WORLDWIDE
wwPDB
PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report ⓘ

Jun 23, 2024 – 04:53 AM EDT

PDB ID	:	6FTB
Title	:	Staphylococcus aureus monofunctional glycosyltransferase in complex with moenomycin
Authors	:	Punekar, A.S.; Dowson, C.J.; Roper, D.I.
Deposited on	:	2018-02-20
Resolution	:	2.10 Å(reported)

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

|		
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.20.1
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
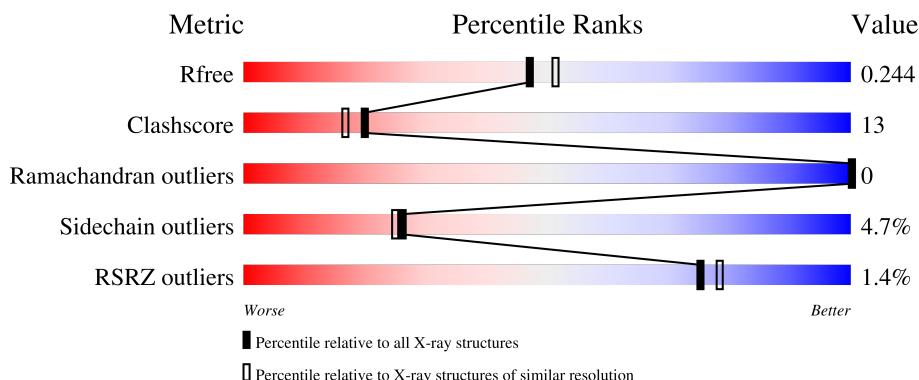
1   Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION
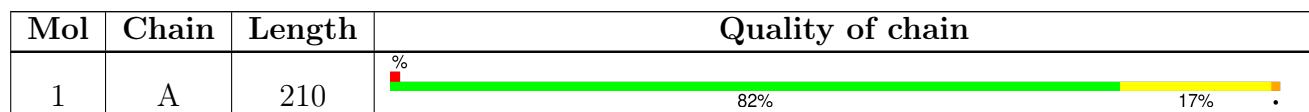
The reported resolution of this entry is 2.10 Å.

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	Percentile Ranks	Value
Rfree		0.244
Clashscore		13
Ramachandran outliers		0
Sidechain outliers		4.7%
RSRZ outliers		1.4%

Worse   *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R$_{free}$	130704	5197 (2.10-2.10)
Clashscore	141614	5710 (2.10-2.10)
Ramachandran outliers	138981	5647 (2.10-2.10)
Sidechain outliers	138945	5648 (2.10-2.10)
RSRZ outliers	127900	5083 (2.10-2.10)

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	210	82% 17% •

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
2	M0E	A	303	-	-	-	X

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	EDO	A	305	-	-	X	-

2 Entry composition ⓘ

There are 6 unique types of molecules in this entry. The entry contains 2105 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.
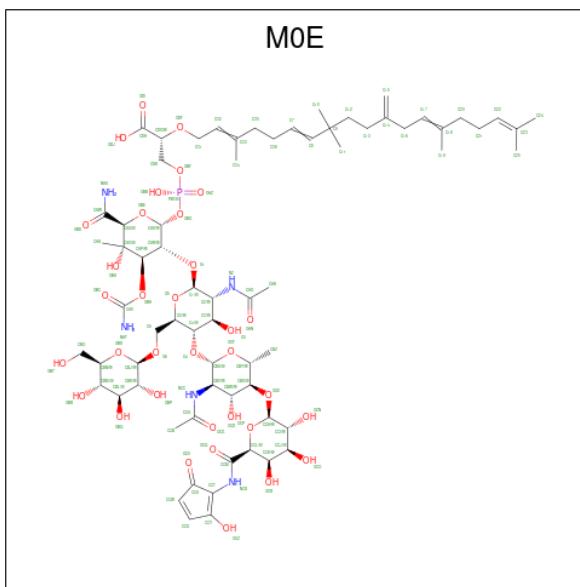
- Molecule 1 is a protein called Monofunctional glycosyltransferase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	210	Total 1742	C 1086	N 305	O 344	S 7	0	3	0

There are 10 discrepancies between the modelled and reference sequences:
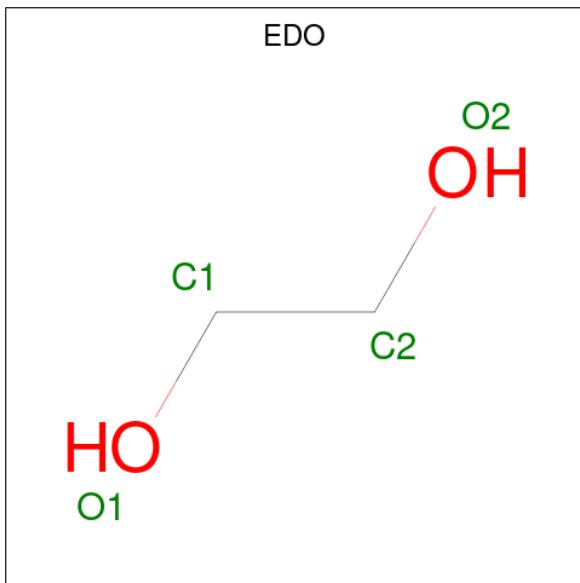
Chain	Residue	Modelled	Actual	Comment	Reference
A	59	GLU	-	expression tag	UNP Q7A0I6
A	60	ASN	-	expression tag	UNP Q7A0I6
A	61	LEU	-	expression tag	UNP Q7A0I6
A	62	TYR	-	expression tag	UNP Q7A0I6
A	63	PHE	-	expression tag	UNP Q7A0I6
A	64	GLN	-	expression tag	UNP Q7A0I6
A	65	GLY	-	expression tag	UNP Q7A0I6
A	66	HIS	-	expression tag	UNP Q7A0I6
A	67	MET	-	expression tag	UNP Q7A0I6
A	100	GLN	GLU	conflict	UNP Q7A0I6

- Molecule 2 is MOENOMYCIN (three-letter code: M0E) (formula: $C_{69}H_{106}N_5O_{34}P$).

