



# Full wwPDB X-ray Structure Validation Report ⓘ

May 24, 2020 – 05:44 pm BST

PDB ID : 6IA5  
Title : Crystal Structure Analysis of Bacillus subtilis 168 XepA  
Authors : Freitag-Pohl, S.; Pohl, E.  
Deposited on : 2018-11-26  
Resolution : 1.88 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 : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.11  
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) : 2.11

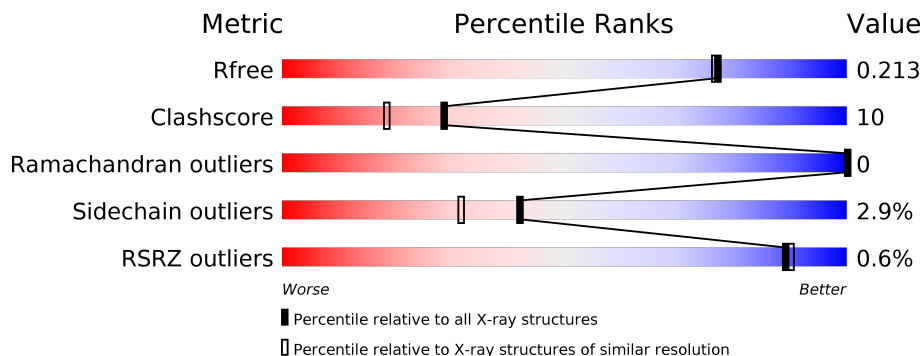
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 1.88 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	9470 (1.90-1.86)
Clashscore	141614	10282 (1.90-1.86)
Ramachandran outliers	138981	10152 (1.90-1.86)
Sidechain outliers	138945	10152 (1.90-1.86)
RSRZ outliers	127900	9303 (1.90-1.86)

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 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	279	
1	B	279	
1	C	279	
1	D	279	
1	E	279	

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:

<b>Mol</b>	<b>Type</b>	<b>Chain</b>	<b>Res</b>	<b>Chirality</b>	<b>Geometry</b>	<b>Clashes</b>	<b>Electron density</b>
2	GOL	E	301	-	-	X	-
3	ACT	A	305	-	-	X	-
3	ACT	B	303	-	-	X	-
3	ACT	B	305	-	-	X	-
3	ACT	C	305	-	-	X	-
3	ACT	C	306	-	-	X	-
3	ACT	D	303	-	-	X	-
3	ACT	D	305	-	-	X	-
3	ACT	E	304	-	-	X	-

## 2 Entry composition [i](#)

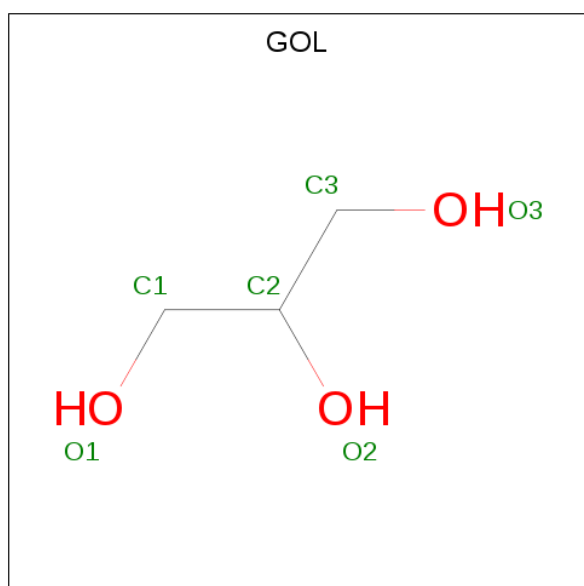
There are 4 unique types of molecules in this entry. The entry contains 12022 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Phage-like element PBSX protein XepA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	D	277	Total 2172	C 1389	N 367	O 412	S 4	0	11	0
1	A	278	Total 2171	C 1383	N 366	O 418	S 4	0	8	0
1	C	278	Total 2158	C 1371	N 366	O 417	S 4	0	4	0
1	B	277	Total 2164	C 1384	N 363	O 412	S 5	0	10	0
1	E	279	Total 2171	C 1387	N 368	O 412	S 4	0	9	0

- Molecule 2 is GLYCEROL (three-letter code: GOL) (formula: C<sub>3</sub>H<sub>8</sub>O<sub>3</sub>).



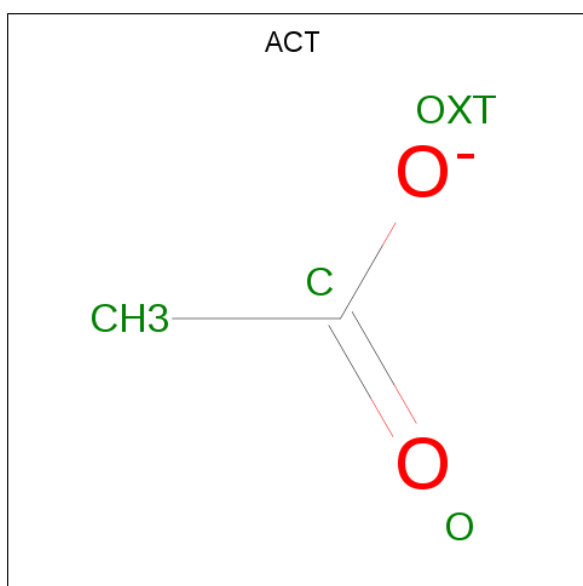
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
2	D	1	Total 12	C 6	O 6	0	1

*Continued on next page...*

Continued from previous page...

