



wwPDB X-ray Structure Validation Summary Report ⓘ

Jun 17, 2024 – 11:01 PM EDT

PDB ID : 3QT1
Title : RNA polymerase II variant containing A Chimeric RPB9-C11 subunit
Authors : Ruan, W.; Lehmann, E.; Thomm, M.; Kostrewa, D.; Cramer, P.
Deposited on : 2011-02-22
Resolution : 4.30 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 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 : 4.02b-467
Xtriage (Phenix) : 1.20.1
EDS : 2.37.1
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) : 2.37.1

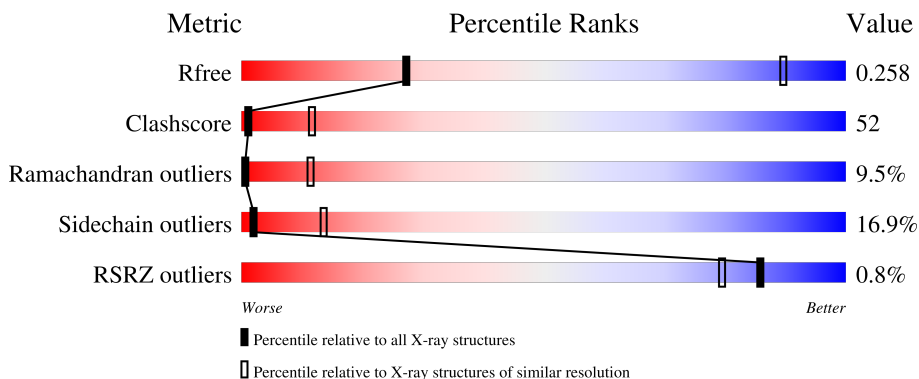
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 4.30 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	1014 (4.80-3.80)
Clashscore	141614	1077 (4.80-3.80)
Ramachandran outliers	138981	1029 (4.80-3.80)
Sidechain outliers	138945	1012 (4.80-3.80)
RSRZ outliers	127900	1075 (4.90-3.70)

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	1733	 23% 44% 14% 18%
2	B	1224	 26% 49% 15% 10%
3	C	318	 26% 44% 13% 16%
4	D	219	 21% 45% 14% 19%
5	E	215	 27% 60% 11% 2%

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Mol	Chain	Length	Quality of chain
6	F	155	
7	G	171	
8	H	146	
9	I	133	
10	J	70	
11	K	120	
12	L	70	

2 Entry composition [i](#)

There are 14 unique types of molecules in this entry. The entry contains 30535 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	11143	7021	1949	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	1103	8770	5554	1535	1626	55	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	178	1434	887	257	288	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	87	705	451	119	132	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	134	1076	677	182	213	4	0	0	0

- Molecule 9 is a protein called DNA-directed RNA polymerase II subunit RPB9, DNA-directed RNA polymerase III subunit RPC10.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
9	I	47	398	246	72	75	5	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	114	919	590	156	171	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
			Total	C	N	O	S			
12	L	46	363	224	72	63	4	0	0	0

- Molecule 13 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
13	A	2	Total	Zn	0	0
			2	2		

