



wwPDB X-ray Structure Validation Summary Report ⓘ

Jun 16, 2024 – 08:18 PM EDT

PDB ID : 5NUP
Title : Structural basis for maintenance of bacterial outer membrane lipid asymmetry
Authors : Abellon-Ruiz, J.; Kaptan, S.S.; Basle, A.; Claudi, B.; Bumann, D.;
Kleinekathofer, U.; van den Berg, B.
Deposited on : 2017-05-01
Resolution : 2.90 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 ⓘ 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 : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.37.1
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) : 2.37.1

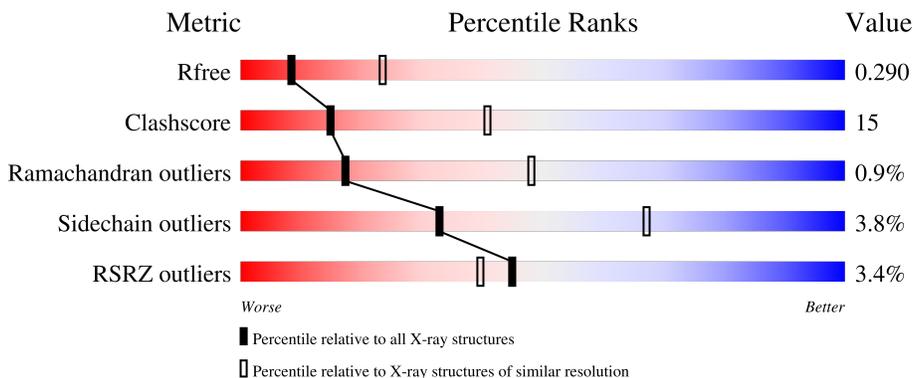
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.90 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	1957 (2.90-2.90)
Clashscore	141614	2172 (2.90-2.90)
Ramachandran outliers	138981	2115 (2.90-2.90)
Sidechain outliers	138945	2117 (2.90-2.90)
RSRZ outliers	127900	1906 (2.90-2.90)

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	344	 2% 72% 27%
1	B	344	 5% 70% 28%
1	C	344	 5% 71% 27%
2	D	236	 0% 55% 26% 16%
2	E	236	 2% 57% 26% 16%

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Mol	Chain	Length	Quality of chain										
2	F	236	 <p>A horizontal bar chart showing the quality distribution of chain F. The bar is divided into four segments: a small red segment (4%), a large green segment (55%), a yellow segment (29%), and a small grey segment (14%).</p> <table border="1"><thead><tr><th>Quality Category</th><th>Percentage</th></tr></thead><tbody><tr><td>Red</td><td>4%</td></tr><tr><td>Green</td><td>55%</td></tr><tr><td>Yellow</td><td>29%</td></tr><tr><td>Grey</td><td>14%</td></tr></tbody></table>	Quality Category	Percentage	Red	4%	Green	55%	Yellow	29%	Grey	14%
Quality Category	Percentage												
Red	4%												
Green	55%												
Yellow	29%												
Grey	14%												

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 13238 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 OmpK36.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	344	2693	1687	453	551	2	0	0	0
1	B	344	2693	1687	453	551	2	0	0	0
1	C	344	2693	1687	453	551	2	0	0	0

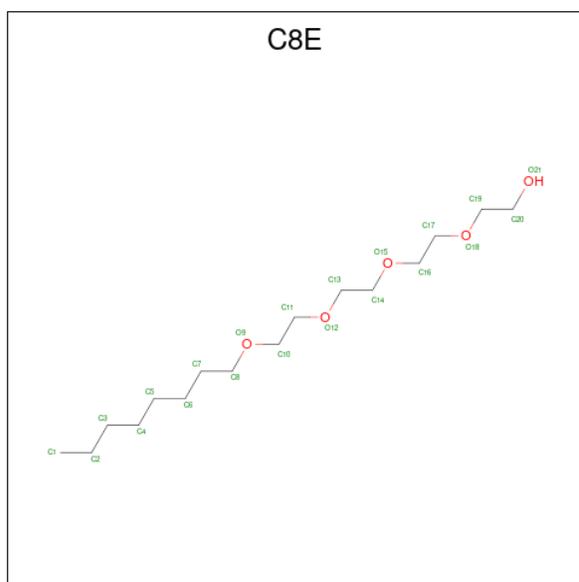
There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	231	ARG	GLN	conflict	UNP D6QLY0
B	231	ARG	GLN	conflict	UNP D6QLY0
C	231	ARG	GLN	conflict	UNP D6QLY0

- Molecule 2 is a protein called ABC transporter permease.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	D	199	1597	1031	271	287	8	0	0	0
2	E	199	1597	1031	271	287	8	0	0	0
2	F	204	1620	1044	276	292	8	0	0	0

- Molecule 3 is (HYDROXYETHYLOXY)TRI(ETHYLOXY)OCTANE (three-letter code: C8E) (formula: C₁₆H₃₄O₅).



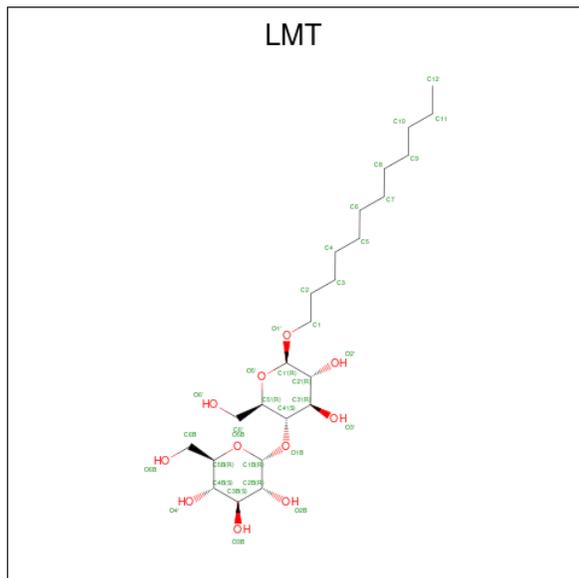
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			16	13	3		
3	A	1	Total	C	O	0	0
			10	9	1		
3	A	1	Total	C	O	0	0
			13	11	2		
3	A	1	Total	C	O	0	0
			9	6	3		
3	A	1	Total	C	O	0	0
			16	13	3		
3	A	1	Total	C	O	0	0
			11	10	1		
3	B	1	Total	C	O	0	0
			11	10	1		
3	B	1	Total	C	O	0	0
			18	14	4		
3	B	1	Total	C	O	0	0
			16	13	3		
3	B	1	Total	C	O	0	0
			15	12	3		
3	C	1	Total	C	O	0	0
			16	13	3		
3	C	1	Total	C	O	0	0
			21	16	5		
3	C	1	Total	C	O	0	0
			13	11	2		
3	C	1	Total	C	O	0	0
			16	13	3		

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	D	1	Total C O 13 11 2	0	0
3	D	1	Total C O 12 10 2	0	0
3	E	1	Total C 8 8	0	0
3	E	1	Total C O 20 16 4	0	0
3	F	1	Total C O 7 6 1	0	0

- Molecule 4 is DODECYL-BETA-D-MALTOSE (three-letter code: LMT) (formula: $C_{24}H_{46}O_{11}$).

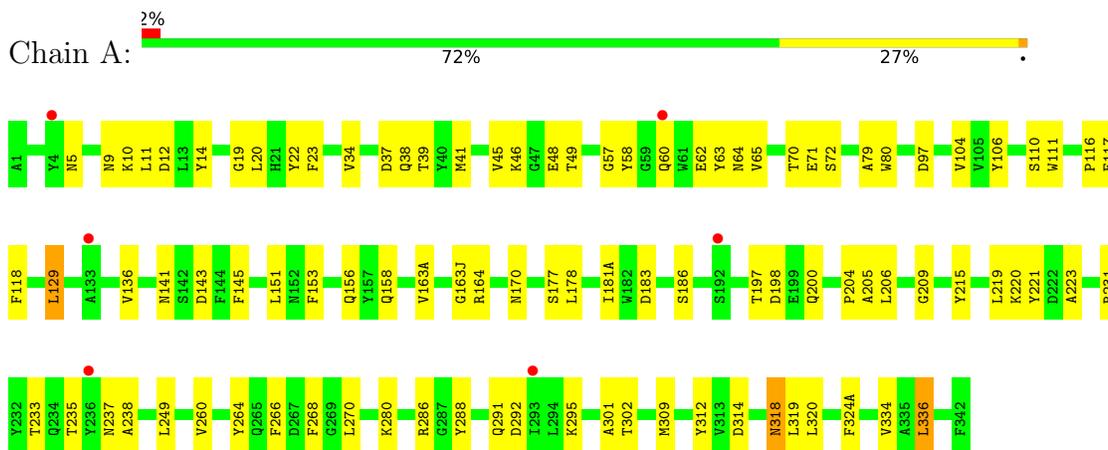


Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	B	1	Total C O 35 24 11	0	0
4	B	1	Total C O 25 14 11	0	0
4	F	1	Total C O 24 13 11	0	0

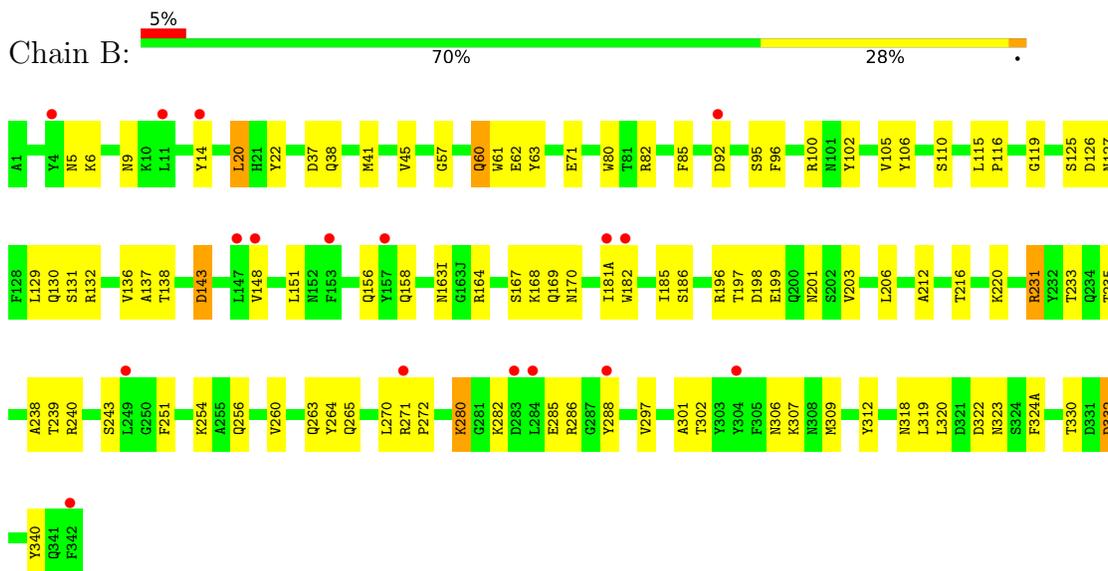
3 Residue-property plots [i](#)

