Full wwPDB X-ray Structure Validation Report (i)

Jan 30, 2021 – 05:08 PM EST

PDB ID	:	3GVX
Title	:	Crystal structure of Glycerate dehydrogenase related protein from Thermoplasma acidophilum
Authors	:	Syed Ibrahim, B.; Kumaran, D.; Burley, S.K.; Swaminathan, S.; New York SGX Research Center for Structural Genomics (NYSGXRC)
Deposited on	:	2009-03-31
Resolution	:	2.20 Å(reported)

The following versions of software and data (see references (i)) 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	:	2.16
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)	:	2.16

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 2.20 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	Percentile Ranks	Value
Rfree		0.271
Clashscore		14
Ramachandran outliers		0.7%
Sidechain outliers		7.0%
RSRZ outliers		1.6%

Worse   *Better*

▊ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution
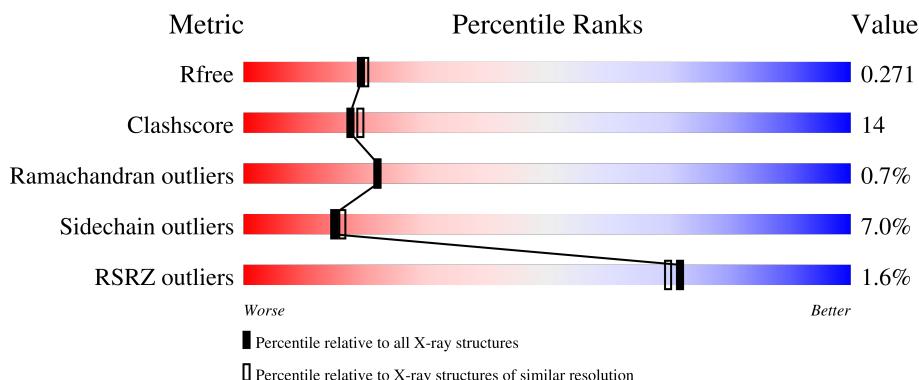
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	4898 (2.20-2.20)
Clashscore	141614	5594 (2.20-2.20)
Ramachandran outliers	138981	5503 (2.20-2.20)
Sidechain outliers	138945	5504 (2.20-2.20)
RSRZ outliers	127900	4800 (2.20-2.20)

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	290	75% 20% · ·
1	B	290	70% 24% 6% ·
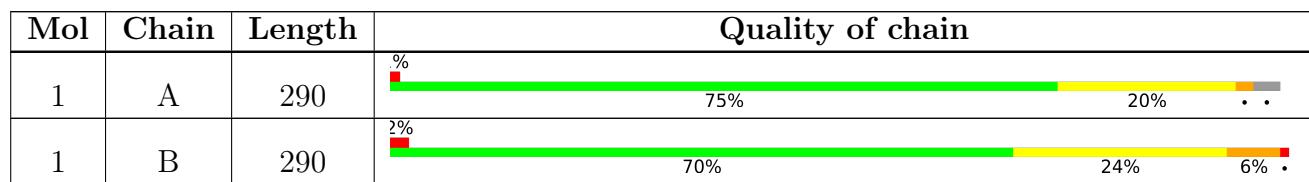
2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 4676 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 Glycerate dehydrogenase related protein.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	281	Total	C	N	O	S	Se	0	0	0
			2197	1401	382	406	1	7			
1	B	290	Total	C	N	O	S	Se	0	0	0
			2274	1446	403	417	1	7			