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	D	1	Total	C	O	0	0
			6	3	3		
2	A	1	Total	C	O	0	0
			6	3	3		
2	A	1	Total	C	O	0	0
			6	3	3		
2	A	1	Total	C	O	0	0
			6	3	3		
2	C	1	Total	C	O	0	0
			6	3	3		
2	C	1	Total	C	O	0	0
			6	3	3		
2	C	1	Total	C	O	0	0
			6	3	3		
2	C	1	Total	C	O	0	0
			6	3	3		
2	B	1	Total	C	O	0	0
			6	3	3		
2	E	1	Total	C	O	0	0
			6	3	3		

- Molecule 3 is ACETATE ION (three-letter code: ACT) (formula: C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>).



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

Continued on next page...

*Continued from previous page...*

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

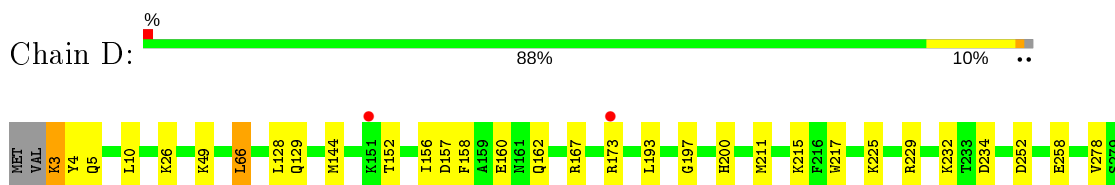
- Molecule 4 is water.

<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>		<b>ZeroOcc</b>	<b>AltConf</b>
4	D	229	Total 229	O 229	0	0
4	A	212	Total 212	O 212	0	0
4	C	172	Total 172	O 172	0	0
4	B	211	Total 211	O 211	0	0
4	E	202	Total 202	O 202	0	0

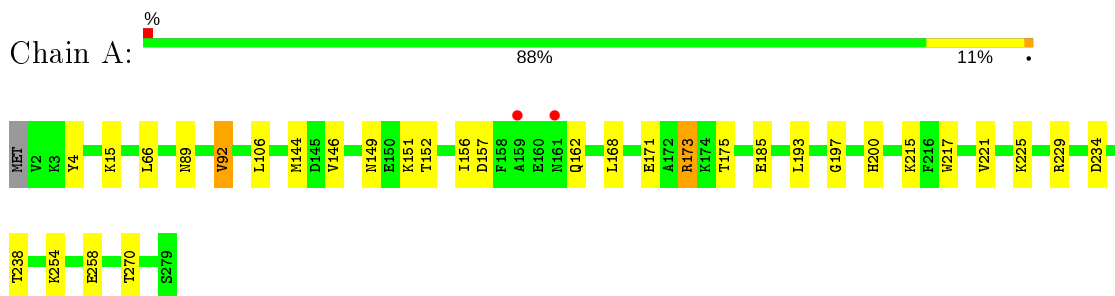
### 3 Residue-property plots [i](#)

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 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.

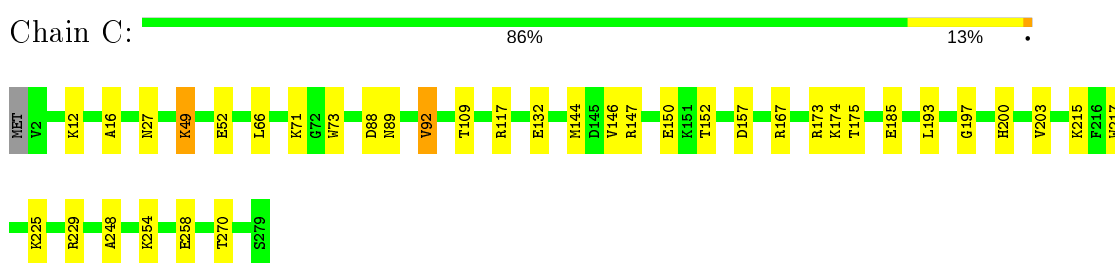
- Molecule 1: Phage-like element PBSX protein XepA



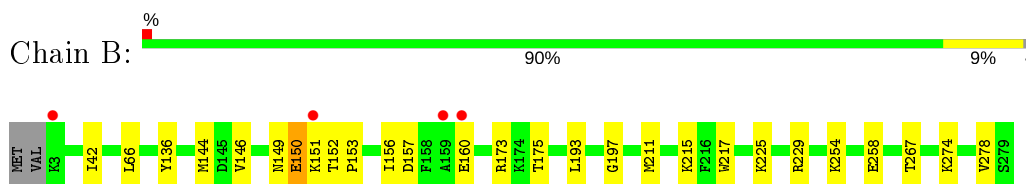
- Molecule 1: Phage-like element PBSX protein XepA



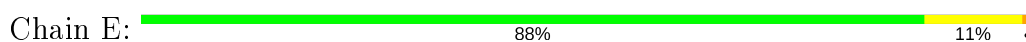
- Molecule 1: Phage-like element PBSX protein XepA



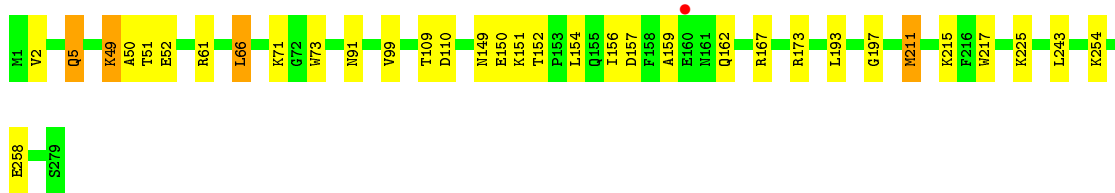
- Molecule 1: Phage-like element PBSX protein XepA



