Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 07:03 PM UTC

PDB ID	:	4QJY / pdb_00004qjy
Title	:	Crystal structure of native Ara127N, a GH127 beta-L-arabinofuranosidase from Geobacillus Stearothermophilus T6
Authors	:	Lansky, S.; Salama, R.; Dann, R.; Shner, I.; Manjasetty, B.; Belrhali, H.; Shoham, Y.; Shoham, G.
Deposited on	:	2014-06-05
Resolution	:	2.29 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:

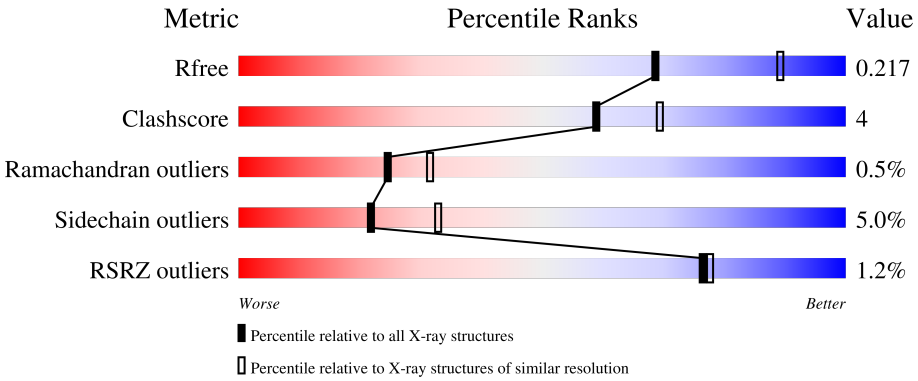
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

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 2.29 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}	180053	6319 (2.30-2.30)
Clashscore	190562	6919 (2.30-2.30)
Ramachandran outliers	187476	6854 (2.30-2.30)
Sidechain outliers	187428	6854 (2.30-2.30)
RSRZ outliers	180081	6325 (2.30-2.30)

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	648	% 84% 13%
1	B	648	% 83% 13%

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 11013 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.

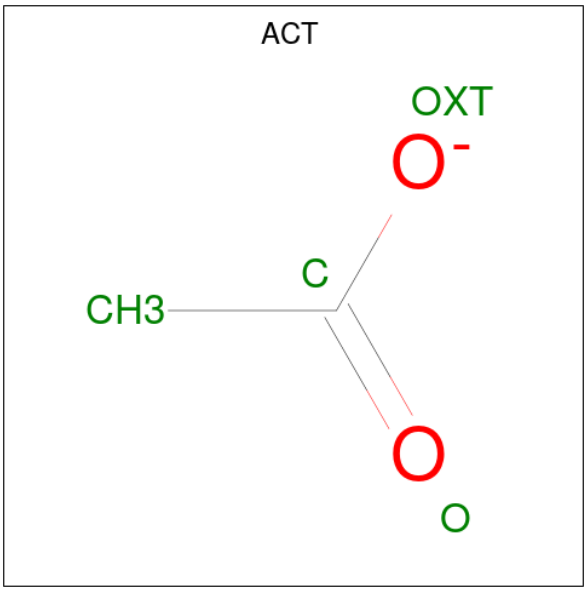
- Molecule 1 is a protein called GH127 beta-L-arabinofuranosidase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	637	Total	C	N	O	S	0	5	0
			5187	3318	885	956	28			
1	B	637	Total	C	N	O	S	0	3	0
			5178	3312	885	954	27			

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-3	HIS	-	expression tag	UNP B3EYN9
A	-2	HIS	-	expression tag	UNP B3EYN9
A	-1	HIS	-	expression tag	UNP B3EYN9
A	0	HIS	-	expression tag	UNP B3EYN9
A	1	HIS	-	expression tag	UNP B3EYN9
A	2	HIS	-	expression tag	UNP B3EYN9
B	-3	HIS	-	expression tag	UNP B3EYN9
B	-2	HIS	-	expression tag	UNP B3EYN9
B	-1	HIS	-	expression tag	UNP B3EYN9
B	0	HIS	-	expression tag	UNP B3EYN9
B	1	HIS	-	expression tag	UNP B3EYN9
B	2	HIS	-	expression tag	UNP B3EYN9

- Molecule 2 is ACETATE ION (CCD ID: ACT) (formula: $C_2H_3O_2$).



