



# Full wwPDB X-ray Structure Validation Report ⓘ

Jan 20, 2024 – 04:53 pm GMT

PDB ID : 7Q7P  
Title : LIPIDIC CUBIC PHASE SERIAL FEMTOSECOND CRYSTALLOGRAPHY STRUCTURE OF A PHOTOSYNTHETIC REACTION CENTRE  
Authors : Baath, P.; Banacore, A.; Neutze, R.  
Deposited on : 2021-11-09  
Resolution : 2.40 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4.02b-467  
Mogul : 1.8.4, CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.36  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36

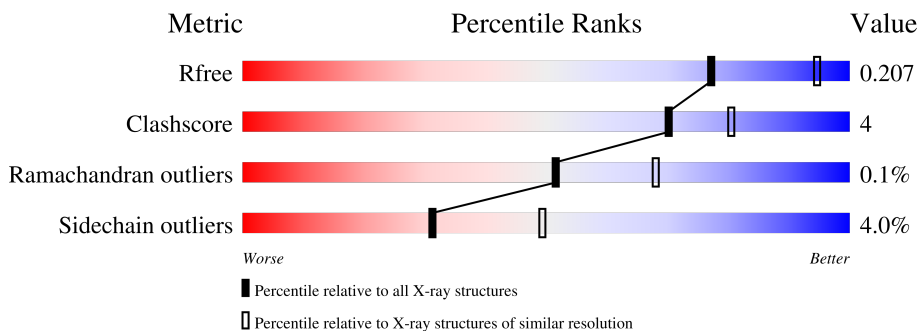
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.40 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	3907 (2.40-2.40)
Clashscore	141614	4398 (2.40-2.40)
Ramachandran outliers	138981	4318 (2.40-2.40)
Sidechain outliers	138945	4319 (2.40-2.40)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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  $\leq 5\%$ .

Mol	Chain	Length	Quality of chain
1	CCC	356	86% 7% 7%
2	HHH	258	83% 12% . .
3	LLL	273	93% 6% .
4	MMM	323	94% 6% .

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
10	BCB	LLL	301	X	-	-	-
10	BCB	LLL	302	X	-	-	-
10	BCB	MMM	403	X	-	-	-
10	BCB	MMM	404	X	-	-	-
11	BPB	LLL	303	X	-	-	-
11	BPB	MMM	405	X	-	-	-
6	DGA	CCC	405	X	-	-	-

## 2 Entry composition

There are 17 unique types of molecules in this entry. The entry contains 10442 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called Photosynthetic reaction center cytochrome c subunit.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	CCC	332	2618	1649	471	480	18	0	2	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	HHH	247	1941	1242	332	365	2	0	0	0

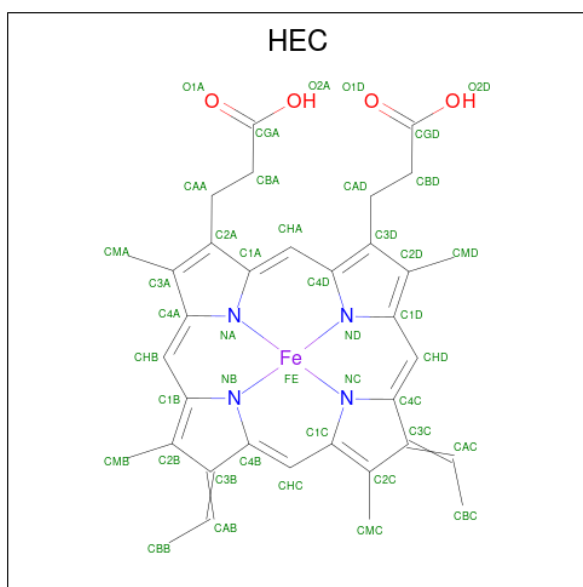
- Molecule 3 is a protein called Reaction center protein L chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	LLL	273	2172	1460	350	355	7	0	1	0

- Molecule 4 is a protein called Reaction center protein M chain.

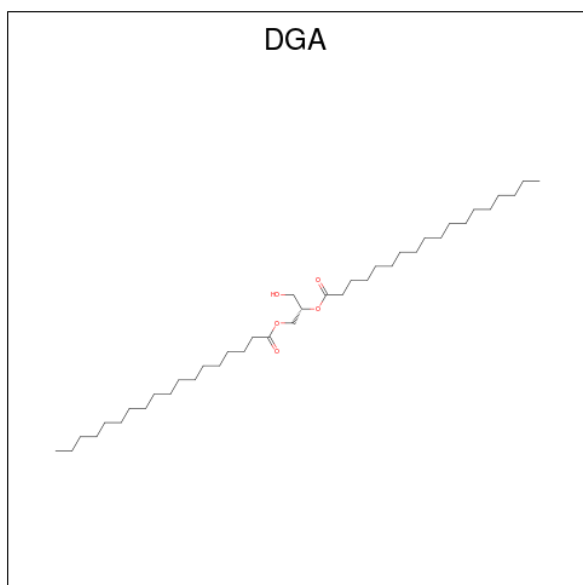
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	MMM	323	2555	1702	419	423	11	0	0	0

- Molecule 5 is HEME C (three-letter code: HEC) (formula:  $C_{34}H_{34}FeN_4O_4$ ).



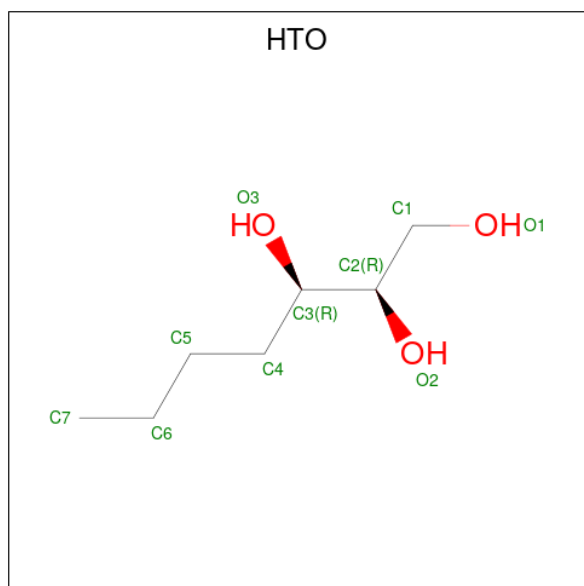
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
			Total	C	Fe	N			O
5	CCC	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
5	CCC	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
5	CCC	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
5	CCC	1	Total 43	C 34	Fe 1	N 4	O 4	0	0

- Molecule 6 is DIACYL GLYCEROL (three-letter code: DGA) (formula:  $C_{39}H_{76}O_5$ ).



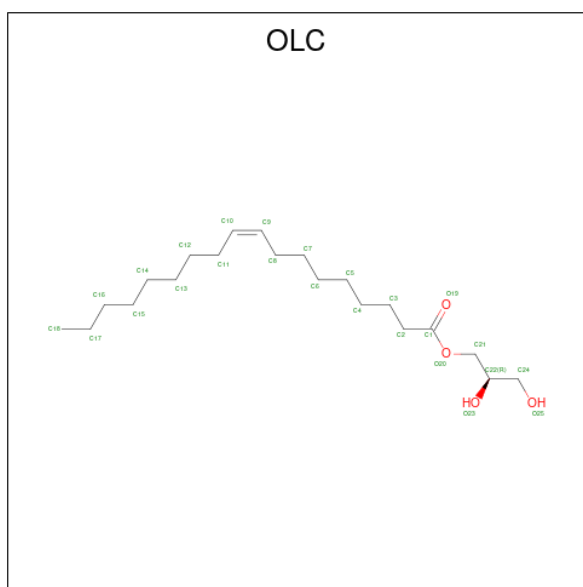
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	CCC	1	Total	C	O	41	0
			44	39	5		

- Molecule 7 is HEPTANE-1,2,3-TRIOL (three-letter code: HTO) (formula: C<sub>7</sub>H<sub>16</sub>O<sub>3</sub>).



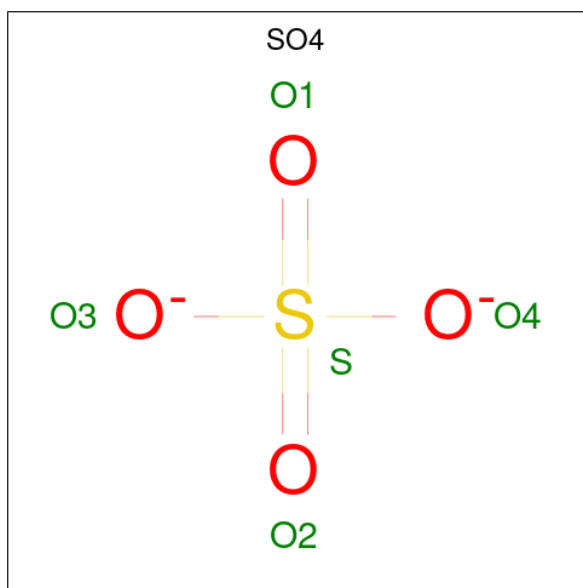
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	HHH	1	Total	C	O	0	0
			10	7	3		
7	LLL	1	Total	C	O	0	0
			10	7	3		
7	LLL	1	Total	C	O	0	0
			10	7	3		
7	LLL	1	Total	C	O	0	0
			10	7	3		
7	LLL	1	Total	C	O	0	0
			10	7	3		
7	LLL	1	Total	C	O	0	0
			10	7	3		
7	MMM	1	Total	C	O	0	0
			10	7	3		
7	MMM	1	Total	C	O	0	0
			10	7	3		
7	MMM	1	Total	C	O	0	0
			10	7	3		

- Molecule 8 is (2R)-2,3-dihydroxypropyl (9Z)-octadec-9-enoate (three-letter code: OLC) (formula: C<sub>21</sub>H<sub>40</sub>O<sub>4</sub>).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	HHH	1	Total	C O	0	0
			25	21 4		

- Molecule 9 is SULFATE ION (three-letter code: SO4) (formula: O<sub>4</sub>S).



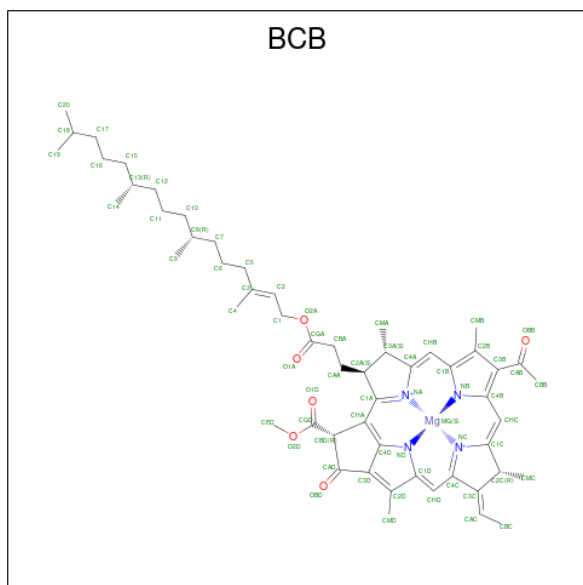
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
9	HHH	1	Total	O S	0	0
			5	4 1		
9	LLL	1	Total	O S	0	0
			5	4 1		
9	MMM	1	Total	O S	0	0
			5	4 1		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
9	MMM	1	Total	O	S	0	0
			5	4	1		
9	MMM	1	Total	O	S	0	0
			5	4	1		
9	MMM	1	Total	O	S	0	0
			5	4	1		

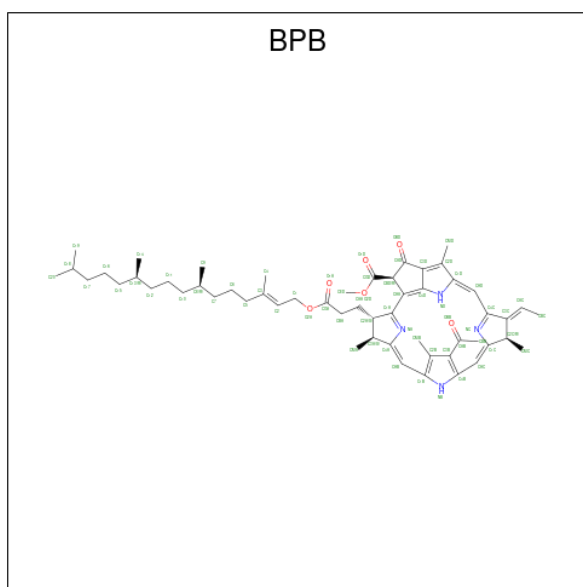
- Molecule 10 is BACTERIOCHLOROPHYLL B (three-letter code: BCB) (formula:  $C_{55}H_{72}MgN_4O_6$ ).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
10	LLL	1	Total	C	Mg	N	O	0	0
			66	55	1	4	6		
10	LLL	1	Total	C	Mg	N	O	0	0
			66	55	1	4	6		
10	MMM	1	Total	C	Mg	N	O	0	0
			66	55	1	4	6		
10	MMM	1	Total	C	Mg	N	O	0	0
			66	55	1	4	6		

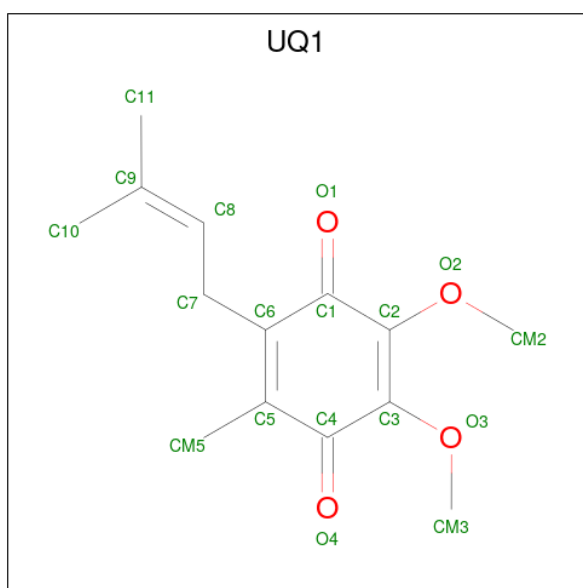
- Molecule 11 is BACTERIOPHEOPHYTIN B (three-letter code: BPB) (formula:  $C_{55}H_{74}N_4O_6$ ).