M0E

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			109	69	5	34	1		
2	A	1	Total	C	N	O	P	0	0
			21	8	2	10	1		
2	A	1	Total	C	N	O		0	0
			20	12	1	7			

- Molecule 3 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: $C_2H_6O_2$).
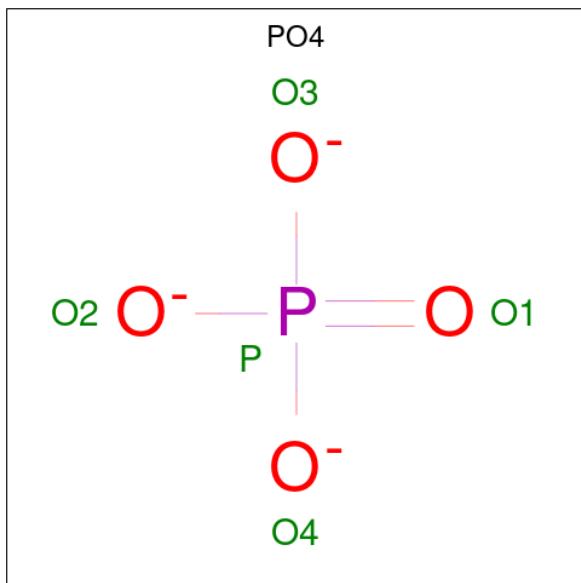
EDO

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			4	2	2		

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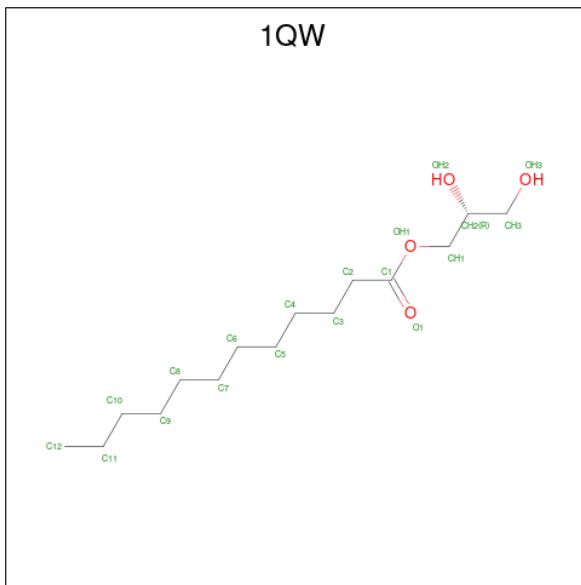
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total 4	C 2	O 2		0	0
3	A	1	Total 4	C 2	O 2		0	0
3	A	1	Total 4	C 2	O 2		0	0
3	A	1	Total 4	C 2	O 2		0	0
3	A	1	Total 4	C 2	O 2		0	0
3	A	1	Total 4	C 2	O 2		0	0
3	A	1	Total 4	C 2	O 2		0	0

- Molecule 4 is PHOSPHATE ION (three-letter code: PO4) (formula: O_4P).

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total 5	O 4	P 1	0	0
4	A	1	Total 5	O 4	P 1	0	0

- Molecule 5 is (2R)-2,3-dihydroxypropyl dodecanoate (three-letter code: 1QW) (formula: $C_{15}H_{30}O_4$).

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
5	A	1	14	10	4	0	0
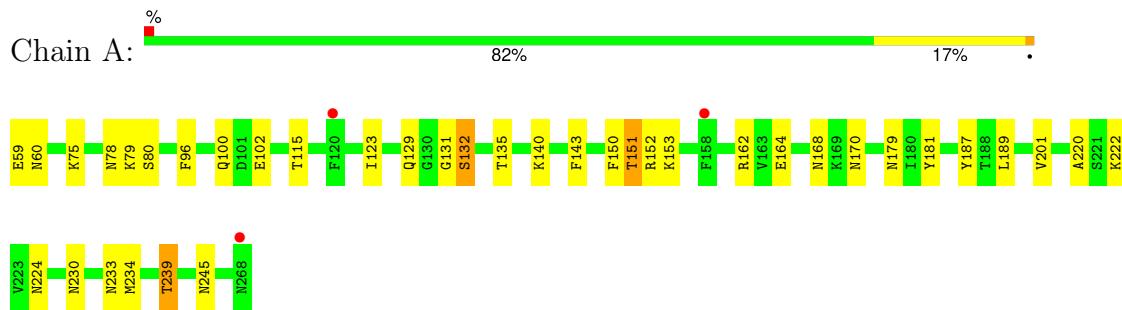
• Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
6	A	157	157	157	0	0

3 Residue-property plots ⓘ

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: Monofunctional glycosyltransferase

4 Data and refinement statistics (i)

Property	Value	Source
Space group	H 3 2	Depositor
Cell constants a, b, c, α, β, γ	114.42Å 114.42Å 128.84Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	23.12 – 2.10 23.12 – 2.10	Depositor EDS
% Data completeness (in resolution range)	99.8 (23.12-2.10) 99.8 (23.12-2.10)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.17	Depositor
$< I/\sigma(I) >$ [1]	2.46 (at 2.09Å)	Xtriage
Refinement program	BUSTER 2.10.2	Depositor
R, R_{free}	0.197 , 0.237 0.202 , 0.244	Depositor DCC
R_{free} test set	963 reflections (5.05%)	wwPDB-VP
Wilson B-factor (Å^2)	33.8	Xtriage
Anisotropy	0.028	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.31 , 52.6	EDS
L-test for twinning[2]	$< \lvert L \rvert > = 0.50, < L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	2105	wwPDB-VP
Average B, all atoms (Å^2)	41.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.96% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< \lvert L \rvert >$, $< L^2 >$ 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: PO4, EDO, M0E, 1QW

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	0.54	0/1775	0.63	0/2392

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1742	0	1657	36	1
2	A	150	0	126	22	2
3	A	32	0	48	11	0
4	A	10	0	0	0	0
5	A	14	0	17	3	0
6	A	157	0	0	2	0
All	All	2105	0	1848	48	2

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 13.

