



# Full wwPDB X-ray Structure Validation Report ⓘ

Oct 31, 2018 – 07:40 am GMT

PDB ID : 3BC9  
Title : Alpha-amylase B in complex with acarbose  
Authors : Tan, T.-C.; Mijts, B.N.; Swaminathan, K.; Patel, B.K.C.; Divne, C.  
Deposited on : 2007-11-12  
Resolution : 1.35 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467  
Mogul : 1.7.3 (157068), CSD as539be (2018)  
Xtrriage (Phenix) : 1.13  
EDS : trunk31572  
Percentile statistics : 20171227.v01 (using entries in the PDB archive December 27th 2017)  
Refmac : 5.8.0158  
CCP4 : 7.0 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : trunk31572

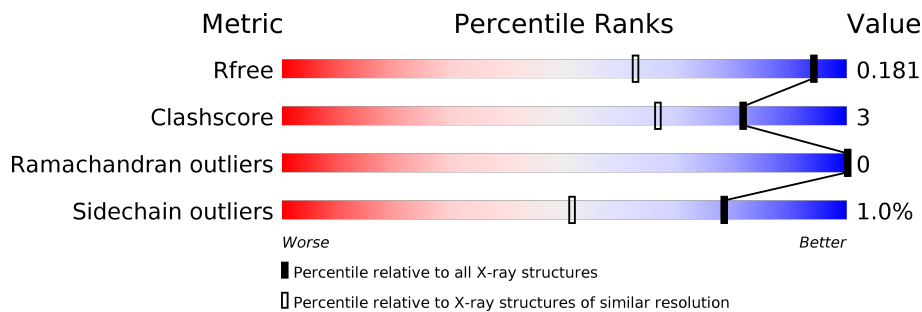
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 1.35 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))
$R_{free}$	111664	1197 (1.38-1.34)
Clashscore	122126	1232 (1.38-1.34)
Ramachandran outliers	120053	1215 (1.38-1.34)
Sidechain outliers	120020	1215 (1.38-1.34)

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 on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. 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  $\leq 5\%$ .

Mol	Chain	Length	Quality of chain
1	A	599	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	GLC	A	1002	X	-	-	-
7	ACR	A	901	X	-	-	-

## 2 Entry composition [i](#)

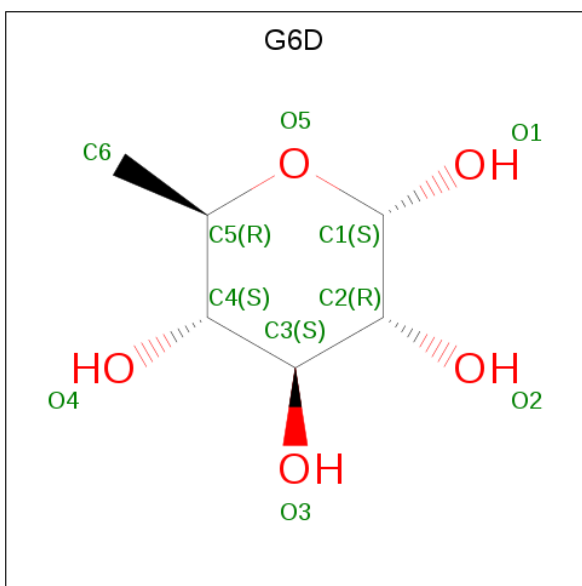
There are 10 unique types of molecules in this entry. The entry contains 5566 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Alpha amylase, catalytic region.

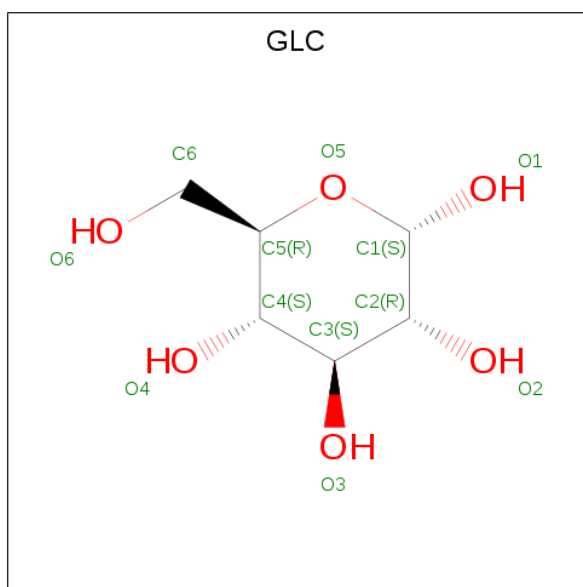
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	585	4822	3071	780	959	12	0	9	0

- Molecule 2 is 6-DEOXY-ALPHA-D-GLUCOSE (three-letter code: G6D) (formula:  $C_6H_{12}O_5$ ).



