



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 02:02 PM UTC

PDB ID : 7Q7J / pdb\_00007q7j  
Title : Room temperature structure of the Rhodobacter Sphaeroides Photosynthetic Reaction Center F(M197)H mutant at 75 MPa helium gas pressure in a sapphire capillary  
Authors : Lieske, J.; Guenther, S.; Saouane, S.; Selikhanov, G.K.; Gabdulkhakov, A.G.; Meents, A.  
Deposited on : 2021-11-09  
Resolution : 2.69 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](#) ①) were used in the production of this report:

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

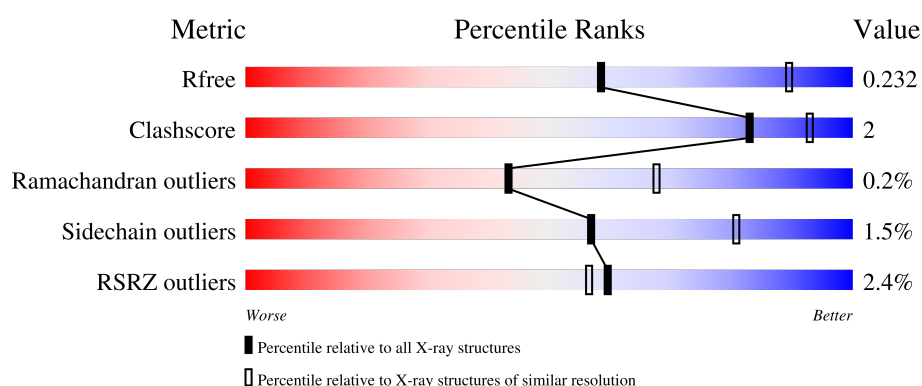
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.69 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))
$R_{free}$	180053	3538 (2.70-2.70)
Clashscore	190562	3843 (2.70-2.70)
Ramachandran outliers	187476	3778 (2.70-2.70)
Sidechain outliers	187428	3778 (2.70-2.70)
RSRZ outliers	180081	3538 (2.70-2.70)

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  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	H	241	<div> <div>2%</div> <div> <div></div> <div>93%</div> <div>6%</div> </div> </div>
2	L	281	<div> <div>3%</div> <div> <div></div> <div>96%</div> <div>.</div> </div> </div>
3	M	302	<div> <div>2%</div> <div> <div></div> <div>94%</div> <div>6%</div> </div> </div>

## 2 Entry composition

There are 14 unique types of molecules in this entry. The entry contains 14698 atoms, of which 7308 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 Reaction center protein H chain.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	H	240	Total	C	H	N	O	S	0	5	0
			3751	1196	1883	321	341	10			

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

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
2	L	281	Total	C	H	N	O	S	0	2	0
			4447	1519	2200	357	363	8			

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
L	178	THR	SER	engineered mutation	UNP P0C0Y8

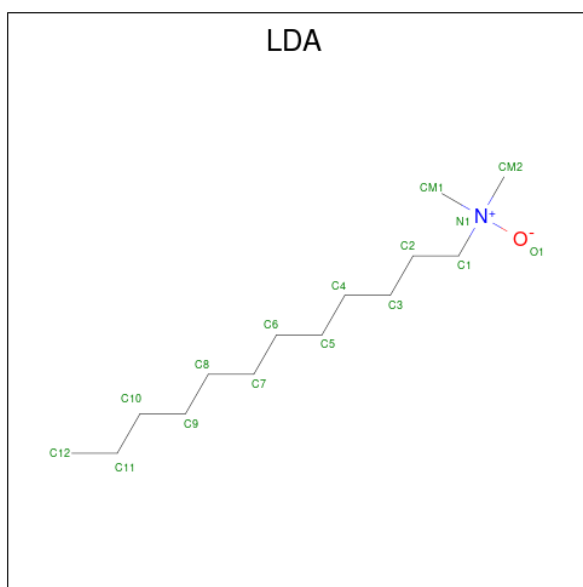
- Molecule 3 is a protein called Reaction center protein M chain.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
3	M	300	Total	C	H	N	O	S	0	5	0
			4775	1629	2340	398	398	10			

There are 2 discrepancies between the modelled and reference sequences:

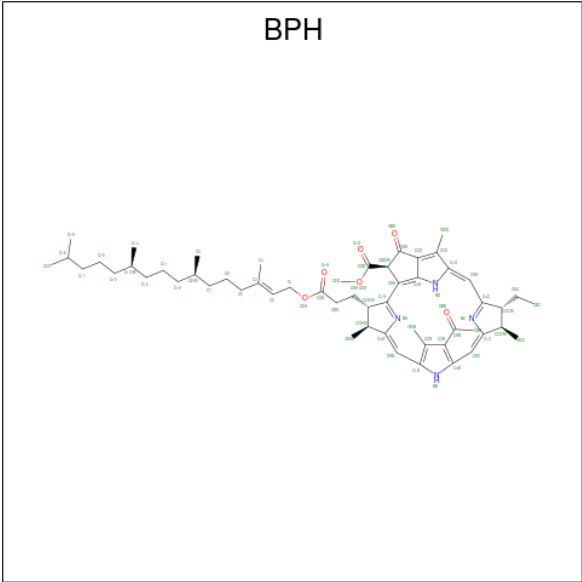
Chain	Residue	Modelled	Actual	Comment	Reference
M	8	THR	SER	engineered mutation	UNP P0C0Y9
M	197	HIS	PHE	engineered mutation	UNP P0C0Y9

- Molecule 4 is LAURYL DIMETHYLAMINE-N-OXIDE (CCD ID: LDA) (formula: C<sub>14</sub>H<sub>31</sub>NO) (labeled as "Ligand of Interest" by depositor).



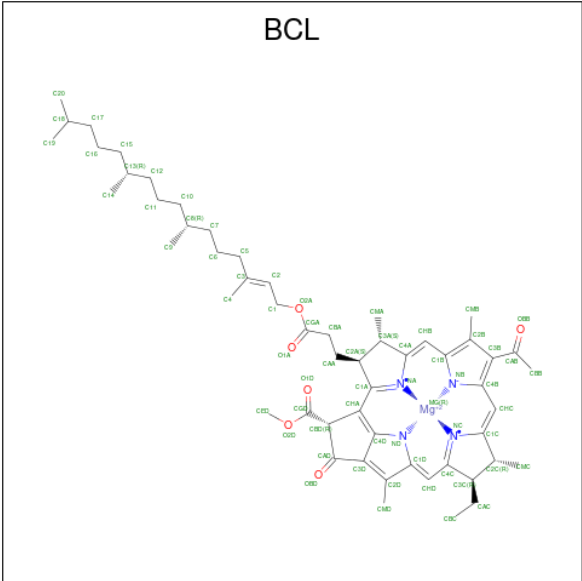
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	H	1	Total	C	H	N	O	0	0
			47	14	31	1	1		
4	H	1	Total	C	H	N	O	0	0
			47	14	31	1	1		
4	L	1	Total	C	H	N	O	0	0
			47	14	31	1	1		
4	L	1	Total	C	H	N	O	0	0
			47	14	31	1	1		
4	M	1	Total	C	H	N	O	0	0
			47	14	31	1	1		
4	M	1	Total	C	H	N	O	0	0
			47	14	31	1	1		
4	M	1	Total	C	H	N	O	0	0
			47	14	31	1	1		
4	M	1	Total	C	H	N	O	0	0
			47	14	31	1	1		

- Molecule 5 is BACTERIOPHEOPHYTIN A (CCD ID: BPH) (formula:  $C_{55}H_{76}N_4O_6$ ) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
5	L	1	Total	C	H	N	O	0	0
			141	55	76	4	6		
5	M	1	Total	C	H	N	O	0	0
			95	40	45	4	6		

- Molecule 6 is BACTERIOCHLOROPHYLL A (CCD ID: BCL) (formula: C<sub>55</sub>H<sub>74</sub>MgN<sub>4</sub>O<sub>6</sub>) (labeled as "Ligand of Interest" by depositor).



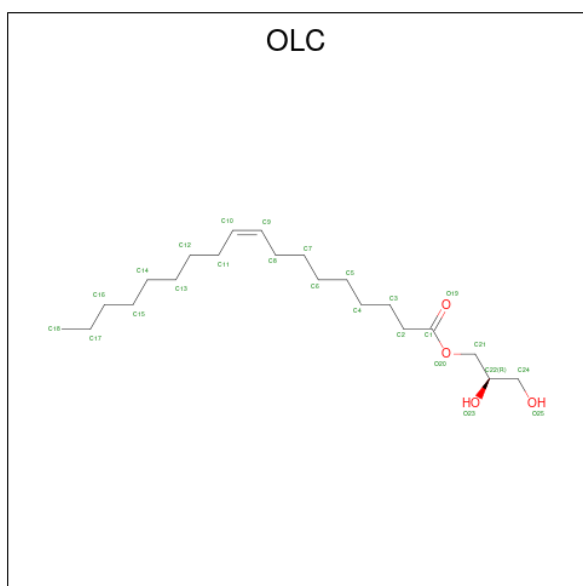
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
6	L	1	Total	C	H	Mg	N	O	0	0
			140	55	74	1	4	6		

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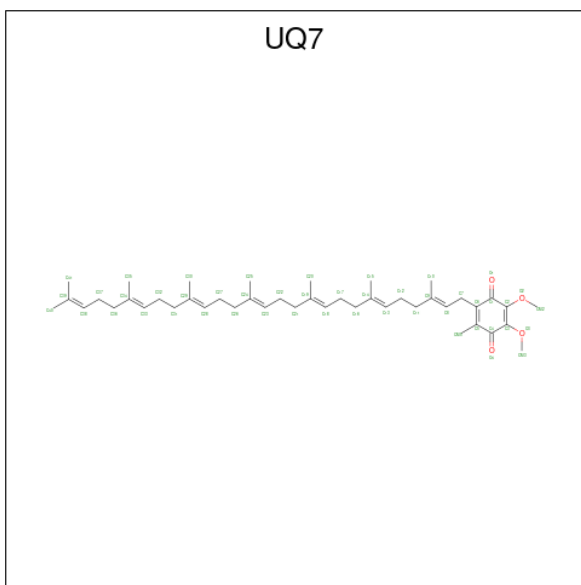
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
6	L	1	Total	C	H	Mg	N	O	0	0
			140	55	74	1	4	6		
6	M	1	Total	C	H	Mg	N	O	0	0
			140	55	74	1	4	6		
6	M	1	Total	C	H	Mg	N	O	0	0
			94	40	43	1	4	6		

- Molecule 7 is (2R)-2,3-dihydroxypropyl (9Z)-octadec-9-enoate (CCD ID: OLC) (formula: C<sub>21</sub>H<sub>40</sub>O<sub>4</sub>) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
7	L	1	Total	C	H	O	0	0
			65	21	40	4		
7	M	1	Total	C	H	O	0	1
			65	21	40	4		

- Molecule 8 is UBIQUINONE-7 (CCD ID: UQ7) (formula: C<sub>44</sub>H<sub>66</sub>O<sub>4</sub>) (labeled as "Ligand of Interest" by depositor).

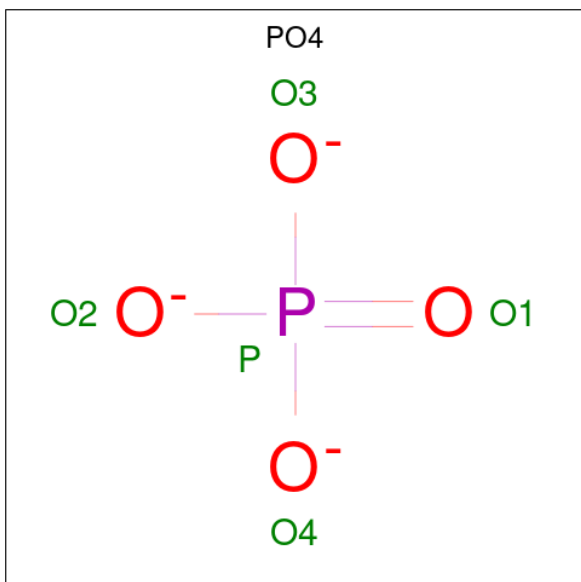


Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
8	M	1	Total	C	H	O	0	0
			113	44	65	4		

- Molecule 9 is FE (III) ION (CCD ID: FE) (formula: Fe) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
9	M	1	Total	Fe	0	0
			1	1		

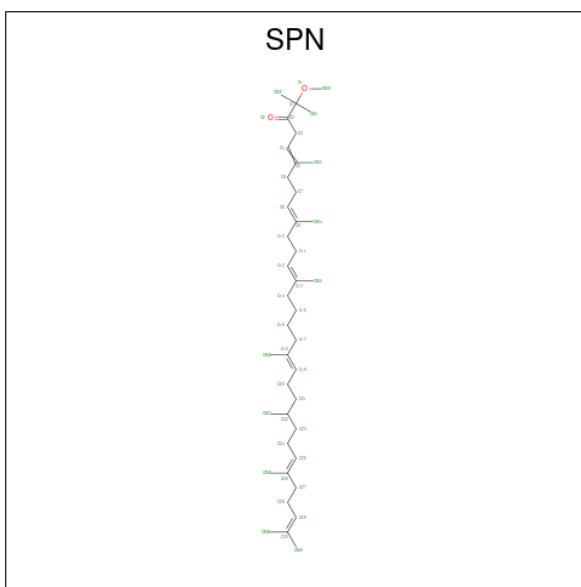
- Molecule 10 is PHOSPHATE ION (CCD ID: PO4) (formula: O<sub>4</sub>P) (labeled as "Ligand of Interest" by depositor).





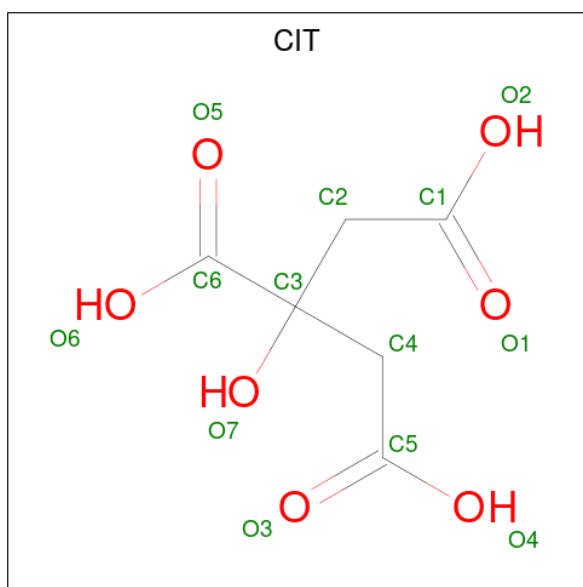
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
10	M	1	Total	O	P	0	0
			5	4	1		
10	M	1	Total	O	P	0	0
			5	4	1		

- Molecule 11 is SPEROIDENONE (CCD ID: SPN) (formula:  $C_{41}H_{70}O_2$ ) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
11	M	1	Total	C	H	O	0	1
			113	41	70	2		

- Molecule 12 is CITRIC ACID (CCD ID: CIT) (formula:  $C_6H_8O_7$ ).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
12	M	1	Total	C	H	O	0	0
			18	6	5	7		

- Molecule 13 is CHLORIDE ION (CCD ID: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
13	M	1	Total	Cl	0	0
			1	1		

- Molecule 14 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
14	H	71	Total	O	0	1
			72	72		
14	L	47	Total	O	0	0
			47	47		
14	M	47	Total	O	0	0
			47	47		

### 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 and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ( $RSRZ > 2$ ). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

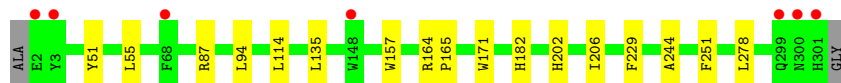
- Molecule 1: Reaction center protein H chain



- Molecule 2: Reaction center protein L chain



- Molecule 3: Reaction center protein M chain



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 42 21 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	102.30Å 102.30Å 237.91Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	46.99 – 2.69 46.99 – 2.69	Depositor EDS
% Data completeness (in resolution range)	99.3 (46.99-2.69) 88.5 (46.99-2.69)	Depositor EDS
$R_{merge}$	0.45	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	0.81 (at 2.69Å)	Xtriage
Refinement program	PHENIX 1.13-2998_9999	Depositor
R, $R_{free}$	0.179 , 0.231 0.184 , 0.232	Depositor DCC
$R_{free}$ test set	1436 reflections (3.99%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	32.3	Xtriage
Anisotropy	0.124	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.39 , 62.8	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.48$ , $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
$F_o, F_c$ correlation	0.93	EDS
Total number of atoms	14698	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	48.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.72% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</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: OLC, PO4, LDA, FE, BPH, SPN, UQ7, CL, CIT, BCL

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	H	0.14	0/1928	0.31	0/2619
2	L	0.12	0/2343	0.31	0/3208
3	M	0.13	0/2542	0.31	0/3472
All	All	0.13	0/6813	0.31	0/9299

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	H	1868	1883	1875	5	0
2	L	2247	2200	2194	5	0
3	M	2435	2340	2326	14	0
4	H	32	62	62	3	0
4	L	32	62	62	0	0
4	M	80	155	155	2	0
5	L	65	76	76	1	0
5	M	50	45	43	2	0
6	L	132	148	148	2	0
6	M	117	117	115	4	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
7	L	25	40	40	0	0
7	M	25	40	40	0	0
8	M	48	65	66	2	0
9	M	1	0	0	0	0
10	M	10	0	0	0	0
11	M	43	70	70	6	0
12	M	13	5	5	1	0
13	M	1	0	0	0	0
14	H	72	0	0	0	0
14	L	47	0	0	0	0
14	M	47	0	0	0	0
All	All	7390	7308	7277	35	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 2.

