



wwPDB X-ray Structure Validation Summary Report ⓘ

May 29, 2020 – 04:51 am BST

PDB ID : 4BXZ
Title : RNA Polymerase II-Bye1 complex
Authors : Kinkelin, K.; Wozniak, G.G.; Rothbart, S.B.; Lidschreiber, M.; Strahl, B.D.;
Cramer, P.
Deposited on : 2013-07-16
Resolution : 4.80 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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 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 : 2.11
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) : 2.11

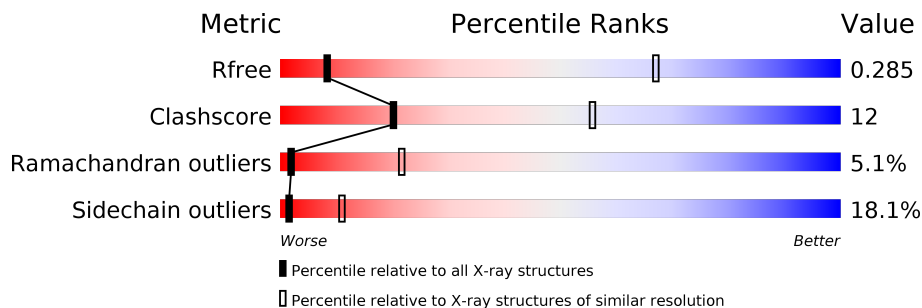
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 4.80 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.





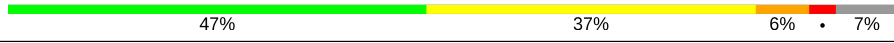

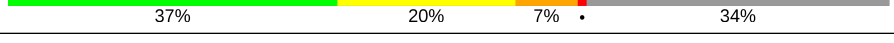
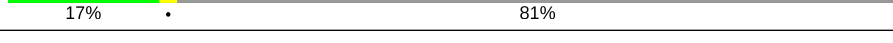
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1096 (5.80-3.80)
Clashscore	141614	1170 (5.80-3.80)
Ramachandran outliers	138981	1105 (5.80-3.80)
Sidechain outliers	138945	1085 (5.80-3.80)

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 on 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 $\leq 5\%$.

Mol	Chain	Length	Quality of chain
1	A	1733	44% 31% 6% 18%
2	B	1224	51% 32% 6% 10%
3	C	318	47% 31% 5% 16%
4	D	221	50% 28% 20%
5	E	215	59% 35% 5%
6	F	155	28% 23% 46%
7	G	171	67% 31%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
8	H	146	 47% 38% 9%
9	I	122	 61% 34%
10	J	70	 47% 37% 6% 7%
11	K	120	 65% 24% 7%
12	L	70	 37% 20% 7% 34%
13	X	594	 17% 81%

2 Entry composition [i](#)

There are 15 unique types of molecules in this entry. The entry contains 31509 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
			Total	C	N	O	S			
1	A	1416	11140	7021	1946	2111	62	0	0	0

- Molecule 2 is a protein called DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	1097	8720	5526	1523	1617	54	0	0	0

- Molecule 3 is a protein called DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	C	266	2095	1317	348	417	13	0	0	0

- Molecule 4 is a protein called DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	D	177	1356	840	241	273	2	0	0	0

- Molecule 5 is a protein called DNA-DIRECTED RNA POLYMERASES I, II, AND III SUBUNIT RPABC1.

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

- Molecule 6 is a protein called DNA-DIRECTED RNA POLYMERASES I, II, AND III SUBUNIT RPABC2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
6	F	84	679	434	115	127	3	0	0	0

- Molecule 7 is a protein called DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB7.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
7	G	171	1340	861	222	249	8	0	0	0

- Molecule 8 is a protein called DNA-DIRECTED RNA POLYMERASES I, II, AND III SUBUNIT RPABC3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
8	H	133	1068	673	180	211	4	0	0	0

- Molecule 9 is a protein called DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB9.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
9	I	119	971	596	179	186	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
			Total	C	N	O	S			
10	J	65	532	339	93	94	6	0	0	0

- Molecule 11 is a protein called DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB11.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
11	K	115	920	590	157	171	2	0	0	1

- Molecule 12 is a protein called DNA-DIRECTED RNA POLYMERASES I, II, AND III SUBUNIT RPABC4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
12	L	46	363	224	72	63	4	0	0	0

- Molecule 13 is a protein called TRANSCRIPTION FACTOR BYE1.

