Full wwPDB X-ray Structure Validation Report ⓘ

Jun 17, 2024 – 04:34 AM EDT

PDB ID	:	5IZV
Title	:	Crystal structure of the legionella pneumophila effector protein RavZ - F222
Authors	:	Kwon, D.H.; Kim, L.; Kim, B.-W.; Hong, S.B.; Song, H.K.
Deposited on	:	2016-03-26
Resolution	:	2.81 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:

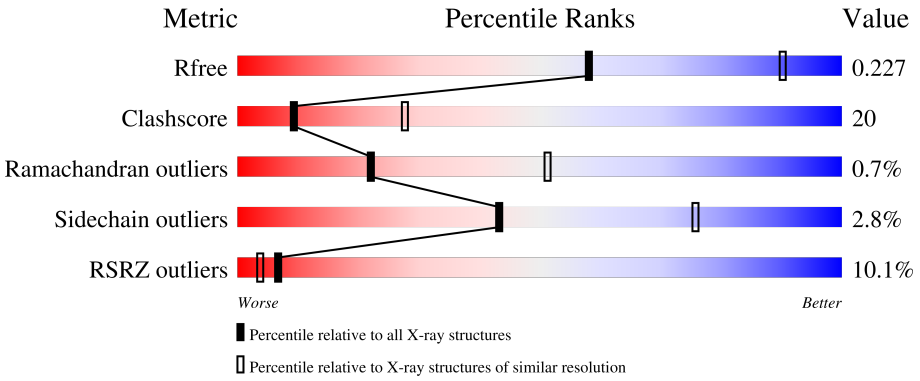
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.37.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

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 2.81 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	3617 (2.84-2.80)
Clashscore	141614	4060 (2.84-2.80)
Ramachandran outliers	138981	3978 (2.84-2.80)
Sidechain outliers	138945	3980 (2.84-2.80)
RSRZ outliers	127900	3552 (2.84-2.80)

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	502	9% 48% 25% · 25%
1	B	502	6% 45% 27% · 26%

2 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 5873 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 Uncharacterized protein RavZ.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	376	Total	C	N	O	S	0	0	0
			2965	1880	485	592	8			
1	B	369	Total	C	N	O	S	0	0	0
			2908	1847	475	578	8			

There are 2 discrepancies between the modelled and reference sequences:

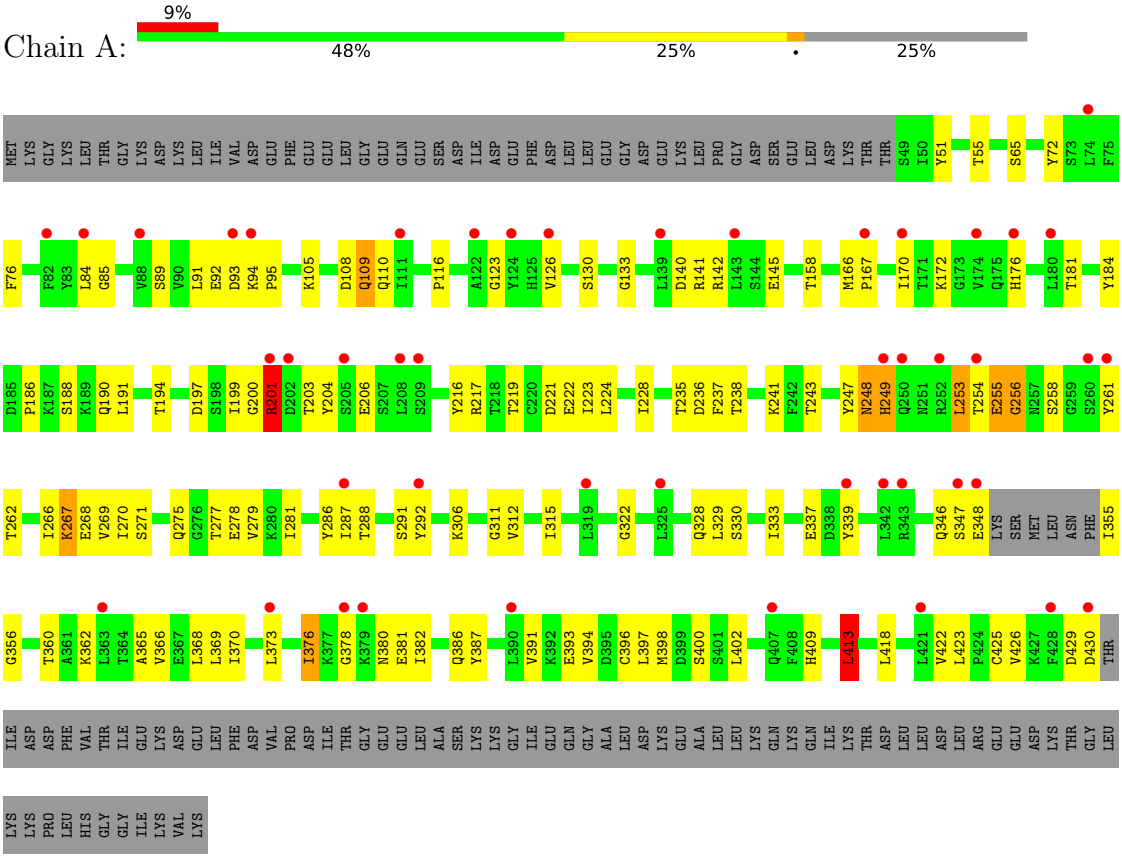
Chain	Residue	Modelled	Actual	Comment	Reference
A	258	SER	CYS	engineered mutation	UNP Q5ZUV9
B	258	SER	CYS	engineered mutation	UNP Q5ZUV9