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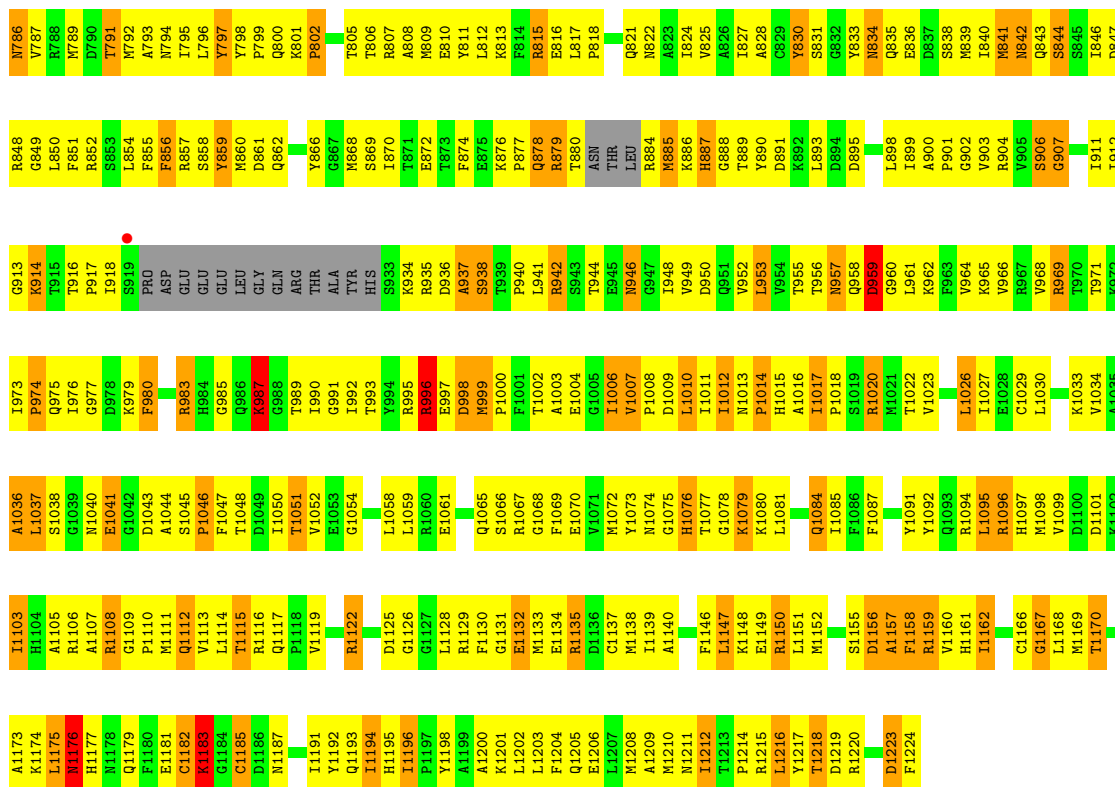
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
13	B	1	Total 1	Zn 1	0	0
13	C	1	Total 1	Zn 1	0	0
13	I	1	Total 1	Zn 1	0	0
13	J	1	Total 1	Zn 1	0	0
13	L	1	Total 1	Zn 1	0	0

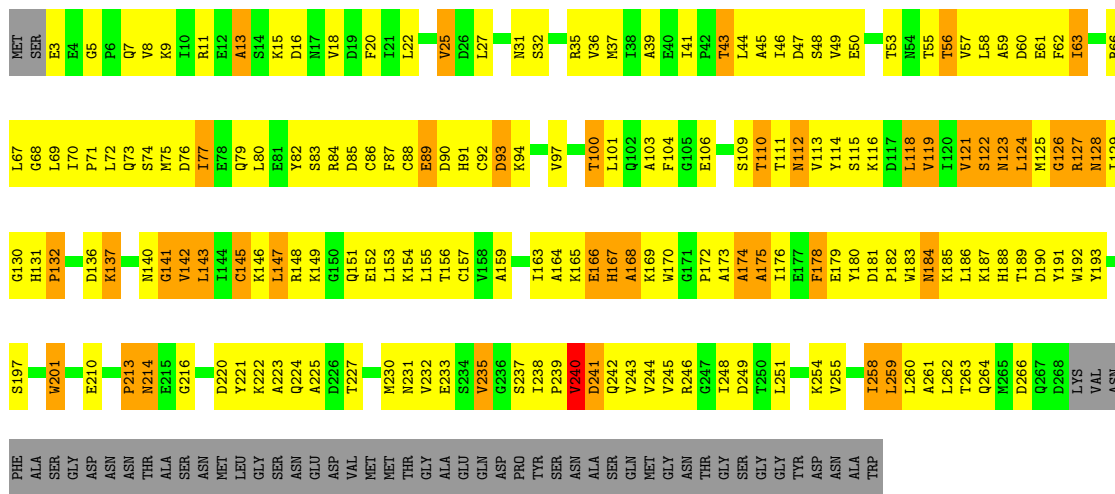
- Molecule 14 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