All (35) 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:H:181:VAL:HG21	1:H:191:LEU:HD12	1.70	0.72
4:H:301:LDA:H123	8:M:401:UQ7:H202	1.72	0.70
3:M:51:TYR:HH	12:M:414:CIT:HO7	1.47	0.62
1:H:122:GLU:HB2	1:H:227:LEU:HD21	1.82	0.62
5:M:304:BPH:HBC3	5:M:304:BPH:HHB	1.83	0.60
2:L:173:HIS:CE1	2:L:177:ILE:HD11	2.37	0.60
5:L:301:BPH:HMB1	5:L:301:BPH:HBB3	1.86	0.56
2:L:272:TRP:O	3:M:87:ARG:NH1	2.38	0.55
3:M:55:LEU:HD12	3:M:135:LEU:HD12	1.89	0.54
6:L:302:BCL:HMB3	6:L:302:BCL:HBB2	1.92	0.52
11:M:409[A]:SPN:H25	11:M:409[A]:SPN:HM93	1.92	0.51
6:L:302:BCL:H61	8:M:401:UQ7:H203	1.95	0.47
2:L:269:LEU:O	2:L:271:TRP:N	2.47	0.47
1:H:245:ALA:N	1:H:246:PRO:CD	2.78	0.46
3:M:157:TRP:NE1	11:M:409[A]:SPN:H211	2.30	0.46
6:M:403:BCL:HHC	6:M:403:BCL:OBB	2.15	0.46
3:M:94:LEU:HD11	3:M:114:LEU:HB3	1.98	0.46
3:M:157:TRP:CD1	6:M:403:BCL:HBB1	2.52	0.45
6:M:402:BCL:HBB3	6:M:402:BCL:HMB1	1.98	0.45
2:L:269:LEU:HB3	2:L:271:TRP:CZ2	2.52	0.45
3:M:157:TRP:HD1	6:M:403:BCL:HBB1	1.82	0.45
1:H:148:PRO:HA	1:H:151:LEU:HD12	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:M:171:TRP:CZ3	11:M:409[A]:SPN:HM83	2.52	0.44
11:M:409[A]:SPN:HM41	11:M:409[A]:SPN:H111	1.69	0.44
2:L:117:ILE:HD13	3:M:251:PHE:CE1	2.53	0.44
3:M:164:ARG:HB3	3:M:165:PRO:HD3	2.00	0.43
3:M:278:LEU:HD21	4:M:410:LDA:HM11	2.01	0.43
3:M:182:HIS:CG	11:M:409[A]:SPN:HM51	2.54	0.43
5:M:304:BPH:HBB3	5:M:304:BPH:HMB1	2.01	0.43
4:H:301:LDA:H121	4:M:405:LDA:H91	2.01	0.42
3:M:202:HIS:CE1	3:M:206:ILE:HD11	2.54	0.42
1:H:220:LYS:HG2	1:H:229:GLU:OE2	2.19	0.41
11:M:409[A]:SPN:H72	11:M:409[A]:SPN:HM31	1.85	0.41
3:M:229:PHE:HB2	3:M:244:ALA:HB2	2.03	0.41
4:H:301:LDA:H21	4:H:301:LDA:HM11	1.88	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	H	243/241 (101%)	236 (97%)	7 (3%)	0	100	100
2	L	281/281 (100%)	274 (98%)	5 (2%)	2 (1%)	18	41
3	M	303/302 (100%)	295 (97%)	8 (3%)	0	100	100
All	All	827/824 (100%)	805 (97%)	20 (2%)	2 (0%)	43	68

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	L	270	PRO
2	L	31	VAL

### 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	H	200/196 (102%)	195 (98%)	5 (2%)	42	71
2	L	222/220 (101%)	217 (98%)	5 (2%)	44	73
3	M	240/236 (102%)	240 (100%)	0	100	100
All	All	662/652 (102%)	652 (98%)	10 (2%)	57	81

All (10) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	H	80	SER
1	H	89	ARG
1	H	135	LYS
1	H	175	MET
1	H	231	ASP
2	L	21	LEU
2	L	235	LEU
2	L	247	CYS
2	L	271	TRP
2	L	274	ASN

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

Mol	Chain	Res	Type
1	H	68	HIS

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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



## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 24 ligands modelled in this entry, 2 are monoatomic - leaving 22 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	$\# Z  > 2$
4	LDA	M	406	-	13,15,15	0.39	0	14,17,17	0.47	0
10	PO4	M	407	-	4,4,4	0.95	0	6,6,6	0.50	0
11	SPN	M	409[A]	-	42,42,42	0.18	0	50,52,52	0.53	1 (2%)
5	BPH	M	304	-	44,55,70	1.16	4 (9%)	41,83,101	1.60	5 (12%)
6	BCL	M	402	-	69,74,74	1.04	5 (7%)	79,115,115	1.30	6 (7%)
4	LDA	H	301	-	13,15,15	0.28	0	14,17,17	0.43	0
6	BCL	M	403	-	54,59,74	1.19	3 (5%)	61,97,115	1.40	9 (14%)
5	BPH	L	301	-	59,70,70	0.99	2 (3%)	59,101,101	1.36	5 (8%)
6	BCL	L	303	-	69,74,74	1.13	4 (5%)	79,115,115	1.20	6 (7%)
4	LDA	L	307	-	13,15,15	0.34	0	14,17,17	0.37	0
4	LDA	M	405	-	13,15,15	0.47	0	14,17,17	0.20	0
4	LDA	M	412	-	13,15,15	0.32	0	14,17,17	0.43	0
6	BCL	L	302	-	69,74,74	1.07	4 (5%)	79,115,115	1.21	6 (7%)
8	UQ7	M	401	-	48,48,48	0.25	0	60,61,61	0.41	1 (1%)
4	LDA	L	306	-	13,15,15	0.46	0	14,17,17	0.28	0
7	OLC	L	305	-	24,24,24	0.22	0	25,25,25	0.18	0
7	OLC	M	408[B]	-	24,24,24	0.16	0	25,25,25	0.14	0
4	LDA	H	302	-	13,15,15	0.44	0	14,17,17	0.42	0
4	LDA	M	410	-	13,15,15	0.37	0	14,17,17	0.15	0
4	LDA	M	411	-	13,15,15	0.30	0	14,17,17	0.89	2 (14%)
12	CIT	M	414	-	12,12,12	1.14	2 (16%)	17,17,17	1.13	2 (11%)
10	PO4	M	413	-	4,4,4	0.95	0	6,6,6	0.45	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
4	LDA	M	406	-	-	8/13/13/13	-
5	BPH	M	304	-	-	1/19/87/105	0/5/6/6
6	BCL	M	402	-	-	5/41/137/137	-
4	LDA	H	301	-	-	4/13/13/13	-
6	BCL	M	403	-	-	0/23/119/137	-
5	BPH	L	301	-	-	7/37/105/105	0/5/6/6
6	BCL	L	303	-	-	1/41/137/137	-
4	LDA	L	307	-	-	5/13/13/13	-
4	LDA	M	405	-	-	6/13/13/13	-
4	LDA	M	412	-	-	8/13/13/13	-
6	BCL	L	302	-	-	2/41/137/137	-
8	UQ7	M	401	-	-	7/45/69/69	0/1/1/1
4	LDA	L	306	-	-	10/13/13/13	-
7	OLC	L	305	-	-	15/24/24/24	-
7	OLC	M	408[B]	-	-	8/24/24/24	-
4	LDA	H	302	-	-	6/13/13/13	-
4	LDA	M	410	-	-	5/13/13/13	-
4	LDA	M	411	-	-	9/13/13/13	-
12	CIT	M	414	-	-	6/16/16/16	-
11	SPN	M	409[A]	-	-	21/50/51/51	-

All (24) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	M	304	BPH	C1B-C2B	5.28	1.45	1.39
5	L	301	BPH	C1B-C2B	5.17	1.45	1.39
6	L	303	BCL	MG-NA	4.73	2.17	2.06
6	L	302	BCL	MG-NA	4.49	2.16	2.06
6	M	403	BCL	MG-NA	4.39	2.16	2.06
6	M	402	BCL	MG-NA	3.94	2.15	2.06
6	L	303	BCL	MG-NC	3.31	2.14	2.06
6	L	302	BCL	MG-NC	2.91	2.13	2.06
5	L	301	BPH	C2C-C3C	2.89	1.57	1.54
6	M	403	BCL	MG-NC	2.86	2.13	2.06
12	M	414	CIT	O1-C1	2.80	1.31	1.22
12	M	414	CIT	O2-C1	-2.72	1.21	1.30
5	M	304	BPH	C3A-C2A	-2.70	1.52	1.54

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	L	303	BCL	CHD-C1D	2.57	1.43	1.38
6	M	403	BCL	CHD-C1D	2.48	1.43	1.38
6	M	402	BCL	C3B-C4B	2.46	1.46	1.41
6	L	302	BCL	CHD-C1D	2.35	1.43	1.38
6	L	303	BCL	C3B-C4B	2.35	1.45	1.41
6	M	402	BCL	CHD-C1D	2.22	1.42	1.38
6	M	402	BCL	C3D-C4D	-2.13	1.39	1.44
5	M	304	BPH	C3D-C2D	2.10	1.43	1.39
6	L	302	BCL	C3B-C4B	2.08	1.45	1.41
5	M	304	BPH	CHA-CBD	2.04	1.54	1.51
6	M	402	BCL	MG-NC	2.01	2.11	2.06

All (43) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	L	301	BPH	C4D-CHA-CBD	-6.94	105.13	108.45
5	M	304	BPH	C4D-CHA-CBD	-6.64	105.27	108.45
6	M	403	BCL	C4D-CHA-C1A	5.10	127.32	121.24
6	L	302	BCL	C4D-CHA-C1A	5.07	127.29	121.24
6	L	303	BCL	C4D-CHA-C1A	4.87	127.05	121.24
6	M	402	BCL	C4D-CHA-C1A	4.83	127.01	121.24
6	L	302	BCL	C1D-ND-C4D	-4.10	103.43	106.31
6	M	402	BCL	C4A-NA-C1A	4.05	108.53	106.68
5	M	304	BPH	C2B-C1B-NB	-3.62	106.81	109.43
5	L	301	BPH	C2B-C1B-NB	-3.60	106.83	109.43
6	M	403	BCL	CHD-C1D-ND	-3.53	119.83	124.80
6	M	403	BCL	C1D-ND-C4D	-3.52	103.84	106.31
6	M	402	BCL	CHD-C1D-ND	-3.50	119.88	124.80
6	L	302	BCL	CHD-C1D-ND	-3.48	119.90	124.80
5	L	301	BPH	CMA-C3A-C4A	-3.44	107.19	114.61
6	L	303	BCL	CHD-C1D-ND	-3.38	120.05	124.80
5	M	304	BPH	CMA-C3A-C4A	-3.35	107.40	114.61
6	L	303	BCL	C1D-ND-C4D	-3.33	103.97	106.31
12	M	414	CIT	O1-C1-C2	-3.33	113.52	122.95
6	M	402	BCL	C1D-ND-C4D	-3.22	104.05	106.31
6	M	403	BCL	CHA-C1A-NA	-2.99	119.62	126.39
6	L	302	BCL	CHA-C1A-NA	-2.98	119.63	126.39
5	M	304	BPH	C2D-C1D-ND	-2.97	107.29	109.43
6	M	402	BCL	CHA-C1A-NA	-2.93	119.76	126.39
6	M	403	BCL	C2A-C1A-CHA	2.78	128.69	123.87
6	L	303	BCL	CHA-C1A-NA	-2.78	120.10	126.39
5	L	301	BPH	C1-C2-C3	-2.75	121.69	126.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
12	M	414	CIT	O2-C1-C2	2.74	123.02	114.35
6	L	302	BCL	C2A-C1A-CHA	2.73	128.61	123.87
6	L	303	BCL	C4A-NA-C1A	2.69	107.91	106.68
5	L	301	BPH	C2D-C1D-ND	-2.64	107.52	109.43
6	L	303	BCL	C2A-C1A-CHA	2.58	128.35	123.87
6	M	402	BCL	C2A-C1A-CHA	2.54	128.28	123.87
4	M	411	LDA	CM2-N1-C1	-2.53	104.92	110.23
6	M	403	BCL	C4A-NA-C1A	2.41	107.78	106.68
6	L	302	BCL	C4A-NA-C1A	2.37	107.76	106.68
5	M	304	BPH	CMC-C2C-C1C	-2.31	109.64	114.61
6	M	403	BCL	CAB-C3B-C2B	2.17	132.25	127.74
6	M	403	BCL	C1-O2A-CGA	2.11	121.77	116.65
6	M	403	BCL	C1C-NC-C4C	2.07	107.62	106.68
4	M	411	LDA	CM1-N1-C1	2.05	114.55	110.23
11	M	409[A]	SPN	O1-C1-C2	-2.03	104.74	108.90
8	M	401	UQ7	C7-C6-C1	-2.01	116.18	118.52

There are no chirality outliers.

