Full wwPDB X-ray Structure Validation Report ⓘ

Dec 8, 2023 – 04:12 am GMT

PDB ID	:	2J63
Title	:	Crystal structure of AP endonuclease LMAP from Leishmania major
Authors	:	Vidal, A.E.; Harkiolaki, M.; Gallego, C.; Castillo-Acosta, V.M.; Ruiz-Perez, L.M.; Wilson, K.S.; Gonzalez-Pacanowska, D.
Deposited on	:	2006-09-25
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 ⓘ 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:

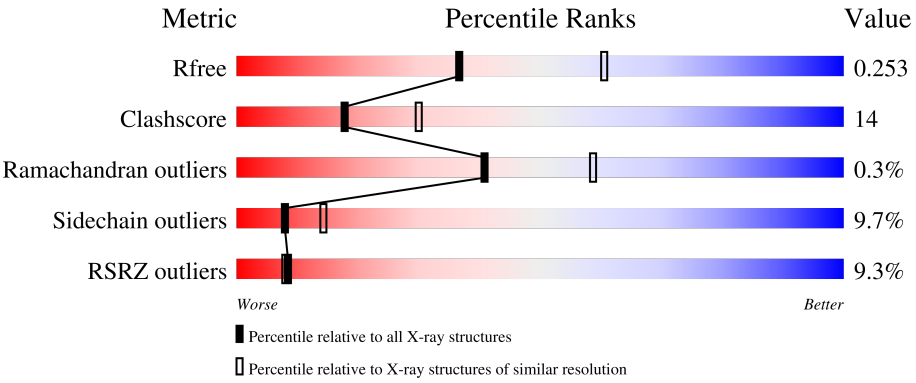
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (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}	130704	5857 (2.50-2.46)
Clashscore	141614	6594 (2.50-2.46)
Ramachandran outliers	138981	6469 (2.50-2.46)
Sidechain outliers	138945	6471 (2.50-2.46)
RSRZ outliers	127900	5738 (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	467	5% 51% 17% · 29%
1	B	467	8% 50% 18% · 29%

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 5443 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 AP-ENDONUCLEASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	333	Total	C	N	O	S	0	0	0
			2654	1673	469	494	18			
1	B	333	Total	C	N	O	S	0	0	0
			2654	1673	469	494	18			

- Molecule 2 is water.

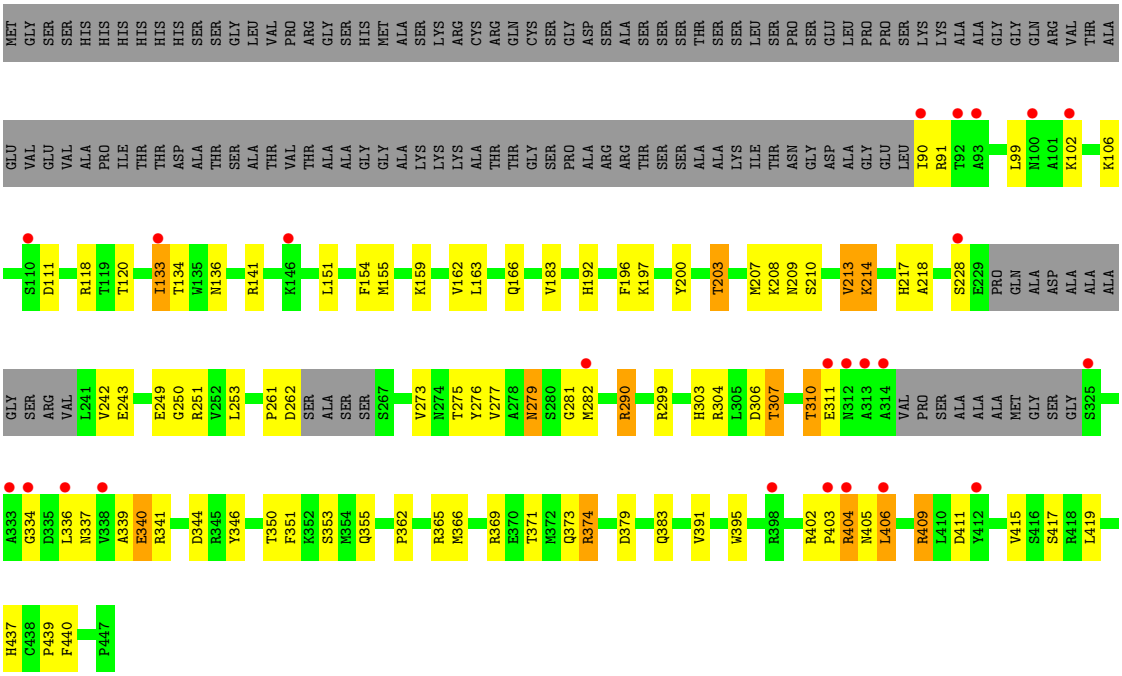
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	75	Total	O	0	0
			75	75		
2	B	60	Total	O	0	0
			60	60		

