SANTA CRUZ BIOTECHNOLOGY, INC.

Rrn3 (Y-23): sc-133978

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The Power to Question

BACKGROUND

In eukaryotes, ribosomal RNA genes are transcribed by RNA polymerase (Pol I). In *Saccharomyces cerevisiae,* transcription of rRNA genes requires at least three transcription factors, which include the two multisubunit factors Core factor and UAF that function in the assembly of the preinitiation complex. The third factor, Rrn3, functions as a single subunit and is not required for the preinitiation complex assembly. Unlike other Pol I transcription factors, Rrn3 is functionally conserved between yeast and mammals as an rRNA gene transcription regulator. Human Rrn3 is 21% homologous to the yeast Rrn3 protein and is a member of a conserved gene family spanning the fungi, plant and animal kingdoms. hRrn3 is highly expressed in the lung, retina, thymus and prostate. Rrn3 may be identical to the transcription factor TIF-IA, since both TIF-IA and Rrn3 associate with Pol I and their activities are growth rate dependent.

REFERENCES

1. Schnapp, A., Pfleiderer, C., Rosenbauer, H. and Grummt, I. 1990. A growth-dependent transcription initiation factor (TIF-IA) interacting with RNA polymerase I regulates mouse ribosomal RNA synthesis. EMBO J. 9: 2857-2863.
2. Schnapp, A., Schnapp, G., Erny, B. and Grummt, I. 1993. Function of the growth-regulated transcription initiation factor TIF-IA in initiation complex formation at the murine ribosomal gene promoter. Mol. Cell. Biol. 13: 6723-6732.
3. Yamamoto, R.T., Nogi, Y., Dodd, J.A. and Nomura, M. 1996. RRN3 gene of *Saccharomyces cerevisiae* encodes an essential RNA polymerase I transcription factor which interacts with the polymerase independently of DNA template. EMBO J. 15: 3964-3973.
4. Keener, J., Josaitis, C.A., Dodd, J.A. and Nomura, M. 1998. Reconstitution of yeast RNA polymerase I transcription *in vitro* from purified components. TATA-binding protein is not required for basal transcription. J. Biol. Chem. 273: 33795-33802.
5. Milkereit, P. and Tschochner, H. 1998. A specialized form of RNA polymerase I, essential for initiation and growth-dependent regulation of rRNA synthesis, is disrupted during transcription. EMBO J. 17: 3692-3703.

CHROMOSOMAL LOCATION

Genetic locus: RRN3 (human) mapping to 16p13.11.

SOURCE

Rrn3 (Y-23) is an affinity purified rabbit polyclonal antibody raised against synthetic Rrn3 peptide of human origin.

PRODUCT

Each vial contains 50 µg IgG in 500 µl PBS with < 0.1% sodium azide, 0.1% gelatin and < 0.02% sucrose.

STORAGE

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

APPLICATIONS

Rrn3 (Y-23) is recommended for detection of Rrn3 of human 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Rrn3 siRNA (h): sc-106866, Rrn3 shRNA Plasmid (h): sc-106866-SH and Rrn3 shRNA (h) Lentiviral Particles: sc-106866-V.

Molecular Weight (predicted) of Rrn3: 74 kDa.

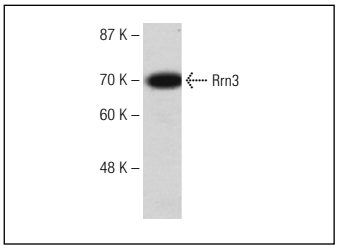
Molecular Weight (observed) of Rrn3: 70 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



Rrn3 (Y-23): sc-133978. Western blot analysis of Rrn3 expression in Jurkat whole cell lysate.

SELECT PRODUCT CITATIONS

1. Zhang, Y., Forys, J.T., Miceli, A.P., Gwinn, A.S. and Weber, J.D. 2011. Identification of DHX33 as a mediator of rRNA synthesis and cell growth. Mol. Cell. Biol. 31: 4676-4691.

RESEARCH USE

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