SANTA CRUZ BIOTECHNOLOGY, INC.

Pol II RPB4 (2Y14): sc-101604

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Eukaryotes produce three distinct classes of RNA polymerase, designated Pol I, Pol II and Pol III. Each polymerase is responsible for the synthesis of a different class of RNA. Pol I transcribes rRNA (ribosomal RNA) genes, while Pol II transcribes protein-encoding genes into mRNA (messenger RNA) and Pol III transcribes the 5S rRNA genes and all of the tRNA (transfer RNA) genes. POLR2D (polymerase (RNA) II (DNA directed) subunit D), also known as RPB4 or HSRBP4, is a 142 amino acid nuclear protein that catalyses transcription of RNA from DNA. The yeast homolog of POLR2D is known as Pol II RPB4 and forms a subcomplex with RPB7. It is suggested that the RPB4-RPB7 complex mediates a post-recruitment step in transcription initiation.

REFERENCES

1. Werner, F., Eloranta, J.J. and Weinzierl, R.O. 2000. Archaeal RNA polymerase subunits F and P are bonafide homologs of eukaryotic RPB4 and RPB12. Nucleic Acids Res. 28: 4299-4305.
2. Orlicky, S.M., Tran, P.T., Sayre, M.H. and Edwards, A.M. 2001. Dissociable RPB4-RPB7 subassembly of RNA polymerase II binds to single-strand nucleic acid and mediates a post-recruitment step in transcription initiation. J. Biol. Chem. 276: 10097-10102.
3. Todone, F., Brick, P., Werner, F., Weinzierl, R.O. and Onesti, S. 2001. Structure of an archaeal homolog of the eukaryotic RNA polymerase II RPB4/RPB7 complex. Mol. Cell 8: 1137-1143.
4. Siaut, M., Zaros, C., Levivier, E., Ferri, M.L., Court, M., Werner, M., Callebaut, I., Thuriaux, P., Sentenac, A. and Conesa, C. 2003. An RPB4/RPB7-like complex in yeast RNA polymerase III contains the orthologue of mammalian CGRP-RCP. Mol. Cell. Biol. 23: 195-205.
5. Tan, Q., Prysak, M.H. and Woychik, N.A. 2003. Loss of the RPB4/RPB7 subcomplex in a mutant form of the RPB6 subunit shared by RNA polymerases I, II and III. Mol. Cell. Biol. 23: 3329-3338.
6. Choder, M. 2004. RPB4 and RPB7: subunits of RNA polymerase II and beyond. Trends Biochem. Sci. 29: 674-681.
7. Sampath, V. and Sadhale, P. 2005. RPB4 and RPB7: a subcomplex integral to multi-subunit RNA polymerases performs a multitude of functions. IUBMB Life 57: 93-102.
8. Meka, H., Werner, F., Cordell, S.C., Onesti, S. and Brick, P. 2005. Crystal structure and RNA binding of the RPB4/RPB7 subunits of human RNA polymerase II. Nucleic Acids Res. 33: 6435-6444.
9. He, X.J., Hsu, Y.F., Pontes, O., Zhu, J., Lu, J., Bressan, R.A., Pikaard, C., Wang, C.S. and Zhu, J.K. 2009. NRPD4, a protein related to the RPB4 subunit of RNA polymerase II, is a component of RNA polymerases IV and V and is required for RNA-directed DNA methylation. Genes Dev. 23: 318-330.

SOURCE

Pol II RPB4 (2Y14) is a mouse monoclonal antibody raised against RNA polymerase II subunit RPB4 of yeast origin.

RESEARCH USE

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

PRODUCT

Each vial contains 50 µl ascites containing IgG_1 with < 0.1% sodium azide.

APPLICATIONS

Pol II RPB4 (2Y14) is recommended for detection of Pol II RPB4 of yeast origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000).

Molecular Weight of Pol II RPB4: 32 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (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.

SELECT PRODUCT CITATIONS

1. Schulz, D., Pirkl, N., Lehmann, E. and Cramer, P. 2014. Rpb4 subunit functions mainly in mRNA synthesis by RNA polymerase II. J. Biol. Chem. 289: 17446-17452.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

PROTOCOLS

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