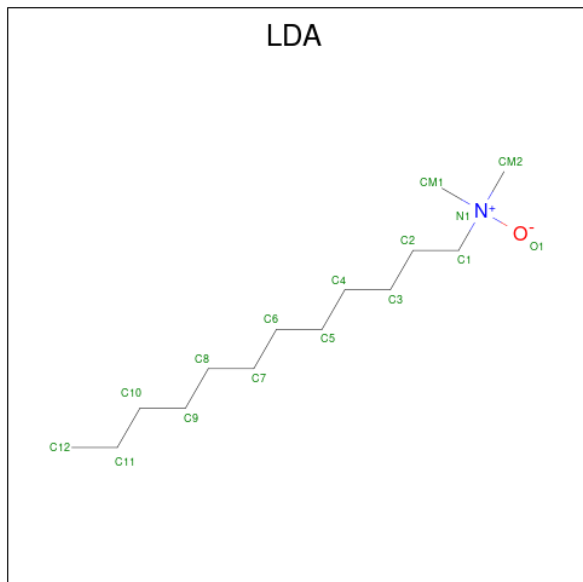
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
11	LLL	1	Total	C	N	O	0	0
			65	55	4	6		
11	MMM	1	Total	C	N	O	0	0
			65	55	4	6		

- Molecule 12 is UBIQUINONE-1 (three-letter code: UQ1) (formula:  $C_{14}H_{18}O_4$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
12	LLL	1	Total	C	O	0	0
			18	14	4		
12	LLL	1	Total	C	O	0	0
			18	14	4		

- Molecule 13 is LAURYL DIMETHYLAMINE-N-OXIDE (three-letter code: LDA) (formula:  $C_{14}H_{31}NO$ ).

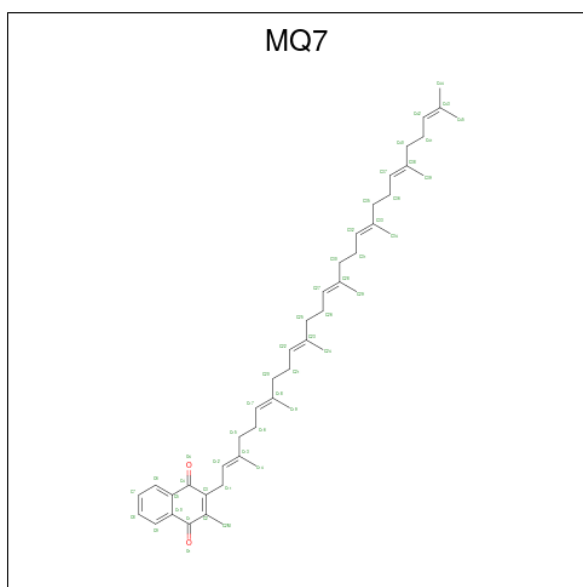


Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
13	LLL	1	16	14	1	1	0	0
13	MMM	1	16	14	1	1	0	0

- Molecule 14 is FE (II) ION (three-letter code: FE2) (formula: Fe).

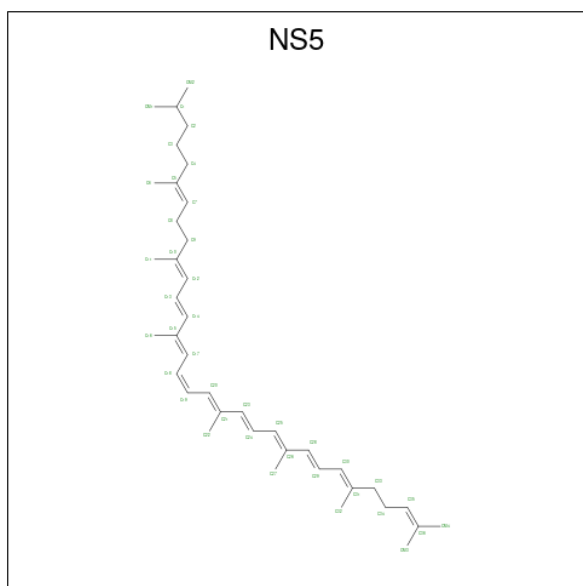
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Fe		
14	MMM	1	1	1	0	0

- Molecule 15 is MENAQUINONE-7 (three-letter code: MQ7) (formula:  $C_{46}H_{64}O_2$ ).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
15	MMM	1	Total	C O	0	0
			48	46 2		

- Molecule 16 is 15-cis-1,2-dihydroneurosporene (three-letter code: NS5) (formula: C<sub>40</sub>H<sub>60</sub>).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
16	MMM	1	Total	C	0	0
			40	40		

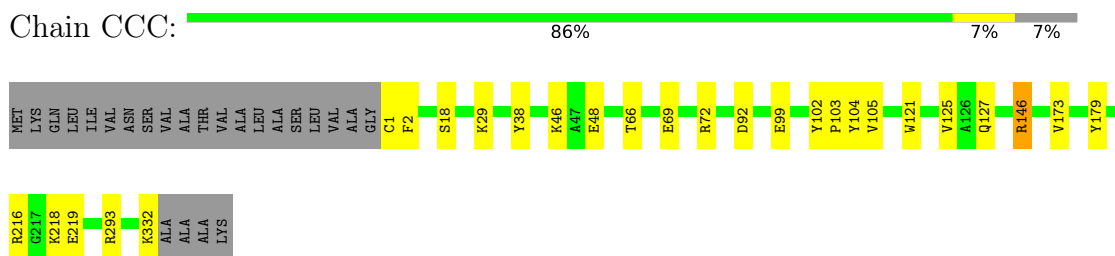
- Molecule 17 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
17	CCC	95	Total O 95 95	0	0
17	HHH	43	Total O 43 43	0	0
17	LLL	42	Total O 42 42	0	0
17	MMM	64	Total O 64 64	0	0

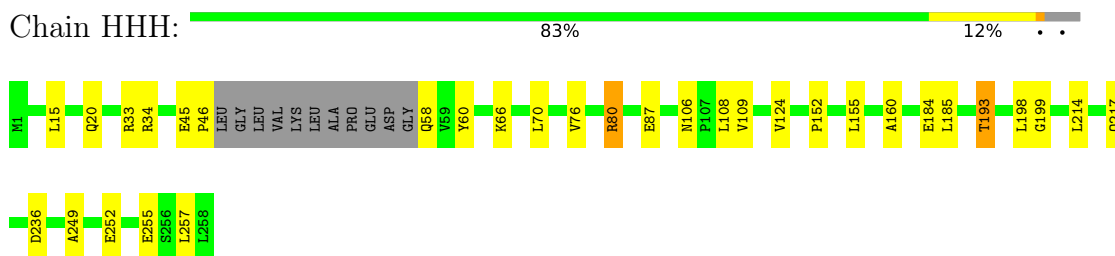
### 3 Residue-property plots [i](#)

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

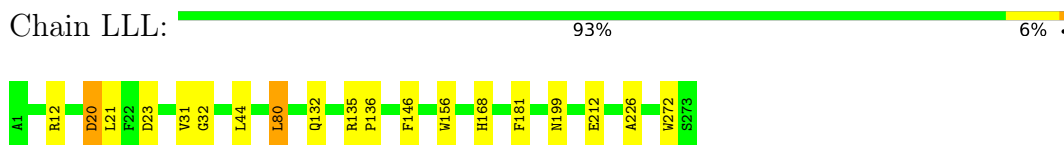
- Molecule 1: Photosynthetic reaction center cytochrome c subunit



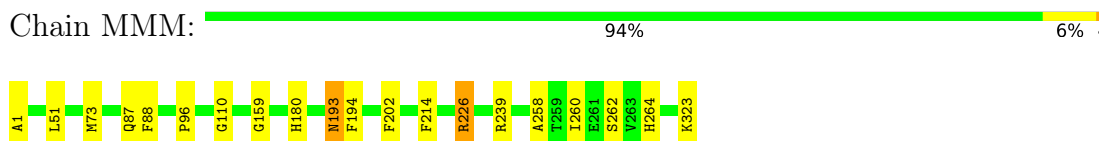
- Molecule 2: Reaction center protein H chain



- Molecule 3: Reaction center protein L chain



- Molecule 4: Reaction center protein M chain



## 4 Data and refinement statistics i

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	84.90Å 125.30Å 182.70Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	73.92 – 2.40 73.82 – 0.60	Depositor EDS
% Data completeness (in resolution range)	100.0 (73.92-2.40) 4.0 (73.82-0.60)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$	-	Xtrriage
Refinement program	REFMAC 5.8.0267	Depositor
R, $R_{free}$	0.165 , 0.204 0.175 , 0.207	Depositor DCC
$R_{free}$ test set	10006 reflections (5.06%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	(Not available)	Xtrriage
Anisotropy	(Not available)	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.33 , 91.5	EDS
L-test for twinning <sup>1</sup>	$\langle  L  \rangle =$ (Not available), $\langle L^2 \rangle =$ (Not available)	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.82	EDS
Total number of atoms	10442	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	49.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *(Not available)*

<sup>1</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: BPB, UQ1, NS5, BCB, FE2, LDA, FME, OLC, HTO, DGA, MQ7, HEC, SO4

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	CCC	0.68	0/2688	0.80	0/3662
2	HHH	0.66	0/1976	0.81	0/2698
3	LLL	0.66	0/2267	0.75	0/3095
4	MMM	0.64	0/2659	0.76	0/3637
All	All	0.66	0/9590	0.78	0/13092

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	CCC	2618	0	2596	11	0
2	HHH	1941	0	1936	16	0
3	LLL	2172	0	2097	15	0
4	MMM	2555	0	2452	11	0
5	CCC	172	0	120	5	0
6	CCC	44	0	69	0	0
7	HHH	10	0	16	0	0
7	LLL	50	0	80	0	0
7	MMM	30	0	48	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
8	HHH	25	0	40	3	0
9	HHH	5	0	0	0	0
9	LLL	5	0	0	0	0
9	MMM	20	0	0	1	0
10	LLL	132	0	144	9	0
10	MMM	132	0	144	2	0
11	LLL	65	0	74	2	0
11	MMM	65	0	74	6	0
12	LLL	36	0	36	2	0
13	LLL	16	0	31	0	0
13	MMM	16	0	31	0	0
14	MMM	1	0	0	0	0
15	MMM	48	0	64	2	0
16	MMM	40	0	60	5	0
17	CCC	95	0	0	0	0
17	HHH	43	0	0	1	0
17	LLL	42	0	0	0	0
17	MMM	64	0	0	2	0
All	All	10442	0	10112	72	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 4.