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace	
13	X	113	Total	C	N	O	0	0	0
			564	338	113	113			

- Molecule 14 is ZINC ION (three-letter code: ZN) (formula: Zn).

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

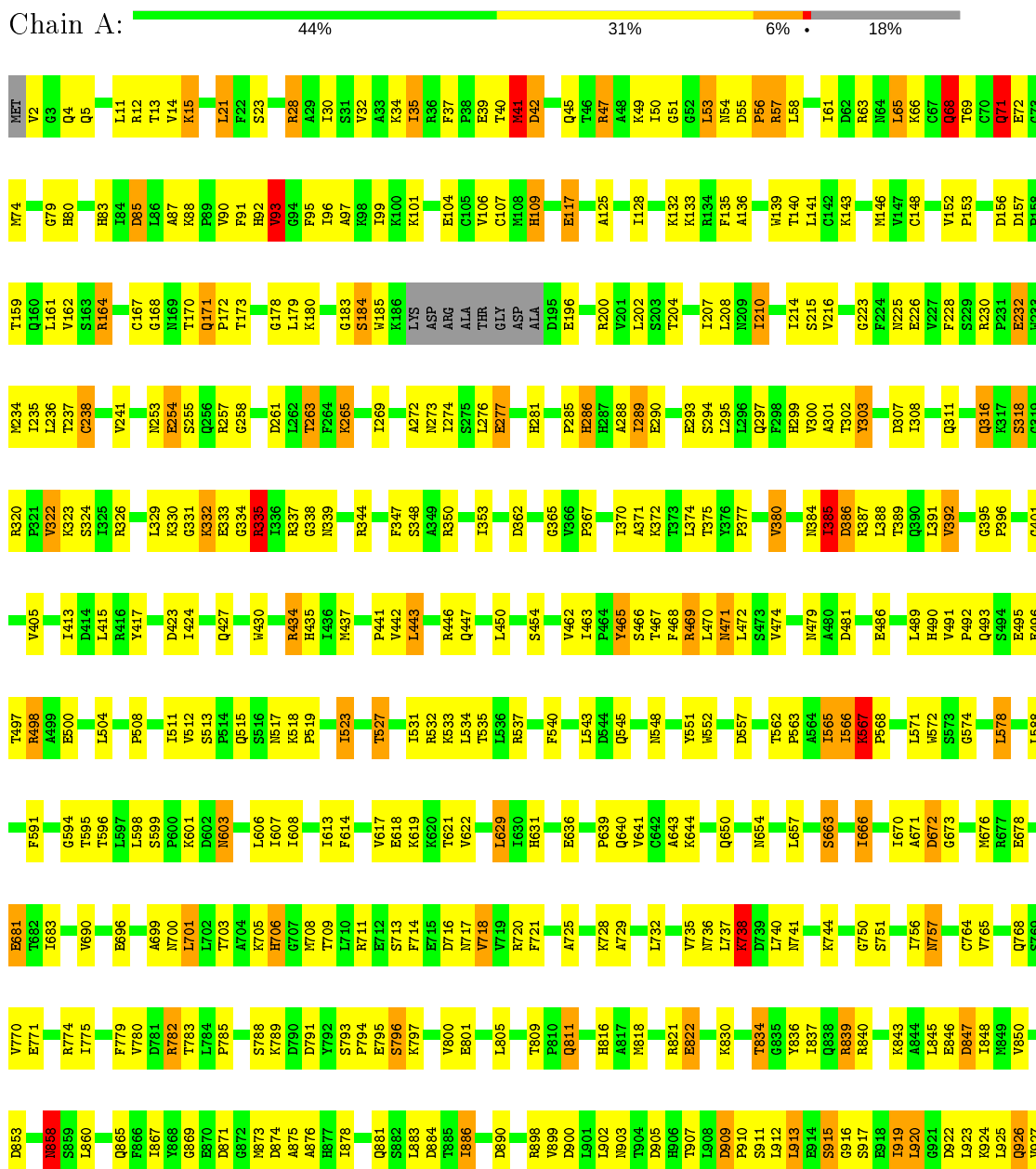
- Molecule 15 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
15	A	1	Total	Mg	0	0
			1	1		

3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA 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. 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. 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

