



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 03:19 PM UTC

PDB ID : 7M94 / pdb_00007m94
Title : Bovine sigma-2 receptor bound to Roluperidone
Authors : Alon, A.; Kruse, A.C.
Deposited on : 2021-03-30
Resolution : 2.71 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

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>.

The following versions of software and data (see [references ⓘ](#)) 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

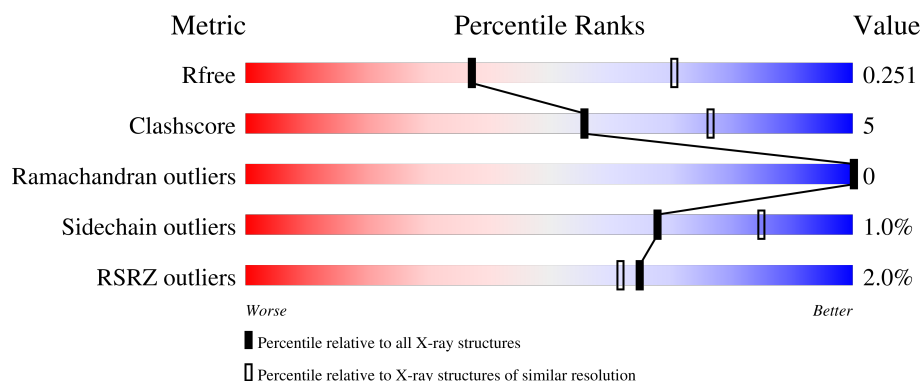
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.71 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	4348 (2.74-2.70)
Clashscore	190562	4665 (2.74-2.70)
Ramachandran outliers	187476	4584 (2.74-2.70)
Sidechain outliers	187428	4585 (2.74-2.70)
RSRZ outliers	180081	4348 (2.74-2.70)

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 ≥ 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	174	3% 82% 12% 6%
1	B	174	0% 82% 13% 5%
1	C	174	2% 84% 10% 5%
1	D	174	2% 83% 12% 5%

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 5835 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 Sigma intracellular receptor 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	163	Total	C	N	O	S	0	0	0
			1351	922	206	218	5			
1	B	165	Total	C	N	O	S	0	0	0
			1374	938	210	221	5			
1	C	165	Total	C	N	O	S	0	0	0
			1358	926	208	219	5			
1	D	166	Total	C	N	O	S	0	0	0
			1384	943	214	222	5			

There are 24 discrepancies between the modelled and reference sequences:

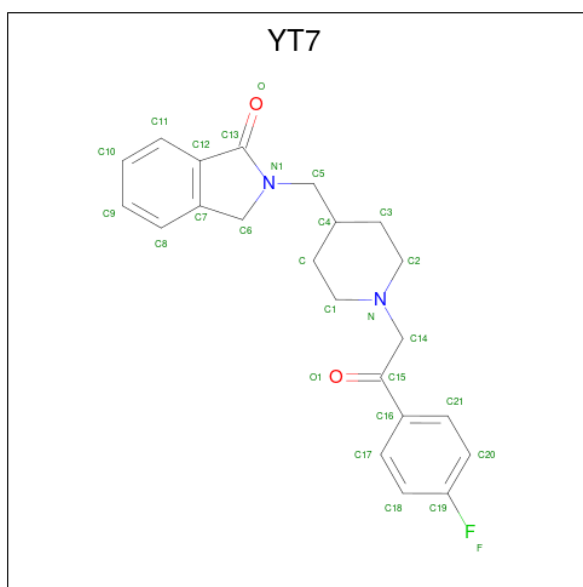
Chain	Residue	Modelled	Actual	Comment	Reference
A	-5	GLY	-	expression tag	UNP Q3MHW7
A	-4	PRO	-	expression tag	UNP Q3MHW7
A	-3	GLY	-	expression tag	UNP Q3MHW7
A	-2	GLY	-	expression tag	UNP Q3MHW7
A	-1	SER	-	expression tag	UNP Q3MHW7
A	0	SER	-	expression tag	UNP Q3MHW7
B	-5	GLY	-	expression tag	UNP Q3MHW7
B	-4	PRO	-	expression tag	UNP Q3MHW7
B	-3	GLY	-	expression tag	UNP Q3MHW7
B	-2	GLY	-	expression tag	UNP Q3MHW7
B	-1	SER	-	expression tag	UNP Q3MHW7
B	0	SER	-	expression tag	UNP Q3MHW7
C	-5	GLY	-	expression tag	UNP Q3MHW7
C	-4	PRO	-	expression tag	UNP Q3MHW7
C	-3	GLY	-	expression tag	UNP Q3MHW7
C	-2	GLY	-	expression tag	UNP Q3MHW7
C	-1	SER	-	expression tag	UNP Q3MHW7
C	0	SER	-	expression tag	UNP Q3MHW7
D	-5	GLY	-	expression tag	UNP Q3MHW7
D	-4	PRO	-	expression tag	UNP Q3MHW7
D	-3	GLY	-	expression tag	UNP Q3MHW7

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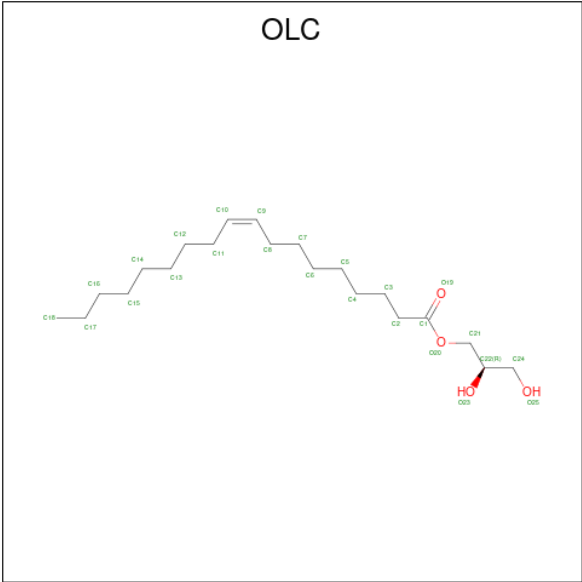
Chain	Residue	Modelled	Actual	Comment	Reference
D	-2	GLY	-	expression tag	UNP Q3MHW7
D	-1	SER	-	expression tag	UNP Q3MHW7
D	0	SER	-	expression tag	UNP Q3MHW7

- Molecule 2 is Roluperidone (CCD ID: YT7) (formula: $C_{22}H_{23}FN_2O_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	F	N	O	0	0
			27	22	1	2	2		
2	B	1	Total	C	F	N	O	0	0
			27	22	1	2	2		
2	C	1	Total	C	F	N	O	0	0
			27	22	1	2	2		
2	D	1	Total	C	F	N	O	0	0
			27	22	1	2	2		

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



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C 12 12	0	0
3	A	1	Total C 8 8	0	0
3	A	1	Total C 15 15	0	0
3	A	1	Total C 14 14	0	0
3	B	1	Total C 7 7	0	0
3	B	1	Total C 8 8	0	0
3	B	1	Total C 9 9	0	0
3	B	1	Total C 8 8	0	0
3	B	1	Total C 12 12	0	0
3	B	1	Total C 10 10	0	0
3	B	1	Total C 16 16	0	0
3	B	1	Total C 17 17	0	0
3	C	1	Total C 16 16	0	0
3	C	1	Total C 7 7	0	0

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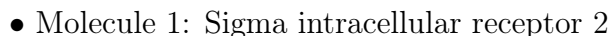
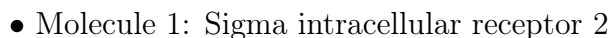
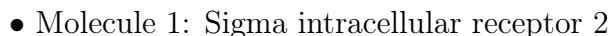
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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	C	1	Total C 10 10	0	0
3	C	1	Total C 15 15	0	0
3	C	1	Total C 13 13	0	0
3	D	1	Total C 18 18	0	0
3	D	1	Total C 10 10	0	0
3	D	1	Total C 8 8	0	0
3	D	1	Total C 17 17	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	2	Total O 2 2	0	0
4	B	4	Total O 4 4	0	0
4	C	2	Total O 2 2	0	0
4	D	2	Total O 2 2	0	0

- Molecule 1: Sigma intracellular receptor 2



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	69.05Å 54.16Å 99.70Å 90.00° 91.09° 90.00°	Depositor
Resolution (Å)	49.84 – 2.71 49.84 – 2.71	Depositor EDS
% Data completeness (in resolution range)	99.5 (49.84-2.71) 99.9 (49.84-2.71)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.07 (at 2.69Å)	Xtriage
Refinement program	PHENIX 1.19.1_4122	Depositor
R, R_{free}	0.213 , 0.254 0.212 , 0.251	Depositor DCC
R_{free} test set	2007 reflections (9.84%)	wwPDB-VP
Wilson B-factor (Å ²)	65.1	Xtriage
Anisotropy	0.049	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 62.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	0.020 for h,-k,-l	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	5835	wwPDB-VP
Average B, all atoms (Å ²)	69.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 17.42% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical 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: YT7, 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	0.14	0/1399	0.28	0/1908
1	B	0.13	0/1425	0.28	0/1945
1	C	0.13	0/1408	0.29	0/1924
1	D	0.14	0/1435	0.31	0/1958
All	All	0.14	0/5667	0.29	0/7735

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	A	1351	0	1364	12	0
1	B	1374	0	1386	15	0
1	C	1358	0	1354	13	0
1	D	1384	0	1397	12	0
2	A	27	0	0	0	0
2	B	27	0	0	0	0
2	C	27	0	0	0	0
2	D	27	0	0	0	0
3	A	49	0	79	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	87	0	146	6	0
3	C	61	0	101	7	0
3	D	53	0	94	2	0
4	A	2	0	0	0	0
4	B	4	0	0	1	0
4	C	2	0	0	0	0
4	D	2	0	0	0	0
All	All	5835	0	5921	55	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 5.