All (72) 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)
11:MMM:405:BPB:HHC	11:MMM:405:BPB:HBBB	1.62	0.80
4:MMM:159:GLY:HA3	16:MMM:406:NS5:H272	1.68	0.76
3:LLL:181:PHE:HB3	11:MMM:405:BPB:HBBA	1.69	0.74
11:LLL:303:BPB:HBBB	11:LLL:303:BPB:HMB	1.69	0.74
3:LLL:132:GLN:HE22	3:LLL:146:PHE:H	1.32	0.73
10:MMM:403:BCB:HBB2	10:MMM:403:BCB:HHC	1.74	0.69
8:HHH:402:OLC:H18A	17:MMM:560:HOH:O	1.93	0.68
16:MMM:406:NS5:C7	16:MMM:406:NS5:H113	2.23	0.68
10:LLL:301:BCB:C20	15:MMM:402:MQ7:H292	2.24	0.67
5:CCC:403:HEC:HMC1	5:CCC:403:HEC:HBC3	1.80	0.64
3:LLL:181:PHE:CD2	11:MMM:405:BPB:HBB	2.35	0.61
10:LLL:302:BCB:HMB1	10:LLL:302:BCB:HBB2	1.85	0.59
3:LLL:181:PHE:HB3	11:MMM:405:BPB:CBB	2.32	0.58
16:MMM:406:NS5:H113	16:MMM:406:NS5:C5	2.33	0.57
2:HHH:66:LYS:NZ	3:LLL:199:ASN:HD21	2.03	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:CCC:401:HEC:HBC3	5:CCC:401:HEC:HMC1	1.87	0.57
11:MMM:405:BPB:H4	11:MMM:405:BPB:H7	1.87	0.57
1:CCC:102:TYR:CD2	1:CCC:103:PRO:HD3	2.42	0.55
1:CCC:216:ARG:O	1:CCC:219:GLU:HG2	2.07	0.54
1:CCC:99:GLU:HG2	1:CCC:104:TYR:CE1	2.43	0.54
4:MMM:73:MET:HE1	4:MMM:88:PHE:CE1	2.43	0.53
2:HHH:106:ASN:ND2	2:HHH:109:VAL:HG23	2.24	0.53
5:CCC:403:HEC:HMB1	5:CCC:403:HEC:HBB3	1.90	0.53
3:LLL:168:HIS:CE1	10:LLL:301:BCB:HMC2	2.44	0.53
3:LLL:226:ALA:HA	12:LLL:309:UQ1:HM32	1.92	0.51
1:CCC:146[B]:ARG:HD3	1:CCC:179:TYR:CE1	2.46	0.51
10:LLL:301:BCB:HBB3	10:LLL:301:BCB:HMB1	1.93	0.51
1:CCC:121:TRP:O	1:CCC:125:VAL:HG22	2.11	0.50
3:LLL:212:GLU:HB3	12:LLL:309:UQ1:HM23	1.93	0.50
2:HHH:33:ARG:HE	8:HHH:402:OLC:H24	1.77	0.49
10:LLL:301:BCB:H202	15:MMM:402:MQ7:H292	1.95	0.48
1:CCC:293:ARG:HH11	5:CCC:402:HEC:CGA	2.26	0.48
10:LLL:301:BCB:HMB1	10:LLL:301:BCB:CBB	2.43	0.47
10:LLL:302:BCB:HMB1	10:LLL:302:BCB:CBB	2.44	0.47
2:HHH:45:GLU:CB	2:HHH:46:PRO:HA	2.44	0.47
3:LLL:132:GLN:NE2	3:LLL:132:GLN:HA	2.29	0.47
2:HHH:160:ALA:HB3	2:HHH:214:LEU:HD23	1.96	0.47
4:MMM:239:ARG:NH2	17:MMM:502:HOH:O	2.40	0.46
3:LLL:20:ASP:HA	3:LLL:23:ASP:HB2	1.97	0.46
11:LLL:303:BPB:HMB	11:LLL:303:BPB:CBB	2.41	0.46
1:CCC:102:TYR:N	1:CCC:103:PRO:CD	2.79	0.46
4:MMM:73:MET:CE	4:MMM:88:PHE:CE1	2.99	0.46
2:HHH:45:GLU:HB3	2:HHH:46:PRO:HA	1.98	0.45
1:CCC:173:VAL:HB	4:MMM:87:GLN:NE2	2.32	0.44
10:MMM:404:BCB:CBB	10:MMM:404:BCB:HMB1	2.47	0.44
4:MMM:260:ILE:O	4:MMM:264:HIS:ND1	2.48	0.44
5:CCC:401:HEC:HBB3	5:CCC:401:HEC:HMB1	2.00	0.44
1:CCC:102:TYR:CG	1:CCC:103:PRO:HD3	2.52	0.44
2:HHH:152:PRO:HA	2:HHH:155:LEU:HD12	1.99	0.44
2:HHH:257:LEU:HD12	2:HHH:257:LEU:N	2.33	0.43
10:LLL:301:BCB:H193	10:LLL:301:BCB:H162	1.85	0.43
2:HHH:70:LEU:HD11	2:HHH:76:VAL:HG23	1.98	0.43
2:HHH:199:GLY:O	4:MMM:226:ARG:NH1	2.52	0.43
2:HHH:217:GLN:HE22	2:HHH:249:ALA:HA	1.83	0.43
16:MMM:406:NS5:H29	16:MMM:406:NS5:H271	1.83	0.43
2:HHH:108:LEU:HD23	2:HHH:108:LEU:HA	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:MMM:1:ALA:N	9:MMM:411:SO4:O3	2.42	0.42
3:LLL:135:ARG:HB3	3:LLL:136:PRO:HD3	2.02	0.42
2:HHH:80:ARG:HD3	17:HHH:535:HOH:O	2.20	0.42
2:HHH:184:GLU:OE2	2:HHH:193:THR:HG21	2.20	0.42
3:LLL:44:LEU:HD23	3:LLL:44:LEU:HA	1.91	0.42
10:LLL:301:BCB:HBD	10:LLL:301:BCB:HAA1	2.02	0.42
3:LLL:80:LEU:HD12	3:LLL:80:LEU:HA	1.90	0.42
4:MMM:258:ALA:HB1	4:MMM:262:SER:OG	2.20	0.41
2:HHH:33:ARG:HE	8:HHH:402:OLC:C24	2.32	0.41
11:MMM:405:BPB:HHC	11:MMM:405:BPB:CBB	2.43	0.41
1:CCC:18:SER:HB2	3:LLL:156:TRP:CD1	2.55	0.41
2:HHH:20:GLN:HG2	4:MMM:202:PHE:CE2	2.55	0.41
1:CCC:69:GLU:O	1:CCC:72:ARG:HB3	2.20	0.41
3:LLL:31:VAL:HG12	3:LLL:32:GLY:O	2.20	0.41
16:MMM:406:NS5:H13	16:MMM:406:NS5:H111	1.79	0.40
4:MMM:96:PRO:HD3	4:MMM:110:GLY:HA3	2.04	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	CCC	332/356 (93%)	317 (96%)	15 (4%)	0	100	100
2	HHH	243/258 (94%)	233 (96%)	10 (4%)	0	100	100
3	LLL	272/273 (100%)	265 (97%)	7 (3%)	0	100	100
4	MMM	321/323 (99%)	313 (98%)	7 (2%)	1 (0%)	41	55
All	All	1168/1210 (96%)	1128 (97%)	39 (3%)	1 (0%)	51	68

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	MMM	193	ASN

### 5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	CCC	283/297 (95%)	269 (95%)	14 (5%)	25	40
2	HHH	204/212 (96%)	191 (94%)	13 (6%)	17	28
3	LLL	219/218 (100%)	214 (98%)	5 (2%)	50	70
4	MMM	249/249 (100%)	242 (97%)	7 (3%)	43	63
All	All	955/976 (98%)	916 (96%)	39 (4%)	31	48

All (39) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	CCC	1	CYS
1	CCC	2	PHE
1	CCC	29	LYS
1	CCC	38	TYR
1	CCC	46	LYS
1	CCC	48	GLU
1	CCC	66	THR
1	CCC	92	ASP
1	CCC	105	VAL
1	CCC	127	GLN
1	CCC	146[A]	ARG
1	CCC	146[B]	ARG
1	CCC	218	LYS
1	CCC	332	LYS
2	HHH	15	LEU
2	HHH	34	ARG
2	HHH	58	GLN
2	HHH	60	TYR
2	HHH	80	ARG
2	HHH	87	GLU
2	HHH	124	VAL

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Mol	Chain	Res	Type
2	HHH	185	LEU
2	HHH	193	THR
2	HHH	198	LEU
2	HHH	236	ASP
2	HHH	252	GLU
2	HHH	255	GLU
3	LLL	12	ARG
3	LLL	20	ASP
3	LLL	21	LEU
3	LLL	80	LEU
3	LLL	272	TRP
4	MMM	51	LEU
4	MMM	180	HIS
4	MMM	193	ASN
4	MMM	194	PHE
4	MMM	214	PHE
4	MMM	226	ARG
4	MMM	323	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

1 non-standard protein/DNA/RNA residue is 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	$\# Z  > 2$
2	FME	HHH	1	2	8,9,10	0.45	0	7,9,11	0.89	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	FME	HHH	1	2	-	4/7/9/11	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	HHH	1	FME	N-CA-CB-CG
2	HHH	1	FME	C-CA-CB-CG
2	HHH	1	FME	CA-CB-CG-SD
2	HHH	1	FME	CB-CG-SD-CE

There are no ring outliers.

No monomer is involved in short contacts.

## 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 34 ligands modelled in this entry, 1 is monoatomic - leaving 33 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z  > 2$	Counts	RMSZ	$\# Z  > 2$
7	HTO	MMM	408	-	9,9,9	0.72	0	10,10,10	0.99	1 (10%)
11	BPB	LLL	303	-	49,70,70	1.94	10 (20%)	47,101,101	1.81	7 (14%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
5	HEC	CCC	403	1	32,50,50	1.59	5 (15%)	24,82,82	1.57	7 (29%)
10	BCB	MMM	403	-	63,74,74	1.72	14 (22%)	74,115,115	2.86	27 (36%)
9	SO4	HHH	403	-	4,4,4	0.37	0	6,6,6	0.13	0
12	UQ1	LLL	309	-	18,18,18	2.32	3 (16%)	22,25,25	1.64	4 (18%)
13	LDA	LLL	311	-	12,15,15	0.29	0	14,17,17	0.34	0
7	HTO	LLL	312	-	9,9,9	0.94	0	10,10,10	1.49	2 (20%)
15	MQ7	MMM	402	-	49,49,49	1.36	3 (6%)	60,63,63	1.07	3 (5%)
5	HEC	CCC	404	1	32,50,50	1.50	4 (12%)	24,82,82	2.21	9 (37%)
7	HTO	LLL	305	-	9,9,9	0.73	0	10,10,10	1.20	1 (10%)
6	DGA	CCC	405	-	43,43,43	4.46	4 (9%)	45,45,45	4.51	8 (17%)
9	SO4	MMM	414	-	4,4,4	0.37	0	6,6,6	0.07	0
7	HTO	MMM	409	-	9,9,9	0.88	0	10,10,10	1.01	1 (10%)
9	SO4	MMM	412	-	4,4,4	0.34	0	6,6,6	0.13	0
10	BCB	LLL	301	-	63,74,74	1.75	14 (22%)	74,115,115	3.00	25 (33%)
16	NS5	MMM	406	-	39,39,39	0.95	0	44,46,46	1.68	10 (22%)
10	BCB	LLL	302	-	63,74,74	1.72	13 (20%)	74,115,115	2.93	18 (24%)
7	HTO	LLL	306	-	9,9,9	0.69	0	10,10,10	0.95	0
5	HEC	CCC	402	1	32,50,50	1.62	4 (12%)	24,82,82	2.25	7 (29%)
7	HTO	MMM	407	-	9,9,9	0.97	0	10,10,10	1.29	2 (20%)
9	SO4	LLL	308	-	4,4,4	0.37	0	6,6,6	0.04	0
8	OLC	HHH	402	-	24,24,24	1.19	1 (4%)	25,25,25	1.37	3 (12%)
5	HEC	CCC	401	1	32,50,50	1.80	5 (15%)	24,82,82	1.82	3 (12%)
7	HTO	LLL	307	-	9,9,9	0.98	0	10,10,10	1.01	2 (20%)
9	SO4	MMM	411	-	4,4,4	0.33	0	6,6,6	0.07	0
10	BCB	MMM	404	-	63,74,74	1.73	13 (20%)	74,115,115	3.02	25 (33%)
11	BPB	MMM	405	-	49,70,70	1.99	9 (18%)	47,101,101	2.54	15 (31%)
12	UQ1	LLL	310	-	18,18,18	2.57	3 (16%)	22,25,25	1.46	6 (27%)
7	HTO	HHH	401	-	9,9,9	0.94	0	10,10,10	0.70	0
9	SO4	MMM	413	-	4,4,4	0.36	0	6,6,6	0.07	0
13	LDA	MMM	410	-	12,15,15	0.28	0	14,17,17	0.34	0
7	HTO	LLL	304	-	9,9,9	0.81	0	10,10,10	0.76	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
11	BPB	LLL	303	-	1/1/18/23	9/37/105/105	0/5/6/6
7	HTO	MMM	408	-	-	4/10/10/10	-
10	BCB	MMM	403	-	3/3/21/26	9/37/137/137	-
5	HEC	CCC	403	1	-	0/10/54/54	-
12	UQ1	LLL	309	-	-	0/9/33/33	0/1/1/1
13	LDA	LLL	311	-	-	5/13/13/13	-
7	HTO	LLL	312	-	-	3/10/10/10	-
15	MQ7	MMM	402	-	-	2/41/61/61	0/2/2/2
5	HEC	CCC	404	1	-	3/10/54/54	-
7	HTO	LLL	305	-	-	6/10/10/10	-
6	DGA	CCC	405	-	1/1/3/3	28/45/45/45	-
7	HTO	MMM	409	-	-	5/10/10/10	-
10	BCB	LLL	301	-	3/3/21/26	8/37/137/137	-
16	NS5	MMM	406	-	-	6/43/43/43	-
10	BCB	LLL	302	-	3/3/21/26	7/37/137/137	-
7	HTO	LLL	306	-	-	6/10/10/10	-
5	HEC	CCC	402	1	-	4/10/54/54	-
7	HTO	MMM	407	-	-	6/10/10/10	-
8	OLC	HHH	402	-	-	8/24/24/24	-
5	HEC	CCC	401	1	-	4/10/54/54	-
7	HTO	LLL	307	-	-	6/10/10/10	-
10	BCB	MMM	404	-	3/3/21/26	11/37/137/137	-
11	BPB	MMM	405	-	1/1/18/23	11/37/105/105	0/5/6/6
12	UQ1	LLL	310	-	-	3/9/33/33	0/1/1/1
7	HTO	HHH	401	-	-	5/10/10/10	-
13	LDA	MMM	410	-	-	11/13/13/13	-
7	HTO	LLL	304	-	-	4/10/10/10	-

All (105) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	CCC	405	DGA	OG1-CG1	-20.66	0.98	1.45
6	CCC	405	DGA	CG1-CG2	-13.44	1.09	1.50
6	CCC	405	DGA	OG2-CG2	-12.10	1.16	1.46
6	CCC	405	DGA	CB2-CB1	-9.70	1.22	1.50
12	LLL	310	UQ1	C6-C5	8.95	1.51	1.35
12	LLL	309	UQ1	C6-C5	8.27	1.50	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	LLL	303	BPB	CAC-C3C	7.97	1.53	1.33
15	MMM	402	MQ7	C3-C2	6.52	1.47	1.35
11	MMM	405	BPB	CAC-C3C	6.29	1.49	1.33
5	CCC	402	HEC	C2B-C3B	-5.79	1.34	1.40
5	CCC	401	HEC	C3C-C2C	-5.62	1.34	1.40
10	MMM	403	BCB	C2C-C3C	-5.49	1.44	1.51
10	LLL	301	BCB	CAC-C3C	5.34	1.48	1.33
10	LLL	302	BCB	CAC-C3C	5.26	1.47	1.33
8	HHH	402	OLC	O20-C1	5.22	1.48	1.33
10	MMM	404	BCB	CAC-C3C	5.20	1.47	1.33
11	MMM	405	BPB	C3D-C2D	5.00	1.48	1.39
10	MMM	403	BCB	CAC-C3C	4.95	1.47	1.33
10	MMM	404	BCB	C1D-ND	-4.79	1.31	1.37
10	MMM	404	BCB	C2C-C3C	-4.78	1.45	1.51
10	LLL	301	BCB	C2C-C3C	-4.68	1.45	1.51
10	MMM	404	BCB	C3B-C2B	4.65	1.47	1.39
11	MMM	405	BPB	C3B-C2B	4.64	1.47	1.39
10	LLL	302	BCB	C2C-C3C	-4.56	1.45	1.51
11	MMM	405	BPB	OBD-CAD	4.55	1.28	1.22
10	LLL	301	BCB	C3B-C2B	4.54	1.47	1.39
10	LLL	302	BCB	O2A-CGA	4.54	1.46	1.33
11	MMM	405	BPB	O2D-CGD	4.50	1.44	1.33
5	CCC	404	HEC	C3C-C2C	-4.47	1.36	1.40
10	LLL	302	BCB	C3B-C2B	4.36	1.47	1.39
5	CCC	401	HEC	C2B-C3B	-4.31	1.36	1.40
11	LLL	303	BPB	CHA-CBD	-4.28	1.47	1.52
15	MMM	402	MQ7	C10-C5	4.28	1.47	1.40
5	CCC	403	HEC	C2B-C3B	-4.25	1.36	1.40
11	LLL	303	BPB	O2D-CGD	4.17	1.43	1.33
10	MMM	403	BCB	C3B-C2B	4.00	1.46	1.39
10	LLL	301	BCB	O2D-CGD	3.83	1.42	1.33
10	MMM	403	BCB	O2D-CGD	3.83	1.42	1.33
12	LLL	310	UQ1	C3-C2	3.76	1.51	1.36
10	MMM	403	BCB	O2A-CGA	3.73	1.44	1.33
10	LLL	301	BCB	C1D-ND	-3.71	1.33	1.37
11	MMM	405	BPB	O2A-CGA	3.67	1.44	1.33
10	LLL	302	BCB	O2D-CGD	3.65	1.42	1.33
10	MMM	404	BCB	O2A-CGA	3.59	1.43	1.33
10	LLL	301	BCB	CHD-C1D	3.53	1.45	1.38
11	LLL	303	BPB	O2A-CGA	3.52	1.43	1.33
10	MMM	404	BCB	O2D-CGD	3.52	1.41	1.33
11	LLL	303	BPB	C3A-C2A	-3.52	1.51	1.54

