



Full wwPDB X-ray Structure Validation Report ⓘ

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PDB ID : 1RC6 / pdb_00001rc6
Title : Crystal structure of protein Ylba from E. coli, Pfam DUF861
Authors : Fedorov, A.A.; Fedorov, E.V.; Thirumuruhan, R.; Ramagopal, U.A.; Almo, S.C.; Burley, S.K.; New York SGX Research Center for Structural Genomics (NYSGXRC)
Deposited on : 2003-11-03
Resolution : 2.60 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

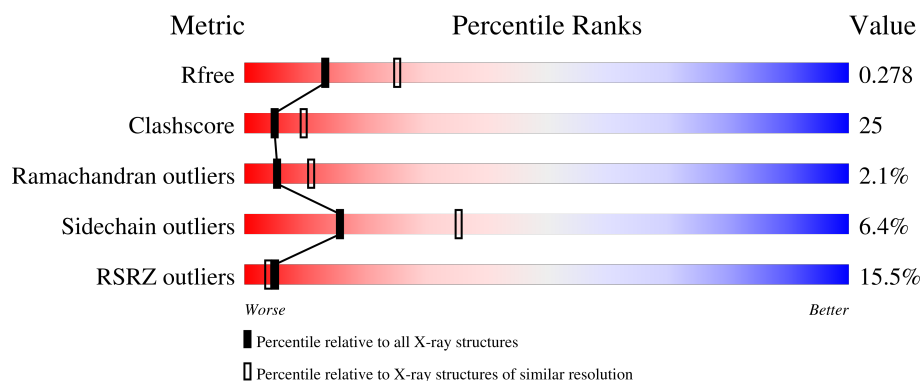
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.60 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	4008 (2.60-2.60)
Clashscore	190562	4347 (2.60-2.60)
Ramachandran outliers	187476	4277 (2.60-2.60)
Sidechain outliers	187428	4277 (2.60-2.60)
RSRZ outliers	180081	4008 (2.60-2.60)

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	261	
1	B	261	

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 3760 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.

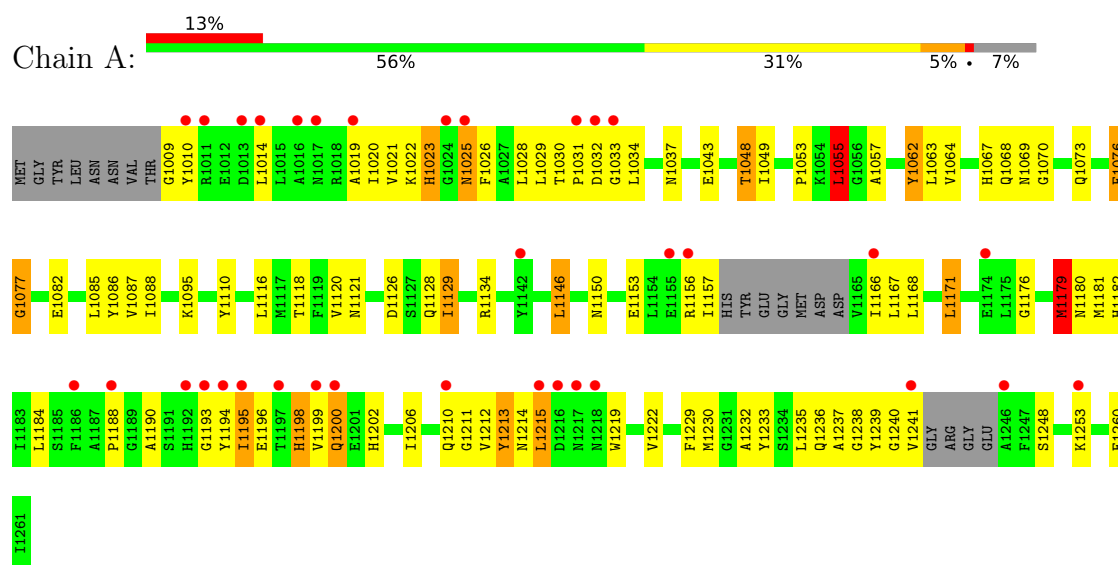
- Molecule 1 is a protein called Hypothetical protein ylbA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	242	Total	C	N	O	S	0	0	0
			1880	1213	306	354	7			
1	B	242	Total	C	N	O	S	0	0	0
			1880	1213	306	354	7			

