



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 30, 2023 – 06:49 PM JST

PDB ID : 4Y06
Title : Crystal structure of the DAP BII (G675R) dipeptide complex
Authors : Sakamoto, Y.; Iizuka, I.; Tateoka, C.; Roppongi, S.; Fujimoto, M.; Nonaka, T.; Ogasawara, W.; Tanaka, N.
Deposited on : 2015-02-05
Resolution : 2.18 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 ⓘ 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 ⓘ](#)) 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 : 2.36
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) : 2.36

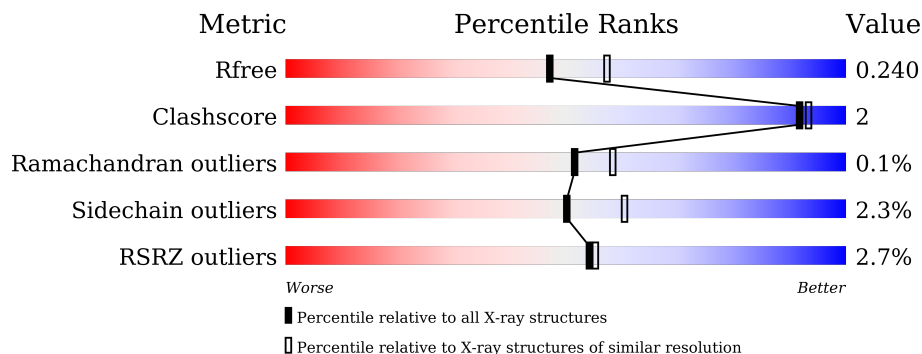
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

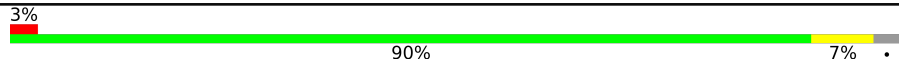
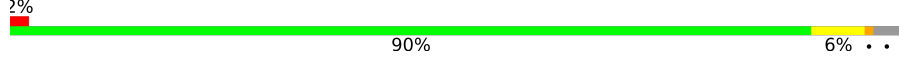
The reported resolution of this entry is 2.18 Å.

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	6864 (2.20-2.16)
Clashscore	141614	7689 (2.20-2.16)
Ramachandran outliers	138981	7564 (2.20-2.16)
Sidechain outliers	138945	7564 (2.20-2.16)
RSRZ outliers	127900	6738 (2.20-2.16)

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 $\leq 5\%$. 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	722	 3% 90% 7%
1	B	722	 2% 90% 6%

2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 11405 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.

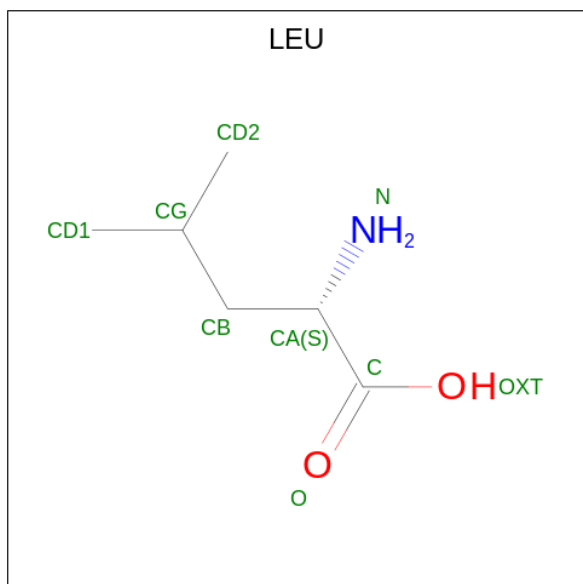
- Molecule 1 is a protein called Dipeptidyl aminopeptidase BII.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	697	5378	3402	940	1017	19	0	0	0
1	B	697	5378	3402	940	1017	19	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	675	ARG	GLY	engineered mutation	UNP V5YM14
B	675	ARG	GLY	engineered mutation	UNP V5YM14

- Molecule 2 is LEUCINE (three-letter code: LEU) (formula: C₆H₁₃NO₂).



