

# Full wwPDB X-ray Structure Validation Report (i)

#### Sep 3, 2024 – 06:10 PM EDT

PDB ID : 8TLV

Title: Crystal structure of MBP and AF9 AHD fusion protein 4AQK in complex

with peptidomimetic inhibitor 28

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Deposited on : 2023-07-27

Resolution : 2.66 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 (i) 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 (1)) 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 : 3.0

buster-report : 1.1.7 (2018)

Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)

CCP4 : 9.0.002 (Gargrove)

Density-Fitness : 1.0.11

Ideal geometry (proteins) : Engh & Huber (2001) Ideal geometry (DNA, RNA) : Parkinson et al. (1996)

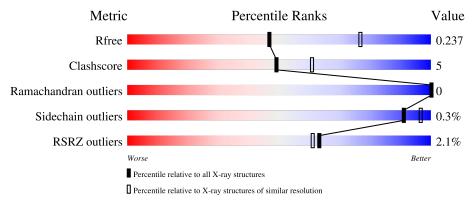
Validation Pipeline (wwPDB-VP) : 2.38.3

## 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 2.66 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 $(\# \mathrm{Entries})$	$egin{aligned}  ext{Similar resolution} \ (\# ext{Entries, resolution range}( ext{Å})) \end{aligned}$		
$R_{free}$	164625	1003 (2.66-2.66)		
Clashscore	180529	1063 (2.66-2.66)		
Ramachandran outliers	177936	1052 (2.66-2.66)		
Sidechain outliers	177891	1052 (2.66-2.66)		
RSRZ outliers	164620	1003 (2.66-2.66)		

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	443	90%		8%	-			
2	В	6	67%	33%		_			
3	С	2	50%	50%					

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	DPP	В	4	_	-	X	_



# 2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 3444 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 MBP and AF9 AHD fusion protein 4AQK.

Mol	Chain	Residues		Atoms			ZeroOcc	AltConf	Trace	
1	A	433	Total 3273	C 2109	N 529	O 625	S 10	0	0	0

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	SER	-	expression tag	UNP P0AEX9
A	-1	GLY	-	expression tag	UNP P0AEX9
A	0	GLY	-	expression tag	UNP P0AEX9
A	1	SER	-	expression tag	UNP P0AEX9
A	336	CYS	GLN	engineered mutation	UNP P0AEX9
A	368	ALA	-	linker	UNP P0AEX9
A	369	ALA	-	linker	UNP P0AEX9
A	370	ALA	-	linker	UNP P0AEX9
A	371	ALA	-	linker	UNP P0AEX9
A	501	CYS	LYS	engineered mutation	UNP B7Z4N5

• Molecule 2 is a protein called peptidomimetic inhibitor 28.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	В	6	Total 61	C 48	N 8	O 5	0	0	0

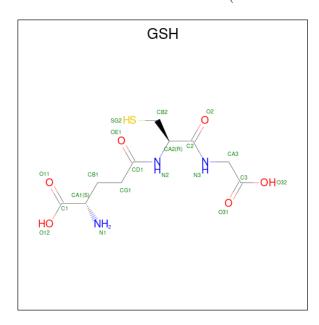
• Molecule 3 is an oligosaccharide called alpha-D-glucopyranose-(1-4)-alpha-D-glucopyranose.



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace	
3	С	2	Total 23	C 12	O 11	0	0	0



 $\bullet$  Molecule 4 is GLUTATHIONE (three-letter code: GSH) (formula:  $\mathrm{C_{10}H_{17}N_3O_6S}).$ 



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
4	Λ	1	Total	С	N	О	S	0	0
4	A	1	20	10	3	6	1	0	

• Molecule 5 is water.