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	MMM	405	BPB	CBD-CGD	-3.47	1.47	1.52
11	MMM	405	BPB	C4C-NC	-3.40	1.27	1.37
5	CCC	404	HEC	C2B-C3B	-3.40	1.37	1.40
5	CCC	403	HEC	C3C-C2C	-3.39	1.37	1.40
11	LLL	303	BPB	C3B-C2B	3.39	1.45	1.39
10	LLL	302	BCB	C1D-ND	-3.36	1.33	1.37
11	LLL	303	BPB	C3D-C2D	3.31	1.45	1.39
10	LLL	302	BCB	CHD-C1D	3.23	1.44	1.38
10	LLL	301	BCB	O2A-CGA	3.21	1.42	1.33
10	LLL	301	BCB	OBD-CAD	3.17	1.27	1.22
10	MMM	403	BCB	CHD-C1D	3.11	1.44	1.38
11	MMM	405	BPB	CHA-CBD	-3.00	1.48	1.52
12	LLL	309	UQ1	C3-C2	2.99	1.48	1.36
10	LLL	302	BCB	C1B-CHB	2.97	1.49	1.41
10	LLL	301	BCB	C4B-CHC	2.96	1.49	1.41
10	LLL	301	BCB	C3D-C2D	2.90	1.47	1.39
10	LLL	301	BCB	C1B-CHB	2.90	1.49	1.41
10	MMM	404	BCB	CHD-C1D	2.88	1.44	1.38
5	CCC	404	HEC	C3C-C4C	2.88	1.48	1.43
10	MMM	403	BCB	CHD-C4C	2.87	1.45	1.39
10	MMM	404	BCB	OBD-CAD	2.84	1.27	1.22
5	CCC	402	HEC	CAD-C3D	2.83	1.56	1.52
5	CCC	402	HEC	C3C-C2C	-2.81	1.37	1.40
10	MMM	403	BCB	C1D-ND	-2.75	1.34	1.37
5	CCC	403	HEC	C3C-C4C	2.73	1.48	1.43
10	LLL	301	BCB	CHD-C4C	2.73	1.45	1.39
11	LLL	303	BPB	C4C-NC	-2.73	1.29	1.37
5	CCC	403	HEC	CBA-CGA	2.72	1.56	1.50
10	LLL	302	BCB	C4B-CHC	2.72	1.48	1.41
10	LLL	302	BCB	CHD-C4C	2.71	1.45	1.39
11	LLL	303	BPB	OBD-CAD	2.70	1.26	1.22
10	MMM	403	BCB	OBD-CAD	2.68	1.27	1.22
5	CCC	401	HEC	C4B-C3B	2.67	1.47	1.43
10	MMM	403	BCB	C3D-C2D	2.67	1.46	1.39
10	MMM	404	BCB	C3D-C2D	2.66	1.46	1.39
11	LLL	303	BPB	CBD-CGD	-2.64	1.48	1.52
10	MMM	404	BCB	CHD-C4C	2.52	1.45	1.39
10	LLL	302	BCB	C3D-C2D	2.50	1.45	1.39
5	CCC	401	HEC	CBA-CGA	2.45	1.56	1.50
10	LLL	302	BCB	OBD-CAD	2.40	1.26	1.22
10	MMM	404	BCB	C4B-CHC	2.29	1.47	1.41
10	MMM	404	BCB	MG-NA	-2.26	2.00	2.06

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	LLL	301	BCB	C3D-C4D	-2.26	1.39	1.44
12	LLL	310	UQ1	C7-C8	2.25	1.53	1.50
10	LLL	302	BCB	C4D-CHA	2.22	1.46	1.38
10	MMM	403	BCB	MG-NA	-2.22	2.01	2.06
10	MMM	403	BCB	C3D-C4D	-2.19	1.39	1.44
5	CCC	402	HEC	C3C-C4C	2.16	1.47	1.43
5	CCC	401	HEC	C2A-C1A	2.15	1.47	1.42
10	MMM	403	BCB	C4B-CHC	2.15	1.47	1.41
10	MMM	403	BCB	C4D-CHA	2.15	1.46	1.38
5	CCC	403	HEC	C3A-C4A	2.14	1.47	1.42
5	CCC	404	HEC	O2A-CGA	-2.07	1.23	1.30
12	LLL	309	UQ1	C6-C1	2.07	1.52	1.46
10	LLL	301	BCB	C4D-CHA	2.03	1.45	1.38
10	MMM	404	BCB	C1B-CHB	2.01	1.46	1.41
15	MMM	402	MQ7	O1-C1	2.01	1.27	1.23

All (186) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	LLL	302	BCB	C1C-NC-C4C	-18.18	98.53	106.71
10	LLL	301	BCB	C1C-NC-C4C	-17.82	98.70	106.71
10	MMM	404	BCB	C1C-NC-C4C	-15.67	99.66	106.71
10	MMM	403	BCB	C1C-NC-C4C	-15.45	99.76	106.71
6	CCC	405	DGA	OG2-CG2-CG3	-14.69	55.66	108.36
6	CCC	405	DGA	OG2-CG2-CG1	14.28	160.12	108.40
6	CCC	405	DGA	CG2-OG2-CB1	-13.05	85.67	117.79
6	CCC	405	DGA	CB3-CB2-CB1	10.64	152.32	113.62
6	CCC	405	DGA	OG2-CB1-CB2	10.60	134.36	111.50
11	MMM	405	BPB	O2D-CGD-CBD	8.74	122.07	111.00
6	CCC	405	DGA	CG1-CG2-CG3	7.58	129.55	111.80
10	MMM	403	BCB	CMD-C2D-C1D	6.74	136.60	124.71
10	LLL	301	BCB	C4D-C3D-CAD	-6.72	100.18	108.10
11	LLL	303	BPB	O2D-CGD-CBD	6.46	119.18	111.00
10	MMM	404	BCB	C4A-NA-C1A	6.45	109.61	106.71
5	CCC	402	HEC	CBA-CAA-C2A	-6.39	101.83	112.60
10	LLL	302	BCB	CMD-C2D-C1D	6.35	135.90	124.71
10	MMM	403	BCB	C4D-C3D-CAD	-6.11	100.90	108.10
10	LLL	302	BCB	C4D-C3D-CAD	-5.98	101.05	108.10
11	MMM	405	BPB	CBC-CAC-C3C	-5.85	111.18	126.70
10	MMM	404	BCB	CMD-C2D-C1D	5.84	135.01	124.71
11	MMM	405	BPB	C1-O2A-CGA	5.77	131.57	116.44
10	LLL	302	BCB	O2D-CGD-CBD	5.75	121.48	111.27

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	MMM	404	BCB	C4D-C3D-CAD	-5.61	101.49	108.10
5	CCC	401	HEC	CBD-CAD-C3D	-5.43	103.36	112.62
10	MMM	404	BCB	O2D-CGD-CBD	5.34	120.77	111.27
10	LLL	301	BCB	C4A-NA-C1A	5.15	109.02	106.71
11	MMM	405	BPB	O2A-C1-C2	-5.06	95.35	108.64
6	CCC	405	DGA	OB1-CB1-CB2	-4.95	104.42	123.73
10	MMM	404	BCB	C3D-C4D-ND	4.93	118.21	110.24
10	LLL	301	BCB	CMD-C2D-C1D	4.91	133.37	124.71
10	LLL	302	BCB	OBD-CAD-C3D	-4.89	116.74	128.52
5	CCC	404	HEC	CAD-CBD-CGD	-4.86	100.14	113.76
11	MMM	405	BPB	C5-C3-C2	4.74	130.71	121.12
8	HHH	402	OLC	O20-C1-C2	4.72	126.73	111.91
11	MMM	405	BPB	C4-C3-C2	-4.72	111.57	123.68
10	MMM	404	BCB	C1D-ND-C4D	-4.65	103.03	106.33
10	MMM	403	BCB	C2D-C1D-ND	4.61	113.50	110.10
10	MMM	404	BCB	CHD-C4C-C3C	-4.56	120.19	125.89
5	CCC	404	HEC	CMB-C2B-C1B	-4.52	121.52	128.46
11	LLL	303	BPB	CBC-CAC-C3C	-4.47	114.84	126.70
10	MMM	403	BCB	O2D-CGD-CBD	4.45	119.17	111.27
10	MMM	403	BCB	C1D-ND-C4D	-4.45	103.18	106.33
10	MMM	403	BCB	OBD-CAD-C3D	-4.44	117.84	128.52
5	CCC	401	HEC	CBA-CAA-C2A	-4.43	105.14	112.60
10	MMM	404	BCB	O2D-CGD-O1D	-4.38	115.27	123.84
10	LLL	301	BCB	C3D-C4D-ND	4.31	117.21	110.24
12	LLL	309	UQ1	CM3-O3-C3	4.31	131.72	116.47
10	LLL	301	BCB	OBD-CAD-C3D	-4.27	118.24	128.52
10	MMM	403	BCB	CHD-C4C-C3C	-4.24	120.58	125.89
10	MMM	403	BCB	C3D-C4D-ND	4.05	116.79	110.24
10	LLL	302	BCB	C3D-C4D-ND	4.00	116.71	110.24
10	LLL	301	BCB	CHD-C4C-C3C	-3.99	120.89	125.89
5	CCC	404	HEC	CBD-CAD-C3D	3.98	119.41	112.62
10	MMM	404	BCB	CMB-C2B-C3B	3.97	132.11	124.68
16	MMM	406	NS5	C18-C19-C20	3.97	131.60	123.47
10	MMM	403	BCB	C2C-C1C-CHC	-3.96	114.31	123.64
10	MMM	404	BCB	C2D-C1D-ND	3.92	112.99	110.10
10	LLL	302	BCB	C2C-C1C-CHC	-3.85	114.59	123.64
10	MMM	404	BCB	CAA-C2A-C1A	3.78	124.35	111.97
16	MMM	406	NS5	C32-C31-C33	3.77	121.61	115.27
10	LLL	301	BCB	C1D-ND-C4D	-3.75	103.67	106.33
5	CCC	402	HEC	CMC-C2C-C1C	-3.72	122.75	128.46
10	LLL	302	BCB	CMD-C2D-C3D	-3.71	119.08	127.61
10	LLL	301	BCB	CAD-C3D-C2D	3.71	158.69	140.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
16	MMM	406	NS5	C19-C20-C21	-3.71	122.02	127.31
10	LLL	301	BCB	C2C-C1C-CHC	-3.67	114.99	123.64
10	MMM	404	BCB	CAD-C3D-C2D	3.67	158.49	140.80
10	MMM	404	BCB	CMD-C2D-C3D	-3.66	119.19	127.61
10	LLL	301	BCB	O2A-CGA-O1A	-3.66	114.37	123.59
11	LLL	303	BPB	CMD-C2D-C3D	-3.57	117.99	124.68
5	CCC	402	HEC	CMB-C2B-C1B	-3.53	123.05	128.46
10	LLL	302	BCB	C1D-ND-C4D	-3.51	103.84	106.33
10	MMM	403	BCB	C4A-NA-C1A	3.44	108.25	106.71
5	CCC	404	HEC	CMB-C2B-C3B	3.44	129.86	125.82
5	CCC	402	HEC	CMC-C2C-C3C	3.42	129.84	125.82
10	LLL	301	BCB	C4-C3-C5	3.41	121.00	115.27
11	MMM	405	BPB	O2D-CGD-O1D	-3.37	117.25	123.84
10	MMM	403	BCB	CMD-C2D-C3D	-3.37	119.86	127.61
10	LLL	302	BCB	CAD-C3D-C2D	3.36	157.00	140.80
6	CCC	405	DGA	CG1-OG1-CA1	3.35	129.53	117.12
8	HHH	402	OLC	O20-C1-O19	-3.23	115.44	123.59
10	LLL	302	BCB	CMB-C2B-C3B	3.22	130.71	124.68
10	LLL	301	BCB	CMB-C2B-C3B	3.20	130.66	124.68
10	MMM	403	BCB	CAD-C3D-C2D	3.18	156.14	140.80
11	MMM	405	BPB	C7-C6-C5	3.16	121.95	113.36
7	MMM	407	HTO	O1-C1-C2	3.16	117.96	111.07
10	LLL	302	BCB	CHC-C1C-NC	-3.16	120.14	124.51
11	MMM	405	BPB	C1A-C2A-C3A	-3.15	99.85	102.84
10	MMM	404	BCB	C2C-C1C-CHC	-3.14	116.24	123.64
10	LLL	302	BCB	C2D-C1D-ND	3.13	112.41	110.10
10	MMM	404	BCB	C4D-CHA-C1A	3.12	125.04	121.25
10	MMM	403	BCB	O2A-C1-C2	3.10	116.78	108.64
10	LLL	301	BCB	O2A-CGA-CBA	3.10	121.62	111.91
10	MMM	404	BCB	OBD-CAD-C3D	-3.09	121.08	128.52
10	LLL	301	BCB	O2D-CGD-O1D	-3.05	117.87	123.84
5	CCC	403	HEC	CMB-C2B-C1B	-3.05	123.78	128.46
12	LLL	310	UQ1	CM3-O3-C3	3.01	127.14	116.47
10	LLL	301	BCB	C2D-C1D-ND	3.00	112.32	110.10
11	LLL	303	BPB	CMC-C2C-C1C	-2.99	109.34	114.36
5	CCC	402	HEC	C1D-C2D-C3D	2.98	109.07	107.00
10	MMM	403	BCB	C4B-CHC-C1C	-2.98	124.21	130.12
16	MMM	406	NS5	C33-C31-C30	-2.98	112.96	121.98
5	CCC	404	HEC	CMD-C2D-C1D	-2.93	123.97	128.46
10	LLL	302	BCB	O2D-CGD-O1D	-2.93	118.12	123.84
10	LLL	301	BCB	CMD-C2D-C3D	-2.92	120.90	127.61
11	LLL	303	BPB	C3D-CAD-CBD	2.89	111.41	107.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
11	LLL	303	BPB	C1A-C2A-C3A	-2.88	100.10	102.84
5	CCC	402	HEC	CMD-C2D-C1D	-2.86	124.08	128.46
10	MMM	404	BCB	C1D-CHD-C4C	-2.85	119.90	126.06
10	MMM	403	BCB	C1D-CHD-C4C	-2.85	119.91	126.06
15	MMM	402	MQ7	C2M-C2-C3	-2.84	119.77	124.40
5	CCC	404	HEC	O1D-CGD-CBD	-2.84	113.97	123.08
16	MMM	406	NS5	C19-C18-C17	2.84	129.28	123.47
10	MMM	404	BCB	CHB-C4A-NA	2.83	128.43	124.51
11	LLL	303	BPB	O1D-CGD-CBD	-2.82	120.05	124.74
12	LLL	309	UQ1	O4-C4-C3	-2.80	115.00	120.93
7	LLL	305	HTO	C4-C3-C2	2.79	119.98	113.35
11	MMM	405	BPB	CMA-C3A-C4A	-2.76	108.33	114.38
10	LLL	301	BCB	CAA-C2A-C1A	2.76	121.02	111.97
15	MMM	402	MQ7	C21-C22-C23	-2.73	121.09	127.66
11	MMM	405	BPB	C1-C2-C3	2.72	130.75	126.04
10	LLL	301	BCB	C3C-C4C-NC	2.70	113.52	110.57
10	MMM	404	BCB	CAA-C2A-C3A	-2.70	105.39	112.78
5	CCC	403	HEC	CMC-C2C-C1C	-2.69	124.33	128.46
15	MMM	402	MQ7	C39-C38-C40	2.63	119.69	115.27
10	MMM	404	BCB	CBC-CAC-C3C	-2.62	119.05	126.72
5	CCC	403	HEC	CBA-CAA-C2A	-2.62	108.19	112.60
5	CCC	403	HEC	O1D-CGD-CBD	-2.62	114.66	123.08
16	MMM	406	NS5	C14-C15-C17	-2.61	114.93	118.94
5	CCC	402	HEC	O2A-CGA-CBA	2.61	122.41	114.03
10	MMM	403	BCB	C7-C6-C5	-2.60	106.29	113.36
10	LLL	301	BCB	C1-C2-C3	-2.59	121.56	126.04
5	CCC	404	HEC	C1D-C2D-C3D	2.58	108.79	107.00
5	CCC	404	HEC	CMC-C2C-C1C	-2.55	124.55	128.46
10	MMM	404	BCB	CHA-C4D-ND	-2.53	127.20	132.50
10	LLL	301	BCB	CHA-C4D-ND	-2.52	127.23	132.50
11	MMM	405	BPB	C3D-CAD-CBD	2.49	110.89	107.61
10	MMM	403	BCB	CMB-C2B-C3B	2.48	129.32	124.68
12	LLL	310	UQ1	C5-C6-C1	-2.47	117.26	119.58
16	MMM	406	NS5	CM4-C36-CM3	2.46	120.04	114.60
12	LLL	310	UQ1	CM2-O2-C2	2.46	125.18	116.47
11	MMM	405	BPB	O1D-CGD-CBD	-2.46	120.64	124.74
7	MMM	409	HTO	C4-C3-C2	2.46	119.18	113.35
12	LLL	309	UQ1	O1-C1-C2	-2.44	115.75	120.93
10	MMM	403	BCB	C4D-CHA-C1A	2.44	124.22	121.25
10	MMM	404	BCB	C4B-CHC-C1C	-2.41	125.34	130.12
11	MMM	405	BPB	CMD-C2D-C3D	-2.41	120.17	124.68
16	MMM	406	NS5	C16-C15-C17	2.40	126.28	122.92

