

cyclin T1 (C-6): sc-271575

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 b (P-TEFb) 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.
- Peng, J., et al. 1998. Identification of multiple cyclin subunits of human P-TEFb. *Genes Dev.* 12: 755-762.

CHROMOSOMAL LOCATION

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

SOURCE

cyclin T1 (C-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 µg IgG₁ 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-271575 X, 200 µg/0.1 ml.

cyclin T1 (C-6) is available conjugated to agarose (sc-271575 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271575 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271575 PE), fluorescein (sc-271575 FITC), Alexa Fluor® 488 (sc-271575 AF488), Alexa Fluor® 546 (sc-271575 AF546), Alexa Fluor® 594 (sc-271575 AF594) or Alexa Fluor® 647 (sc-271575 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271575 AF680) or Alexa Fluor® 790 (sc-271575 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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RESEARCH USE

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

APPLICATIONS

cyclin T1 (C-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 µg per 100-500 µg 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).

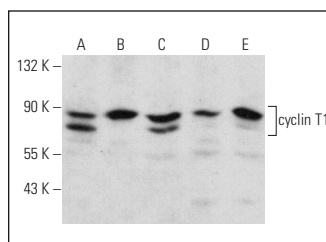
Suitable for use as control antibody for cyclin T1 siRNA (h): sc-35143, cyclin T1 siRNA (m): sc-35144, cyclin T1 shRNA Plasmid (h): sc-35143-SH, cyclin T1 shRNA Plasmid (m): sc-35144-SH, cyclin T1 shRNA (h) Lentiviral Particles: sc-35143-V and cyclin T1 shRNA (m) Lentiviral Particles: sc-35144-V.

cyclin T1 (C-6) X TransCruz antibody is recommended for ChIP assays.

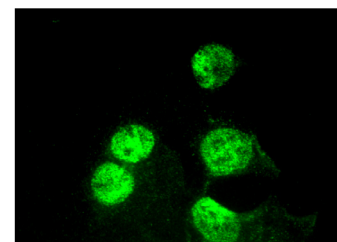
Molecular Weight of cyclin T1: 87 kDa.

Positive Controls: F9 cell lysate: sc-2245, NIH/3T3 whole cell lysate: sc-2210 or RAT2 whole cell lysate: sc-364198.

DATA



cyclin T1 (C-6): sc-271575. Western blot analysis of cyclin T1 expression in NIH/3T3 (A), ES-D3 (B), F9 (C), RAT2 (D) and H19-7/IGF/IR (E) whole cell lysates.



cyclin T1 (C-6): sc-271575. Immunofluorescence staining of formalin-fixed Hep G2 cells showing nuclear localization.

SELECT PRODUCT CITATIONS

- Brägelmann, J., et al. 2017. Systematic kinase inhibitor profiling identifies Cdk9 as a synthetic lethal target in NUT midline carcinoma. *Cell Rep.* 20: 2833-2845.
- Wang, R., et al. 2017. Uncovering BRD4 hyperphosphorylation associated with cellular transformation in NUT midline carcinoma. *Proc. Natl. Acad. Sci. USA* 114: E5352-E5361.
- Oqani, R.K., et al. 2019. Iws1 and SPT6 regulate trimethylation of Histone H3 on lysine 36 through Akt signaling and are essential for mouse embryonic genome activation. *Sci. Rep.* 9: 3831.
- Liu, B., et al. 2020. The landscape of RNA Pol II binding reveals a stepwise transition during ZGA. *Nature* 587: 139-144.
- Zhu, C., et al. 2021. Cancer-associated exportin-6 upregulation inhibits the transcriptionally repressive and anticancer effects of nuclear profilin-1. *Cell Rep.* 34: 108749.

STORAGE

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