Full wwPDB X-ray Structure Validation Report (i)

Jul 8, 2025 – 10:37 pm BST

PDB ID	:	9IBN / pdb_00009ibn
Title	:	Crystal structure of the peptidyl-prolyl isomerase (PPIase) from E. faecium
Authors	:	Napolitano, V.; Kramarska, E.; Berisio, R.
Deposited on	:	2025-02-12
Resolution	:	2.48 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 (i)) were used in the production of this report:

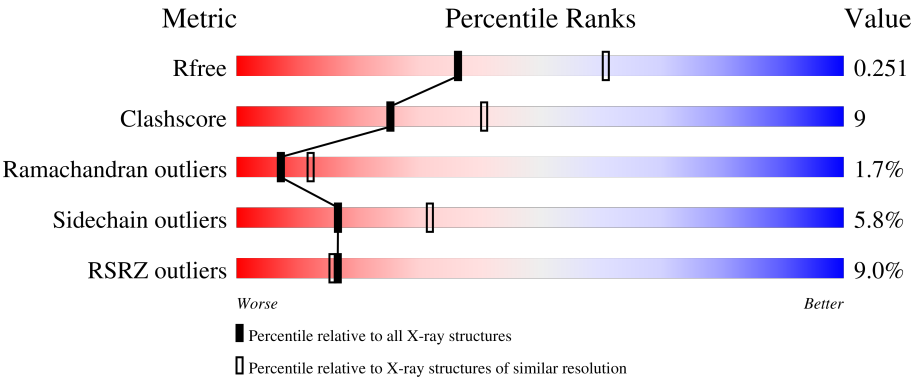
MolProbity	:	4-5-2 with Phenix2.0rc1
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	2.0rc1
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.44

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 2.48 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}	164625	7106 (2.50-2.46)
Clashscore	180529	7991 (2.50-2.46)
Ramachandran outliers	177936	7888 (2.50-2.46)
Sidechain outliers	177891	7890 (2.50-2.46)
RSRZ outliers	164620	7106 (2.50-2.46)

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	340	10% 60% 18% · 19%
1	B	340	5% 56% 21% · 20%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 4363 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.

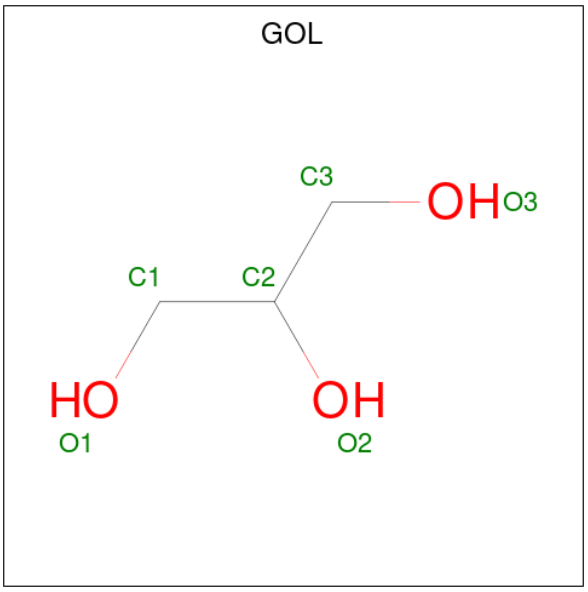
- Molecule 1 is a protein called Foldase protein PrsA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	275	Total	C	N	O	S	0	5	0
			2085	1296	338	447	4			
1	B	271	Total	C	N	O	S	0	3	0
			2136	1331	344	457	4			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-1	VAL	-	expression tag	UNP A0A132Z550
A	0	GLN	-	expression tag	UNP A0A132Z550
A	1	ILE	-	expression tag	UNP A0A132Z550
A	2	LEU	-	expression tag	UNP A0A132Z550
B	-1	VAL	-	expression tag	UNP A0A132Z550
B	0	GLN	-	expression tag	UNP A0A132Z550
B	1	ILE	-	expression tag	UNP A0A132Z550
B	2	LEU	-	expression tag	UNP A0A132Z550

- Molecule 2 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).



