



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2026 – 07:16 AM UTC

PDB ID : 3WZF / pdb_00003wzf
Title : Crystal structure of human cytoplasmic aspartate aminotransferase
Authors : Jiang, X.; Chang, H.; Zhou, Y.; Chen, L.; Yang, Q.
Deposited on : 2014-09-24
Resolution : 2.99 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
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

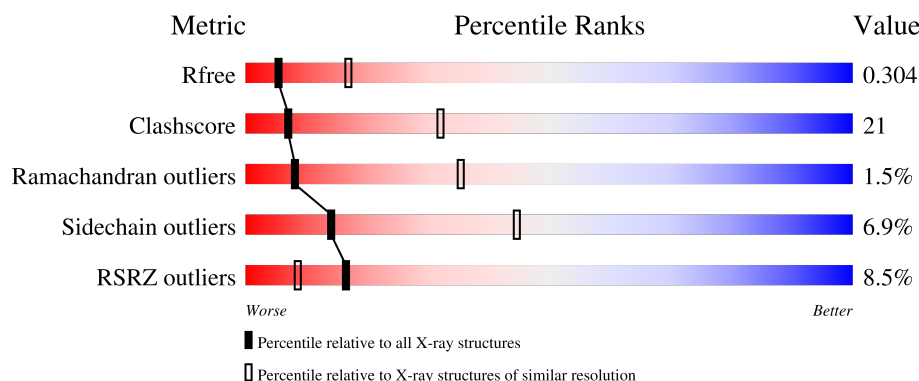
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

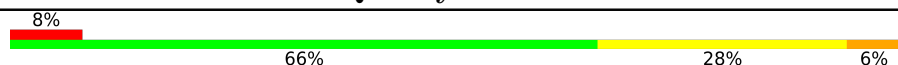
The reported resolution of this entry is 2.99 Å.

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	2672 (3.00-3.00)
Clashscore	190562	2977 (3.00-3.00)
Ramachandran outliers	187476	2877 (3.00-3.00)
Sidechain outliers	187428	2880 (3.00-3.00)
RSRZ outliers	180081	2671 (3.00-3.00)

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 $\leq 5\%$. 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	412	

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 3263 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 Aspartate aminotransferase, cytoplasmic.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	412	Total	C	N	O	S	0	0	0
			3261	2082	566	604	9			

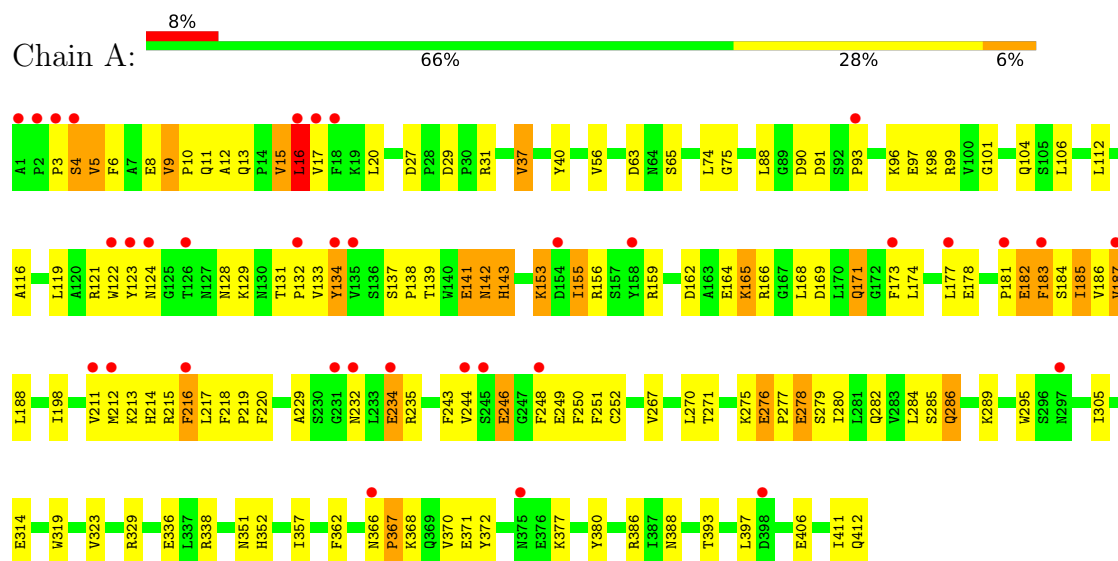
- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	2	Total	O	0	0
			2	2		