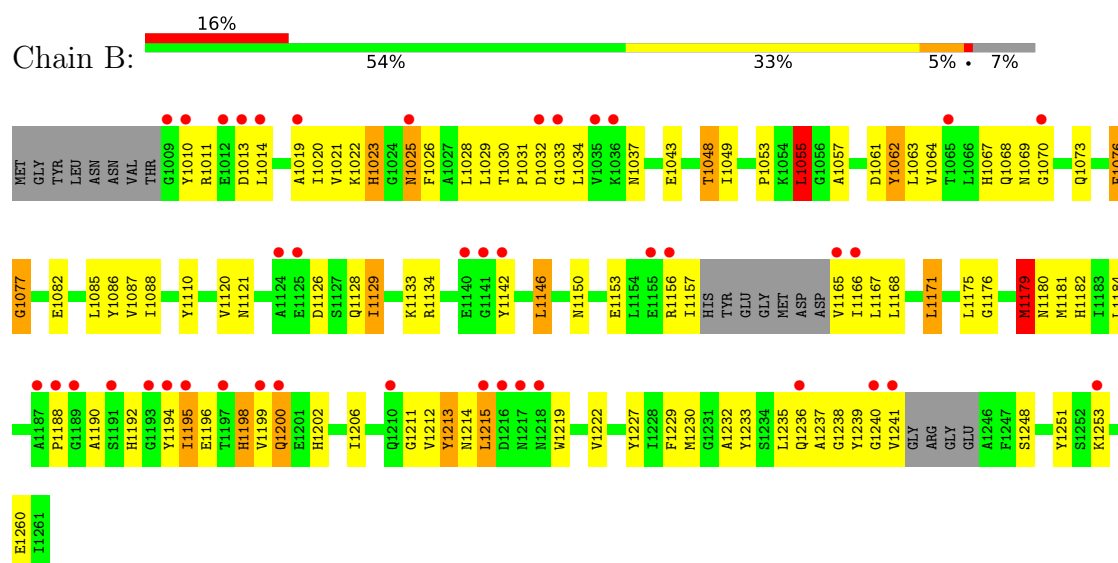
3 Residue-property plots [i](#)

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: Hypothetical protein ylbA



• Molecule 1: Hypothetical protein ylbA



4 Data and refinement statistics

Property	Value	Source
Space group	I 4	Depositor
Cell constants a, b, c, α , β , γ	109.03Å 109.03Å 136.61Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	20.00 – 2.60 20.00 – 2.62	Depositor EDS
% Data completeness (in resolution range)	93.6 (20.00-2.60) 95.0 (20.00-2.62)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.12 (at 2.60Å)	Xtriage
Refinement program	CNS 1.0	Depositor
R, R_{free}	0.232 , 0.267 0.243 , 0.278	Depositor DCC
R_{free} test set	1145 reflections (4.84%)	wwPDB-VP
Wilson B-factor (Å ²)	47.1	Xtriage
Anisotropy	0.239	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 46.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.34$	Xtriage
Estimated twinning fraction	0.025 for -h,k,-l	Xtriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	3760	wwPDB-VP
Average B, all atoms (Å ²)	52.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.59% 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	0.52	1/1926 (0.1%)	0.92	4/2609 (0.2%)
1	B	0.53	1/1926 (0.1%)	0.94	3/2609 (0.1%)
All	All	0.52	2/3852 (0.1%)	0.93	7/5218 (0.1%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	1179	MET	SD-CE	-6.66	1.62	1.79
1	A	1179	MET	SD-CE	-5.52	1.65	1.79

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	1198	HIS	N-CA-C	5.94	117.56	108.52
1	A	1198	HIS	N-CA-C	5.85	117.41	108.52
1	A	1055	LEU	N-CA-C	-5.52	106.59	113.38
1	B	1076	PHE	N-CA-C	5.26	117.81	111.40
1	B	1055	LEU	N-CA-C	-5.25	106.93	113.38
1	A	1076	PHE	N-CA-C	5.17	117.70	111.40
1	A	1176	GLY	N-CA-C	-5.07	106.61	113.24

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	1880	0	1818	89	0
1	B	1880	0	1818	99	0
All	All	3760	0	3636	185	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 25.

