Full wwPDB X-ray Structure Validation Report ⓘ

Mar 9, 2026 – 06:43 AM UTC

PDB ID	:	6OFR / pdb_00006ofr
Title	:	The crystal structure of the outer membrane transporter YddB from Escherichia coli
Authors	:	Grinter, R.
Deposited on	:	2019-04-01
Resolution	:	2.40 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
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:

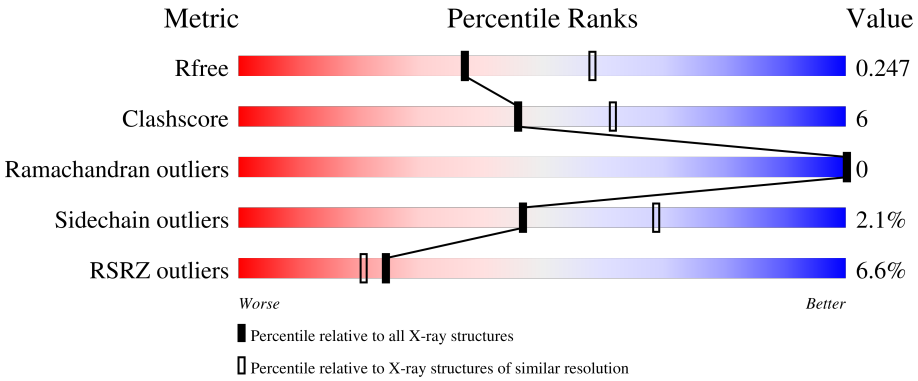
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal 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 (i)

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

The reported resolution of this entry is 2.40 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	4912 (2.40-2.40)
Clashscore	190562	5391 (2.40-2.40)
Ramachandran outliers	187476	5320 (2.40-2.40)
Sidechain outliers	187428	5321 (2.40-2.40)
RSRZ outliers	180081	4916 (2.40-2.40)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	762	7% 83% 15% ••

2 Entry composition

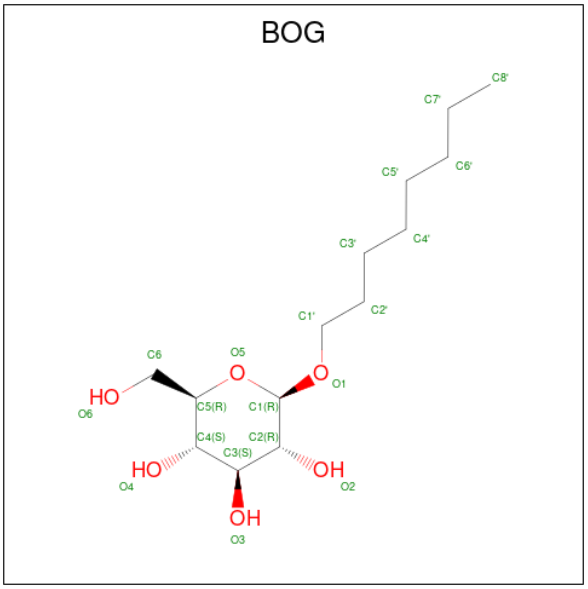
There are 5 unique types of molecules in this entry. The entry contains 6490 atoms, of which 24 are hydrogens and 0 are deuteriums.

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 TonB-dependent outer membrane receptor.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	758	Total	C	N	O	S	0	0	0
			6062	3799	1049	1199	15			

- Molecule 2 is octyl beta-D-glucopyranoside (CCD ID: BOG) (formula: $C_{14}H_{28}O_6$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	O		0	0
			20	14	6			
2	A	1	Total	C	O		0	0
			20	14	6			
2	A	1	Total	C	O		0	0
			20	14	6			
2	A	1	Total	C	O		0	0
			20	14	6			
2	A	1	Total	C	O		0	0
			20	14	6			

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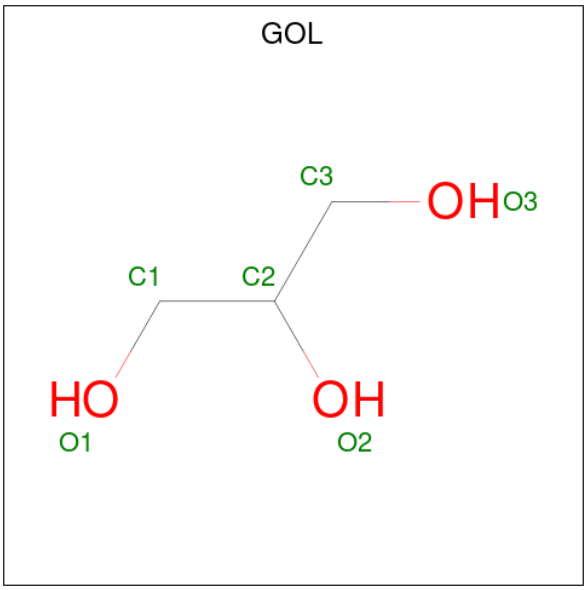
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total C O 20 14 6	0	0
2	A	1	Total C O 20 14 6	0	0

- Molecule 3 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	2	Total Mg 2 2	0	0

- Molecule 4 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total C H O 14 3 8 3	0	0
4	A	1	Total C H O 14 3 8 3	0	0
4	A	1	Total C H O 14 3 8 3	0	0

- Molecule 5 is water.

