WORLDWIDE PDB
PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report ⓘ

Feb 21, 2024 – 12:06 AM EST

PDB ID	:	4O9X
Title	:	Crystal Structure of TcdB2-TccC3
Authors	:	Meusch, D.; Gatsogiannis, C.; Efremov, R.G.; Lang, A.E.; Hofnagel, O.; Vetter, I.R.; Aktories, K.; Raunser, S.
Deposited on	:	2014-01-03
Resolution	:	2.17 Å(reported)

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 ⓘ

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.17 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		0.206
Clashscore		4
Ramachandran outliers		0.1%
Sidechain outliers		2.2%
RSRZ outliers		3.5%

Worse *Better*

▌ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution
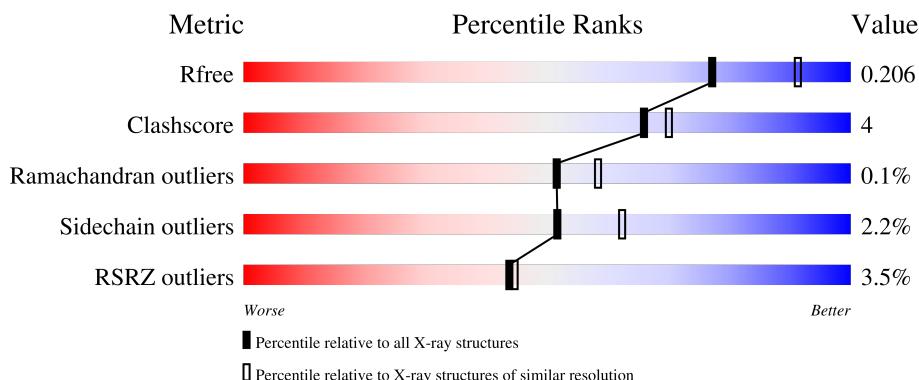
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	6864 (2.20-2.16)
Clashscore	141614	7689 (2.20-2.16)
Ramachandran outliers	138981	7564 (2.20-2.16)
Sidechain outliers	138945	7564 (2.20-2.16)
RSRZ outliers	127900	6738 (2.20-2.16)

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	2191	3% / 85% / 10% / 5%

2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 17581 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 TcdB2, TccC3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	2082	16589	10392	2939	3225	33	0	0	0

There are 39 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	MET	-	expression tag	UNP Q8GF99
A	2	GLY	-	expression tag	UNP Q8GF99
A	3	SER	-	expression tag	UNP Q8GF99
A	4	SER	-	expression tag	UNP Q8GF99
A	5	HIS	-	expression tag	UNP Q8GF99
A	6	HIS	-	expression tag	UNP Q8GF99
A	7	HIS	-	expression tag	UNP Q8GF99
A	8	HIS	-	expression tag	UNP Q8GF99
A	9	HIS	-	expression tag	UNP Q8GF99
A	10	HIS	-	expression tag	UNP Q8GF99
A	11	SER	-	expression tag	UNP Q8GF99
A	12	SER	-	expression tag	UNP Q8GF99
A	13	GLY	-	expression tag	UNP Q8GF99
A	14	LEU	-	expression tag	UNP Q8GF99
A	15	VAL	-	expression tag	UNP Q8GF99
A	16	PRO	-	expression tag	UNP Q8GF99
A	17	ARG	-	expression tag	UNP Q8GF99
A	18	GLY	-	expression tag	UNP Q8GF99
A	19	SER	-	expression tag	UNP Q8GF99
A	20	HIS	-	expression tag	UNP Q8GF99
A	21	MET	-	expression tag	UNP Q8GF99
A	22	ALA	-	expression tag	UNP Q8GF99
A	23	SER	-	expression tag	UNP Q8GF99
A	24	MET	-	expression tag	UNP Q8GF99
A	25	THR	-	expression tag	UNP Q8GF99
A	26	GLY	-	expression tag	UNP Q8GF99
A	27	GLY	-	expression tag	UNP Q8GF99

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
A	28	GLN	-	expression tag	UNP Q8GF99
A	29	GLN	-	expression tag	UNP Q8GF99
A	30	MET	-	expression tag	UNP Q8GF99
A	31	GLY	-	expression tag	UNP Q8GF99
A	32	ARG	-	expression tag	UNP Q8GF99
A	33	GLY	-	expression tag	UNP Q8GF99
A	34	SER	-	expression tag	UNP Q8GF99
A	1509	PRO	-	linker	UNP Q8GF99
A	1510	GLY	-	linker	UNP Q8GF99
A	1511	SER	-	linker	UNP Q8GF99
A	1512	ARG	-	linker	UNP Q8GF99
A	1513	PRO	-	linker	UNP Q8GF99

