Full wwPDB X-ray Structure Validation Report ⓘ

Nov 2, 2022 – 03:06 PM EDT

PDB ID	:	7RGU
Title	:	The crystal structure of RocC bound to a transcriptional terminator
Authors	:	Kim, H.J.; Edwards, R.A.; Glover, J.N.M.
Deposited on	:	2021-07-15
Resolution	:	3.20 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	:	2.31.2
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)	:	2.31.2

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 3.20 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	Percentile Ranks	Value
Rfree		0.271
Clashscore		2
Ramachandran outliers		0.1%
Sidechain outliers		0.7%
RSRZ outliers		2.2%
RNA backbone		0.70

Worse   *Better*

■ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution
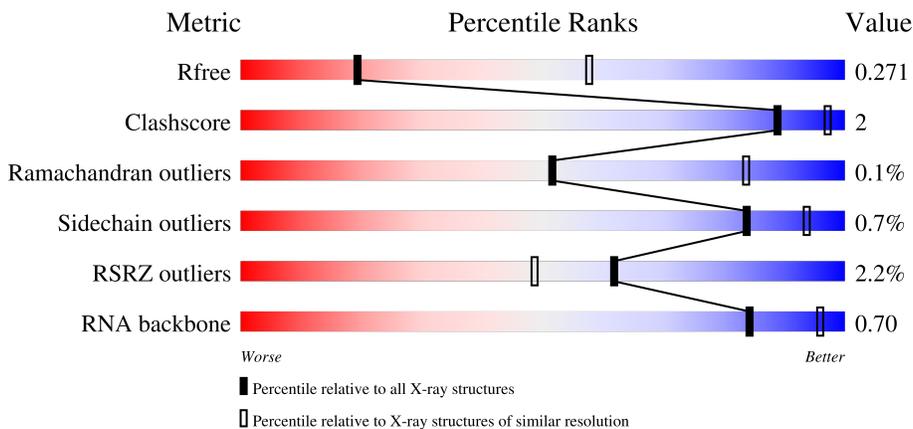
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R$_{free}$	130704	1133 (3.20-3.20)
Clashscore	141614	1253 (3.20-3.20)
Ramachandran outliers	138981	1234 (3.20-3.20)
Sidechain outliers	138945	1233 (3.20-3.20)
RSRZ outliers	127900	1095 (3.20-3.20)
RNA backbone	3102	1010 (3.50-2.90)

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	118	89% 5% 6%
1	C	118	89% • 7%
1	E	118	86% 6% 8%
1	G	118	90% 8% •
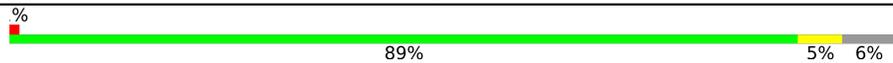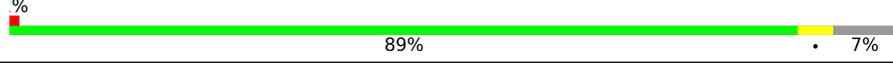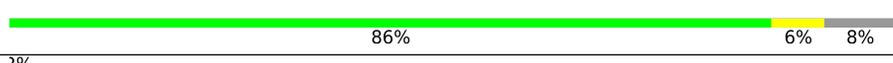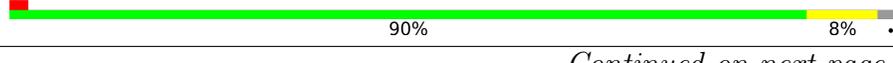
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Mol	Chain	Length	Quality of chain
1	I	118	% 86% · 11%
1	K	118	3% 84% 7% 9%
1	M	118	86% · 10%
1	O	118	3% 77% · 19%
1	Q	118	80% 7% 14%
1	S	118	3% 84% · 14%
2	B	28	25% 75% 25%
2	D	28	11% 82% 18%
2	F	28	82% 14% ·
2	H	28	86% 14%