All (134) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	H	301	LDA	N1-C1-C2-C3
4	H	302	LDA	C2-C1-N1-O1
4	H	302	LDA	C2-C1-N1-CM2
4	L	306	LDA	N1-C1-C2-C3
4	M	405	LDA	C2-C1-N1-O1
4	M	405	LDA	C2-C1-N1-CM1
4	M	406	LDA	C2-C1-N1-CM1
4	M	410	LDA	N1-C1-C2-C3
4	M	411	LDA	C2-C1-N1-CM1
4	M	411	LDA	N1-C1-C2-C3
4	M	412	LDA	C2-C1-N1-O1
4	M	412	LDA	C2-C1-N1-CM1
4	M	412	LDA	C2-C1-N1-CM2
6	L	302	BCL	CHA-CBD-CGD-O2D
7	L	305	OLC	C21-C22-C24-O25
7	L	305	OLC	O23-C22-C24-O25
7	L	305	OLC	O20-C21-C22-O23
7	M	408[B]	OLC	O20-C21-C22-C24
11	M	409[A]	SPN	CM1-C1-O1-CMA
11	M	409[A]	SPN	CM2-C1-O1-CMA
11	M	409[A]	SPN	C2-C1-O1-CMA

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Mol	Chain	Res	Type	Atoms
11	M	409[A]	SPN	C27-C28-C29-C30
12	M	414	CIT	C2-C3-C6-O5
12	M	414	CIT	C2-C3-C6-O6
12	M	414	CIT	O7-C3-C6-O5
12	M	414	CIT	O7-C3-C6-O6
11	M	409[A]	SPN	C11-C10-C9-CM4
11	M	409[A]	SPN	C15-C16-C17-C18
11	M	409[A]	SPN	CM3-C5-C6-C7
11	M	409[A]	SPN	C11-C10-C9-C8
8	M	401	UQ7	C24-C26-C27-C28
8	M	401	UQ7	C29-C31-C32-C33
11	M	409[A]	SPN	C26-C27-C28-C29
4	H	302	LDA	C7-C8-C9-C10
11	M	409[A]	SPN	C4-C5-C6-C7
7	L	305	OLC	O20-C21-C22-C24
7	M	408[B]	OLC	O20-C21-C22-O23
7	M	408[B]	OLC	C1-C2-C3-C4
7	L	305	OLC	C14-C15-C16-C17
4	M	406	LDA	C5-C6-C7-C8
4	L	307	LDA	C6-C7-C8-C9
11	M	409[A]	SPN	C19-C20-C21-C22
4	L	306	LDA	C6-C7-C8-C9
4	M	406	LDA	C11-C10-C9-C8
4	M	406	LDA	C3-C4-C5-C6
4	M	412	LDA	C3-C4-C5-C6
7	L	305	OLC	C12-C13-C14-C15
4	M	412	LDA	C11-C10-C9-C8
7	M	408[B]	OLC	C14-C15-C16-C17
4	H	302	LDA	C2-C3-C4-C5
4	M	411	LDA	C4-C5-C6-C7
4	M	412	LDA	C2-C3-C4-C5
4	L	306	LDA	C7-C8-C9-C10
7	L	305	OLC	C3-C4-C5-C6
7	L	305	OLC	C4-C5-C6-C7
4	L	306	LDA	C2-C3-C4-C5
4	M	406	LDA	C4-C5-C6-C7
4	M	405	LDA	C7-C8-C9-C10
7	L	305	OLC	C1-C2-C3-C4
4	L	307	LDA	C7-C8-C9-C10
7	M	408[B]	OLC	C6-C7-C8-C9
4	L	307	LDA	C11-C10-C9-C8
7	L	305	OLC	C11-C12-C13-C14

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Mol	Chain	Res	Type	Atoms
4	L	306	LDA	C11-C10-C9-C8
11	M	409[A]	SPN	C14-C15-C16-C17
4	L	307	LDA	C2-C3-C4-C5
5	L	301	BPH	C2-C3-C5-C6
4	M	410	LDA	C5-C6-C7-C8
4	M	406	LDA	C1-C2-C3-C4
7	M	408[B]	OLC	C15-C16-C17-C18
4	H	301	LDA	C5-C6-C7-C8
5	L	301	BPH	C4-C3-C5-C6
7	L	305	OLC	C5-C6-C7-C8
6	M	402	BCL	C11-C12-C13-C15
5	L	301	BPH	C8-C10-C11-C12
11	M	409[A]	SPN	C25-C26-C27-C28
4	M	405	LDA	C3-C4-C5-C6
4	L	307	LDA	C9-C10-C11-C12
4	M	411	LDA	C1-C2-C3-C4
11	M	409[A]	SPN	C16-C17-C18-CM6
11	M	409[A]	SPN	CM8-C26-C27-C28
4	M	410	LDA	C2-C3-C4-C5
7	L	305	OLC	C13-C14-C15-C16
6	M	402	BCL	C11-C12-C13-C14
11	M	409[A]	SPN	C13-C14-C15-C16
4	L	306	LDA	C9-C10-C11-C12
4	H	302	LDA	C4-C5-C6-C7
4	M	405	LDA	C1-C2-C3-C4
4	M	412	LDA	C6-C7-C8-C9
4	H	301	LDA	C6-C7-C8-C9
11	M	409[A]	SPN	C16-C17-C18-C19
6	M	402	BCL	C14-C13-C15-C16
4	M	406	LDA	C7-C8-C9-C10
4	L	306	LDA	C2-C1-N1-CM1
4	L	306	LDA	C2-C1-N1-CM2
4	M	405	LDA	C2-C1-N1-CM2
4	M	411	LDA	C2-C1-N1-CM2
6	M	402	BCL	C11-C10-C8-C7
11	M	409[A]	SPN	C21-C22-C23-C24
4	L	306	LDA	C2-C1-N1-O1
12	M	414	CIT	C1-C2-C3-O7
6	L	302	BCL	CHA-CBD-CGD-O1D
5	L	301	BPH	C16-C17-C18-C20
4	H	302	LDA	N1-C1-C2-C3
6	M	402	BCL	C11-C10-C8-C9

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Mol	Chain	Res	Type	Atoms
8	M	401	UQ7	C34-C36-C37-C38
7	L	305	OLC	C6-C7-C8-C9
8	M	401	UQ7	C30-C29-C31-C32
8	M	401	UQ7	C1-C2-O2-CM2
11	M	409[A]	SPN	C20-C21-C22-CM7
12	M	414	CIT	C1-C2-C3-C4
4	M	411	LDA	C2-C3-C4-C5
4	M	411	LDA	C7-C8-C9-C10
8	M	401	UQ7	C28-C29-C31-C32
4	M	406	LDA	C2-C3-C4-C5
8	M	401	UQ7	C35-C34-C36-C37
7	M	408[B]	OLC	C4-C5-C6-C7
4	M	410	LDA	C6-C7-C8-C9
5	L	301	BPH	CHA-CBD-CGD-O1D
5	L	301	BPH	CHA-CBD-CGD-O2D
11	M	409[A]	SPN	CM7-C22-C23-C24
4	L	306	LDA	C3-C4-C5-C6
7	L	305	OLC	C9-C10-C11-C12
4	H	301	LDA	C4-C5-C6-C7
7	M	408[B]	OLC	C9-C10-C11-C12
11	M	409[A]	SPN	C20-C21-C22-C23
7	L	305	OLC	O20-C1-C2-C3
4	M	411	LDA	C3-C4-C5-C6
5	L	301	BPH	C15-C16-C17-C18
4	M	412	LDA	C1-C2-C3-C4
6	L	303	BCL	C2A-CAA-CBA-CGA
4	M	411	LDA	C2-C1-N1-O1
5	M	304	BPH	CAD-CBD-CGD-O2D
4	M	410	LDA	C4-C5-C6-C7

There are no ring outliers.

11 monomers are involved in 20 short contacts:

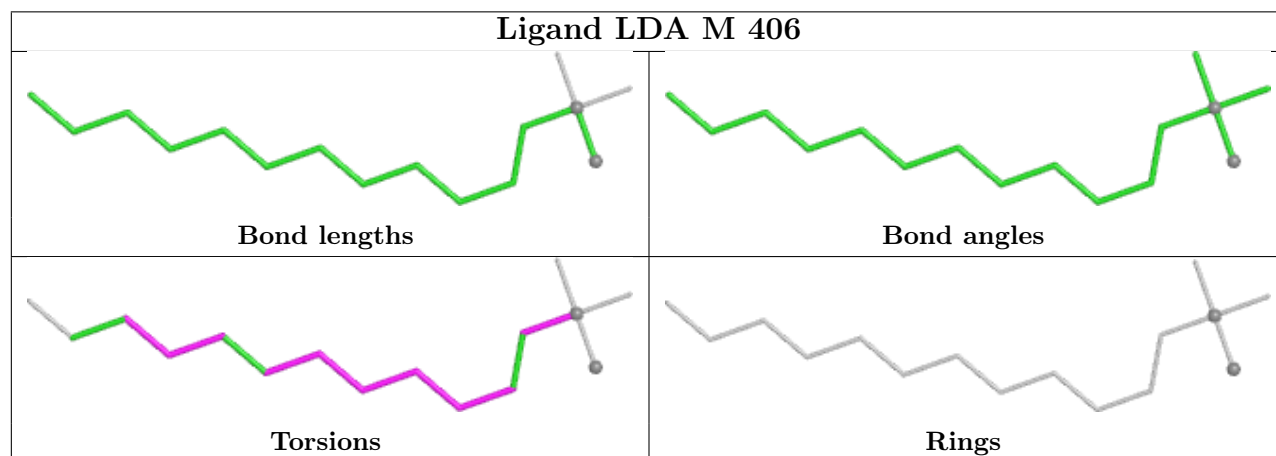
Mol	Chain	Res	Type	Clashes	Symm-Clashes
11	M	409[A]	SPN	6	0
5	M	304	BPH	2	0
6	M	402	BCL	1	0
4	H	301	LDA	3	0
6	M	403	BCL	3	0
5	L	301	BPH	1	0
4	M	405	LDA	1	0
6	L	302	BCL	2	0

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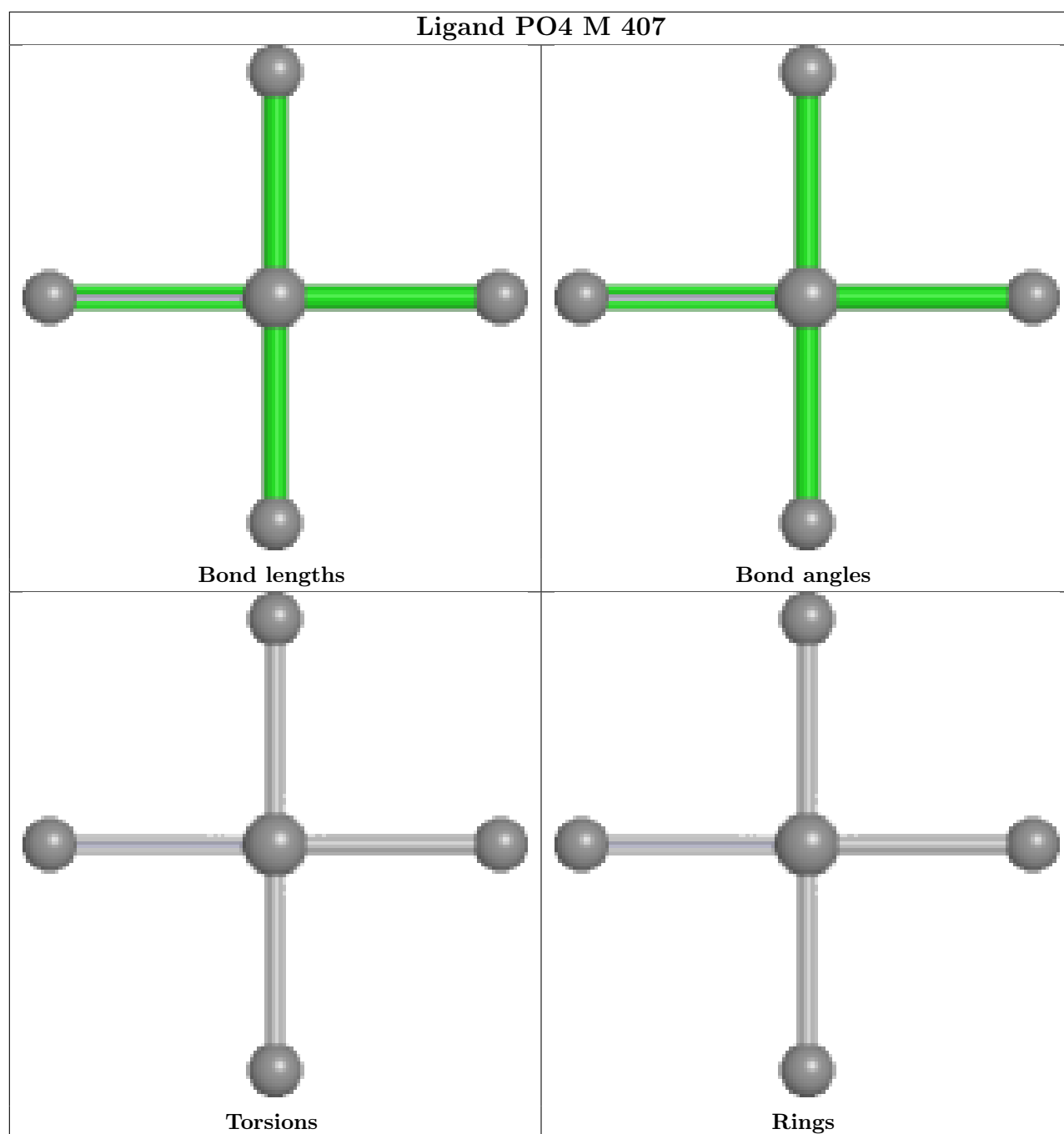
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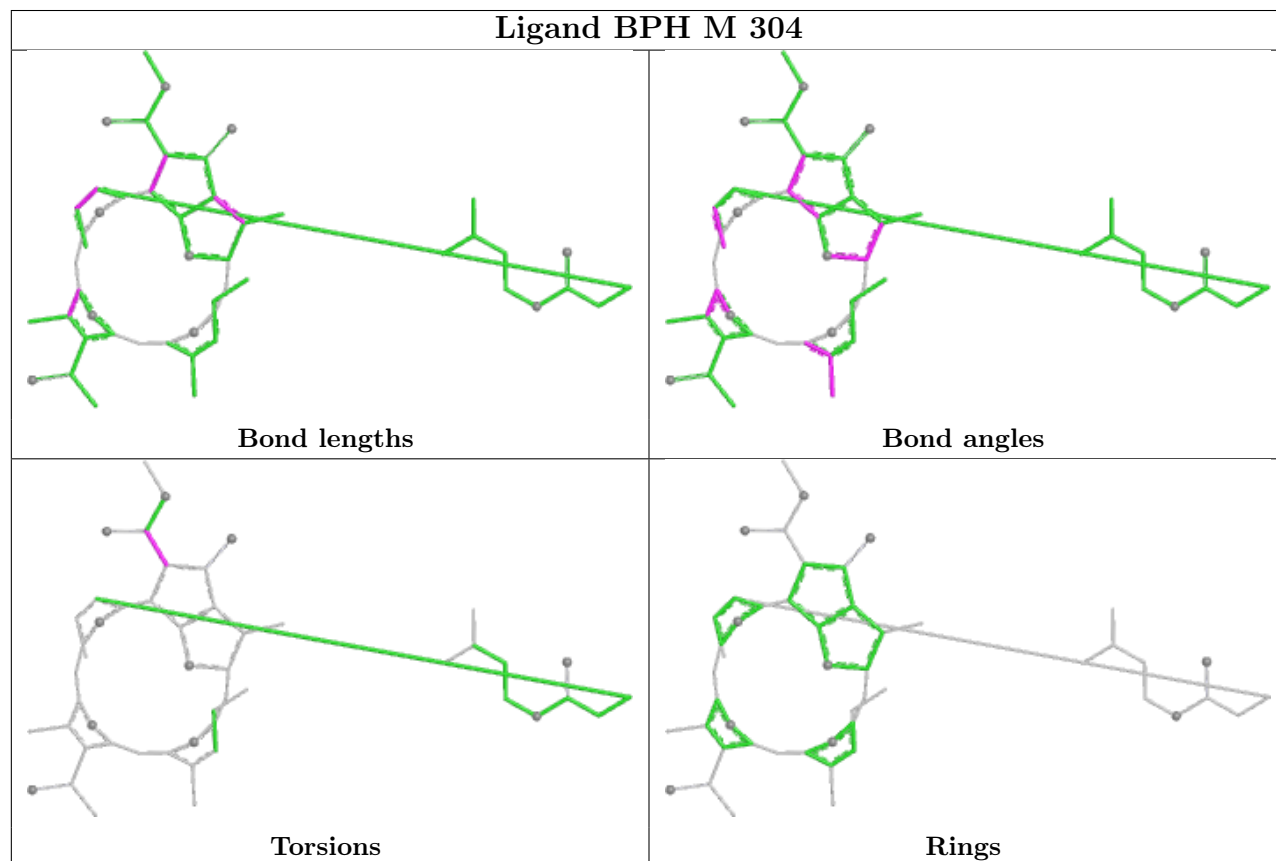
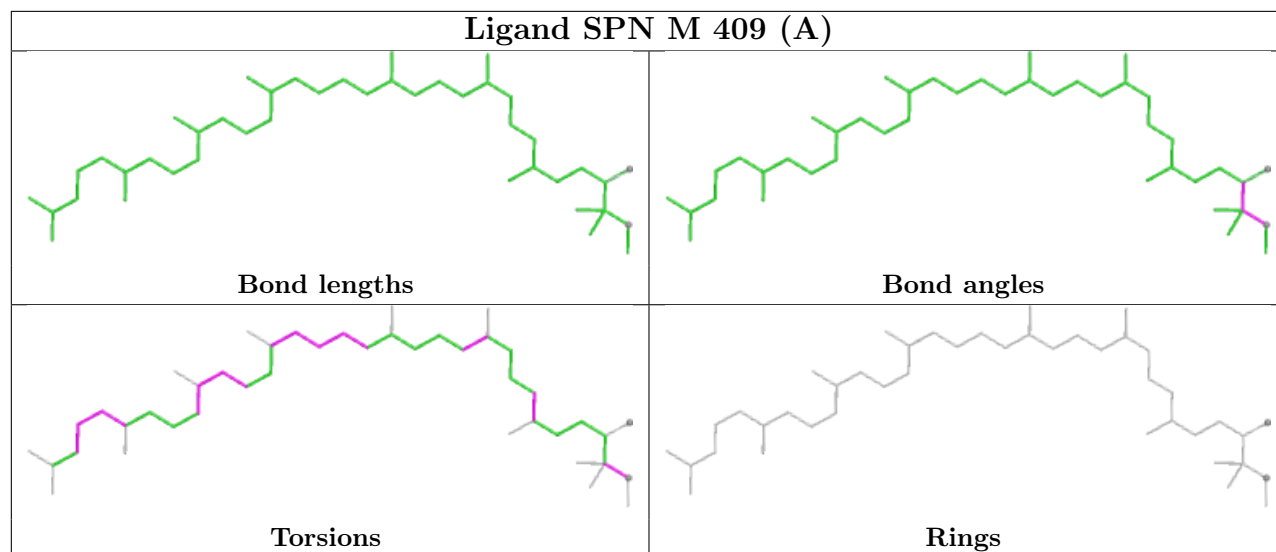
Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	M	401	UQ7	2	0
4	M	410	LDA	1	0
12	M	414	CIT	1	0