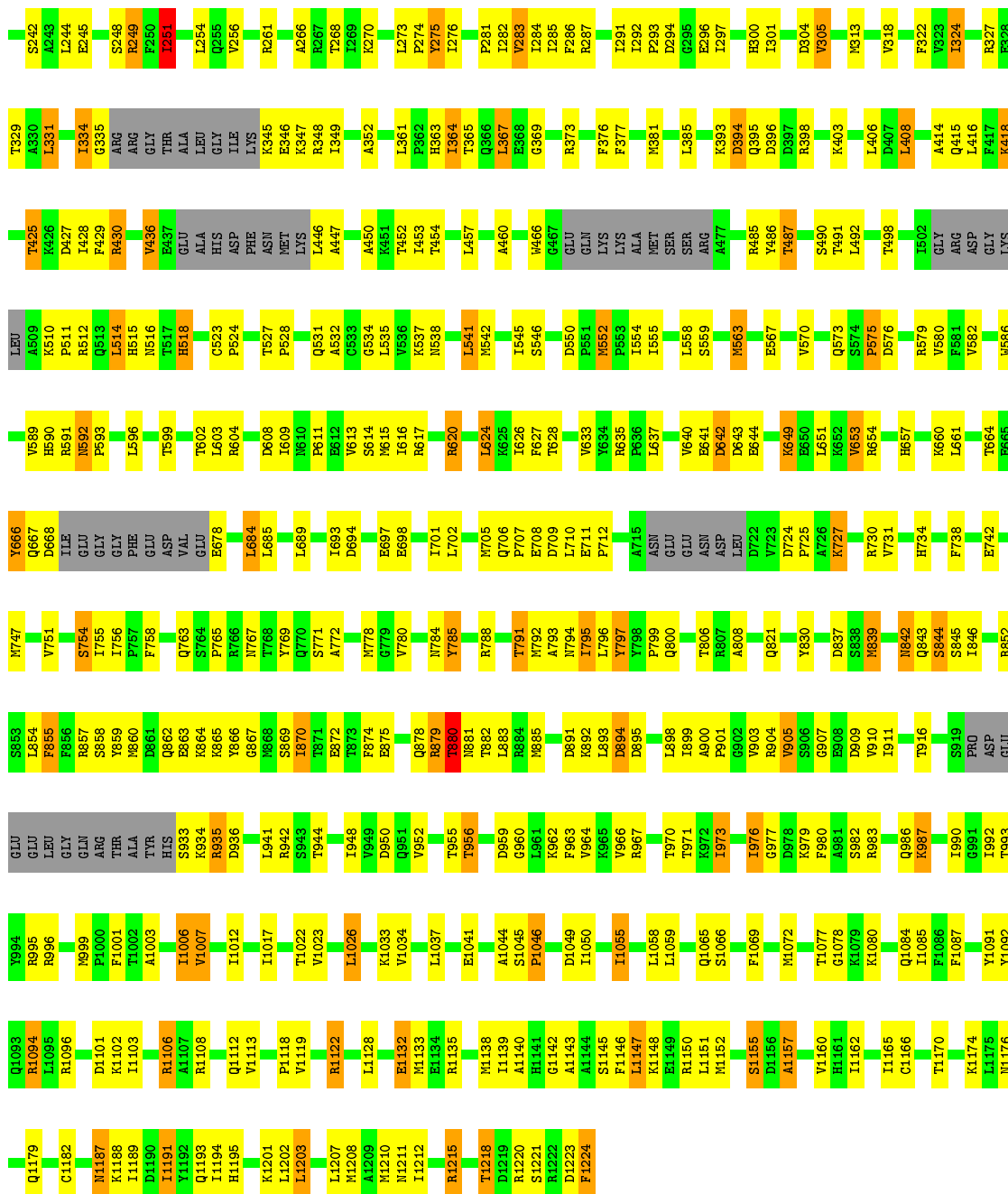


L928	P1089	L1000	ASP	K1262	A1347	V1424	NET	PRO	SER	THR	ASN	
L929	V1015	R1100	Q1187	I1263	L1348	S1425	PHE	THR	THR	THR	SER	THR
E931	Q1188	L1101	Q1188	E1264	E1351	E1426	SER	SER	SER	PRO	SER	PRO
E932	L1017	K1102	S1189	M1265	M1355	L1430	LEU	PRO	LEU	GLY	ALA	LEU
Y933	F1018	T1266	W1190	M1267	V1355	G1431	VAL	TYR	VAL	TYR	VAL	ALA
	G1019	I1104	W1191	M1267	I1356	Q1432	ASP	SER	ASP	ASP	SER	ASP
	R1023	I1106	R1194	I1271	A1357	M1483	SER	PRO	SER	THR	THR	GLY
	R1028	M1106	L1195	E1277	S1358	I1436	GLY	THR	GLY	TYR	THR	TYR
	T1029	V1107	L1195	M1277	D1359	G1437	ASN	SER	ASN	PRO	ASN	SER
	R1030	M1110	L1197	I1279	Y1362	T1438	ASP	PRO	ASP	TYR	TYR	ASP
	V1031	M1111	D1198	E1280	Y1363	G1439	ALA	TYR	ALA	PRO	ALA	ALA
	F942	K1112	A1201	R1281	M1364	A1440	MET	SER	MET	PRO	PRO	ASP
	L945	T1113	D1204	V1282	Y1365	F1441	ALA	PRO	ALA	THR	THR	ALA
	R944	S1115	D1205	M1285	R1366	V1442	GLY	PRO	GLY	TYR	GLY	GLY
	F947	L1116	D1206	K1286	V1372	V1444	GLY	PRO	GLY	PRO	PRO	PHE
	V948	R1036	L1207	Y1287	D1373	I1445	THR	SER	THR	THR	THR	THR
	A952	L1037	R1215	D1288	T1376	V1451	ALA	TYR	ALA	PRO	PRO	ALA
	T1038	L1120	R1219	R1289	T1377	K1452	TYR	SER	THR	THR	THR	TYR
	L1046	L1121	F1220	K1290	T1382	Y1453	GLY	PRO	GLY	TYR	GLY	GLY
	S1047	P1122	F1220	S1293	T1382	M1454	ASP	SER	ALA	ASN	ASN	ASP
	M1048	H1124	D1223	T1295	R1386	P1455	TYR	PRO	TYR	THR	THR	TYR
	E1050	Q1130	V1226	Y1298	H1387	GLU	GLY	TYR	GLY	SER	TYR	GLY
	A1051	I1134	V1226	Y1298	G1388	L1389	GLY	TYR	GLY	PRO	PRO	GLY
	Q1052	R1135	I1227	V1299	F1389	I1390	ALA	PRO	ALA	PRO	PRO	ALA