There are 18 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	LEU	-	expression tag	UNP Q9HJV5
A	283	GLU	-	expression tag	UNP Q9HJV5
A	284	GLY	-	expression tag	UNP Q9HJV5
A	285	HIS	-	expression tag	UNP Q9HJV5
A	286	HIS	-	expression tag	UNP Q9HJV5
A	287	HIS	-	expression tag	UNP Q9HJV5
A	288	HIS	-	expression tag	UNP Q9HJV5
A	289	HIS	-	expression tag	UNP Q9HJV5
A	290	HIS	-	expression tag	UNP Q9HJV5
B	1	LEU	-	expression tag	UNP Q9HJV5
B	283	GLU	-	expression tag	UNP Q9HJV5
B	284	GLY	-	expression tag	UNP Q9HJV5
B	285	HIS	-	expression tag	UNP Q9HJV5
B	286	HIS	-	expression tag	UNP Q9HJV5
B	287	HIS	-	expression tag	UNP Q9HJV5
B	288	HIS	-	expression tag	UNP Q9HJV5
B	289	HIS	-	expression tag	UNP Q9HJV5
B	290	HIS	-	expression tag	UNP Q9HJV5

- Molecule 2 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	B	1	Total	K	0	0
			1	1		

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	1	Total 1	K 1	0	0

- Molecule 3 is water.

| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	94	Total 94	O 94	0	0
3	B	109	Total 109	O 109	0	0

3 Residue-property plots ⓘ

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: Glycerate dehydrogenase related protein

Chain A:

• Molecule 1: Glycerate dehydrogenase related protein

Chain B:
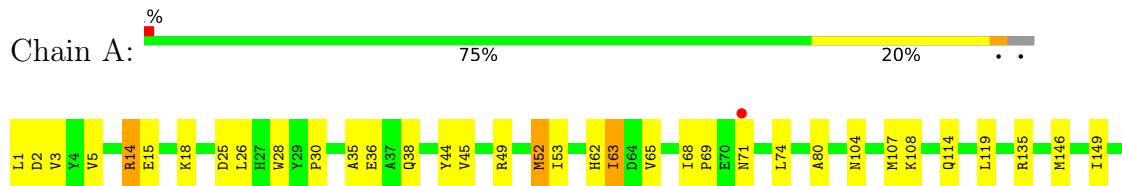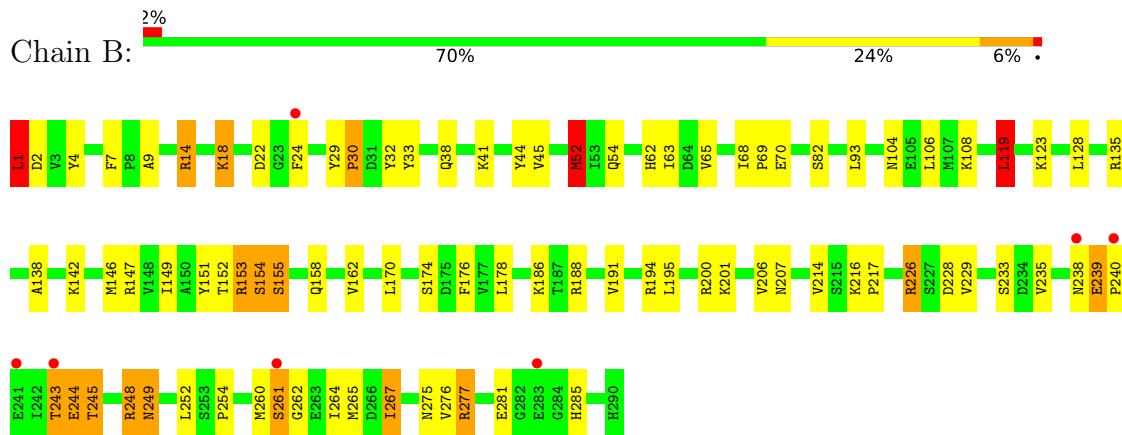
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	66.51Å 77.84Å 152.65Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	40.42 – 2.20 42.16 – 2.21	Depositor EDS
% Data completeness (in resolution range)	84.2 (40.42-2.20) 90.6 (42.16-2.21)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.85 (at 2.20Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.240 , 0.261 0.248 , 0.271	Depositor DCC
R_{free} test set	1846 reflections (4.80%)	wwPDB-VP
Wilson B-factor (Å^2)	32.4	Xtriage
Anisotropy	0.058	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 40.9	EDS
L-test for twinning[2]	$< |L| > = 0.48, < L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.92	EDS
Total number of atoms	4676	wwPDB-VP
Average B, all atoms (Å^2)	37.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.30% of the height of the origin peak. No significant pseudotranslation is detected.*