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

- Molecule 3 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	324	Total O 324 324	0	0

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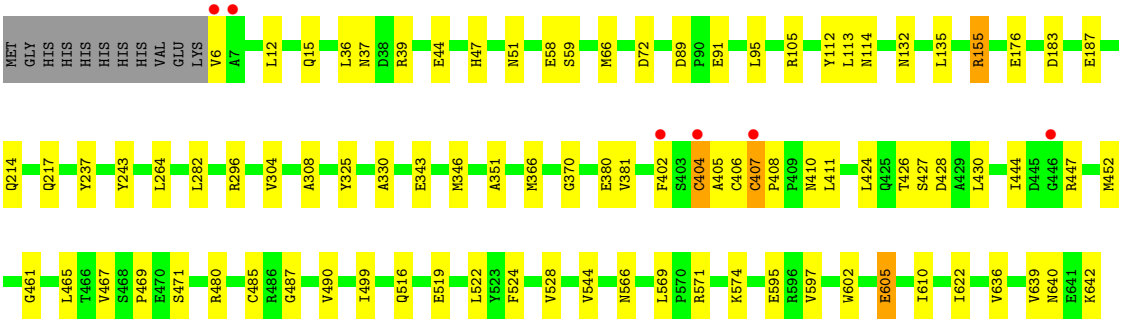
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
3	B	280	280	280	0	0

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.

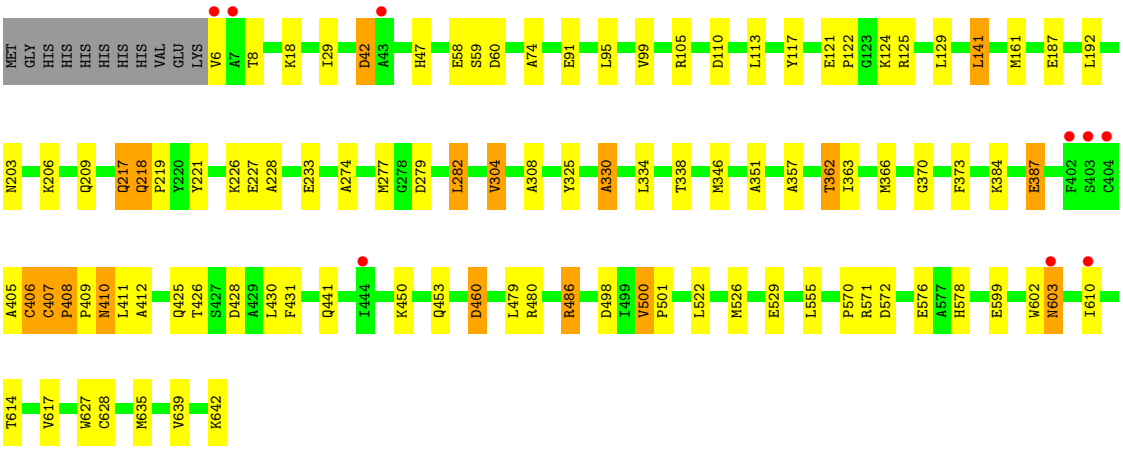
• Molecule 1: GH127 beta-L-arabinofuranosidase

Chain A:



• Molecule 1: GH127 beta-L-arabinofuranosidase

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	65.54Å 118.10Å 174.98Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.89 – 2.29 29.89 – 2.29	Depositor EDS
% Data completeness (in resolution range)	99.5 (29.89-2.29) 99.6 (29.89-2.29)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.33 (at 2.29Å)	Xtriage
Refinement program	REFMAC 5.7.0032	Depositor
R, R_{free}	0.150 , 0.214 0.160 , 0.217	Depositor DCC
R_{free} test set	3123 reflections (5.06%)	wwPDB-VP
Wilson B-factor (Å^2)	29.6	Xtriage
Anisotropy	0.740	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 33.4	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	0.96	EDS
Total number of atoms	11013	wwPDB-VP
Average B, all atoms (Å^2)	35.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 8.38% 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 (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: 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	1.08	2/5331 (0.0%)	0.99	2/7235 (0.0%)
1	B	1.02	1/5316 (0.0%)	1.04	8/7215 (0.1%)
All	All	1.05	3/10647 (0.0%)	1.02	10/14450 (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	3
1	B	0	1
All	All	0	4

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	528	VAL	C-O	-6.08	1.18	1.24
1	B	500	VAL	CA-CB	5.50	1.57	1.53
1	A	381	VAL	N-CA	-5.11	1.40	1.46

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	526	MET	CA-C-N	-6.10	113.99	120.03
1	B	526	MET	C-N-CA	-6.10	113.99	120.03
1	B	410	ASN	N-CA-C	5.89	117.37	111.07
1	B	500	VAL	N-CA-CB	5.85	114.19	110.50
1	B	453	GLN	CB-CA-C	-5.61	99.45	109.71
1	A	132	ASN	N-CA-C	5.39	119.49	113.02

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	217	GLN	CA-CB-CG	5.21	124.52	114.10
1	B	617	VAL	N-CA-C	-5.16	104.96	109.19
1	A	296	ARG	N-CA-C	5.11	121.19	114.75
1	B	330	ALA	N-CA-C	-5.10	105.80	111.36

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	404	CYS	Peptide
1	A	406[A]	CYS	Peptide
1	A	428	ASP	Peptide
1	B	406[B]	CYS	Peptide

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	5187	0	5026	40	0
1	B	5178	0	5016	51	0
2	A	24	0	18	2	0
2	B	20	0	15	0	0
3	A	324	0	0	3	0
3	B	280	0	0	2	0
All	All	11013	0	10075	91	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 4.