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: OmpK36

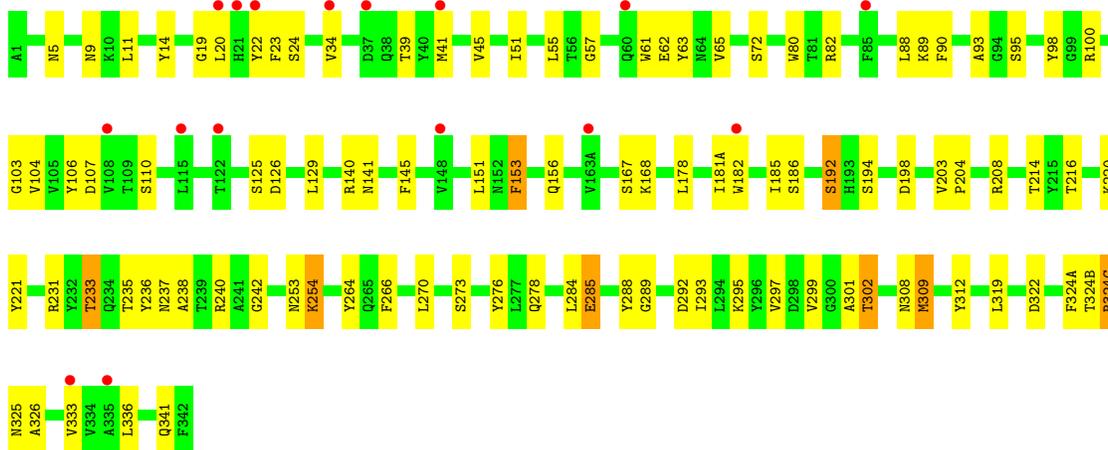


- Molecule 1: OmpK36

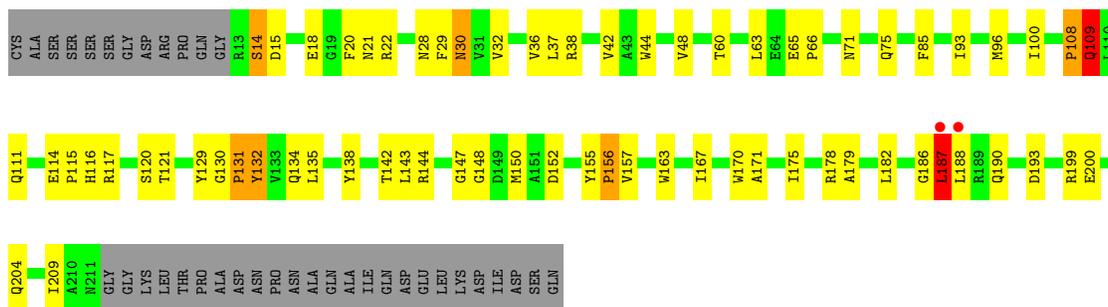


- Molecule 1: OmpK36

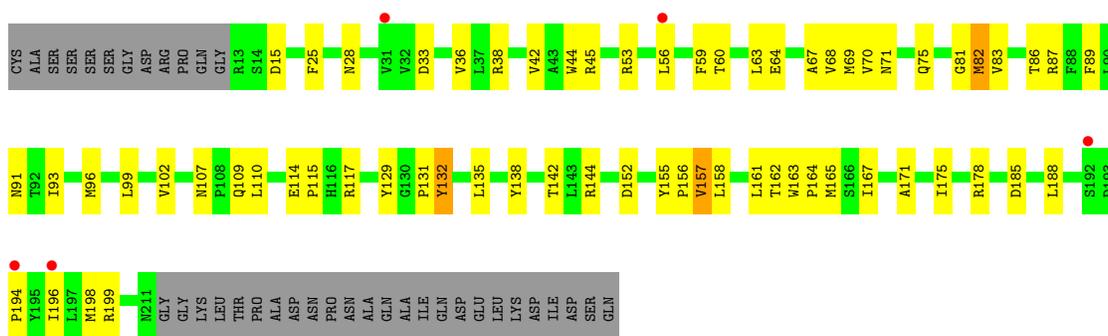




• Molecule 2: ABC transporter permease

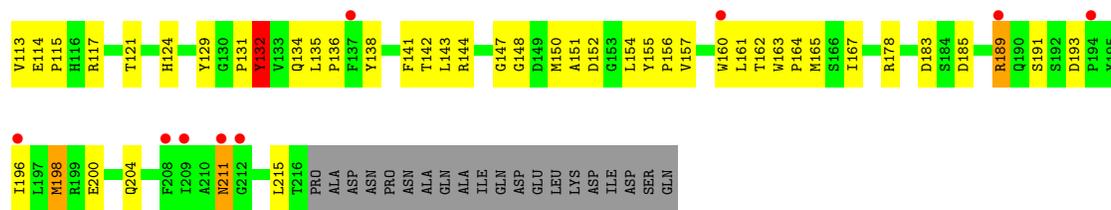


• Molecule 2: ABC transporter permease



• Molecule 2: ABC transporter permease





4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	92.38Å 145.24Å 232.53Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	68.38 – 2.90 123.19 – 2.90	Depositor EDS
% Data completeness (in resolution range)	99.9 (68.38-2.90) 100.0 (123.19-2.90)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.09 (at 2.91Å)	Xtrriage
Refinement program	PHENIX (1.11.1_2575: ???)	Depositor
R, R_{free}	0.241 , 0.290 0.240 , 0.290	Depositor DCC
R_{free} test set	3408 reflections (4.86%)	wwPDB-VP
Wilson B-factor (Å ²)	60.2	Xtrriage
Anisotropy	0.931	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 53.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.51$, $\langle L^2 \rangle = 0.34$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.89	EDS
Total number of atoms	13238	wwPDB-VP
Average B, all atoms (Å ²)	70.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.19% 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: C8E, LMT

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	0.53	0/2753	0.78	2/3727 (0.1%)
1	B	0.51	0/2753	0.75	0/3727
1	C	0.50	1/2753 (0.0%)	0.75	0/3727
2	D	0.47	0/1647	0.78	4/2241 (0.2%)
2	E	0.46	0/1647	0.73	1/2241 (0.0%)
2	F	0.46	0/1670	0.71	0/2272
All	All	0.50	1/13223 (0.0%)	0.75	7/17935 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	B	0	1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	254	LYS	CE-NZ	6.16	1.64	1.49

The worst 5 of 7 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	129	LEU	CA-CB-CG	7.65	132.89	115.30
2	E	109	GLN	CA-CB-CG	-6.66	98.74	113.40
2	D	109	GLN	CA-CB-CG	6.36	127.38	113.40
2	D	156	PRO	C-N-CA	6.12	137.00	121.70
2	D	187	LEU	CA-CB-CG	-5.50	102.64	115.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	92	ASP	Peptide

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	2693	0	2479	72	0
1	B	2693	0	2479	89	0
1	C	2693	0	2479	72	0
2	D	1597	0	1525	59	0
2	E	1597	0	1525	55	0
2	F	1620	0	1537	58	0
3	A	75	0	114	5	0
3	B	60	0	98	2	0
3	C	66	0	105	5	0
3	D	25	0	37	0	0
3	E	28	0	46	3	0
3	F	7	0	10	0	0
4	B	60	0	64	5	0
4	F	24	0	20	0	0
All	All	13238	0	12518	391	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 15.

The worst 5 of 391 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:B:216:THR:HB	1:B:233:THR:HG22	1.26	1.12
1:B:256:GLN:HE21	1:B:282:LYS:HE3	0.95	1.09
1:A:22:TYR:OH	1:A:117:GLU:OE1	1.76	1.02
1:B:256:GLN:NE2	1:B:282:LYS:HE3	1.78	0.97
2:F:29:PHE:O	2:F:189:ARG:NH1	2.02	0.92

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	342/344 (99%)	313 (92%)	27 (8%)	2 (1%)	25	58
1	B	342/344 (99%)	316 (92%)	25 (7%)	1 (0%)	41	71
1	C	342/344 (99%)	317 (93%)	23 (7%)	2 (1%)	25	58
2	D	197/236 (84%)	179 (91%)	15 (8%)	3 (2%)	10	34
2	E	197/236 (84%)	175 (89%)	19 (10%)	3 (2%)	10	34
2	F	202/236 (86%)	182 (90%)	16 (8%)	4 (2%)	7	27
All	All	1622/1740 (93%)	1482 (91%)	125 (8%)	15 (1%)	17	48

5 of 15 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	181(A)	ILE
1	A	183	ASP
2	D	131	PRO
2	E	132	TYR
2	F	131	PRO

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	276/276 (100%)	267 (97%)	9 (3%)	38	72

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	B	276/276 (100%)	263 (95%)	13 (5%)	26	59
1	C	276/276 (100%)	260 (94%)	16 (6%)	20	50
2	D	168/197 (85%)	163 (97%)	5 (3%)	41	75
2	E	168/197 (85%)	167 (99%)	1 (1%)	86	96
2	F	168/197 (85%)	162 (96%)	6 (4%)	35	69
All	All	1332/1419 (94%)	1282 (96%)	50 (4%)	33	67

5 of 50 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	194	SER
1	C	302	THR
2	F	198	MET
1	C	198	ASP
1	C	273	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 24 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	156	GLN
1	C	257	ASN
1	C	253	ASN
1	C	278	GLN
1	B	211	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 monosaccharides in this entry.

5.6 Ligand geometry

22 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	C8E	A	404	-	8,8,20	0.55	0	7,7,19	0.32	0
3	C8E	A	405	-	15,15,20	0.50	0	14,14,19	0.49	0
3	C8E	C	404	-	15,15,20	0.46	0	14,14,19	0.56	0
3	C8E	C	403	-	12,12,20	0.46	0	11,11,19	0.33	0
3	C8E	B	401	-	10,10,20	0.37	0	9,9,19	0.64	0
3	C8E	B	402	-	17,17,20	0.43	0	16,16,19	0.34	0
3	C8E	C	402	-	20,20,20	0.45	0	19,19,19	0.52	0
3	C8E	F	301	-	6,6,20	0.35	0	5,5,19	0.27	0
3	C8E	D	302	-	11,11,20	0.47	0	10,10,19	0.51	0
3	C8E	A	402	-	9,9,20	0.31	0	8,8,19	0.48	0
3	C8E	C	401	-	15,15,20	0.38	0	14,14,19	0.59	0
3	C8E	E	301	-	7,7,20	0.39	0	6,6,19	0.27	0
3	C8E	B	404	-	14,14,20	0.39	0	13,13,19	0.36	0
4	LMT	B	405	-	36,36,36	1.11	3 (8%)	47,47,47	1.05	4 (8%)
4	LMT	F	302	-	25,25,36	1.26	3 (12%)	36,36,47	1.25	3 (8%)
3	C8E	E	302	-	19,19,20	0.42	0	18,18,19	0.33	0
3	C8E	D	301	-	12,12,20	0.34	0	11,11,19	0.57	0
3	C8E	A	401	-	15,15,20	0.35	0	14,14,19	0.45	0
4	LMT	B	406	-	25,25,36	1.32	3 (12%)	36,36,47	1.39	6 (16%)
3	C8E	B	403	-	15,15,20	0.47	0	14,14,19	0.61	0
3	C8E	A	406	-	10,10,20	0.46	0	9,9,19	0.69	0
3	C8E	A	403	-	11,11,20	0.44	0	8,9,19	0.34	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	C8E	A	404	-	-	3/6/6/18	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	C8E	A	405	-	-	8/13/13/18	-
3	C8E	C	404	-	-	7/13/13/18	-
3	C8E	C	403	-	-	5/10/10/18	-
3	C8E	B	401	-	-	5/8/8/18	-
3	C8E	B	402	-	-	10/15/15/18	-
3	C8E	C	402	-	-	7/18/18/18	-
3	C8E	F	301	-	-	2/4/4/18	-
3	C8E	D	302	-	-	5/9/9/18	-
3	C8E	A	402	-	-	4/7/7/18	-
3	C8E	C	401	-	-	4/13/13/18	-
3	C8E	E	301	-	-	3/5/5/18	-
3	C8E	B	404	-	-	5/12/12/18	-
4	LMT	B	405	-	-	10/21/61/61	0/2/2/2
4	LMT	F	302	-	-	8/10/50/61	0/2/2/2
3	C8E	E	302	-	-	11/17/17/18	-
3	C8E	D	301	-	-	6/10/10/18	-
3	C8E	A	401	-	-	10/13/13/18	-
4	LMT	B	406	-	-	2/10/50/61	0/2/2/2
3	C8E	B	403	-	-	7/13/13/18	-
3	C8E	A	406	-	-	2/8/8/18	-
3	C8E	A	403	-	-	3/7/7/18	-

The worst 5 of 9 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	406	LMT	O2'-C2'	-2.88	1.36	1.43
4	F	302	LMT	O2'-C2'	-2.77	1.36	1.43
4	B	405	LMT	O3B-C3B	-2.51	1.37	1.43
4	B	406	LMT	O3B-C3B	-2.43	1.37	1.43
4	F	302	LMT	O3'-C3'	-2.41	1.37	1.43

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

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	406	LMT	O5'-C5'-C4'	3.78	117.72	109.75
4	F	302	LMT	O5'-C5'-C4'	2.93	115.94	109.75
4	F	302	LMT	O1'-C1'-C2'	2.93	111.58	108.15

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	406	LMT	O5B-C5B-C4B	2.81	114.79	109.69
4	B	405	LMT	O1'-C1'-C2'	2.52	112.24	108.30

There are no chirality outliers.