2 Entry composition ⓘ

There are 2 unique types of molecules in this entry. The entry contains 20397 atoms, of which 9562 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 Repressor of competence, RNA Chaperone.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	111	Total 1777	C 556	H 889	N 167	O 161	S 4	0	1	0
1	C	110	Total 1770	C 551	H 889	N 166	O 160	S 4	0	1	0
1	E	109	Total 1762	C 547	H 889	N 164	O 158	S 4	0	1	0
1	G	115	Total 1804	C 572	H 889	N 171	O 168	S 4	0	1	0
1	I	105	Total 1712	C 528	H 872	N 156	O 152	S 4	0	1	0
1	K	107	Total 1735	C 537	H 878	N 159	O 157	S 4	0	1	0
1	M	106	Total 1726	C 532	H 878	N 158	O 154	S 4	0	1	0
1	O	95	Total 1529	C 476	H 776	N 133	O 140	S 4	0	1	0
1	Q	102	Total 1649	C 514	H 833	N 151	O 147	S 4	0	1	0
1	S	102	Total 1649	C 514	H 833	N 151	O 147	S 4	0	1	0

There are 50 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	9	GLY	-	expression tag	UNP A0A128QHZ1
A	10	PRO	-	expression tag	UNP A0A128QHZ1
A	11	LEU	-	expression tag	UNP A0A128QHZ1
A	12	GLY	-	expression tag	UNP A0A128QHZ1
A	13	SER	-	expression tag	UNP A0A128QHZ1
C	9	GLY	-	expression tag	UNP A0A128QHZ1
C	10	PRO	-	expression tag	UNP A0A128QHZ1
C	11	LEU	-	expression tag	UNP A0A128QHZ1
C	12	GLY	-	expression tag	UNP A0A128QHZ1

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Chain	Residue	Modelled	Actual	Comment	Reference
C	13	SER	-	expression tag	UNP A0A128QHZ1
E	9	GLY	-	expression tag	UNP A0A128QHZ1
E	10	PRO	-	expression tag	UNP A0A128QHZ1
E	11	LEU	-	expression tag	UNP A0A128QHZ1
E	12	GLY	-	expression tag	UNP A0A128QHZ1
E	13	SER	-	expression tag	UNP A0A128QHZ1
G	9	GLY	-	expression tag	UNP A0A128QHZ1
G	10	PRO	-	expression tag	UNP A0A128QHZ1
G	11	LEU	-	expression tag	UNP A0A128QHZ1
G	12	GLY	-	expression tag	UNP A0A128QHZ1
G	13	SER	-	expression tag	UNP A0A128QHZ1
I	9	GLY	-	expression tag	UNP A0A128QHZ1
I	10	PRO	-	expression tag	UNP A0A128QHZ1
I	11	LEU	-	expression tag	UNP A0A128QHZ1
I	12	GLY	-	expression tag	UNP A0A128QHZ1
I	13	SER	-	expression tag	UNP A0A128QHZ1
K	9	GLY	-	expression tag	UNP A0A128QHZ1
K	10	PRO	-	expression tag	UNP A0A128QHZ1
K	11	LEU	-	expression tag	UNP A0A128QHZ1
K	12	GLY	-	expression tag	UNP A0A128QHZ1
K	13	SER	-	expression tag	UNP A0A128QHZ1
M	9	GLY	-	expression tag	UNP A0A128QHZ1
M	10	PRO	-	expression tag	UNP A0A128QHZ1
M	11	LEU	-	expression tag	UNP A0A128QHZ1
M	12	GLY	-	expression tag	UNP A0A128QHZ1
M	13	SER	-	expression tag	UNP A0A128QHZ1
O	9	GLY	-	expression tag	UNP A0A128QHZ1
O	10	PRO	-	expression tag	UNP A0A128QHZ1
O	11	LEU	-	expression tag	UNP A0A128QHZ1
O	12	GLY	-	expression tag	UNP A0A128QHZ1
O	13	SER	-	expression tag	UNP A0A128QHZ1
Q	9	GLY	-	expression tag	UNP A0A128QHZ1
Q	10	PRO	-	expression tag	UNP A0A128QHZ1
Q	11	LEU	-	expression tag	UNP A0A128QHZ1
Q	12	GLY	-	expression tag	UNP A0A128QHZ1
Q	13	SER	-	expression tag	UNP A0A128QHZ1
S	9	GLY	-	expression tag	UNP A0A128QHZ1
S	10	PRO	-	expression tag	UNP A0A128QHZ1
S	11	LEU	-	expression tag	UNP A0A128QHZ1
S	12	GLY	-	expression tag	UNP A0A128QHZ1
S	13	SER	-	expression tag	UNP A0A128QHZ1