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

PRO	SER	TYR	ASP	P1455	M1393	T1325	K1262	A1200	A1137	A1076	A1010	V946	D871	S803	A729	L657	
SER	TYR	GLY	TYR	GLU	T1326	R1326	I1263	A1201	I1138	T1077	Q1011	V947	S872	Y804	G730	L658	
TYR	GLY	GLN	GLY	GLN	E1339	E1339	E1339	K1205	H1139	Q1078	R1012	F947	M873	L805	H731	H659	
GLY	ASN	ILE	THR	ASN	M1265	M1265	M1265	L1206	H1140	Q1079	D1013	A952	D874	L806	L732	N660	
THR	THR	THR	THR	THR	L1266	L1266	L1266	L1207	T1141	T1080	A1014	A953	A875	L807	A733	G661	
SER	SER	GLU	SER	GLU	L1268	L1268	L1268	T1208	T1142	T1081	V1015	A954	A876	F662	F662	S663	
PRO	PRO	ILE	PRO	ILE	E1269	E1269	E1269	M1209	L1143	ASN	T1016	A955	A877	P810	V735	S664	
SER	SER	GLU	PRO	GLU	L1270	L1270	L1270	Q1210	K1144	THR	L1017	P955	L878	Q811	N736	T664	
PHE	PHE	GLU	GLY	GLU	S1145	S1145	S1145	Q1211	S1145	THR	F1018	P956	Q881	F813	L737	G665	
GLY	GLY	ASP	ALA	ASP	T1271	T1271	T1271	Q1212	V1146	HIS	C1019	P957	Q882	F814	L738	G666	
TYR	TYR	GLN	TYR	GLN	V1272	V1272	V1272	V1212	V1147	PHE	C1020	V958	S882	D739	G667	G667	
THR	THR	ASP	THR	ASP	L1273	L1273	L1273	G1213	V1148	ALA	L1021	N959	F815	L740	D668	D668	
GLY	GLY	GLY	GLY	GLY	R1274	R1274	R1274	G1214	A1149	GLY	M1021	N960	F816	N741	T669	T669	
GLY	GLY	GLY	GLY	GLY	G1275	G1275	G1275	R1215	S1150	VAL	S1024	N961	H816	N742	L670	L670	
ALA	ALA	VAL	VAL	VAL	V1276	V1276	V1276	R1216	E1151	ALA	R1025	N962	R821	N743	A671	A671	
PRO	PRO	VAL	VAL	VAL	I1277	I1277	I1277	K1217	E1152	SER	L1026	N963	R822	V743	D672	D672	
TYR	TYR	THR	THR	THR	L1278	L1278	L1278	Q1218	Y1153	K1092	A1027	Q965	E894	K744	Q745	Q745	
SER	SER	PRO	SER	PRO	L1279	L1279	L1279	L1219	Y1154	K1093	T1028	N966	R896	D826	T675	T675	
PRO	PRO	TYR	PRO	TYR	E1280	E1280	E1280	F1220	D1155	V1094	R1029	A967	Y897	T827	M748	M748	
GLY	GLY	SER	GLY	SER	R1281	R1281	R1281	K1221	P1156	T1095	L1030	Q968	R898	A749	A749	A749	
SER	SER	ASN	SER	ASN	L1282	L1282	L1282	M1222	D1157	S1096	V1031	Q969	Y899	A828	E678	E678	
GLY	GLY	GLU	GLY	GLU	F1283	F1283	F1283	D1223	P1158	G1097	L1032	Q970	D900	K830	T679	T679	
SER	SER	SER	VAL	SER	L1284	L1284	L1284	L1224	R1159	V1098	Q1033	F971	L901	T831	T680	T680	
