WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report ⓘ

Aug 21, 2023 – 05:51 PM EDT

|		
PDB ID	:	2PEM
Title	:	Crystal structure of RbcX in complex with substrate
Authors	:	Saschenbrecker, S.; Bracher, A.; Vasudeva Rao, K.; Vasudeva Rao, B.; Hartl, F.U.; Hayer-Hartl, M.
Deposited on	:	2007-04-03
Resolution	:	2.95 Å(reported)

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 2.95 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		0.260
Clashscore		12
Ramachandran outliers		0.8%
Sidechain outliers		10.6%
RSRZ outliers		2.5%

Worse   *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution
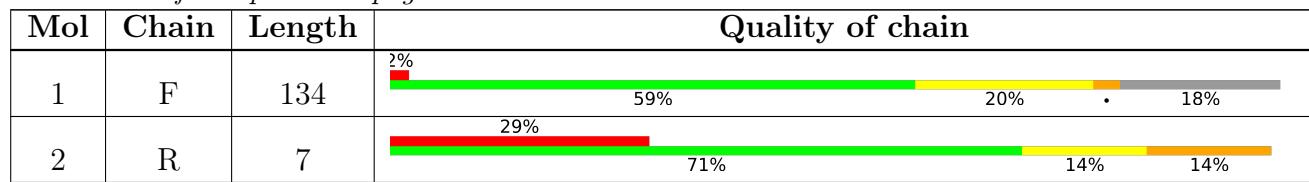
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3104 (3.00-2.92)
Clashscore	141614	3462 (3.00-2.92)
Ramachandran outliers	138981	3340 (3.00-2.92)
Sidechain outliers	138945	3343 (3.00-2.92)
RSRZ outliers	127900	2986 (3.00-2.92)

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	134	% 51% 27% • 18%
1	B	134	% 66% 13% • • 17%
1	C	134	% 54% 23% 5% 18%
1	D	134	60% 19% • 19%
1	E	134	5% 68% 14% • 16%

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Mol	Chain	Length	Quality of chain
1	F	134	2% 59% 20% · 18%
2	R	7	29% 71% 14% 14%

2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 5232 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 ORF134.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	110	Total 871	C 553	N 153	O 162	S 3	0	0	0
1	B	111	Total 883	C 560	N 155	O 165	S 3	0	0	0
1	C	110	Total 866	C 549	N 150	O 163	S 4	0	0	0
1	D	108	Total 850	C 540	N 147	O 160	S 3	0	0	0
1	E	112	Total 829	C 526	N 148	O 152	S 3	0	0	0
1	F	110	Total 862	C 548	N 150	O 161	S 3	0	0	0

- Molecule 2 is a protein called RbcL.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	R	7	Total 55	C 38	N 7	O 10	0	0	0
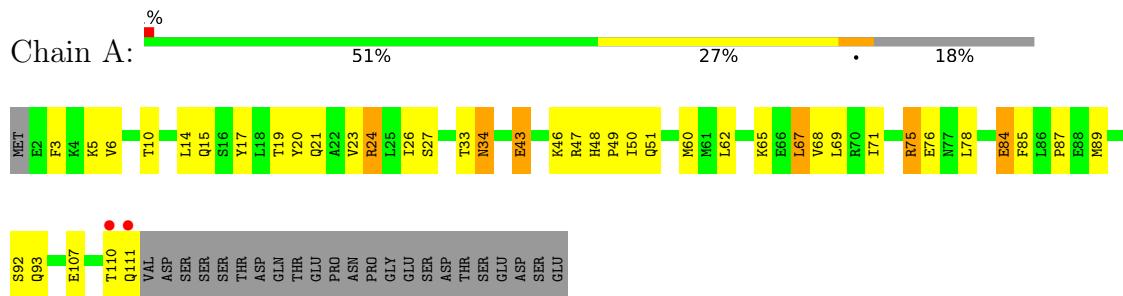
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	6	Total 6	O 6	0	0
3	B	3	Total 3	O 3	0	0
3	C	5	Total 5	O 5	0	0
3	D	2	Total 2	O 2	0	0
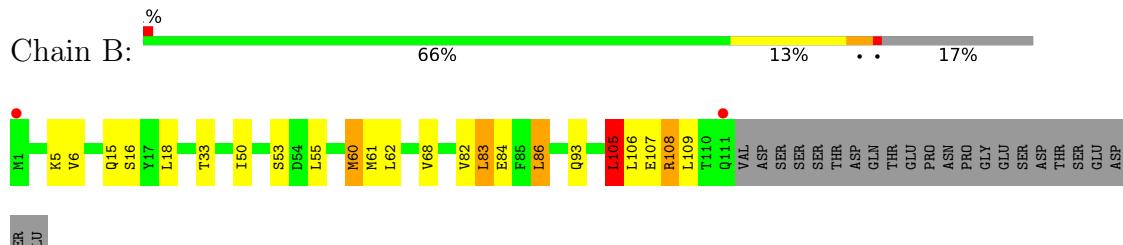
3 Residue-property plots ⓘ

