SANTA CRUZ BIOTECHNOLOGY, INC.

Cdk7 (C-19): sc-529

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Progression through the cell cycle requires activation of a series of enzymes designated cyclin dependent kinases (Cdks). The monomeric catalytic subunit Cdk2, a critical enzyme for initiation of cell cycle progression, is completely inactive. Partial activation is achieved by the binding of regulatory cyclins such as cyclin D1, while full activation requires additional phosphorylation at Thr 160. The enzyme responsible for the phosphorylation of Cdk2 on Thr 160 and also of Cdc2 p34 on Thr 161, designated Cdk-activating kinase (CAK), has been partially purified and shown to be comprised of a catalytic subunit and a regulatory subunit. The catalytic subunit, designated Cdk7, has been identified as the mammalian homolog of MO15, a protein kinase demonstrated in starfish and *Xenopus*. The regulatory subunit is a novel cyclin (cyclin H) and is required for activation of Cdk7. Like other Cdks, Cdk7 contains a conserved threonine residue required for full activity; mutation of this residue severely reduces CAK activity.

CHROMOSOMAL LOCATION

Genetic locus: CDK7 (human) mapping to 5q13.2; Cdk7 (mouse) mapping to 13 D1.

SOURCE

Cdk7 (C-19) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping at the C-terminus of Cdk7 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.

Blocking peptide available for competition studies, sc-529 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Cdk7 (C-19) is recommended for detection of Cdk7 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Cdk7 (C-19) is also recommended for detection of Cdk7 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for Cdk7 siRNA (h): sc-29266, Cdk7 siRNA (m): sc-29265, Cdk7 shRNA Plasmid (h): sc-29266-SH, Cdk7 shRNA Plasmid (m): sc-29265-SH, Cdk7 shRNA (h) Lentiviral Particles: sc-29266-V, and Cdk7 shRNA (m) Lentiviral Particles: sc-29265-V.

Molecular Weight of Cdk7 isoforms: 42/37 kDa.

Positive Controls: Cdk7 (m): 293T Lysate: sc-119151.

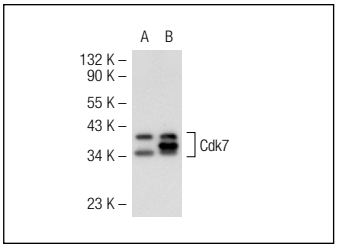
STORAGE

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

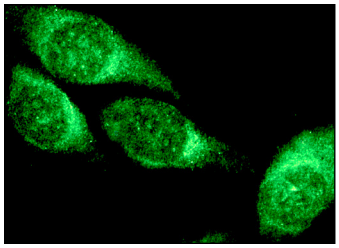
RESEARCH USE

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

DATA



Cdk7 (C-19): sc-529. Western blot analysis of Cdk7 expression in non-transfected: sc-117752 (**A**) and mouse Cdk7 transfected: sc-119151 (**B**) 293T whole cell lysates.



Cdk7 (C-19): sc-529. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing nuclear staining.

SELECT PRODUCT CITATIONS

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2. Luo, P., et al. 2007. Intrinsic retinoic acid receptor α-cyclin-dependent kinase-activating kinase signaling involves coordination of the restricted proliferation and granulocytic differentiation of human hematopoietic stem cells. Stem Cells 25: 2628-2637.
3. Sotillo, E., et al. 2008. Cyclin E and SV40 small T antigen cooperate to bypass quiescence and contribute to transformation by activating CDK2 in human fibroblasts. J. Biol. Chem. 283: 11280-11292.
4. Bruck, N., et al. 2009. A coordinated phosphorylation cascade initiated by p38MAPK/MSK1 directs RARα to target promoters. EMBO J. 28: 34-47.
5. Boeing, S., et al. 2010. RNA polymerase II C-terminal heptarepeat domain Ser-7 phosphorylation is established in a mediator-dependent fashion. J. Biol. Chem. 285: 188-196.
6. Cook, M.S., et al. 2011. Regulation of male germ cell cycle arrest and differentiation by DND1 is modulated by genetic background. Development 138: 23-32.
7. Thomas, M., et al. 2011. Carbohydrate metabolism is essential for the colonization of *Streptococcus thermophilus* in the digestive tract of gnotobiotic rats. PLoS ONE 6: 1-10.