	F1053	S1136	W1228	M1304	N1390	THR	THR	THR	THR	THR	THR	THR
	S1056	A1137	W1228	E1303	R1391	GLU	SER	SER	SER	PRO	PRO	SER
	V1057	I1138	D1233	W1304	S1392	ILE	PRO	PRO	PRO	PRO	PRO	PRO
	V1058	I1142	E1234	V1305	M1393	GLY	PHE	SER	PHE	THR	THR	SER
	M1063	T1142	K1235	G1310	A1396	ASP	GLY	TYR	GLY	TYR	TYR	GLY
	V1064	I1148	L1236	E1314	R1399	GLN	ALA	SER	ALA	PRO	PRO	GLY
	L1067	A1149	I1237	E1315	C1400	GLY	GLY	THR	GLY	THR	THR	THR
	E1074	S1150	R1238	E1315	S1401	VAL	ALA	PRO	VAL	THR	THR	THR
	P1075	D1155	C1240	M1317	F1402	THR	PRO	THR	VAL	THR	THR	THR
	L1081	P1158	V1242	I1322	E1403	THR	SER	PRO	THR	THR	THR	THR
	ASN	R1159	V1243	T1327	T1405	TYR	GLY	PRO	GLY	PRO	GLY	THR
	THR	I1163	ARG	Y1328	V1406	SER	PHE	THR	SER	THR	THR	THR
	PHE	T1170	L1329	T1329	E1407	ASN	GLY	PRO	THR	THR	THR	THR
	HIS	S1177	M1330	M1330	L1408	GLU	GLY	PRO	GLY	THR	THR	THR
	ALA	F1174	S1331	S1331	L1409	THR	VAL	THR	VAL	THR	THR	THR
	GLY	S1175	ALA	F1332	F1410	GLY	SER	TYR	SER	TYR	THR	THR
	VAL	L1176	VAL	I1333	E1412	VAL	PRO	PRO	ALA	ALA	ALA	ALA
	ALA	LEU	THR	D1334	G1413	ASN	GLY	THR	TYR	TYR	GLY	GLY
	SER	ASP	GLU	I1335	A1414	ALA	PHE	SER	THR	THR	THR	THR
	E1005	E1254	E1254	G1340	S1415	ASP	ALA	PRO	SER	PRO	PRO	PRO
	K1092	GLU	E1255	E1340	A1416	ASP	ALA	PRO	GLY	PRO	PRO	PRO
	K1093	GLU	E1256	I1341	E1417	VAL	THR	TYR	THR	TYR	TYR	TYR
	O1008	ALA	D1257	E1342	E1417	THR	SER	PRO	SER	PRO	PRO	PRO
	M1009	GLU	H1258	A1343	D1420	LYS	PRO	PRO	SER	PRO	PRO	PRO
	S1096	GLN	M1259	G1344	C1421	ASP	THR	THR	THR	THR	THR	THR
	Q1011	GLN	L1260	M1345	R1422	GLU	TYR	THR	THR	THR	THR	THR
	V1098	PHE	K1261	A1346	G1423	LEU	SER	PRO	PRO	PRO	PRO	PRO