All (185) 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:1082:GLU:CD	1:B:1179:MET:HE3	2.02	0.83
1:A:1156:ARG:HD3	1:A:1166:ILE:HG21	1.64	0.80
1:B:1180:ASN:HD22	1:B:1181:MET:H	1.27	0.79
1:A:1082:GLU:CD	1:A:1179:MET:HE3	2.08	0.79
1:A:1180:ASN:HD22	1:A:1181:MET:H	1.28	0.78
1:A:1037:ASN:ND2	1:A:1049:ILE:H	1.83	0.77
1:B:1087:VAL:HG22	1:B:1129:ILE:HD11	1.67	0.77
1:A:1087:VAL:HG22	1:A:1129:ILE:HD11	1.67	0.77
1:B:1211:GLY:HA2	1:B:1241:VAL:HG12	1.66	0.76
1:B:1230:MET:HB3	1:B:1236:GLN:OE1	1.86	0.74
1:A:1230:MET:HB3	1:A:1236:GLN:OE1	1.87	0.74
1:A:1211:GLY:HA2	1:A:1241:VAL:HG12	1.70	0.72
1:B:1037:ASN:ND2	1:B:1049:ILE:H	1.87	0.72
1:B:1067:HIS:HA	1:B:1126:ASP:OD1	1.89	0.72
1:A:1067:HIS:HA	1:A:1126:ASP:OD1	1.90	0.71
1:A:1171:LEU:H	1:A:1180:ASN:HD21	1.39	0.71
1:A:1037:ASN:HD22	1:A:1049:ILE:H	1.39	0.70
1:A:1020:ILE:HD12	1:A:1021:VAL:H	1.58	0.69
1:B:1020:ILE:HD12	1:B:1021:VAL:H	1.57	0.69
1:A:1134:ARG:CD	1:A:1179:MET:HE2	2.23	0.68
1:B:1171:LEU:H	1:B:1180:ASN:HD21	1.41	0.68
1:B:1180:ASN:HD22	1:B:1181:MET:N	1.91	0.68
1:A:1194:TYR:O	1:A:1237:ALA:HA	1.95	0.67
1:B:1010:TYR:O	1:B:1014:LEU:HD13	1.96	0.66
1:A:1180:ASN:HD22	1:A:1181:MET:N	1.93	0.66
1:B:1167:LEU:HD12	1:B:1168:LEU:H	1.61	0.66
1:B:1194:TYR:O	1:B:1237:ALA:HA	1.96	0.66
1:A:1241:VAL:HG22	1:B:1241:VAL:HG22	1.79	0.65
1:B:1085:LEU:C	1:B:1085:LEU:HD23	2.21	0.65
1:B:1085:LEU:HD23	1:B:1086:TYR:N	2.12	0.64
1:B:1026:PHE:HA	1:B:1229:PHE:O	1.97	0.64
1:A:1085:LEU:C	1:A:1085:LEU:HD23	2.23	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1134:ARG:CD	1:B:1179:MET:HE2	2.29	0.63
1:A:1134:ARG:HD3	1:A:1179:MET:HE2	1.80	0.63
1:A:1026:PHE:HA	1:A:1229:PHE:O	1.98	0.62
1:B:1142:TYR:CZ	1:B:1175:LEU:HD12	2.34	0.62
1:B:1037:ASN:HD22	1:B:1049:ILE:H	1.47	0.62
1:A:1239:TYR:HD1	1:A:1240:GLY:O	1.83	0.61
1:B:1134:ARG:HD3	1:B:1179:MET:HE2	1.83	0.60
1:A:1167:LEU:O	1:A:1168:LEU:HD23	2.02	0.59
1:A:1085:LEU:HD23	1:A:1086:TYR:N	2.17	0.59
1:B:1150:ASN:O	1:B:1153:GLU:HG3	2.04	0.58
1:A:1193:GLY:HA3	1:B:1014:LEU:HD21	1.85	0.58
1:B:1215:LEU:HD22	1:B:1215:LEU:N	2.19	0.58
1:A:1215:LEU:N	1:A:1215:LEU:HD22	2.18	0.57
1:B:1010:TYR:HB2	1:B:1013:ASP:OD2	2.05	0.57