- Molecule 2 is MERCURY (II) ION (three-letter code: HG) (formula: Hg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	9	Total 9	Hg 9	0	0

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	983	Total 983	O 983	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: TcdB2, TccC3

E2077 D2078 E2110 G2115 R2134 Y2135 T2143 G2149 R2159 M2177 V2178 L2191
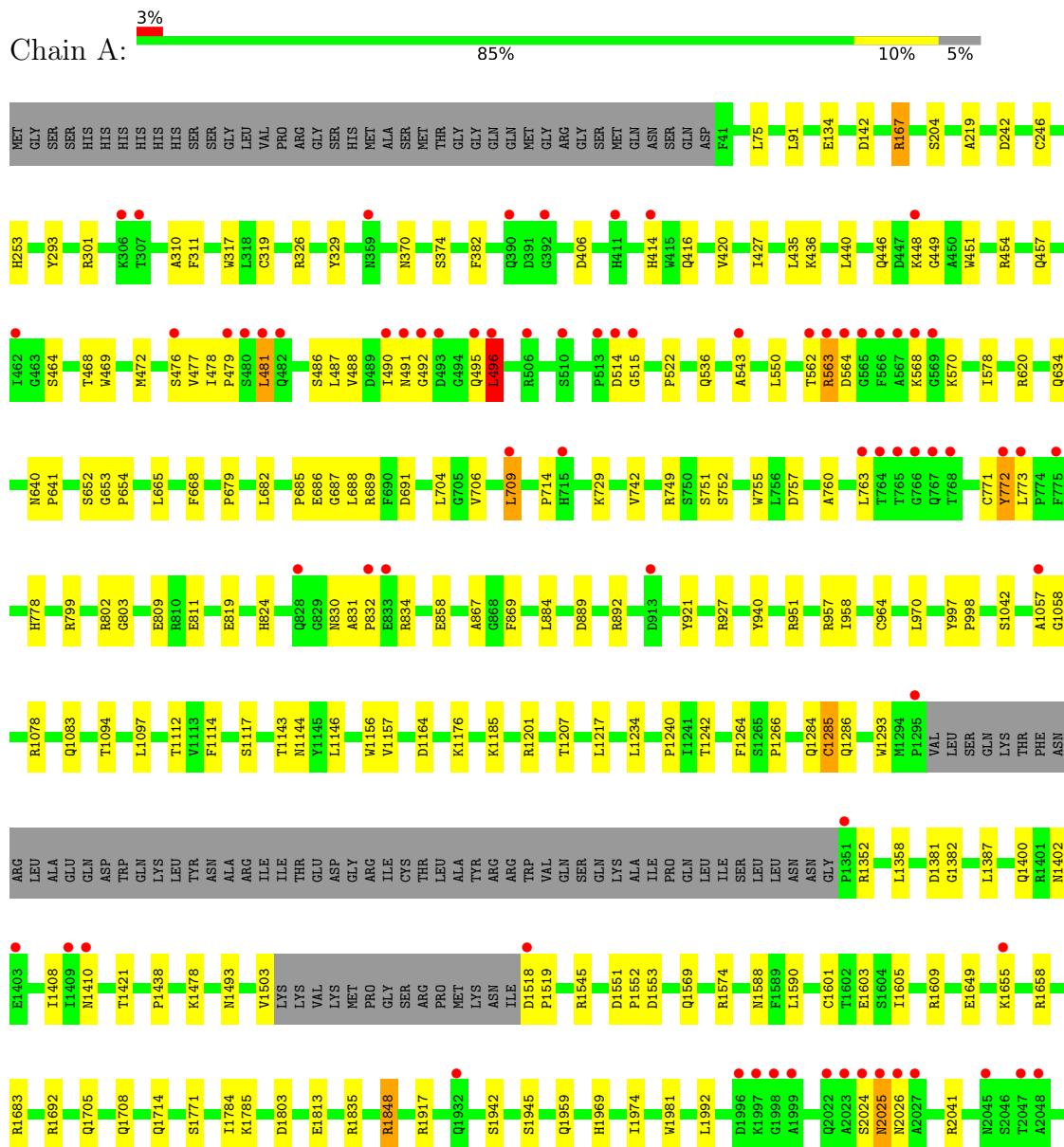
4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 32 2 1	Depositor
Cell constants a, b, c, α, β, γ	232.36Å 232.36Å 143.57Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	29.77 – 2.17 29.77 – 2.17	Depositor EDS
% Data completeness (in resolution range)	92.6 (29.77-2.17) 93.1 (29.77-2.17)	Depositor EDS
R_{merge}	0.18	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.64 (at 2.18Å)	Xtriage
Refinement program	PHENIX 1.8.1_1168	Depositor
R, R_{free}	0.192 , 0.215 0.183 , 0.206	Depositor DCC
R_{free} test set	10883 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	41.9	Xtriage
Anisotropy	0.370	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 45.6	EDS
L-test for twinning[2]	$< |L| > = 0.49, < L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.017 for -h,-k,l	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	17581	wwPDB-VP
Average B, all atoms (Å^2)	41.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.91% 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 (i)

