

## Pol II (C-21): sc-900

### BACKGROUND

RNA polymerase II (Pol II) is an enzyme that is composed of twelve 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<sub>2</sub>H<sub>2</sub>-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 (C-21) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping within the tandem repeat domain of the large subunit of RNA polymerase II (RPB1) of Pol II of mouse origin.

### PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for ChIP application, sc-900 X, 100 µg/0.1 ml.

Pol II (C-21) is available conjugated to agarose (sc-900 AC), 500 µg/0.25 ml agarose in 1 ml, for IP.

Blocking peptide available for competition studies, sc-900 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

### APPLICATIONS

Pol II (C-21) is recommended for detection of Pol II of mouse, rat, human and *Arabidopsis thaliana* 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); may cross-react with NF-1 protein. Pol II (C-21) is also recommended for detection of Pol II in additional species, including canine and bovine.

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.

Pol II (C-21) X TransCruz antibody is recommended for ChIP assays.

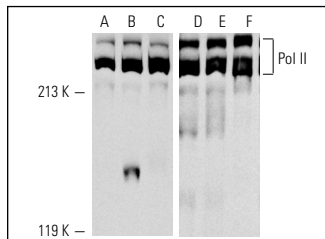
Molecular Weight (predicted) of Pol II: 217 kDa.

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

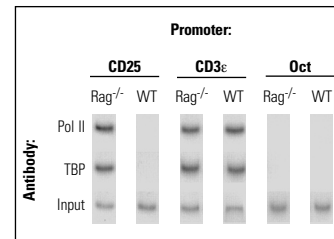
### STORAGE

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

### DATA



Western blot analysis of Pol II expression in A-431 (A,D), AT-3 (B,E) and A-673 (C,F) nuclear extracts. Antibodies tested include Pol II (C-21): sc-900 (A-C) and Pol II (N-20): sc-899 (D-F).



ChIP analysis of recruitment of basal transcription factors Pol II and TBP to the IL-2R $\alpha$  (CD25) promoter *in vivo*. Antibodies tested include Pol II (C-21): sc-900 and TFIIID (TBP) (SI-1): sc-273. CD3 $\epsilon$  and Oct-2 promoter regions were employed as positive and negative controls, respectively. DNA was isolated from Rag<sup>-/-</sup> or WT thymocytes. Data kindly provided by J. Imbert and reproduced from Yeh, J.H., et al. 2002. Nucleic Acids Res. 30: 1944-1951, with permission from Oxford University Press.

### SELECT PRODUCT CITATIONS

1. Yotov, W., et al. 1998. The  $\alpha$  chain of the nascent polypeptide-associated complex functions as a transcriptional coactivator. Mol. Cell. Biol. 18: 1303-1311.
2. Garriga, J., et al. 1998. Upregulation of cyclin T1/CDK9 complexes during T cell activation. Oncogene 17: 3093-3102.
3. Kininis, M., et al. 2009. Postrecruitment regulation of RNA polymerase II directs rapid signaling responses at the promoters of estrogen target genes. Mol. Cell. Biol. 29: 1123-1133.
4. Yu, M., et al. 2009. Complex regulation of tartrate-resistant acid phosphatase (TRAP) expression by interleukin 4 (IL-4): IL-4 indirectly suppresses receptor activator of NF- $\kappa$ B ligand (RANKL)-mediated TRAP expression but modestly induces its expression directly. J. Biol. Chem. 284: 32968-32979.
5. Wang, S., et al. 2010. Distinct and temporal roles of nucleosomal remodeling and histone deacetylation in the repression of the hTERT gene. Mol. Biol. Cell 21: 821-832.
6. Li, L., et al. 2014. Targeting poly(ADP-ribose) polymerase and the c-Myc-regulated DNA damage response pathway in castration-resistant prostate cancer. Sci. Signal. 7: ra47.

### RESEARCH USE

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



Try **Pol II (CTD4H8): sc-47701** or **Pol II (F-12): sc-55492**, our highly recommended monoclonal alternatives to Pol II (C-21). Also, for AC, HRP, FITC, PE, Alexa Fluor<sup>®</sup> 488 and Alexa Fluor<sup>®</sup> 647 conjugates, see **Pol II (CTD4H8): sc-47701**.