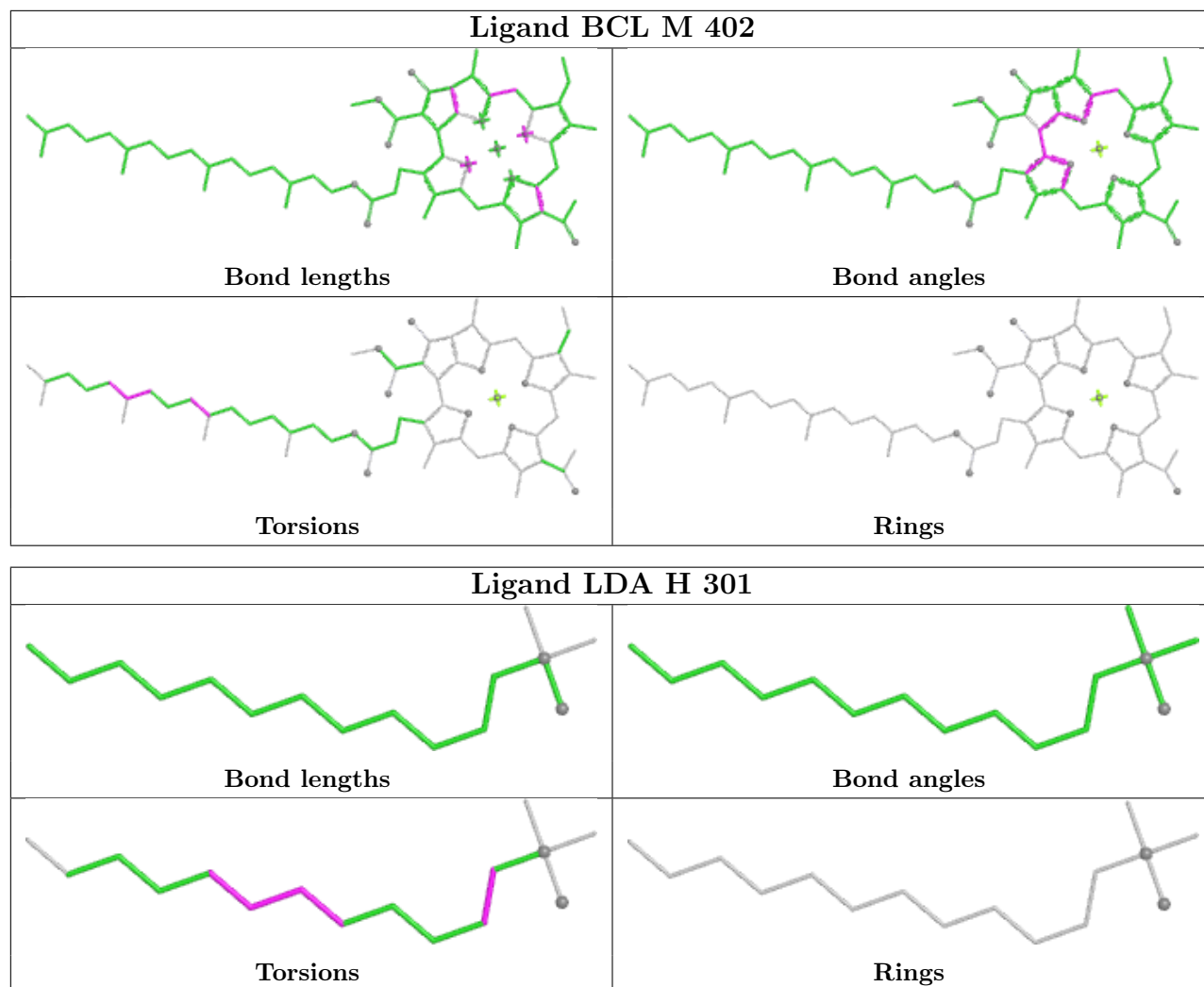
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

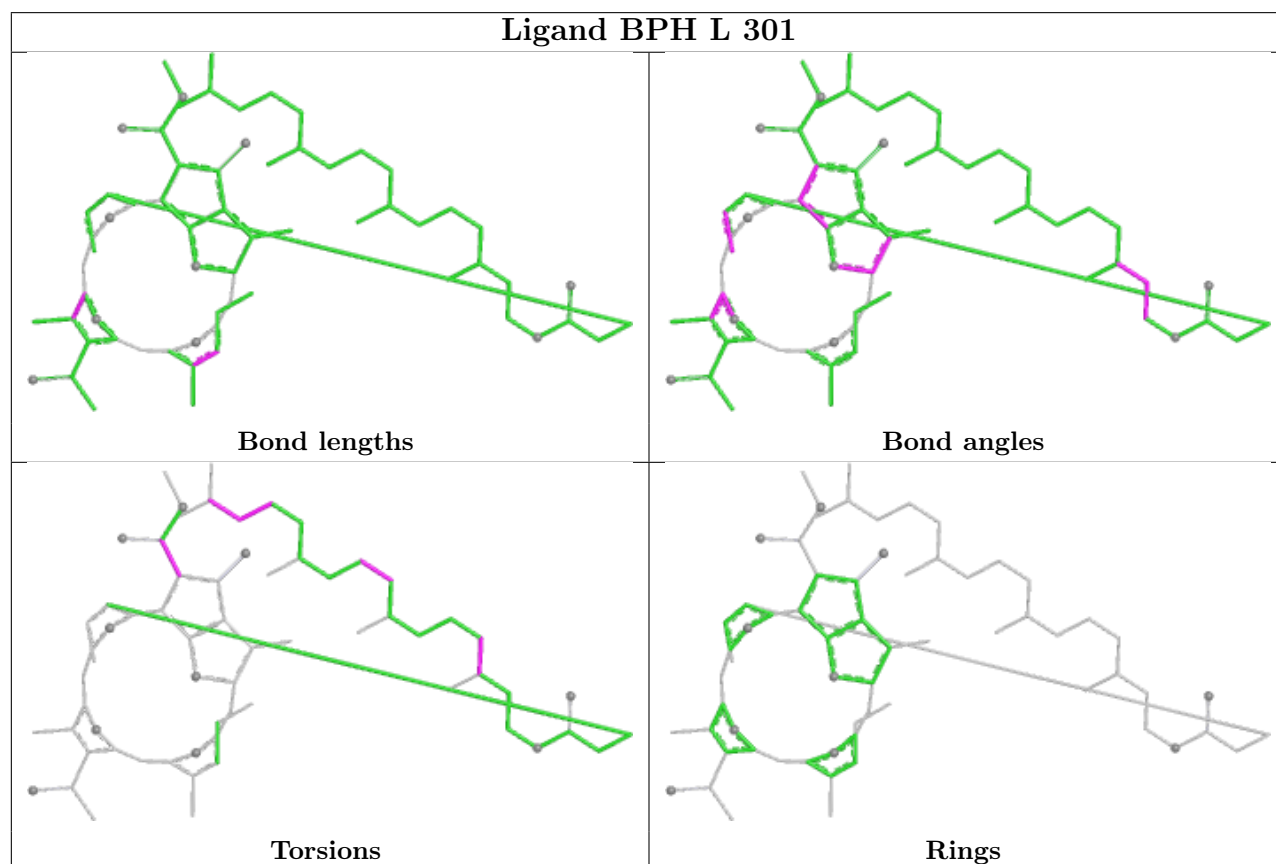
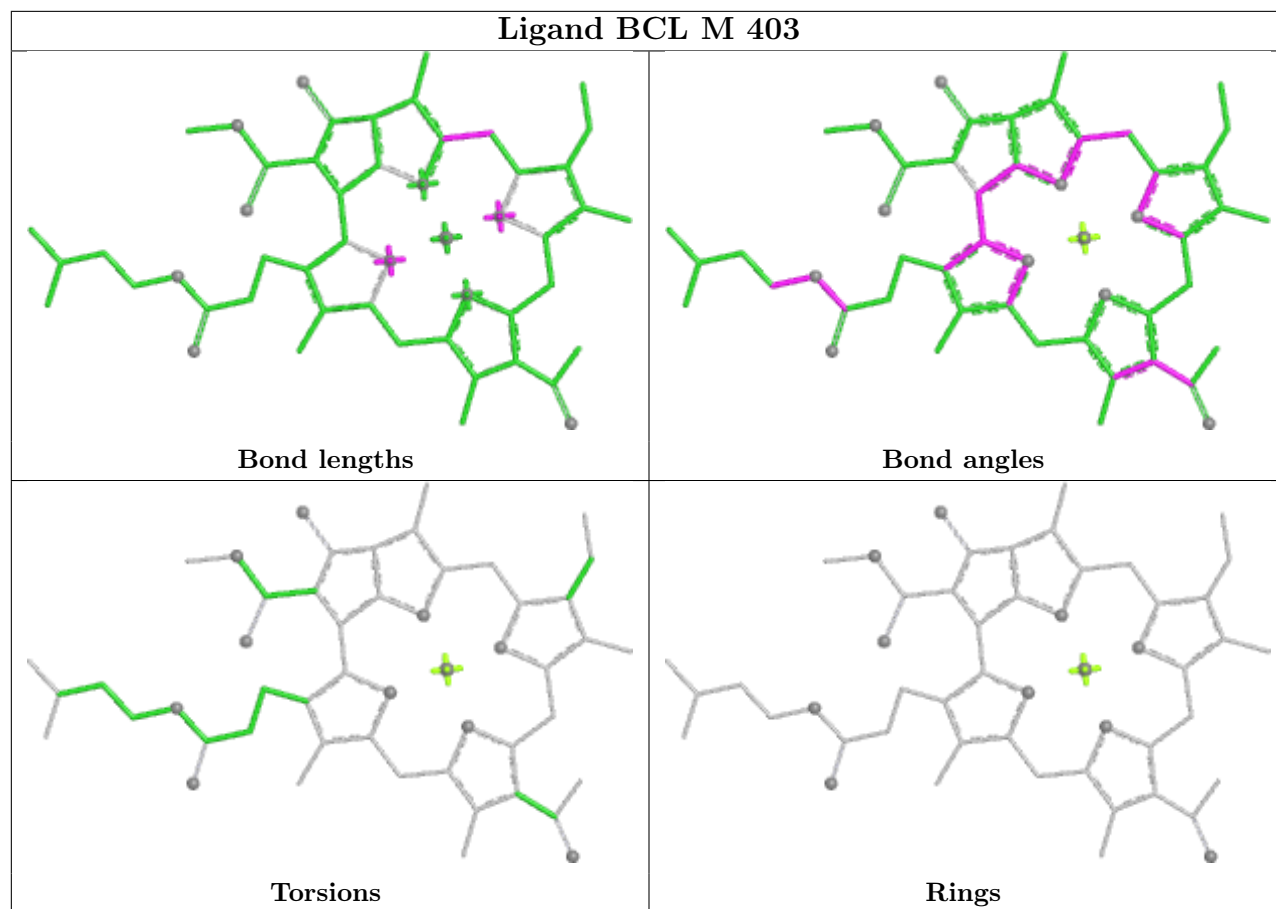


