



Full wwPDB X-ray Structure Validation Report ⓘ

Jun 24, 2024 – 02:34 PM EDT

PDB ID : 6QGY
Title : Crystal structure of E.coli BamA beta-barrel in complex with nanobody B12
Authors : Hartmann, J.-B.; Kaur, H.; Jakob, R.P.; Zahn, M.; Zimmermann, I.; Seeger, M.; Maier, T.; Hiller, S.
Deposited on : 2019-01-14
Resolution : 2.51 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 : 4.02b-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

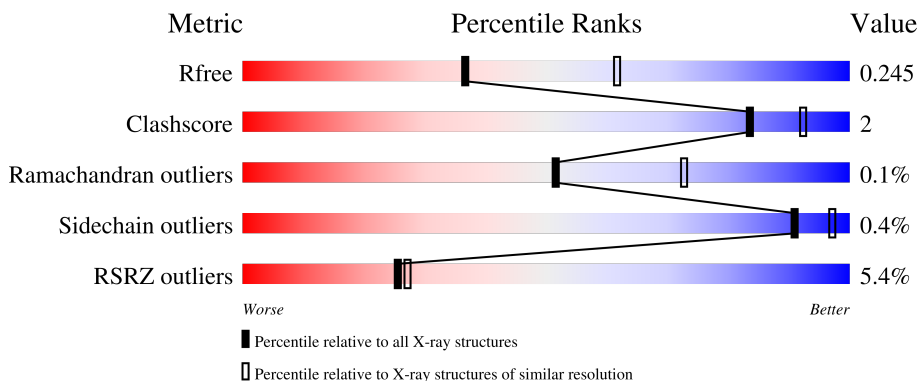
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.51 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	4661 (2.50-2.50)
Clashscore	141614	5346 (2.50-2.50)
Ramachandran outliers	138981	5231 (2.50-2.50)
Sidechain outliers	138945	5233 (2.50-2.50)
RSRZ outliers	127900	4559 (2.50-2.50)

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	411	 6% 84% 5% 10%
1	C	411	 6% 84% 6% 10%
2	B	124	 2% 93% 5% .
2	D	124	 2% 93% 6% .

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard

residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	C8E	A	902	-	-	-	X

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 15487 atoms, of which 7334 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 Outer membrane protein assembly factor BamA.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
			Total	C	H	N	O	S			
1	A	369	5585	1859	2667	471	580	8	0	0	0
1	C	370	5607	1865	2680	473	581	8	0	0	0

There are 46 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	400	MET	-	initiating methionine	UNP P0A942
A	401	GLY	-	expression tag	UNP P0A942
A	402	SER	-	expression tag	UNP P0A942
A	403	SER	-	expression tag	UNP P0A942
A	404	HIS	-	expression tag	UNP P0A942
A	405	HIS	-	expression tag	UNP P0A942
A	406	HIS	-	expression tag	UNP P0A942
A	407	HIS	-	expression tag	UNP P0A942
A	408	HIS	-	expression tag	UNP P0A942
A	409	HIS	-	expression tag	UNP P0A942
A	410	SER	-	expression tag	UNP P0A942
A	411	SER	-	expression tag	UNP P0A942
A	412	GLY	-	expression tag	UNP P0A942
A	413	GLU	-	expression tag	UNP P0A942
A	414	ASN	-	expression tag	UNP P0A942
A	415	LEU	-	expression tag	UNP P0A942
A	416	TYR	-	expression tag	UNP P0A942
A	417	PHE	-	expression tag	UNP P0A942
A	418	GLN	-	expression tag	UNP P0A942
A	419	HIS	-	expression tag	UNP P0A942
A	420	MET	-	expression tag	UNP P0A942
A	690	SER	CYS	engineered mutation	UNP P0A942
A	700	SER	CYS	engineered mutation	UNP P0A942
C	400	MET	-	initiating methionine	UNP P0A942
C	401	GLY	-	expression tag	UNP P0A942

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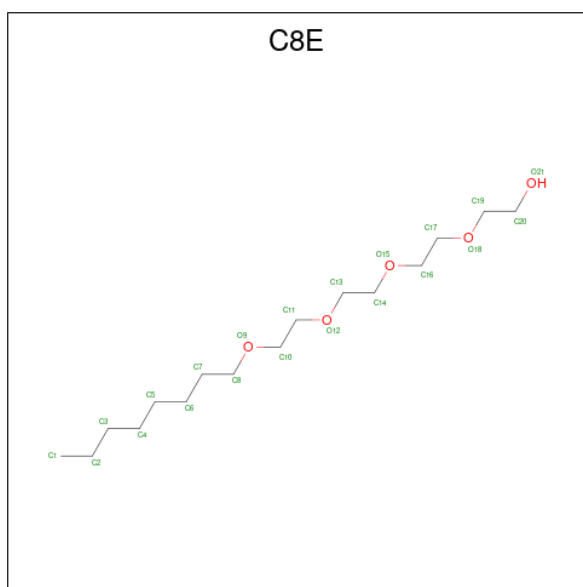
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Chain	Residue	Modelled	Actual	Comment	Reference
C	402	SER	-	expression tag	UNP P0A942
C	403	SER	-	expression tag	UNP P0A942
C	404	HIS	-	expression tag	UNP P0A942
C	405	HIS	-	expression tag	UNP P0A942
C	406	HIS	-	expression tag	UNP P0A942
C	407	HIS	-	expression tag	UNP P0A942
C	408	HIS	-	expression tag	UNP P0A942
C	409	HIS	-	expression tag	UNP P0A942
C	410	SER	-	expression tag	UNP P0A942
C	411	SER	-	expression tag	UNP P0A942
C	412	GLY	-	expression tag	UNP P0A942
C	413	GLU	-	expression tag	UNP P0A942
C	414	ASN	-	expression tag	UNP P0A942
C	415	LEU	-	expression tag	UNP P0A942
C	416	TYR	-	expression tag	UNP P0A942
C	417	PHE	-	expression tag	UNP P0A942
C	418	GLN	-	expression tag	UNP P0A942
C	419	HIS	-	expression tag	UNP P0A942
C	420	MET	-	expression tag	UNP P0A942
C	690	SER	CYS	engineered mutation	UNP P0A942
C	700	SER	CYS	engineered mutation	UNP P0A942

- Molecule 2 is a protein called NanoB12.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace	
			Total	C	H	N	O				S
2	B	121	1833	585	893	169	181	5	0	0	0
2	D	122	1840	587	896	170	182	5	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 H O 29 9 19 1	0	0
3	A	1	Total C H O 29 9 19 1	0	0
3	A	1	Total C H 22 7 15	0	0
3	A	1	Total C H O 29 9 19 1	0	0
3	A	1	Total C H O 39 12 25 2	0	0
3	C	1	Total C H O 47 14 29 4	0	0
3	C	1	Total C H 22 7 15	0	0
3	C	1	Total C H O 40 12 25 3	0	0
3	C	1	Total C H O 26 8 17 1	0	0
3	C	1	Total C H 22 7 15	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	134	Total O 134 134	0	0
4	B	31	Total O 31 31	0	0