All (55) 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:C:111:LEU:HD23	1:C:114:ILE:HD12	1.67	0.77
1:B:130:ARG:NH2	4:B:301:HOH:O	2.19	0.76
1:B:51:ILE:HD13	1:B:60:GLN:HB3	1.78	0.65
3:C:202:OLC:H15A	3:C:203:OLC:H12A	1.79	0.64
1:B:111:LEU:HD23	1:B:114:ILE:HD12	1.79	0.64
1:C:99:PRO:HG3	3:C:202:OLC:H18B	1.80	0.63
1:A:76:PHE:HB3	3:A:202:OLC:H6	1.85	0.58
3:C:206:OLC:H10	1:D:68:SER:HA	1.85	0.58
1:A:97:ARG:HA	1:A:161:MET:HE2	1.85	0.57
1:B:163:ARG:HG3	1:C:38:LEU:HD23	1.86	0.57
1:D:115:LEU:HD22	1:D:144:ILE:HG23	1.86	0.57
1:A:49:TRP:CE2	1:A:53:GLU:HG3	2.41	0.54
1:D:22:ILE:HB	1:D:23:PRO:HD3	1.89	0.53
1:A:134:PRO:HG3	1:A:143:LEU:HD12	1.89	0.53
1:B:87:ALA:HB3	1:B:96:ILE:HD12	1.91	0.53
1:D:102:ILE:HG22	3:D:204:OLC:H3A	1.91	0.53
1:D:160:PHE:O	1:D:164:ASN:HB2	2.09	0.52
1:B:102:ILE:HG22	3:B:209:OLC:H15A	1.93	0.51
1:C:63:PRO:HD2	1:C:66:PHE:HB3	1.92	0.50
1:C:67:LYS:HD3	3:C:205:OLC:H7	1.94	0.49
1:C:157:LEU:O	1:C:161:MET:HG2	2.13	0.49
1:C:97:ARG:HA	1:C:161:MET:HE2	1.94	0.49
1:A:57:PRO:HG3	1:A:134:PRO:HD3	1.95	0.48
1:C:62:PRO:HB2	1:C:67:LYS:HE2	1.95	0.47
1:A:121:ASP:O	1:A:140:ARG:NH2	2.36	0.47
3:C:205:OLC:H6A	3:C:205:OLC:H3	1.73	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:49:TRP:NE1	1:C:53:GLU:HG3	2.30	0.47
1:D:125:LYS:HA	1:D:130:ARG:HA	1.96	0.47
1:B:76:PHE:HB3	3:B:209:OLC:H14	1.97	0.46
1:D:148:ILE:HG22	1:D:149:PRO:HD3	1.98	0.45
1:B:97:ARG:HA	1:B:161:MET:SD	2.58	0.44
1:C:102:ILE:HG22	3:C:202:OLC:H8	1.98	0.44
1:A:22:ILE:HB	1:A:23:PRO:HD3	1.98	0.44
1:C:129:PHE:CZ	1:C:132:GLN:HB3	2.53	0.44
1:D:36:ARG:HB2	1:D:44:ARG:HD3	1.99	0.44
1:D:41:VAL:HG22	1:D:44:ARG:HH21	1.84	0.43
1:A:157:LEU:O	1:A:161:MET:HG2	2.18	0.43
1:B:8:ARG:NH2	1:B:89:PHE:O	2.44	0.43
1:B:106:HIS:O	1:B:110:THR:HG23	2.18	0.43
1:B:156:ILE:HG23	3:B:207:OLC:H5A	2.01	0.43
3:D:204:OLC:H6A	3:D:204:OLC:H3	1.74	0.43
1:C:143:LEU:HD12	1:C:143:LEU:HA	1.89	0.42
1:A:40:PRO:HD2	1:A:43:LEU:HD12	2.01	0.42
1:D:20:SER:O	1:D:23:PRO:HD2	2.20	0.42
1:A:69:PHE:CZ	1:B:113:PRO:HG3	2.55	0.42
1:D:118:LEU:HD22	1:D:143:LEU:HD23	2.02	0.42
1:B:40:PRO:HD3	3:B:208:OLC:H15	2.02	0.41
1:C:118:LEU:HD13	1:C:143:LEU:HB3	2.03	0.41
3:C:205:OLC:H6	1:D:120:LEU:HD13	2.03	0.41
1:A:100:ALA:HB1	1:A:157:LEU:HD21	2.03	0.41
3:B:203:OLC:H18A	3:B:203:OLC:H15A	1.88	0.41
3:B:204:OLC:H16A	3:B:204:OLC:H13	1.97	0.41
1:B:79:PRO:O	1:B:82:PRO:HD2	2.20	0.40
1:A:108:MET:O	1:A:112:ILE:HG13	2.21	0.40
1:B:40:PRO:HD2	1:B:43:LEU:HD12	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all 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	159/174 (91%)	153 (96%)	6 (4%)	0	100	100
1	B	163/174 (94%)	160 (98%)	3 (2%)	0	100	100
1	C	163/174 (94%)	156 (96%)	7 (4%)	0	100	100
1	D	164/174 (94%)	161 (98%)	3 (2%)	0	100	100
All	All	649/696 (93%)	630 (97%)	19 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	145/155 (94%)	143 (99%)	2 (1%)	59	80
1	B	148/155 (96%)	147 (99%)	1 (1%)	76	89
1	C	144/155 (93%)	143 (99%)	1 (1%)	76	89
1	D	149/155 (96%)	147 (99%)	2 (1%)	61	81
All	All	586/620 (94%)	580 (99%)	6 (1%)	68	85

All (6) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	37	ASP
1	A	41	VAL
1	B	3	THR
1	C	143	LEU
1	D	33	VAL
1	D	111	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	47	GLN

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Mol	Chain	Res	Type
1	A	132	GLN
1	B	138	GLN
1	C	48	GLN
1	C	60	GLN
1	C	128	HIS
1	D	77	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

25 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	$\# Z > 2$
3	OLC	A	203	-	7,7,24	0.32	0	6,6,25	0.71	0
3	OLC	B	207	-	9,9,24	0.40	0	8,8,25	0.77	0
3	OLC	B	203	-	7,7,24	0.32	0	6,6,25	0.69	0
3	OLC	B	208	-	15,15,24	0.33	0	14,14,25	0.78	0
3	OLC	B	209	-	16,16,24	0.34	0	15,15,25	0.75	0
3	OLC	C	202	-	15,15,24	0.32	0	14,14,25	0.74	0
3	OLC	D	202	-	17,17,24	0.34	0	16,16,25	0.78	0
3	OLC	B	204	-	8,8,24	0.31	0	7,7,25	0.74	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	YT7	C	201	-	30,30,30	0.19	0	40,42,42	0.53	0
2	YT7	A	201	-	30,30,30	0.22	0	40,42,42	0.59	0
3	OLC	A	202	-	11,11,24	0.37	0	10,10,25	0.78	0
2	YT7	B	201	-	30,30,30	0.19	0	40,42,42	0.55	0
3	OLC	D	203	-	9,9,24	0.40	0	8,8,25	0.81	0
3	OLC	B	206	-	11,11,24	0.36	0	10,10,25	0.69	0
2	YT7	D	201	-	30,30,30	0.18	0	40,42,42	0.36	0
3	OLC	C	204	-	9,9,24	0.43	0	8,8,25	0.79	0
3	OLC	C	206	-	12,12,24	0.36	0	11,11,25	0.67	0
3	OLC	C	205	-	14,14,24	0.32	0	13,13,25	0.78	0
3	OLC	D	204	-	7,7,24	0.32	0	6,6,25	0.73	0
3	OLC	D	205	-	16,16,24	0.34	0	15,15,25	0.76	0
3	OLC	A	204	-	14,14,24	0.35	0	13,13,25	0.73	0
3	OLC	B	202	-	6,6,24	0.34	0	5,5,25	0.69	0
3	OLC	C	203	-	6,6,24	0.32	0	5,5,25	0.68	0
3	OLC	A	205	-	13,13,24	0.34	0	12,12,25	0.71	0
3	OLC	B	205	-	7,7,24	0.31	0	6,6,25	0.75	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
3	OLC	A	203	-	-	2/5/5/24	-
3	OLC	B	207	-	-	2/7/7/24	-
3	OLC	B	203	-	-	2/5/5/24	-
3	OLC	B	208	-	-	4/13/13/24	-
3	OLC	B	209	-	-	7/14/14/24	-
3	OLC	C	202	-	-	7/13/13/24	-
3	OLC	D	202	-	-	6/15/15/24	-
3	OLC	B	204	-	-	5/6/6/24	-
2	YT7	C	201	-	-	2/12/34/34	0/4/4/4
2	YT7	A	201	-	-	4/12/34/34	0/4/4/4
3	OLC	A	202	-	-	6/9/9/24	-
2	YT7	B	201	-	-	3/12/34/34	0/4/4/4
3	OLC	D	203	-	-	5/7/7/24	-
3	OLC	B	206	-	-	4/9/9/24	-
2	YT7	D	201	-	-	2/12/34/34	0/4/4/4

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	OLC	C	204	-	-	6/7/7/24	-
3	OLC	C	206	-	-	3/10/10/24	-
3	OLC	C	205	-	-	5/12/12/24	-
3	OLC	D	204	-	-	2/5/5/24	-
3	OLC	D	205	-	-	5/14/14/24	-
3	OLC	A	204	-	-	7/12/12/24	-
3	OLC	B	202	-	-	0/4/4/24	-
3	OLC	C	203	-	-	2/4/4/24	-
3	OLC	A	205	-	-	7/11/11/24	-
3	OLC	B	205	-	-	3/5/5/24	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (101) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	201	YT7	C4-C5-N1-C13
2	B	201	YT7	C4-C5-N1-C6
2	B	201	YT7	C4-C5-N1-C13
2	C	201	YT7	C4-C5-N1-C6
2	C	201	YT7	C4-C5-N1-C13
2	D	201	YT7	C15-C14-N-C1
3	D	203	OLC	C9-C10-C11-C12
3	D	202	OLC	C4-C5-C6-C7
3	C	206	OLC	C4-C5-C6-C7
3	B	209	OLC	C12-C13-C14-C15
3	B	204	OLC	C12-C13-C14-C15
3	C	202	OLC	C14-C15-C16-C17
3	B	208	OLC	C6-C7-C8-C9
3	D	205	OLC	C12-C13-C14-C15
3	A	202	OLC	C5-C6-C7-C8
3	B	209	OLC	C13-C14-C15-C16
3	B	209	OLC	C14-C15-C16-C17
3	D	204	OLC	C4-C5-C6-C7
3	A	202	OLC	C9-C10-C11-C12
3	A	204	OLC	C6-C7-C8-C9
3	C	204	OLC	C10-C11-C12-C13
3	A	203	OLC	C13-C14-C15-C16

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Mol	Chain	Res	Type	Atoms
3	B	204	OLC	C11-C12-C13-C14
3	B	209	OLC	C9-C10-C11-C12
3	C	202	OLC	C12-C13-C14-C15
3	C	202	OLC	C5-C6-C7-C8
3	C	204	OLC	C9-C10-C11-C12
3	B	208	OLC	C10-C11-C12-C13
3	B	209	OLC	C10-C11-C12-C13
3	C	202	OLC	C6-C7-C8-C9
3	A	205	OLC	C5-C6-C7-C8
3	B	206	OLC	C4-C5-C6-C7
3	D	205	OLC	C11-C12-C13-C14
3	B	208	OLC	C5-C6-C7-C8
3	B	205	OLC	C13-C14-C15-C16
3	A	202	OLC	C6-C7-C8-C9
3	C	205	OLC	C6-C7-C8-C9
3	D	205	OLC	C6-C7-C8-C9
3	C	202	OLC	C10-C11-C12-C13
3	D	202	OLC	C12-C13-C14-C15
3	A	204	OLC	C4-C5-C6-C7
3	D	202	OLC	C14-C15-C16-C17
3	C	203	OLC	C11-C12-C13-C14
3	B	209	OLC	C15-C16-C17-C18
3	D	205	OLC	C2-C3-C4-C5
3	C	202	OLC	C15-C16-C17-C18
2	A	201	YT7	C4-C5-N1-C6
3	A	205	OLC	C4-C5-C6-C7
3	B	208	OLC	C2-C3-C4-C5
3	B	205	OLC	C12-C13-C14-C15
3	B	207	OLC	C9-C10-C11-C12
3	C	202	OLC	C11-C12-C13-C14
3	D	202	OLC	C15-C16-C17-C18
2	A	201	YT7	C3-C4-C5-N1
3	B	204	OLC	C13-C14-C15-C16
3	C	204	OLC	C13-C14-C15-C16
3	C	205	OLC	C4-C5-C6-C7
3	A	204	OLC	C5-C6-C7-C8
3	D	203	OLC	C11-C12-C13-C14
3	A	202	OLC	C1-C2-C3-C4
3	A	204	OLC	C9-C10-C11-C12
3	B	207	OLC	C7-C8-C9-C10
3	A	205	OLC	C11-C12-C13-C14
3	B	206	OLC	C9-C10-C11-C12

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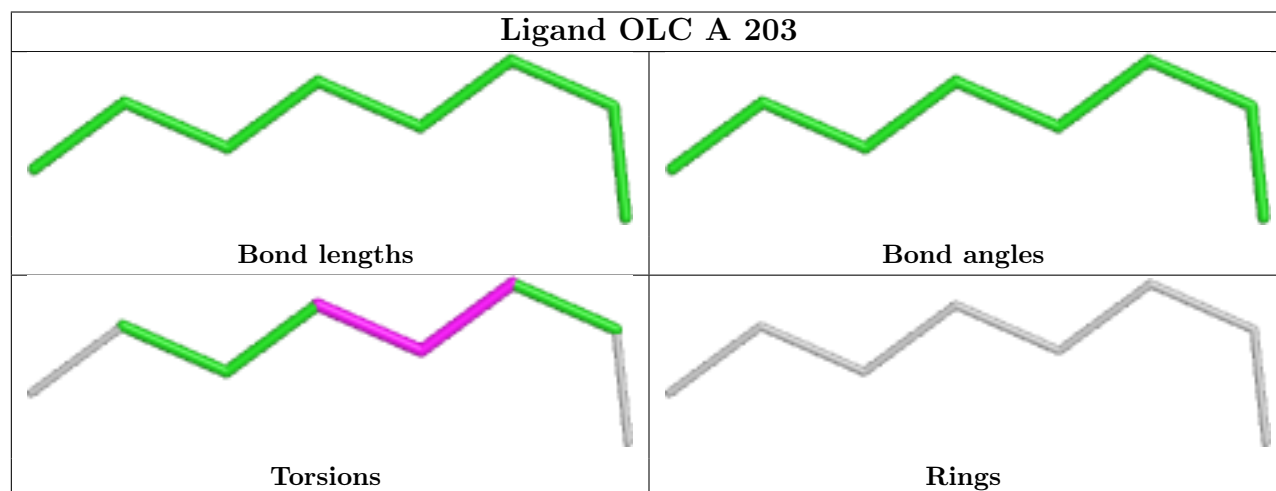
Mol	Chain	Res	Type	Atoms
3	B	205	OLC	C11-C12-C13-C14
2	D	201	YT7	C15-C14-N-C2
3	A	205	OLC	C7-C8-C9-C10
3	C	204	OLC	C12-C13-C14-C15
3	A	205	OLC	C3-C4-C5-C6
3	B	206	OLC	C5-C6-C7-C8
3	A	205	OLC	C9-C10-C11-C12
3	C	205	OLC	C7-C8-C9-C10
3	D	204	OLC	C3-C4-C5-C6
3	D	202	OLC	C3-C4-C5-C6
3	D	203	OLC	C15-C16-C17-C18
3	B	203	OLC	C14-C15-C16-C17
3	B	206	OLC	C7-C8-C9-C10
3	B	204	OLC	C15-C16-C17-C18
3	C	205	OLC	C3-C4-C5-C6
3	C	204	OLC	C11-C12-C13-C14
3	C	205	OLC	C9-C10-C11-C12
2	A	201	YT7	C-C4-C5-N1
2	B	201	YT7	C3-C4-C5-N1
3	A	202	OLC	C7-C8-C9-C10
3	C	203	OLC	C13-C14-C15-C16
3	A	204	OLC	C1-C2-C3-C4
3	A	204	OLC	C3-C4-C5-C6
3	C	206	OLC	C9-C10-C11-C12
3	A	205	OLC	C12-C13-C14-C15
3	B	209	OLC	C7-C8-C9-C10
3	D	203	OLC	C13-C14-C15-C16
3	C	204	OLC	C14-C15-C16-C17
3	D	203	OLC	C12-C13-C14-C15
3	D	205	OLC	C10-C11-C12-C13
3	A	204	OLC	C7-C8-C9-C10
3	C	206	OLC	C7-C8-C9-C10
3	B	204	OLC	C14-C15-C16-C17
3	A	202	OLC	C2-C3-C4-C5
3	D	202	OLC	C10-C11-C12-C13
3	B	203	OLC	C12-C13-C14-C15
3	A	203	OLC	C14-C15-C16-C17

