wwPDB X-ray Structure Validation Summary Report ⓘ

Sep 18, 2023 – 09:03 PM EDT

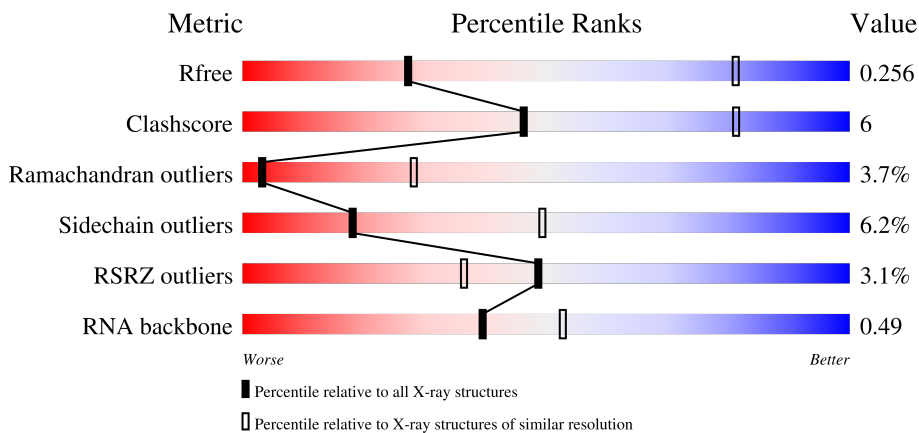|		
PDB ID	:	5C3E
Title	:	Crystal structure of a transcribing RNA Polymerase II complex reveals a complete transcription bubble
Authors	:	Barnes, C.O.; Calero, M.; Malik, I.; Spahr, H.; Zhang, Q.; Pullara, F.; Kaplan, C.D.; Calero, G.
Deposited on	:	2015-06-17
Resolution	:	3.70 Å(reported)

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 3.70 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.
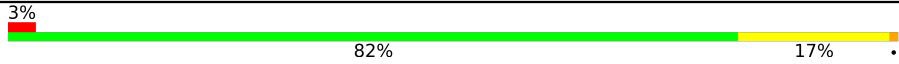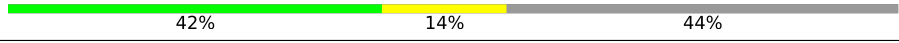
Metric	Percentile Ranks	Value
Rfree		0.256
Clashscore		6
Ramachandran outliers		3.7%
Sidechain outliers		6.2%
RSRZ outliers		3.1%
RNA backbone		0.49

Worse *Better*

■ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution
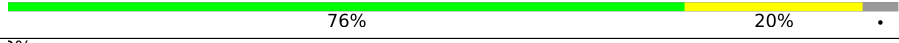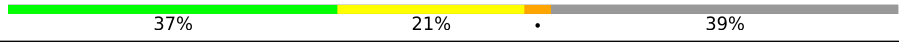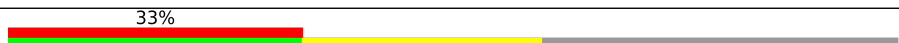
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R$_{free}$	130704	1049 (3.88-3.52)
Clashscore	141614	1027 (3.86-3.54)
Ramachandran outliers	138981	1069 (3.88-3.52)
Sidechain outliers	138945	1065 (3.88-3.52)
RSRZ outliers	127900	1578 (3.90-3.50)
RNA backbone	3102	1027 (4.40-3.00)

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	1733	% — 62% 18% • 17%
2	B	1224	4% — 71% 22% • 5%
3	C	318	% — 64% 17% • 17%
4	D	221	% — 67% 13% 19%

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Mol	Chain	Length	Quality of chain
5	E	215	3% / 82% / 17%
6	F	155	42% / 14% / 44%
7	G	179	76% / 20%
8	H	146	2% / 75% / 16% / 8%
9	I	122	6% / 77% / 15% / 7%
10	J	70	66% / 23% / 6% / 6%
11	K	120	75% / 18%
12	L	70	37% / 21% / 39%
13	R	9	22% / 78% / 11% / 11%
14	S	45	31% / 24% / 7% / 69%
15	U	45	33% / 33% / 27% / 40%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
16	ZN	C	401	-	-	-	X
17	MG	A	1804	-	-	-	X