5.1   Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: HG

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	0.42	0/17001	0.59	1/23181 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	709	LEU	CB-CG-CD1	5.08	119.63	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	16589	0	15934	129	0
2	A	9	0	0	0	0
3	A	983	0	0	18	0
All	All	17581	0	15934	129	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 4.

All (129) 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:1264:PHE:HE2	1:A:1285:CYS:HG	1.07	1.03
1:A:1478:LYS:HG3	1:A:1813:GLU:HG3	1.47	0.96
1:A:487:LEU:HD13	1:A:496:LEU:HD23	1.68	0.75
1:A:1959:GLN:NE2	3:A:2820:HOH:O	2.22	0.72
1:A:436:LYS:HG2	1:A:492:GLY:H	1.55	0.71
1:A:1242:THR:HG22	1:A:1285:CYS:SG	2.31	0.70
1:A:495:GLN:HG3	1:A:496:LEU:HD12	1.74	0.70
1:A:1264:PHE:HE2	1:A:1285:CYS:SG	2.14	0.69
1:A:1692:ARG:NH1	3:A:3192:HOH:O	2.25	0.69
1:A:301:ARG:NH1	1:A:311:PHE:O	2.26	0.67
1:A:1112:THR:HG22	1:A:1157:VAL:HG12	1.77	0.67
1:A:685:PRO:HG2	1:A:688:LEU:HD12	1.76	0.66
1:A:1284:GLN:NE2	3:A:3101:HOH:O	2.32	0.62
1:A:370:ASN:HB2	1:A:382:PHE:HB3	1.79	0.62
1:A:514:ASP:HB2	1:A:515:GLY:HA2	1.80	0.62
1:A:301:ARG:NE	3:A:2931:HOH:O	2.30	0.61
1:A:1835:ARG:HG3	1:A:1848:ARG:HH21	1.64	0.61
1:A:1683:ARG:HG2	1:A:1692:ARG:HG2	1.82	0.61
1:A:1605:ILE:HD12	1:A:1945:SER:HA	1.83	0.60
1:A:1992:LEU:HD21	1:A:2143:THR:HG22	1.83	0.60
1:A:476:SER:HB3	1:A:491:ASN:HB3	1.84	0.59
1:A:824:HIS:HD2	3:A:3000:HOH:O	1.86	0.58
1:A:543:ALA:HB2	1:A:564:ASP:HB2	1.86	0.58
1:A:1493:ASN:ND2	3:A:3167:HOH:O	2.31	0.58
1:A:134:GLU:OE1	1:A:134:GLU:N	2.25	0.57
1:A:772:TYR:CE1	1:A:773:LEU:HD22	2.39	0.57
1:A:729:LYS:HD2	1:A:778:HIS:CD2	2.40	0.57
1:A:1217:LEU:HD23	3:A:3083:HOH:O	2.05	0.56
1:A:2177:MET:HG3	1:A:2178:VAL:HG22	1.88	0.55
1:A:1569:GLN:HG2	1:A:1590:LEU:HD23	1.87	0.55
1:A:219:ALA:HB1	1:A:329:TYR:CD1	2.42	0.55
1:A:742:VAL:HG23	1:A:1382:GLY:HA3	1.89	0.55
1:A:1545:ARG:NH2	1:A:1552:PRO:HG3	2.22	0.54
1:A:1785:LYS:NZ	1:A:1803:ASP:OD2	2.40	0.54
1:A:668:PHE:CE1	1:A:679:PRO:HG3	2.43	0.53
1:A:704:LEU:HA	1:A:778:HIS:HE1	1.73	0.53
1:A:246:CYS:HG	1:A:319:CYS:HG	1.58	0.52
