



# Full wwPDB X-ray Structure Validation Report ⓘ

Jun 15, 2020 – 10:26 am BST

PDB ID : 5LX9  
Title : CRYSTAL STRUCTURE OF HUMAN ADIPONECTIN RECEPTOR 2 IN COMPLEX WITH A C18 FREE FATTY ACID AT 2.4 ANGSTROM RESOLUTION  
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Deposited on : 2016-09-20  
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.

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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 : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.11  
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) : 2.11

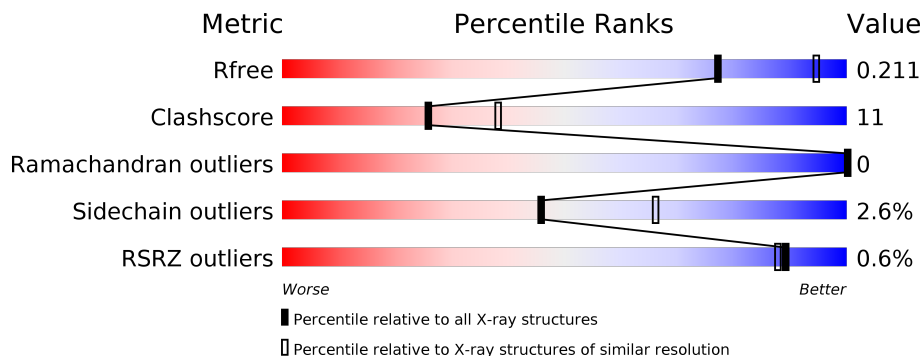
# 1 Overall quality at a glance

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)
RSRZ outliers	127900	3811 (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 on 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	A	307	 76% 15% 8%
2	H	284	 72% 7% 20%

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
5	OLB	A	412	-	-	-	X
5	OLB	H	302	-	-	-	X

## 2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 4885 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 HUMAN ADIPONECTIN RECEPTOR 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	283	2282	1533	371	361	17	0	0	0

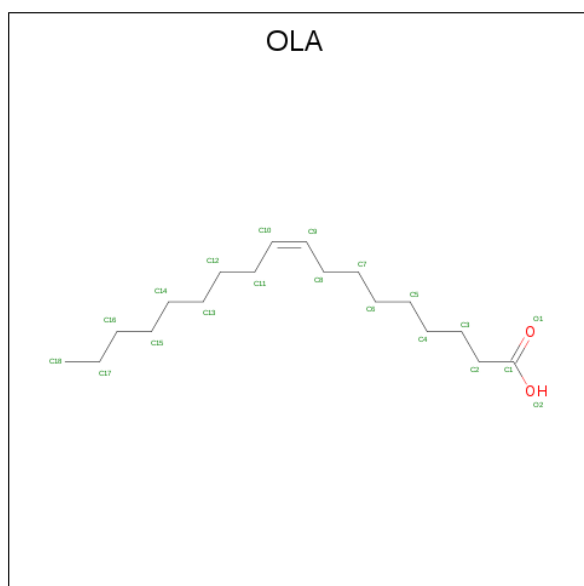
- Molecule 2 is a protein called single-chain variable fragment.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	H	228	1755	1113	288	347	7	0	0	0

- Molecule 3 is ZINC ION (three-letter code: ZN) (formula: Zn).

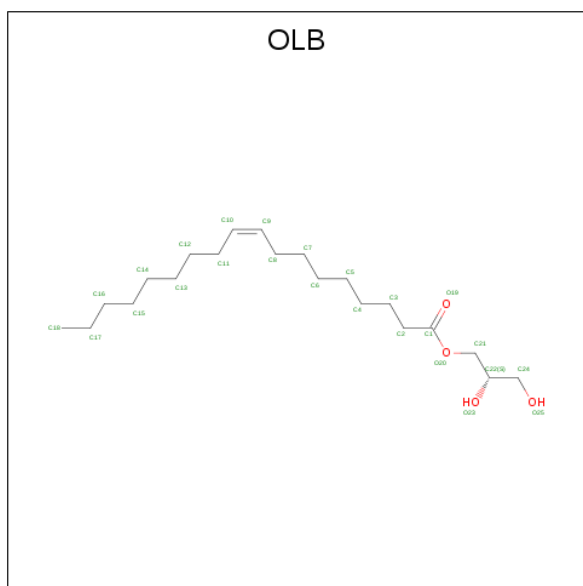
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Zn		
3	A	1	1	1	0	0

- Molecule 4 is OLEIC ACID (three-letter code: OLA) (formula: C<sub>18</sub>H<sub>34</sub>O<sub>2</sub>).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			20	18	2		

- Molecule 5 is (2S)-2,3-dihydroxypropyl (9Z)-octadec-9-enoate (three-letter code: OLB) (formula: C<sub>21</sub>H<sub>40</sub>O<sub>4</sub>).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total	C	O	0	0
			25	21	4		
5	A	1	Total	C	O	11	0
			25	21	4		
5	A	1	Total	C	O	0	0
			25	21	4		
5	A	1	Total	C	O	0	0
			25	21	4		
5	A	1	Total	C	O	0	0
			25	21	4		
5	A	1	Total	C	O	9	0
			25	21	4		
5	A	1	Total	C	O	9	0
			25	21	4		
5	A	1	Total	C	O	0	0
			25	21	4		
5	A	1	Total	C	O	0	0
			25	21	4		
5	A	1	Total	C	O	9	0
			25	21	4		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	H	1	Total	C	O	0	0
			25	21	4		
5	H	1	Total	C	O	0	0
			25	21	4		

- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	220	Total	O	0	0
			220	220		
6	H	307	Total	O	0	0
			307	307		



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 2 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	74.58Å 101.13Å 111.58Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	101.13 – 2.40 101.13 – 2.40	Depositor EDS
% Data completeness (in resolution range)	99.6 (101.13-2.40) 99.9 (101.13-2.40)	Depositor EDS
$R_{merge}$	0.53	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.44 (at 2.40Å)	Xtrriage
Refinement program	BUSTER 2.10.2	Depositor
R, $R_{free}$	0.181 , 0.205 0.190 , 0.211	Depositor DCC
$R_{free}$ test set	1626 reflections (4.84%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	34.6	Xtrriage
Anisotropy	0.933	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.31 , 59.8	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.48$ , $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.94	EDS
Total number of atoms	4885	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	50.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.20% 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: OLA, ZN, OLB

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	A	0.48	0/2366	0.62	1/3216 (0.0%)
2	H	0.46	0/1799	0.67	0/2441
All	All	0.48	0/4165	0.64	1/5657 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	308	ILE	N-CA-C	-5.50	96.17	111.00

There are no chirality outliers.

There are no planarity outliers.

### 5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2282	0	2260	48	0
2	H	1755	0	1677	14	0
3	A	1	0	0	0	0
4	A	20	0	33	6	0
5	A	250	0	400	39	4
5	H	50	0	80	18	1
6	A	220	0	0	5	0
6	H	307	0	0	5	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	4885	0	4450	90	4

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 11.