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: ORF134

Chain A:

- Molecule 1: ORF134

Chain B:

- Molecule 1: ORF134

Chain C:

- Molecule 1: ORF134

Chain D:

ASP GLN THR GLU PRO ASN PRO GLY GLU SER ASP THR SER GLU ASP SER GLU

• Molecule 1: ORF134

Chain E:

5%

68%   14%   •   16%

MET E2 F3 L14 A22 I26 S27 S31 E32 T33 I50 M60 N64 L67 V68 I71 R75 L83 Q96 L105 R108 L109 T110 Q111 V112 D113 SER SER SER THR ASP GLN THR GLU PRO ASN PRO GLY GLU SER ASP THR SER GLU ASP SER

GLU

• Molecule 1: ORF134

Chain F:

2%

59%   20%   •   18%

MET GLU F3 V6 R24 S27 Q28 Q29 L30 I50 Q51 E52 S53 D54 L55 Y56 M60 M61 L62 E63 L67 V68 I71 E76 A79 E80 G81 V82 L83 E84 F85 M89 V90 Q93 N98 R102 R103 E107 V112 ASP SER SER SER THR ASP

GLN THR GLU PRO ASN PRO GLY GLU SER ASP THR SER GLU ASP SER GLU

• Molecule 2: RbcL

Chain R:

29%

71%   14%   14%

E459 E463 F464 D465

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 41 21 2	Depositor
Cell constants a, b, c, α, β, γ	93.21Å　　93.21Å　　412.02Å 90.00°　　90.00°　　90.00°	Depositor
Resolution (Å)	20.00　－　2.95 19.94　－　2.95	Depositor EDS
% Data completeness (in resolution range)	95.6 (20.00-2.95) 95.6 (19.94-2.95)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	0.08	Depositor
$< I/\sigma(I) >$ [1]	2.37 (at 2.93Å)	Xtriage
Refinement program	REFMAC	Depositor
R, R_{free}	0.235　,　0.264 0.229　,　0.260	Depositor DCC
R_{free} test set	1913 reflections (5.07%)	wwPDB-VP
Wilson B-factor (Å^2)	77.0	Xtriage
Anisotropy	0.038	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.31 , 37.9	EDS
L-test for twinning[2]	$< |L| > = 0.49, < L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	5232	wwPDB-VP
Average B, all atoms (Å^2)	71.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.55% 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 ⓘ

5.1   Standard geometry ⓘ

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	0.60	0/883	0.72	0/1194
1	B	0.54	0/895	0.70	1/1210 (0.1%)
1	C	0.62	0/878	0.70	0/1189
1	D	0.64	0/862	0.70	0/1166
1	E	0.48	0/841	0.61	0/1145
1	F	0.52	0/874	0.64	0/1184
2	R	0.51	0/56	0.66	0/73
All	All	0.57	0/5289	0.68	1/7161 (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	B	105	LEU	CA-CB-CG	5.30	127.49	115.30

There are no chirality outliers.

There are no planarity outliers.

