

cyclin T2a/b (A-20): sc-12419

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-TEF β . *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: CCNT2 (human) mapping to 2q21.3; Ccnt2 (mouse) mapping to 1 E3.

SOURCE

cyclin T2a/b (A-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of cyclin T2a/b of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-12419 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

cyclin T2a/b (A-20) is recommended for detection of cyclin T2a and cyclin T2b of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

cyclin T2a/b (A-20) is also recommended for detection of cyclin T2a and cyclin T2b in additional species, including equine, canine and bovine.

Suitable for use as control antibody for cyclin T2a/b siRNA (h): sc-37601, cyclin T2a/b siRNA (m): sc-37602, cyclin T2a/b shRNA Plasmid (h): sc-37601-SH, cyclin T2a/b shRNA Plasmid (m): sc-37602-SH, cyclin T2a/b shRNA (h) Lentiviral Particles: sc-37601-V and cyclin T2a/b shRNA (m) Lentiviral Particles: sc-37602-V.

Positive Controls: HeLa whole cell lysate: sc-2200.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

- Shimizu, S., et al. 2007. Inhibiting lentiviral replication by HEXIM1, a cellular negative regulator of the Cdk9/cyclin T complex. *AIDS* 21: 575-582.

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.

PROTOCOLS

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



Try **cyclin T2a/b (2128C1a): sc-81243**, our highly recommended monoclonal alternative to cyclin T2a/b (A-20).