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.

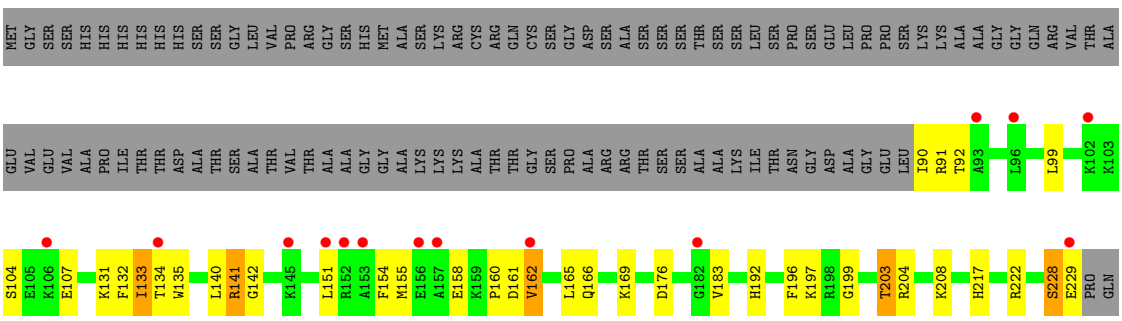
• Molecule 1: AP-ENDONUCLEASE

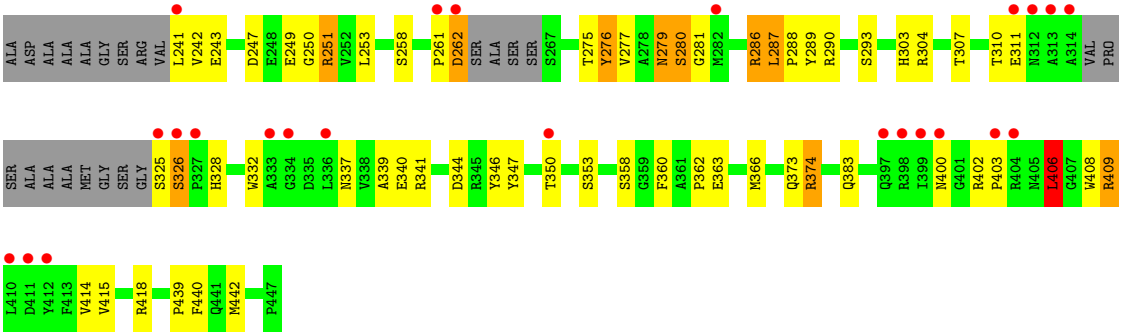
Chain A:



• Molecule 1: AP-ENDONUCLEASE

Chain B:




ALA ASP ALA ALA ALA GLY SER ARG VAL L241 V242 E243 D247 E248 E249 G250 R251 V252 L253 S258 P261 D262 SER ALA SER SER S267 T275 Y276 V277 A278 N279 S280 G281 M282 R286 L287 P288 Y289 R290 S293 H303 R304 T307 T310 E311 N312 A313 A314 VAL PRO
SER ALA ALA ALA MET GLY SER GLY S325 S326 P327 H328 W332 A333 G334 D335 L336 N337 V338 A339 E340 R341 D344 R345 Y346 Y347 T350 S353 S358 G359 F360 A361 P362 E363 M366 Q373 R374 Q383 Q397 R398 I399 N400 G401 R402 P403 R404 N405 L406 G407 W408 R409
L410 D411 Y412 F413 V414 V415 R418 P439 F440 Q441 M442 P447

4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	167.10Å 45.01Å 115.13Å 90.00° 116.79° 90.00°	Depositor
Resolution (Å)	105.41 – 2.48 29.25 – 2.48	Depositor EDS
% Data completeness (in resolution range)	99.2 (105.41-2.48) 99.3 (29.25-2.48)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.68 (at 2.48Å)	Xtriage
Refinement program	REFMAC 5.2.0019	Depositor
R, R_{free}	0.200 , 0.246 0.205 , 0.253	Depositor DCC
R_{free} test set	1378 reflections (5.05%)	wwPDB-VP
Wilson B-factor (Å^2)	41.0	Xtriage
Anisotropy	0.169	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 55.2	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	5443	wwPDB-VP
Average B, all atoms (Å^2)	44.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.92% 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

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	0.59	1/2720 (0.0%)	0.73	4/3682 (0.1%)
1	B	0.58	1/2720 (0.0%)	0.69	3/3682 (0.1%)
All	All	0.59	2/5440 (0.0%)	0.71	7/7364 (0.1%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	276	TYR	C-N	-6.70	1.18	1.34
1	A	213	VAL	C-N	-5.64	1.21	1.34

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	290	ARG	NE-CZ-NH2	-7.36	116.62	120.30
1	A	409	ARG	NE-CZ-NH2	-6.04	117.28	120.30
1	B	409	ARG	NE-CZ-NH2	-5.82	117.39	120.30
1	A	290	ARG	NE-CZ-NH1	5.81	123.21	120.30
1	B	406	LEU	CA-CB-CG	5.59	128.15	115.30
1	A	262	ASP	CB-CG-OD2	5.23	123.01	118.30
1	B	262	ASP	CB-CG-OD2	5.21	122.99	118.30

