



POLR3D (N-14): sc-87362

BACKGROUND

Eukaryotes produce three distinct classes of RNA polymerase, Pol I, II and III. Each polymerase is responsible for the synthesis of a different class of RNA. RNA polymerase III (Pol III) transcribes the 5S rRNA genes and all of the tRNA (transfer RNA) genes. POLR3D, also known as DNA-directed RNA polymerase III subunit RPC4 and Protein BN51, is a 398 amino acid nuclear protein that is one of the seventeen subunits that comprise Pol III. Specifically, POLR3D is a DNA-dependent RNA polymerase that uses the four ribonucleoside triphosphates to catalyze the transcription of DNA to RNA. The gene encoding POLR3D maps to human chromosome 8, which is made up of nearly 146 million bases and encodes about 800 genes.

REFERENCES

1. Ittmann, M., Greco, A. and Basilico, C. 1987. Isolation of the human gene that complements a temperature-sensitive cell cycle mutation in BHK cells. *Mol. Cell. Biol.* 7: 3386-3393.
2. Ittmann, M., Ali, J., Greco, A. and Basilico, C. 1993. The gene complementing a temperature-sensitive cell cycle mutant of BHK cells is the human homologue of the yeast RPC53 gene, which encodes a subunit of RNA polymerase C (III). *Cell Growth Differ.* 4: 503-511.
3. Ittmann, M.M. 1994. Cell cycle control of the BN51 cell cycle gene which encodes a subunit of RNA polymerase III. *Cell Growth Differ.* 5: 783-788.
4. Jackson, A.J., Ittmann, M. and Pugh, B.F. 1995. The BN51 protein is a polymerase (Pol)-specific subunit of RNA Pol III which reveals a link between Pol III transcription and pre-rRNA processing. *Mol. Cell. Biol.* 15: 94-101.
5. Chong, S.S., Hu, P. and Hernandez, N. 2001. Reconstitution of transcription from the human U6 small nuclear RNA promoter with eight recombinant polypeptides and a partially purified RNA polymerase III complex. *J. Biol. Chem.* 276: 20727-20734.
6. Hu, P., Wu, S., Sun, Y., Yuan, C.C., Kobayashi, R., Myers, M.P. and Hernandez, N. 2002. Characterization of human RNA polymerase III identifies orthologues for *Saccharomyces cerevisiae* RNA polymerase III subunits. *Mol. Cell. Biol.* 22: 8044-8055.
7. Nikitina, T.V. and Tishchenko, L.I. 2005. RNA polymerase III transcription apparatus: structure and transcription regulation. *Mol. Biol.* 39: 179-192.
8. Proshkina, G.M., Shematorova, E.K., Proshkin, S.A., Zaros, C., Thuriaux, P. and Shpakovski, G.V. 2006. Ancient origin, functional conservation and fast evolution of DNA-dependent RNA polymerase III. *Nucleic Acids Res.* 34: 3615-3624.
9. Kim, D.H., Saetrom, P., Snove, O. and Rossi, J.J. 2008. MicroRNA-directed transcriptional gene silencing in mammalian cells. *Proc. Natl. Acad. Sci. USA* 105: 16230-16235.

CHROMOSOMAL LOCATION

Genetic locus: POLR3D (human) mapping to 8p21.3; Polr3d (mouse) mapping to 14 D2.

SOURCE

POLR3D (N-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of POLR3D of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-87362 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

POLR3D (N-14) is recommended for detection of POLR3D of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

Suitable for use as control antibody for POLR3D siRNA (h): sc-77815, POLR3D siRNA (m): sc-152378, POLR3D shRNA Plasmid (h): sc-77815-SH, POLR3D shRNA Plasmid (m): sc-152378-SH, POLR3D shRNA (h) Lentiviral Particles: sc-77815-V and POLR3D shRNA (m) Lentiviral Particles: sc-152378-V.

Molecular Weight of POLR3D: 48 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.