- Molecule 1: Phage-like element PBSX protein XepA







## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	90.61Å 126.03Å 151.46Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	96.88 – 1.88 96.88 – 2.09	Depositor EDS
% Data completeness (in resolution range)	70.9 (96.88-1.88) 92.9 (96.88-2.09)	Depositor EDS
$R_{merge}$	0.09	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.32 (at 2.10Å)	Xtrriage
Refinement program	REFMAC 5.8.0230	Depositor
R, $R_{free}$	0.172 , 0.212 0.173 , 0.213	Depositor DCC
$R_{free}$ test set	4783 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	38.6	Xtrriage
Anisotropy	0.496	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.36 , 56.4	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	0.97	EDS
Total number of atoms	12022	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	42.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.42% 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: GOL, ACT

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	0.40	0/2237	0.67	0/3029
1	B	0.43	0/2235	0.68	0/3025
1	C	0.39	0/2211	0.66	0/2992
1	D	0.42	0/2247	0.71	0/3042
1	E	0.41	0/2238	0.68	0/3027
All	All	0.41	0/11168	0.68	0/15115

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
1	C	0	1
1	D	0	1
1	E	0	1
All	All	0	4

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	173	ARG	Sidechain
1	C	167	ARG	Sidechain
1	D	167	ARG	Sidechain
1	E	167	ARG	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	2171	0	2163	44	0
1	B	2164	0	2175	72	0
1	C	2158	0	2142	40	0
1	D	2172	0	2173	68	0
1	E	2171	0	2176	34	0
2	A	18	0	24	2	0
2	B	6	0	8	0	0
2	C	24	0	32	5	0
2	D	18	0	24	0	0
2	E	6	0	8	9	0
3	A	20	0	15	6	0
3	B	24	0	18	13	0
3	C	8	0	6	12	0
3	D	20	0	15	12	0
3	E	16	0	12	10	0
4	A	212	0	0	9	0
4	B	211	0	0	6	0
4	C	172	0	0	9	0
4	D	229	0	0	12	0
4	E	202	0	0	9	0
All	All	12022	0	10991	214	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 10.

All (214) 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:144[B]:MET:HE1	1:B:144[B]:MET:SD	1.40	1.58
1:A:144[B]:MET:CE	1:B:144[B]:MET:SD	2.05	1.45
1:D:144[B]:MET:CE	1:B:144[B]:MET:SD	2.15	1.34
1:D:144[B]:MET:HE1	1:B:144[B]:MET:SD	1.65	1.34
1:D:144[B]:MET:CE	1:B:144[B]:MET:CE	2.07	1.33
1:D:144[B]:MET:HE2	1:B:144[B]:MET:CE	1.60	1.31
1:A:144[B]:MET:SD	1:C:144[B]:MET:CE	2.28	1.21

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:144[B]:MET:SD	1:C:144[B]:MET:HE1	1.87	1.14
1:A:144[B]:MET:SD	1:C:144[B]:MET:HE3	1.92	1.09
1:D:144[B]:MET:HG2	1:B:144[B]:MET:CE	1.84	1.06
3:D:303:ACT:H2	3:E:304:ACT:H1	1.37	1.06
1:D:144[B]:MET:HG2	1:B:144[B]:MET:HE2	1.30	1.05
1:D:144[B]:MET:HE2	1:B:144[B]:MET:HE2	1.11	1.03
1:B:175[B]:THR:HG22	1:B:278[B]:VAL:HG12	1.40	1.03
1:D:144[B]:MET:CG	1:B:144[B]:MET:HE2	1.92	1.00
1:D:144[B]:MET:CE	1:B:144[B]:MET:HE2	1.79	0.99
1:D:173[B]:ARG:HD2	1:D:278[B]:VAL:CG1	1.93	0.98
1:B:173[B]:ARG:HH21	1:B:175[B]:THR:HG21	1.28	0.97
1:D:144[B]:MET:HE2	1:B:144[B]:MET:SD	1.91	0.97
1:A:144[B]:MET:HE2	1:B:144[B]:MET:SD	2.03	0.96
1:A:221:VAL:HG21	1:B:274:LYS:HB2	1.48	0.93
1:D:173[B]:ARG:HD2	1:D:278[B]:VAL:HG12	1.51	0.92
1:C:73:TRP:HE1	2:E:301:GOL:H32	1.33	0.91
1:D:144[B]:MET:SD	1:B:144[B]:MET:CE	2.59	0.90
1:D:144[B]:MET:CG	1:B:144[B]:MET:CE	2.49	0.89
1:D:278[B]:VAL:HG11	1:B:254[B]:LYS:HD2	1.54	0.89
1:A:92[A]:VAL:HG13	2:A:303:GOL:H31	1.55	0.89
1:E:150:GLU:HB3	4:E:476:HOH:O	1.72	0.88
1:D:215:LYS:HE3	1:D:217:TRP:CZ2	2.09	0.87
1:D:197:GLY:HA2	1:E:173[B]:ARG:NE	1.89	0.87
3:C:305:ACT:H1	3:E:304:ACT:H3	1.56	0.86
3:C:305:ACT:H1	3:E:304:ACT:CH3	2.06	0.86
1:D:144[B]:MET:SD	1:B:144[B]:MET:HE1	2.16	0.86
1:D:173[B]:ARG:NH2	1:D:173[B]:ARG:HB2	1.92	0.85
1:A:144[B]:MET:CE	1:B:144[B]:MET:CG	2.54	0.83
3:D:303:ACT:H2	3:E:304:ACT:CH3	2.11	0.80
3:D:303:ACT:OXT	3:B:305:ACT:H1	1.81	0.80
3:A:305:ACT:H3	3:B:305:ACT:O	1.80	0.79
1:D:160:GLU:HB3	4:D:410:HOH:O	1.82	0.78
1:D:215:LYS:HE3	1:D:217:TRP:CH2	2.18	0.78
1:A:221:VAL:HG21	1:B:274:LYS:CB	2.14	0.77
1:C:92:VAL:HG13	2:C:303:GOL:H32	1.67	0.77
1:D:232[B]:LYS:CE	4:D:452:HOH:O	2.32	0.77
1:C:71:LYS:NZ	2:E:301:GOL:H12	1.99	0.76
3:C:306:ACT:H1	1:B:149:ASN:HD21	1.49	0.76
1:D:173[B]:ARG:HB2	1:D:173[B]:ARG:HH21	1.51	0.74
3:A:305:ACT:CH3	3:B:305:ACT:O	2.36	0.73
3:C:306:ACT:CH3	1:B:149:ASN:HD21	2.02	0.72