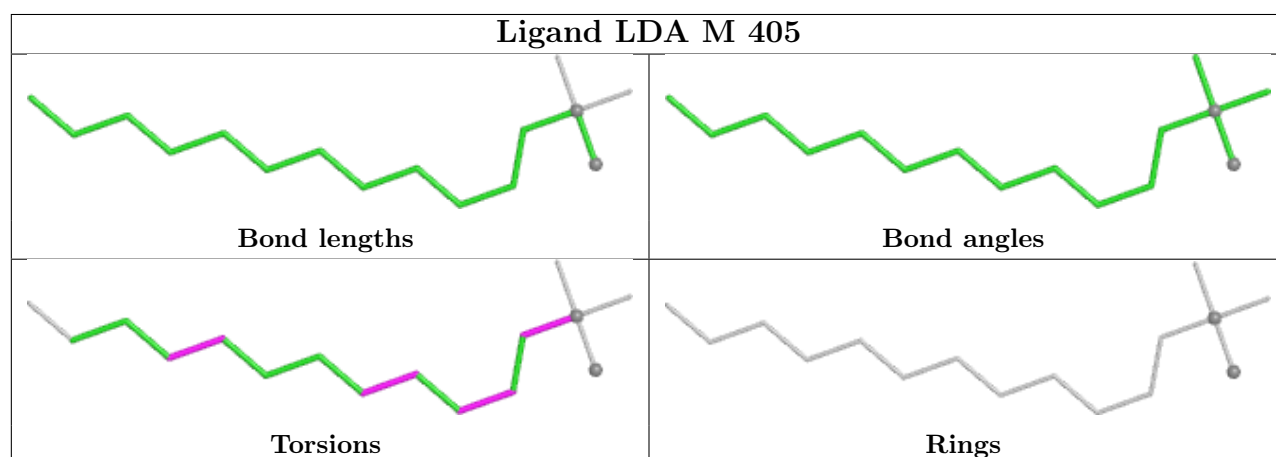
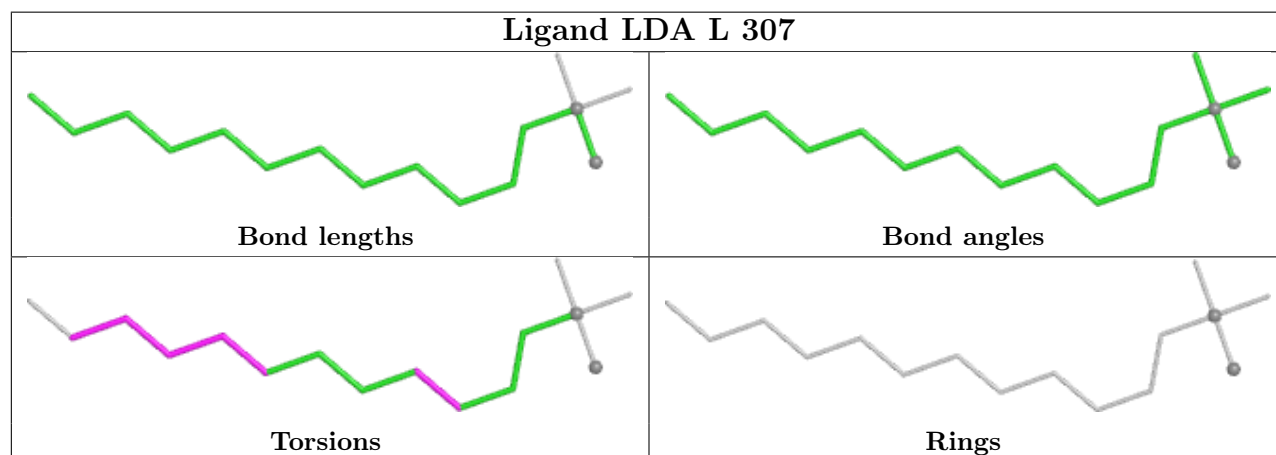
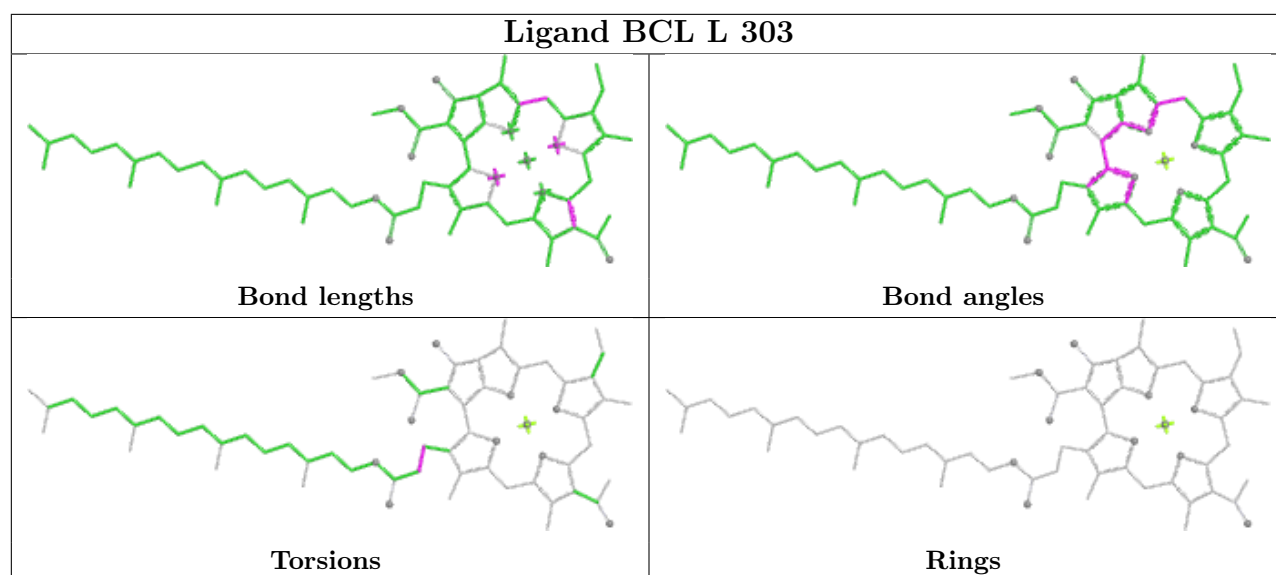


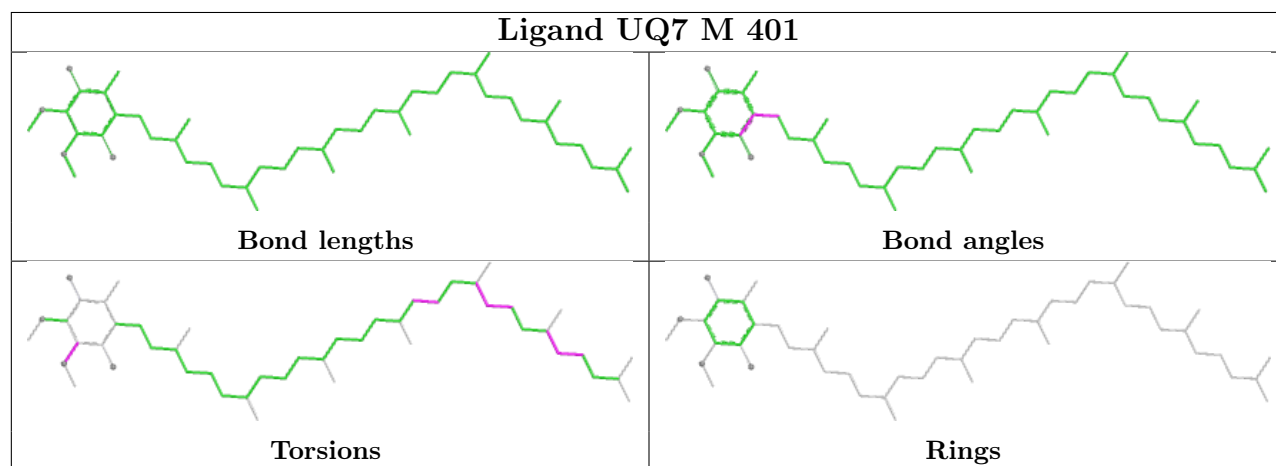
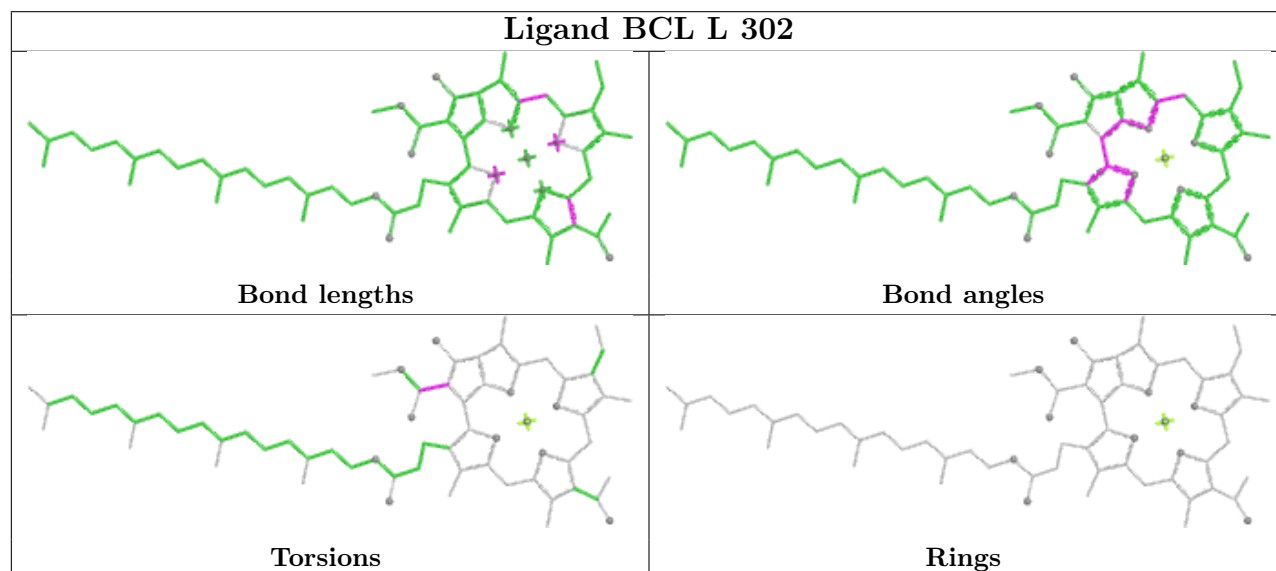
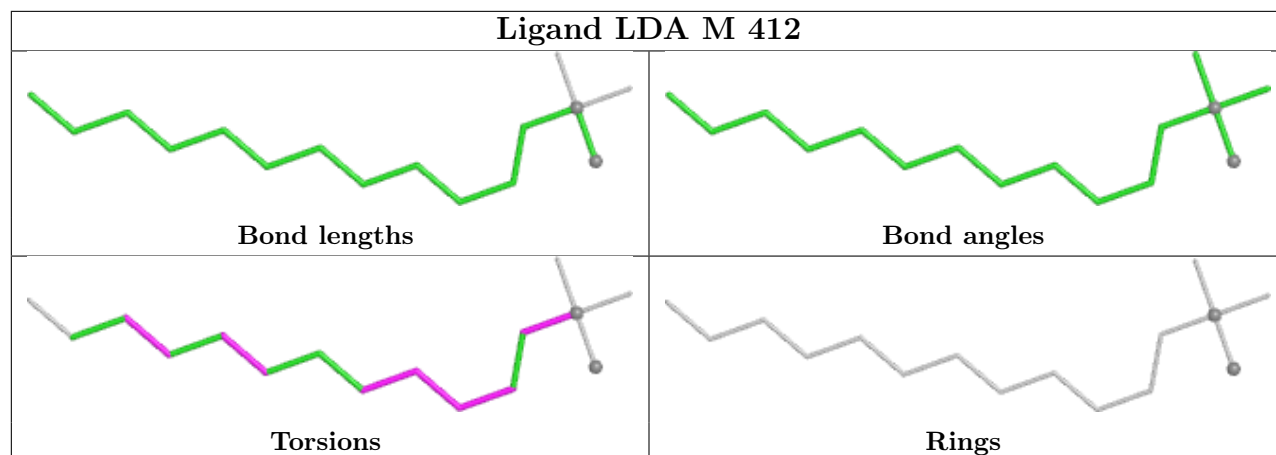


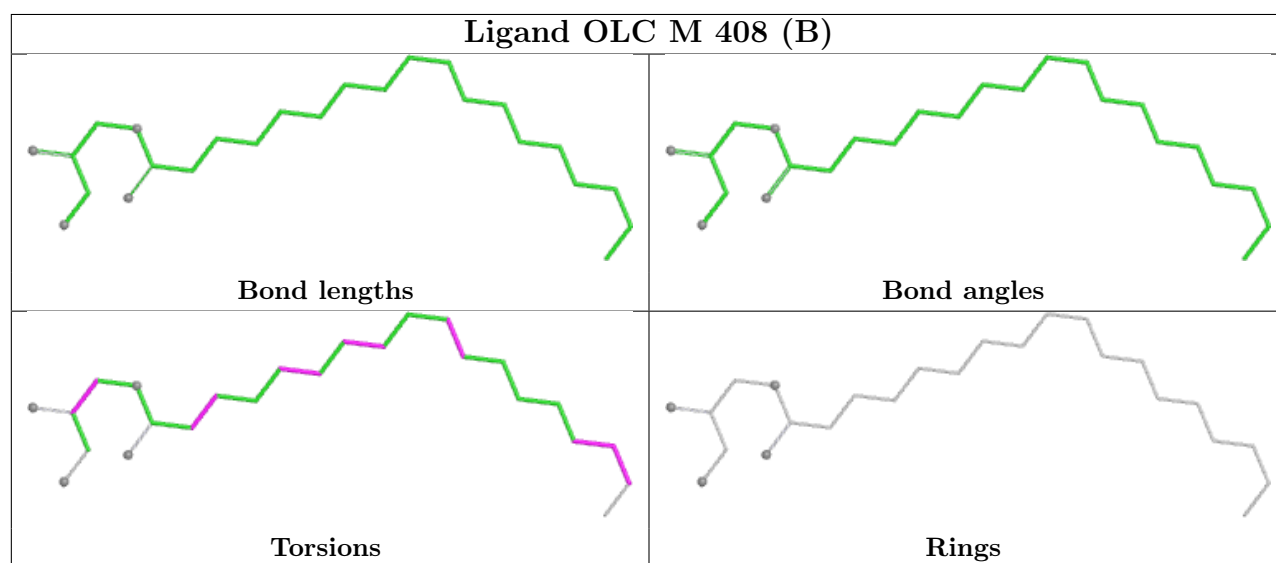
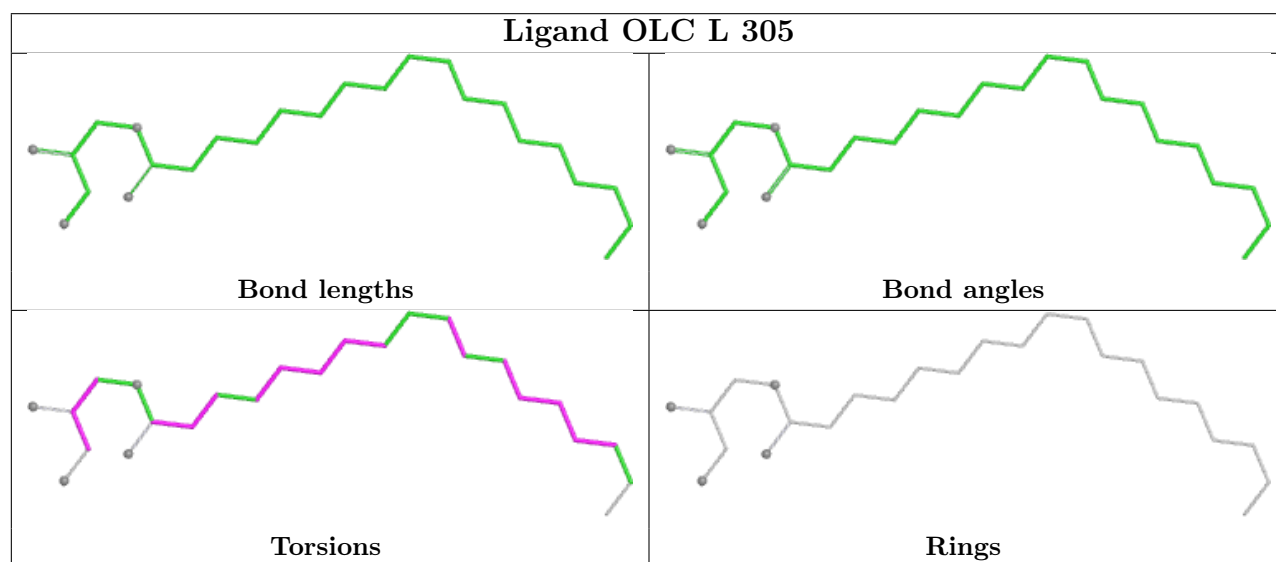
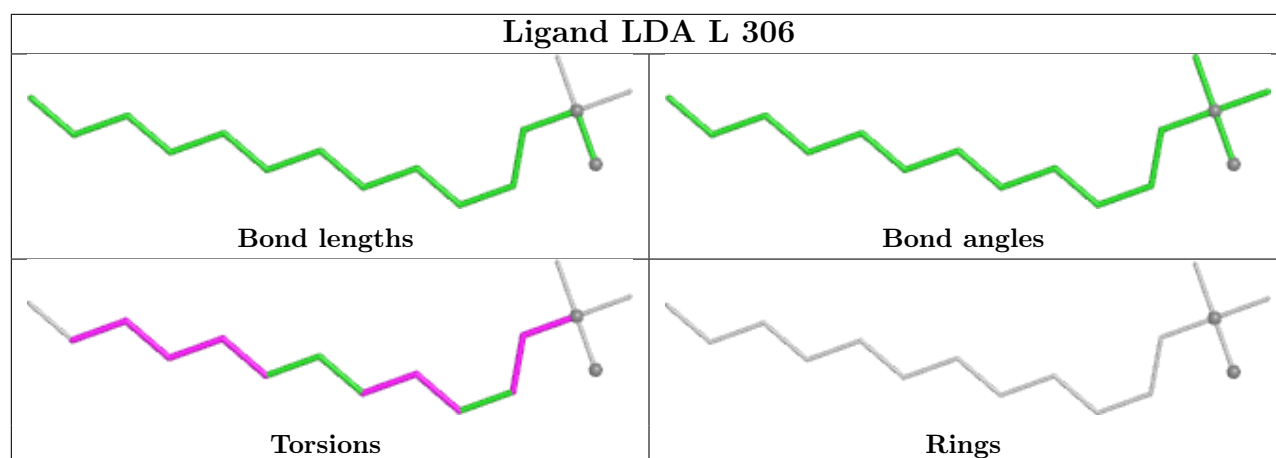


