



# Full wwPDB X-ray Structure Validation Report ⓘ

Jun 18, 2024 – 12:02 PM EDT

PDB ID : 8US3  
Title : C2 Crystal structure of TamA from Pseudomonas aeruginosa at 3.1 Ang  
Authors : Mellouk, A.; Moraes, T.F.; Calmettes, C.  
Deposited on : 2023-10-27  
Resolution : 3.10 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](mailto: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>.

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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

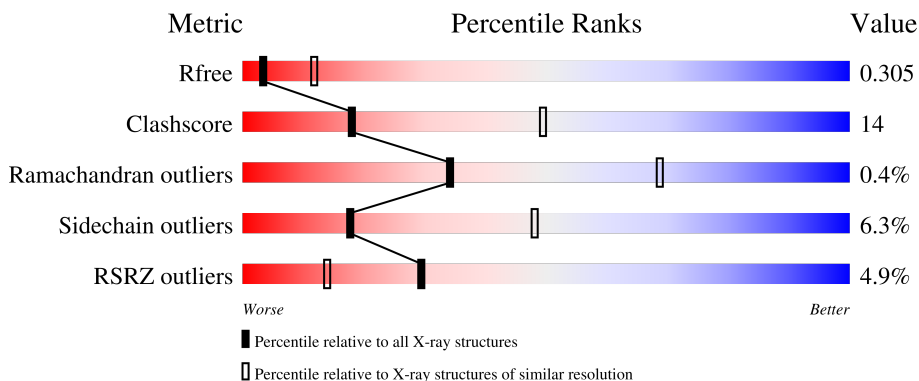
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.10 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	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	1094 (3.10-3.10)
Clashscore	141614	1184 (3.10-3.10)
Ramachandran outliers	138981	1141 (3.10-3.10)
Sidechain outliers	138945	1141 (3.10-3.10)
RSRZ outliers	127900	1067 (3.10-3.10)

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  $\geq 3$ , 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	559	

## 2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 4343 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.

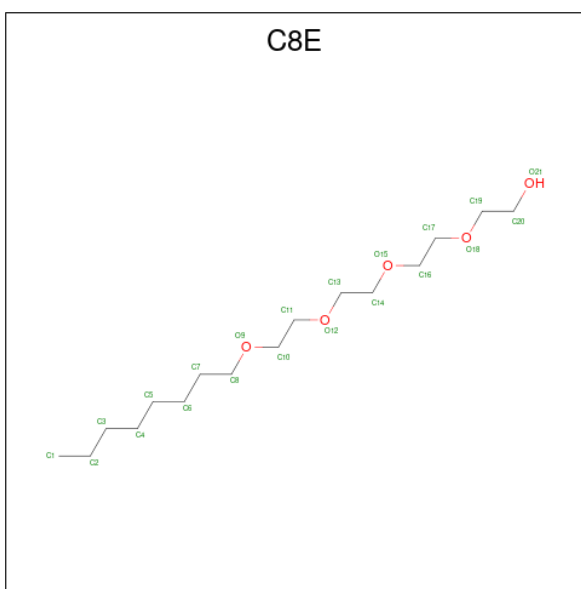
- Molecule 1 is a protein called Translocation and assembly module subunit TamA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	552	4303	2712	769	815	7	0	0	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	21	PHE	-	expression tag	UNP Q9I0U1
A	22	GLN	-	expression tag	UNP Q9I0U1
A	23	GLY	-	expression tag	UNP Q9I0U1
A	24	SER	-	expression tag	UNP Q9I0U1

- Molecule 2 is (HYDROXYETHYLOXY)TRI(ETHYLOXY)OCTANE (three-letter code: C8E) (formula: C<sub>16</sub>H<sub>34</sub>O<sub>5</sub>).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
2	A	1	21	16	5	0	0

- Molecule 3 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	1	Total 1	Mg 1	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	18	Total 18	O 18	0	0



