

Enogene

POLR2APolyclonal Antibody

E92107

For Research Use Only

Catalog Number: E92107

Amount: 100ul

Background: RNA polymerase II (RNAPII) is a large multi-protein complex that functions as a DNA-dependent RNA polymerase, catalyzing the transcription of DNA into RNA using the four ribonucleoside triphosphates as substrates (1). The largest subunit, RNAPII subunit B1 (Rpb1), also known as RNAPII subunit A (POLR2A), contains a unique heptapeptide sequence (Tyr1,Ser2,Pro3,Thr4,Ser5,Pro6,Ser7), which is repeated up to 52 times in the carboxy-terminal domain (CTD) of the protein (1). This CTD heptapeptide repeat is subject to multiple post-translational modifications, which dictate the functional state of the polymerase complex. Phosphorylation of the CTD during the active transcription cycle integrates transcription with chromatin remodeling and nascent RNA processing by regulating the recruitment of chromatin modifying enzymes and RNA processing proteins to the transcribed gene (1). During transcription initiation, RNAPII contains a hypophosphorylated CTD and is recruited to gene promoters through interactions with DNA-bound transcription factors and the Mediator complex (1). The escape of RNAPII from gene promoters requires phosphorylation at Ser5 by CDK7, the catalytic subunit of transcription factor IIH (TFIIP) (2). Phosphorylation at Ser5 mediates the recruitment of RNA capping enzymes, in addition to histone H3 Lys4 methyltransferases, which function to regulate transcription initiation and chromatin structure (3,4). After promoter escape, RNAPII proceeds down the gene to an intrinsic pause site, where it is halted by the negative elongation factors NELF and DSIF (5). At this point, RNAPII is unstable and frequently aborts transcription and dissociates from the gene. Productive transcription elongation requires phosphorylation at Ser2 by CDK9, the catalytic subunit of the positive transcription elongation factor P-TEFb (6). Phosphorylation at Ser2 creates a stable transcription elongation complex and facilitates recruitment of RNA splicing and polyadenylation factors, in addition to histone H3 Lys36 methyltransferases, which function to promote elongation-compatible chromatin (7,8).

Species: Rabbit

Isotype: IgG

Storage/Stability: Store at -20oC or -80oC. Avoid freeze / thaw cycles. Buffer: PBS with 0.02% sodium azide, 50% glycerol, pH7.3.

Synonyms: RPB1; RPO2; POLR2; POLRA; RPBl1; RPOL2; RplIIS; hsRPB1; hRPB220;

Immunogen: Recombinant protein of human POLR2A

Purification: Affinity purification

Reactivity: H M R

Applications: WB IHC

Molecular Weight: 270kDa

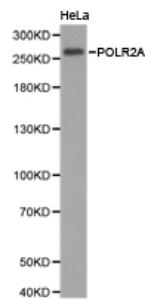
Swiss-Prot No.: P24928

Gene ID: 5430

References: 1. Brookes, E. and Pombo, A. (2009) EMBO Rep 10, 1213-9. 2. Komarnitsky, P. et al. (2000) Genes Dev 14, 2452-60. 3. Ho, C.K. and Shuman, S. (1999) Mol Cell 3, 405-11. 4. Ng, H.H. et al. (2003) Mol Cell 11, 709-19. 5. Cheng, B. and Price, D.H. (2007) J Biol Chem 282, 21901-12. 6. Marshall, N.F. et al. (1996) J Biol Chem 271, 27176-83. 7. Krogan, N.J. et al. (2003) Mol Cell Biol 23, 4207-18. 8. Proudfoot, N.J. et al. (2002) Cell 108, 501-12.

WB 1:500 - 1:2000

IHC 1:50- 1:200



Western blot analysis of extracts of HeLa cell lines,
using POLR2A antibody.