Full wwPDB X-ray Structure Validation Report ⓘ

Aug 29, 2023 – 11:23 PM EDT

PDB ID	:	3O4I
Title	:	Structure and Catalysis of Acylaminoacyl Peptidase
Authors	:	Harmat, V.; Domokos, K.; Menyhard, D.K.; Pallo, A.; Szeltner, Z.; Szamosi, I.; Beke-Somfai, T.; Naray-Szabo, G.; Polgar, L.
Deposited on	:	2010-07-27
Resolution	:	2.70 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:

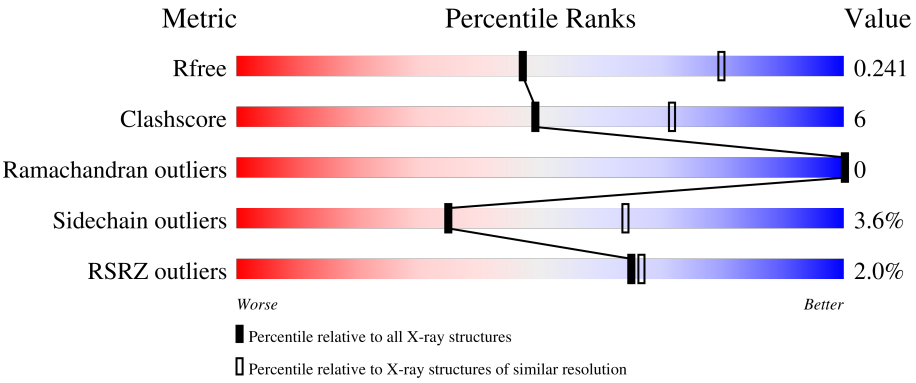
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.35
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35

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 2.70 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	2808 (2.70-2.70)
Clashscore	141614	3122 (2.70-2.70)
Ramachandran outliers	138981	3069 (2.70-2.70)
Sidechain outliers	138945	3069 (2.70-2.70)
RSRZ outliers	127900	2737 (2.70-2.70)

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	582	2% 86% 12%
1	B	582	2% 86% 11%

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	GOL	B	587	-	-	-	X

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 8964 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.

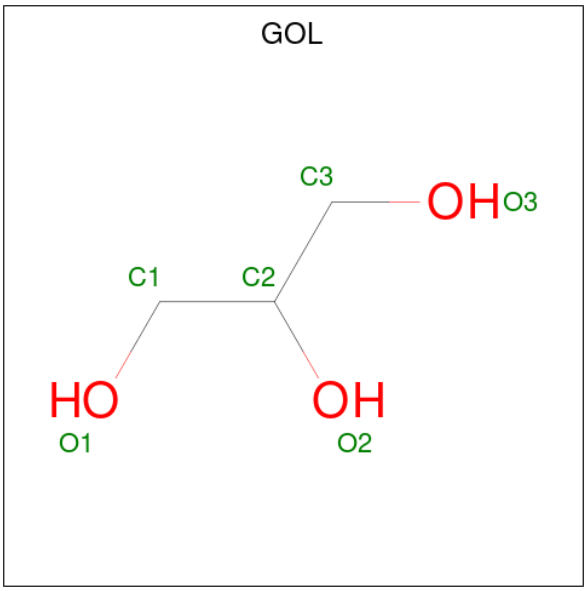
- Molecule 1 is a protein called Acylamino-acid-releasing enzyme.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	576	Total	C	N	O	S	0	3	0
			4286	2722	741	811	12			
1	B	576	Total	C	N	O	S	0	0	0
			4306	2725	755	814	12			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	524	ALA	ASP	engineered mutation	UNP Q9YBQ2
B	524	ALA	ASP	engineered mutation	UNP Q9YBQ2

- Molecule 2 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



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

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	B	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
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 CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total Cl 1 1	0	0

- Molecule 4 is water.

