



# Full wwPDB X-ray Structure Validation Report ⓘ

Feb 1, 2016 – 07:41 AM GMT

PDB ID : 3BTV  
Title : Crystal structure of the super-repressor mutant of Gal80p from *Saccharomyces cerevisiae*; Gal80(S0)-[G301R]  
Authors : Kumar, P.R.; Joshua-Tor, L.  
Deposited on : 2007-12-31  
Resolution : 2.10 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  
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>  
with specific help available everywhere you see the ⓘ symbol.

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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 : 1.7 (RC4), CSD as536be (2015)  
Xtriage (Phenix) : 1.9-1692  
EDS : rb-20026688  
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)  
Refmac : 5.8.0135  
CCP4 : 6.5.0  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : trunk26865

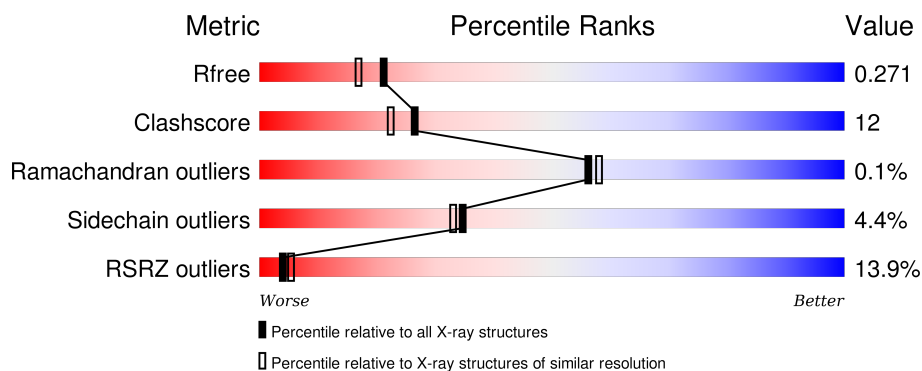
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

## *X-RAY DIFFRACTION*

The reported resolution of this entry is 2.10 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	91344	3939 (2.10-2.10)
Clashscore	102246	4460 (2.10-2.10)
Ramachandran outliers	100387	4413 (2.10-2.10)
Sidechain outliers	100360	4414 (2.10-2.10)
RSRZ outliers	91569	3948 (2.10-2.10)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments 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  $\leq 5\%$ . 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	438	 7% 63% 24% • 11%
1	B	438	 18% 63% 25% • 11%

## 2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 6380 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 Galactose/lactose metabolism regulatory protein GAL80.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	390	Total	C	N	O	S	0	4	0
			3107	1995	524	576	12			
1	B	392	Total	C	N	O	S	0	1	0
			3106	1999	519	576	12			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	GLY	-	EXPRESSION TAG	UNP P04387
A	-1	SER	-	EXPRESSION TAG	UNP P04387
A	0	HIS	-	EXPRESSION TAG	UNP P04387
A	301	ARG	GLY	ENGINEERED	UNP P04387
B	-2	GLY	-	EXPRESSION TAG	UNP P04387
B	-1	SER	-	EXPRESSION TAG	UNP P04387
B	0	HIS	-	EXPRESSION TAG	UNP P04387
B	301	ARG	GLY	ENGINEERED	UNP P04387

- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	113	Total	O	0	0
			113	113		
2	B	54	Total	O	0	0
			54	54		





## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	87.09Å 103.95Å 106.18Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	46.61 – 2.10 46.68 – 2.10	Depositor EDS
% Data completeness (in resolution range)	99.8 (46.61-2.10) 99.9 (46.68-2.10)	Depositor EDS
$R_{merge}$	0.08	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.20 (at 2.10Å)	Xtriage
Refinement program	PHENIX.REFINE	Depositor
R, $R_{free}$	0.215 , 0.257 0.236 , 0.271	Depositor DCC
$R_{free}$ test set	2865 reflections (5.04%)	DCC
Wilson B-factor (Å <sup>2</sup> )	42.5	Xtriage
Anisotropy	0.271	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.34 , 66.8	EDS
Estimated twinning fraction	0.012 for -h,l,k	Xtriage
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.33$	Xtriage
Outliers	1 of 56871 reflections (0.002%)	Xtriage
$F_o, F_c$ correlation	0.94	EDS
Total number of atoms	6380	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	65.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.41% 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, 0.375 respectively for untwinned datasets, and 0.333, 0.2 for perfectly twinned datasets.