TYR	TYR	GLY	TYR	GLY	E1285	E1285	E1285	F1225	S1160	P1099	E1034	H972	L902	A832	E681	E681	
SER	SER	LEU	SER	LEU	V1287	V1287	V1287	V1226	T1161	R1100	Y1035	I973	N903	T758	T682	T682	
PRO	PRO	VAL	PRO	VAL	E1288	E1288	E1288	I1227	V1162	L1101	R1036	D974	T904	T834	L683	L683	
GLY	GLY	ASN	GLY	ASN	R1289	R1289	R1289	M1228	I1163	K1102	L1037	H975	D905	Q760	A684	A684	
TYR	TYR	ALA	TYR	ALA	L1290	L1290	L1290	S1229	P1164	E1103	T1038	Y896	L840	Q765	K689	K689	
SER	SER	ALA	SER	ALA	K1291	K1291	K1291	F1229	H1173	H1008	Y1039	F972	S911	Q766	L691	L691	
PRO	PRO	ASP	PRO	ASP	V1292	V1292	V1292	D1231	D1166	L1104	Q1040	Q977	L908	S762	A686	A686	
SER	SER	LEU	SER	LEU	S1293	S1293	S1293	D1232	E1167	L1105	P978	Q978	L908	A763			
THR	THR	ASP	THR	ASP	P1294	P1294	P1294	D1233	E1167	L1106	A1041	S979	D909	A833	K689	K689	
SER	SER	VAL	SER	VAL	T1295	T1295	T1295	E1234	I1170	V1107	F1042	D980	R840	C764	V689	V689	
PRO	PRO	LYS	PRO	LYS	L1296	L1296	L1296	K1235	Q1171	A1108	D1043	D981	L841	Q766	L691	L691	
THR	THR	ASP	THR	ASP	G1296	G1296	G1296	F1236	K1171	K1109	M1044	Q982	L912	Q767	D692	D692	
TYR	TYR	GLU	TYR	GLU	V1297	V1297	V1297	L1236	M1110	L1109	V1045	T982	L912	Q767	D692	D692	
PRO	PRO	GLU	PRO	GLU	H1173	H1173	H1173	L1237	M1111	L1110	L1046	Q983	E914	Q767	D692	D692	
SER	SER	MET	SER	MET	V1299	V1299	V1299	I1238	F1174	L1111	L1046	K984	E914	Q767	D692	D692	
THR	THR	PHE	THR	PHE	K1300	K1300	K1300	R1239	S1175	K1112	S1047	D985	S915	V770	T694	T694	
SER	SER	PRO	SER	PRO	E1301	E1301	E1301	C1240	LEU	T1113	M1048	Q986	G916	V770	T694	T694	
PRO	PRO	PRO	PRO	PRO	P1302	P1302	P1302	R1241	LEU	P1114	E1050	Q987	S917	V770	T694	T694	
ALA	ALA	LEU	ALA	LEU	V1242	V1242	V1242	V1242	ASP	L1116	E1050	Q988	E918	V770	T694	T694	
TYR	TYR	VAL	TYR	VAL	E1303	E1303	E1303	V1243	GLU	T1117	F1053	Q989	L920	V770	T694	T694	
PRO	PRO	GLY	PRO	GLY	V1304	V1304	V1304	R1244	GLU	V1118	F1053	Q990	L920	V770	T694	T694	
PRO	PRO	GLY	PRO	GLY	L1306	L1306	L1306	PRO	ALA	Y1119	F1053	Q991	L920	V770	T694	T694	
THR	THR	GLY	THR	GLY	E1307	E1307	E1307	LYS	GLU	L1120	F1053	Q992	L920	V770	T694	T694	
