



Full wwPDB X-ray Structure Validation Report ⓘ

May 25, 2020 – 07:07 pm BST

PDB ID : 3DRE
Title : Crystal structure of Human Brain-type Creatine Kinase
Authors : Moon, J.H.; Bong, S.M.; Hwang, K.Y.; Chi, Y.M.
Deposited on : 2008-07-11
Resolution : 2.20 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 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 : 2.11
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) : 2.11

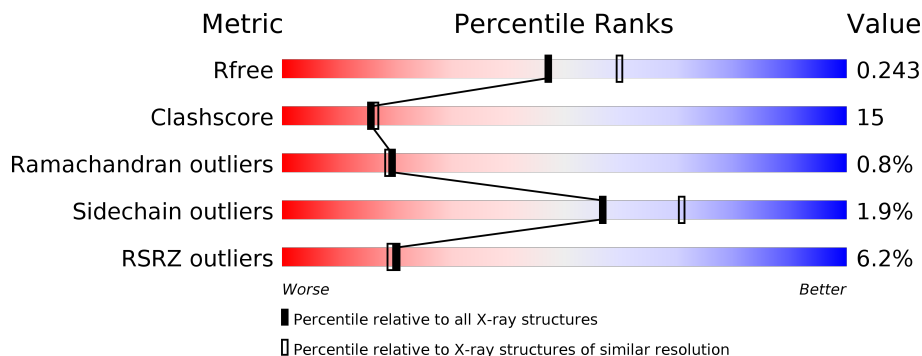
1 Overall quality at a glance

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	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 on 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	381	 2% 84% 14% ..
1	B	381	 10% 62% 31% . .

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 6269 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 Creatine kinase B-type.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	378	2973	1867	521	570	15	0	0	0
1	B	368	2916	1835	511	555	15	0	0	0

- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	267	Total 267	O 267	0	0
2	B	113	Total 113	O 113	0	0

4 Data and refinement statistics

Property	Value	Source
Space group	P 43 21 2	Depositor
Cell constants a, b, c, α , β , γ	97.96Å 97.96Å 164.31Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	19.69 – 2.20 19.69 – 2.20	Depositor EDS
% Data completeness (in resolution range)	99.6 (19.69-2.20) 99.6 (19.69-2.20)	Depositor EDS
R_{merge}	0.14	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	4.21 (at 2.19Å)	Xtrriage
Refinement program	CNS 1.2	Depositor
R, R_{free}	0.205 , 0.243 0.205 , 0.243	Depositor DCC
R_{free} test set	2058 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å ²)	29.2	Xtrriage
Anisotropy	0.192	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 49.1	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	6269	wwPDB-VP
Average B, all atoms (Å ²)	37.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.13% 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	0.34	0/3037	0.59	1/4106 (0.0%)
1	B	0.30	0/2979	0.54	0/4025
All	All	0.32	0/6016	0.57	1/8131 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	296	HIS	N-CA-C	-5.17	97.03	111.00

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	2973	0	2905	52	0
1	B	2916	0	2853	124	0
2	A	267	0	0	4	0
2	B	113	0	0	5	0
All	All	6269	0	5758	171	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 15.