1:A:749:ARG:NH2	1:A:757:ASP:OD2	2.40	0.52
1:A:1266:PRO:HB3	1:A:1285:CYS:SG	2.49	0.52
1:A:1692:ARG:NH2	1:A:1708:GLN:OE1	2.34	0.52
1:A:772:TYR:CD1	1:A:773:LEU:HD22	2.45	0.51
1:A:1381:ASP:HB3	1:A:1387:LEU:HD21	1.91	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:802:ARG:NH2	1:A:858:GLU:OE2	2.44	0.51
1:A:1649:GLU:OE1	1:A:1658:ARG:NH2	2.42	0.50
1:A:1176:LYS:HD3	1:A:1185:LYS:HD3	1.93	0.50
1:A:563:ARG:O	1:A:568:LYS:NZ	2.37	0.49
1:A:889:ASP:OD2	1:A:892:ARG:NH2	2.41	0.49
1:A:1421:THR:HG22	1:A:1438:PRO:HB3	1.94	0.49
1:A:301:ARG:NH1	1:A:310:ALA:O	2.42	0.49
1:A:704:LEU:HB3	1:A:706:VAL:HG22	1.94	0.49
1:A:478:ILE:HB	1:A:481:LEU:HD12	1.93	0.49
1:A:1545:ARG:HH21	1:A:1552:PRO:HG3	1.77	0.49
1:A:772:TYR:CD1	1:A:803:GLY:HA3	2.48	0.49
1:A:1042:SER:HB2	1:A:1146:LEU:HD13	1.95	0.49
1:A:751:SER:OG	1:A:773:LEU:HD23	2.13	0.49
1:A:2078:ASP:OD1	1:A:2078:ASP:N	2.35	0.48
1:A:1917:ARG:NH2	3:A:2643:HOH:O	2.36	0.48
1:A:2041:ARG:NH2	3:A:3263:HOH:O	2.46	0.48
1:A:1603:GLU:HG2	1:A:1609:ARG:HG3	1.95	0.48
1:A:704:LEU:HD12	1:A:778:HIS:HE1	1.79	0.47
1:A:1114:PHE:HB2	1:A:1156:TRP:HB2	1.96	0.47
1:A:562:THR:HG22	1:A:568:LYS:HD2	1.96	0.47
1:A:1057:ALA:HA	1:A:1058:GLY:HA2	1.66	0.47
1:A:1400:GLN:NE2	1:A:1410:ASN:O	2.47	0.47
1:A:2115:GLY:HA2	1:A:2135:TYR:CD1	2.50	0.47
1:A:326:ARG:NH2	3:A:2895:HOH:O	2.46	0.47
1:A:1293:TRP:O	1:A:1352:ARG:NH1	2.48	0.47
1:A:75:LEU:HB3	1:A:91:LEU:HB3	1.97	0.46
1:A:1083:GLN:HG2	1:A:1112:THR:CG2	2.46	0.46
1:A:689:ARG:NH1	1:A:691:ASP:OD2	2.47	0.46
1:A:167:ARG:NH2	3:A:2920:HOH:O	2.48	0.46
1:A:451:TRP:NE1	1:A:479:PRO:HG2	2.30	0.46
1:A:1969:HIS:HB3	1:A:1981:TRP:CE2	2.50	0.46
1:A:2024:SER:HA	1:A:2025:ASN:HA	1.63	0.46
1:A:491:ASN:HA	1:A:492:GLY:HA2	1.66	0.45
1:A:834:ARG:NH1	3:A:3004:HOH:O	2.49	0.45
1:A:760:ALA:O	1:A:763:LEU:HB2	2.17	0.45
1:A:1553:ASP:OD2	1:A:1917:ARG:HD2	2.15	0.45
1:A:414:HIS:CD2	1:A:416:GLN:HE22	2.35	0.45
1:A:998:PRO:HD3	3:A:2821:HOH:O	2.16	0.45
1:A:704:LEU:HA	1:A:778:HIS:CE1	2.51	0.45
1:A:809:GLU:HB3	1:A:811:GLU:HG2	1.99	0.45
1:A:652:SER:N	1:A:653:GLY:HA2	2.31	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:242:ASP:OD2	3:A:2923:HOH:O	2.21	0.44