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.

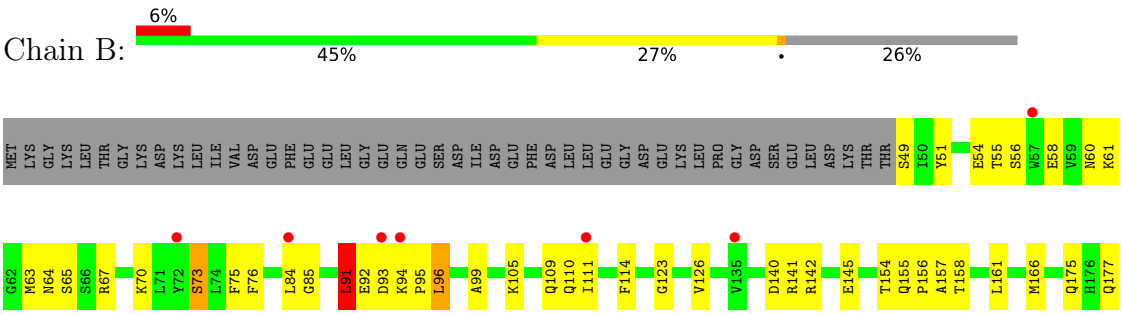
• Molecule 1: Uncharacterized protein RavZ

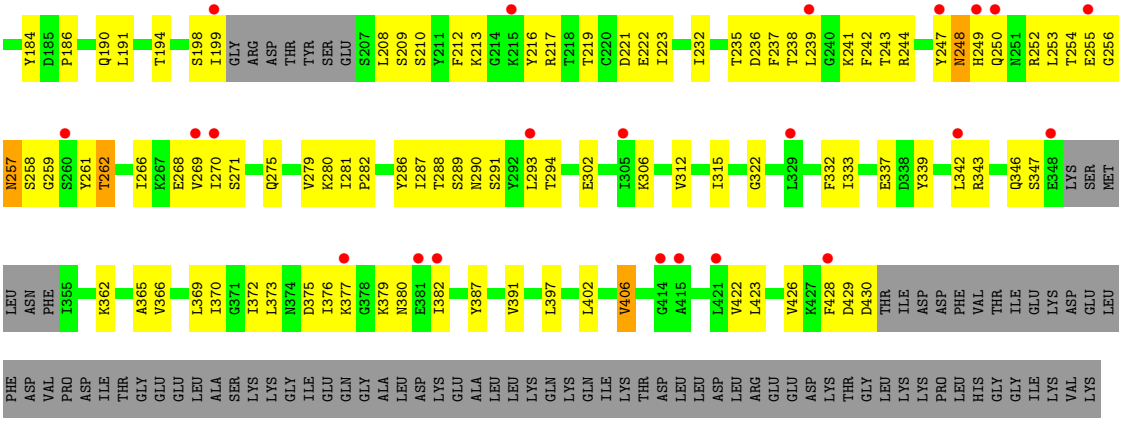
Chain A:



• Molecule 1: Uncharacterized protein RavZ

Chain B:




Y184 D185 P186 Q190 L191 T194 S198 I199 GLY ARG ASP THR TYR SER GLU S207 L208 S209 S210 Y211 F212 K213 G214 K215 Y216 R217 T218 T219 C220 D221 E222 I223 I232 T235 D236 F237 T238 L239 G240 K241 F242 T243 R244 Y247 N248 H249 Q250 N251 R252 L253 T254 E255 G256
N257 S258 G259 S260 Y261 T262 I266 K267 E268 V269 I270 S271 Q275 V279 K280 I281 P282 Y286 I287 T288 S289 N290 S291 Y292 L293 T294 E302 I305 K306 V312 I315 G322 L329 F332 I333 E337 D338 Y339 L342 R343 Q346 S347 E348 LYS SER MET
LEU ASN PHE I355 K362 A365 V366 L369 I370 G371 I372 L373 N374 D375 I376 K377 G378 K379 N380 E381 I382 Y387 V391 L397 L402 V406 G414 A415 L421 V422 L423 V426 K427 F428 D429 D430 THR ILE ASP ASP PHE VAL THR ILE GLU LYS ASP GLU LEU
PHE ASP VAL PRO ASP ILE THR GLY GLU GLU LEU ALA SER LYS LYS GLY ILE GLU GLN GLY ALA LEU ASP LYS GLU ALA LEU LEU LYS GLN LYS GLN ILE LYS THR ASP LEU LEU ASP LEU ARG GLU GLU ASP LYS THR GLY LEU LYS LYS PRO LEU HIS GLY GLY ILE LYS VAL LYS

4 Data and refinement statistics (i)

Property	Value	Source
Space group	F 2 2 2	Depositor
Cell constants a, b, c, α, β, γ	72.25Å 313.00Å 314.46Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	43.55 – 2.81 46.90 – 2.81	Depositor EDS
% Data completeness (in resolution range)	98.0 (43.55-2.81) 96.6 (46.90-2.81)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.90 (at 2.81Å)	Xtriage
Refinement program	PHENIX (1.10.1_2155: ???)	Depositor
R, R_{free}	0.188 , 0.227 0.188 , 0.227	Depositor DCC
R_{free} test set	2015 reflections (4.73%)	wwPDB-VP
Wilson B-factor (Å^2)	80.5	Xtriage
Anisotropy	0.153	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 63.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.449 for -h,l,k	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	5873	wwPDB-VP
Average B, all atoms (Å^2)	95.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.50% 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	0.58	3/3020 (0.1%)	0.81	5/4079 (0.1%)
1	B	0.49	0/2961	0.79	1/3998 (0.0%)
All	All	0.54	3/5981 (0.1%)	0.80	6/8077 (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	1

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	255	GLU	CD-OE1	-7.61	1.17	1.25
1	A	172	LYS	CD-CE	-7.52	1.32	1.51
1	A	255	GLU	CD-OE2	-6.19	1.18	1.25

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	91	LEU	CA-CB-CG	8.42	134.67	115.30
1	A	413	LEU	CB-CG-CD1	-5.58	101.51	111.00
1	A	256	GLY	N-CA-C	-5.45	99.47	113.10
1	A	376	ILE	CG1-CB-CG2	-5.42	99.47	111.40
1	A	413	LEU	CA-CB-CG	5.24	127.35	115.30
1	A	253	LEU	CB-CG-CD2	-5.20	102.16	111.00

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	203	THR	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	2965	0	2941	109	0
1	B	2908	0	2893	123	0
All	All	5873	0	5834	232	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 20.