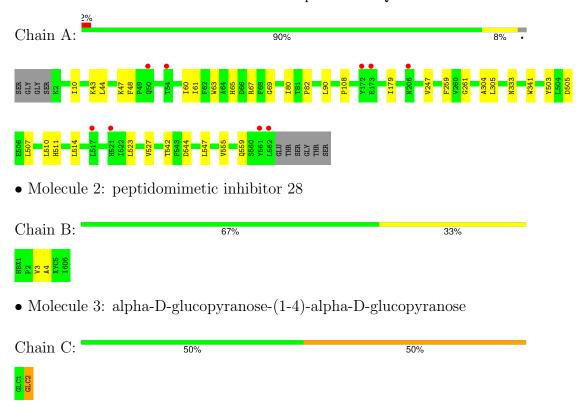
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	67	Total O 67 67	0	0



## 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: MBP and AF9 AHD fusion protein 4AQK





# 4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants	101.91Å 156.89Å 63.66Å	Depositor
a, b, c, $\alpha$ , $\beta$ , $\gamma$	90.00° 90.00° 90.00°	Depositor
Resolution (Å)	33.39 - 2.66	Depositor
Resolution (A)	33.39 - 2.66	EDS
% Data completeness	99.0 (33.39-2.66)	Depositor
(in resolution range)	98.9 (33.39-2.66)	EDS
$R_{merge}$	0.09	Depositor
$R_{sym}$	(Not available)	Depositor
$< I/\sigma(I) > 1$	2.35 (at 2.65Å)	Xtriage
Refinement program	BUSTER 2.10.4 (17-FEB-2023)	Depositor
D.D.	0.202 , 0.246	Depositor
$R, R_{free}$	0.200 , $0.237$	DCC
$R_{free}$ test set	1531 reflections (10.16%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	54.6	Xtriage
Anisotropy	0.532	Xtriage
Bulk solvent $k_{sol}(e/Å^3)$ , $B_{sol}(Å^2)$	0.37, 50.8	EDS
L-test for twinning <sup>2</sup>	$ < L > = 0.48, < L^2> = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
$F_o, F_c$ correlation	0.94	EDS
Total number of atoms	3444	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	57.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: The largest off-origin peak in the Patterson function is 5.62% of the height of the origin peak. No significant pseudotranslation is detected.

<sup>&</sup>lt;sup>2</sup>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.



<sup>&</sup>lt;sup>1</sup>Intensities estimated from amplitudes.

## 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: GLC, DPP, GSH, I6O, XYC, HBX

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 Chair		Bond	lengths	Bond angles		
MIOI	Chain	RMSZ	# Z  > 5	RMSZ	# Z  > 5	
1	A	0.35	0/3350	0.53	0/4573	
2	В	0.16	0/14	0.63	0/18	
All	All	0.35	0/3364	0.53	0/4591	

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	3273	0	3113	33	0
2	В	61	0	26	7	0
3	С	23	0	21	1	0
4	A	20	0	15	2	0
5	A	67	0	0	0	0
All	All	3444	0	3175	35	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 5.

All (35) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.