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:302:ACT:H2	4:B:584:HOH:O	1.88	0.72
1:D:232[B]:LYS:HE3	4:D:452:HOH:O	1.88	0.72
1:B:175[B]:THR:CG2	1:B:278[B]:VAL:HG12	2.19	0.71
1:E:49:LYS:HD3	1:E:52:GLU:OE1	1.91	0.71
1:D:278[B]:VAL:CG1	1:B:254[B]:LYS:HD2	2.20	0.70
1:C:49:LYS:HD3	1:C:52:GLU:OE1	1.90	0.69
1:D:173[A]:ARG:CZ	1:B:197:GLY:HA2	2.22	0.69
1:B:173[B]:ARG:NH2	1:B:175[B]:THR:HG21	2.04	0.69
1:D:144[B]:MET:SD	1:B:144[B]:MET:HE2	2.29	0.69
1:C:173[B]:ARG:CZ	1:E:197:GLY:HA2	2.23	0.68
3:D:305:ACT:H1	4:D:414:HOH:O	1.93	0.67
1:C:157:ASP:HA	1:E:162[A]:GLN:HE22	1.59	0.67
1:A:144[B]:MET:CE	1:B:144[B]:MET:HG2	2.25	0.66
1:C:71:LYS:HZ1	2:E:301:GOL:H12	1.59	0.66
1:B:211[B]:MET:HG3	1:B:267:THR:OG1	1.97	0.65
1:D:158:PHE:HB3	1:D:162:GLN:HG3	1.76	0.65
1:D:160:GLU:HG3	4:D:522:HOH:O	1.97	0.64
1:E:91:ASN:HB2	4:E:560:HOH:O	1.98	0.64
1:B:173[B]:ARG:HE	1:B:175[B]:THR:HG23	1.63	0.63
3:A:305:ACT:O	3:C:305:ACT:H2	1.99	0.63
1:A:197:GLY:HA2	1:B:173[B]:ARG:HD3	1.81	0.62
1:A:144[B]:MET:HE3	1:B:144[B]:MET:HG2	1.81	0.62
3:D:303:ACT:H1	3:B:305:ACT:H2	1.82	0.62
1:B:173[B]:ARG:NH1	4:B:401:HOH:O	2.33	0.62
4:D:581:HOH:O	2:C:302:GOL:H12	2.00	0.62
1:C:71:LYS:HZ1	2:E:301:GOL:C1	2.11	0.62
1:D:173[B]:ARG:NE	1:B:254[B]:LYS:HZ3	1.98	0.62
1:D:156[B]:ILE:CD1	1:E:156:ILE:HG21	2.31	0.61
1:D:173[B]:ARG:NE	1:B:254[B]:LYS:NZ	2.48	0.60
1:E:50:ALA:O	1:E:51:THR:HB	2.00	0.60
1:D:173[B]:ARG:CZ	1:B:254[B]:LYS:HZ3	2.14	0.60
3:D:303:ACT:CH3	3:B:305:ACT:H2	2.32	0.60
1:C:88[B]:ASP:HB2	2:C:303:GOL:O3	2.02	0.59
3:C:305:ACT:OXT	3:E:304:ACT:H3	2.03	0.59
1:A:144[B]:MET:HE2	1:B:144[B]:MET:CG	2.30	0.59
1:B:173[B]:ARG:HG2	4:B:528:HOH:O	2.01	0.58
4:C:536:HOH:O	1:E:154:LEU:CD2	2.52	0.58
1:D:173[B]:ARG:HD2	1:D:278[B]:VAL:HG13	1.82	0.58
1:C:73:TRP:NE1	2:E:301:GOL:H32	2.11	0.58
1:D:128:LEU:HD23	3:D:305:ACT:H2	1.84	0.58
3:C:306:ACT:H1	1:B:149:ASN:ND2	2.18	0.58