## 4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	140.40Å 63.88Å 81.36Å 90.00° 99.40° 90.00°	Depositor
Resolution (Å)	48.60 – 3.10 48.65 – 2.90	Depositor EDS
% Data completeness (in resolution range)	100.0 (48.60-3.10) 90.7 (48.65-2.90)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	0.04	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.38 (at 2.91Å)	Xtrriage
Refinement program	PHENIX 1.19	Depositor
R, $R_{free}$	0.250 , 0.300 0.252 , 0.305	Depositor DCC
$R_{free}$ test set	723 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	70.8	Xtrriage
Anisotropy	0.051	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.28 , 48.4	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.90	EDS
Total number of atoms	4343	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	103.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.21% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical 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, 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	0.38	1/4398 (0.0%)	0.66	5/5945 (0.1%)

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	A	0	2

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	247	PRO	N-CD	5.33	1.55	1.47

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	406	ASP	C-N-CD	6.24	141.51	128.40
1	A	101	PRO	N-CA-C	6.02	127.75	112.10
1	A	246	ALA	C-N-CD	5.73	140.43	128.40
1	A	100	VAL	N-CA-C	-5.18	97.00	111.00
1	A	171	ILE	N-CA-C	5.02	124.55	111.00

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	343	LEU	Peptide

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Mol	Chain	Res	Type	Group
1	A	405	VAL	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	4303	0	4211	116	0
2	A	21	0	34	2	0
3	A	1	0	0	0	0
4	A	18	0	0	1	0
All	All	4343	0	4245	116	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 14.