A toma 1	Atom 2	Interatomic	Clash
Atom-1	Atom-2	${f distance}({ m \AA})$	overlap (Å)
1:A:179:ILE:HD13	1:A:505:ASP:OD2	1.72	0.90
1:A:507:LEU:HD12	1:A:547:LEU:HB3	1.55	0.89
1:A:90:LEU:HD22	1:A:304:ALA:CB	2.19	0.72
1:A:179:ILE:CD1	1:A:505:ASP:OD2	2.38	0.70
1:A:542:THR:HB	2:B:4:DPP:HG1	1.57	0.69
1:A:503:TYR:O	1:A:507:LEU:HD23	1.94	0.68
1:A:523:LEU:O	1:A:527:VAL:HG23	1.93	0.68
1:A:503:TYR:CZ	1:A:507:LEU:HD21	2.31	0.65
1:A:80:ILE:HD12	1:A:82:PRO:HD3	1.80	0.63
1:A:507:LEU:HD12	1:A:547:LEU:CB	2.28	0.62
1:A:90:LEU:HD22	1:A:304:ALA:HB1	1.84	0.57
1:A:90:LEU:HD22	1:A:304:ALA:HB3	1.89	0.55
1:A:63:TRP:CD1	1:A:67:ARG:HG3	2.43	0.54
1:A:44:LEU:HD11	1:A:63:TRP:CE3	2.44	0.53
1:A:510:LEU:O	1:A:514:LEU:HG	2.09	0.53
1:A:90:LEU:HD13	1:A:108:PRO:HG2	1.92	0.52
1:A:544:ASP:OD1	2:B:4:DPP:NG	2.44	0.51
1:A:48:PHE:HB2	1:A:61:ILE:HD12	1.93	0.50
1:A:43:LYS:HB2	1:A:47:LYS:NZ	2.26	0.50
1:A:511:HIS:HD2	2:B:3:VAL:HG22	1.78	0.49
1:A:542:THR:HB	2:B:4:DPP:NG	2.27	0.48
1:A:90:LEU:HD23	1:A:305:LEU:HA	1.96	0.46
1:A:507:LEU:CD1	1:A:547:LEU:HB3	2.36	0.46
1:A:542:THR:HG21	2:B:4:DPP:NG	2.31	0.46
4:A:601:GSH:HB22	4:A:601:GSH:HG13	1.97	0.46
1:A:542:THR:HG21	2:B:4:DPP:HG2	1.83	0.44
1:A:65:HIS:CE1	1:A:261:GLY:HA2	2.52	0.44
1:A:69:GLY:HA3	1:A:333:ASN:O	2.17	0.44
1:A:65:HIS:HE1	1:A:261:GLY:HA2	1.83	0.43
1:A:247:VAL:O	1:A:247:VAL:HG13	2.19	0.42
1:A:341:TRP:CE3	3:C:2:GLC:H61	2.56	0.41
1:A:555:VAL:O	1:A:559:GLN:HG2	2.21	0.41
1:A:10:ILE:HG12	1:A:60:ILE:HB	2.03	0.41
1:A:542:THR:CB	2:B:4:DPP:NG	2.84	0.40
4:A:601:GSH:HG12	4:A:601:GSH:C2	2.51	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	Chain Analysed Favoured Allowed		Outliers	s Percentiles		
1	A	431/443 (97%)	418 (97%)	13 (3%)	0	100	100
2	В	1/6 (17%)	1 (100%)	0	0	100	100
All	All	432/449 (96%)	419 (97%)	13 (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	320/361 (89%)	319 (100%)	1 (0%)	91	96		
2	В	2/2 (100%)	2 (100%)	0	100	100		
All	All	322/363 (89%)	321 (100%)	1 (0%)	91	96		

All (1) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	259	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	101	ASN
1	A	235	ASN

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Mol	Chain	Res	Type	
1	A	511	HIS	

#### 5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

2 non-standard protein/DNA/RNA residues 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	Chain	Chain	Chain	Res	Link	В	ond leng	$\operatorname{gths}$	В	ond ang	les
MIOI			nes	LIIIK	Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2			
2	DPP	В	4	2	4,5,6	0.64	0	1,5,7	0.08	0			
2	XYC	В	5	2	8,10,11	0.44	0	10,12,14	0.78	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.

$\mathbf{N}$	lol	Type	Chain	Res	Link	Chirals	Torsions	Rings
	2	DPP	В	4	2	-	0/2/4/6	-
	2	XYC	В	5	2	-	0/5/13/15	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 6 short contacts:



Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	В	4	DPP	6	0

#### 5.5 Carbohydrates (i)

2 monosaccharides 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	Dag	T inle	Bo	ond leng	ths	В	ond ang	cles
IVIOI	Type		Res	Link	Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
3	GLC	С	1	3	12,12,12	0.46	0	17,17,17	0.75	0
3	GLC	С	2	3	11,11,12	0.26	0	15,15,17	0.95	1 (6%)

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	GLC	С	1	3	-	0/2/22/22	0/1/1/1
3	GLC	С	2	3	-	0/2/19/22	0/1/1/1

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	$Observed(^o)$	$\operatorname{Ideal}({}^{o})$
3	С	2	GLC	C1-O5-C5	2.54	115.59	112.19

There are no chirality outliers.