SER	SER	ASN	SER	ASN	T1308	T1308	T1308	SER	GLN	E1121	H1058	Q994	L923	V770	T694	T694	
PRO	PRO	ASN	PRO	ASN	D1309	D1309	D1309	LEU	GLN	P1122	H1059	Q994	L923	V770	T694	T694	
THR	THR	ASP	THR	ASP	G1310	G1310	G1310	ASP	GLU	P1123	H1063	Q994	L923	V770	T694	T694	
SER	SER	ALA	SER	ALA	V1311	V1311	V1311	ALA	ASP	H1124	M1063	Q994	L923	V770	T694	T694	
PRO	PRO	MET	PRO	MET	M1312	M1312	M1312	GLU	Q1187	D1127	V1064	Q994	L923	V770	T694	T694	
SER	SER	ALA	SER	ALA	L1313	L1313	L1313	THR	Q1188	D1127	G1065	Q994	L923	V770	T694	T694	
PRO	PRO	ALA	PRO	ALA	S1314	S1314	S1314	GLU	S1189	Q1128	V1066	Q994	L923	V770	T694	T694	
TYR	TYR	GLY	TYR	GLY	E1315	E1315	E1315	GLU	P1190	Q1128	G1066	Q994	L923	V770	T694	T694	
SER	SER	PHE	SER	PHE	V1316	V1316	V1316	LEU	M1191	E1129	A1067	Q994	L923	V770	T694	T694	
PRO	PRO	THR	PRO	THR	M1317	M1317	M1317	ASP	L1192	Q1130	A1069	Q994	L923	V770	T694	T694	
THR	THR	THR	THR	THR	E1257	E1257	E1257	ALA	L1192	H1131	A1069	Q994	L923	V770	T694	T694	
SER	SER	ALA	SER	ALA	T1318	T1318	T1318	THR	E1196	K1132	I1072	Q994	L923	V770	T694	T694	
PRO	PRO	TYR	PRO	TYR	I1322	I1322	I1322	GLU	L1197	L1133	G1073	Q994	L923	V770	T694	T694	
TYR	TYR	GLY	TYR	GLY	D1323	D1323	D1323	GLU	D1198	L1134	P1075	Q994	L923	V770	T694	T694	
PRO	PRO	ALA	PRO	ALA	P1324	P1324	P1324	THR	R1199	S1136	P1075	Q994	L923	V770	T694	T694	
SER	SER	GLY	SER	GLY													
PRO	PRO	GLY	PRO	GLY													
TYR	TYR	GLY	TYR	GLY													
SER	SER	GLY	SER	GLY													
PRO	PRO	GLY	PRO	GLY													
TYR	TYR	GLY	TYR	GLY													
SER	SER	GLY	SER	GLY													
PRO	PRO	GLY	PRO	GLY													
TYR	TYR	GLY	TYR	GLY													
SER	SER	GLY	SER	GLY													
PRO	PRO	GLY	PRO	GLY													
TYR	TYR	GLY	TYR	GLY													
SER	SER	GLY	SER	GLY													
PRO	PRO	GLY	PRO	GLY													
TYR	TYR	GLY	TYR	GLY													
SER	SER	GLY	SER	GLY													
PRO	PRO	GLY	PRO	GLY													
TYR	TYR	GLY	TYR	GLY													
SER	SER	GLY	SER	GLY													
PRO	PRO	GLY	PRO	GLY													
TYR	TYR	GLY	TYR	GLY													
SER	SER	GLY	SER	GLY													
PRO	PRO	GLY	PRO	GLY													
TYR	TYR	GLY	TYR	GLY													