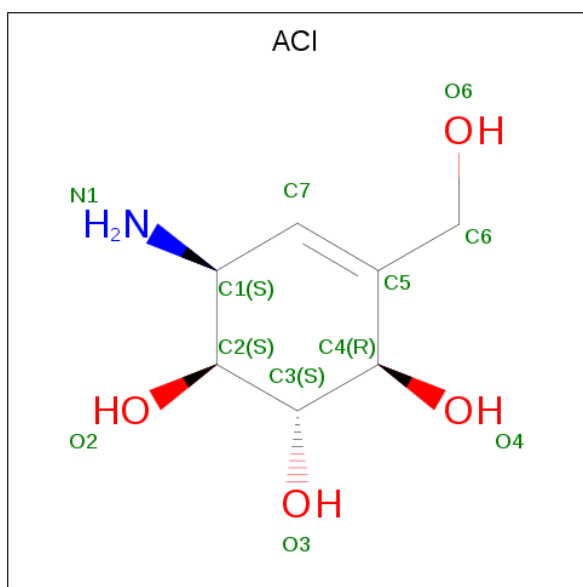
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
2	A	1	10	6	4	0	0

- Molecule 3 is ALPHA-D-GLUCOSE (three-letter code: GLC) (formula:  $C_6H_{12}O_6$ ).



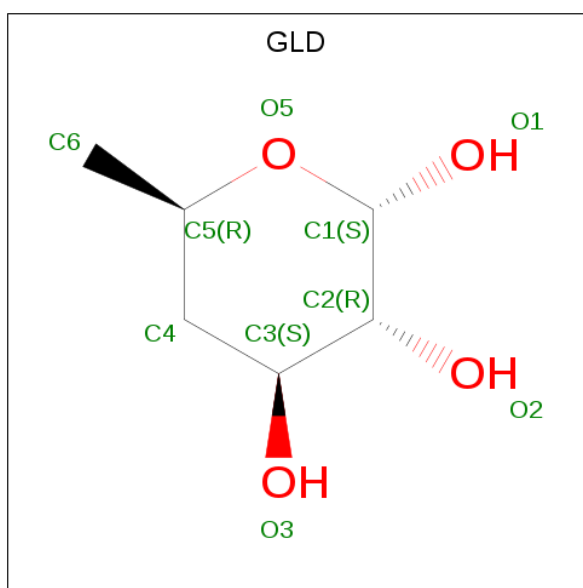
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 11 6 5	0	0
3	A	1	Total C O 11 6 5	0	0
3	A	1	Total C O 11 6 5	0	0
3	A	1	Total C O 12 6 6	0	0
3	A	1	Total C O 12 6 6	0	0

- Molecule 4 is 6-AMINO-4-HYDROXYMETHYL-CYCLOHEX-4-ENE-1,2,3-TRIOL (three-letter code: ACI) (formula: C<sub>7</sub>H<sub>13</sub>NO<sub>4</sub>).



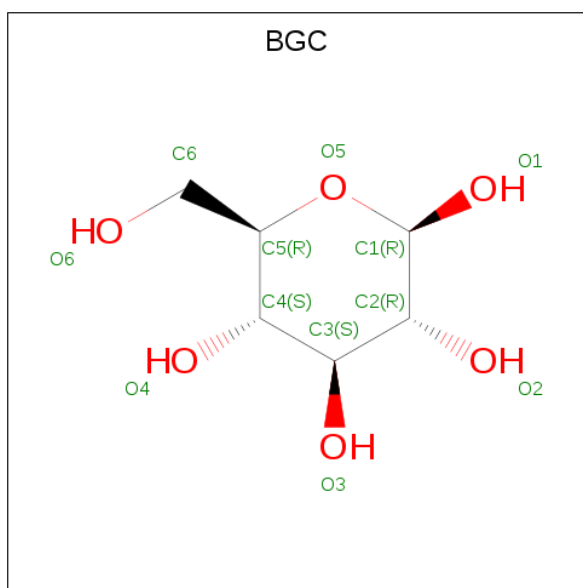
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	
			Total	C	N			O
4	A	1	12	7	1	4	0	0
4	A	1	12	7	1	4	0	0

- Molecule 5 is 4,6-DIDEOXYGLUCOSE (three-letter code: GLD) (formula:  $C_6H_{12}O_4$ ).