All (116) 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:402:ASP:OD2	1:A:408:SER:HB3	1.47	1.12
1:A:375:ARG:HD2	1:A:388:SER:HB3	1.29	1.08
1:A:402:ASP:OD2	1:A:408:SER:CB	2.24	0.85
1:A:189:ARG:CZ	1:A:219:PRO:HB3	2.10	0.80
1:A:403:ASN:H	1:A:407:PRO:HB3	1.48	0.76
1:A:107:LEU:HD11	1:A:138:LEU:HD13	1.69	0.74
1:A:361:ARG:NH2	1:A:363:ASP:OD2	2.21	0.74
1:A:373:TRP:HZ2	1:A:375:ARG:HH11	1.33	0.73
1:A:375:ARG:HD2	1:A:388:SER:CB	2.15	0.72
1:A:53:ARG:HB3	1:A:54:ASP:HB3	1.72	0.71
1:A:256:ARG:HG2	1:A:257:GLN:N	2.07	0.69
1:A:188:GLN:OE1	1:A:256:ARG:HB3	1.94	0.68
1:A:141:GLY:O	1:A:145:ASP:N	2.23	0.67
1:A:452:ARG:NH2	1:A:479:SER:O	2.28	0.67
1:A:75:ALA:HB1	1:A:140:GLN:HB2	1.76	0.66
1:A:436:MET:HG2	1:A:454:GLN:HG3	1.79	0.64
1:A:440:LEU:HD12	1:A:450:LEU:HG	1.79	0.63
1:A:472:PHE:HB3	1:A:503:MET:HG2	1.81	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:87:VAL:HG22	1:A:95:LEU:HG	1.81	0.62
1:A:33:THR:OG1	1:A:98:LYS:NZ	2.28	0.62
1:A:239:GLU:HG2	1:A:268:ARG:HG3	1.81	0.61
1:A:291:TRP:CD1	1:A:305:PHE:HB3	2.35	0.61
1:A:174:ARG:C	1:A:176:GLY:H	2.03	0.61
1:A:373:TRP:CZ2	1:A:375:ARG:HD3	2.37	0.60
1:A:289:PHE:HE2	1:A:309:ILE:HD13	1.65	0.60
1:A:304:GLY:HA3	1:A:319:TRP:CE2	2.36	0.60
1:A:340:PHE:HD2	1:A:349:LYS:HG2	1.67	0.59
1:A:538:ILE:HG21	2:A:601:C8E:H171	1.83	0.59
1:A:248:THR:HG22	1:A:249:GLN:N	2.18	0.58
1:A:248:THR:HG22	1:A:249:GLN:H	1.68	0.58
1:A:555:LEU:HD22	1:A:575:MET:HG2	1.87	0.57
1:A:403:ASN:O	1:A:405:VAL:O	2.22	0.56
1:A:189:ARG:NH1	1:A:219:PRO:HB3	2.19	0.56
1:A:374:MET:O	1:A:374:MET:HG3	2.06	0.55
1:A:79:PHE:HB3	1:A:173:PRO:HB3	1.88	0.54
1:A:373:TRP:CH2	1:A:375:ARG:HB2	2.42	0.54
1:A:380:LEU:HB3	1:A:498:ILE:HG23	1.89	0.54
1:A:509:GLU:OE1	1:A:547:ARG:NH2	2.38	0.53
1:A:281:THR:HG21	1:A:571:LEU:O	2.09	0.53
1:A:447:HIS:ND1	1:A:510:TYR:OH	2.35	0.53
1:A:538:ILE:HG13	2:A:601:C8E:H201	1.91	0.53
1:A:537:SER:O	1:A:539:LYS:NZ	2.39	0.52
1:A:225:ILE:HD13	1:A:245:ALA:HB3	1.90	0.52
1:A:448:ARG:HB2	1:A:511:GLN:HB2	1.91	0.52
1:A:167:GLN:HA	1:A:182:LEU:HD23	1.91	0.52
1:A:78:TYR:CE1	1:A:104:PRO:HG3	2.45	0.51
1:A:256:ARG:HG2	1:A:257:GLN:H	1.75	0.51
1:A:367:ARG:HD2	1:A:394:ILE:HD11	1.92	0.51
1:A:117:GLU:HB2	1:A:159:PHE:HE1	1.76	0.51
1:A:256:ARG:CG	1:A:257:GLN:N	2.72	0.51
1:A:271:ARG:HG2	1:A:291:TRP:CZ3	2.46	0.51
1:A:338:TYR:OH	1:A:349:LYS:HD3	2.11	0.50
1:A:25:GLU:HG3	1:A:51:GLY:O	2.12	0.50
1:A:78:TYR:CD1	1:A:101:PRO:HB2	2.46	0.50
1:A:515:ALA:HB3	1:A:518:TRP:HB2	1.93	0.49
1:A:79:PHE:C	1:A:81:ALA:H	2.16	0.49
1:A:481:ARG:NH1	1:A:558:ASP:OD2	2.45	0.49
1:A:537:SER:HB3	1:A:539:LYS:NZ	2.28	0.48