1:B:1087:VAL:HA	1:B:1129:ILE:HD12	1.86	0.57
1:A:1156:ARG:HD3	1:A:1166:ILE:CG2	2.33	0.57
1:A:1150:ASN:O	1:A:1153:GLU:HG3	2.04	0.57
1:B:1037:ASN:HD22	1:B:1048:THR:HA	1.70	0.56
1:A:1195:ILE:HD13	1:A:1195:ILE:N	2.21	0.55
1:A:1088:ILE:HG21	1:A:1128:GLN:HE21	1.69	0.55
1:B:1157:ILE:HG22	1:B:1157:ILE:O	2.05	0.55
1:B:1195:ILE:HD13	1:B:1195:ILE:N	2.22	0.55
1:A:1028:LEU:C	1:A:1028:LEU:HD13	2.32	0.54
1:A:1239:TYR:CD1	1:A:1240:GLY:O	2.60	0.54
1:B:1082:GLU:CG	1:B:1179:MET:HE3	2.38	0.54
1:B:1167:LEU:HD12	1:B:1168:LEU:N	2.20	0.54
1:B:1235:LEU:HD12	1:B:1236:GLN:N	2.23	0.54
1:A:1082:GLU:CG	1:A:1179:MET:HE3	2.38	0.54
1:B:1088:ILE:HG21	1:B:1128:GLN:HE21	1.73	0.54
1:A:1082:GLU:HG3	1:A:1179:MET:HE3	1.90	0.53
1:A:1087:VAL:HA	1:A:1129:ILE:HD12	1.90	0.53
1:B:1028:LEU:C	1:B:1028:LEU:HD13	2.34	0.53
1:B:1206:ILE:HG13	1:B:1222:VAL:CG1	2.39	0.53
1:A:1235:LEU:HD12	1:A:1236:GLN:N	2.23	0.52
1:A:1206:ILE:HG13	1:A:1222:VAL:CG1	2.40	0.52
1:B:1064:VAL:HB	1:B:1129:ILE:HG22	1.92	0.52
1:B:1073:GLN:NE2	1:B:1120:VAL:HG21	2.25	0.52
1:A:1055:LEU:HD22	1:A:1055:LEU:O	2.09	0.52
1:B:1214:ASN:HB3	1:B:1237:ALA:HB3	1.91	0.52
1:B:1011:ARG:HA	1:B:1014:LEU:HD22	1.92	0.52
1:B:1239:TYR:HD1	1:B:1240:GLY:O	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1156:ARG:HD3	1:B:1166:ILE:HD12	1.92	0.51
1:A:1214:ASN:HB3	1:A:1237:ALA:HB3	1.92	0.51
1:B:1167:LEU:O	1:B:1168:LEU:HD23	2.10	0.51
1:A:1037:ASN:HD22	1:A:1048:THR:HA	1.75	0.51
1:A:1195:ILE:O	1:A:1196:GLU:HB2	2.11	0.51
1:B:1062:TYR:N	1:B:1062:TYR:CD1	2.78	0.51
1:B:1120:VAL:HG12	1:B:1121:ASN:O	2.11	0.51
1:B:1195:ILE:O	1:B:1196:GLU:HB2	2.10	0.51
1:A:1009:GLY:N	1:B:1195:ILE:HD11	2.25	0.51
1:A:1053:PRO:HA	1:A:1057:ALA:O	2.11	0.51
1:B:1202:HIS:HB2	1:B:1230:MET:HB2	1.93	0.50
1:B:1076:PHE:O	1:B:1077:GLY:O	2.30	0.50
1:A:1073:GLN:NE2	1:A:1120:VAL:HG21	2.27	0.50
1:B:1011:ARG:O	1:B:1014:LEU:HB2	2.12	0.50
1:B:1199:VAL:HG22	1:B:1233:TYR:CE1	2.46	0.50
1:A:1199:VAL:HG22	1:A:1233:TYR:CE1	2.47	0.49
1:B:1260:GLU:OE2	1:B:1260:GLU:HA	2.12	0.49
1:A:1157:ILE:HG22	1:A:1157:ILE:O	2.12	0.49
1:B:1043:GLU:O	1:B:1070:GLY:HA2	2.13	0.49
1:A:1232:ALA:O	1:A:1233:TYR:HB2	2.12	0.49
1:B:1055:LEU:HD22	1:B:1055:LEU:O	2.13	0.49