All (48) 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:150:PHE:HE1	2:A:301:M0E:H131	1.09	1.10
1:A:150:PHE:CE1	2:A:301:M0E:H131	1.99	0.97
1:A:150:PHE:HE1	2:A:301:M0E:C13	1.79	0.95
1:A:230:ASN:HD22	1:A:233:ASN:H	1.21	0.86
1:A:102:GLU:H	1:A:129:GLN:HE22	1.24	0.83
1:A:143:PHE:HB2	3:A:309:EDO:H21	1.62	0.81
3:A:308:EDO:H11	3:A:310:EDO:H11	1.62	0.80
1:A:150:PHE:CE1	2:A:301:M0E:C13	2.62	0.78
1:A:168:ASN:HA	3:A:311:EDO:H11	1.70	0.73
1:A:131:GLY:HA2	2:A:303:M0E:CCY	2.22	0.70
1:A:230:ASN:ND2	1:A:233:ASN:H	1.88	0.70
1:A:181:TYR:N	3:A:305:EDO:H21	2.10	0.67
3:A:308:EDO:H11	3:A:310:EDO:C1	2.25	0.66
1:A:224:ASN:ND2	2:A:301:M0E:HAT1	1.94	0.65
2:A:303:M0E:OCQ	2:A:303:M0E:HCI	1.99	0.62
2:A:301:M0E:CAG	3:A:305:EDO:H12	2.32	0.60
2:A:301:M0E:HCW	5:A:314:1QW:H30	1.84	0.58
1:A:100:GLN:HE22	1:A:224:ASN:HD21	1.52	0.57
2:A:301:M0E:HAH3	3:A:305:EDO:H22	1.87	0.56
1:A:220:ALA:HB3	1:A:245:ASN:HD21	1.70	0.56
1:A:181:TYR:H	3:A:305:EDO:H21	1.71	0.56
1:A:150:PHE:CE1	2:A:301:M0E:H132	2.41	0.55
1:A:131:GLY:HA2	2:A:303:M0E:OCZ	2.09	0.53
1:A:60:ASN:HD21	1:A:79:LYS:HZ1	1.57	0.53
1:A:181:TYR:H	3:A:305:EDO:C1	2.23	0.51
2:A:303:M0E:CCW	6:A:493:HOH:O	2.59	0.51
2:A:301:M0E:OBD	6:A:401:HOH:O	2.18	0.51
1:A:59:GLU:N	1:A:187:TYR:HH	2.08	0.50
1:A:100:GLN:HE22	1:A:224:ASN:ND2	2.11	0.49
1:A:79:LYS:NZ	1:A:179:ASN:HD22	2.11	0.48
1:A:150:PHE:HD1	2:A:301:M0E:H8	1.78	0.48
2:A:301:M0E:H131	2:A:301:M0E:H113	1.73	0.48
2:A:301:M0E:H11	2:A:301:M0E:H52	1.73	0.46
1:A:131:GLY:HA2	2:A:303:M0E:CCX	2.45	0.46
1:A:135:THR:HG21	1:A:164:GLU:HG2	1.97	0.46
2:A:303:M0E:HCI	2:A:303:M0E:CCM	2.45	0.46
1:A:152:ARG:HE	3:A:309:EDO:C1	2.29	0.45
1:A:181:TYR:H	3:A:305:EDO:C2	2.29	0.45
1:A:222:LYS:HE2	5:A:314:1QW:H5	2.00	0.44
1:A:96:PHE:CE2	1:A:220:ALA:HA	2.53	0.44
1:A:79:LYS:HZ1	1:A:179:ASN:HD22	1.64	0.43
1:A:132:SER:HB3	1:A:153:LYS:HZ3	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:303:M0E:CCM	2:A:303:M0E:CCI	2.92	0.43
1:A:189:LEU:HG	1:A:201:VAL:HG11	2.00	0.43
1:A:222:LYS:HE2	5:A:314:1QW:CH3	2.49	0.42
1:A:115:THR:HG21	2:A:303:M0E:HCK	2.02	0.42
1:A:140:LYS:CE	2:A:301:M0E:OAN	2.68	0.41
1:A:234:MET:HB3	1:A:239:THR:HG22	2.02	0.41

All (2) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:151:THR:OG1	2:A:303:M0E:OCZ[3_445]	1.94	0.26
2:A:301:M0E:C16	2:A:301:M0E:C19[2_455]	2.01	0.19

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	211/210 (100%)	207 (98%)	4 (2%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	194/191 (102%)	185 (95%)	9 (5%)	27	26

All (9) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	75	LYS
1	A	78	ASN
1	A	80	SER
1	A	123	ILE
1	A	132	SER
1	A	151	THR
1	A	162	ARG
1	A	170	ASN
1	A	239	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	78	ASN
1	A	129	GLN
1	A	141	ASN
1	A	179	ASN
1	A	215	GLN
1	A	224	ASN
1	A	230	ASN
1	A	245	ASN
1	A	251	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

14 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	#$|Z| > 2$
4	PO4	A	313	-	4,4,4	2.10	1 (25%)	6,6,6	0.48	0
3	EDO	A	311	-	3,3,3	0.51	0	2,2,2	0.34	0
3	EDO	A	304	-	3,3,3	0.54	0	2,2,2	0.60	0
2	M0E	A	303	-	19,21,114	0.73	1 (5%)	24,30,166	1.24	2 (8%)
2	M0E	A	301	-	111,114,114	0.20	0	150,166,166	0.56	3 (2%)
3	EDO	A	308	-	3,3,3	0.43	0	2,2,2	0.32	0
5	1QW	A	314	-	13,13,18	0.27	0	14,14,19	0.33	0
2	M0E	A	302	-	20,21,114	1.05	1 (5%)	28,33,166	1.61	4 (14%)
3	EDO	A	305	-	3,3,3	0.67	0	2,2,2	0.25	0
3	EDO	A	310	-	3,3,3	0.62	0	2,2,2	0.09	0
3	EDO	A	307	-	3,3,3	0.37	0	2,2,2	0.58	0
3	EDO	A	306	-	3,3,3	0.53	0	2,2,2	0.74	0
4	PO4	A	312	-	4,4,4	2.57	2 (50%)	6,6,6	0.43	0
3	EDO	A	309	-	3,3,3	0.57	0	2,2,2	0.83	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	EDO	A	311	-	-	1/1/1/1	-
3	EDO	A	304	-	-	1/1/1/1	-
2	M0E	A	303	-	-	7/10/40/206	0/2/2/6
2	M0E	A	301	-	-	9/87/206/206	0/6/6/6
3	EDO	A	308	-	-	0/1/1/1	-
5	1QW	A	314	-	-	9/13/13/18	-
2	M0E	A	302	-	-	5/11/37/206	0/1/1/6
3	EDO	A	305	-	-	0/1/1/1	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	EDO	A	310	-	-	0/1/1/1	-
3	EDO	A	307	-	-	0/1/1/1	-
3	EDO	A	306	-	-	0/1/1/1	-
3	EDO	A	309	-	-	0/1/1/1	-

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	312	PO4	P-O1	4.28	1.60	1.50
2	A	302	M0E	PBI-OBG	3.97	1.66	1.59
2	A	303	M0E	CCT-NCS	2.69	1.40	1.35
4	A	313	PO4	P-O1	2.42	1.56	1.50
4	A	312	PO4	P-O4	2.01	1.60	1.54

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	302	M0E	CAO-CAP-CAR	4.22	120.05	112.17
2	A	302	M0E	CAX-CAR-CAP	3.99	117.00	110.11
2	A	302	M0E	OBG-CAX-CAR	3.45	114.70	108.38
2	A	302	M0E	PBI-OBG-CAX	3.09	131.81	123.54
2	A	303	M0E	CBX-OCE-CCH	2.79	117.50	113.26
2	A	301	M0E	OBE-CAX-OBG	-2.65	107.90	111.36
2	A	303	M0E	CCK-CCL-CCM	2.36	115.58	111.33
2	A	301	M0E	O4-CBU-CBV	-2.14	104.59	108.07
2	A	301	M0E	CCY-CCT-CCU	-2.11	105.56	110.00

There are no chirality outliers.