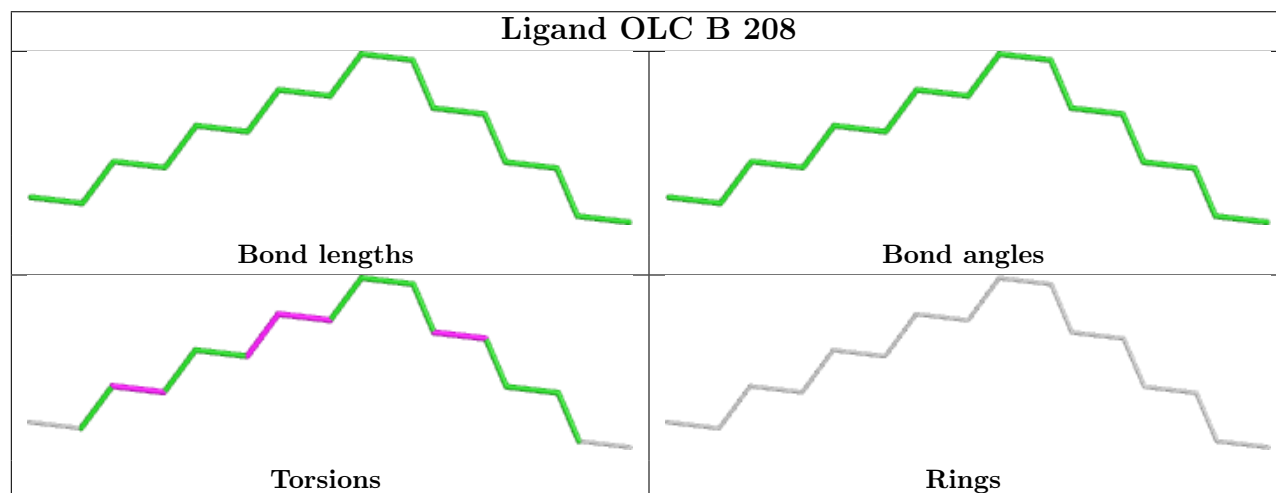
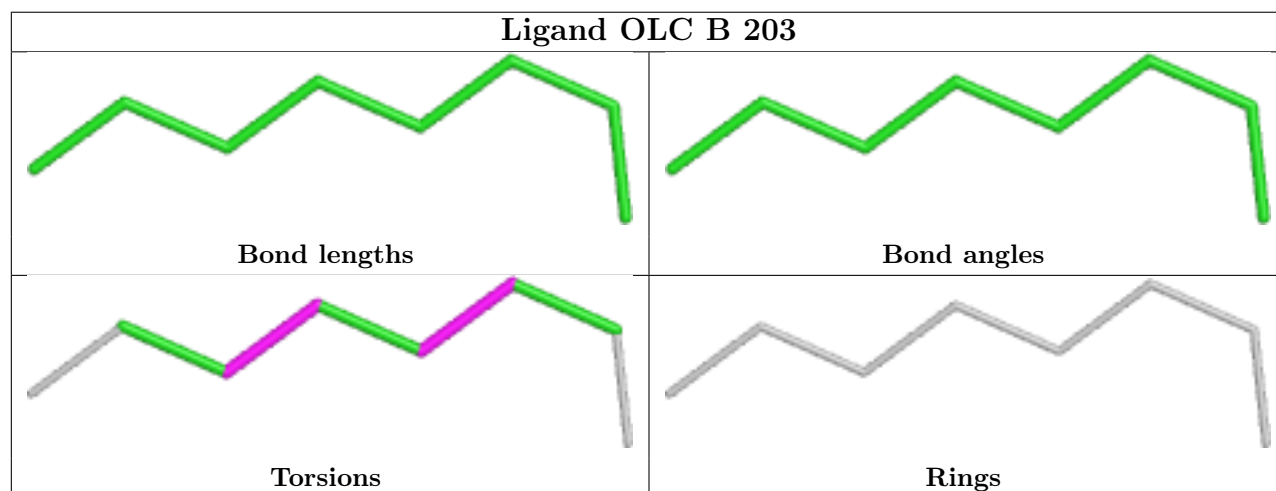
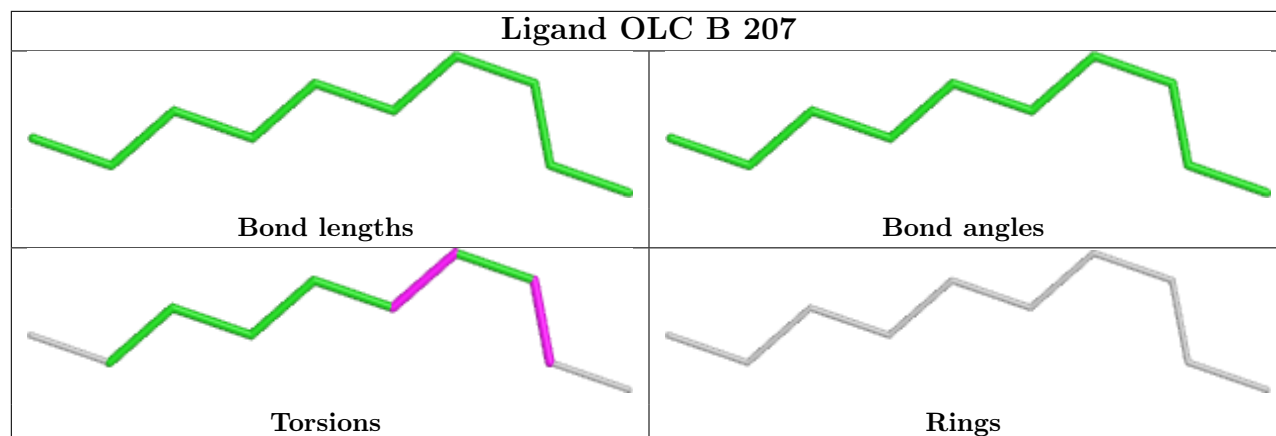
There are no ring outliers.

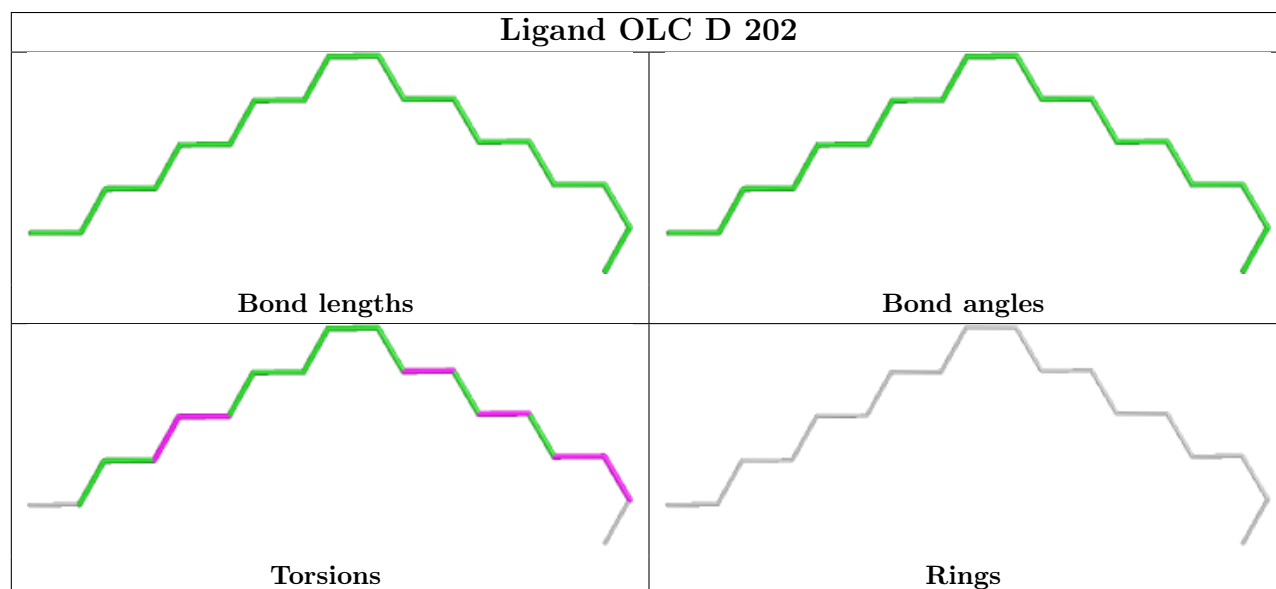
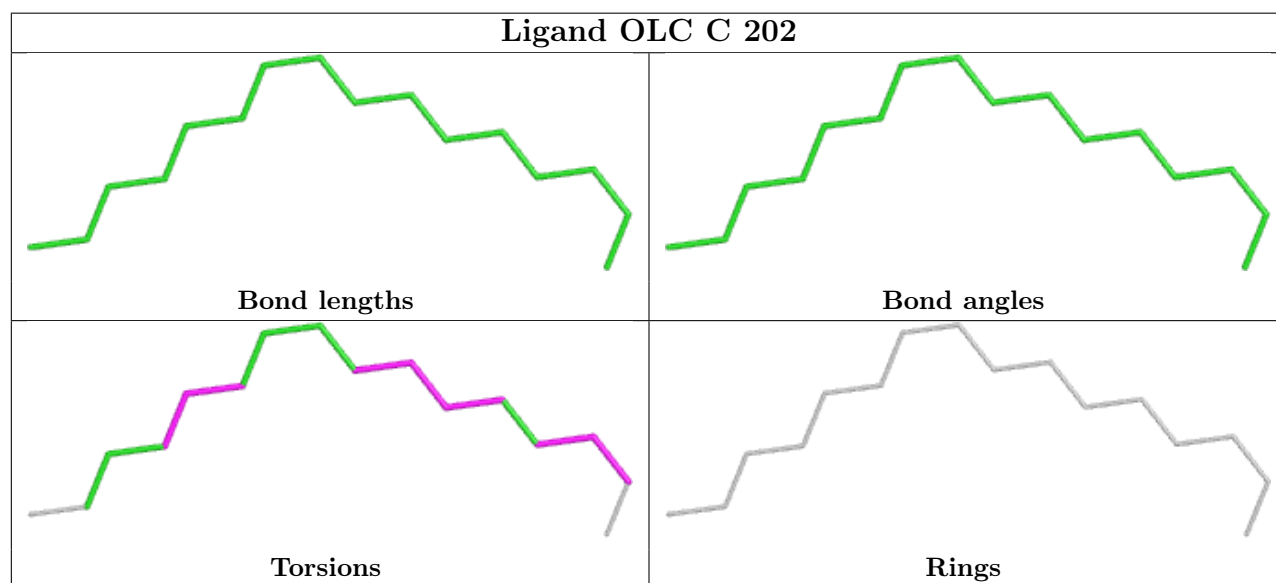
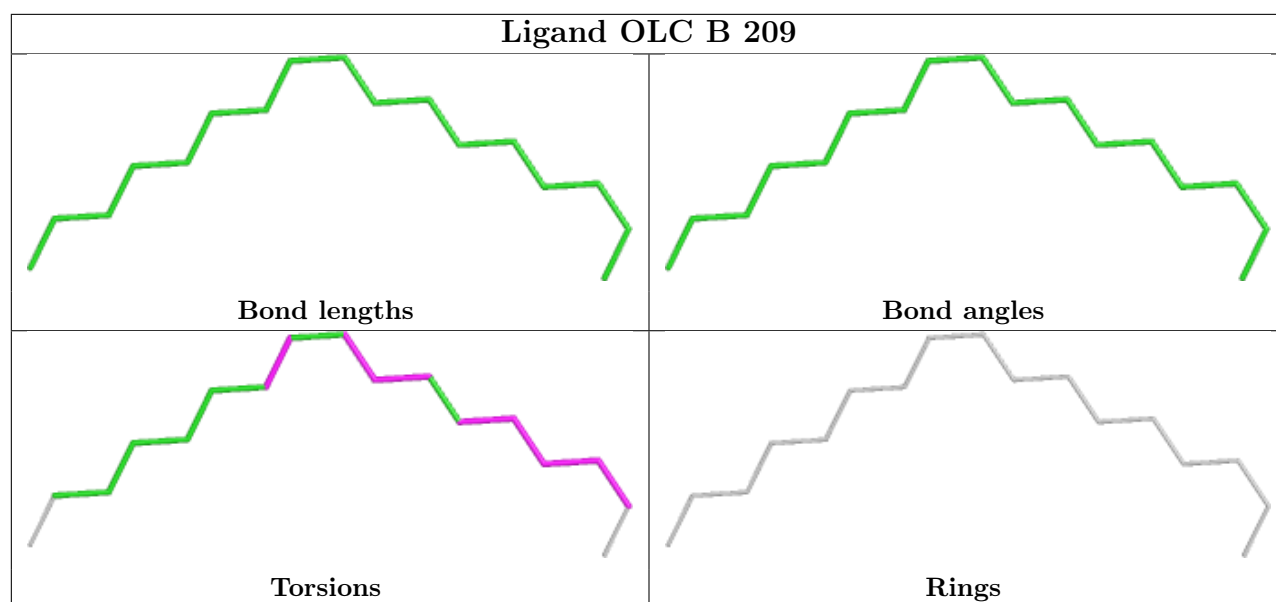
11 monomers are involved in 16 short contacts:

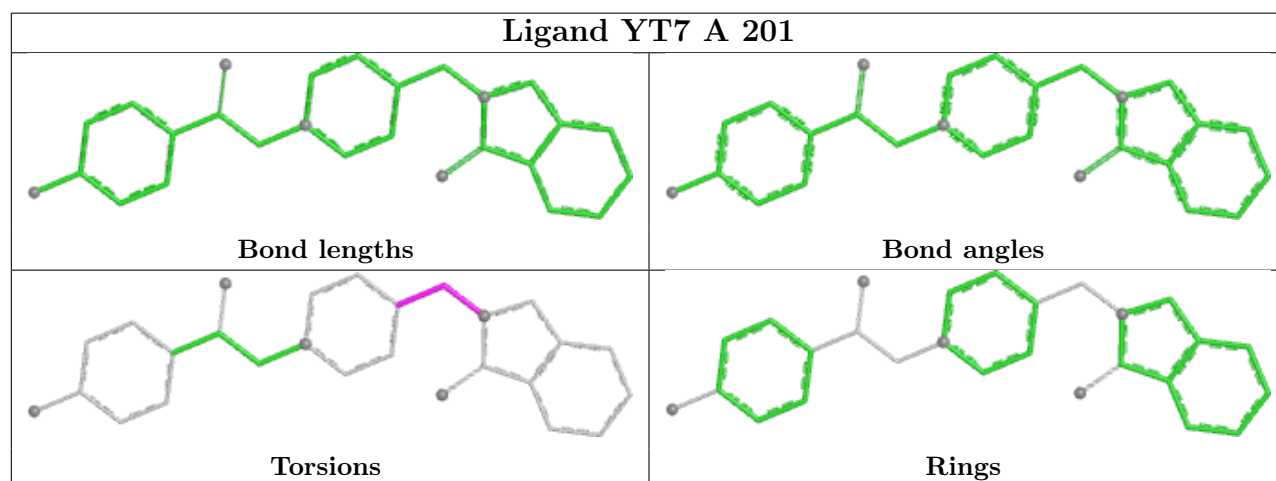
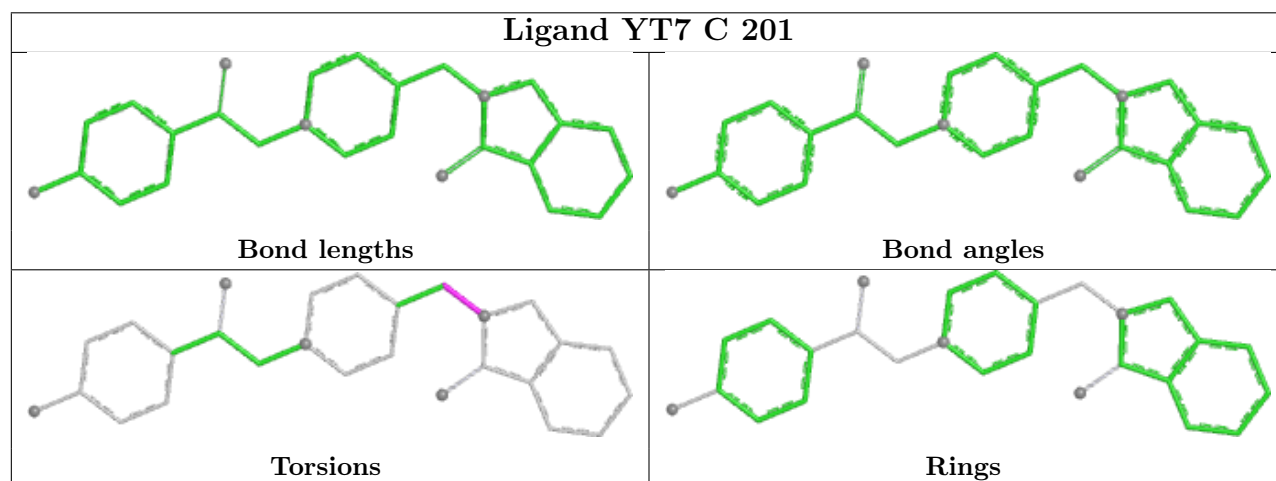
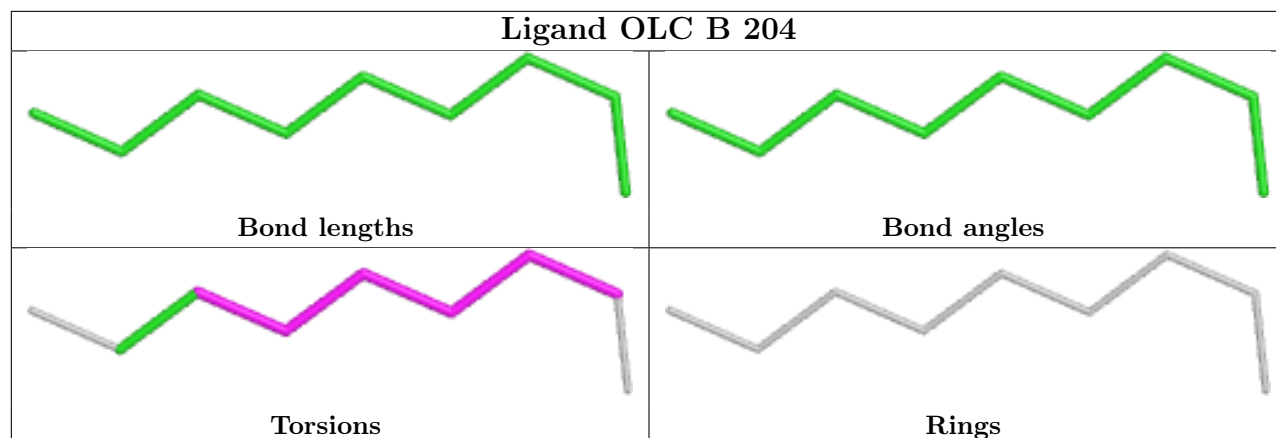
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	207	OLC	1	0
3	B	203	OLC	1	0
3	B	208	OLC	1	0
3	B	209	OLC	2	0
3	C	202	OLC	3	0
3	B	204	OLC	1	0
3	A	202	OLC	1	0
3	C	206	OLC	1	0
3	C	205	OLC	3	0
3	D	204	OLC	2	0
3	C	203	OLC	1	0

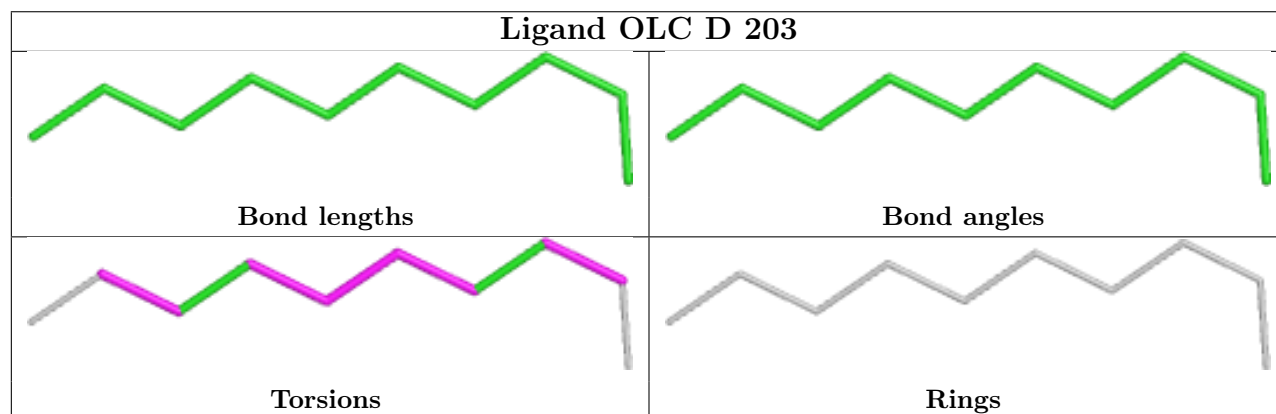
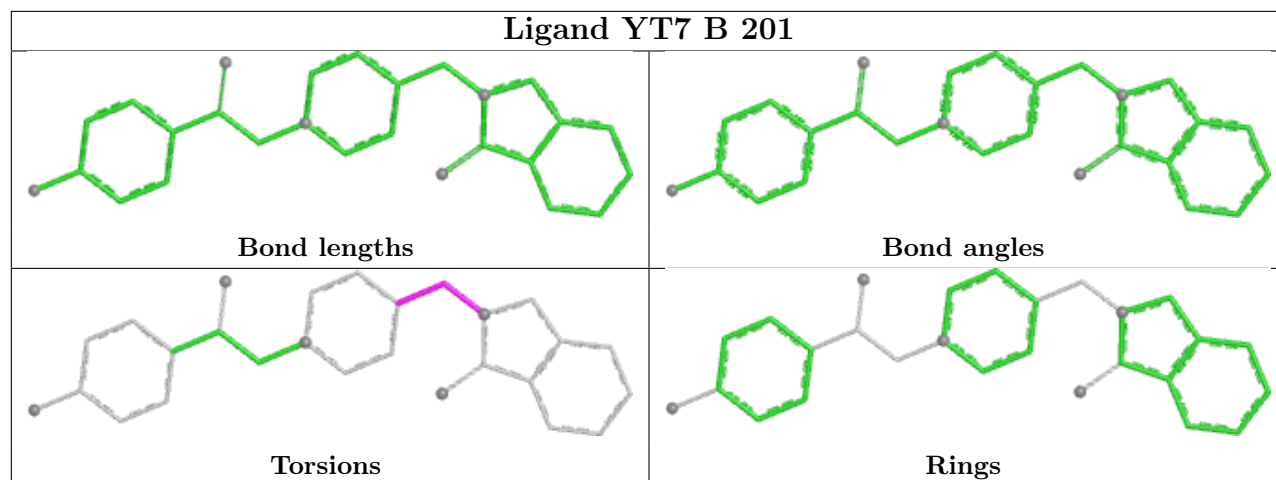
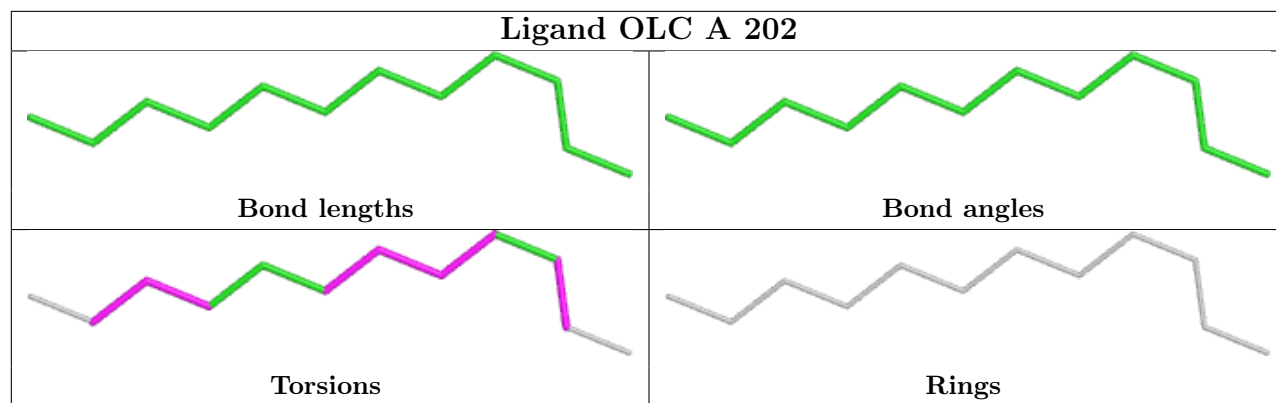
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