All (90) 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)
5:A:403:OLB:H2	5:H:302:OLB:H20	1.29	1.12
5:A:405:OLB:O19	5:A:412:OLB:H3A	1.70	0.92
5:A:405:OLB:O19	5:A:412:OLB:C3	2.19	0.91
5:A:403:OLB:C2	5:H:302:OLB:H20	2.00	0.90
1:A:165:PHE:HB3	5:A:407:OLB:H20	1.56	0.87
1:A:321:TYR:OH	5:A:404:OLB:H40	1.76	0.85
1:A:317:MET:HG3	5:A:404:OLB:H32	1.62	0.79
1:A:210:GLY:HA3	5:H:302:OLB:H2	1.62	0.78
2:H:62:GLN:HB2	6:H:587:HOH:O	1.86	0.74
2:H:84:ARG:HH11	2:H:84:ARG:HG2	1.51	0.74
2:H:162:CYS:HG	2:H:227:CYS:HG	1.35	0.71
5:A:403:OLB:H4A	5:H:302:OLB:C8	2.21	0.70
1:A:321:TYR:OH	5:A:404:OLB:C18	2.40	0.69
1:A:218:LEU:HD23	5:A:409:OLB:H30	1.76	0.67
5:A:403:OLB:H3A	5:A:403:OLB:O23	1.96	0.66
1:A:317:MET:HE1	1:A:361:VAL:HB	1.78	0.65
1:A:351:PHE:HE1	4:A:402:OLA:H122	1.61	0.64
5:A:403:OLB:H35	5:H:301:OLB:H39	1.79	0.64
1:A:362:HIS:ND1	5:A:404:OLB:H34	2.14	0.61
2:H:84:ARG:NH1	2:H:84:ARG:HG2	2.12	0.61
5:A:403:OLB:H4A	5:H:302:OLB:H211	1.82	0.60
1:A:287:LEU:O	1:A:290:ILE:HG22	2.00	0.60
5:H:301:OLB:H33	5:H:302:OLB:H37	1.85	0.59
2:H:244:GLU:HG3	6:H:494:HOH:O	2.03	0.57
1:A:236:TYR:HE1	5:A:410:OLB:H21	1.69	0.57
1:A:108:HIS:HB3	6:A:585:HOH:O	2.04	0.57
1:A:308:ILE:HD11	1:A:310:GLN:HG3	1.86	0.56
5:A:405:OLB:H4	5:A:412:OLB:H4A	1.87	0.56
5:H:301:OLB:H33	5:H:302:OLB:C17	2.35	0.56
1:A:351:PHE:CZ	4:A:402:OLA:H72	2.40	0.56
5:A:403:OLB:H4A	5:H:302:OLB:H23	1.89	0.55
1:A:236:TYR:CE1	5:A:410:OLB:H21	2.42	0.54
5:A:407:OLB:H211	6:A:525:HOH:O	2.06	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:405:OLB:O19	5:A:412:OLB:H4A	2.09	0.53
1:A:223:ILE:HD11	4:A:402:OLA:H21	1.91	0.53
5:A:405:OLB:O19	5:A:412:OLB:C4	2.56	0.52
1:A:287:LEU:HD11	1:A:322:ILE:HD11	1.91	0.52
2:H:51:PHE:CE2	2:H:72:VAL:HB	2.45	0.52
1:A:197:PHE:HE1	5:A:403:OLB:H23	1.74	0.51
2:H:200:ARG:HG3	6:H:580:HOH:O	2.09	0.51
5:A:411:OLB:H18	5:A:411:OLB:O25	2.11	0.51
5:A:403:OLB:H2	5:H:302:OLB:C8	2.21	0.51
1:A:321:TYR:CD1	4:A:402:OLA:H111	2.46	0.51
2:H:78:THR:HG21	6:H:638:HOH:O	2.11	0.50
1:A:214:LEU:HD21	5:A:403:OLB:H4	1.93	0.50
1:A:351:PHE:CE1	4:A:402:OLA:H122	2.46	0.50
2:H:104:TRP:CZ3	2:H:106:ALA:HB2	2.47	0.49
1:A:165:PHE:O	5:A:407:OLB:H23	2.12	0.49
2:H:156:GLU:HG2	6:H:576:HOH:O	2.11	0.49
1:A:266:TRP:CE2	1:A:268:MET:HB2	2.48	0.49
1:A:317:MET:HE3	1:A:361:VAL:HG12	1.95	0.49
5:A:404:OLB:H36	5:A:404:OLB:C12	2.43	0.48
1:A:158:PHE:HA	5:A:407:OLB:H21	1.95	0.48
1:A:317:MET:CE	1:A:361:VAL:HB	2.43	0.48
1:A:263:VAL:HG21	5:A:412:OLB:H241	1.94	0.48
5:H:301:OLB:C15	5:H:302:OLB:H39	2.43	0.48
1:A:313:TRP:CE2	1:A:365:GLY:HA3	2.48	0.47
5:H:301:OLB:H33	5:H:302:OLB:H39	1.95	0.47
1:A:162:LEU:HD23	1:A:188:PHE:HE1	1.79	0.47
5:H:301:OLB:H33	5:H:302:OLB:C18	2.45	0.47
1:A:165:PHE:CD2	5:A:407:OLB:H31	2.49	0.47
1:A:171:ASN:ND2	5:A:411:OLB:H22	2.30	0.47
1:A:308:ILE:CD1	1:A:310:GLN:HG3	2.46	0.46
1:A:286:GLY:HA3	1:A:321:TYR:CE1	2.50	0.46
2:H:176:GLN:HB2	2:H:186:LEU:HD11	1.97	0.46
2:H:38:LYS:HB2	2:H:48:ILE:HD11	1.98	0.46
2:H:29:PHE:HE2	2:H:72:VAL:CG2	2.29	0.46
1:A:132:PHE:HB2	5:H:301:OLB:H4A	1.99	0.45
5:A:407:OLB:H4A	6:A:662:HOH:O	2.15	0.45
1:A:283:LEU:HD11	1:A:322:ILE:HD13	1.99	0.44
1:A:318:ALA:O	1:A:322:ILE:HG12	2.17	0.44
1:A:178:LEU:O	1:A:182:VAL:HG23	2.18	0.44
1:A:197:PHE:CE1	5:A:403:OLB:H23	2.52	0.44
5:A:403:OLB:H4A	5:H:302:OLB:C10	2.47	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:331:ARG:HD3	6:A:527:HOH:O	2.18	0.43
1:A:176:ALA:O	1:A:180:GLU:HG3	2.18	0.43
1:A:106:ILE:HD12	1:A:110:VAL:HG23	2.00	0.43
1:A:317:MET:CG	5:A:404:OLB:H32	2.43	0.42
1:A:115:LEU:HD21	1:A:206:CYS:HA	2.00	0.42
1:A:160:LEU:O	1:A:164:ILE:HG12	2.20	0.42
1:A:171:ASN:ND2	5:A:411:OLB:H2	2.35	0.41
5:A:403:OLB:H2	5:H:302:OLB:H17	2.02	0.41
5:A:404:OLB:H26	5:A:404:OLB:H36	2.01	0.41
2:H:82:GLU:OE2	2:H:84:ARG:NH1	2.53	0.41
1:A:132:PHE:HB2	5:H:301:OLB:C4	2.51	0.41
6:A:504:HOH:O	5:H:302:OLB:H2A	2.21	0.41
1:A:312:GLY:HA2	1:A:315:MET:HE2	2.02	0.40
4:A:402:OLA:H132	4:A:402:OLA:H161	1.77	0.40
5:A:405:OLB:C4	5:A:412:OLB:H4A	2.51	0.40
1:A:175:VAL:HG23	1:A:374:PHE:HA	2.03	0.40

All (4) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:405:OLB:O23	5:A:406:OLB:O25[3_454]	1.97	0.23
5:A:403:OLB:C17	5:A:408:OLB:C18[3_554]	2.02	0.18
5:A:405:OLB:O23	5:A:406:OLB:C24[3_454]	2.10	0.10
5:A:408:OLB:C17	5:H:301:OLB:C18[3_454]	2.11	0.09

## 5.3 Torsion angles [i](#)

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

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	281/307 (92%)	279 (99%)	2 (1%)	0	<a href="#">100</a> <a href="#">100</a>

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	H	224/284 (79%)	220 (98%)	4 (2%)	0	100	100
All	All	505/591 (85%)	499 (99%)	6 (1%)	0	100	100

There are no Ramachandran outliers to report.

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

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	240/261 (92%)	236 (98%)	4 (2%)	60	78
2	H	189/217 (87%)	182 (96%)	7 (4%)	34	53
All	All	429/478 (90%)	418 (97%)	11 (3%)	46	66

All (11) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	167	MET
1	A	255	VAL
1	A	263	VAL
1	A	375	MET
2	H	10	GLU
2	H	35	ASP
2	H	62	GLN
2	H	82	GLU
2	H	163	ARG
2	H	172	LEU
2	H	232	SER

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

Mol	Chain	Res	Type
1	A	171	ASN

### 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 carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

Of 14 ligands modelled in this entry, 1 is monoatomic - leaving 13 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
5	OLB	A	407	-	24,24,24	0.14	0	25,25,25	0.22	0
5	OLB	A	406	-	24,24,24	0.26	0	25,25,25	0.57	0
5	OLB	A	409	-	24,24,24	0.19	0	25,25,25	0.30	0
5	OLB	A	412	-	24,24,24	0.23	0	25,25,25	0.38	0
4	OLA	A	402	-	16,19,19	0.30	0	15,19,19	0.37	0
5	OLB	A	408	-	24,24,24	0.31	0	25,25,25	0.32	0
5	OLB	A	405	-	24,24,24	0.43	0	25,25,25	0.64	1 (4%)
5	OLB	H	301	-	24,24,24	0.27	0	25,25,25	0.40	0
5	OLB	A	404	-	24,24,24	0.33	0	25,25,25	0.46	0
5	OLB	A	403	-	24,24,24	0.27	0	25,25,25	0.48	0
5	OLB	H	302	-	24,24,24	0.29	0	25,25,25	0.30	0
5	OLB	A	410	-	24,24,24	0.17	0	25,25,25	0.31	0
5	OLB	A	411	-	24,24,24	0.21	0	25,25,25	0.31	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
5	OLB	A	407	-	-	12/24/24/24	-
5	OLB	A	406	-	-	9/24/24/24	-
5	OLB	A	409	-	-	8/24/24/24	-
5	OLB	A	412	-	-	15/24/24/24	-
4	OLA	A	402	-	-	6/15/17/17	-
5	OLB	A	408	-	-	7/24/24/24	-
5	OLB	A	405	-	-	12/24/24/24	-
5	OLB	H	301	-	-	12/24/24/24	-
5	OLB	A	404	-	-	15/24/24/24	-
5	OLB	A	403	-	-	18/24/24/24	-
5	OLB	H	302	-	-	8/24/24/24	-
5	OLB	A	410	-	-	13/24/24/24	-
5	OLB	A	411	-	-	8/24/24/24	-

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	405	OLB	O20-C21-C22	-2.25	94.92	105.77

There are no chirality outliers.

All (143) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	407	OLB	C21-C22-C24-O25
5	A	406	OLB	C21-C22-C24-O25
5	A	412	OLB	O20-C21-C22-C24
4	A	402	OLA	C1-C2-C3-C4
5	A	405	OLB	O20-C21-C22-C24
5	A	404	OLB	C21-C22-C24-O25
5	A	403	OLB	O19-C1-O20-C21
5	A	403	OLB	O20-C21-C22-C24
5	A	403	OLB	C21-C22-C24-O25
5	A	409	OLB	C21-C22-C24-O25
5	A	410	OLB	O19-C1-O20-C21
5	A	403	OLB	C22-C21-O20-C1
5	A	405	OLB	O19-C1-O20-C21