All (32) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	301	M0E	CAX-OBG-PBI-OBF
2	A	301	M0E	C13-C12-C9-C8
2	A	302	M0E	OBC-CAV-OBH-CAP
2	A	302	M0E	NAT-CAV-OBH-CAP
2	A	303	M0E	OCP-CCH-OCE-CBX
2	A	303	M0E	OCP-CCL-CCM-OCQ
2	A	303	M0E	OCP-CCL-CCM-NCS
2	A	303	M0E	CCL-CCM-NCS-CCT
2	A	303	M0E	OCQ-CCM-NCS-CCT
2	A	303	M0E	CCU-CCT-NCS-CCM

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| Mol	Chain	Res	Type	Atoms
2	A	303	M0E	CCY-CCT-NCS-CCM
5	A	314	1QW	CH1-CH2-CH3-OH3
2	A	302	M0E	CAR-CAX-OBG-PBI
5	A	314	1QW	OH2-CH2-CH3-OH3
5	A	314	1QW	C3-C4-C5-C6
3	A	311	EDO	O1-C1-C2-O2
3	A	304	EDO	O1-C1-C2-O2
2	A	301	M0E	C13-C12-C9-C10
2	A	301	M0E	C13-C12-C9-C11
5	A	314	1QW	C2-C1-OH1-CH1
5	A	314	1QW	C2-C3-C4-C5