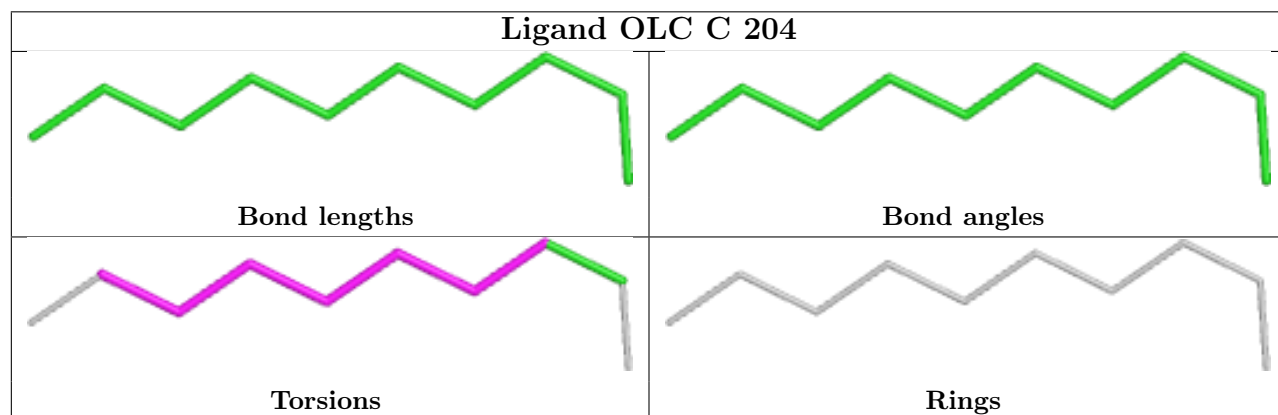
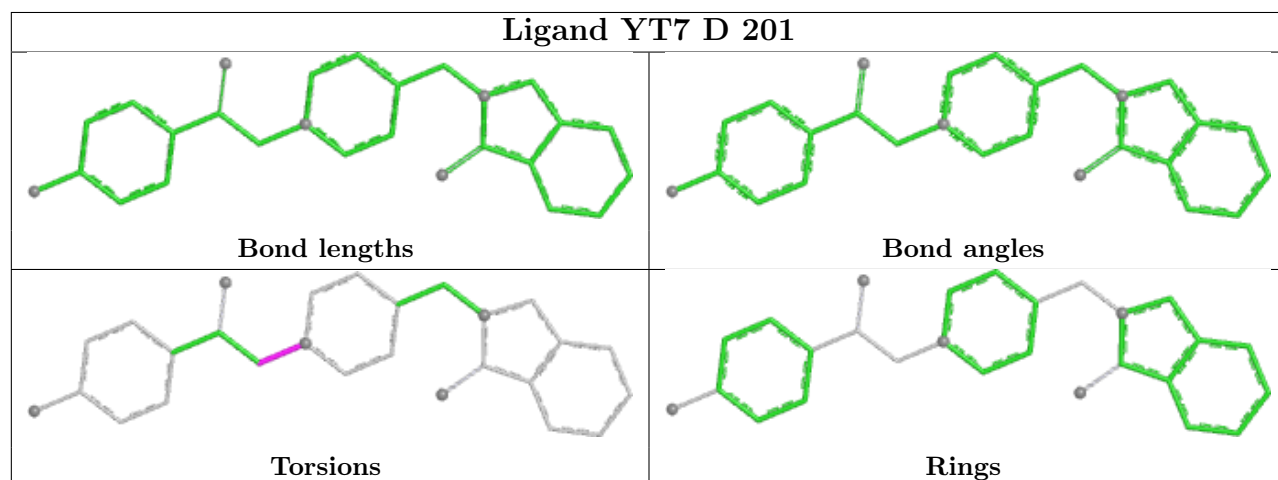
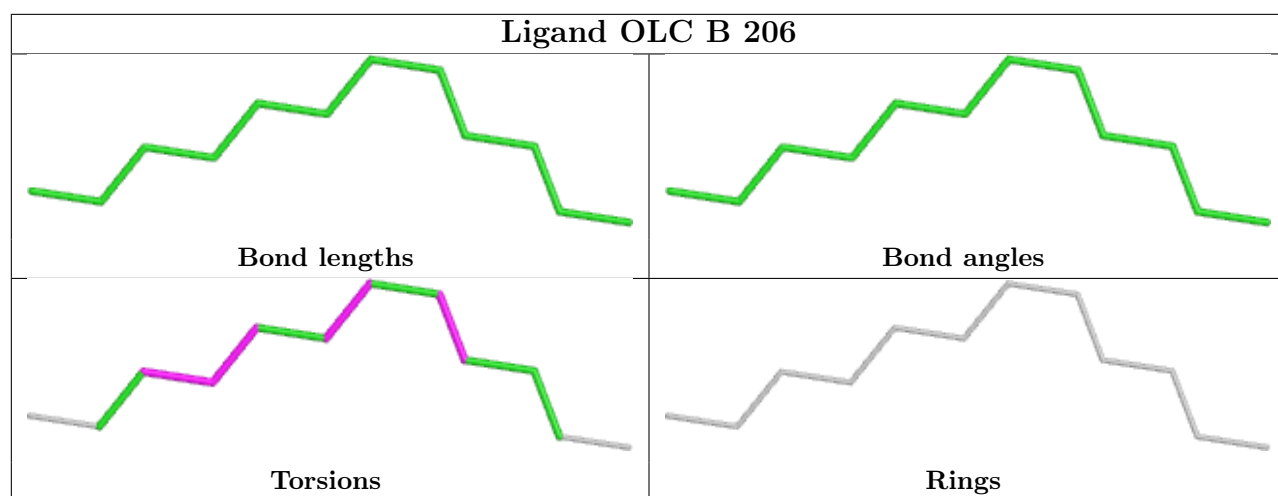


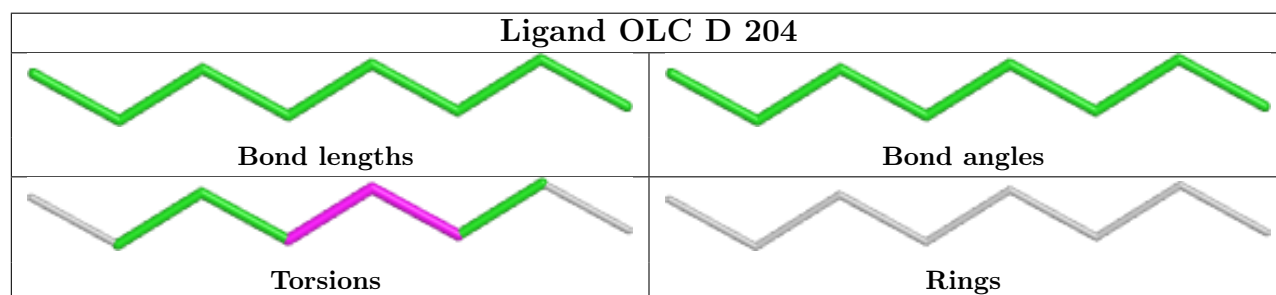
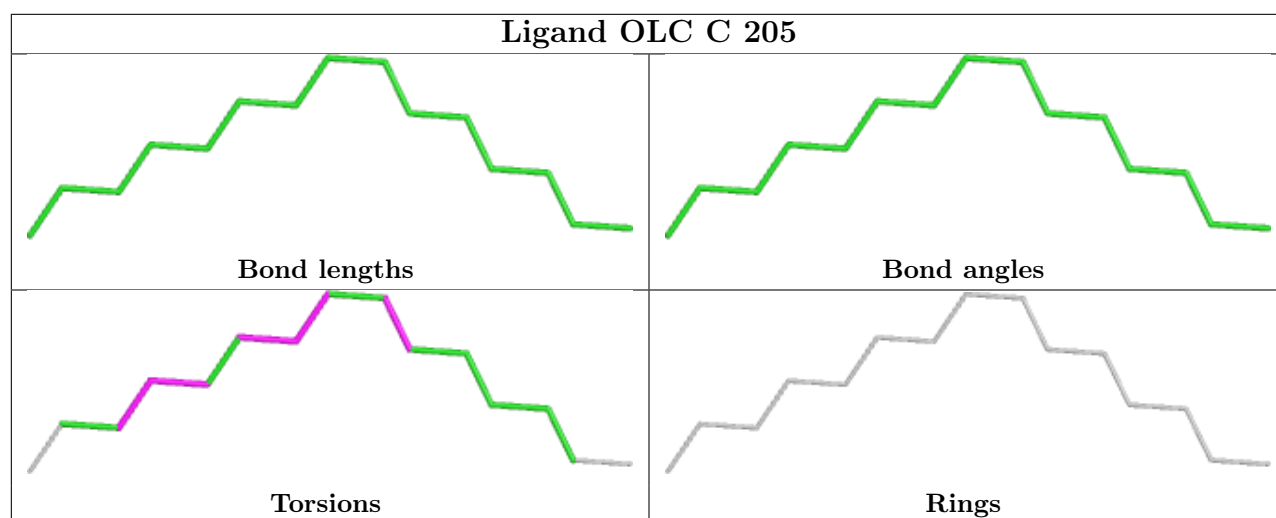
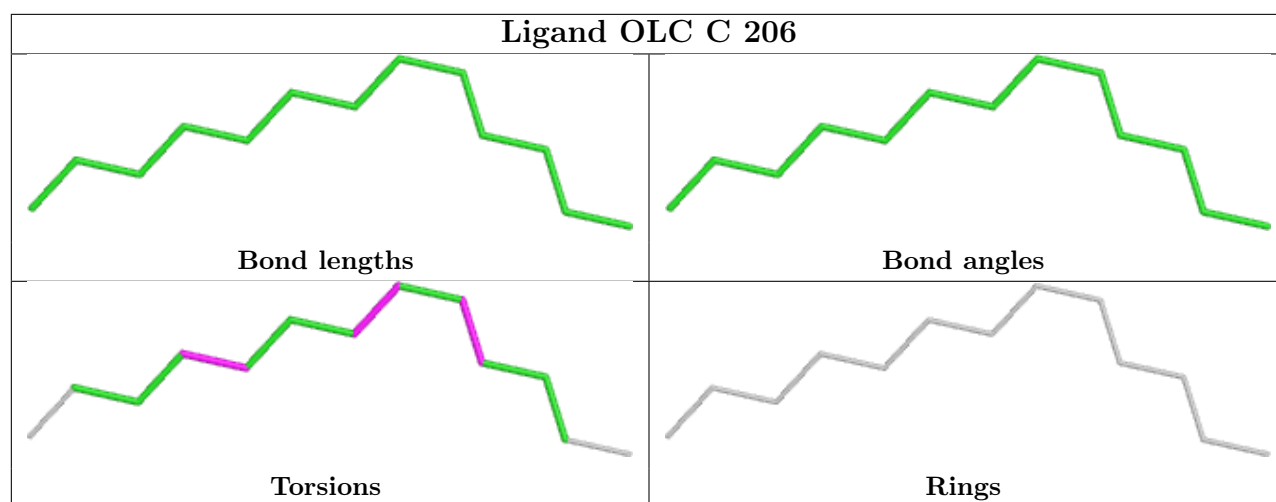