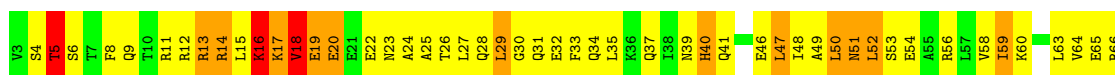


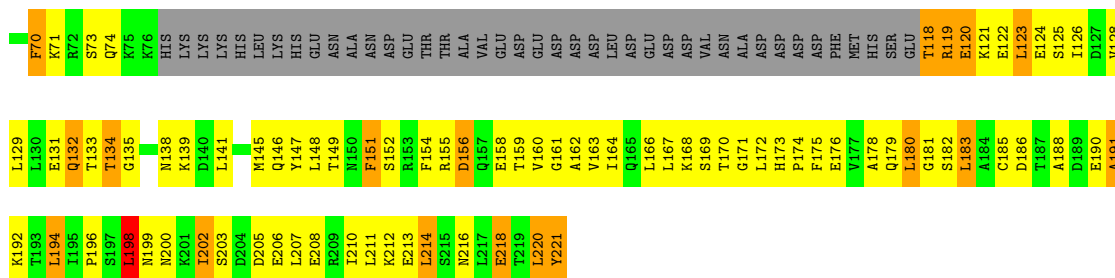
Chain C: 26% 44% 13% 16%



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

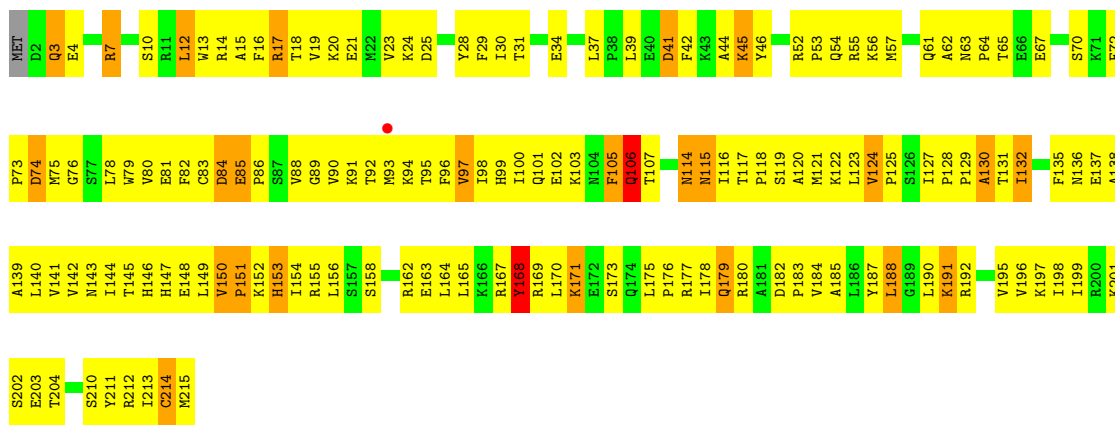
Chain D: 21% 45% 14% 19%





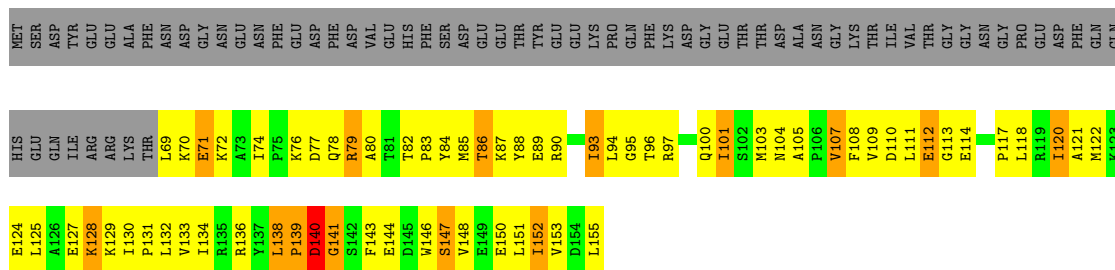
• Molecule 5: DNA-directed RNA polymerases I, II, and III subunit RPABC1

Chain E: 27% 60% 11%



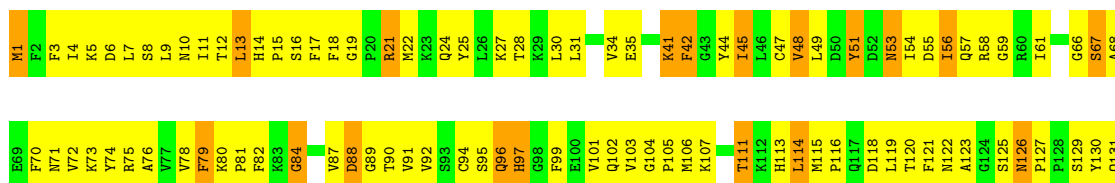
• Molecule 6: DNA-directed RNA polymerases I, II, and III subunit RPABC2

Chain F: 13% 34% 9% 44%



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

Chain G: 32% 54% 13%

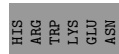
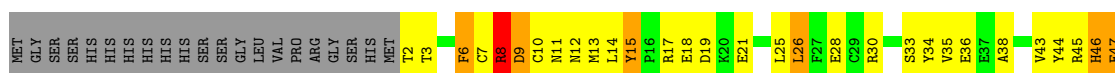




- Molecule 8: DNA-directed RNA polymerases I, II, and III subunit RPABC3



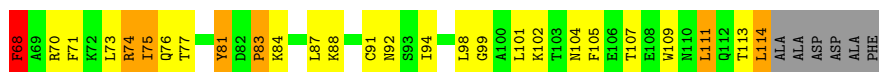
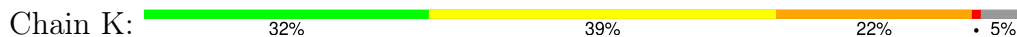
- Molecule 9: DNA-directed RNA polymerase II subunit RPB9, DNA-directed RNA polymerase III subunit RPC10