All (91) 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:571:ARG:HD3	1:B:642:LYS:HG3	1.45	0.94
1:B:74:ALA:HB2	1:B:141:LEU:HD13	1.55	0.86
1:A:343:GLU:OE2	2:A:706:ACT:H1	1.84	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:490:VAL:HG22	1:A:522:LEU:HD23	1.67	0.76
1:A:447:ARG:HD3	1:A:471:SER:O	1.86	0.75
1:A:404:CYS:SG	1:A:407[B]:CYS:HA	2.28	0.74
1:B:357:ALA:O	1:B:362:THR:HB	1.89	0.73
1:B:571:ARG:HB2	1:B:642:LYS:HE2	1.71	0.70
1:B:351:ALA:HB3	1:B:480:ARG:HD3	1.72	0.70
1:B:384:LYS:O	1:B:387:GLU:HG2	1.93	0.68
1:A:485[A]:CYS:SG	1:A:487:GLY:O	2.51	0.67
1:B:498:ASP:OD1	1:B:500:VAL:HG12	1.95	0.66
1:A:37:ASN:HD22	1:A:39:ARG:NH1	1.95	0.65
1:B:42:ASP:OD1	1:B:42:ASP:N	2.30	0.65
1:A:351:ALA:HB3	1:A:480:ARG:HD3	1.80	0.62
1:B:277:MET:HE2	1:B:279:ASP:HB2	1.82	0.60
1:B:203:ASN:OD1	3:B:1049:HOH:O	2.17	0.59
1:B:425:GLN:NE2	1:B:426:THR:O	2.36	0.59
1:A:426:THR:HG22	1:A:427:SER:H	1.69	0.58
1:B:570:PRO:HA	1:B:642:LYS:HG2	1.85	0.57
1:A:308:ALA:HA	1:A:325:TYR:CD1	2.41	0.56
1:A:426:THR:HG22	1:A:427:SER:N	2.21	0.55
1:B:486:ARG:HH21	1:B:529:GLU:CD	2.14	0.55
1:B:407[B]:CYS:HB3	1:B:408[B]:PRO:HD3	1.89	0.54
1:B:406[B]:CYS:O	1:B:407[B]:CYS:HB2	2.08	0.54
1:B:366:MET:HE3	1:B:370:GLY:HA2	1.90	0.53
1:A:404:CYS:HG	1:A:407[B]:CYS:HA	1.73	0.53
1:B:218:GLN:HG3	1:B:219:PRO:HA	1.89	0.53
1:A:66:MET:HE3	3:A:989:HOH:O	2.09	0.53
1:A:264:LEU:HD11	1:A:304:VAL:HG21	1.90	0.53
1:A:595:GLU:OE1	1:A:642:LYS:HE3	2.09	0.53
1:B:576:GLU:OE2	1:B:578:HIS:ND1	2.38	0.53
1:B:233:GLU:HA	1:B:233:GLU:OE1	2.08	0.52
1:B:129:LEU:HD12	1:B:221:TYR:CE2	2.44	0.52
1:B:308:ALA:HA	1:B:325:TYR:CD1	2.45	0.51
1:A:566:ASN:HD21	1:A:597:VAL:H	1.58	0.51
1:A:135:LEU:HB2	1:A:183:ASP:HB2	1.93	0.51
1:A:47:HIS:HD2	1:A:51:ASN:OD1	1.94	0.49
1:A:304:VAL:HG23	1:A:330:ALA:HB1	1.95	0.49
1:B:500:VAL:HG13	1:B:501:PRO:HD3	1.94	0.49
1:B:117:TYR:O	1:B:122:PRO:HA	2.12	0.49
1:A:465:LEU:N	1:A:465:LEU:HD12	2.29	0.48
1:B:110:ASP:OD2	1:B:125:ARG:NH2	2.45	0.48
1:A:467:VAL:HG12	1:A:469:PRO:HD3	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:373:PHE:CE2	1:B:408[A]:PRO:HB3	2.49	0.48
1:A:452:MET:O	1:A:465:LEU:HA	2.13	0.48
1:A:37:ASN:ND2	1:A:39:ARG:NH1	2.62	0.47
1:B:362:THR:HG22	1:B:363:ILE:N	2.30	0.47
1:B:599:GLU:O	1:B:602:TRP:HB2	2.14	0.47
1:B:58:GLU:OE2	1:B:105:ARG:NE	2.30	0.47
1:B:121:GLU:OE1	1:B:124:LYS:HE2	2.15	0.47
1:A:544:VAL:HG11	1:A:569:LEU:HD23	1.97	0.47
1:A:402:PHE:HD1	2:A:704:ACT:H3	1.81	0.46
1:A:155:ARG:O	1:A:155:ARG:HG3	2.16	0.46
1:A:366:MET:HE3	1:A:370:GLY:HA2	1.96	0.45
1:B:627:TRP:CE3	1:B:628:CYS:HB2	2.51	0.45
1:B:334:LEU:O	1:B:338:THR:HG23	2.17	0.45
1:A:89:ASP:OD1	1:A:89:ASP:C	2.57	0.45
1:B:346:MET:HG2	1:B:431:PHE:CE1	2.52	0.45
1:B:408[B]:PRO:HB2	1:B:409:PRO:HD3	1.98	0.45
1:B:206:LYS:HA	1:B:209:GLN:HE21	1.82	0.45
1:A:380:GLU:HG3	1:A:636:VAL:HG22	1.99	0.44
1:A:407[A]:CYS:HB3	1:A:408[A]:PRO:HD3	1.98	0.44
1:A:112:TYR:CE2	1:A:114:ASN:HB3	2.52	0.44
1:B:603:ASN:OD1	1:B:603:ASN:N	2.49	0.44
1:B:141:LEU:HB3	1:B:161:MET:HE2	1.99	0.44
1:B:408[A]:PRO:N	1:B:409:PRO:CD	2.81	0.44
1:A:605:GLU:HG2	3:A:957:HOH:O	2.17	0.44
1:A:640:ASN:ND2	3:A:869:HOH:O	2.51	0.44
1:B:304:VAL:HG23	1:B:330:ALA:HB1	2.00	0.44
1:B:479:LEU:HD13	1:B:522:LEU:HD21	1.99	0.43
1:B:610:ILE:O	1:B:610:ILE:HG13	2.18	0.43
1:A:237:TYR:CD2	1:A:243:TYR:HB2	2.54	0.43
1:B:555:LEU:O	1:B:635:MET:HA	2.18	0.43
1:B:571:ARG:H	1:B:642:LYS:HE2	1.84	0.43
1:B:227:GLU:HG3	1:B:228:ALA:N	2.34	0.42
1:B:460:ASP:OD2	3:B:1058:HOH:O	2.21	0.42
1:A:36:LEU:HD21	1:A:72:ASP:HB3	2.02	0.42
1:B:571:ARG:H	1:B:642:LYS:HG2	1.84	0.42
1:B:409:PRO:HA	1:B:412:ALA:HB3	2.02	0.42
1:A:58:GLU:OE2	1:A:105:ARG:NE	2.44	0.41
1:A:346:MET:HE1	1:A:424:LEU:HD23	2.01	0.41
1:A:461:GLY:HA3	1:A:524:PHE:O	2.21	0.41
1:A:490:VAL:HG22	1:A:522:LEU:CD2	2.45	0.41
1:B:362:THR:HG22	1:B:363:ILE:H	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:602:TRP:CH2	1:A:610:ILE:HD11	2.56	0.41
1:B:95:LEU:O	1:B:99:VAL:HG23	2.21	0.41
1:A:214:GLN:O	1:A:217:GLN:HG2	2.21	0.40
1:B:274:ALA:HB2	1:B:282:LEU:HB3	2.03	0.40
1:B:192:LEU:HD23	1:B:192:LEU:HA	1.91	0.40
1:B:29:ILE:HD13	1:B:29:ILE:HA	1.90	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	640/648 (99%)	622 (97%)	16 (2%)	2 (0%)	36	46
1	B	638/648 (98%)	616 (97%)	16 (2%)	6 (1%)	14	17
All	All	1278/1296 (99%)	1238 (97%)	32 (2%)	8 (1%)	24	27