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: Aspartate aminotransferase, cytoplasmic



4 Data and refinement statistics

Property	Value	Source
Space group	P 43 21 2	Depositor
Cell constants a, b, c, α , β , γ	93.39Å 93.39Å 107.40Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	33.43 – 2.99 33.43 – 2.99	Depositor EDS
% Data completeness (in resolution range)	97.7 (33.43-2.99) 97.5 (33.43-2.99)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	6.03 (at 3.00Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.8.4_1496)	Depositor
R, R_{free}	0.254 , 0.298 0.259 , 0.304	Depositor DCC
R_{free} test set	689 reflections (6.83%)	wwPDB-VP
Wilson B-factor (Å ²)	61.4	Xtriage
Anisotropy	0.062	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , 50.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.90	EDS
Total number of atoms	3263	wwPDB-VP
Average B, all atoms (Å ²)	82.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.44% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ 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](#)

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	0.54	3/3346 (0.1%)	0.93	10/4548 (0.2%)

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	9	VAL	C-N	7.48	1.40	1.33
1	A	9	VAL	CA-C	-5.24	1.48	1.52
1	A	10	PRO	N-CD	5.21	1.55	1.47

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	216	PHE	N-CA-C	8.11	122.69	111.74
1	A	9	VAL	CB-CA-C	-7.31	102.55	110.37
1	A	143	HIS	N-CA-C	-6.43	103.78	111.69
1	A	9	VAL	CA-C-N	-5.85	111.86	120.46
1	A	9	VAL	C-N-CA	-5.85	111.86	120.46
1	A	4	SER	CA-C-N	-5.33	112.05	120.47
1	A	4	SER	C-N-CA	-5.33	112.05	120.47
1	A	9	VAL	O-C-N	5.29	126.17	121.41
1	A	13	GLN	CA-C-N	5.23	126.38	119.84
1	A	13	GLN	C-N-CA	5.23	126.38	119.84

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	3261	0	3202	136	0
2	A	2	0	0	1	0
All	All	3263	0	3202	136	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 21.