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Mol	Chain	Res	Type	Atoms
5	A	410	OLB	C2-C1-O20-C21
5	A	403	OLB	C2-C1-O20-C21
5	A	405	OLB	C2-C1-O20-C21
5	H	301	OLB	C2-C1-O20-C21
5	H	301	OLB	O19-C1-O20-C21
5	A	412	OLB	O20-C21-C22-O23
5	A	405	OLB	O20-C21-C22-O23
5	A	403	OLB	O20-C21-C22-O23
4	A	402	OLA	C13-C14-C15-C16
5	A	408	OLB	C2-C1-O20-C21
5	A	411	OLB	C2-C1-O20-C21
5	A	404	OLB	O20-C21-C22-C24
5	A	404	OLB	O20-C21-C22-O23
5	A	412	OLB	C2-C1-O20-C21
5	H	301	OLB	O23-C22-C24-O25
5	A	411	OLB	C1-C2-C3-C4
5	A	412	OLB	C1-C2-C3-C4
5	A	408	OLB	O19-C1-O20-C21
5	A	411	OLB	O19-C1-O20-C21
5	A	409	OLB	C13-C14-C15-C16
5	A	404	OLB	C2-C1-O20-C21
5	A	407	OLB	C14-C15-C16-C17
5	A	410	OLB	C4-C5-C6-C7
5	A	409	OLB	C5-C6-C7-C8
5	A	404	OLB	C12-C13-C14-C15
5	A	412	OLB	C5-C6-C7-C8
5	A	407	OLB	C5-C6-C7-C8
5	H	302	OLB	C3-C4-C5-C6
5	A	412	OLB	O19-C1-O20-C21
5	H	302	OLB	C5-C6-C7-C8
5	A	407	OLB	C11-C12-C13-C14
5	A	412	OLB	C13-C14-C15-C16
5	A	412	OLB	C21-C22-C24-O25
5	A	405	OLB	C21-C22-C24-O25
5	H	301	OLB	C21-C22-C24-O25
5	A	406	OLB	O20-C21-C22-O23
4	A	402	OLA	C2-C3-C4-C5
5	A	403	OLB	C6-C7-C8-C9
5	A	411	OLB	C10-C11-C12-C13
5	H	301	OLB	C11-C12-C13-C14
5	A	410	OLB	C5-C6-C7-C8
5	A	412	OLB	C3-C4-C5-C6

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Mol	Chain	Res	Type	Atoms
5	A	407	OLB	O23-C22-C24-O25
5	A	404	OLB	O23-C22-C24-O25
5	A	409	OLB	O23-C22-C24-O25
5	A	405	OLB	C2-C3-C4-C5
5	A	411	OLB	C12-C13-C14-C15
5	A	412	OLB	C10-C11-C12-C13
5	A	410	OLB	C6-C7-C8-C9
5	A	407	OLB	C13-C14-C15-C16
5	A	407	OLB	C2-C1-O20-C21
5	A	404	OLB	O19-C1-O20-C21
5	A	411	OLB	C14-C15-C16-C17
5	A	404	OLB	C10-C11-C12-C13
5	A	405	OLB	C14-C15-C16-C17
5	A	403	OLB	C12-C13-C14-C15
5	A	404	OLB	C3-C4-C5-C6
5	H	301	OLB	C13-C14-C15-C16
5	A	404	OLB	C11-C12-C13-C14
5	A	405	OLB	C1-C2-C3-C4
5	A	406	OLB	C2-C3-C4-C5
5	H	301	OLB	C4-C5-C6-C7
5	A	406	OLB	C12-C13-C14-C15
5	A	403	OLB	C3-C4-C5-C6
5	A	410	OLB	C14-C15-C16-C17
5	A	411	OLB	C5-C6-C7-C8
4	A	402	OLA	C11-C12-C13-C14
5	A	406	OLB	C11-C12-C13-C14
5	H	302	OLB	C15-C16-C17-C18
5	H	301	OLB	C1-C2-C3-C4
5	H	302	OLB	C12-C13-C14-C15
5	A	403	OLB	O23-C22-C24-O25
5	A	408	OLB	C12-C13-C14-C15
5	A	408	OLB	O20-C21-C22-O23
5	A	406	OLB	C15-C16-C17-C18
5	A	408	OLB	O20-C21-C22-C24
5	A	409	OLB	C15-C16-C17-C18
4	A	402	OLA	C12-C13-C14-C15
5	A	407	OLB	O19-C1-O20-C21
5	A	408	OLB	C15-C16-C17-C18
5	A	408	OLB	C14-C15-C16-C17
5	A	412	OLB	C12-C13-C14-C15
5	A	406	OLB	C14-C15-C16-C17
5	A	410	OLB	C1-C2-C3-C4

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>Atoms</b>
5	A	406	OLB	O23-C22-C24-O25
5	A	410	OLB	C2-C3-C4-C5
5	A	404	OLB	C14-C15-C16-C17
5	A	403	OLB	C1-C2-C3-C4
5	A	405	OLB	C11-C12-C13-C14
5	A	410	OLB	C10-C11-C12-C13
5	H	302	OLB	C6-C7-C8-C9
5	A	409	OLB	C2-C1-O20-C21
5	A	409	OLB	C14-C15-C16-C17
5	H	302	OLB	C14-C15-C16-C17
5	A	407	OLB	C15-C16-C17-C18
5	A	403	OLB	C2-C3-C4-C5
5	A	406	OLB	C5-C6-C7-C8
5	A	412	OLB	C14-C15-C16-C17
5	A	403	OLB	C5-C6-C7-C8
5	A	410	OLB	C7-C8-C9-C10
5	A	412	OLB	O23-C22-C24-O25
5	A	412	OLB	C2-C3-C4-C5
5	A	407	OLB	C3-C4-C5-C6
5	A	403	OLB	C13-C14-C15-C16
4	A	402	OLA	C14-C15-C16-C17
5	A	405	OLB	C9-C10-C11-C12
5	A	404	OLB	C9-C10-C11-C12
5	A	404	OLB	C6-C7-C8-C9
5	A	405	OLB	C12-C13-C14-C15
5	A	412	OLB	C4-C5-C6-C7
5	H	302	OLB	C9-C10-C11-C12
5	A	407	OLB	C12-C13-C14-C15
5	A	409	OLB	O19-C1-O20-C21
5	H	301	OLB	C10-C11-C12-C13
5	A	404	OLB	C7-C8-C9-C10
5	A	404	OLB	C4-C5-C6-C7
5	A	403	OLB	C9-C10-C11-C12
5	A	410	OLB	O20-C1-C2-C3
5	A	405	OLB	O23-C22-C24-O25
5	A	410	OLB	O20-C21-C22-O23
5	H	301	OLB	O20-C1-C2-C3
5	H	302	OLB	C21-C22-C24-O25
5	H	301	OLB	O19-C1-C2-C3
5	A	410	OLB	O19-C1-C2-C3
5	H	301	OLB	C14-C15-C16-C17
5	A	411	OLB	C2-C3-C4-C5

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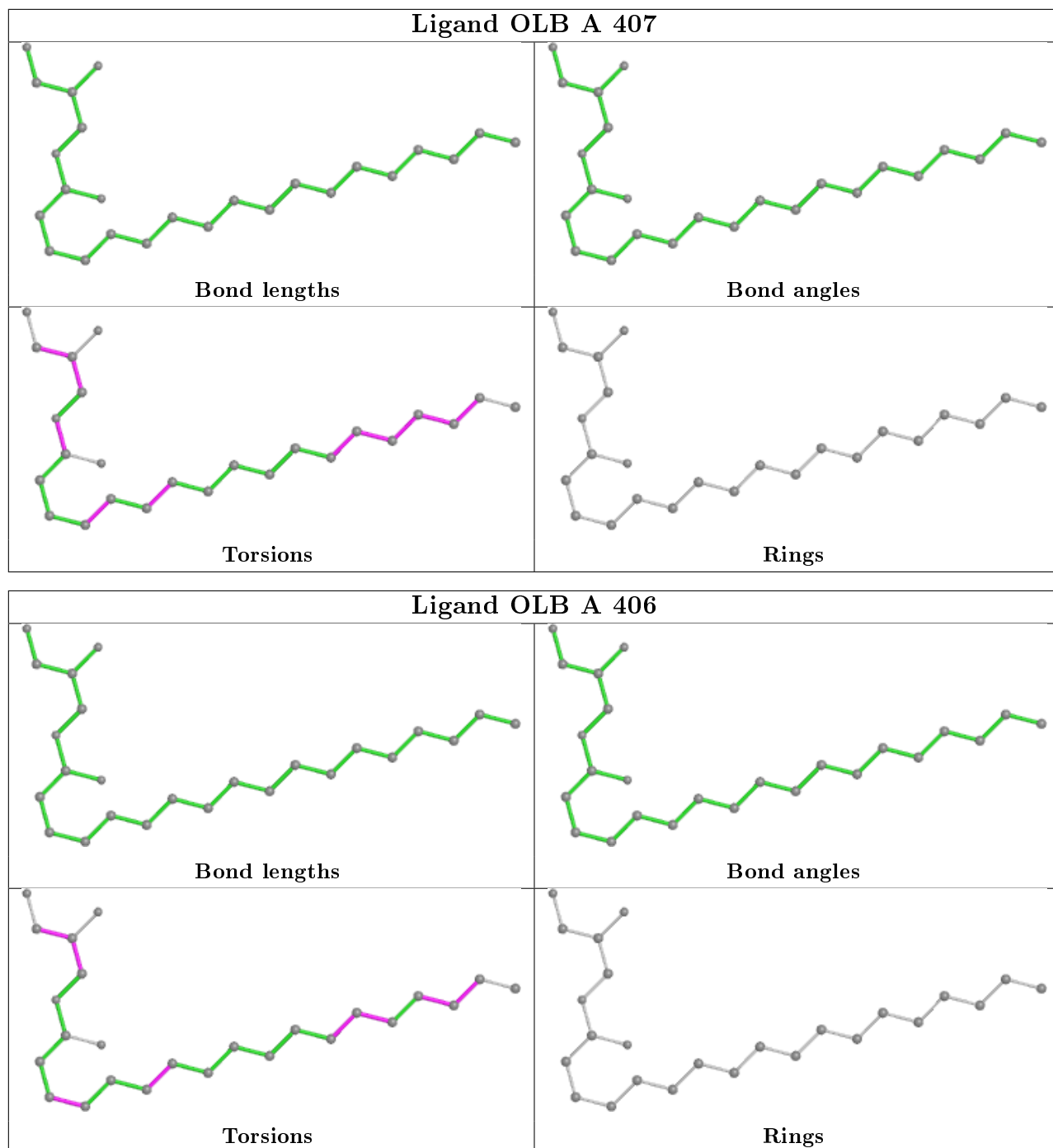
Mol	Chain	Res	Type	Atoms
5	A	403	OLB	O20-C1-C2-C3
5	A	403	OLB	C14-C15-C16-C17
5	A	403	OLB	O19-C1-C2-C3
5	A	407	OLB	O20-C21-C22-O23