All (171) 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:166:ASP:HA	1:B:170:ALA:HB2	1.32	1.11
1:B:292:ARG:HH21	1:B:320:ARG:HD3	1.29	0.97
1:B:359:LEU:HD21	1:B:378:PRO:HG3	1.52	0.92
1:A:137:ILE:H	1:A:234:HIS:HD2	1.18	0.92
1:A:69:ILE:HD11	1:B:266:SER:HB2	1.55	0.89
1:A:66:HIS:HB3	1:A:67:PRO:HD2	1.53	0.88
1:A:305:HIS:HD2	1:A:307:LYS:H	1.21	0.87
1:A:69:ILE:HD13	1:A:69:ILE:H	1.36	0.85
1:B:372:ALA:O	1:B:373:ILE:HG12	1.78	0.82
1:A:47:THR:HG22	1:A:51:PHE:H	1.43	0.81
1:B:48:PRO:HD2	1:B:80:GLU:HG3	1.62	0.81
1:B:314:ARG:HA	1:B:380:GLN:NE2	1.98	0.77
1:A:67:PRO:HG3	1:B:262:THR:HG23	1.64	0.76
1:B:315:LEU:HD21	1:B:359:LEU:HD23	1.68	0.76
1:A:179:MET:HG3	1:A:183:GLU:HG3	1.67	0.75
1:B:219:HIS:HB3	1:B:226:LEU:HD13	1.68	0.75
1:A:67:PRO:CG	1:B:262:THR:HG23	2.17	0.75
1:B:292:ARG:NH2	1:B:320:ARG:HD3	2.01	0.74
1:B:330:VAL:HG13	1:B:333:VAL:HB	1.70	0.73
1:A:69:ILE:H	1:A:69:ILE:CD1	2.04	0.70
1:B:297:ILE:H	1:B:297:ILE:HD13	1.58	0.67
1:B:301:ASN:HD21	1:B:368:GLU:HG2	1.59	0.67
1:B:184:GLN:O	1:B:188:ILE:HG13	1.95	0.66
1:B:220:ASN:ND2	1:B:222:ASN:HB2	2.10	0.66
1:B:90:ASP:HB2	1:B:91:PRO:HD3	1.77	0.65
1:A:364:GLU:O	1:A:368:GLU:HG3	1.97	0.65
1:B:48:PRO:HG2	2:B:566:HOH:O	1.96	0.65
1:B:314:ARG:HA	1:B:380:GLN:HE22	1.60	0.64
1:B:320:ARG:HG3	1:B:335:ASP:HB3	1.79	0.64
1:A:47:THR:HG22	1:A:51:PHE:N	2.12	0.64
1:A:47:THR:HG21	1:A:78:ASP:OD1	1.98	0.64
1:A:180:THR:O	1:A:184:GLN:HG2	1.98	0.64
1:B:111:ASN:HD21	1:B:113:ASP:HB2	1.64	0.63
1:A:47:THR:HG23	1:A:49:SER:H	1.64	0.63
1:A:66:HIS:CB	1:A:67:PRO:HD2	2.27	0.63
1:A:305:HIS:CD2	1:A:307:LYS:H	2.10	0.63
1:B:259:GLN:O	1:B:262:THR:HB	1.99	0.62
1:B:132:ARG:HB2	1:B:238:ILE:HG12	1.81	0.62
1:B:301:ASN:ND2	1:B:368:GLU:HG2	2.14	0.62
1:B:310:GLU:HG3	1:B:314:ARG:HE	1.65	0.62
1:B:126:VAL:HA	1:B:297:ILE:HG22	1.82	0.62
1:B:218:TRP:O	1:B:226:LEU:HD12	2.01	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:7:HIS:HD2	1:B:10:LEU:HD12	1.66	0.61
1:B:126:VAL:HG22	1:B:297:ILE:HG22	1.81	0.61
1:A:69:ILE:HD13	1:A:69:ILE:N	2.14	0.61
1:B:217:ILE:HD11	1:B:226:LEU:HD11	1.82	0.61
1:B:217:ILE:CG1	1:B:226:LEU:HD11	2.32	0.60
1:B:166:ASP:CG	1:B:167:GLY:N	2.56	0.60
1:B:192:PHE:HB3	1:B:217:ILE:CD1	2.32	0.59
1:B:318:GLN:HG3	1:B:339:ALA:HB2	1.84	0.59
1:A:132:ARG:HG2	1:A:238:ILE:HG23	1.85	0.59
1:A:127:LEU:HD21	1:A:298:LYS:HD2	1.85	0.58
1:A:255:THR:O	1:A:259:GLN:HG3	2.03	0.57
1:B:372:ALA:O	1:B:373:ILE:HG23	2.04	0.57
1:B:366:ARG:HB3	1:B:373:ILE:HG22	1.86	0.57
1:B:41:GLU:HG3	2:B:520:HOH:O	2.04	0.57
1:B:126:VAL:HG22	1:B:297:ILE:CG2	2.34	0.57