5 of 127 torsion outliers are listed below:

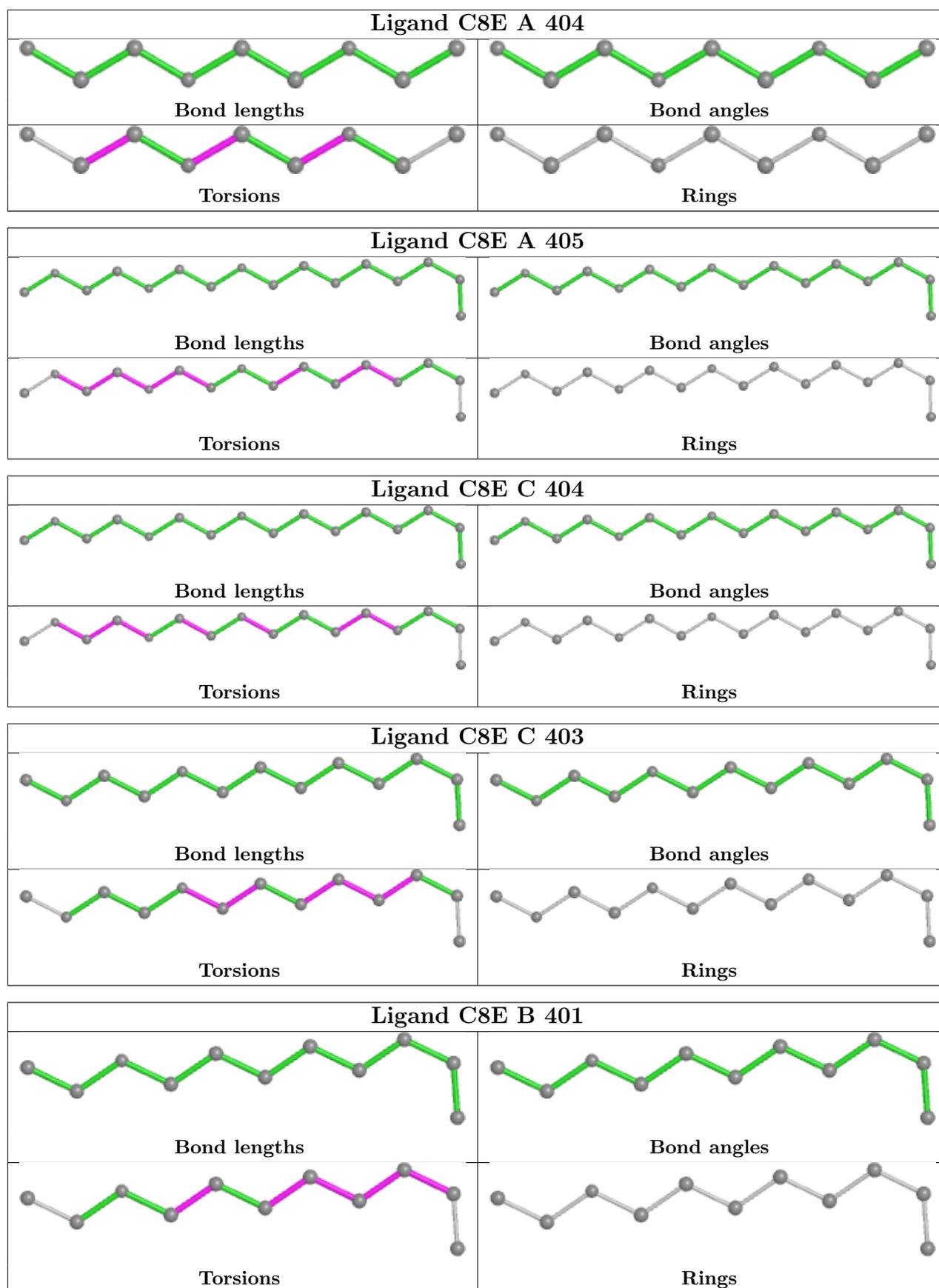
Mol	Chain	Res	Type	Atoms
4	B	405	LMT	O5'-C1'-O1'-C1
4	F	302	LMT	O5'-C1'-O1'-C1
4	F	302	LMT	O5'-C5'-C6'-O6'
4	B	405	LMT	O5B-C5B-C6B-O6B
4	F	302	LMT	O5B-C5B-C6B-O6B

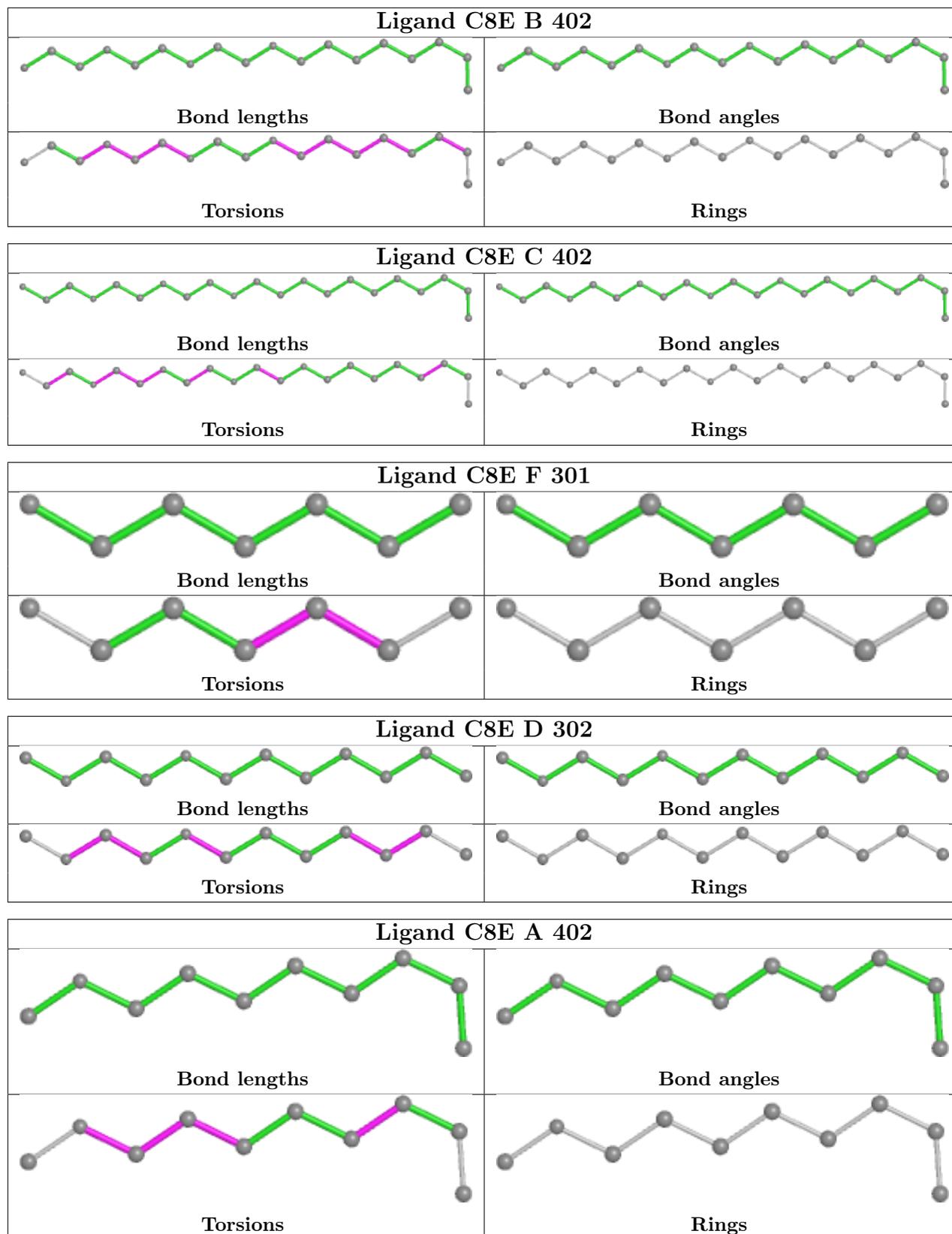
There are no ring outliers.

