10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

RPA2 Antibody

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP50624

Product Information

Application	WB
Primary Accession	Q9H9Y6
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	polyclonal
Calculated MW	128229

Additional Information

Gene ID	84172
Other Names	DNA-directed RNA polymerase I subunit RPA2, RNA polymerase I subunit 2, DNA-directed RNA polymerase I 135 kDa polypeptide, RPA135, POLR1B
Dilution	WB~~ 1:500
Format	Rabbit IgG in phosphate buffered saline (without Mg2+ and Ca2+), pH 7.4, 150mM NaCl, 0.09% (W/V) sodium azide and 50% glycerol.
Storage Conditions	-20℃

Protein Information

Name	POLR1B {ECO:0000303|PubMed:31649276, ECO:0000312|HGNC:HGNC:20454}
Function	Catalytic core component of RNA polymerase I (Pol I), a DNA- dependent RNA polymerase which synthesizes ribosomal RNA precursors using the four ribonucleoside triphosphates as substrates. Transcribes 47S pre-rRNAs from multicopy rRNA gene clusters, giving rise to 5.8S, 18S and 28S ribosomal RNAs (PubMed:11250903, PubMed:11283244, PubMed:16858408, PubMed:34671025, PubMed:34887565, PubMed:36271492). Pol I-mediated transcription cycle proceeds through transcription initiation, transcription elongation and transcription termination stages. During transcription initiation, Pol I pre-initiation complex (PIC) is recruited by the selectivity factor 1 (SL1/TIF-IB) complex bound to the core promoter that precedes an rDNA repeat unit. The PIC assembly bends the promoter favoring the formation of the transcription bubble and promoter escape. Once the polymerase has escaped from the promoter it enters the elongation phase during which RNA is actively polymerized, based on complementarity with the template DNA strand. Highly processive, assembles in structures referred to as 'Miller trees' where many elongating Pol I complexes queue and transcribe the same rDNA

coding regions. At terminator sequences downstream of the rDNA gene, PTRF interacts with Pol I and halts Pol I transcription leading to the release of the RNA transcript and polymerase from the DNA (PubMed:11250903, PubMed:11283244, PubMed:16858408, PubMed:34671025, PubMed:34887565, PubMed:36271492). Forms Pol I active center together with the largest subunit POLR1A/RPA1. Appends one nucleotide at a time to the 3' end of the nascent RNA, with POLR1A/RPA1 contributing a Mg(2+)-coordinating DxDGD motif, and POLR1B/RPA2 participating in the coordination of a second Mg(2+) ion and providing lysine residues believed to facilitate Watson-Crick base pairing between the incoming nucleotide and the template base. Typically, Mg(2+) ions direct a 5' nucleoside triphosphate to form a phosphodiester bond with the 3' hydroxyl of the preceding nucleotide of the nascent RNA, with the elimination of pyrophosphate. Has proofreading activity: Pauses and backtracks to allow the cleavage of a missincorporated nucleotide via POLR1H/RPA12. High Pol I processivity is associated with decreased transcription fidelity (By similarity) (PubMed:11250903, PubMed:11283244, PubMed:16809778, PubMed:16858408, PubMed:34671025, PubMed:34887565, PubMed:36271492).

Cellular Location Nucleus, nucleolus. Chromosome {ECO:0000250|UniProtKB:P70700}

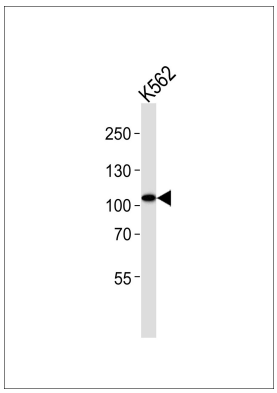
Background

DNA-dependent RNA polymerase catalyzes the transcription of DNA into RNA using the four ribonucleoside triphosphates as substrates. Second largest core component of RNA polymerase I which synthesizes ribosomal RNA precursors. Proposed to contribute to the polymerase catalytic activity and forms the polymerase active center together with the largest subunit. Pol I is composed of mobile elements and RPA2 is part of the core element with the central large cleft and probably a clamp element that moves to open and close the cleft (By similarity).

References

Ota T.,et al.Nat. Genet. 36:40-45(2004).
Hillier L.W.,et al.Nature 434:724-731(2005).
Miller G.,et al.EMBO J. 20:1373-1382(2001).
Panov K.I.,et al.Mol. Cell. Biol. 26:5436-5448(2006).
Burkard T.R.,et al.BMC Syst. Biol. 5:17-17(2011).

Images



Western blot analysis of lysate from K562 cell line,using RPA2 Antibody(AP50624). AP50624 was diluted at 1:1000. A goat anti-rabbit IgG H&L(HRP) at 1:5000 dilution was used as the secondary antibody.Lysate at 35ug.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.