1:B:219:HIS:HB3	1:B:226:LEU:CD1	2.35	0.57
1:B:125:TYR:O	1:B:297:ILE:HA	2.04	0.56
1:B:172:ARG:HH11	1:B:172:ARG:HB2	1.71	0.56
1:A:180:THR:OG1	1:A:183:GLU:HG2	2.06	0.56
1:B:10:LEU:HD23	1:B:13:ARG:HH22	1.71	0.56
1:B:192:PHE:HB3	1:B:217:ILE:HD11	1.87	0.55
1:A:137:ILE:H	1:A:234:HIS:CD2	2.10	0.55
1:A:59:THR:HG21	1:A:201:LEU:O	2.06	0.55
1:B:318:GLN:O	1:B:336:VAL:HA	2.05	0.55
1:B:45:LYS:HE2	1:B:84:VAL:HG13	1.88	0.55
1:B:111:ASN:ND2	1:B:113:ASP:HB2	2.21	0.54
1:B:255:THR:HG23	1:B:256:GLY:H	1.72	0.54
1:B:166:ASP:HA	1:B:170:ALA:CB	2.23	0.53
1:B:359:LEU:CD2	1:B:378:PRO:HG3	2.30	0.53
1:A:33:VAL:HG11	1:A:91:PRO:HG2	1.90	0.53
1:B:47:THR:HB	1:B:48:PRO:HD2	1.91	0.53
1:B:10:LEU:CD2	1:B:13:ARG:HH22	2.22	0.52
1:A:8:ASN:O	1:A:12:LEU:HG	2.09	0.52
1:A:66:HIS:HB3	1:A:67:PRO:CD	2.26	0.52
1:B:129:SER:HB3	1:B:295:VAL:HG12	1.92	0.52
1:B:359:LEU:HG	1:B:363:MET:HE2	1.91	0.52
1:A:59:THR:HG23	1:A:204:ALA:HB3	1.91	0.52
1:B:180:THR:OG1	1:B:183:GLU:HG3	2.10	0.52
1:B:217:ILE:CD1	1:B:226:LEU:HD11	2.40	0.51
1:B:251:THR:O	1:B:255:THR:HG22	2.10	0.51
1:B:297:ILE:HD13	1:B:297:ILE:N	2.23	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:121:LEU:HB2	1:A:244:GLY:HA3	1.92	0.51
1:B:305:HIS:HD2	1:B:307:LYS:HB2	1.76	0.51
1:B:10:LEU:HA	1:B:13:ARG:CZ	2.42	0.50
1:A:179:MET:CG	1:A:183:GLU:HG3	2.41	0.50
1:A:10:LEU:C	1:A:10:LEU:HD23	2.32	0.49
1:B:353:VAL:O	1:B:357:VAL:HG23	2.13	0.49
1:B:111:ASN:HB3	1:B:114:ASN:ND2	2.28	0.49
1:B:217:ILE:HG13	1:B:226:LEU:HD11	1.94	0.49
1:A:179:MET:SD	1:A:184:GLN:HB3	2.53	0.49
1:B:80:GLU:CD	1:B:80:GLU:H	2.16	0.48
1:B:257:LEU:HD21	2:B:516:HOH:O	2.13	0.48
1:B:265:LYS:C	1:B:267:LYS:H	2.17	0.48
1:B:109:ASP:O	1:B:347:VAL:HG23	2.14	0.48
1:B:372:ALA:O	1:B:373:ILE:CG1	2.58	0.48
1:B:367:LEU:HD21	1:B:373:ILE:HD13	1.94	0.48
1:B:255:THR:HG23	1:B:256:GLY:N	2.28	0.48
1:A:191:HIS:HD2	2:A:617:HOH:O	1.96	0.48
1:B:192:PHE:CD1	1:B:226:LEU:HD22	2.49	0.48
1:B:193:LEU:HD23	1:B:193:LEU:O	2.14	0.48
1:B:180:THR:HG23	1:B:183:GLU:OE1	2.13	0.48
1:B:350:VAL:O	1:B:354:VAL:HG23	2.14	0.47
1:B:66:HIS:HD2	1:B:69:ILE:HG23	1.80	0.47
1:B:307:LYS:O	1:B:311:VAL:HG23	2.15	0.47
1:B:261:GLU:HB2	1:B:271:PHE:CE2	2.50	0.47
1:B:169:LEU:O	1:B:170:ALA:O	2.34	0.46
1:B:305:HIS:CD2	1:B:307:LYS:HB2	2.50	0.46
1:B:6:SER:O	1:B:10:LEU:HG	2.16	0.46
1:A:68:TYR:CE2	1:B:263:LEU:HD21	2.51	0.46
1:B:361:ILE:O	1:B:365:GLN:HG3	2.16	0.46
1:A:26:HIS:CD2	1:A:64:PRO:HA	2.50	0.46
1:B:369:GLN:HE21	1:B:369:GLN:HA	1.80	0.46
1:A:133:THR:HA	1:A:290:GLY:O	2.16	0.45
1:B:24:SER:O	1:B:25:ALA:HB3	2.17	0.45
1:B:154:ILE:HD13	1:B:234:HIS:CD2	2.51	0.45