There are no torsion outliers.

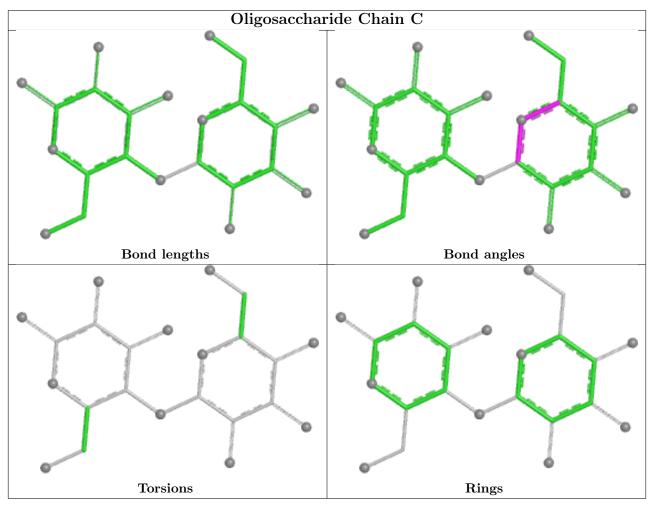
There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	$\operatorname{Res}$	Type	Clashes	Symm-Clashes
3	С	2	GLC	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 oligosaccharide.



### 5.6 Ligand geometry (i)

#### 1 ligand is 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	Tiple	Bond lengths			Bond angles		
MIOI	туре			Lilik	Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
4	GSH	A	601	-	18,19,19	0.73	0	21,24,24	0.88	1 (4%)

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
4	GSH	A	601	-	-	5/24/24/24	-

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	$Observed(^o)$	$\operatorname{Ideal}({}^{o})$
4	A	601	GSH	CA2-N2-CD1	2.29	127.43	121.68

There are no chirality outliers.

All (5) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	601	GSH	CG1-CD1-N2-CA2
4	A	601	GSH	OE1-CD1-N2-CA2
4	A	601	GSH	O12-C1-CA1-N1
4	A	601	GSH	O11-C1-CA1-N1
4	A	601	GSH	N2-CA2-CB2-SG2

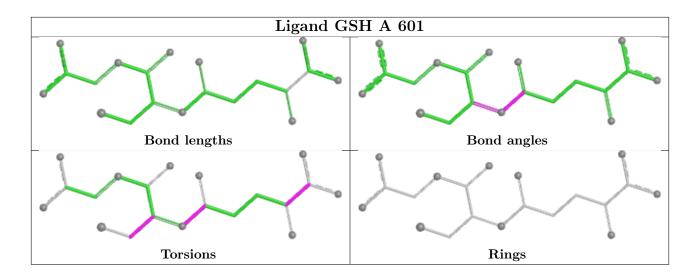
There are no ring outliers.

1 monomer is involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	601	GSH	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.





# 5.7 Other polymers (i)

There are no such residues in this entry.