5.2   Too-close contacts ⓘ

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	871	0	880	41	0
1	B	883	0	892	16	0
1	C	866	0	866	34	0
1	D	850	0	849	19	0
1	E	829	0	780	13	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	F	862	0	856	25	0
2	R	55	0	40	2	0
3	A	6	0	0	1	0
3	B	3	0	0	0	0
3	C	5	0	0	0	0
3	D	2	0	0	0	0
All	All	5232	0	5163	125	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 12.

All (125) 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:E:112:VAL:HG12	1:E:113:ASP:H	1.14	1.09
1:C:33:THR:HG23	1:C:34:ASN:HD22	1.23	1.03
1:F:60:MET:HE2	1:F:68:VAL:HG22	1.41	0.97
1:F:52:GLU:HG2	1:F:55:LEU:HD22	1.61	0.81
1:D:37:GLN:HE22	1:D:64:ASN:HD21	1.30	0.79
1:F:60:MET:HE1	1:F:71:ILE:HD12	1.65	0.78
1:E:112:VAL:HG12	1:E:113:ASP:N	1.96	0.74
1:F:60:MET:CE	1:F:71:ILE:HD12	2.18	0.74
1:C:60:MET:HE3	1:C:68:VAL:HG22	1.69	0.72
1:C:85:PHE:O	1:C:89:MET:HG3	1.91	0.71
1:A:43:GLU:OE2	1:A:47:ARG:HD3	1.90	0.71
1:C:60:MET:CE	1:C:71:ILE:HD12	2.21	0.71
1:D:60:MET:HE1	1:D:67:LEU:HG	1.73	0.70
1:A:60:MET:HE3	1:A:71:ILE:HD12	1.74	0.70
1:C:33:THR:HG23	1:C:34:ASN:ND2	2.03	0.70
1:E:112:VAL:CG1	1:E:113:ASP:H	1.96	0.70
1:A:60:MET:CE	1:A:71:ILE:HD12	2.22	0.69
1:A:110:THR:HG23	1:A:111:GLN:H	1.56	0.69
1:A:60:MET:HE2	1:A:68:VAL:HG22	1.74	0.69
1:C:30:LEU:HA	1:C:33:THR:HG22	1.75	0.69
1:D:79:ALA:O	1:D:83:LEU:HB2	1.92	0.68
1:B:16:SER:HA	1:B:53:SER:OG	1.92	0.68
1:B:60:MET:HB3	1:B:68:VAL:CG2	2.25	0.67
1:C:101:HIS:HE1	1:D:54:ASP:OD1	1.79	0.66
1:A:62:LEU:CD1	1:B:108:ARG:HH22	2.09	0.65
1:C:60:MET:HE2	1:C:71:ILE:HD12	1.77	0.64
1:C:87:PRO:HA	1:D:83:LEU:HG	1.78	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:60:MET:HE2	1:F:68:VAL:CG2	2.22	0.64
1:E:60:MET:CE	1:E:67:LEU:HD23	2.28	0.64
1:C:60:MET:HE1	1:C:71:ILE:CD1	2.29	0.63
1:C:1:MET:HG3	1:C:3:PHE:CE2	2.34	0.62
1:A:62:LEU:HD12	1:B:108:ARG:HH22	1.65	0.62
1:C:20:TYR:HB2	1:C:50:ILE:HG12	1.80	0.61
1:A:26:ILE:HG21	1:A:67:LEU:HD21	1.82	0.61
1:D:37:GLN:HE22	1:D:64:ASN:ND2	1.99	0.61
1:A:21:GLN:HG2	1:B:6:VAL:HG13	1.81	0.61
1:E:60:MET:HE1	1:E:67:LEU:HD23	1.84	0.60