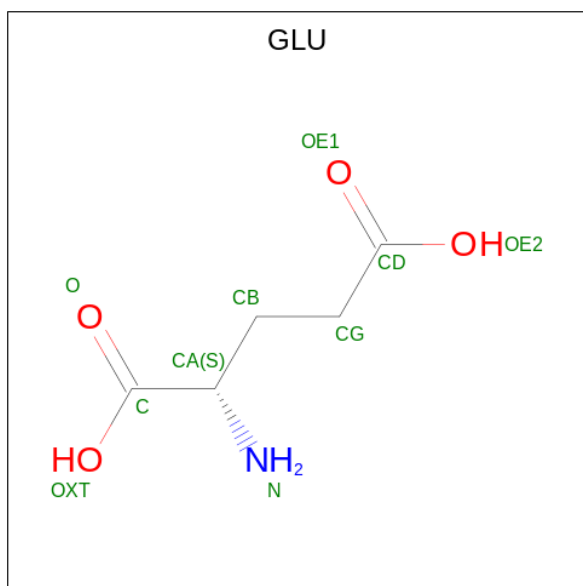
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
2	A	1	8	6	1	1	0	0

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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
2	B	1	8	6	1	1	0	0

- Molecule 3 is GLUTAMIC ACID (three-letter code: GLU) (formula: $C_5H_9NO_4$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
3	A	1	10	5	1	4	0	0
3	B	1	10	5	1	4	0	0

- Molecule 4 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



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

- Molecule 5 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	3	Total 3	Zn 3	0	0
5	B	2	Total 2	Zn 2	0	0

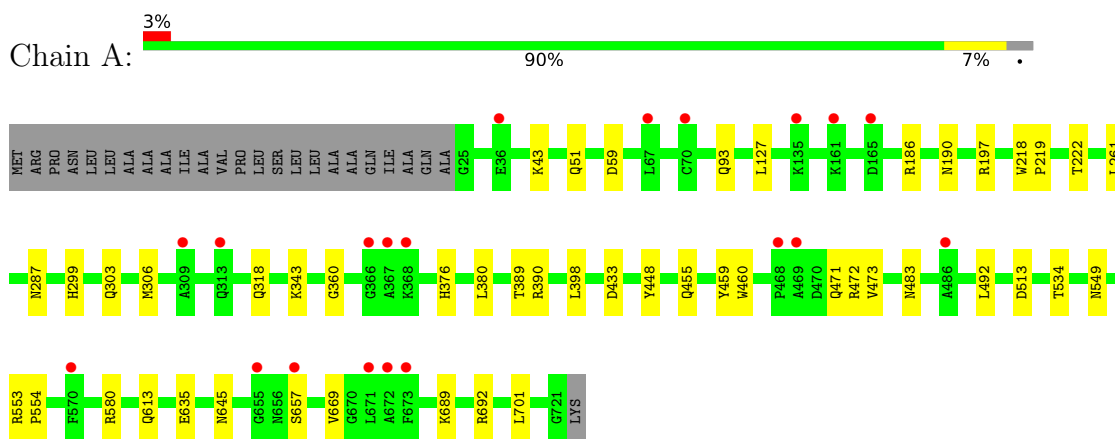
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	237	Total 237	O 237	0	0
6	B	287	Total 287	O 287	0	0

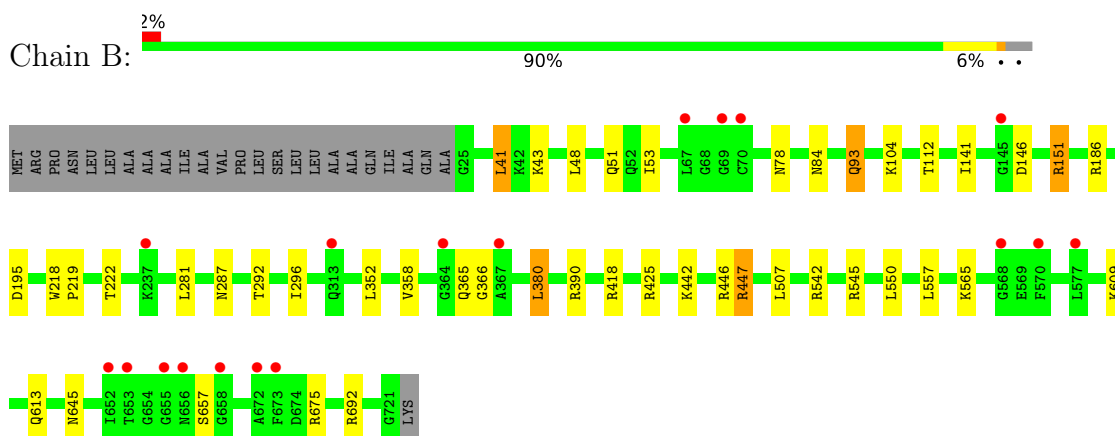
3 Residue-property plots [i](#)