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	LLL	301	BCB	C4B-CHC-C1C	-2.38	125.40	130.12
7	MMM	407	HTO	C4-C3-C2	2.36	118.95	113.35
10	MMM	404	BCB	CHC-C1C-NC	-2.34	121.28	124.51
10	MMM	403	BCB	CHA-C4D-ND	-2.34	127.60	132.50
7	MMM	408	HTO	O1-C1-C2	2.33	116.15	111.07
10	MMM	403	BCB	CBC-CAC-C3C	-2.32	119.92	126.72
10	LLL	301	BCB	CHC-C1C-NC	-2.32	121.30	124.51
7	LLL	312	HTO	O2-C2-C3	-2.32	104.95	109.72
5	CCC	403	HEC	CMD-C2D-C1D	-2.32	124.91	128.46
12	LLL	310	UQ1	C2-C3-C4	-2.29	116.17	120.68
11	MMM	405	BPB	CMC-C2C-C1C	-2.28	110.53	114.36
10	LLL	301	BCB	O2D-CGD-CBD	2.26	115.29	111.27
7	LLL	312	HTO	O3-C3-C2	-2.24	105.12	109.72
7	LLL	307	HTO	O2-C2-C3	2.24	114.33	109.72
10	MMM	403	BCB	CHB-C4A-NA	2.23	127.59	124.51
16	MMM	406	NS5	C34-C33-C31	2.23	120.30	112.98
5	CCC	403	HEC	C1D-C2D-C3D	2.21	108.53	107.00
10	LLL	302	BCB	C4-C3-C5	2.21	118.98	115.27
8	HHH	402	OLC	O20-C21-C22	2.15	116.15	105.77
10	LLL	302	BCB	CHD-C4C-C3C	-2.15	123.20	125.89
12	LLL	310	UQ1	CM5-C5-C6	-2.15	120.90	124.40
10	LLL	301	BCB	CMA-C3A-C4A	2.11	117.44	111.77
10	LLL	302	BCB	C1D-CHD-C4C	-2.11	121.52	126.06
10	MMM	404	BCB	O2A-C1-C2	2.10	114.16	108.64
16	MMM	406	NS5	C12-C13-C14	-2.10	116.66	123.22
10	MMM	403	BCB	O2A-CGA-O1A	-2.09	118.31	123.59
10	MMM	403	BCB	O2D-CGD-O1D	-2.09	119.75	123.84
12	LLL	309	UQ1	C5-C6-C1	-2.07	117.63	119.58
10	MMM	403	BCB	O2A-CGA-CBA	2.06	118.38	111.91
5	CCC	403	HEC	O2D-CGD-CBD	2.06	120.64	114.03
12	LLL	310	UQ1	O1-C1-C2	-2.04	116.59	120.93
5	CCC	401	HEC	C1D-C2D-C3D	2.04	108.41	107.00
10	MMM	403	BCB	CHD-C4C-NC	2.03	127.41	124.20
5	CCC	404	HEC	O2D-CGD-CBD	2.03	120.55	114.03
10	MMM	403	BCB	C1-C2-C3	-2.02	122.55	126.04
10	LLL	302	BCB	O2A-CGA-O1A	-2.01	118.51	123.59
7	LLL	307	HTO	C4-C3-C2	2.01	118.12	113.35

All (15) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
6	CCC	405	DGA	CG2

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Mol	Chain	Res	Type	Atom
10	LLL	301	BCB	ND
10	LLL	301	BCB	NA
10	LLL	301	BCB	NC
10	LLL	302	BCB	ND
10	LLL	302	BCB	NA
10	LLL	302	BCB	NC
10	MMM	403	BCB	ND
10	MMM	403	BCB	NA
10	MMM	403	BCB	NC
10	MMM	404	BCB	ND
10	MMM	404	BCB	NA
10	MMM	404	BCB	NC
11	LLL	303	BPB	C13
11	MMM	405	BPB	C13

All (174) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	CCC	405	DGA	CB2-CB1-OG2-CG2
6	CCC	405	DGA	CG1-CG2-CG3-OXT
7	HHH	401	HTO	C1-C2-C3-O3
7	HHH	401	HTO	C1-C2-C3-C4
7	HHH	401	HTO	O2-C2-C3-O3
7	HHH	401	HTO	O2-C2-C3-C4
7	LLL	304	HTO	O1-C1-C2-O2
7	LLL	304	HTO	O1-C1-C2-C3
7	LLL	304	HTO	O2-C2-C3-C4
7	LLL	305	HTO	C1-C2-C3-O3
7	LLL	305	HTO	C1-C2-C3-C4
7	LLL	305	HTO	O2-C2-C3-O3
7	LLL	305	HTO	O2-C2-C3-C4
7	LLL	306	HTO	C1-C2-C3-O3
7	LLL	306	HTO	O2-C2-C3-O3
7	LLL	306	HTO	O2-C2-C3-C4
7	LLL	307	HTO	C1-C2-C3-O3
7	LLL	307	HTO	C1-C2-C3-C4
7	LLL	307	HTO	O2-C2-C3-C4
7	LLL	307	HTO	O3-C3-C4-C5
7	MMM	407	HTO	C1-C2-C3-O3
7	MMM	407	HTO	O2-C2-C3-O3
7	MMM	407	HTO	O2-C2-C3-C4
7	MMM	408	HTO	O2-C2-C3-O3

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>Atoms</b>
7	MMM	408	HTO	O2-C2-C3-C4
7	MMM	409	HTO	C1-C2-C3-O3
7	MMM	409	HTO	O2-C2-C3-O3
7	MMM	409	HTO	O2-C2-C3-C4
10	LLL	301	BCB	C2C-C3C-CAC-CBC
10	LLL	302	BCB	C2C-C3C-CAC-CBC
10	MMM	403	BCB	C2C-C3C-CAC-CBC
10	MMM	404	BCB	C2C-C3C-CAC-CBC
10	MMM	404	BCB	CHA-CBD-CGD-O2D
10	MMM	404	BCB	CAD-CBD-CGD-O1D
10	MMM	404	BCB	CAD-CBD-CGD-O2D
11	LLL	303	BPB	C2C-C3C-CAC-CBC
11	MMM	405	BPB	C2C-C3C-CAC-CBC
12	LLL	310	UQ1	C2-C3-O3-CM3
13	MMM	410	LDA	C2-C1-N1-CM2
16	MMM	406	NS5	C30-C31-C33-C34
16	MMM	406	NS5	C32-C31-C33-C34
6	CCC	405	DGA	CA7-CA8-CA9-CAA
10	LLL	301	BCB	C4-C3-C5-C6
10	LLL	301	BCB	C2-C3-C5-C6
16	MMM	406	NS5	C31-C33-C34-C35
8	HHH	402	OLC	C2-C1-O20-C21
7	LLL	312	HTO	O1-C1-C2-O2
6	CCC	405	DGA	CA2-CA1-OG1-CG1
10	MMM	404	BCB	C2A-CAA-CBA-CGA
10	LLL	301	BCB	C15-C16-C17-C18
10	LLL	301	BCB	C13-C15-C16-C17
10	MMM	403	BCB	C13-C15-C16-C17
6	CCC	405	DGA	CA1-CA2-CA3-CA4
16	MMM	406	NS5	C1-C2-C3-C4
13	LLL	311	LDA	C2-C3-C4-C5
6	CCC	405	DGA	OA1-CA1-OG1-CG1
11	MMM	405	BPB	C13-C15-C16-C17
8	HHH	402	OLC	O19-C1-O20-C21
10	MMM	404	BCB	C13-C15-C16-C17
6	CCC	405	DGA	OB1-CB1-OG2-CG2
8	HHH	402	OLC	C2-C3-C4-C5
13	MMM	410	LDA	C11-C10-C9-C8
6	CCC	405	DGA	CAA-CBA-CCA-CDA
6	CCC	405	DGA	CCA-CDA-CEA-CFA
6	CCC	405	DGA	CAB-CBB-CCB-CDB
6	CCC	405	DGA	CA6-CA7-CA8-CA9

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>Atoms</b>
6	CCC	405	DGA	CB2-CB3-CB4-CB5
13	MMM	410	LDA	C5-C6-C7-C8
6	CCC	405	DGA	CBA-CCA-CDA-CEA
6	CCC	405	DGA	CB3-CB4-CB5-CB6
6	CCC	405	DGA	CA8-CA9-CAA-CBA
6	CCC	405	DGA	CB5-CB6-CB7-CB8
6	CCC	405	DGA	CB4-CB5-CB6-CB7
7	LLL	312	HTO	O1-C1-C2-C3
8	HHH	402	OLC	C12-C13-C14-C15
6	CCC	405	DGA	CA5-CA6-CA7-CA8
13	LLL	311	LDA	C11-C10-C9-C8
6	CCC	405	DGA	CA4-CA5-CA6-CA7
10	MMM	403	BCB	C11-C10-C8-C7
13	MMM	410	LDA	C1-C2-C3-C4
6	CCC	405	DGA	CEA-CFA-CGA-CHA
11	MMM	405	BPB	C5-C6-C7-C8
10	LLL	302	BCB	C14-C13-C15-C16
10	MMM	403	BCB	C11-C10-C8-C9
16	MMM	406	NS5	C2-C3-C4-C5
11	MMM	405	BPB	O1A-CGA-O2A-C1
13	MMM	410	LDA	C7-C8-C9-C10
13	LLL	311	LDA	C9-C10-C11-C12
11	LLL	303	BPB	C4-C3-C5-C6
11	MMM	405	BPB	CBA-CGA-O2A-C1
6	CCC	405	DGA	CFA-CGA-CHA-CIA
7	LLL	312	HTO	C4-C5-C6-C7
7	LLL	304	HTO	O2-C2-C3-O3
7	LLL	307	HTO	O2-C2-C3-O3
10	LLL	302	BCB	C12-C13-C15-C16
10	MMM	404	BCB	C12-C13-C15-C16
11	MMM	405	BPB	C11-C10-C8-C9
7	LLL	306	HTO	C4-C5-C6-C7
11	LLL	303	BPB	C2-C3-C5-C6
7	LLL	307	HTO	C4-C5-C6-C7
7	LLL	305	HTO	O3-C3-C4-C5
10	MMM	403	BCB	C10-C11-C12-C13
13	LLL	311	LDA	C3-C4-C5-C6
6	CCC	405	DGA	OG1-CG1-CG2-CG3
7	LLL	306	HTO	O1-C1-C2-C3
8	HHH	402	OLC	C15-C16-C17-C18
11	LLL	303	BPB	O2A-C1-C2-C3
7	MMM	409	HTO	C1-C2-C3-C4