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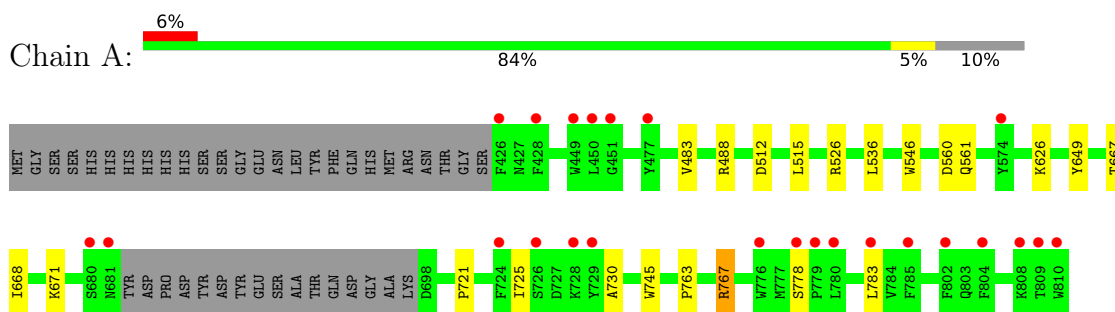
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	C	122	Total 122	O 122	0	0
4	D	30	Total 30	O 30	0	0

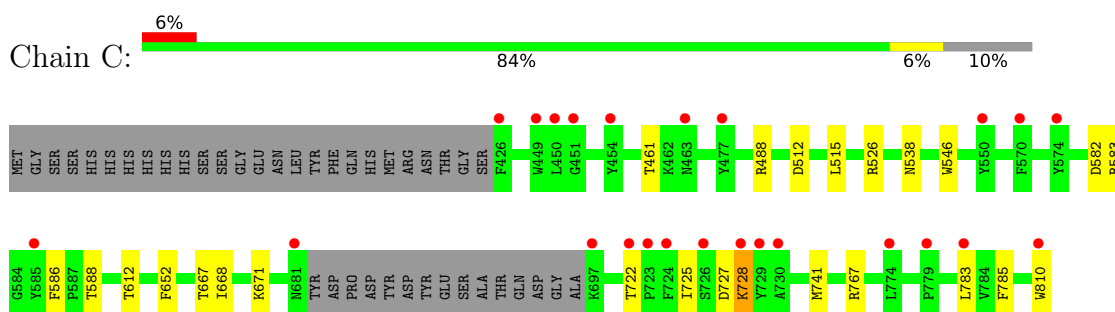
3 Residue-property plots [i](#)

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.

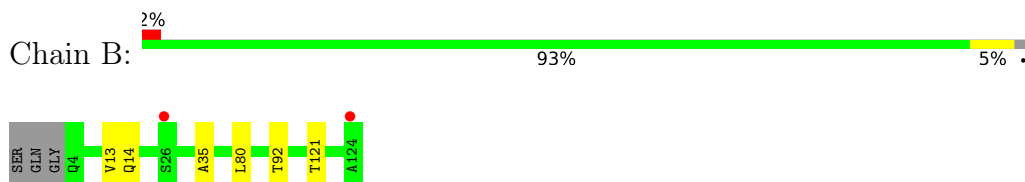
- Molecule 1: Outer membrane protein assembly factor BamA



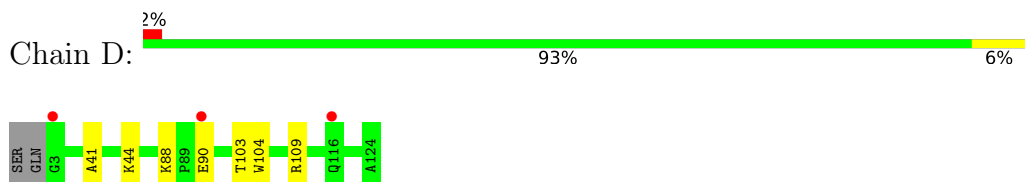
- Molecule 1: Outer membrane protein assembly factor BamA



- Molecule 2: NanoB12



- Molecule 2: NanoB12



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	99.71Å 86.66Å 125.03Å 90.00° 105.26° 90.00°	Depositor
Resolution (Å)	48.48 – 2.51 48.48 – 2.51	Depositor EDS
% Data completeness (in resolution range)	98.4 (48.48-2.51) 98.4 (48.48-2.51)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.36 (at 2.51Å)	Xtrriage
Refinement program	PHENIX (1.13_2998: ???)	Depositor
R, R_{free}	0.222 , 0.244 0.223 , 0.245	Depositor DCC
R_{free} test set	3566 reflections (5.13%)	wwPDB-VP
Wilson B-factor (Å ²)	64.1	Xtrriage
Anisotropy	0.279	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 53.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.51$, $\langle L^2 \rangle = 0.35$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	15487	wwPDB-VP
Average B, all atoms (Å ²)	79.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.16% 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

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	0.29	0/3008	0.48	0/4094
1	C	0.30	0/3017	0.48	0/4105
2	B	0.31	0/961	0.48	0/1298
2	D	0.33	0/965	0.51	0/1303
All	All	0.30	0/7951	0.48	0/10800

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	2918	2667	2667	12	0
1	C	2927	2680	2680	19	0
2	B	940	893	893	3	0
2	D	944	896	896	4	0
3	A	51	97	87	1	0
3	C	56	101	97	0	0
4	A	134	0	0	0	0
4	B	31	0	0	0	0
4	C	122	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	D	30	0	0	0	0
All	All	8153	7334	7320	37	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 2.