1:F:79:ALA:O	1:F:83:LEU:HB2	2.01	0.60
1:A:85:PHE:HB3	1:A:89:MET:CE	2.31	0.60
1:C:88:GLU:O	1:C:92:SER:HB3	2.02	0.59
1:A:51:GLN:HE22	2:R:463:GLU:HA	1.67	0.58
1:F:85:PHE:HD1	1:F:85:PHE:N	2.02	0.58
1:F:50:ILE:O	1:F:50:ILE:HG13	2.03	0.58
1:F:85:PHE:N	1:F:85:PHE:CD1	2.72	0.57
1:D:98:ASN:O	1:D:102:ARG:HG3	2.06	0.56
1:C:14:LEU:HD23	1:D:90:VAL:HG21	1.89	0.55
1:C:75:ARG:NH1	1:D:98:ASN:OD1	2.38	0.54
1:C:88:GLU:H	1:C:88:GLU:CD	2.11	0.54
1:C:15:GLN:HE22	1:D:93:GLN:HB3	1.73	0.54
1:D:26:ILE:O	1:D:30:LEU:HB2	2.08	0.54
1:C:21:GLN:NE2	1:C:21:GLN:HA	2.23	0.53
1:C:60:MET:CE	1:C:71:ILE:CD1	2.86	0.53
1:A:60:MET:HB3	1:A:68:VAL:HG22	1.90	0.53
1:A:93:GLN:HB3	1:B:15:GLN:NE2	2.24	0.53
1:F:53:SER:O	1:F:56:TYR:HB3	2.09	0.52
1:F:76:GLU:O	1:F:80:GLU:HG2	2.09	0.52
1:F:98:ASN:O	1:F:102:ARG:HG3	2.10	0.52
1:A:34:ASN:OD1	1:A:34:ASN:N	2.43	0.51
1:A:87:PRO:HB3	1:B:83:LEU:HB3	1.92	0.51
1:D:30:LEU:HB3	1:D:38:ALA:HB2	1.93	0.50
1:B:60:MET:HB3	1:B:68:VAL:HG22	1.93	0.50
1:D:34:ASN:CG	1:D:37:GLN:HB2	2.33	0.50
1:C:50:ILE:HG13	1:C:50:ILE:O	2.12	0.49
1:C:67:LEU:O	1:C:71:ILE:HG13	2.11	0.49
1:A:110:THR:HG23	1:A:111:GLN:N	2.25	0.49
1:C:64:ASN:O	1:C:68:VAL:HG23	2.11	0.49
1:E:60:MET:HE3	1:E:67:LEU:HD23	1.94	0.49
1:E:108:ARG:NH1	1:F:61:MET:HE2	2.27	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:60:MET:HE2	1:D:68:VAL:HG22	1.95	0.48
1:C:15:GLN:NE2	1:D:93:GLN:HB3	2.29	0.48
1:A:17:TYR:O	1:A:20:TYR:HB3	2.14	0.47
1:A:65:LYS:HD3	1:B:105:LEU:HD13	1.96	0.47
1:F:67:LEU:O	1:F:71:ILE:HG13	2.14	0.47
1:F:89:MET:O	1:F:93:GLN:NE2	2.47	0.47
1:F:103:ARG:O	1:F:107:GLU:HG3	2.14	0.47
1:F:50:ILE:O	1:F:50:ILE:CG1	2.61	0.47
1:A:23:VAL:O	1:A:27:SER:HB2	2.14	0.47
1:A:60:MET:HE1	1:A:71:ILE:HD12	1.97	0.47
1:A:75:ARG:HG2	1:A:76:GLU:N	2.30	0.47
1:C:60:MET:HE1	1:C:71:ILE:HD11	1.97	0.47
1:A:69:LEU:HG	1:B:105:LEU:HD21	1.96	0.46
1:A:107:GLU:O	1:A:110:THR:HG22	2.14	0.46
1:A:67:LEU:O	1:A:68:VAL:C	2.52	0.46
1:A:15:GLN:NE2	1:B:93:GLN:HB3	2.31	0.46
1:D:70:ARG:O	1:D:74:VAL:HG23	2.16	0.46
1:A:85:PHE:HB3	1:A:89:MET:HE1	1.98	0.46