## 5 Model quality

### 5.1 Standard geometry

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	0.41	0/3173	0.58	3/4297 (0.1%)
1	B	0.35	0/3173	0.56	3/4295 (0.1%)
All	All	0.38	0/6346	0.57	6/8592 (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

There are no bond length outliers.

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	346	GLY	N-CA-C	-7.79	93.62	113.10
1	B	281	GLY	C-N-CA	7.61	138.29	122.30
1	A	308	ASP	N-CA-C	-6.80	92.64	111.00
1	B	282	GLY	N-CA-C	-6.39	97.12	113.10
1	A	323	GLY	N-CA-C	-5.51	99.33	113.10
1	B	313	GLU	N-CA-C	-5.45	96.28	111.00

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	281	GLY	Peptide
1	A	346	GLY	Peptide

## 5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3107	0	3117	72	0
1	B	3106	0	3111	84	0
2	A	113	0	0	4	0
2	B	54	0	0	1	0
All	All	6380	0	6228	152	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 12.

All (152) 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:B:164:LEU:HD13	1:B:319:LEU:HD11	1.36	1.02
1:A:89:MET:HE1	1:A:372:ILE:HG21	1.40	1.01
1:A:46:GLN:HE21	1:A:46:GLN:H	1.14	0.96
1:B:46:GLN:HE21	1:B:46:GLN:H	1.14	0.96
1:B:286:LYS:HD3	1:B:289:THR:HG23	1.50	0.92
1:B:145:GLN:HE22	1:B:389:PHE:H	1.20	0.90
1:A:301[B]:ARG:NH1	1:A:319:LEU:HD21	1.97	0.80
1:A:301[B]:ARG:HG2	1:A:321:TYR:HB3	1.66	0.77
1:B:286:LYS:HD3	1:B:289:THR:CG2	2.17	0.75
1:B:151:GLN:HG3	1:B:365:ILE:HD12	1.68	0.74
1:A:301[A]:ARG:HG2	1:A:321:TYR:HB3	1.71	0.73
1:A:434:SER:HA	1:A:435:LEU:C	2.08	0.72
1:A:385:LEU:HD12	1:A:386:PRO:HD2	1.70	0.72
1:A:285:THR:HG23	1:B:322:SER:OG	1.90	0.72
1:A:295:ASP:OD2	1:A:304:LYS:HE2	1.89	0.71
1:A:375:PHE:O	1:A:378[B]:ASN:ND2	2.23	0.71
1:B:191:VAL:HA	1:B:242:LEU:HD22	1.73	0.71
1:B:189:ARG:O	1:B:242:LEU:HA	1.90	0.71
1:A:46:GLN:HE21	1:A:46:GLN:N	1.88	0.70
1:B:46:GLN:HE21	1:B:46:GLN:N	1.89	0.70
1:B:291:ASN:CB	1:B:308:ASP:HA	2.24	0.68
1:A:104:MET:HB2	1:A:105:PRO:HD3	1.76	0.67
1:B:382:ILE:O	1:B:382:ILE:HG13	1.95	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:378[B]:ASN:ND2	1:A:385:LEU:HD23	2.09	0.67
1:B:145:GLN:NE2	1:B:389:PHE:H	1.93	0.66
1:A:301[B]:ARG:HD3	1:A:319:LEU:HD11	1.77	0.66
1:B:104:MET:HB2	1:B:105:PRO:HD3	1.77	0.66
1:B:378:ASN:ND2	1:B:385:LEU:HD11	2.10	0.66
1:B:291:ASN:HB2	1:B:308:ASP:HA	1.78	0.65
1:A:363:GLY:O	1:A:367:ARG:HG3	1.95	0.65
1:A:137:LYS:O	1:A:141:GLU:HG2	1.98	0.63
1:B:381:LYS:O	1:B:383:PRO:HD3	1.97	0.63
1:A:433:TYR:HB2	2:A:542:HOH:O	1.99	0.62
1:A:145:GLN:HE22	1:A:389:PHE:H	1.49	0.61
1:B:343:TYR:CD2	1:B:343:TYR:N	2.67	0.61
1:A:123:TRP:CD2	1:A:124:ALA:HA	2.36	0.61
1:A:60:SER:O	1:A:64:ILE:HG13	2.01	0.60