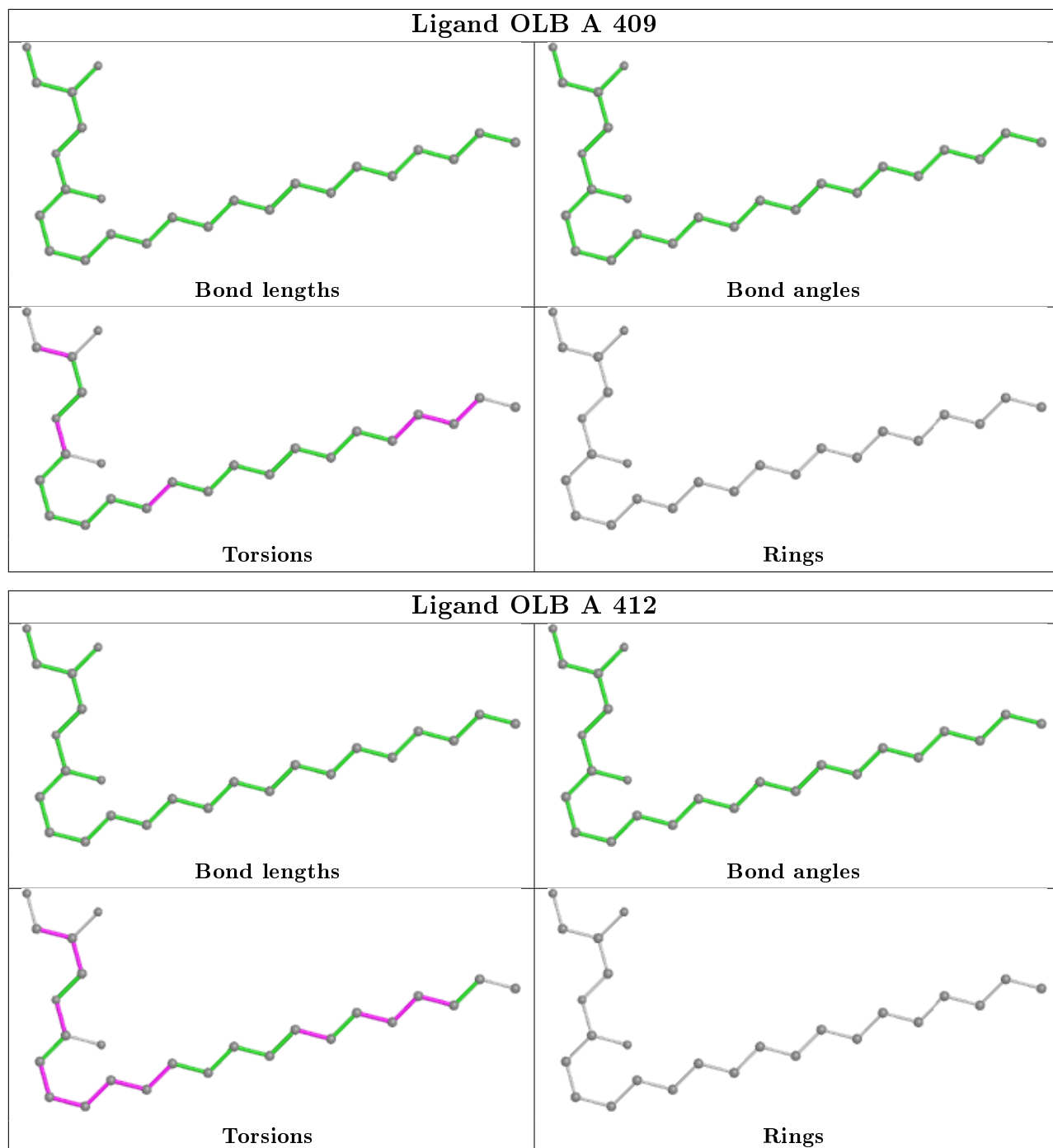
There are no ring outliers.

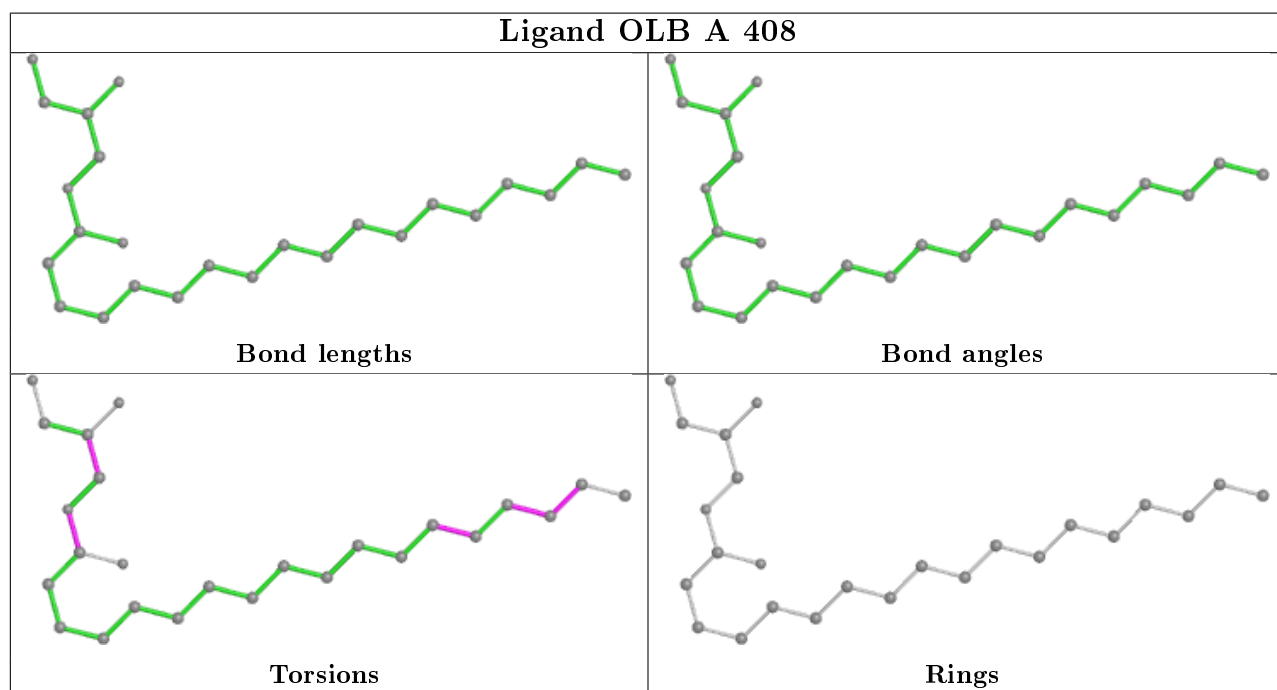
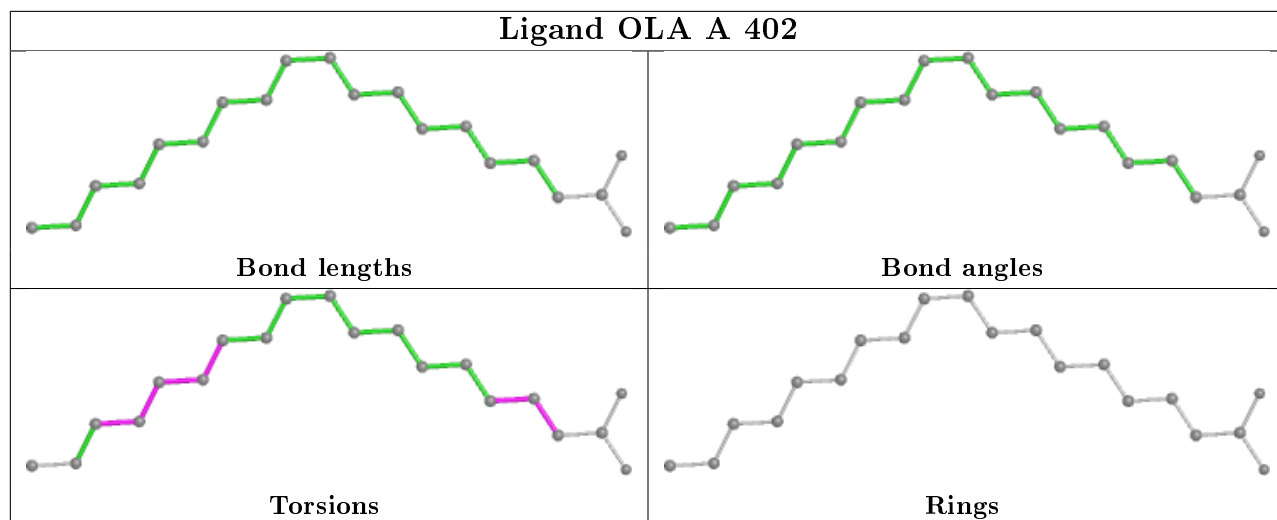
13 monomers are involved in 58 short contacts:

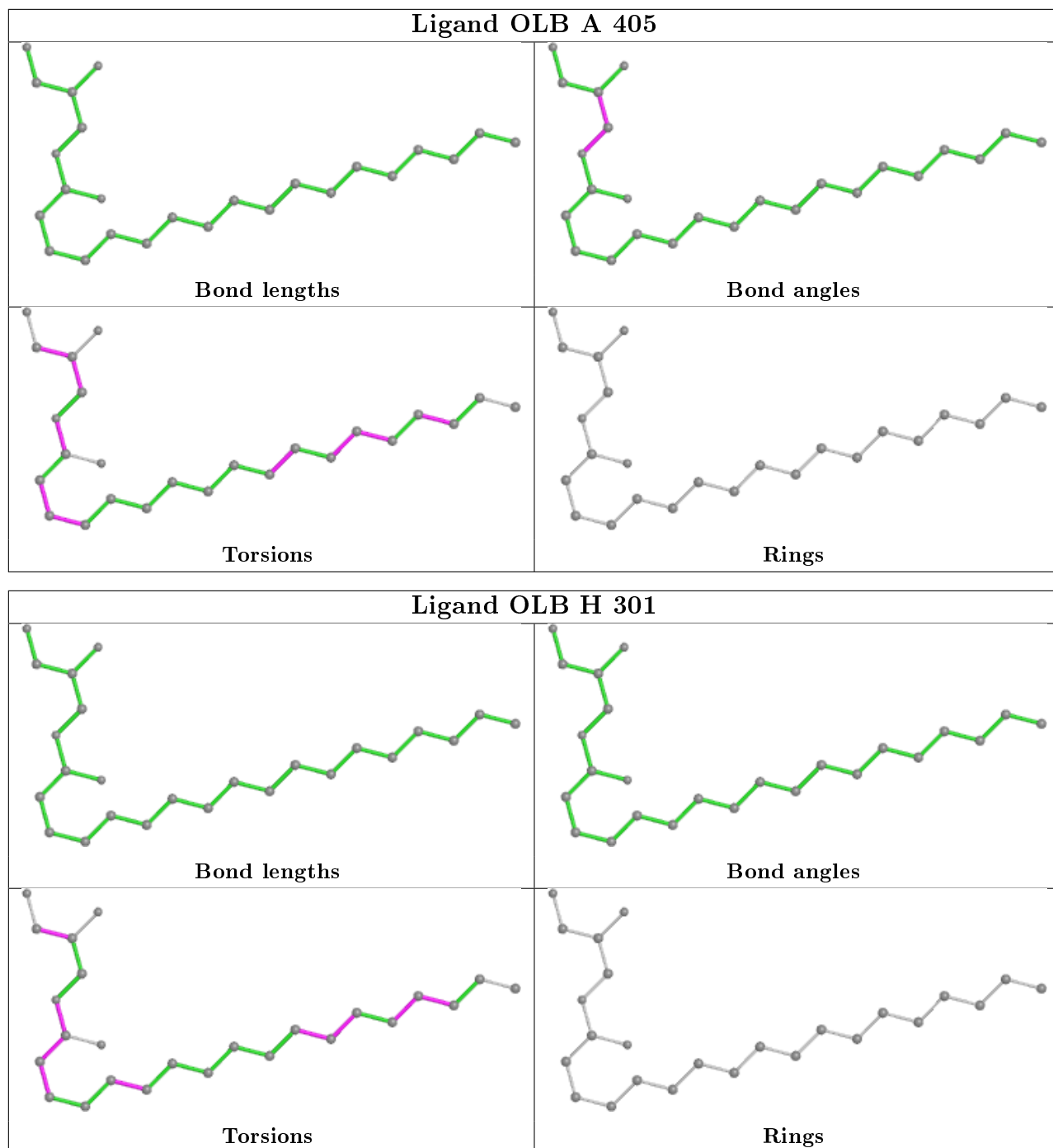
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	A	407	OLB	6	0
5	A	406	OLB	0	2
5	A	409	OLB	1	0
5	A	412	OLB	7	0
4	A	402	OLA	6	0
5	A	408	OLB	0	2
5	A	405	OLB	6	2
5	H	301	OLB	8	1
5	A	404	OLB	7	0
5	A	403	OLB	13	1
5	H	302	OLB	15	0
5	A	410	OLB	2	0
5	A	411	OLB	3	0

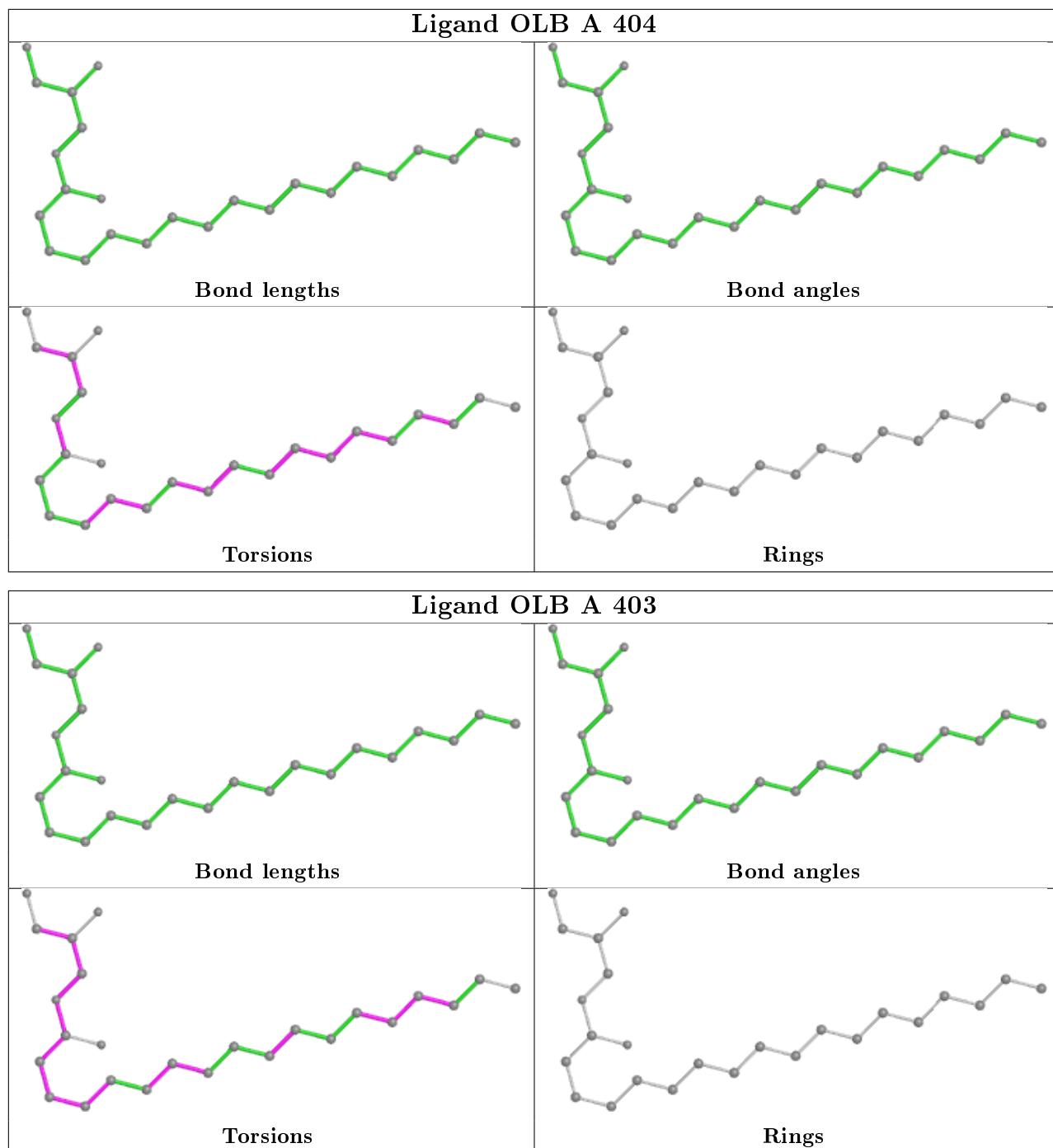
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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



