wwPDB X-ray Structure Validation Summary Report (i)

Nov 14, 2023 – 03:45 PM JST

PDB ID	:	5ZIH
Title	:	Crystal structure of the red light-activated channelrhodopsin Chrimson.
Authors	:	Oda, K.; Vierock, J.; Oishi, S.; Taniguchi, R.; Yamashita, K.; Nishizawa, T.; Hegemann, P.; Nureki, O.
Deposited on	:	2018-03-15
Resolution	:	2.60 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

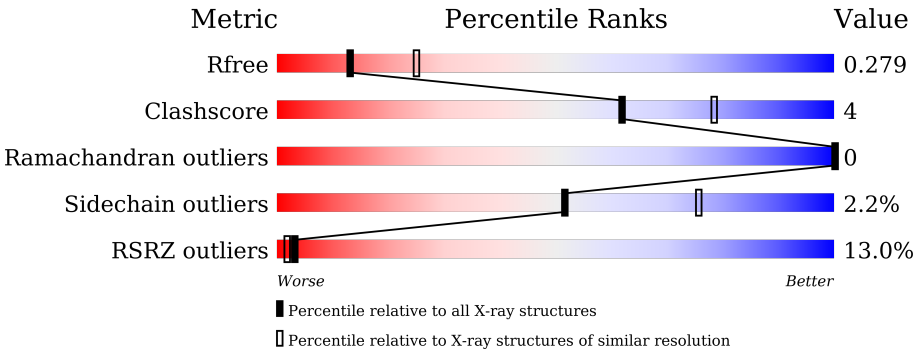
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.60 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	3163 (2.60-2.60)
Clashscore	141614	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)
RSRZ outliers	127900	3104 (2.60-2.60)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	347	9% 75% 5% 20%
1	B	347	12% 72% 8% 18%

2 Entry composition (i)

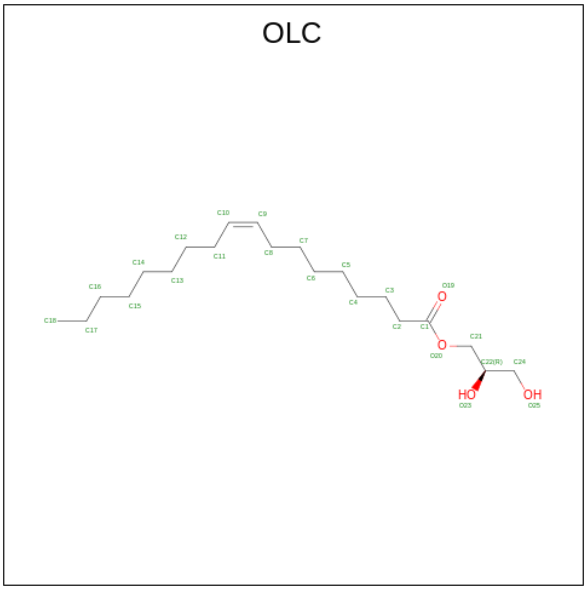
There are 3 unique types of molecules in this entry. The entry contains 4821 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Sensory opsin A,Chrimson.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	279	Total	C	N	O	S	0	0	0
			2179	1443	349	366	21			
1	B	285	Total	C	N	O	S	0	0	0
			2231	1471	355	384	21			

- Molecule 2 is (2R)-2,3-dihydroxypropyl (9Z)-octadec-9-enoate (three-letter code: OLC) (formula: $C_{21}H_{40}O_4$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	C	O	0	0
			19	15	4		
2	A	1	Total	C	O	0	0
			25	21	4		
2	A	1	Total	C	O	0	0
			25	21	4		
2	A	1	Total	C	O	0	0
			18	14	4		

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total C O 25 21 4	0	0
2	A	1	Total C O 20 18 2	0	0
2	A	1	Total C O 15 11 4	0	0
2	B	1	Total C O 25 21 4	0	0
2	B	1	Total C O 25 21 4	0	0
2	B	1	Total C O 20 16 4	0	0
2	B	1	Total C 14 14	0	0
2	B	1	Total C O 23 19 4	0	0
2	B	1	Total C O 20 18 2	0	0
2	B	1	Total C O 20 18 2	0	0
2	B	1	Total C O 15 11 4	0	0
2	B	1	Total C 14 14	0	0
2	B	1	Total C O 21 17 4	0	0
2	B	1	Total C O 16 14 2	0	0
2	B	1	Total C O 14 12 2	0	0

- Molecule 3 is water.

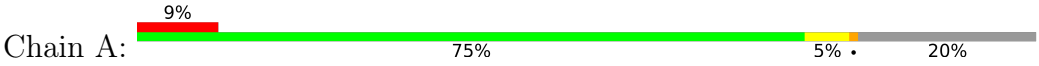
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	17	Total O 17 17	0	0
3	B	20	Total O 20 20	0	0

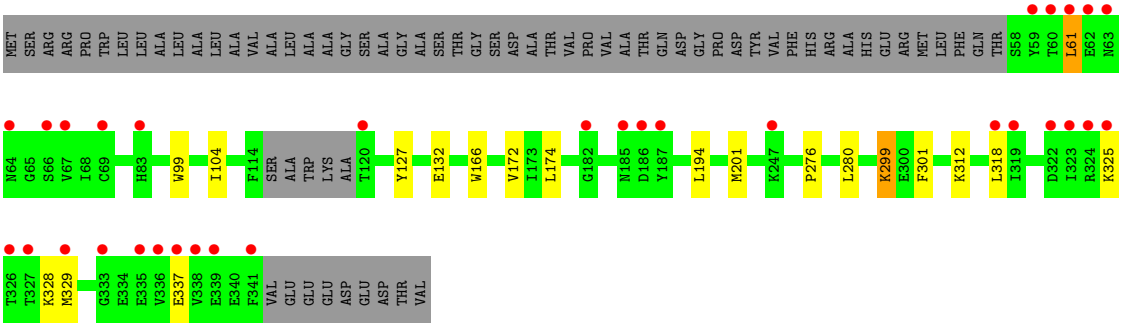
3 Residue-property plots (i)

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

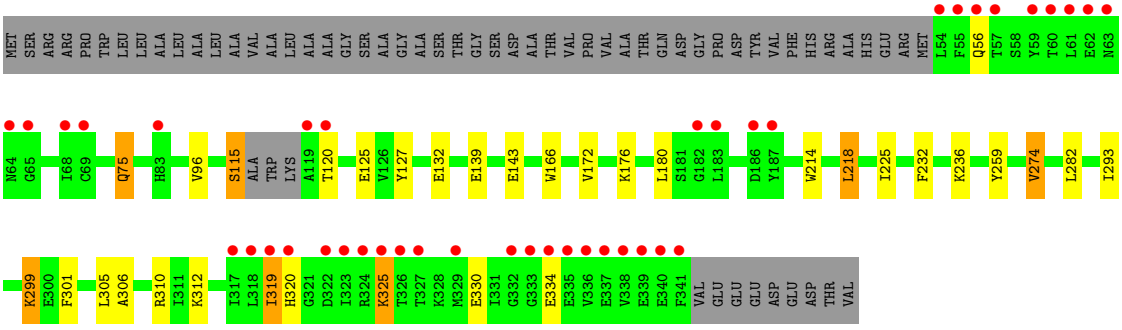
Chain A:





• Molecule 1: Sensory opsin A,Chrimson

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	60.99Å 81.44Å 170.14Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.82 – 2.60 48.82 – 2.60	Depositor EDS
% Data completeness (in resolution range)	99.6 (48.82-2.60) 99.6 (48.82-2.60)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.03 (at 2.61Å)	Xtriage
Refinement program	PHENIX 1.13_2998	Depositor
R, R_{free}	0.228 , 0.279 0.228 , 0.279	Depositor DCC
R_{free} test set	2671 reflections (9.98%)	wwPDB-VP
Wilson B-factor (Å^2)	25.0	Xtriage
Anisotropy	0.964	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 65.1	EDS
L-test for twinning[2]	$< \|L\| > = 0.45$, $< L^2 > = 0.28$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	4821	wwPDB-VP
Average B, all atoms (Å^2)	38.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 46.28 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 1.1718e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: LYR, OLC

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	0.26	0/2213	0.40	0/3011
1	B	0.26	0/2266	0.42	0/3083
All	All	0.26	0/4479	0.41	0/6094

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

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	2179	0	2128	13	0
1	B	2231	0	2152	22	0
2	A	147	0	220	9	0
2	B	227	0	338	5	0
3	A	17	0	0	0	0
3	B	20	0	0	0	0
All	All	4821	0	4838	42	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 4.

The worst 5 of 42 close contacts within the same asymmetric unit are listed below, sorted by their

clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:104:ILE:HD13	2:A:403:OLC:H10	1.61	0.83
2:B:410:OLC:H6	2:B:412:OLC:H9	1.60	0.83
1:B:176:LYS:HE2	1:B:306:ALA:HB1	1.74	0.69
1:A:299:LYR:H9	1:A:299:LYR:H183	1.81	0.62
1:B:166:TRP:CD1	1:B:299:LYR:HC2	2.34	0.61

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	274/347 (79%)	263 (96%)	11 (4%)	0	100	100
1	B	280/347 (81%)	267 (95%)	13 (5%)	0	100	100
All	All	554/694 (80%)	530 (96%)	24 (4%)	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	221/286 (77%)	217 (98%)	4 (2%)	59	80
1	B	226/286 (79%)	220 (97%)	6 (3%)	44	71

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	447/572 (78%)	437 (98%)	10 (2%)	52 76

5 of 10 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	274	VAL
1	B	319	ILE
1	B	325	LYS
1	A	329	MET
1	B	75	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	75	GLN
1	B	56	GLN
1	B	287	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)

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

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
1	LYR	A	299	1	27,29,30	0.62	0	30,37,39	1.94	9 (30%)
1	LYR	B	299	1	27,29,30	0.61	0	30,37,39	2.01	9 (30%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	LYR	A	299	1	-	3/22/40/42	0/1/1/1
1	LYR	B	299	1	-	1/22/40/42	0/1/1/1

There are no bond length outliers.

The worst 5 of 18 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	299	LYR	C13-C12-C11	-5.10	118.80	124.53
1	A	299	LYR	C1-NZ-CE	4.89	121.07	113.33
1	B	299	LYR	C1-NZ-CE	4.85	121.02	113.33
1	A	299	LYR	C13-C12-C11	-4.36	119.64	124.53
1	A	299	LYR	C17-C11-C10	2.77	123.61	115.78

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	299	LYR	C-CA-CB-CG
1	A	299	LYR	CG-CD-CE-NZ
1	B	299	LYR	CG-CD-CE-NZ
1	A	299	LYR	CA-CB-CG-CD

There are no ring outliers.

2 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	299	LYR	4	0
1	B	299	LYR	3	0

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

19 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	OLC	B	409	-	13,13,24	0.34	0	12,12,25	0.71	0
2	OLC	B	412	-	13,13,24	0.95	1 (7%)	12,13,25	1.23	1 (8%)
2	OLC	B	403	-	19,19,24	0.92	1 (5%)	20,20,25	0.93	1 (5%)
2	OLC	A	407	-	14,14,24	1.03	2 (14%)	15,15,25	0.99	1 (6%)
2	OLC	A	404	-	17,17,24	0.97	2 (11%)	18,18,25	1.06	1 (5%)
2	OLC	A	402	-	24,24,24	0.81	2 (8%)	25,25,25	0.91	1 (4%)
2	OLC	A	401	-	18,18,24	0.96	1 (5%)	18,19,25	1.09	1 (5%)
2	OLC	B	404	-	13,13,24	0.35	0	12,12,25	0.64	0
2	OLC	B	401	-	24,24,24	0.82	2 (8%)	25,25,25	0.96	1 (4%)
2	OLC	A	403	-	24,24,24	0.83	2 (8%)	25,25,25	0.98	1 (4%)
2	OLC	A	406	-	19,19,24	0.80	1 (5%)	19,19,25	1.05	0
2	OLC	B	405	-	22,22,24	0.86	2 (9%)	23,23,25	1.02	1 (4%)
2	OLC	B	407	-	19,19,24	0.83	1 (5%)	19,19,25	0.98	0
2	OLC	B	406	-	19,19,24	0.79	1 (5%)	19,19,25	1.04	0
2	OLC	B	408	-	14,14,24	1.03	2 (14%)	15,15,25	0.94	1 (6%)
2	OLC	A	405	-	24,24,24	0.83	2 (8%)	25,25,25	0.91	1 (4%)
2	OLC	B	402	-	24,24,24	0.82	2 (8%)	25,25,25	0.89	1 (4%)
2	OLC	B	411	-	15,15,24	0.88	1 (6%)	15,15,25	1.15	0
2	OLC	B	410	-	20,20,24	0.91	2 (10%)	21,21,25	0.89	1 (4%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	OLC	B	409	-	-	7/11/11/24	-
2	OLC	B	412	-	-	5/11/11/24	-
2	OLC	B	403	-	-	9/19/19/24	-
2	OLC	A	407	-	-	4/14/14/24	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	OLC	A	404	-	-	10/17/17/24	-
2	OLC	A	402	-	-	12/24/24/24	-
2	OLC	A	401	-	-	5/18/18/24	-
2	OLC	B	404	-	-	2/11/11/24	-
2	OLC	B	401	-	-	12/24/24/24	-
2	OLC	A	403	-	-	10/24/24/24	-
2	OLC	A	406	-	-	3/17/17/24	-
2	OLC	B	405	-	-	11/22/22/24	-
2	OLC	B	407	-	-	8/17/17/24	-
2	OLC	B	406	-	-	5/17/17/24	-
2	OLC	B	408	-	-	3/14/14/24	-
2	OLC	A	405	-	-	9/24/24/24	-
2	OLC	B	402	-	-	7/24/24/24	-
2	OLC	B	411	-	-	3/13/13/24	-
2	OLC	B	410	-	-	7/20/20/24	-

The worst 5 of 27 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	406	OLC	O20-C1	2.92	1.40	1.30
2	B	407	OLC	O20-C1	2.91	1.40	1.30
2	B	411	OLC	O20-C1	2.90	1.40	1.30
2	B	412	OLC	O20-C1	2.89	1.40	1.30
2	B	406	OLC	O20-C1	2.88	1.40	1.30

The worst 5 of 13 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	405	OLC	O20-C1-C2	3.13	121.72	111.91
2	A	401	OLC	O20-C1-C2	3.04	121.46	111.91
2	A	404	OLC	O20-C1-C2	2.83	120.79	111.91
2	A	403	OLC	O20-C1-C2	2.77	120.59	111.91
2	A	405	OLC	O20-C1-C2	2.76	120.56	111.91

There are no chirality outliers.