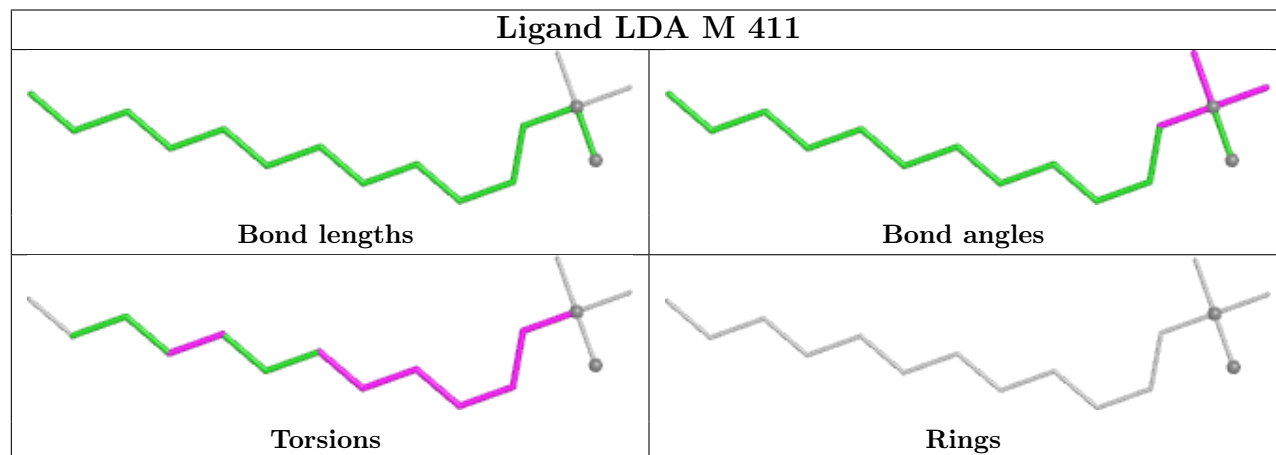
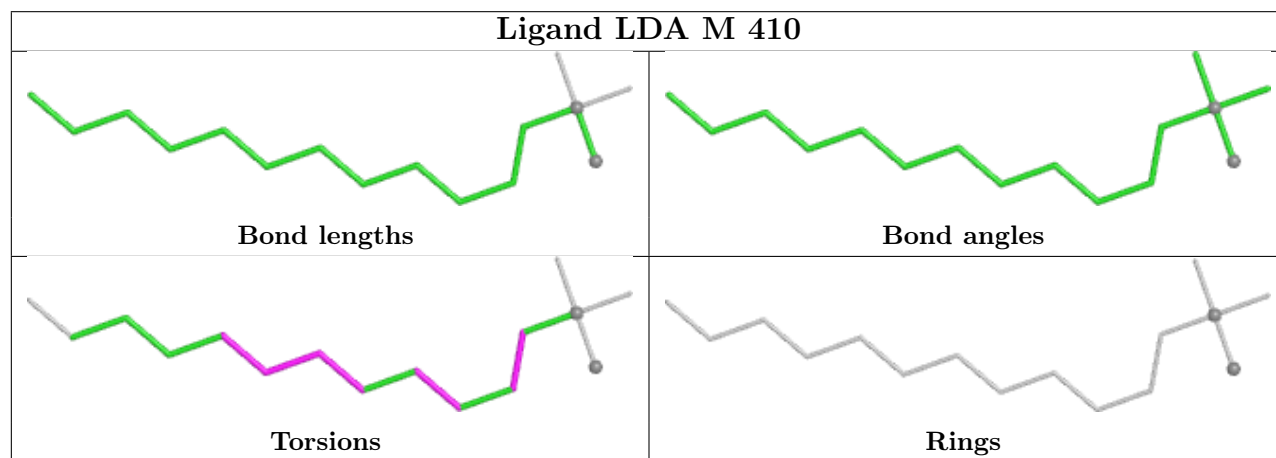
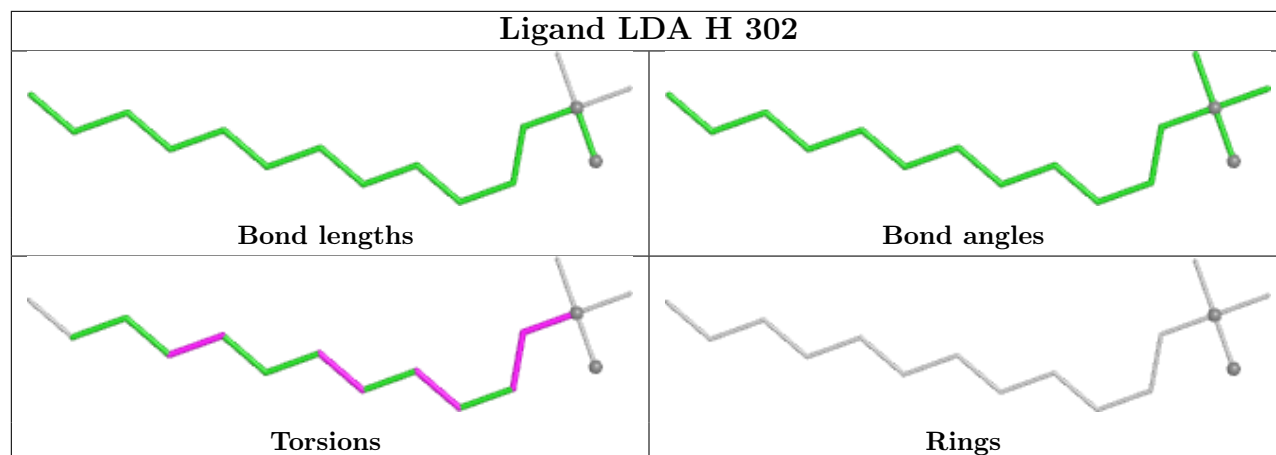




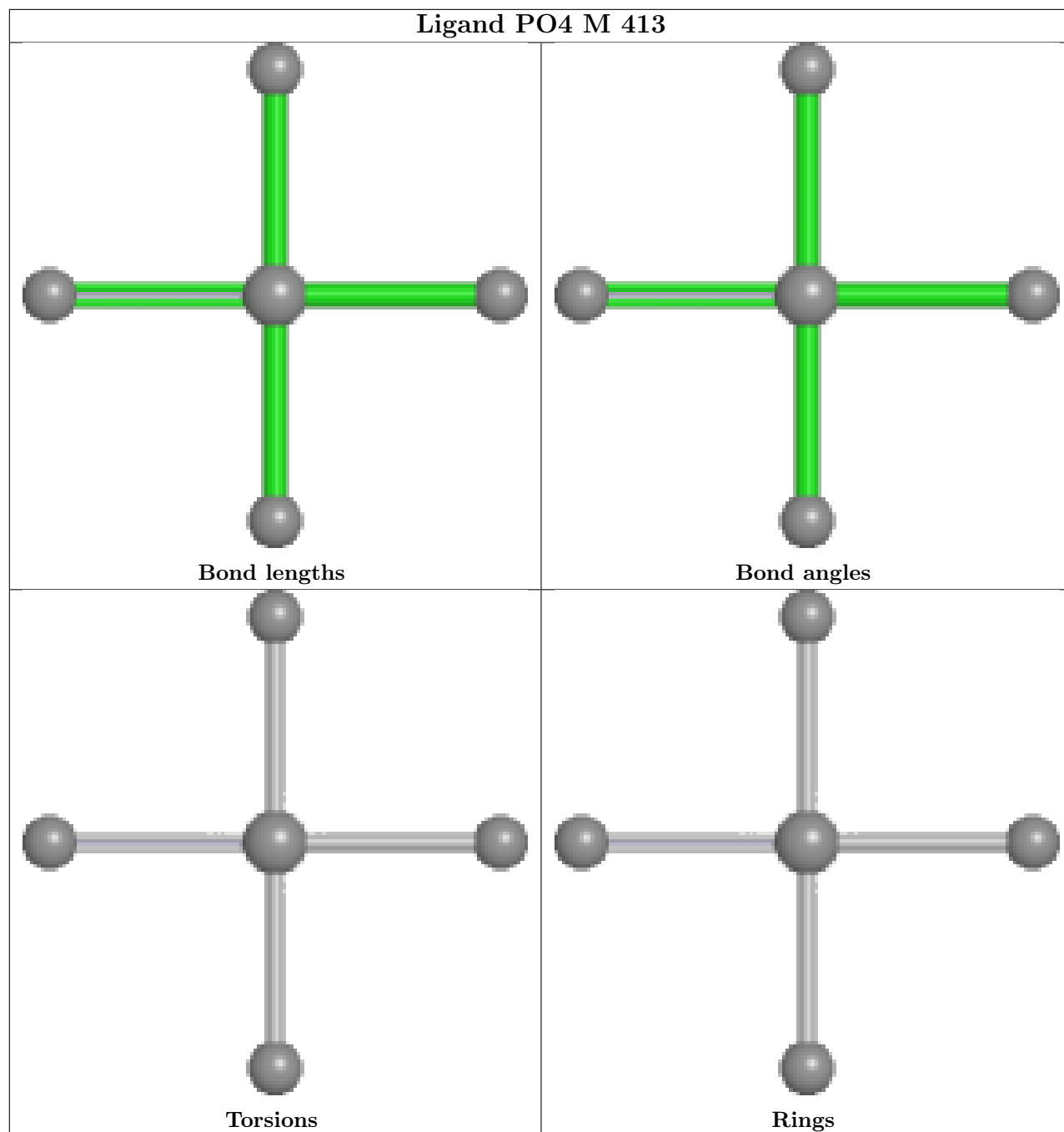












## 5.7 Other polymers [i](#)

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

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å <sup>2</sup> )	Q<0.9
1	H	240/241 (99%)	0.02	5 (2%)	63	61	22, 44, 77, 138	4 (1%)
2	L	281/281 (100%)	-0.16	8 (2%)	55	51	24, 41, 88, 125	1 (0%)
3	M	300/302 (99%)	-0.13	7 (2%)	61	58	20, 42, 73, 117	3 (1%)
All	All	821/824 (99%)	-0.10	20 (2%)	59	56	20, 43, 79, 138	8 (0%)

All (20) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
3	M	148[A]	TRP	6.0
1	H	184[A]	LYS	5.1
1	H	10	PHE	4.5
2	L	51[A]	TRP	4.5
2	L	265	TRP	4.3
2	L	59	TRP	4.2
3	M	301	HIS	4.0
3	M	68[A]	PHE	3.9
2	L	277	GLY	3.1
3	M	2	GLU	3.0
2	L	271	TRP	3.0
1	H	246	PRO	2.9
2	L	270	PRO	2.7
2	L	274	ASN	2.4
2	L	268	LYS	2.3
1	H	51	ALA	2.2
3	M	299	GLN	2.2
1	H	247	LYS	2.1
3	M	3	TYR	2.1
3	M	300	ASN	2.0

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

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

## 6.3 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

## 6.4 Ligands ⓘ

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

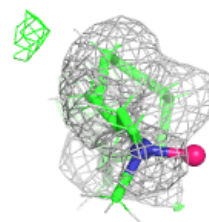
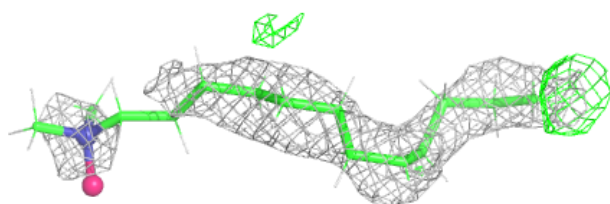
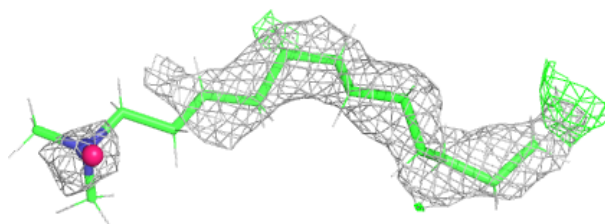
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
4	LDA	L	307	16/16	0.75	0.21	44,55,63,64	47
4	LDA	H	302	16/16	0.77	0.28	80,98,110,110	0
4	LDA	M	410	16/16	0.79	0.22	74,90,103,104	0
4	LDA	M	412	16/16	0.80	0.26	58,74,91,92	47
12	CIT	M	414	13/13	0.80	0.18	85,86,104,104	0
4	LDA	M	405	16/16	0.81	0.25	54,77,92,93	0
4	LDA	M	411	16/16	0.81	0.23	80,97,108,108	0
11	SPN	M	409[A]	43/43	0.83	0.22	21,52,67,67	113
4	LDA	L	306	16/16	0.83	0.24	75,90,106,107	0
10	PO4	M	413	5/5	0.85	0.15	77,78,78,78	5
7	OLC	M	408[B]	25/25	0.87	0.17	44,56,67,67	65
7	OLC	L	305	25/25	0.88	0.21	57,83,102,102	0
4	LDA	M	406	16/16	0.89	0.16	51,63,65,65	0
10	PO4	M	407	5/5	0.90	0.14	64,66,69,70	0
4	LDA	H	301	16/16	0.92	0.12	55,67,75,77	0
6	BCL	M	403	51/66	0.94	0.09	28,34,67,77	0
8	UQ7	M	401	48/48	0.94	0.12	31,57,83,89	0
6	BCL	M	402	66/66	0.94	0.10	30,42,80,83	0
5	BPH	M	304	50/65	0.95	0.08	27,37,52,54	0
6	BCL	L	302	66/66	0.95	0.09	30,39,69,72	0
6	BCL	L	303	66/66	0.95	0.08	27,38,61,66	0
5	BPH	L	301	65/65	0.95	0.09	24,34,49,53	0
13	CL	M	415	1/1	0.95	0.16	38,38,38,38	0
9	FE	M	404	1/1	0.99	0.03	20,20,20,20	0

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

orientation to approximate a three-dimensional view.