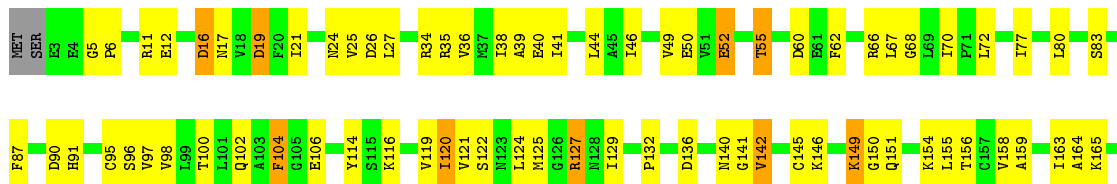
• Molecule 2: DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB2

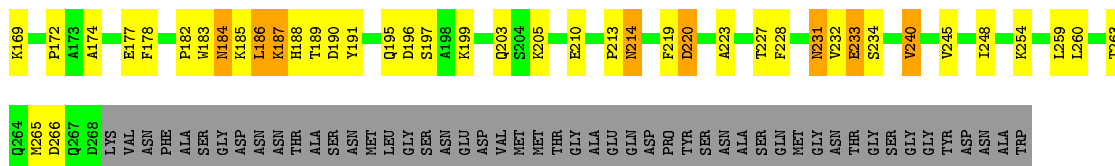
Chain B:  51% 32% 6% 10%

NET	GLN	LYS											
SER	HIS	TYR											
ASP	THR	GLU											
LEU	THR	LEU											
ALA	GLU	ILE											
ASN	LEU	ALA											
SER	GLY	ASP											
GLY	ASN	GLU											
LYS	ILE	ASN											
TYR	SER	TYR											
ARG	ARG	ASP											
LYS	LYS	ASP											
THR	TYR	SER											
GLY	GLU	GLY											
ASP	GLU	ASP											
PRO	I90	S91											
TYR	F92	F92											
M101	M101	M101											
M102	M102	M102											
D106	D106	D106											
G107	G107	G107											
Y108	Y108	Y108											
	L112	L112											
S35	S35	S35											
A36	A36	A36											
F37	F37	F37											
F38	F38	F38											
R39	R39	R39											
E40	E40	E40											
K41	K41	K41											
V44	V44	V44											
S45	S45	S45											
Q46	Q46	Q46											
S50	S50	S50											
F51	F51	F51											
N52	N52	N52											
V55	V55	V55											
D56	D56	D56											
F57	F57	F57											
F58	F58	F58											
L59	L59	L59											
Q60	Q60	Q60											
D61	D61	D61											
L62	L62	L62											
I63	I63	I63											
S67	S67	S67											
I70	I70	I70											
LEU	LEU	LEU											
GLY	GLY	GLY											
GLN	GLN	GLN											
LEU	LEU	LEU											
ALA	ALA	ALA											