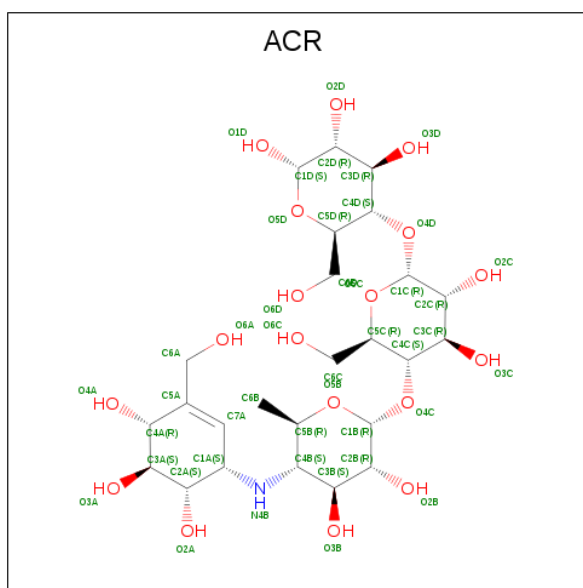
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
5	A	1	9	6	3	0	0
5	A	1	9	6	3	0	0

- Molecule 6 is BETA-D-GLUCOSE (three-letter code: BGC) (formula:  $C_6H_{12}O_6$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	A	1	Total	C	O	0	0
			12	6	6		

- Molecule 7 is ALPHA-ACARBOSE (three-letter code: ACR) (formula:  $C_{25}H_{43}NO_{18}$ ).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
7	A	1	Total	C	N	O	0	0
			44	25	1	18		

- Molecule 8 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	4	Total Ca 4 4	0	0

- Molecule 9 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
9	A	1	Total Na 1 1	0	0

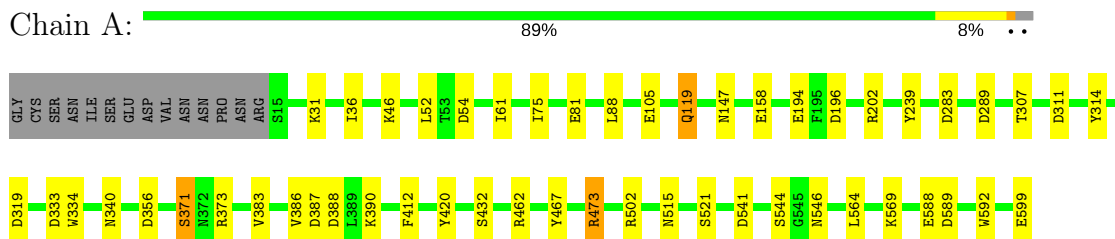
- Molecule 10 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
10	A	574	Total O 574 574	0	0

### 3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA 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. 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. 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: Alpha amylase, catalytic region





## 4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	227.85Å 77.24Å 50.38Å 90.00° 98.63° 90.00°	Depositor
Resolution (Å)	30.00 – 1.35 29.71 – 1.35	Depositor EDS
% Data completeness (in resolution range)	99.2 (30.00-1.35) 99.2 (29.71-1.35)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	0.08	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.96 (at 1.35Å)	Xtriage
Refinement program	REFMAC 5.2.0019	Depositor
R, $R_{free}$	0.151 , 0.178 0.160 , 0.181	Depositor DCC
$R_{free}$ test set	1877 reflections (1.00%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	13.0	Xtriage
Anisotropy	0.667	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	(Not available) , (Not available)	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.48$ , $\langle L^2 \rangle = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
$F_o, F_c$ correlation	0.97	EDS
Total number of atoms	5566	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	20.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.35% 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: BGC, NA, ACI, GLC, GLD, G6D, ACR, CA

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	1.05	5/4955 (0.1%)	1.04	19/6751 (0.3%)

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	1

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	588	GLU	CB-CG	-5.91	1.41	1.52
1	A	334	TRP	CZ3-CH2	-5.57	1.31	1.40
1	A	158	GLU	CB-CG	-5.51	1.41	1.52
1	A	194	GLU	CB-CG	-5.23	1.42	1.52
1	A	194	GLU	CG-CD	-5.11	1.44	1.51