1:C:82:VAL:HG21	1:D:6:VAL:HG12	1.98	0.46
1:F:89:MET:O	1:F:93:GLN:HB2	2.16	0.46
1:A:110:THR:CG2	1:A:111:GLN:H	2.25	0.45
1:A:19:THR:O	1:A:23:VAL:HG23	2.16	0.45
1:A:6:VAL:HG12	1:B:82:VAL:HG21	1.99	0.44
1:A:43:GLU:O	1:A:47:ARG:HG3	2.18	0.44
1:A:60:MET:HE2	1:A:60:MET:HB3	1.87	0.44
1:B:109:LEU:HD13	1:D:42:GLY:HA3	1.99	0.44
1:E:64:ASN:O	1:E:68:VAL:HG23	2.17	0.44
1:A:20:TYR:CZ	1:A:24:ARG:HD2	2.53	0.44
1:C:37:GLN:HG3	1:F:63:GLU:HA	2.00	0.44
1:B:106:LEU:HD23	1:B:106:LEU:HA	1.76	0.43
1:A:14:LEU:HD12	1:A:14:LEU:HA	1.78	0.43
1:A:89:MET:HG2	1:A:93:GLN:NE2	2.33	0.43
1:C:14:LEU:HA	1:C:14:LEU:HD12	1.64	0.43
1:C:60:MET:HE3	1:C:68:VAL:CG2	2.43	0.43
1:C:98:ASN:HB3	1:C:102:ARG:NH1	2.34	0.43
1:A:48:HIS:HA	1:A:49:PRO:HD3	1.87	0.43
1:E:3:PHE:CD2	1:F:81:GLY:HA3	2.53	0.43
1:F:28:GLN:O	1:F:30:LEU:N	2.52	0.43
1:A:50:ILE:O	1:A:50:ILE:HG13	2.18	0.42
1:C:48:HIS:HA	1:C:49:PRO:HD2	1.91	0.42
1:C:107:GLU:O	1:C:110:THR:HG22	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:51:GLN:NE2	2:R:463:GLU:HA	2.34	0.41
1:E:105:LEU:HD12	1:F:61:MET:HG2	2.02	0.41
1:A:65:LYS:HG3	3:A:138:HOH:O	2.19	0.41
1:F:103:ARG:HH11	1:F:103:ARG:HG3	1.86	0.41
1:A:60:MET:HE3	1:A:68:VAL:HA	2.02	0.41
1:B:18:LEU:HD23	1:B:18:LEU:HA	1.90	0.41
1:F:60:MET:HE3	1:F:71:ILE:HD12	1.97	0.41
1:C:75:ARG:HG2	1:C:76:GLU:N	2.35	0.41
1:E:14:LEU:HD23	1:F:90:VAL:HG21	2.01	0.41
1:E:22:ALA:O	1:E:26:ILE:HG12	2.21	0.41
1:E:71:ILE:O	1:E:75:ARG:HB2	2.21	0.40
1:C:23:VAL:HG22	1:C:71:ILE:HD13	2.03	0.40
1:A:84:GLU:HG2	1:A:85:PHE:CD1	2.56	0.40
1:C:68:VAL:O	1:C:72:LEU:HG	2.21	0.40
1:D:48:HIS:HA	1:D:49:PRO:HD2	1.95	0.40
1:A:10:THR:HG21	1:B:86:LEU:HD21	2.03	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	108/134 (81%)	100 (93%)	8 (7%)	0	100	100
1	B	109/134 (81%)	98 (90%)	10 (9%)	1 (1%)	17	51
1	C	108/134 (81%)	103 (95%)	5 (5%)	0	100	100
1	D	106/134 (79%)	99 (93%)	6 (6%)	1 (1%)	17	51
1	E	110/134 (82%)	99 (90%)	9 (8%)	2 (2%)	8	33
1	F	108/134 (81%)	100 (93%)	7 (6%)	1 (1%)	17	51
2	R	5/7 (71%)	5 (100%)	0	0	100	100
All	All	654/811 (81%)	604 (92%)	45 (7%)	5 (1%)	19	53