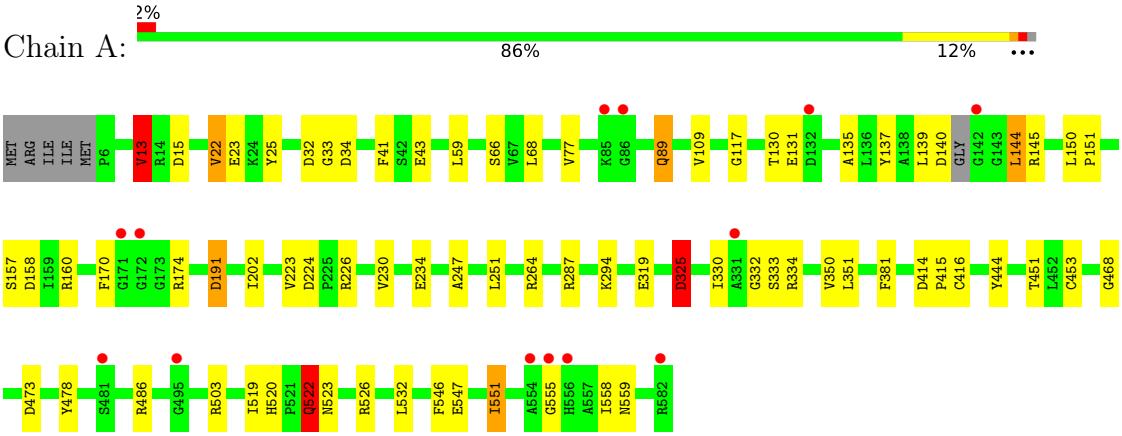
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	171	Total O 171 171	0	0
4	B	164	Total O 164 164	0	0

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.

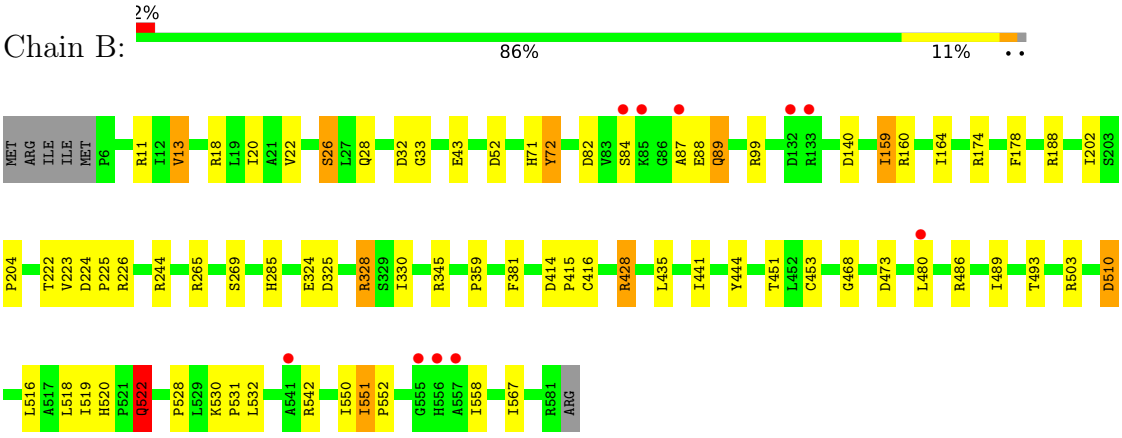
• Molecule 1: Acylamino-acid-releasing enzyme

Chain A:



• Molecule 1: Acylamino-acid-releasing enzyme

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	103.63Å 209.89Å 205.92Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	19.80 – 2.70 19.80 – 2.70	Depositor EDS
% Data completeness (in resolution range)	99.6 (19.80-2.70) 99.6 (19.80-2.70)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.44 (at 2.71Å)	Xtriage
Refinement program	REFMAC 5.5.0102	Depositor
R, R_{free}	0.207 , 0.252 0.201 , 0.241	Depositor DCC
R_{free} test set	3091 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å^2)	58.2	Xtriage
Anisotropy	0.018	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 47.3	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	8964	wwPDB-VP
Average B, all atoms (Å^2)	52.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.44% 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: CL, 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	0.95	5/4386 (0.1%)	0.89	7/5958 (0.1%)
1	B	0.91	4/4397 (0.1%)	0.90	7/5971 (0.1%)
All	All	0.93	9/8783 (0.1%)	0.89	14/11929 (0.1%)