All (37) 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:783:LEU:HD21	1:C:785:PHE:CE2	2.21	0.74
1:C:488:ARG:NH2	1:C:512:ASP:OD2	2.25	0.69
1:A:725:ILE:O	1:A:730:ALA:HB2	1.94	0.66
1:C:538:ASN:OD1	2:D:109:ARG:NH1	2.28	0.66
1:A:667:THR:O	1:A:671:LYS:NZ	2.29	0.64
1:C:667:THR:O	1:C:671:LYS:NZ	2.31	0.63
1:A:488:ARG:NH2	1:A:512:ASP:OD2	2.31	0.62
2:D:41:ALA:HB3	2:D:44:LYS:HD2	1.81	0.62
1:C:783:LEU:HD21	1:C:785:PHE:CD2	2.36	0.61
1:A:483:VAL:HG21	3:A:904:C8E:H82	1.91	0.53
1:C:722:THR:O	1:C:725:ILE:HG22	2.09	0.52
1:C:727:ASP:O	1:C:728:LYS:HB2	2.12	0.50
1:C:582:ASP:OD2	1:C:588:THR:OG1	2.29	0.50
2:D:88:LYS:HD2	2:D:90:GLU:OE2	2.11	0.50
1:C:668:ILE:HG23	1:C:767:ARG:CD	2.42	0.50
1:C:668:ILE:HG23	1:C:767:ARG:HD3	1.95	0.49
1:A:536:LEU:HD11	1:A:649:TYR:CE1	2.50	0.47
1:A:626:LYS:HB3	1:A:721:PRO:HG3	1.97	0.46
1:C:612:THR:HG22	1:C:652:PHE:HE1	1.81	0.45
1:C:783:LEU:C	1:C:783:LEU:HD23	2.38	0.45
1:A:515:LEU:O	1:A:526:ARG:HA	2.17	0.44
1:C:583:ARG:NH2	1:C:586:PHE:HB2	2.32	0.44
1:A:560:ASP:OD1	1:A:561:GLN:N	2.50	0.44
1:C:741:MET:HA	1:C:767:ARG:O	2.18	0.44
1:A:778:SER:OG	1:A:783:LEU:HD13	2.17	0.44
1:C:461:THR:HG23	1:C:810:TRP:NE1	2.33	0.43
1:C:461:THR:HG23	1:C:810:TRP:CE2	2.54	0.43
1:A:725:ILE:O	1:A:725:ILE:HG13	2.20	0.42
1:A:668:ILE:HG23	1:A:767:ARG:HD2	2.01	0.42
2:D:103:THR:HG22	2:D:104:TRP:N	2.35	0.42
1:C:612:THR:HG22	1:C:652:PHE:CE1	2.54	0.41
2:B:13:VAL:HG12	2:B:14:GLN:O	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:35:ALA:HB1	2:B:80:LEU:HD22	2.02	0.41
1:C:461:THR:HG23	1:C:810:TRP:CZ2	2.55	0.41
1:C:515:LEU:O	1:C:526:ARG:HA	2.21	0.40
1:A:745:TRP:CE2	1:A:763:PRO:HB3	2.56	0.40
2:B:92:THR:HG23	2:B:121:THR:HA	2.04	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	365/411 (89%)	353 (97%)	12 (3%)	0	100	100
1	C	366/411 (89%)	353 (96%)	12 (3%)	1 (0%)	41	61
2	B	119/124 (96%)	119 (100%)	0	0	100	100
2	D	120/124 (97%)	119 (99%)	1 (1%)	0	100	100
All	All	970/1070 (91%)	944 (97%)	25 (3%)	1 (0%)	51	73

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	728	LYS

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	309/345 (90%)	307 (99%)	2 (1%)	86	95
1	C	310/345 (90%)	309 (100%)	1 (0%)	92	97
2	B	94/96 (98%)	94 (100%)	0	100	100
2	D	94/96 (98%)	94 (100%)	0	100	100
All	All	807/882 (92%)	804 (100%)	3 (0%)	91	97

All (3) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	546	TRP
1	A	767	ARG
1	C	546	TRP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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 [i](#)

10 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	905	-	13,13,20	0.41	0	12,12,19	0.46	0
3	C8E	A	904	-	9,9,20	0.27	0	8,8,19	0.52	0
3	C8E	C	902	-	6,6,20	0.30	0	5,5,19	0.46	0
3	C8E	A	902	-	9,9,20	0.28	0	8,8,19	0.50	0
3	C8E	C	904	-	8,8,20	0.27	0	7,7,19	0.60	0
3	C8E	C	903	-	14,14,20	0.38	0	13,13,19	0.41	0
3	C8E	C	901	-	17,17,20	0.40	0	16,16,19	0.60	0
3	C8E	C	905	-	6,6,20	0.29	0	5,5,19	0.40	0
3	C8E	A	903	-	6,6,20	0.29	0	5,5,19	0.42	0
3	C8E	A	901	-	9,9,20	0.28	0	8,8,19	0.52	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	905	-	-	3/11/11/18	-
3	C8E	A	904	-	-	2/7/7/18	-
3	C8E	C	902	-	-	1/4/4/18	-
3	C8E	A	902	-	-	2/7/7/18	-
3	C8E	C	904	-	-	1/6/6/18	-
3	C8E	C	903	-	-	2/12/12/18	-
3	C8E	C	901	-	-	5/15/15/18	-
3	C8E	C	905	-	-	3/4/4/18	-
3	C8E	A	903	-	-	0/4/4/18	-
3	C8E	A	901	-	-	1/7/7/18	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (20) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	C	903	C8E	O9-C10-C11-O12
3	C	901	C8E	C4-C5-C6-C7
3	C	901	C8E	O9-C10-C11-O12
3	A	904	C8E	C7-C8-O9-C10
3	C	905	C8E	C3-C4-C5-C6