1:A:427:ILE:HG12	1:A:714:PRO:HA	2.00	0.44
1:A:1705:GLN:NE2	3:A:3195:HOH:O	2.50	0.44
1:A:1771:SER:HB3	1:A:1784:ILE:HB	1.99	0.44
1:A:406:ASP:OD1	1:A:406:ASP:N	2.44	0.44
1:A:921:TYR:CZ	1:A:957:ARG:HD2	2.52	0.44
1:A:301:ARG:NH2	3:A:2931:HOH:O	2.51	0.44
1:A:454:ARG:HG2	1:A:472:MET:HA	1.98	0.43
1:A:468:THR:OG1	1:A:469:TRP:N	2.49	0.43
1:A:2134:ARG:HB2	1:A:2135:TYR:H	1.61	0.43
1:A:570:LYS:HD2	1:A:570:LYS:HA	1.76	0.43
1:A:869:PHE:CG	1:A:927:ARG:HB2	2.53	0.43
1:A:1402:ASN:ND2	1:A:1408:ILE:HD11	2.34	0.43
1:A:1164:ASP:HB2	1:A:1176:LYS:HB2	2.00	0.43
1:A:1574:ARG:NH2	1:A:1942:SER:O	2.31	0.43
1:A:1714:GLN:NE2	3:A:3200:HOH:O	2.23	0.43
1:A:448:LYS:HA	1:A:449:GLY:HA2	1.41	0.43
1:A:1293:TRP:CE2	1:A:1352:ARG:HD3	2.54	0.42
1:A:867:ALA:O	1:A:951:ARG:NH2	2.53	0.42
1:A:799:ARG:NH1	1:A:819:GLU:OE2	2.52	0.42
1:A:1201:ARG:HG2	1:A:1207:THR:HG22	2.02	0.42
1:A:440:LEU:HG	1:A:752:SER:HB3	2.00	0.42
1:A:686:GLU:HA	1:A:687:GLY:HA2	1.65	0.42
1:A:522:PRO:HD2	1:A:550:LEU:HD21	2.01	0.42
1:A:755:TRP:CE3	1:A:772:TYR:HE2	2.37	0.42
1:A:1655:LYS:HA	1:A:1655:LYS:HD2	1.81	0.42
1:A:435:LEU:HD13	1:A:490:ILE:HD13	2.02	0.42
1:A:620:ARG:NH1	3:A:2979:HOH:O	2.25	0.42
1:A:536:GLN:HG2	1:A:578:ILE:HD11	2.02	0.41
1:A:1293:TRP:CZ2	1:A:1352:ARG:HD3	2.55	0.41
1:A:831:ALA:HA	1:A:832:PRO:HD3	1.96	0.41
1:A:1286:GLN:HA	1:A:1358:LEU:O	2.21	0.41
1:A:958:ILE:HD13	1:A:997:TYR:CE1	2.56	0.41
1:A:435:LEU:HD23	1:A:435:LEU:HA	1.88	0.41
1:A:1234:LEU:HD23	1:A:1240:PRO:HA	2.03	0.41
1:A:1551:ASP:HA	1:A:1552:PRO:HD3	1.97	0.41
1:A:451:TRP:CE2	1:A:479:PRO:HG2	2.56	0.41
1:A:1143:THR:HG23	1:A:1144:ASN:O	2.21	0.41
1:A:652:SER:CB	1:A:654:PRO:HD2	2.51	0.40
1:A:772:TYR:CD2	1:A:772:TYR:N	2.89	0.40
1:A:496:LEU:O	1:A:496:LEU:HD22	2.21	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1588:ASN:HA	1:A:1605:ILE:HG12	2.04	0.40
1:A:1785:LYS:HE3	1:A:1785:LYS:HB2	1.90	0.40
1:A:2025:ASN:ND2	1:A:2026:ASN:HB3	2.36	0.40
1:A:640:ASN:HA	1:A:641:PRO:HD2	1.90	0.40
1:A:1518:ASP:HA	1:A:1519:PRO:HD2	1.95	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	2076/2191 (95%)	2012 (97%)	61 (3%)	3 (0%)	51	58