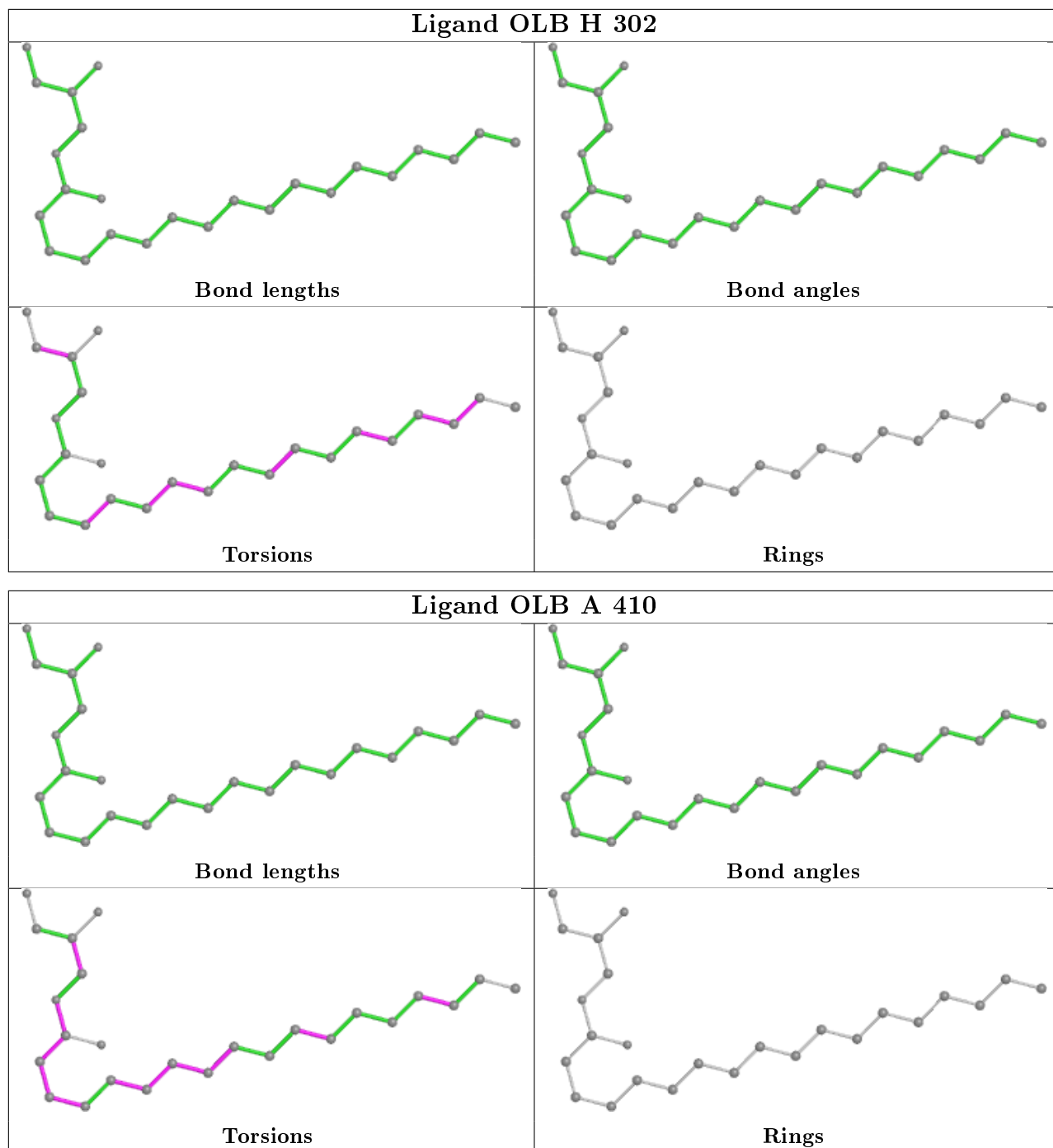


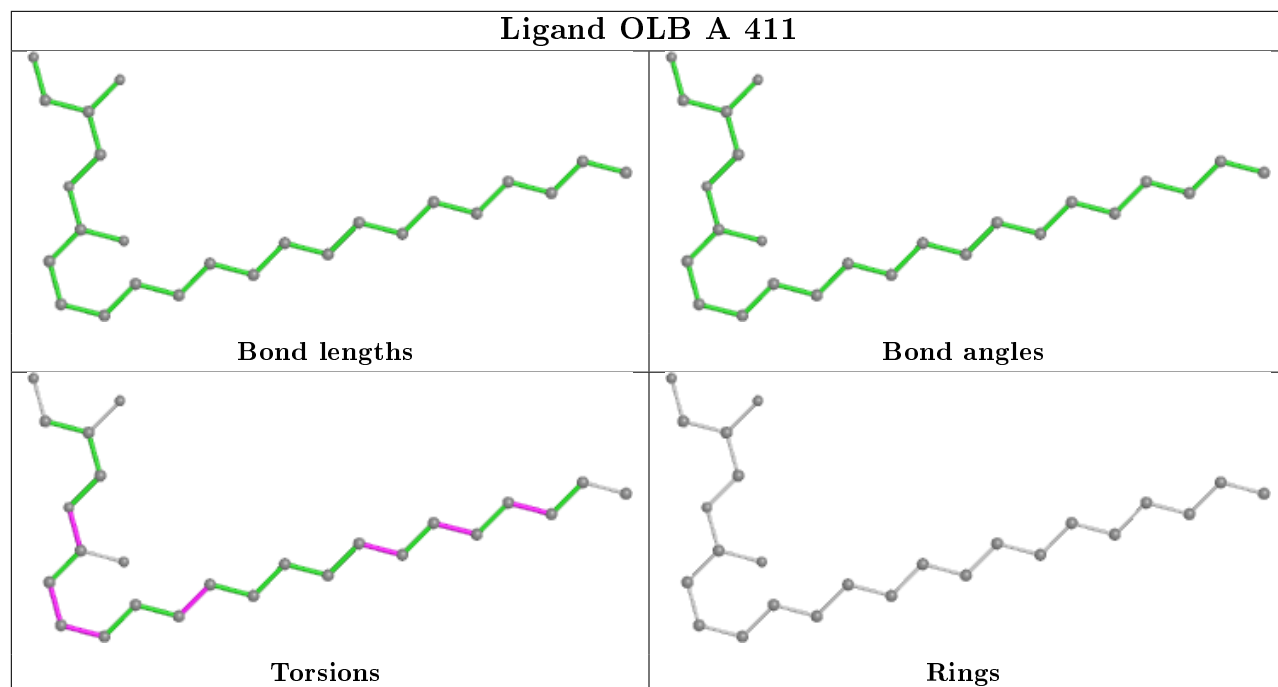












## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

## 6 Fit of model and data [i](#)

### 6.1 Protein, DNA and RNA chains [i](#)

In the following table, the column labelled '#RSRZ > 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	A	283/307 (92%)	-0.26	2 (0%) 87 86	29, 46, 77, 116	2 (0%)
2	H	228/284 (80%)	-0.49	1 (0%) 92 91	23, 41, 65, 83	0
All	All	511/591 (86%)	-0.36	3 (0%) 89 88	23, 44, 73, 116	2 (0%)

All (3) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	H	179	GLN	3.3
1	A	375	MET	2.4
1	A	372	PHE	2.1

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

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

### 6.3 Carbohydrates [i](#)

There are no carbohydrates in this entry.

### 6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 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.

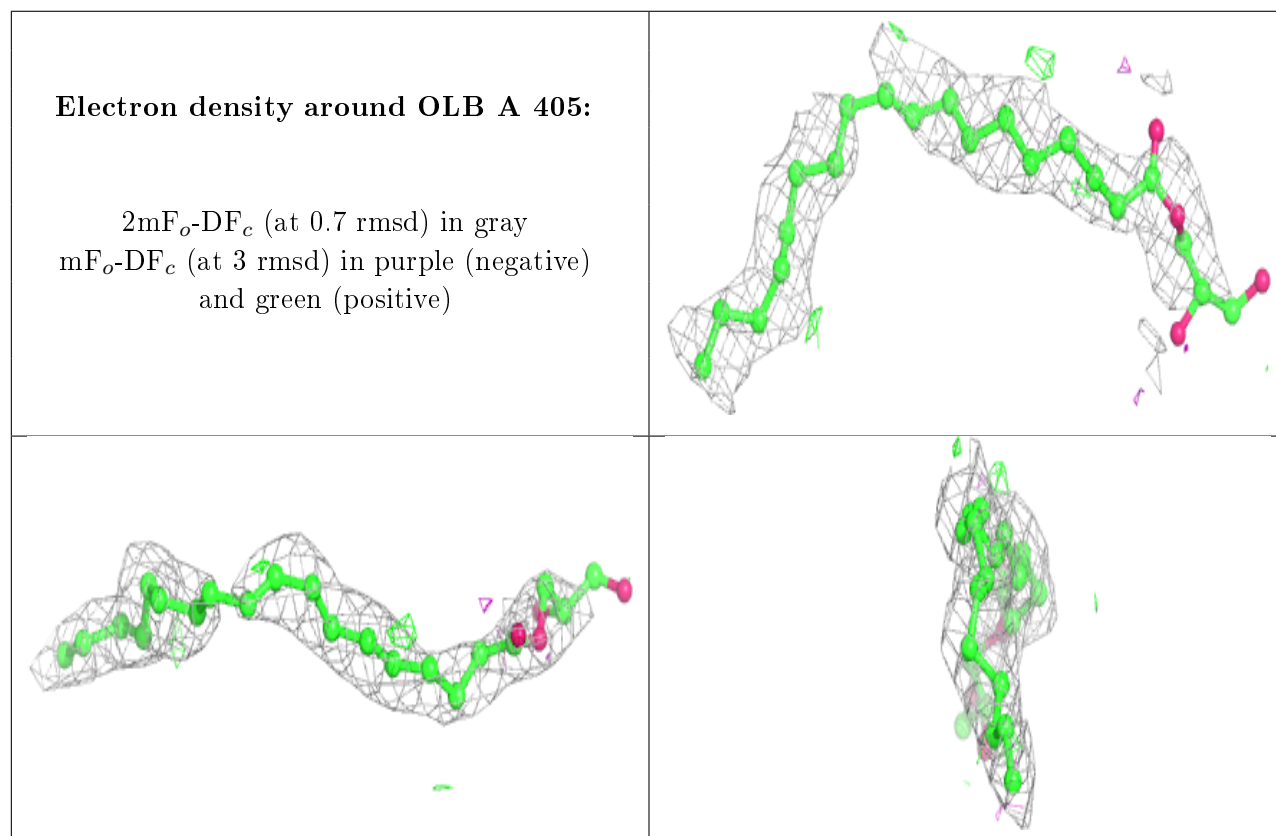
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
5	OLB	A	405	25/25	0.63	0.30	77,86,126,128	0
5	OLB	A	406	25/25	0.65	0.25	61,76,89,95	0

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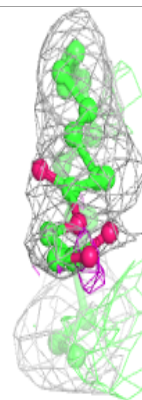
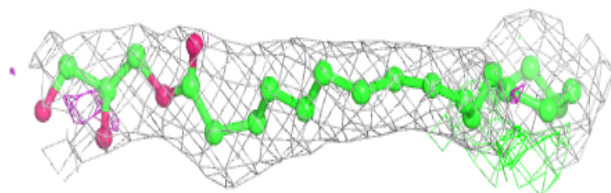
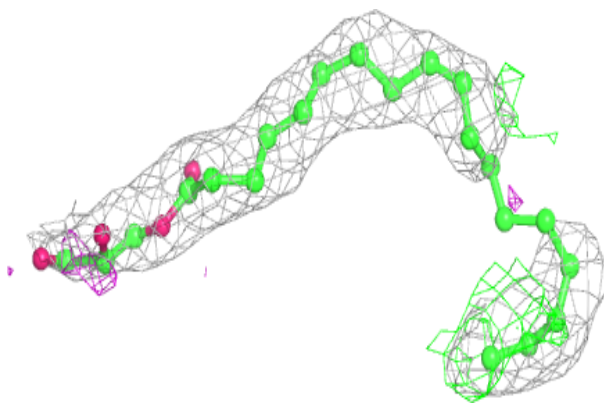
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
5	OLB	A	412	25/25	0.67	0.42	59,63,66,69	9
5	OLB	A	410	25/25	0.69	0.21	60,81,104,104	0
5	OLB	A	411	25/25	0.71	0.21	60,82,122,123	0
5	OLB	H	302	25/25	0.72	0.42	63,86,128,130	0
5	OLB	A	407	25/25	0.73	0.24	66,94,108,109	0
5	OLB	A	403	25/25	0.78	0.27	64,78,104,104	0
5	OLB	A	408	25/25	0.83	0.24	67,76,85,87	9
5	OLB	H	301	25/25	0.83	0.25	55,65,75,76	0
5	OLB	A	404	25/25	0.85	0.16	48,63,74,76	11
4	OLA	A	402	20/20	0.88	0.16	40,46,53,56	0
5	OLB	A	409	25/25	0.92	0.17	60,67,70,71	9
3	ZN	A	401	1/1	0.99	0.15	35,35,35,35	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.