2	A	301	M0E	C9-C12-C13-C14
5	A	314	1QW	C4-C5-C6-C7
5	A	314	1QW	O1-C1-OH1-CH1
2	A	302	M0E	CAX-OBG-PBI-OBF
2	A	301	M0E	C18-C20-C21-C22
2	A	301	M0E	CAX-OBG-PBI-OBB
2	A	301	M0E	OCP-CCH-OCE-CBX
2	A	301	M0E	CCI-CCH-OCE-CBX
2	A	302	M0E	CAX-OBG-PBI-OAZ
5	A	314	1QW	O1-C1-C2-C3
5	A	314	1QW	OH1-C1-C2-C3
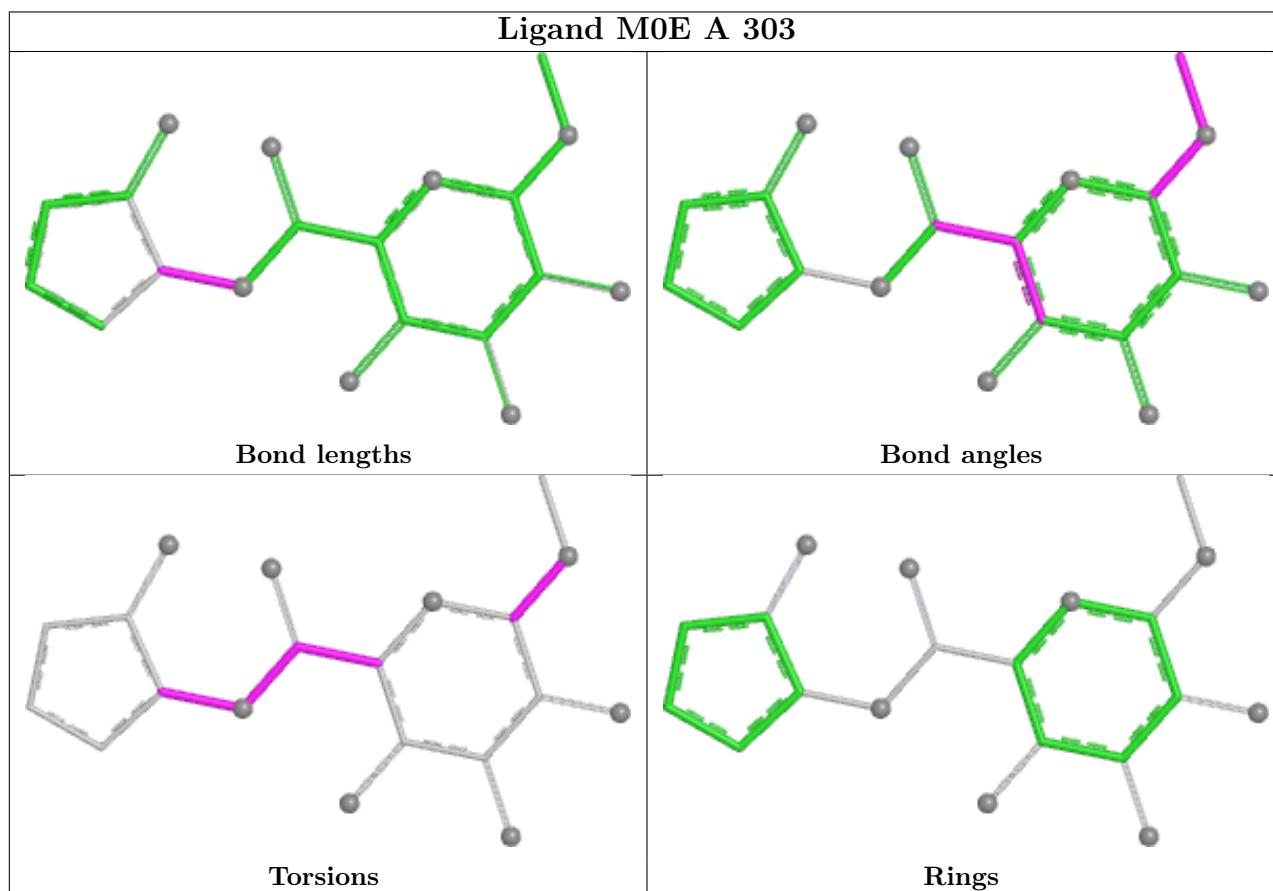
There are no ring outliers.
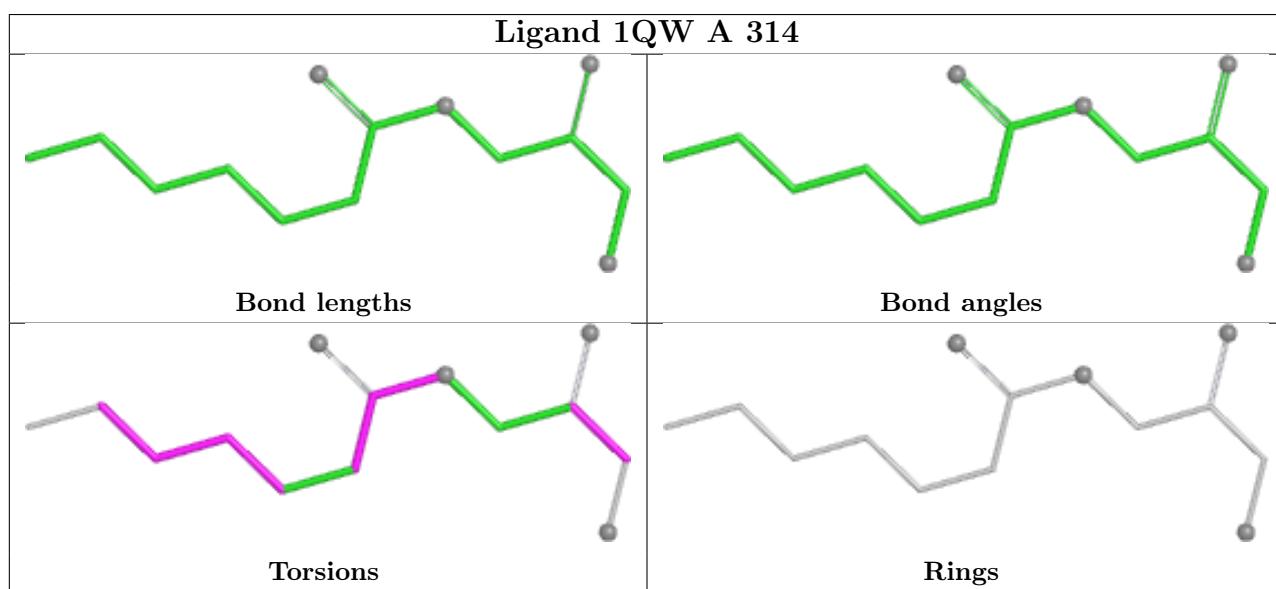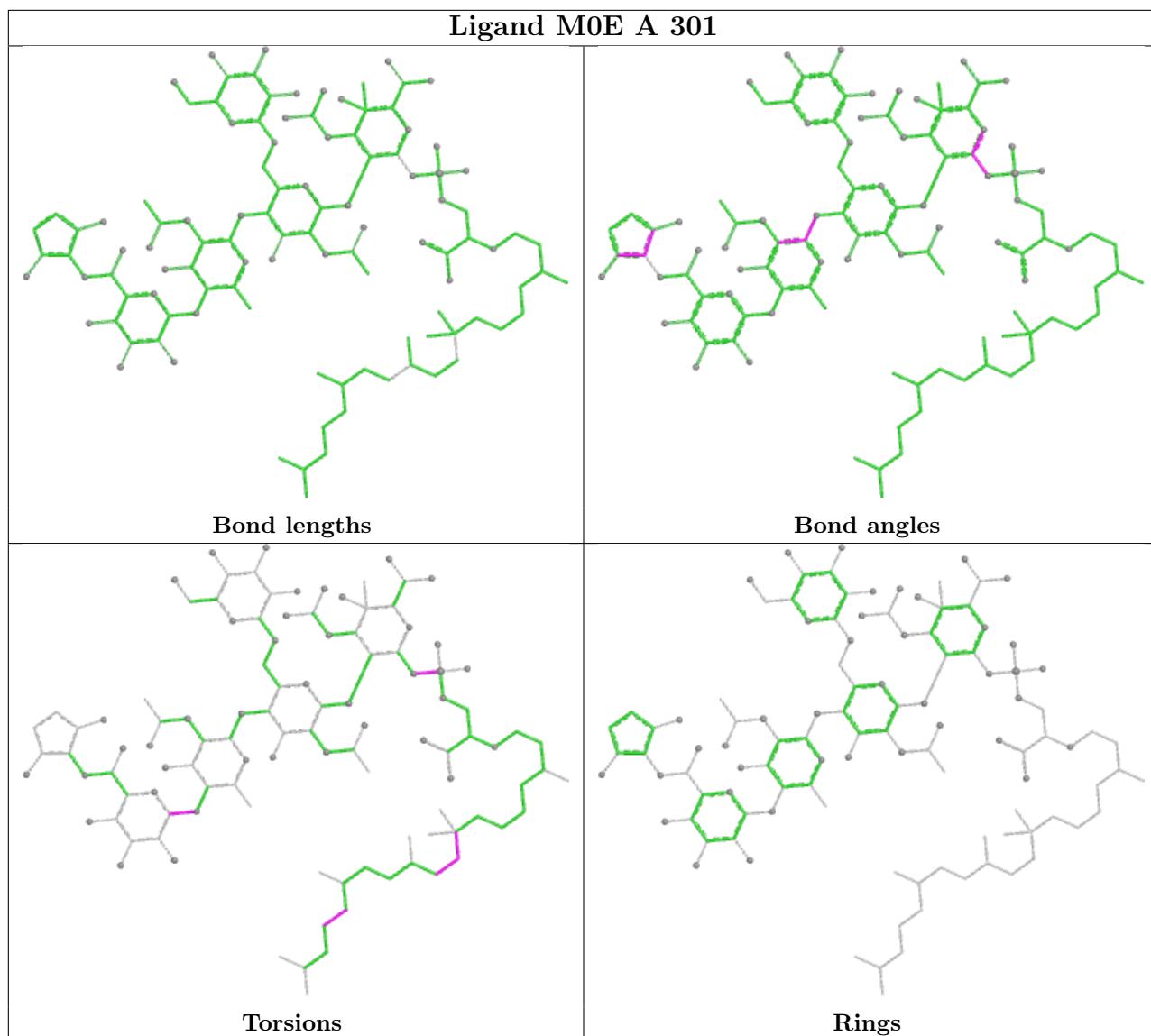
8 monomers are involved in 35 short contacts:
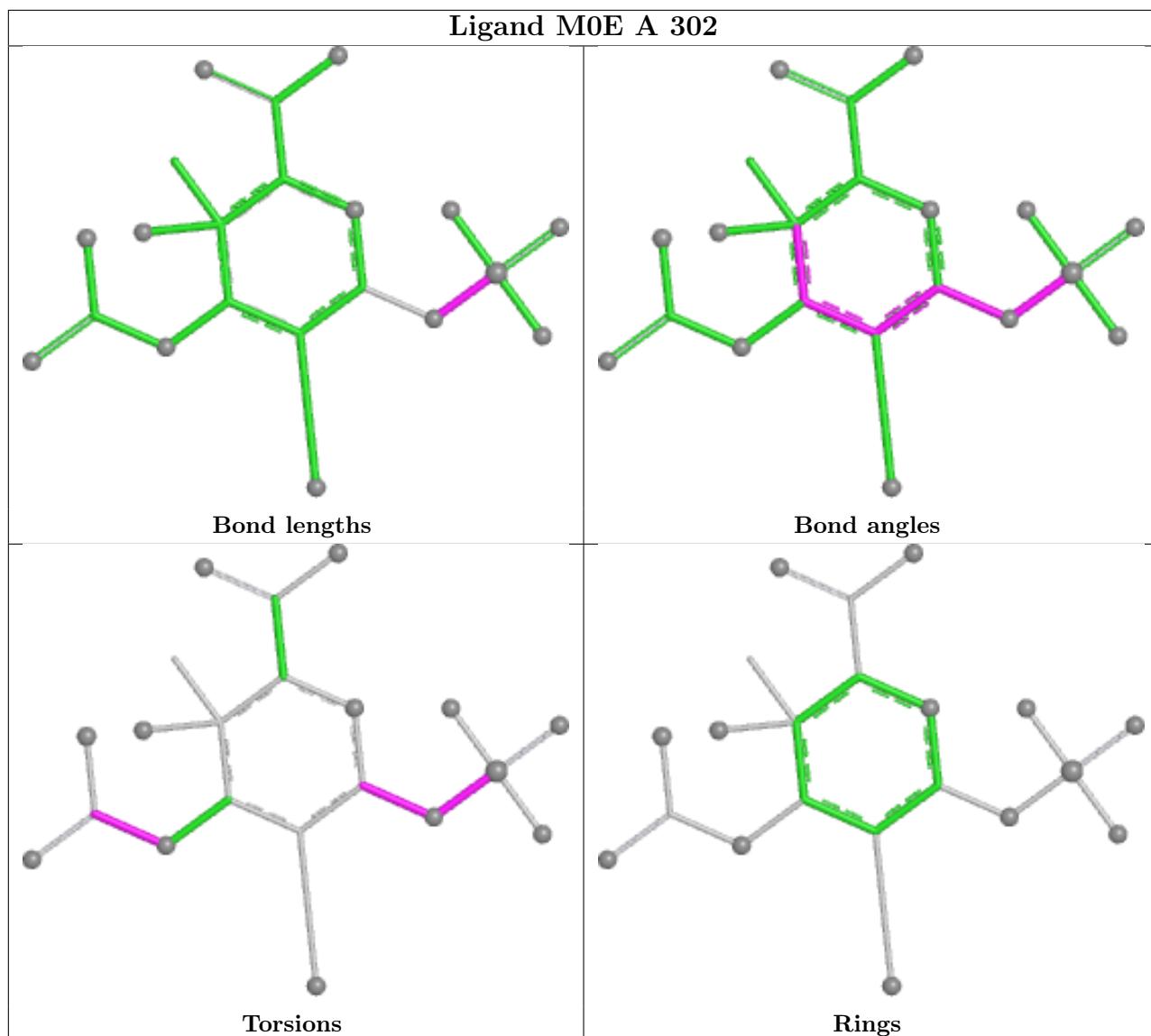
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	311	EDO	1	0
2	A	303	M0E	8	1
2	A	301	M0E	14	1
3	A	308	EDO	2	0
5	A	314	1QW	3	0
3	A	305	EDO	6	0
3	A	310	EDO	2	0
3	A	309	EDO	2	0