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	2654	0	2558	65	0
1	B	2654	0	2557	77	0
2	A	75	0	0	2	0
2	B	60	0	0	6	0
All	All	5443	0	5115	142	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 (142) 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:374:ARG:HG2	1:B:374:ARG:HH11	1.27	1.00
1:B:141:ARG:HD3	1:B:141:ARG:H	1.28	0.98
1:B:217:HIS:CD2	1:B:261:PRO:HD3	2.04	0.92
1:B:141:ARG:NH1	1:B:142:GLY:H	1.67	0.90
1:B:133:ILE:HD11	1:B:439:PRO:HB3	1.56	0.87
1:A:192:HIS:HB3	1:A:203:THR:HG22	1.56	0.85
1:A:310:THR:HG22	1:A:311:GLU:H	1.45	0.81
1:B:141:ARG:HH11	1:B:142:GLY:H	1.24	0.81
1:A:310:THR:HG22	1:A:311:GLU:N	1.96	0.80
1:B:374:ARG:HH11	1:B:374:ARG:CG	1.97	0.76
1:A:374:ARG:HG2	1:A:374:ARG:HH11	1.49	0.76
1:B:192:HIS:CE1	1:B:250:GLY:HA2	2.20	0.75
1:B:192:HIS:HB3	1:B:203:THR:HG22	1.69	0.74
1:B:347:TYR:HA	2:B:2046:HOH:O	1.87	0.73
1:B:261:PRO:HD2	2:B:2034:HOH:O	1.88	0.72
1:A:310:THR:CG2	1:A:311:GLU:N	2.53	0.71
1:B:133:ILE:HD11	1:B:439:PRO:CB	2.21	0.70
1:B:344:ASP:OD1	1:B:409:ARG:HD3	1.91	0.70
1:A:350:THR:HG23	1:A:353:SER:H	1.56	0.70
1:B:192:HIS:CD2	1:B:222:ARG:HD3	2.28	0.69
1:B:249:GLU:OE1	1:B:251:ARG:NH1	2.26	0.69
1:A:299:ARG:NH1	1:A:371:THR:OG1	2.26	0.68
1:B:166:GLN:HB2	1:B:276:TYR:HB2	1.76	0.68
1:A:209:ASN:O	1:A:214:LYS:HG3	1.94	0.68
1:A:306:ASP:O	1:A:310:THR:HB	1.94	0.66
1:A:249:GLU:OE1	1:A:251:ARG:NH1	2.29	0.65
1:B:279:ASN:HD22	1:B:281:GLY:H	1.42	0.65
1:B:374:ARG:HG2	1:B:374:ARG:NH1	2.03	0.65
1:A:344:ASP:OD1	1:A:409:ARG:HD3	1.97	0.65
1:A:279:ASN:HD22	1:A:281:GLY:H	1.45	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:374:ARG:HH11	1:A:374:ARG:CG	2.11	0.64
1:B:275:THR:CG2	1:B:277:VAL:HG23	2.28	0.63
1:B:228:SER:HB2	1:B:243:GLU:OE2	1.98	0.63
1:B:132:PHE:HD1	1:B:162:VAL:HG13	1.63	0.62
1:B:350:THR:HG23	1:B:353:SER:H	1.64	0.62
1:B:133:ILE:HG13	1:B:134:THR:N	2.14	0.61
1:B:287:LEU:HB3	1:B:288:PRO:HD3	1.83	0.60
1:B:339:ALA:HB1	1:B:344:ASP:HB3	1.82	0.60
1:B:104:SER:HB3	1:B:107:GLU:OE2	2.02	0.60
1:B:251:ARG:NH2	2:B:2032:HOH:O	2.33	0.60
1:A:411:ASP:OD1	1:A:437:HIS:HD2	1.84	0.60
1:A:192:HIS:HB3	1:A:203:THR:CG2	2.30	0.59
1:A:133:ILE:HG13	1:A:134:THR:N	2.17	0.59
1:A:166:GLN:HB2	1:A:276:TYR:HB2	1.84	0.58