1:A:341:GLU:HG2	1:A:343:LEU:HD11	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:375:ARG:NH1	4:A:703:HOH:O	2.47	0.48
1:A:104:PRO:HG2	1:A:137:LYS:HD3	1.96	0.47
1:A:431:LEU:HB3	1:A:459:ALA:HB3	1.96	0.47
1:A:75:ALA:O	1:A:140:GLN:N	2.47	0.47
1:A:313:ARG:NH1	1:A:341:GLU:OE2	2.39	0.47
1:A:141:GLY:HA2	1:A:144:GLU:OE1	2.14	0.47
1:A:497:LYS:N	1:A:497:LYS:HD3	2.30	0.47
1:A:225:ILE:CD1	1:A:245:ALA:HB3	2.45	0.47
1:A:380:LEU:HD21	1:A:468:PRO:HG3	1.97	0.47
1:A:171:ILE:O	1:A:173:PRO:HD3	2.15	0.46
1:A:271:ARG:HG2	1:A:291:TRP:HZ3	1.78	0.46
1:A:194:LYS:H	1:A:194:LYS:HG3	1.42	0.46
1:A:79:PHE:CB	1:A:173:PRO:HB3	2.46	0.46
1:A:207:LEU:CD1	1:A:210:ARG:HH21	2.28	0.46
1:A:275:VAL:HG13	1:A:289:PHE:CD1	2.52	0.45
1:A:326:PRO:HA	1:A:327:PRO:HD3	1.82	0.45
1:A:257:GLN:CG	1:A:258:ALA:H	2.30	0.45
1:A:467:PRO:HD2	1:A:470:LEU:HD12	1.98	0.45
1:A:392:PRO:HD2	1:A:419:GLY:O	2.16	0.45
1:A:281:THR:OG1	1:A:477:ASP:OD1	2.31	0.45
1:A:94:LYS:HG2	1:A:95:LEU:N	2.31	0.45
1:A:326:PRO:HG2	1:A:329:THR:OG1	2.17	0.45
1:A:496:ASP:O	1:A:498:ILE:HG12	2.17	0.44
1:A:32:VAL:HG11	1:A:36:ASN:HB3	1.99	0.44
1:A:164:PHE:HB3	1:A:167:GLN:HG2	1.99	0.44
1:A:174:ARG:C	1:A:176:GLY:N	2.70	0.44
1:A:391:MET:HE1	1:A:430:VAL:HG11	2.00	0.44
1:A:537:SER:HB3	1:A:539:LYS:HZ1	1.82	0.44
1:A:341:GLU:HG2	1:A:343:LEU:CD1	2.48	0.43
1:A:26:SER:O	1:A:50:LEU:HD12	2.19	0.43
1:A:536:PRO:HB2	1:A:538:ILE:HD11	2.00	0.43
1:A:257:GLN:HG2	1:A:258:ALA:H	1.83	0.43
1:A:484:ASP:HB3	1:A:487:THR:HG21	2.01	0.42
1:A:450:LEU:HB2	1:A:509:GLU:HB3	2.02	0.42
1:A:166:THR:HB	1:A:183:VAL:HB	2.01	0.42
1:A:409:HIS:O	1:A:409:HIS:ND1	2.52	0.42
1:A:562:ALA:O	1:A:567:GLY:HA3	2.20	0.42
1:A:453:LEU:HD11	1:A:504:ILE:HD11	2.01	0.42
1:A:490:PRO:HG2	1:A:500:GLY:HA2	2.01	0.42
1:A:107:LEU:HD22	1:A:136:ALA:O	2.19	0.42
1:A:188:GLN:OE1	1:A:256:ARG:CB	2.63	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:409:HIS:ND1	1:A:409:HIS:C	2.73	0.41
1:A:28:LEU:HD22	1:A:29:SER:H	1.85	0.41
1:A:172:ASP:OD1	1:A:174:ARG:HG3	2.20	0.41
1:A:374:MET:CE	1:A:389:PHE:HD2	2.33	0.41
1:A:32:VAL:HG12	1:A:34:PRO:O	2.20	0.41
1:A:229:ASN:ND2	1:A:243:VAL:HB	2.36	0.41
1:A:264:ARG:HG3	1:A:265:LEU:N	2.36	0.41
1:A:162:GLY:HA2	1:A:186:SER:HA	2.03	0.41
1:A:212:VAL:HA	1:A:228:LEU:HD13	2.02	0.41
1:A:406:ASP:OD2	1:A:519:ARG:NH2	2.43	0.41
1:A:554:PRO:HG2	1:A:576:GLY:O	2.21	0.41
1:A:524:VAL:HG13	1:A:542:VAL:HG12	2.04	0.40
1:A:188:GLN:CD	1:A:256:ARG:HB3	2.40	0.40
1:A:452:ARG:O	1:A:506:GLY:HA2	2.21	0.40
1:A:39:LEU:HA	1:A:76:LEU:HD12	2.03	0.40
1:A:455:VAL:HG12	1:A:504:ILE:HG13	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	548/559 (98%)	521 (95%)	25 (5%)	2 (0%)	34 69