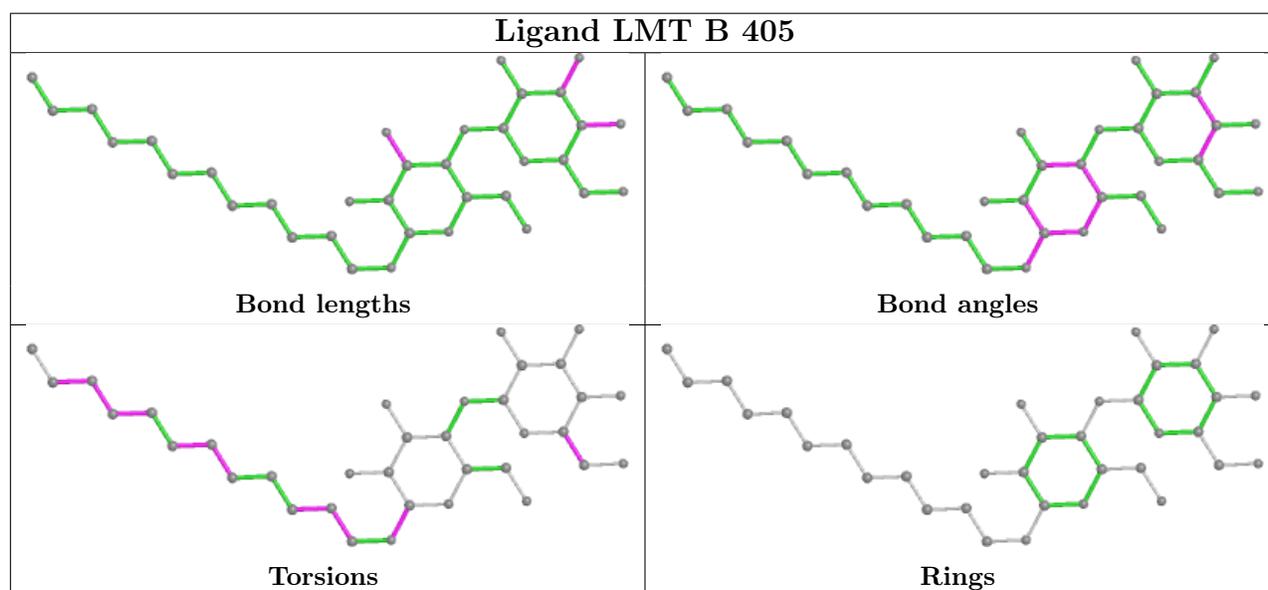
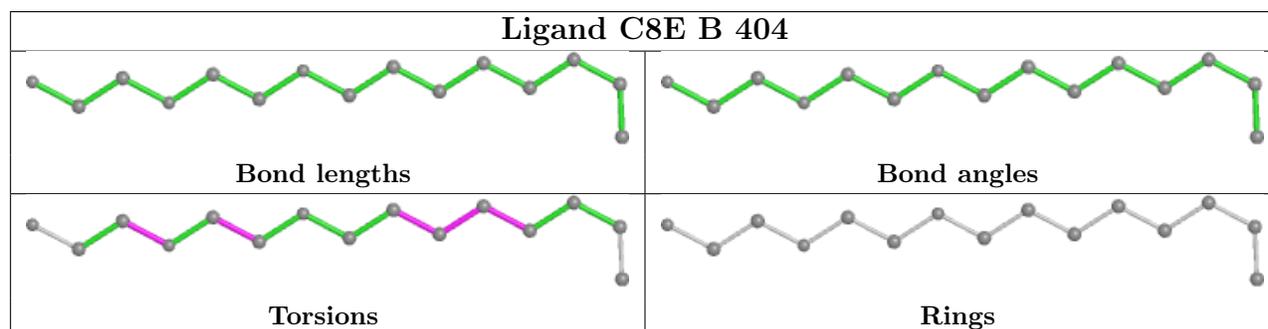
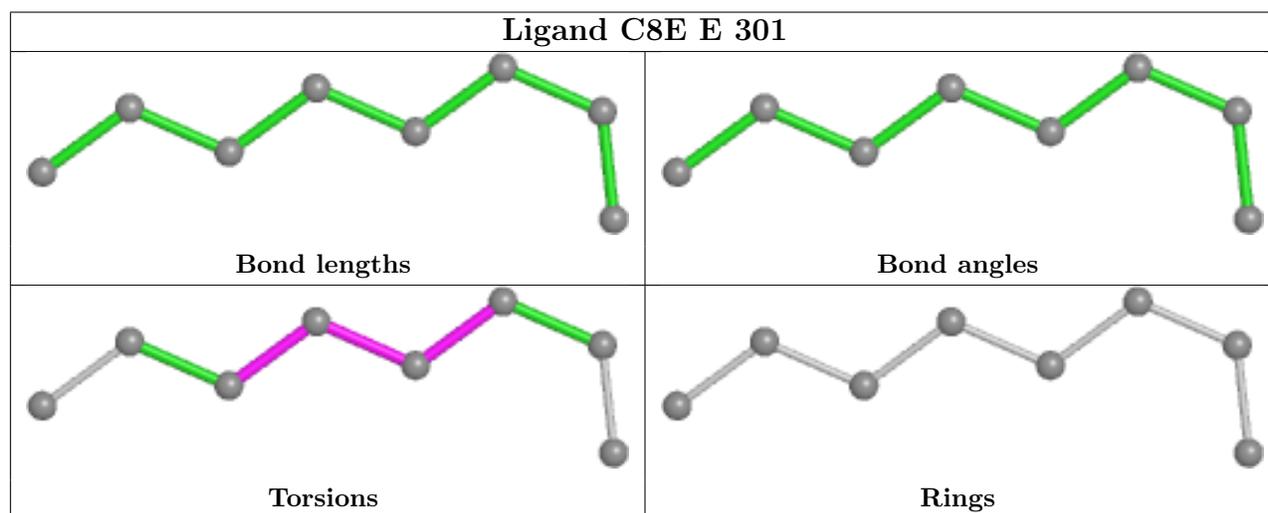
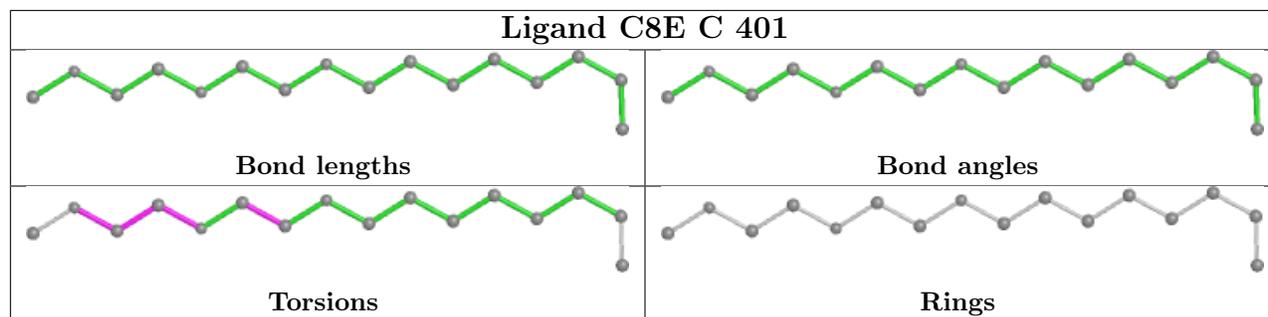
11 monomers are involved in 20 short contacts:

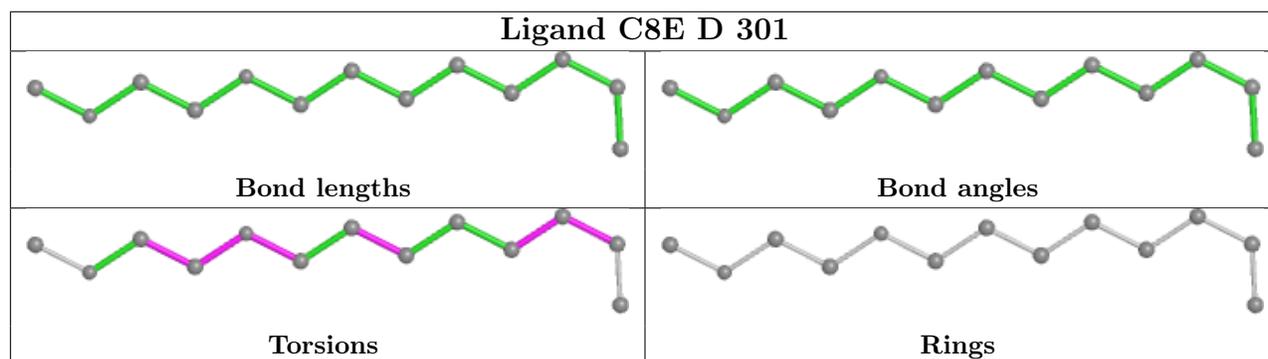
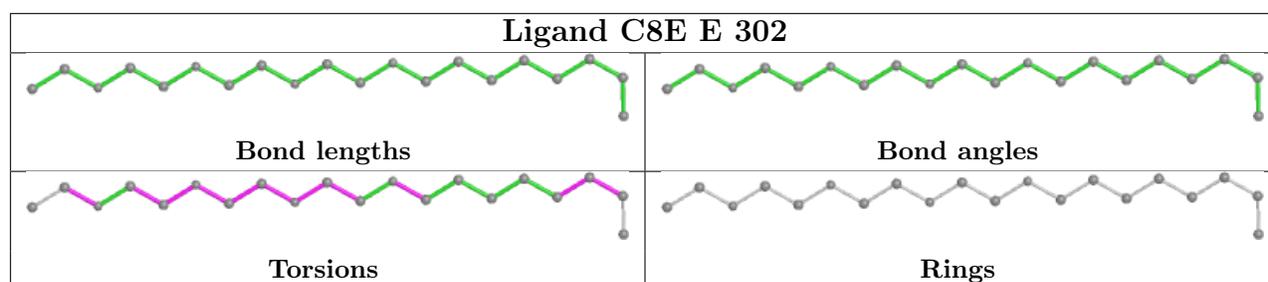
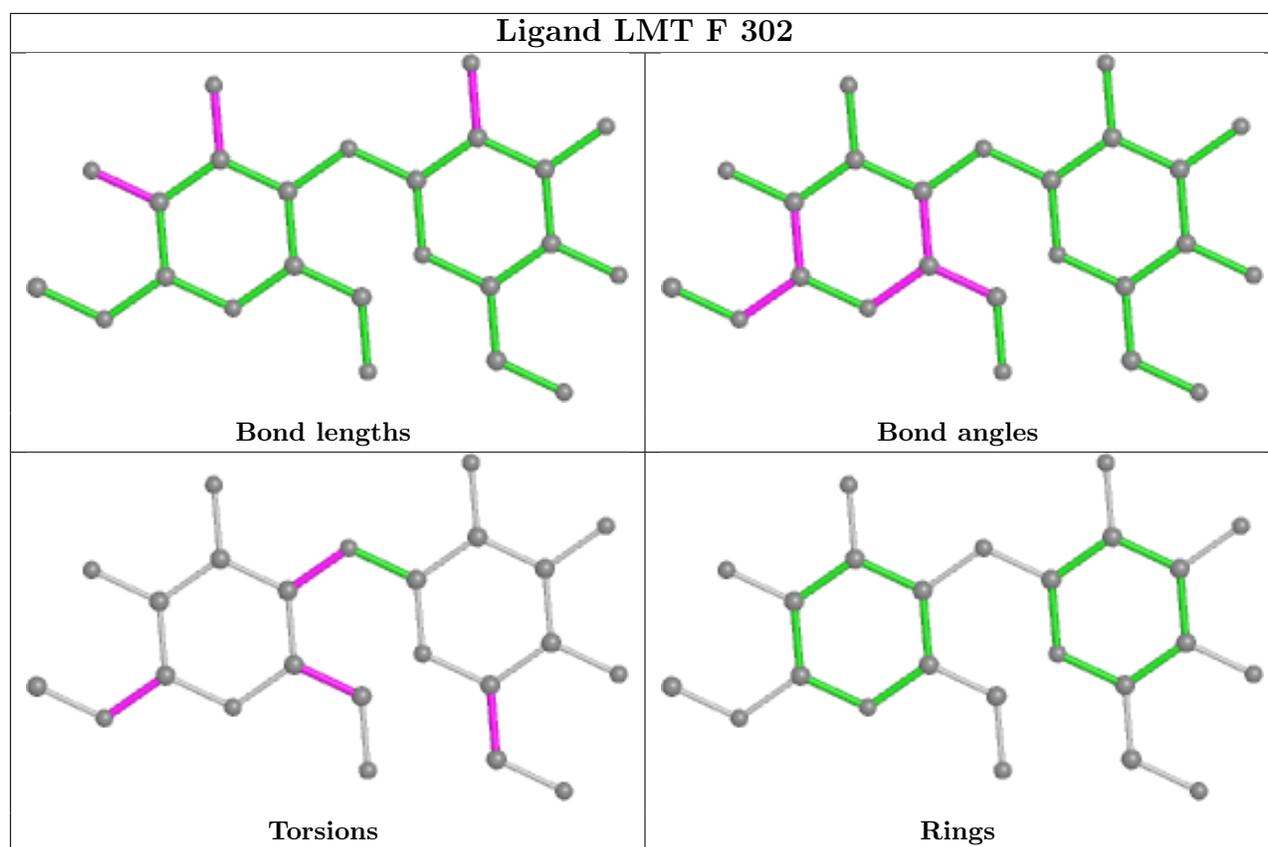
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	404	C8E	1	0
3	C	403	C8E	1	0
3	B	402	C8E	1	0
3	C	402	C8E	2	0
3	C	401	C8E	2	0
3	B	404	C8E	1	0
4	B	405	LMT	1	0
3	E	302	C8E	3	0
3	A	401	C8E	2	0
4	B	406	LMT	4	0
3	A	406	C8E	2	0