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

- Molecule 3 is CADMIUM ION (CCD ID: CD) (formula: Cd).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	4	Total Cd 4 4	0	0
3	B	11	Total Cd 11 11	0	0

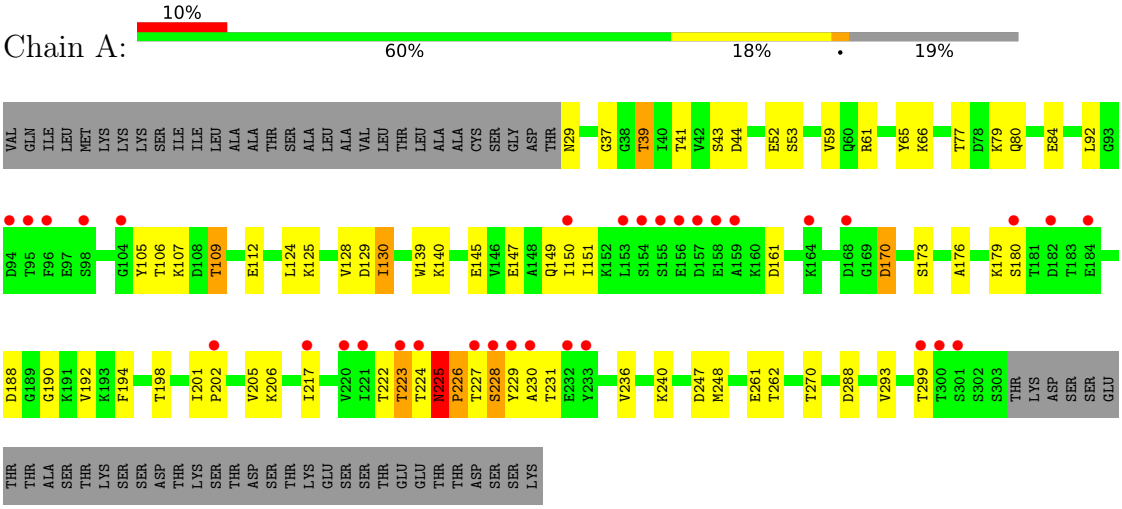
- Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	55	Total O 55 55	0	0
4	B	54	Total O 54 54	0	0

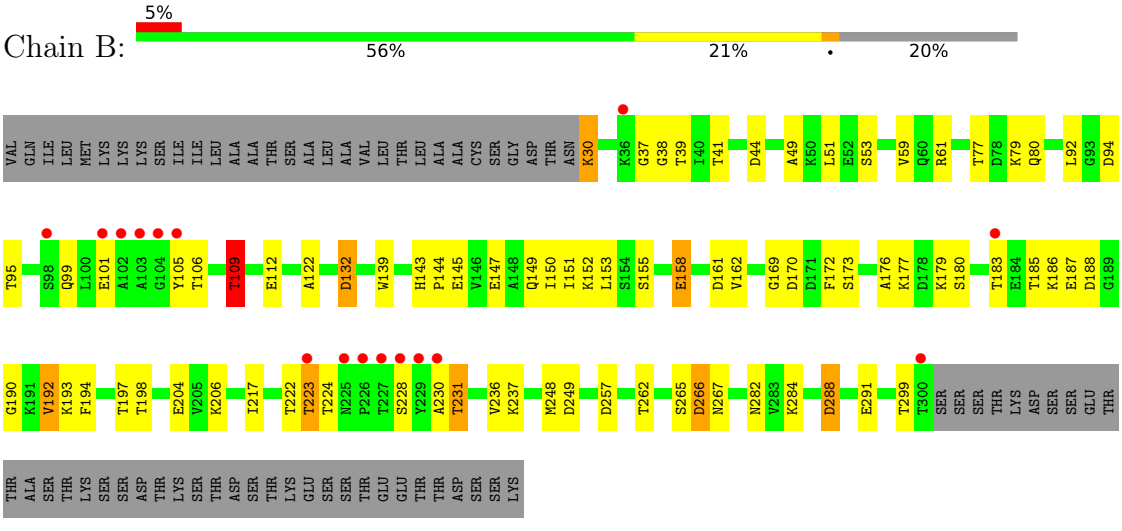
3 Residue-property plots (i)

