SANTA CRUZ BIOTECHNOLOGY, INC.

cyclin T1 (H-245): sc-10750

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The Power to Question

BACKGROUND

Cyclin T1 was identified as a partner for Cdk9, an RNA polymerase II (RNAPII) transcription elongation factor. Cyclin T1 interacts with the transactivation domain of the HIV-1 Tat protein. The interaction of Tat with cyclin T1 enhances the affinity of Tat for the viral TAR RNA stem-loop structure, suggesting that Tat can recruit cyclin T1/Cdk9 to RNAPII through cooperative binding to TAR. The human positive transcription elongation factor β (P-TEFβ) consists of a cyclin dependent kinase, Cdk9, paired with a cyclin T. Cdk9 may be paired with either cyclin T1 or cyclin T2, in a mutually exclusive manner. Two forms of cyclin T2, T2a and T2b, are due to alternative splicing. The binding of Tat to TAR was shown to be facilitated by human cyclin T1, but not by cyclins T2a or T2b. Cyclin T2 binds to Cdk9 but not to Tat, and cyclin T2 can inhibit cyclin T1-mediated Tat activity.

CHROMOSOMAL LOCATION

Genetic locus: CCNT1 (human) mapping to 12q13.11; Ccnt1 (mouse) mapping to 15 F1.

SOURCE

cyclin T1 (H-245) is a rabbit polyclonal antibody raised against amino acids 261-505 mapping within an internal region of cyclin T1 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. Also available as TransCruz reagent for ChIP application, sc-10750 X, 200 µg/0.1 ml.

APPLICATIONS

cyclin T1 (H-245) is recommended for detection of cyclin T1 of mouse, rat and 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

cyclin T1 (H-245) is also recommended for detection of cyclin T1 in additional species, including equine and canine.

Suitable for use as control antibody for cyclin T1 siRNA (h): sc-35143, cyclin T1 siRNA (m): sc-35144, cyclin T1 shRNA Plasmid (h): sc-35143-SH, cyclin T1 shRNA Plasmid (m): sc-35144-SH, cyclin T1 shRNA (h) Lentiviral Particles: sc-35143-V and cyclin T1 shRNA (m) Lentiviral Particles: sc-35144-V.

cyclin T1 (H-245) X TransCruz antibody is recommended for ChIP assays.

Molecular Weight of cyclin T1: 87 kDa.

Positive Controls: A-431 nuclear extract: sc-2122, K-562 nuclear extract: sc-2130 or Jurkat nuclear extract: sc-2132.

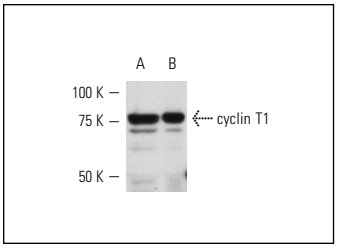
STORAGE

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

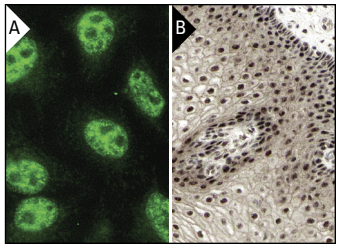
RESEARCH USE

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

DATA



cyclin T1 (H-245): sc-10750. Western blot analysis of cyclin T1 expression in A-431 (**A**) and K-562 (**B**) nuclear extracts.



cyclin T1 (H-245): sc-10750. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human esophagus tissue showing nuclear staining of surface epithelial cells. Kindly provided by The Swedish Human Protein Atlas (HPA) program (**B**).

SELECT PRODUCT CITATIONS

1. Tian, Y., et al. 2003. Interactions between the aryl hydrocarbon receptor and P-TEFβ. Sequential recruitment of transcription factors and differential phosphorylation of C-terminal domain of RNA polymerase II at cyp1a1 promoter. J. Biol. Chem. 278: 44041-44048.
2. Napolitano, G., et al. 2003. Functional inactivation of Cdk9 through oligomerization chain reaction. Oncogene 22: 4882-4888.
3. Michels, A.A., et al. 2003. MAQ1 and 7SK RNA interact with CDK9/cyclin T complexes in a transcription-dependent manner. Mol. Cell. Biol. 23: 4859-4869.
4. Garriga, J., et al. 2003. CDK9 is constitutively expressed throughout the cell cycle, and its steady-state expression is independent of SKP2. Mol. Cell. Biol. 23: 5165-5173.
5. Lenasi, T., et al. 2011. Cap-binding protein complex links pre-mRNA capping to transcription elongation and alternative splicing through positive transcription elongation factor β (P-TEFβ). J. Biol. Chem. 286: 22758-22768.
6. Milcarek, C., et al. 2011. The eleven-nineteen lysine-rich leukemia gene (ELL2) influences the histone H3 protein modifications accompanying the shift to secretory immunoglobulin heavy chain mRNA production. J. Biol. Chem. 286: 33795-33803.
7. Dey, S.S., et al. 2012. Mutual information analysis reveals coevolving residues in Tat that compensate for two distinct functions in HIV-1 gene expression. J. Biol. Chem. 287: 7945-7955.