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[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: K

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	0.62	3/2234 (0.1%)	0.84	1/3021 (0.0%)
1	B	0.74	8/2317 (0.3%)	0.85	4/3133 (0.1%)
All	All	0.68	11/4551 (0.2%)	0.85	5/6154 (0.1%)

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	244	GLU	CD-OE2	-9.46	1.15	1.25
1	B	243	THR	C-O	-8.27	1.07	1.23
1	B	52	MSE	SE-CE	-7.35	1.52	1.95
1	B	244	GLU	C-O	-6.70	1.10	1.23
1	B	244	GLU	CD-OE1	-5.91	1.19	1.25
1	B	146	MSE	SE-CE	-5.72	1.61	1.95
1	A	260	MSE	CG-SE	-5.36	1.77	1.95
1	A	52	MSE	CG-SE	-5.36	1.77	1.95
1	A	146	MSE	SE-CE	-5.14	1.65	1.95
1	B	244	GLU	C-N	-5.03	1.22	1.34
1	B	243	THR	N-CA	-5.00	1.36	1.46

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	281	GLU	CA-C-O	17.44	156.72	120.10
1	B	119	LEU	CB-CG-CD2	-7.88	97.60	111.00
1	B	244	GLU	OE1-CD-OE2	-7.19	114.67	123.30
1	B	1	LEU	CA-CB-CG	6.74	130.81	115.30
1	B	119	LEU	CA-CB-CG	5.96	129.00	115.30

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	2197	0	2199	50	0
1	B	2274	0	2251	88	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
3	A	94	0	0	2	0
3	B	109	0	0	3	0
All	All	4676	0	4450	122	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 14.