All (19) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	502	ARG	NE-CZ-NH2	10.12	125.36	120.30
1	A	356	ASP	CB-CG-OD2	8.58	126.03	118.30
1	A	502	ARG	NE-CZ-NH1	-8.33	116.13	120.30
1	A	283	ASP	CB-CG-OD2	7.88	125.39	118.30
1	A	467	TYR	CB-CG-CD1	7.84	125.70	121.00
1	A	54	ASP	CB-CG-OD1	7.34	124.91	118.30
1	A	467	TYR	CB-CG-CD2	-7.03	116.78	121.00
1	A	473	ARG	NE-CZ-NH2	-6.83	116.88	120.30

*Continued on next page...*

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	283	ASP	CB-CG-OD1	-6.15	112.77	118.30
1	A	319	ASP	CB-CG-OD1	-6.12	112.79	118.30
1	A	412	PHE	CB-CG-CD2	6.00	125.00	120.80
1	A	54	ASP	CB-CG-OD2	-5.81	113.07	118.30
1	A	311	ASP	CB-CG-OD1	5.56	123.31	118.30
1	A	462	ARG	NE-CZ-NH2	-5.48	117.56	120.30
1	A	541	ASP	CB-CG-OD2	5.45	123.20	118.30
1	A	420	TYR	CB-CG-CD2	5.42	124.25	121.00
1	A	46	LYS	CD-CE-NZ	5.41	124.15	111.70
1	A	31	LYS	CD-CE-NZ	5.31	123.92	111.70
1	A	196	ASP	CB-CG-OD2	5.04	122.83	118.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	314	TYR	Sidechain

## 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	4822	0	4443	26	0
2	A	10	0	1	0	0
3	A	57	0	50	4	0
4	A	24	0	22	0	0
5	A	18	0	18	0	0
6	A	12	0	11	0	0
7	A	44	0	43	0	0
8	A	4	0	0	0	0
9	A	1	0	0	0	0
10	A	574	0	0	5	1
All	All	5566	0	4588	27	1

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 3.

All (27) 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:52:LEU:HD23	1:A:61[B]:ILE:HD12	1.48	0.95
1:A:105:GLU:OE1	1:A:569:LYS:HE2	1.89	0.72
1:A:599:GLU:O	10:A:1558:HOH:O	2.09	0.70
1:A:371:SER:HB3	10:A:1402:HOH:O	1.99	0.63
1:A:307:THR:H	3:A:1001:GLC:H62	1.67	0.59
1:A:52:LEU:CD2	1:A:61[B]:ILE:HD12	2.28	0.59
1:A:119:GLN:O	1:A:119:GLN:HG3	2.05	0.56
1:A:383:VAL:CG1	1:A:388:ASP:HB3	2.36	0.55
1:A:340:ASN:OD1	1:A:371:SER:HB2	2.05	0.55
1:A:371:SER:OG	1:A:373[A]:ARG:HB3	2.07	0.54
1:A:75:ILE:HD13	1:A:88:LEU:HD21	1.92	0.52
1:A:307:THR:H	3:A:1001:GLC:C6	2.25	0.50
1:A:81:GLU:OE2	10:A:1471:HOH:O	2.19	0.49
1:A:36:ILE:HG21	1:A:88:LEU:HD22	1.96	0.48
1:A:515:ASN:HD21	1:A:521:SER:H	1.61	0.47
1:A:147:ASN:HD21	1:A:202:ARG:HH12	1.61	0.47
1:A:386[A]:VAL:HG13	10:A:1135:HOH:O	2.14	0.47
3:A:1001:GLC:O4	3:A:1001:GLC:O6	2.22	0.47
1:A:147:ASN:ND2	1:A:202:ARG:HH12	2.14	0.46
1:A:544:SER:OG	1:A:546:ASN:OD1	2.17	0.46
1:A:589:ASP:O	1:A:592[A]:TRP:CZ3	2.70	0.45
1:A:515:ASN:ND2	1:A:521:SER:H	2.14	0.45
1:A:239:TYR:CD1	3:A:1002:GLC:H2	2.53	0.43
1:A:333:ASP:OD1	10:A:1461:HOH:O	2.22	0.43
1:A:390:LYS:HD2	1:A:432[B]:SER:OG	2.19	0.43
1:A:386[A]:VAL:HG23	1:A:387:ASP:N	2.34	0.43
1:A:36:ILE:HG21	1:A:88:LEU:CD2	2.49	0.41