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

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

Ligand M0E A 303

Bond lengths

Bond angles

Torsions

Rings

Ligand M0E A 301

Bond lengths

Bond angles

Torsions

Rings

Ligand 1QW A 314

Bond lengths

Bond angles

Torsions

Rings

Ligand M0E A 302

Bond lengths

Bond angles

Torsions

Rings

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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(Å²)	Q<0.9
1	A	210/210 (100%)	-0.14	3 (1%)	75	78	24, 37, 56, 68	10 (4%)

All (3) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	158	PHE	2.7
1	A	120	PHE	2.6
1	A	268	ASN	2.5

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

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

6.3 Carbohydrates ⓘ

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.
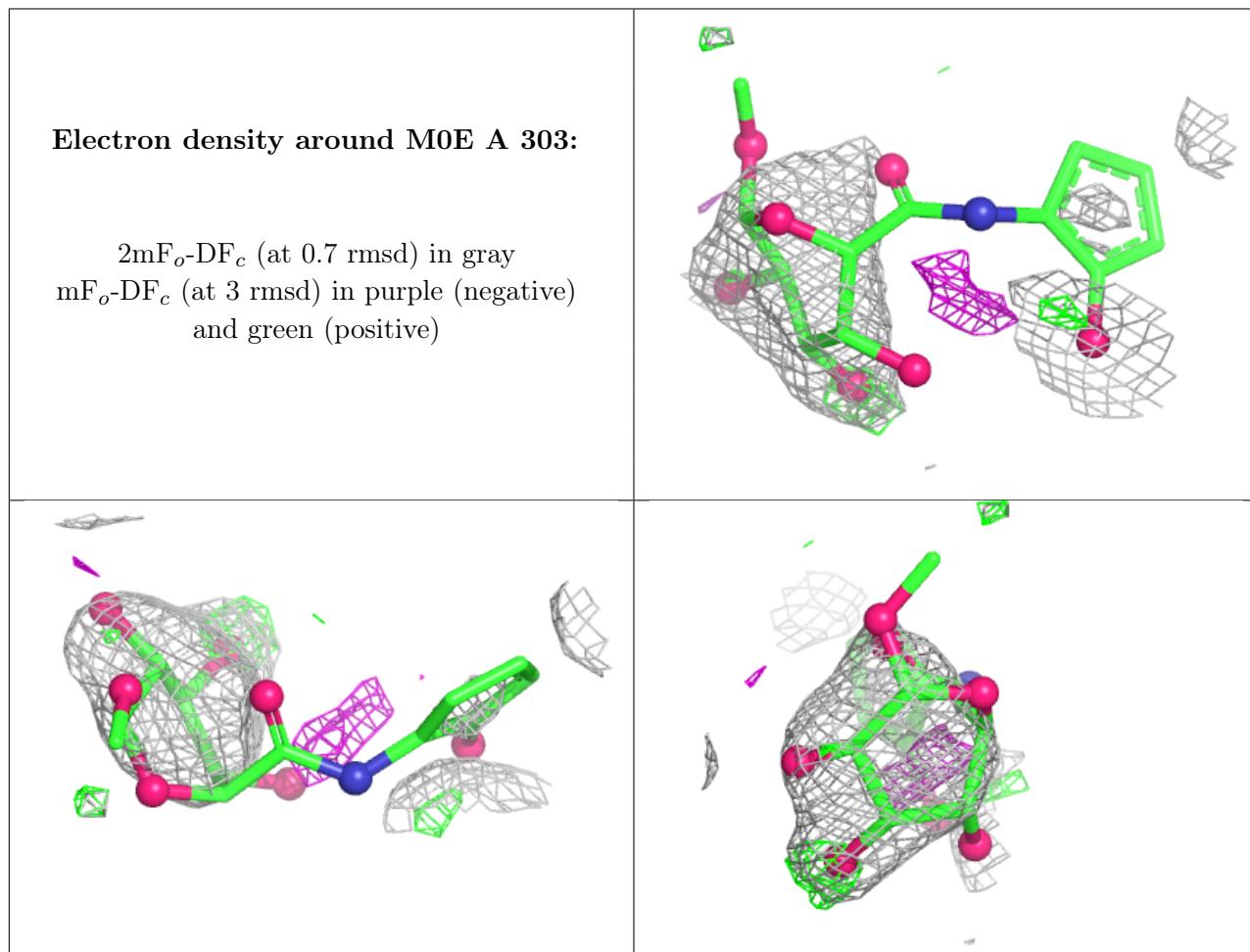
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å²)	Q<0.9
2	M0E	A	303	20/109	0.54	0.48	155,157,165,165	0
5	1QW	A	314	14/19	0.72	0.36	49,80,82,83	0
3	EDO	A	310	4/4	0.77	0.35	39,45,47,49	0
2	M0E	A	302	21/109	0.81	0.45	60,96,103,104	0
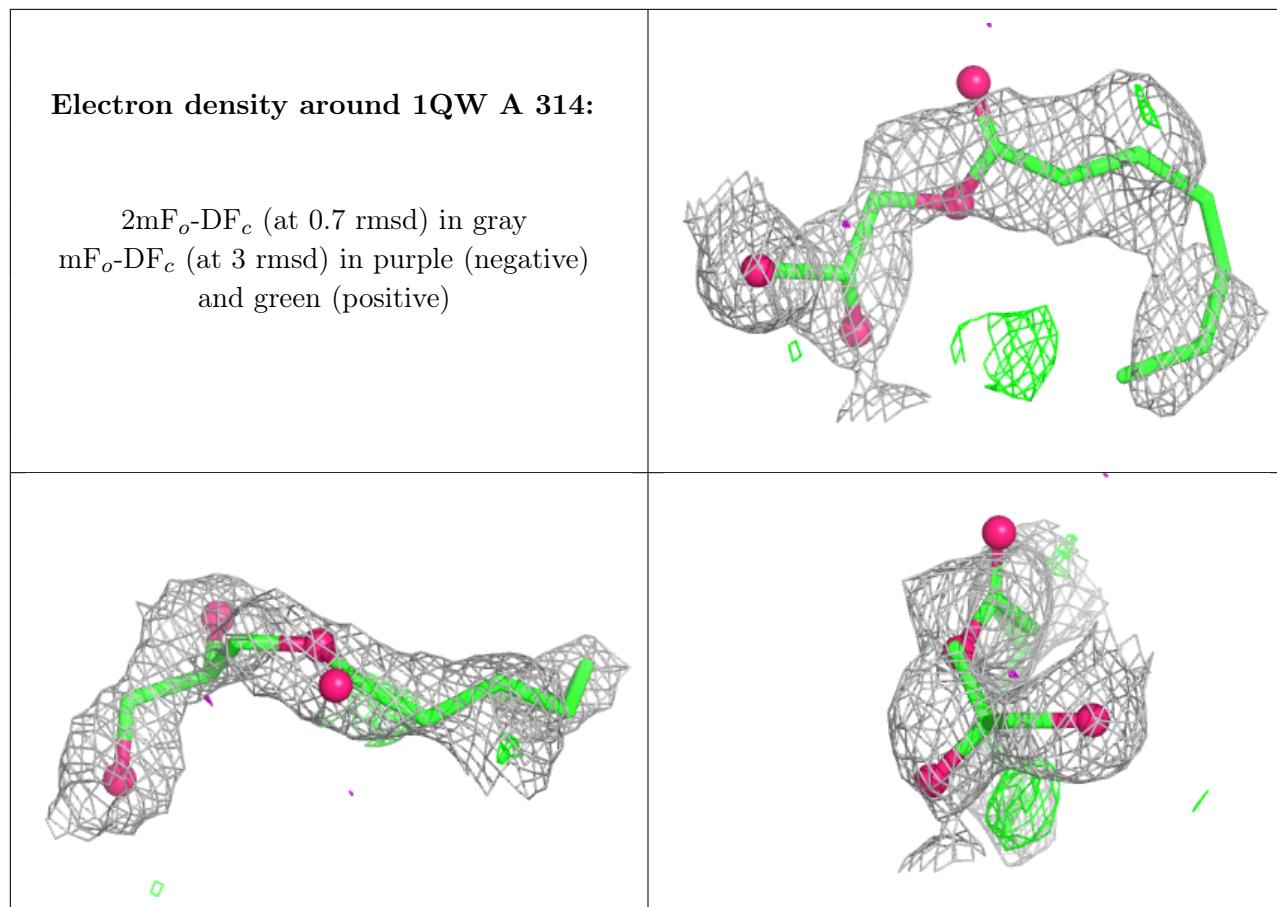
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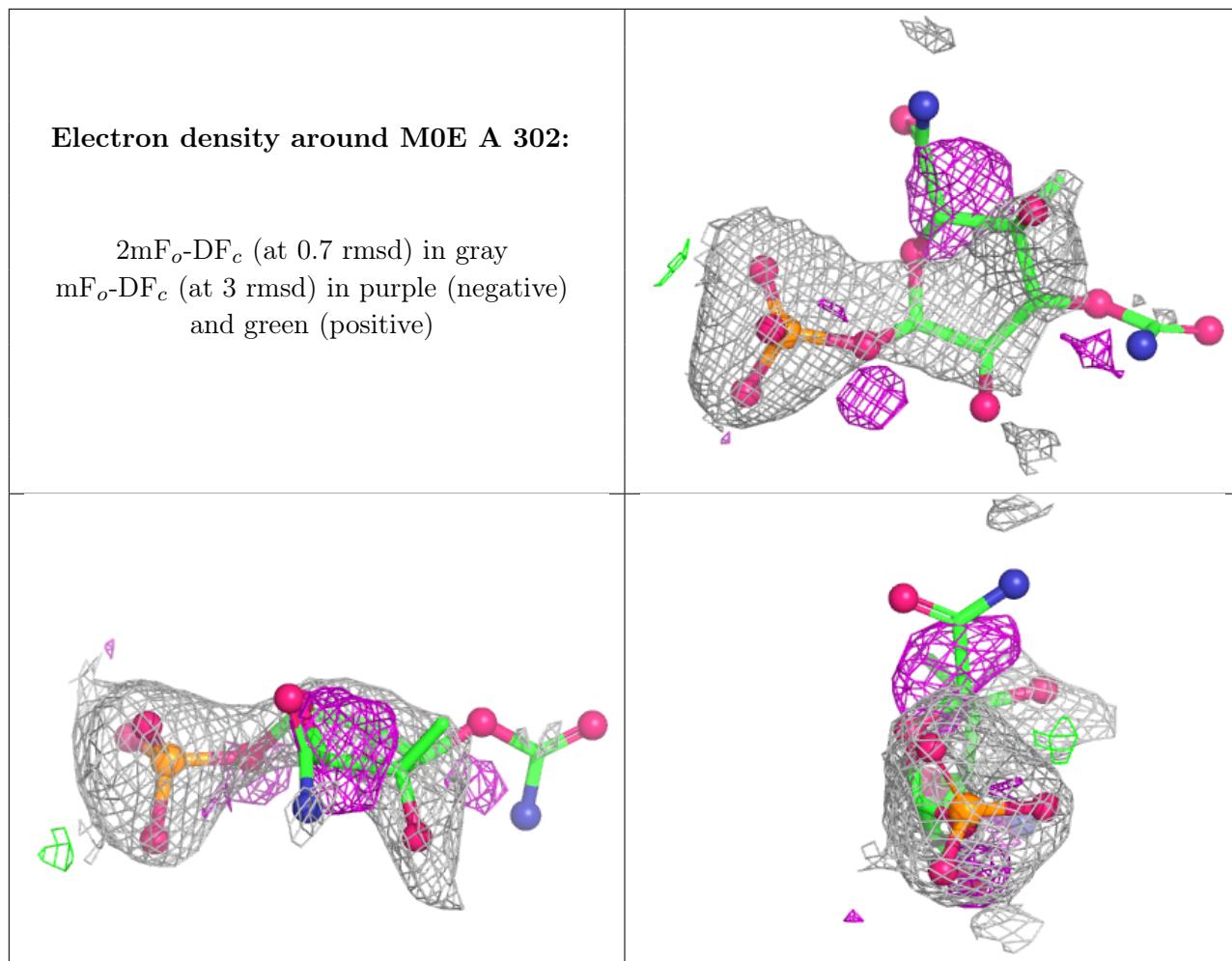
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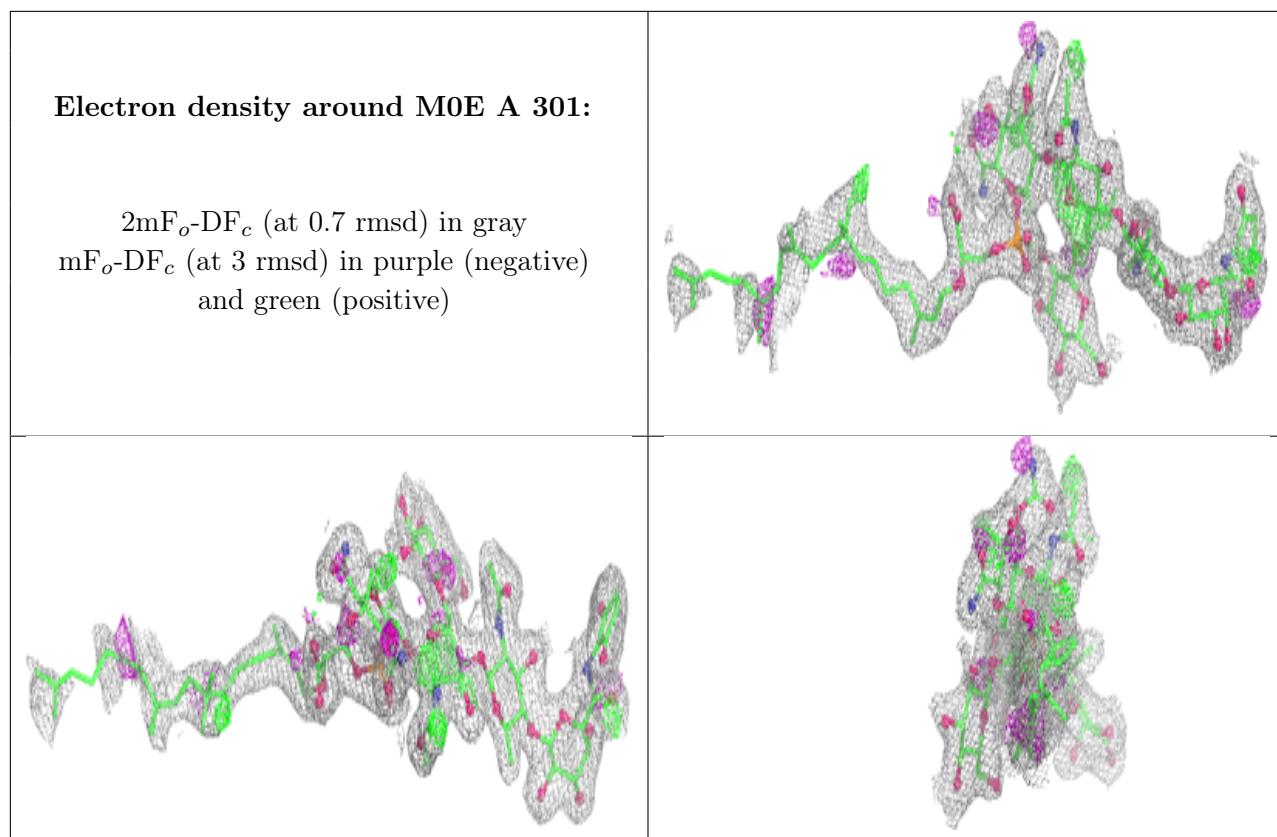
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	EDO	A	311	4/4	0.84	0.43	51,51,53,53	0
3	EDO	A	305	4/4	0.86	0.55	53,55,56,56	0
2	M0E	A	301	109/109	0.89	0.15	24,33,87,88	9
4	PO4	A	312	5/5	0.90	0.13	105,107,107,107	0
3	EDO	A	306	4/4	0.90	0.24	42,42,44,44	0
4	PO4	A	313	5/5	0.91	0.36	93,94,94,95	0
3	EDO	A	308	4/4	0.94	0.16	28,37,42,49	0
3	EDO	A	304	4/4	0.94	0.27	42,43,44,45	0
3	EDO	A	309	4/4	0.96	0.20	31,37,37,38	0
3	EDO	A	307	4/4	0.96	0.26	37,41,44,45	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 M0E A 303:

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 1QW A 314:

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

Electron density around M0E A 302:

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

Electron density around M0E A 301:

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.