLA	CBD-CGD-O2D-CED
3	G	604	CLA	CBD-CGD-O2D-CED
3	G	613	CLA	CBD-CGD-O2D-CED
3	N	303	CLA	CBD-CGD-O2D-CED
3	N	311	CLA	CBD-CGD-O2D-CED
3	Y	604	CLA	CBD-CGD-O2D-CED
3	Y	609	CLA	CBD-CGD-O2D-CED
3	G	613	CLA	O1D-CGD-O2D-CED
3	G	604	CLA	CBA-CGA-O2A-C1
7	N	320	LHG	C24-C23-O8-C6
2	N	306	CHL	O1A-CGA-O2A-C1
2	Y	605	CHL	O1A-CGA-O2A-C1
3	G	604	CLA	O1A-CGA-O2A-C1
3	G	612	CLA	O1A-CGA-O2A-C1
3	G	613	CLA	O1A-CGA-O2A-C1
3	N	312	CLA	O1A-CGA-O2A-C1
7	N	320	LHG	O10-C23-O8-C6
3	G	609	CLA	O1D-CGD-O2D-CED
3	N	315	CLA	O1D-CGD-O2D-CED
3	G	611	CLA	C3-C5-C6-C7
3	Y	612	CLA	C3-C5-C6-C7
2	N	306	CHL	CBA-CGA-O2A-C1
2	Y	605	CHL	CBA-CGA-O2A-C1
3	G	613	CLA	CBA-CGA-O2A-C1
7	Y	617	LHG	C24-C23-O8-C6
2	N	301	CHL	CBD-CGD-O2D-CED
2	N	306	CHL	CBD-CGD-O2D-CED
2	Y	605	CHL	CBD-CGD-O2D-CED
3	G	612	CLA	CBD-CGD-O2D-CED
3	Y	602	CLA	CBD-CGD-O2D-CED
3	Y	603	CLA	CBD-CGD-O2D-CED
3	Y	613	CLA	CBD-CGD-O2D-CED
3	Y	612	CLA	O1D-CGD-O2D-CED
3	G	609	CLA	C4-C3-C5-C6
3	G	609	CLA	C2-C3-C5-C6
3	G	602	CLA	O1D-CGD-O2D-CED
3	G	602	CLA	C3-C5-C6-C7
3	N	313	CLA	C3-C5-C6-C7
3	G	612	CLA	CBA-CGA-O2A-C1

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Mol	Chain	Res	Type	Atoms
3	N	312	CLA	CBA-CGA-O2A-C1
3	N	303	CLA	O1D-CGD-O2D-CED
3	N	311	CLA	O1D-CGD-O2D-CED
2	G	619	CHL	CBD-CGD-O2D-CED
2	N	308	CHL	CBA-CGA-O2A-C1
7	Y	617	LHG	O10-C23-O8-C6
3	Y	604	CLA	O1D-CGD-O2D-CED
2	N	308	CHL	O1A-CGA-O2A-C1
3	Y	609	CLA	O1D-CGD-O2D-CED
3	N	305	CLA	CBD-CGD-O2D-CED
2	Y	606	CHL	CBD-CGD-O2D-CED
3	N	304	CLA	CBD-CGD-O2D-CED
3	Y	611	CLA	C3-C5-C6-C7
2	G	605	CHL	CBA-CGA-O2A-C1
3	N	305	CLA	CBA-CGA-O2A-C1
3	G	612	CLA	O1D-CGD-O2D-CED
3	G	602	CLA	C6-C7-C8-C9
3	N	311	CLA	C11-C12-C13-C14
3	Y	613	CLA	O1D-CGD-O2D-CED
3	Y	602	CLA	O1D-CGD-O2D-CED
5	N	321	XAT	C31-C32-C33-C40
6	N	319	NEX	C11-C12-C13-C20
2	G	605	CHL	O1A-CGA-O2A-C1
2	Y	605	CHL	O1D-CGD-O2D-CED
2	N	301	CHL	O1D-CGD-O2D-CED
3	G	611	CLA	C15-C16-C17-C18
3	N	303	CLA	C10-C11-C12-C13
2	N	306	CHL	O1D-CGD-O2D-CED
4	G	614	LUT	C9-C10-C11-C12
4	N	316	LUT	C9-C10-C11-C12
4	Y	614	LUT	C9-C10-C11-C12
5	N	318	XAT	C29-C30-C31-C32
3	N	305	CLA	O1A-CGA-O2A-C1
3	G	602	CLA	C8-C10-C11-C12
3	Y	609	CLA	C5-C6-C7-C8
2	G	619	CHL	C2A-CAA-CBA-CGA
2	N	309	CHL	C2A-CAA-CBA-CGA
3	G	609	CLA	C2A-CAA-CBA-CGA
3	G	602	CLA	C5-C6-C7-C8
7	Y	617	LHG	C23-C24-C25-C26
7	Y	617	LHG	C24-C25-C26-C27
3	N	313	CLA	C15-C16-C17-C18

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Mol	Chain	Res	Type	Atoms
3	Y	603	CLA	O1D-CGD-O2D-CED
3	Y	610	CLA	C5-C6-C7-C8
3	G	611	CLA	CBA-CGA-O2A-C1
2	Y	601	CHL	O2A-C1-C2-C3
2	Y	607	CHL	C2A-CAA-CBA-CGA
3	Y	604	CLA	C2A-CAA-CBA-CGA
2	G	607	CHL	CBA-CGA-O2A-C1
3	N	304	CLA	CBA-CGA-O2A-C1
3	N	311	CLA	C15-C16-C17-C18
2	G	619	CHL	O1D-CGD-O2D-CED
3	G	611	CLA	C8-C10-C11-C12
3	Y	610	CLA	C8-C10-C11-C12
3	G	602	CLA	C4-C3-C5-C6
3	Y	602	CLA	C10-C11-C12-C13
3	N	311	CLA	C5-C6-C7-C8
2	G	607	CHL	C2A-CAA-CBA-CGA
2	N	301	CHL	C2A-CAA-CBA-CGA
3	Y	611	CLA	CBA-CGA-O2A-C1
3	G	611	CLA	O1A-CGA-O2A-C1
7	N	320	LHG	O1-C1-C2-O2
7	Y	617	LHG	O1-C1-C2-O2
3	G	604	CLA	C2A-CAA-CBA-CGA
3	Y	613	CLA	C2A-CAA-CBA-CGA
3	G	611	CLA	C5-C6-C7-C8
3	N	311	CLA	C13-C15-C16-C17
3	Y	610	CLA	C13-C15-C16-C17
3	N	311	CLA	C11-C12-C13-C15
3	Y	602	CLA	C8-C10-C11-C12
7	Y	617	LHG	C29-C30-C31-C32
3	N	304	CLA	O1A-CGA-O2A-C1
3	G	603	CLA	C3A-C2A-CAA-CBA
3	G	609	CLA	C3A-C2A-CAA-CBA
3	N	304	CLA	C3A-C2A-CAA-CBA
3	N	305	CLA	O1D-CGD-O2D-CED
7	N	320	LHG	C32-C33-C34-C35
7	N	320	LHG	C14-C15-C16-C17
2	G	607	CHL	O1A-CGA-O2A-C1
3	Y	611	CLA	O1A-CGA-O2A-C1
3	G	612	CLA	C2B-C3B-CAB-CBB
3	N	312	CLA	C2A-CAA-CBA-CGA
3	N	315	CLA	C2A-CAA-CBA-CGA
3	Y	609	CLA	C2A-CAA-CBA-CGA

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Mol	Chain	Res	Type	Atoms
3	Y	611	CLA	C4-C3-C5-C6
4	G	614	LUT	C10-C11-C12-C13
4	N	316	LUT	C10-C11-C12-C13
4	Y	614	LUT	C10-C11-C12-C13
3	G	602	CLA	C2-C3-C5-C6
3	N	311	CLA	C16-C17-C18-C20
3	N	304	CLA	O1D-CGD-O2D-CED
7	N	320	LHG	C8-C7-O7-C5
7	Y	617	LHG	C15-C16-C17-C18
7	N	320	LHG	O9-C7-O7-C5
7	G	618	LHG	C9-C10-C11-C12
2	G	608	CHL	C2C-C3C-CAC-CBC
2	N	301	CHL	C2C-C3C-CAC-CBC
7	Y	617	LHG	C14-C15-C16-C17
3	N	311	CLA	C16-C17-C18-C19
3	N	313	CLA	C16-C17-C18-C20
3	Y	612	CLA	C16-C17-C18-C19
2	Y	606	CHL	O1D-CGD-O2D-CED
3	Y	612	CLA	C5-C6-C7-C8
2	Y	608	CHL	CBD-CGD-O2D-CED
3	N	313	CLA	C5-C6-C7-C8
2	Y	601	CHL	CBA-CGA-O2A-C1
3	Y	613	CLA	CBA-CGA-O2A-C1
3	Y	609	CLA	C8-C10-C11-C12
3	Y	611	CLA	C15-C16-C17-C18
7	Y	617	LHG	C34-C35-C36-C37
3	Y	612	CLA	C2-C3-C5-C6
2	G	606	CHL	C2A-CAA-CBA-CGA
3	G	612	CLA	C2A-CAA-CBA-CGA
3	Y	602	CLA	C2A-CAA-CBA-CGA
3	Y	613	CLA	O1A-CGA-O2A-C1
3	G	603	CLA	C1A-C2A-CAA-CBA
3	G	604	CLA	C1A-C2A-CAA-CBA
3	N	304	CLA	C1A-C2A-CAA-CBA
3	Y	609	CLA	C1A-C2A-CAA-CBA
3	Y	610	CLA	C1A-C2A-CAA-CBA
7	N	320	LHG	O6-C4-C5-C6
3	G	611	CLA	C6-C7-C8-C10
3	Y	602	CLA	C6-C7-C8-C10
3	Y	610	CLA	C12-C13-C15-C16
3	N	303	CLA	C8-C10-C11-C12
3	Y	611	CLA	C2-C3-C5-C6

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Mol	Chain	Res	Type	Atoms
3	G	602	CLA	C2A-CAA-CBA-CGA
3	G	611	CLA	C11-C10-C8-C9
7	Y	617	LHG	C32-C33-C34-C35
2	G	607	CHL	CHA-CBD-CGD-O1D
2	Y	601	CHL	O1A-CGA-O2A-C1
7	Y	617	LHG	C28-C29-C30-C31
7	N	320	LHG	C13-C14-C15-C16
2	G	605	CHL	C3C-C2C-CMC-OMC
2	G	608	CHL	C3C-C2C-CMC-OMC
2	N	301	CHL	C3C-C2C-CMC-OMC
7	N	320	LHG	C28-C29-C30-C31
7	N	320	LHG	C15-C16-C17-C18
7	Y	617	LHG	C13-C14-C15-C16
7	Y	617	LHG	C11-C10-C9-C8
7	N	320	LHG	C24-C25-C26-C27
3	Y	604	CLA	CBA-CGA-O2A-C1
2	Y	607	CHL	C1C-C2C-CMC-OMC
3	Y	610	CLA	C4-C3-C5-C6
3	G	602	CLA	C11-C10-C8-C9
3	G	611	CLA	C6-C7-C8-C9
3	N	303	CLA	C6-C7-C8-C9
3	Y	602	CLA	C6-C7-C8-C9
3	Y	610	CLA	C14-C13-C15-C16
3	G	611	CLA	C10-C11-C12-C13
3	G	611	CLA	C11-C10-C8-C7
3	N	303	CLA	C6-C7-C8-C10
7	Y	617	LHG	O2-C2-C3-O3
2	N	307	CHL	C3A-C2A-CAA-CBA
2	N	309	CHL	C3A-C2A-CAA-CBA
3	Y	612	CLA	C4-C3-C5-C6
3	N	313	CLA	C4-C3-C5-C6
3	N	313	CLA	C2-C3-C5-C6
3	N	313	CLA	C16-C17-C18-C19
4	N	317	LUT	C1-C6-C7-C8
3	Y	611	CLA	C5-C6-C7-C8
3	Y	602	CLA	C15-C16-C17-C18
3	Y	612	CLA	C16-C17-C18-C20
3	G	611	CLA	C11-C12-C13-C14
3	G	604	CLA	O2A-C1-C2-C3
3	N	314	CLA	O2A-C1-C2-C3
3	Y	610	CLA	C2-C3-C5-C6
3	G	609	CLA	CBA-CGA-O2A-C1

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Mol	Chain	Res	Type	Atoms
3	G	609	CLA	C11-C12-C13-C15
3	G	611	CLA	C12-C13-C15-C16
7	N	320	LHG	C30-C31-C32-C33
6	N	319	NEX	C11-C12-C13-C14
2	Y	606	CHL	CBA-CGA-O2A-C1
6	G	617	NEX	C29-C30-C31-C32
7	N	320	LHG	C11-C10-C9-C8
2	Y	608	CHL	O1D-CGD-O2D-CED
3	Y	604	CLA	O1A-CGA-O2A-C1
3	G	613	CLA	O2A-C1-C2-C3
7	Y	617	LHG	C4-C5-C6-O8
6	N	319	NEX	C7-C8-C9-C19
3	Y	612	CLA	C8-C10-C11-C12
3	N	311	CLA	C14-C13-C15-C16
4	G	614	LUT	C26-C27-C28-C29
4	N	316	LUT	C26-C27-C28-C29
4	Y	614	LUT	C26-C27-C28-C29
2	N	302	CHL	C4C-C3C-CAC-CBC
2	N	310	CHL	C4C-C3C-CAC-CBC
2	Y	607	CHL	C4C-C3C-CAC-CBC
4	G	614	LUT	C27-C28-C29-C39
4	N	316	LUT	C27-C28-C29-C39
4	Y	614	LUT	C27-C28-C29-C39
3	N	312	CLA	C4B-C3B-CAB-CBB
3	N	314	CLA	C4B-C3B-CAB-CBB
3	Y	611	CLA	C4B-C3B-CAB-CBB
2	Y	606	CHL	O1A-CGA-O2A-C1
2	Y	606	CHL	C3A-C2A-CAA-CBA
7	N	320	LHG	O6-C4-C5-O7
3	Y	603	CLA	C2A-CAA-CBA-CGA
3	Y	612	CLA	C2A-CAA-CBA-CGA
3	G	611	CLA	C14-C13-C15-C16
3	G	609	CLA	O1A-CGA-O2A-C1
2	G	606	CHL	C1-C2-C3-C4
2	G	607	CHL	C1-C2-C3-C4
2	G	608	CHL	C1-C2-C3-C4
2	G	619	CHL	C1-C2-C3-C4
2	N	301	CHL	C1-C2-C3-C4
2	N	302	CHL	C1-C2-C3-C4
2	N	307	CHL	C1-C2-C3-C4
2	N	309	CHL	C1-C2-C3-C4
2	N	310	CHL	C1-C2-C3-C4

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Mol	Chain	Res	Type	Atoms
2	Y	606	CHL	C1-C2-C3-C4
2	Y	607	CHL	C1-C2-C3-C4
3	G	603	CLA	C1-C2-C3-C4
3	G	604	CLA	C1-C2-C3-C4
3	G	610	CLA	C1-C2-C3-C4
3	G	612	CLA	C1-C2-C3-C4
3	G	613	CLA	C1-C2-C3-C4
3	N	304	CLA	C1-C2-C3-C4
3	N	305	CLA	C1-C2-C3-C4
3	N	312	CLA	C1-C2-C3-C4
3	N	314	CLA	C1-C2-C3-C4
3	N	315	CLA	C1-C2-C3-C4
3	Y	603	CLA	C1-C2-C3-C4
3	Y	604	CLA	C1-C2-C3-C4
3	Y	613	CLA	C1-C2-C3-C4
3	Y	613	CLA	CAD-CBD-CGD-O2D
2	G	608	CHL	O1A-CGA-O2A-C1
2	Y	606	CHL	C2A-CAA-CBA-CGA
7	Y	617	LHG	C33-C34-C35-C36
2	G	607	CHL	CHA-CBD-CGD-O2D
2	N	306	CHL	CHA-CBD-CGD-O1D
2	N	306	CHL	CHA-CBD-CGD-O2D
2	Y	601	CHL	CHA-CBD-CGD-O1D
2	Y	601	CHL	CHA-CBD-CGD-O2D
3	G	603	CLA	CHA-CBD-CGD-O1D
3	G	603	CLA	CHA-CBD-CGD-O2D
3	G	604	CLA	CHA-CBD-CGD-O1D
3	G	604	CLA	CHA-CBD-CGD-O2D
3	Y	602	CLA	CHA-CBD-CGD-O1D
3	Y	602	CLA	CHA-CBD-CGD-O2D
3	Y	603	CLA	CHA-CBD-CGD-O1D
3	Y	603	CLA	CHA-CBD-CGD-O2D
3	Y	611	CLA	CHA-CBD-CGD-O1D
3	Y	613	CLA	CAD-CBD-CGD-O1D
4	N	317	LUT	C29-C30-C31-C32
5	G	616	XAT	C31-C32-C33-C40
3	G	610	CLA	O2A-C1-C2-C3
6	G	617	NEX	C33-C34-C35-C15
2	G	608	CHL	CBA-CGA-O2A-C1
2	Y	608	CHL	C4-C3-C5-C6
3	Y	611	CLA	C2A-CAA-CBA-CGA
2	N	301	CHL	O2A-C1-C2-C3

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Mol	Chain	Res	Type	Atoms
2	G	605	CHL	C1C-C2C-CMC-OMC
3	N	313	CLA	C2A-CAA-CBA-CGA
2	Y	608	CHL	C2-C3-C5-C6
3	N	304	CLA	C4B-C3B-CAB-CBB
3	N	311	CLA	C4B-C3B-CAB-CBB
3	N	315	CLA	C4B-C3B-CAB-CBB
3	N	314	CLA	CBA-CGA-O2A-C1
3	Y	612	CLA	CBA-CGA-O2A-C1
3	N	304	CLA	O2A-C1-C2-C3
2	N	302	CHL	O1A-CGA-O2A-C1
3	Y	609	CLA	C13-C15-C16-C17
3	Y	612	CLA	C13-C15-C16-C17
4	G	614	LUT	C11-C10-C9-C19
4	N	316	LUT	C11-C10-C9-C19
4	Y	614	LUT	C11-C10-C9-C19
6	G	617	NEX	C39-C29-C30-C31
6	N	319	NEX	C39-C29-C30-C31
6	Y	616	NEX	C39-C29-C30-C31
4	G	614	LUT	C27-C28-C29-C30
4	N	316	LUT	C27-C28-C29-C30
7	N	320	LHG	C33-C34-C35-C36
3	Y	611	CLA	C16-C17-C18-C20
2	Y	605	CHL	C2A-CAA-CBA-CGA
6	G	617	NEX	C28-C29-C30-C31
6	N	319	NEX	C28-C29-C30-C31
6	Y	616	NEX	C28-C29-C30-C31
3	N	312	CLA	C2B-C3B-CAB-CBB
3	N	315	CLA	C2B-C3B-CAB-CBB
3	Y	602	CLA	C2B-C3B-CAB-CBB
3	Y	611	CLA	C2B-C3B-CAB-CBB
2	G	608	CHL	O2A-C1-C2-C3
2	N	307	CHL	O2A-C1-C2-C3
2	N	309	CHL	O2A-C1-C2-C3
2	N	310	CHL	O2A-C1-C2-C3
2	Y	607	CHL	O2A-C1-C2-C3
3	N	303	CLA	C2A-CAA-CBA-CGA
4	Y	614	LUT	C27-C28-C29-C30
5	N	321	XAT	C33-C34-C35-C15
7	N	320	LHG	C5-C4-O6-P
3	N	313	CLA	CBA-CGA-O2A-C1
3	Y	613	CLA	O2A-C1-C2-C3
2	N	308	CHL	C2A-CAA-CBA-CGA

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Mol	Chain	Res	Type	Atoms
3	N	313	CLA	O1A-CGA-O2A-C1
2	N	307	CHL	CHA-CBD-CGD-O1D
2	N	307	CHL	CHA-CBD-CGD-O2D
2	N	310	CHL	CHA-CBD-CGD-O1D
2	N	310	CHL	CHA-CBD-CGD-O2D
2	Y	605	CHL	CHA-CBD-CGD-O1D
2	Y	605	CHL	CHA-CBD-CGD-O2D
2	G	619	CHL	O2A-C1-C2-C3
5	N	321	XAT	C13-C14-C15-C35
3	N	314	CLA	O1A-CGA-O2A-C1
3	Y	612	CLA	O1A-CGA-O2A-C1
3	G	602	CLA	C2-C1-O2A-CGA
2	Y	605	CHL	C3A-C2A-CAA-CBA
2	Y	607	CHL	C3A-C2A-CAA-CBA
3	Y	609	CLA	C3A-C2A-CAA-CBA
2	N	302	CHL	CBA-CGA-O2A-C1
2	Y	607	CHL	C3C-C2C-CMC-OMC
3	N	303	CLA	C13-C15-C16-C17
6	N	319	NEX	O24-C26-C27-C28
6	Y	616	NEX	O24-C26-C27-C28
3	G	603	CLA	O2A-C1-C2-C3
3	N	305	CLA	O2A-C1-C2-C3
3	G	610	CLA	O1A-CGA-O2A-C1
4	G	615	LUT	C29-C30-C31-C32
3	Y	602	CLA	C11-C12-C13-C15
3	N	311	CLA	C2B-C3B-CAB-CBB
4	N	317	LUT	C5-C6-C7-C8
4	Y	615	LUT	C1-C6-C7-C8
3	N	315	CLA	O2A-C1-C2-C3
2	Y	607	CHL	O1D-CGD-O2D-CED
3	G	610	CLA	CBA-CGA-O2A-C1
3	G	609	CLA	CAA-CBA-CGA-O2A
3	Y	611	CLA	C16-C17-C18-C19
2	Y	605	CHL	CAA-CBA-CGA-O2A
3	G	603	CLA	CAA-CBA-CGA-O2A
7	G	618	LHG	C26-C27-C28-C29
2	N	309	CHL	O1D-CGD-O2D-CED
7	Y	617	LHG	O8-C23-C24-C25
3	G	609	CLA	C5-C6-C7-C8
3	G	613	CLA	C4B-C3B-CAB-CBB
3	Y	602	CLA	C1A-C2A-CAA-CBA
2	Y	608	CHL	CAA-CBA-CGA-O2A

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Mol	Chain	Res	Type	Atoms
3	G	602	CLA	CAA-CBA-CGA-O2A
3	Y	609	CLA	CAA-CBA-CGA-O2A
7	N	320	LHG	O7-C5-C6-O8
5	G	616	XAT	C31-C32-C33-C34
3	Y	610	CLA	C16-C17-C18-C20
3	Y	602	CLA	CAA-CBA-CGA-O2A
3	Y	610	CLA	CAA-CBA-CGA-O2A
3	N	314	CLA	C2A-CAA-CBA-CGA
7	N	320	LHG	O8-C23-C24-C25
2	G	606	CHL	C2-C1-O2A-CGA
2	G	619	CHL	C2-C1-O2A-CGA
3	N	304	CLA	CAA-CBA-CGA-O2A
3	G	602	CLA	C11-C10-C8-C7
2	N	310	CHL	CBA-CGA-O2A-C1
7	N	320	LHG	O2-C2-C3-O3
3	N	312	CLA	O2A-C1-C2-C3
7	Y	617	LHG	C5-C4-O6-P
3	G	611	CLA	C16-C17-C18-C20
2	Y	605	CHL	CAA-CBA-CGA-O1A
3	G	609	CLA	CAA-CBA-CGA-O1A
3	G	602	CLA	CAA-CBA-CGA-O1A
7	N	320	LHG	O10-C23-C24-C25
7	Y	617	LHG	C30-C31-C32-C33
2	N	310	CHL	O1A-CGA-O2A-C1
2	Y	608	CHL	CAA-CBA-CGA-O1A
3	Y	610	CLA	CAA-CBA-CGA-O1A
3	G	603	CLA	CAA-CBA-CGA-O1A
3	Y	602	CLA	CAA-CBA-CGA-O1A
3	Y	609	CLA	CAA-CBA-CGA-O1A
3	N	304	CLA	CAA-CBA-CGA-O1A
2	N	302	CHL	C2-C1-O2A-CGA
2	N	310	CHL	C2-C1-O2A-CGA
2	Y	606	CHL	C1A-C2A-CAA-CBA
3	N	315	CLA	O1A-CGA-O2A-C1
3	Y	610	CLA	O1A-CGA-O2A-C1
2	Y	606	CHL	CAA-CBA-CGA-O2A

There are no ring outliers.