- Molecule 2 is a RNA chain called Modified SL3 of RocR.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
2	B	28	Total 821	C 262	H 234	N 93	O 204	P 28	0	0	0
2	D	28	Total 821	C 262	H 234	N 93	O 204	P 28	0	0	0
2	F	28	Total 821	C 262	H 234	N 93	O 204	P 28	0	0	0
2	H	28	Total 821	C 262	H 234	N 93	O 204	P 28	0	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: Repressor of competence, RNA Chaperone

Chain A:

• Molecule 1: Repressor of competence, RNA Chaperone

Chain C:

• Molecule 1: Repressor of competence, RNA Chaperone

Chain E:

• Molecule 1: Repressor of competence, RNA Chaperone

Chain G:

• Molecule 1: Repressor of competence, RNA Chaperone

Chain I:

• Molecule 1: Repressor of competence, RNA Chaperone

Chain K:

3%

84%   7%   9%

GLY PRO LEU GLY SER ASN LYS ALA GLN LYS N19 Q20 S21 K22 K50 R75 V79 V105 I120 V124 E125 LYS

• Molecule 1: Repressor of competence, RNA Chaperone

Chain M:

86%   10%

GLY PRO LEU GLY SER ASN LYS ALA GLN LYS N19 W31 A64 T82 V124 GLU LYS

• Molecule 1: Repressor of competence, RNA Chaperone

Chain O:

3%

77%   19%

GLY PRO LEU GLY SER ASN LYS ALA GLN LYS ASN GLN SER LYS ARG ALA ARG S26 D27 S43 L44 V79 L80 R83 I120 LYS LYS ARG VAL GLU LYS

• Molecule 1: Repressor of competence, RNA Chaperone

Chain Q:

80%   7%   14%

GLY PRO LEU GLY SER ASN LYS ALA GLN LYS ASN GLN SER LYS R23 S26 L30 L80 N103 M118 K119 I120 K121 V124 GLU LYS

• Molecule 1: Repressor of competence, RNA Chaperone

Chain S:

3%

84%   14%

GLY PRO LEU GLY SER ASN LYS ALA GLN LYS ASN GLN SER LYS R23 A24 L44 K50 K121 V124 GLU LYS

• Molecule 2: Modified SL3 of RocR

Chain B:

25%

75%   25%

U1 G2 U11 U12 C13 G14 G15 A16 U17 U18 G19 U26 C27 U28

• Molecule 2: Modified SL3 of RocR

Chain D:

11%

82%   18%

U1 G2 U12 C13 G14 G15 G19 U26 C27 U28

• Molecule 2: Modified SL3 of RocR

Chain F:

82%   14%   .