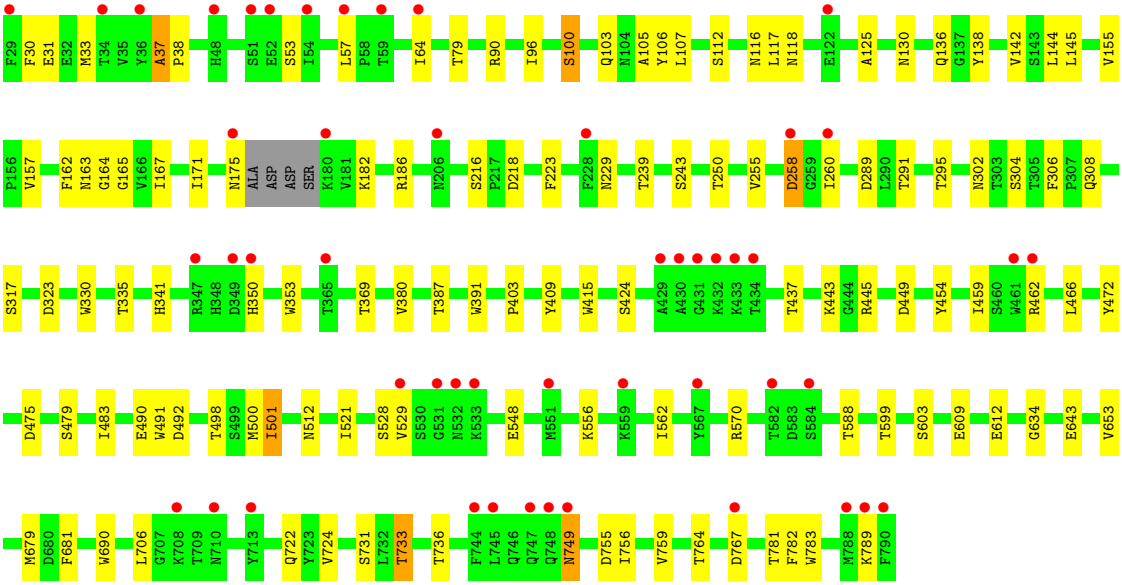
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	244	Total O 244 244	0	0

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: TonB-dependent outer membrane receptor

Chain A:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 41 21 2	Depositor
Cell constants a, b, c, α, β, γ	76.52Å 76.52Å 412.75Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	47.92 – 2.40 47.92 – 2.40	Depositor EDS
% Data completeness (in resolution range)	99.9 (47.92-2.40) 99.2 (47.92-2.40)	Depositor EDS
R_{merge}	0.22	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.80 (at 2.39Å)	Xtriage
Refinement program	BUSTER 2.10.3	Depositor
R, R_{free}	(Not available) , (Not available) 0.217 , 0.247	Depositor DCC
R_{free} test set	2512 reflections (5.07%)	wwPDB-VP
Wilson B-factor (Å^2)	46.6	Xtriage
Anisotropy	0.568	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 43.0	EDS
L-test for twinning[2]	$< \|L\| > = 0.45$, $< L^2 > = 0.28$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	6490	wwPDB-VP
Average B, all atoms (Å^2)	57.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.12% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: GOL, BOG, MG

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	0.87	0/6205	1.16	13/8430 (0.2%)

There are no bond length outliers.

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	492	ASP	N-CA-C	-6.53	97.90	108.41
1	A	216	SER	CA-C-N	6.07	125.79	119.05
1	A	216	SER	C-N-CA	6.07	125.79	119.05
1	A	118	ASN	CA-C-N	5.67	125.52	119.28
1	A	118	ASN	C-N-CA	5.67	125.52	119.28
1	A	37	ALA	CA-C-N	5.54	125.19	119.05
1	A	37	ALA	C-N-CA	5.54	125.19	119.05
1	A	90	ARG	CA-C-N	5.46	125.37	119.85
1	A	90	ARG	C-N-CA	5.46	125.37	119.85
1	A	100	SER	CA-C-N	5.38	125.46	119.87
1	A	100	SER	C-N-CA	5.38	125.46	119.87
1	A	155	VAL	CA-C-N	5.26	125.26	120.21
1	A	155	VAL	C-N-CA	5.26	125.26	120.21

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	6062	0	5761	71	0
2	A	140	0	196	3	0
3	A	2	0	0	0	0
4	A	18	24	24	3	0
5	A	244	0	0	2	0
All	All	6466	24	5981	71	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 6.