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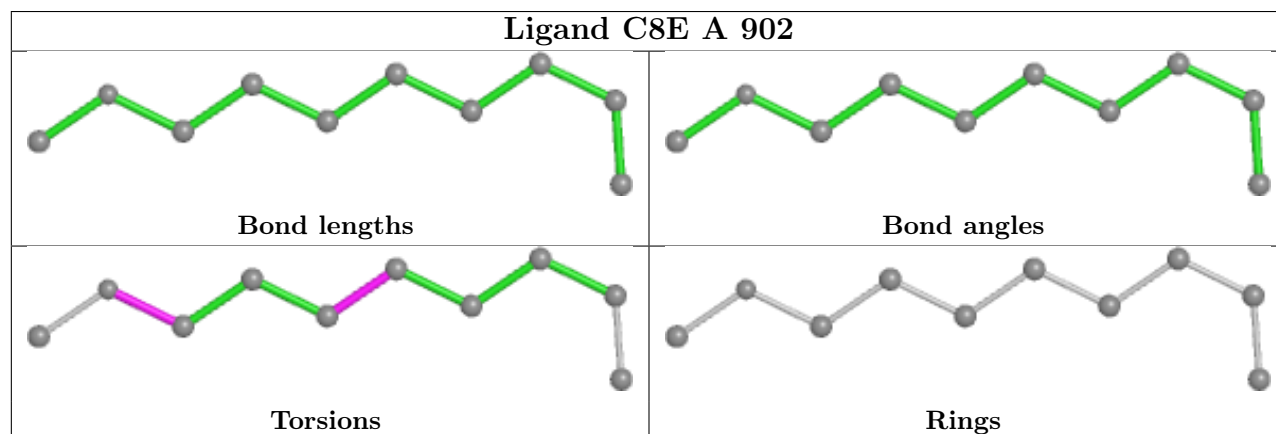
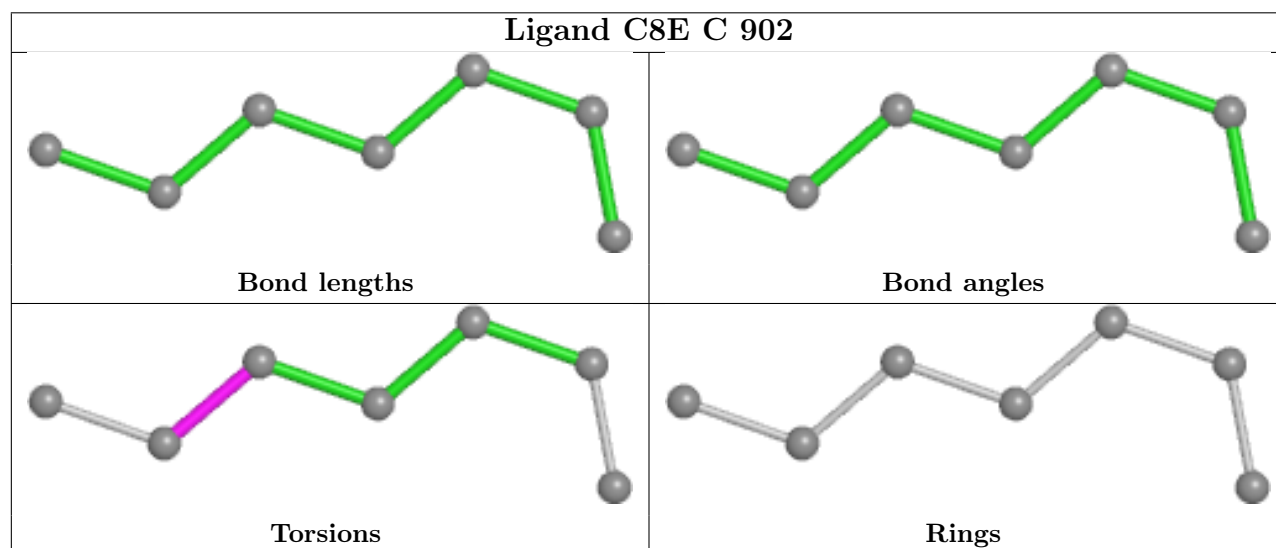
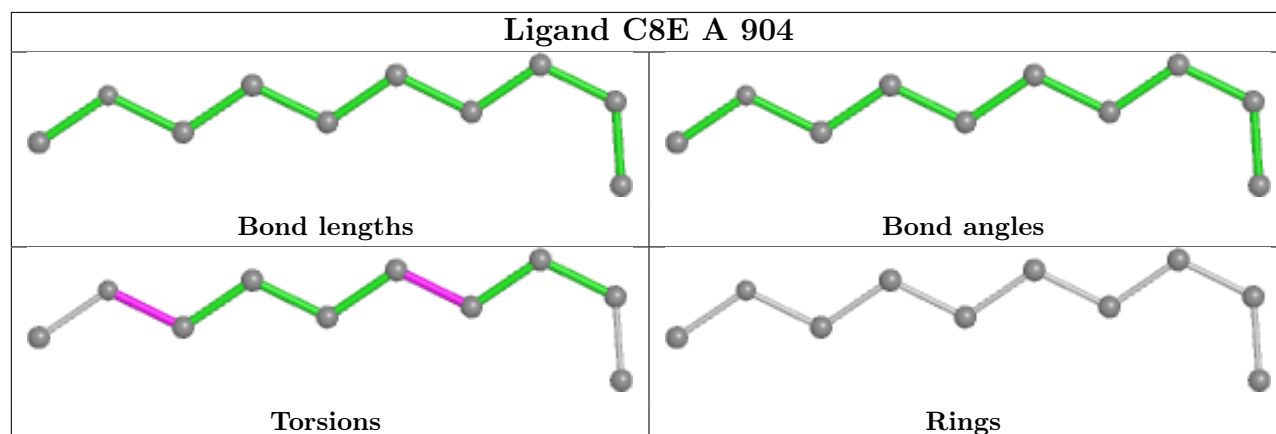
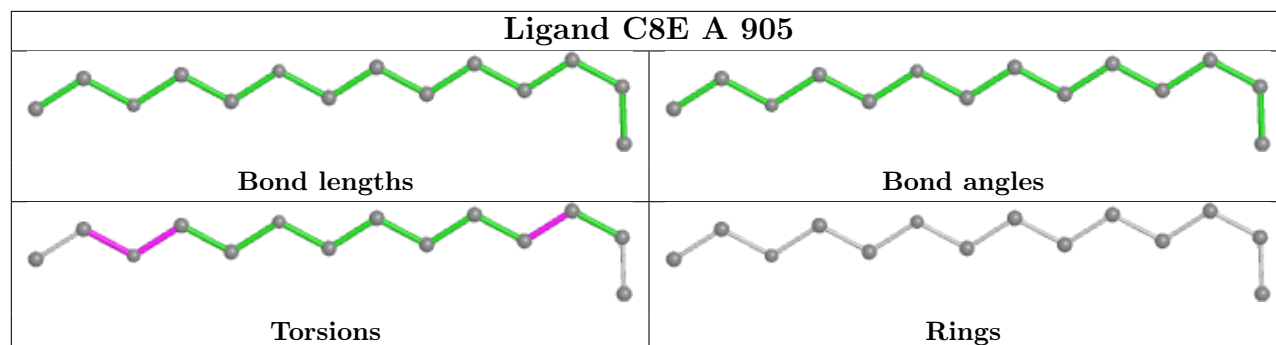
Mol	Chain	Res	Type	Atoms
3	A	902	C8E	C4-C5-C6-C7
3	A	902	C8E	C7-C8-O9-C10
3	A	904	C8E	C3-C4-C5-C6
3	A	905	C8E	C14-C13-O12-C11
3	C	901	C8E	O12-C13-C14-O15
3	C	904	C8E	C3-C4-C5-C6
3	C	902	C8E	C4-C5-C6-C7
3	C	905	C8E	C2-C3-C4-C5
3	C	901	C8E	C6-C7-C8-O9
3	A	901	C8E	C6-C7-C8-O9
3	A	905	C8E	C2-C3-C4-C5
3	C	905	C8E	C1-C2-C3-C4
3	A	905	C8E	C10-C11-O12-C13
3	C	903	C8E	C14-C13-O12-C11
3	C	901	C8E	C11-C10-O9-C8

