SANTA CRUZ BIOTECHNOLOGY, INC.

Pol II (8WG16): sc-56767

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 C_2H_2-type zinc finger and a C-terminal domain comprised of several heptapeptide repeats. Although Pol II function requires the cooperation of all 12 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 (8WG16) is a mouse monoclonal antibody raised against purified RNA Pol II of wheat germ origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Pol II (8WG16) is available conjugated to agarose (sc-56767 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-56767 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-56767 PE), fluorescein (sc-56767 FITC), Alexa Fluor® 488 (sc-56767 AF488), Alexa Fluor® 546 (sc-56767 AF546), Alexa Fluor® 594 (sc-56767 AF594) or Alexa Fluor® 647 (sc-56767 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-56767 AF680) or Alexa Fluor® 790 (sc-56767 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Pol II (8WG16) is recommended for detection of the highly conserved heptapeptide repeat of the largest subunit of eukaryotic Pol II of mouse, rat, human, *Xenopus, C. elegans,* yeast, wheat germ and bovine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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.

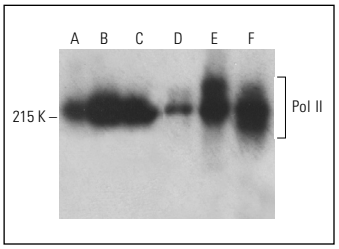
Molecular Weight (predicted) of Pol II: 217 kDa.

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

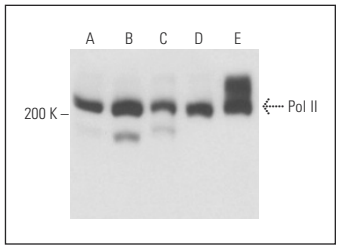
STORAGE

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

DATA



Pol II (8WG16) HRP: sc-56767 HRP. Direct western blot analysis of Pol II expression in A-431 (**A**), A-673 (**B**) and HeLa (**C**) nuclear extracts and HeLa (**D**), HeLa + Calyculin A (**E**) and PC-12 (**F**) whole cell lysates.



Pol II (8WG16): sc-56767. Western blot analysis of Pol II expression in A-431 (**A**), A-673 (**B**), HeLa (**C**) and NIH/3T3 (**D**) nuclear extracts and HeLa whole cell lysate (**E**).

SELECT PRODUCT CITATIONS

1. Mittler, G., et al. 2001. Novel critical role of a human Mediator complex for basal RNA polymerase II transcription. EMBO J. 2: 808-813.
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3. Devaiah, B.N., et al. 2012. BRD4 is an atypical kinase that phosphorylates serine2 of the RNA polymerase II carboxy-terminal domain. Proc. Natl. Acad. Sci. USA 109: 6927-6932.
4. Li, Z., et al. 2013. Six1 promotes proliferation of pancreatic cancer cells via upregulation of cyclin D1 expression. PLoS ONE 8: e59203.
5. Esnault, C., et al. 2014. Rho-Actin signaling to the MRTF coactivators dominates the immediate transcriptional response to serum in fibroblasts. Genes Dev. 28: 943-958.
6. Sammons, M.A., et al. 2015. TP53 engagement with the genome occurs in distinct local chromatin environments via pioneer factor activity. Genome Res. 25: 179-188.
7. Perdigão-Henriques, R., et al. 2016. MiR-200 promotes the mesenchymal to epithelial transition by suppressing multiple members of the Zeb2 and Snail1 transcriptional repressor complexes. Oncogene 35: 158-172.
8. Lee, J.Y., et al. 2017. Depletion of CTCF in breast cancer cells selectively induces cancer cell death via p53. J. Cancer 8: 2124-2131.
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11. Kinyamu, H.K., et al. 2020. Proteasome inhibition creates a chromatin landscape favorable to RNA Pol II processivity. J. Biol. Chem. 295: 1271-1287.

RESEARCH USE

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