All (1) 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)
10:A:1384:HOH:O	10:A:1405:HOH:O[4_555]	2.07	0.13

## 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	592/599 (99%)	577 (98%)	15 (2%)	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	513/517 (99%)	508 (99%)	5 (1%)	78 51

All (5) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	119	GLN
1	A	289	ASP
1	A	371	SER
1	A	473	ARG
1	A	564	LEU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	32	ASN
1	A	85	ASN
1	A	127	GLN

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
1	A	147	ASN
1	A	248	ASN
1	A	515	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 carbohydrates in this entry.

### 5.6 Ligand geometry [i](#)

Of 17 ligands modelled in this entry, 5 are monoatomic - leaving 12 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
3	GLC	A	1001	-	12,12,12	0.99	0	17,17,17	2.69	5 (29%)
3	GLC	A	1002	-	12,12,12	0.50	0	17,17,17	2.17	6 (35%)
2	G6D	A	801	3	9,10,11	1.08	1 (11%)	13,14,16	1.35	3 (23%)
3	GLC	A	802	2,4	11,11,12	1.09	0	15,15,17	2.12	7 (46%)
4	ACI	A	803	3,5	10,12,12	1.62	2 (20%)	13,17,17	1.49	3 (23%)
5	GLD	A	804	3,4	9,9,10	1.37	1 (11%)	11,12,14	1.89	2 (18%)
3	GLC	A	805	5,4	11,11,12	0.96	0	15,15,17	1.58	4 (26%)
4	ACI	A	806	3,5	10,12,12	2.47	6 (60%)	13,17,17	2.55	4 (30%)
5	GLD	A	807	3,4	9,9,10	1.08	0	11,12,14	2.50	3 (27%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
3	GLC	A	808	5,6	11,11,12	1.07	0	15,15,17	1.24	1 (6%)
6	BGC	A	809	3	12,12,12	1.11	0	17,17,17	1.39	2 (11%)
7	ACR	A	901	-	45,47,47	0.68	0	61,70,70	1.30	10 (16%)

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	A	1001	-	-	0/2/22/22	0/1/1/1
3	GLC	A	1002	-	1/1/5/5	0/2/22/22	0/1/1/1
2	G6D	A	801	3	-	0/0/17/20	0/1/1/1
3	GLC	A	802	2,4	-	0/2/19/22	0/1/1/1
4	ACI	A	803	3,5	-	0/2/22/22	0/1/1/1
5	GLD	A	804	3,4	-	0/0/13/16	0/1/1/1
3	GLC	A	805	5,4	-	0/2/19/22	0/1/1/1
4	ACI	A	806	3,5	-	0/2/22/22	0/1/1/1
5	GLD	A	807	3,4	-	0/0/13/16	0/1/1/1
3	GLC	A	808	5,6	-	0/2/19/22	0/1/1/1
6	BGC	A	809	3	-	0/2/22/22	0/1/1/1
7	ACR	A	901	-	1/1/20/22	0/18/98/98	0/4/4/4

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	804	GLD	O5-C1	-3.40	1.38	1.43
4	A	806	ACI	C3-C4	-3.08	1.48	1.53
2	A	801	G6D	O2-C2	-2.32	1.38	1.43
4	A	806	ACI	C1-C7	2.14	1.55	1.49
4	A	806	ACI	O6-C6	2.67	1.50	1.41
4	A	806	ACI	O2-C2	2.70	1.49	1.43
4	A	803	ACI	C7-C5	2.81	1.36	1.32
4	A	803	ACI	O4-C4	3.21	1.48	1.42
4	A	806	ACI	C1-N1	3.68	1.59	1.47
4	A	806	ACI	C7-C5	3.70	1.38	1.32

All (50) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	1001	GLC	C4-C3-C2	-6.87	98.78	110.83