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: Foldase protein PrsA



• Molecule 1: Foldase protein PrsA



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	67.49Å 69.67Å 87.41Å 90.00° 102.81° 90.00°	Depositor
Resolution (Å)	65.81 – 2.48 65.81 – 2.48	Depositor EDS
% Data completeness (in resolution range)	62.1 (65.81-2.48) 62.1 (65.81-2.48)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.21 (at 2.48Å)	Xtriage
Refinement program	REFMAC 5.8.0430	Depositor
R, R_{free}	0.207 , 0.250 0.206 , 0.251	Depositor DCC
R_{free} test set	1439 reflections (4.96%)	wwPDB-VP
Wilson B-factor (Å^2)	32.8	Xtriage
Anisotropy	0.377	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 51.2	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.92	EDS
Total number of atoms	4363	wwPDB-VP
Average B, all atoms (Å^2)	46.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.13% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] 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.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: GOL, CD

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	0.58	0/2111	1.45	14/2855 (0.5%)
1	B	0.58	0/2163	1.50	18/2912 (0.6%)
All	All	0.58	0/4274	1.47	32/5767 (0.6%)

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

There are no bond length outliers.

All (32) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	109	THR	CA-CB-OG1	-16.30	85.15	109.60
1	B	161	ASP	CA-CB-CG	9.00	121.60	112.60
1	A	112	GLU	CB-CG-CD	8.24	126.60	112.60
1	B	161	ASP	CB-CA-C	7.68	123.55	110.79
1	B	267	ASN	CB-CA-C	6.87	123.27	110.70
1	A	288	ASP	CA-CB-CG	6.63	119.23	112.60
1	A	44	ASP	CA-CB-CG	6.55	119.15	112.60
1	B	288	ASP	CA-CB-CG	6.48	119.08	112.60
1	A	262	THR	CA-CB-OG1	-6.39	100.02	109.60
1	A	261	GLU	CB-CG-CD	6.29	123.30	112.60
1	B	187	GLU	CB-CG-CD	6.28	123.28	112.60
1	B	266	ASP	CB-CA-C	-6.25	99.22	109.53
1	B	223	THR	CA-CB-OG1	-6.17	100.34	109.60
1	B	44	ASP	CA-CB-CG	6.16	118.76	112.60

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	225	ASN	CB-CA-C	6.15	122.29	110.17
1	B	132	ASP	CB-CA-C	6.09	122.27	110.46
1	B	257	ASP	CB-CA-C	-5.95	101.73	110.95
1	A	223	THR	CA-CB-OG1	-5.92	100.71	109.60
1	A	129	ASP	CA-CB-CG	5.89	118.49	112.60
1	B	188	ASP	CA-CB-CG	5.79	118.39	112.60
1	B	158	GLU	CB-CA-C	5.78	120.50	110.68
1	A	188	ASP	CA-CB-CG	5.66	118.25	112.60
1	B	262	THR	CA-CB-OG1	-5.61	101.19	109.60
1	A	147	GLU	CB-CG-CD	5.54	122.02	112.60
1	A	170	ASP	CA-CB-CG	5.51	118.11	112.60
1	A	84	GLU	CB-CG-CD	5.33	121.66	112.60
1	A	41	THR	CA-CB-OG1	-5.24	101.74	109.60
1	B	94	ASP	CA-CB-CG	5.24	117.84	112.60
1	B	112	GLU	N-CA-CB	5.22	117.79	110.12
1	B	122	ALA	CA-C-N	5.17	125.83	119.99
1	B	122	ALA	C-N-CA	5.17	125.83	119.99
1	A	129	ASP	CB-CA-C	5.01	118.88	111.17

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	61[A]	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	2085	0	1963	39	0
1	B	2136	0	2078	41	0
2	A	6	0	8	0	0
2	B	12	0	16	4	0
3	A	4	0	0	0	1
3	B	11	0	0	0	1
4	A	55	0	0	4	0
4	B	54	0	0	2	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	4363	0	4065	79	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 9.