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:305:ACT:CH3	3:E:304:ACT:H3	2.30	0.58
3:C:305:ACT:OXT	3:E:304:ACT:CH3	2.52	0.58
1:D:229[B]:ARG:HG2	4:E:447:HOH:O	2.02	0.58
1:C:27:ASN:O	2:C:302:GOL:H31	2.04	0.57
1:D:173[A]:ARG:NH2	1:B:197:GLY:HA2	2.19	0.57
3:D:303:ACT:OXT	3:B:305:ACT:CH3	2.52	0.57
1:B:173[B]:ARG:HE	1:B:175[B]:THR:CG2	2.17	0.57
3:A:305:ACT:O	3:C:305:ACT:CH3	2.52	0.57
1:A:200[B]:HIS:CE1	4:A:562:HOH:O	2.57	0.57
1:E:61:ARG:HH22	2:E:301:GOL:C3	2.18	0.57
1:A:173:ARG:HH11	1:A:173:ARG:HG3	1.70	0.57
1:D:4:TYR:HB3	4:E:444:HOH:O	2.03	0.57
1:B:42[B]:ILE:HG12	1:B:136:TYR:CZ	2.40	0.56
1:D:197:GLY:HA2	1:E:173[B]:ARG:CZ	2.35	0.56
1:E:99[B]:VAL:HG21	1:E:109:THR:HG22	1.88	0.56
1:C:73:TRP:HE1	2:E:301:GOL:C3	2.11	0.56
1:D:156[B]:ILE:HD12	1:B:156:ILE:HG21	1.86	0.56
1:B:211[A]:MET:HG3	4:B:402:HOH:O	2.05	0.55
1:C:73:TRP:CZ2	1:E:66:LEU:HD22	2.42	0.55
1:A:254:LYS:HE3	4:A:562:HOH:O	2.05	0.55
1:C:175:THR:HG22	4:C:406:HOH:O	2.05	0.55
1:A:221:VAL:CG2	1:B:274:LYS:HB2	2.27	0.55
4:D:401:HOH:O	1:B:254[B]:LYS:HE3	2.07	0.54
4:C:536:HOH:O	1:E:154:LEU:HD23	2.06	0.54
1:D:66[A]:LEU:HD22	1:E:73:TRP:CZ2	2.41	0.54
1:B:175[A]:THR:HG22	4:B:469:HOH:O	2.07	0.54
1:B:215:LYS:HE2	3:B:306:ACT:C	2.39	0.53
1:D:173[B]:ARG:CZ	1:B:254[B]:LYS:NZ	2.72	0.53
1:D:252:ASP:HB2	3:D:307:ACT:H1	1.91	0.52
1:A:89:ASN:HD21	1:A:92[A]:VAL:HG12	1.74	0.52
1:A:229[B]:ARG:NH1	1:A:238:THR:HG21	2.24	0.52
1:D:173[B]:ARG:NH1	1:B:254[B]:LYS:HZ3	2.07	0.52
1:A:157:ASP:HB2	1:B:153:PRO:HB2	1.92	0.51
1:D:173[B]:ARG:HE	1:B:254[B]:LYS:HZ3	1.58	0.51
1:C:71:LYS:CE	2:E:301:GOL:H12	2.40	0.51
1:C:89:ASN:HD21	1:C:92:VAL:HG12	1.75	0.51
3:D:303:ACT:C	3:B:305:ACT:H1	2.40	0.51
1:D:26[A]:LYS:NZ	4:D:404:HOH:O	2.43	0.51
1:D:200[B]:HIS:ND1	4:D:401:HOH:O	2.35	0.51
1:D:156[B]:ILE:HG12	1:E:156:ILE:HG23	1.91	0.51
1:D:156[B]:ILE:HD11	1:E:156:ILE:HG21	1.91	0.51

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:173:ARG:HD2	1:C:197:GLY:HA2	1.92	0.50
4:C:563:HOH:O	1:E:254[A]:LYS:HE3	2.10	0.50
1:E:150:GLU:CB	4:E:476:HOH:O	2.46	0.50
1:C:173[B]:ARG:NE	1:E:197:GLY:HA2	2.27	0.50
3:B:303:ACT:H2	1:E:71:LYS:NZ	2.27	0.50
1:A:15:LYS:HD2	4:A:430:HOH:O	2.12	0.50
1:D:173[A]:ARG:HH21	1:D:173[A]:ARG:HG2	1.75	0.50
1:A:175[A]:THR:HG22	4:A:462:HOH:O	2.12	0.50
1:D:173[A]:ARG:HG2	1:D:173[A]:ARG:NH2	2.25	0.50
1:D:144[B]:MET:CE	1:B:144[B]:MET:HE1	2.22	0.49
1:E:211:MET:HG3	4:E:403:HOH:O	2.12	0.49
1:A:92[A]:VAL:HG22	2:A:303:GOL:H12	1.93	0.48
1:D:144[B]:MET:CG	1:B:144[B]:MET:HE1	2.35	0.48
1:C:12:LYS:HE3	1:E:5[B]:GLN:NE2	2.29	0.48
1:B:150:GLU:CD	1:B:150:GLU:H	2.16	0.48
1:C:200:HIS:HB2	4:C:563:HOH:O	2.14	0.48
1:D:4:TYR:HD2	4:E:444:HOH:O	1.97	0.48
3:A:305:ACT:H3	3:B:305:ACT:C	2.44	0.48
1:D:197:GLY:HA2	1:E:173[B]:ARG:HE	1.75	0.47
3:C:305:ACT:CH3	3:E:304:ACT:CH3	2.88	0.47
3:B:303:ACT:H1	1:E:110:ASP:HA	1.97	0.47
1:E:149:ASN:OD1	1:E:151:LYS:HB3	2.14	0.47
1:D:211:MET:HE2	4:D:481:HOH:O	2.14	0.47
1:C:175:THR:HG21	4:E:585:HOH:O	2.15	0.46
3:D:305:ACT:CH3	4:D:414:HOH:O	2.55	0.46
1:C:185:GLU:HG2	1:C:270:THR:HG22	1.97	0.46
1:D:3:LYS:N	4:D:408:HOH:O	2.47	0.46
3:A:306:ACT:H2	4:A:595:HOH:O	2.15	0.46
1:B:149:ASN:OD1	1:B:151:LYS:HB3	2.16	0.46
1:D:234:ASP:O	1:B:229:ARG:HD2	2.16	0.46
1:A:4:TYR:HB3	4:A:489:HOH:O	2.17	0.45
1:A:215:LYS:HD3	1:A:217:TRP:CZ2	2.52	0.45
1:D:144[B]:MET:CG	1:B:146:VAL:HG12	2.47	0.45
1:B:217:TRP:CE3	1:B:225:LYS:HB3	2.52	0.45
1:E:215:LYS:HD3	1:E:217:TRP:CZ2	2.52	0.45
1:A:197:GLY:HA2	1:B:173[B]:ARG:CD	2.47	0.44
1:D:66[A]:LEU:HD22	1:E:73:TRP:CE2	2.52	0.44
1:B:144[B]:MET:HE3	1:B:144[B]:MET:HB2	1.85	0.44
1:C:215:LYS:HD3	1:C:217:TRP:CZ2	2.52	0.44
1:A:200[B]:HIS:HE1	4:A:562:HOH:O	1.96	0.44
4:C:536:HOH:O	1:E:154:LEU:HD22	2.16	0.44