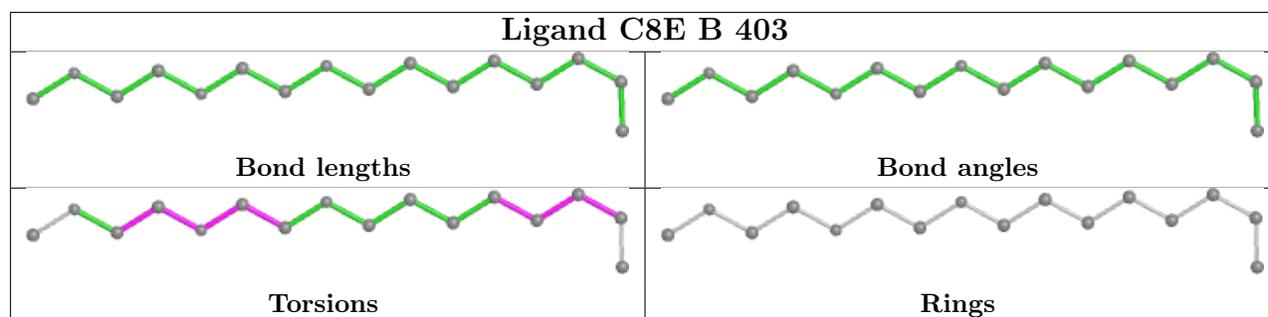
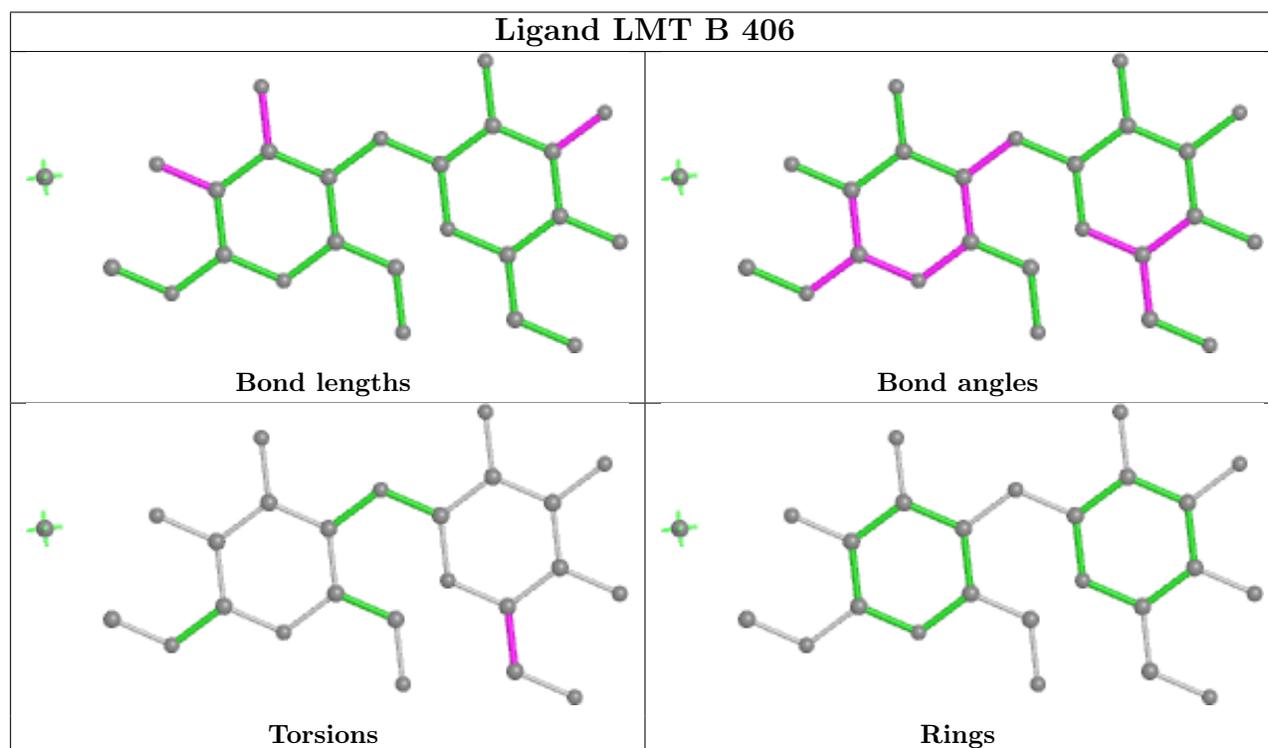
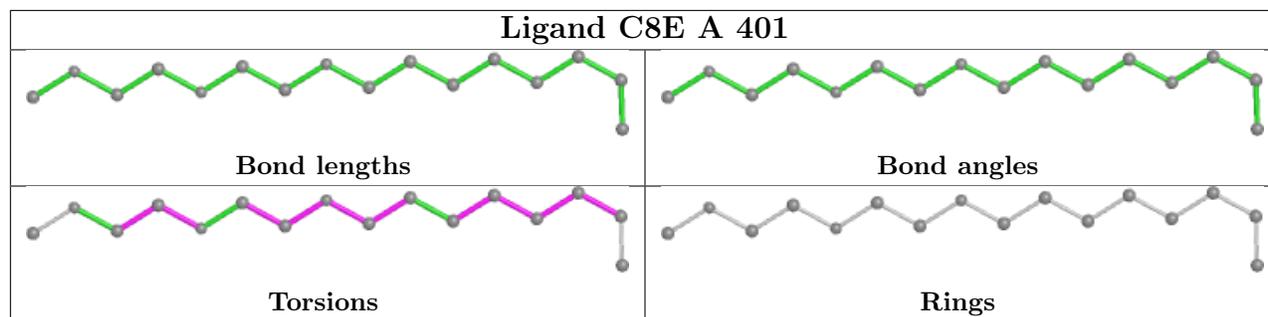
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

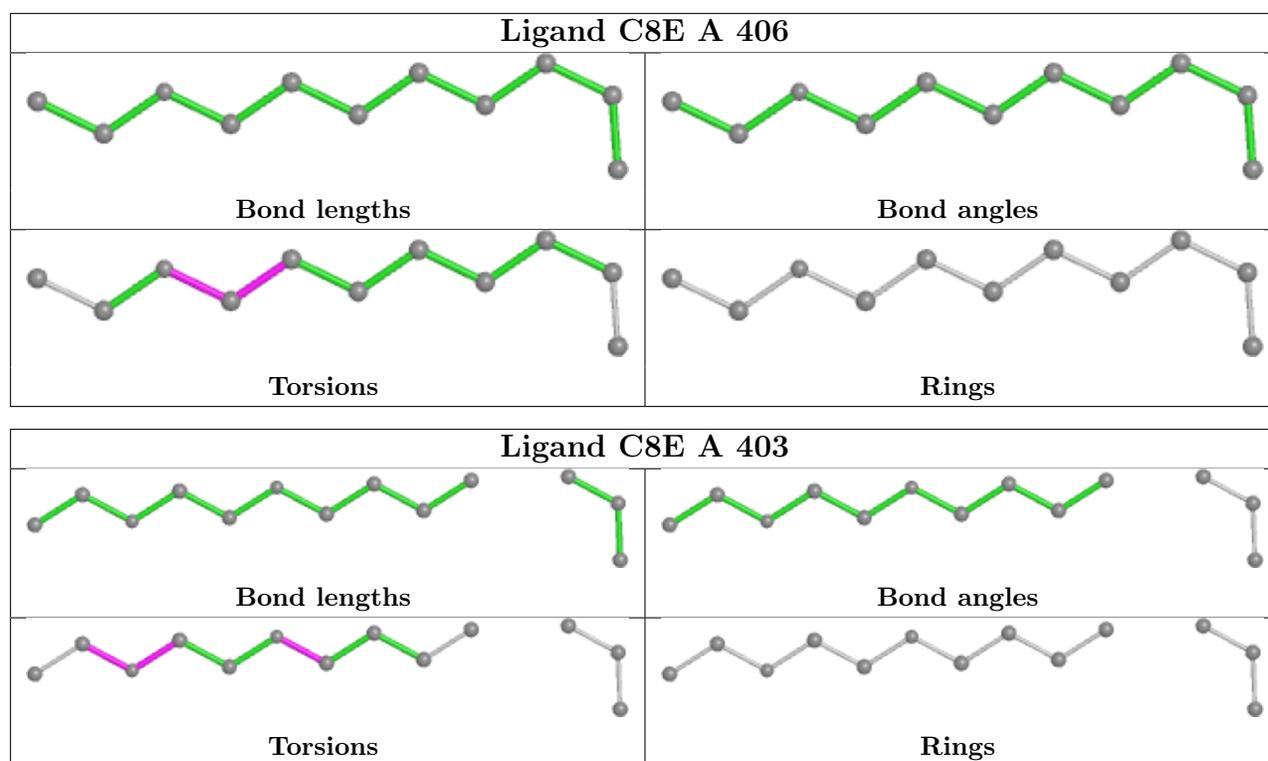












5.7 Other polymers [\(i\)](#)

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	344/344 (100%)	0.52	6 (1%) 70 69	48, 58, 83, 140	0
1	B	344/344 (100%)	0.60	17 (4%) 29 26	48, 61, 91, 155	0
1	C	344/344 (100%)	0.63	16 (4%) 31 28	50, 68, 103, 153	0
2	D	199/236 (84%)	0.29	2 (1%) 82 82	46, 71, 98, 165	0
2	E	199/236 (84%)	0.34	5 (2%) 57 55	56, 75, 102, 152	0
2	F	204/236 (86%)	0.26	9 (4%) 34 30	55, 80, 124, 159	0
All	All	1634/1740 (93%)	0.48	55 (3%) 45 40	46, 67, 102, 165	0

The worst 5 of 55 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	182	TRP	5.7
2	F	211	ASN	4.6
1	B	288	TYR	4.2
1	B	92	ASP	3.6
2	F	194	PRO	3.4

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 monosaccharides in this entry.

6.4 Ligands

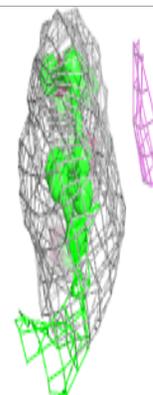
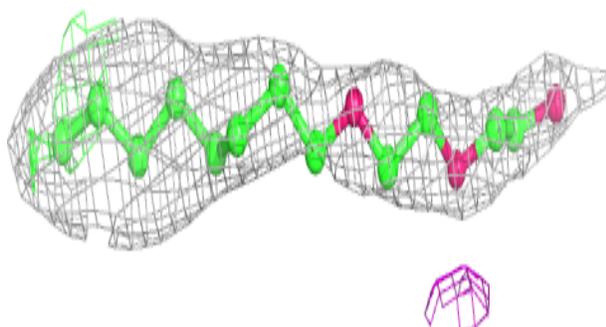
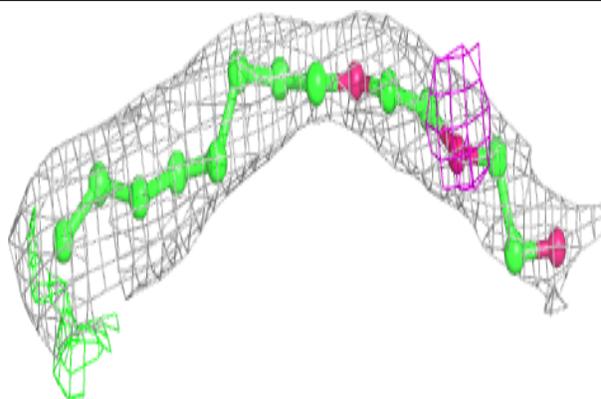
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
3	C8E	B	404	15/21	0.70	0.40	65,75,85,85	0
4	LMT	F	302	24/35	0.79	0.31	66,109,116,131	0
3	C8E	D	302	12/21	0.81	0.21	52,62,73,80	0
3	C8E	A	405	16/21	0.81	0.34	33,70,89,90	0
3	C8E	C	404	16/21	0.82	0.47	26,51,104,105	0
3	C8E	F	301	7/21	0.83	0.20	57,59,65,70	0
3	C8E	D	301	13/21	0.83	0.29	53,70,75,78	0
3	C8E	A	403	13/21	0.85	0.32	51,63,69,71	0
3	C8E	B	402	18/21	0.86	0.21	49,82,89,91	0
3	C8E	B	403	16/21	0.86	0.26	49,59,74,76	0
4	LMT	B	406	25/35	0.88	0.22	54,85,102,107	0
3	C8E	C	403	13/21	0.89	0.26	50,77,96,98	0
3	C8E	A	402	10/21	0.89	0.18	62,66,77,81	0
3	C8E	E	302	20/21	0.89	0.38	55,69,104,105	0
3	C8E	A	406	11/21	0.90	0.29	44,48,54,55	0
3	C8E	C	402	21/21	0.90	0.23	33,63,100,103	0
3	C8E	A	401	16/21	0.91	0.22	49,52,73,78	0
3	C8E	E	301	8/21	0.91	0.19	46,58,72,72	0
3	C8E	C	401	16/21	0.92	0.22	43,66,82,82	0
3	C8E	A	404	9/21	0.93	0.18	62,66,72,72	0
3	C8E	B	401	11/21	0.94	0.26	47,52,60,62	0
4	LMT	B	405	35/35	0.94	0.24	37,83,101,106	0