47 monomers are involved in 125 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	G	614	LUT	8	0

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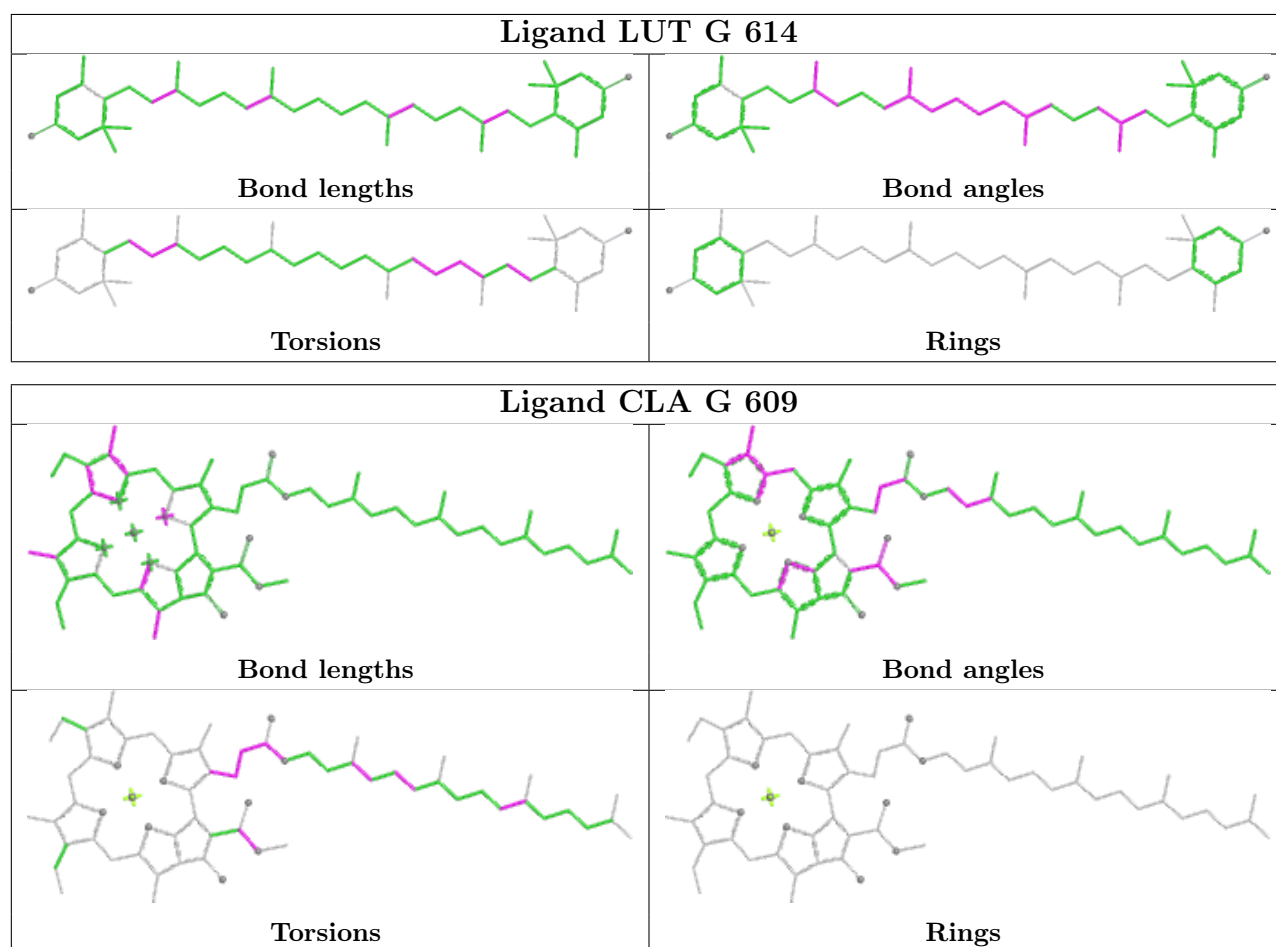
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	G	609	CLA	11	0
6	G	617	NEX	4	0
3	N	311	CLA	2	0
3	G	612	CLA	2	0
7	Y	617	LHG	2	0
2	N	310	CHL	1	0
3	G	603	CLA	1	0
2	G	601	CHL	2	0
6	N	319	NEX	3	0
7	G	618	LHG	4	0
3	Y	612	CLA	5	0
3	Y	613	CLA	1	0
4	N	317	LUT	4	0
2	Y	605	CHL	4	0
3	N	313	CLA	1	0
2	G	605	CHL	1	0
3	Y	611	CLA	4	0
6	Y	616	NEX	5	0
3	G	610	CLA	1	0
5	G	616	XAT	4	0
4	Y	614	LUT	8	0
4	N	316	LUT	7	0
3	G	604	CLA	4	0
2	G	606	CHL	6	0
4	Y	615	LUT	4	0
2	N	302	CHL	2	0
3	N	312	CLA	1	0
2	Y	608	CHL	1	0
3	G	611	CLA	3	0
2	N	306	CHL	1	0
4	G	615	LUT	4	0
3	N	305	CLA	1	0
3	Y	610	CLA	8	0
2	Y	606	CHL	9	0
7	N	320	LHG	1	0
2	G	607	CHL	3	0
3	Y	602	CLA	5	0
5	N	318	XAT	4	0
2	N	301	CHL	4	0
2	G	619	CHL	2	0
3	Y	609	CLA	6	0
2	G	608	CHL	1	0

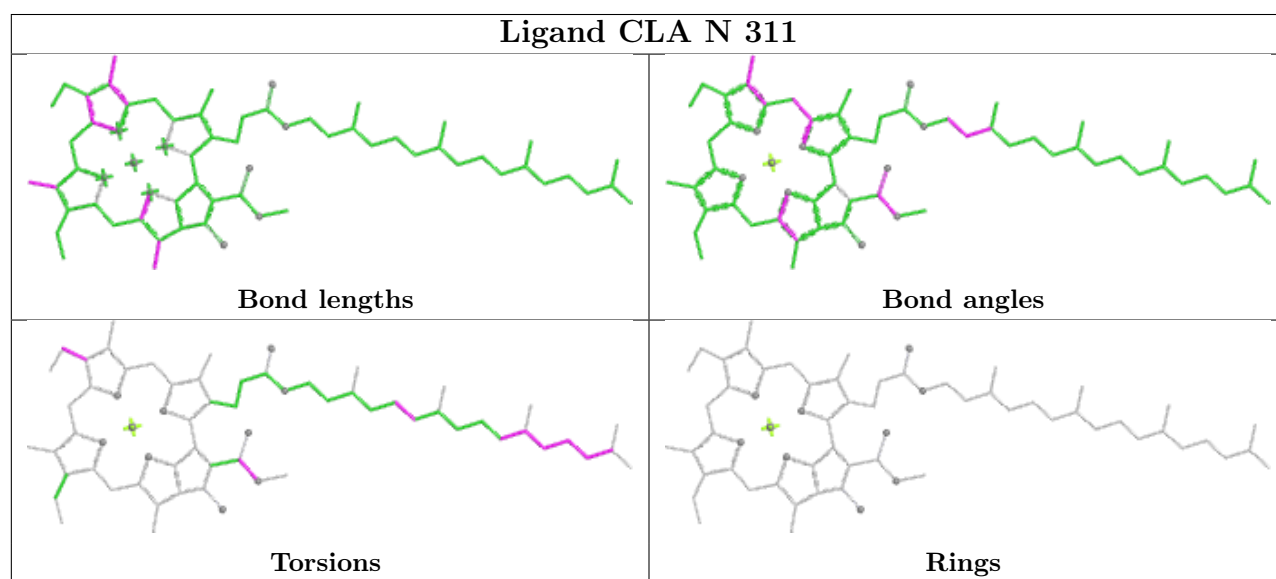
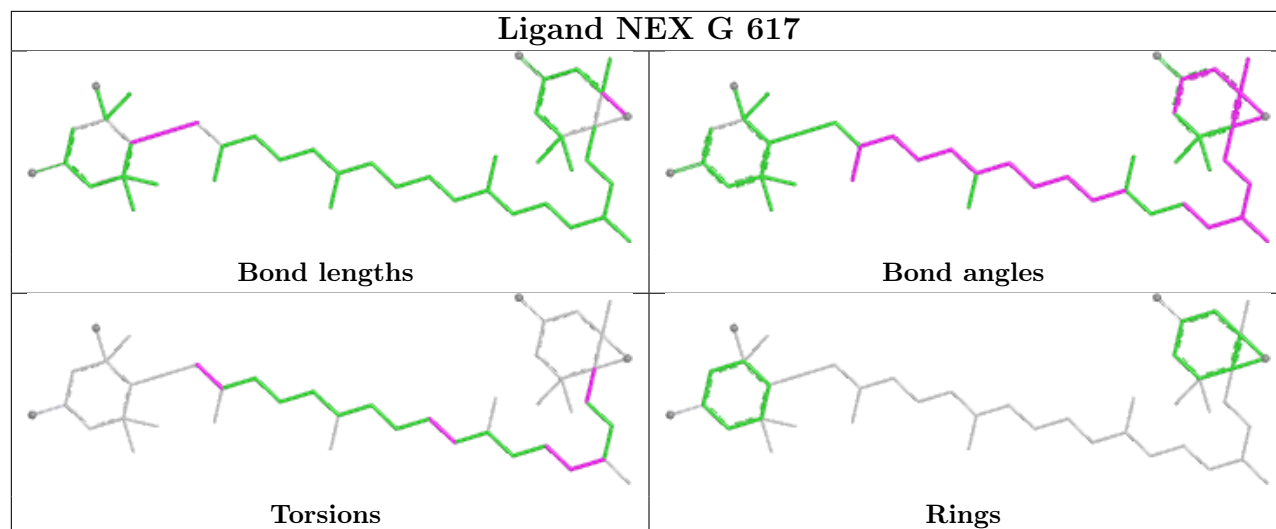
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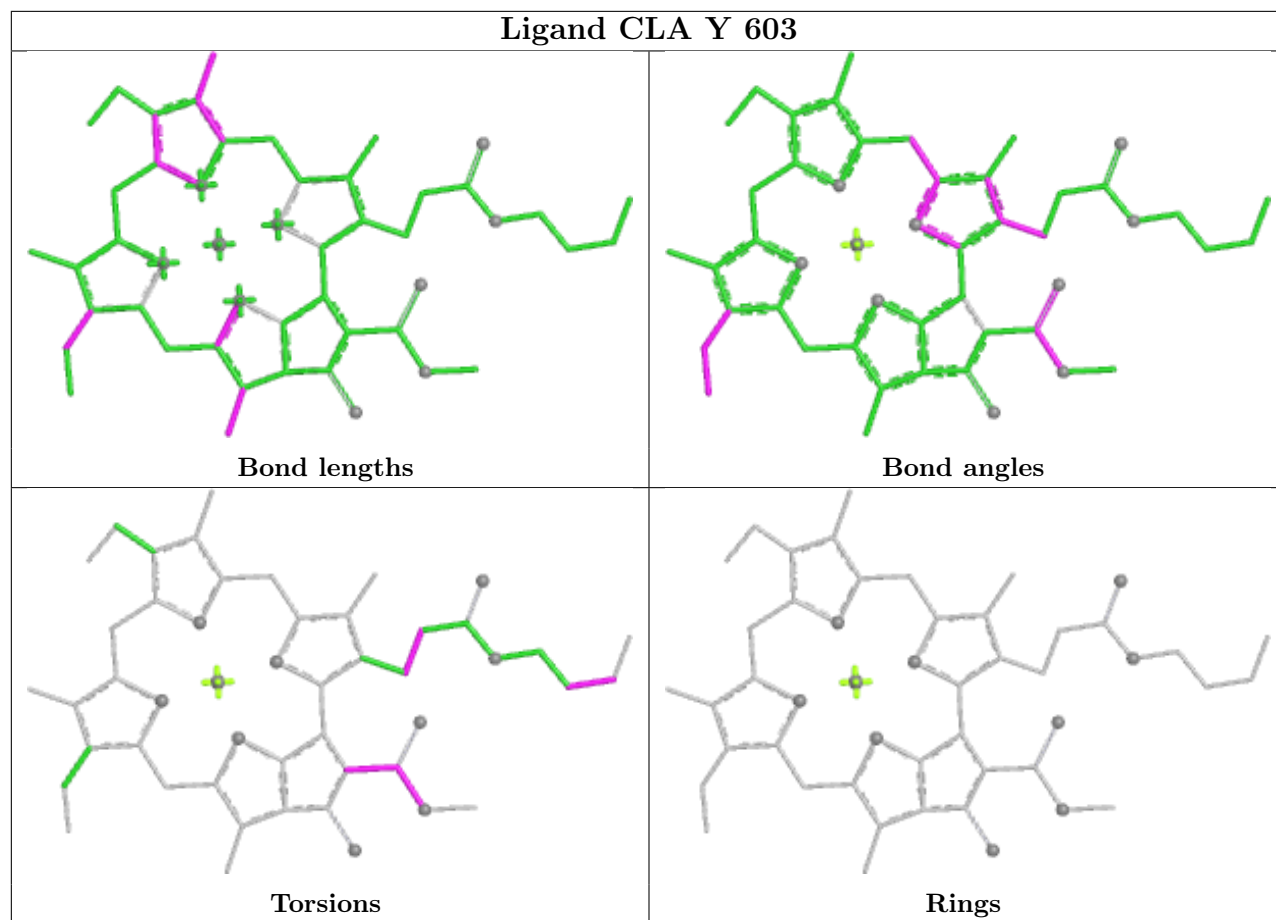
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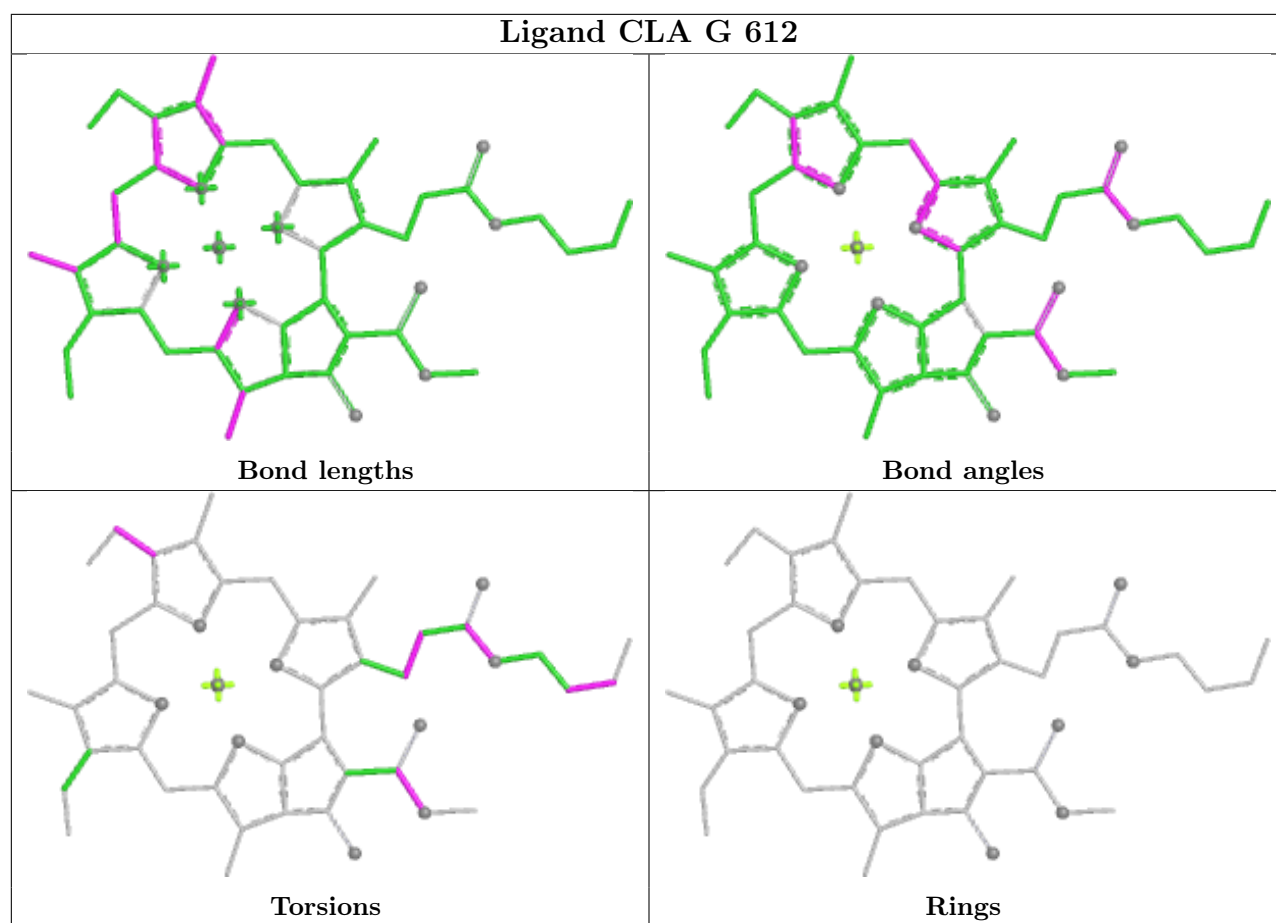
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	Y	607	CHL	1	0
3	G	602	CLA	4	0
5	N	321	XAT	2	0
3	N	314	CLA	1	0

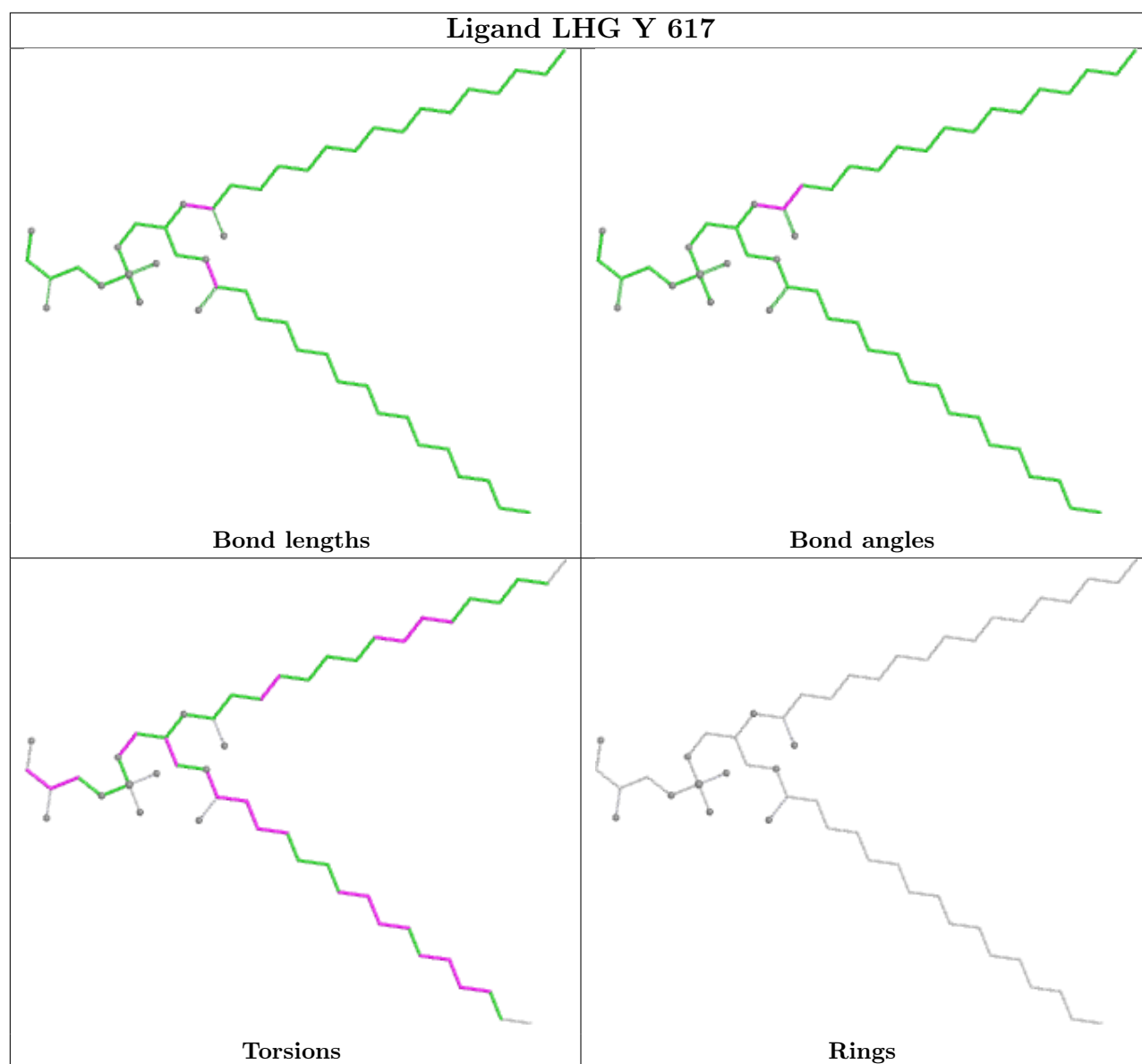
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