All (136) 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:183:PHE:HD2	1:A:183:PHE:O	1.06	1.30
1:A:183:PHE:O	1:A:183:PHE:CD2	1.92	1.21
1:A:183:PHE:CD2	1:A:183:PHE:C	2.24	1.14
1:A:183:PHE:HD2	1:A:183:PHE:C	1.60	1.02
1:A:182:GLU:HG2	1:A:216:PHE:HB2	1.49	0.94
1:A:133:VAL:HG12	1:A:185:ILE:HD11	1.54	0.89
1:A:93:PRO:HA	1:A:96:LYS:HG3	1.53	0.89
1:A:183:PHE:HA	1:A:216:PHE:O	1.75	0.86
1:A:16:LEU:HD12	1:A:17:VAL:H	1.45	0.82
1:A:212:MET:HB3	1:A:217:LEU:HD12	1.63	0.80
1:A:286:GLN:HA	1:A:289:LYS:HG2	1.65	0.78
1:A:142:ASN:HD22	1:A:142:ASN:N	1.81	0.78
1:A:182:GLU:O	1:A:183:PHE:CG	2.37	0.78
1:A:99:ARG:HG3	1:A:99:ARG:NH1	2.01	0.75
1:A:101:GLY:HA3	1:A:284:LEU:HD11	1.68	0.74
1:A:129:LYS:HG2	1:A:153:LYS:HZ1	1.53	0.73
1:A:251:PHE:HB3	1:A:270:LEU:HD11	1.70	0.73
1:A:182:GLU:OE1	1:A:215:ARG:CZ	2.36	0.73
1:A:133:VAL:HG21	1:A:155:ILE:HD12	1.71	0.72
1:A:183:PHE:CA	1:A:216:PHE:O	2.36	0.72
1:A:366:ASN:OD1	1:A:367:PRO:HD2	1.90	0.71
1:A:183:PHE:N	1:A:216:PHE:HB3	2.06	0.71
1:A:63:ASP:OD2	1:A:65:SER:HB3	1.92	0.70
1:A:131:THR:HG23	1:A:183:PHE:HE2	1.55	0.70
1:A:99:ARG:HG3	1:A:99:ARG:HH11	1.57	0.69
1:A:133:VAL:HG23	1:A:155:ILE:HA	1.75	0.68
1:A:159:ARG:O	1:A:173:PHE:HB3	1.94	0.67
1:A:171:GLN:HA	1:A:174:LEU:HB3	1.75	0.67
1:A:213:LYS:HE3	1:A:246:GLU:OE2	1.94	0.67
1:A:377:LYS:NZ	1:A:406:GLU:OE1	2.27	0.67
1:A:164:GLU:O	1:A:165:LYS:HB3	1.95	0.66
1:A:183:PHE:N	1:A:216:PHE:O	2.28	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:134:TYR:HB3	1:A:186:VAL:HA	1.78	0.65
1:A:121:ARG:HE	1:A:122:TRP:NE1	1.95	0.65
1:A:177:LEU:CB	1:A:212:MET:HE3	2.28	0.64
1:A:8:GLU:HG2	1:A:8:GLU:O	1.96	0.63
1:A:276:GLU:O	1:A:278:GLU:N	2.32	0.63
1:A:186:VAL:HG23	1:A:219:PRO:HA	1.79	0.63
1:A:182:GLU:CG	1:A:216:PHE:HB2	2.28	0.62
1:A:182:GLU:O	1:A:183:PHE:CB	2.47	0.61
1:A:177:LEU:HB2	1:A:212:MET:HE3	1.82	0.61
1:A:372:TYR:HB2	1:A:411:ILE:HD12	1.81	0.61
1:A:220:PHE:CD1	1:A:251:PHE:HB2	2.35	0.60
1:A:182:GLU:OE1	1:A:215:ARG:NE	2.34	0.60
1:A:213:LYS:O	1:A:215:ARG:N	2.34	0.60
1:A:165:LYS:HG2	1:A:165:LYS:O	2.01	0.60
1:A:9:VAL:O	1:A:9:VAL:HG23	2.00	0.59
1:A:29:ASP:OD1	1:A:31:ARG:HG2	2.03	0.59
1:A:75:GLY:HA3	1:A:104:GLN:HB3	1.84	0.59
1:A:141:GLU:C	1:A:142:ASN:HD22	2.10	0.59
1:A:393:THR:O	1:A:397:LEU:HB2	2.03	0.58
1:A:99:ARG:HH11	1:A:99:ARG:CG	2.17	0.57
1:A:213:LYS:HB2	1:A:248:PHE:CZ	2.39	0.57
1:A:119:LEU:HD13	1:A:185:ILE:HG21	1.87	0.56
1:A:124:ASN:OD1	1:A:128:ASN:ND2	2.39	0.56
1:A:279:SER:HA	1:A:282:GLN:HB2	1.87	0.56
1:A:182:GLU:OE1	1:A:215:ARG:HB2	2.06	0.56
1:A:40:TYR:OH	1:A:329:ARG:HD3	2.07	0.55
1:A:178:GLU:OE1	1:A:215:ARG:NE	2.40	0.55
1:A:213:LYS:C	1:A:215:ARG:H	2.14	0.55
1:A:121:ARG:HH21	1:A:286:GLN:HB2	1.71	0.54
1:A:132:PRO:O	1:A:184:SER:OG	2.26	0.54
1:A:285:SER:O	1:A:289:LYS:HE2	2.08	0.53
1:A:11:GLN:HG3	1:A:12:ALA:O	2.09	0.53
1:A:174:LEU:HD21	1:A:211:VAL:HG11	1.91	0.53
1:A:336:GLU:HB3	1:A:397:LEU:HD21	1.91	0.52
1:A:129:LYS:HG2	1:A:153:LYS:NZ	2.23	0.52
1:A:182:GLU:O	1:A:183:PHE:CD1	2.62	0.52
1:A:276:GLU:C	1:A:278:GLU:H	2.18	0.52