5 of 132 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	401	OLC	C9-C10-C11-C12
2	A	401	OLC	C21-C22-C24-O25
2	A	402	OLC	C21-C22-C24-O25
2	A	403	OLC	C21-C22-C24-O25
2	A	404	OLC	C21-C22-C24-O25

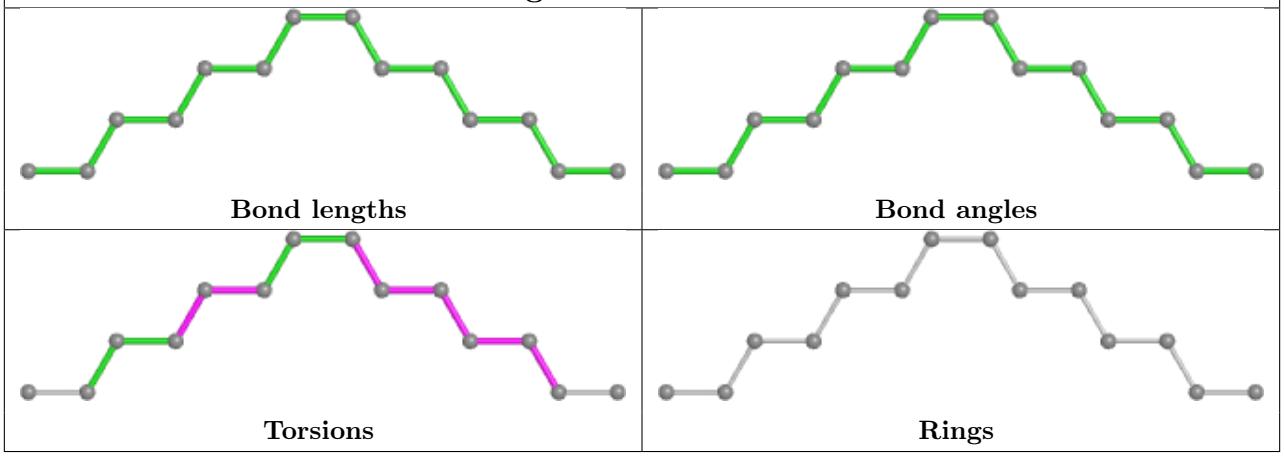
There are no ring outliers.

9 monomers are involved in 14 short contacts:

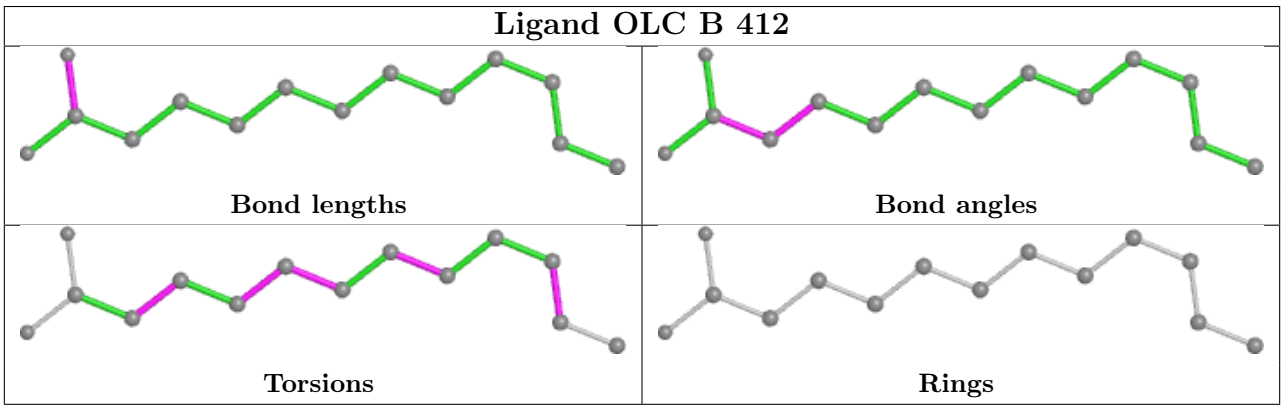
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	412	OLC	1	0
2	A	402	OLC	3	0
2	B	401	OLC	1	0
2	A	403	OLC	2	0
2	A	406	OLC	5	0
2	B	405	OLC	1	0
2	B	408	OLC	1	0
2	A	405	OLC	1	0
2	B	410	OLC	2	0

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

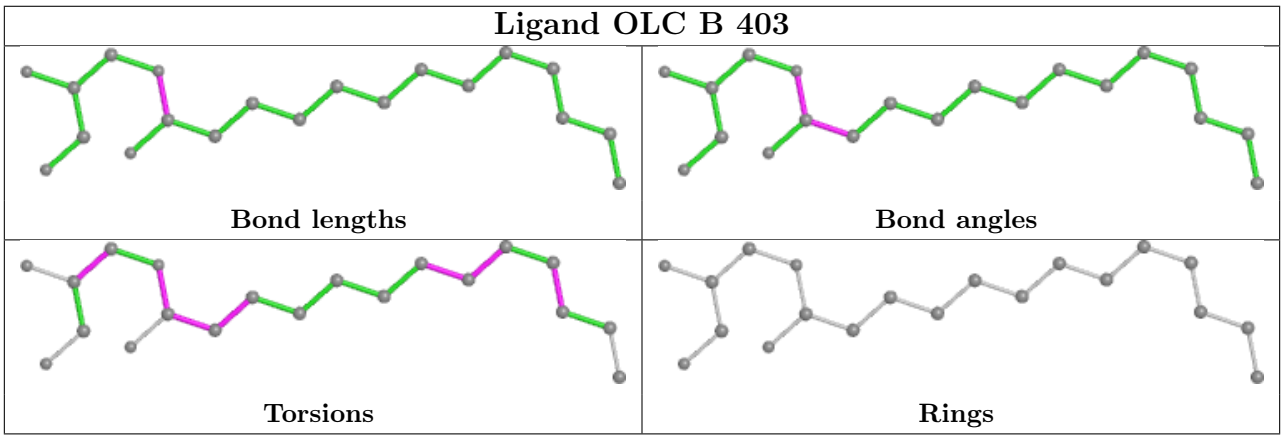
Ligand OLC B 409



Ligand OLC B 412

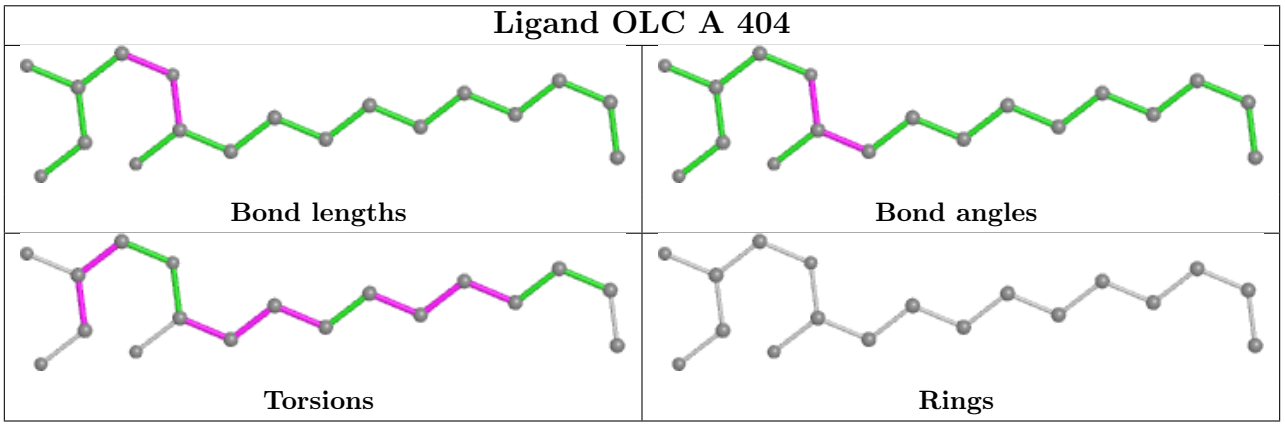


Ligand OLC B 403



Ligand OLC A 407

Ligand OLC A 404



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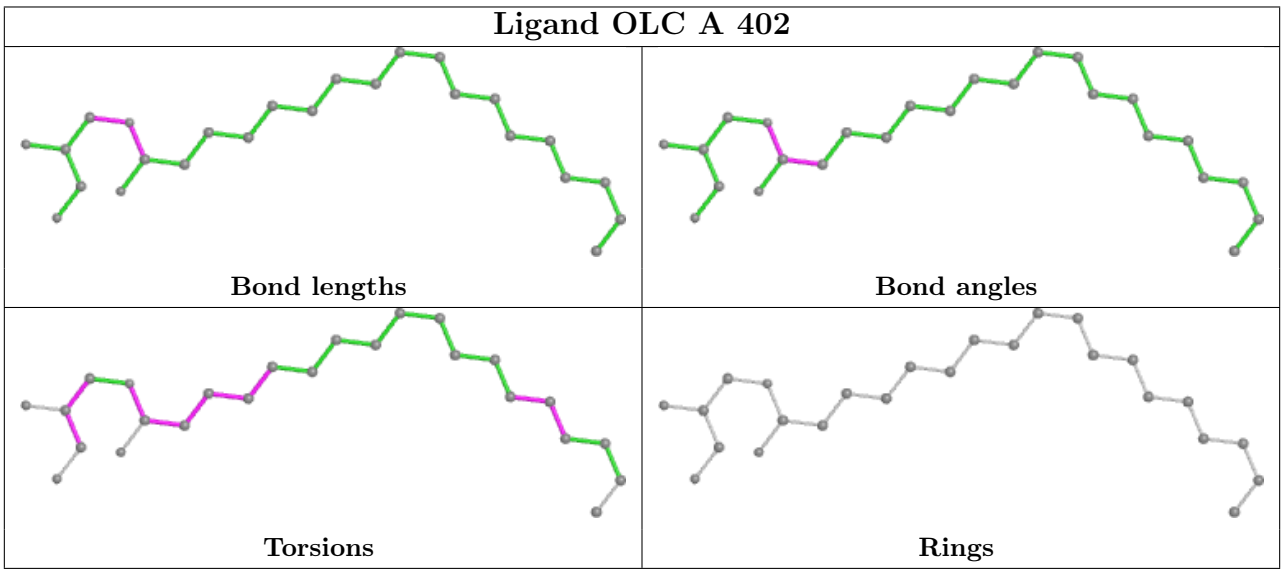

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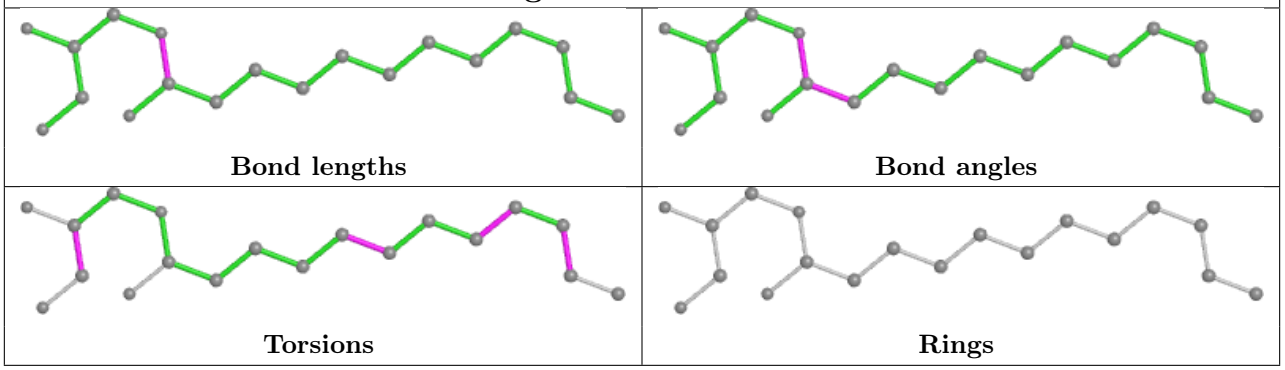