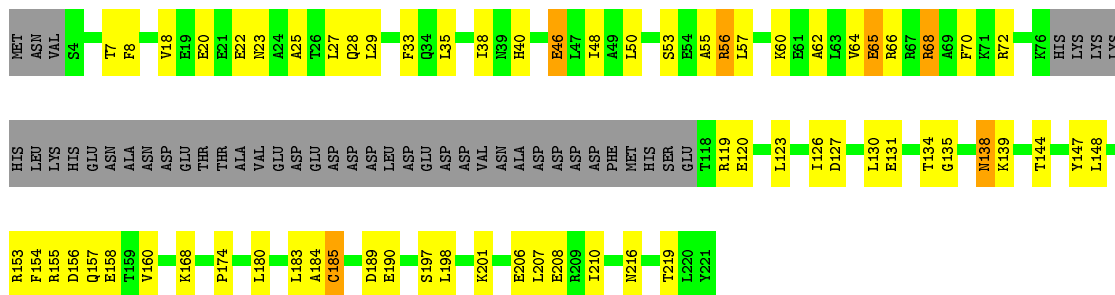
● Molecule 3: DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB3





- Molecule 4: DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB4

Chain D: 50% 28% 20%



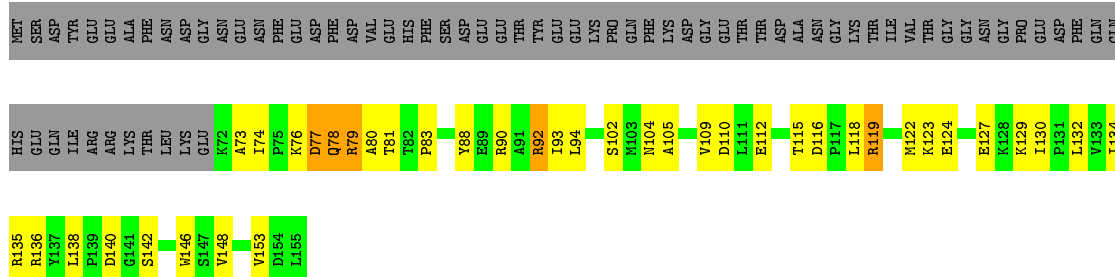
- Molecule 5: DNA-DIRECTED RNA POLYMERASES I, II, AND III SUBUNIT RPABC1

Chain E: 59% 35% 5%



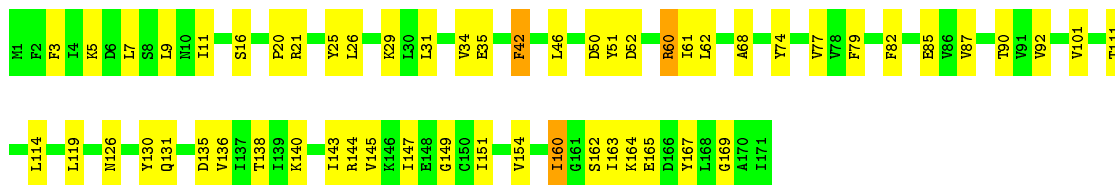
- Molecule 6: DNA-DIRECTED RNA POLYMERASES I, II, AND III SUBUNIT RPABC2

Chain F: 28% 23% 46%

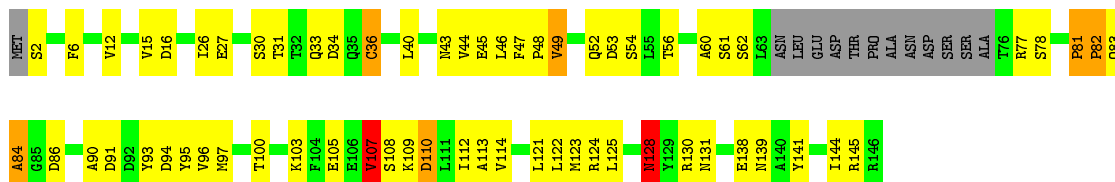


- Molecule 7: DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB7

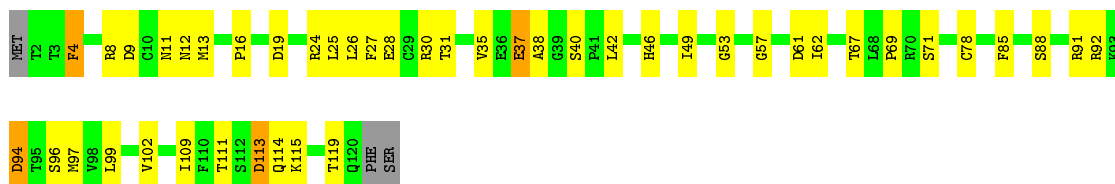
Chain G: 67% 31% 2%



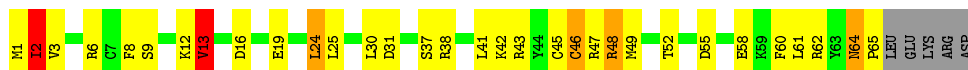
- Molecule 8: DNA-DIRECTED RNA POLYMERASES I, II, AND III SUBUNIT RPABC3