1:A:16:LEU:HD12	1:A:17:VAL:N	2.21	0.52
1:A:183:PHE:CA	1:A:216:PHE:HB3	2.41	0.51
1:A:178:GLU:OE1	1:A:215:ARG:CZ	2.58	0.51
1:A:142:ASN:N	1:A:142:ASN:ND2	2.51	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:134:TYR:OH	1:A:188:LEU:HD23	2.12	0.50
1:A:91:ASP:O	1:A:93:PRO:HD3	2.11	0.50
1:A:338:ARG:NH1	1:A:351:ASN:HA	2.28	0.49
1:A:182:GLU:OE1	1:A:215:ARG:CG	2.61	0.49
1:A:246:GLU:OE1	1:A:248:PHE:N	2.45	0.49
1:A:106:LEU:HD23	1:A:295:TRP:CE2	2.49	0.48
1:A:213:LYS:HB2	1:A:248:PHE:CE1	2.47	0.48
1:A:112:LEU:O	1:A:116:ALA:N	2.38	0.48
1:A:16:LEU:HD21	1:A:141:GLU:HG2	1.96	0.48
1:A:6:PHE:O	1:A:9:VAL:HG13	2.13	0.47
1:A:99:ARG:O	1:A:280:ILE:HG13	2.14	0.47
1:A:177:LEU:HB3	1:A:212:MET:HE3	1.96	0.47
1:A:319:TRP:O	1:A:323:VAL:HG23	2.14	0.47
1:A:367:PRO:O	1:A:371:GLU:HB2	2.15	0.47
1:A:6:PHE:O	1:A:9:VAL:HG22	2.14	0.47
1:A:185:ILE:HG22	1:A:218:PHE:CD2	2.49	0.47
1:A:185:ILE:HG22	1:A:218:PHE:HD2	1.80	0.47
1:A:187:VAL:HA	1:A:220:PHE:O	2.15	0.47
1:A:27:ASP:OD2	1:A:380:TYR:OH	2.28	0.46
1:A:216:PHE:O	1:A:217:LEU:HD23	2.15	0.46
1:A:366:ASN:CG	1:A:367:PRO:HD2	2.40	0.46
1:A:131:THR:HG23	1:A:183:PHE:CE2	2.43	0.46
1:A:137:SER:HA	1:A:138:PRO:HA	1.66	0.46
1:A:219:PRO:HB2	1:A:250:PHE:HB3	1.98	0.46
1:A:177:LEU:HD13	1:A:212:MET:HG3	1.97	0.46
1:A:232:ASN:ND2	1:A:235:ARG:HG3	2.31	0.46
1:A:132:PRO:HG2	1:A:181:PRO:HB2	1.98	0.46
1:A:134:TYR:HE1	1:A:187:VAL:O	1.99	0.46
1:A:412:GLN:NE2	2:A:501:HOH:O	2.40	0.46
1:A:162:ASP:HB2	1:A:169:ASP:HB2	1.98	0.45
1:A:213:LYS:C	1:A:215:ARG:N	2.75	0.45
1:A:4:SER:O	1:A:5:VAL:C	2.55	0.44
1:A:252:CYS:HB3	1:A:271:THR:HB	1.99	0.44
1:A:74:LEU:HD11	1:A:284:LEU:HB3	1.98	0.44
1:A:246:GLU:CD	1:A:246:GLU:C	2.86	0.43
1:A:112:LEU:HD22	1:A:220:PHE:CE2	2.53	0.43
1:A:234:GLU:HG3	1:A:235:ARG:N	2.33	0.43
1:A:119:LEU:HD22	1:A:123:TYR:HB2	2.01	0.43
1:A:362:PHE:HE1	1:A:386:ARG:HB2	1.83	0.43
1:A:112:LEU:HD22	1:A:220:PHE:HE2	1.83	0.43
1:A:134:TYR:CD1	1:A:187:VAL:N	2.87	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:56:VAL:HG11	1:A:305:ILE:HA	2.00	0.42
1:A:278:GLU:OE1	1:A:279:SER:OG	2.37	0.42
1:A:168:LEU:HB2	1:A:198:ILE:HG21	2.01	0.42
1:A:249:GLU:OE2	1:A:275:LYS:HD3	2.19	0.42
1:A:20:LEU:HD11	1:A:380:TYR:HB3	2.02	0.42
1:A:229:ALA:HB1	1:A:357:ILE:HG22	2.02	0.42
1:A:243:PHE:O	1:A:248:PHE:HB2	2.19	0.42
1:A:93:PRO:O	1:A:97:GLU:HG3	2.20	0.42
1:A:182:GLU:OE1	1:A:215:ARG:HG3	2.19	0.42
1:A:139:THR:OG1	1:A:143:HIS:ND1	2.46	0.42
1:A:366:ASN:O	1:A:368:LYS:N	2.52	0.41
1:A:15:VAL:HG12	1:A:16:LEU:H	1.84	0.41
1:A:134:TYR:CD2	1:A:186:VAL:HG12	2.55	0.41
1:A:121:ARG:HE	1:A:122:TRP:HE1	1.68	0.41
1:A:367:PRO:HA	1:A:370:VAL:HB	2.03	0.41
1:A:88:LEU:HD22	1:A:244:VAL:HG11	2.03	0.41
1:A:166:ARG:HD3	1:A:352:HIS:CE1	2.56	0.41
1:A:37:VAL:O	1:A:388:ASN:ND2	2.49	0.40
1:A:6:PHE:O	1:A:9:VAL:CG1	2.70	0.40
1:A:220:PHE:HD1	1:A:251:PHE:HB2	1.85	0.40
1:A:276:GLU:C	1:A:278:GLU:N	2.78	0.40
1:A:282:GLN:O	1:A:285:SER:OG	2.28	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	410/412 (100%)	368 (90%)	36 (9%)	6 (2%)	8 35