## 5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.



## 6 Fit of model and data (i)

#### 6.1 Protein, DNA and RNA chains (i)

In the following table, the column labelled '#RSRZ>2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median,  $95^{th}$  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	$\langle { m RSRZ} \rangle$	# RSRZ > 2	$OWAB(A^2)$	Q < 0.9
1	A	433/443 (97%)	-0.07	9 (2%) 63 61	37, 55, 80, 94	0
2	В	2/6 (33%)	-0.13	0 100 100	62, 62, 62, 63	0
All	All	435/449 (96%)	-0.07	9 (2%) 63 61	37, 55, 80, 94	0

All (9) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	173	GLU	2.7
1	A	561	TYR	2.7
1	A	521	HIS	2.7
1	A	562	LEU	2.6
1	A	172	TYR	2.5
1	A	50	GLN	2.4
1	A	517	LEU	2.2
1	A	54	THR	2.1
1	A	206	ASN	2.0

### 6.2 Non-standard residues in protein, DNA, RNA chains (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.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	$\mathbf{B} ext{-}\mathbf{factors}(\mathbf{\mathring{A}}^2)$	Q<0.9
2	DPP	В	4	6/7	0.87	0.10	62,62,63,63	0
2	XYC	В	5	10/11	0.91	0.13	57,58,62,62	0

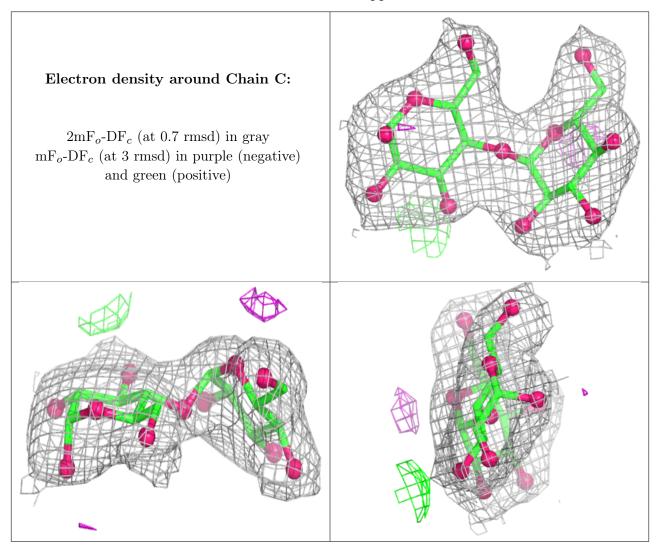


### 6.3 Carbohydrates (i)

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.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	$\mathbf{B} ext{-}\mathbf{factors}(\mathbf{\mathring{A}}^2)$	Q<0.9
3	GLC	С	1	12/12	0.95	0.08	44,44,44,44	0
3	GLC	С	2	11/12	0.97	0.06	43,44,44,44	0

The following is a graphical depiction of the model fit to experimental electron density for oligosaccharide. Each fit is shown from different orientation to approximate a three-dimensional view.



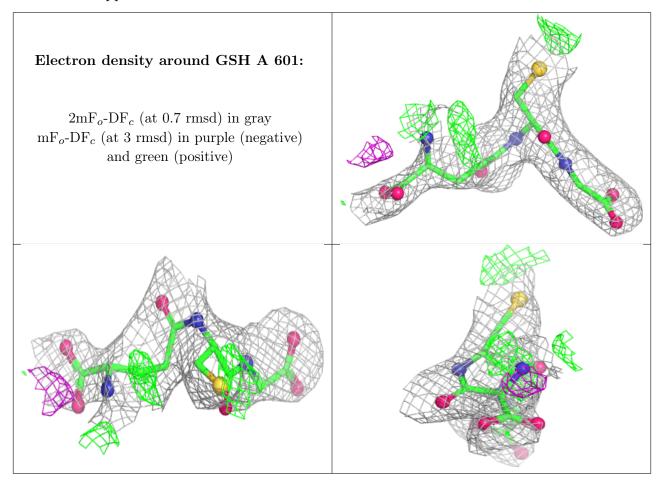


### 6.4 Ligands (i)

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.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	$\mathbf{B} ext{-}\mathbf{factors}(\mathring{\mathbf{A}}^2)$	Q<0.9
4	GSH	A	601	20/20	0.80	0.15	93,95,97,97	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.