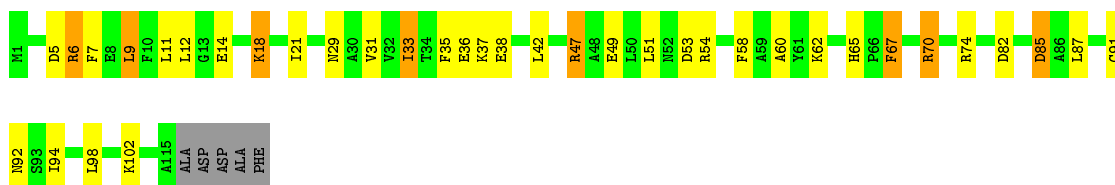
- Molecule 9: DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB9



- Molecule 10: DNA-DIRECTED RNA POLYMERASES I, II, AND III SUBUNIT RPABC5



- Molecule 11: DNA-DIRECTED RNA POLYMERASE II SUBUNIT RPB11



- Molecule 12: DNA-DIRECTED RNA POLYMERASES I, II, AND III SUBUNIT RPABC4



4 Data and refinement statistics

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	220.55Å 392.09Å 279.80Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.63 – 4.80 49.63 – 4.80	Depositor EDS
% Data completeness (in resolution range)	100.0 (49.63-4.80) 100.0 (49.63-4.80)	Depositor EDS
R_{merge}	0.41	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.90 (at 4.86Å)	Xtriage
Refinement program	BUSTER 2.11.5	Depositor
R, R_{free}	0.191 , 0.253 0.220 , 0.285	Depositor DCC
R_{free} test set	1172 reflections (1.97%)	wwPDB-VP
Wilson B-factor (Å ²)	151.9	Xtriage
Anisotropy	0.442	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 286.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.42$, $\langle L^2 \rangle = 0.24$	Xtriage
Estimated twinning fraction	0.017 for 1/2*h-1/2*k,-3/2*h-1/2*k,-l 0.039 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	31509	wwPDB-VP
Average B, all atoms (Å ²)	198.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.04% 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](#)

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	0.53	0/11339	0.82	2/15334 (0.0%)
2	B	0.52	0/8889	0.80	2/11987 (0.0%)
3	C	0.48	0/2133	0.77	0/2891
4	D	0.51	0/1365	0.82	0/1837
5	E	0.48	0/1788	0.77	0/2406
6	F	0.54	0/691	0.82	0/933
7	G	0.47	0/1368	0.78	0/1844
8	H	0.53	0/1086	0.85	2/1470 (0.1%)
9	I	0.48	0/989	0.79	0/1331
10	J	0.52	0/541	0.77	0/727
11	K	0.49	0/938	0.75	0/1267
12	L	0.54	0/365	0.94	0/485
13	X	0.62	0/561	0.88	3/780 (0.4%)
All	All	0.52	0/32053	0.81	9/43292 (0.0%)

There are no bond length outliers.

The worst 5 of 9 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	56	PRO	C-N-CA	6.43	137.77	121.70
13	X	255	PRO	N-CA-CB	6.15	110.67	103.30
13	X	346	PRO	N-CA-CB	5.66	110.09	103.30
13	X	331	PRO	N-CA-CB	5.54	109.94	103.30
1	A	858	ASN	C-N-CA	5.39	135.18	121.70

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	11140	0	11218	359	0
2	B	8720	0	8745	225	0
3	C	2095	0	2051	71	0
4	D	1356	0	1319	31	0
5	E	1752	0	1776	46	0
6	F	679	0	701	21	0
7	G	1340	0	1357	26	0
8	H	1068	0	1040	29	0
9	I	971	0	930	25	0
10	J	532	0	543	16	0
11	K	920	0	929	27	0
12	L	363	0	386	12	0
13	X	564	0	239	4	0
14	A	2	0	0	0	0
14	B	1	0	0	0	0
14	C	1	0	0	0	0
14	I	2	0	0	0	0
14	J	1	0	0	0	0
14	L	1	0	0	0	0
15	A	1	0	0	0	0
All	All	31509	0	31234	783	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.