All (9) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	13	VAL	CB-CG1	-9.45	1.33	1.52
1	B	13	VAL	CB-CG2	-8.99	1.33	1.52
1	A	41	PHE	CE2-CZ	8.41	1.53	1.37
1	A	13	VAL	CB-CG2	-8.36	1.35	1.52
1	B	13	VAL	CB-CG1	-6.59	1.39	1.52
1	A	25	TYR	CD1-CE1	-5.74	1.30	1.39
1	B	11	ARG	CG-CD	5.37	1.65	1.51
1	B	72	TYR	CE2-CZ	5.32	1.45	1.38
1	A	23	GLU	CB-CG	-5.06	1.42	1.52

All (14) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	325	ASP	CB-CG-OD2	9.79	127.11	118.30
1	B	265	ARG	NE-CZ-NH1	7.12	123.86	120.30
1	B	522	GLN	CA-CB-CG	6.96	128.71	113.40
1	B	328	ARG	CD-NE-CZ	6.89	133.24	123.60
1	A	522	GLN	CA-CB-CG	6.87	128.51	113.40
1	A	325	ASP	CB-CG-OD1	-6.79	112.19	118.30
1	B	244	ARG	NE-CZ-NH1	6.07	123.33	120.30
1	A	325	ASP	N-CA-CB	5.94	121.29	110.60
1	A	15	ASP	CB-CG-OD1	5.75	123.47	118.30
1	B	428	ARG	CG-CD-NE	5.66	123.68	111.80

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	287	ARG	NE-CZ-NH2	-5.65	117.48	120.30
1	A	287	ARG	NE-CZ-NH1	5.60	123.10	120.30
1	B	99	ARG	NE-CZ-NH2	-5.55	117.53	120.30
1	A	22	VAL	CB-CA-C	-5.46	101.03	111.40

There are no chirality outliers.

There are no planarity outliers.

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	4286	0	4175	55	0
1	B	4306	0	4236	49	0
2	A	6	0	8	1	0
2	B	30	0	40	0	0
3	A	1	0	0	0	0
4	A	171	0	0	6	0
4	B	164	0	0	2	0
All	All	8964	0	8459	101	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 6.

All (101) 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:381:PHE:CZ	1:B:558:ILE:HD11	1.76	1.21
1:B:381:PHE:CZ	1:B:558:ILE:CD1	2.49	0.96
1:B:381:PHE:CE1	1:B:558:ILE:HD12	2.16	0.79
1:B:32:ASP:CG	1:B:33:GLY:H	1.86	0.79
1:A:334[A]:ARG:NH2	4:A:621:HOH:O	2.18	0.75
1:B:381:PHE:CE1	1:B:558:ILE:CD1	2.70	0.74
1:A:332:GLY:HA2	4:A:597:HOH:O	1.88	0.74
1:A:381:PHE:CE1	1:A:558:ILE:HD13	2.25	0.72
1:A:32:ASP:CG	1:A:33:GLY:H	1.94	0.71