1:A:133:ILE:HD11	1:A:439:PRO:HB3	1.84	0.57
1:A:374:ARG:HG2	1:A:374:ARG:NH1	2.19	0.57
1:B:132:PHE:CD1	1:B:162:VAL:HG13	2.40	0.57
1:A:207:MET:HE2	1:A:218:ALA:HB3	1.87	0.56
1:B:133:ILE:HD13	1:B:154:PHE:HZ	1.69	0.56
1:B:140:LEU:HD21	1:B:204:ARG:NH1	2.21	0.56
1:B:279:ASN:ND2	1:B:358:SER:OG	2.37	0.56
1:A:303:HIS:O	1:A:307:THR:HG22	2.05	0.56
1:B:158:GLU:HB3	1:B:160:PRO:HD3	1.87	0.56
1:A:136:ASN:HB3	1:A:437:HIS:CG	2.41	0.55
1:B:141:ARG:HD3	1:B:141:ARG:N	2.11	0.55
1:B:362:PRO:O	1:B:366:MET:HG3	2.07	0.55
1:B:280:SER:OG	1:B:287:LEU:HD23	2.08	0.54
1:A:166:GLN:NE2	2:A:2020:HOH:O	2.40	0.54
1:B:287:LEU:N	1:B:288:PRO:CD	2.70	0.54
1:B:346:TYR:CG	1:B:406:LEU:HB2	2.44	0.52
1:A:404:ARG:HB3	1:A:406:LEU:HD22	1.90	0.52
1:A:351:PHE:O	1:A:355:GLN:HG3	2.09	0.52
1:A:90:ILE:HG23	1:A:91:ARG:HG3	1.91	0.52
1:A:133:ILE:HG12	1:A:163:LEU:HD13	1.92	0.52
1:A:362:PRO:O	1:A:366:MET:HG3	2.10	0.51
1:B:141:ARG:H	1:B:141:ARG:CD	1.96	0.51
1:B:304:ARG:HA	1:B:307:THR:HG22	1.92	0.51
1:B:141:ARG:NH1	1:B:142:GLY:N	2.50	0.51
1:A:207:MET:CE	1:A:218:ALA:HB3	2.41	0.51
1:A:402:ARG:HB3	1:A:403:PRO:HD3	1.92	0.51
1:B:363:GLU:HA	1:B:366:MET:HE2	1.92	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:304:ARG:HA	1:A:307:THR:HG23	1.93	0.50
1:A:192:HIS:NE2	1:A:250:GLY:HA2	2.27	0.50
1:B:151:LEU:O	1:B:155:MET:HG2	2.11	0.50
1:B:192:HIS:HE1	1:B:247:ASP:OD1	1.95	0.49
1:B:287:LEU:HD22	1:B:287:LEU:O	2.11	0.49
1:B:341:ARG:O	1:B:344:ASP:HB2	2.12	0.49
1:A:91:ARG:NH2	1:A:362:PRO:HD2	2.28	0.49
1:B:161:ASP:OD1	1:B:208:LYS:HE2	2.12	0.49
1:B:326:SER:OG	1:B:328:HIS:ND1	2.34	0.49
1:B:310:THR:HG22	1:B:311:GLU:N	2.28	0.48
1:B:251:ARG:HB3	1:B:276:TYR:O	2.14	0.48
1:A:203:THR:HG23	1:A:253:LEU:HB2	1.96	0.47
1:B:402:ARG:HB3	1:B:403:PRO:HD3	1.96	0.47
1:B:131:LYS:NZ	1:B:158:GLU:O	2.36	0.47
1:A:203:THR:HB	1:A:250:GLY:O	2.15	0.47
1:A:217:HIS:CD2	1:A:261:PRO:HD3	2.49	0.47
1:A:346:TYR:CG	1:A:406:LEU:HB2	2.50	0.46
1:A:209:ASN:O	1:A:214:LYS:CG	2.63	0.46
1:A:133:ILE:CD1	1:A:439:PRO:HB3	2.45	0.45
1:B:290:ARG:NH2	1:B:337:ASN:HB3	2.31	0.45
1:B:304:ARG:HA	1:B:307:THR:CG2	2.46	0.45
1:A:118:ARG:HG2	1:A:118:ARG:O	2.15	0.45
1:A:133:ILE:HD13	1:A:154:PHE:HZ	1.81	0.45
1:B:203:THR:HG23	1:B:253:LEU:HD12	1.97	0.45
1:A:277:VAL:CG2	1:A:336:LEU:HA	2.46	0.45