U1 G2 U12 G15 G20 U26 C27 U28
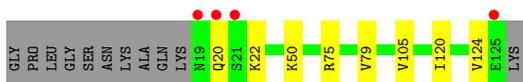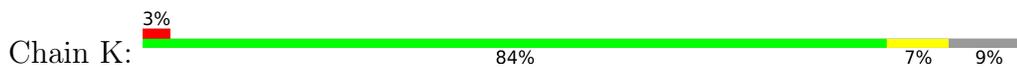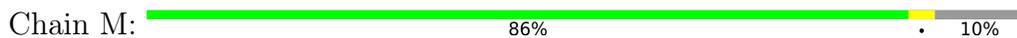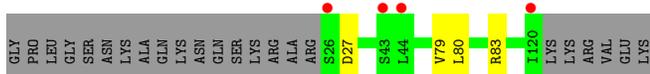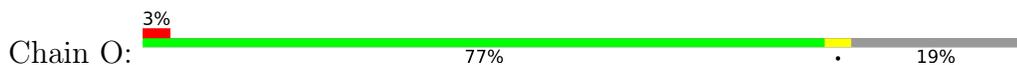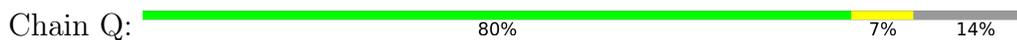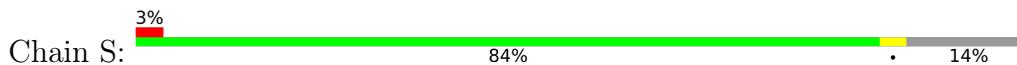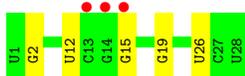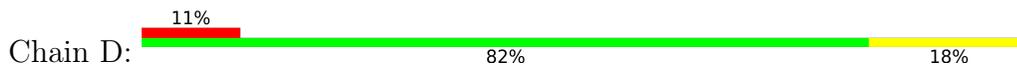
• Molecule 2: Modified SL3 of RocR

Chain H:

86%   14%

U1 G2 U12 G15 U26 C27 U28

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	87.81Å 135.94Å 156.76Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.77 – 3.20 48.77 – 3.20	Depositor EDS
% Data completeness (in resolution range)	91.4 (48.77-3.20) 91.5 (48.77-3.20)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.42 (at 3.19Å)	Xtriage
Refinement program	PHENIX 1.18.2_3874	Depositor
R, R_{free}	0.219 , 0.271 0.219 , 0.271	Depositor DCC
R_{free} test set	1463 reflections (5.05%)	wwPDB-VP
Wilson B-factor (Å^2)	40.7	Xtriage
Anisotropy	0.208	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 21.8	EDS
L-test for twinning[2]	$< |L| > = 0.46, < L^2 > = 0.29$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.87	EDS
Total number of atoms	20397	wwPDB-VP
Average B, all atoms (Å^2)	49.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 11.24% of the height of the origin peak. No significant pseudotranslation is detected.*

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[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)

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	0.26	0/901	0.42	0/1207
1	C	0.27	0/894	0.42	0/1197
1	E	0.27	0/886	0.42	0/1186
1	G	0.27	0/928	0.42	0/1243
1	I	0.26	0/853	0.41	0/1144
1	K	0.26	0/870	0.42	0/1167
1	M	0.26	0/861	0.42	0/1155
1	O	0.26	0/766	0.44	0/1032
1	Q	0.25	0/829	0.43	0/1113
1	S	0.25	0/829	0.42	0/1113
2	B	0.18	0/652	0.68	0/1012
2	D	0.20	0/652	0.70	0/1012
2	F	0.20	0/652	0.70	0/1012
2	H	0.19	0/652	0.69	0/1012
All	All	0.25	0/11225	0.51	0/15605

There are no bond length outliers.

There are no bond angle outliers.

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	888	889	931	7	0
1	C	881	889	922	4	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	E	873	889	916	5	0
1	G	915	889	956	6	0
1	I	840	872	880	5	0
1	K	857	878	892	5	0
1	M	848	878	886	4	0
1	O	753	776	775	2	0
1	Q	816	833	854	8	0
1	S	816	833	854	2	0
2	B	587	234	298	2	0
2	D	587	234	298	1	0
2	F	587	234	298	2	0
2	H	587	234	298	0	0
All	All	10835	9562	10058	39	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 2.