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>Atoms</b>
10	MMM	403	BCB	C14-C13-C15-C16
13	MMM	410	LDA	C6-C7-C8-C9
10	MMM	404	BCB	C8-C10-C11-C12
11	LLL	303	BPB	CAD-CBD-CGD-O2D
11	MMM	405	BPB	CAD-CBD-CGD-O2D
6	CCC	405	DGA	CBB-CCB-CDB-CEB
15	MMM	402	MQ7	C39-C38-C40-C41
7	MMM	407	HTO	C3-C4-C5-C6
10	MMM	404	BCB	CHA-CBD-CGD-O1D
13	MMM	410	LDA	C2-C1-N1-CM1
6	CCC	405	DGA	OG1-CG1-CG2-OG2
13	MMM	410	LDA	C4-C5-C6-C7
7	LLL	306	HTO	C3-C4-C5-C6
10	LLL	301	BCB	C16-C17-C18-C19
10	LLL	302	BCB	C16-C17-C18-C20
11	LLL	303	BPB	C16-C17-C18-C19
11	LLL	303	BPB	C13-C15-C16-C17
7	MMM	407	HTO	O1-C1-C2-C3
10	LLL	301	BCB	CAD-CBD-CGD-O1D
11	MMM	405	BPB	C6-C7-C8-C10
11	MMM	405	BPB	C12-C13-C15-C16
10	LLL	302	BCB	C4C-C3C-CAC-CBC
6	CCC	405	DGA	CDB-CEB-CFB-CGB
10	MMM	404	BCB	C14-C13-C15-C16
8	HHH	402	OLC	C13-C14-C15-C16
10	LLL	302	BCB	C13-C15-C16-C17
10	LLL	301	BCB	C16-C17-C18-C20
7	LLL	305	HTO	C4-C5-C6-C7
10	MMM	403	BCB	C2-C1-O2A-CGA
15	MMM	402	MQ7	C37-C38-C40-C41
5	CCC	404	HEC	C3D-CAD-CBD-CGD
11	LLL	303	BPB	C11-C12-C13-C15
13	MMM	410	LDA	C2-C3-C4-C5
11	LLL	303	BPB	C16-C17-C18-C20
5	CCC	404	HEC	CAD-CBD-CGD-O1D
10	LLL	302	BCB	C16-C17-C18-C19
12	LLL	310	UQ1	C4-C3-O3-CM3
5	CCC	402	HEC	CAA-CBA-CGA-O1A
11	MMM	405	BPB	C6-C7-C8-C9
10	MMM	403	BCB	C12-C13-C15-C16
8	HHH	402	OLC	C5-C6-C7-C8
5	CCC	402	HEC	CAA-CBA-CGA-O2A

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Mol	Chain	Res	Type	Atoms
6	CCC	405	DGA	CCB-CDB-CEB-CFB
7	HHH	401	HTO	C3-C4-C5-C6
7	MMM	408	HTO	C1-C2-C3-C4
5	CCC	402	HEC	CAD-CBD-CGD-O1D
8	HHH	402	OLC	C7-C8-C9-C10
11	MMM	405	BPB	C14-C13-C15-C16
5	CCC	402	HEC	CAD-CBD-CGD-O2D
10	MMM	403	BCB	CAD-CBD-CGD-O2D
7	MMM	409	HTO	O3-C3-C4-C5
5	CCC	404	HEC	CAD-CBD-CGD-O2D
5	CCC	401	HEC	CAA-CBA-CGA-O1A
10	MMM	404	BCB	O2A-C1-C2-C3
13	MMM	410	LDA	C9-C10-C11-C12
5	CCC	401	HEC	CAA-CBA-CGA-O2A
7	MMM	408	HTO	O1-C1-C2-O2
6	CCC	405	DGA	CEB-CFB-CGB-CHB
7	MMM	407	HTO	O1-C1-C2-O2
5	CCC	401	HEC	CAD-CBD-CGD-O2D
12	LLL	310	UQ1	C6-C7-C8-C9
13	MMM	410	LDA	C2-C1-N1-O1
5	CCC	401	HEC	CAD-CBD-CGD-O1D
6	CCC	405	DGA	CB1-CB2-CB3-CB4
13	LLL	311	LDA	C7-C8-C9-C10
16	MMM	406	NS5	C20-C21-C23-C24

There are no ring outliers.

14 monomers are involved in 35 short contacts:

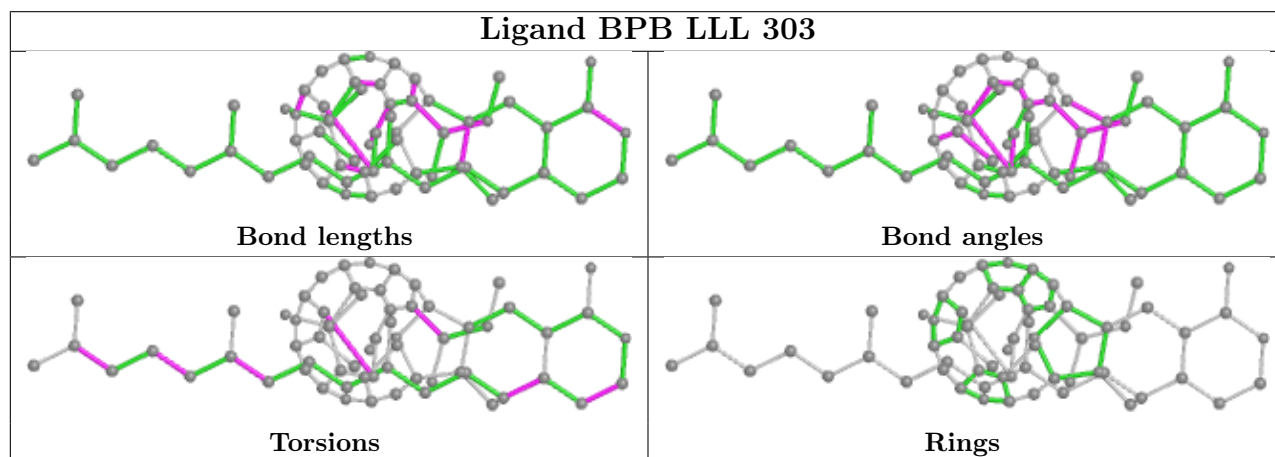
Mol	Chain	Res	Type	Clashes	Symm-Clashes
11	LLL	303	BPB	2	0
5	CCC	403	HEC	2	0
10	MMM	403	BCB	1	0
12	LLL	309	UQ1	2	0
15	MMM	402	MQ7	2	0
10	LLL	301	BCB	7	0
16	MMM	406	NS5	5	0
10	LLL	302	BCB	2	0
5	CCC	402	HEC	1	0
8	HHH	402	OLC	3	0
5	CCC	401	HEC	2	0
9	MMM	411	SO4	1	0
10	MMM	404	BCB	1	0