All (232) 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:A:200:GLY:O	1:A:201:ARG:HD3	1.47	1.13
1:A:201:ARG:NH2	1:A:249:HIS:HA	1.66	1.09
1:A:201:ARG:HH22	1:A:249:HIS:HA	0.92	1.05
1:A:201:ARG:HH22	1:A:249:HIS:CA	1.71	1.03
1:A:409:HIS:O	1:A:413:LEU:HD23	1.59	1.03
1:B:252:ARG:NH1	1:B:256:GLY:CA	2.25	0.99
1:B:56:SER:O	1:B:61:LYS:NZ	1.96	0.98
1:A:362:LYS:HE3	1:A:396:CYS:SG	2.04	0.97
1:B:252:ARG:HH11	1:B:256:GLY:H	1.06	0.96
1:B:376:ILE:HD11	1:B:422:VAL:HG23	1.56	0.87
1:B:58:GLU:HG2	1:B:61:LYS:HE2	1.55	0.86
1:A:219:THR:HG22	1:A:221:ASP:H	1.40	0.85
1:B:252:ARG:HH12	1:B:256:GLY:C	1.80	0.84
1:B:252:ARG:NH1	1:B:256:GLY:C	2.32	0.83
1:B:252:ARG:NH1	1:B:256:GLY:H	1.76	0.82
1:B:252:ARG:HH11	1:B:256:GLY:N	1.79	0.81
1:B:252:ARG:NH1	1:B:256:GLY:N	2.29	0.80
1:B:258:SER:O	1:B:262:THR:HG23	1.83	0.79
1:B:250:GLN:HE22	1:B:261:TYR:HE1	1.32	0.77
1:A:194:THR:HG23	1:A:243:THR:HG23	1.67	0.77
1:B:252:ARG:NH1	1:B:257:ASN:N	2.33	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:375:ASP:O	1:B:380:ASN:HB2	1.86	0.75
1:A:217:ARG:NH2	1:A:222:GLU:OE1	2.19	0.74
1:B:217:ARG:NH2	1:B:222:GLU:OE1	2.20	0.74
1:B:252:ARG:HH12	1:B:257:ASN:N	1.86	0.74
1:A:258:SER:O	1:A:262:THR:HG23	1.88	0.73
1:B:219:THR:HG22	1:B:221:ASP:H	1.52	0.72
1:B:232:ILE:O	1:B:235:THR:HG22	1.87	0.72
1:A:381:GLU:HG3	1:A:425:CYS:O	1.88	0.72
1:A:287:ILE:HD12	1:A:287:ILE:H	1.55	0.72
1:B:252:ARG:NH1	1:B:256:GLY:HA3	2.03	0.70
1:B:85:GLY:O	1:B:105:LYS:NZ	2.23	0.70
1:B:114:PHE:CG	1:B:161:LEU:HD13	2.26	0.70
1:B:109:GLN:NE2	1:B:158:THR:HG23	2.07	0.69
1:B:287:ILE:H	1:B:287:ILE:HD12	1.56	0.68
1:A:362:LYS:NZ	1:A:396:CYS:O	2.19	0.68
1:B:221:ASP:OD2	1:B:244:ARG:NH1	2.28	0.67
1:B:114:PHE:CD2	1:B:161:LEU:HD13	2.30	0.67
1:B:199:ILE:HB	1:B:248:ASN:OD1	1.96	0.66
1:A:188:SER:OG	1:A:190:GLN:N	2.28	0.66
1:A:362:LYS:HE2	1:A:402:LEU:HD23	1.78	0.65
1:B:302:GLU:O	1:B:306:LYS:HG3	1.96	0.65
1:A:369:LEU:HD22	1:A:397:LEU:HD13	1.78	0.65
1:A:346:GLN:HB2	1:A:347:SER:HA	1.78	0.65
1:B:208:LEU:O	1:B:213:LYS:NZ	2.25	0.64
1:B:387:TYR:O	1:B:391:VAL:HG23	1.98	0.63
1:A:355:ILE:HG13	1:A:356:GLY:H	1.64	0.62
1:B:289:SER:O	1:B:293:LEU:N	2.32	0.62
1:B:333:ILE:HG23	1:B:370:ILE:HG23	1.81	0.62
1:A:109:GLN:HG3	1:A:110:GLN:N	2.14	0.61
1:A:51:TYR:CZ	1:A:312:VAL:HG12	2.35	0.61
1:A:311:GLY:O	1:A:315:ILE:HD12	2.00	0.61
1:B:288:THR:O	1:B:291:SER:OG	2.16	0.61
1:A:235:THR:OG1	1:A:236:ASP:N	2.34	0.61
1:B:252:ARG:CZ	1:B:256:GLY:HA3	2.29	0.61
1:B:235:THR:OG1	1:B:236:ASP:N	2.34	0.61
1:B:372:ILE:HG23	1:B:382:ILE:HD12	1.82	0.60
1:A:133:GLY:C	1:A:223:ILE:HD13	2.21	0.60