All (79) 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:150:ILE:HG22	1:A:236:VAL:HG22	1.48	0.96
1:A:224:THR:HG22	1:A:225:ASN:H	1.28	0.95
1:B:150:ILE:HG22	1:B:236:VAL:HG22	1.49	0.94
1:A:29:ASN:ND2	1:A:43:SER:HB2	1.92	0.84
1:B:61:ARG:HG2	2:B:401:GOL:H11	1.61	0.82
1:B:204:GLU:HB2	1:B:223:THR:HG22	1.61	0.82
1:B:147:GLU:HG2	1:B:193:LYS:HE2	1.61	0.82
1:B:217:ILE:HD13	4:B:502:HOH:O	1.80	0.81
1:B:61:ARG:HG2	2:B:401:GOL:C1	2.11	0.80
1:A:125:LYS:HE2	4:A:509:HOH:O	1.82	0.80
1:A:39:THR:HG21	4:A:545:HOH:O	1.82	0.78
1:A:106:THR:OG1	1:A:109:THR:HB	1.87	0.74
1:A:224:THR:HG22	1:A:225:ASN:N	2.05	0.69
1:B:105:TYR:HD1	1:B:109:THR:HG23	1.58	0.68
1:B:77:THR:OG1	1:B:80:GLN:HG3	1.93	0.67
1:A:194:PHE:CD2	1:A:201:ILE:HD13	2.28	0.67
1:A:77:THR:OG1	1:A:80:GLN:HG3	1.94	0.67
1:A:224:THR:CG2	1:A:225:ASN:H	2.08	0.64
1:B:149:GLN:HA	1:B:190:GLY:O	2.01	0.61
1:A:149:GLN:HA	1:A:190:GLY:O	2.00	0.61
1:A:198:THR:O	1:A:206:LYS:NZ	2.34	0.61
1:A:128:VAL:HG12	1:A:130:ILE:HD12	1.84	0.60
1:B:106:THR:H	1:B:109:THR:HG22	1.66	0.59
1:A:140:LYS:HE3	1:A:140:LYS:HA	1.86	0.57
1:B:173:SER:O	1:B:177:LYS:HG3	2.06	0.56
1:A:128:VAL:CG1	1:A:130:ILE:HD12	2.36	0.55
1:B:183:THR:HA	1:B:186:LYS:HG2	1.90	0.54
1:A:59:VAL:HG23	1:A:293:VAL:HG21	1.90	0.54
1:A:299:THR:N	4:A:504:HOH:O	2.42	0.53
1:B:291:GLU:OE2	4:B:501:HOH:O	2.19	0.53
1:A:150:ILE:HG22	1:A:236:VAL:CG2	2.32	0.52
1:A:59:VAL:CG2	1:A:293:VAL:HG21	2.41	0.51
1:B:153:LEU:HD21	1:B:162:VAL:HG21	1.91	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:150:ILE:HG22	1:B:236:VAL:CG2	2.32	0.51
1:B:155:SER:HB3	1:B:158:GLU:HB2	1.95	0.49
1:B:249:ASP:HB2	2:B:402:GOL:O2	2.13	0.49
1:B:143:HIS:HD2	1:B:144:PRO:O	1.96	0.49
1:B:139:TRP:HB2	1:B:248:MET:HE3	1.93	0.48
1:A:194:PHE:CD2	1:A:201:ILE:CD1	2.94	0.48
1:B:151:ILE:HG12	1:B:176:ALA:HA	1.96	0.47
1:A:105:TYR:HD1	1:A:109:THR:CG2	2.27	0.47
1:A:66:LYS:HE2	1:B:38:GLY:HA3	1.97	0.47
1:B:282:ASN:OD1	1:B:284:LYS:HE3	2.15	0.47
1:A:240[A]:LYS:C	1:A:240[A]:LYS:HD2	2.40	0.46
1:B:105:TYR:HD1	1:B:109:THR:CG2	2.27	0.46
1:A:227:THR:C	1:A:229:TYR:H	2.24	0.45
1:B:185:THR:HG21	1:B:192:VAL:HG13	1.98	0.45
1:A:139:TRP:HB2	1:A:248:MET:HE3	1.97	0.45
1:B:179:LYS:O	1:B:180:SER:C	2.60	0.44
1:B:145:GLU:HA	1:B:194:PHE:O	2.17	0.44
1:B:143:HIS:CD2	1:B:144:PRO:HD2	2.53	0.44
1:B:169:GLY:O	1:B:170:ASP:C	2.61	0.44
1:B:172:PHE:HB2	1:B:237:LYS:HD2	1.99	0.44
1:A:124:LEU:HD13	1:A:270:THR:HG22	2.00	0.43
1:B:198:THR:O	1:B:206:LYS:NZ	2.45	0.43
1:A:225:ASN:ND2	1:A:228:SER:HA	2.34	0.43
1:A:222:THR:C	1:A:223:THR:HG23	2.43	0.43
1:B:95:THR:O	1:B:99:GLN:HG3	2.18	0.43
1:B:49:ALA:C	1:B:51:LEU:H	2.27	0.43
1:B:222:THR:C	1:B:223:THR:HG23	2.44	0.43
1:A:151:ILE:HG12	1:A:176:ALA:HA	2.00	0.42
1:A:145:GLU:HA	1:A:194:PHE:O	2.19	0.42
1:A:198:THR:HG21	1:A:201:ILE:HD12	2.02	0.41
1:A:225:ASN:O	1:A:226:PRO:CB	2.68	0.41
1:A:202:PRO:O	1:A:205:VAL:HB	2.20	0.41
1:B:224:THR:HA	1:B:230:ALA:O	2.20	0.41
1:B:231:THR:O	1:B:231:THR:OG1	2.37	0.41
1:A:52:GLU:HG3	4:A:515:HOH:O	2.21	0.41
1:A:194:PHE:HB3	1:A:201:ILE:HD12	2.02	0.41
1:B:61:ARG:HG2	2:B:401:GOL:H12	1.98	0.41
1:A:179:LYS:O	1:A:180:SER:C	2.63	0.41
1:A:65:TYR:HD1	1:A:65:TYR:HA	1.74	0.41
1:A:223:THR:O	1:A:231:THR:HA	2.20	0.41
1:B:30:LYS:O	1:B:41:THR:HA	2.22	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:223:THR:O	1:B:231:THR:HA	2.21	0.40
1:A:224:THR:HA	1:A:230:ALA:O	2.22	0.40
1:B:105:TYR:CD1	1:B:109:THR:HG23	2.47	0.40
1:B:151:ILE:HA	1:B:180:SER:HB2	2.03	0.40
1:B:152:LYS:C	1:B:153:LEU:HG	2.46	0.40