*Continued on next page...*



*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:147:ARG:HD2	4:E:565:HOH:O	2.17	0.44
1:D:217:TRP:CE3	1:D:225:LYS:HB3	2.53	0.44
4:C:540:HOH:O	1:E:159:ALA:HB2	2.18	0.44
1:A:200[B]:HIS:ND1	1:C:254:LYS:HE3	2.32	0.43
1:C:71:LYS:HE2	2:E:301:GOL:H12	2.00	0.43
3:D:303:ACT:C	3:B:305:ACT:CH3	2.96	0.43
1:A:106:LEU:HD22	1:C:117:ARG:HA	2.01	0.43
1:B:215:LYS:HD3	1:B:217:TRP:CZ2	2.53	0.43
1:C:71:LYS:HE3	1:C:109:THR:O	2.19	0.43
1:B:193:LEU:O	1:B:258:GLU:HA	2.19	0.43
1:C:132:GLU:HG3	4:C:557:HOH:O	2.19	0.43
1:D:144[B]:MET:HG3	1:B:146:VAL:HG12	2.00	0.43
1:C:193:LEU:O	1:C:258:GLU:HA	2.19	0.43
1:A:200[B]:HIS:ND1	4:A:403:HOH:O	2.36	0.43
1:A:185:GLU:HG2	1:A:270:THR:HG22	2.01	0.43
1:C:16:ALA:O	2:C:301:GOL:H32	2.18	0.43
1:A:234:ASP:O	1:C:229[A]:ARG:HD2	2.19	0.42
1:D:200[A]:HIS:HB3	1:D:278[A]:VAL:CG2	2.49	0.42
1:A:146:VAL:HG12	1:B:144[B]:MET:HG3	2.01	0.42
1:A:197:GLY:CA	1:B:173[B]:ARG:NH1	2.82	0.42
1:B:211[B]:MET:HE2	1:B:211[B]:MET:HB2	1.63	0.42
1:B:211[B]:MET:HB3	1:B:211[B]:MET:HE3	1.52	0.42
1:D:5:GLN:OE1	1:D:5:GLN:HA	2.19	0.42
1:A:162[B]:GLN:HG3	1:A:168:LEU:CD1	2.50	0.42
1:A:217:TRP:CE3	1:A:225:LYS:HB3	2.55	0.42
1:D:156[B]:ILE:HG12	1:E:156:ILE:CG2	2.49	0.42
1:E:193:LEU:O	1:E:258:GLU:HA	2.20	0.42
1:A:144[B]:MET:HG3	1:C:146:VAL:HG12	2.01	0.42
4:A:500:HOH:O	1:C:229[B]:ARG:HG2	2.19	0.42
1:B:173[B]:ARG:CZ	4:B:401:HOH:O	2.67	0.41
1:A:197:GLY:C	1:B:173[B]:ARG:NH1	2.73	0.41
1:A:193:LEU:O	1:A:258:GLU:HA	2.20	0.41
1:D:173[A]:ARG:HH21	1:D:173[A]:ARG:CG	2.33	0.41
1:A:173:ARG:NH1	1:A:173:ARG:HG3	2.35	0.41
1:C:217:TRP:CE3	1:C:225:LYS:HB3	2.56	0.41
1:C:203:VAL:O	1:C:248:ALA:HA	2.21	0.41
1:D:193:LEU:O	1:D:258:GLU:HA	2.20	0.41
1:C:173[A]:ARG:NH2	4:C:410:HOH:O	2.52	0.40
1:E:215:LYS:HE2	3:E:302:ACT:C	2.51	0.40
3:C:305:ACT:C	3:E:304:ACT:H3	2.51	0.40
1:D:144[B]:MET:HE1	1:A:144[B]:MET:CE	2.51	0.40

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:149:ASN:OD1	1:A:151:LYS:HB3	2.22	0.40
1:E:217:TRP:CE3	1:E:225:LYS:HB3	2.57	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	284/279 (102%)	277 (98%)	7 (2%)	0	100	100
1	B	285/279 (102%)	278 (98%)	7 (2%)	0	100	100
1	C	280/279 (100%)	273 (98%)	7 (2%)	0	100	100
1	D	286/279 (102%)	281 (98%)	5 (2%)	0	100	100
1	E	286/279 (102%)	280 (98%)	6 (2%)	0	100	100
All	All	1421/1395 (102%)	1389 (98%)	32 (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	227/222 (102%)	221 (97%)	6 (3%)	46	36
1	B	226/222 (102%)	221 (98%)	5 (2%)	52	43

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	224/222 (101%)	218 (97%)	6 (3%)	44	34
1	D	225/222 (101%)	216 (96%)	9 (4%)	31	19
1	E	223/222 (100%)	214 (96%)	9 (4%)	31	19
All	All	1125/1110 (101%)	1090 (97%)	35 (3%)	42	29

All (35) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	3	LYS
1	D	10	LEU
1	D	49	LYS
1	D	66[A]	LEU
1	D	66[B]	LEU
1	D	129[A]	GLN
1	D	129[B]	GLN
1	D	152	THR
1	D	157	ASP
1	A	66	LEU
1	A	92[A]	VAL
1	A	92[B]	VAL
1	A	152	THR
1	A	156	ILE
1	A	171	GLU
1	C	49	LYS
1	C	66	LEU
1	C	92	VAL
1	C	150	GLU
1	C	152	THR
1	C	174	LYS
1	B	66	LEU
1	B	150	GLU
1	B	152	THR
1	B	157	ASP
1	B	160	GLU
1	E	2	VAL
1	E	5[A]	GLN
1	E	5[B]	GLN
1	E	49	LYS
1	E	66	LEU
1	E	152	THR
1	E	157	ASP