1:B:8:ASN:O	1:B:12:LEU:HG	2.16	0.45
1:B:310:GLU:O	1:B:314:ARG:HD3	2.17	0.45
1:B:369:GLN:NE2	1:B:369:GLN:HA	2.32	0.45
1:A:79:GLU:HB2	1:A:272:MET:SD	2.57	0.45
1:B:313:LYS:HG3	2:B:555:HOH:O	2.17	0.45
1:B:372:ALA:C	1:B:373:ILE:HG23	2.36	0.45
1:A:267:LYS:O	1:A:268:ASP:HB2	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:160:GLU:OE2	1:B:267:LYS:HE3	2.17	0.45
1:A:331:GLY:HA3	1:B:178:SER:OG	2.17	0.45
1:B:108:THR:HG23	1:B:346:GLU:OE2	2.17	0.45
1:A:66:HIS:CB	1:A:67:PRO:CD	2.93	0.45
1:A:252:ARG:HA	1:A:255:THR:HG22	1.98	0.44
1:B:297:ILE:HG12	1:B:299:LEU:HG	1.98	0.44
1:B:109:ASP:HB3	1:B:345:SER:HB2	1.99	0.44
1:B:60:GLY:HA3	1:B:73:GLY:O	2.17	0.44
1:B:111:ASN:HD22	1:B:114:ASN:ND2	2.15	0.44
1:B:257:LEU:O	1:B:257:LEU:HD23	2.18	0.44
1:B:184:GLN:HG3	1:B:193:LEU:CD1	2.48	0.44
1:B:301:ASN:HB2	1:B:364:GLU:OE2	2.18	0.43
1:A:307:LYS:O	1:A:311:VAL:HG23	2.18	0.43
1:A:67:PRO:O	1:A:68:TYR:HB2	2.19	0.43
1:B:175:ALA:O	1:B:179:MET:HB2	2.17	0.43
1:A:291:LEU:C	1:A:291:LEU:HD23	2.39	0.43
1:A:42:LEU:HB2	1:A:53:LEU:HD22	2.00	0.43
1:B:155:GLU:O	1:B:159:VAL:HG23	2.19	0.43
1:B:164:SER:HB2	1:B:263:LEU:HD13	1.99	0.43
1:B:314:ARG:HH11	1:B:314:ARG:HG3	1.84	0.43
1:B:365:GLN:O	1:B:369:GLN:HG2	2.19	0.43
1:B:241:GLN:HB2	1:B:252:ARG:HH22	1.83	0.43
1:A:240:MET:O	1:A:241:GLN:HB3	2.19	0.43
1:B:23:LEU:HD13	1:B:31:ALA:HA	2.01	0.42
1:B:7:HIS:HA	1:B:10:LEU:CD1	2.48	0.42
1:A:372:ALA:HA	2:A:418:HOH:O	2.20	0.42
1:B:181:GLU:H	1:B:181:GLU:CD	2.21	0.42
1:B:272:MET:HB3	1:B:280:ILE:HB	2.01	0.42
1:B:291:LEU:C	1:B:291:LEU:HD23	2.40	0.42
1:A:298:LYS:HG2	1:A:330:VAL:HG21	2.00	0.42
1:B:305:HIS:NE2	1:B:373:ILE:HD11	2.34	0.42
1:B:265:LYS:HA	1:B:269:TYR:O	2.21	0.41
1:B:133:THR:HA	1:B:290:GLY:O	2.20	0.41
1:A:296:HIS:HD2	2:A:424:HOH:O	2.02	0.41
1:B:354:VAL:O	1:B:358:LYS:HG3	2.20	0.41
1:A:63:ASN:HA	1:A:64:PRO:HD2	1.94	0.41
1:B:366:ARG:NH2	2:B:531:HOH:O	2.52	0.41
1:A:59:THR:HG22	2:A:391:HOH:O	2.20	0.41
1:B:196:LYS:HB2	1:B:211:TRP:CD1	2.55	0.41
1:B:129:SER:CB	1:B:295:VAL:HG12	2.49	0.41
1:A:10:LEU:HA	1:A:13:ARG:CZ	2.51	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:88:LEU:HD13	1:B:92:ILE:HD12	2.03	0.40
1:B:359:LEU:HG	1:B:363:MET:CE	2.51	0.40
1:B:161:ALA:O	1:B:263:LEU:HD13	2.21	0.40
1:B:167:GLY:C	1:B:169:LEU:N	2.73	0.40
1:B:294:GLY:HA2	1:B:336:VAL:O	2.21	0.40
1:B:174:TYR:HB3	1:B:179:MET:HE2	2.03	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	376/381 (99%)	363 (96%)	11 (3%)	2 (0%)	29	31
1	B	364/381 (96%)	341 (94%)	19 (5%)	4 (1%)	14	12
All	All	740/762 (97%)	704 (95%)	30 (4%)	6 (1%)	19	19