All (122) 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:249:ASN:HD22	1:B:249:ASN:H	1.02	0.94
1:B:149:ILE:HG22	1:B:170:LEU:HD12	1.46	0.93
1:B:249:ASN:HD22	1:B:249:ASN:N	1.68	0.90
1:B:38:GLN:HE22	1:B:45:VAL:H	1.20	0.89
1:A:252:LEU:H	1:B:104:ASN:HD22	1.26	0.83
1:B:248:ARG:HH11	1:B:248:ARG:HB3	1.45	0.82
1:B:249:ASN:H	1:B:249:ASN:ND2	1.73	0.80
1:A:107:MSE:O	1:B:245:THR:HG21	1.83	0.78
1:B:52:MSE:HE1	1:B:276:VAL:HG22	1.63	0.78
1:B:70:GLU:HB2	3:B:395:HOH:O	1.83	0.78
1:B:38:GLN:NE2	1:B:44:TYR:HA	1.99	0.78
1:A:119:LEU:HD13	1:B:265:MSE:HE1	1.66	0.76
1:B:275:ASN:HD21	1:B:285:HIS:H	1.30	0.76
1:A:108:LYS:HA	1:B:245:THR:HG23	1.67	0.75
1:B:38:GLN:HE22	1:B:45:VAL:N	1.84	0.75
1:B:226:ARG:HD2	1:B:228:ASP:OD1	1.88	0.74
1:B:1:LEU:O	1:B:1:LEU:HD12	1.86	0.74
1:A:135:ARG:HD3	3:A:382:HOH:O	1.86	0.73
1:A:104:ASN:HD22	1:B:252:LEU:H	1.37	0.71
1:B:119:LEU:O	1:B:123:LYS:HD2	1.90	0.70
1:B:243:THR:O	1:B:244:GLU:CB	2.30	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:114:GLN:HE21	1:B:260:MSE:HG2	1.55	0.70
1:B:149:ILE:HG22	1:B:170:LEU:CD1	2.23	0.67
1:B:149:ILE:CG2	1:B:170:LEU:HD12	2.24	0.66
1:B:9:ALA:O	1:B:14:ARG:NH1	2.30	0.64
1:B:243:THR:O	1:B:244:GLU:HB2	1.97	0.64
1:B:1:LEU:CD1	1:B:1:LEU:O	2.45	0.64
1:A:156:VAL:HG21	1:A:163:ILE:HD11	1.78	0.64
1:A:65:VAL:HG12	1:A:74:LEU:CD2	2.27	0.63
1:B:238:ASN:O	1:B:239:GLU:O	2.16	0.63
1:A:71:ASN:N	1:A:71:ASN:HD22	1.98	0.61
1:B:52:MSE:HE1	1:B:54:GLN:HB2	1.82	0.60
1:A:219:MSE:HE3	1:A:231:TYR:CD1	2.37	0.59
1:B:191:VAL:HA	1:B:195:LEU:HD23	1.84	0.59
1:A:38:GLN:HE22	1:A:45:VAL:H	1.50	0.59
1:A:36:GLU:HA	1:A:49:ARG:O	2.02	0.59
1:B:178:LEU:HD12	1:B:206:VAL:HB	1.83	0.58
1:B:1:LEU:HD13	1:B:2:ASP:OD2	2.03	0.58
1:B:1:LEU:N	1:B:24:PHE:HA	2.18	0.57
1:B:226:ARG:HG3	1:B:229:VAL:HG23	1.86	0.57
1:A:1:LEU:O	1:A:2:ASP:HB2	2.04	0.57
1:A:107:MSE:O	1:B:245:THR:CG2	2.53	0.57
1:A:62:HIS:CE1	1:A:63:ILE:HG22	2.40	0.56
1:B:216:LYS:HB3	1:B:217:PRO:HD3	1.88	0.55
1:B:62:HIS:H	1:B:62:HIS:CD2	2.23	0.55
1:B:275:ASN:ND2	1:B:285:HIS:H	2.03	0.55
1:B:138:ALA:O	1:B:142:LYS:HG2	2.06	0.55
1:B:1:LEU:O	1:B:2:ASP:HB2	2.07	0.55
1:B:38:GLN:HE21	1:B:44:TYR:HA	1.71	0.55
1:A:181:ILE:HG12	1:A:182:PRO:HD2	1.90	0.54
1:A:252:LEU:H	1:B:104:ASN:ND2	2.02	0.54
1:B:52:MSE:SE	1:B:52:MSE:C	2.96	0.54
1:A:260:MSE:N	3:A:383:HOH:O	2.35	0.54
1:B:149:ILE:HG12	1:B:162:VAL:HB	1.89	0.54
1:A:38:GLN:NE2	1:A:45:VAL:H	2.06	0.53
1:A:52:MSE:HE1	1:A:276:VAL:HG13	1.90	0.53
1:B:52:MSE:CE	1:B:276:VAL:HG22	2.38	0.53
1:B:261:SER:OG	1:B:262:GLY:N	2.41	0.53
1:A:107:MSE:HG3	1:B:254:PRO:HD3	1.91	0.53
1:A:52:MSE:HE1	1:A:276:VAL:HA	1.91	0.53
1:B:38:GLN:HE22	1:B:44:TYR:CA	2.24	0.51
1:A:104:ASN:ND2	1:B:252:LEU:H	2.07	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:52:MSE:CE	1:A:276:VAL:HA	2.40	0.51