All (39) 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:Q:120:ILE:O	1:Q:124:VAL:HG13	1.97	0.63
1:C:29:LEU:HD11	1:C:80:LEU:HD22	1.80	0.63
1:K:50:LYS:HB2	1:K:105:VAL:HG21	1.81	0.62
1:Q:121:LYS:HA	1:Q:124:VAL:HG22	1.83	0.61
1:E:15:LYS:O	1:E:17:GLN:N	2.35	0.59
1:I:121:LYS:HG2	1:Q:124:VAL:HB	1.89	0.55
1:A:123:ARG:O	1:A:124:VAL:HB	2.06	0.54
1:I:120:ILE:O	1:I:124:VAL:HG23	2.10	0.50
1:A:94:ARG:NH1	1:M:82:THR:OG1	2.44	0.50
1:C:86:ASP:OD2	1:E:84:ARG:HB3	2.12	0.50
1:A:21:SER:OG	2:B:19:G:O3'	2.31	0.48
1:M:31:TRP:CZ2	1:M:64:ALA:HB2	2.51	0.46
1:S:121:LYS:O	1:S:124:VAL:HG22	2.14	0.46
1:I:121:LYS:CG	1:Q:124:VAL:HB	2.45	0.46
1:A:94:ARG:NH2	1:M:82:THR:OG1	2.49	0.45
1:A:124:VAL:O	1:A:124:VAL:HG12	2.16	0.45
1:G:103:ASN:O	1:G:105:VAL:HG13	2.17	0.44
1:G:95:GLU:OE2	1:K:75:ARG:CZ	2.65	0.44
1:I:44:LEU:HD21	1:Q:26:SER:O	2.17	0.44
1:A:80:LEU:C	1:A:80:LEU:HD23	2.38	0.44
1:G:80:LEU:C	1:G:80:LEU:HD23	2.38	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:94:ARG:HG2	1:K:79:VAL:HG22	1.99	0.44
1:E:25:ARG:CZ	1:E:80:LEU:HD12	2.47	0.44
1:G:120:ILE:O	1:G:124:VAL:HG12	2.17	0.44
1:Q:103:ASN:OD1	1:S:50:LYS:NZ	2.51	0.44
1:C:80:LEU:C	1:C:80:LEU:HD23	2.38	0.43
1:C:21:SER:OG	2:D:19:G:O3'	2.36	0.43
1:E:80:LEU:C	1:E:80:LEU:HD23	2.39	0.43
1:O:80:LEU:C	1:O:80:LEU:HD23	2.40	0.42
1:E:73:LYS:NZ	2:F:20:G:OP1	2.37	0.42
1:Q:80:LEU:C	1:Q:80:LEU:HD23	2.39	0.42
2:F:12:U:O2	2:F:12:U:H2'	2.20	0.42
1:A:84:ARG:HB3	1:G:86:ASP:OD2	2.20	0.42
1:M:124:VAL:O	1:M:124:VAL:HG13	2.20	0.42
2:B:11:U:H2'	2:B:13:C:C5	2.55	0.41
1:K:120:ILE:O	1:K:124:VAL:HG23	2.20	0.41
1:O:79:VAL:HG12	1:O:83:ARG:NH2	2.34	0.41
1:I:44:LEU:HD21	1:Q:30:LEU:HG	2.02	0.41
1:K:124:VAL:O	1:K:124:VAL:HG12	2.21	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	110/118 (93%)	108 (98%)	2 (2%)	0	100	100
1	C	109/118 (92%)	106 (97%)	3 (3%)	0	100	100
1	E	108/118 (92%)	106 (98%)	1 (1%)	1 (1%)	17	56
1	G	114/118 (97%)	108 (95%)	6 (5%)	0	100	100
1	I	104/118 (88%)	102 (98%)	2 (2%)	0	100	100
1	K	106/118 (90%)	104 (98%)	2 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	M	105/118 (89%)	101 (96%)	4 (4%)	0	100	100
1	O	94/118 (80%)	91 (97%)	3 (3%)	0	100	100
1	Q	101/118 (86%)	99 (98%)	2 (2%)	0	100	100
1	S	101/118 (86%)	99 (98%)	2 (2%)	0	100	100
All	All	1052/1180 (89%)	1024 (97%)	27 (3%)	1 (0%)	51	83