1:A:55:THR:O	1:A:306:LYS:HE3	2.01	0.60
1:A:255:GLU:HG2	1:A:256:GLY:C	2.22	0.60
1:A:201:ARG:NH2	1:A:249:HIS:O	2.34	0.60
1:B:247:TYR:HB3	1:B:281:ILE:HD12	1.83	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:333:ILE:O	1:A:337:GLU:HG3	2.02	0.59
1:B:190:GLN:HG3	1:B:238:THR:HB	1.84	0.59
1:B:194:THR:HG22	1:B:243:THR:HB	1.83	0.59
1:A:333:ILE:HG23	1:A:370:ILE:HG23	1.84	0.59
1:A:422:VAL:O	1:A:425:CYS:HB2	2.03	0.59
1:B:114:PHE:CG	1:B:161:LEU:CD1	2.86	0.59
1:B:199:ILE:HD12	1:B:248:ASN:ND2	2.18	0.58
1:A:373:LEU:O	1:A:376:ILE:HG22	2.04	0.58
1:A:201:ARG:CZ	1:A:249:HIS:HA	2.31	0.58
1:A:397:LEU:HD12	1:A:418:LEU:HD13	1.85	0.58
1:A:91:LEU:HD23	1:A:92:GLU:N	2.19	0.58
1:A:142:ARG:NH2	1:A:145:GLU:OE1	2.36	0.58
1:B:332:PHE:HZ	1:B:406:VAL:HG13	1.68	0.58
1:A:235:THR:HG21	1:A:237:PHE:CD2	2.39	0.57
1:A:288:THR:O	1:A:291:SER:OG	2.22	0.56
1:B:249:HIS:CG	1:B:289:SER:OG	2.58	0.56
1:A:91:LEU:HD22	1:A:94:LYS:N	2.20	0.56
1:B:402:LEU:O	1:B:406:VAL:HG23	2.06	0.56
1:B:51:TYR:CZ	1:B:312:VAL:HG12	2.40	0.55
1:B:379:LYS:HB2	1:B:380:ASN:HA	1.88	0.55
1:A:204:TYR:C	1:A:206:GLU:H	2.09	0.55
1:B:51:TYR:HE2	1:B:315:ILE:HD12	1.72	0.55
1:B:343:ARG:O	1:B:343:ARG:HG2	2.07	0.55
1:B:379:LYS:N	1:B:380:ASN:OD1	2.38	0.55
1:A:201:ARG:HH22	1:A:249:HIS:C	2.10	0.55
1:A:400:SER:O	1:A:402:LEU:N	2.38	0.54
1:B:271:SER:O	1:B:275:GLN:HG3	2.08	0.54
1:B:210:SER:HA	1:B:213:LYS:HE2	1.90	0.54
1:B:252:ARG:NE	1:B:254:THR:OG1	2.40	0.54
1:B:250:GLN:NE2	1:B:261:TYR:HE1	2.02	0.54
1:A:89:SER:HB3	1:A:105:LYS:HE3	1.88	0.54
1:A:381:GLU:OE1	1:A:425:CYS:SG	2.66	0.54
1:B:142:ARG:NH2	1:B:145:GLU:OE1	2.41	0.54
1:B:177:GLN:HG2	1:B:259:GLY:HA2	1.90	0.54
1:B:235:THR:HG23	1:B:237:PHE:H	1.73	0.54
1:A:346:GLN:HA	1:A:348:GLU:N	2.23	0.53
1:B:54:GLU:OE1	1:B:67:ARG:NH1	2.41	0.53
1:A:355:ILE:HG13	1:A:356:GLY:N	2.24	0.53
1:B:109:GLN:HE21	1:B:158:THR:HG23	1.72	0.53
1:A:373:LEU:HA	1:A:376:ILE:HG22	1.90	0.53
1:B:236:ASP:N	1:B:236:ASP:OD1	2.41	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:362:LYS:CE	1:A:396:CYS:SG	2.91	0.52
1:A:382:ILE:HD11	1:A:386:GLN:HB3	1.92	0.52
1:B:55:THR:O	1:B:306:LYS:HE3	2.09	0.52
1:A:277:THR:HG22	1:A:278:GLU:O	2.09	0.52
1:B:114:PHE:HB2	1:B:161:LEU:HD12	1.91	0.52
1:A:141:ARG:O	1:A:145:GLU:HG3	2.09	0.51
1:B:382:ILE:HG23	1:B:426:VAL:HA	1.92	0.51
1:A:328:GLN:HG3	1:A:330:SER:OG	2.11	0.51
1:A:85:GLY:O	1:A:105:LYS:NZ	2.32	0.51
1:A:255:GLU:HB2	1:A:258:SER:OG	2.11	0.51
1:A:255:GLU:HG2	1:A:256:GLY:CA	2.41	0.50
1:B:262:THR:O	1:B:266:ILE:HG13	2.11	0.50
1:B:333:ILE:O	1:B:337:GLU:HG3	2.11	0.50
1:B:247:TYR:HD1	1:B:282:PRO:HG2	1.76	0.50