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)
3:A:405:CD:CD	3:B:408:CD:CD[1_655]	2.11	0.09

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	274/340 (81%)	247 (90%)	21 (8%)	6 (2%)	5 8
1	B	272/340 (80%)	249 (92%)	20 (7%)	3 (1%)	12 20
All	All	546/680 (80%)	496 (91%)	41 (8%)	9 (2%)	7 13

All (9) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	225	ASN
1	A	226	PRO
1	B	228	SER
1	A	37	GLY
1	A	170	ASP
1	B	37	GLY
1	B	288	ASP
1	A	228	SER

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	247	ASP

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	221/297 (74%)	210 (95%)	11 (5%)	20	38
1	B	235/297 (79%)	220 (94%)	15 (6%)	14	27
All	All	456/594 (77%)	430 (94%)	26 (6%)	17	32

All (26) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	39	THR
1	A	53	SER
1	A	79	LYS
1	A	92	LEU
1	A	107	LYS
1	A	109	THR
1	A	130	ILE
1	A	161	ASP
1	A	173	SER
1	A	192	VAL
1	A	217	ILE
1	B	30	LYS
1	B	39	THR
1	B	53	SER
1	B	59	VAL
1	B	79	LYS
1	B	92	LEU
1	B	101	GLU
1	B	109	THR
1	B	132	ASP
1	B	192	VAL
1	B	197	THR

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	231	THR
1	B	265	SER
1	B	266	ASP
1	B	299	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	29	ASN
1	A	56	GLN
1	A	225	ASN
1	A	242	GLN
1	A	254	GLN
1	A	292	ASN
1	B	143	HIS
1	B	242	GLN
1	B	243	ASN

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 18 ligands modelled in this entry, 15 are monoatomic - leaving 3 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the

expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	GOL	B	401	-	5,5,5	0.18	0	5,5,5	0.52	0
2	GOL	B	402	-	5,5,5	0.14	0	5,5,5	0.44	0
2	GOL	A	401	-	5,5,5	0.15	0	5,5,5	0.55	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	GOL	B	401	-	-	4/4/4/4	-
2	GOL	B	402	-	-	2/4/4/4	-
2	GOL	A	401	-	-	1/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (7) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	401	GOL	O1-C1-C2-C3
2	B	401	GOL	C1-C2-C3-O3
2	B	402	GOL	O1-C1-C2-C3
2	B	401	GOL	O1-C1-C2-O2
2	B	402	GOL	O1-C1-C2-O2
2	B	401	GOL	O2-C2-C3-O3
2	A	401	GOL	O2-C2-C3-O3

There are no ring outliers.