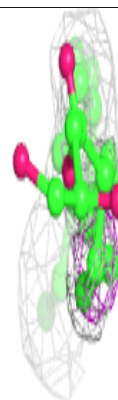
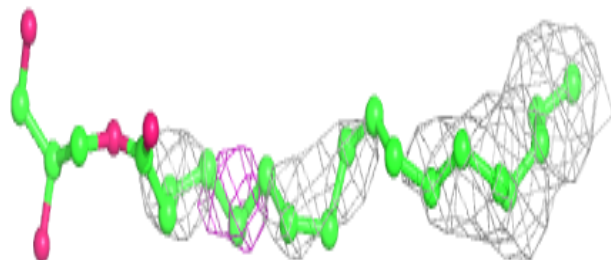
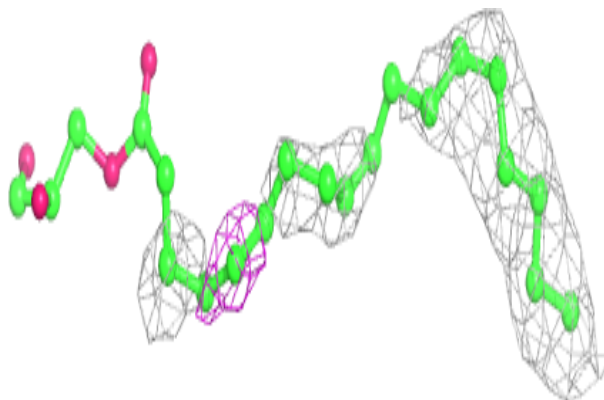


**Electron density around OLB A 406:**

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

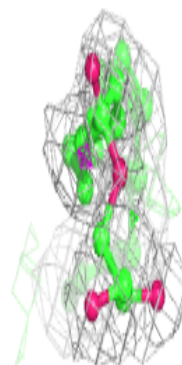
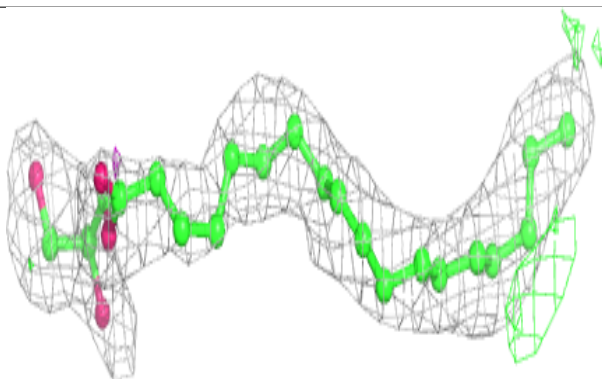
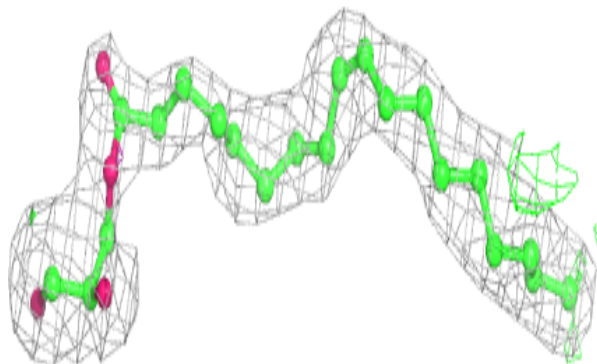
**Electron density around OLB A 412:**

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

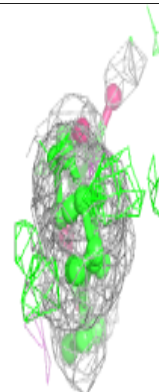
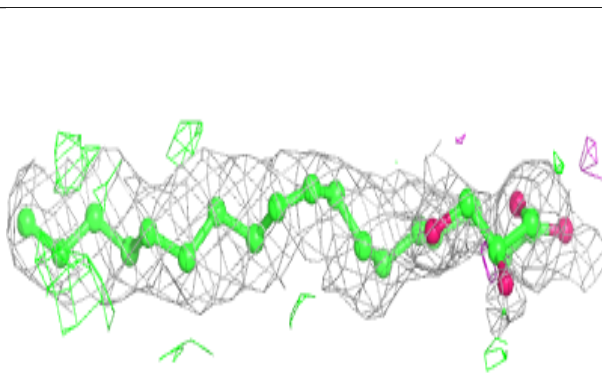
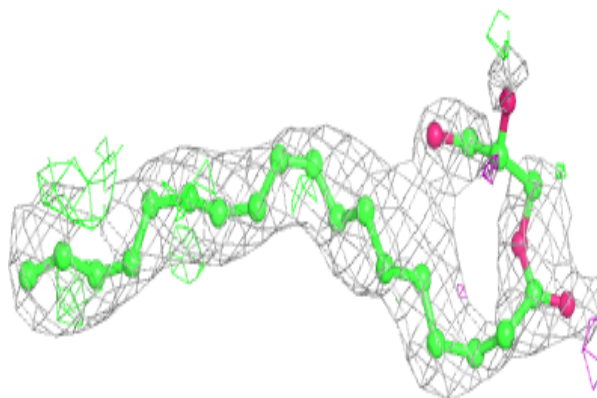


**Electron density around OLB A 410:**

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

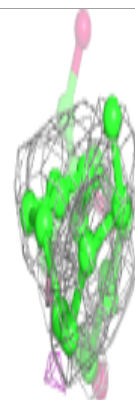
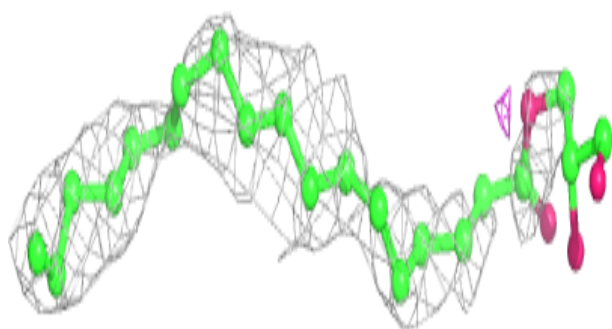
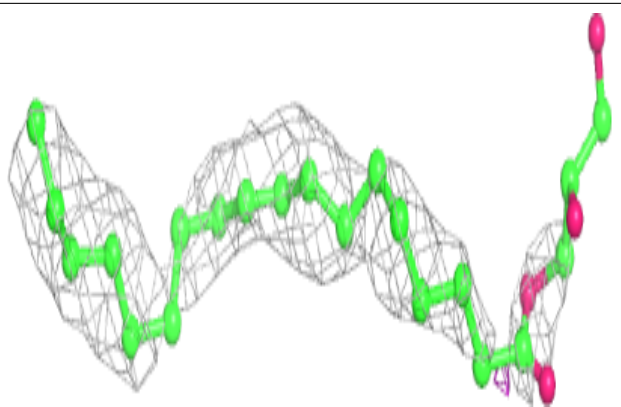
**Electron density around OLB A 411:**

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

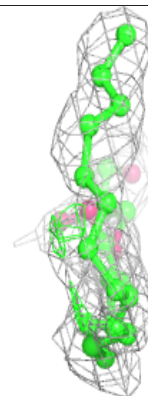
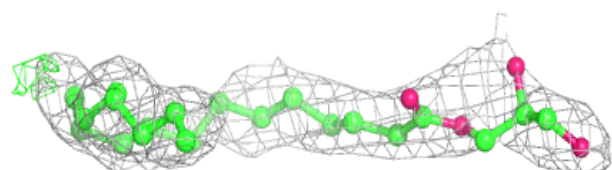
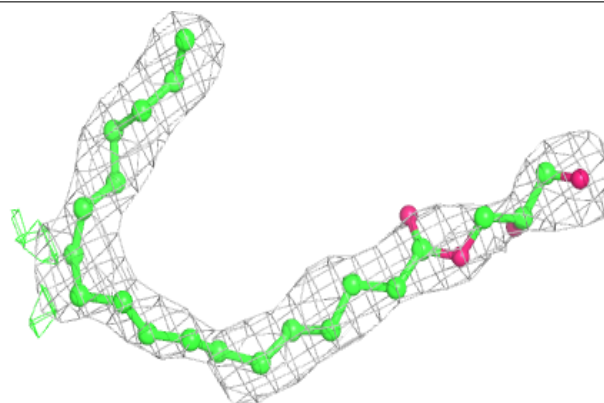