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	F	29	GLN
1	E	75	ARG
1	E	112	VAL
1	B	62	LEU
1	D	108	ARG

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	94/123 (76%)	82 (87%)	12 (13%)	4	17
1	B	95/123 (77%)	83 (87%)	12 (13%)	4	17
1	C	93/123 (76%)	81 (87%)	12 (13%)	4	16
1	D	91/123 (74%)	86 (94%)	5 (6%)	21	53
1	E	79/123 (64%)	72 (91%)	7 (9%)	9	32
1	F	91/123 (74%)	83 (91%)	8 (9%)	10	33
2	R	4/7 (57%)	2 (50%)	2 (50%)	0	0
All	All	547/745 (73%)	489 (89%)	58 (11%)	6	24

All (58) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	3	PHE
1	A	5	LYS
1	A	24	ARG
1	A	33	THR
1	A	34	ASN
1	A	43	GLU
1	A	46	LYS
1	A	67	LEU
1	A	75	ARG
1	A	78	LEU
1	A	84	GLU

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Mol	Chain	Res	Type
1	A	92	SER
1	B	5	LYS
1	B	33	THR
1	B	50	ILE
1	B	55	LEU
1	B	60	MET
1	B	61	MET
1	B	83	LEU
1	B	84	GLU
1	B	86	LEU
1	B	105	LEU
1	B	107	GLU
1	B	108	ARG
1	C	14	LEU
1	C	20	TYR
1	C	21	GLN
1	C	27	SER
1	C	53	SER
1	C	61	MET
1	C	67	LEU
1	C	70	ARG
1	C	75	ARG
1	C	80	GLU
1	C	92	SER
1	C	107	GLU
1	D	43	GLU
1	D	83	LEU
1	D	91	LEU
1	D	96	GLN
1	D	104	SER
1	E	2	GLU
1	E	27	SER
1	E	50	ILE
1	E	83	LEU
1	E	96	GLN
1	E	109	LEU
1	E	110	THR
1	F	3	PHE
1	F	6	VAL
1	F	24	ARG
1	F	27	SER
1	F	52	GLU

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Mol	Chain	Res	Type
1	F	67	LEU
1	F	85	PHE
1	F	93	GLN
2	R	463	GLU
2	R	464	PHE

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

Mol	Chain	Res	Type
1	A	15	GLN
1	A	51	GLN
1	A	93	GLN
1	B	15	GLN
1	B	21	GLN
1	C	15	GLN
1	C	21	GLN
1	C	34	ASN
1	C	93	GLN
1	C	101	HIS
1	D	15	GLN
1	D	28	GLN
1	D	37	GLN
1	D	93	GLN
1	E	15	GLN
1	F	34	ASN

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 ⓘ

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(Å^2)	Q<0.9
1	A	110/134 (82%)	-0.29	2 (1%)	68	51	42, 57, 85, 95	0
1	B	111/134 (82%)	-0.11	2 (1%)	68	51	52, 71, 94, 99	0
1	C	110/134 (82%)	-0.38	1 (0%)	84	71	48, 62, 86, 94	0
1	D	108/134 (80%)	-0.17	0	100	100	49, 61, 76, 90	0
1	E	112/134 (83%)	0.04	7 (6%)	20	11	70, 90, 124, 126	0
1	F	110/134 (82%)	-0.11	3 (2%)	54	38	56, 79, 91, 102	0
2	R	7/7 (100%)	1.03	2 (28%)	0	0	90, 93, 97, 98	0
All	All	668/811 (82%)	-0.16	17 (2%)	57	40	42, 69, 100, 126	0

All (17) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	113	ASP	4.3
1	E	112	VAL	3.7
1	E	111	GLN	3.6
1	F	112	VAL	3.6
2	R	459	GLU	3.3
1	B	1	MET	3.1
1	E	33	THR	3.1
1	B	111	GLN	2.7
1	E	31	SER	2.6
1	F	51	GLN	2.5
1	A	110	THR	2.5
1	A	111	GLN	2.4
1	C	1	MET	2.3
1	E	2	GLU	2.3
1	E	32	GLU	2.2
1	F	85	PHE	2.2
2	R	465	ASP	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.