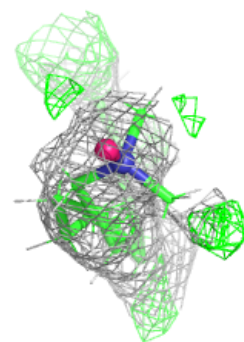
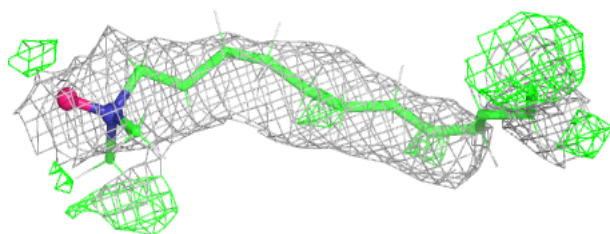
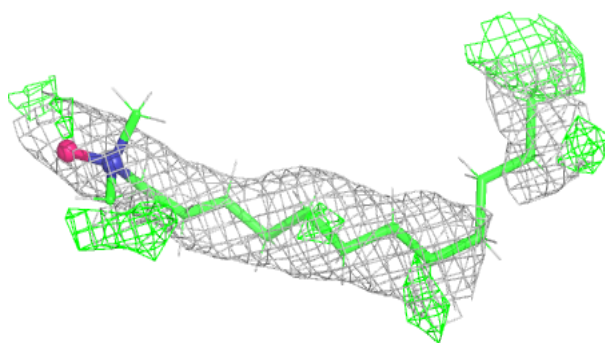
**Electron density around LDA L 307:**

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



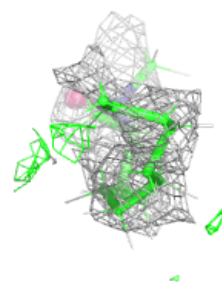
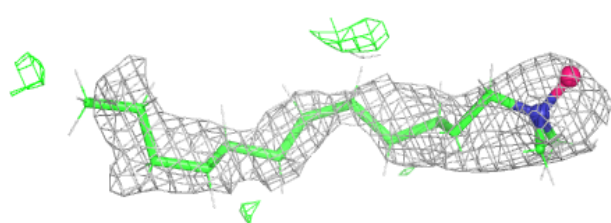
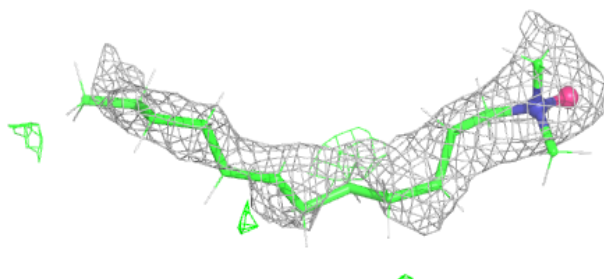
**Electron density around LDA H 302:**

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

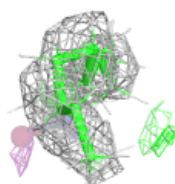
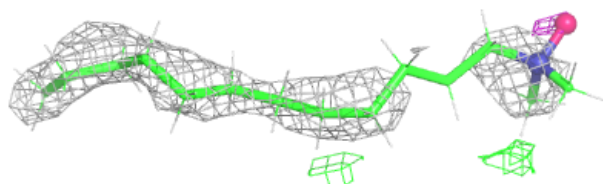
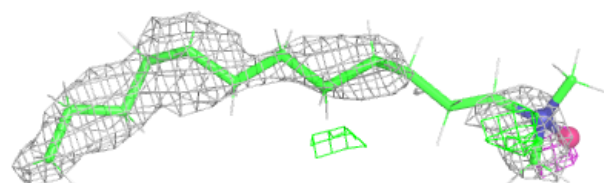


**Electron density around LDA M 410:**

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

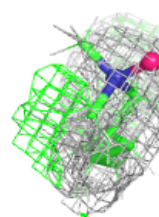
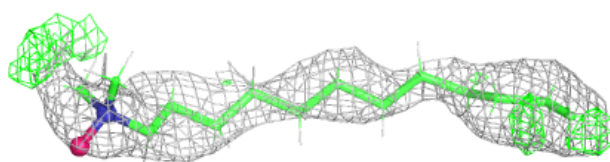
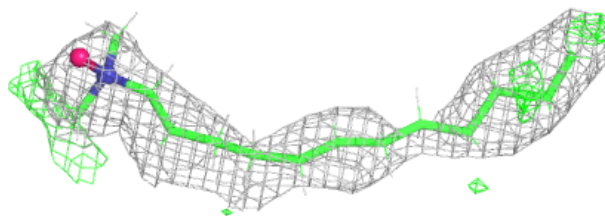
**Electron density around LDA M 412:**

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

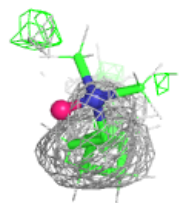
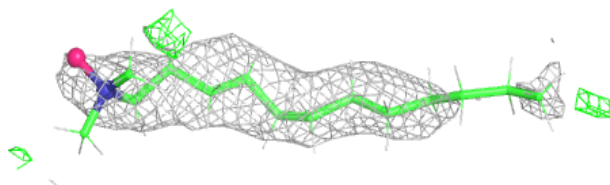
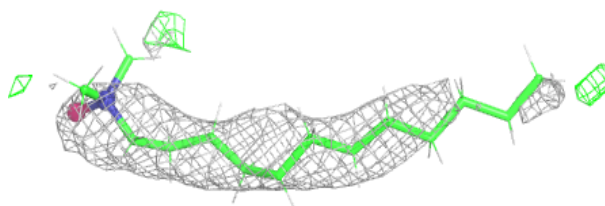


**Electron density around LDA M 405:**

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

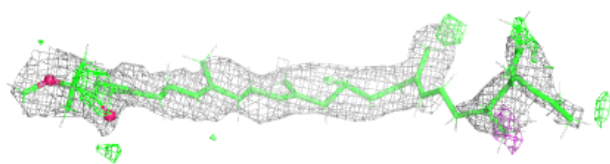
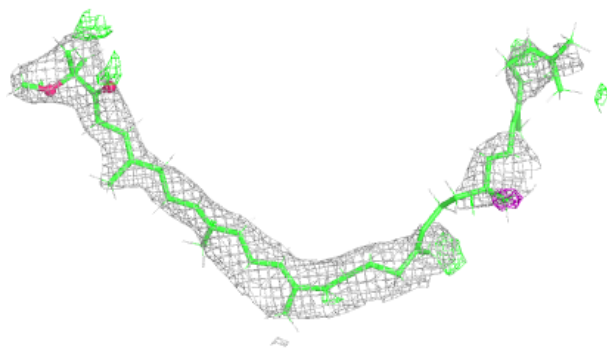
**Electron density around LDA M 411:**

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

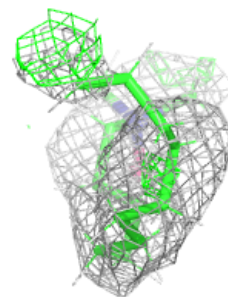
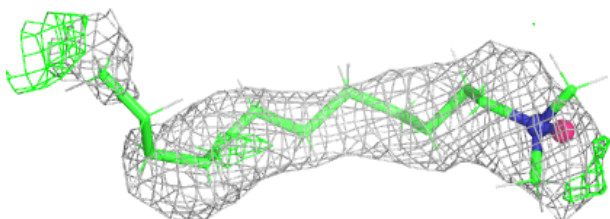
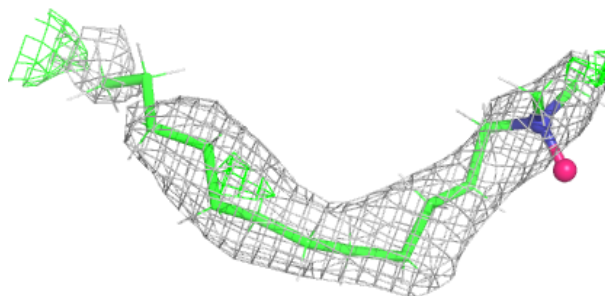


**Electron density around SPN M 409 (A):**

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

**Electron density around LDA L 306:**

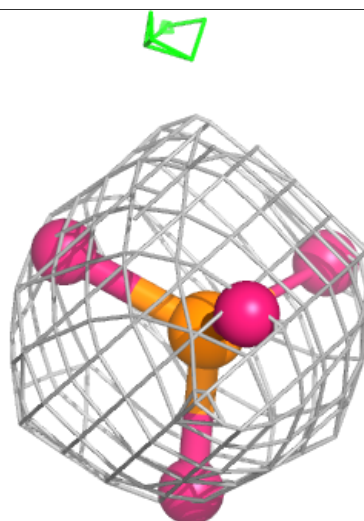
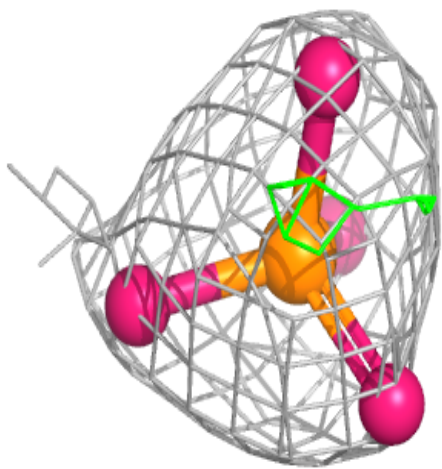
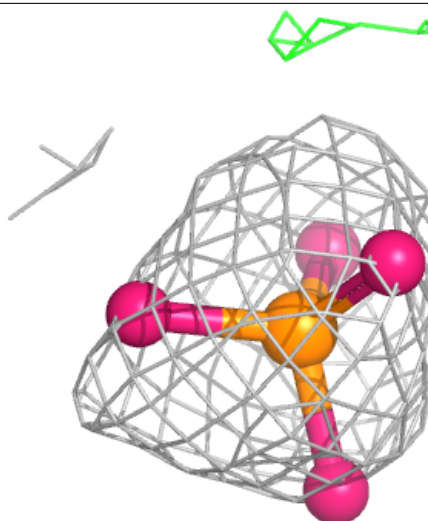
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





**Electron density around PO4 M 413:**

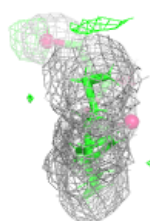
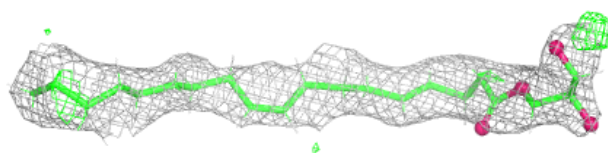
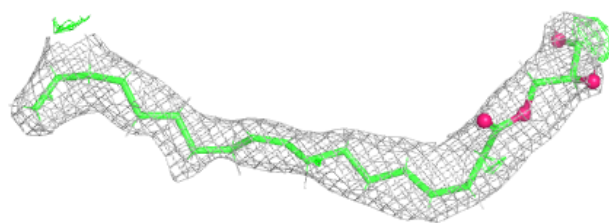
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



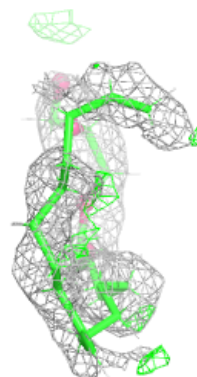
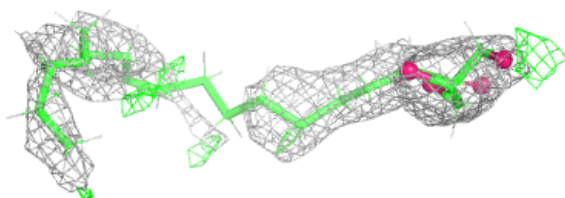
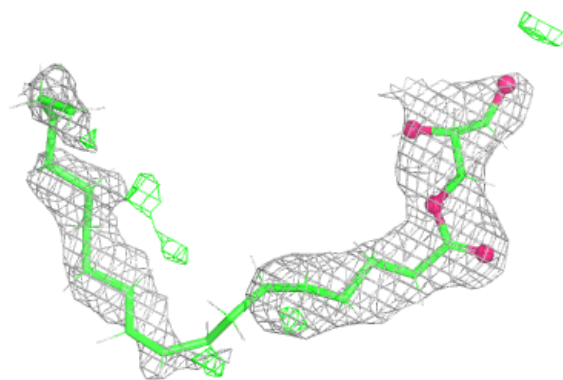


**Electron density around OLC M 408 (B):**

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

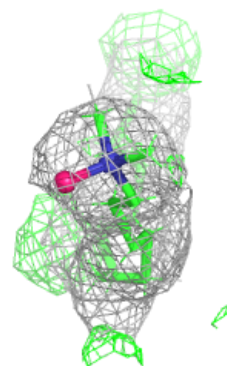
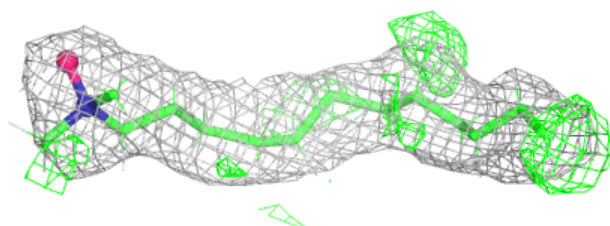
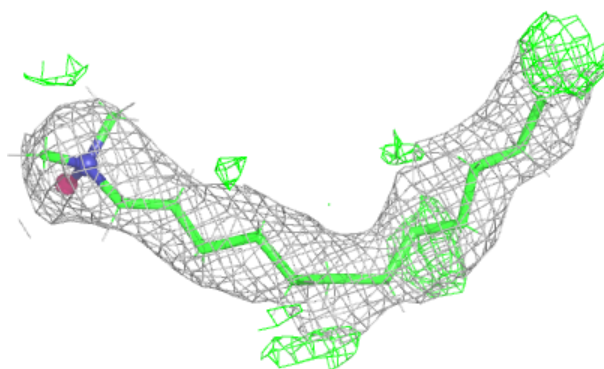
**Electron density around OLC L 305:**

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



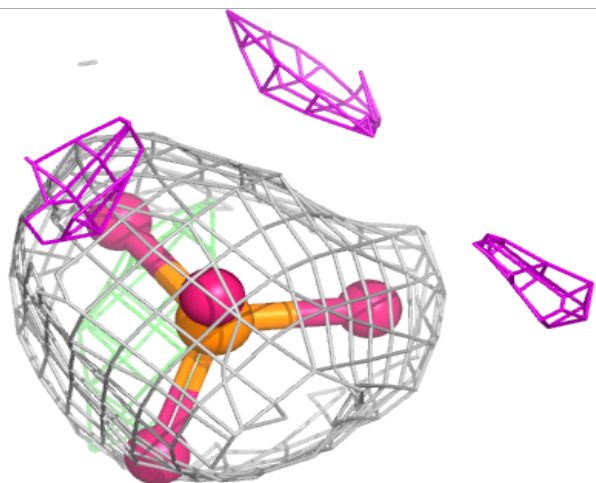
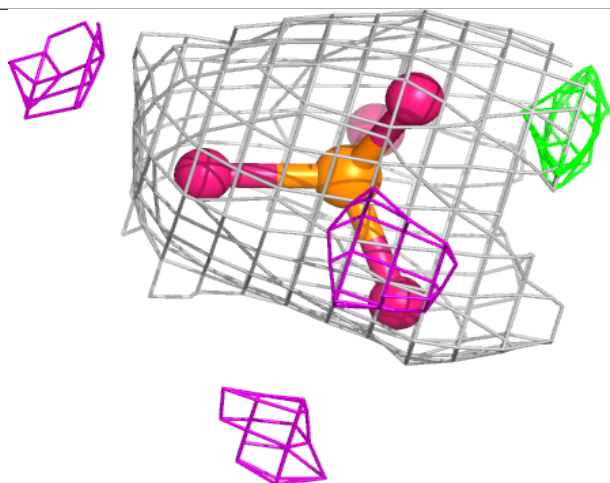
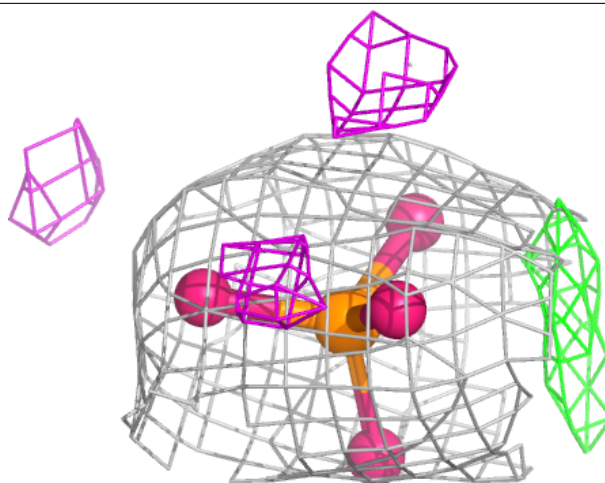
**Electron density around LDA M 406:**