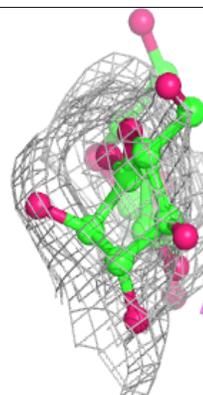
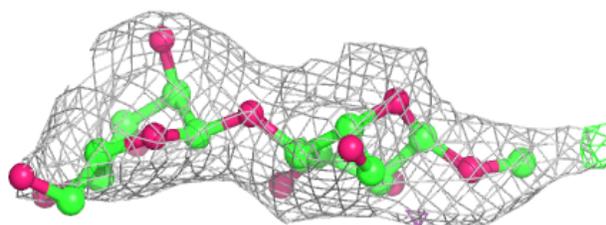
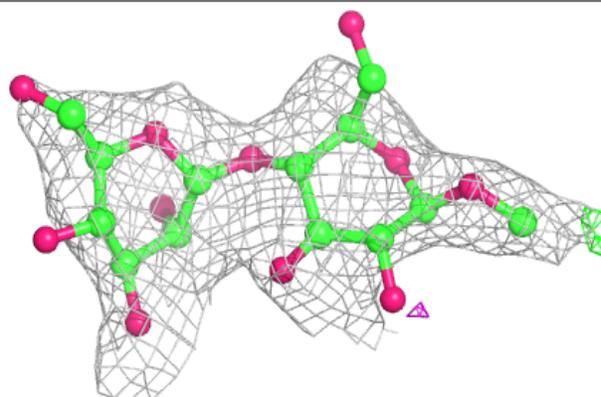
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around C8E 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)

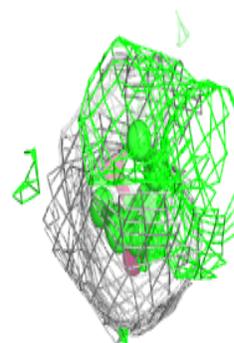
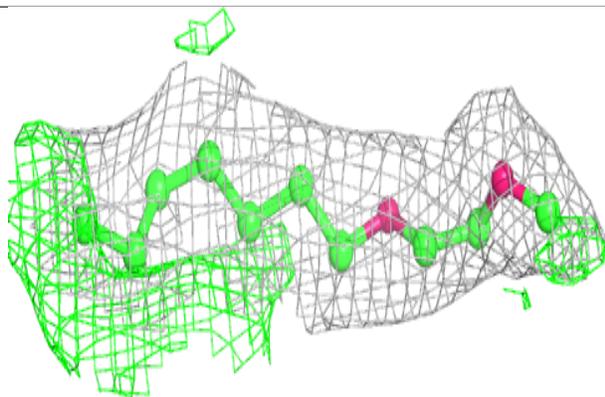
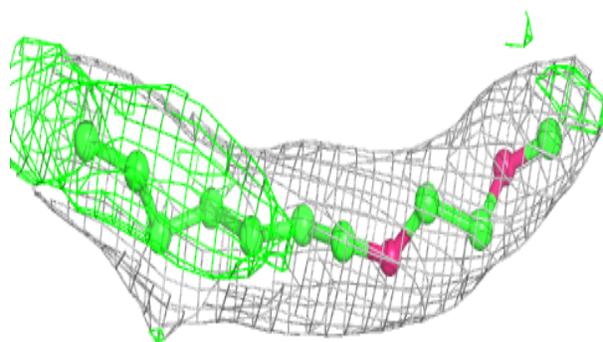
**Electron density around LMT F 302:**

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

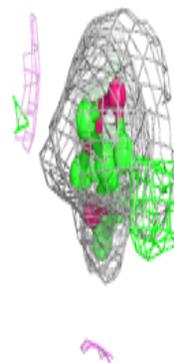
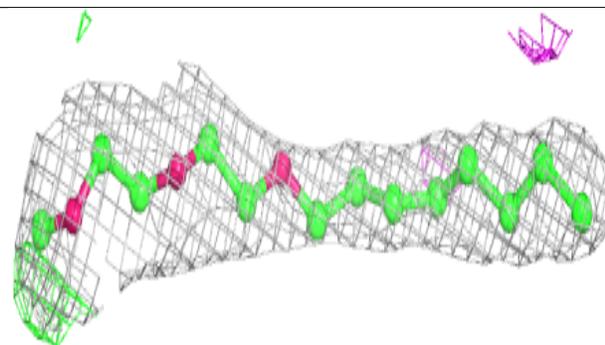
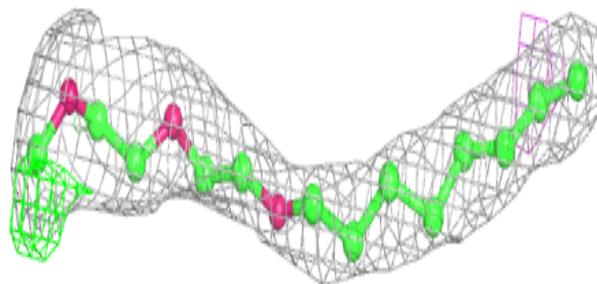


Electron density around C8E D 302:

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

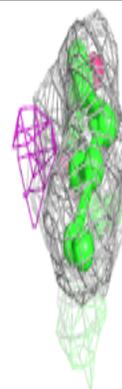
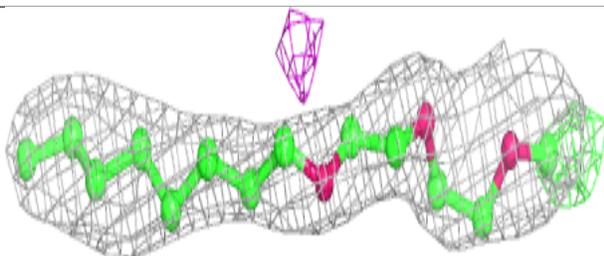
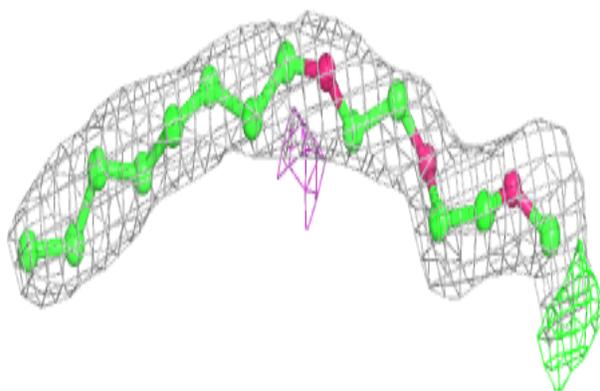
**Electron density around C8E A 405:**

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

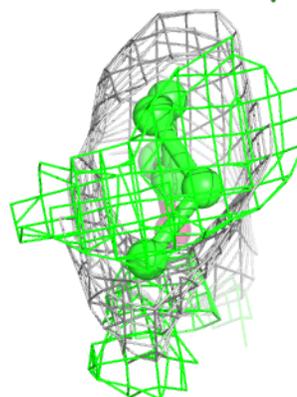
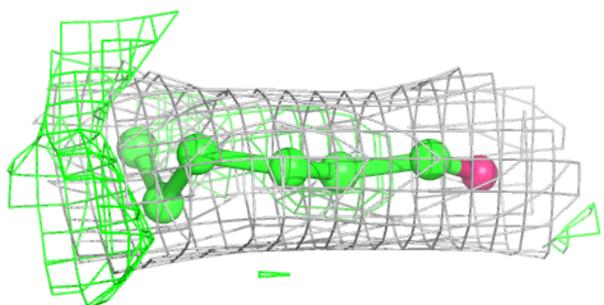


Electron density around C8E C 404:

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and green (positive)

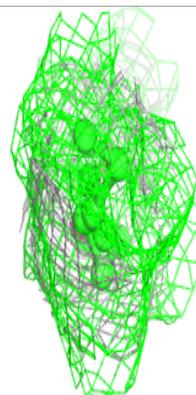
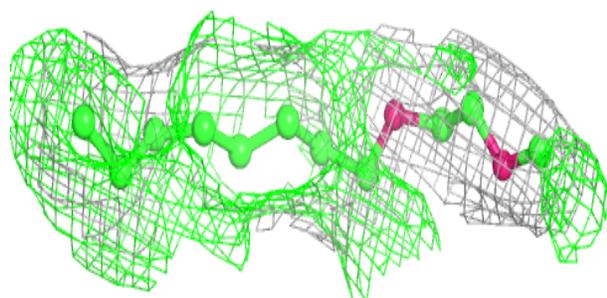
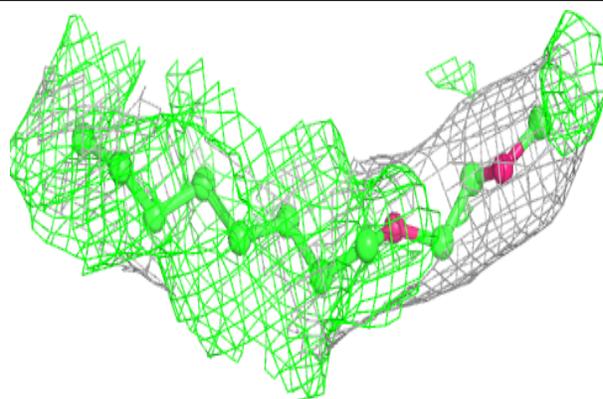
**Electron density around C8E F 301:**

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and green (positive)

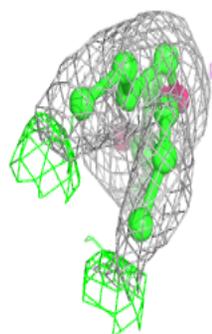
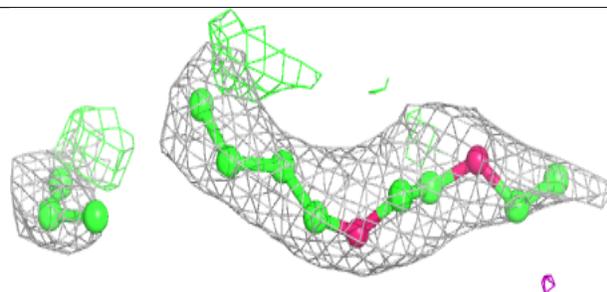
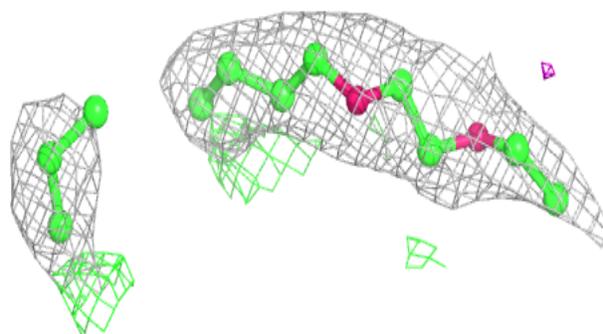


Electron density around C8E D 301:

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

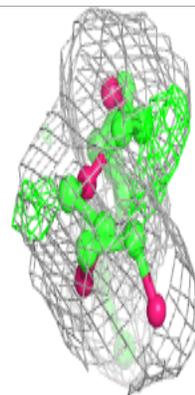
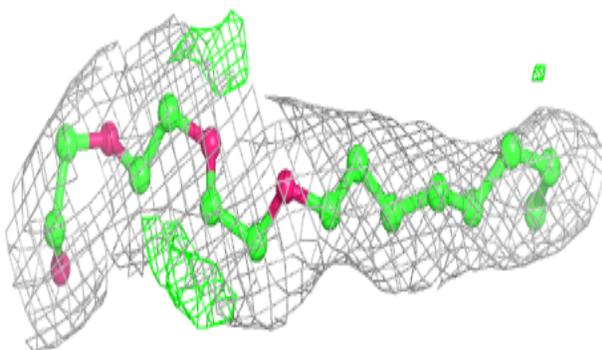
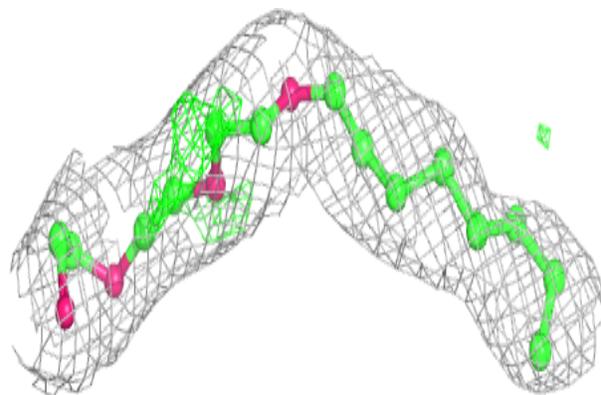
**Electron density around C8E A 403:**

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and green (positive)

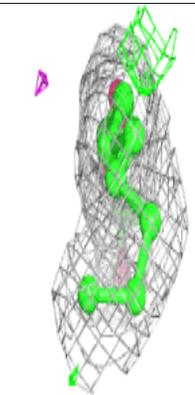
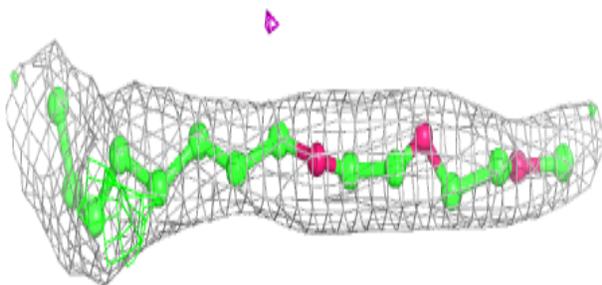
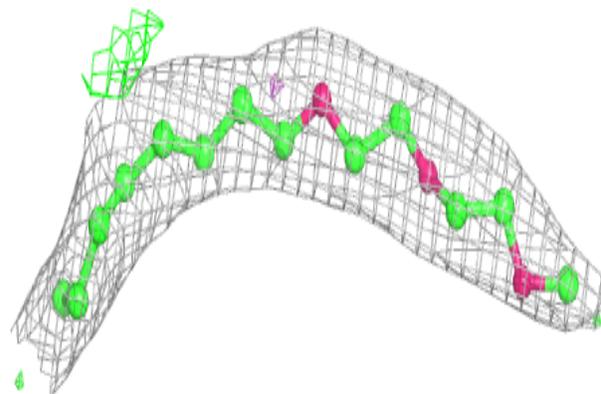


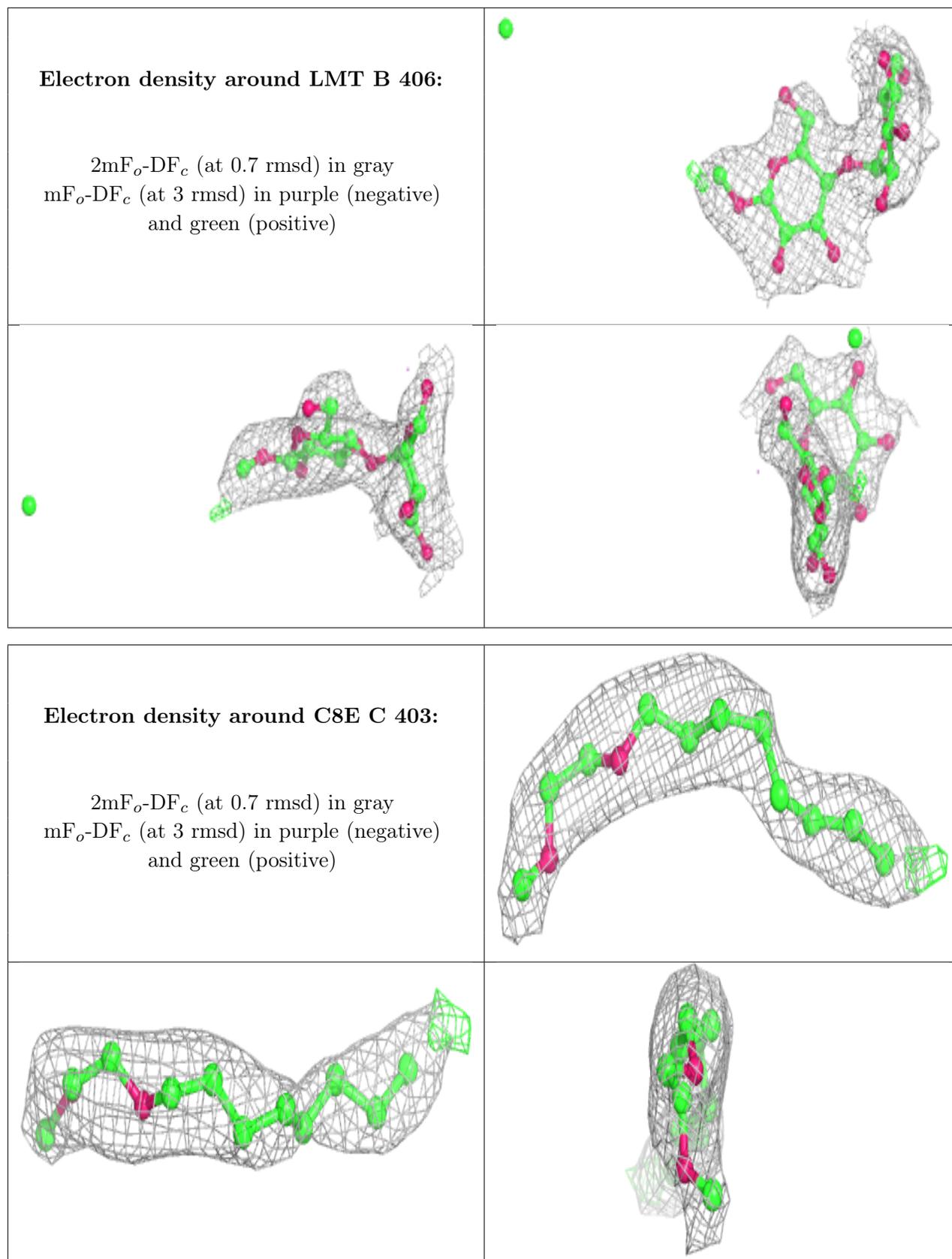
Electron density around C8E B 402:

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

**Electron density around C8E B 403:**

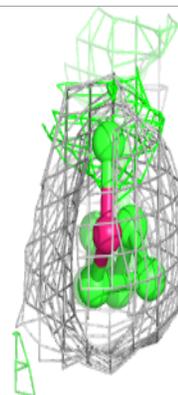
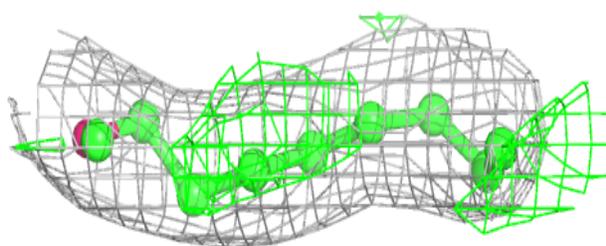
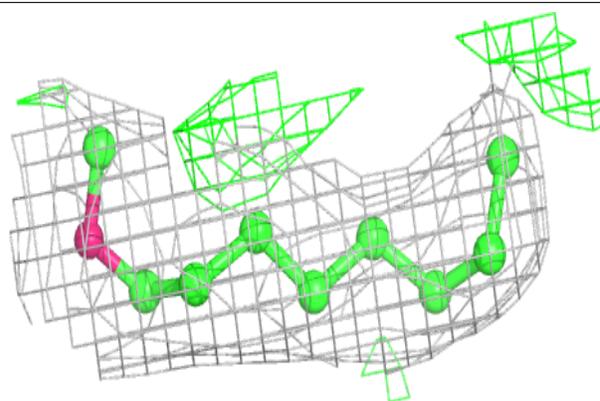
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



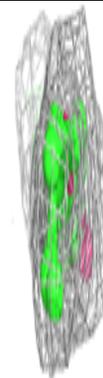
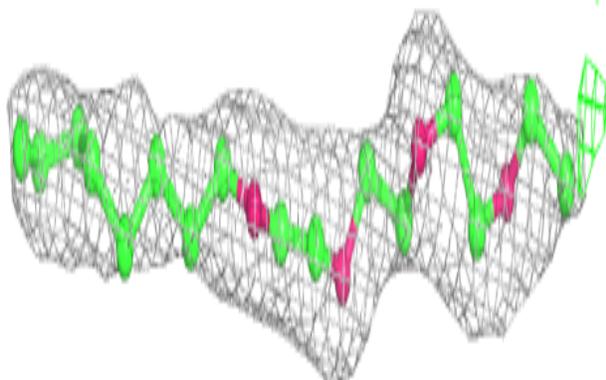
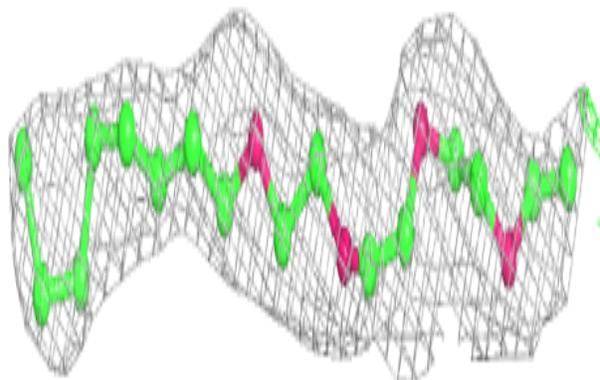


Electron density around C8E A 402:

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

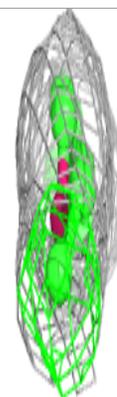
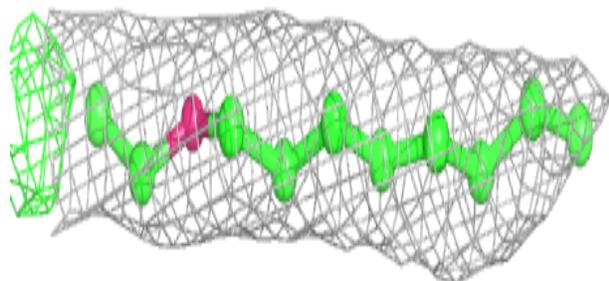
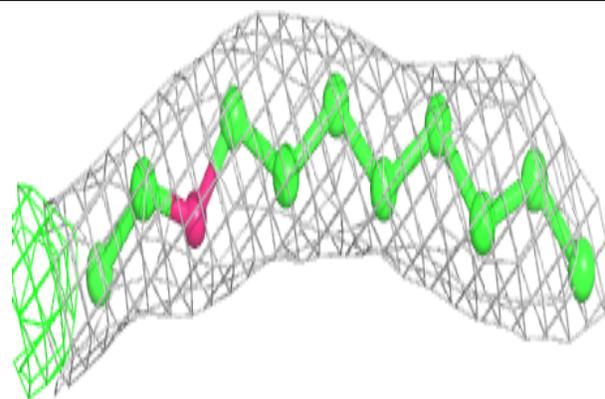
**Electron density around C8E E 302:**