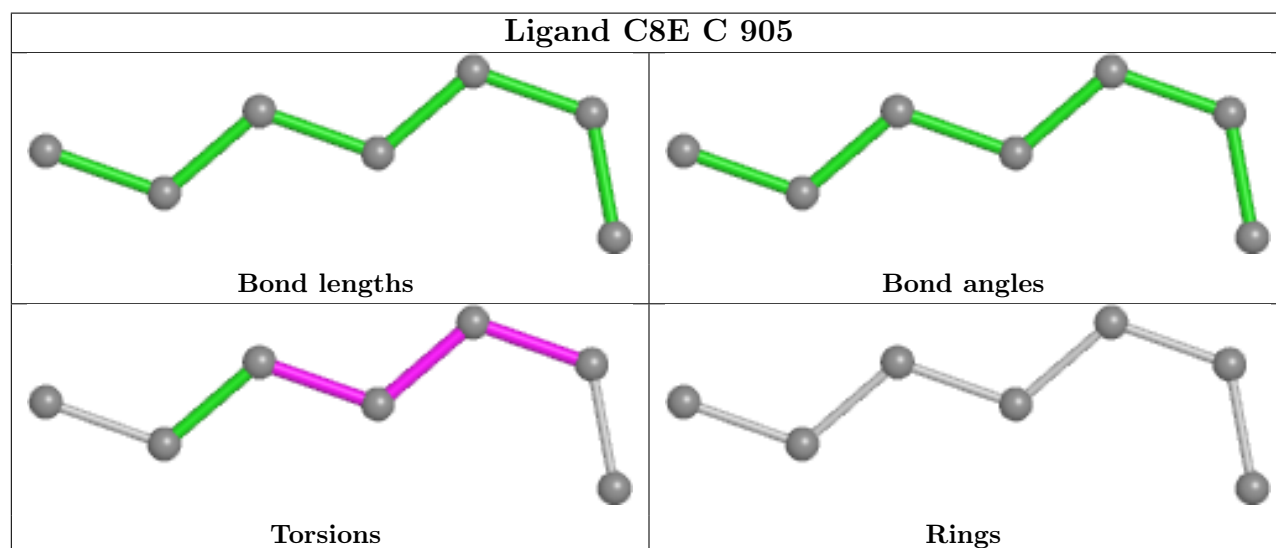
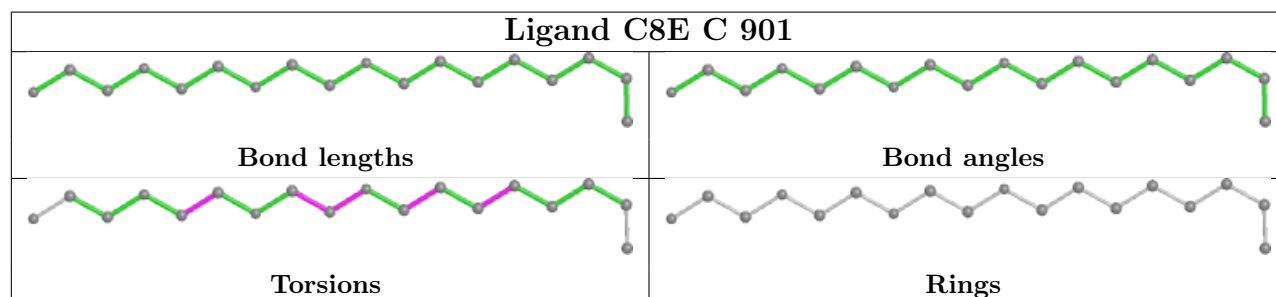
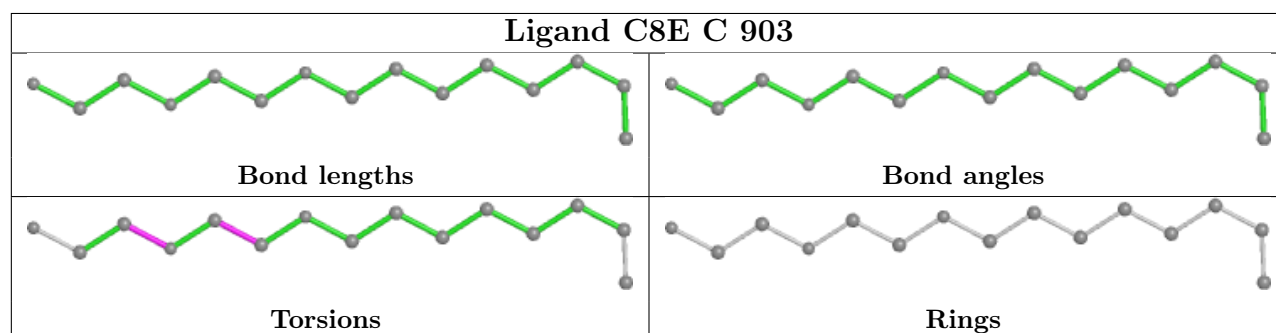
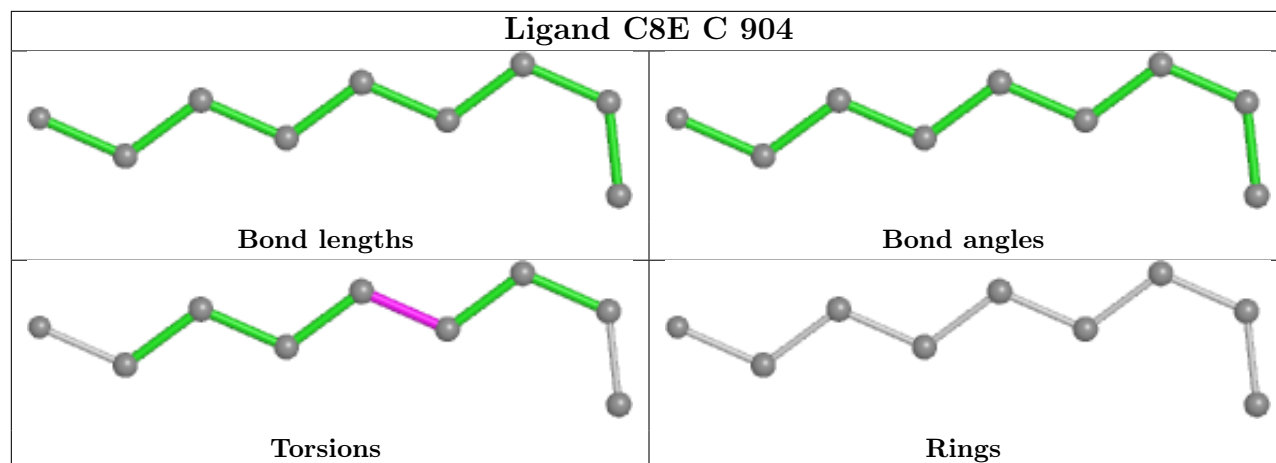
There are no ring outliers.

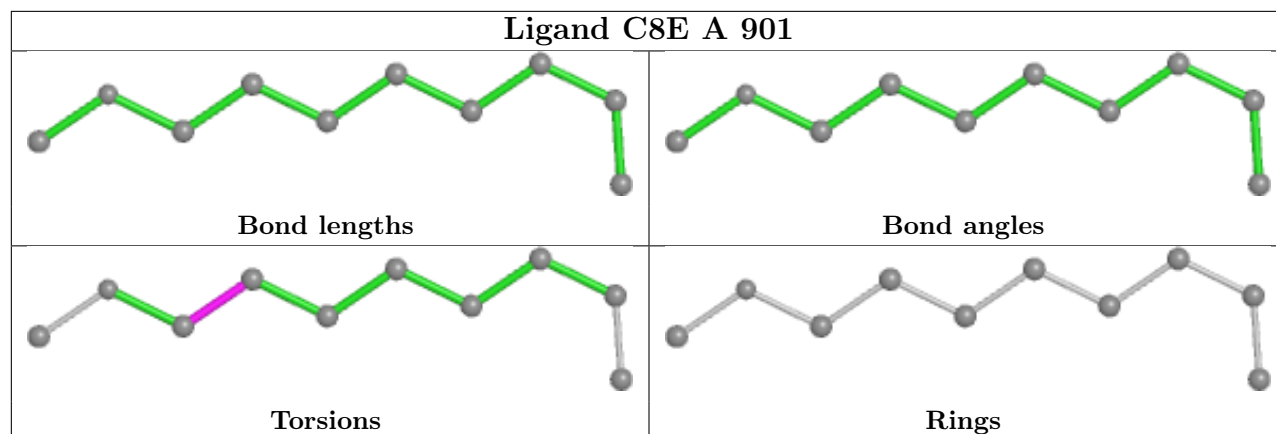
1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	904	C8E	1	0

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







5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	369/411 (89%)	0.57	24 (6%) 18 19	50, 66, 117, 151	0
1	C	370/411 (90%)	0.65	24 (6%) 18 19	47, 66, 123, 171	0
2	B	121/124 (97%)	0.39	2 (1%) 70 72	50, 65, 98, 107	0
2	D	122/124 (98%)	0.48	3 (2%) 57 61	46, 60, 103, 140	0
All	All	982/1070 (91%)	0.56	53 (5%) 25 27	46, 65, 115, 171	0