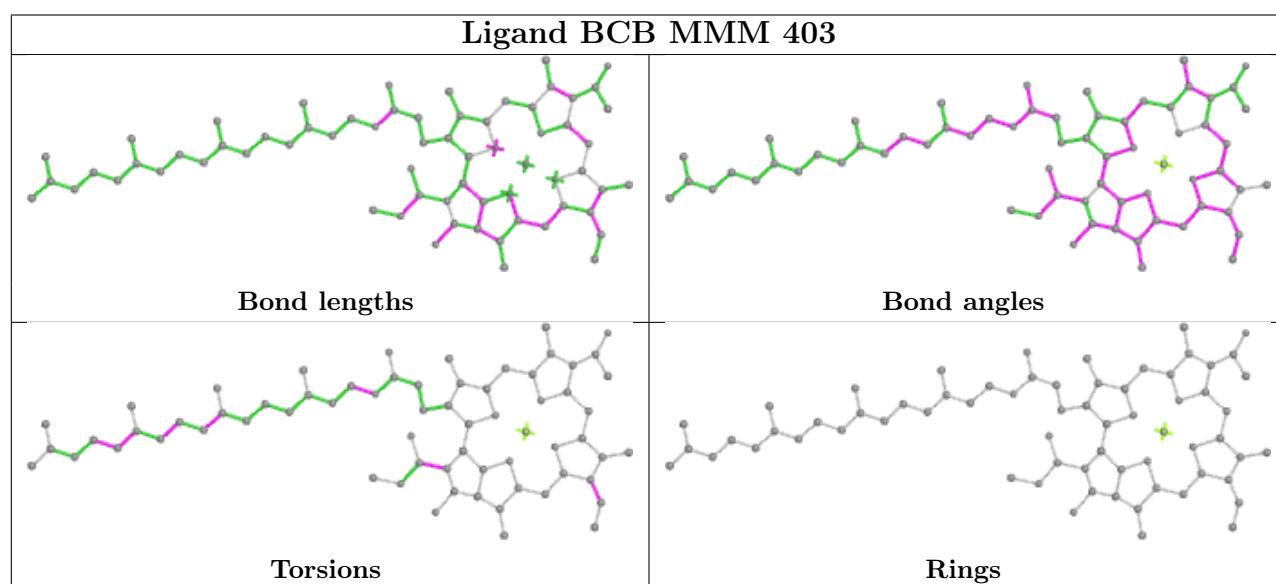
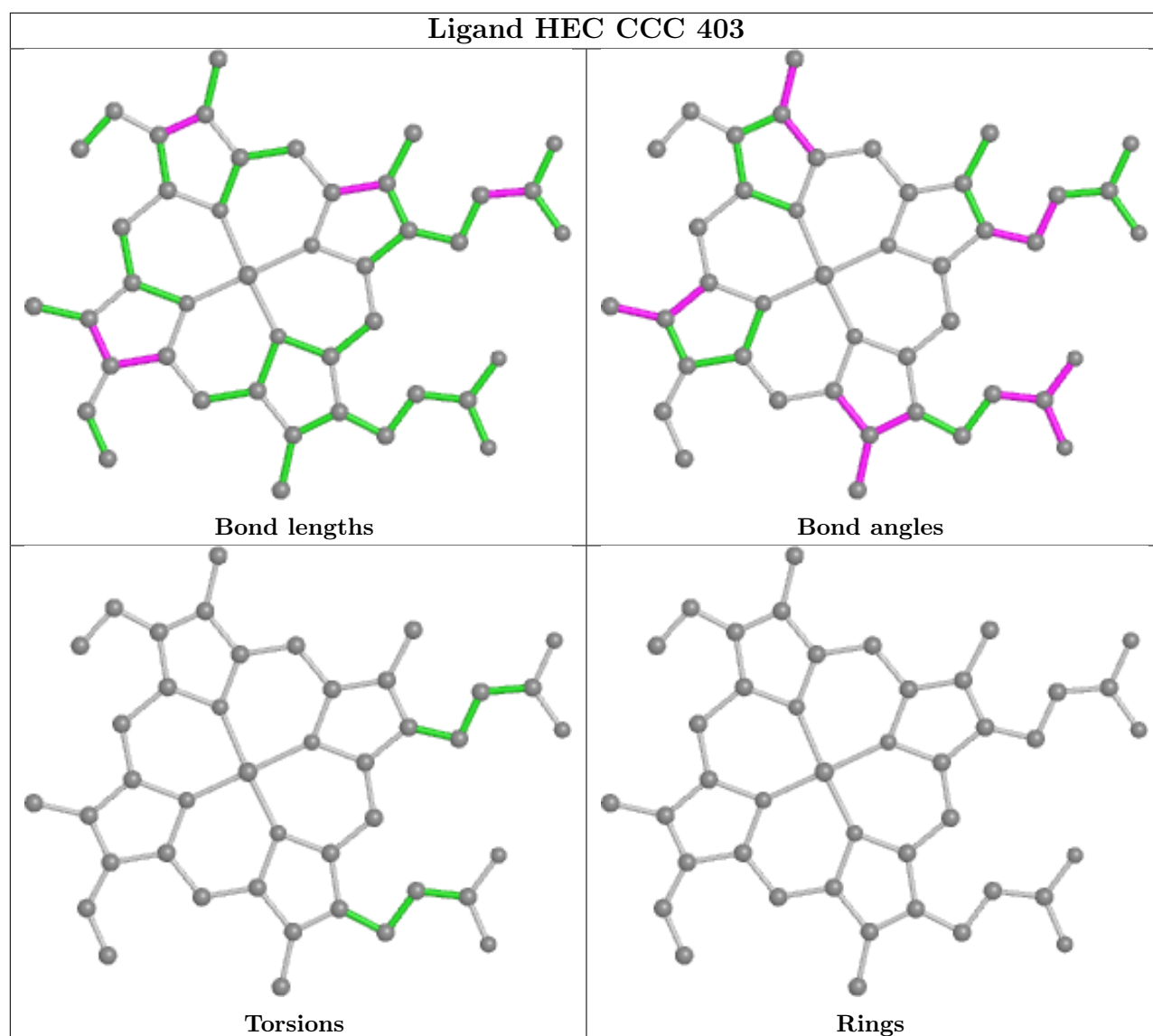
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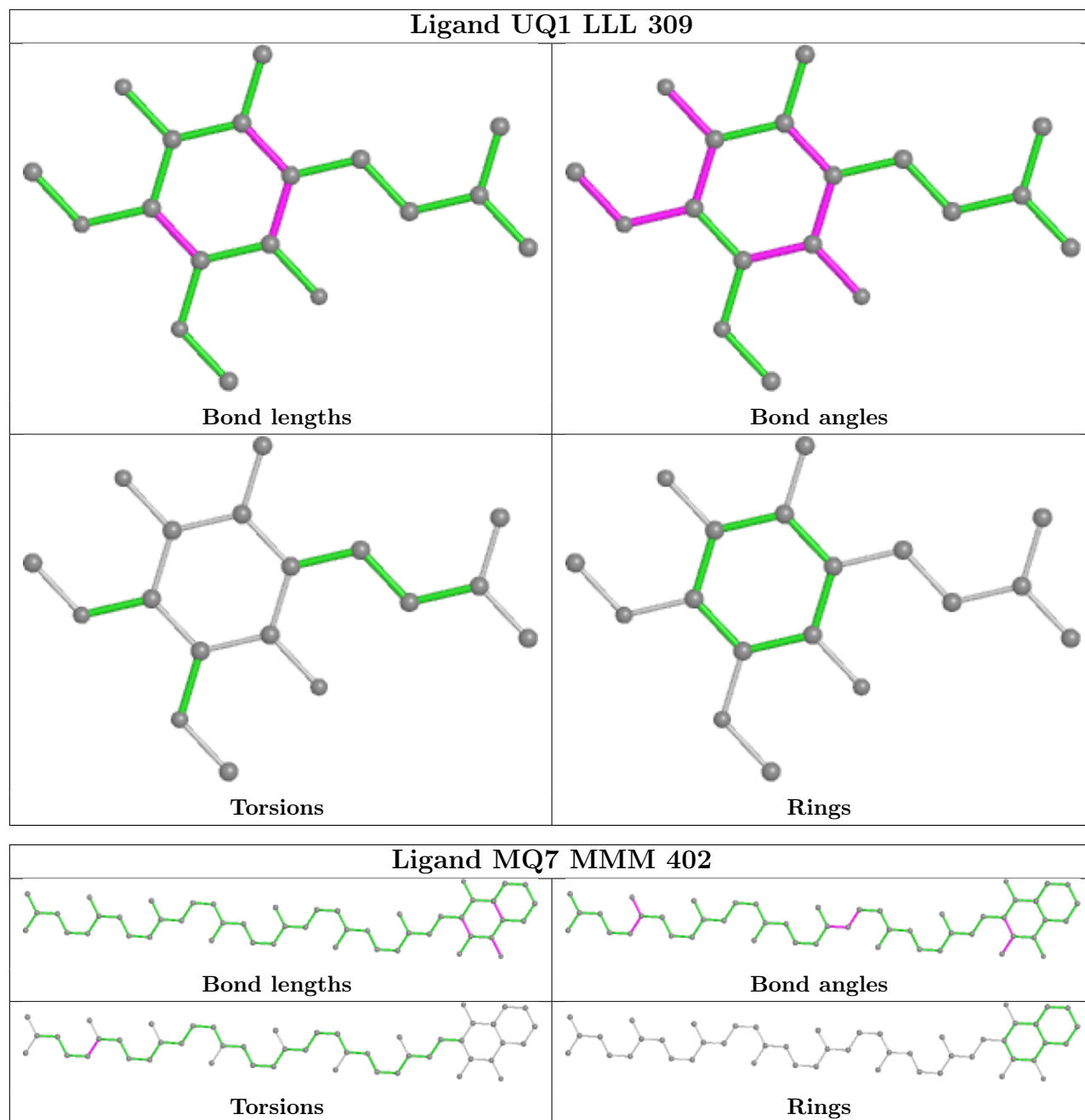
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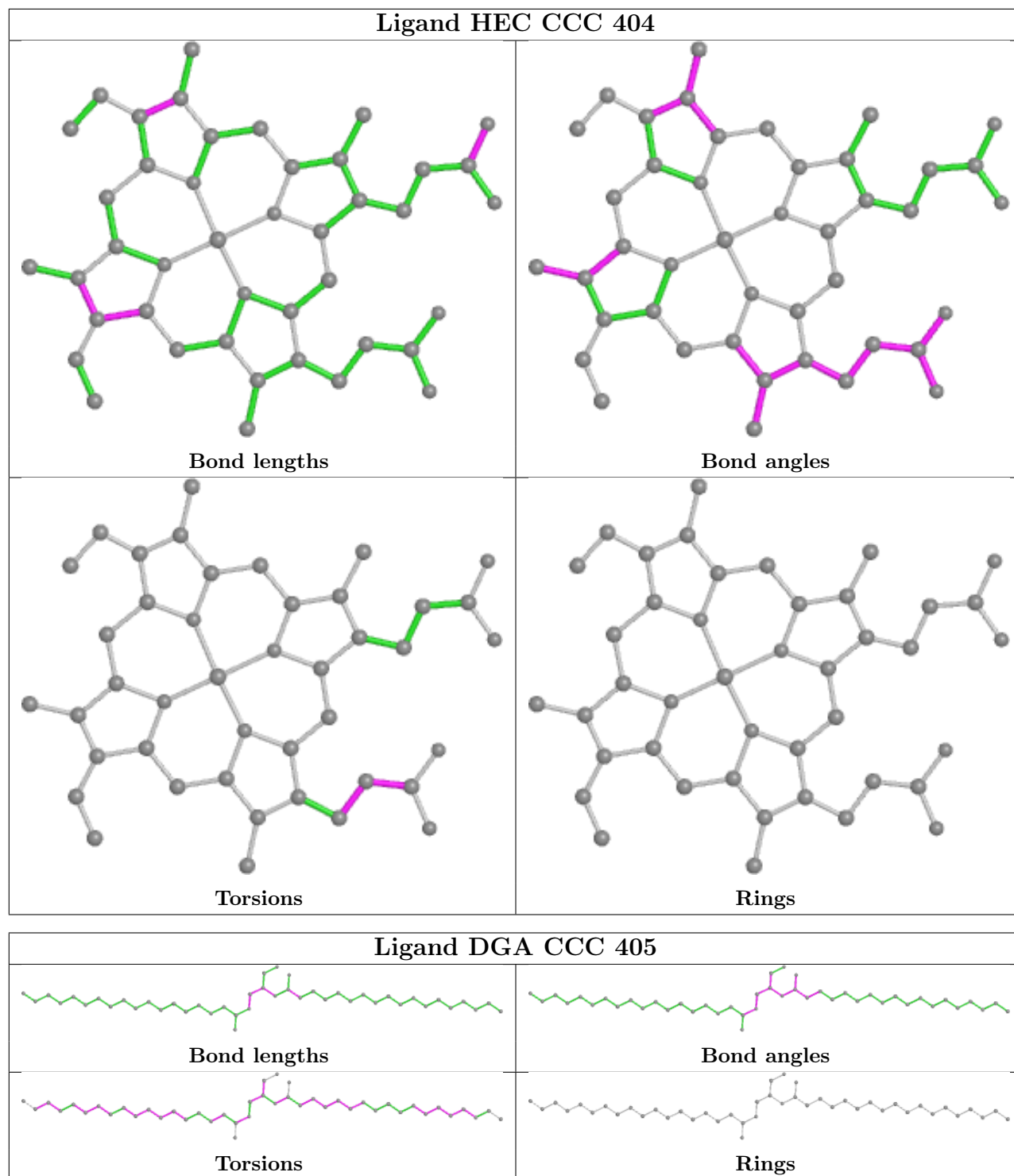
Mol	Chain	Res	Type	Clashes	Symm-Clashes
11	MMM	405	BPB	6	0

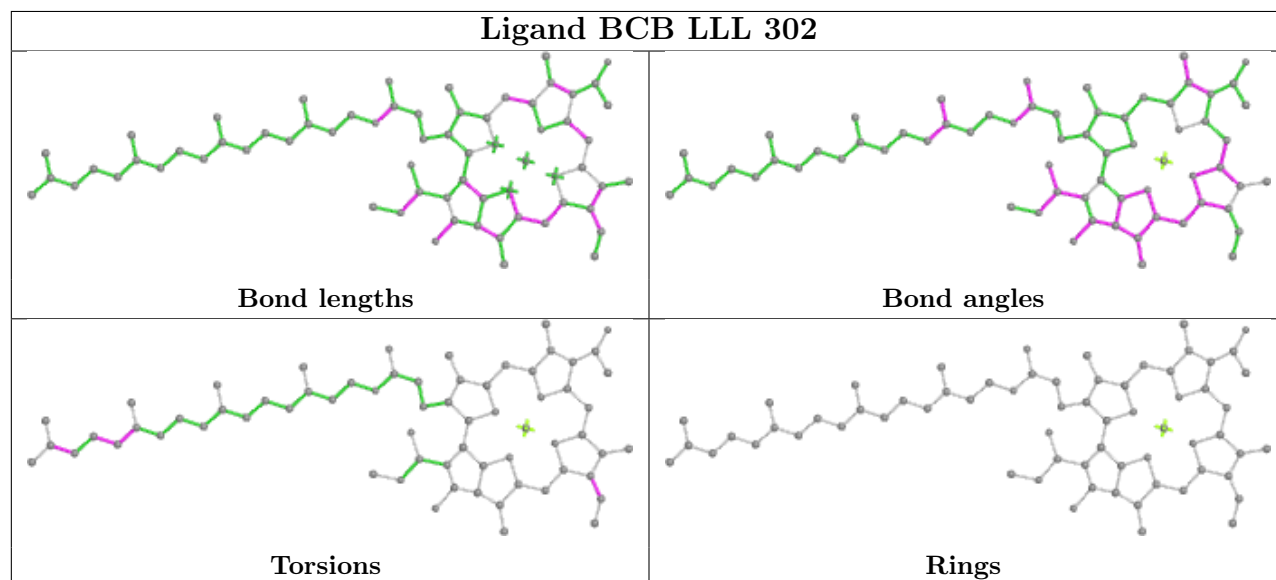
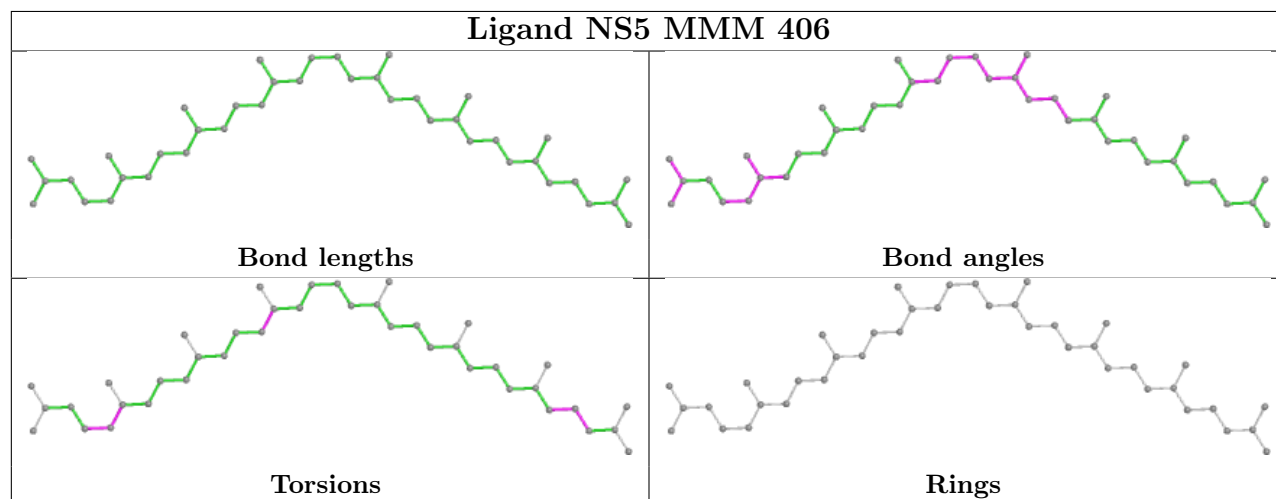
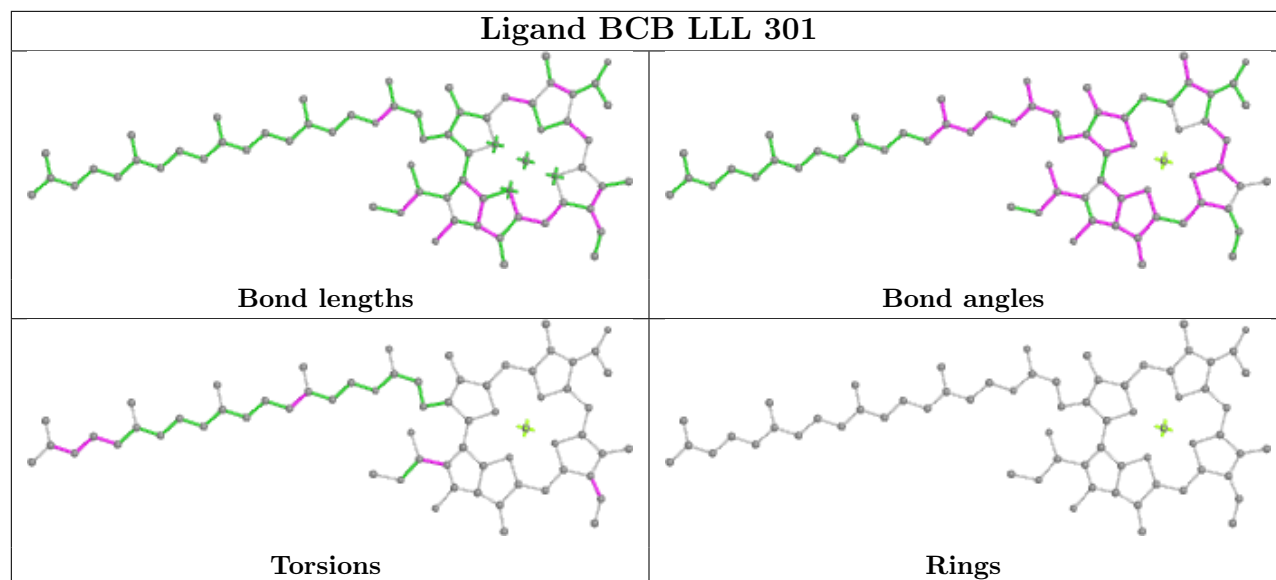
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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