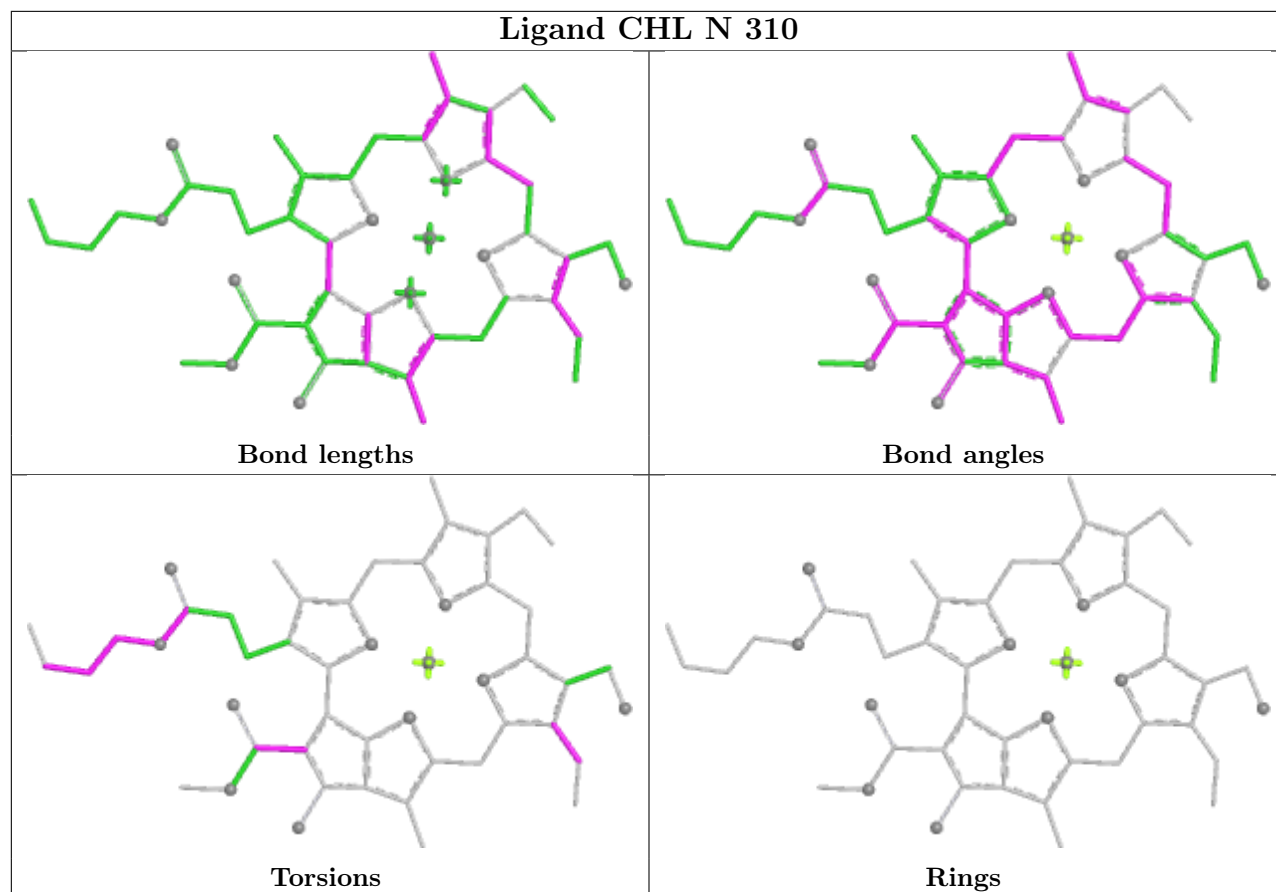




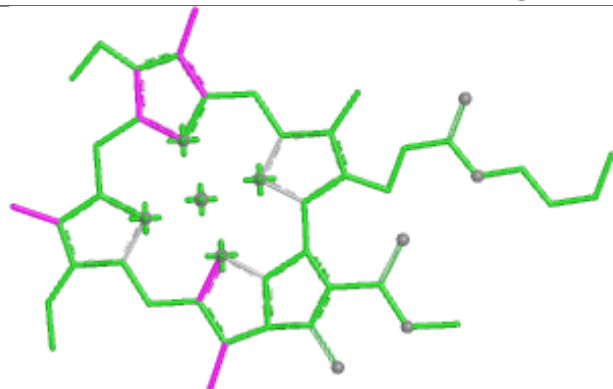




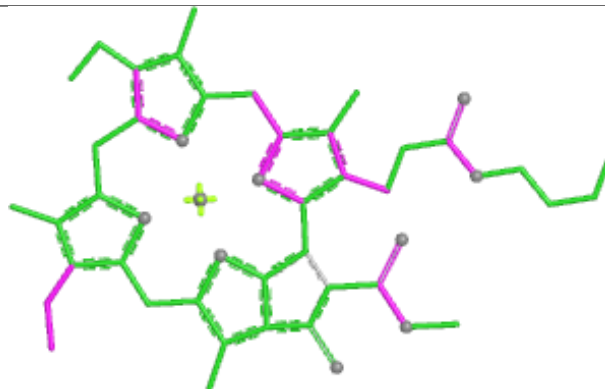




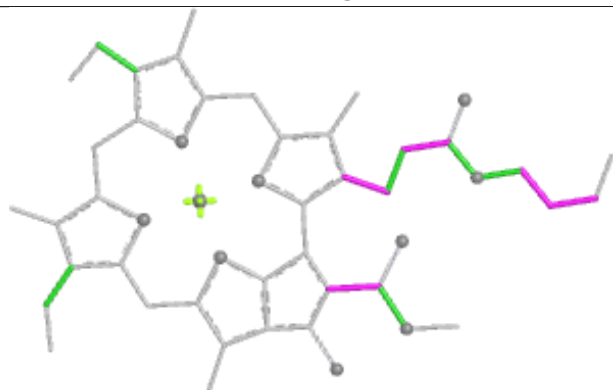
Ligand CLA G 603



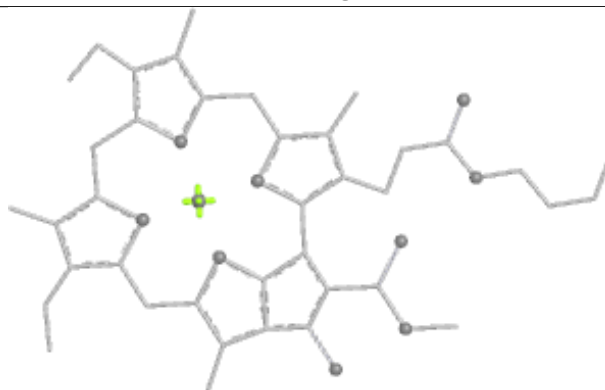
Bond lengths



Bond angles

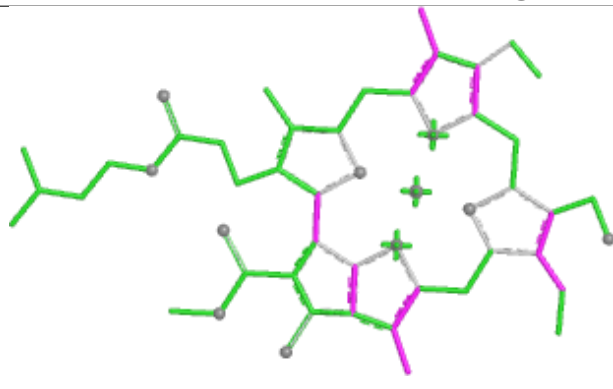


Torsions

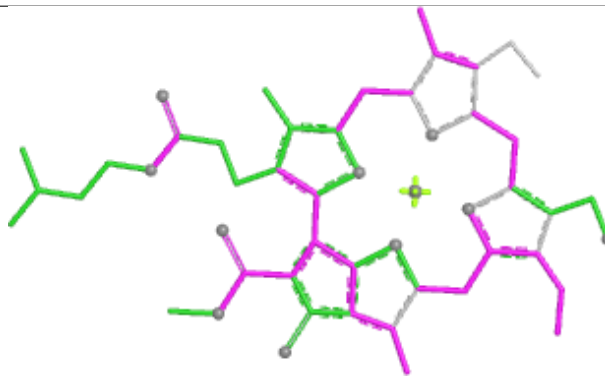


Rings

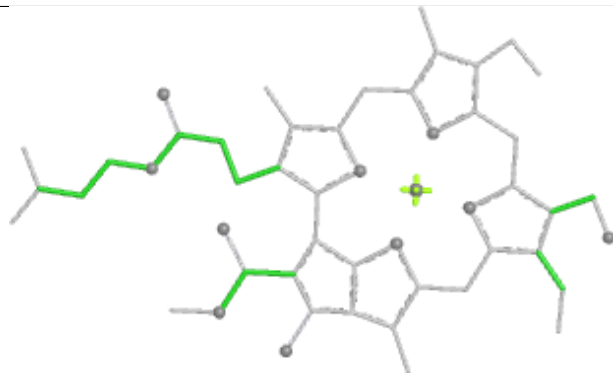
Ligand CHL G 601



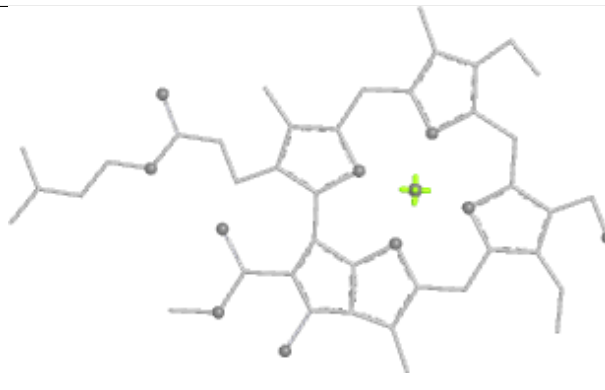
Bond lengths



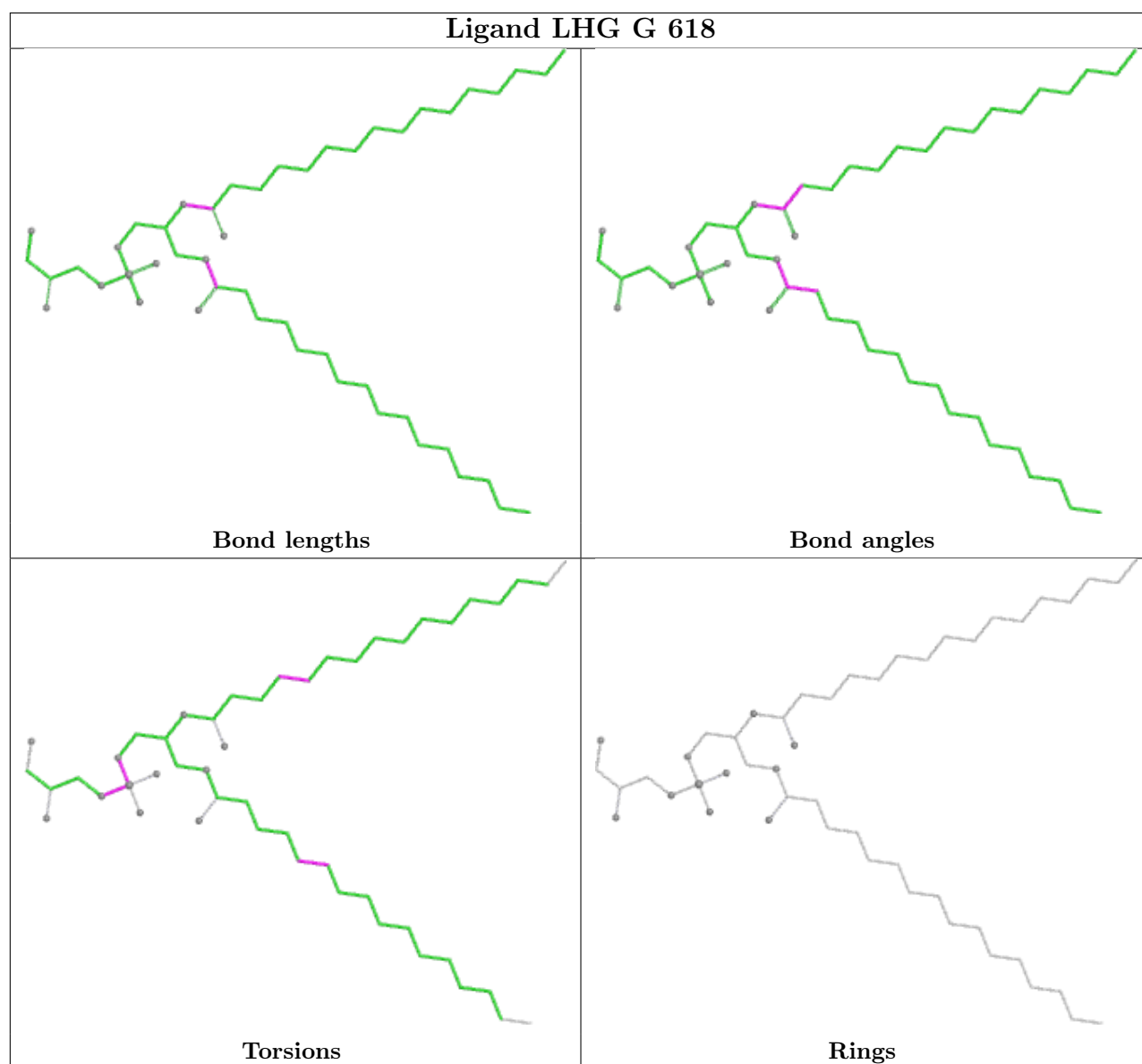
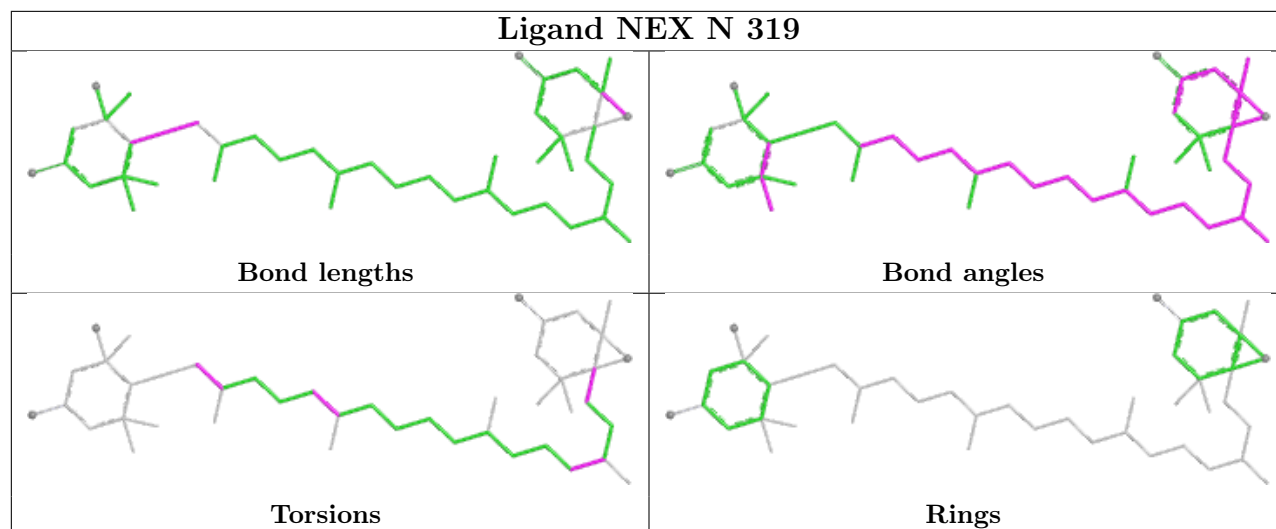
Bond angles