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	187	GLU
1	B	187	GLU
1	B	407[A]	CYS
1	B	407[B]	CYS
1	B	405	ALA
1	A	405	ALA
1	B	408[A]	PRO
1	B	408[B]	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	540/545 (99%)	515 (95%)	25 (5%)	24 36
1	B	538/545 (99%)	509 (95%)	29 (5%)	20 29
All	All	1078/1090 (99%)	1024 (95%)	54 (5%)	22 33

All (54) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	6	VAL
1	A	12	LEU
1	A	15	GLN
1	A	44	GLU
1	A	59	SER
1	A	91	GLU
1	A	95	LEU
1	A	113	LEU
1	A	155	ARG
1	A	176	GLU
1	A	282	LEU
1	A	407[A]	CYS
1	A	407[B]	CYS
1	A	410	ASN
1	A	411	LEU
1	A	430	LEU
1	A	444	ILE
1	A	499	ILE
1	A	516	GLN
1	A	519	GLU
1	A	571	ARG
1	A	574	LYS
1	A	605	GLU
1	A	622	ILE
1	A	639	VAL
1	B	6	VAL
1	B	8	THR

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Mol	Chain	Res	Type
1	B	18	LYS
1	B	42	ASP
1	B	47	HIS
1	B	59	SER
1	B	60	ASP
1	B	91	GLU
1	B	113	LEU
1	B	141	LEU
1	B	217	GLN
1	B	218	GLN
1	B	226	LYS
1	B	282	LEU
1	B	304	VAL
1	B	362	THR
1	B	387	GLU
1	B	410	ASN
1	B	411	LEU
1	B	428	ASP
1	B	430	LEU
1	B	441	GLN
1	B	450	LYS
1	B	460	ASP
1	B	486	ARG
1	B	572	ASP
1	B	603	ASN
1	B	614	THR
1	B	639	VAL