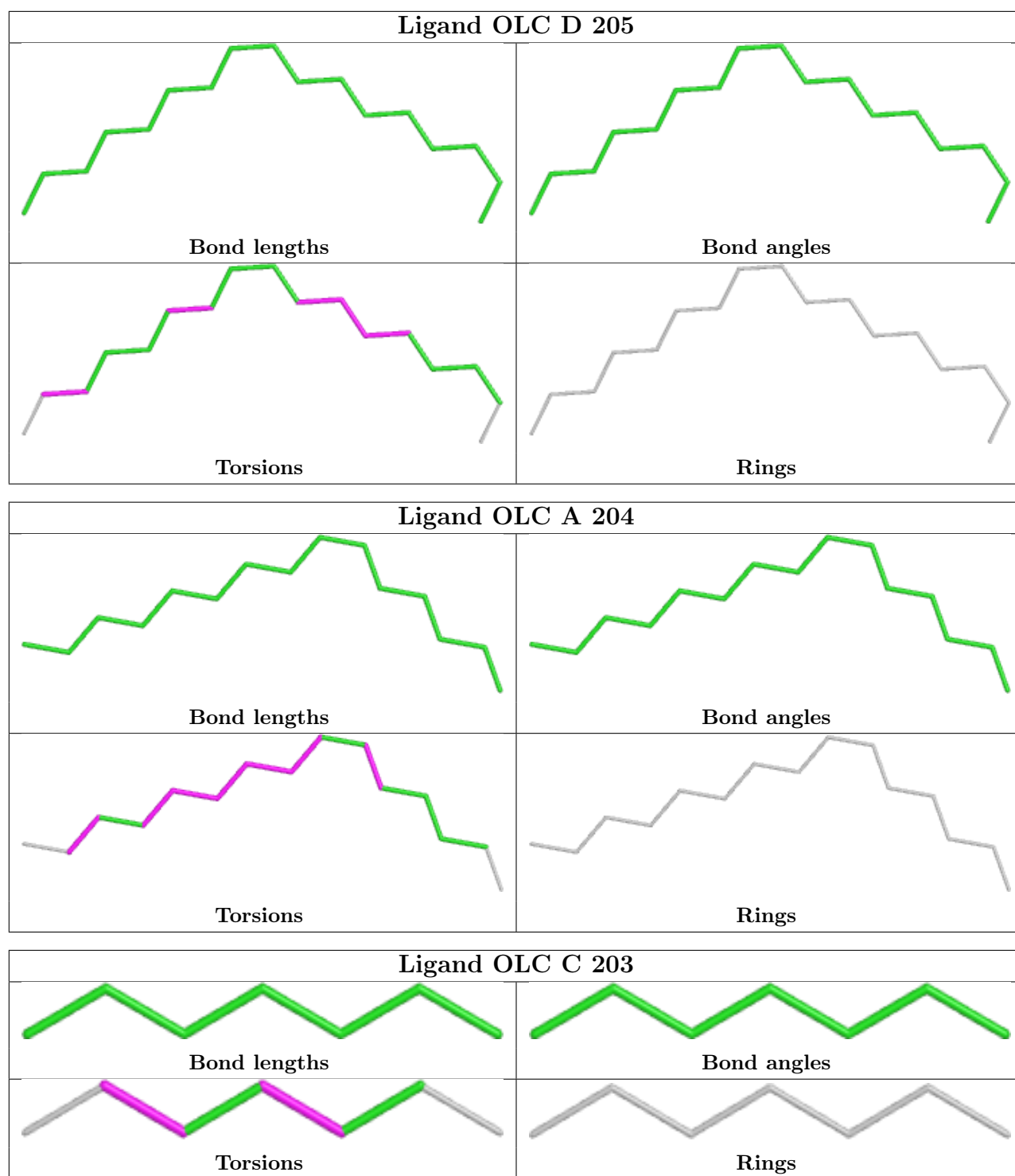


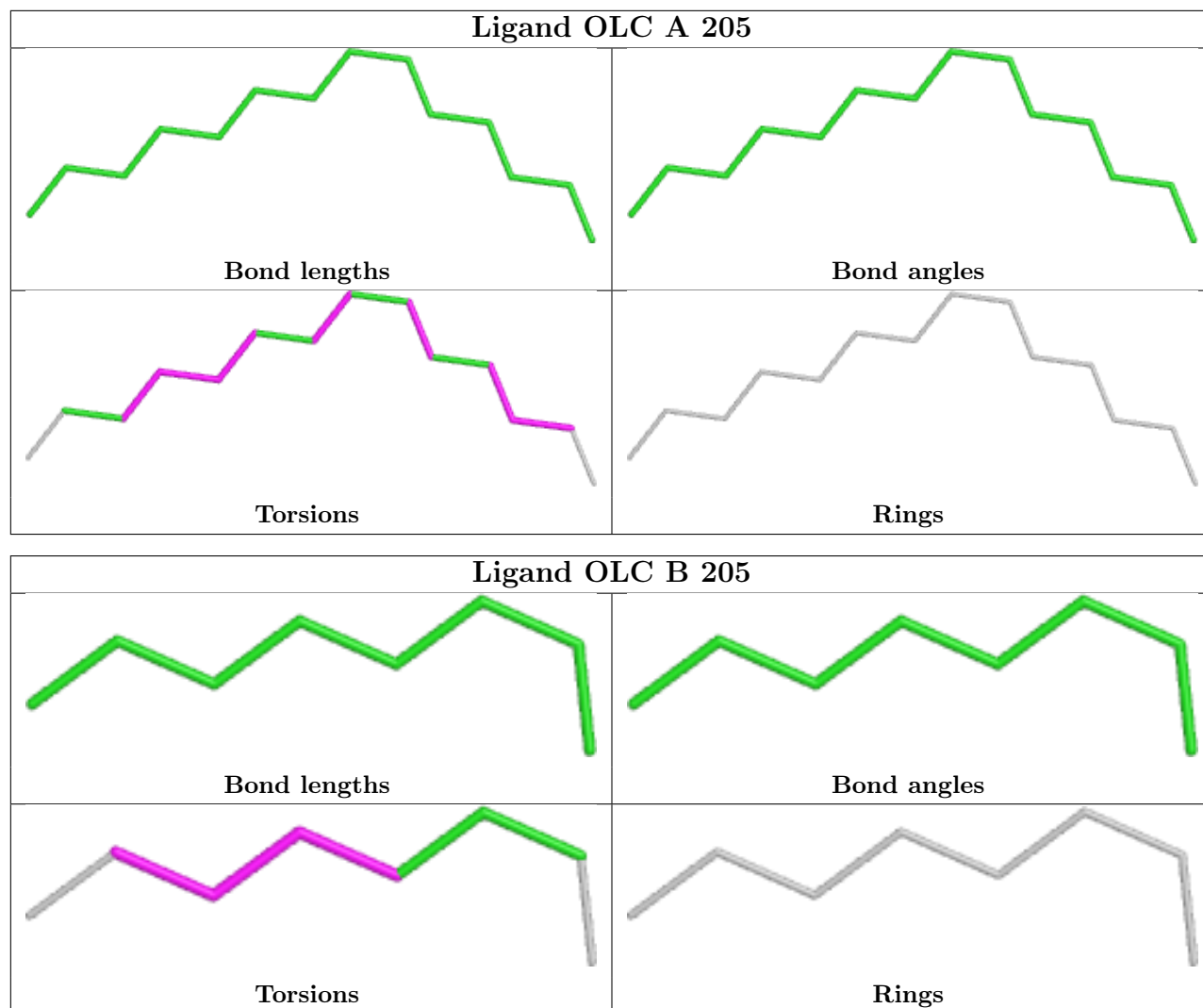












5.7 Other polymers [i](#)

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 [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, 95th 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	163/174 (93%)	0.05	5 (3%) 51 48	44, 62, 101, 156	0
1	B	165/174 (94%)	0.02	2 (1%) 76 75	44, 62, 116, 147	0
1	C	165/174 (94%)	0.12	3 (1%) 67 65	51, 69, 120, 153	0
1	D	166/174 (95%)	0.09	3 (1%) 67 65	45, 65, 93, 153	0
All	All	659/696 (94%)	0.07	13 (1%) 65 62	44, 65, 114, 156	0

All (13) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	2	GLY	3.3
1	D	4	LEU	3.3
1	D	3	THR	3.1
1	A	125	LYS	3.1
1	C	4	LEU	3.0
1	A	3	THR	2.8
1	A	4	LEU	2.8
1	C	128	HIS	2.5
1	B	167	TYR	2.3
1	D	5	GLY	2.3
1	C	54	PHE	2.1
1	A	16	PHE	2.1
1	B	166	TYR	2.0

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 ⓘ

There are no oligosaccharides in this entry.

6.4 Ligands ⓘ

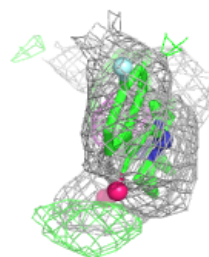
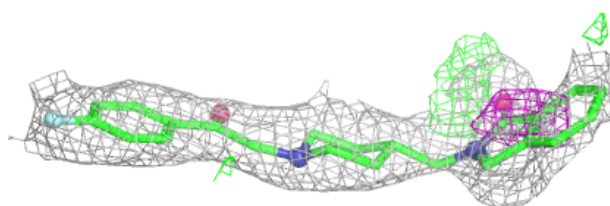
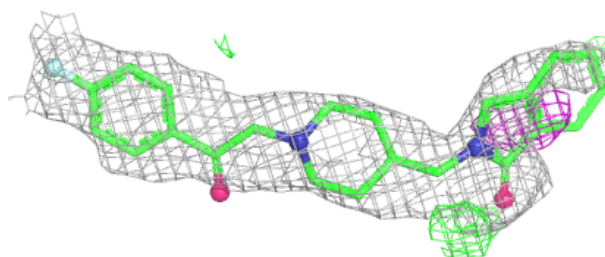
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists 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	YT7	D	201	27/27	0.75	0.16	71,78,94,97	0
3	OLC	C	203	7/25	0.75	0.22	66,68,71,73	0
3	OLC	B	202	7/25	0.76	0.21	57,65,70,70	0
3	OLC	C	204	10/25	0.77	0.17	60,70,77,79	0
3	OLC	D	203	10/25	0.77	0.15	75,80,84,85	0
3	OLC	D	202	18/25	0.79	0.16	58,64,72,74	0
3	OLC	A	204	15/25	0.82	0.17	53,62,79,81	0
3	OLC	C	206	13/25	0.83	0.17	56,65,74,75	0
3	OLC	B	203	8/25	0.83	0.17	66,71,75,77	0
3	OLC	B	207	10/25	0.83	0.17	60,64,66,71	0
3	OLC	B	206	12/25	0.84	0.16	57,72,78,80	0
3	OLC	A	203	8/25	0.84	0.14	53,58,63,68	0
3	OLC	C	205	15/25	0.84	0.15	53,61,68,68	0
3	OLC	D	204	8/25	0.84	0.15	51,54,58,59	0
3	OLC	D	205	17/25	0.84	0.15	50,63,86,91	0
2	YT7	C	201	27/27	0.85	0.12	66,72,81,83	0
3	OLC	A	205	14/25	0.85	0.15	54,59,69,70	0
3	OLC	B	209	17/25	0.86	0.14	54,60,74,74	0
2	YT7	A	201	27/27	0.86	0.14	74,84,99,110	0
3	OLC	B	208	16/25	0.86	0.13	54,59,65,67	0
2	YT7	B	201	27/27	0.88	0.12	66,76,84,86	0
3	OLC	B	204	9/25	0.88	0.13	67,71,75,76	0
3	OLC	B	205	8/25	0.89	0.14	62,70,76,83	0
3	OLC	C	202	16/25	0.89	0.14	52,60,73,78	0
3	OLC	A	202	12/25	0.92	0.12	56,59,69,73	0