All (53) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	810	TRP	7.4
1	C	729	TYR	6.8
1	A	729	TYR	6.5
1	C	681	ASN	5.8
1	C	426	PHE	5.4
1	A	779	PRO	5.1
1	C	724	PHE	4.9
1	C	726	SER	4.8
1	C	450	LEU	4.8
1	C	779	PRO	4.4
1	A	780	LEU	4.2
1	A	810	TRP	4.1
1	C	585	TYR	3.6
1	A	785	PHE	3.4
1	A	477	TYR	3.4
1	C	723	PRO	3.3
1	C	451	GLY	3.3
1	A	728	LYS	3.1
1	C	574	TYR	3.1
1	A	451	GLY	3.1
1	A	804	PHE	3.1

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Mol	Chain	Res	Type	RSRZ
1	A	808	LYS	3.1
1	A	450	LEU	3.0
1	C	449	TRP	2.9
1	C	722	THR	2.8
1	C	454	TYR	2.8
1	A	449	TRP	2.7
1	A	726	SER	2.7
1	A	681	ASN	2.7
1	A	574	TYR	2.6
1	A	724	PHE	2.6
1	C	477	TYR	2.5
1	A	783	LEU	2.5
1	C	697	LYS	2.4
2	B	124	ALA	2.3
1	C	463	ASN	2.3
1	A	809	THR	2.3
1	C	774	LEU	2.3
2	D	90	GLU	2.3
1	C	730	ALA	2.2
1	A	426	PHE	2.2
1	A	680	SER	2.2
1	A	776	TRP	2.1
1	A	802	PHE	2.1
1	C	570	PHE	2.1
2	D	3	GLY	2.1
1	A	428	PHE	2.1
1	C	728	LYS	2.1
2	D	116	GLN	2.1
1	A	778	SER	2.1
2	B	26	SER	2.1
1	C	550	TYR	2.0
1	C	783	LEU	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 [i](#)

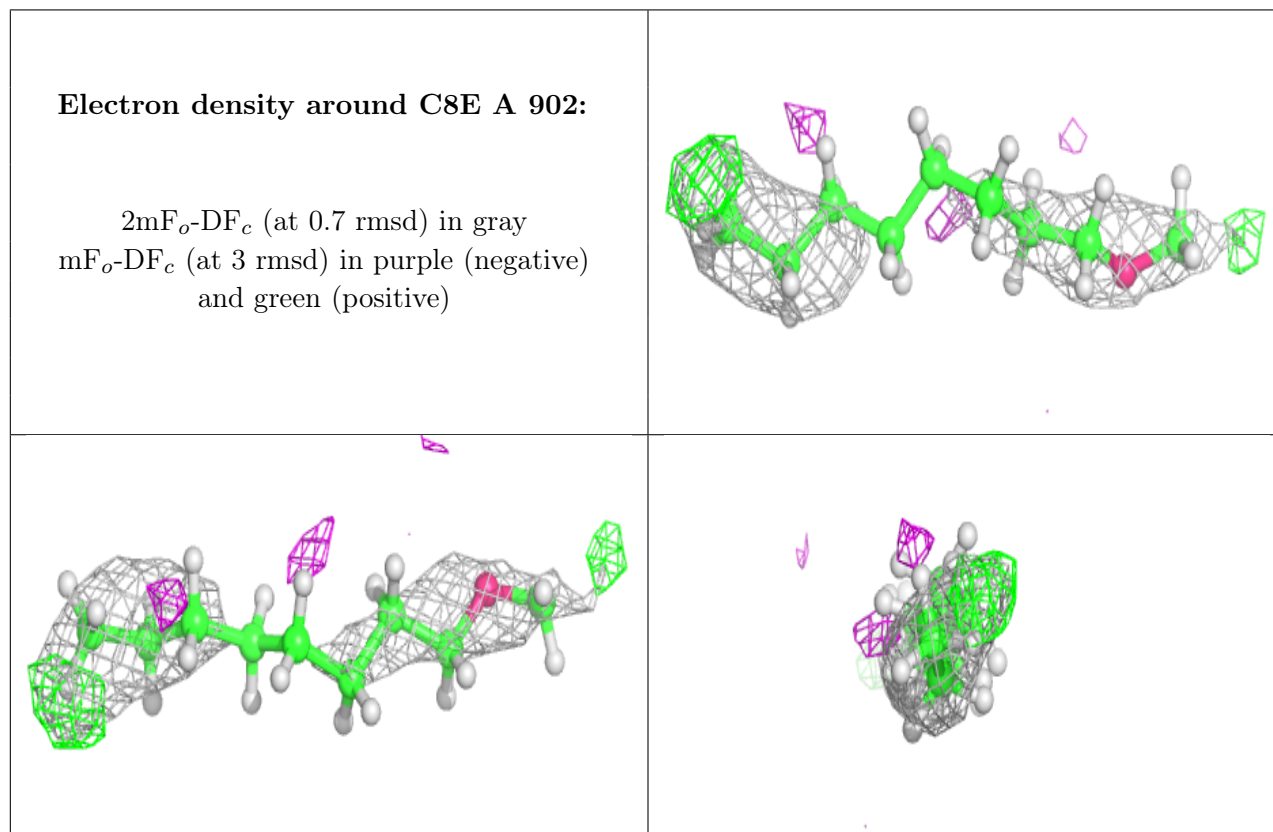
There are no monosaccharides in this entry.

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, 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.

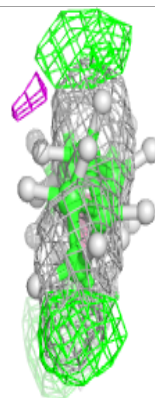
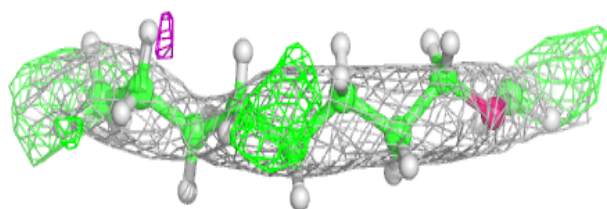
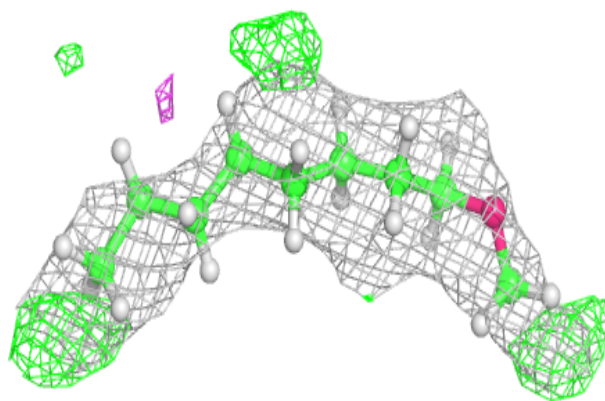
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
3	C8E	A	902	10/21	0.59	0.66	77,105,126,132	0
3	C8E	A	903	7/21	0.61	0.37	75,94,108,120	0
3	C8E	A	904	10/21	0.64	0.34	73,91,103,110	0
3	C8E	C	901	18/21	0.81	0.29	57,80,114,123	0
3	C8E	C	903	15/21	0.82	0.26	66,89,127,128	0
3	C8E	C	905	7/21	0.82	0.23	69,87,99,99	0
3	C8E	A	901	10/21	0.83	0.37	67,84,91,99	0
3	C8E	A	905	14/21	0.84	0.23	72,91,111,116	0
3	C8E	C	904	9/21	0.85	0.33	73,89,101,102	0
3	C8E	C	902	7/21	0.87	0.24	66,83,93,100	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.