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: Dipeptidyl aminopeptidase BII



- Molecule 1: Dipeptidyl aminopeptidase BII



4 Data and refinement statistics

Property	Value	Source
Space group	P 43 21 2	Depositor
Cell constants a, b, c, α , β , γ	122.42Å 122.42Å 222.06Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	36.00 – 2.18 36.55 – 2.18	Depositor EDS
% Data completeness (in resolution range)	99.9 (36.00-2.18) 99.9 (36.55-2.18)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.08	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.20 (at 2.18Å)	Xtrriage
Refinement program	REFMAC 5.8.0103	Depositor
R, R_{free}	0.176 , 0.235 0.185 , 0.240	Depositor DCC
R_{free} test set	4361 reflections (4.93%)	wwPDB-VP
Wilson B-factor (Å ²)	36.3	Xtrriage
Anisotropy	0.015	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.38 , 41.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	11405	wwPDB-VP
Average B, all atoms (Å ²)	40.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 22.27 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 5.8948e-03. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

¹Intensities estimated from amplitudes.

²Theoretical 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: ZN, GOL

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	0.84	0/5496	0.88	8/7449 (0.1%)
1	B	0.89	0/5496	0.91	12/7449 (0.2%)
All	All	0.86	0/10992	0.90	20/14898 (0.1%)

There are no bond length outliers.

All (20) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	446	ARG	NE-CZ-NH1	7.43	124.02	120.30
1	A	692	ARG	NE-CZ-NH1	7.20	123.90	120.30
1	B	41	LEU	CA-CB-CG	6.41	130.04	115.30
1	B	545	ARG	NE-CZ-NH2	-5.81	117.39	120.30
1	B	425	ARG	NE-CZ-NH1	5.81	123.20	120.30
1	A	186	ARG	NE-CZ-NH1	5.71	123.16	120.30
1	A	197	ARG	NE-CZ-NH2	-5.62	117.49	120.30
1	A	433	ASP	CB-CG-OD1	-5.60	113.26	118.30
1	A	197	ARG	NE-CZ-NH1	5.57	123.09	120.30
1	B	692	ARG	NE-CZ-NH1	5.51	123.06	120.30
1	B	186	ARG	NE-CZ-NH1	5.44	123.02	120.30
1	B	447	ARG	NE-CZ-NH2	-5.41	117.59	120.30
1	A	580	ARG	NE-CZ-NH1	5.39	123.00	120.30
1	A	701	LEU	CA-CB-CG	5.16	127.16	115.30
1	A	692	ARG	NE-CZ-NH2	-5.10	117.75	120.30
1	B	418	ARG	NE-CZ-NH1	5.06	122.83	120.30
1	B	195	ASP	CB-CG-OD1	5.06	122.85	118.30
1	B	151	ARG	NE-CZ-NH1	5.05	122.83	120.30
1	B	41	LEU	CB-CG-CD1	5.04	119.56	111.00
1	B	542	ARG	NE-CZ-NH1	5.01	122.80	120.30

There are no chirality outliers.

There are no planarity outliers.

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	5378	0	5294	18	0
1	B	5378	0	5294	16	0
2	A	8	0	10	0	0
2	B	8	0	10	0	0
3	A	10	0	6	1	0
3	B	10	0	6	1	0
4	A	36	0	48	1	0
4	B	48	0	64	3	0
5	A	3	0	0	0	0
5	B	2	0	0	0	0
6	A	237	0	0	2	0
6	B	287	0	0	3	0
All	All	11405	0	10732	35	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 2.