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

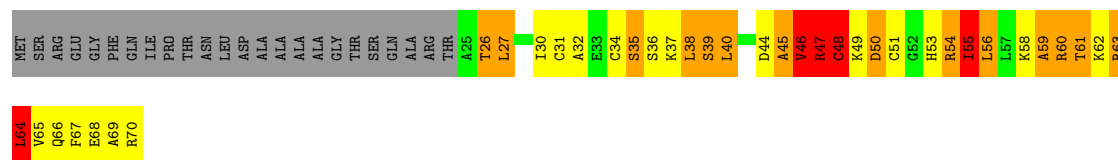


- Molecule 11: DNA-directed RNA polymerase II subunit RPB11



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

Chain L: 



4 Data and refinement statistics

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	222.38Å 393.38Å 281.43Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.60 – 4.30 48.66 – 4.30	Depositor EDS
% Data completeness (in resolution range)	98.5 (48.60-4.30) 98.5 (48.66-4.30)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.67 (at 4.29Å)	Xtrriage
Refinement program	PHENIX (phenix.refine: 1.6.1_357)	Depositor
R, R_{free}	0.235 , 0.281 0.211 , 0.258	Depositor DCC
R_{free} test set	2022 reflections (2.45%)	wwPDB-VP
Wilson B-factor (Å ²)	172.3	Xtrriage
Anisotropy	0.553	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.25 , 120.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.41$, $\langle L^2 \rangle = 0.24$	Xtrriage
Estimated twinning fraction	0.057 for 1/2*h-1/2*k,-3/2*h-1/2*k,-l 0.067 for 1/2*h+1/2*k,3/2*h-1/2*k,-l	Xtrriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	30535	wwPDB-VP
Average B, all atoms (Å ²)	144.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.83% 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: MG, ZN

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	0.35	0/11342	0.58	0/15337
2	B	0.34	0/8939	0.56	0/12051
3	C	0.33	0/2133	0.56	0/2891
4	D	0.32	0/1444	0.52	0/1935
5	E	0.32	0/1788	0.54	0/2406
6	F	0.40	0/717	0.63	0/967
7	G	0.33	0/1368	0.55	0/1844
8	H	0.29	0/1094	0.50	0/1481
9	I	0.36	0/406	0.57	0/546
10	J	0.33	0/541	0.57	0/727
11	K	0.38	0/937	0.56	0/1265
12	L	0.36	0/365	0.64	0/485
All	All	0.34	0/31074	0.56	0/41935

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	11143	0	11217	1243	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	B	8770	0	8795	984	0
3	C	2095	0	2051	223	0
4	D	1434	0	1460	163	0
5	E	1752	0	1776	172	0
6	F	705	0	731	101	0
7	G	1340	0	1357	153	0
8	H	1076	0	1046	97	0
9	I	398	0	370	37	0
10	J	532	0	542	92	0
11	K	919	0	929	113	0
12	L	363	0	386	65	0
13	A	2	0	0	0	0
13	B	1	0	0	0	0
13	C	1	0	0	0	0
13	I	1	0	0	0	0
13	J	1	0	0	0	0
13	L	1	0	0	0	0
14	A	1	0	0	0	0
All	All	30535	0	30660	3185	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 52.

The worst 5 of 3185 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:A:775:ILE:HB	1:A:797:LYS:O	1.37	1.23
1:A:567:LYS:HB2	1:A:568:PRO:HD2	1.21	1.17
2:B:763:GLN:HG2	2:B:765:PRO:HD2	1.26	1.15
9:I:25:LEU:HB3	9:I:38:ALA:HB2	1.17	1.14
2:B:577:ALA:HB1	2:B:589:VAL:HG11	1.30	1.13

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%)	974 (69%)	284 (20%)	148 (10%)	0	8
2	B	1081/1224 (88%)	754 (70%)	232 (22%)	95 (9%)	1	12
3	C	264/318 (83%)	187 (71%)	48 (18%)	29 (11%)	0	8
4	D	174/219 (80%)	116 (67%)	43 (25%)	15 (9%)	1	13
5	E	212/215 (99%)	156 (74%)	41 (19%)	15 (7%)	1	16
6	F	85/155 (55%)	61 (72%)	19 (22%)	5 (6%)	1	20
7	G	169/171 (99%)	120 (71%)	43 (25%)	6 (4%)	3	28
8	H	130/146 (89%)	90 (69%)	29 (22%)	11 (8%)	1	13
9	I	45/133 (34%)	31 (69%)	10 (22%)	4 (9%)	1	12
10	J	63/70 (90%)	43 (68%)	14 (22%)	6 (10%)	0	11
11	K	112/120 (93%)	79 (70%)	24 (21%)	9 (8%)	1	14
12	L	44/70 (63%)	21 (48%)	8 (18%)	15 (34%)	0	0
All	All	3785/4574 (83%)	2632 (70%)	795 (21%)	358 (10%)	0	11