1:A:153:ARG:HD2	1:A:400:PRO:HG3	1.83	0.60
1:B:60:SER:O	1:B:64:ILE:HG13	2.02	0.59
1:B:133:GLU:HG3	1:B:406:LEU:HD11	1.83	0.59
1:B:137:LYS:O	1:B:141:GLU:HG2	2.01	0.59
1:B:189:ARG:HD3	1:B:198:TYR:CE1	2.37	0.59
1:B:153:ARG:HD2	1:B:400:PRO:HG3	1.83	0.59
1:B:123:TRP:CD2	1:B:124:ALA:HA	2.38	0.59
1:A:263:LEU:HD22	1:B:276:SER:HB2	1.84	0.59
1:B:155:SER:HB3	1:B:158:ILE:HG12	1.85	0.58
1:A:90:ILE:HD13	1:A:106:LEU:HD21	1.84	0.58
1:B:292:LEU:HD12	1:B:314:ILE:CD1	2.34	0.57
1:B:107:LEU:O	1:B:110:SER:HB3	2.04	0.57
1:A:291:ASN:HB2	1:A:308:ASP:OD2	2.04	0.57
1:A:261:HIS:HD2	2:B:470:HOH:O	1.87	0.57
1:A:155:SER:HB3	1:A:158:ILE:HG12	1.85	0.57
1:A:196:TYR:CE1	1:A:197:ILE:HG22	2.40	0.56
1:B:145:GLN:NE2	1:B:388:GLN:HG3	2.21	0.56
1:B:37:TYR:HB3	1:B:38:PRO:HD3	1.88	0.56
2:A:505:HOH:O	1:B:261:HIS:HD2	1.87	0.55
1:A:385:LEU:HD12	1:A:386:PRO:CD	2.35	0.55
1:B:145:GLN:HE21	1:B:388:GLN:HA	1.72	0.55
1:A:181[B]:ASN:HD21	1:A:282:GLY:C	2.11	0.54
1:B:89:MET:HE1	1:B:372:ILE:HG21	1.88	0.54
1:A:107:LEU:O	1:A:110:SER:HB3	2.08	0.54
1:A:410:ARG:NH1	2:A:542:HOH:O	2.40	0.54
1:B:90:ILE:HD13	1:B:106:LEU:HD21	1.89	0.54
1:A:37:TYR:HB3	1:A:38:PRO:HD3	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:284:PRO:HB2	1:A:289:THR:OG1	2.09	0.53
1:A:348:GLU:OE1	1:B:287:LYS:HB3	2.08	0.53
1:B:169:TYR:CE2	1:B:319:LEU:HD13	2.44	0.52
1:B:291:ASN:HB3	1:B:308:ASP:HA	1.89	0.52
1:A:181[B]:ASN:OD1	1:A:282:GLY:O	2.28	0.52
1:A:133:GLU:HG3	1:A:406:LEU:HD11	1.91	0.52
1:B:164:LEU:CD1	1:B:319:LEU:HD11	2.26	0.51
1:B:277[A]:CYS:SG	1:B:279:PHE:CE2	3.04	0.51
1:A:305:LEU:HB3	1:A:314:ILE:CD1	2.41	0.51
1:B:19:ARG:NH1	1:B:86:THR:HA	2.26	0.51
1:B:177:GLU:OE1	1:B:297:HIS:NE2	2.37	0.51
1:B:22:PHE:CD1	1:B:25:LEU:HB2	2.46	0.50
1:A:277[A]:CYS:SG	1:A:279:PHE:CE2	3.04	0.50
1:A:378[B]:ASN:ND2	1:A:385:LEU:CD2	2.74	0.50
1:A:76:PRO:HD2	1:A:80:SER:OG	2.12	0.49
1:B:292:LEU:HD12	1:B:314:ILE:HD11	1.94	0.49
1:B:244:ASP:HB3	1:B:250:LEU:HD21	1.95	0.49
1:B:76:PRO:HD2	1:B:80:SER:OG	2.12	0.49
1:A:22:PHE:CD1	1:A:25:LEU:HB2	2.47	0.49
1:A:46:GLN:HG2	1:A:373:SER:OG	2.14	0.47
1:A:115:ASN:O	1:A:117:LYS:HG2	2.14	0.47
1:A:356:ARG:HA	1:A:357:ASN:HA	1.44	0.47
1:B:192:LYS:O	1:B:192:LYS:HG2	2.15	0.47
1:B:115:ASN:O	1:B:117:LYS:HG2	2.13	0.47
1:B:151:GLN:HG3	1:B:365:ILE:CD1	2.43	0.47
1:A:244:ASP:HB3	1:A:250:LEU:HD21	1.97	0.46
1:B:26:ASN:HB3	1:B:29:LYS:O	2.15	0.46
1:B:193:SER:HA	1:B:194:PRO:HD3	1.82	0.46
1:A:18:ILE:HD11	1:A:376:HIS:CD2	2.50	0.46
1:B:178:ILE:HD11	1:B:218:LEU:HD22	1.97	0.46
1:A:92:ILE:HG23	1:A:94:ILE:HG12	1.97	0.46
1:A:64:ILE:HA	1:A:69:LEU:HD12	1.98	0.46
1:A:145:GLN:NE2	1:A:388:GLN:HB2	2.31	0.46