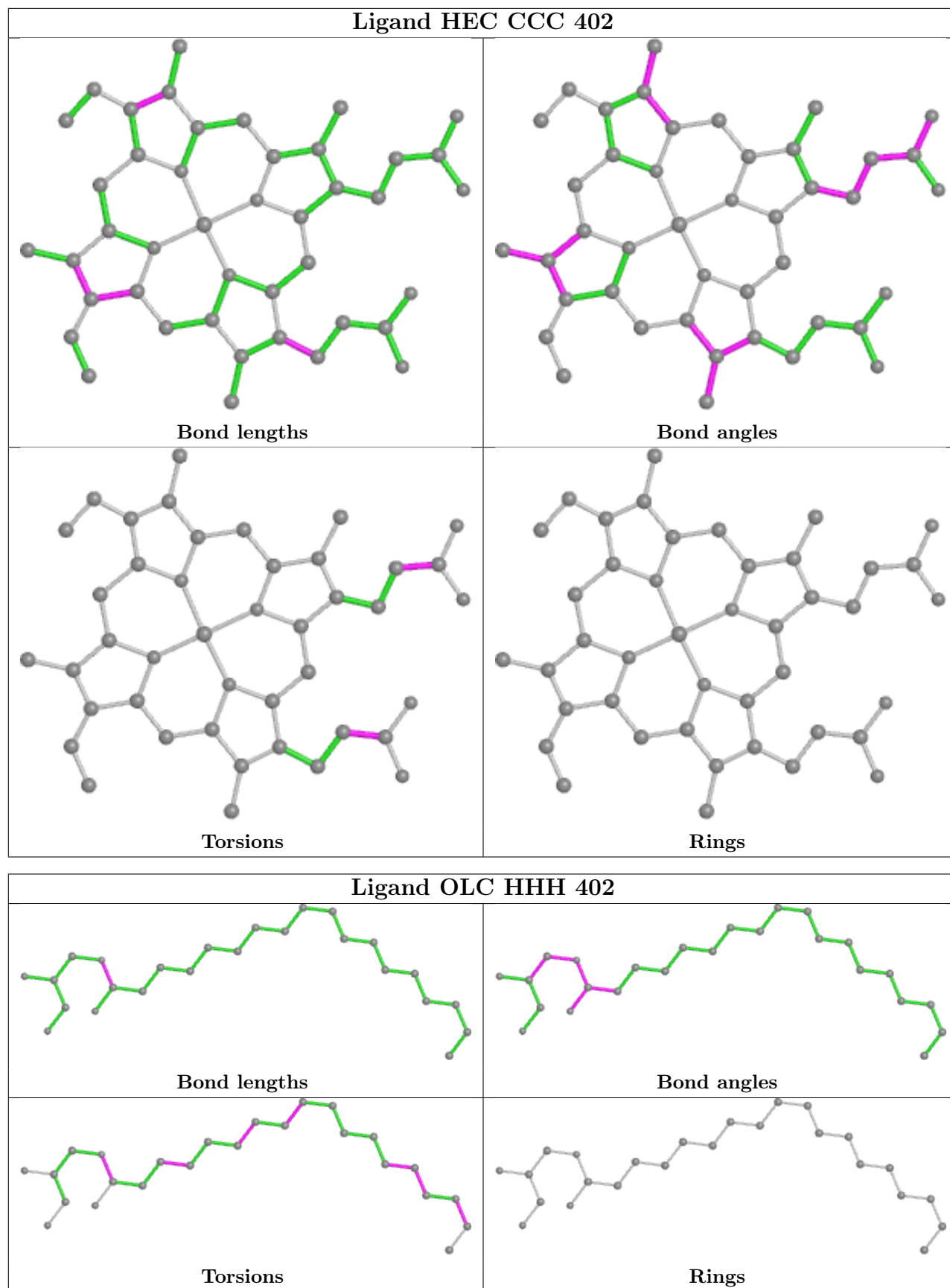


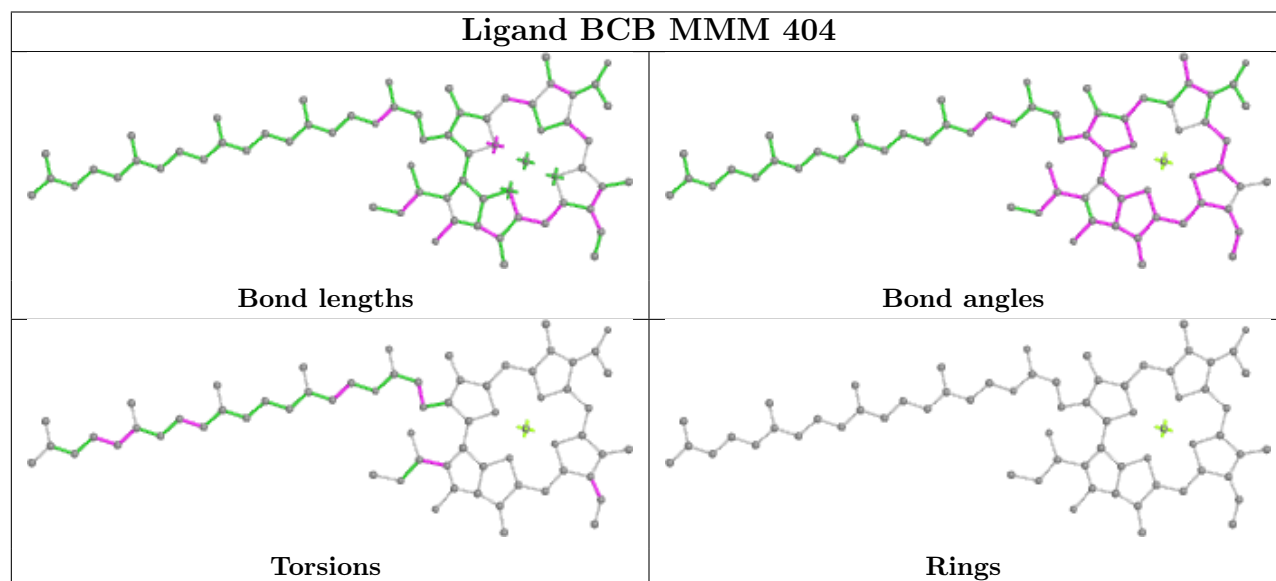
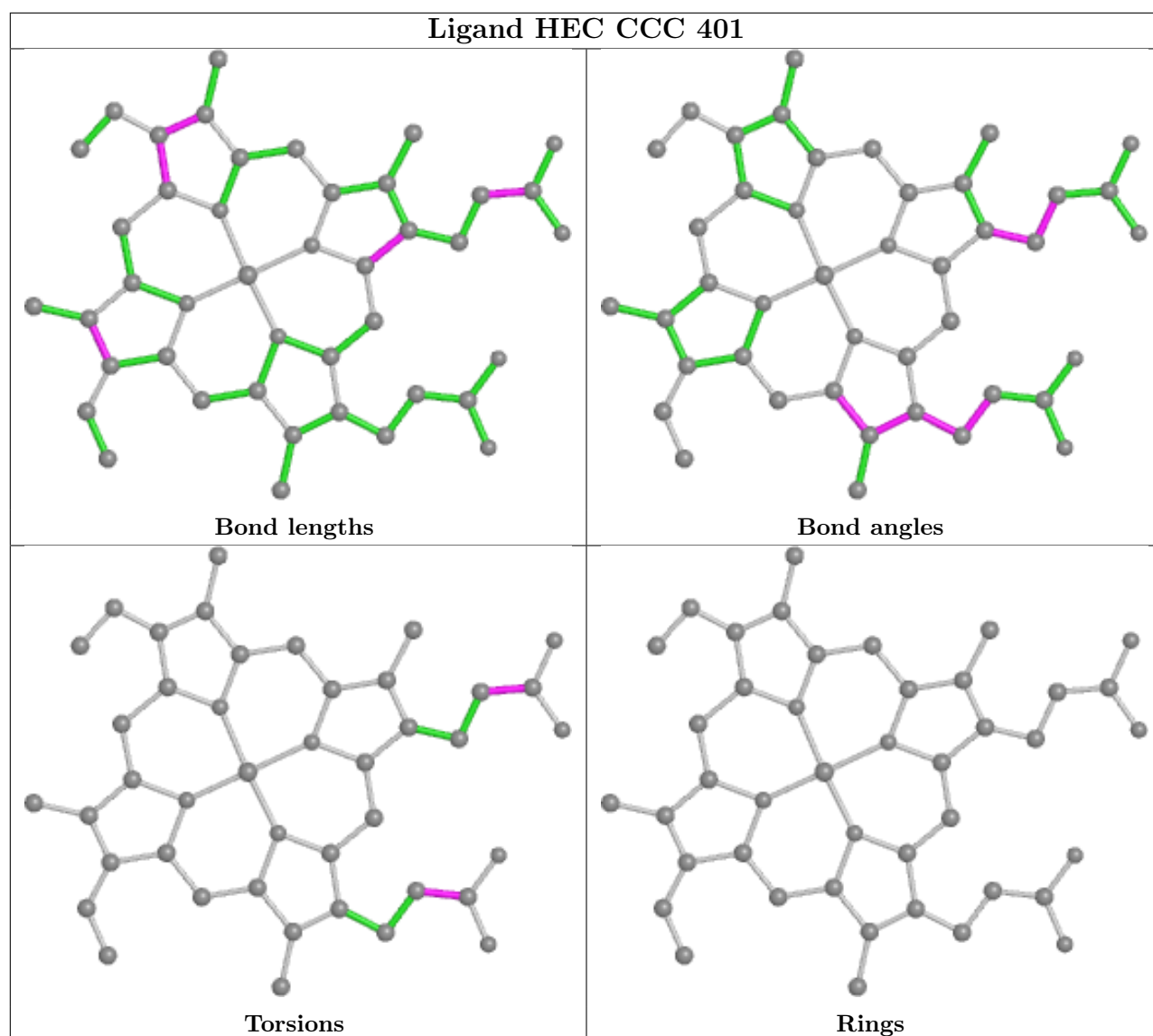


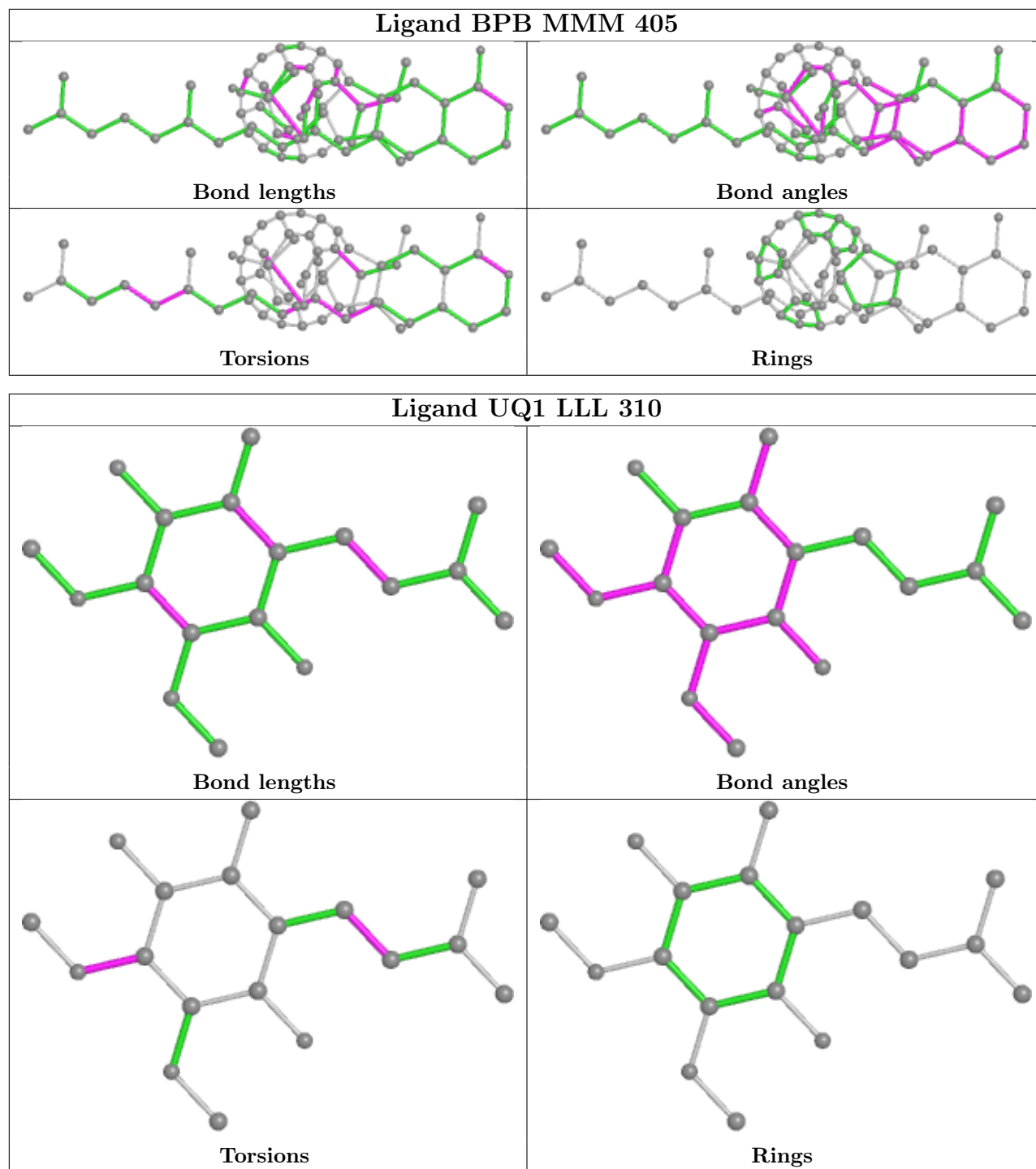












## 5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

## 6 Fit of model and data

### 6.1 Protein, DNA and RNA chains

Unable to reproduce the depositors R factor - this section is therefore empty.

### 6.2 Non-standard residues in protein, DNA, RNA chains

Unable to reproduce the depositors R factor - this section is therefore empty.

### 6.3 Carbohydrates

Unable to reproduce the depositors R factor - this section is therefore empty.

### 6.4 Ligands

Unable to reproduce the depositors R factor - this section is therefore empty.

### 6.5 Other polymers

Unable to reproduce the depositors R factor - this section is therefore empty.