All (35) 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:675:ARG:NH1	6:B:901:HOH:O	2.32	0.63
1:A:299:HIS:HD2	1:A:459:TYR:OH	1.87	0.58
1:B:442:LYS:HE3	1:B:507:LEU:HD21	1.85	0.57
1:A:287:ASN:OD1	1:A:390:ARG:NH1	2.37	0.57
1:B:141:ILE:HG23	1:B:151:ARG:HG2	1.87	0.56
1:A:635:GLU:OE1	6:A:901:HOH:O	2.17	0.56
1:A:343:LYS:NZ	6:A:903:HOH:O	2.38	0.56
1:B:48:LEU:HD12	1:B:53:ILE:HD11	1.89	0.55
1:B:609:LYS:CE	4:B:807:GOL:H11	2.38	0.54
1:B:222:THR:H	1:B:645:ASN:HD21	1.56	0.53
1:A:306:MET:HE3	1:A:455:GLN:HB3	1.91	0.51
1:B:657:SER:HB3	3:B:802:GLU:C	2.32	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:218:TRP:CG	1:A:219:PRO:HA	2.49	0.47
1:A:222:THR:H	1:A:645:ASN:HD21	1.61	0.47
1:B:78:ASN:HB2	6:B:1058:HOH:O	2.14	0.47
1:B:287:ASN:OD1	1:B:390:ARG:NH1	2.47	0.46
1:A:472:ARG:NH2	1:A:483:ASN:OD1	2.36	0.46
1:A:657:SER:OG	3:A:802:GLU:C	2.53	0.46
1:A:376:HIS:CE1	1:A:380:LEU:HD21	2.52	0.45
1:A:303:GLN:NE2	1:A:460:TRP:HE1	2.15	0.45
1:B:84:ASN:ND2	1:B:657:SER:HB2	2.32	0.45
1:A:389:THR:HA	1:A:471:GLN:HE22	1.82	0.44
1:A:549:ASN:HD21	1:A:553:ARG:HE	1.66	0.43
1:B:218:TRP:CG	1:B:219:PRO:HA	2.54	0.43
1:A:448:TYR:OH	4:A:803:GOL:H2	2.19	0.42
1:B:93:GLN:NE2	1:B:447:ARG:HE	2.18	0.42
1:A:261:LEU:HD22	1:A:669:VAL:HB	2.02	0.42
1:A:127:LEU:HA	1:A:190:ASN:HD22	1.84	0.41
1:A:473:VAL:CG1	1:A:534:THR:HG21	2.49	0.41
1:A:553:ARG:N	1:A:554:PRO:HD2	2.35	0.41
1:B:281:LEU:HD23	1:B:380:LEU:HD13	2.03	0.41
1:B:219:PRO:HD2	4:B:807:GOL:H12	2.02	0.41
4:B:803:GOL:H31	6:B:952:HOH:O	2.21	0.40
1:B:93:GLN:HE22	1:B:447:ARG:HE	1.68	0.40
1:B:292:THR:HG22	1:B:296:ILE:HD12	2.03	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	695/722 (96%)	677 (97%)	17 (2%)	1 (0%)	51 58
1	B	695/722 (96%)	680 (98%)	14 (2%)	1 (0%)	51 58

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
All	All	1390/1444 (96%)	1357 (98%)	31 (2%)	2 (0%)	51 58

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	366	GLY
1	A	360	GLY

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	542/559 (97%)	532 (98%)	10 (2%)	59 70
1	B	542/559 (97%)	527 (97%)	15 (3%)	43 53
All	All	1084/1118 (97%)	1059 (98%)	25 (2%)	50 60

All (25) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	43	LYS
1	A	51	GLN
1	A	59	ASP
1	A	93	GLN
1	A	318	GLN
1	A	398	LEU
1	A	492	LEU
1	A	513	ASP
1	A	613	GLN
1	A	689	LYS
1	B	41	LEU
1	B	43	LYS
1	B	51	GLN
1	B	93	GLN
1	B	104	LYS
1	B	112	THR