1:B:1082:GLU:HG3	1:B:1179:MET:HE3	1.94	0.49
1:B:1232:ALA:O	1:B:1233:TYR:HB2	2.13	0.49
1:A:1076:PHE:O	1:A:1077:GLY:O	2.31	0.49
1:B:1033:GLY:O	1:B:1034:LEU:HD23	2.12	0.49
1:A:1212:VAL:O	1:A:1238:GLY:HA2	2.13	0.49
1:B:1184:LEU:O	1:B:1248:SER:HA	2.13	0.49
1:A:1188:PRO:C	1:A:1190:ALA:H	2.22	0.48
1:A:1212:VAL:HG12	1:A:1219:TRP:HE3	1.79	0.48
1:B:1188:PRO:C	1:B:1190:ALA:H	2.22	0.48
1:A:1064:VAL:HB	1:A:1129:ILE:HG22	1.96	0.48
1:B:1110:TYR:C	1:B:1110:TYR:CD1	2.92	0.48
1:A:1202:HIS:HB2	1:A:1230:MET:HB2	1.94	0.48
1:B:1067:HIS:HD2	1:B:1126:ASP:OD1	1.96	0.48
1:A:1030:THR:O	1:A:1032:ASP:N	2.47	0.48
1:B:1030:THR:O	1:B:1032:ASP:N	2.47	0.48
1:B:1212:VAL:HG12	1:B:1219:TRP:HE3	1.79	0.48
1:A:1120:VAL:HG12	1:A:1121:ASN:O	2.14	0.47
1:B:1165:VAL:HG21	1:B:1192:HIS:ND1	2.29	0.47
1:B:1146:LEU:CD1	1:B:1146:LEU:C	2.88	0.47
1:B:1212:VAL:O	1:B:1238:GLY:HA2	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1067:HIS:HD2	1:A:1126:ASP:OD1	1.97	0.47
1:B:1167:LEU:C	1:B:1168:LEU:HD23	2.38	0.47
1:A:1156:ARG:O	1:A:1157:ILE:C	2.58	0.47
1:B:1048:THR:HG23	1:B:1063:LEU:HB3	1.97	0.47
1:B:1053:PRO:HA	1:B:1057:ALA:O	2.14	0.47
1:A:1062:TYR:CD1	1:A:1062:TYR:N	2.83	0.46
1:A:1146:LEU:C	1:A:1146:LEU:CD1	2.88	0.46
1:B:1156:ARG:O	1:B:1157:ILE:C	2.58	0.46
1:A:1195:ILE:HG22	1:A:1237:ALA:HB2	1.98	0.46
1:A:1033:GLY:O	1:A:1034:LEU:HD23	2.15	0.46
1:A:1260:GLU:OE2	1:A:1260:GLU:HA	2.14	0.46
1:B:1068:GLN:O	1:B:1069:ASN:HB2	2.15	0.46
1:A:1068:GLN:O	1:A:1069:ASN:HB2	2.16	0.46
1:B:1082:GLU:HG3	1:B:1179:MET:CE	2.46	0.46
1:B:1213:TYR:HE2	1:B:1230:MET:HE2	1.81	0.46
1:A:1043:GLU:O	1:A:1070:GLY:HA2	2.16	0.46
1:B:1146:LEU:C	1:B:1146:LEU:HD12	2.41	0.46
1:B:1198:HIS:HB2	1:B:1200:GLN:NE2	2.30	0.45
1:A:1082:GLU:HG3	1:A:1179:MET:CE	2.46	0.45
1:B:1213:TYR:CE2	1:B:1230:MET:HE2	2.51	0.45
1:A:1215:LEU:HD22	1:A:1215:LEU:H	1.80	0.45
1:B:1182:HIS:HE1	1:B:1253:LYS:HD3	1.80	0.45
1:A:1022:LYS:O	1:A:1023:HIS:C	2.59	0.45
1:A:1184:LEU:O	1:A:1248:SER:HA	2.16	0.45
1:A:1198:HIS:HB2	1:A:1200:GLN:NE2	2.31	0.45
1:B:1195:ILE:HG22	1:B:1237:ALA:HB2	1.99	0.45
1:A:1048:THR:HG23	1:A:1063:LEU:HB3	1.99	0.44
1:A:1110:TYR:CD1	1:A:1110:TYR:C	2.95	0.44