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	806	ACI	O6-C6-C5	-6.36	96.90	112.59
5	A	807	GLD	C3-C4-C5	-6.22	101.64	111.27
3	A	1001	GLC	C6-C5-C4	-6.11	98.55	112.99
5	A	807	GLD	O5-C5-C4	-4.04	105.16	109.34
6	A	809	BGC	C3-C4-C5	-3.34	104.26	110.24
3	A	808	GLC	C2-C3-C4	-3.08	105.52	110.87
3	A	805	GLC	C2-C3-C4	-3.05	105.58	110.87
3	A	805	GLC	O5-C1-C2	-3.02	106.08	110.78
3	A	802	GLC	O2-C2-C3	-3.00	104.33	110.19
3	A	1002	GLC	C4-C3-C2	-2.89	105.77	110.83
3	A	802	GLC	C3-C4-C5	-2.87	105.11	110.24
6	A	809	BGC	C1-O5-C5	-2.85	108.21	113.69
3	A	802	GLC	O4-C4-C3	-2.74	103.95	110.34
3	A	1001	GLC	O3-C3-C4	-2.62	104.23	110.34
3	A	802	GLC	O5-C1-C2	-2.61	106.71	110.78
4	A	803	ACI	C7-C1-N1	-2.47	106.29	110.83
4	A	806	ACI	C2-C3-C4	-2.42	106.78	110.41
7	A	901	ACR	O5C-C1C-C2C	-2.39	105.21	110.34
7	A	901	ACR	O2D-C2D-C3D	-2.39	104.76	110.34
7	A	901	ACR	C7A-C1A-N4B	-2.37	107.45	110.88
5	A	807	GLD	C6-C5-C4	-2.34	109.64	113.38
2	A	801	G6D	O2-C2-C3	-2.30	105.71	110.19
7	A	901	ACR	C6A-C5A-C7A	-2.27	117.28	123.17
7	A	901	ACR	O6A-C6A-C5A	-2.23	107.10	112.59
3	A	802	GLC	O3-C3-C2	-2.22	105.91	110.04
2	A	801	G6D	O3-C3-C2	-2.20	105.94	110.04
7	A	901	ACR	C2A-C3A-C4A	-2.08	107.29	110.41
3	A	805	GLC	O4-C4-C3	-2.00	105.67	110.34
4	A	803	ACI	O4-C4-C3	2.08	114.61	110.39
3	A	1002	GLC	C1-O5-C5	2.08	117.70	113.69
4	A	803	ACI	C6-C5-C4	2.11	119.48	115.78
7	A	901	ACR	O3A-C3A-C4A	2.15	113.46	109.56
3	A	802	GLC	O2-C2-C1	2.19	113.59	109.17
3	A	1001	GLC	O2-C2-C1	2.24	114.40	109.14
3	A	1002	GLC	O5-C5-C6	2.36	112.36	106.43
7	A	901	ACR	C2D-C3D-C4D	2.42	115.25	109.68
2	A	801	G6D	C1-C2-C3	2.59	112.94	109.66
7	A	901	ACR	C6A-C5A-C4A	2.86	120.79	115.78
3	A	805	GLC	C1-O5-C5	2.88	116.14	112.19
3	A	1002	GLC	O5-C5-C4	3.06	115.30	109.69
7	A	901	ACR	O2D-C2D-C1D	3.11	116.44	109.14
4	A	806	ACI	C2-C1-N1	3.24	117.98	111.40

*Continued on next page...*



*Continued from previous page...*

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	802	GLC	C1-C2-C3	3.75	114.41	109.66
5	A	804	GLD	O5-C5-C6	3.76	111.75	106.18
3	A	1001	GLC	O5-C5-C4	4.30	117.58	109.69
3	A	1002	GLC	O1-C1-O5	4.39	123.67	110.44
5	A	804	GLD	C1-O5-C5	4.45	118.02	111.63
4	A	806	ACI	C7-C1-N1	4.48	119.03	110.83
3	A	1002	GLC	O1-C1-C2	4.78	122.65	109.02

All (2) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
7	A	901	ACR	C1D
3	A	1002	GLC	C1

There are no torsion outliers.

There are no ring outliers.

2 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	1001	GLC	3	0
3	A	1002	GLC	1	0

## 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](#)

Unable to reproduce the depositors R factor - this section is therefore empty.

### 6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

Unable to reproduce the depositors R factor - this section is therefore empty.

### 6.3 Carbohydrates [i](#)

Unable to reproduce the depositors R factor - this section is therefore empty.

### 6.4 Ligands [i](#)

Unable to reproduce the depositors R factor - this section is therefore empty.

### 6.5 Other polymers [i](#)

Unable to reproduce the depositors R factor - this section is therefore empty.