All (71) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:755:ASP:HB2	1:A:783:TRP:HB2	1.47	0.96
1:A:33:MET:HE3	1:A:500:MET:HE2	1.68	0.74
1:A:599:THR:HG22	1:A:634:GLY:HA3	1.70	0.73
1:A:736:THR:HG22	1:A:756:ILE:HB	1.74	0.69
1:A:749:ASN:ND2	1:A:749:ASN:H	1.90	0.69
1:A:103:GLN:HB3	1:A:163:ASN:HB2	1.75	0.68
1:A:706:LEU:HD11	1:A:724:VAL:HG23	1.77	0.67
1:A:258:ASP:N	1:A:258:ASP:OD1	2.30	0.63
1:A:643:GLU:HA	1:A:643:GLU:OE1	2.02	0.59
1:A:106:TYR:HB3	4:A:810:GOL:H32	1.84	0.57
1:A:733:THR:OG1	5:A:901:HOH:O	2.17	0.57
1:A:548:GLU:HB2	1:A:570:ARG:HD3	1.86	0.57
1:A:175:ASN:H	1:A:229:ASN:HD22	1.54	0.56
1:A:229:ASN:HB3	1:A:239:THR:HG22	1.88	0.55
1:A:106:TYR:HB3	4:A:810:GOL:C3	2.36	0.55
1:A:749:ASN:H	1:A:749:ASN:HD22	1.54	0.55
1:A:33:MET:HG3	1:A:500:MET:HE1	1.90	0.54
1:A:125:ALA:O	1:A:130:ASN:ND2	2.38	0.54
1:A:437:THR:HG23	1:A:528:SER:HB3	1.90	0.54
1:A:144:LEU:HD11	1:A:243:SER:HB3	1.90	0.53
1:A:186:ARG:HB3	1:A:223:PHE:HB2	1.91	0.53
1:A:79:THR:HG22	1:A:767:ASP:HB2	1.91	0.53
1:A:459:ILE:HB	1:A:466:LEU:HB3	1.91	0.53
1:A:96:ILE:HD13	1:A:165:GLY:HA3	1.92	0.52
1:A:171:ILE:HD12	1:A:291:THR:HG21	1.90	0.52
1:A:106:TYR:HB3	4:A:810:GOL:H12	1.93	0.51
1:A:164:GLY:HA2	1:A:570:ARG:HH12	1.76	0.51
1:A:681:PHE:HB2	1:A:690:TRP:HB3	1.93	0.51
1:A:756:ILE:CG2	1:A:759:VAL:HG22	2.42	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:182:LYS:HG2	1:A:789:LYS:HG2	1.95	0.49
1:A:415:TRP:HB3	1:A:445:ARG:HG3	1.93	0.49
1:A:64:ILE:HG21	1:A:167:ILE:HG21	1.94	0.49
1:A:144:LEU:HD11	1:A:243:SER:CB	2.44	0.48
1:A:353:TRP:O	1:A:424:SER:HA	2.14	0.48
1:A:37:ALA:HB1	1:A:38:PRO:HD2	1.96	0.47
1:A:391:TRP:HB3	1:A:403:PRO:HD2	1.96	0.47
1:A:308:GLN:HB3	1:A:350:HIS:CE1	2.49	0.47
1:A:330:TRP:CD1	1:A:330:TRP:H	2.31	0.47
1:A:335:THR:HG22	1:A:387:THR:HG22	1.97	0.47
1:A:491:TRP:HB3	1:A:501:ILE:HG23	1.96	0.47
1:A:415:TRP:CD1	1:A:443:LYS:HE3	2.50	0.47
1:A:449:ASP:OD2	2:A:807:BOG:H8'2	2.16	0.46
1:A:53:SER:O	1:A:57:LEU:HG	2.16	0.46
1:A:289:ASP:HB2	1:A:323:ASP:HB2	1.98	0.46
1:A:218:ASP:HB3	1:A:250:THR:HB	1.96	0.46
1:A:498:THR:HA	1:A:556:LYS:HD3	1.96	0.46
1:A:475:ASP:O	1:A:479:SER:HA	2.15	0.46
1:A:116:ASN:HB2	1:A:512:ASN:O	2.16	0.45
1:A:731:SER:HB3	1:A:764:THR:HG21	1.98	0.45
1:A:30:PHE:HB3	1:A:490:GLU:OE1	2.16	0.45
1:A:117:LEU:HD21	1:A:380:VAL:HB	1.98	0.45
1:A:306:PHE:CD1	1:A:369:THR:HB	2.52	0.45
1:A:317:SER:HA	1:A:341:HIS:O	2.16	0.45
1:A:653:VAL:HB	1:A:722:GLN:HG2	1.99	0.44
1:A:157:VAL:HB	1:A:454:TYR:HB2	1.99	0.44
1:A:255:VAL:HG23	1:A:304:SER:HB2	1.98	0.44
1:A:33:MET:HG3	1:A:500:MET:CE	2.48	0.44
1:A:31:GLU:O	1:A:490:GLU:OE2	2.36	0.43
1:A:105:ALA:HB2	1:A:162:PHE:HB3	2.00	0.43
1:A:37:ALA:HB1	1:A:38:PRO:CD	2.49	0.43
1:A:749:ASN:ND2	1:A:749:ASN:N	2.64	0.43
1:A:782:PHE:HB3	2:A:802:BOG:H7'1	2.00	0.43
1:A:409:TYR:HB2	2:A:806:BOG:H5'1	2.00	0.42
1:A:562:ILE:HB	1:A:609:GLU:HG2	2.01	0.42
1:A:472:TYR:HD1	1:A:483:ILE:HD13	1.83	0.42
1:A:136:GLN:HG2	5:A:1120:HOH:O	2.20	0.42
1:A:258:ASP:HB2	1:A:260:ILE:HG13	2.01	0.41
1:A:706:LEU:HD11	1:A:724:VAL:CG2	2.47	0.41
1:A:142:VAL:HG23	1:A:145:LEU:HD12	2.02	0.41
1:A:138:TYR:HB3	1:A:295:THR:HG21	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:107:LEU:HD23	1:A:112:SER:HA	2.02	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	754/762 (99%)	733 (97%)	21 (3%)	0	100 100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	663/666 (100%)	649 (98%)	14 (2%)	47 69

All (14) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	100	SER
1	A	258	ASP
1	A	302	ASN
1	A	462	ARG
1	A	501	ILE

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Mol	Chain	Res	Type
1	A	521	ILE
1	A	529	VAL
1	A	588	THR
1	A	603	SER
1	A	612	GLU
1	A	679	MET
1	A	733	THR
1	A	749	ASN
1	A	781	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	86	GLN
1	A	350	HIS
1	A	436	HIS
1	A	539	GLN
1	A	639	ASN
1	A	671	ASN
1	A	678	ASN
1	A	749	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 oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 12 ligands modelled in this entry, 2 are monoatomic - leaving 10 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	BOG	A	807	-	20,20,20	0.29	0	25,25,25	0.59	0
2	BOG	A	805	-	20,20,20	0.26	0	25,25,25	0.28	0
2	BOG	A	806	-	20,20,20	0.21	0	25,25,25	0.39	0
2	BOG	A	802	-	20,20,20	0.36	0	25,25,25	0.58	0
2	BOG	A	804	-	20,20,20	0.24	0	25,25,25	0.39	0
4	GOL	A	810	-	5,5,5	0.13	0	5,5,5	0.39	0
4	GOL	A	812	-	5,5,5	0.34	0	5,5,5	0.54	0
2	BOG	A	801	-	20,20,20	0.18	0	25,25,25	0.37	0
4	GOL	A	811	-	5,5,5	0.16	0	5,5,5	0.37	0
2	BOG	A	803	-	20,20,20	0.23	0	25,25,25	0.37	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
2	BOG	A	807	-	-	7/11/31/31	0/1/1/1
2	BOG	A	805	-	-	2/11/31/31	0/1/1/1
2	BOG	A	806	-	-	2/11/31/31	0/1/1/1
2	BOG	A	802	-	-	2/11/31/31	0/1/1/1
2	BOG	A	804	-	-	2/11/31/31	0/1/1/1
4	GOL	A	810	-	-	2/4/4/4	-
4	GOL	A	812	-	-	2/4/4/4	-
2	BOG	A	801	-	-	3/11/31/31	0/1/1/1
4	GOL	A	811	-	-	0/4/4/4	-
2	BOG	A	803	-	-	5/11/31/31	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (27) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	807	BOG	C2-C1-O1-C1'
2	A	807	BOG	O5-C1-O1-C1'
4	A	810	GOL	O1-C1-C2-O2
4	A	810	GOL	O1-C1-C2-C3
4	A	812	GOL	C1-C2-C3-O3
2	A	805	BOG	O5-C5-C6-O6
4	A	812	GOL	O2-C2-C3-O3
2	A	807	BOG	C4-C5-C6-O6
2	A	803	BOG	C2-C1-O1-C1'
2	A	807	BOG	C1'-C2'-C3'-C4'
2	A	803	BOG	O5-C1-O1-C1'
2	A	805	BOG	C4-C5-C6-O6
2	A	802	BOG	C4-C5-C6-O6
2	A	803	BOG	C3'-C4'-C5'-C6'
2	A	803	BOG	C2'-C3'-C4'-C5'
2	A	802	BOG	O5-C5-C6-O6
2	A	803	BOG	C4'-C5'-C6'-C7'
2	A	801	BOG	C2'-C3'-C4'-C5'
2	A	804	BOG	O5-C5-C6-O6
2	A	807	BOG	O5-C5-C6-O6
2	A	801	BOG	C4'-C5'-C6'-C7'
2	A	807	BOG	C3'-C4'-C5'-C6'
2	A	806	BOG	C3'-C4'-C5'-C6'
2	A	807	BOG	C2'-C1'-O1-C1
2	A	804	BOG	O1-C1'-C2'-C3'
2	A	801	BOG	C4-C5-C6-O6
2	A	806	BOG	C5'-C6'-C7'-C8'

There are no ring outliers.