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
1	E	211	MET
1	E	243	LEU

Some 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 carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

34 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
3	ACT	A	308	-	1,3,3	2.16	1 (100%)	0,3,3	0.00	-
3	ACT	B	303	-	1,3,3	0.17	0	0,3,3	0.00	-
2	GOL	C	304	-	5,5,5	0.58	0	5,5,5	0.36	0
3	ACT	B	306	-	1,3,3	1.61	0	0,3,3	0.00	-
3	ACT	D	305	-	1,3,3	1.54	0	0,3,3	0.00	-
3	ACT	C	305	-	1,3,3	2.15	1 (100%)	0,3,3	0.00	-
3	ACT	B	305	-	1,3,3	1.07	0	0,3,3	0.00	-
2	GOL	A	302	-	5,5,5	0.56	0	5,5,5	0.96	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
3	ACT	E	303	-	1,3,3	0.25	0	0,3,3	0.00	-
3	ACT	D	303	-	1,3,3	2.55	1 (100%)	0,3,3	0.00	-
2	GOL	B	301	-	5,5,5	0.24	0	5,5,5	0.58	0
2	GOL	A	301	-	5,5,5	0.26	0	5,5,5	0.72	0
3	ACT	E	302	-	1,3,3	1.07	0	0,3,3	0.00	-
3	ACT	C	306	-	1,3,3	0.54	0	0,3,3	0.00	-
3	ACT	A	307	-	1,3,3	1.76	0	0,3,3	0.00	-
3	ACT	B	307	-	1,3,3	1.80	0	0,3,3	0.00	-
3	ACT	E	304	-	1,3,3	1.67	0	0,3,3	0.00	-
2	GOL	D	302	-	5,5,5	0.45	0	5,5,5	1.74	1 (20%)
2	GOL	D	301[B]	-	5,5,5	0.40	0	5,5,5	0.41	0
3	ACT	A	305	-	1,3,3	2.22	1 (100%)	0,3,3	0.00	-
2	GOL	C	301	-	5,5,5	0.17	0	5,5,5	0.53	0
3	ACT	A	306	-	1,3,3	1.35	0	0,3,3	0.00	-
2	GOL	D	301[A]	-	5,5,5	0.46	0	5,5,5	0.61	0
2	GOL	C	303	-	5,5,5	0.18	0	5,5,5	0.74	0
2	GOL	A	303	-	5,5,5	0.39	0	5,5,5	0.45	0
3	ACT	B	302	-	1,3,3	2.56	1 (100%)	0,3,3	0.00	-
3	ACT	A	304	-	1,3,3	3.79	1 (100%)	0,3,3	0.00	-
3	ACT	E	305	-	1,3,3	2.78	1 (100%)	0,3,3	0.00	-
2	GOL	E	301	-	5,5,5	0.89	0	5,5,5	1.84	1 (20%)
3	ACT	D	306	-	1,3,3	2.07	1 (100%)	0,3,3	0.00	-
3	ACT	D	304	-	1,3,3	2.94	1 (100%)	0,3,3	0.00	-
3	ACT	B	304	-	1,3,3	1.78	0	0,3,3	0.00	-
2	GOL	C	302	-	5,5,5	0.21	0	5,5,5	1.11	0
3	ACT	D	307	-	1,3,3	2.67	1 (100%)	0,3,3	0.00	-

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	GOL	C	303	-	-	4/4/4/4	-
2	GOL	A	303	-	-	0/4/4/4	-
2	GOL	C	304	-	-	4/4/4/4	-
2	GOL	D	302	-	-	4/4/4/4	-
2	GOL	E	301	-	-	4/4/4/4	-
2	GOL	D	301[B]	-	-	2/4/4/4	-

*Continued on next page...*

*Continued from previous page...*

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	GOL	B	301	-	-	4/4/4/4	-
2	GOL	A	301	-	-	4/4/4/4	-
2	GOL	C	301	-	-	2/4/4/4	-
2	GOL	C	302	-	-	2/4/4/4	-
2	GOL	D	301[A]	-	-	2/4/4/4	-
2	GOL	A	302	-	-	0/4/4/4	-

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	304	ACT	CH3-C	3.79	1.53	1.48
3	D	304	ACT	CH3-C	2.94	1.52	1.48
3	E	305	ACT	CH3-C	2.78	1.52	1.48
3	D	307	ACT	CH3-C	2.67	1.52	1.48
3	B	302	ACT	CH3-C	2.56	1.52	1.48
3	D	303	ACT	CH3-C	2.55	1.52	1.48
3	A	305	ACT	CH3-C	2.22	1.51	1.48
3	A	308	ACT	CH3-C	2.16	1.51	1.48
3	C	305	ACT	CH3-C	2.15	1.51	1.48
3	D	306	ACT	CH3-C	2.07	1.51	1.48

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	302	GOL	O3-C3-C2	-3.44	93.69	110.20
2	E	301	GOL	C3-C2-C1	-3.31	98.84	111.70

There are no chirality outliers.