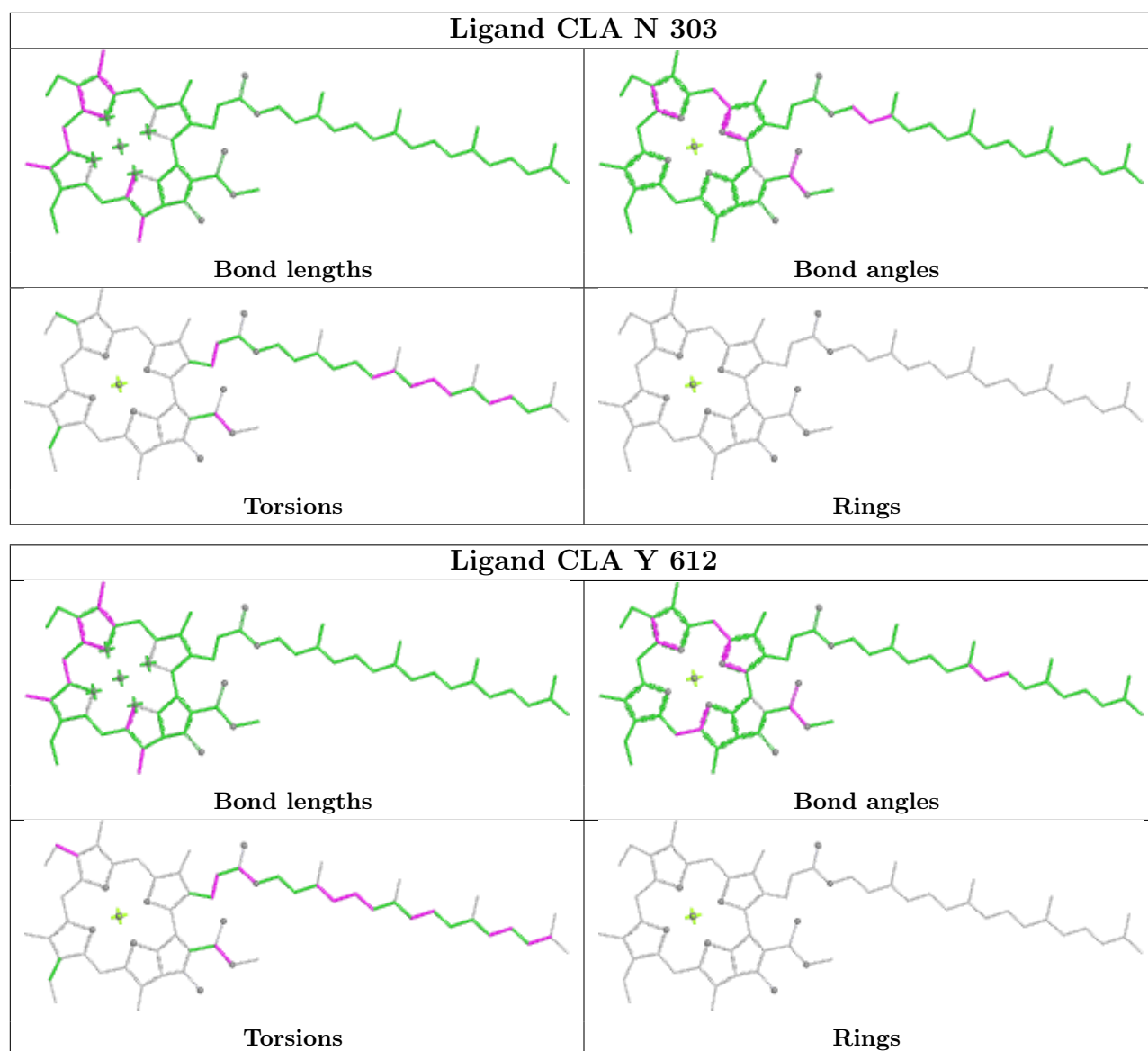


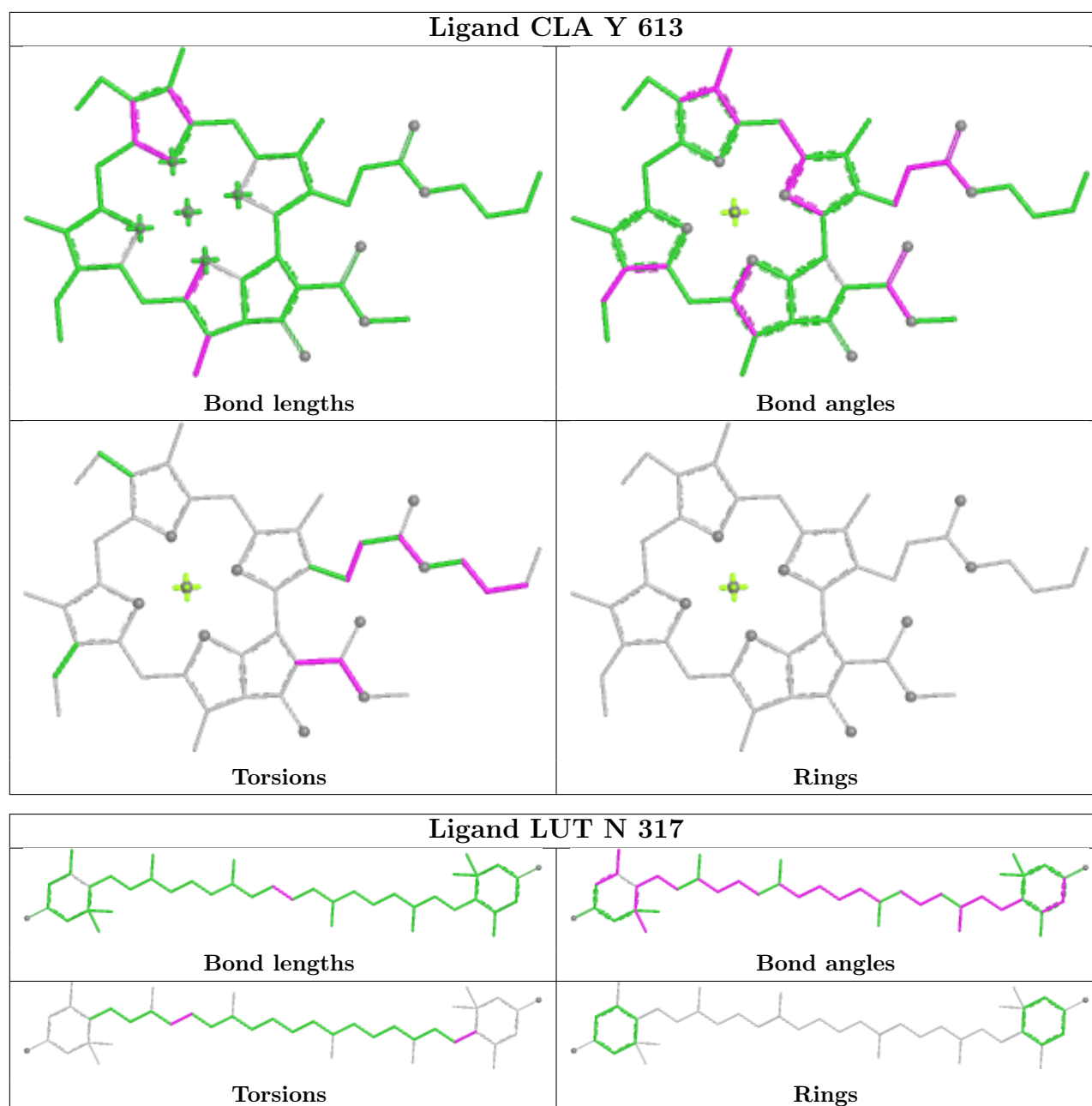
Torsions



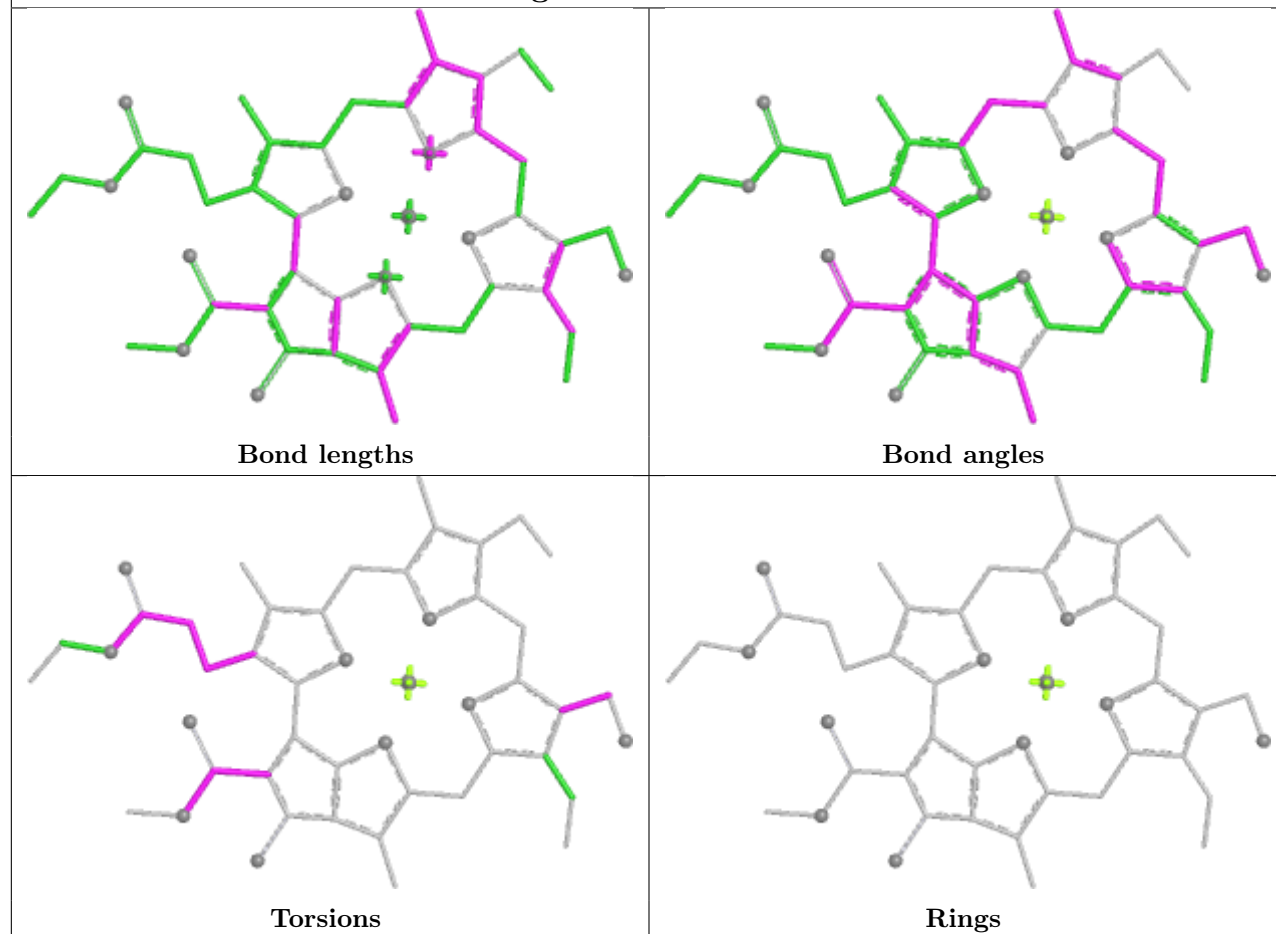
Rings



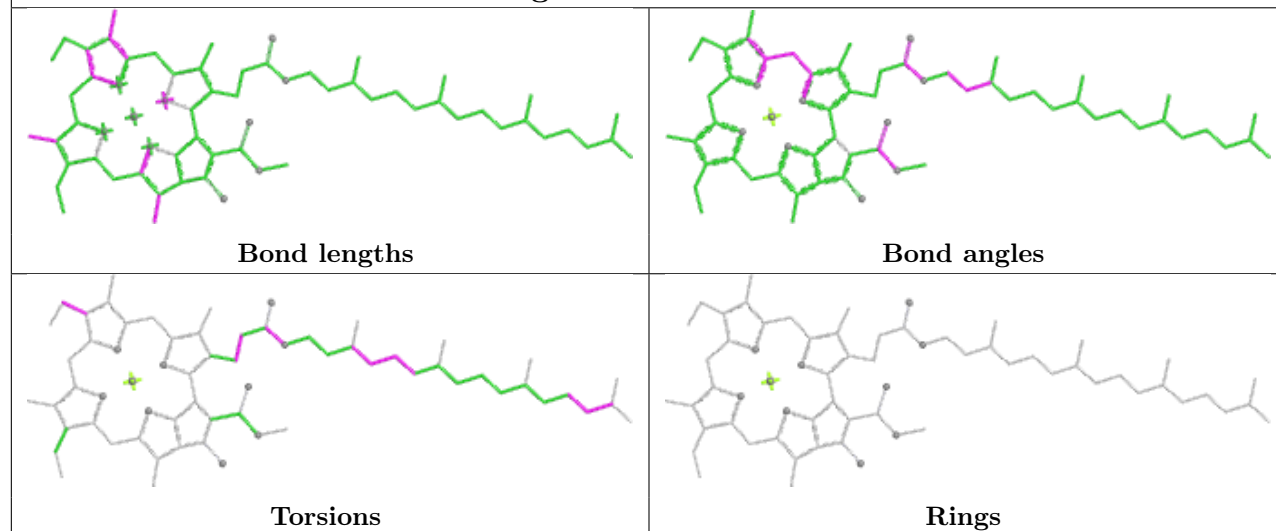


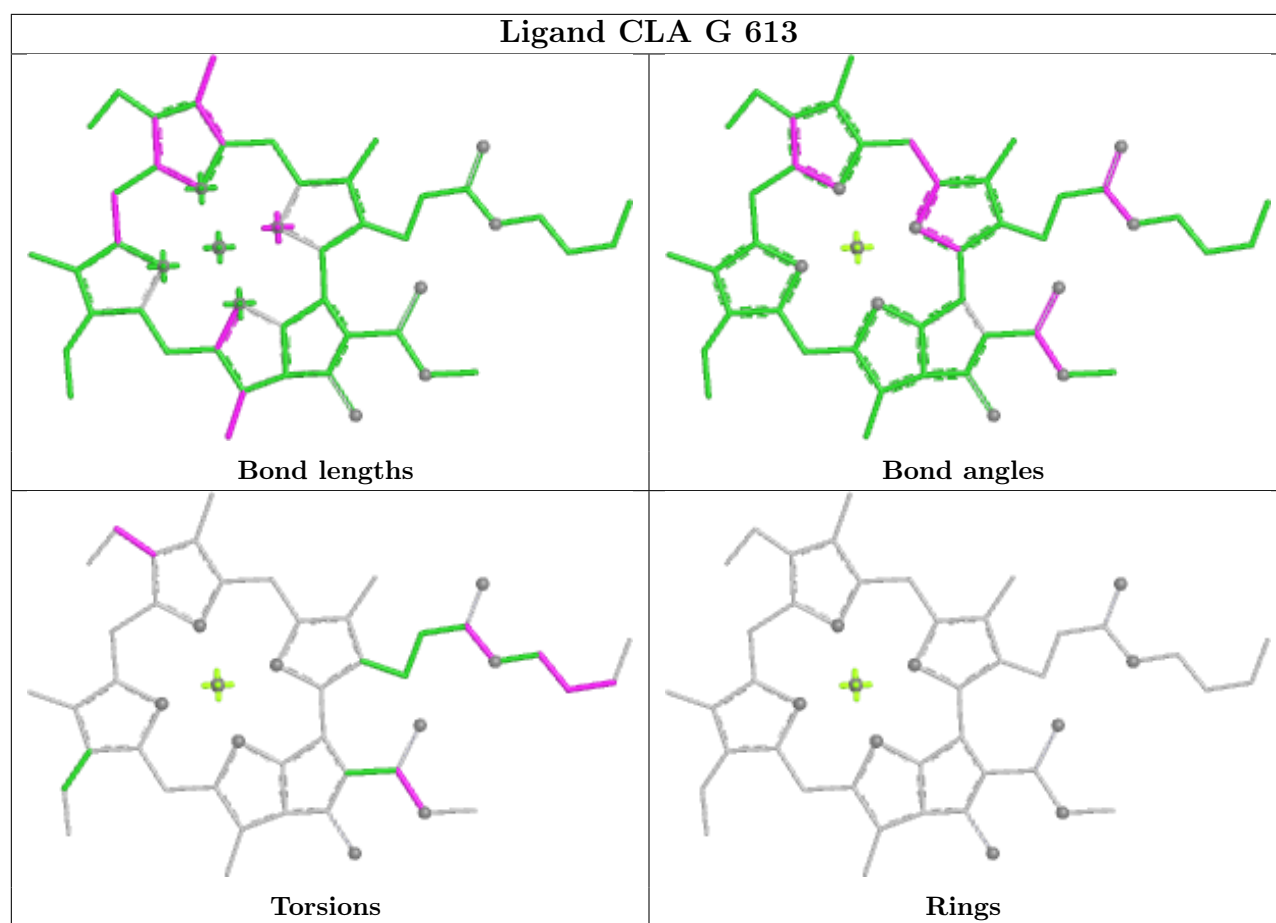


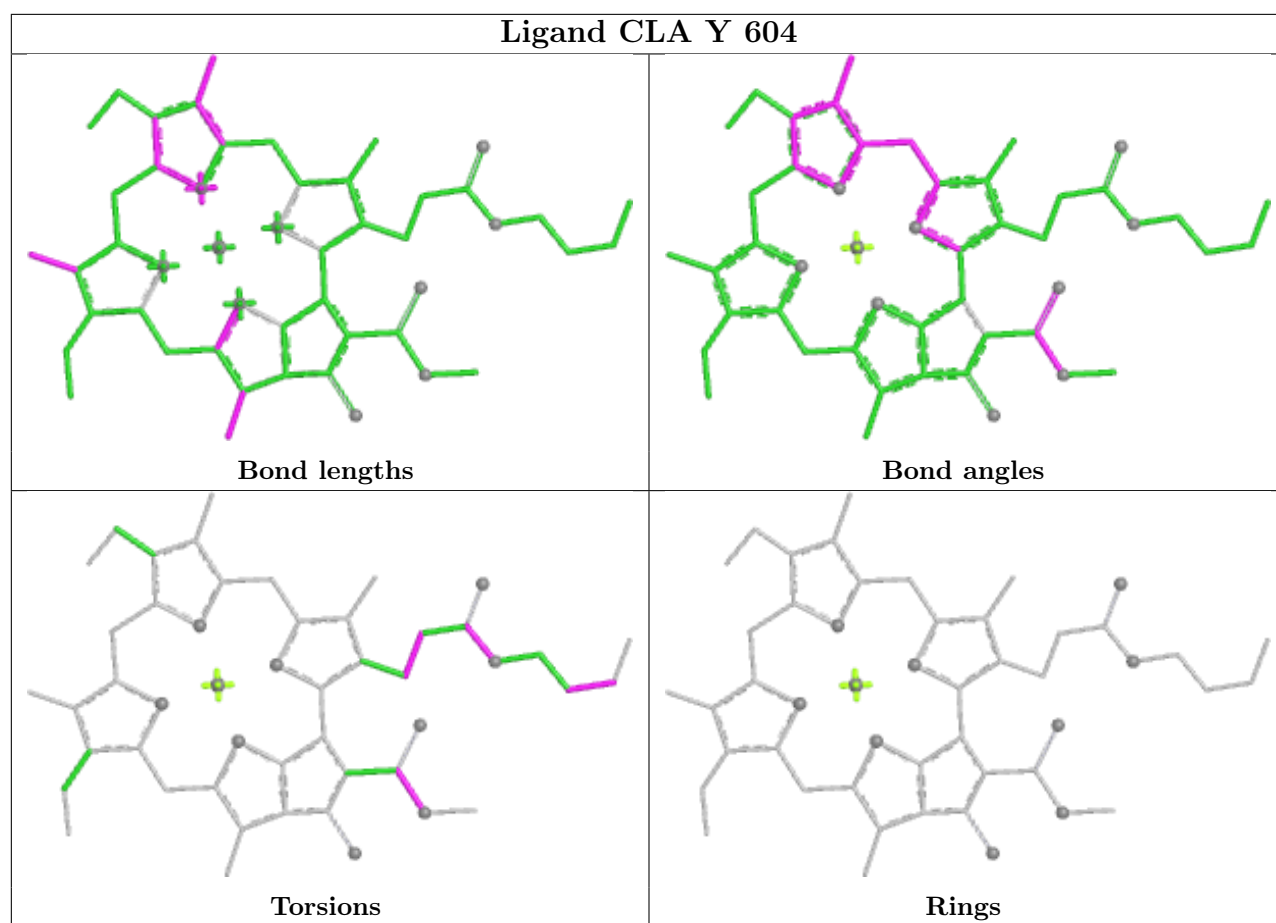
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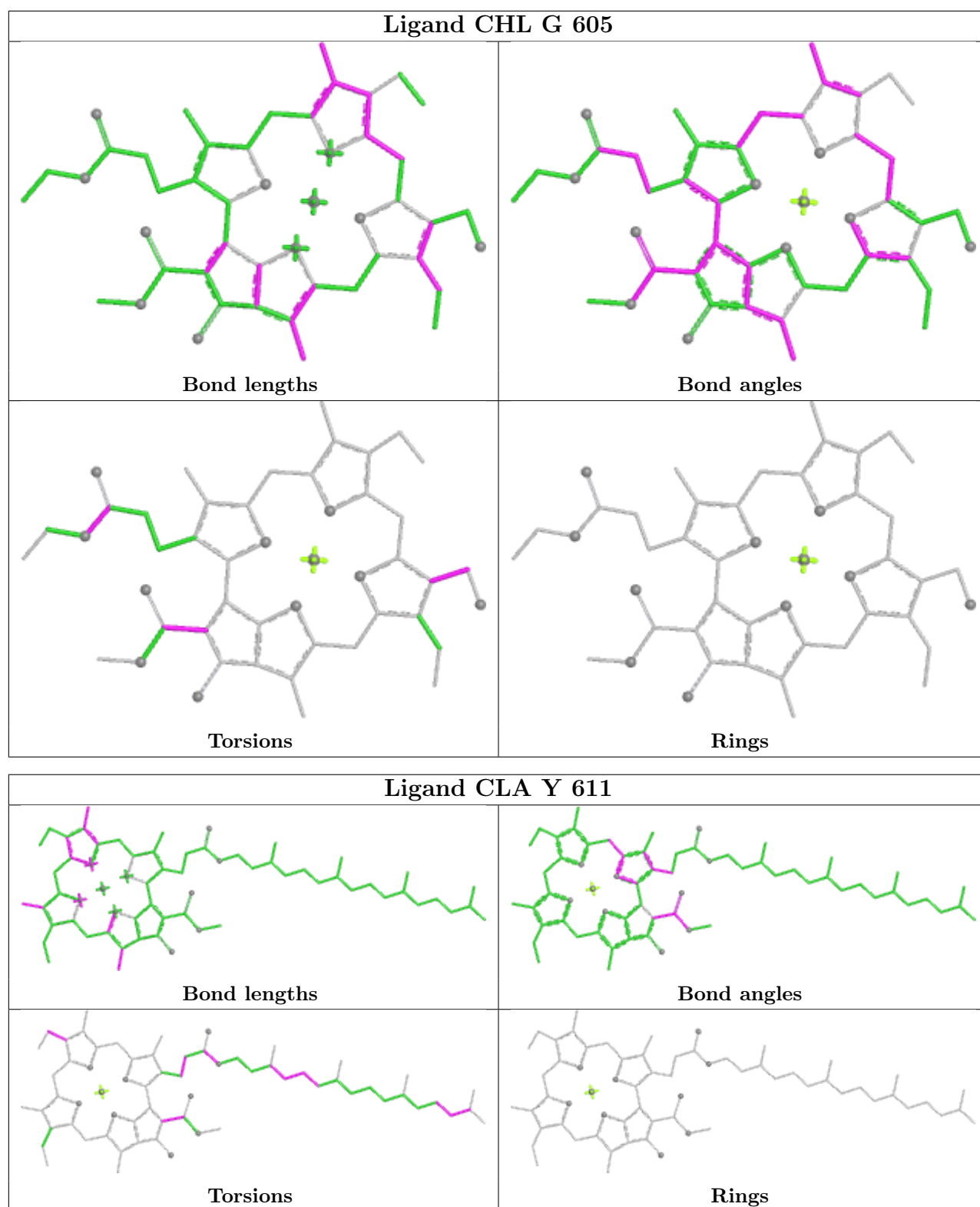


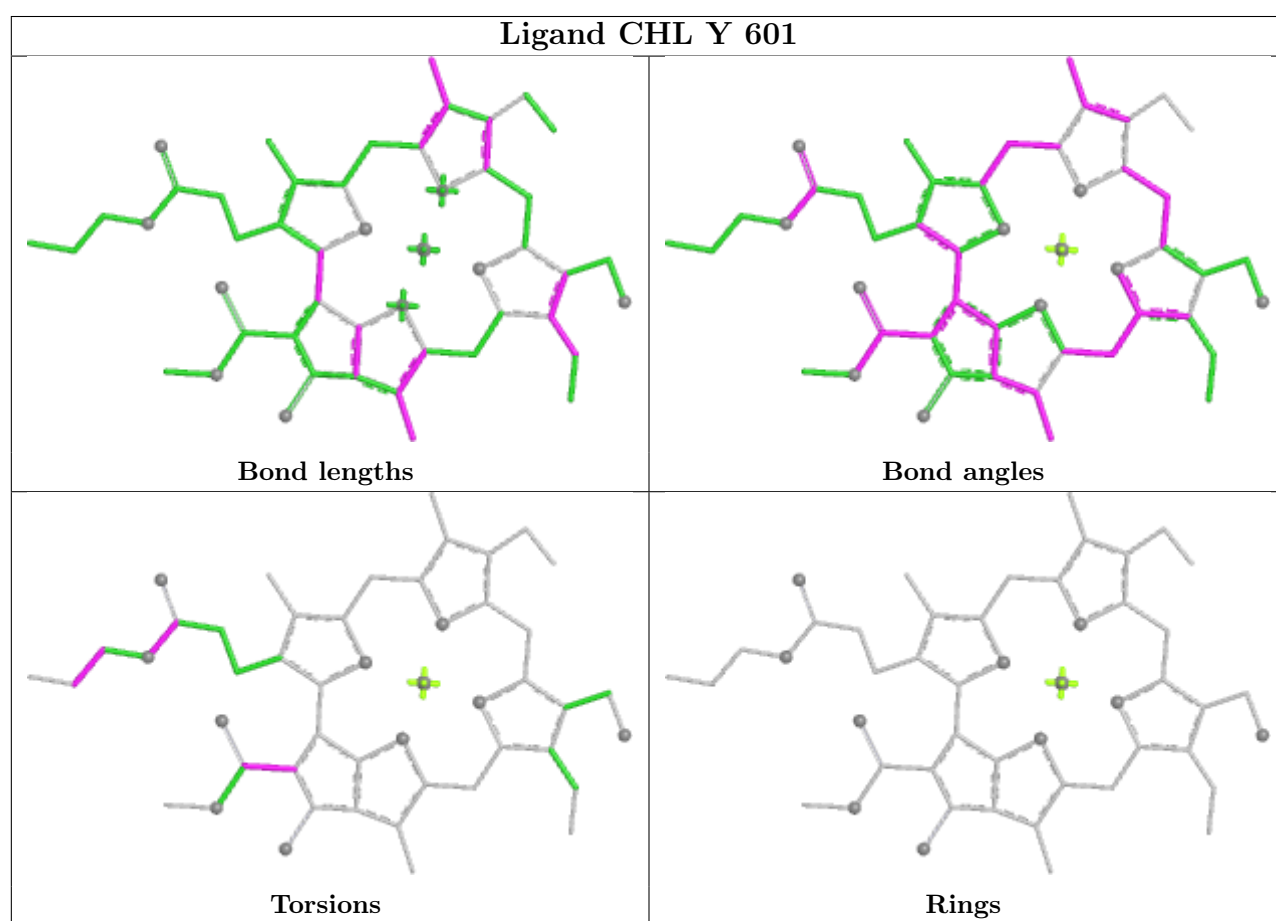
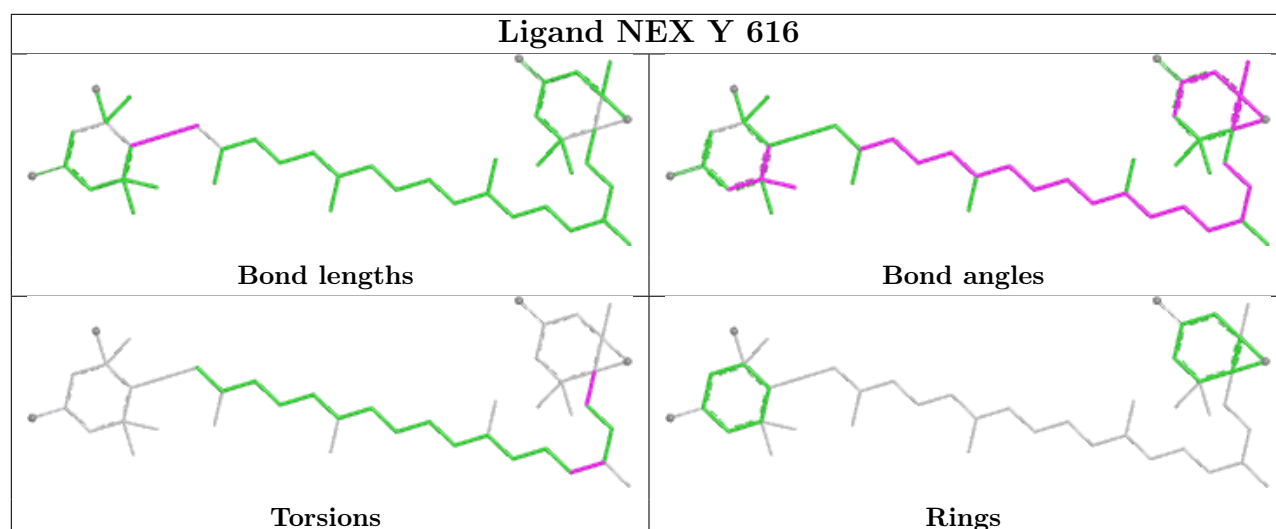
Ligand CLA N 313

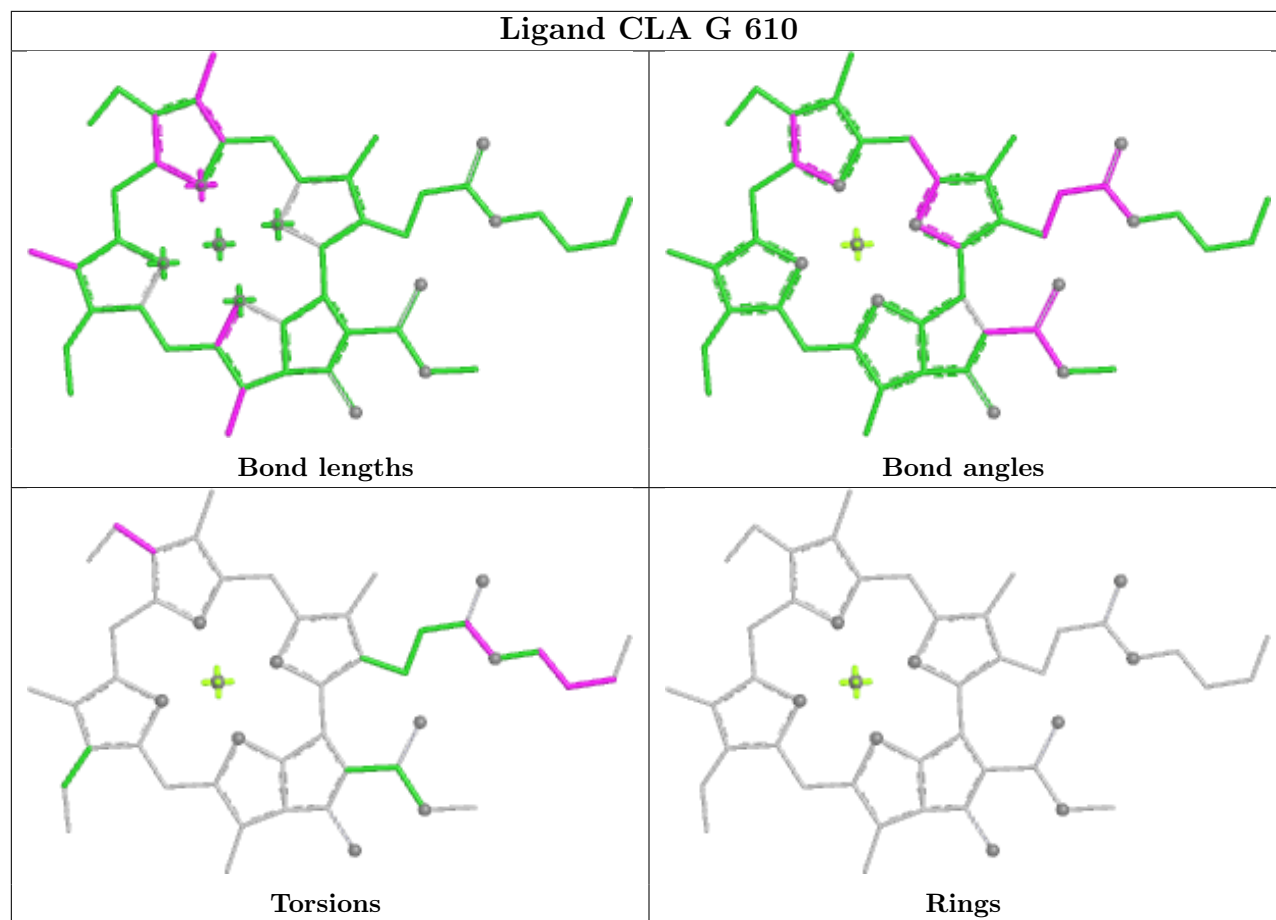


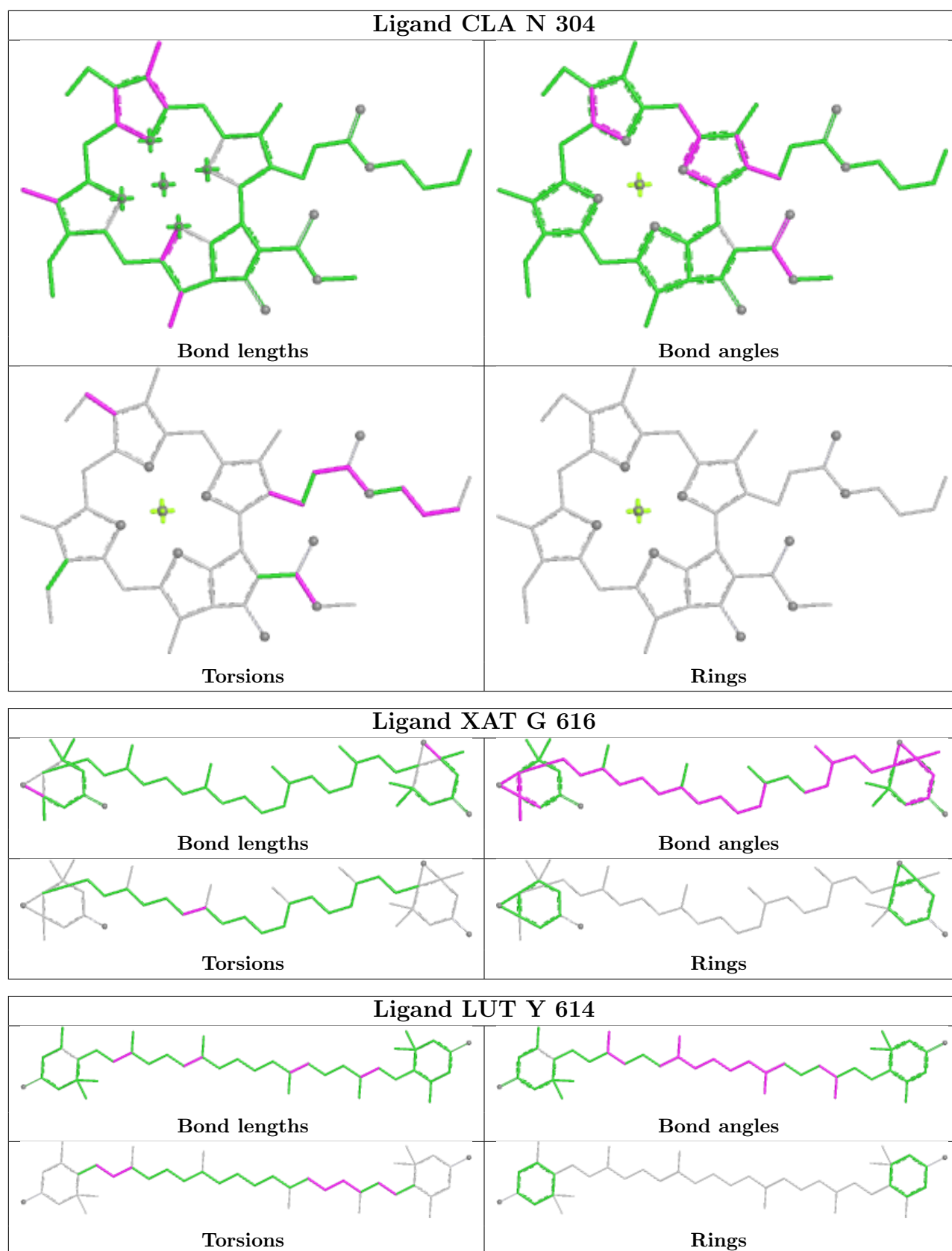


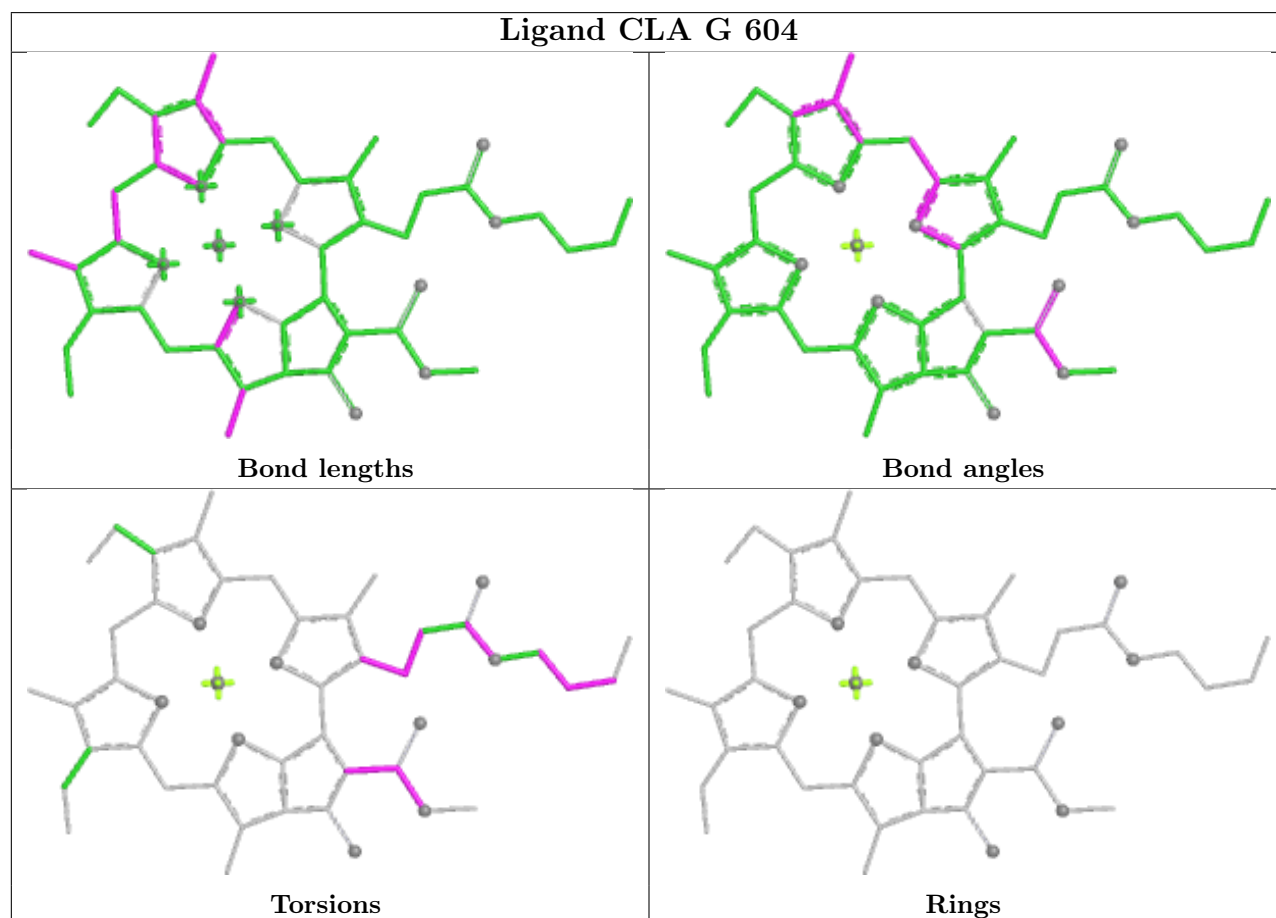
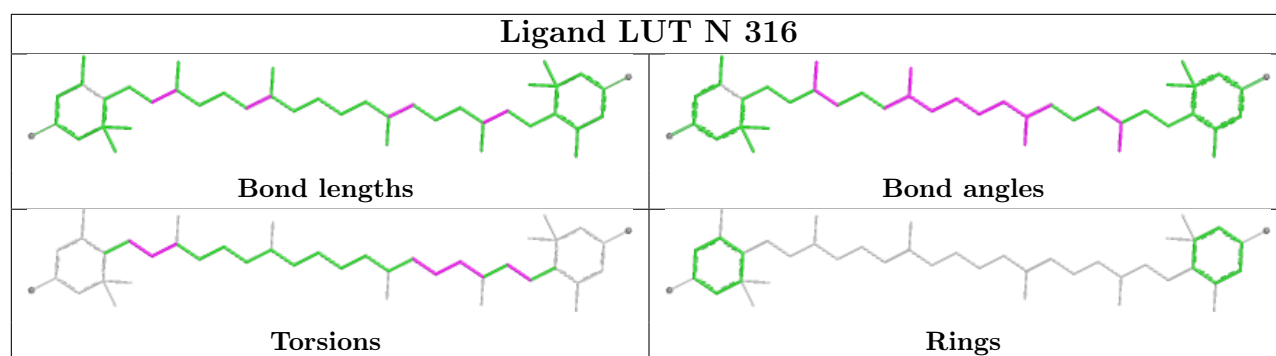