2 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	401	GOL	3	0
2	B	402	GOL	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

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^{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	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	275/340 (80%)	0.41	33 (12%)	10	9	12, 42, 110, 155	1 (0%)
1	B	271/340 (79%)	0.24	16 (5%)	29	28	10, 38, 90, 133	3 (1%)
All	All	546/680 (80%)	0.32	49 (8%)	17	16	10, 41, 101, 155	4 (0%)

All (49) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	229	TYR	4.8
1	B	226	PRO	4.7
1	A	153	LEU	4.3
1	B	225	ASN	4.2
1	A	223	THR	3.9
1	B	300	THR	3.9
1	B	229	TYR	3.3
1	A	158	GLU	3.1
1	B	105	TYR	3.1
1	A	228	SER	3.0
1	B	102	ALA	3.0
1	B	227	THR	3.0
1	B	104	GLY	2.9
1	A	221	ILE	2.8
1	A	156	GLU	2.7
1	B	230	ALA	2.7
1	A	154	SER	2.7
1	A	159	ALA	2.7
1	B	101	GLU	2.6
1	A	224	THR	2.5
1	A	299	THR	2.5
1	A	227	THR	2.5
1	A	220	VAL	2.4
1	A	104	GLY	2.4

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	B	103	ALA	2.4
1	A	94	ASP	2.4
1	A	168	ASP	2.3
1	A	182	ASP	2.3
1	A	233	TYR	2.3
1	B	183	THR	2.2
1	A	95	THR	2.2
1	A	155	SER	2.2
1	A	301	SER	2.2
1	A	96	PHE	2.2
1	A	157	ASP	2.2
1	B	228	SER	2.2
1	A	300	THR	2.1
1	A	98	SER	2.1
1	B	36	LYS	2.1
1	A	180	SER	2.1
1	A	202	PRO	2.1
1	A	164	LYS	2.1
1	A	184	GLU	2.1
1	B	98	SER	2.1
1	B	223	THR	2.0
1	A	150	ILE	2.0
1	A	217	ILE	2.0
1	A	230	ALA	2.0
1	A	232	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 oligosaccharides 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^{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	B-factors(Å^2)	Q<0.9
3	CD	B	413	1/1	0.79	0.11	153,153,153,153	0
2	GOL	B	402	6/6	0.82	0.13	71,75,78,79	0
3	CD	A	402	1/1	0.93	0.07	104,104,104,104	0
3	CD	B	404	1/1	0.93	0.08	101,101,101,101	0
2	GOL	A	401	6/6	0.93	0.09	38,45,46,49	0
3	CD	B	412	1/1	0.94	0.07	112,112,112,112	0
2	GOL	B	401	6/6	0.96	0.09	35,40,46,50	0
3	CD	B	403	1/1	0.97	0.04	78,78,78,78	0
3	CD	B	411	1/1	0.98	0.07	88,88,88,88	0
3	CD	B	406	1/1	0.99	0.03	60,60,60,60	0
3	CD	B	410	1/1	0.99	0.03	46,46,46,46	0
3	CD	A	403	1/1	0.99	0.03	75,75,75,75	0
3	CD	A	404	1/1	0.99	0.02	60,60,60,60	0
3	CD	B	405	1/1	0.99	0.02	57,57,57,57	0
3	CD	A	405	1/1	1.00	0.04	48,48,48,48	0
3	CD	B	407	1/1	1.00	0.03	21,21,21,21	0
3	CD	B	408	1/1	1.00	0.01	19,19,19,19	0
3	CD	B	409	1/1	1.00	0.01	20,20,20,20	0

6.5 Other polymers (i)

There are no such residues in this entry.