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	170	ALA
1	B	372	ALA
1	B	373	ILE
1	B	380	GLN
1	A	332	GLY
1	A	68	TYR

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	324/327 (99%)	322 (99%)	2 (1%)	86	93
1	B	319/327 (98%)	309 (97%)	10 (3%)	40	51
All	All	643/654 (98%)	631 (98%)	12 (2%)	57	71

All (12) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	69	ILE
1	A	212	PRO
1	B	10	LEU
1	B	130	ARG
1	B	132	ARG
1	B	166	ASP
1	B	168	ASP
1	B	172	ARG
1	B	212	PRO
1	B	221	ASP
1	B	297	ILE
1	B	314	ARG

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	234	HIS
1	A	241	GLN
1	A	259	GLN
1	A	305	HIS
1	A	318	GLN
1	B	7	HIS
1	B	66	HIS
1	B	111	ASN
1	B	114	ASN
1	B	184	GLN
1	B	259	GLN
1	B	286	ASN
1	B	301	ASN
1	B	305	HIS
1	B	369	GLN
1	B	380	GLN

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 carbohydrates 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	378/381 (99%)	-0.27	7 (1%) 66 65	17, 26, 45, 74	0
1	B	368/381 (96%)	0.55	39 (10%) 6 5	22, 45, 73, 92	0
All	All	746/762 (97%)	0.13	46 (6%) 20 19	17, 33, 67, 92	0

All (46) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	68	TYR	8.8
1	B	372	ALA	8.0
1	B	66	HIS	6.8
1	A	67	PRO	6.8
1	A	4	SER	6.5
1	B	5	ASN	6.0
1	B	67	PRO	5.9
1	A	68	TYR	5.6
1	B	69	ILE	5.3
1	B	198	VAL	4.9
1	B	331	GLY	4.7
1	B	166	ASP	4.6
1	B	330	VAL	4.4
1	A	69	ILE	4.2
1	B	195	ASP	3.8
1	B	306	GLU	3.8
1	B	320	ARG	3.7
1	B	118	GLY	3.5
1	B	360	LEU	3.5
1	B	307	LYS	3.4
1	A	66	HIS	3.3
1	B	192	PHE	3.2
1	B	181	GLU	3.1
1	B	180	THR	3.1

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Mol	Chain	Res	Type	RSRZ
1	A	5	ASN	3.1
1	B	188	ILE	3.1
1	B	375	ASP	2.9
1	B	376	LEU	2.9
1	B	373	ILE	2.9
1	B	10	LEU	2.8
1	B	168	ASP	2.8
1	B	240	MET	2.7
1	B	113	ASP	2.7
1	B	200	PRO	2.6
1	B	182	ALA	2.6
1	B	222	ASN	2.5
1	B	116	GLN	2.5
1	B	194	PHE	2.5
1	B	304	LYS	2.5
1	B	119	ASP	2.3
1	B	172	ARG	2.3
1	B	221	ASP	2.2
1	B	13	ARG	2.2
1	B	178	SER	2.1
1	A	331	GLY	2.1
1	B	124	ASN	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 carbohydrates 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.