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Mol	Chain	Res	Type
1	B	146	ASP
1	B	352	LEU
1	B	358	VAL
1	B	365	GLN
1	B	380	LEU
1	B	550	LEU
1	B	557	LEU
1	B	565	LYS
1	B	613	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (28) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	52	GLN
1	A	84	ASN
1	A	93	GLN
1	A	105	ASN
1	A	190	ASN
1	A	299	HIS
1	A	303	GLN
1	A	334	ASN
1	A	338	GLN
1	A	350	GLN
1	A	376	HIS
1	A	471	GLN
1	A	549	ASN
1	A	645	ASN
1	A	656	ASN
1	B	84	ASN
1	B	93	GLN
1	B	277	ASN
1	B	303	GLN
1	B	334	ASN
1	B	338	GLN
1	B	350	GLN
1	B	462	ASN
1	B	471	GLN
1	B	567	GLN
1	B	585	ASN
1	B	645	ASN
1	B	656	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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 23 ligands modelled in this entry, 5 are monoatomic - leaving 18 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
4	GOL	A	806	-	5,5,5	0.56	0	5,5,5	0.37	0
4	GOL	B	803	-	5,5,5	1.27	1 (20%)	5,5,5	2.03	2 (40%)
4	GOL	B	810	-	5,5,5	0.33	0	5,5,5	0.69	0
4	GOL	B	805	-	5,5,5	0.61	0	5,5,5	0.35	0
4	GOL	B	809	-	5,5,5	0.32	0	5,5,5	0.54	0
4	GOL	A	804	-	5,5,5	0.45	0	5,5,5	0.53	0
4	GOL	B	808	-	5,5,5	0.72	0	5,5,5	0.53	0
3	GLU	A	802	2	8,9,9	1.14	1 (12%)	10,11,11	0.88	0
4	GOL	A	805	-	5,5,5	0.69	0	5,5,5	0.82	0
3	GLU	B	802	2	8,9,9	1.10	0	10,11,11	1.13	1 (10%)
4	GOL	A	807	-	5,5,5	0.49	0	5,5,5	0.73	0
4	GOL	A	803	-	5,5,5	0.99	1 (20%)	5,5,5	1.28	0
4	GOL	B	806	-	5,5,5	0.22	0	5,5,5	0.48	0
4	GOL	B	804	-	5,5,5	0.79	0	5,5,5	1.54	1 (20%)
2	LEU	A	801	3	5,7,8	0.73	0	5,8,10	0.53	0
4	GOL	B	807	-	5,5,5	0.95	0	5,5,5	2.10	3 (60%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	GOL	A	808	-	5,5,5	0.35	0	5,5,5	0.21	0
2	LEU	B	801	3	5,7,8	0.59	0	5,8,10	0.21	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
4	GOL	A	806	-	-	2/4/4/4	-
4	GOL	B	803	-	-	2/4/4/4	-
4	GOL	B	810	-	-	3/4/4/4	-
4	GOL	B	805	-	-	0/4/4/4	-
4	GOL	B	809	-	-	2/4/4/4	-
4	GOL	A	804	-	-	2/4/4/4	-
4	GOL	B	808	-	-	2/4/4/4	-
3	GLU	A	802	2	-	2/9/9/9	-
4	GOL	A	805	-	-	2/4/4/4	-
3	GLU	B	802	2	-	2/9/9/9	-
4	GOL	A	807	-	-	0/4/4/4	-
4	GOL	A	803	-	-	3/4/4/4	-
4	GOL	B	806	-	-	1/4/4/4	-
4	GOL	B	804	-	-	2/4/4/4	-
2	LEU	A	801	3	-	0/5/6/8	-
4	GOL	B	807	-	-	1/4/4/4	-
4	GOL	A	808	-	-	0/4/4/4	-
2	LEU	B	801	3	-	0/5/6/8	-

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	803	GOL	O2-C2	2.30	1.50	1.43
3	A	802	GLU	OE2-CD	-2.09	1.23	1.30
4	A	803	GOL	O2-C2	2.03	1.49	1.43

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	807	GOL	C3-C2-C1	3.04	123.54	111.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	803	GOL	O2-C2-C1	2.94	122.07	109.12
4	B	803	GOL	C3-C2-C1	-2.62	101.51	111.70
4	B	807	GOL	O1-C1-C2	2.54	122.36	110.20
4	B	804	GOL	O3-C3-C2	2.51	122.23	110.20
3	B	802	GLU	OXT-C-O	-2.49	118.42	124.09
4	B	807	GOL	O2-C2-C1	-2.36	98.72	109.12

There are no chirality outliers.

All (26) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	804	GOL	O1-C1-C2-C3
4	A	805	GOL	C1-C2-C3-O3
4	B	804	GOL	O1-C1-C2-O2
4	B	804	GOL	O1-C1-C2-C3
4	B	808	GOL	C1-C2-C3-O3
4	B	809	GOL	O1-C1-C2-C3
4	B	808	GOL	O2-C2-C3-O3
4	A	803	GOL	O1-C1-C2-C3
4	A	806	GOL	C1-C2-C3-O3
4	B	806	GOL	O1-C1-C2-C3
4	B	807	GOL	O1-C1-C2-C3
4	B	810	GOL	O1-C1-C2-C3
4	B	810	GOL	C1-C2-C3-O3
4	A	806	GOL	O2-C2-C3-O3
4	A	805	GOL	O2-C2-C3-O3
4	B	803	GOL	O1-C1-C2-O2
4	B	809	GOL	O1-C1-C2-O2
4	B	810	GOL	O1-C1-C2-O2
4	A	803	GOL	O1-C1-C2-O2
4	A	803	GOL	O2-C2-C3-O3
3	A	802	GLU	OXT-C-CA-CB
3	B	802	GLU	OXT-C-CA-CB
4	B	803	GOL	O1-C1-C2-C3
3	A	802	GLU	OE1-CD-CG-CB
4	A	804	GOL	O1-C1-C2-O2
3	B	802	GLU	OE2-CD-CG-CB

There are no ring outliers.