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	403	ASN
1	A	101	PRO

### 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	446/450 (99%)	418 (94%)	28 (6%)	<span style="border: 1px solid red; padding: 2px;">18</span> <span style="border: 1px solid gray; padding: 2px;">48</span>

All (28) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	70	GLU
1	A	92	PRO
1	A	99	VAL
1	A	103	GLU
1	A	147	LYS
1	A	167	GLN
1	A	168	ARG
1	A	174	ARG
1	A	188	GLN
1	A	194	LYS
1	A	247	PRO
1	A	249	GLN
1	A	256	ARG
1	A	272	THR
1	A	273	MET
1	A	281	THR
1	A	293	ARG
1	A	375	ARG
1	A	391	MET
1	A	404	LYS
1	A	406	ASP
1	A	436	MET
1	A	441	THR
1	A	464	LYS
1	A	493	SER
1	A	502	TYR
1	A	503	MET
1	A	570	ARG

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](#)

Of 2 ligands modelled in this entry, 1 is monoatomic - leaving 1 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	C8E	A	601	-	20,20,20	0.63	0	19,19,19	0.51	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	C8E	A	601	-	-	5/18/18/18	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (5) torsion outliers are listed below:

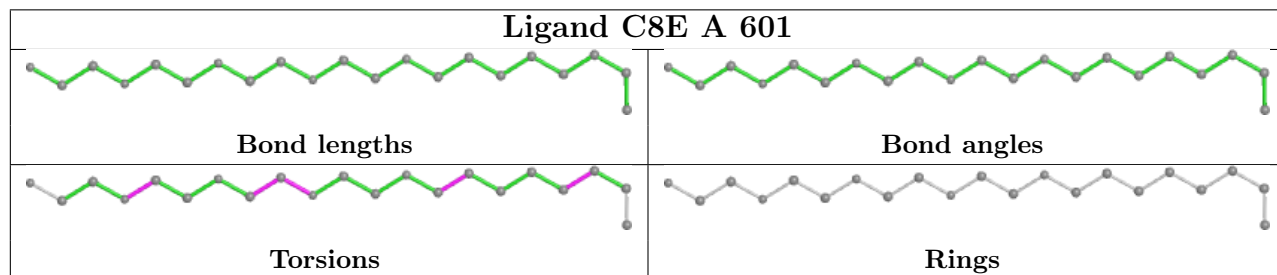
Mol	Chain	Res	Type	Atoms
2	A	601	C8E	C2-C3-C4-C5
2	A	601	C8E	O12-C13-C14-O15
2	A	601	C8E	C14-C13-O12-C11
2	A	601	C8E	C16-C17-O18-C19
2	A	601	C8E	C6-C7-C8-O9

There are no ring outliers.

1 monomer is involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	601	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

### 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<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	552/559 (98%)	0.25	27 (4%) 29 14	38, 103, 165, 209	0

All (27) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	30	VAL	4.7
1	A	190	TYR	4.5
1	A	33	THR	3.7
1	A	548	TRP	3.3
1	A	27	GLN	3.3
1	A	131	GLN	3.3
1	A	78	TYR	3.1
1	A	193	GLY	3.0
1	A	32	VAL	2.8
1	A	579	LEU	2.7
1	A	59	GLN	2.5
1	A	28	LEU	2.5
1	A	31	ARG	2.4
1	A	88	LYS	2.4
1	A	194	LYS	2.4
1	A	518	TRP	2.4
1	A	270	PRO	2.3
1	A	140	GLN	2.3
1	A	192	PHE	2.3
1	A	271	ARG	2.1
1	A	161	GLN	2.1
1	A	83	ILE	2.1
1	A	219	PRO	2.1
1	A	551	PRO	2.1
1	A	98	LYS	2.0
1	A	124	PHE	2.0
1	A	109	GLN	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.