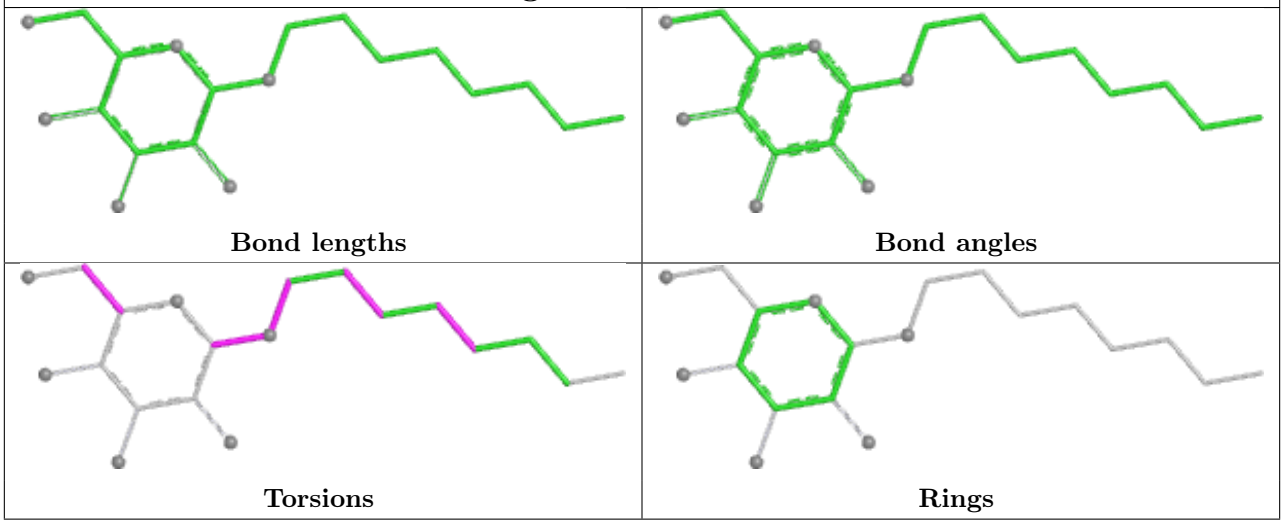
4 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	807	BOG	1	0
2	A	806	BOG	1	0
2	A	802	BOG	1	0
4	A	810	GOL	3	0

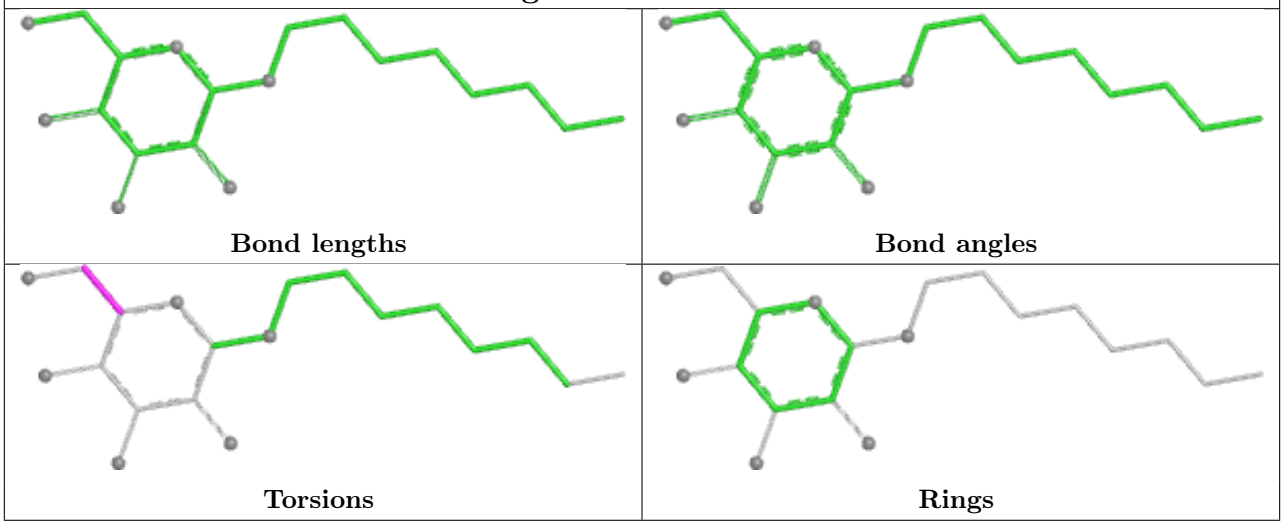
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be

highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

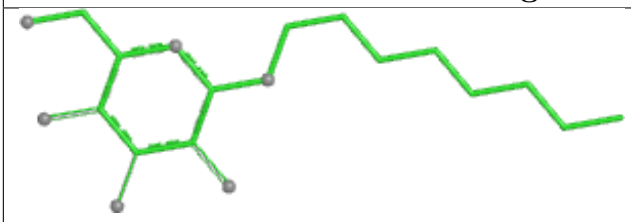
Ligand BOG A 807



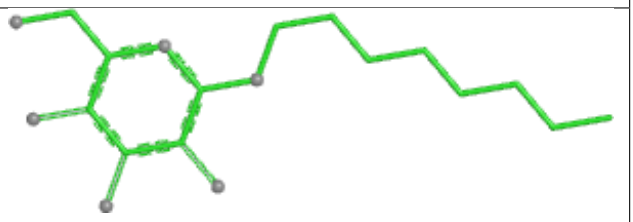
Ligand BOG A 805



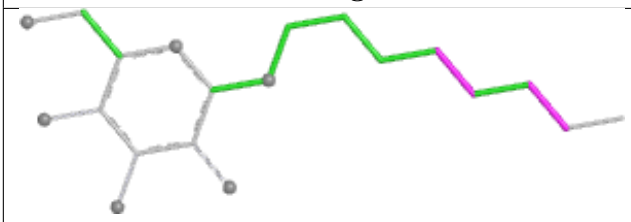
Ligand BOG A 806



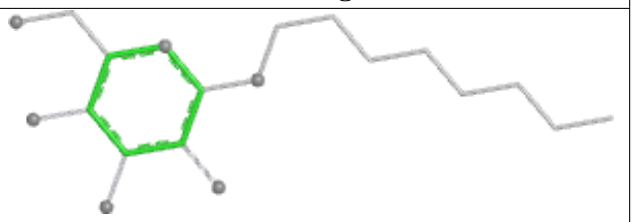
Bond lengths



Bond angles

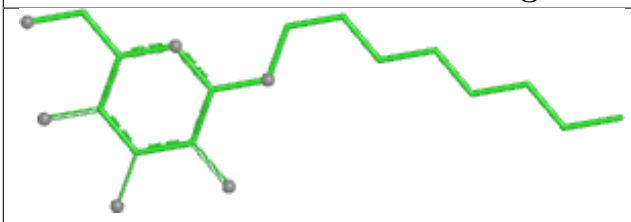


Torsions

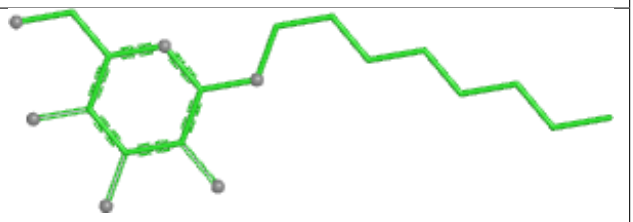


Rings

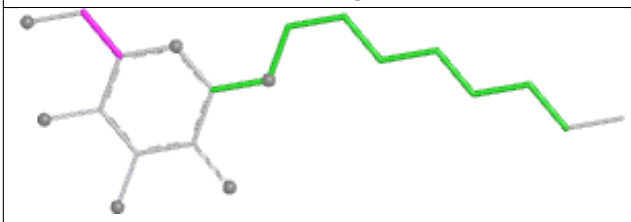
Ligand BOG A 802



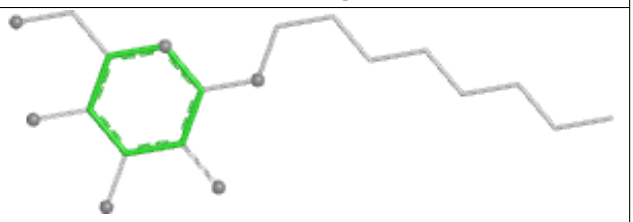
Bond lengths



Bond angles

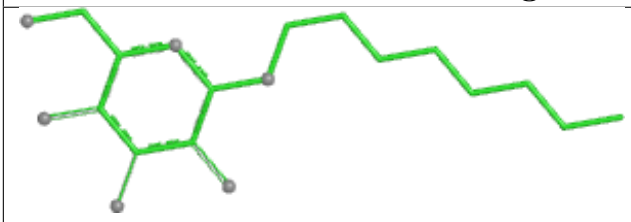


Torsions

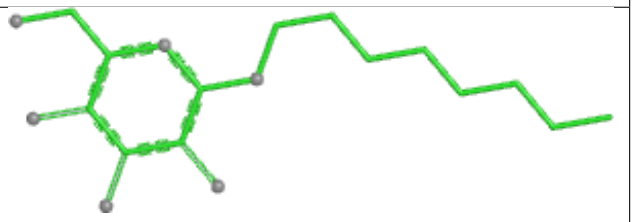


Rings

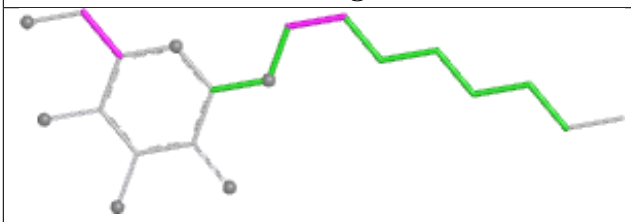
Ligand BOG A 804



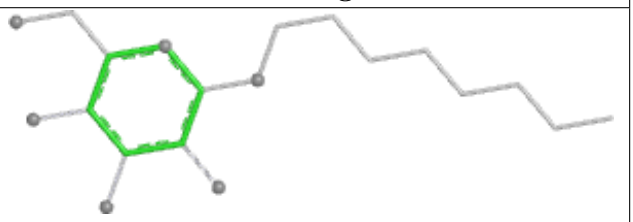
Bond lengths



Bond angles

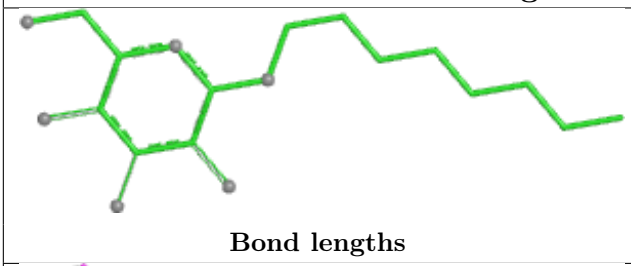


Torsions

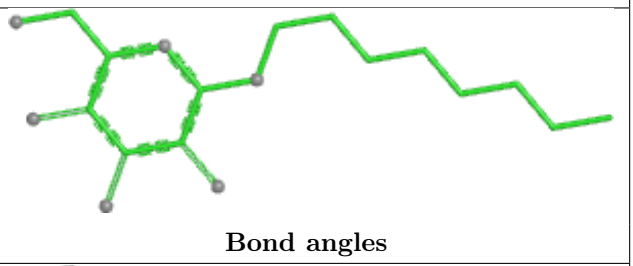


Rings

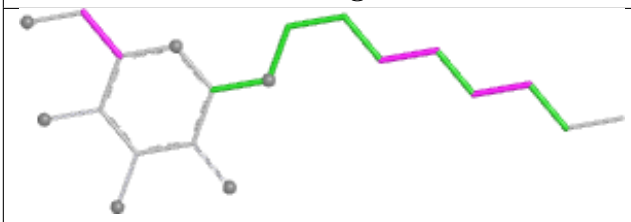
Ligand BOG A 801



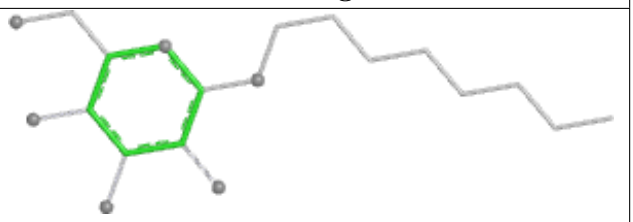
Bond lengths



Bond angles

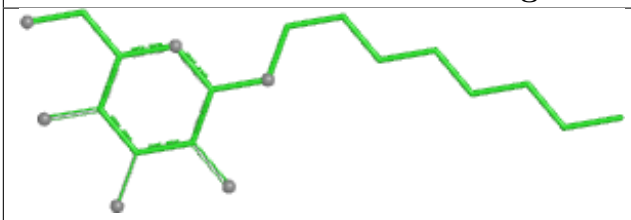


Torsions

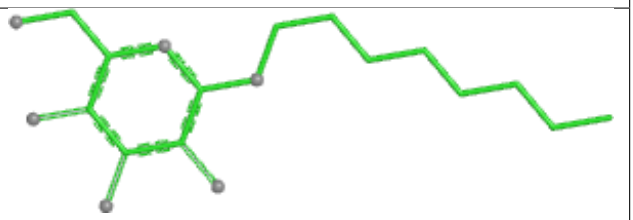


Rings

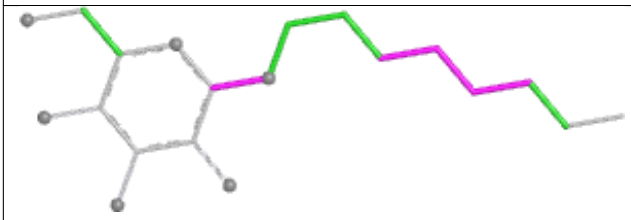
Ligand BOG A 803



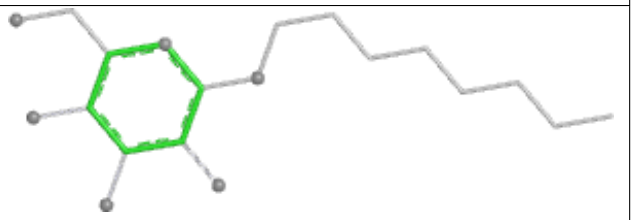
Bond lengths



Bond angles



Torsions



Rings

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	758/762 (99%)	0.39	50 (6%)	24	20	38, 53, 85, 115	0

All (50) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	36	TYR	5.9
1	A	431	GLY	4.6
1	A	461	TRP	4.5
1	A	430	ALA	4.0
1	A	551	MET	3.9
1	A	532	ASN	3.8
1	A	59	THR	3.6
1	A	175	ASN	3.6
1	A	748	GLN	3.5
1	A	260	ILE	3.5
1	A	790	PHE	3.4