1:A:1195:ILE:HG22	1:A:1237:ALA:CB	2.47	0.44
1:A:1022:LYS:O	1:A:1025:ASN:HB2	2.18	0.44
1:A:1210:GLN:O	1:A:1241:VAL:HG12	2.17	0.44
1:B:1087:VAL:HA	1:B:1129:ILE:CD1	2.47	0.44
1:B:1142:TYR:CD2	1:B:1175:LEU:HB2	2.52	0.44
1:B:1198:HIS:HB2	1:B:1200:GLN:CD	2.43	0.44
1:B:1022:LYS:O	1:B:1023:HIS:C	2.60	0.43
1:B:1022:LYS:O	1:B:1025:ASN:HB2	2.18	0.43
1:A:1146:LEU:C	1:A:1146:LEU:HD12	2.43	0.43
1:A:1182:HIS:HE1	1:A:1253:LYS:HD3	1.82	0.43
1:A:1213:TYR:HE2	1:A:1230:MET:HE2	1.84	0.43
1:B:1062:TYR:OH	1:B:1133:LYS:HE2	2.18	0.43
1:B:1067:HIS:CD2	1:B:1126:ASP:OD1	2.71	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1215:LEU:HD22	1:B:1215:LEU:H	1.81	0.43
1:A:1198:HIS:HB2	1:A:1200:GLN:CD	2.44	0.43
1:B:1142:TYR:CE2	1:B:1175:LEU:HB2	2.54	0.43
1:B:1195:ILE:HG22	1:B:1237:ALA:CB	2.48	0.43
1:A:1213:TYR:CE2	1:A:1230:MET:HE2	2.53	0.43
1:B:1120:VAL:HG12	1:B:1121:ASN:N	2.34	0.43
1:B:1073:GLN:CD	1:B:1120:VAL:HG21	2.44	0.42
1:B:1085:LEU:C	1:B:1085:LEU:CD2	2.92	0.42
1:B:1142:TYR:HB3	1:B:1176:GLY:HA2	2.01	0.42
1:B:1020:ILE:HG13	1:B:1021:VAL:N	2.34	0.42
1:B:1240:GLY:O	1:B:1241:VAL:HB	2.20	0.42
1:A:1067:HIS:CD2	1:A:1126:ASP:OD1	2.72	0.42
1:A:1095:LYS:HB2	1:A:1118:THR:OG1	2.20	0.42
1:A:1120:VAL:HG12	1:A:1121:ASN:N	2.35	0.42
1:B:1061:ASP:OD1	1:B:1227:TYR:OH	2.28	0.42
1:A:1020:ILE:HG13	1:A:1021:VAL:N	2.35	0.41
1:B:1020:ILE:CG1	1:B:1021:VAL:N	2.83	0.41
1:B:1120:VAL:CG1	1:B:1121:ASN:N	2.83	0.41
1:B:1182:HIS:HB2	1:B:1251:TYR:CE1	2.55	0.41
1:A:1063:LEU:C	1:A:1063:LEU:HD23	2.46	0.41
1:A:1156:ARG:HD2	1:A:1166:ILE:HD13	2.03	0.41
1:A:1010:TYR:O	1:A:1014:LEU:HD13	2.21	0.41
1:A:1087:VAL:HA	1:A:1129:ILE:CD1	2.50	0.41
1:A:1194:TYR:C	1:A:1195:ILE:HD13	2.46	0.41
1:A:1020:ILE:CG1	1:A:1021:VAL:N	2.84	0.41
1:A:1020:ILE:HD12	1:A:1021:VAL:N	2.32	0.40
1:A:1020:ILE:CD1	1:A:1021:VAL:H	2.31	0.40
1:A:1067:HIS:HD2	1:A:1126:ASP:CG	2.30	0.40
1:B:1020:ILE:CD1	1:B:1021:VAL:H	2.30	0.40
1:B:1067:HIS:HD2	1:B:1126:ASP:CG	2.29	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	236/261 (90%)	211 (89%)	20 (8%)	5 (2%)	5	11
1	B	236/261 (90%)	214 (91%)	17 (7%)	5 (2%)	5	11
All	All	472/522 (90%)	425 (90%)	37 (8%)	10 (2%)	5	11