2 Entry composition ⓘ

There are 17 unique types of molecules in this entry. The entry contains 32515 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 DNA-directed RNA polymerase II subunit RPB1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	1430	Total	C	N	O	S	0	0	0
			11227	7069	1962	2134	62			

- Molecule 2 is a protein called DNA-directed RNA polymerase II subunit RPB2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	1157	Total	C	N	O	S	0	0	0
			9130	5767	1599	1708	56			

- Molecule 3 is a protein called DNA-directed RNA polymerase II subunit RPB3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	C	265	Total	C	N	O	S	0	0	0
			2086	1312	347	414	13			

- Molecule 4 is a protein called DNA-directed RNA polymerase II subunit RPB4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	D	178	Total	C	N	O	S	0	0	0
			1417	875	254	286	2			

- Molecule 5 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	E	214	Total	C	N	O	S	0	0	0
			1752	1111	309	321	11			

- Molecule 6 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
6	F	87	Total	C	N	O	S	0	0	0
			705	451	119	132	3			

- Molecule 7 is a protein called DNA-directed RNA polymerase II subunit RPB7.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
7	G	171	Total 1339	C 861	N 222	O 248	S 8	0	0	0

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	172	LEU	-	expression tag	UNP P34087
G	173	GLU	-	expression tag	UNP P34087
G	174	HIS	-	expression tag	UNP P34087
G	175	HIS	-	expression tag	UNP P34087
G	176	HIS	-	expression tag	UNP P34087
G	177	HIS	-	expression tag	UNP P34087
G	178	HIS	-	expression tag	UNP P34087
G	179	HIS	-	expression tag	UNP P34087

- Molecule 8 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
8	H	135	Total 1080	C 679	N 182	O 214	S 5	0	0	0

- Molecule 9 is a protein called DNA-directed RNA polymerase II subunit RPB9.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
9	I	114	Total 927	C 571	N 168	O 178	S 10	0	0	0

- Molecule 10 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
10	J	66	Total 540	C 345	N 94	O 95	S 6	0	0	0

- Molecule 11 is a protein called DNA-directed RNA polymerase II subunit RPB11.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
11	K	115	Total 924	C 593	N 157	O 172	S 2	0	0	0

- Molecule 12 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
12	L	43	Total 344	C 211	N 69	O 60	S 4	0	0	0

- Molecule 13 is a RNA chain called Synthetic RNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
13	R	9	Total 197	C 88	N 40	O 60	P 9	0	0	0

- Molecule 14 is a DNA chain called Synthetic DNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
14	S	14	Total 286	C 137	N 49	O 86	P 14	0	0	0

- Molecule 15 is a DNA chain called Synthetic DNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
15	U	27	Total 550	C 262	N 101	O 160	P 27	0	0	0

- Molecule 16 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
16	A	2	Total 2	Zn 2	0	0
16	B	1	Total 1	Zn 1	0	0
16	C	2	Total 2	Zn 2	0	0
16	I	2	Total 2	Zn 2	0	0
16	J	1	Total 1	Zn 1	0	0
16	L	1	Total 1	Zn 1	0	0

- Molecule 17 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
17	A	2	Total 2	Mg 2	0	0

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: DNA-directed RNA polymerase II subunit RPB1

• Molecule 2: DNA-directed RNA polymerase II subunit RPB2

Chain B:

4%

71%   22%   • 5%

P1046 F1047 T1051 Q1065 M1082 A1083 Q1084 I1085 F1086 P1089 R1096 I1103 H1104 A1105 R1106 A1107 P1110 L1114 R1122 S1123 R1124 R1129 F1130 G1131 E1132 M1133 D1136 I1139 S1145 F1146 L1147 R1150 L1151 S1155 D1156 A1157 F1158 R1159 V1160 M1169 T1170 K1174

H1177 N1178 Q1179 F1180 E1181 C1182 N1187 K1188 Q1193 L1202 L1203 F1204 L1207 R1215 L1216 Y1217 D1223 F1224

• Molecule 3: DNA-directed RNA polymerase II subunit RPB3

Chain C:

64% 17% • 17%

MET SER GLU E4 G5 P6 R11 N17 V18 D19 F20 L33 I38 A39 E40 T43 L44 A45 I46 E50 T55 F62 R66 L67 G68 L69 I70 P71 L72 I77 L80 D90 H91 C92 Q102 L118 I133 V142 R148 E152 L153 K154