1:B:70:LYS:O	1:B:73:SER:OG	2.30	0.50
1:B:51:TYR:CE2	1:B:315:ILE:HD12	2.47	0.50
1:B:154:THR:OG1	1:B:155:GLN:OE1	2.25	0.49
1:B:342:LEU:HD23	1:B:342:LEU:O	2.11	0.49
1:B:114:PHE:CB	1:B:161:LEU:HD12	2.42	0.49
1:B:232:ILE:HB	1:B:235:THR:HG21	1.95	0.48
1:A:378:GLY:C	1:A:380:ASN:HB2	2.33	0.48
1:B:339:TYR:CZ	1:B:402:LEU:HB2	2.48	0.48
1:B:428:PHE:O	1:B:430:ASP:HA	2.13	0.48
1:B:268:GLU:HG3	1:B:268:GLU:O	2.14	0.48
1:A:236:ASP:N	1:A:236:ASP:OD2	2.40	0.48
1:B:114:PHE:CB	1:B:161:LEU:CD1	2.90	0.48
1:A:269:VAL:HG22	1:A:279:VAL:HG21	1.95	0.48
1:A:176:HIS:NE2	1:A:199:ILE:HG12	2.29	0.48
1:B:369:LEU:HD22	1:B:397:LEU:HD13	1.95	0.48
1:A:201:ARG:NH2	1:A:249:HIS:CA	2.48	0.47
1:A:409:HIS:C	1:A:413:LEU:HD23	2.32	0.47
1:B:266:ILE:O	1:B:270:ILE:HG13	2.14	0.47
1:A:247:TYR:HB3	1:A:281:ILE:HD12	1.95	0.47
1:B:91:LEU:O	1:B:92:GLU:HG3	2.15	0.47
1:A:176:HIS:CE1	1:A:199:ILE:HG12	2.49	0.47
1:B:155:GLN:HB3	1:B:156:PRO:HD2	1.97	0.47
1:B:249:HIS:NE2	1:B:288:THR:HG23	2.30	0.47
1:B:247:TYR:CD1	1:B:282:PRO:HG2	2.49	0.47
1:A:92:GLU:HA	1:A:93:ASP:HA	1.56	0.47
1:A:201:ARG:NH2	1:A:249:HIS:C	2.67	0.47
1:A:93:ASP:HB3	1:A:95:PRO:CD	2.45	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:219:THR:HG22	1:A:221:ASP:N	2.20	0.46
1:A:271:SER:O	1:A:275:GLN:HG3	2.13	0.46
1:A:339:TYR:CZ	1:A:402:LEU:HB2	2.49	0.46
1:A:93:ASP:N	1:A:94:LYS:HA	2.31	0.46
1:A:365:ALA:HB1	1:A:397:LEU:CD2	2.46	0.46
1:B:423:LEU:HA	1:B:426:VAL:HG23	1.96	0.46
1:B:93:ASP:HB3	1:B:95:PRO:CD	2.46	0.46
1:B:96:LEU:HB3	1:B:99:ALA:HB3	1.96	0.46
1:A:130:SER:O	1:A:217:ARG:NH1	2.49	0.46
1:B:94:LYS:NZ	1:B:110:GLN:HE22	2.13	0.46
1:A:328:GLN:CD	1:A:329:LEU:H	2.19	0.46
1:A:176:HIS:HE1	1:A:197:ASP:OD2	1.98	0.45
1:B:379:LYS:CB	1:B:380:ASN:HA	2.46	0.45
1:A:108:ASP:OD1	1:A:108:ASP:N	2.48	0.45
1:A:184:TYR:HB2	1:A:191:LEU:HD22	1.98	0.45
1:A:387:TYR:O	1:A:391:VAL:HG23	2.17	0.45
1:B:209:SER:O	1:B:212:PHE:N	2.49	0.45
1:A:268:GLU:O	1:A:268:GLU:HG3	2.16	0.45
1:A:170:ILE:HG21	1:A:170:ILE:HD13	1.53	0.45
1:B:175:GLN:O	1:B:255:GLU:HA	2.17	0.44
1:B:269:VAL:HG22	1:B:279:VAL:HG21	2.00	0.44
1:A:248:ASN:ND2	1:A:261:TYR:CZ	2.85	0.44
1:A:109:GLN:NE2	1:A:158:THR:OG1	2.51	0.44
1:B:109:GLN:HG3	1:B:110:GLN:N	2.32	0.44
1:A:262:THR:O	1:A:266:ILE:HG13	2.18	0.44
1:A:190:GLN:HA	1:A:238:THR:O	2.17	0.44
1:B:75:PHE:HB3	1:B:84:LEU:HD12	2.00	0.44
1:B:288:THR:HG22	1:B:289:SER:N	2.33	0.44
1:B:332:PHE:CD2	1:B:373:LEU:HD21	2.52	0.44
1:B:362:LYS:HE2	1:B:402:LEU:HD23	2.00	0.44
1:A:423:LEU:HA	1:A:426:VAL:HG23	1.99	0.43
1:B:141:ARG:O	1:B:145:GLU:HG3	2.18	0.43
1:A:190:GLN:HG3	1:A:238:THR:HG23	2.00	0.43