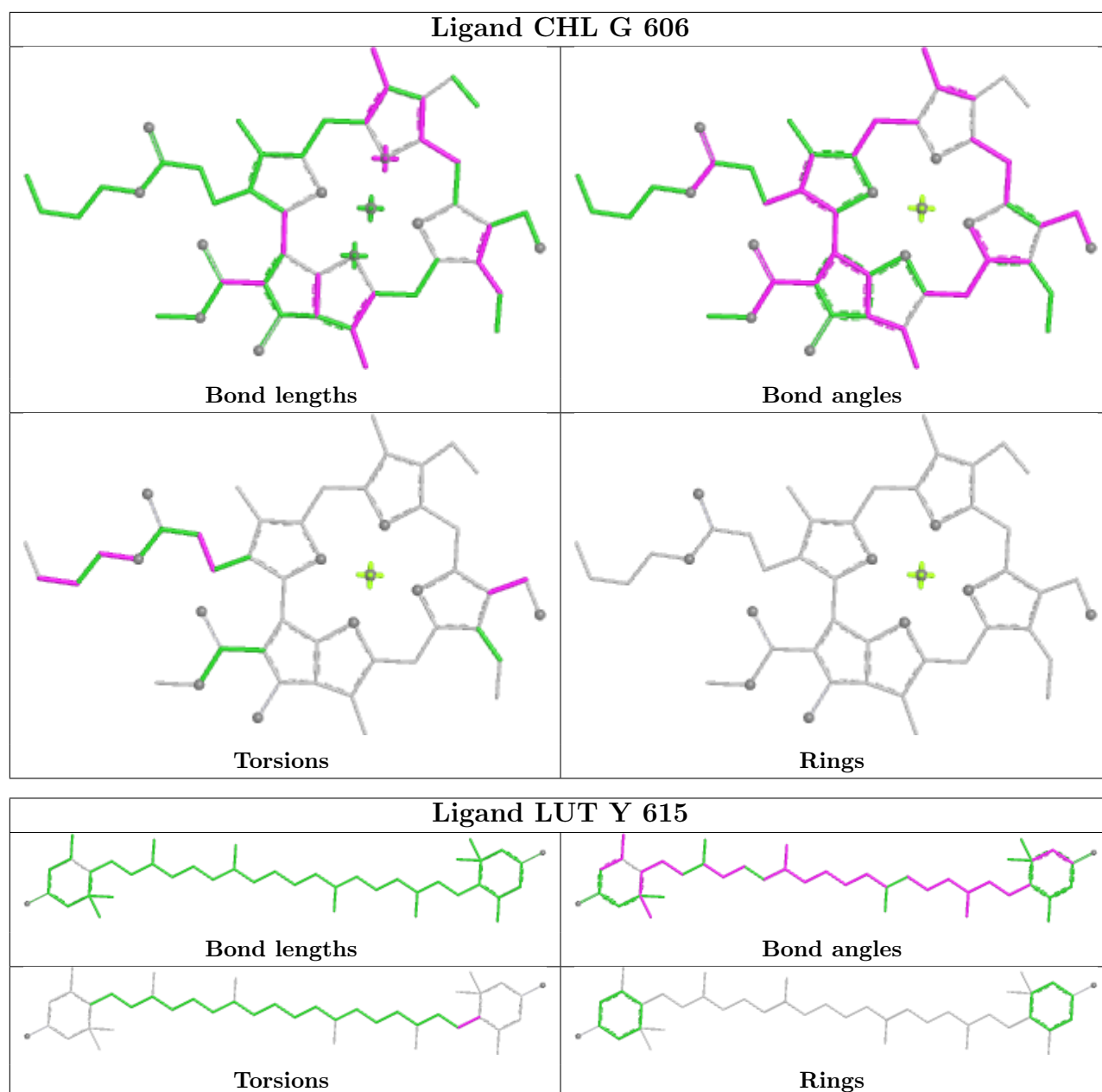


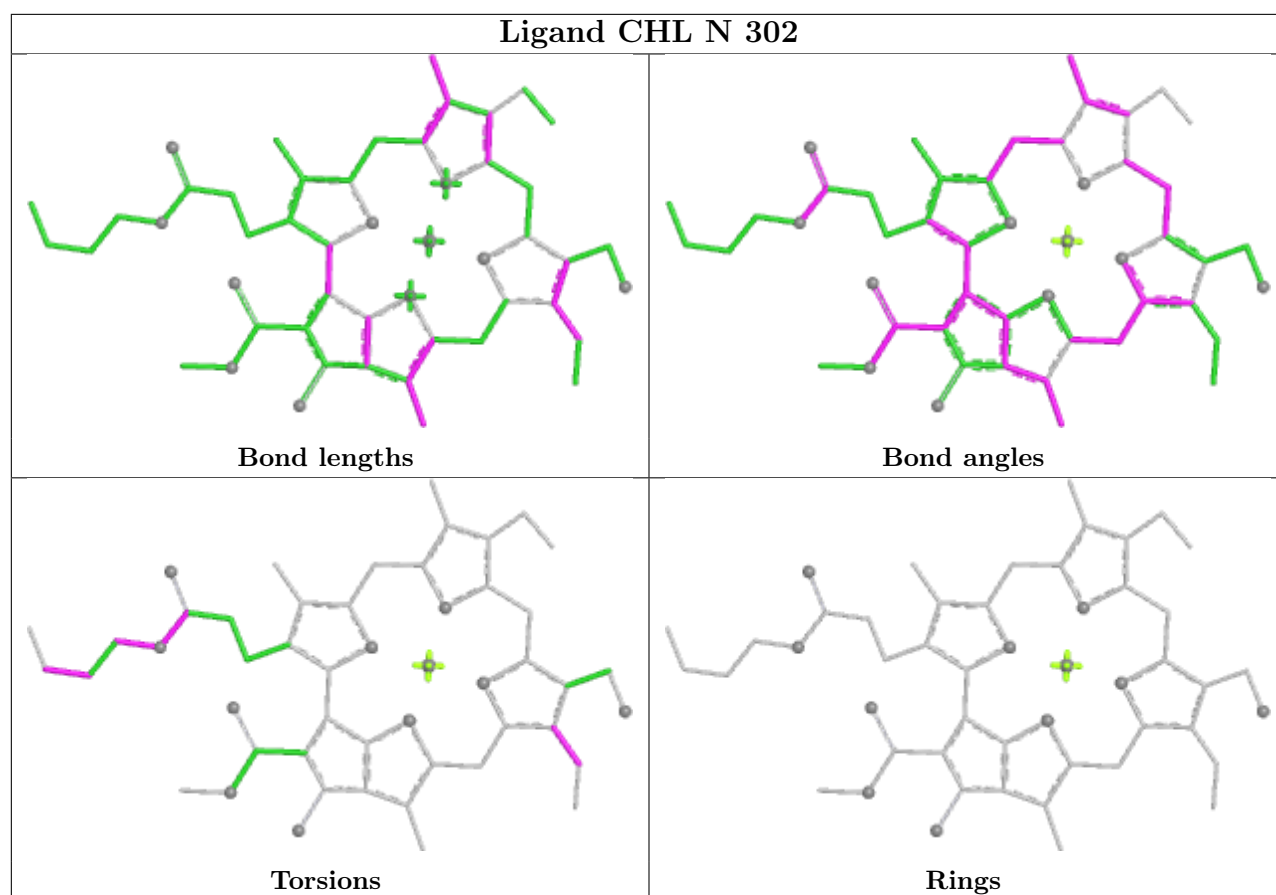


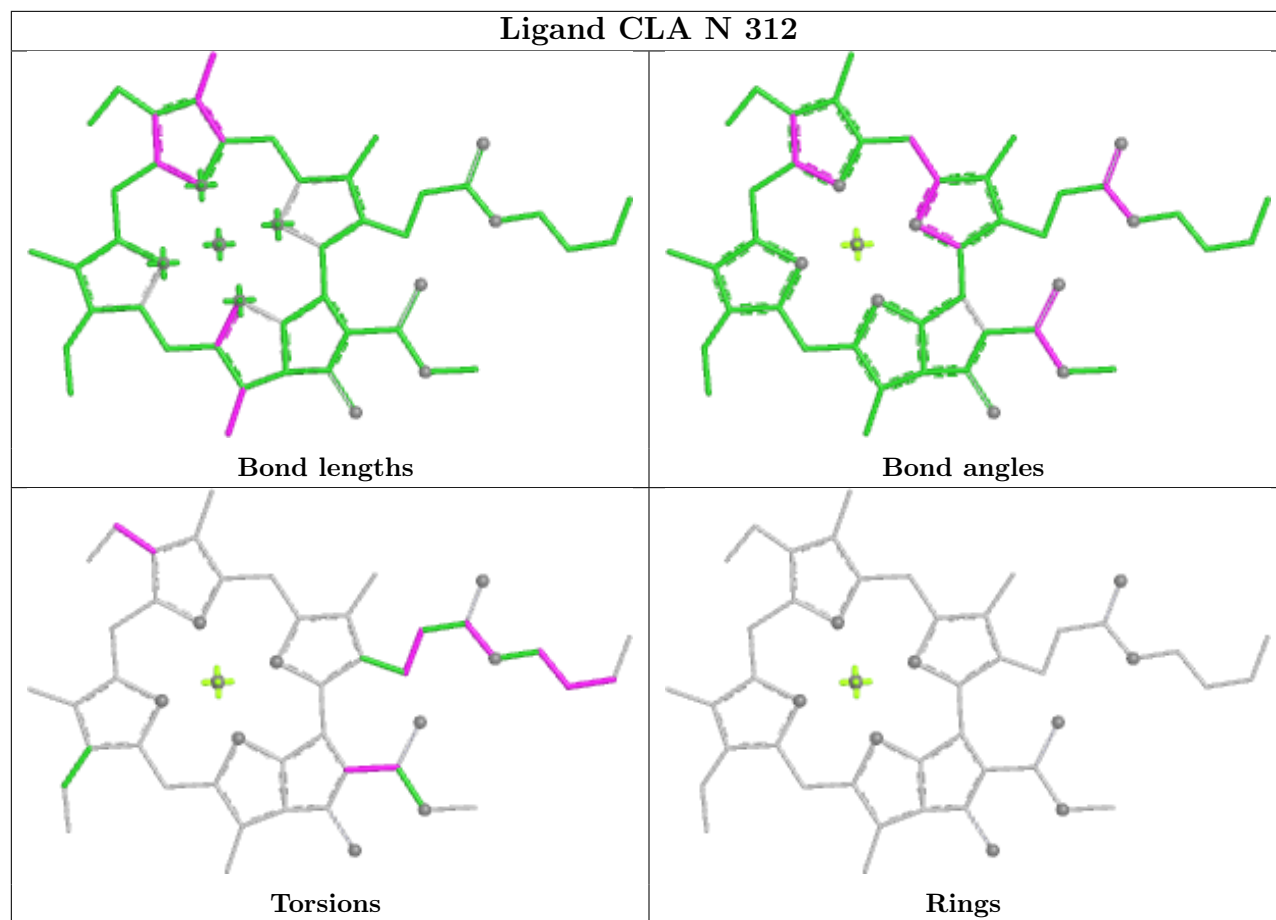


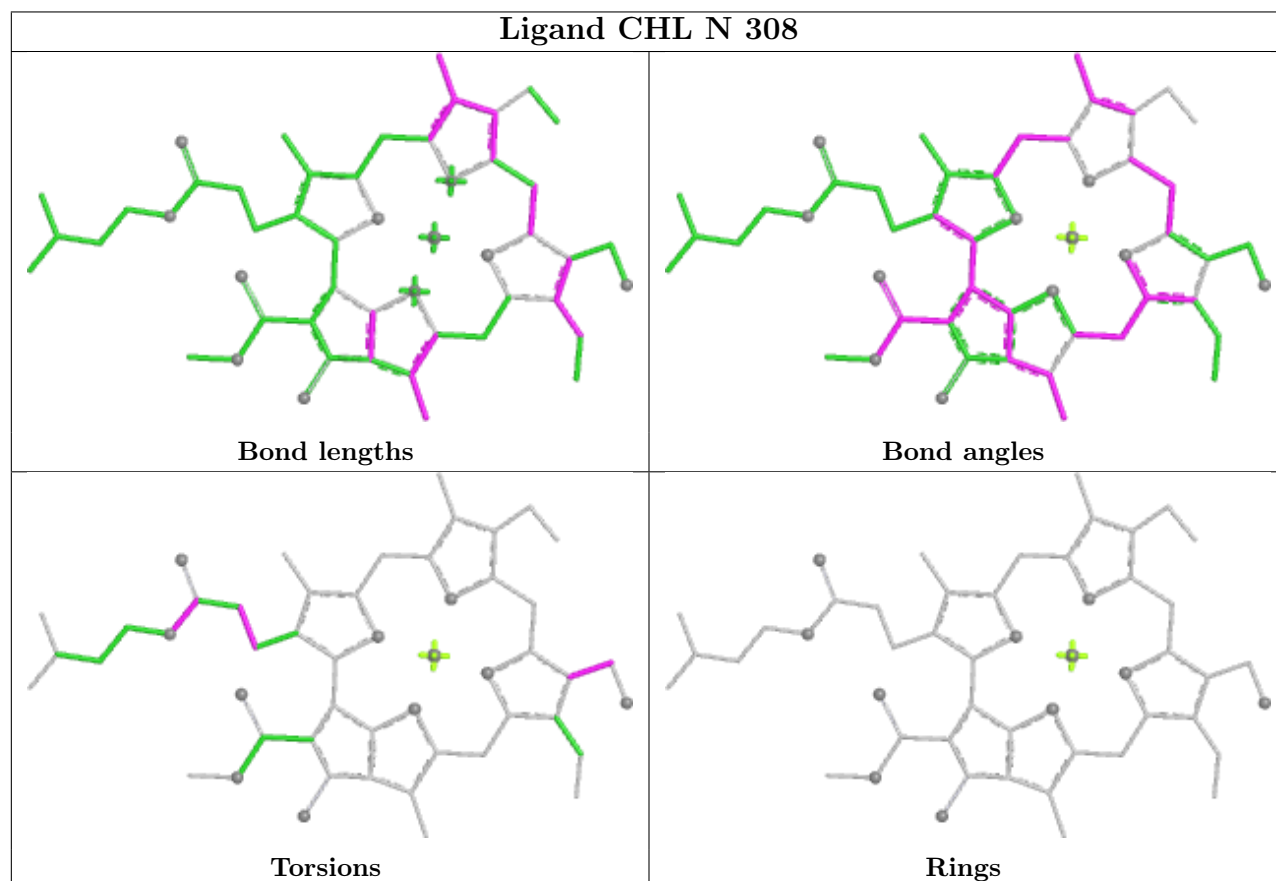
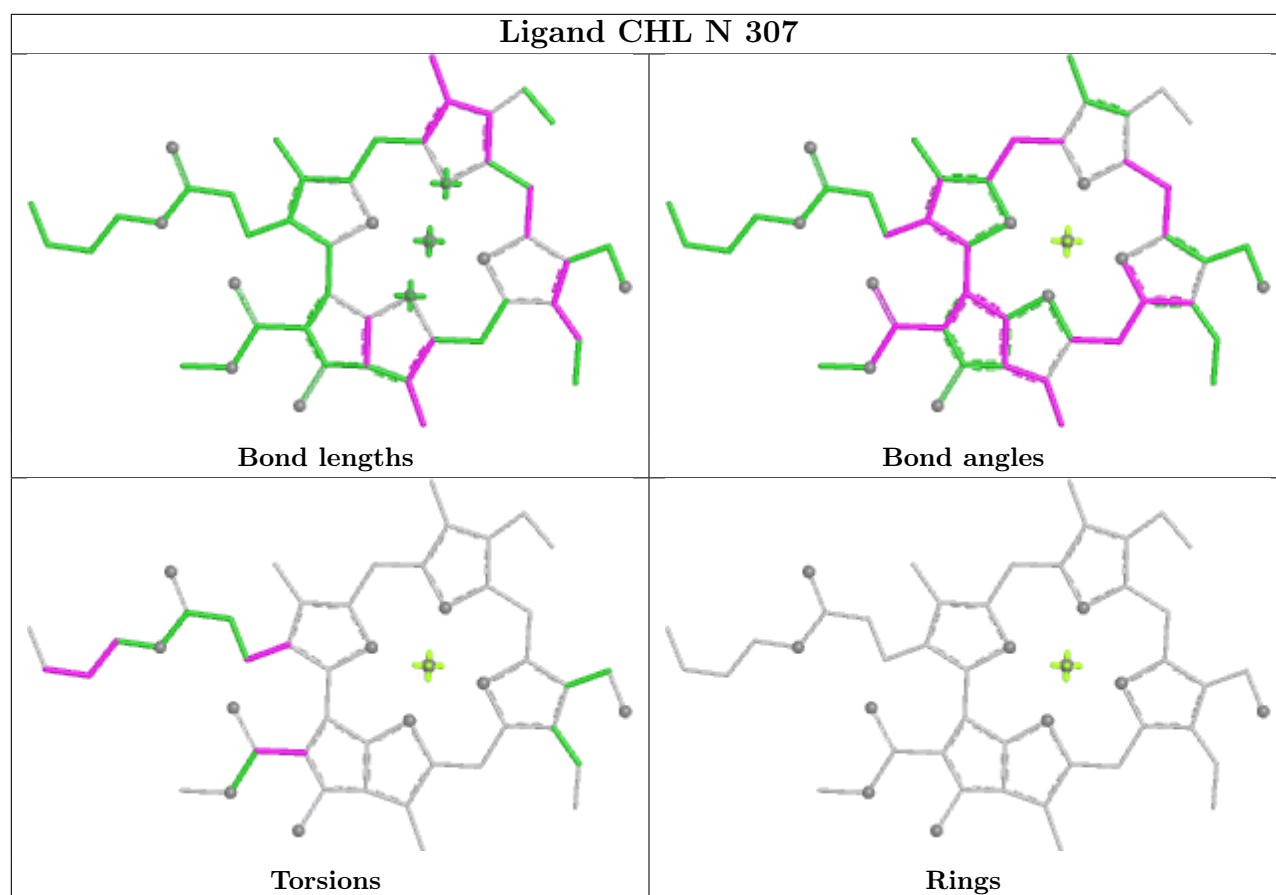