1:B:203:THR:CG2	1:B:253:LEU:HB2	2.47	0.45
1:B:303:HIS:HB2	2:B:2039:HOH:O	2.16	0.45
1:B:242:VAL:HG22	1:B:243:GLU:N	2.31	0.45
1:A:197:LYS:HD2	1:A:200:TYR:CG	2.52	0.45
1:A:209:ASN:HD22	1:A:213:VAL:HG21	1.81	0.45
1:A:365:ARG:O	1:A:369:ARG:HG3	2.17	0.44
1:A:151:LEU:O	1:A:155:MET:HG2	2.17	0.44
1:A:415:VAL:HG12	1:A:419:LEU:HB2	1.99	0.44
1:A:242:VAL:HG22	1:A:243:GLU:N	2.33	0.44
1:A:340:GLU:OE2	1:A:341:ARG:HD3	2.18	0.44
1:B:104:SER:H	1:B:107:GLU:CD	2.21	0.44
1:B:325:SER:HB2	1:B:418:ARG:HB2	1.99	0.43
1:B:332:TRP:HB3	1:B:414:VAL:HB	1.99	0.43
1:B:166:GLN:CB	1:B:276:TYR:HB2	2.45	0.43
1:B:90:ILE:HG23	1:B:91:ARG:HG3	2.00	0.43
1:B:192:HIS:HD2	1:B:222:ARG:HD3	1.79	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:207:MET:HE2	1:A:218:ALA:CB	2.47	0.43
1:A:341:ARG:O	1:A:344:ASP:HB2	2.19	0.43
1:A:133:ILE:HD11	1:A:439:PRO:CB	2.49	0.43
1:A:242:VAL:HG22	1:A:243:GLU:H	1.83	0.42
1:A:379:ASP:CG	1:A:409:ARG:HH22	2.22	0.42
1:A:290:ARG:NH2	1:A:337:ASN:HB3	2.34	0.42
1:A:395:TRP:HE1	1:A:405:ASN:ND2	2.16	0.42
1:A:214:LYS:HB3	1:A:214:LYS:HE3	1.77	0.42
1:B:135:TRP:O	1:B:165:LEU:HA	2.20	0.42
1:B:208:LYS:HD2	2:B:2023:HOH:O	2.20	0.42
1:B:286:ARG:NH2	2:B:2038:HOH:O	2.52	0.42
1:B:217:HIS:HD2	1:B:258:SER:O	2.02	0.42
1:B:363:GLU:HA	1:B:366:MET:CE	2.49	0.41
1:B:360:PHE:HB2	1:B:408:TRP:CZ3	2.55	0.41
1:B:217:HIS:CD2	1:B:261:PRO:CD	2.92	0.41
1:A:133:ILE:CD1	1:A:439:PRO:CB	2.99	0.41
1:B:287:LEU:N	1:B:288:PRO:HD2	2.35	0.41
1:B:275:THR:HG21	1:B:277:VAL:HG23	2.02	0.41
1:A:203:THR:CG2	1:A:253:LEU:HB2	2.50	0.41
1:B:203:THR:HG23	1:B:253:LEU:HB2	2.03	0.41
1:B:169:LYS:O	1:B:199:GLY:HA2	2.21	0.41
1:B:217:HIS:HD2	1:B:261:PRO:HD3	1.74	0.40
1:A:134:THR:OG1	1:A:334:GLY:HA2	2.22	0.40
1:A:159:LYS:O	1:A:208:LYS:NZ	2.54	0.40
1:A:192:HIS:CE1	1:A:250:GLY:HA2	2.56	0.40
1:A:339:ALA:HB1	1:A:344:ASP:HB3	2.03	0.40
1:B:289:TYR:CD1	1:B:293:SER:HB2	2.56	0.40
1:A:141:ARG:NH1	2:A:2012:HOH:O	2.55	0.40
1:B:363:GLU:HG3	1:B:366:MET:CE	2.51	0.40
1:A:207:MET:CE	1:A:218:ALA:CB	3.00	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	325/467 (70%)	313 (96%)	10 (3%)	2 (1%)	25 40
1	B	325/467 (70%)	313 (96%)	12 (4%)	0	100 100
All	All	650/934 (70%)	626 (96%)	22 (3%)	2 (0%)	41 59