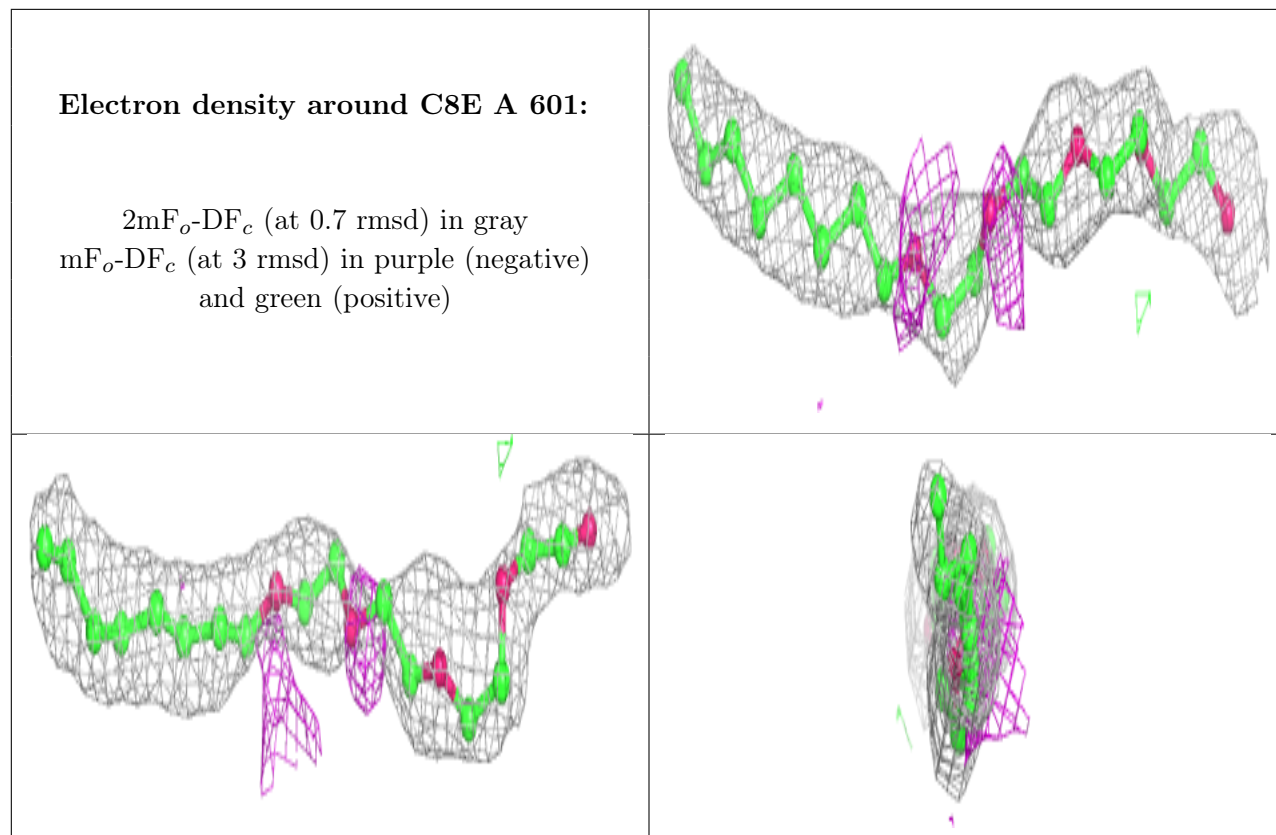
## 6.4 Ligands [i](#)

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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
2	C8E	A	601	21/21	0.89	0.33	18,43,70,76	0
3	MG	A	602	1/1	0.96	0.23	58,58,58,58	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.





## 6.5 Other polymers [i](#)

There are no such residues in this entry.