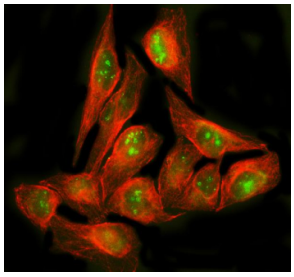
POLR1E Antibody / DNA-directed RNA polymerase I subunit E / PAF53 (FY12743)

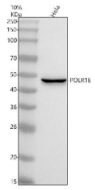
Catalog No.	Formulation	Size
FY12743	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

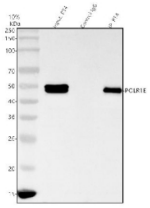
Availability	1-2 days
Species Reactivity	Human
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q9GZS1
Localization	Nucleus, Nucleolus
Applications	Western Blot: 0.25-0.5ug/ml Immunocytochemistry/Immunofluorescence: 5ug/ml Immunoprecipitation: 2-4ug/500ug of lysate ELISA: 0.1-0.5ug/ml
Limitations	This POLR1E antibody is available for research use only.



Immunofluorescent staining of POLR1E using anti-POLR1E antibody (green) and anti-Beta Tubulin antibody (red). POLR1E was detected in an immunocytochemical section of U2OS cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5 ug/ml rabbit anti-POLR1E antibody and mouse anti-Beta Tubulin antibody overnight at 4oC. DyLight 488 Conjugated Goat Anti-Rabbit IgG and Cy3 Conjugated Goat Anti-Mouse IgG were used as secondary antibody at 1:500 dilution and incubated for 30 minutes at 37oC. Visualize using a fluorescence microscope and filter sets appropriate for the label used.



Western blot analysis of POLR1E using anti-POLR1E antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human Hela whole cell lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-POLR1E antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using an ECL Plus Western Blotting Substrate. The expected band at ~50 kDa appears as a doublet, consistent with reported phosphorylation-dependent variants of POLR1E.



Immunoprecipitating POLR1E in RT4 whole cell lysate. Western blot analysis of POLR1E using anti-POLR1E antibody. Lane 1: RT4 whole cell lysates (30ug), Lane 2: Rabbit control IgG instead of anti-POLR1E antibody in RT4 whole cell lysate, Lane 3: anti-POLR1E antibody (2ug) + RT4 whole cell lysate (500ug). After electrophoresis, proteins were transferred to a membrane. Then the membrane was incubated with rabbit anti-POLR1E antibody at a dilution of 0.5 ug/ml and probed with a goat anti-rabbit IgG-HRP secondary antibody. The signal is developed using ECL Plus Western Blotting Substrate. The expected band at ~50 kDa appears as a doublet in the input and immunoprecipitated samples, consistent with reported phosphorylation-dependent variants of POLR1E.

Description

POLR1E antibody detects DNA-directed RNA polymerase I subunit E (also known as PAF53), a core component of the RNA polymerase I complex responsible for synthesizing ribosomal RNA (rRNA) precursors. Encoded by the POLR1E gene on chromosome 9q34.11, this protein is essential for rRNA transcription and ribosome biogenesis. POLR1E interacts with other polymerase I subunits, transcription initiation factors, and nucleolar scaffolding proteins to regulate transcription of the 47S rRNA gene cluster. By supporting nucleolar organization and transcriptional efficiency, it plays a fundamental role in cell growth and proliferation.

POLR1E localizes to the nucleolus and associates with the transcription initiation factor SL1 and upstream binding factor (UBF) to form a preinitiation complex at rDNA promoters. Its C-terminal domain mediates binding to RNA polymerase I subunit RPA1 and other core enzyme components, facilitating enzyme assembly and promoter clearance. Loss of POLR1E disrupts nucleolar architecture and reduces rRNA synthesis, leading to impaired ribosome production and cell-cycle arrest. This makes it a critical determinant of nucleolar integrity and growth control.

The POLR1E antibody is widely used in molecular biology, cancer research, and nucleolar studies to assess RNA polymerase I activity and rRNA transcription regulation. Western blot analysis identifies a 53 kilodalton band corresponding to POLR1E, while immunofluorescence reveals punctate nucleolar staining. Because RNA polymerase I transcription drives ribosome production, alterations in POLR1E expression are linked to tumor growth and metabolic adaptation. Increased expression has been observed in rapidly dividing cells, whereas downregulation occurs under cellular stress or growth inhibition.

In addition to its role in transcription, POLR1E contributes to the nucleolar stress response by coordinating signaling between rRNA synthesis and p53 activation. Defects in polymerase I assembly or activity trigger nucleolar stress pathways that stabilize p53, resulting in growth arrest. The POLR1E antibody enables exploration of these mechanisms and supports investigations into ribosomopathies, tumorigenesis, and cellular aging. NSJ Bioreagents provides this antibody validated for its applications, ensuring precise and reliable detection across model systems.

Application Notes

Optimal dilution of the POLR1E antibody should be determined by the researcher.

Immunogen

E.coli-derived human POLR1E recombinant protein (Position: M1-Q291) was used as the immunogen for the POLR1E antibody.

Storage

After reconstitution, the POLR1E antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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