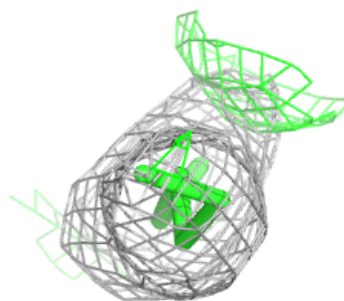
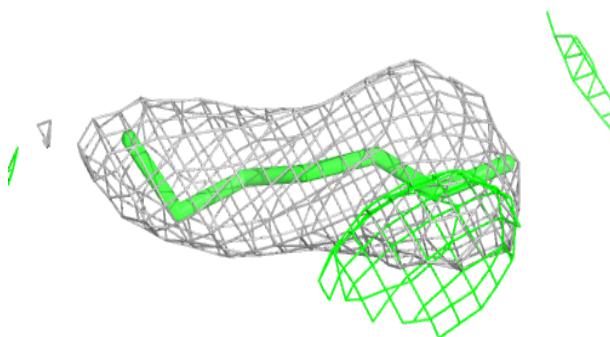
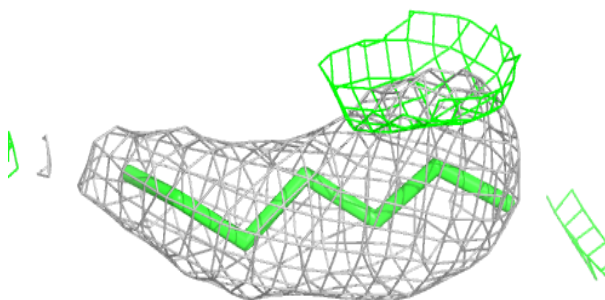
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around YT7 D 201:

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

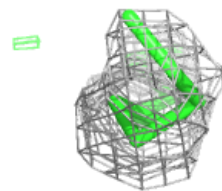
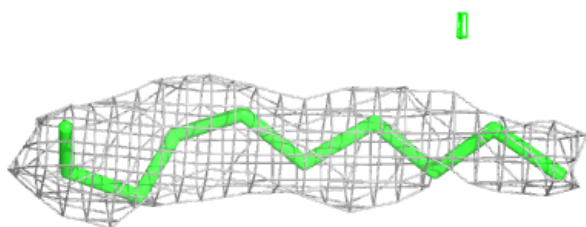
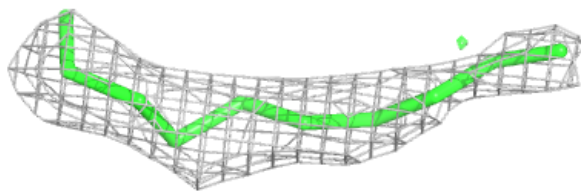
**Electron density around OLC C 203:**

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

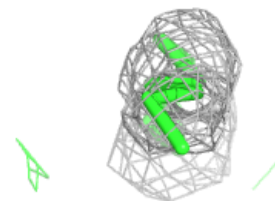
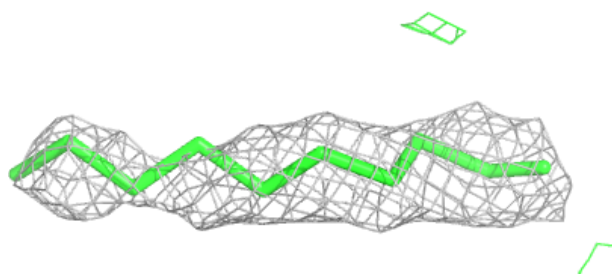
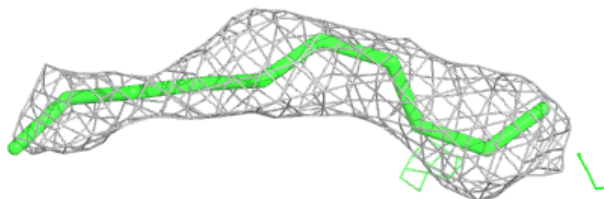


Electron density around OLC C 204:

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

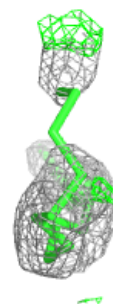
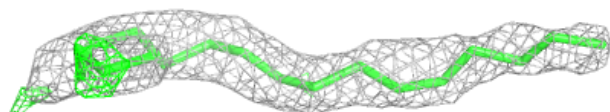
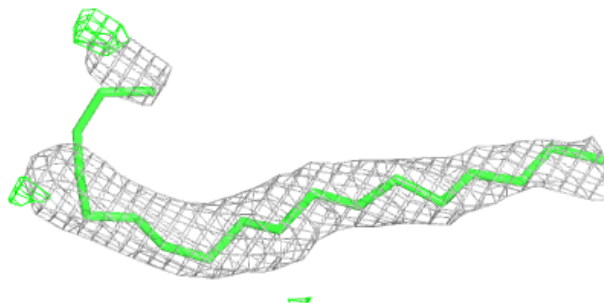
**Electron density around OLC D 203:**

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

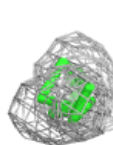
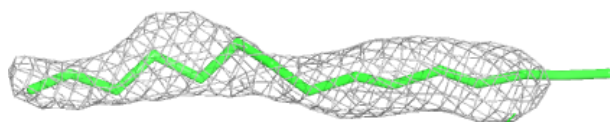
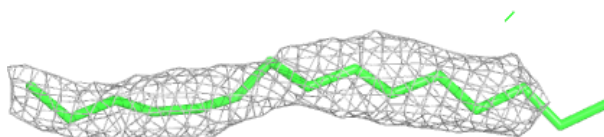


Electron density around OLC D 202:

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

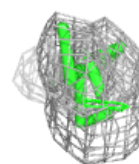
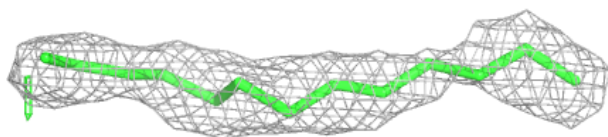
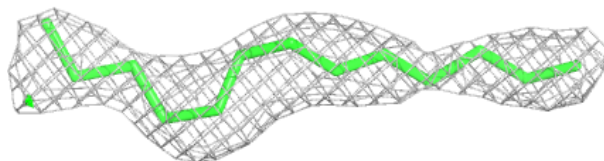
**Electron density around OLC A 204:**

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

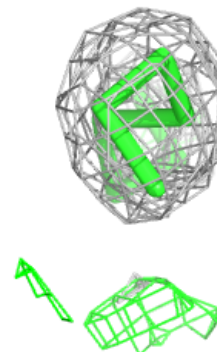
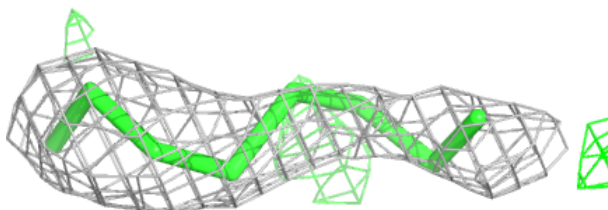
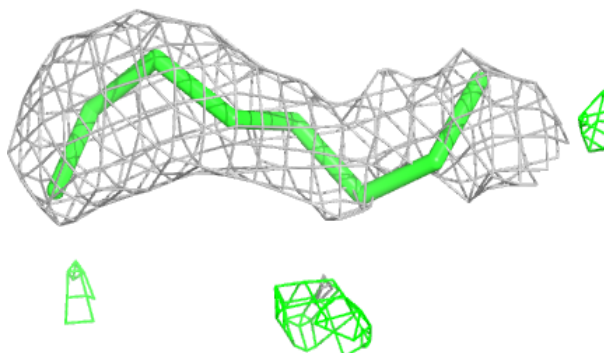


Electron density around OLC C 206:

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

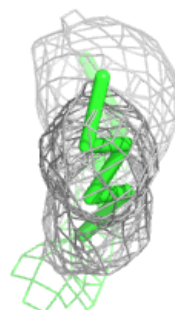
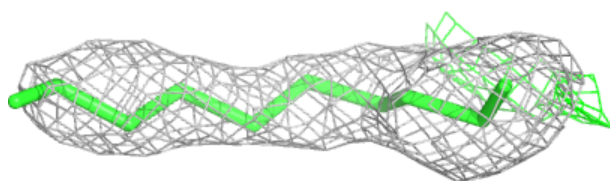
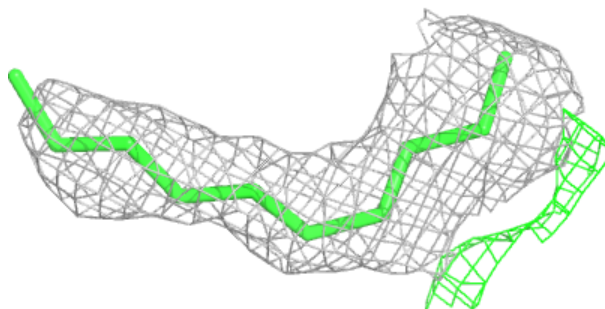
**Electron density around OLC B 203:**

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

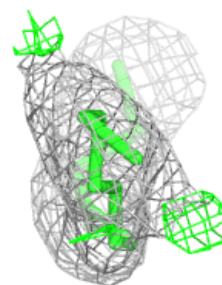
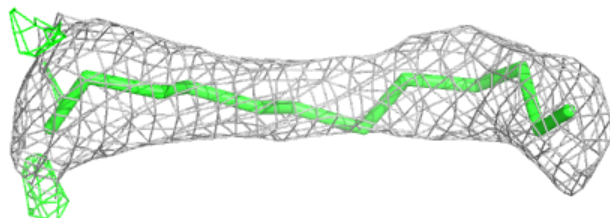
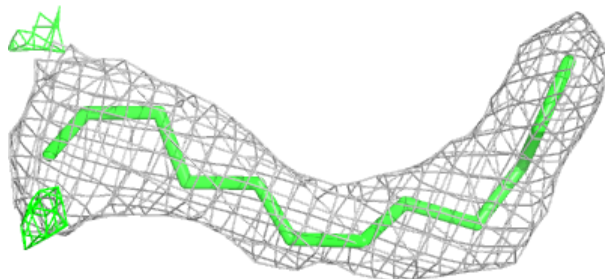


Electron density around OLC B 207:

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

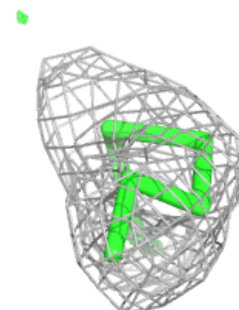
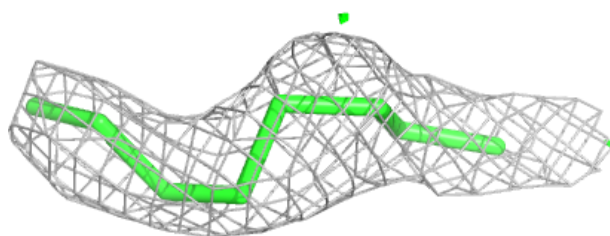
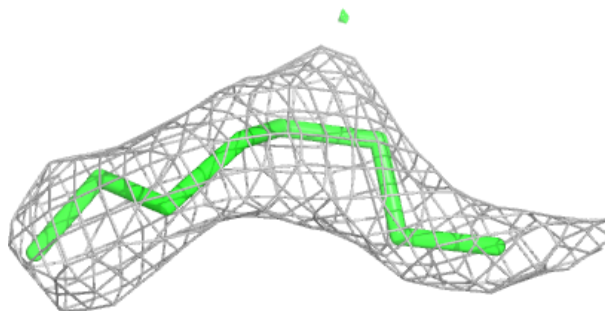
**Electron density around OLC B 206:**

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

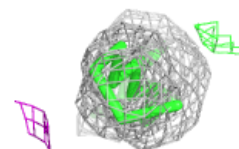
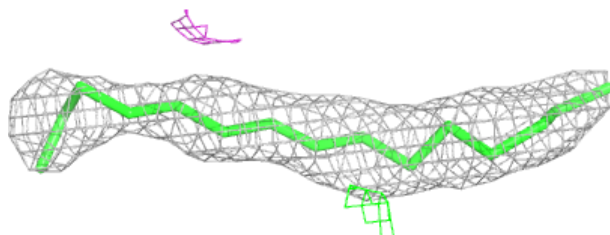
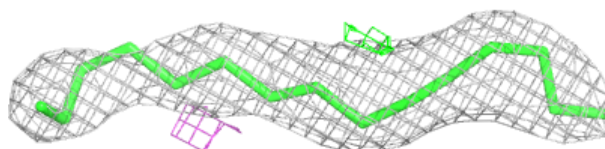