1:A:72:TYR:CZ	1:A:116:PRO:HD3	2.53	0.43
1:B:253:LEU:HD23	1:B:253:LEU:H	1.83	0.43
1:A:346:GLN:HA	1:A:348:GLU:H	1.81	0.43
1:B:362:LYS:O	1:B:366:VAL:HG13	2.17	0.43
1:B:235:THR:CG2	1:B:237:PHE:H	2.31	0.43
1:A:286:TYR:CE1	1:A:292:TYR:HD2	2.37	0.43
1:A:429:ASP:HA	1:A:430:ASP:HA	1.69	0.43
1:B:429:ASP:HA	1:B:430:ASP:HA	1.76	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:184:TYR:CZ	1:A:186:PRO:HA	2.54	0.43
1:B:184:TYR:HB2	1:B:191:LEU:HD22	2.00	0.43
1:A:76:PHE:CD1	1:A:322:GLY:HA2	2.54	0.43
1:B:184:TYR:CZ	1:B:186:PRO:HA	2.53	0.43
1:B:76:PHE:CE2	1:B:322:GLY:HA2	2.53	0.43
1:A:362:LYS:O	1:A:366:VAL:HG13	2.19	0.42
1:B:110:GLN:O	1:B:157:ALA:HA	2.19	0.42
1:A:167:PRO:HB2	1:A:170:ILE:HG22	2.02	0.42
1:A:366:VAL:O	1:A:370:ILE:HG13	2.19	0.42
1:B:198:SER:HA	1:B:247:TYR:O	2.20	0.42
1:B:58:GLU:OE2	1:B:60:ASN:HB2	2.20	0.42
1:A:365:ALA:HB1	1:A:397:LEU:HD23	2.01	0.42
1:A:382:ILE:HG23	1:A:426:VAL:HA	2.00	0.42
1:B:232:ILE:HB	1:B:235:THR:CG2	2.48	0.42
1:B:290:ASN:O	1:B:294:THR:HG22	2.19	0.42
1:B:365:ALA:HB1	1:B:397:LEU:CD2	2.49	0.42
1:A:224:LEU:O	1:A:228:ILE:HG13	2.19	0.42
1:A:376:ILE:HD13	1:A:376:ILE:HG21	1.76	0.42
1:B:126:VAL:O	1:B:216:TYR:HA	2.20	0.42
1:A:365:ALA:HA	1:A:393:GLU:HG2	2.01	0.42
1:A:346:GLN:CB	1:A:347:SER:HA	2.42	0.42
1:B:232:ILE:HD11	1:B:239:LEU:HB2	2.02	0.42
1:A:123:GLY:HA2	1:A:166:MET:O	2.20	0.41
1:A:241:LYS:HD2	1:A:241:LYS:HA	1.75	0.41
1:B:93:ASP:HB3	1:B:95:PRO:N	2.35	0.41
1:B:255:GLU:HB2	1:B:256:GLY:HA2	2.01	0.41
1:B:346:GLN:HA	1:B:347:SER:HA	1.79	0.41
1:A:287:ILE:H	1:A:287:ILE:CD1	2.28	0.41
1:B:333:ILE:HD12	1:B:377:LYS:HE2	2.02	0.41
1:A:355:ILE:CG1	1:A:356:GLY:H	2.32	0.41
1:A:84:LEU:HD21	1:A:267:LYS:HD2	2.03	0.41
1:A:126:VAL:O	1:A:216:TYR:HA	2.20	0.41
1:A:201:ARG:NH1	1:A:249:HIS:HA	2.36	0.41
1:B:123:GLY:HA2	1:B:166:MET:O	2.21	0.41
1:B:56:SER:O	1:B:56:SER:OG	2.38	0.41
1:B:63:MET:HG3	1:B:64:ASN:N	2.36	0.41
1:B:257:ASN:OD1	1:B:257:ASN:C	2.59	0.41
1:B:280:LYS:HB2	1:B:286:TYR:HE1	1.84	0.41
1:B:93:ASP:OD1	1:B:95:PRO:HA	2.21	0.41
1:B:223:ILE:HD12	1:B:223:ILE:HA	1.88	0.41
1:A:266:ILE:O	1:A:270:ILE:HG13	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:394:VAL:O	1:A:398:MET:HG2	2.21	0.40
1:A:188:SER:OG	1:A:190:GLN:HB2	2.21	0.40
1:B:190:GLN:HA	1:B:238:THR:O	2.21	0.40
1:B:241:LYS:NZ	1:B:242:PHE:H	2.19	0.40
1:A:93:ASP:HB3	1:A:95:PRO:N	2.37	0.40
1:B:110:GLN:C	1:B:111:ILE:HD13	2.42	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	372/502 (74%)	353 (95%)	15 (4%)	4 (1%)	14 39
1	B	363/502 (72%)	350 (96%)	12 (3%)	1 (0%)	41 70
All	All	735/1004 (73%)	703 (96%)	27 (4%)	5 (1%)	22 51