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



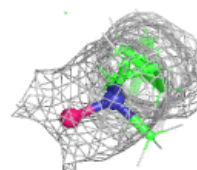
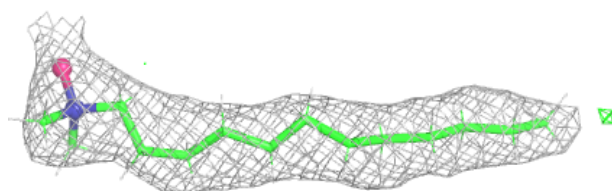
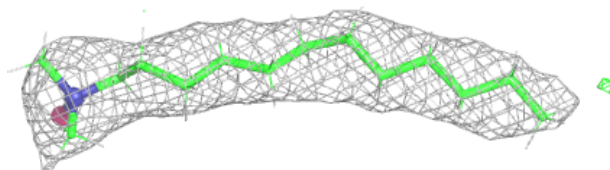
**Electron density around PO4 M 407:**

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



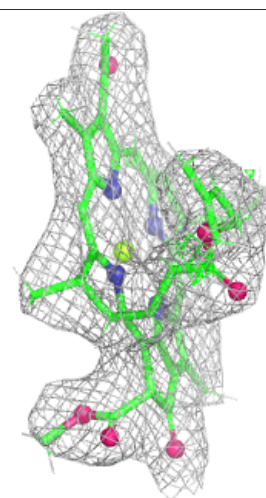
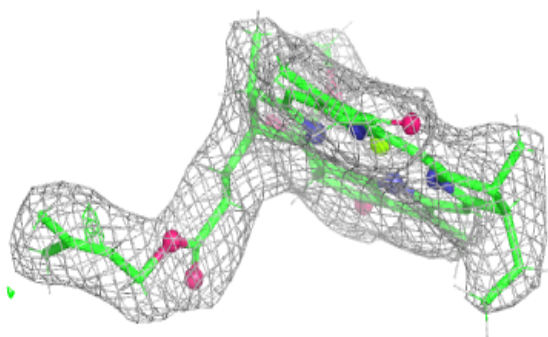
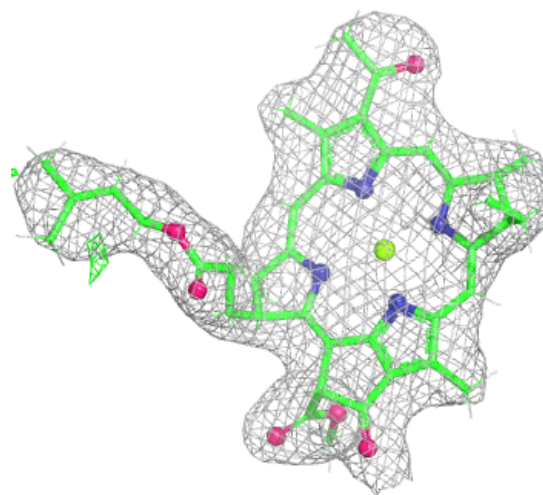
**Electron density around LDA H 301:**

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



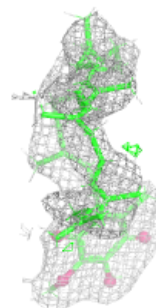
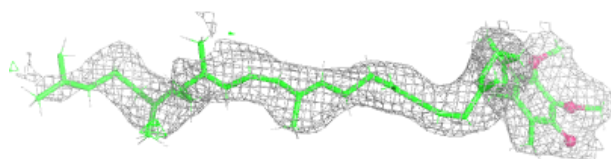
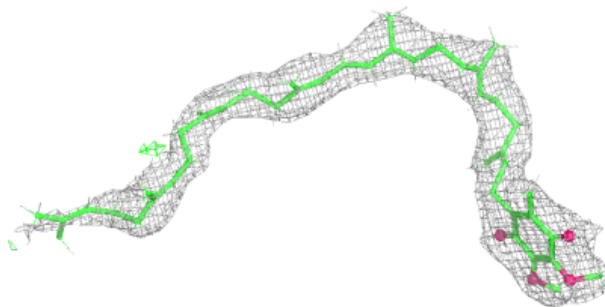
**Electron density around BCL M 403:**

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

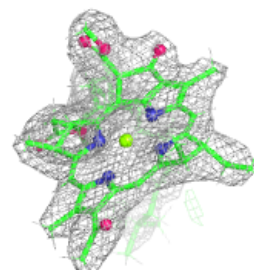
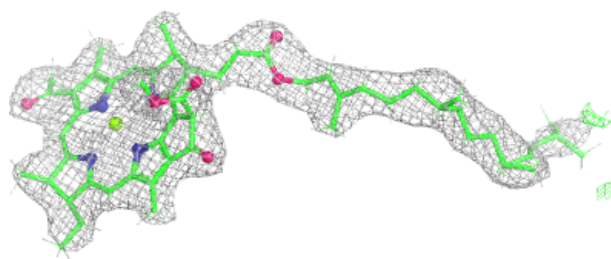
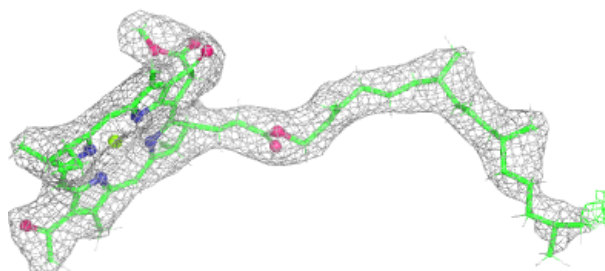


**Electron density around UQ7 M 401:**

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

**Electron density around BCL M 402:**

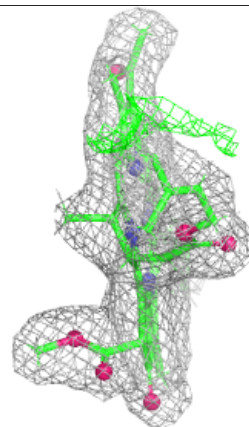
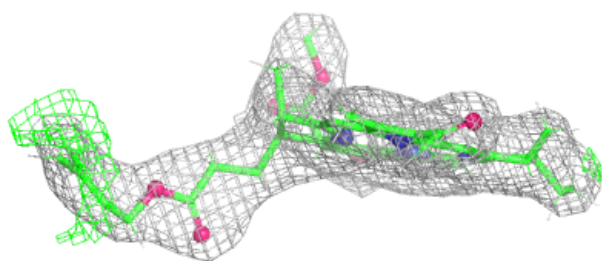
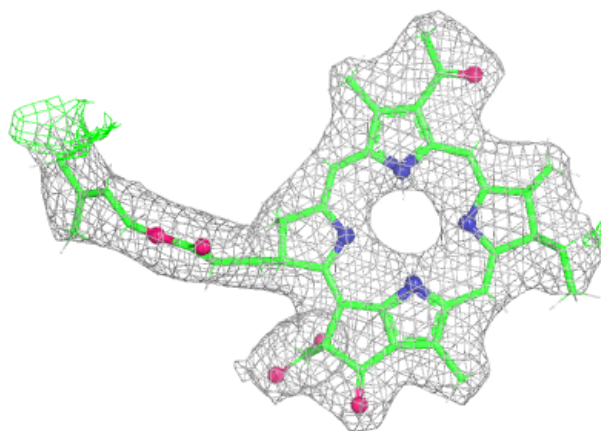
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



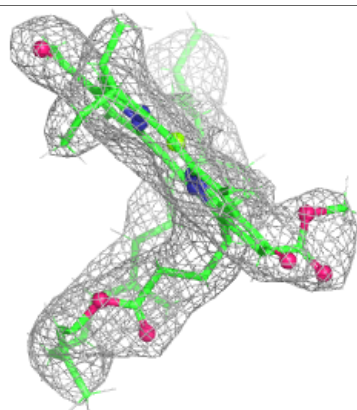
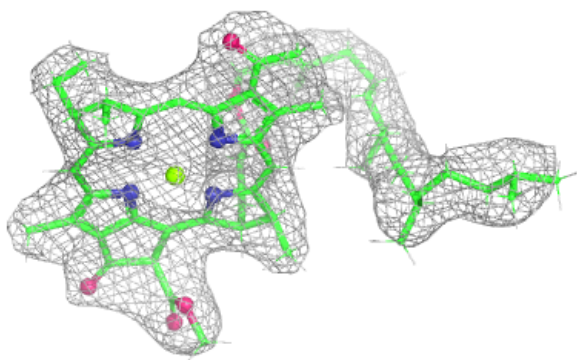
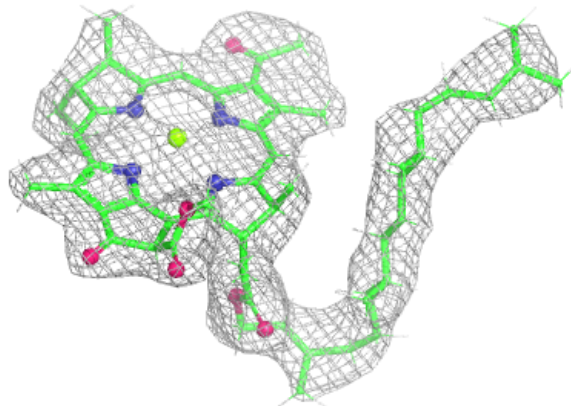


**Electron density around BPH M 304:**

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

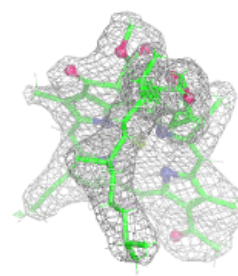
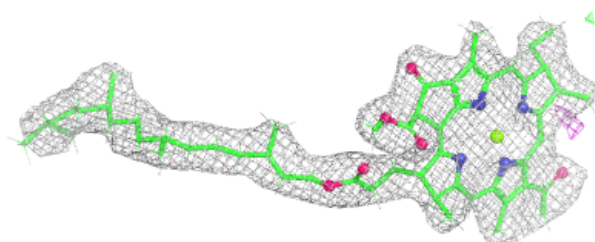
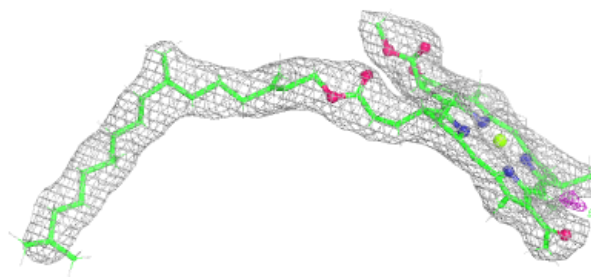
**Electron density around BCL L 302:**

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



**Electron density around BCL L 303:**

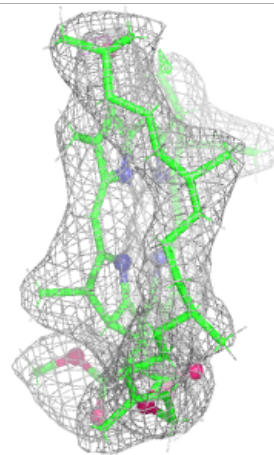
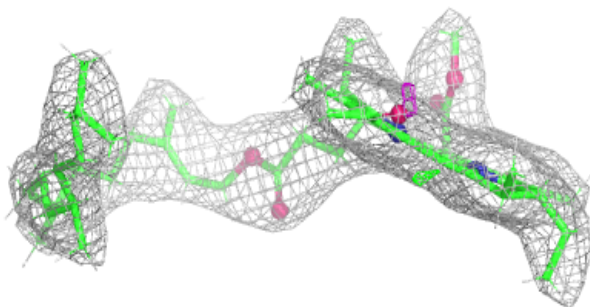
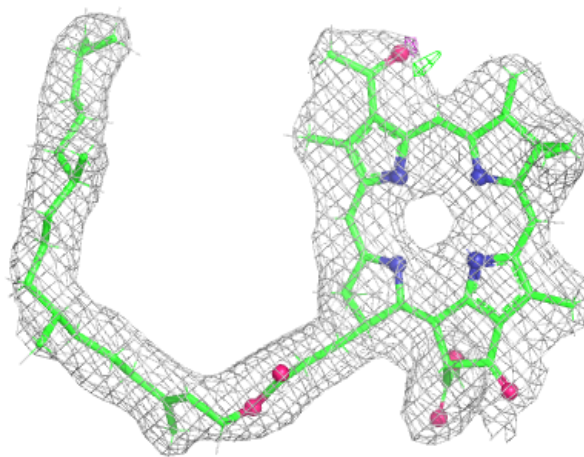
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





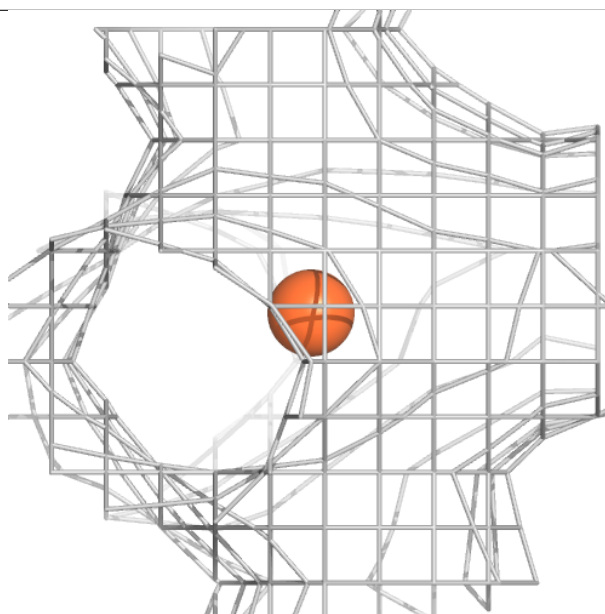
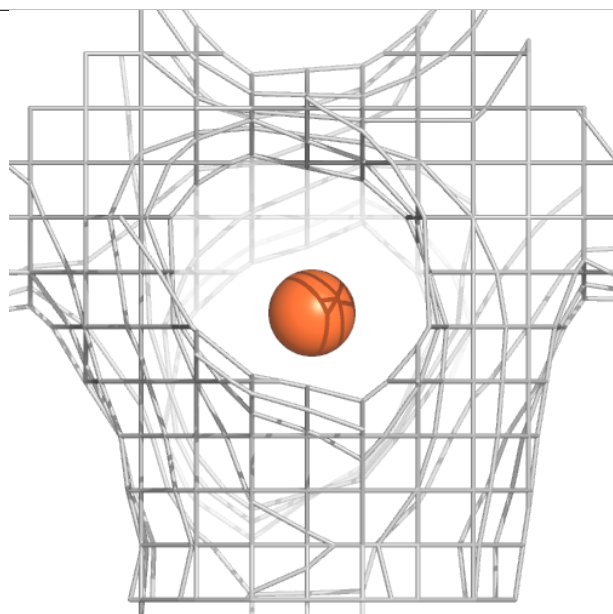
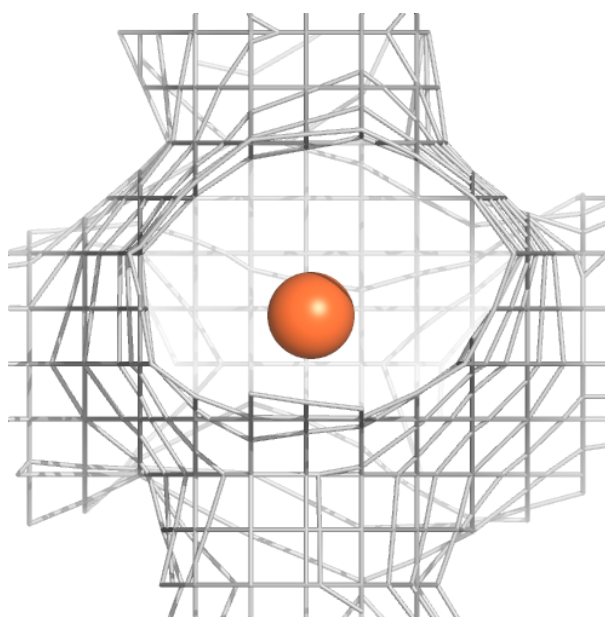
**Electron density around BPH L 301:**

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



**Electron density around FE M 404:**

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



## 6.5 Other polymers [i](#)

There are no such residues in this entry.