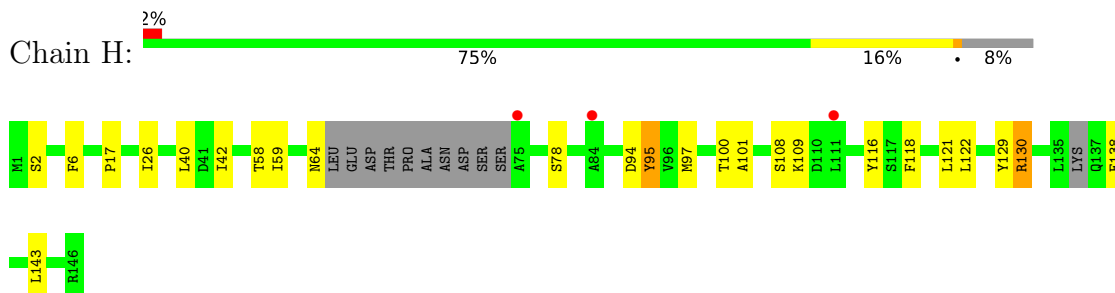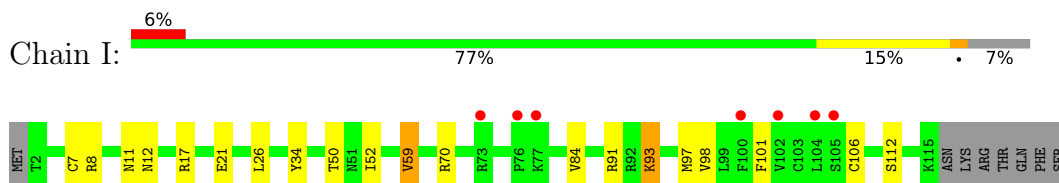L155 T156 A159 K160 K161 A164 H167 A173 A174 A175 I176 E177 F178 L186 T189 Q195 D196 K199 P212 P213 N214 E215 A223 N231 V232 E233 G236 V240 D241 Q242 V243 V244 V245 I248 Q252 I258 L259 D268 LYS VAL ASN PHE ALA

SER GLY ASP ASN ASN THR ALA SER ASN MET LEU GLY SER ASN GLU VAL MET MET THR GLY GLU GLN ASP PRO TYR SER ASN ALA SER GLN MET GLY ASN THR GLY SER GLY TYR ASP ASN ALA TRP

• Molecule 4: DNA-directed RNA polymerase II subunit RPB4

Chain D:

67% 13% 19%

MET ASN VAL S4 T5 S6 T7 F8 Q9 T10 L15 K16 E20 N23 Q34 I48 N51 E54 A55 R56 F70 K71 R72 S73 Q74 K75 K76 HIS LYS LYS LYS HIS LEU LYS HIS GLU ASN ALA ASN ASP GLU THR ALA VAL GLU ASP GLU ASP ASP LEU

ASP GLU ASP ASP VAL ASN ALA ASP ASP ASP PHE MET HIS SER E117 T118 R119 E131 T149 S152 R155 V160 S169 T187 L194 L198 N199 L214 T219 L220 Y221

• Molecule 5: DNA-directed RNA polymerases I, II, and III subunit RPABC1

Chain E:

3%

82% 17% •

MET D2 Q3 E4 N5 L12 A15 V19 V23 Y28 L37 P38 D41 K45 M50 G51 R55 L78 W79 V80 P86 K91 T92 M93 E102 K103 N104 T107 G108 I109 F110 Q113 M121 K122 L123 V124 I132 T145 H146 H147

V150 P151 K152 E163 R167 L175 P176 R177 I178 P183 V184 I198 K201 R212 M215

• Molecule 6: DNA-directed RNA polymerases I, II, and III subunit RPABC2

Chain F:

42% 14% 44%

MET SER ASP TYR GLU GLU ALA PHE ASN ASP GLY ASN ASN PHE GLU ASP PHE ASP VAL GLU HIS PHE SER ASP GLU GLU THR TYR GLU GLU LYS PRO GLN PHE LYS ASP GLU THR ASP ALA ASN LYS THR ILE VAL THR GLY GLY ASN GLY PRO GLU ASP PHE GLN GLN

HIS GLU GLN ILE ARG ARG LYS THR L69 K70 E71 K72 Q78 T86 E89 R90 A91 R92 L99 V109 D110 L111 T115 D116 P117 I120 E124 K128 K129 I130 P131 L132 W146 E149 E150 L151 L155