1:A:26:ASN:HB3	1:A:29:LYS:O	2.16	0.46
1:B:373:SER:O	1:B:377:PHE:N	2.46	0.45
1:B:92:ILE:HG23	1:B:94:ILE:HG12	1.99	0.45
1:B:75:PHE:HA	1:B:76:PRO:HD3	1.79	0.45
1:B:356:ARG:O	1:B:357:ASN:HB2	2.16	0.45
1:B:194:PRO:HB2	1:B:197:ILE:HG13	1.97	0.45
1:A:435:LEU:HD23	2:A:542:HOH:O	2.16	0.45
1:B:64:ILE:HA	1:B:69:LEU:HD12	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:75:PHE:CE2	1:A:84:SER:HB2	2.52	0.44
1:A:169:TYR:O	1:A:301[B]:ARG:HD2	2.16	0.44
1:A:153:ARG:HD3	1:A:392:GLN:OE1	2.17	0.44
1:B:191:VAL:HB	1:B:250:LEU:CD1	2.47	0.44
1:A:90:ILE:HG22	1:A:92:ILE:HD12	2.00	0.44
1:A:75:PHE:HA	1:A:76:PRO:HD3	1.78	0.44
1:A:159:LEU:O	1:A:163:GLU:HG3	2.17	0.44
1:B:145:GLN:NE2	1:B:388:GLN:HA	2.32	0.43
1:A:276:SER:HB2	1:B:263:LEU:HD22	2.00	0.43
1:B:18:ILE:HD11	1:B:376:HIS:CD2	2.54	0.43
1:A:292:LEU:HD13	1:A:292:LEU:C	2.39	0.43
1:A:434:SER:CA	1:A:435:LEU:C	2.85	0.43
1:B:407:ILE:HG12	1:B:431:SER:HA	2.01	0.43
1:A:64:ILE:HG23	1:A:69:LEU:HB2	2.01	0.42
1:A:305:LEU:CD2	1:A:317:LEU:HD13	2.49	0.42
1:B:16:ALA:HB3	1:B:17:PRO:HD3	2.01	0.42
1:B:33:ILE:HG23	1:B:34:LYS:HG3	2.01	0.42
1:B:277[A]:CYS:SG	1:B:279:PHE:HE2	2.43	0.42
1:A:92:ILE:HD13	1:A:119:LEU:HD11	2.01	0.42
1:B:292:LEU:HD13	1:B:292:LEU:C	2.39	0.42
1:B:90:ILE:HG22	1:B:92:ILE:HD12	2.01	0.42
1:B:378:ASN:HD21	1:B:385:LEU:HD11	1.83	0.42
1:B:292:LEU:CD1	1:B:314:ILE:HD11	2.50	0.42
1:B:75:PHE:CE2	1:B:84:SER:HB2	2.55	0.42
1:A:170:ILE:CG2	1:A:298:GLY:HA3	2.50	0.42
1:B:82:ALA:HB3	1:B:109:PHE:HB2	2.01	0.42
1:A:277[A]:CYS:SG	1:A:279:PHE:HE2	2.43	0.42
1:A:82:ALA:HB3	1:A:109:PHE:HB2	2.02	0.42
1:B:97:ALA:HA	1:B:127:CYS:SG	2.60	0.41
1:A:384:GLU:O	1:A:385:LEU:C	2.58	0.41
1:B:277[A]:CYS:SG	1:B:279:PHE:CD2	3.14	0.41
1:B:267:THR:HA	1:B:273:VAL:O	2.21	0.41
1:B:139:ALA:O	1:B:142:ARG:HB3	2.20	0.41
1:B:64:ILE:HG23	1:B:69:LEU:HB2	2.02	0.41
1:A:78:LEU:HD11	1:A:106:LEU:HD12	2.03	0.41
1:B:305:LEU:HD22	1:B:314:ILE:HG21	2.02	0.41
1:B:361:ILE:O	1:B:365:ILE:HD13	2.20	0.41
1:B:78:LEU:HD11	1:B:106:LEU:HD12	2.02	0.41
1:B:169:TYR:HE2	1:B:319:LEU:HD13	1.83	0.41
1:B:123:TRP:CG	1:B:124:ALA:HA	2.55	0.41
1:A:139:ALA:O	1:A:142:ARG:HB3	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:145:GLN:HE22	1:B:389:PHE:N	2.00	0.40
1:A:158:ILE:CD1	1:A:217:ILE:HD12	2.51	0.40
1:B:373:SER:HA	1:B:376:HIS:HB3	2.03	0.40
1:A:97:ALA:HA	1:A:127:CYS:SG	2.60	0.40
1:B:154:LYS:HD3	1:B:154:LYS:HA	1.94	0.40
1:A:377:PHE:O	1:A:378[A]:ASN:C	2.59	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	386/438 (88%)	366 (95%)	19 (5%)	1 (0%)	46	45
1	B	385/438 (88%)	367 (95%)	18 (5%)	0	100	100
All	All	771/876 (88%)	733 (95%)	37 (5%)	1 (0%)	56	58