1	A	258	ASP	3.3
1	A	206	ASN	3.2
1	A	713	TYR	3.2
1	A	789	LYS	3.0
1	A	180	LYS	2.9
1	A	52	GLU	2.9
1	A	54	ILE	2.9
1	A	432	LYS	2.9
1	A	559	LYS	2.9
1	A	533	LYS	2.8
1	A	710	ASN	2.8
1	A	749	ASN	2.7
1	A	747	GLN	2.7
1	A	51	SER	2.6
1	A	708	LYS	2.6
1	A	64	ILE	2.5

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Mol	Chain	Res	Type	RSRZ
1	A	34	THR	2.5
1	A	745	LEU	2.5
1	A	529	VAL	2.5
1	A	365	THR	2.5
1	A	347	ARG	2.4
1	A	434	THR	2.3
1	A	433	LYS	2.3
1	A	462	ARG	2.3
1	A	584	SER	2.2
1	A	788	MET	2.2
1	A	767	ASP	2.1
1	A	29	PHE	2.1
1	A	349	ASP	2.1
1	A	567	TYR	2.1
1	A	122	GLU	2.0
1	A	48	HIS	2.0
1	A	228	PHE	2.0
1	A	744	PHE	2.0
1	A	57	LEU	2.0
1	A	429	ALA	2.0
1	A	531	GLY	2.0
1	A	582	THR	2.0
1	A	350	HIS	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 oligosaccharides in this entry.

6.4 Ligands (i)

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

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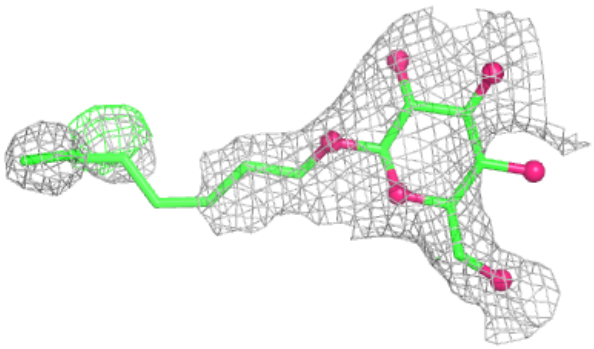
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9

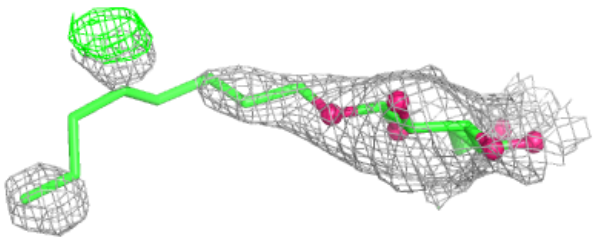
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	BOG	A	805	20/20	0.72	0.22	83,100,109,110	0
2	BOG	A	803	20/20	0.76	0.20	84,105,109,111	0
2	BOG	A	804	20/20	0.80	0.21	76,95,99,99	0
2	BOG	A	807	20/20	0.80	0.20	73,82,91,92	0
4	GOL	A	811	6/6	0.82	0.20	104,112,120,123	0
2	BOG	A	802	20/20	0.83	0.16	68,76,88,91	0
2	BOG	A	806	20/20	0.84	0.15	70,80,85,85	0
4	GOL	A	812	6/6	0.85	0.32	45,45,53,54	0
2	BOG	A	801	20/20	0.89	0.16	68,76,79,80	0
3	MG	A	809	1/1	0.89	0.12	63,63,63,63	0
4	GOL	A	810	6/6	0.91	0.14	64,74,81,81	0
3	MG	A	808	1/1	0.99	0.06	53,53,53,53	0