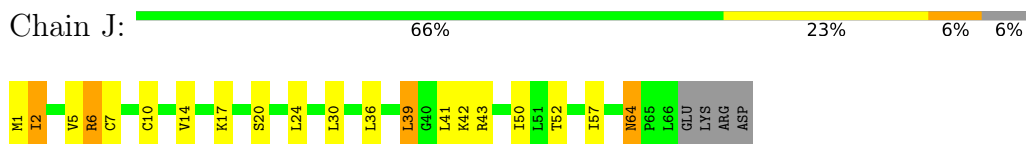• Molecule 7: DNA-directed RNA polymerase II subunit RPB7

Chain G:

• Molecule 8: DNA-directed RNA polymerases I, II, and III subunit RPABC3

Chain H:

• Molecule 9: DNA-directed RNA polymerase II subunit RPB9

Chain I:

• Molecule 10: DNA-directed RNA polymerases I, II, and III subunit RPABC5

Chain J:

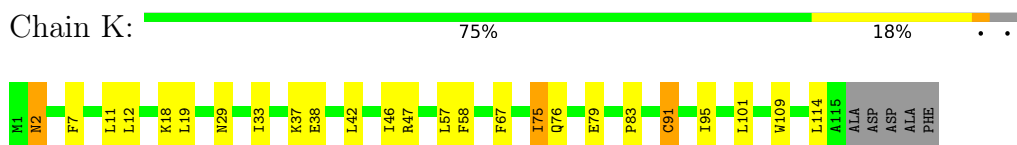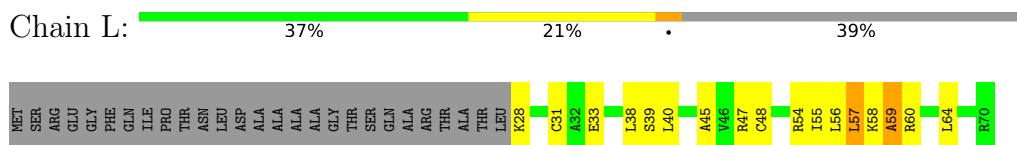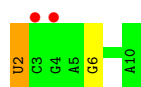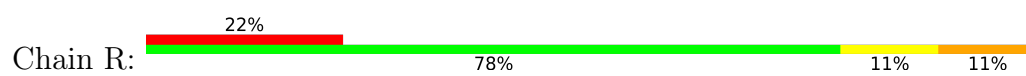• Molecule 11: DNA-directed RNA polymerase II subunit RPB11
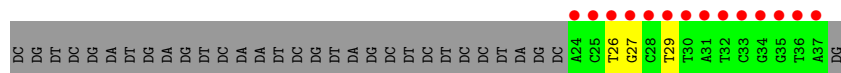
Chain K:

• Molecule 12: DNA-directed RNA polymerases I, II, and III subunit RPABC4
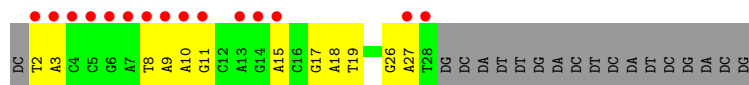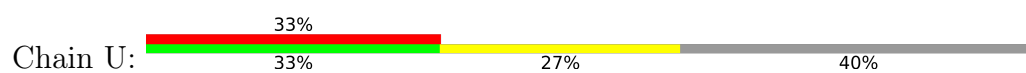
Chain L:

• Molecule 13: Synthetic RNA

Chain R:

• Molecule 14: Synthetic DNA

Chain S:

• Molecule 15: Synthetic DNA

Chain U:

4   Data and refinement statistics   ⓘ

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	219.05Å 390.94Å 278.08Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	40.00 – 3.70 39.98 – 3.70	Depositor EDS
% Data completeness (in resolution range)	96.4 (40.00-3.70) 96.4 (39.98-3.70)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.32	Depositor
$< I/\sigma(I) >$ [1]	1.69 (at 3.66Å)	Xtriage
Refinement program	BUSTER-TNT BUSTER 2.10.2	Depositor
R, R_{free}	0.201 , 0.220 0.233 , 0.256	Depositor DCC
R_{free} test set	3691 reflections (3.02%)	wwPDB-VP
Wilson B-factor (Å^2)	92.7	Xtriage
Anisotropy	0.383	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 100.7	EDS
L-test for twinning[2]	$< |L| > = 0.37, < L^2 > = 0.19$	Xtriage
Estimated twinning fraction	0.108 for 1/2*h-1/2*k,-3/2*h-1/2*k,-l 0.125 for 1/2*h+1/2*k,3/2*h-1/2*k,-l	Xtriage
F_o,F_c correlation	0.89	EDS
Total number of atoms	32515	wwPDB-VP
Average B, all atoms (Å^2)	131.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.79% 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 ⓘ