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	284	PRO

### 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	343/376 (91%)	326 (95%)	17 (5%)	30	27
1	B	341/376 (91%)	328 (96%)	13 (4%)	40	40
All	All	684/752 (91%)	654 (96%)	30 (4%)	35	33

All (30) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	22	PHE
1	A	46	GLN
1	A	59	THR
1	A	120	PHE
1	A	160	ARG
1	A	199	GLU
1	A	200	ILE
1	A	260	ASP
1	A	289	THR
1	A	293	VAL
1	A	362	VAL
1	A	373	SER
1	A	375	PHE
1	A	390	VAL
1	A	397	GLU
1	A	402	LEU
1	A	425	LEU
1	B	22	PHE
1	B	46	GLN
1	B	59	THR
1	B	120	PHE
1	B	200	ILE
1	B	260	ASP
1	B	289	THR
1	B	293	VAL
1	B	343	TYR
1	B	385	LEU
1	B	397	GLU
1	B	402	LEU
1	B	420	MET

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (22) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	46	GLN
1	A	71	ASN
1	A	95	GLN
1	A	112	ASN
1	A	115	ASN
1	A	145	GLN
1	A	202	ASN
1	A	230	ASN
1	A	252	GLN
1	A	261	HIS
1	A	265	GLN
1	B	46	GLN
1	B	71	ASN
1	B	95	GLN
1	B	112	ASN
1	B	115	ASN
1	B	145	GLN
1	B	202	ASN
1	B	230	ASN
1	B	252	GLN
1	B	265	GLN
1	B	366	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](#)

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](#)

There are no ligands in this entry.