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	E	16	ALA

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	95/99 (96%)	95 (100%)	0	100	100
1	C	94/99 (95%)	93 (99%)	1 (1%)	73	88
1	E	93/99 (94%)	93 (100%)	0	100	100
1	G	98/99 (99%)	97 (99%)	1 (1%)	76	90
1	I	90/99 (91%)	90 (100%)	0	100	100
1	K	92/99 (93%)	90 (98%)	2 (2%)	52	79
1	M	91/99 (92%)	91 (100%)	0	100	100
1	O	81/99 (82%)	80 (99%)	1 (1%)	71	88
1	Q	87/99 (88%)	86 (99%)	1 (1%)	73	88
1	S	87/99 (88%)	87 (100%)	0	100	100
All	All	908/990 (92%)	902 (99%)	6 (1%)	84	94

All (6) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	15	LYS

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Mol	Chain	Res	Type
1	G	22	LYS
1	K	20	GLN
1	K	22	LYS
1	O	27	ASP
1	Q	118	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
2	B	27/28 (96%)	4 (14%)	0
2	D	27/28 (96%)	4 (14%)	0
2	F	27/28 (96%)	4 (14%)	0
2	H	27/28 (96%)	4 (14%)	0
All	All	108/112 (96%)	16 (14%)	0

All (16) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
2	B	2	G
2	B	12	U
2	B	15	G
2	B	26	U
2	D	2	G
2	D	12	U
2	D	15	G
2	D	26	U
2	F	2	G
2	F	12	U
2	F	15	G
2	F	26	U
2	H	2	G
2	H	12	U
2	H	15	G
2	H	26	U

There are no RNA pucker outliers to report.

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 ⓘ

There are no ligands in this entry.

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	111/118 (94%)	0.03	1 (0%)	84	75	16, 28, 58, 81	0
1	C	110/118 (93%)	0.02	1 (0%)	84	75	12, 25, 54, 74	0
1	E	109/118 (92%)	-0.13	0	100	100	13, 25, 57, 64	0
1	G	115/118 (97%)	0.01	2 (1%)	70	57	17, 39, 64, 90	0
1	I	105/118 (88%)	0.19	1 (0%)	82	72	23, 39, 70, 91	0
1	K	107/118 (90%)	0.03	4 (3%)	41	26	25, 44, 79, 94	0
1	M	106/118 (89%)	-0.05	0	100	100	19, 32, 68, 91	0
1	O	95/118 (80%)	0.34	4 (4%)	36	23	29, 44, 81, 95	0
1	Q	102/118 (86%)	-0.10	0	100	100	24, 48, 70, 88	0
1	S	102/118 (86%)	0.31	3 (2%)	51	36	23, 46, 76, 93	0
2	B	28/28 (100%)	1.16	7 (25%)	0	0	37, 63, 181, 184	0
2	D	28/28 (100%)	0.59	3 (10%)	6	3	22, 54, 190, 191	0
2	F	28/28 (100%)	-0.08	0	100	100	28, 54, 85, 91	0
2	H	28/28 (100%)	0.04	0	100	100	31, 68, 93, 96	0
All	All	1174/1292 (90%)	0.09	26 (2%)	62	48	12, 39, 80, 191	0

All (26) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	14	G	5.4
1	O	26	SER	4.0
1	C	14	ASN	3.9
2	B	15	G	3.8
2	D	14	G	3.7
2	B	13	C	3.6
2	B	12	U	3.5
1	K	21	SER	3.4

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Mol	Chain	Res	Type	RSRZ
1	K	20	GLN	3.0
2	D	15	G	3.0
1	A	14	ASN	3.0
1	O	43	SER	2.7
1	O	44	LEU	2.6
2	B	16	A	2.6
1	S	44	LEU	2.5
2	B	17	U	2.4
1	S	24	ALA	2.4
2	D	13	C	2.4
1	G	13	SER	2.4
1	K	19	ASN	2.3
2	B	11	U	2.1
1	K	125	GLU	2.1
1	G	12	GLY	2.1
1	I	20	GLN	2.1
1	O	120	ILE	2.1
1	S	121	LYS	2.1

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 ⓘ

There are no ligands in this entry.

6.5 Other polymers ⓘ

There are no such residues in this entry.