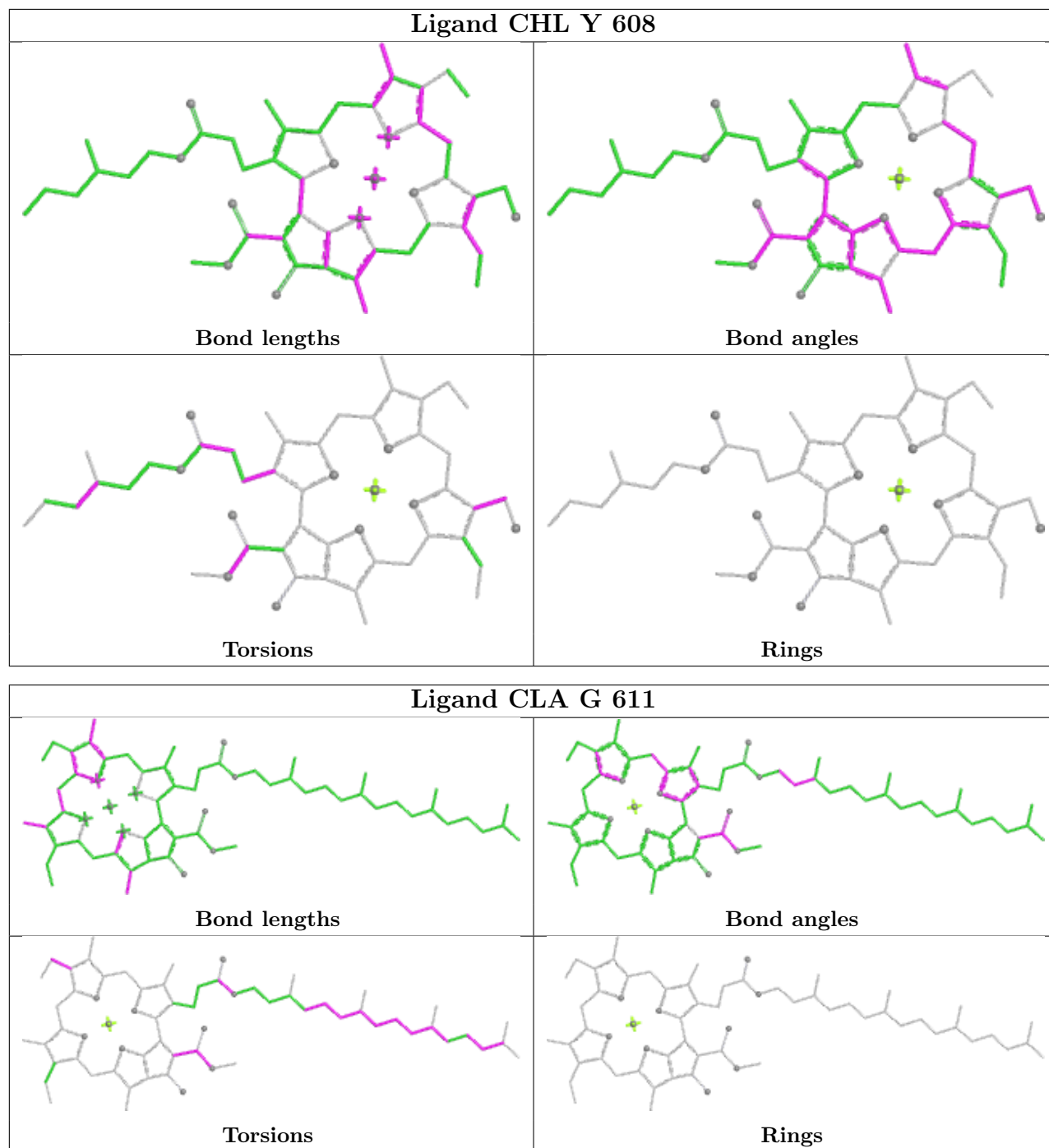


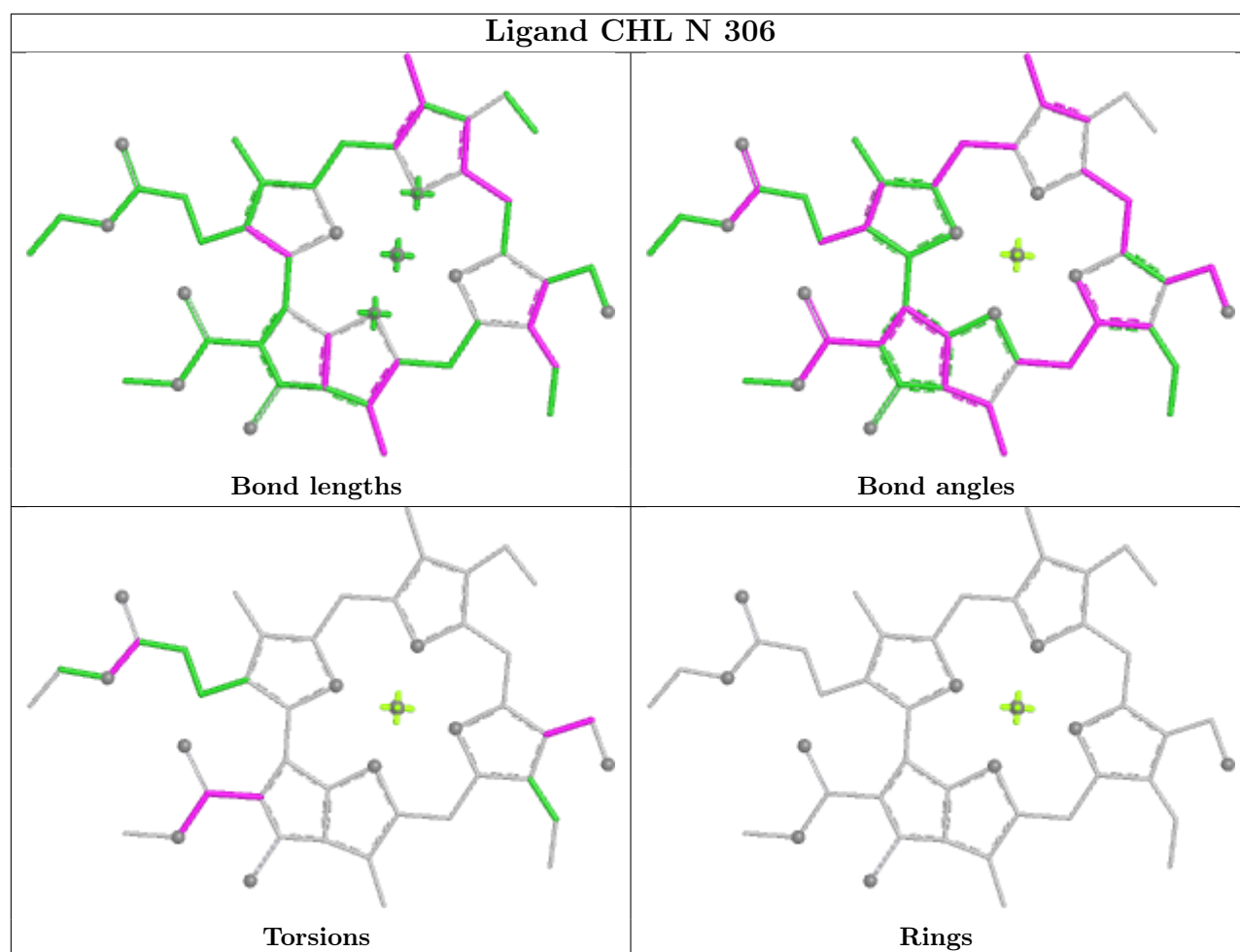


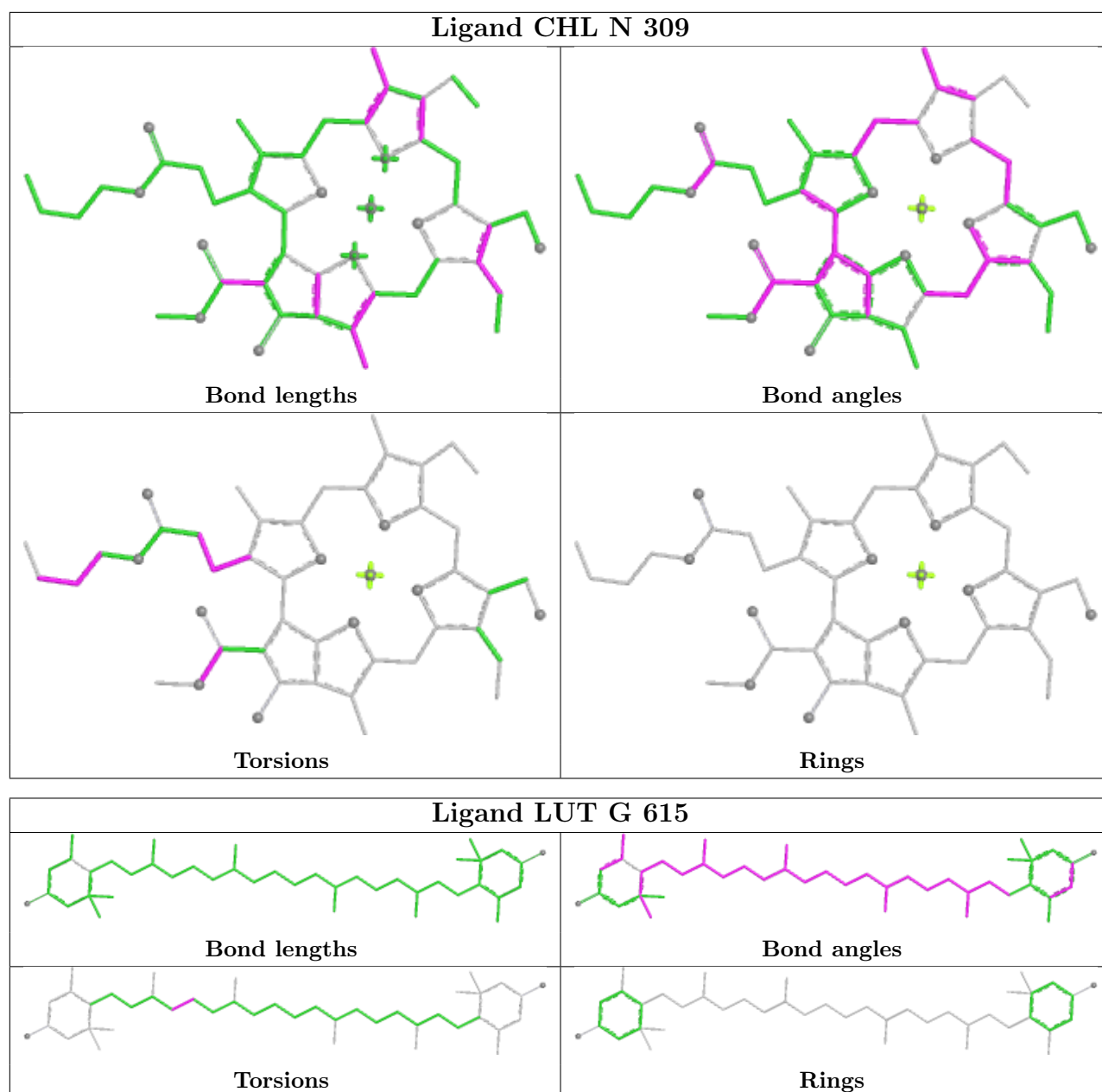




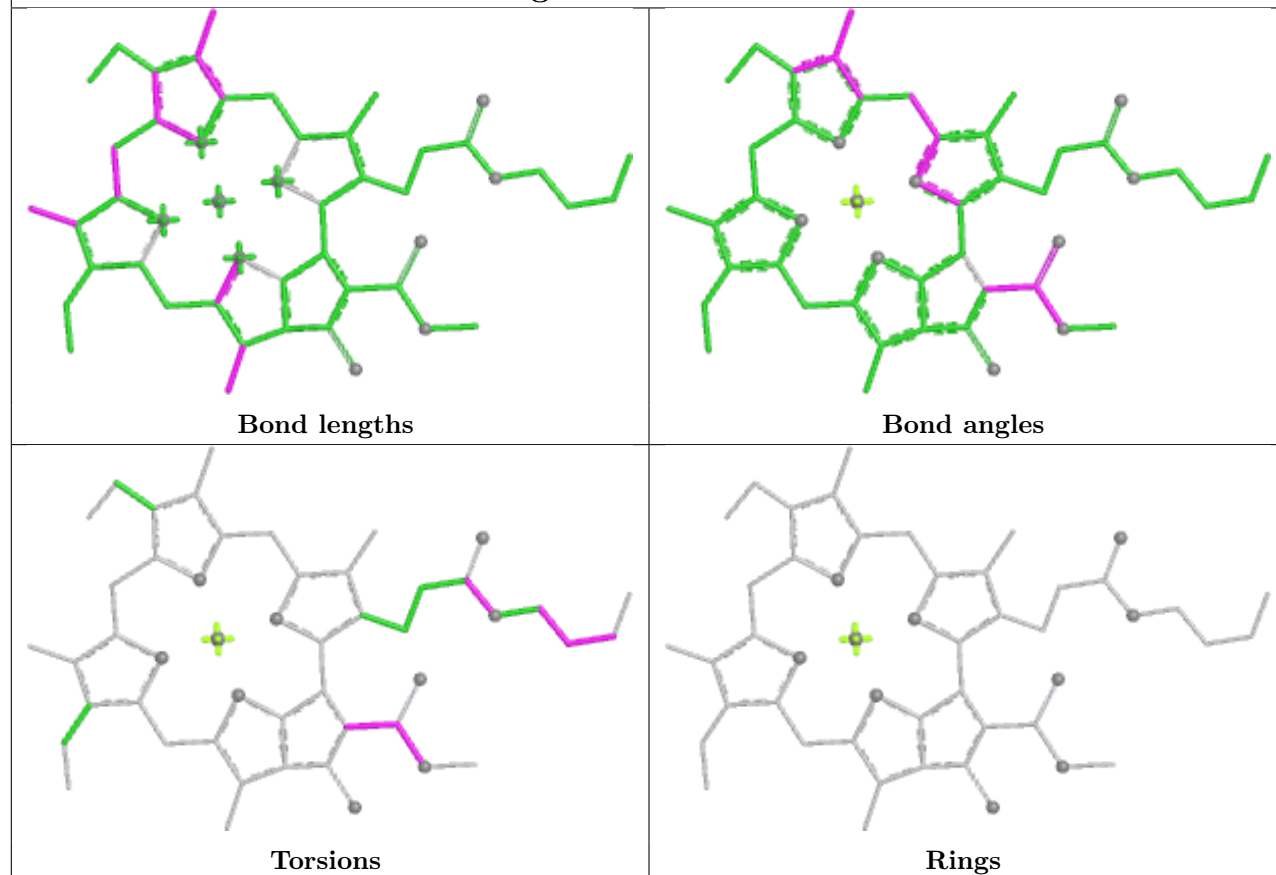




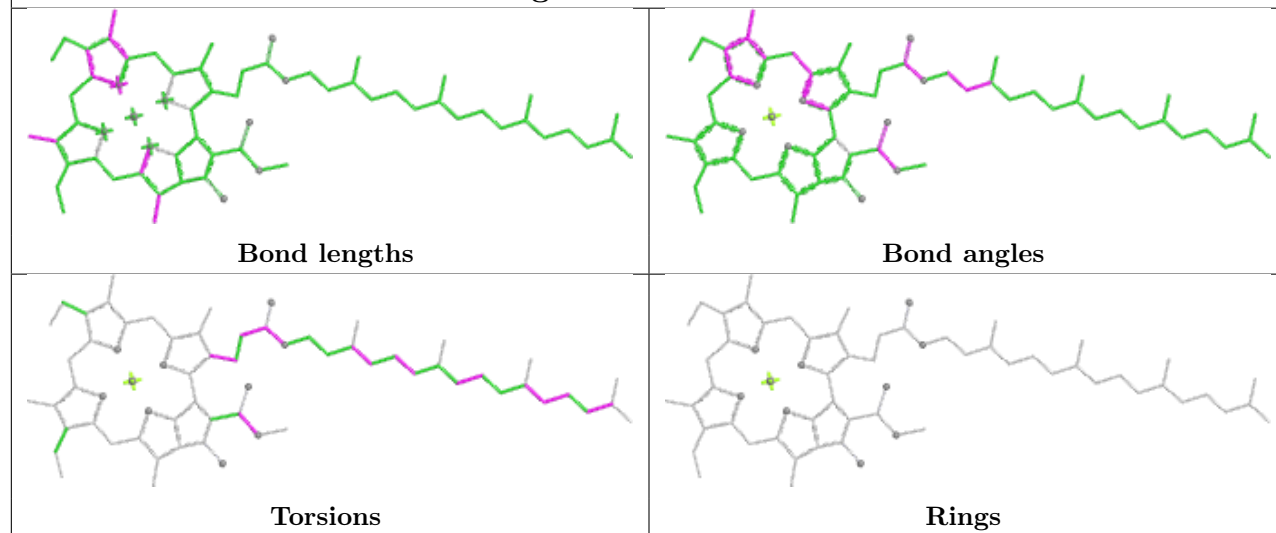


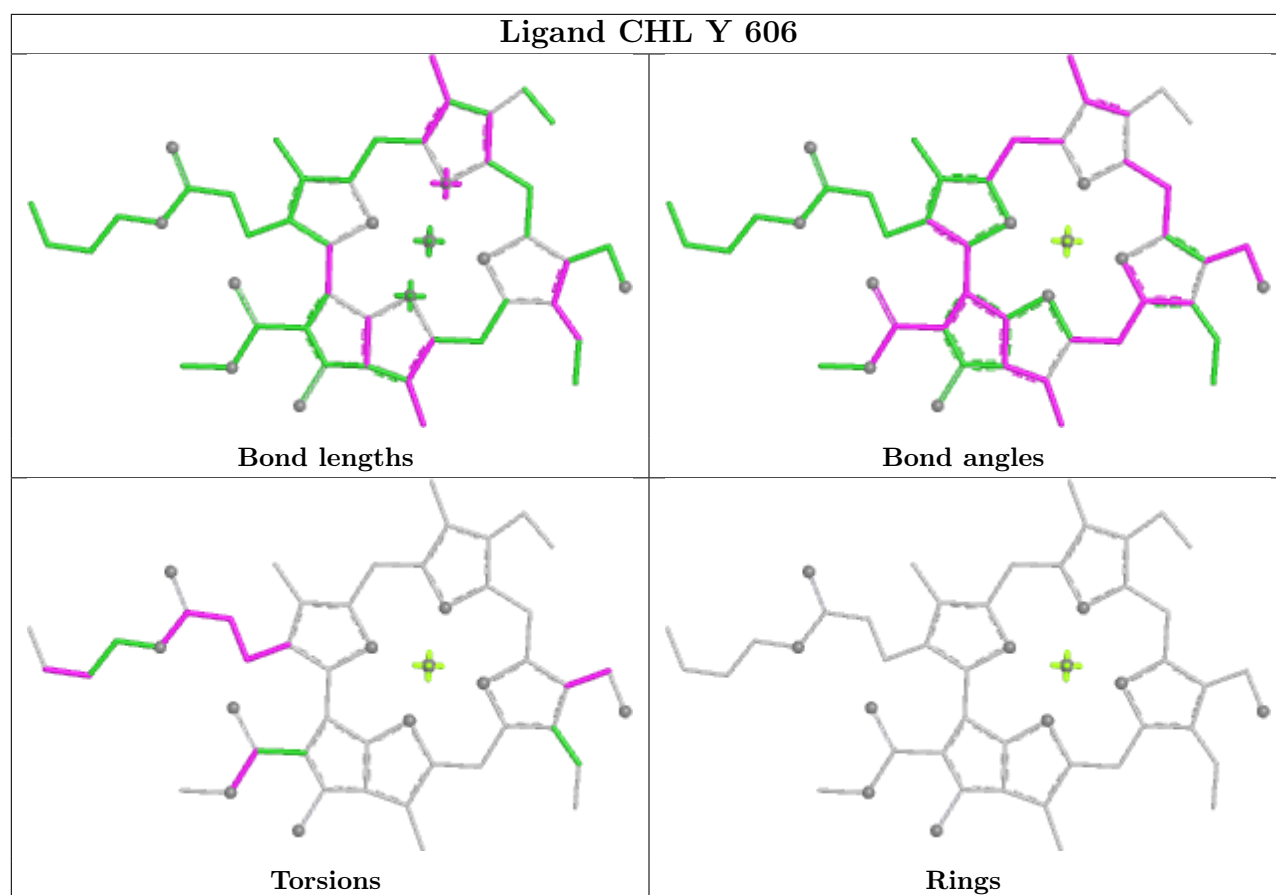


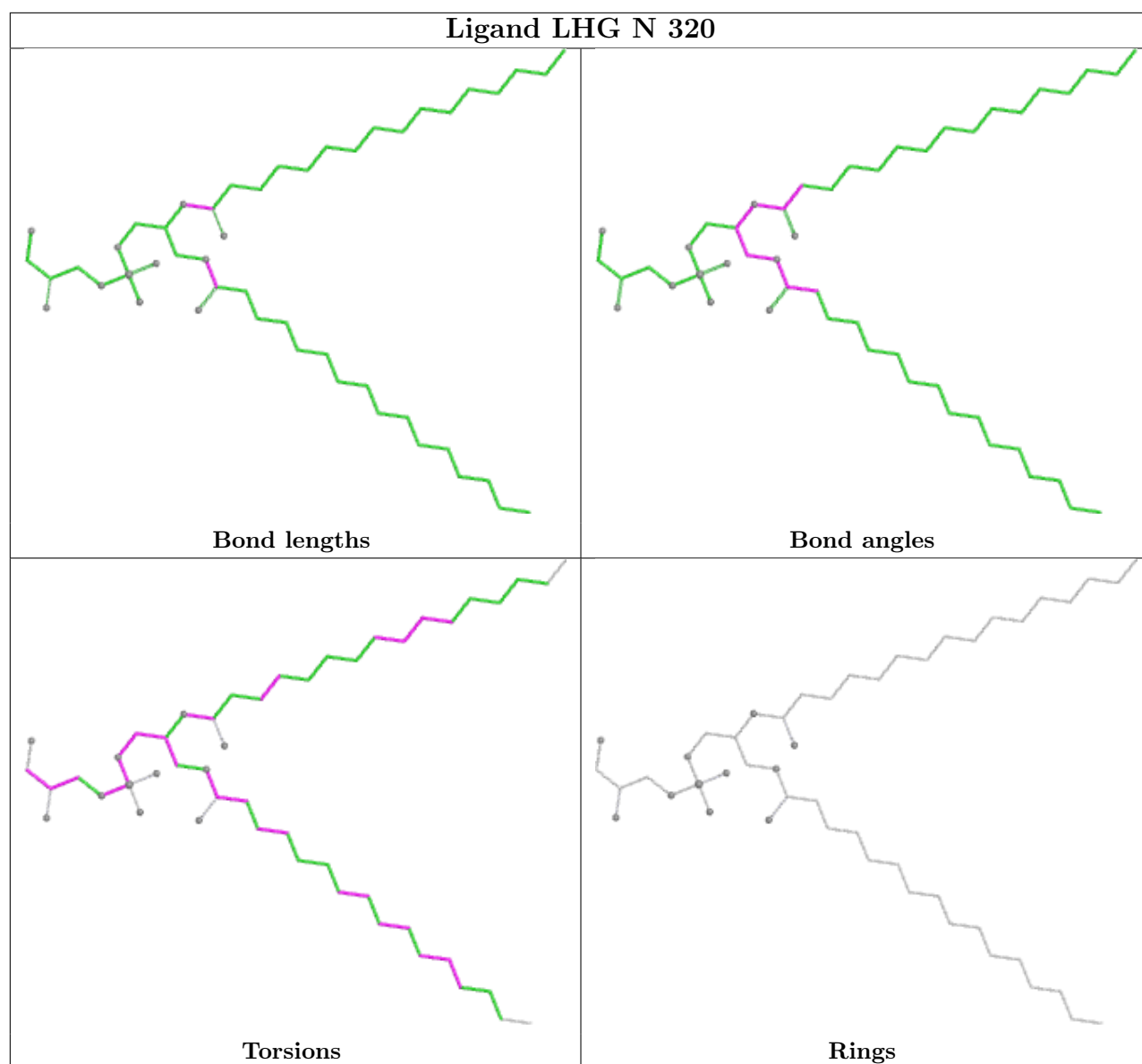
Ligand CLA N 305

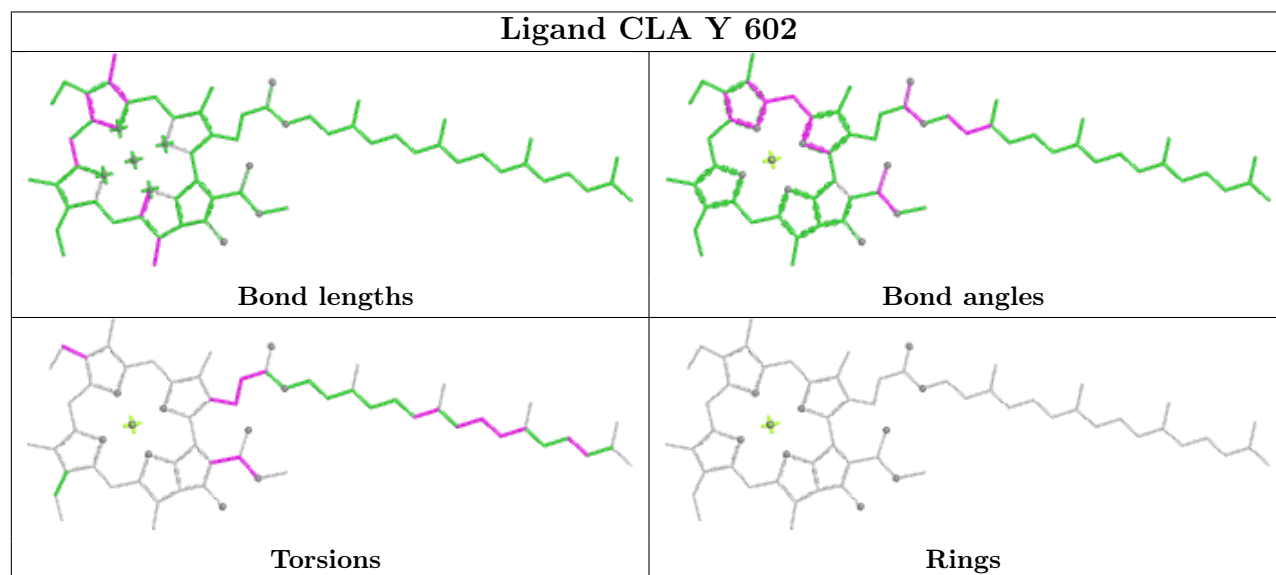
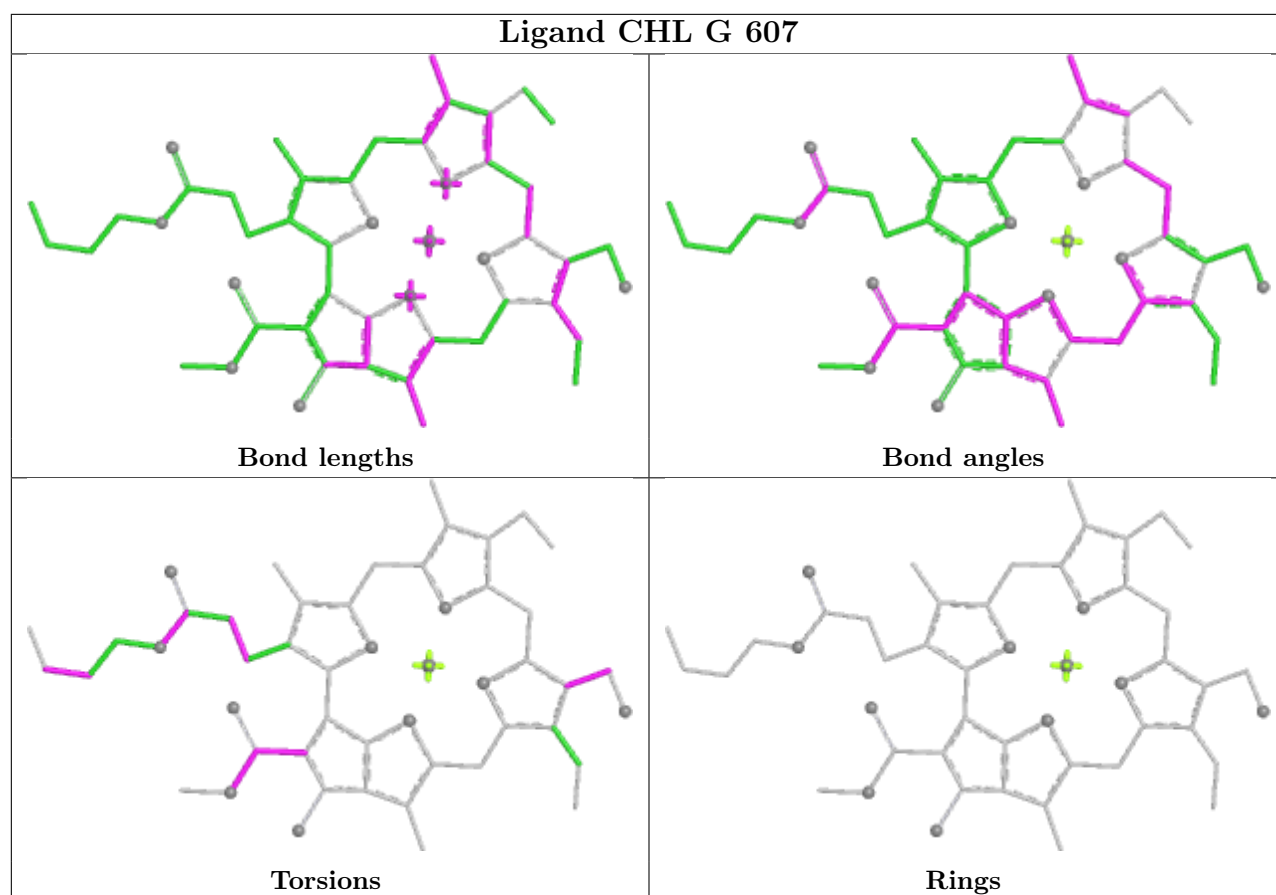


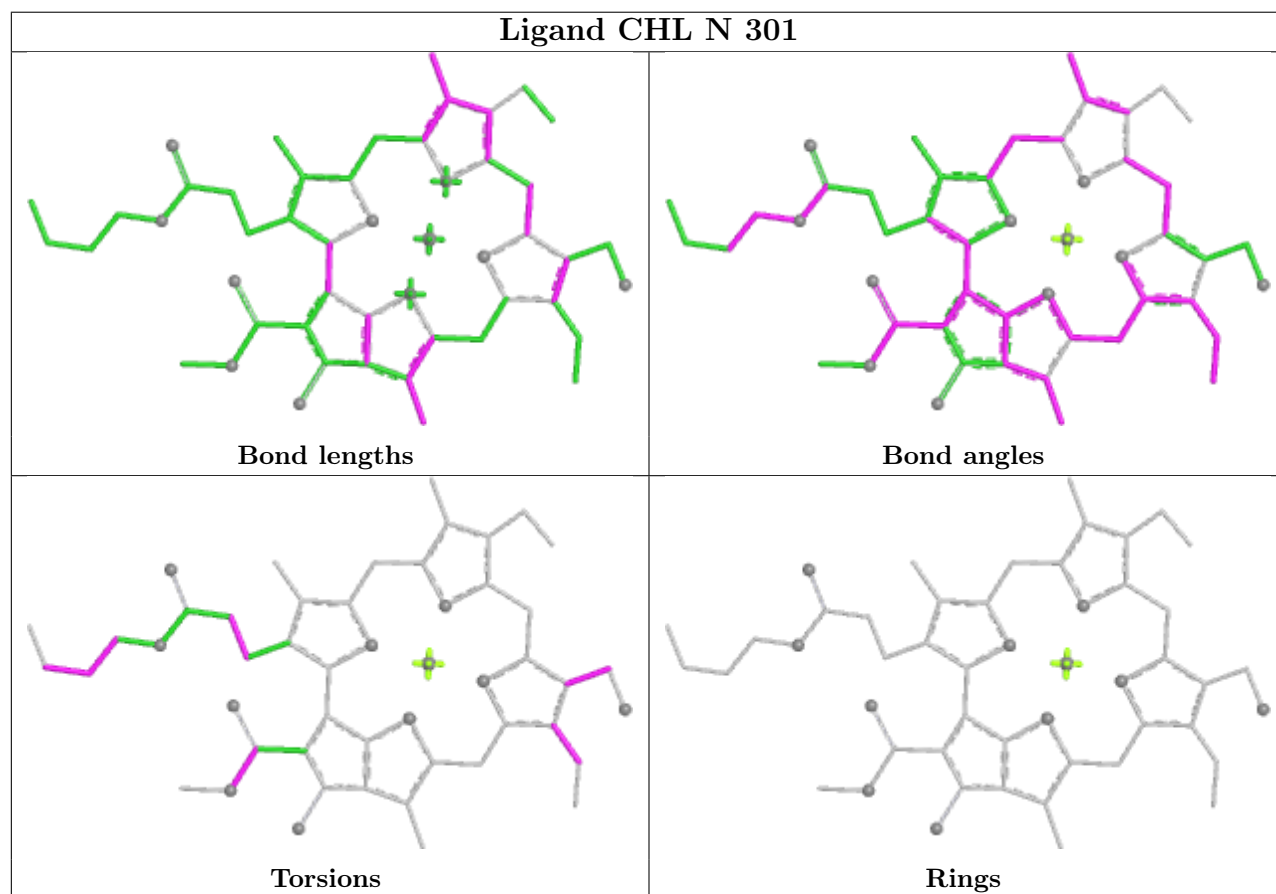
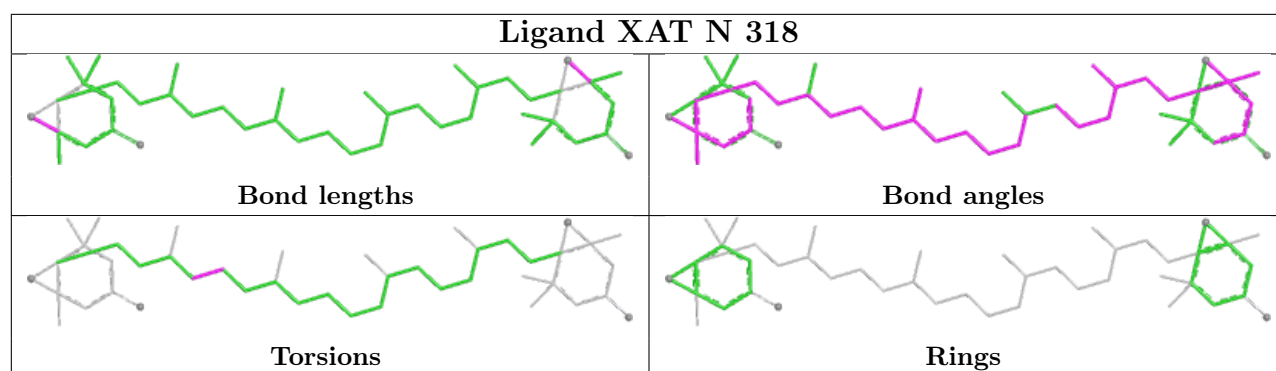
Ligand CLA Y 610

