

Pol II (F-12): sc-55492

BACKGROUND

RNA polymerase II (Pol II) is an enzyme that is composed of 12 subunits and is responsible for the transcription of protein-coding genes. Transcription initiation requires Pol II-mediated recruitment of transcription machinery to a target promoter, thereby allowing transcription to begin. The largest subunit of Pol II (referred to as RPB1 or RPB205) is a 1,840 amino acid protein that contains one C₂H₂-type zinc finger and a C-terminal domain comprised of several heptapeptide repeats. Although Pol II function requires the cooperation of all twelve subunits, the largest subunit conveys Pol II catalytic activity and, together with the second largest subunit, forms the active center of the Pol II enzyme. Additionally, the large subunit participates in forming the DNA-binding domain of Pol II, a groove that is necessary for transcription of the DNA template. Without proper function of the large subunit, mRNA synthesis and subsequent transcription elongation cannot occur.

CHROMOSOMAL LOCATION

Genetic locus: POLR2A (human) mapping to 17p13.1; Polr2a (mouse) mapping to 11 B3.

SOURCE

Pol II (F-12) is a mouse monoclonal antibody raised against amino acids 1-224 of Pol II of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Pol II (F-12) is available conjugated to agarose (sc-55492 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-55492 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-55492 PE), fluorescein (sc-55492 FITC), Alexa Fluor® 488 (sc-55492 AF488), Alexa Fluor® 546 (sc-55492 AF546), Alexa Fluor® 594 (sc-55492 AF594) or Alexa Fluor® 647 (sc-55492 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-55492 AF680) or Alexa Fluor® 790 (sc-55492 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

Pol II (F-12) is recommended for detection of Pol II of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Pol II siRNA (h): sc-36290, Pol II siRNA (m): sc-36291, Pol II shRNA Plasmid (h): sc-36290-SH, Pol II shRNA Plasmid (m): sc-36291-SH, Pol II shRNA (h) Lentiviral Particles: sc-36290-V and Pol II shRNA (m) Lentiviral Particles: sc-36291-V.

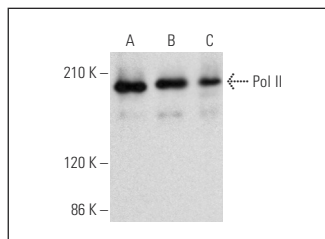
Molecular Weight (predicted) of Pol II: 217 kDa.

Molecular Weight (observed) of Pol II: 192-253 kDa.

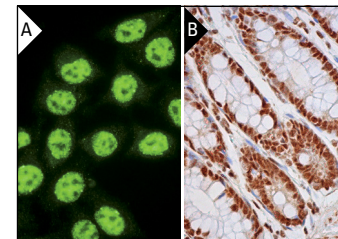
STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



Pol II (F-12): sc-55492. Western blot analysis of Pol II expression in P19 (A), A-431 (B) and HeLa (C) whole cell lysates.



Pol II (F-12): sc-55492. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human rectum tissue showing nuclear staining of glandular cells (B).

SELECT PRODUCT CITATIONS

- Galardi, S., et al. 2011. NFκB and c-Jun induce the expression of the oncogenic miR-221 and miR-222 in prostate carcinoma and glioblastoma cells. *Nucleic Acids Res.* 39: 3892-3902.
- Tomita, T., et al. 2014. ZFC3H1, a zinc finger protein, modulates IL-8 transcription by binding with celestramycin A, a potential immune suppressor. *PLoS ONE* 9: e108957.
- Watanabe, M., et al. 2015. The E3 ubiquitin ligase TRIM23 regulates adipocyte differentiation via stabilization of the adipogenic activator PPARγ. *Elife* 4: e05615.
- Albert, T.K., et al. 2016. The establishment of a hyperactive structure allows the tumour suppressor protein p53 to function through P-TEFβ during limited CDK9 kinase inhibition. *PLoS ONE* 11: e0146648.
- Nilson, K.A., et al. 2017. Oxidative stress rapidly stabilizes promoter-proximal paused Pol II across the human genome. *Nucleic Acids Res.* 45: 11088-11105.
- Brauns-Schubert, P., et al. 2018. CDK9-mediated phosphorylation controls the interaction of TIP60 with the transcriptional machinery. *EMBO Rep.* 19: 244-256.
- Yu, Q., et al. 2019. Aberrant activation of RPB1 is critical for cell overgrowth in acute myeloid leukemia. *Exp. Cell Res.* 384: 111653.
- Jacob, J.T., et al. 2020. Keratin 17 regulates nuclear morphology and chromatin organization. *J. Cell Sci.* 133: jcs254094.
- Li, M., et al. 2021. Cytomegalovirus late transcription factor target sequence diversity orchestrates viral early to late transcription. *PLoS Pathog.* 17: e1009796.

RESEARCH USE

For research use only, not for use in diagnostic procedures.