The worst 5 of 783 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)
3:C:83:SER:HA	3:C:95:CYS:HB2	1.36	1.05
6:F:93:ILE:HD11	6:F:134:ILE:HD11	1.38	1.04
1:A:567:LYS:HB2	1:A:568:PRO:HD3	1.46	0.97
1:A:821:ARG:HG2	2:B:514:LEU:H	1.31	0.95
1:A:93:VAL:HG22	1:A:301:ALA:HA	1.53	0.89

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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	1406/1733 (81%)	1111 (79%)	218 (16%)	77 (6%)	2	21
2	B	1075/1224 (88%)	861 (80%)	155 (14%)	59 (6%)	2	21
3	C	264/318 (83%)	208 (79%)	47 (18%)	9 (3%)	3	29
4	D	173/221 (78%)	144 (83%)	18 (10%)	11 (6%)	1	18
5	E	212/215 (99%)	176 (83%)	30 (14%)	6 (3%)	5	32
6	F	82/155 (53%)	69 (84%)	11 (13%)	2 (2%)	6	35
7	G	169/171 (99%)	143 (85%)	22 (13%)	4 (2%)	6	35
8	H	129/146 (88%)	96 (74%)	17 (13%)	16 (12%)	0	5
9	I	117/122 (96%)	96 (82%)	18 (15%)	3 (3%)	5	34
10	J	63/70 (90%)	46 (73%)	14 (22%)	3 (5%)	2	23
11	K	113/120 (94%)	94 (83%)	18 (16%)	1 (1%)	17	56
12	L	44/70 (63%)	25 (57%)	13 (30%)	6 (14%)	0	5
13	X	107/594 (18%)	83 (78%)	20 (19%)	4 (4%)	3	27
All	All	3954/5159 (77%)	3152 (80%)	601 (15%)	201 (5%)	2	22

5 of 201 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	35	ILE
1	A	47	ARG
1	A	57	ARG
1	A	65	LEU
1	A	71	GLN

5.3.2 Protein sidechains [i](#)

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	1239/1520 (82%)	998 (80%)	241 (20%)	1	9
2	B	952/1061 (90%)	773 (81%)	179 (19%)	1	10
3	C	234/274 (85%)	197 (84%)	37 (16%)	2	15
4	D	140/200 (70%)	115 (82%)	25 (18%)	2	11
5	E	196/197 (100%)	164 (84%)	32 (16%)	2	14
6	F	74/137 (54%)	62 (84%)	12 (16%)	2	14
7	G	152/152 (100%)	130 (86%)	22 (14%)	3	17
8	H	117/128 (91%)	101 (86%)	16 (14%)	3	19
9	I	113/116 (97%)	98 (87%)	15 (13%)	4	20
10	J	60/65 (92%)	45 (75%)	15 (25%)	0	4
11	K	99/102 (97%)	82 (83%)	17 (17%)	2	12
12	L	40/57 (70%)	31 (78%)	9 (22%)	1	6
All	All	3416/4009 (85%)	2796 (82%)	620 (18%)	1	11

5 of 620 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	B	334	ILE
2	B	842	ASN
9	I	92	ARG
2	B	395	GLN
2	B	567	GLU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 76 such sidechains are listed below:

Mol	Chain	Res	Type
2	B	206	ASN
2	B	538	ASN
9	I	12	ASN
2	B	215	GLN
2	B	415	GLN

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 carbohydrates in this entry.

5.6 Ligand geometry [i](#)

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 [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
2	B	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	B	934:LYS	C	935:ARG	N	3.44

6 Fit of model and data

6.1 Protein, DNA and RNA chains

Unable to reproduce the depositors R factor - this section is therefore empty.

6.2 Non-standard residues in protein, DNA, RNA chains

Unable to reproduce the depositors R factor - this section is therefore empty.

6.3 Carbohydrates

Unable to reproduce the depositors R factor - this section is therefore empty.

6.4 Ligands

Unable to reproduce the depositors R factor - this section is therefore empty.

6.5 Other polymers

Unable to reproduce the depositors R factor - this section is therefore empty.