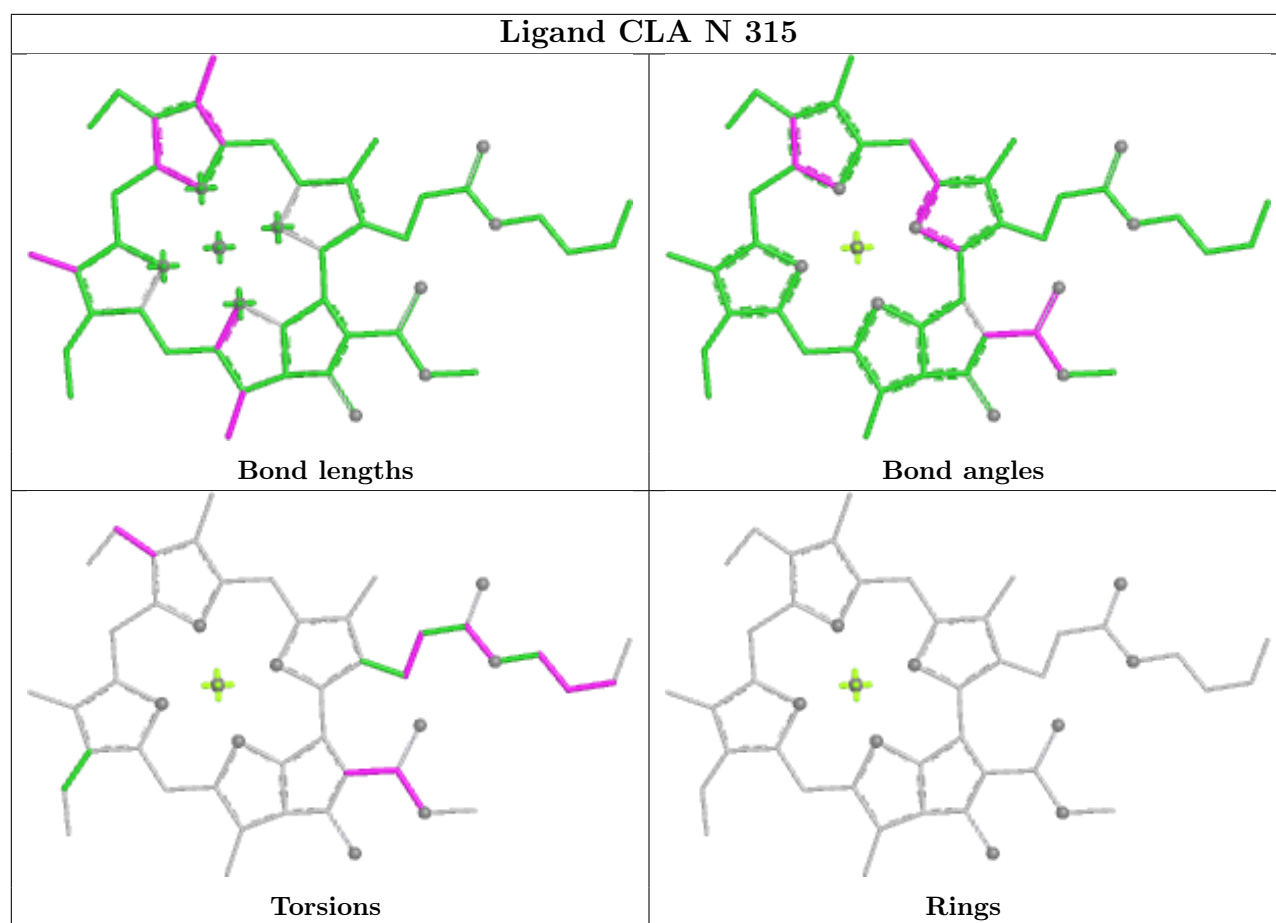


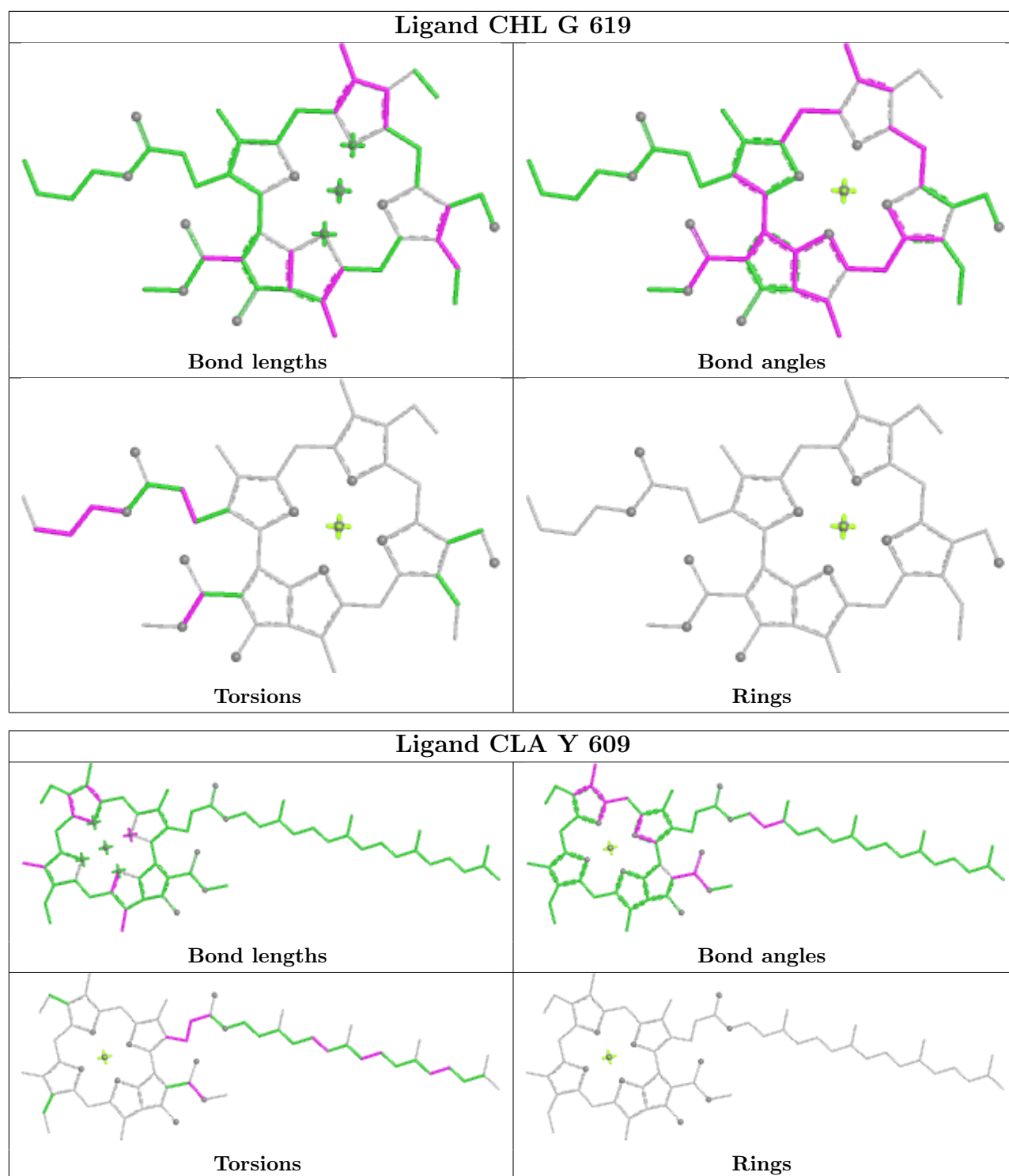


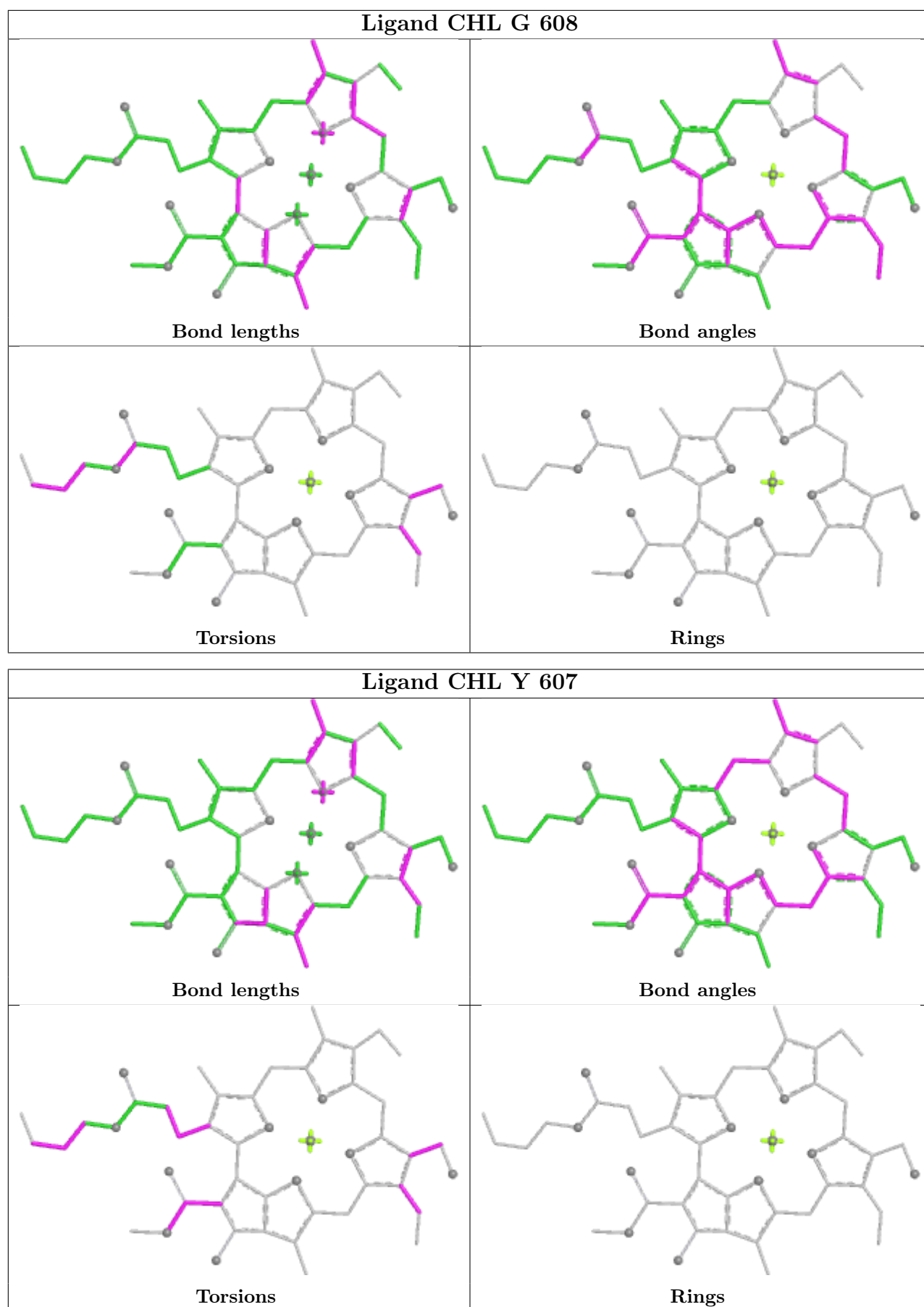


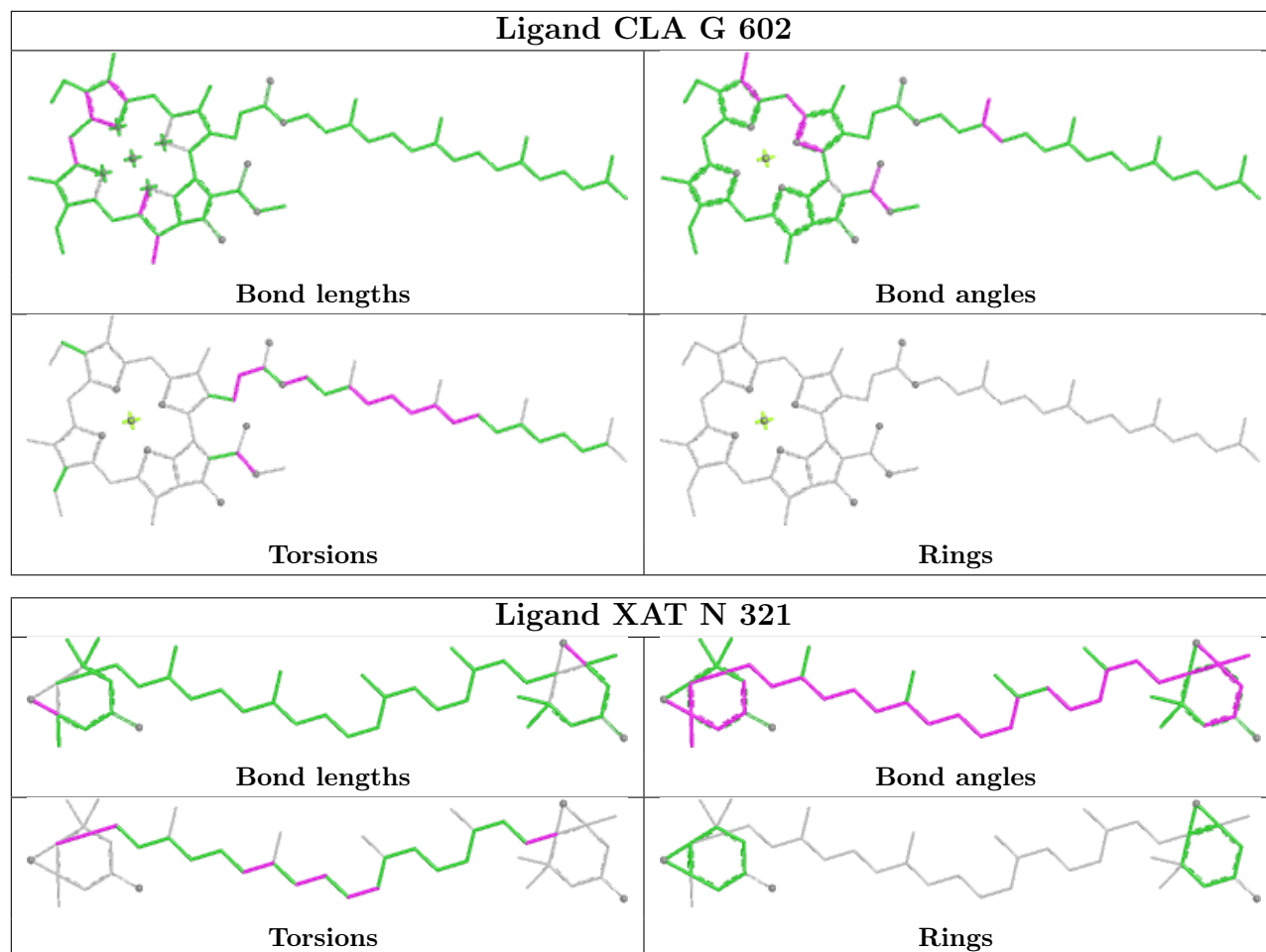


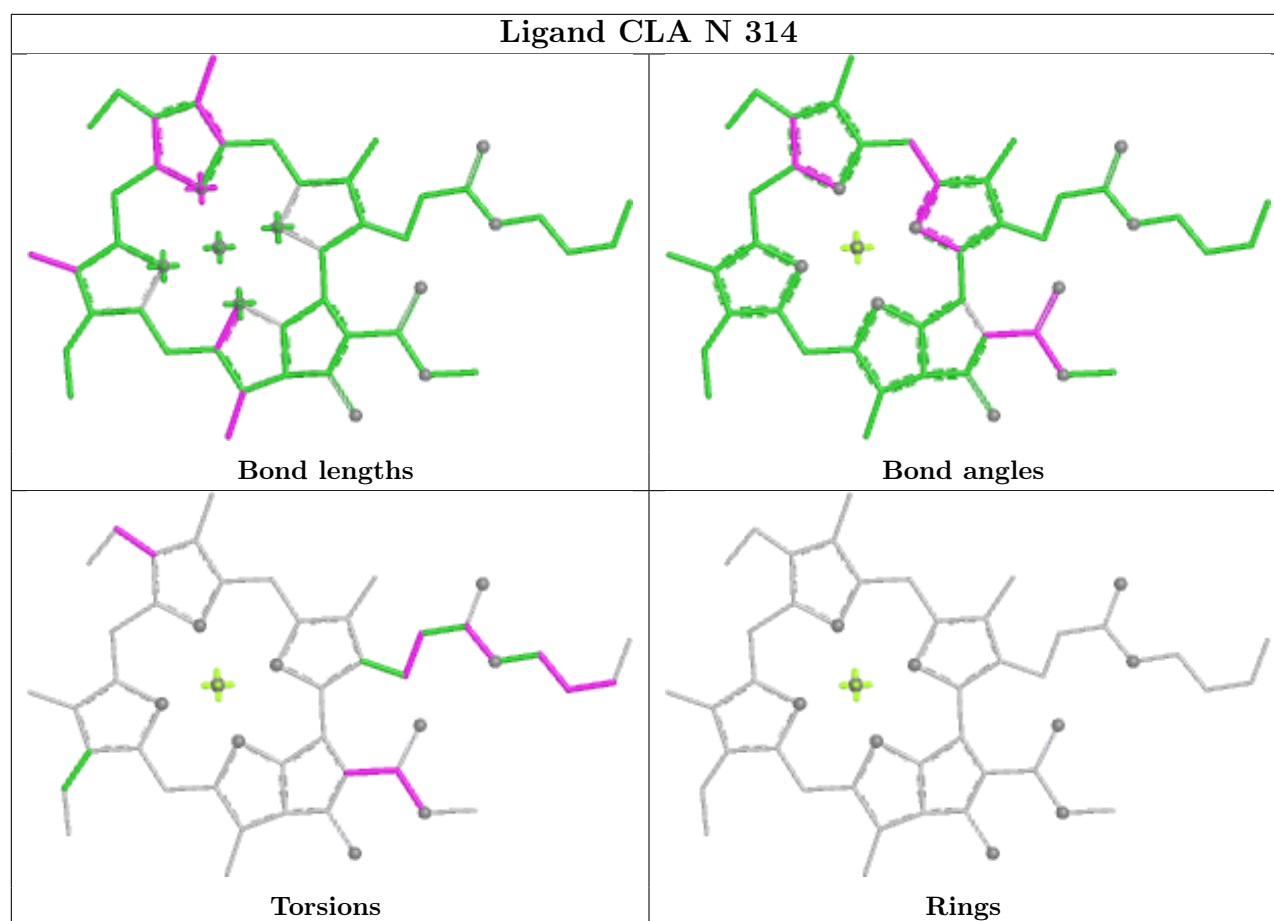












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

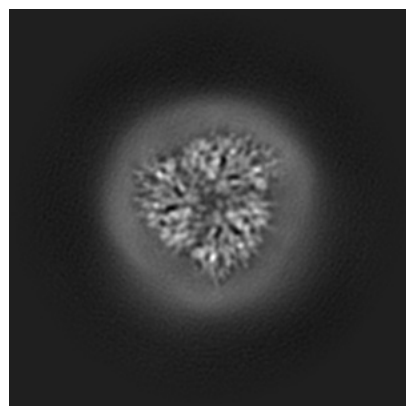
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-35786. These allow visual inspection of the internal detail of the map and identification of artifacts.

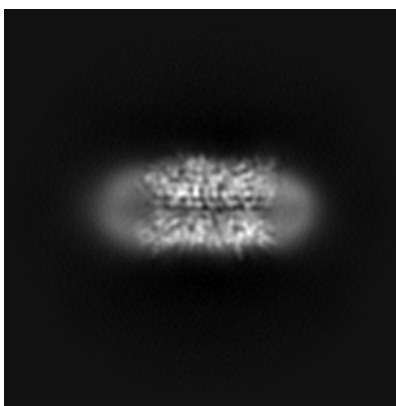
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

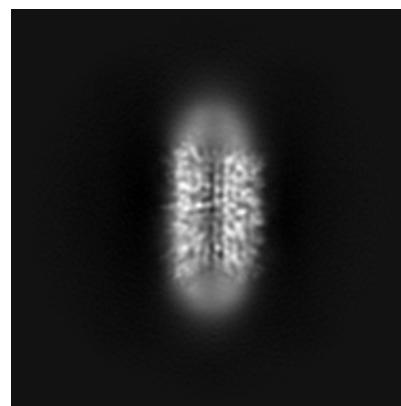
6.1.1 Primary map



X

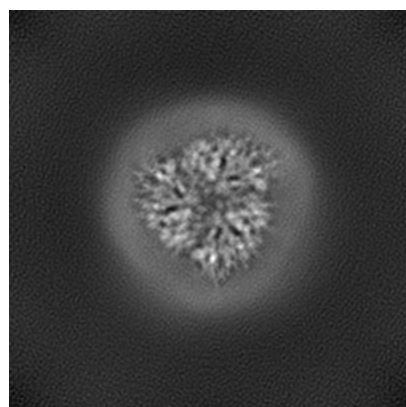


Y

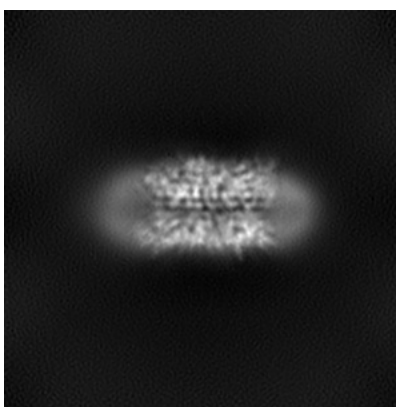


Z

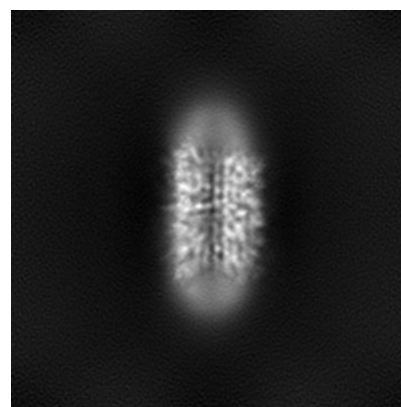
6.1.2 Raw map



X



Y

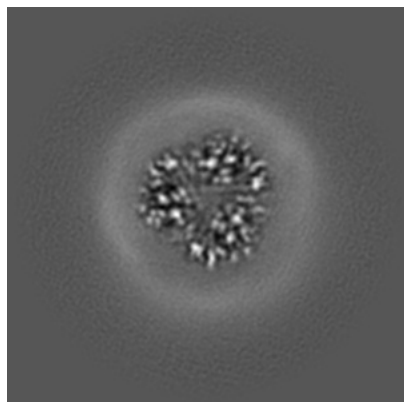


Z

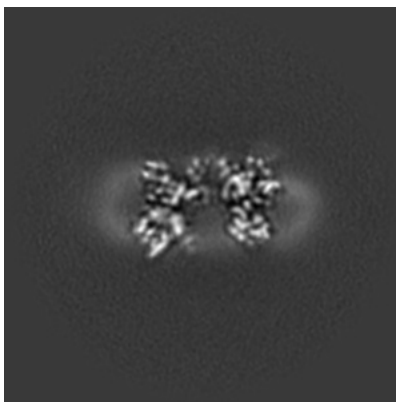
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

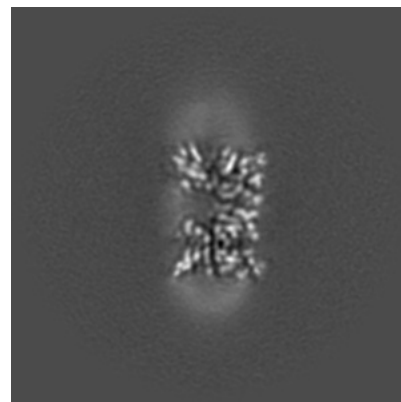
6.2.1 Primary map



X Index: 100

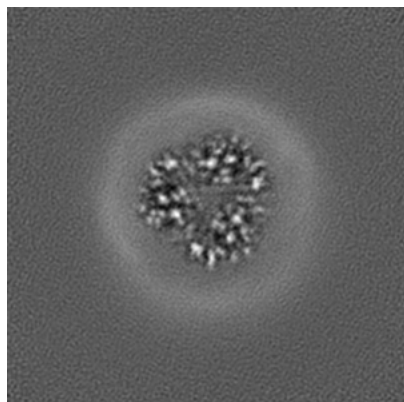


Y Index: 100

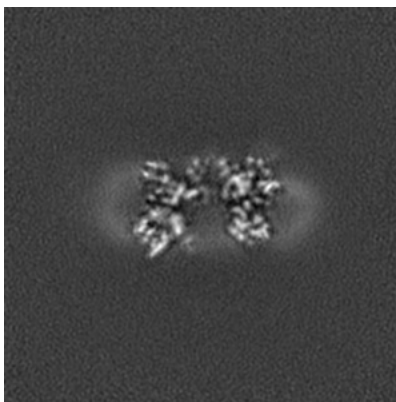


Z Index: 100

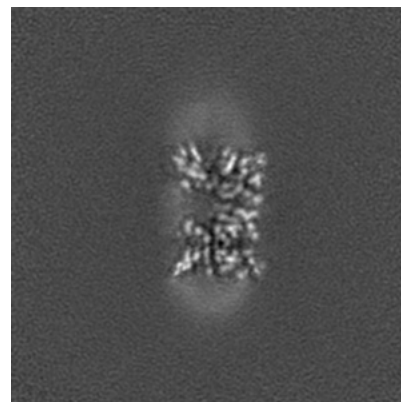
6.2.2 Raw map



X Index: 100



Y Index: 100

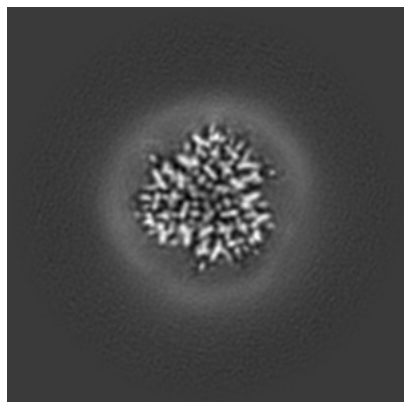


Z Index: 100

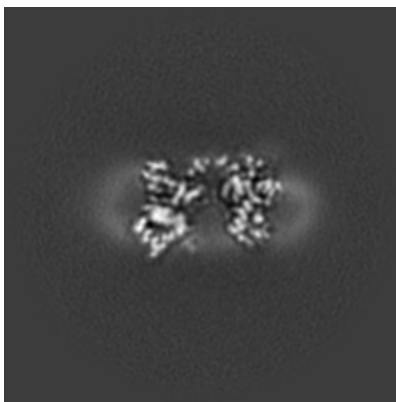
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

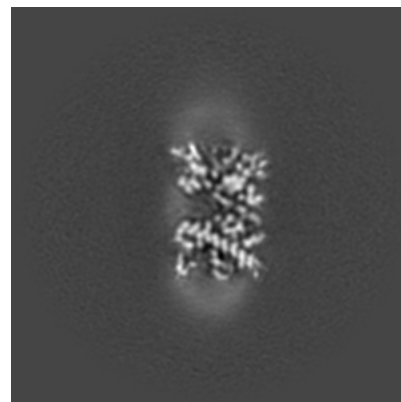
6.3.1 Primary map



X Index: 108

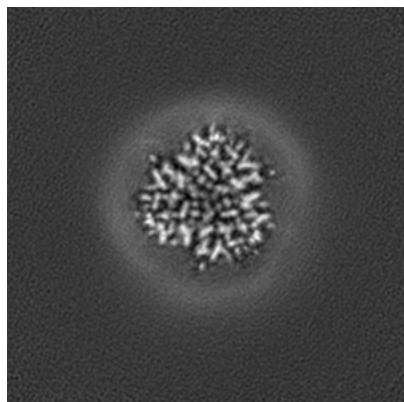


Y Index: 101

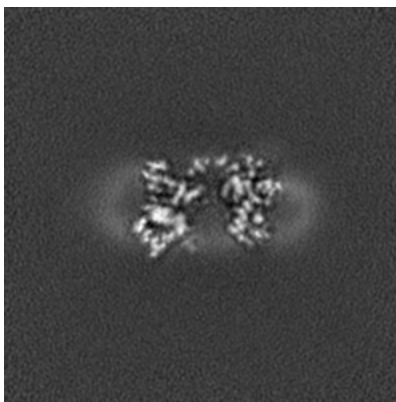


Z Index: 97

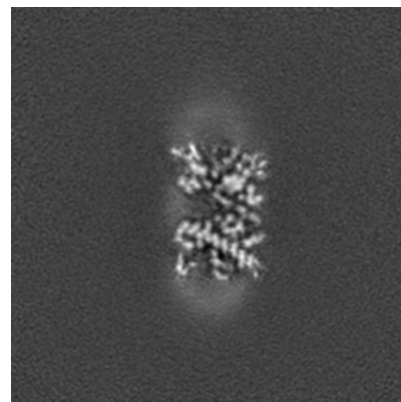
6.3.2 Raw map



X Index: 108



Y Index: 101

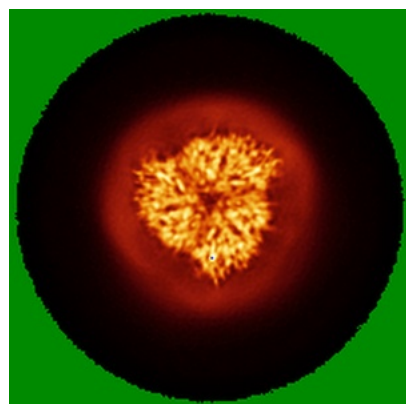


Z Index: 97

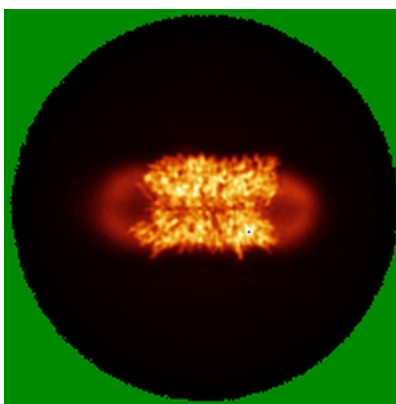
The images above show the largest variance slices of the map in three orthogonal directions.

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

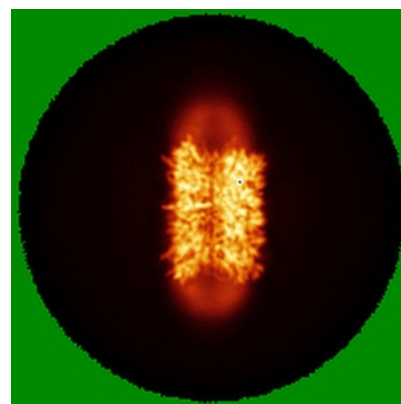
6.4.1 Primary map



X

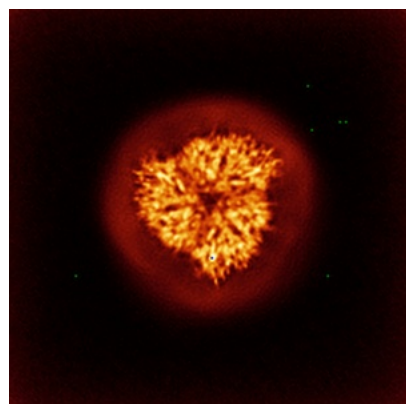


Y

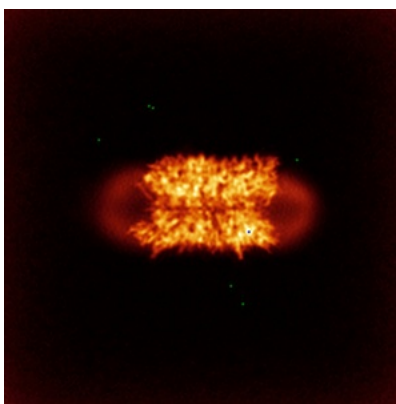


Z

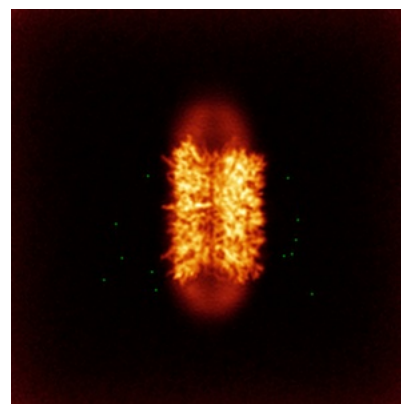
6.4.2 Raw map



X



Y



Z

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

6.5 Orthogonal surface views [i](#)

This section was not generated.