## 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	390/438 (89%)	0.68	29 (7%) 17 24	28, 54, 107, 136	0
1	B	392/438 (89%)	1.28	80 (20%) 1 1	30, 67, 117, 157	0
All	All	782/876 (89%)	0.98	109 (13%) 4 5	28, 60, 112, 157	0

All (109) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	247	GLY	9.2
1	B	250	LEU	8.9
1	B	61	ILE	7.6
1	B	243	ILE	6.9
1	B	81	PHE	6.2
1	A	435	LEU	5.9
1	A	380	LYS	5.8
1	A	31	TRP	5.5
1	A	40	ILE	5.5
1	A	61	ILE	5.4
1	B	78	LEU	5.4
1	B	252	GLN	5.4
1	B	254	VAL	5.4
1	B	288	PHE	5.3
1	B	184	TRP	5.3
1	B	356	ARG	5.3
1	A	323	GLY	5.2
1	A	381	LYS	5.1
1	B	249	ARG	5.0
1	B	343	TYR	4.9
1	B	75	PHE	4.8
1	B	433	TYR	4.4
1	B	253	ARG	4.1
1	B	74	ALA	4.1

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Mol	Chain	Res	Type	RSRZ
1	A	29	LYS	4.1
1	B	245	GLU	4.1
1	B	69	LEU	3.9
1	B	52	LEU	3.9
1	B	59	THR	3.7
1	B	31	TRP	3.7
1	B	76	PRO	3.6
1	A	68	LYS	3.6
1	B	190	PRO	3.6
1	B	242	LEU	3.6
1	A	386	PRO	3.6
1	B	54	SER	3.6
1	B	387	SER	3.6
1	A	385	LEU	3.6
1	B	192	LYS	3.6
1	B	246	ARG	3.5
1	B	255	PRO	3.4
1	B	197	ILE	3.4
1	A	69	LEU	3.4
1	B	55	PRO	3.3
1	B	191	VAL	3.3
1	B	289	THR	3.3
1	B	244	ASP	3.2
1	B	56	LYS	3.2
1	B	77	THR	3.2
1	B	22	PHE	3.2
1	B	239	GLU	3.1
1	A	346	GLY	3.1
1	A	322	SER	3.1
1	B	381	LYS	3.0
1	A	64	ILE	3.0
1	A	289	THR	3.0
1	B	114	PRO	3.0
1	B	47	PHE	2.9
1	B	73	THR	2.9
1	B	88	ASP	2.9
1	B	287	LYS	2.8
1	B	105	PRO	2.8
1	A	141	GLU	2.8
1	B	72	ALA	2.8
1	A	387	SER	2.7
1	B	90	ILE	2.7

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Mol	Chain	Res	Type	RSRZ
1	B	195	LYS	2.7
1	A	379	THR	2.7
1	B	62	ALA	2.7
1	A	41	LEU	2.6
1	B	87	ILE	2.6
1	A	70	SER	2.6
1	B	112	ASN	2.6
1	B	63	THR	2.6
1	B	109	PHE	2.6
1	B	384	GLU	2.6
1	B	139	ALA	2.5
1	B	382	ILE	2.5
1	B	187	TYR	2.5
1	B	106	LEU	2.5
1	A	357	ASN	2.5
1	A	87	ILE	2.5
1	B	51	ALA	2.5
1	A	378[A]	ASN	2.5
1	B	248	ASN	2.5
1	B	100	TYR	2.5
1	B	23	VAL	2.4
1	B	53	TYR	2.4
1	B	198	TYR	2.3
1	B	79	GLU	2.3
1	B	60	SER	2.3
1	B	20	VAL	2.3
1	B	116	LEU	2.3
1	B	144	VAL	2.3
1	B	146	THR	2.3
1	B	58	GLU	2.2
1	B	386	PRO	2.2
1	A	389	PHE	2.2
1	A	143	GLY	2.2
1	B	141	GLU	2.2
1	B	40	ILE	2.2
1	A	308	ASP	2.1
1	B	397	GLU	2.1
1	B	102	VAL	2.1
1	B	241	GLU	2.1
1	B	251	GLY	2.1
1	B	275	VAL	2.1
1	A	109	PHE	2.0

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Mol	Chain	Res	Type	RSRZ
1	A	375	PHE	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](#)

There are no ligands in this entry.

## 6.5 Other polymers [i](#)

There are no such residues in this entry.