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	214	HIS
1	A	277	PRO
1	A	278	GLU
1	A	16	LEU
1	A	3	PRO
1	A	367	PRO

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	350/350 (100%)	326 (93%)	24 (7%)	14	45

All (24) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	5	VAL
1	A	15	VAL
1	A	16	LEU
1	A	37	VAL
1	A	90	ASP
1	A	98	LYS
1	A	134	TYR
1	A	141	GLU
1	A	142	ASN
1	A	153	LYS
1	A	155	ILE
1	A	156	ARG
1	A	165	LYS
1	A	171	GLN
1	A	182	GLU
1	A	183	PHE
1	A	185	ILE
1	A	187	VAL
1	A	234	GLU
1	A	246	GLU
1	A	267	VAL

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Mol	Chain	Res	Type
1	A	276	GLU
1	A	286	GLN
1	A	314	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	62	ASN
1	A	130	ASN
1	A	142	ASN
1	A	226	GLN
1	A	405	HIS

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 oligosaccharides 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, 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	412/412 (100%)	0.53	35 (8%) 16 8	29, 73, 146, 215	0

All (35) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	134	TYR	5.7
1	A	232	ASN	4.7
1	A	234	GLU	4.7
1	A	211	VAL	4.6
1	A	126	THR	3.8
1	A	183	PHE	3.6
1	A	2	PRO	3.1
1	A	3	PRO	3.1
1	A	181	PRO	2.9
1	A	1	ALA	2.9
1	A	187	VAL	2.9
1	A	216	PHE	2.9
1	A	173	PHE	2.9
1	A	123	TYR	2.8
1	A	158	TYR	2.8
1	A	16	LEU	2.7
1	A	177	LEU	2.7
1	A	154	ASP	2.6
1	A	212	MET	2.6
1	A	297	ASN	2.5
1	A	17	VAL	2.5
1	A	4	SER	2.5
1	A	245	SER	2.4
1	A	366	ASN	2.3
1	A	122	TRP	2.3
1	A	124	ASN	2.3
1	A	93	PRO	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	375	ASN	2.3
1	A	135	VAL	2.2
1	A	398	ASP	2.2
1	A	132	PRO	2.1
1	A	248	PHE	2.1
1	A	244	VAL	2.0
1	A	18	PHE	2.0
1	A	231	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 oligosaccharides 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.