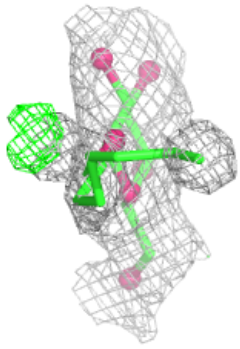
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around BOG A 805:

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

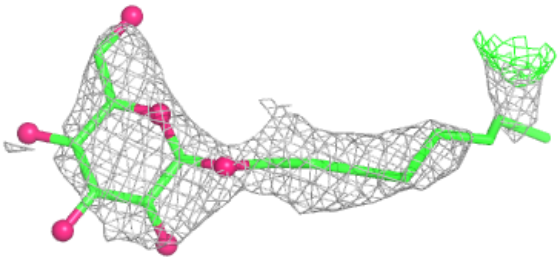


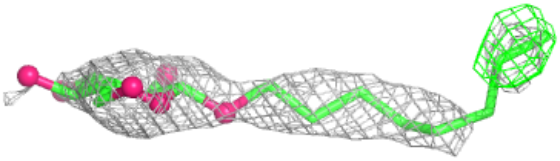


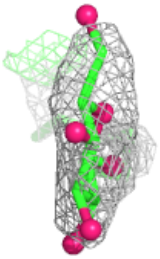


Electron density around BOG A 803:

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

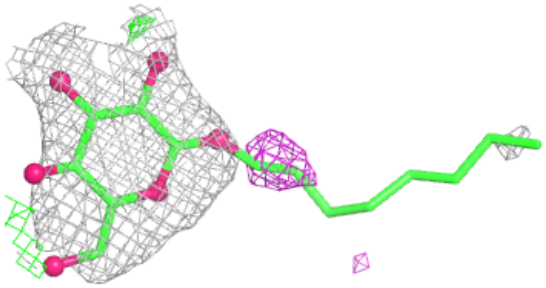


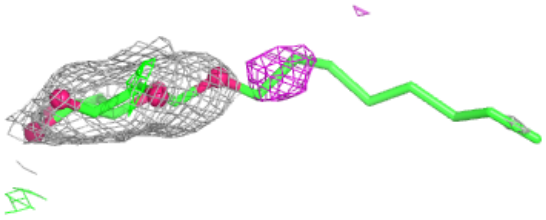


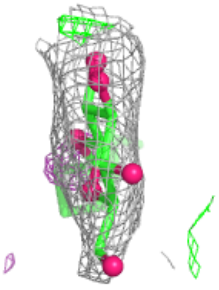


Electron density around BOG A 804:

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

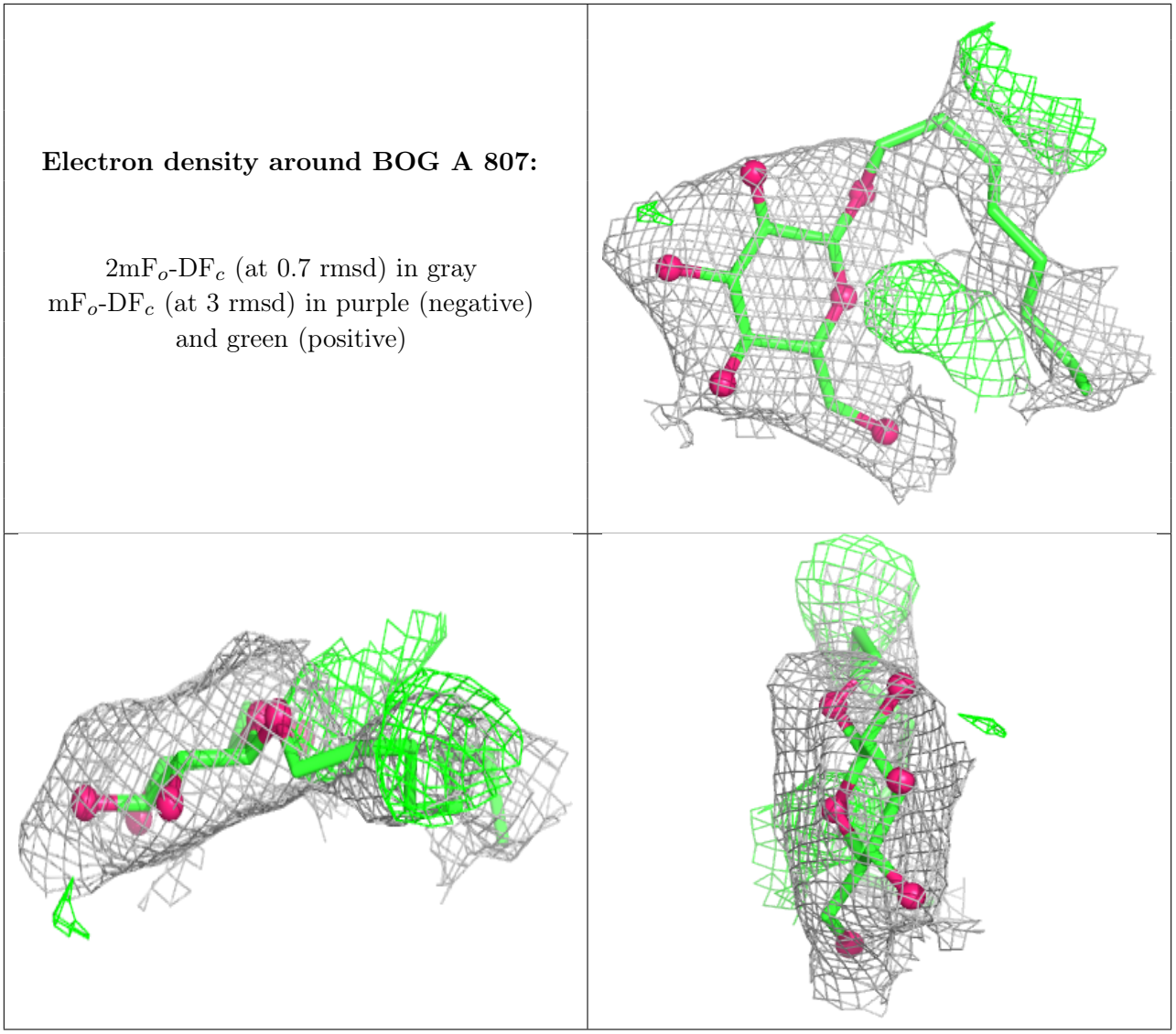






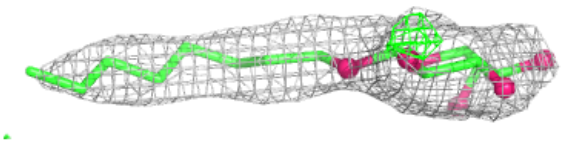
Electron density around BOG A 807:

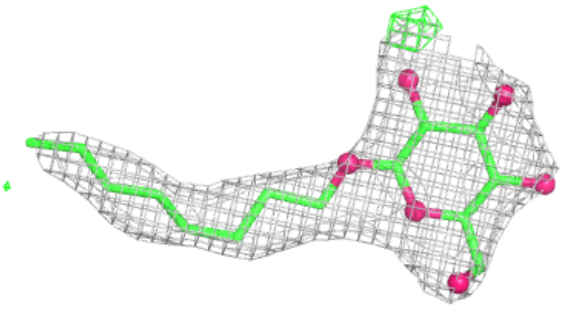
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

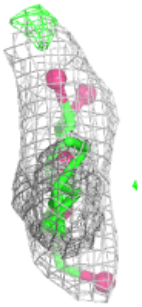


Electron density around BOG A 802:

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

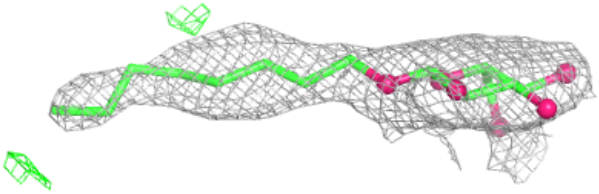


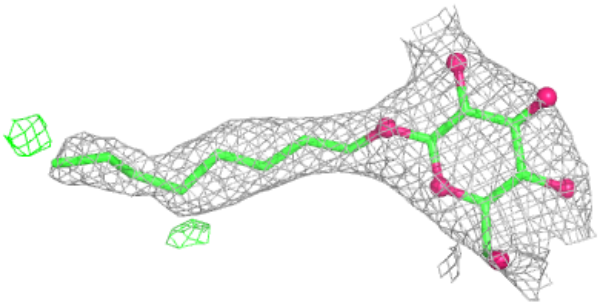


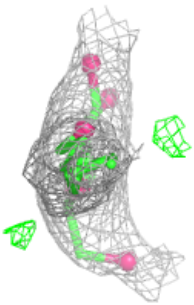


Electron density around BOG A 806:

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

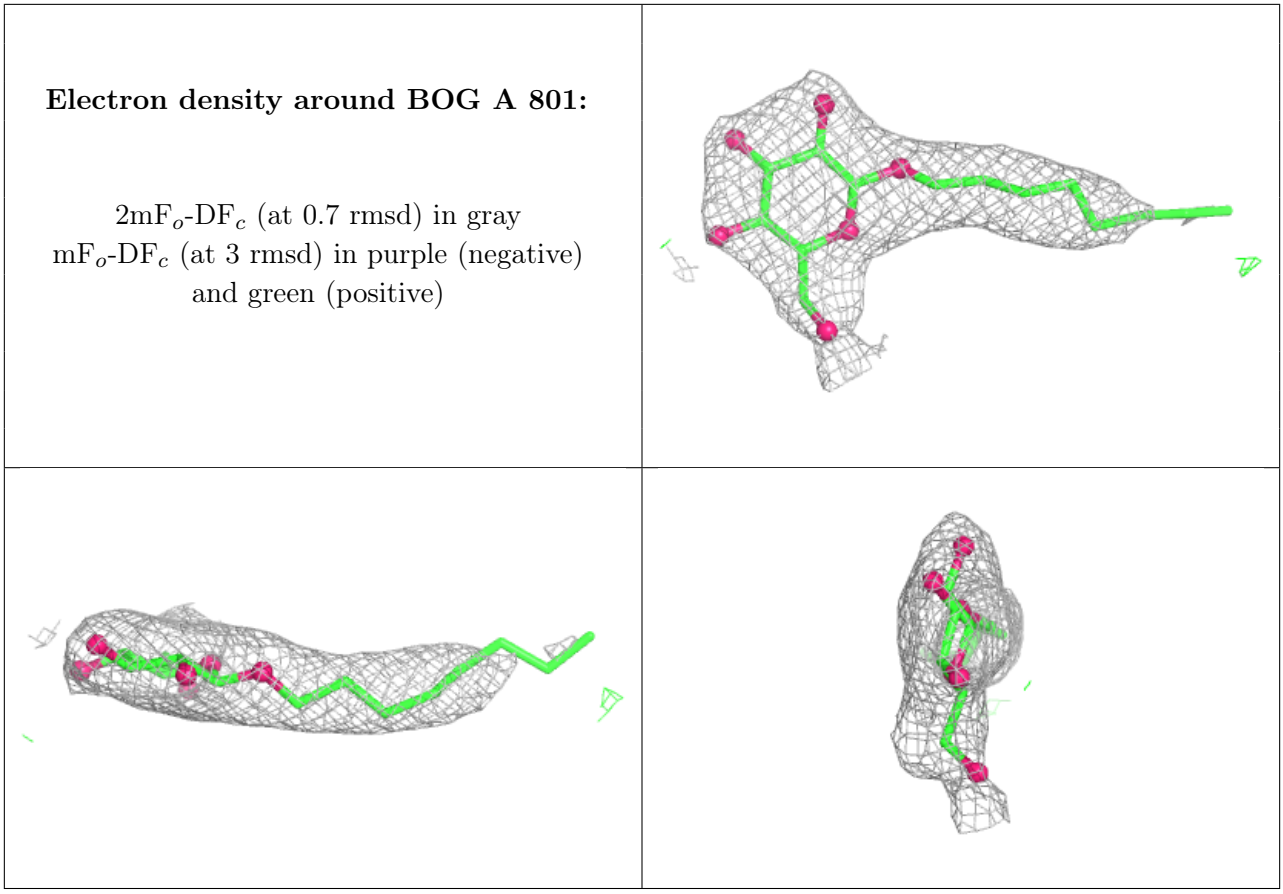






Electron density around BOG A 801:

$2mF_o$-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

There are no such residues in this entry.