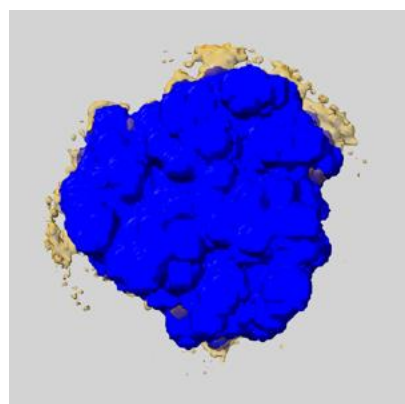
6.6 Mask visualisation [i](#)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

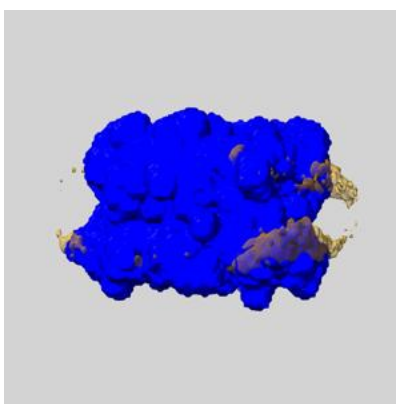
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

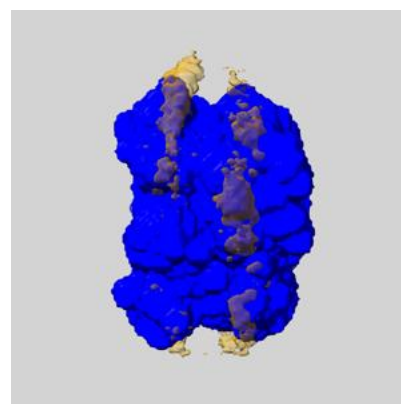
6.6.1 emd_35786_msk_1.map [i](#)



X



Y

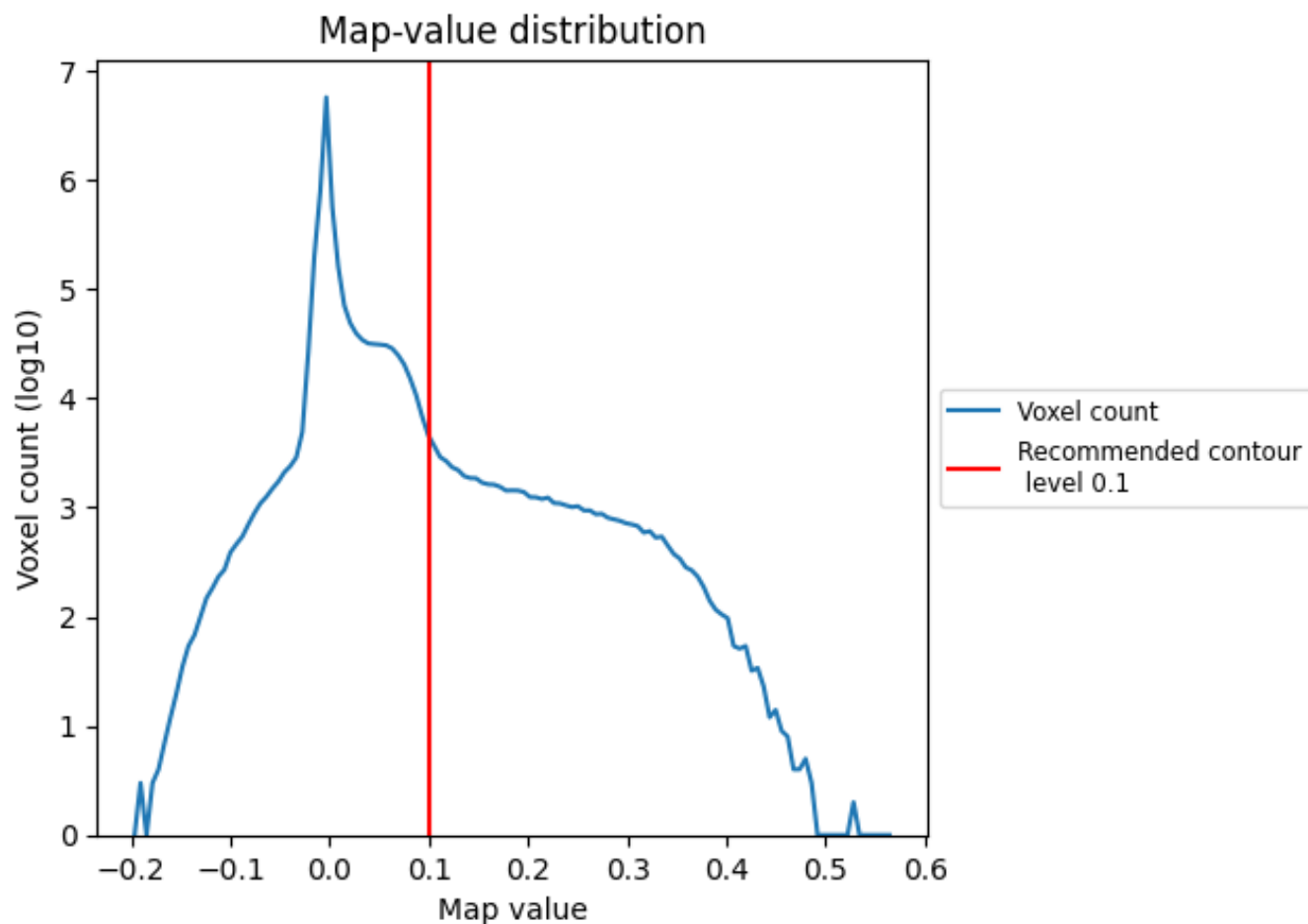


Z

7 Map analysis [i](#)

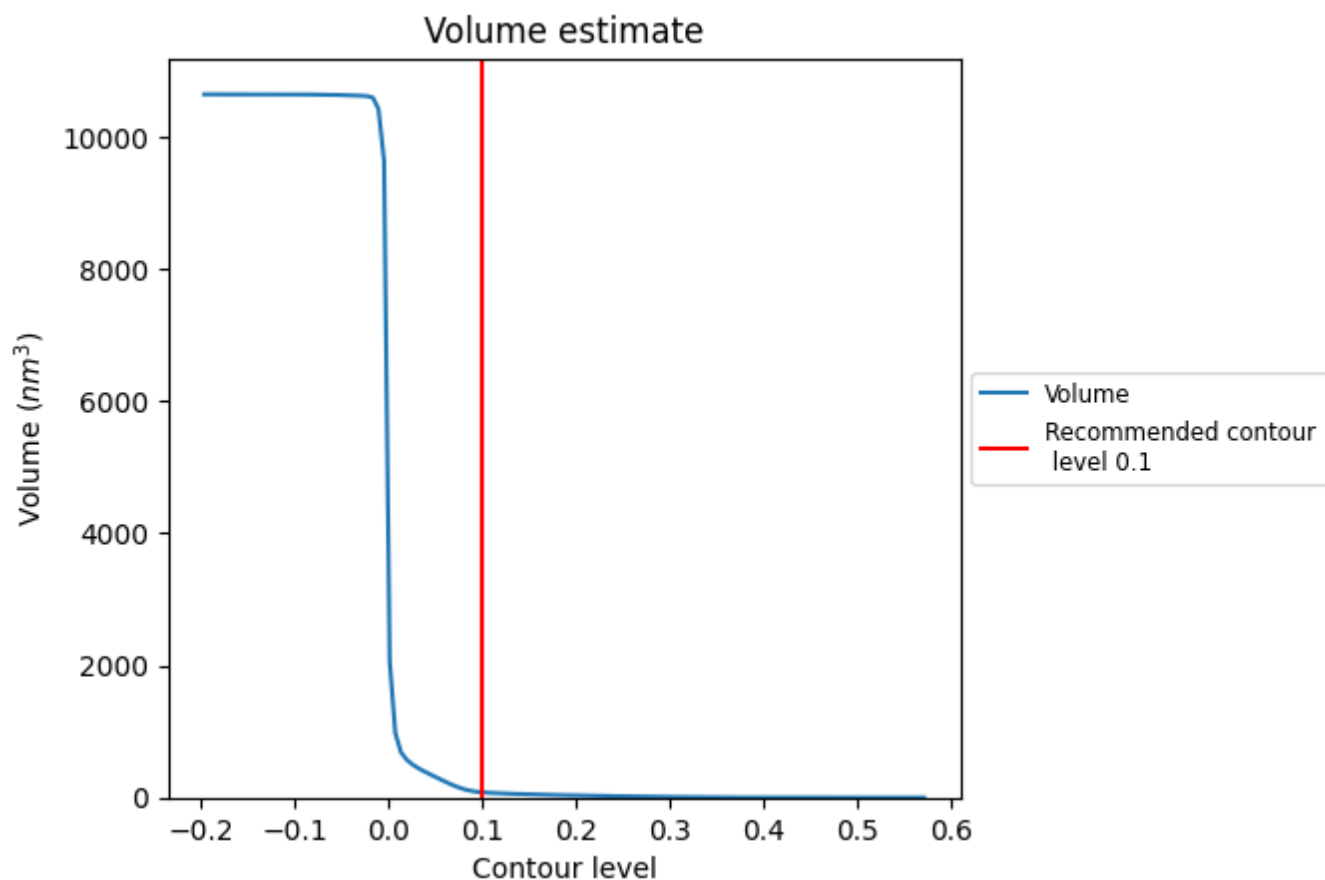
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

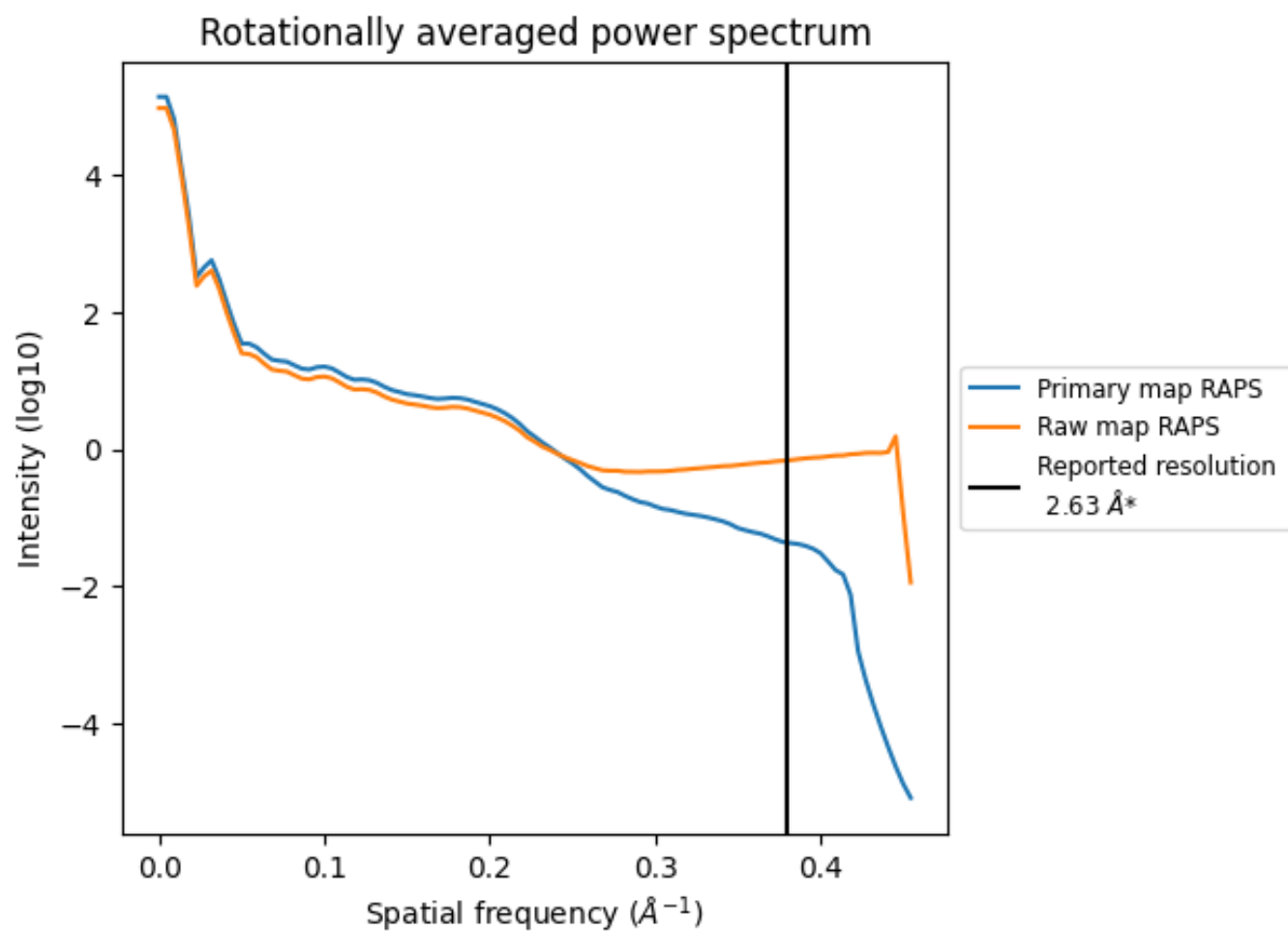
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 79 nm³; this corresponds to an approximate mass of 72 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ

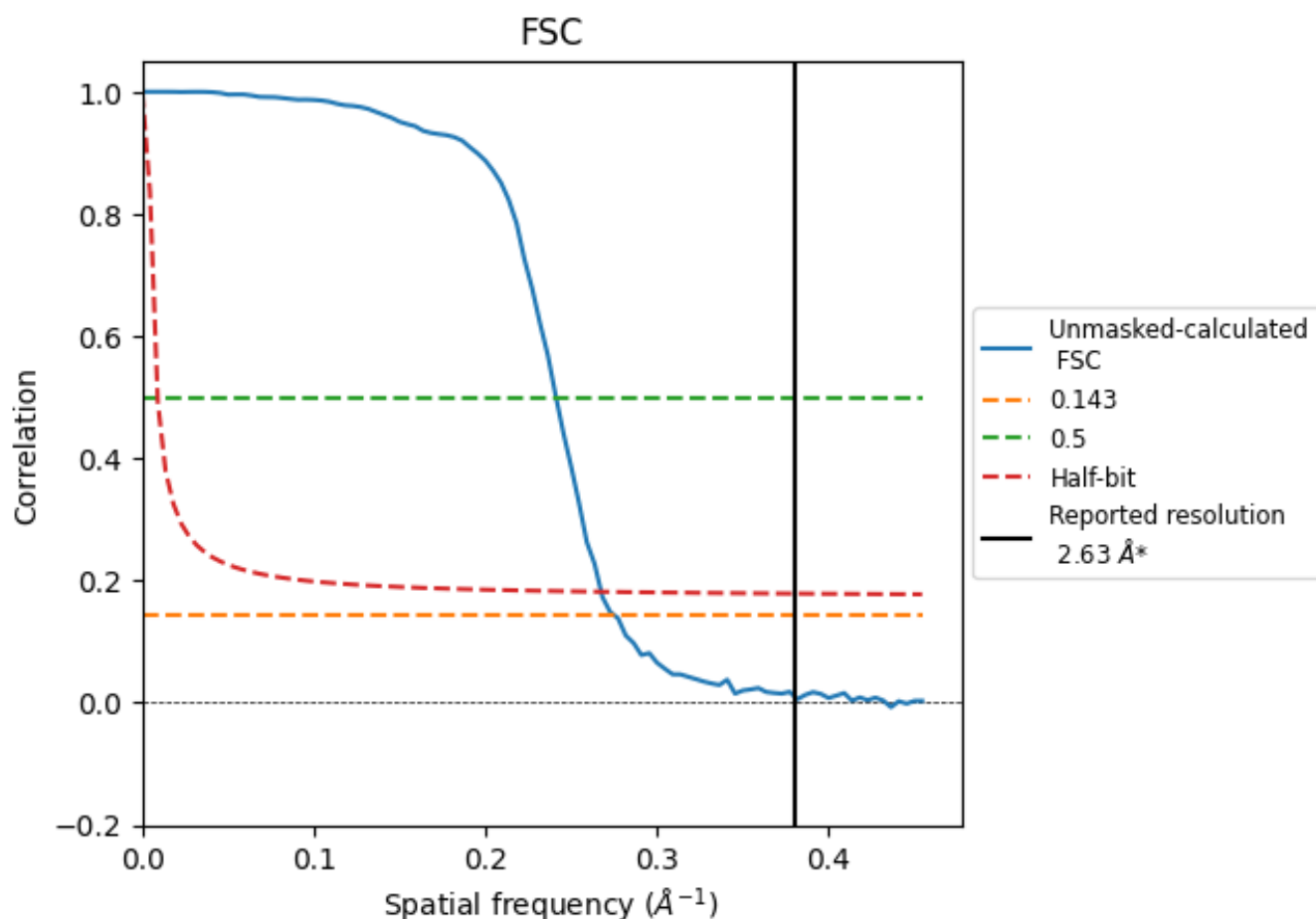


*Reported resolution corresponds to spatial frequency of 0.380 $\text{\AA}^{-1}$

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.380 Å⁻¹

8.2 Resolution estimates [i](#)

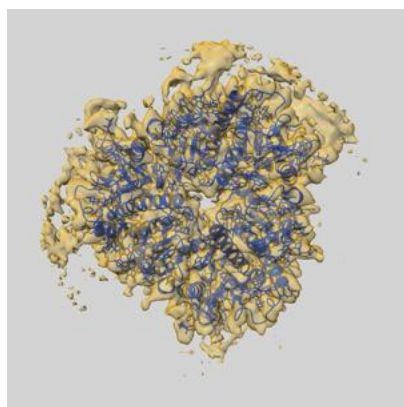
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.63	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.64	4.15	3.74

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.64 differs from the reported value 2.63 by more than 10 %

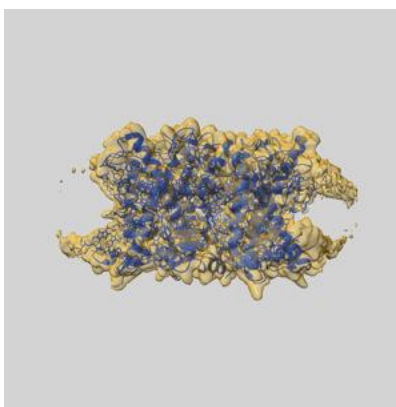
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-35786 and PDB model 8IX1. Per-residue inclusion information can be found in section 3 on page 11.

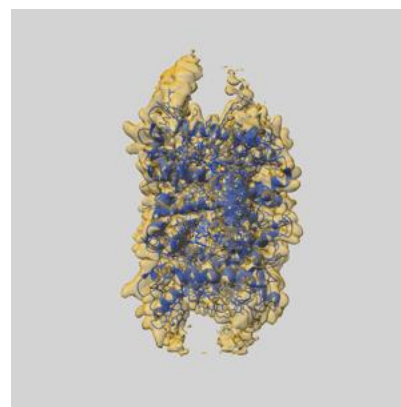
9.1 Map-model overlay [i](#)



X



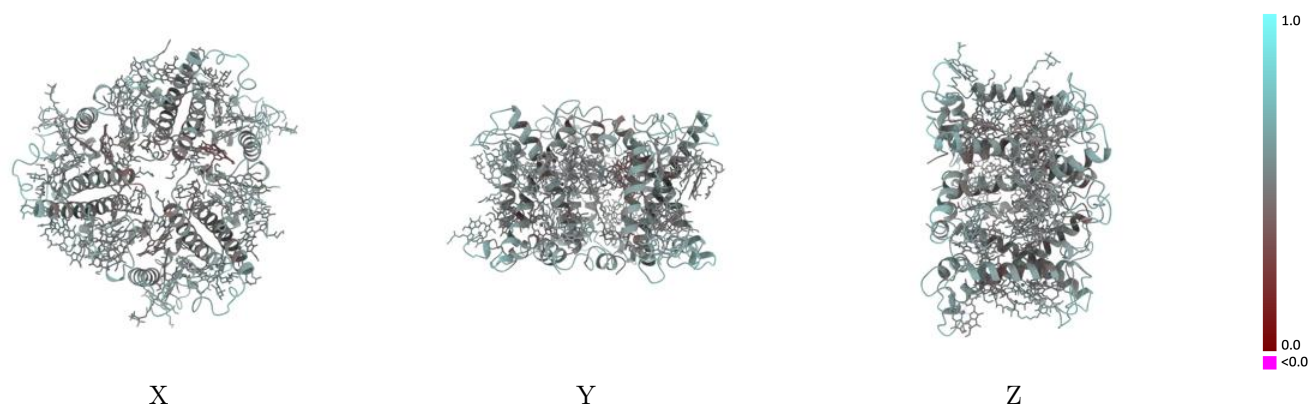
Y



Z

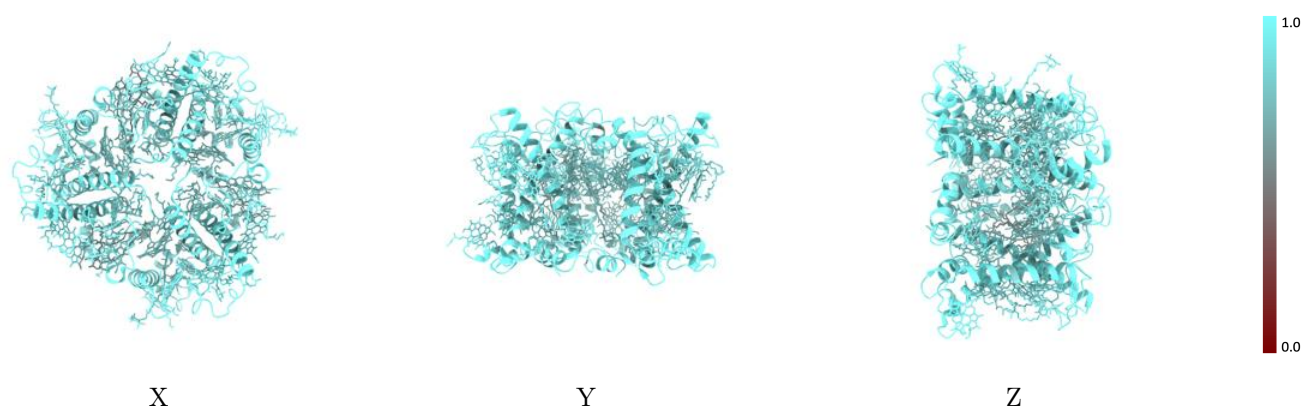
The images above show the 3D surface view of the map at the recommended contour level 0.1 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



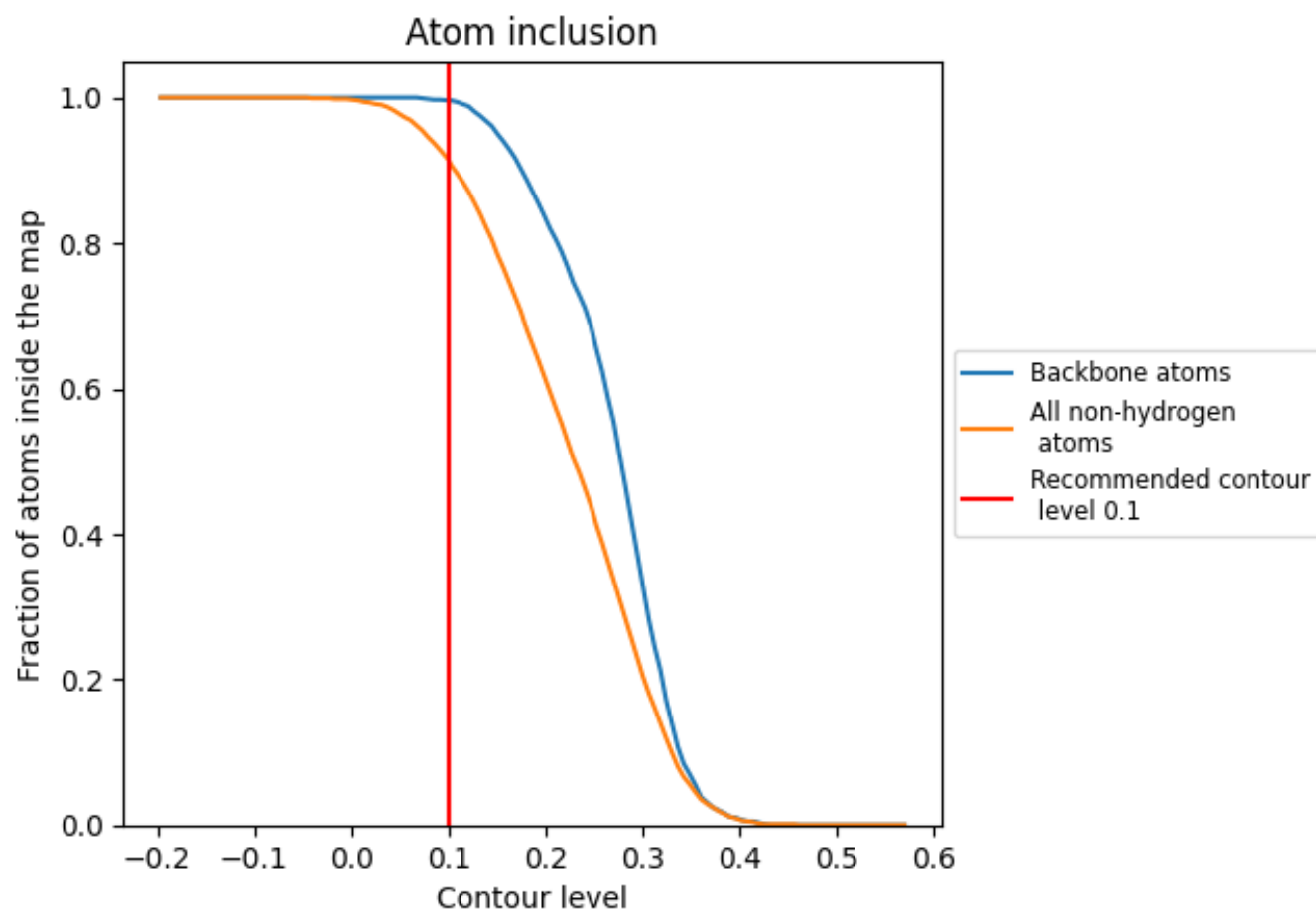
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.1).

9.4 Atom inclusion ⓘ



At the recommended contour level, 100% of all backbone atoms, 92% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.1) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9150	0.5260
G	0.9130	0.5280
N	0.9080	0.5190
Y	0.9230	0.5300