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	249	HIS
1	A	248	ASN
1	A	254	THR
1	B	257	ASN
1	A	201	ARG

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	337/449 (75%)	327 (97%)	10 (3%)	41 73
1	B	331/449 (74%)	322 (97%)	9 (3%)	44 77
All	All	668/898 (74%)	649 (97%)	19 (3%)	43 76

All (19) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	65	SER
1	A	109	GLN
1	A	140	ASP
1	A	181	THR
1	A	201	ARG
1	A	253	LEU
1	A	267	LYS
1	A	360	THR
1	A	368	LEU
1	A	413	LEU
1	B	49	SER
1	B	65	SER
1	B	73	SER
1	B	91	LEU
1	B	96	LEU
1	B	140	ASP
1	B	248	ASN
1	B	262	THR
1	B	406	VAL

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	109	GLN
1	A	226	GLN
1	B	110	GLN
1	B	226	GLN

5.3.3 RNA

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)

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	376/502 (74%)	0.91	46 (12%)	4	2	49, 89, 162, 260	0
1	B	369/502 (73%)	0.85	29 (7%)	12	7	49, 89, 153, 235	0
All	All	745/1004 (74%)	0.88	75 (10%)	7	4	49, 89, 157, 260	0

All (75) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	348	GLU	11.3
1	A	348	GLU	9.1
1	B	250	GLN	7.2
1	B	249	HIS	6.6
1	A	205	SER	5.3
1	A	379	LYS	4.2
1	B	428	PHE	4.0
1	A	202	ASP	3.7
1	A	208	LEU	3.7
1	A	74	LEU	3.5
1	A	249	HIS	3.5
1	A	339	TYR	3.5
1	B	94	LYS	3.4
1	B	329	LEU	3.0
1	A	252	ARG	3.0
1	A	126	VAL	2.9
1	A	139	LEU	2.9
1	A	111	ILE	2.9
1	B	215	LYS	2.9
1	A	176	HIS	2.8
1	A	421	LEU	2.8
1	A	170	ILE	2.8
1	A	93	ASP	2.7
1	B	415	ALA	2.7

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Mol	Chain	Res	Type	RSRZ
1	B	377	LYS	2.7
1	A	325	LEU	2.7
1	A	261	TYR	2.7
1	A	287	ILE	2.7
1	B	270	ILE	2.7
1	B	414	GLY	2.6
1	A	94	LYS	2.6
1	A	363	LEU	2.6
1	A	124	TYR	2.6
1	A	84	LEU	2.5
1	A	428	PHE	2.5
1	B	72	TYR	2.5
1	A	292	TYR	2.5
1	A	390	LEU	2.5
1	A	88	VAL	2.5
1	A	174	VAL	2.5
1	B	247	TYR	2.4
1	A	430	ASP	2.4
1	A	347	SER	2.4
1	B	111	ILE	2.4
1	A	180	LEU	2.4
1	A	260	SER	2.4
1	B	84	LEU	2.4
1	B	305	ILE	2.4
1	B	421	LEU	2.4
1	A	342	LEU	2.3
1	A	407	GLN	2.3
1	B	135	VAL	2.3
1	A	250	GLN	2.3
1	B	93	ASP	2.3
1	A	122	ALA	2.3
1	B	260	SER	2.2
1	A	201	ARG	2.2
1	A	378	GLY	2.2
1	A	167	PRO	2.2
1	B	269	VAL	2.1
1	A	82	PHE	2.1
1	B	57	TRP	2.1
1	B	293	LEU	2.1
1	B	382	ILE	2.1
1	B	199	ILE	2.1
1	B	342	LEU	2.1

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Mol	Chain	Res	Type	RSRZ
1	A	254	THR	2.0
1	B	255	GLU	2.0
1	A	373	LEU	2.0
1	A	343	ARG	2.0
1	A	143	LEU	2.0
1	B	239	LEU	2.0
1	A	209	SER	2.0
1	A	319	LEU	2.0
1	B	381	GLU	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.