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

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	0.40	0/11427	0.66	0/15457
2	B	0.39	0/9302	0.64	2/12542 (0.0%)
3	C	0.38	0/2124	0.62	0/2879
4	D	0.38	0/1427	0.62	0/1911
5	E	0.38	0/1788	0.58	0/2406
6	F	0.40	0/717	0.64	0/967
7	G	0.38	0/1367	0.65	0/1844
8	H	0.38	0/1097	0.61	0/1484
9	I	0.38	0/945	0.63	0/1273
10	J	0.39	0/549	0.65	0/738
11	K	0.37	0/942	0.58	0/1272
12	L	0.41	0/346	0.68	0/457
13	R	0.88	0/221	0.87	1/343 (0.3%)
14	S	1.04	0/319	0.97	0/490
15	U	1.19	2/616 (0.3%)	0.96	0/947
All	All	0.43	2/33187 (0.0%)	0.65	3/45010 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
15	U	15	DA	O3'-P	-6.68	1.53	1.61
15	U	15	DA	N9-C8	-5.06	1.33	1.37

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	136	THR	C-N-CA	5.30	134.95	121.70
2	B	145	ARG	C-N-CA	5.14	134.54	121.70
13	R	2	U	C1'-O4'-C4'	-5.07	105.85	109.90

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	11227	0	11270	167	0
2	B	9130	0	9099	143	0
3	C	2086	0	2045	34	0
4	D	1417	0	1428	7	0
5	E	1752	0	1776	21	0
6	F	705	0	731	10	0
7	G	1339	0	1357	16	0
8	H	1080	0	1049	14	0
9	I	927	0	883	11	0
10	J	540	0	554	16	0
11	K	924	0	934	17	0
12	L	344	0	365	7	0
13	R	197	0	96	1	0
14	S	286	0	160	3	0
15	U	550	0	304	11	0
16	A	2	0	0	0	0
16	B	1	0	0	0	0
16	C	2	0	0	0	0
16	I	2	0	0	0	0
16	J	1	0	0	0	0
16	L	1	0	0	0	0
17	A	2	0	0	0	0
All	All	32515	0	32051	406	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 6.

The worst 5 of 406 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)
10:J:36:LEU:HD21	10:J:50:ILE:HD11	1.38	1.03

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W O R L D W I D E
wwPDB
PROTEIN DATA BANK

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:446:ARG:HD2	1:A:480:ALA:HB2	1.49	0.91
1:A:1107:VAL:HA	1:A:1108:ALA:HB2	1.54	0.88
2:B:120:ARG:HG2	2:B:955:THR:HG21	1.61	0.83
2:B:145:ARG:HA	2:B:146:GLU:HB2	1.62	0.81

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	1420/1733 (82%)	1220 (86%)	141 (10%)	59 (4%)	3	25
2	B	1139/1224 (93%)	973 (85%)	123 (11%)	43 (4%)	3	27
3	C	263/318 (83%)	230 (88%)	26 (10%)	7 (3%)	5	33
4	D	174/221 (79%)	154 (88%)	11 (6%)	9 (5%)	2	21
5	E	212/215 (99%)	194 (92%)	14 (7%)	4 (2%)	8	40
6	F	85/155 (55%)	76 (89%)	6 (7%)	3 (4%)	3	30
7	G	169/179 (94%)	143 (85%)	19 (11%)	7 (4%)	3	26
8	H	129/146 (88%)	105 (81%)	20 (16%)	4 (3%)	4	32
9	I	112/122 (92%)	96 (86%)	13 (12%)	3 (3%)	5	33
10	J	64/70 (91%)	57 (89%)	5 (8%)	2 (3%)	4	32
11	K	113/120 (94%)	109 (96%)	4 (4%)	0	100	100
12	L	41/70 (59%)	31 (76%)	6 (15%)	4 (10%)	0	8
All	All	3921/4573 (86%)	3388 (86%)	388 (10%)	145 (4%)	3	28