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

Mol	Chain	Res	Type
1	A	47	HIS
1	A	108	GLN
1	A	178	GLN
1	A	217	GLN
1	A	321	ASN
1	A	456	ASN
1	A	515	GLN
1	A	516	GLN
1	A	547	GLN
1	A	566	ASN
1	A	640	ASN

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Mol	Chain	Res	Type
1	B	108	GLN
1	B	140	HIS
1	B	209	GLN
1	B	217	GLN
1	B	218	GLN
1	B	255	GLN
1	B	321	ASN
1	B	377	ASN
1	B	441	GLN
1	B	515	GLN
1	B	540	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

11 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	$\#\|Z\| > 2$
2	ACT	A	706	-	3,3,3	1.13	0	3,3,3	0.82	0
2	ACT	A	701	-	3,3,3	1.10	0	3,3,3	0.45	0
2	ACT	A	705	-	3,3,3	0.77	0	3,3,3	1.13	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	ACT	B	701	-	3,3,3	0.68	0	3,3,3	1.48	1 (33%)
2	ACT	A	702	-	3,3,3	1.08	0	3,3,3	0.41	0
2	ACT	B	702	-	3,3,3	0.60	0	3,3,3	1.51	0
2	ACT	B	704	-	3,3,3	0.86	0	3,3,3	0.71	0
2	ACT	B	703	-	3,3,3	0.77	0	3,3,3	0.74	0
2	ACT	B	705	-	3,3,3	0.99	0	3,3,3	0.52	0
2	ACT	A	704	-	3,3,3	0.74	0	3,3,3	0.95	0
2	ACT	A	703	-	3,3,3	0.69	0	3,3,3	1.06	0

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	701	ACT	OXT-C-CH3	2.02	123.52	115.05

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	706	ACT	1	0
2	A	704	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

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	637/648 (98%)	-0.50	6 (0%)	81	82	15, 28, 59, 106	5 (0%)
1	B	637/648 (98%)	-0.36	9 (1%)	73	75	20, 32, 64, 118	3 (0%)
All	All	1274/1296 (98%)	-0.43	15 (1%)	76	77	15, 30, 62, 118	8 (0%)

All (15) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	6	VAL	5.4
1	B	402	PHE	4.9
1	A	7	ALA	3.6
1	A	402	PHE	3.5
1	A	6	VAL	3.5
1	B	7	ALA	3.4
1	A	446	GLY	2.9
1	B	403	SER	2.6
1	A	407[A]	CYS	2.5
1	B	610	ILE	2.3
1	B	43	ALA	2.3
1	A	404	CYS	2.2
1	B	404	CYS	2.2
1	B	444	ILE	2.1
1	B	603	ASN	2.0

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

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

6.3 Carbohydrates

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
2	ACT	A	705	4/4	0.59	0.21	65,67,67,71	0
2	ACT	B	704	4/4	0.61	0.25	64,67,70,72	0
2	ACT	B	701	4/4	0.69	0.17	60,61,63,65	0
2	ACT	B	702	4/4	0.70	0.20	50,52,57,58	0
2	ACT	A	704	4/4	0.73	0.15	57,57,62,63	0
2	ACT	A	702	4/4	0.76	0.16	61,62,62,64	0
2	ACT	A	706	4/4	0.88	0.12	47,48,49,59	0
2	ACT	A	703	4/4	0.88	0.14	61,67,67,69	0
2	ACT	B	705	4/4	0.88	0.12	48,49,50,51	0
2	ACT	B	703	4/4	0.94	0.10	40,45,46,46	0
2	ACT	A	701	4/4	0.95	0.09	29,33,33,34	0

6.5 Other polymers (i)

There are no such residues in this entry.