

**POLR1B Antibody (N-term) Blocking peptide**  
Synthetic peptide  
Catalog # BP12495a

## Specification

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### POLR1B Antibody (N-term) Blocking peptide - Product Information

Primary Accession [O9H9Y6](#)

### POLR1B Antibody (N-term) Blocking peptide - 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

#### Format

Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

#### Storage

Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

#### Precautions

This product is for research use only. Not for use in diagnostic or therapeutic procedures.

### POLR1B Antibody (N-term) Blocking peptide - 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:<a href="http://www.uniprot.org/citations/11250903" target="\_blank">11250903</a>, PubMed:<a href="http://www.uniprot.org/citations/11283244" target="\_blank">11283244</a>, PubMed:<a href="http://www.uniprot.org/citations/16858408" target="\_blank">16858408</a>, PubMed:<a href="http://www.uniprot.org/citations/34671025" target="\_blank">34671025</a>, PubMed:<a href="http://www.uniprot.org/citations/34887565" target="\_blank">34887565</a>, PubMed:<a href="http://www.uniprot.org/citations/36271492" target="\_blank">36271492</a>). 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:<a href="http://www.uniprot.org/citations/11250903" target="\_blank">11250903</a>, PubMed:<a href="http://www.uniprot.org/citations/11283244" target="\_blank">11283244</a>, PubMed:<a href="http://www.uniprot.org/citations/16858408" target="\_blank">16858408</a>, PubMed:<a href="http://www.uniprot.org/citations/34671025" target="\_blank">34671025</a>, PubMed:<a href="http://www.uniprot.org/citations/34887565" target="\_blank">34887565</a>, PubMed:<a href="http://www.uniprot.org/citations/36271492" target="\_blank">36271492</a>). 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:<a href="http://www.uniprot.org/citations/11250903" target="\_blank">11250903</a>, PubMed:<a href="http://www.uniprot.org/citations/11283244" target="\_blank">11283244</a>, PubMed:<a href="http://www.uniprot.org/citations/16809778" target="\_blank">16809778</a>, PubMed:<a href="http://www.uniprot.org/citations/16858408" target="\_blank">16858408</a>, PubMed:<a href="http://www.uniprot.org/citations/34671025" target="\_blank">34671025</a>, PubMed:<a href="http://www.uniprot.org/citations/34887565" target="\_blank">34887565</a>, PubMed:<a href="http://www.uniprot.org/citations/36271492" target="\_blank">36271492</a>).

#### Cellular Location

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

#### POLR1B Antibody (N-term) Blocking peptide - Protocols

Provided below are standard protocols that you may find useful for product applications.

- [Blocking Peptides](#)

#### POLR1B Antibody (N-term) Blocking peptide - Images

#### POLR1B Antibody (N-term) Blocking peptide - Background

Eukaryotic RNA polymerase I (pol I) is responsible for the transcription of ribosomal RNA (rRNA) genes and production of rRNA, the primary component of ribosomes. Pol I is a multisubunit enzyme composed of 6 to 14 polypeptides, depending on the species. Most of the mass of the pol I complex derives from the 2 largest subunits, Rpa1 and Rpa2 in yeast. POLR1B is homologous to Rpa2 (Seither and Grummt, 1996 [PubMed 8921381]).

#### POLR1B Antibody (N-term) Blocking peptide - References

Wen, L., et al. Biochem. Biophys. Res. Commun. 367(4):846-851(2008) Wu, C., et al. Proteomics 7(11):1775-1785(2007) Johnson, S.S., et al. Mol. Cell 26(3):367-379(2007) Panova, T.B., et al. Mol. Cell. Biol. 26(16):5957-5968(2006) Percipalle, P., et al. EMBO Rep. 7(5):525-530(2006)