5 of 145 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	49	LYS

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Mol	Chain	Res	Type
1	A	66	LYS
1	A	67	CYS
1	A	76	GLU
1	A	158	PRO

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	1245/1520 (82%)	1150 (92%)	95 (8%)	13	43
2	B	986/1061 (93%)	924 (94%)	62 (6%)	18	49
3	C	233/274 (85%)	218 (94%)	15 (6%)	17	48
4	D	156/200 (78%)	146 (94%)	10 (6%)	17	48
5	E	196/197 (100%)	190 (97%)	6 (3%)	40	65
6	F	77/137 (56%)	74 (96%)	3 (4%)	32	60
7	G	152/160 (95%)	151 (99%)	1 (1%)	84	91
8	H	118/128 (92%)	115 (98%)	3 (2%)	47	70
9	I	108/116 (93%)	102 (94%)	6 (6%)	21	53
10	J	61/65 (94%)	55 (90%)	6 (10%)	8	33
11	K	99/102 (97%)	94 (95%)	5 (5%)	24	55
12	L	38/57 (67%)	34 (90%)	4 (10%)	7	30
All	All	3469/4017 (86%)	3253 (94%)	216 (6%)	18	49

5 of 216 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	B	529	GLU
2	B	1065	GLN
9	I	59	VAL
2	B	601	ARG
2	B	844	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 13 such sidechains are listed below:

Mol	Chain	Res	Type
2	B	986	GLN
2	B	1013	ASN
11	K	29	ASN
5	E	61	GLN
5	E	101	GLN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
13	R	8/9 (88%)	0	1 (12%)

There are no RNA backbone outliers to report.

All (1) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
13	R	2	U

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 11 ligands modelled in this entry, 11 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 (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	1430/1733 (82%)	-0.18	16 (1%)	80	71	47, 113, 205, 298	0
2	B	1157/1224 (94%)	0.02	54 (4%)	31	23	47, 128, 231, 294	0
3	C	265/318 (83%)	-0.19	3 (1%)	80	71	57, 113, 177, 299	0
4	D	178/221 (80%)	-0.16	3 (1%)	70	59	60, 118, 193, 250	0
5	E	214/215 (99%)	0.02	6 (2%)	53	40	63, 159, 239, 274	0
6	F	87/155 (56%)	-0.40	0	100	100	46, 78, 133, 162	0
7	G	171/179 (95%)	-0.28	0	100	100	59, 98, 151, 229	0
8	H	135/146 (92%)	0.13	3 (2%)	62	50	99, 162, 231, 247	0
9	I	114/122 (93%)	0.17	7 (6%)	21	14	70, 160, 237, 280	0
10	J	66/70 (94%)	-0.21	0	100	100	53, 103, 177, 216	0
11	K	115/120 (95%)	-0.23	0	100	100	56, 105, 158, 176	0
12	L	43/70 (61%)	-0.16	0	100	100	75, 141, 215, 234	0
13	R	9/9 (100%)	1.23	2 (22%)	0	0	143, 199, 257, 275	0
14	S	14/45 (31%)	3.46	14 (100%)	0	0	261, 296, 300, 300	0
15	U	27/45 (60%)	1.94	15 (55%)	0	0	136, 253, 300, 300	0
All	All	4025/4672 (86%)	-0.07	123 (3%)	49	36	46, 121, 222, 300	0

The worst 5 of 123 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	1090	ALA	6.6
5	E	51	GLY	6.0
2	B	71	LEU	5.4
15	U	6	DG	5.3
1	A	69	THR	5.2

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
17	MG	A	1804	1/1	0.49	0.60	63,63,63,63	0
16	ZN	C	401	1/1	0.69	0.72	193,193,193,193	0
17	MG	A	1803	1/1	0.91	0.12	82,82,82,82	0
16	ZN	A	1801	1/1	0.98	0.07	90,90,90,90	0
16	ZN	I	202	1/1	0.98	0.06	183,183,183,183	0
16	ZN	I	201	1/1	0.99	0.07	113,113,113,113	0
16	ZN	B	1301	1/1	0.99	0.14	72,72,72,72	0
16	ZN	J	101	1/1	0.99	0.18	93,93,93,93	0
16	ZN	L	101	1/1	0.99	0.06	93,93,93,93	0
16	ZN	A	1802	1/1	0.99	0.14	67,67,67,67	0
16	ZN	C	402	1/1	0.99	0.08	74,74,74,74	0

6.5   Other polymers ⓘ

There are no such residues in this entry.