**Electron density around OLB H 302:**

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

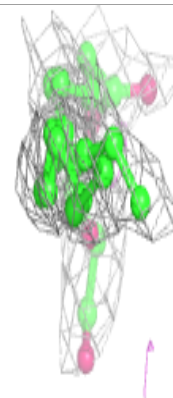
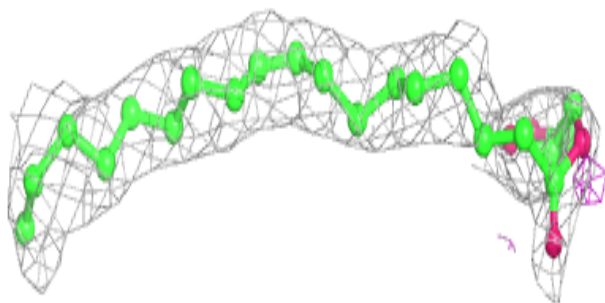
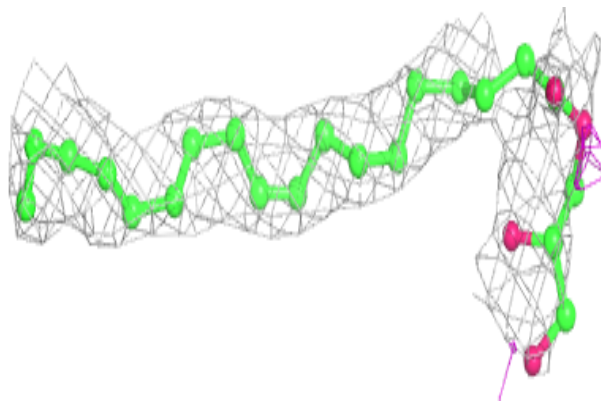
**Electron density around OLB A 407:**

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

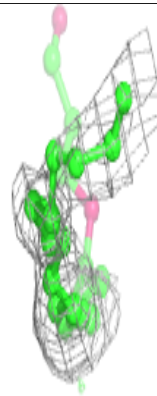
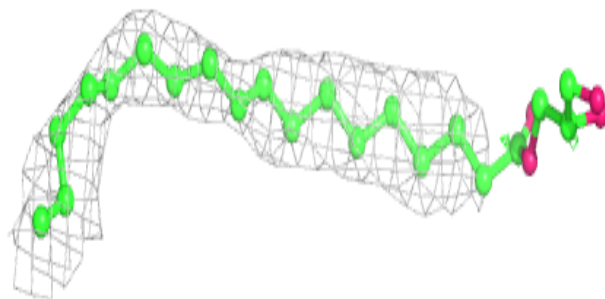
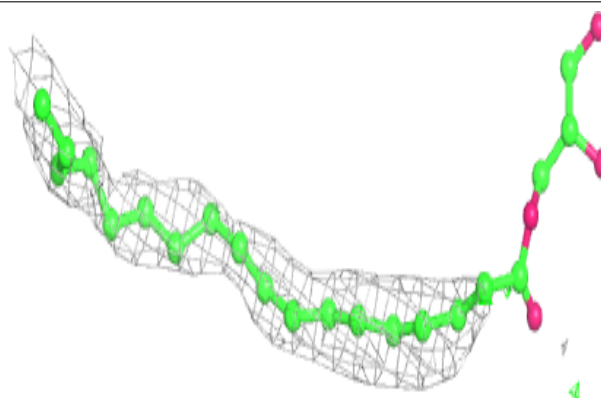


**Electron density around OLB A 403:**

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

**Electron density around OLB A 408:**

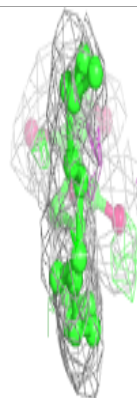
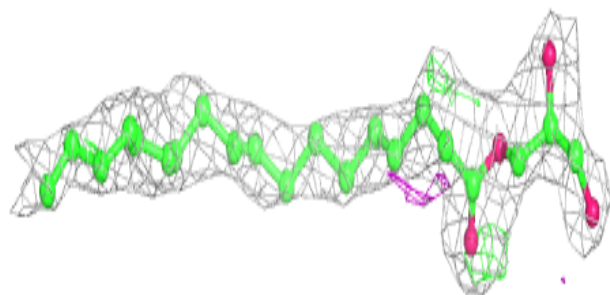
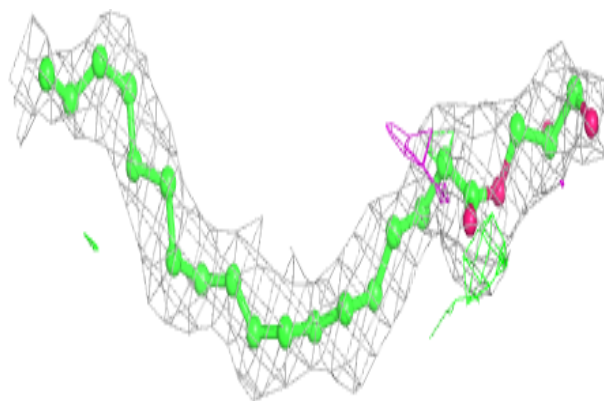
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



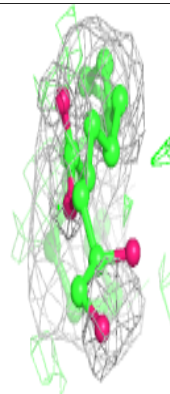
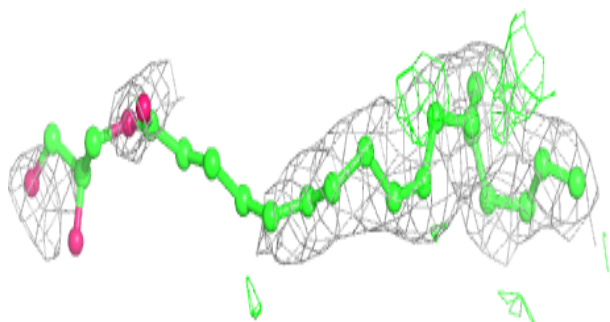
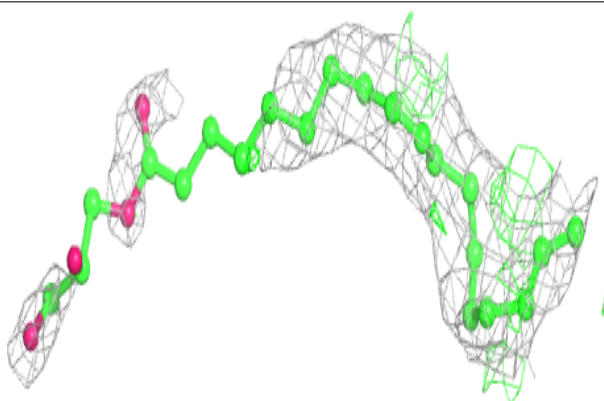


**Electron density around OLB H 301:**

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

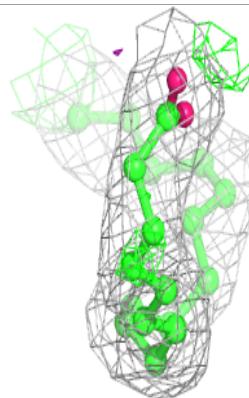
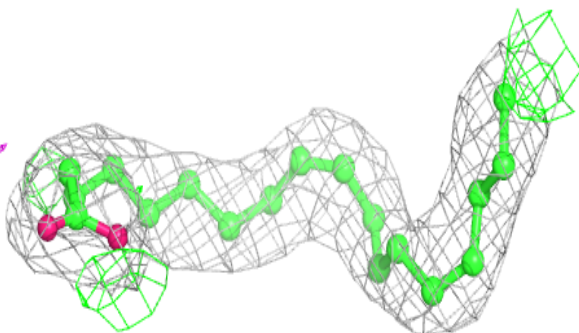
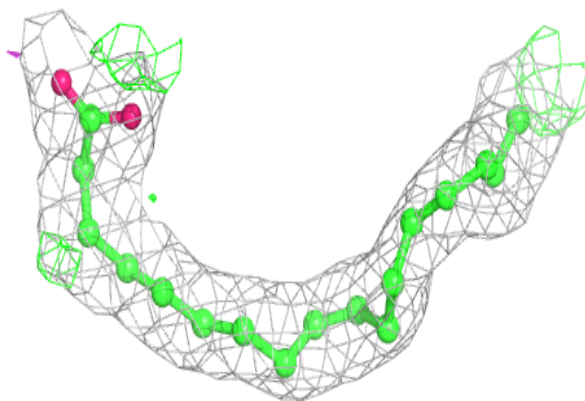
**Electron density around OLB A 404:**

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

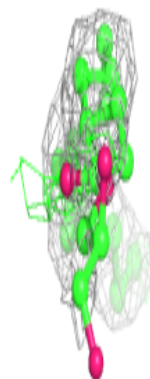
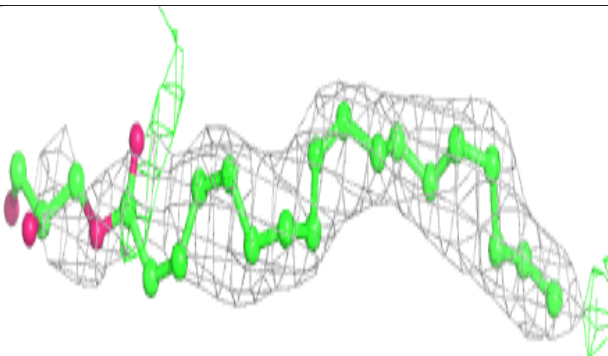
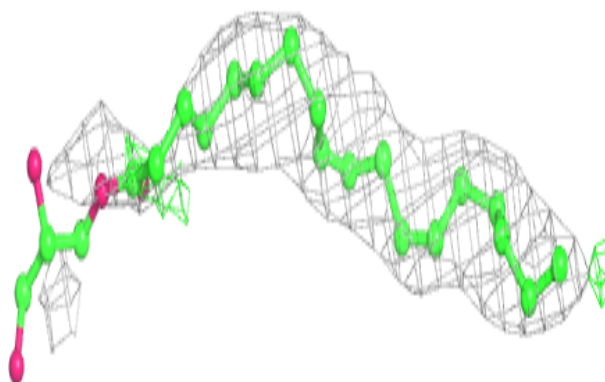


**Electron density around OLA A 402:**

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

**Electron density around OLB A 409:**

$2mF_o-DF_c$  (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.