Data Sheet (Cat.No.TMAH-00941)

Anti-Phospho-POLR2A (Ser2) Antibody (4W169)

Product Details

Ig Type:	Rabbit IgG
Reactivity:	Human
Conjugation:	Unconjugated
Clone:	4W169
Purification:	Affinity-chromatography

Applications

Verified Activity:	1. Western Blot -Positive WB detected in Hela whole cell lysate,A549 whole cell lysate,293 whole cell lysate -All lanes Phospho-POLR2A antibody at 1.02μg/ml -Secondary: Goat polyclonal to rabbit IgG at 1/50000 dilution -Predicted band size: 270 KDa -Observed band size: 270 KDa 2. IHC image of TMAH-00941 diluted at 1:100 and staining in paraffin-embedded human ovarian cancer performed on a Leica BondTM system. After dewaxing and hydration, antigen retrieval was mediated by high pressure in a citrate buffer (pH 6.0). Section was blocked with 10% normal goat serum 30min at RT. Then primary antibody (1% BSA) was incubated at 4°C overnight. The primary is detected by a biotinylated secondary antibody and visualized using an HRP conjugated SP system. 3. Immunofluorescence staining of Hela cells with TMAH-00941 at 1:100,counter-stained with DAPI. The cells were fixed in 4% formaldehyde, permeabilized using 0.2% Triton X-100 and blocked in 10% normal Goat Serum. The cells were then incubated with the antibody overnight at 4°C. The secondary antibody was Alexa Fluor 488-congugated AffiniPure Goat Anti-Rabbit IgG (H+L). 4. Immunoprecipitating Phospho-POLR2A in Hela whole cell lysate -Lane 1: Rabbit control IgG(1μg)instead of TMAH-00941 in Hela whole cell lysate. For western blotting,a HRP-conjugated Protein G antibody was used as the secondary antibody (1/2000) -Lane 2: TMAH-00941(3μg)+ Hela whole cell lysate(1mg) -Lane 3: Hela whole cell lysate (20μg)
Application:	ELISA, WB, IHC, IF, IP
Recommended	WB:1:500-1:5000; IHC:1:50-1:200; IF:1:20-1:200; IP:1:200-1:1000.

Properties

Stability & Storage:	Store at -20°C or -80°C for 12 months. Avoid repeated freeze-thaw cycles.
Shipping:	Shipping with blue ice.

Antigen Details

Immunogen:	A synthetic peptide: Human Phospho-POLR2A (S2)
Antigen Species:	Human
Gene ID:	5430
Uniprot ID:	P24928
Synonyms:	DNA-directed RNA polymerase II largest subunit RNA polymerase II 220 kd subunit;POLR2A (p-Ser2);hRPB220;Polymerase (RNA) II (DNA directed) polypeptide A 220kDa;p-POLR2A (Ser2);RPOL2;RPBh1;DNA directed RNA polymerase II A;RPO2;p-POLR2A (S2);DNA-directed RNA polymerase III largest subunit;RNA polymerase II subunit B1;RpIILS;hsRPB1;POLR2;RPB1;DNA-directed RNA polymerase II subunit RPB1;POLRA;POLR2A (p-S2);Polr2a;Phospho-POLR2A (S2);RNA-directed RNA polymerase II subunit RPB1
Biology Area:	Epigenetics and Nuclear Signaling

Research Background

DNA-dependent RNA polymerase catalyzes the transcription of DNA into RNA using the four ribonucleoside triphosphates as substrates. Largest and catalytic component of RNA polymerase II which synthesizes mRNA precursors and many functional non-coding RNAs. Forms the polymerase active center together with the second largest subunit. Pol II is the central component of the basal RNA polymerase II transcription machinery. It is composed of mobile elements that move relative to each other. RPB1 is part of the core element with the central large cleft, the clamp element that moves to open and close the cleft and the jaws that are thought to grab the incoming DNA template. At the start of transcription, a single-stranded DNA template strand of the promoter is positioned within the central active site cleft of Pol II. A bridging helix emanates from RPB1 and crosses the cleft near the catalytic site and is thought to promote translocation of Pol II by acting as a ratchet that moves the RNA-DNA hybrid through the active site by switching from straight to bent conformations at each step of nucleotide addition. During transcription elongation, Pol II moves on the template as the transcript elongates. Elongation is influenced by the phosphorylation status of the C-terminal domain (CTD) of Pol II largest subunit (RPB1), which serves as a platform for assembly of factors that regulate transcription initiation, elongation, termination and mRNA processing. Regulation of gene expression levels depends on the balance between methylation and acetylation levels of tha CTD-lysines. Initiation or early elongation steps of transcription of growth-factors-induced immediate early genes are regulated by the acetylation status of the CTD. Methylation and dimethylation have a repressive effect on target genes expression. (Microbial infection) Acts as an RNA-dependent RNA polymerase when associated with small delta antigen of Hepatitis delta virus, acting both as a replicate and transcriptase for the viral RNA circular genome.

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