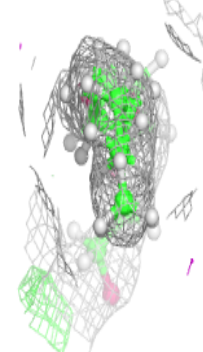
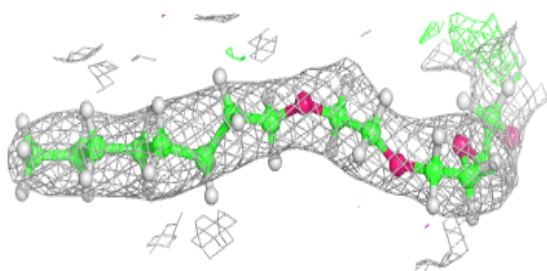
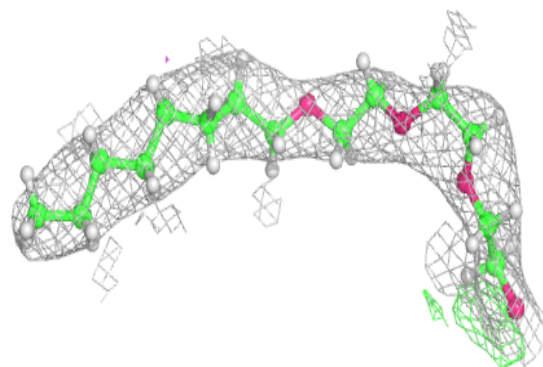


Electron density around C8E A 904:

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

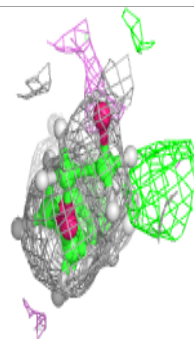
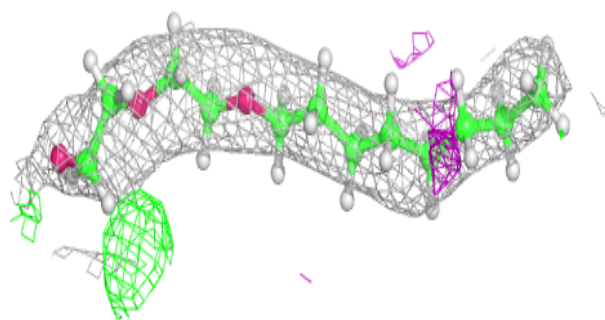
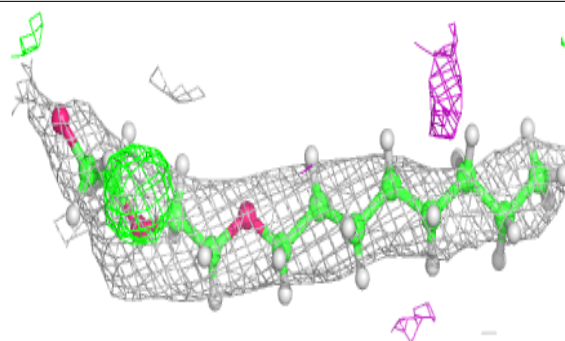
**Electron density around C8E C 901:**

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

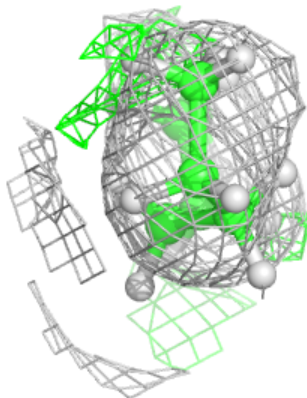
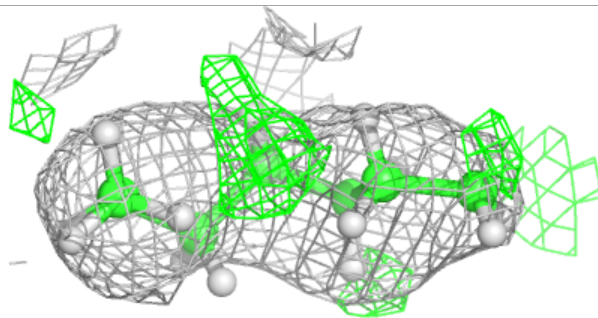
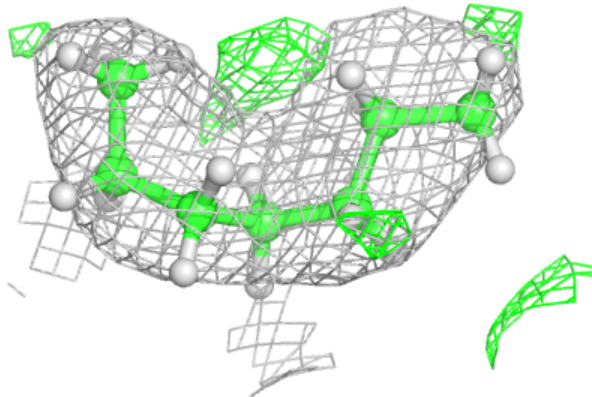


Electron density around C8E C 903:

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

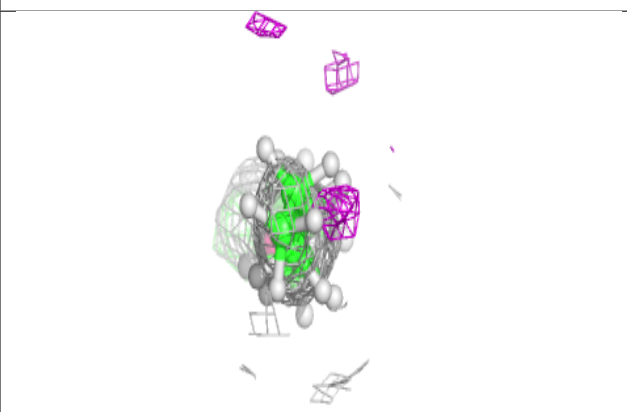
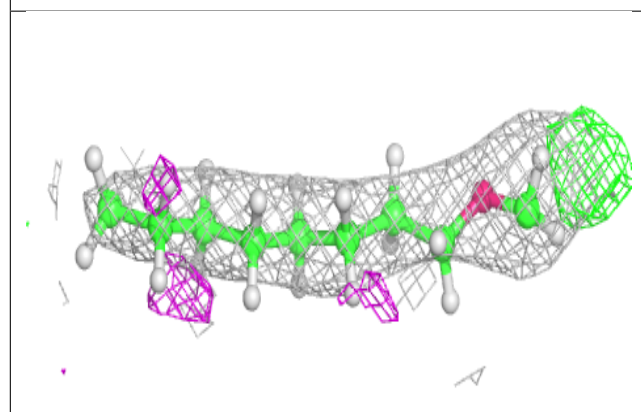
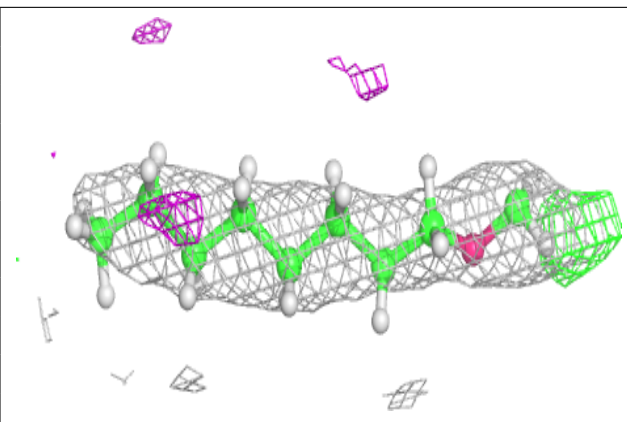
**Electron density around C8E C 905:**

