

cyclin T1 (E-6): sc-271576

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-TEF β) 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.

REFERENCES

- Herrmann, C.H., et al. 1995. Lentivirus Tat proteins specifically associate with a cellular protein kinase, TAK, that hyperphosphorylates the carboxyl-terminal domain of the large subunit of RNA polymerase II: candidate for a Tat cofactor. *J. Virol.* 69: 1612-1620.
- Yang, X., et al. 1997. TAK, an HIV Tat-associated kinase, is a member of the cyclin-dependent family of protein kinases and is induced by activation of peripheral blood lymphocytes and differentiation of promonocytic cell lines. *Proc. Natl. Acad. Sci. USA* 94: 12331-12336.
- Wei, P., et al. 1998. A novel Cdk9-associated C-type cyclin interacts directly with HIV-1 Tat and mediates its high-affinity, loop-specific binding to TAR RNA. *Cell* 92: 451-462.
- Peng, J., et al. 1998. Identification of multiple cyclin subunits of human P-TEFb. *Genes Dev.* 12: 755-762.
- Wimmer, J., et al. 1999. Interactions between Tat and TAR and human immunodeficiency virus replication are facilitated by human cyclin T1 but not cyclins T2a or T2b. *Virology* 255: 182-189.
- Napolitano, G., et al. 1999. The Cdk9-associated cyclins T1 and T2 exert opposite effects on HIV-1 Tat activity. *AIDS* 13: 1453-1459.

CHROMOSOMAL LOCATION

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

SOURCE

cyclin T1 (E-6) is a mouse monoclonal antibody raised against amino acids 261-505 mapping within an internal region of cyclin T1 of human origin.

PRODUCT

Each vial contains 200 μ g IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for ChIP application, sc-271576 X, 200 μ g/0.1 ml.

RESEARCH USE

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

APPLICATIONS

cyclin T1 (E-6) is recommended for detection of cyclin T1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

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 (E-6) X TransCruz antibody is recommended for ChIP assays.

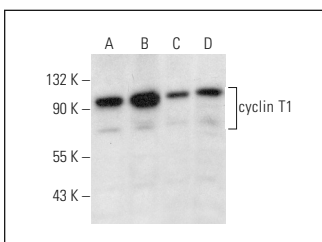
Molecular Weight of cyclin T1: 87 kDa.

Positive Controls: A-431 nuclear extract: sc-2122, HeLa nuclear extract: sc-2120 or HeLa whole cell lysate: sc-2200.

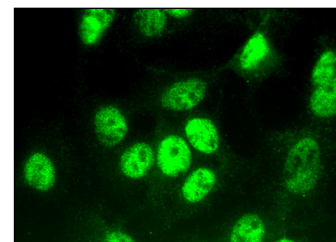
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



cyclin T1 (E-6): sc-271576. Western blot analysis of cyclin T1 expression in A-431 (A) and HeLa (B) nuclear extracts and MCF7 (C) and HeLa (D) whole cell lysates.



cyclin T1 (E-6): sc-271576. Immunofluorescence staining of formalin-fixed HepG2 cells showing nuclear localization.

STORAGE

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



See **cyclin T1 (E-3): sc-271348** for cyclin T1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.