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	1023	HIS
1	A	1077	GLY
1	B	1023	HIS
1	B	1077	GLY
1	A	1019	ALA
1	A	1031	PRO
1	A	1215	LEU
1	B	1019	ALA
1	B	1031	PRO
1	B	1215	LEU

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	196/211 (93%)	183 (93%)	13 (7%)	15	34
1	B	196/211 (93%)	184 (94%)	12 (6%)	17	37
All	All	392/422 (93%)	367 (94%)	25 (6%)	16	35

All (25) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	1025	ASN
1	A	1029	LEU
1	A	1048	THR

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Mol	Chain	Res	Type
1	A	1055	LEU
1	A	1062	TYR
1	A	1116	LEU
1	A	1129	ILE
1	A	1146	LEU
1	A	1171	LEU
1	A	1179	MET
1	A	1195	ILE
1	A	1200	GLN
1	A	1213	TYR
1	B	1025	ASN
1	B	1029	LEU
1	B	1048	THR
1	B	1055	LEU
1	B	1062	TYR
1	B	1129	ILE
1	B	1146	LEU
1	B	1171	LEU
1	B	1179	MET
1	B	1195	ILE
1	B	1200	GLN
1	B	1213	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (20) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	1025	ASN
1	A	1037	ASN
1	A	1067	HIS
1	A	1069	ASN
1	A	1123	GLN
1	A	1180	ASN
1	A	1182	HIS
1	A	1200	GLN
1	A	1214	ASN
1	A	1217	ASN
1	B	1025	ASN
1	B	1037	ASN
1	B	1067	HIS
1	B	1069	ASN
1	B	1123	GLN
1	B	1180	ASN

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Mol	Chain	Res	Type
1	B	1182	HIS
1	B	1200	GLN
1	B	1214	ASN
1	B	1217	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 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	242/261 (92%)	0.49	34 (14%) 6 5	19, 40, 90, 109	0
1	B	242/261 (92%)	0.84	41 (16%) 4 3	23, 55, 94, 109	0
All	All	484/522 (92%)	0.66	75 (15%) 5 4	19, 48, 93, 109	0

All (75) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	1194	TYR	4.5
1	A	1032	ASP	4.2
1	B	1194	TYR	3.9
1	B	1189	GLY	3.9
1	B	1014	LEU	3.8
1	B	1188	PRO	3.7
1	A	1156	ARG	3.5
1	A	1010	TYR	3.5
1	B	1197	THR	3.4
1	B	1010	TYR	3.4
1	B	1200	GLN	3.4
1	B	1156	ARG	3.4
1	A	1246	ALA	3.4
1	A	1210	GLN	3.4
1	B	1009	GLY	3.3
1	B	1155	GLU	3.2
1	B	1187	ALA	3.2
1	B	1013	ASP	3.1
1	A	1195	ILE	3.1
1	B	1033	GLY	3.1
1	B	1240	GLY	3.1
1	A	1155	GLU	3.0
1	A	1188	PRO	3.0
1	B	1141	GLY	3.0

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Mol	Chain	Res	Type	RSRZ
1	B	1216	ASP	3.0
1	B	1195	ILE	3.0
1	B	1032	ASP	2.9
1	A	1215	LEU	2.9
1	A	1025	ASN	2.9
1	A	1193	GLY	2.9
1	A	1241	VAL	2.9
1	B	1019	ALA	2.9
1	A	1253	LYS	2.8
1	A	1166	ILE	2.8
1	B	1253	LYS	2.7
1	A	1014	LEU	2.7
1	B	1025	ASN	2.7
1	B	1125	GLU	2.7
1	A	1217	ASN	2.7
1	B	1241	VAL	2.6
1	A	1016	ALA	2.6
1	B	1199	VAL	2.6
1	A	1216	ASP	2.5
1	B	1036	LYS	2.5
1	B	1215	LEU	2.5
1	A	1033	GLY	2.5
1	A	1197	THR	2.5
1	B	1070	GLY	2.5
1	A	1031	PRO	2.5
1	A	1218	ASN	2.4
1	A	1013	ASP	2.4
1	A	1019	ALA	2.4
1	A	1186	PHE	2.4
1	B	1236	GLN	2.4
1	B	1166	ILE	2.4
1	A	1024	GLY	2.3
1	B	1210	GLN	2.3
1	B	1124	ALA	2.3
1	B	1217	ASN	2.2
1	B	1218	ASN	2.2
1	A	1017	ASN	2.2
1	B	1035	VAL	2.2
1	B	1193	GLY	2.1
1	B	1165	VAL	2.1
1	B	1191	SER	2.1
1	A	1174	GLU	2.1

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Mol	Chain	Res	Type	RSRZ
1	B	1012	GLU	2.1
1	A	1011	ARG	2.1
1	A	1199	VAL	2.1
1	A	1192	HIS	2.1
1	B	1142	TYR	2.1
1	B	1140	GLU	2.0
1	B	1065	THR	2.0
1	A	1200	GLN	2.0
1	A	1142	TYR	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.