All (32) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	C	304	GOL	O1-C1-C2-O2
2	C	304	GOL	O1-C1-C2-C3
2	C	304	GOL	C1-C2-C3-O3
2	C	304	GOL	O2-C2-C3-O3
2	B	301	GOL	C1-C2-C3-O3
2	A	301	GOL	C1-C2-C3-O3
2	D	302	GOL	O1-C1-C2-C3
2	D	301[B]	GOL	C1-C2-C3-O3
2	C	301	GOL	C1-C2-C3-O3

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	Atoms
2	D	301[A]	GOL	O1-C1-C2-O2
2	D	301[A]	GOL	O1-C1-C2-C3
2	C	303	GOL	O1-C1-C2-C3
2	C	303	GOL	C1-C2-C3-O3
2	E	301	GOL	O1-C1-C2-O2
2	E	301	GOL	O1-C1-C2-C3
2	E	301	GOL	C1-C2-C3-O3
2	D	302	GOL	O1-C1-C2-O2
2	A	301	GOL	O1-C1-C2-C3
2	D	302	GOL	C1-C2-C3-O3
2	C	302	GOL	C1-C2-C3-O3
2	D	302	GOL	O2-C2-C3-O3
2	C	303	GOL	O1-C1-C2-O2
2	E	301	GOL	O2-C2-C3-O3
2	B	301	GOL	O2-C2-C3-O3
2	D	301[B]	GOL	O2-C2-C3-O3
2	C	301	GOL	O2-C2-C3-O3
2	C	303	GOL	O2-C2-C3-O3
2	C	302	GOL	O2-C2-C3-O3
2	A	301	GOL	O1-C1-C2-O2
2	A	301	GOL	O2-C2-C3-O3
2	B	301	GOL	O1-C1-C2-O2
2	B	301	GOL	O1-C1-C2-C3

There are no ring outliers.

18 monomers are involved in 49 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	303	ACT	2	0
3	B	306	ACT	1	0
3	D	305	ACT	3	0
3	C	305	ACT	9	0
3	B	305	ACT	9	0
3	D	303	ACT	8	0
3	E	302	ACT	1	0
3	C	306	ACT	3	0
3	E	304	ACT	9	0
3	A	305	ACT	5	0
2	C	301	GOL	1	0
3	A	306	ACT	1	0
2	C	303	GOL	2	0
2	A	303	GOL	2	0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	302	ACT	1	0
2	E	301	GOL	9	0
2	C	302	GOL	2	0
3	D	307	ACT	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](#)

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	278/279 (99%)	-0.01	2 (0%) 87 88	24, 38, 64, 105	0
1	B	277/279 (99%)	0.04	4 (1%) 75 77	24, 38, 68, 103	0
1	C	278/279 (99%)	0.01	0 100 100	25, 42, 67, 83	0
1	D	277/279 (99%)	-0.01	2 (0%) 87 88	25, 34, 60, 101	0
1	E	279/279 (100%)	-0.01	1 (0%) 92 93	25, 40, 63, 98	0
All	All	1389/1395 (99%)	0.00	9 (0%) 89 90	24, 39, 65, 105	0

All (9) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	151	LYS	4.2
1	A	161	ASN	3.6
1	B	159	ALA	3.4
1	A	159	ALA	3.1
1	B	151	LYS	3.0
1	B	160	GLU	2.5
1	D	173[A]	ARG	2.2
1	B	3	LYS	2.0
1	E	160	GLU	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 carbohydrates 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	GOL	C	304	6/6	0.74	0.18	58,71,80,81	0
3	ACT	D	304	4/4	0.76	0.14	58,64,64,65	0
3	ACT	D	307	4/4	0.76	0.19	69,83,83,84	0
3	ACT	E	302	4/4	0.80	0.13	56,65,66,66	0
3	ACT	A	307	4/4	0.81	0.18	75,82,83,88	0
3	ACT	D	306	4/4	0.81	0.15	65,69,73,75	0
2	GOL	E	301	6/6	0.84	0.32	49,53,58,58	0
3	ACT	B	304	4/4	0.85	0.18	55,62,68,72	0
3	ACT	E	303	4/4	0.85	0.14	64,66,71,73	0
2	GOL	D	301[A]	6/6	0.86	0.22	27,43,46,50	6
2	GOL	D	301[B]	6/6	0.86	0.22	33,35,37,37	6
3	ACT	A	304	4/4	0.87	0.17	50,57,57,60	0
3	ACT	A	308	4/4	0.88	0.16	58,70,76,76	0
2	GOL	A	303	6/6	0.89	0.23	52,55,58,68	0
2	GOL	D	302	6/6	0.91	0.16	42,47,49,54	0
2	GOL	C	302	6/6	0.91	0.17	46,58,66,68	0
3	ACT	B	306	4/4	0.91	0.08	58,59,62,69	0
2	GOL	C	303	6/6	0.92	0.20	57,65,68,75	0
3	ACT	E	305	4/4	0.92	0.14	63,64,65,70	0
3	ACT	D	303	4/4	0.93	0.21	37,63,68,73	0
2	GOL	A	302	6/6	0.93	0.10	38,48,52,52	0
3	ACT	D	305	4/4	0.94	0.08	55,64,67,68	0
3	ACT	B	307	4/4	0.94	0.11	52,53,68,76	0
3	ACT	E	304	4/4	0.94	0.31	42,48,55,57	0
3	ACT	C	305	4/4	0.94	0.16	41,54,60,62	0
3	ACT	A	306	4/4	0.95	0.14	44,48,50,64	0
3	ACT	B	305	4/4	0.95	0.21	41,47,59,60	0
2	GOL	A	301	6/6	0.95	0.19	59,61,67,69	0
3	ACT	A	305	4/4	0.95	0.13	50,57,64,67	0
2	GOL	B	301	6/6	0.96	0.15	57,59,63,66	0
3	ACT	B	302	4/4	0.96	0.18	34,37,40,54	0
2	GOL	C	301	6/6	0.97	0.15	54,57,62,64	0
3	ACT	C	306	4/4	0.97	0.18	40,44,47,55	0
3	ACT	B	303	4/4	0.98	0.15	38,40,49,58	0

## 6.5 Other polymers

There are no such residues in this entry.