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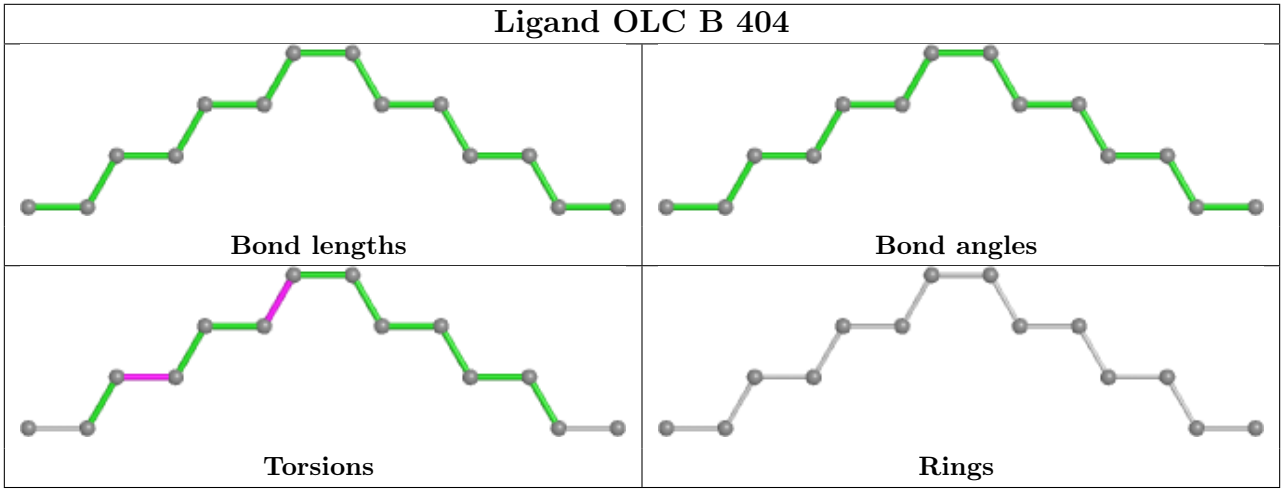

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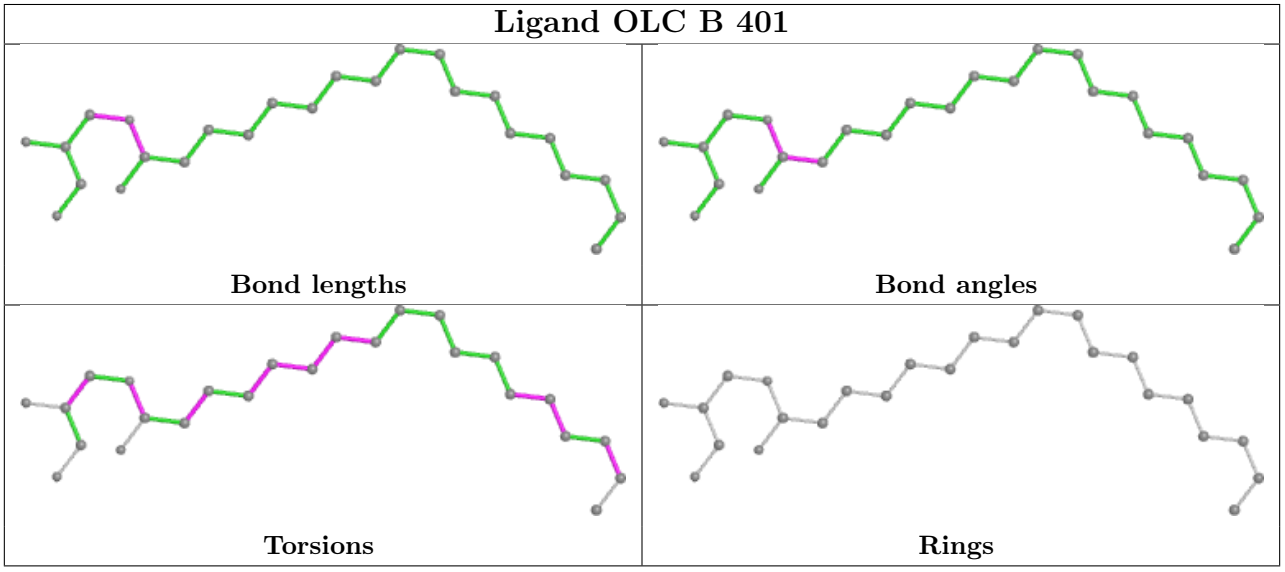

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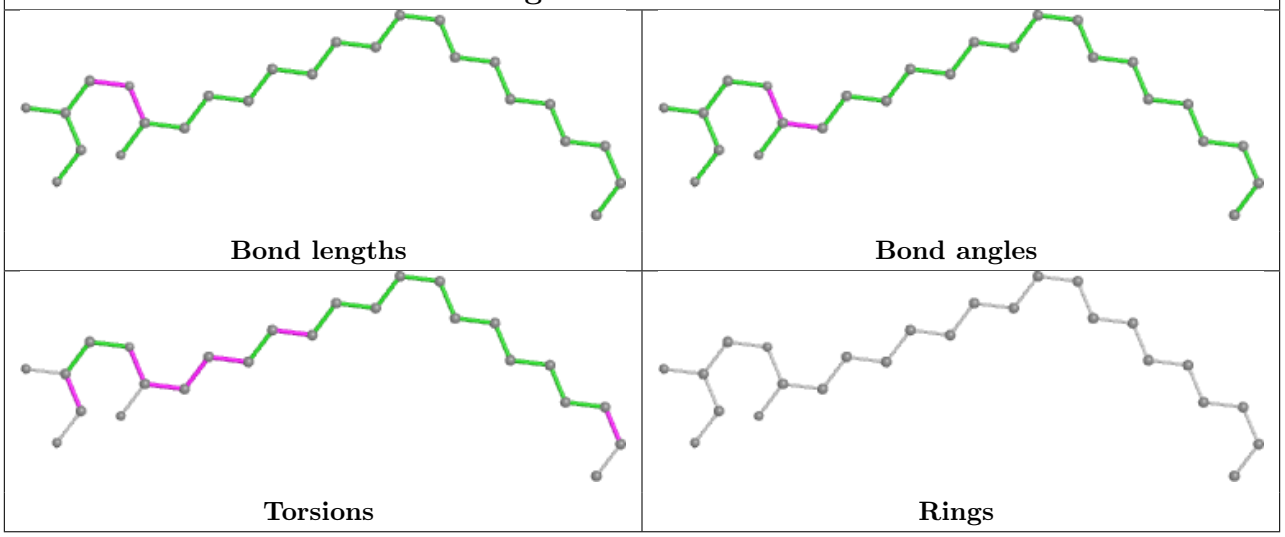

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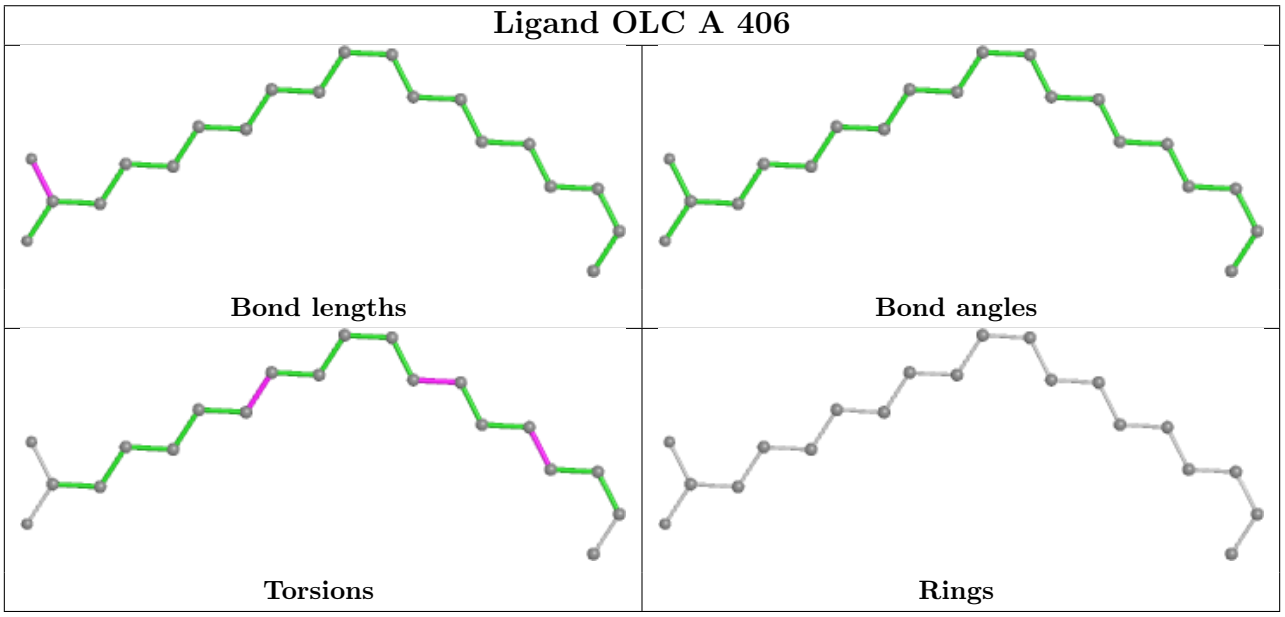

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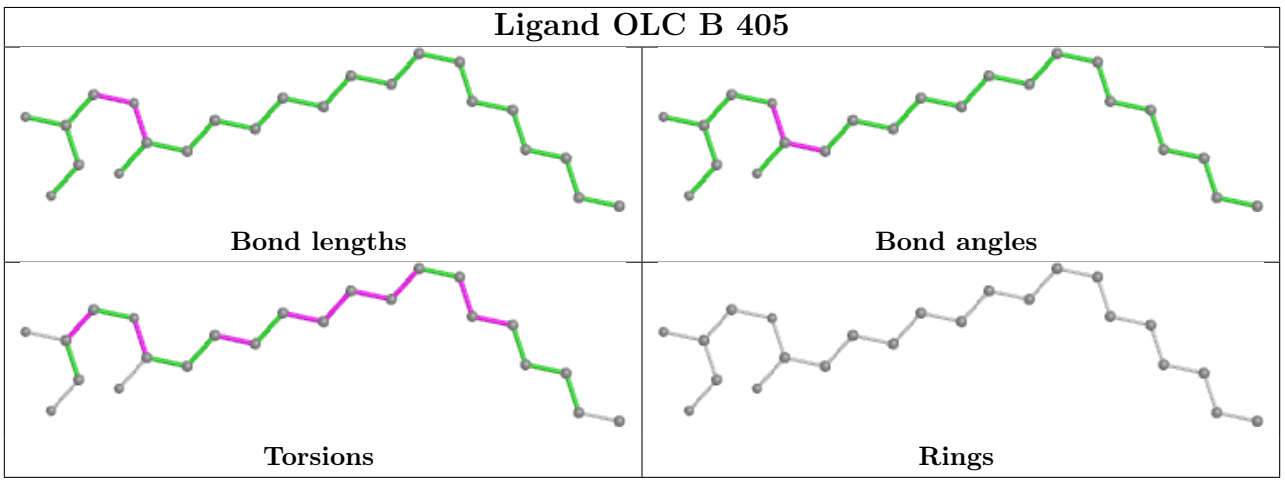

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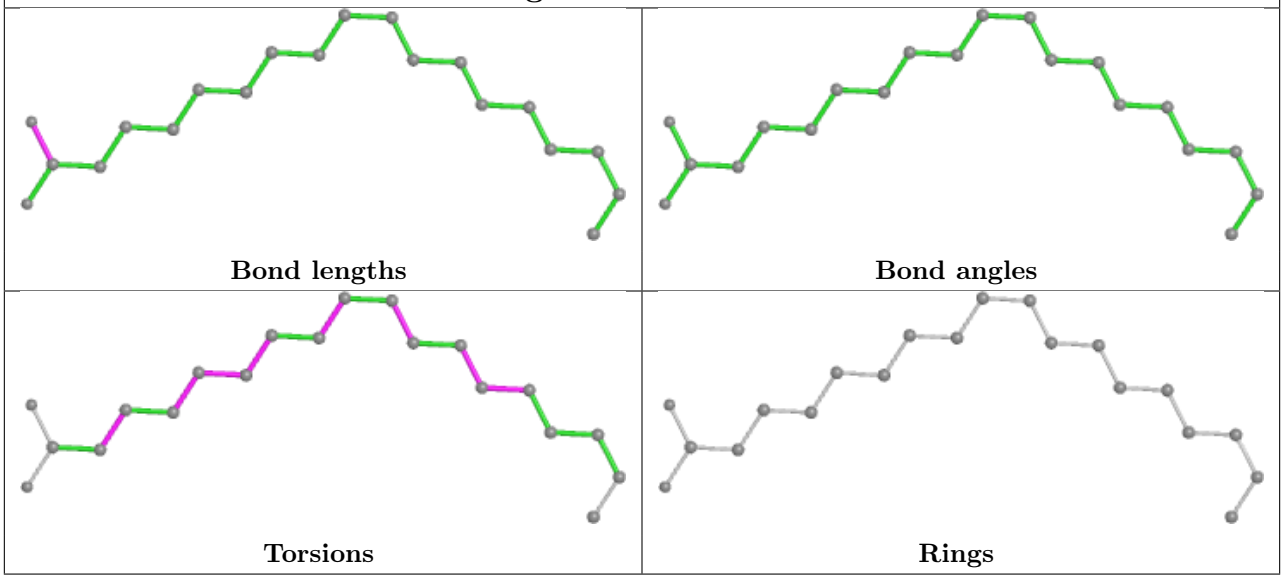