Electron density around OLC A 203:

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

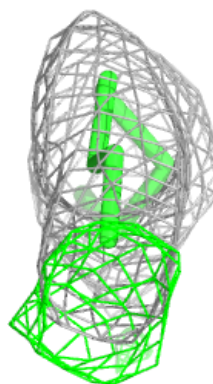
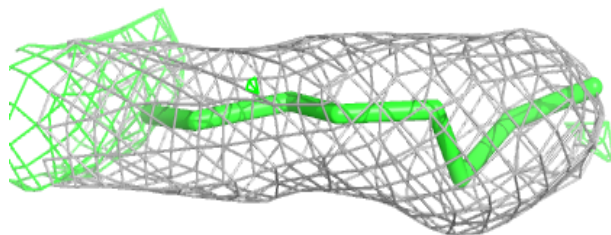
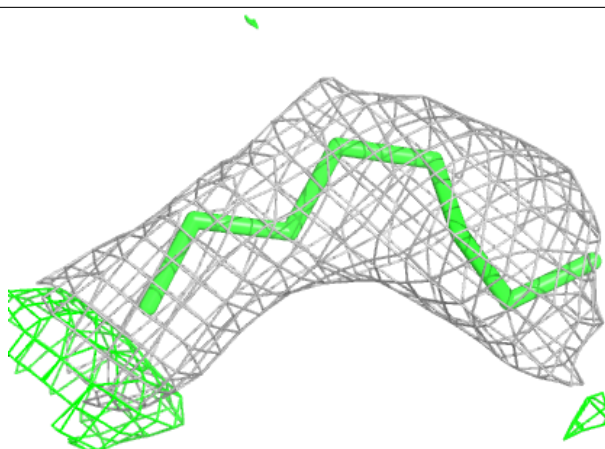
**Electron density around OLC C 205:**

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

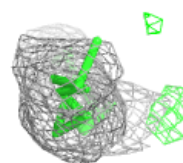
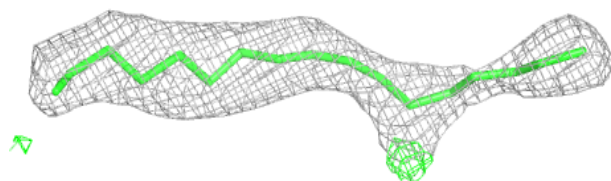
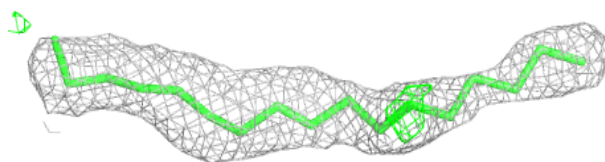


Electron density around OLC D 204:

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

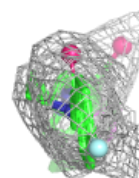
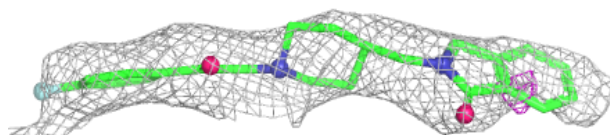
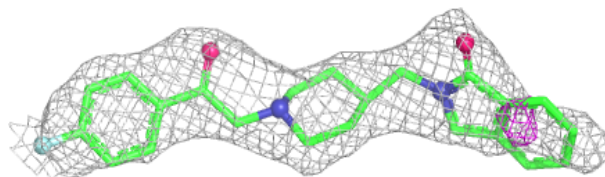
**Electron density around OLC D 205:**

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

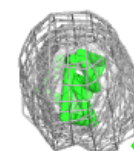
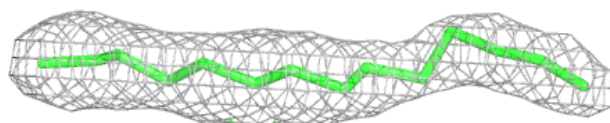
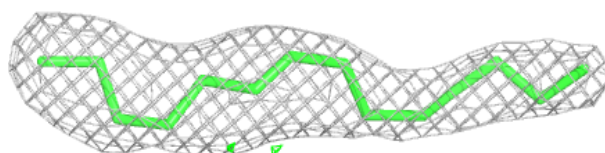


Electron density around YT7 C 201:

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

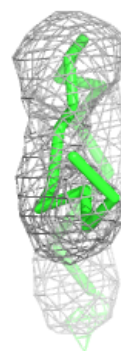
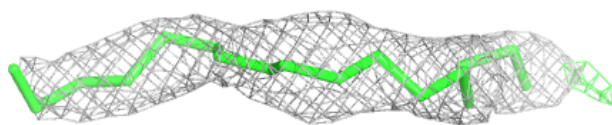
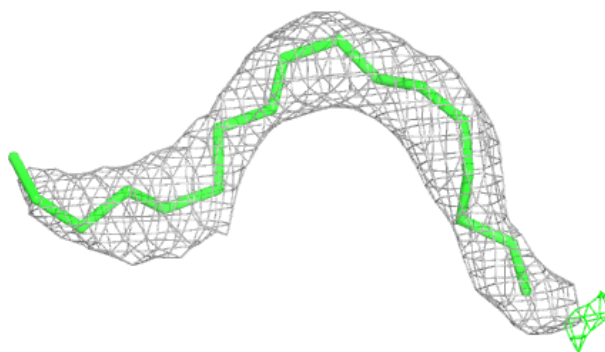
**Electron density around OLC A 205:**

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

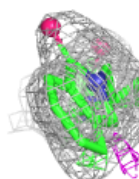
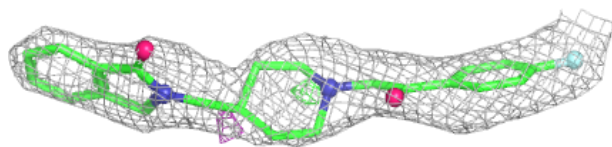
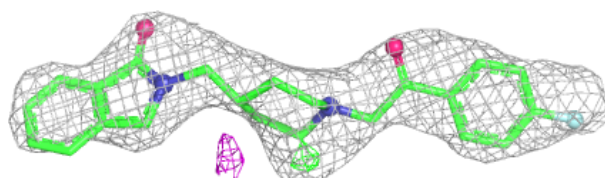


Electron density around OLC B 209:

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

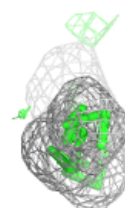
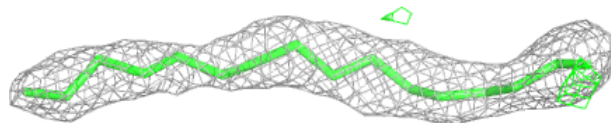
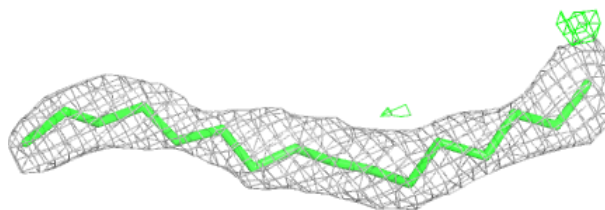
**Electron density around YT7 A 201:**

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

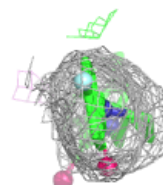
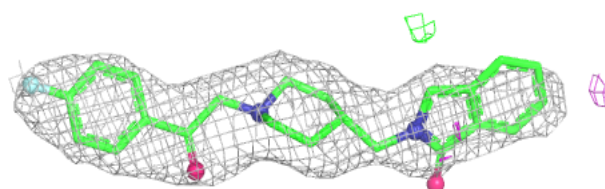


Electron density around OLC B 208:

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

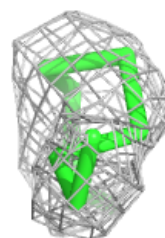
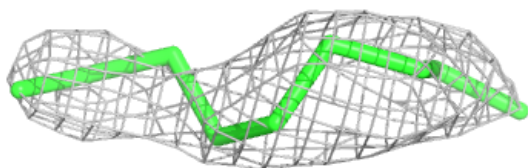
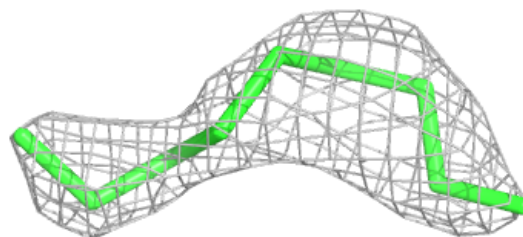
**Electron density around YT7 B 201:**

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

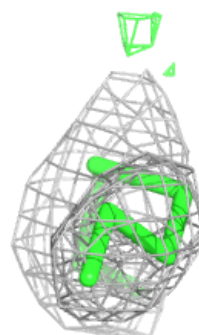
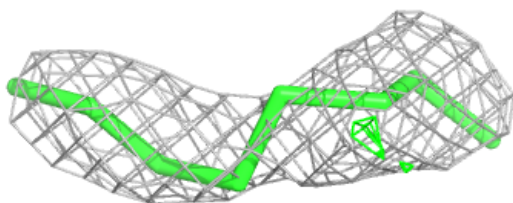
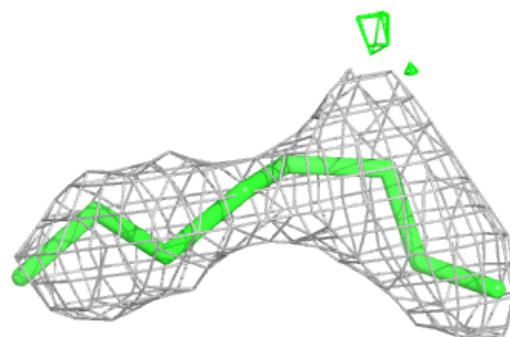


Electron density around OLC B 204:

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

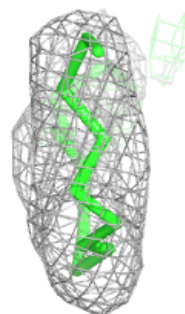
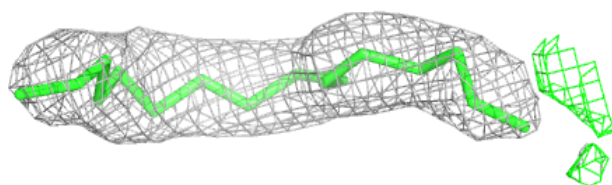
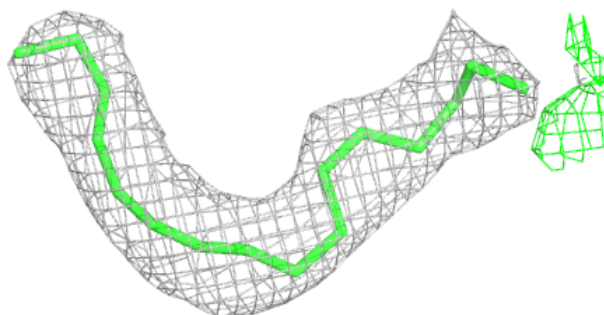
**Electron density around OLC B 205:**

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

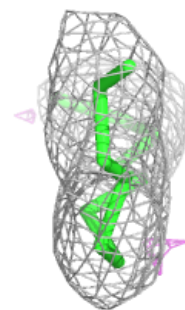
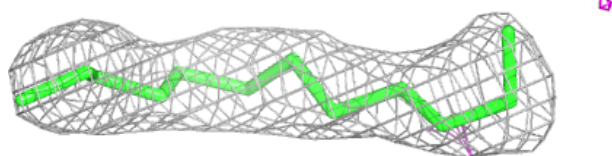
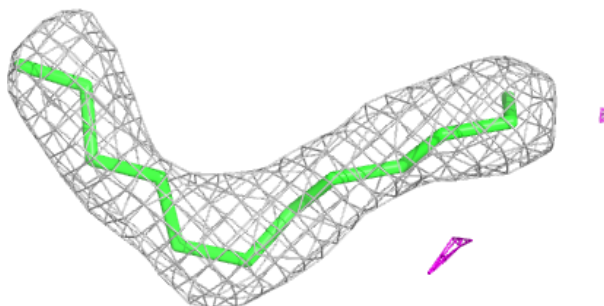


Electron density around OLC C 202:

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

**Electron density around OLC A 202:**

$2mF_o-DF_c$ (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.