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

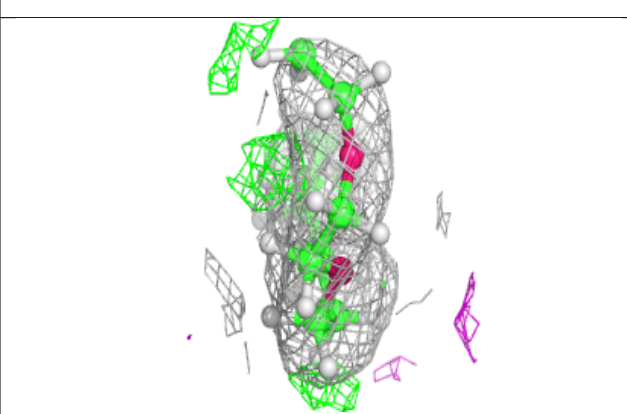
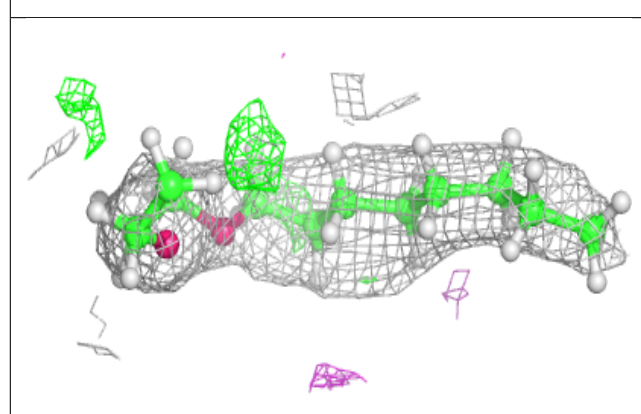
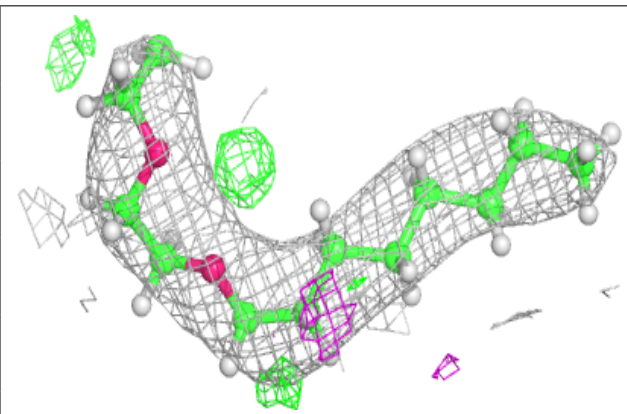


Electron density around C8E A 901:

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

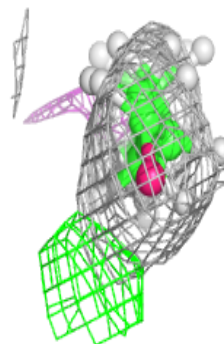
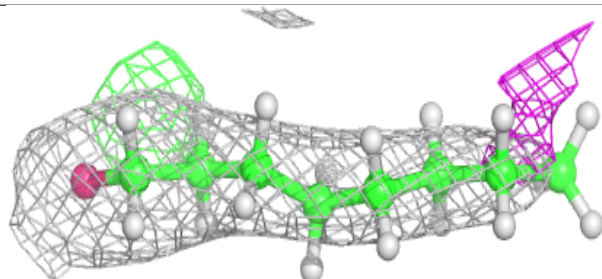
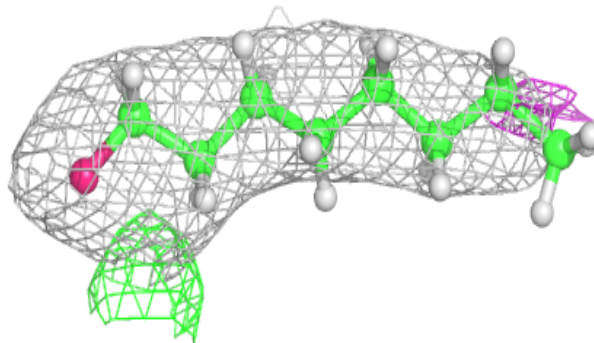
**Electron density around C8E A 905:**

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

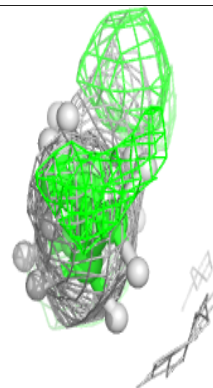
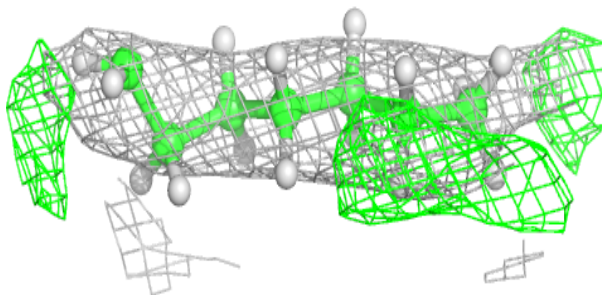
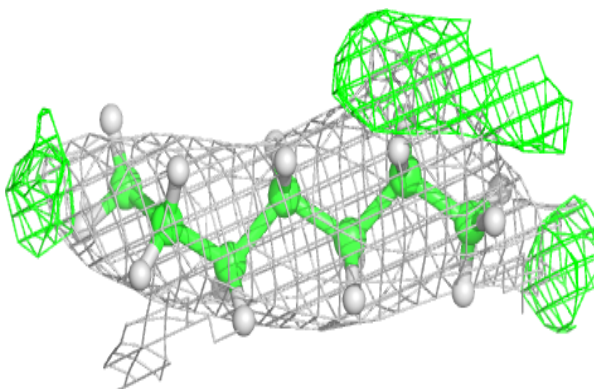


Electron density around C8E C 904:

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

**Electron density around C8E C 902:**

$2mF_o-DF_c$ (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.