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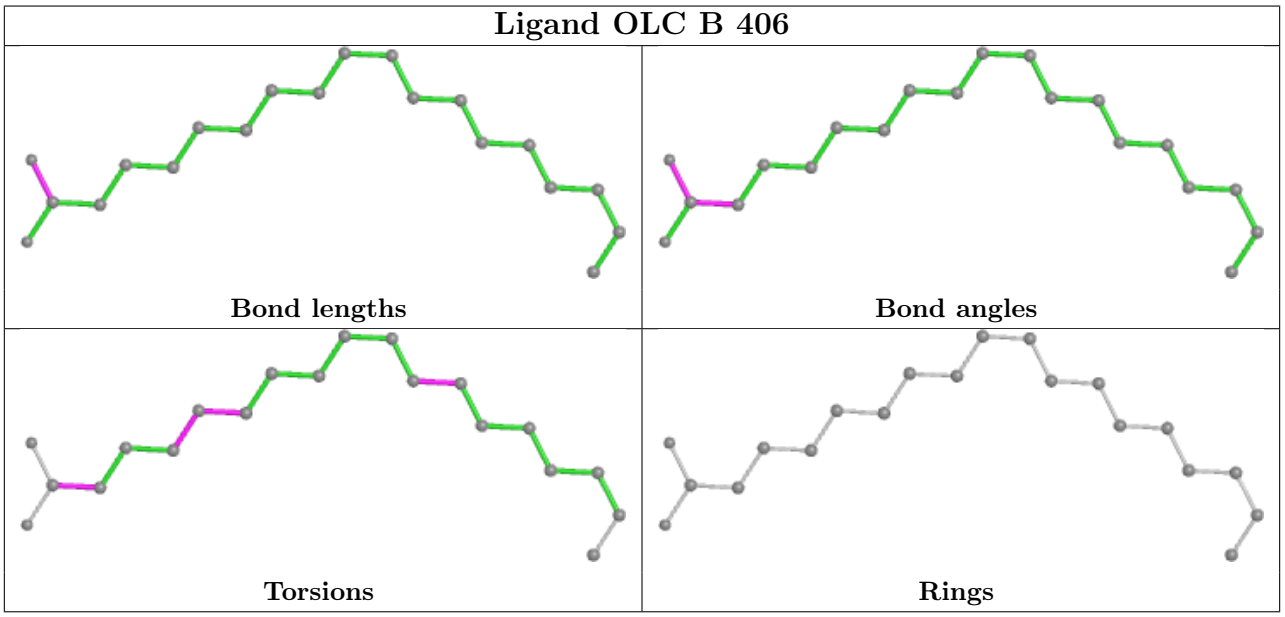

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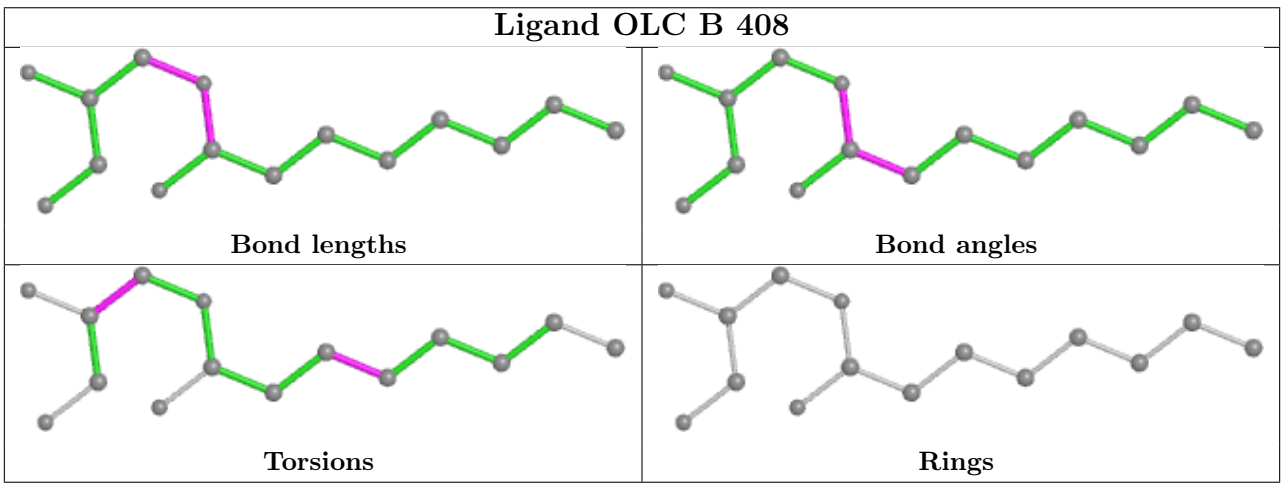

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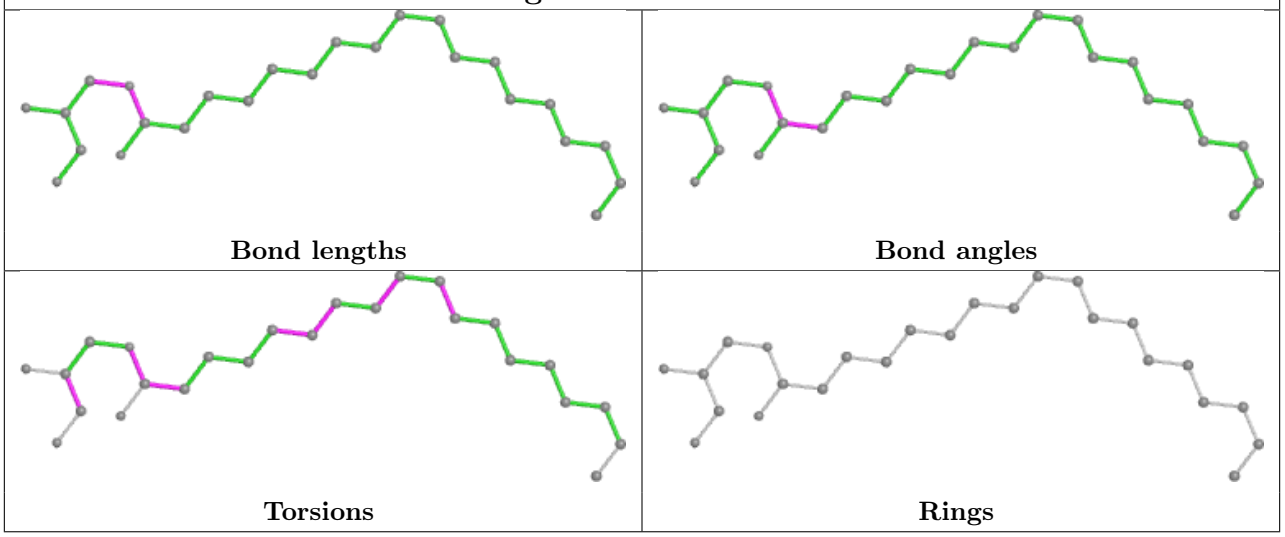
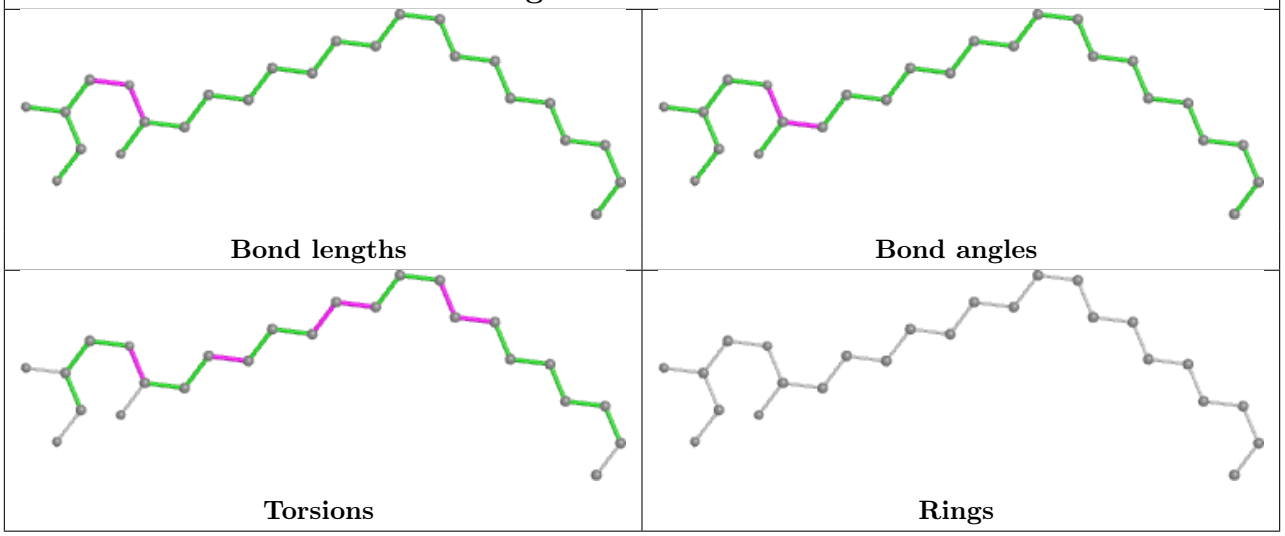
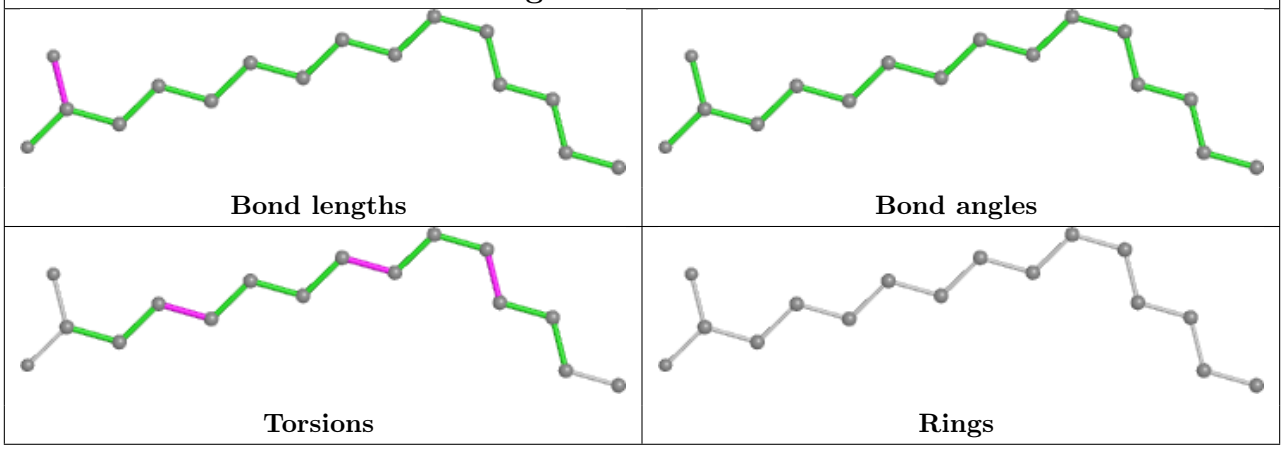
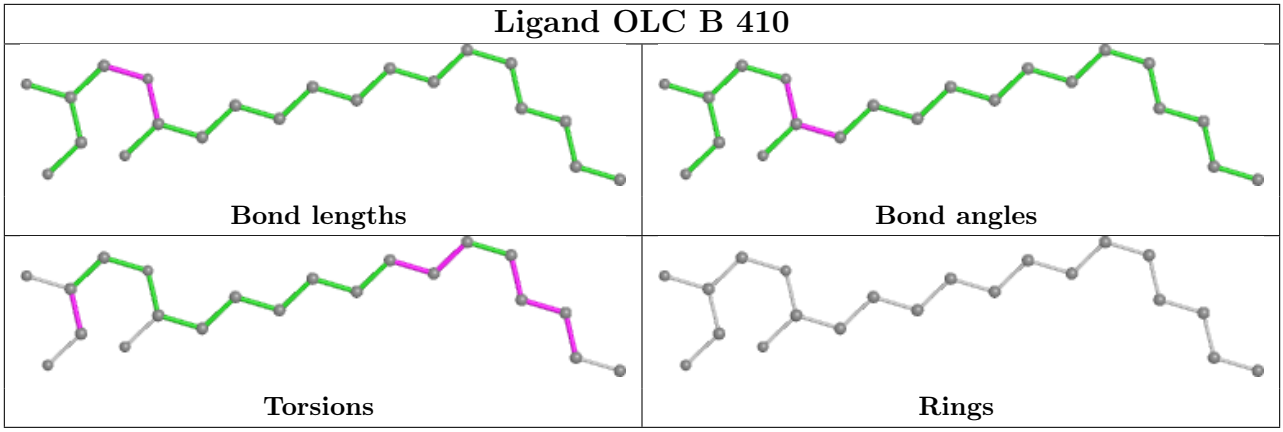


Ligand OLC B 402



Ligand OLC B 411





5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

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^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	278/347 (80%)	0.35	32 (11%)	4	3	12, 25, 100, 114	0
1	B	284/347 (81%)	0.42	41 (14%)	2	1	12, 27, 101, 134	0
All	All	562/694 (80%)	0.38	73 (12%)	3	2	12, 26, 101, 134	0

The worst 5 of 73 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	338	VAL	7.2
1	B	327	THR	6.6
1	A	338	VAL	6.4
1	A	329	MET	5.6
1	B	335	GLU	5.5

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

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^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
1	LYR	A	299	29/30	0.91	0.19	7,25,39,43	0
1	LYR	B	299	29/30	0.92	0.17	9,21,32,37	0

6.3 Carbohydrates

There are no monosaccharides in this entry.