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	228	SER
1	A	210	SER

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	284/380 (75%)	258 (91%)	26 (9%)	9 16
1	B	284/380 (75%)	255 (90%)	29 (10%)	7 13
All	All	568/760 (75%)	513 (90%)	55 (10%)	8 14

All (55) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	99	LEU
1	A	102	LYS
1	A	106	LYS
1	A	111	ASP
1	A	120	THR
1	A	133	ILE
1	A	162	VAL
1	A	183	VAL
1	A	196	PHE
1	A	203	THR
1	A	214	LYS

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Mol	Chain	Res	Type
1	A	273	VAL
1	A	275	THR
1	A	279	ASN
1	A	282	MET
1	A	307	THR
1	A	310	THR
1	A	340	GLU
1	A	373	GLN
1	A	374	ARG
1	A	383	GLN
1	A	391	VAL
1	A	404	ARG
1	A	406	LEU
1	A	417	SER
1	A	440	PHE
1	B	92	THR
1	B	99	LEU
1	B	133	ILE
1	B	141	ARG
1	B	162	VAL
1	B	176	ASP
1	B	183	VAL
1	B	196	PHE
1	B	197	LYS
1	B	203	THR
1	B	228	SER
1	B	229	GLU
1	B	241	LEU
1	B	251	ARG
1	B	262	ASP
1	B	279	ASN
1	B	280	SER
1	B	286	ARG
1	B	287	LEU
1	B	326	SER
1	B	340	GLU
1	B	373	GLN
1	B	374	ARG
1	B	383	GLN
1	B	400	ASN
1	B	406	LEU
1	B	415	VAL

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Mol	Chain	Res	Type
1	B	440	PHE
1	B	442	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (15) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	166	GLN
1	A	209	ASN
1	A	217	HIS
1	A	279	ASN
1	A	376	ASN
1	A	387	GLN
1	A	405	ASN
1	A	437	HIS
1	B	192	HIS
1	B	209	ASN
1	B	217	HIS
1	B	279	ASN
1	B	312	ASN
1	B	355	GLN
1	B	376	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)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	B	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	B	276:TYR	C	277:VAL	N	1.18

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	333/467 (71%)	0.22	24 (7%) 15 15	29, 41, 72, 81	0
1	B	333/467 (71%)	0.49	38 (11%) 5 4	30, 41, 72, 81	0
All	All	666/934 (71%)	0.36	62 (9%) 8 8	29, 41, 72, 81	0

All (62) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	313	ALA	6.4
1	B	325	SER	5.8
1	B	400	ASN	5.1
1	B	314	ALA	4.7
1	A	311	GLU	4.3
1	B	326	SER	4.1
1	B	282	MET	3.9
1	B	312	ASN	3.9
1	B	262	ASP	3.8
1	B	398	ARG	3.7
1	B	403	PRO	3.5
1	B	182	GLY	3.5
1	A	398	ARG	3.5
1	A	314	ALA	3.4
1	A	228	SER	3.3
1	B	102	LYS	3.2
1	B	153	ALA	3.2
1	A	313	ALA	3.2
1	B	229	GLU	3.1
1	B	334	GLY	3.1
1	A	312	ASN	3.0
1	A	412	TYR	2.9
1	A	333	ALA	2.9
1	B	156	GLU	2.8

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Mol	Chain	Res	Type	RSRZ
1	B	397	GLN	2.7
1	A	325	SER	2.7
1	B	157	ALA	2.6
1	B	404	ARG	2.4
1	A	403	PRO	2.4
1	B	96	LEU	2.4
1	A	282	MET	2.4
1	B	399	ILE	2.4
1	B	145	LYS	2.3
1	B	151	LEU	2.3
1	A	336	LEU	2.3
1	A	146	LYS	2.3
1	A	93	ALA	2.3
1	B	261	PRO	2.3
1	A	100	ASN	2.3
1	B	93	ALA	2.3
1	B	311	GLU	2.3
1	B	152	ARG	2.3
1	A	110	SER	2.3
1	A	90	ILE	2.2
1	B	162	VAL	2.2
1	B	350	THR	2.2
1	B	336	LEU	2.2
1	B	412	TYR	2.2
1	B	333	ALA	2.2
1	A	92	THR	2.2
1	A	133	ILE	2.2
1	B	134	THR	2.2
1	A	334	GLY	2.1
1	B	241	LEU	2.1
1	A	338	VAL	2.1
1	B	410	LEU	2.1
1	A	406	LEU	2.1
1	A	102	LYS	2.1
1	A	404	ARG	2.1
1	B	411	ASP	2.0
1	B	106	LYS	2.0
1	B	327	PRO	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)

There are no ligands in this entry.

6.5 Other polymers (i)

There are no such residues in this entry.