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

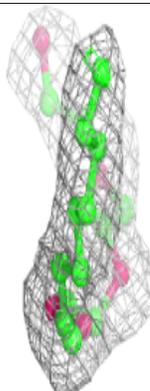
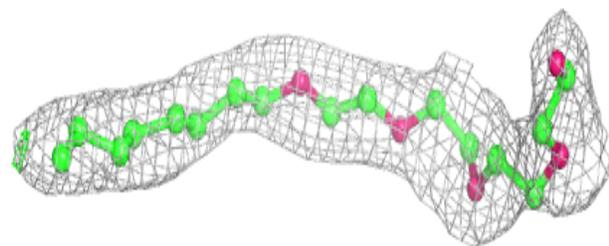
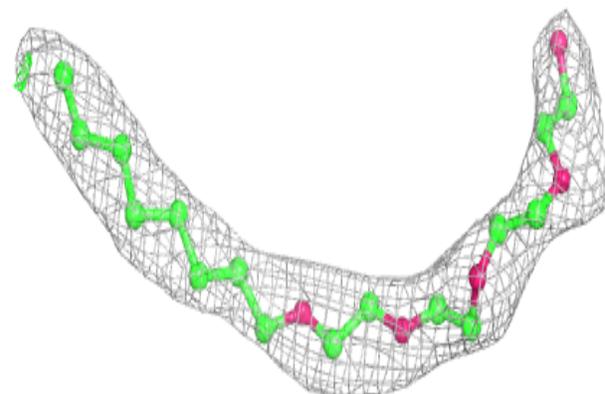


Electron density around C8E A 406:

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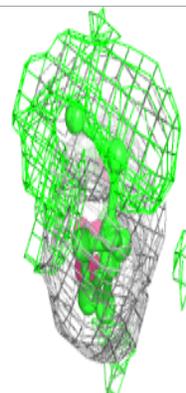
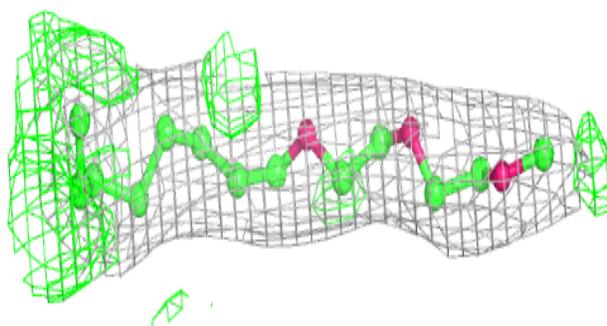
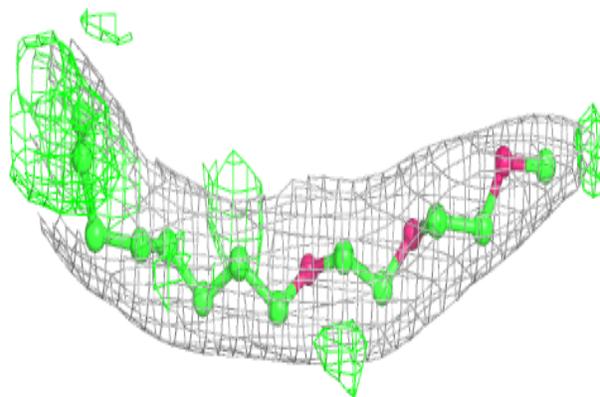
**Electron density around C8E C 402:**

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

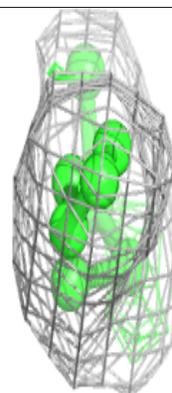
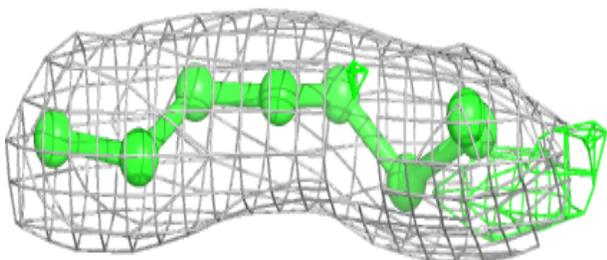
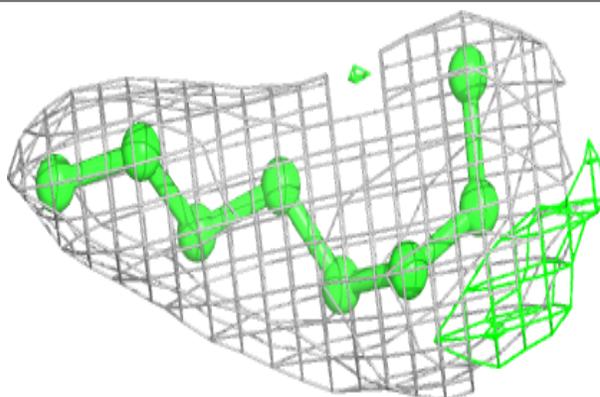


Electron density around C8E A 401:

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

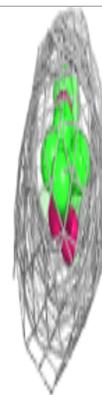
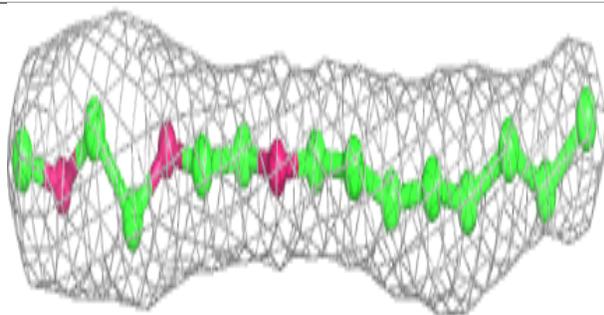
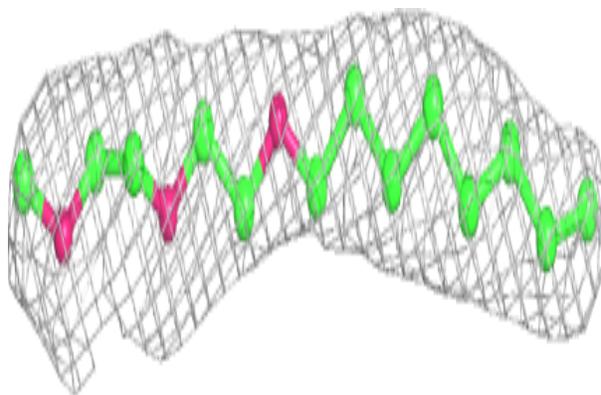
**Electron density around C8E E 301:**

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

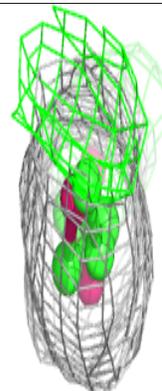
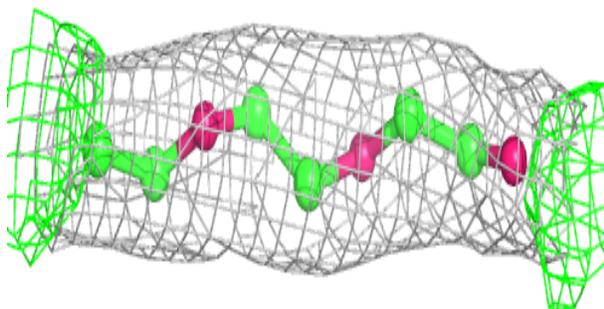
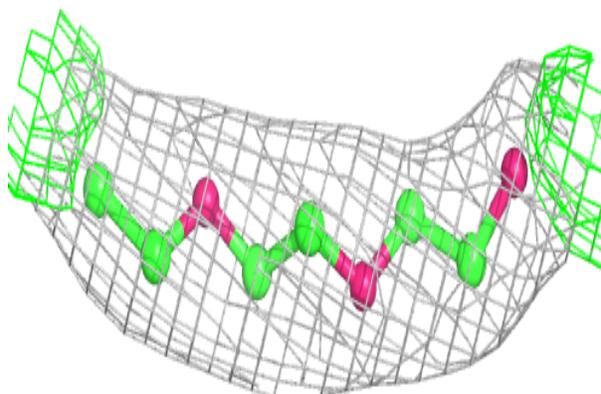


Electron density around C8E C 401:

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

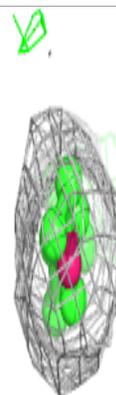
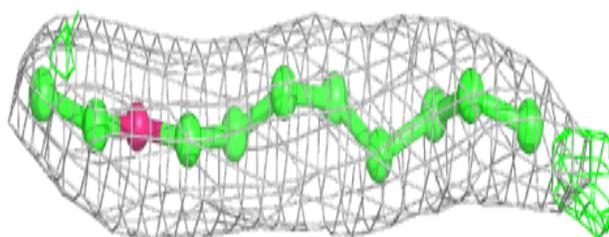
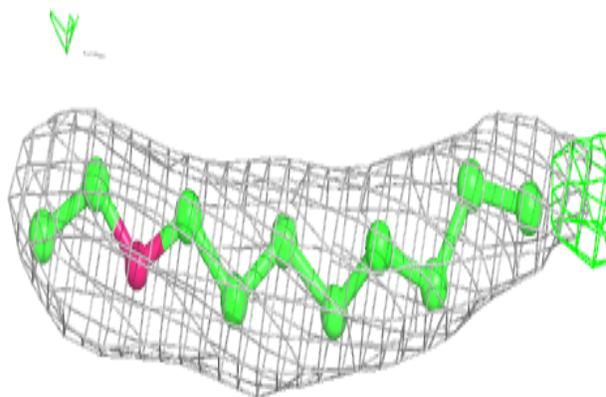
**Electron density around C8E A 404:**

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

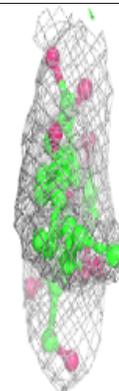
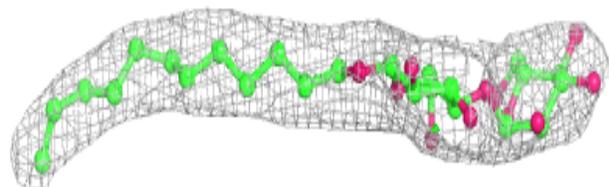
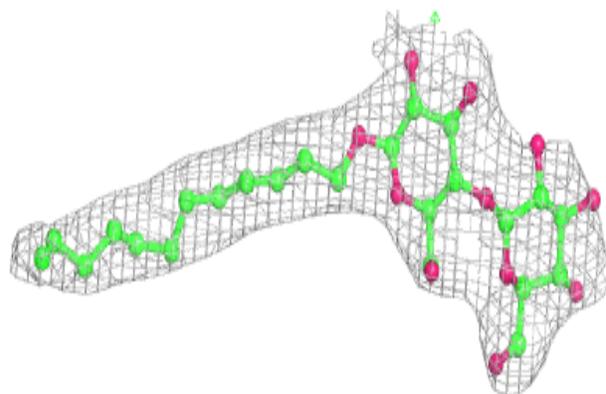


Electron density around C8E B 401:

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

**Electron density around LMT 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)



6.5 Other polymers [i](#)

There are no such residues in this entry.