5 of 358 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	35	ILE
1	A	42	ASP
1	A	48	ALA
1	A	54	ASN
1	A	57	ARG

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%)	1031 (83%)	208 (17%)	2	14
2	B	957/1061 (90%)	800 (84%)	157 (16%)	2	14

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	C	234/274 (85%)	200 (86%)	34 (14%)	3	18
4	D	160/198 (81%)	127 (79%)	33 (21%)	1	7
5	E	196/197 (100%)	170 (87%)	26 (13%)	4	20
6	F	77/137 (56%)	65 (84%)	12 (16%)	2	16
7	G	152/152 (100%)	124 (82%)	28 (18%)	1	11
8	H	118/128 (92%)	98 (83%)	20 (17%)	2	13
9	I	45/122 (37%)	35 (78%)	10 (22%)	1	6
10	J	60/65 (92%)	50 (83%)	10 (17%)	2	14
11	K	99/102 (97%)	76 (77%)	23 (23%)	1	5
12	L	40/57 (70%)	29 (72%)	11 (28%)	0	3
All	All	3377/4013 (84%)	2805 (83%)	572 (17%)	2	13

5 of 572 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
6	F	107	VAL
7	G	48	VAL
6	F	101	ILE
9	I	8	ARG
1	A	1382	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 119 such sidechains are listed below:

Mol	Chain	Res	Type
2	B	395	GLN
7	G	126	ASN
2	B	946	ASN
7	G	113	HIS
12	L	53	HIS

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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 8 ligands modelled in this entry, 8 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 [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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	1416/1733 (81%)	-0.32	14 (0%) 82 74	31, 133, 223, 314	0
2	B	1103/1224 (90%)	-0.26	11 (0%) 82 74	23, 141, 230, 357	0
3	C	266/318 (83%)	-0.32	0 100 100	58, 139, 209, 281	0
4	D	178/219 (81%)	-0.43	0 100 100	64, 146, 212, 263	0
5	E	214/215 (99%)	-0.35	1 (0%) 91 86	71, 165, 246, 367	0
6	F	87/155 (56%)	-0.36	0 100 100	48, 95, 156, 221	0
7	G	171/171 (100%)	-0.37	0 100 100	43, 121, 199, 230	0
8	H	134/146 (91%)	0.05	4 (2%) 50 39	115, 185, 250, 406	0
9	I	47/133 (35%)	-0.26	0 100 100	93, 163, 204, 221	0
10	J	65/70 (92%)	-0.35	0 100 100	80, 147, 210, 261	0
11	K	114/120 (95%)	-0.36	0 100 100	63, 128, 194, 254	0
12	L	46/70 (65%)	-0.28	0 100 100	93, 159, 240, 306	0
All	All	3841/4574 (83%)	-0.30	30 (0%) 86 79	23, 140, 227, 406	0

The worst 5 of 30 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
8	H	139	ASN	3.5
2	B	134	LYS	3.5
1	A	257	ARG	3.4
2	B	472	ALA	3.1
2	B	469	GLN	3.1

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 monosaccharides in this entry.

6.4 Ligands [i](#)

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(\AA^2)	Q<0.9
14	MG	A	3009	1/1	0.85	0.97	89,89,89,89	0
13	ZN	A	3006	1/1	0.89	0.07	274,274,274,274	0
13	ZN	A	3008	1/1	0.96	0.13	97,97,97,97	0
13	ZN	L	3005	1/1	0.97	0.08	229,229,229,229	0
13	ZN	C	3002	1/1	0.98	0.11	129,129,129,129	0
13	ZN	J	3001	1/1	0.98	0.29	153,153,153,153	0
13	ZN	B	3007	1/1	0.99	0.20	116,116,116,116	0
13	ZN	I	3003	1/1	1.00	0.12	133,133,133,133	0

6.5 Other polymers [i](#)

There are no such residues in this entry.