6.4 Ligands (i)

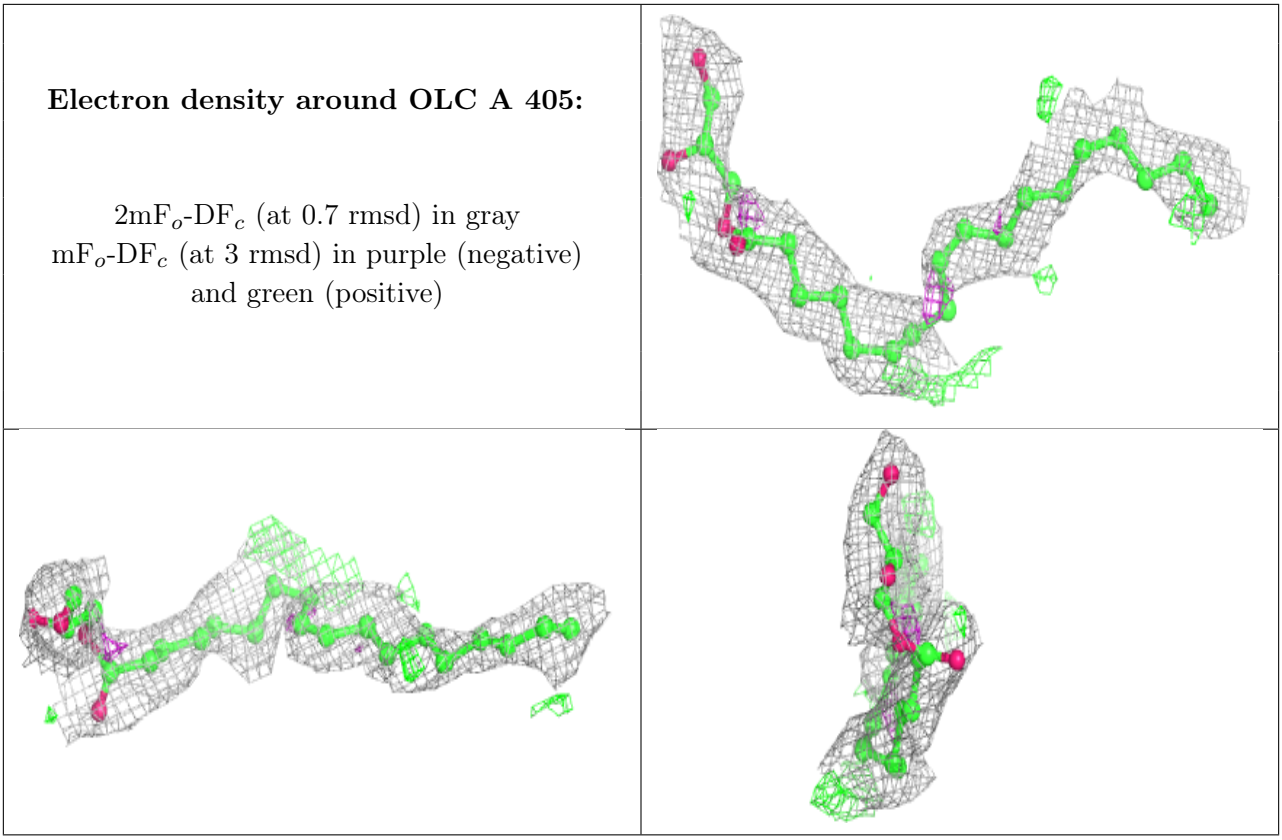
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	OLC	A	405	25/25	0.73	0.27	10,38,63,74	0
2	OLC	B	408	15/25	0.73	0.22	35,55,69,75	0
2	OLC	B	412	14/25	0.73	0.28	29,40,63,64	0
2	OLC	B	406	20/25	0.74	0.33	33,56,82,82	0
2	OLC	A	407	15/25	0.76	0.26	42,57,69,71	0
2	OLC	B	407	20/25	0.76	0.28	22,38,54,56	0
2	OLC	A	406	20/25	0.79	0.28	33,48,65,68	0
2	OLC	B	410	21/25	0.81	0.29	29,45,54,78	0
2	OLC	B	411	16/25	0.83	0.29	11,36,55,66	0
2	OLC	B	405	23/25	0.83	0.24	15,35,72,74	0
2	OLC	B	402	25/25	0.85	0.28	22,35,46,54	0
2	OLC	A	401	19/25	0.85	0.22	15,27,49,55	0
2	OLC	A	402	25/25	0.86	0.20	17,45,63,74	0
2	OLC	A	404	18/25	0.87	0.19	25,41,61,62	0
2	OLC	A	403	25/25	0.87	0.20	22,36,63,66	0
2	OLC	B	403	20/25	0.88	0.22	19,35,70,85	0
2	OLC	B	404	14/25	0.89	0.25	18,30,38,41	0
2	OLC	B	409	14/25	0.93	0.23	10,27,35,45	0
2	OLC	B	401	25/25	0.93	0.16	11,28,38,49	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.

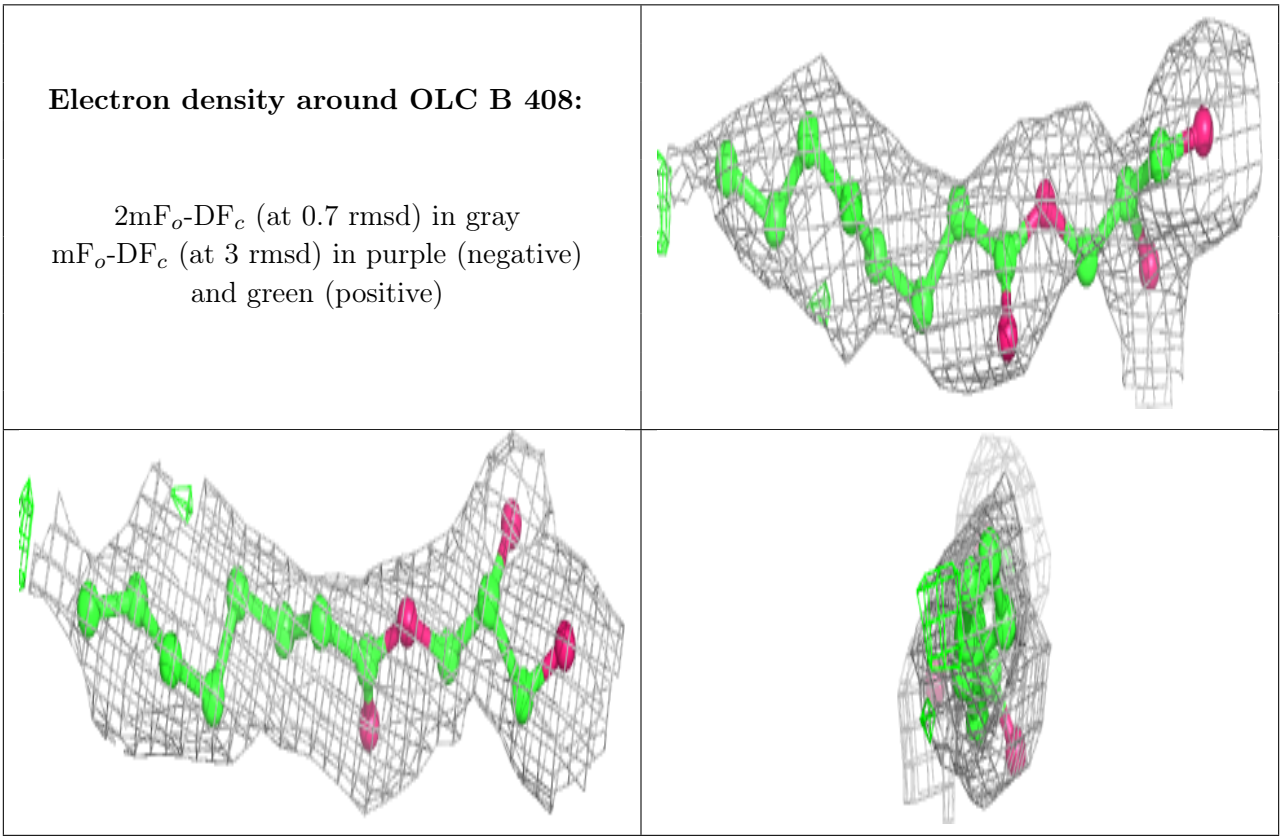
Electron density around OLC A 405:

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



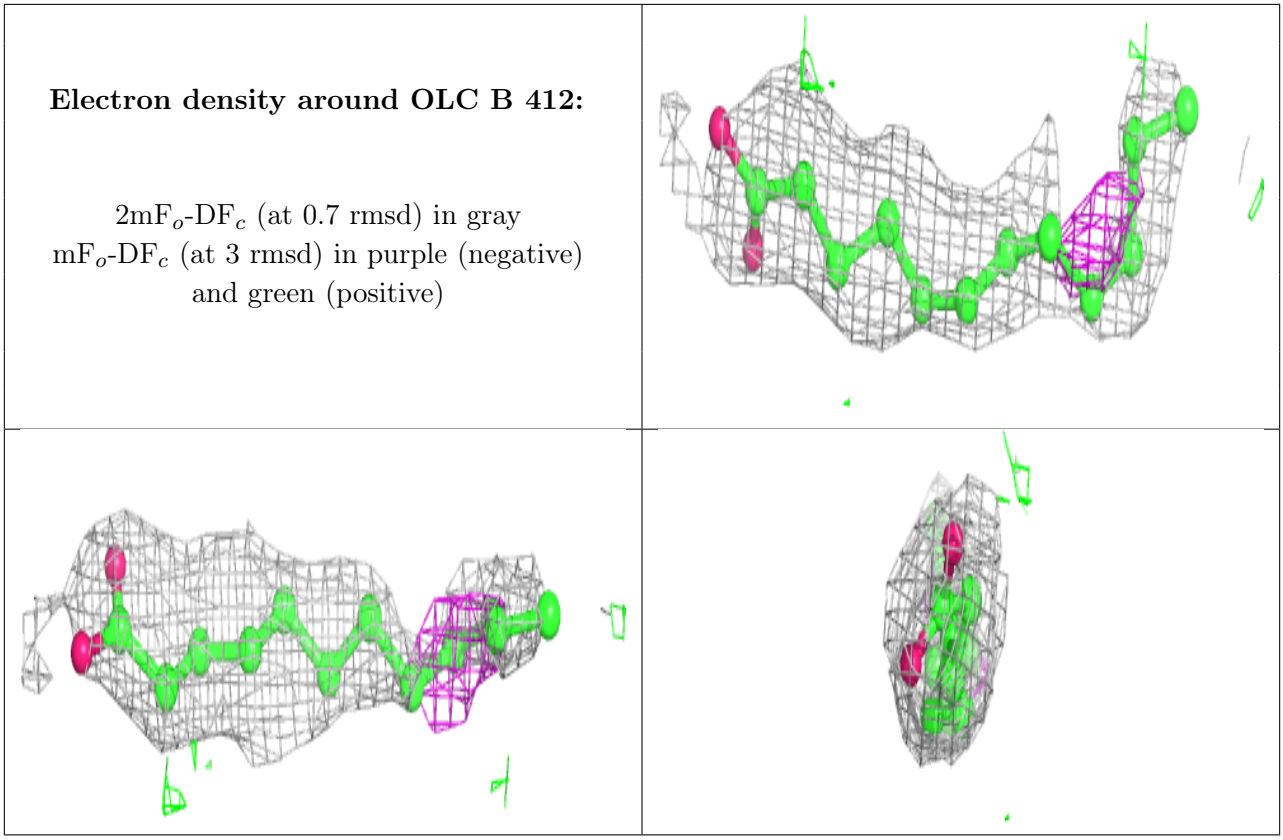
Electron density around OLC B 408:

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



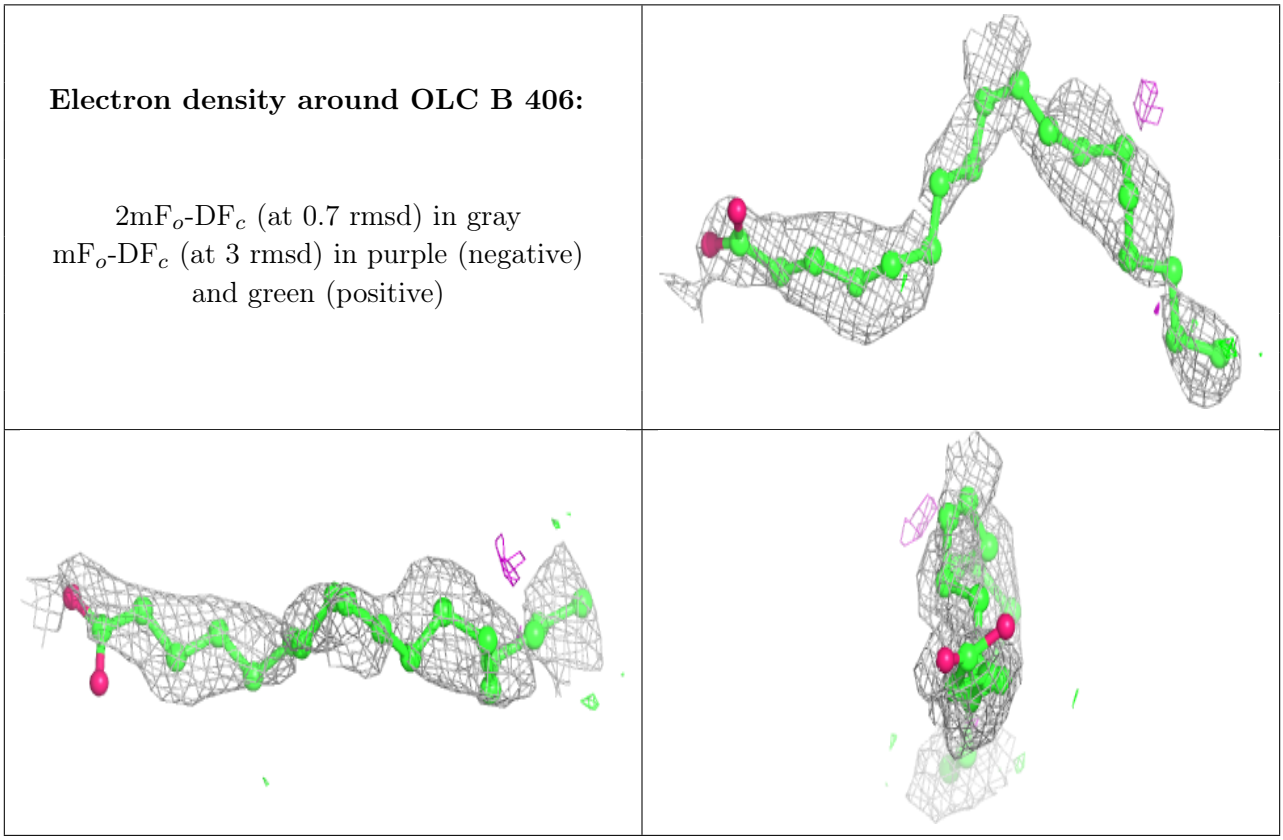
Electron density around OLC B 412:

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



Electron density around OLC B 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 OLC A 407:

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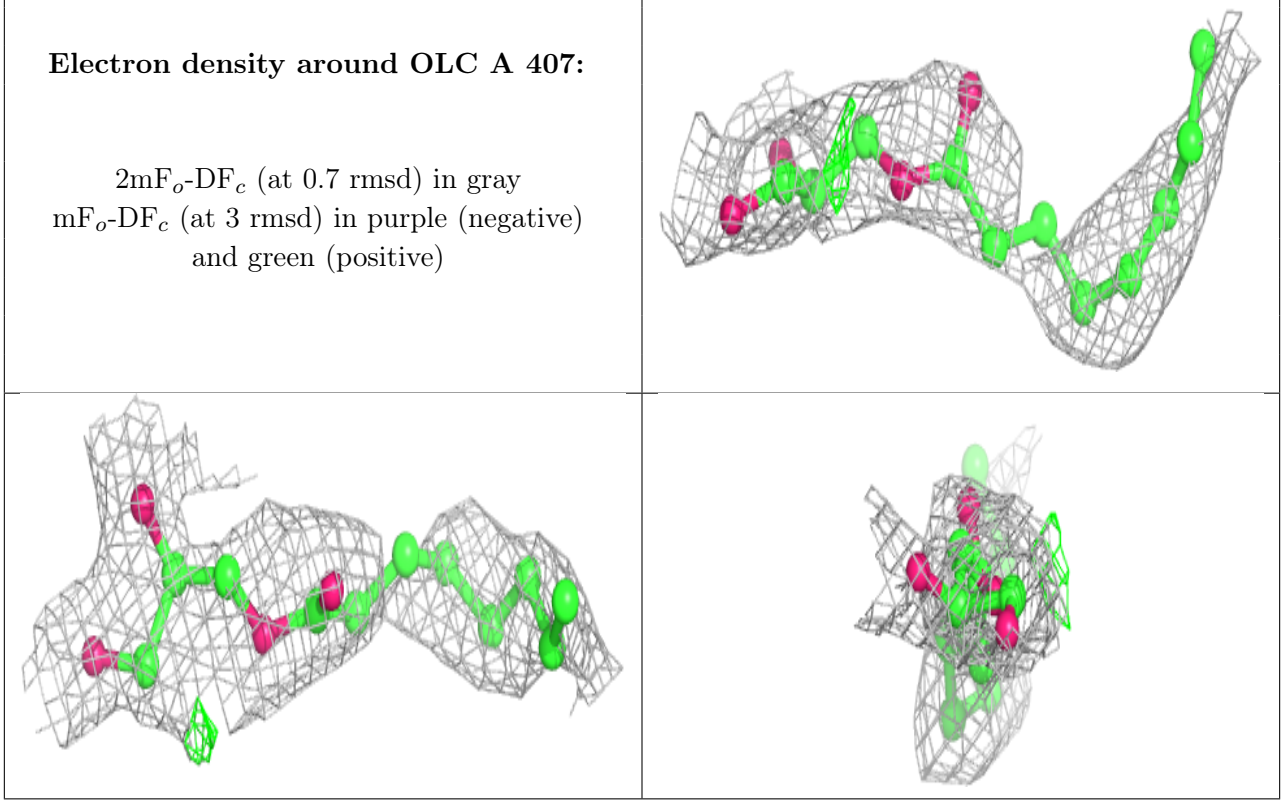
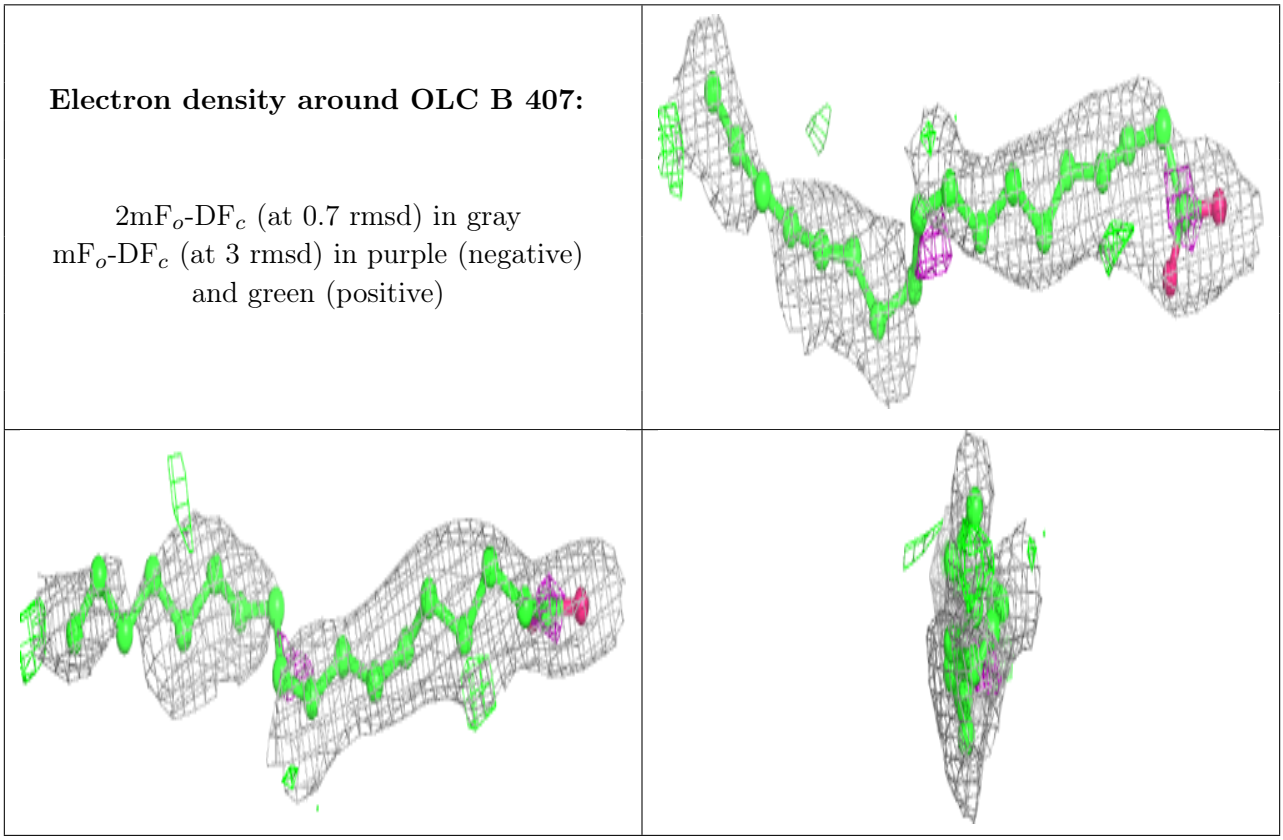
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



Electron density around OLC B 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 OLC A 406:

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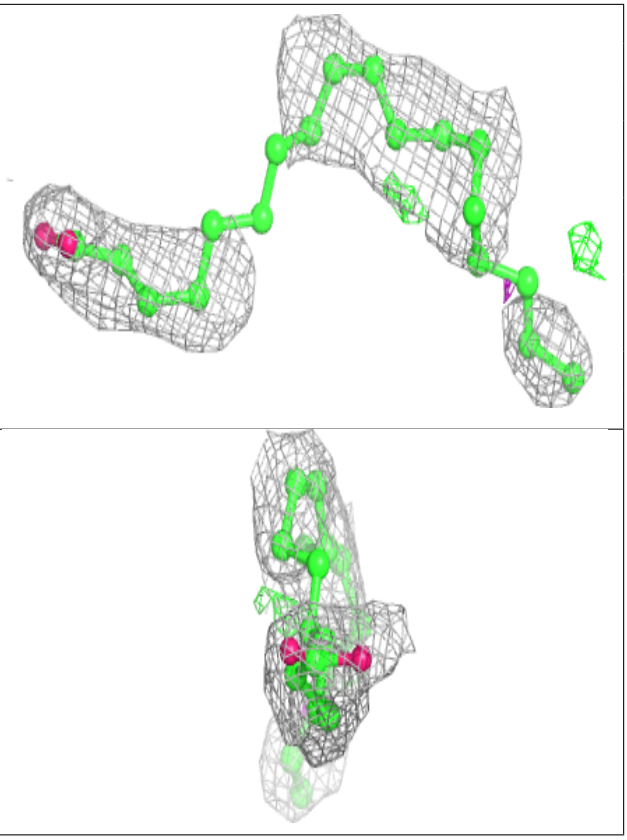
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



Electron density around OLC B 410:

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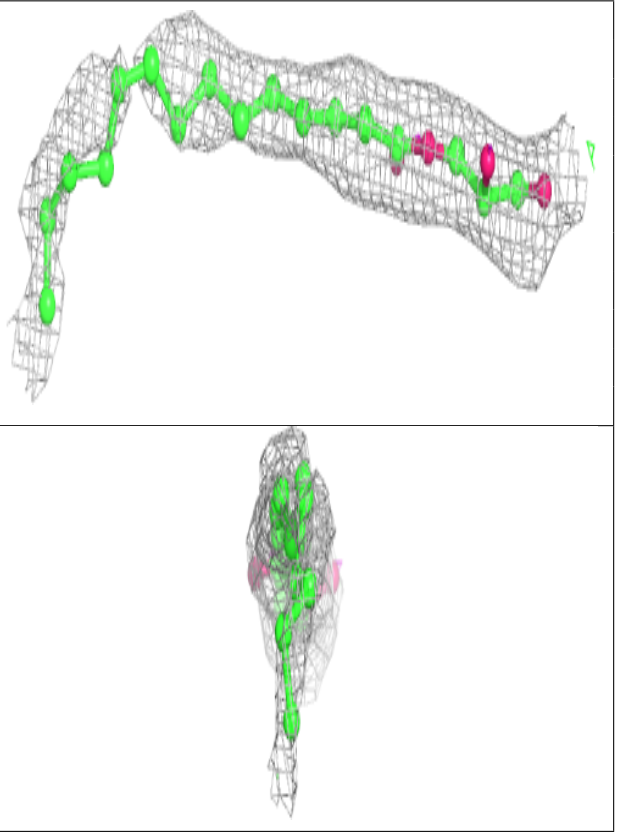
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



Electron density around OLC B 411:

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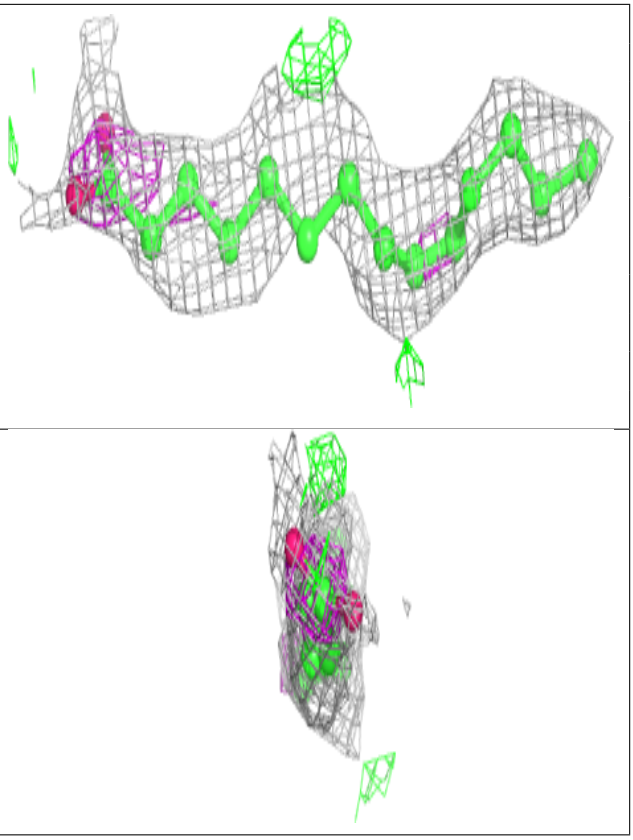
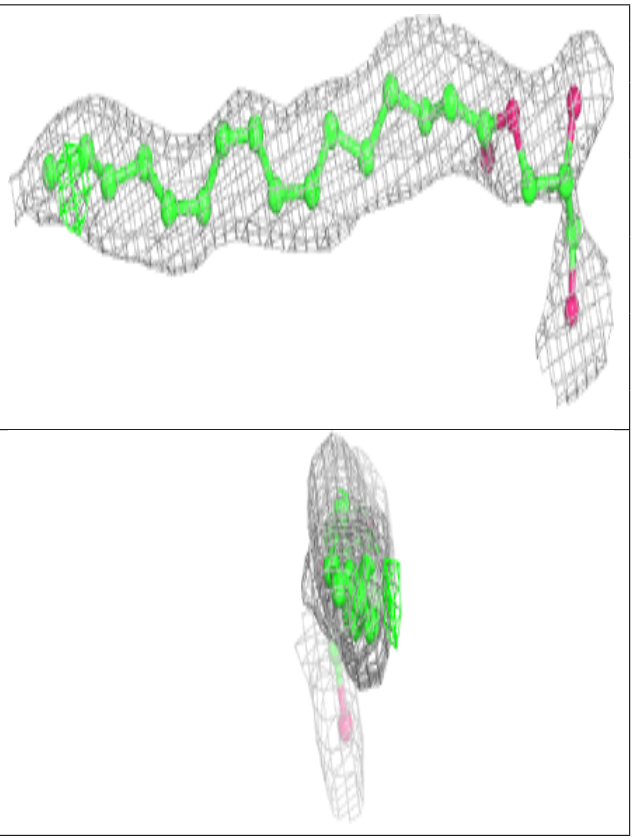
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



Electron density around OLC B 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 OLC B 402:

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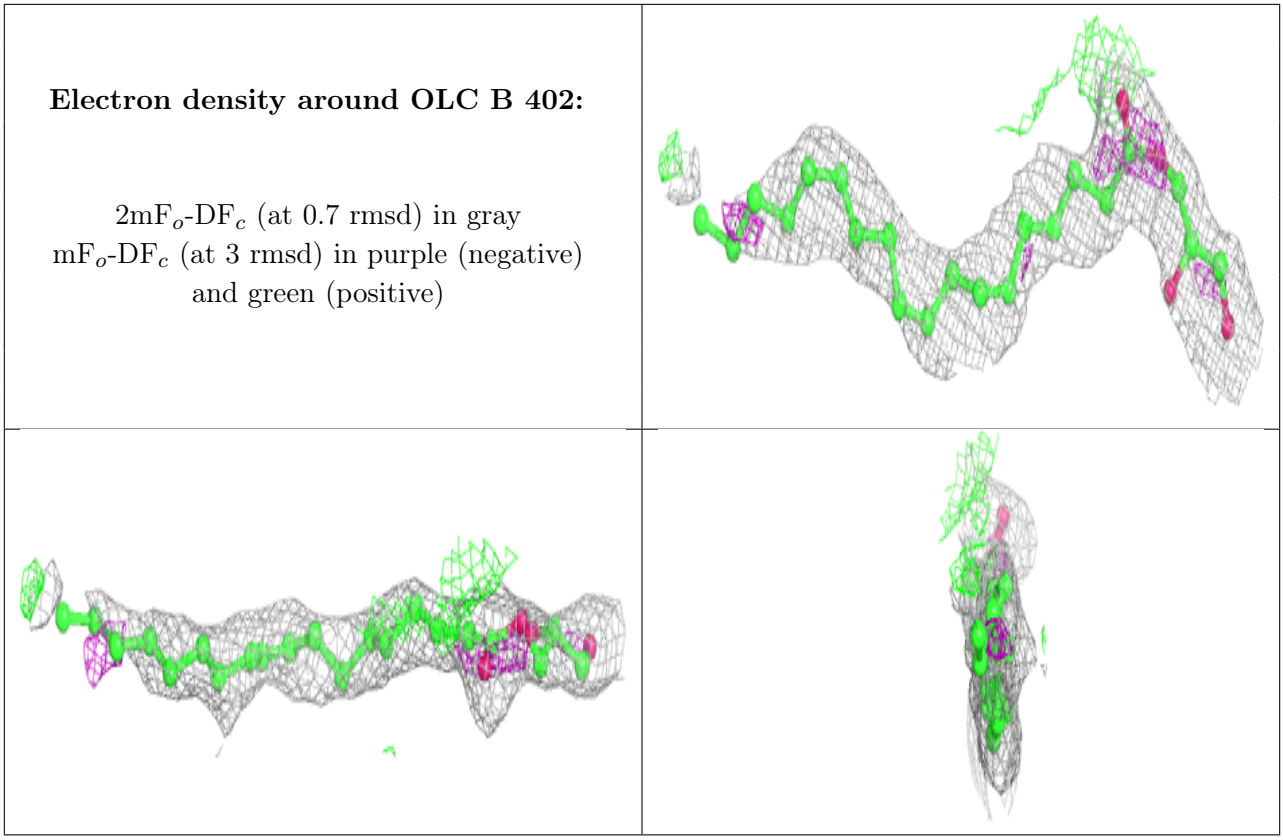
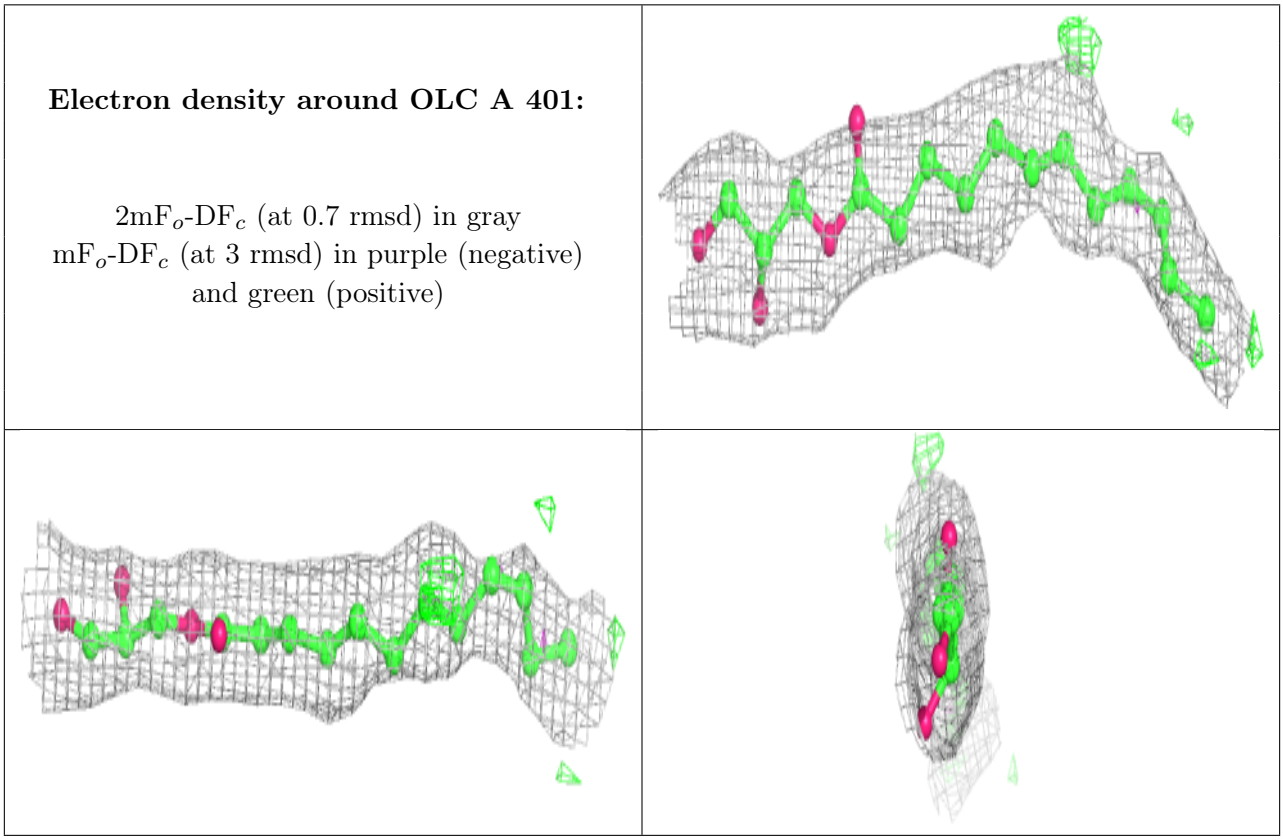
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



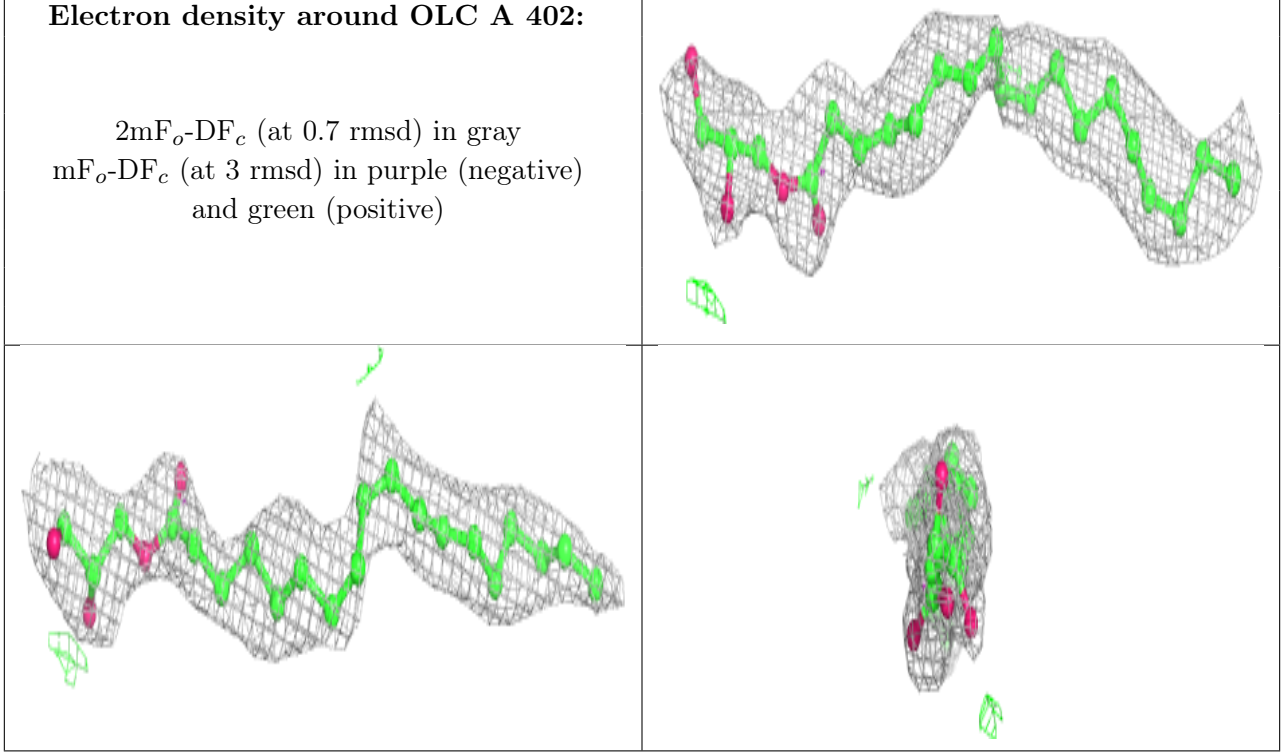
Electron density around OLC A 401:

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



Electron density around OLC 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 OLC A 404:

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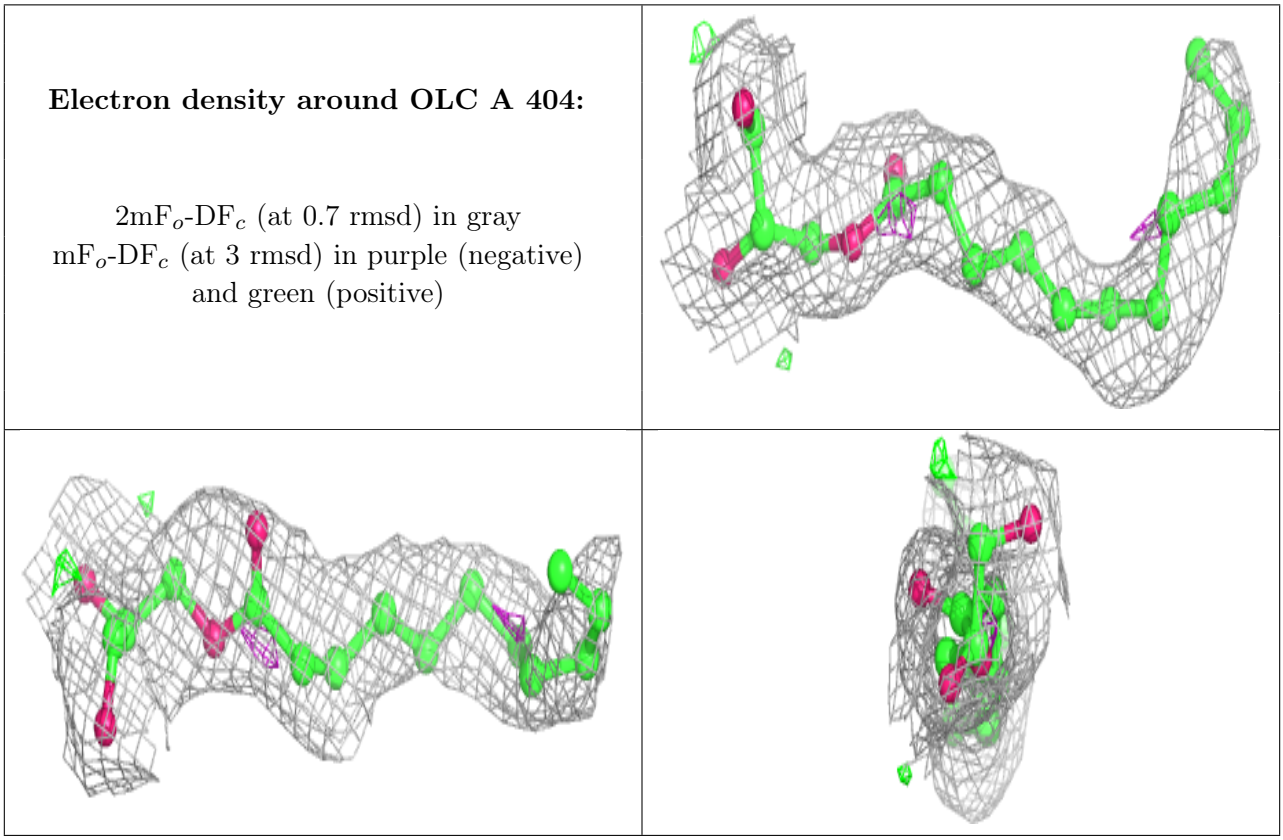

Electron density around OLC A 403:

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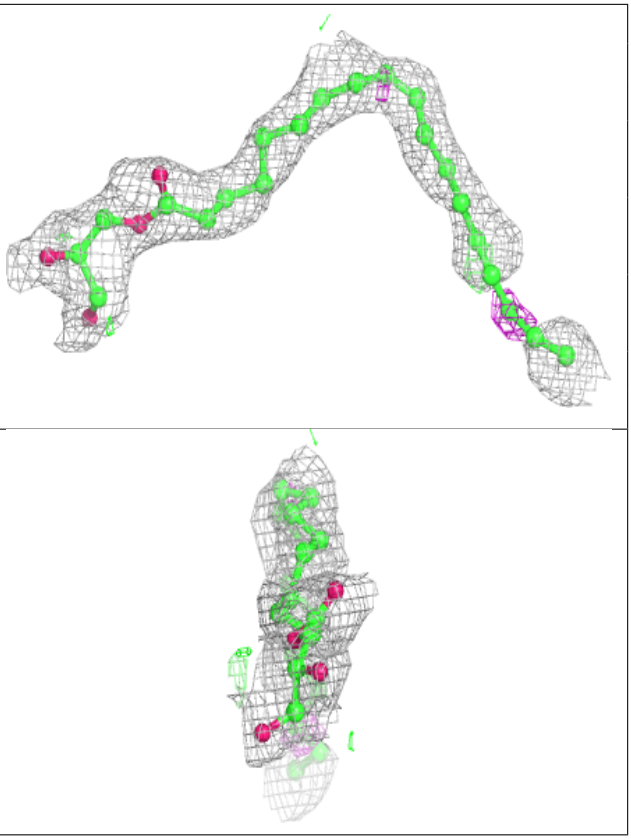
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



Electron density around OLC B 403:

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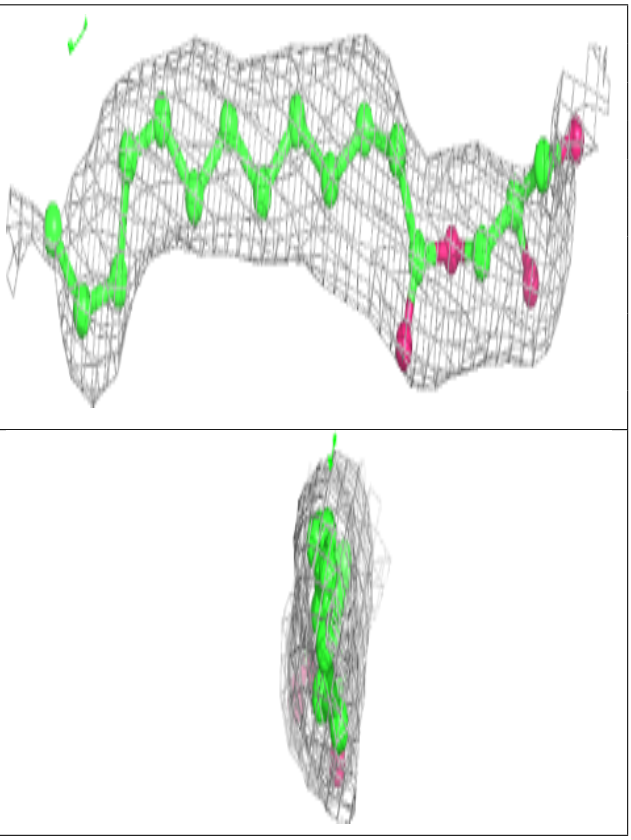
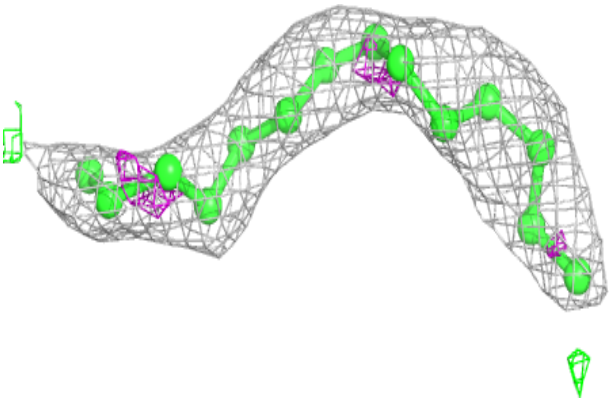
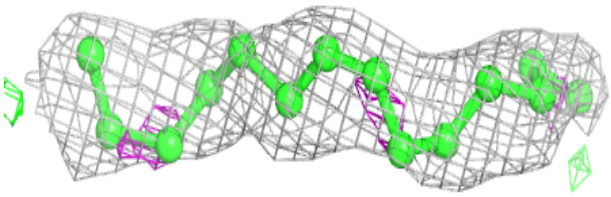
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

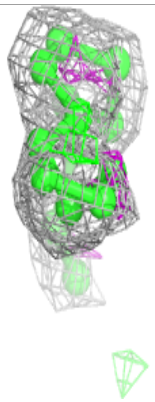


Electron density around OLC B 404:

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

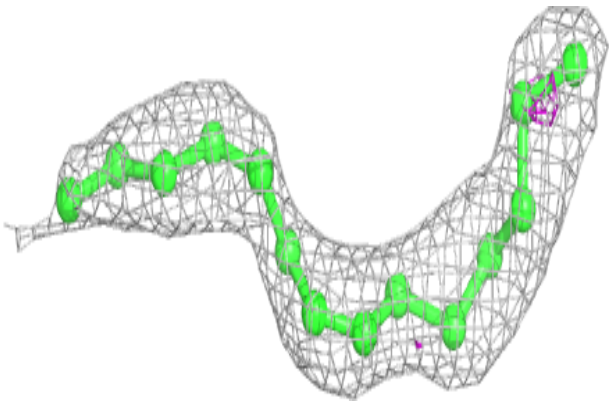


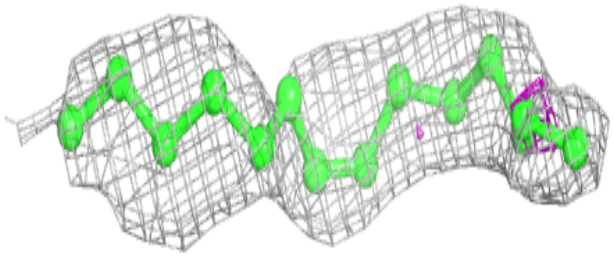


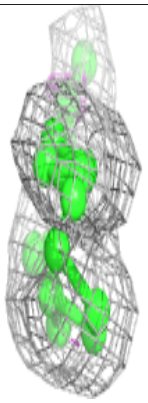


Electron density around OLC B 409:

$2mF_o$-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 B 401:

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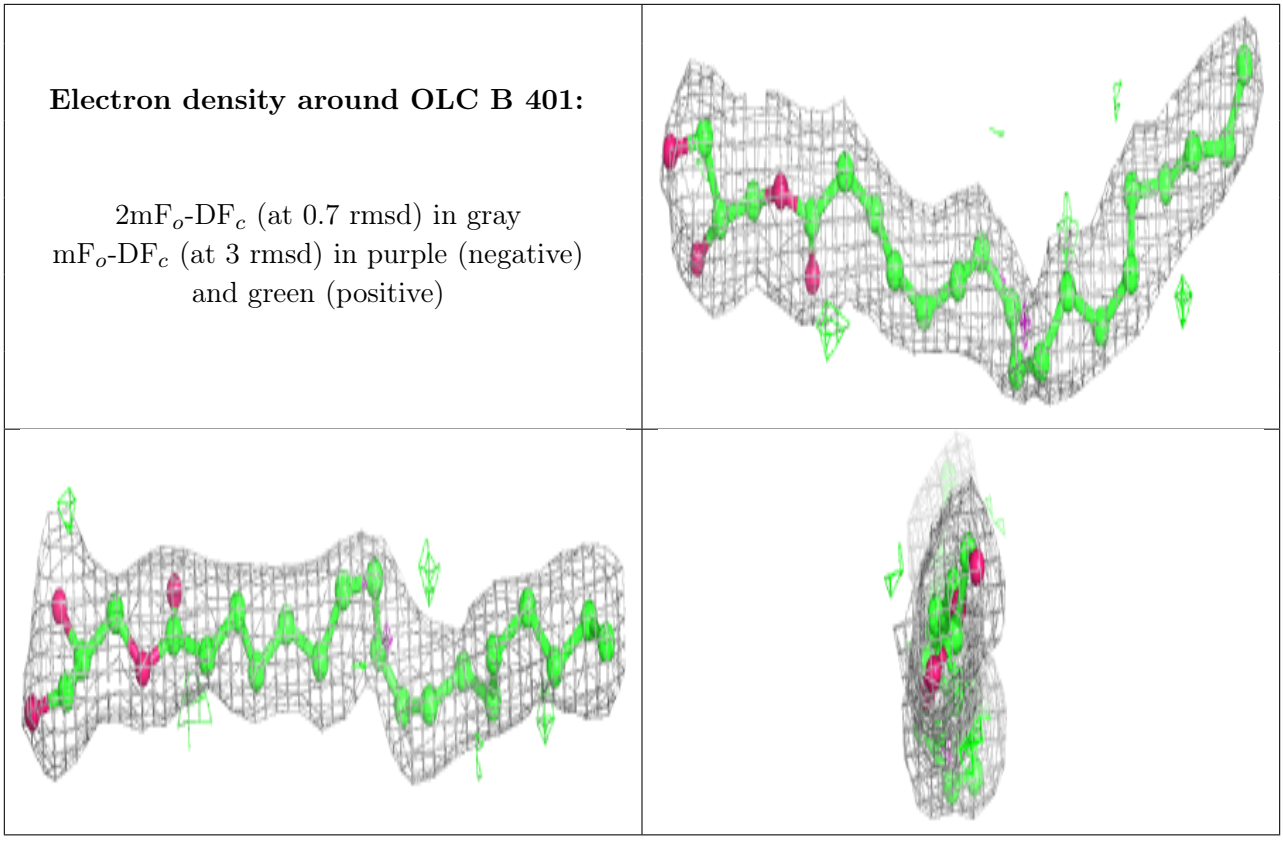
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



6.5 Other polymers (i)

There are no such residues in this entry.