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:82:ASP:OD1	1:B:87:ALA:O	2.09	0.70
1:B:550:ILE:C	1:B:551:ILE:HD13	2.11	0.70
1:B:52:ASP:CG	1:B:52:ASP:O	2.29	0.69
1:B:381:PHE:HZ	1:B:558:ILE:HD11	1.55	0.67
1:B:159:ILE:HD13	1:B:164:ILE:HG12	1.77	0.67
1:A:478:TYR:CE1	1:A:486:ARG:CB	2.79	0.66
1:A:251:LEU:C	1:A:251:LEU:HD12	2.16	0.65
1:B:26:SER:OG	1:B:28:GLN:NE2	2.30	0.64
1:B:510:ASP:OD2	1:B:542:ARG:NH1	2.31	0.63
1:B:520:HIS:ND1	1:B:532:LEU:HD13	2.15	0.62
1:B:551:ILE:HD13	1:B:551:ILE:N	2.16	0.60
1:B:88:GLU:O	1:B:89:GLN:OE1	2.22	0.57
1:A:330:ILE:HG23	1:A:351:LEU:HD11	1.86	0.57
1:A:66:SER:OG	2:A:583:GOL:H2	2.04	0.57
1:A:224:ASP:OD1	1:A:226:ARG:HG3	2.05	0.56
1:A:130:THR:O	1:A:131:GLU:C	2.44	0.55
1:A:334[A]:ARG:HG2	1:A:334[A]:ARG:HH11	1.72	0.55
1:B:480:LEU:HD11	1:B:528:PRO:CB	2.36	0.55
1:A:381:PHE:CZ	1:A:558:ILE:CD1	2.90	0.55
1:A:415:PRO:O	1:A:503:ARG:HD2	2.07	0.55
1:A:332:GLY:CA	4:A:597:HOH:O	2.52	0.54
1:A:32:ASP:CG	1:A:33:GLY:N	2.60	0.54
1:B:32:ASP:CG	1:B:33:GLY:N	2.60	0.54
1:A:381:PHE:HZ	1:A:558:ILE:HD11	1.74	0.52
1:B:223:VAL:O	1:B:225:PRO:HD3	2.09	0.52
1:B:160:ARG:NH1	1:B:202:ILE:O	2.43	0.51
1:B:269:SER:OG	1:B:285:HIS:ND1	2.44	0.51
1:A:191:ASP:OD2	1:A:191:ASP:N	2.41	0.51
1:B:330:ILE:HG22	1:B:330:ILE:O	2.10	0.50
1:A:381:PHE:CZ	1:A:558:ILE:HD11	2.47	0.50
1:A:330:ILE:HG22	1:A:330:ILE:O	2.12	0.50
1:A:478:TYR:HE1	1:A:486:ARG:CB	2.25	0.50
1:B:178:PHE:HA	1:B:188:ARG:O	2.12	0.49
1:B:468:GLY:HA2	1:B:519:ILE:O	2.13	0.49
1:A:89:GLN:HA	1:A:89:GLN:HE21	1.77	0.48
1:A:43:GLU:HA	1:A:559:ASN:O	2.13	0.48
1:B:345:ARG:NH2	4:B:632:HOH:O	2.26	0.48
1:A:144:LEU:HD22	1:A:145:ARG:H	1.77	0.48
1:A:520:HIS:ND1	1:A:532:LEU:HD13	2.28	0.48
1:B:416:CYS:HG	1:B:453:CYS:HG	1.60	0.48
1:B:88:GLU:C	1:B:89:GLN:OE1	2.52	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:415:PRO:O	1:B:503:ARG:HD2	2.14	0.48
1:A:555:GLY:HA3	4:A:716:HOH:O	2.13	0.48
1:A:381:PHE:CZ	1:A:558:ILE:HD13	2.49	0.47
1:B:89:GLN:OE1	1:B:89:GLN:CA	2.63	0.47
1:A:381:PHE:CE1	1:A:558:ILE:CD1	2.97	0.47
1:A:551:ILE:N	1:A:551:ILE:HD12	2.29	0.47
1:A:89:GLN:HE21	1:A:89:GLN:CA	2.27	0.47
1:B:428:ARG:HD2	4:B:667:HOH:O	2.15	0.47
1:B:444:TYR:HA	1:B:468:GLY:O	2.15	0.47