1:B:38:GLN:NE2	1:B:44:TYR:CA	2.72	0.51
1:A:52:MSE:HE1	1:A:276:VAL:HG22	1.93	0.50
1:B:1:LEU:H1	1:B:24:PHE:HA	1.77	0.50
1:B:52:MSE:CE	1:B:54:GLN:HB2	2.41	0.50
1:A:215:SER:HB3	1:A:218:ASP:HB2	1.93	0.49
1:A:80:ALA:HA	1:A:271:LEU:HD22	1.93	0.49
1:B:248:ARG:NH1	1:B:248:ARG:HB3	2.21	0.49
1:B:147:ARG:HH11	1:B:147:ARG:HG3	1.76	0.48
1:B:128:LEU:HD12	1:B:151:TYR:HD2	1.79	0.48
1:B:191:VAL:HB	1:B:214:VAL:HG22	1.95	0.48
1:B:226:ARG:CG	1:B:229:VAL:HG23	2.42	0.48
1:B:123:LYS:HD3	1:B:176:PHE:HE2	1.78	0.48
1:A:216:LYS:HB3	1:A:217:PRO:CD	2.44	0.47
1:A:108:LYS:HA	1:B:245:THR:CG2	2.42	0.47
1:B:38:GLN:NE2	1:B:45:VAL:H	2.00	0.47
1:A:104:ASN:HD21	1:A:108:LYS:HE3	1.80	0.47
1:B:63:ILE:O	1:B:65:VAL:HG23	2.15	0.47
1:A:2:ASP:O	1:A:35:ALA:HB1	2.15	0.46
1:A:149:ILE:HG22	1:A:170:LEU:HD12	1.96	0.46
1:B:174:SER:O	1:B:200:ARG:HD2	2.15	0.46
1:B:147:ARG:HG3	1:B:147:ARG:NH1	2.30	0.46
1:B:4:TYR:CZ	1:B:32:TYR:HA	2.50	0.46
1:A:38:GLN:NE2	1:A:44:TYR:HA	2.32	0.45
1:B:135:ARG:HD3	3:B:359:HOH:O	2.16	0.45
1:B:249:ASN:N	1:B:249:ASN:ND2	2.41	0.45
1:B:207:ASN:HB3	1:B:233:SER:OG	2.17	0.44
1:A:2:ASP:HA	1:A:25:ASP:O	2.17	0.44
1:B:128:LEU:HD12	1:B:151:TYR:CD2	2.52	0.44
1:A:243:THR:O	1:A:244:GLU:HB2	2.18	0.44
1:B:194:ARG:HH11	1:B:194:ARG:HG2	1.83	0.44
1:B:4:TYR:CE1	1:B:32:TYR:HA	2.53	0.44
1:A:119:LEU:HD22	1:B:265:MSE:CE	2.48	0.43
1:B:267:ILE:HA	1:B:267:ILE:HD13	1.80	0.43
1:A:14:ARG:HG3	1:A:28:TRP:CH2	2.53	0.43
1:A:53:ILE:HD12	1:A:68:ILE:HD13	1.99	0.43
1:B:262:GLY:O	1:B:264:ILE:HD12	2.18	0.43
1:A:267:ILE:HG21	1:B:119:LEU:HD21	2.00	0.43
1:B:7:PHE:CD2	1:B:41:LYS:HE3	2.53	0.43
1:B:154:SER:O	1:B:155:SER:CB	2.67	0.43
1:B:194:ARG:NE	3:B:363:HOH:O	2.52	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:114:GLN:NE2	1:B:260:MSE:HG2	2.30	0.43
1:A:201:LYS:O	1:A:202:ASN:HB2	2.19	0.43
1:B:1:LEU:O	1:B:2:ASP:CB	2.67	0.43
1:A:119:LEU:HD22	1:B:265:MSE:HE2	2.00	0.42
1:B:29:TYR:CD1	1:B:30:PRO:HA	2.54	0.42
1:A:231:TYR:O	1:A:250:ALA:HA	2.19	0.42
1:B:239:GLU:HA	1:B:240:PRO:HA	1.82	0.41
1:A:71:ASN:ND2	1:A:71:ASN:N	2.64	0.41
1:A:68:ILE:HA	1:A:69:PRO:HD2	1.81	0.41
1:B:152:THR:OG1	1:B:153:ARG:N	2.53	0.41
1:B:277:ARG:O	1:B:281:GLU:HG2	2.20	0.41
1:A:5:VAL:HG21	1:A:28:TRP:CZ3	2.56	0.41
1:B:32:TYR:CG	1:B:33:TYR:N	2.89	0.41
1:B:235:VAL:O	1:B:235:VAL:HG23	2.20	0.40
1:A:260:MSE:HB2	1:A:260:MSE:HE3	1.49	0.40
1:A:3:VAL:HB	1:A:26:LEU:HD23	2.03	0.40
1:A:247:LEU:O	1:B:108:LYS:HE2	2.22	0.40
1:B:18:LYS:NZ	1:B:18:LYS:HB2	2.37	0.40
1:B:68:ILE:HA	1:B:69:PRO:HD3	1.92	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	279/290 (96%)	261 (94%)	18 (6%)	0	100	100
1	B	288/290 (99%)	265 (92%)	19 (7%)	4 (1%)	11	8
All	All	567/580 (98%)	526 (93%)	37 (6%)	4 (1%)	22	22