5 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	803	GOL	1	0
3	A	802	GLU	1	0
3	B	802	GLU	1	0
4	A	803	GOL	1	0
4	B	807	GOL	2	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, 95th 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	697/722 (96%)	0.02	20 (2%) 51 52	23, 40, 64, 97	0
1	B	697/722 (96%)	-0.04	18 (2%) 56 56	22, 36, 59, 81	0
All	All	1394/1444 (96%)	-0.01	38 (2%) 54 55	22, 38, 62, 97	0

All (38) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	570	PHE	6.4
1	B	570	PHE	5.1
1	A	135	LYS	3.1
1	A	313	GLN	3.1
1	A	671	LEU	2.9
1	A	655	GLY	2.7
1	B	70	CYS	2.6
1	A	67	LEU	2.6
1	A	672	ALA	2.5
1	A	486	ALA	2.5
1	B	672	ALA	2.5
1	A	468	PRO	2.4
1	A	366	GLY	2.4
1	B	313	GLN	2.4
1	B	367	ALA	2.3
1	B	69	GLY	2.3
1	A	469	ALA	2.3
1	B	673	PHE	2.3
1	B	568	GLY	2.2
1	B	658	GLY	2.2
1	A	70	CYS	2.2
1	B	652	ILE	2.2
1	A	165	ASP	2.2
1	A	309	ALA	2.2

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Mol	Chain	Res	Type	RSRZ
1	B	145	GLY	2.2
1	B	653	THR	2.2
1	B	656	ASN	2.2
1	B	577	LEU	2.2
1	A	657	SER	2.2
1	A	36	GLU	2.2
1	A	673	PHE	2.1
1	A	368	LYS	2.1
1	B	364	GLY	2.1
1	A	161	LYS	2.0
1	A	367	ALA	2.0
1	B	655	GLY	2.0
1	B	67	LEU	2.0
1	B	237	LYS	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 monosaccharides 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, 95th 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
4	GOL	A	804	6/6	0.76	0.39	65,70,72,78	0
4	GOL	A	806	6/6	0.76	0.24	56,64,67,68	0
4	GOL	B	805	6/6	0.83	0.31	37,59,60,65	0
4	GOL	B	808	6/6	0.83	0.18	49,62,67,68	0
4	GOL	B	807	6/6	0.84	0.23	36,52,56,67	0
4	GOL	A	805	6/6	0.84	0.33	58,62,65,69	0
4	GOL	B	803	6/6	0.89	0.16	39,42,55,56	0
5	ZN	A	810	1/1	0.92	0.08	96,96,96,96	0
4	GOL	A	803	6/6	0.93	0.12	43,48,54,56	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
4	GOL	A	808	6/6	0.93	0.12	37,39,43,53	0
4	GOL	B	806	6/6	0.93	0.21	63,63,66,72	0
3	GLU	B	802	10/10	0.94	0.18	28,33,40,48	0
4	GOL	A	807	6/6	0.95	0.15	42,56,58,65	0
2	LEU	B	801	8/9	0.96	0.28	21,26,29,33	0
3	GLU	A	802	10/10	0.96	0.17	30,32,39,51	0
4	GOL	B	809	6/6	0.96	0.09	31,46,47,49	0
4	GOL	B	810	6/6	0.96	0.14	36,44,47,55	0
2	LEU	A	801	8/9	0.96	0.24	28,30,34,39	0
4	GOL	B	804	6/6	0.97	0.15	31,45,51,57	0
5	ZN	A	811	1/1	0.98	0.03	47,47,47,47	0
5	ZN	B	812	1/1	0.98	0.05	57,57,57,57	0
5	ZN	B	811	1/1	0.99	0.04	50,50,50,50	0
5	ZN	A	809	1/1	0.99	0.05	60,60,60,60	0

6.5 Other polymers [i](#)

There are no such residues in this entry.