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	2149	GLY
1	A	496	LEU
1	A	486	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	1795/1889 (95%)	1755 (98%)	40 (2%)	52	62

All (40) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	142	ASP
1	A	167	ARG
1	A	204	SER
1	A	253	HIS
1	A	293	TYR
1	A	317	TRP
1	A	374	SER
1	A	420	VAL
1	A	446	GLN
1	A	457	GLN
1	A	464	SER
1	A	477	VAL
1	A	481	LEU
1	A	488	VAL
1	A	496	LEU
1	A	563	ARG
1	A	634	GLN
1	A	665	LEU
1	A	682	LEU
1	A	709	LEU
1	A	771	CYS
1	A	772	TYR
1	A	830	ASN
1	A	884	LEU
1	A	940	TYR
1	A	964	CYS
1	A	970	LEU
1	A	1078	ARG
1	A	1094	THR
1	A	1097	LEU
1	A	1117	SER
1	A	1285	CYS
1	A	1503	VAL
1	A	1601	CYS
1	A	1848	ARG
1	A	1974	ILE
1	A	2025	ASN
1	A	2078	ASP
1	A	2110	GLU
1	A	2159	ARG

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	237	GLN
1	A	416	GLN
1	A	1400	GLN
1	A	1750	GLN
1	A	2096	GLN

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 9 ligands modelled in this entry, 9 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(Å²)	Q<0.9
1	A	2082/2191 (95%)	-0.25	73 (3%)	44	44	22, 37, 70, 141	0

All (73) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	492	GLY	25.3
1	A	566	PHE	13.1
1	A	565	GLY	11.9
1	A	564	ASP	10.1
1	A	491	ASN	9.0
1	A	567	ALA	7.1
1	A	1998	GLY	6.9
1	A	569	GLY	6.4
1	A	514	ASP	6.0
1	A	481	LEU	5.9
1	A	2026	ASN	5.4
1	A	2023	ALA	5.3
1	A	2025	ASN	5.2
1	A	568	LYS	5.0
1	A	2024	SER	4.7
1	A	480	SER	4.6
1	A	1351	PRO	4.6
1	A	768	THR	4.5
1	A	763	LEU	4.5
1	A	1997	LYS	4.3
1	A	476	SER	4.3
1	A	1999	ALA	4.2
1	A	1295	PRO	4.1
1	A	563	ARG	3.9
1	A	767	GLN	3.9
1	A	479	PRO	3.8
1	A	832	PRO	3.8

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	A	306	LYS	3.5
1	A	490	ILE	3.4
1	A	773	LEU	3.2
1	A	1655	LYS	3.1
1	A	772	TYR	2.9
1	A	1518	ASP	2.9
1	A	766	GLY	2.9
1	A	506	ARG	2.9
1	A	543	ALA	2.9
1	A	307	THR	2.9
1	A	765	THR	2.9
1	A	2078	ASP	2.9
1	A	2045	ASN	2.8
1	A	515	GLY	2.8
1	A	2077	GLU	2.8
1	A	828	GLN	2.7
1	A	833	GLU	2.7
1	A	448	LYS	2.7
1	A	482	GLN	2.6
1	A	2022	GLN	2.5
1	A	913	ASP	2.5
1	A	1932	GLN	2.4
1	A	359	ASN	2.4
1	A	1403	GLU	2.4
1	A	1996	ASP	2.4
1	A	1409	ILE	2.4
1	A	495	GLN	2.4
1	A	493	ASP	2.4
1	A	411	HIS	2.4
1	A	2047	THR	2.4
1	A	414	HIS	2.3
1	A	496	LEU	2.3
1	A	390	GLN	2.3
1	A	392	GLY	2.3
1	A	715	HIS	2.3
1	A	2027	ALA	2.2
1	A	462	ILE	2.2
1	A	562	THR	2.2
1	A	1057	ALA	2.2
1	A	510	SER	2.2
1	A	513	PRO	2.1
1	A	764	THR	2.1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	A	709	LEU	2.1
1	A	775	PHE	2.1
1	A	1410	ASN	2.0
1	A	2048	ALA	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	HG	A	2204	1/1	0.38	0.22	348,348,348,348	0
2	HG	A	2209	1/1	0.82	0.09	213,213,213,213	0
2	HG	A	2206	1/1	0.94	0.04	117,117,117,117	0
2	HG	A	2203	1/1	0.96	0.04	113,113,113,113	0
2	HG	A	2207	1/1	0.98	0.04	60,60,60,60	0
2	HG	A	2208	1/1	0.98	0.04	96,96,96,96	0
2	HG	A	2205	1/1	0.98	0.04	101,101,101,101	0
2	HG	A	2202	1/1	0.99	0.04	87,87,87,87	0
2	HG	A	2201	1/1	0.99	0.03	62,62,62,62	0

6.5 Other polymers ⓘ

There are no such residues in this entry.