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	154	SER
1	B	239	GLU
1	B	261	SER
1	B	155	SER

5.3.2 Protein sidechains ⓘ

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	233/233 (100%)	221 (95%)	12 (5%)	23	28
1	B	240/233 (103%)	219 (91%)	21 (9%)	10	10
All	All	473/466 (102%)	440 (93%)	33 (7%)	15	16

All (33) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	14	ARG
1	A	15	GLU
1	A	18	LYS
1	A	30	PRO
1	A	63	ILE
1	A	186	LYS
1	A	188	ARG
1	A	200	ARG
1	A	220	ILE
1	A	241	GLU
1	A	263	GLU
1	A	267	ILE
1	B	1	LEU
1	B	14	ARG
1	B	18	LYS
1	B	22	ASP
1	B	30	PRO
1	B	52	MSE
1	B	82	SER
1	B	93	LEU

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Mol	Chain	Res	Type
1	B	106	LEU
1	B	119	LEU
1	B	153	ARG
1	B	158	GLN
1	B	186	LYS
1	B	188	ARG
1	B	201	LYS
1	B	226	ARG
1	B	245	THR
1	B	248	ARG
1	B	249	ASN
1	B	267	ILE
1	B	277	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (13) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	38	GLN
1	A	66	ASN
1	A	71	ASN
1	A	104	ASN
1	A	114	GLN
1	A	275	ASN
1	B	38	GLN
1	B	62	HIS
1	B	99	ASN
1	B	104	ASN
1	B	249	ASN
1	B	275	ASN
1	B	278	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 monosaccharides in this entry.

5.6   Ligand geometry ⓘ

Of 2 ligands modelled in this entry, 2 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7   Other polymers ⓘ

There are no such residues in this entry.

5.8   Polymer linkage issues ⓘ

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, 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	274/290 (94%)	-0.06	2 (0%)	87	86	12, 36, 52, 59	0
1	B	283/290 (97%)	-0.03	7 (2%)	57	55	17, 38, 54, 60	0
All	All	557/580 (96%)	-0.04	9 (1%)	72	70	12, 37, 53, 60	0

All (9) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	243	THR	3.3
1	B	241	GLU	3.0
1	A	71	ASN	2.5
1	A	281	GLU	2.5
1	B	238	ASN	2.5
1	B	261	SER	2.3
1	B	240	PRO	2.1
1	B	24	PHE	2.1
1	B	283	GLU	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 monosaccharides in this entry.

6.4 Ligands ⓘ

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
2	K	B	291	1/1	0.93	0.37	44,44,44,44	0
2	K	A	291	1/1	0.99	0.30	24,24,24,24	0

6.5 Other polymers ⓘ

There are no such residues in this entry.