1:A:444:TYR:HA	1:A:468:GLY:O	2.16	0.46
1:B:224:ASP:C	1:B:226:ARG:H	2.19	0.46
1:A:468:GLY:HA2	1:A:519:ILE:O	2.14	0.46
1:A:325:ASP:N	1:A:325:ASP:OD1	2.50	0.45
1:B:89:GLN:OE1	1:B:89:GLN:HA	2.17	0.45
1:A:473:ASP:OD1	1:A:473:ASP:C	2.55	0.44
1:A:135:ALA:HB3	1:A:137:TYR:CE1	2.53	0.44
1:A:13:VAL:HG11	1:B:13:VAL:HG11	2.00	0.44
1:A:68:LEU:HD22	1:A:117:GLY:HA3	2.00	0.44
1:A:551:ILE:HD12	1:A:551:ILE:H	1.83	0.44
1:A:332:GLY:N	4:A:597:HOH:O	2.50	0.44
1:A:151:PRO:HG2	1:A:170:PHE:CG	2.54	0.43
1:A:160:ARG:NH1	1:A:202:ILE:O	2.50	0.43
1:B:71:HIS:O	1:B:72:TYR:C	2.56	0.43
1:B:414:ASP:N	1:B:415:PRO:CD	2.81	0.43
1:A:157:SER:O	1:A:158:ASP:HB2	2.18	0.43
1:A:135:ALA:HB3	1:A:137:TYR:CZ	2.54	0.43
1:B:441:ILE:HD13	1:B:451:THR:HA	2.00	0.43
1:A:546:PHE:O	1:B:522:GLN:HG3	2.19	0.43
1:A:333:SER:HA	1:A:350:VAL:O	2.19	0.42
1:A:416:CYS:SG	1:A:453:CYS:SG	3.08	0.42
1:B:480:LEU:HD11	1:B:528:PRO:HB2	2.01	0.42
1:B:18:ARG:HG3	1:B:18:ARG:HH11	1.85	0.42
1:B:480:LEU:HD11	1:B:528:PRO:CG	2.49	0.42
1:A:522:GLN:NE2	1:A:523:ASN:HB3	2.34	0.42
1:A:414:ASP:N	1:A:415:PRO:CD	2.83	0.41
1:B:530:LYS:N	1:B:531:PRO:CD	2.82	0.41
1:A:59:LEU:HD13	1:A:77:VAL:HG21	2.02	0.41
1:B:516:LEU:HD21	1:B:518:LEU:HD21	2.02	0.41
1:A:223:VAL:HG22	1:A:230:VAL:HG12	2.01	0.41
1:B:567:ILE:HD13	1:B:567:ILE:HG21	1.71	0.41
1:A:416:CYS:HB2	1:A:453:CYS:HG	1.85	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:359:PRO:HA	1:B:435:LEU:O	2.21	0.41
1:B:522:GLN:HB2	1:B:550:ILE:HG22	2.02	0.41
1:A:174:ARG:CG	4:A:752:HOH:O	2.68	0.41
1:B:473:ASP:OD1	1:B:473:ASP:C	2.59	0.41
1:A:109:VAL:CG2	1:A:139:LEU:CD1	2.99	0.41
1:B:489:ILE:O	1:B:493:THR:HG23	2.20	0.40
1:A:247:ALA:HB3	1:A:264:ARG:HB2	2.04	0.40
1:A:547:GLU:HB3	1:B:552:PRO:HD3	2.03	0.40
1:B:20:ILE:HG22	1:B:43:GLU:HG2	2.03	0.40
1:A:109:VAL:HG23	1:A:139:LEU:CD1	2.51	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	575/582 (99%)	556 (97%)	19 (3%)	0	100	100
1	B	574/582 (99%)	550 (96%)	24 (4%)	0	100	100
All	All	1149/1164 (99%)	1106 (96%)	43 (4%)	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	432/468 (92%)	416 (96%)	16 (4%)	34	63
1	B	443/468 (95%)	428 (97%)	15 (3%)	37	66
All	All	875/936 (94%)	844 (96%)	31 (4%)	35	65

All (31) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	13	VAL
1	A	22	VAL
1	A	34	ASP
1	A	89	GLN
1	A	140	ASP
1	A	144	LEU
1	A	150	LEU
1	A	191	ASP
1	A	234	GLU
1	A	294	LYS
1	A	319	GLU
1	A	325	ASP
1	A	451	THR
1	A	522	GLN
1	A	526	ARG
1	A	551	ILE
1	B	22	VAL
1	B	26	SER
1	B	84	SER
1	B	89	GLN
1	B	140	ASP
1	B	159	ILE
1	B	174	ARG
1	B	204	PRO
1	B	222	THR
1	B	324	GLU
1	B	328	ARG
1	B	486	ARG
1	B	510	ASP
1	B	522	GLN
1	B	551	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	28	GLN
1	A	89	GLN
1	A	522	GLN
1	B	28	GLN

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 7 ligands modelled in this entry, 1 is monoatomic - leaving 6 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	A	583	-	5,5,5	0.44	0	5,5,5	0.58	0
2	GOL	B	585	-	5,5,5	0.52	0	5,5,5	0.82	0
2	GOL	B	586	-	5,5,5	0.24	0	5,5,5	0.62	0
2	GOL	B	587	-	5,5,5	0.66	0	5,5,5	0.91	0
2	GOL	B	584	-	5,5,5	0.89	0	5,5,5	1.47	1 (20%)
2	GOL	B	583	-	5,5,5	0.65	0	5,5,5	0.67	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	A	583	-	-	0/4/4/4	-
2	GOL	B	585	-	-	1/4/4/4	-
2	GOL	B	586	-	-	4/4/4/4	-
2	GOL	B	587	-	-	3/4/4/4	-
2	GOL	B	584	-	-	0/4/4/4	-
2	GOL	B	583	-	-	0/4/4/4	-

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	584	GOL	O3-C3-C2	2.58	122.59	110.20

There are no chirality outliers.

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	585	GOL	C1-C2-C3-O3
2	B	586	GOL	O1-C1-C2-C3
2	B	586	GOL	C1-C2-C3-O3
2	B	587	GOL	O1-C1-C2-C3
2	B	586	GOL	O2-C2-C3-O3
2	B	587	GOL	O1-C1-C2-O2
2	B	586	GOL	O1-C1-C2-O2
2	B	587	GOL	C1-C2-C3-O3

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	583	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	576/582 (98%)	-0.33	13 (2%)	60	62	23, 49, 94, 117	0
1	B	576/582 (98%)	-0.36	10 (1%)	70	72	24, 50, 87, 109	0
All	All	1152/1164 (98%)	-0.34	23 (1%)	65	67	23, 49, 90, 117	0

All (23) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	556	HIS	5.8
1	A	556	HIS	4.4
1	B	84	SER	3.4
1	A	86	GLY	3.0
1	A	554	ALA	2.9
1	A	85	LYS	2.9
1	B	87	ALA	2.8
1	A	582	ARG	2.8
1	B	132	ASP	2.7
1	A	132	ASP	2.7
1	B	555	GLY	2.6
1	B	85	LYS	2.5
1	B	557	ALA	2.5
1	A	495	GLY	2.4
1	A	331	ALA	2.3
1	A	481	SER	2.2
1	A	171	GLY	2.2
1	B	480	LEU	2.2
1	A	142	GLY	2.1
1	A	172	GLY	2.1
1	B	541	ALA	2.1
1	B	133	ARG	2.1
1	A	555	GLY	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, 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	CL	A	584	1/1	0.68	0.13	65,65,65,65	0
2	GOL	B	587	6/6	0.80	0.42	56,61,64,65	0
2	GOL	A	583	6/6	0.80	0.19	48,56,59,60	0
2	GOL	B	584	6/6	0.82	0.19	43,52,55,56	0
2	GOL	B	585	6/6	0.88	0.26	56,60,60,60	0
2	GOL	B	583	6/6	0.94	0.21	37,46,50,51	0
2	GOL	B	586	6/6	0.96	0.13	51,57,59,60	0

6.5 Other polymers (i)

There are no such residues in this entry.