

Cdk7 (N-19): sc-723

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 (N-19) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping at the N-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-723 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Cdk7 (N-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), 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).

Cdk7 (N-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.

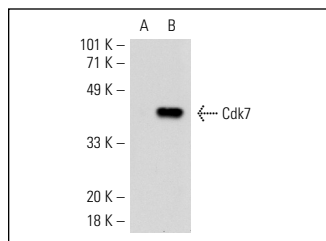
Molecular Weight of Cdk7 isoforms: 42/37 kDa.

Positive Controls: Cdk7 (h): 293 Lysate: sc-110468, Jurkat nuclear extract: sc-2132 or HeLa nuclear extract: sc-2120.

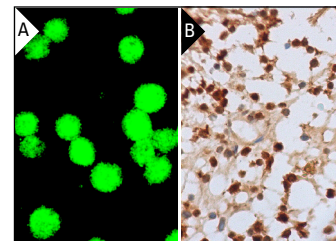
STORAGE

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

DATA



Cdk7 (N-19): sc-723. Western blot analysis of Cdk7 expression in non-transfected: sc-110760 (A) and human Cdk7 transfected: sc-110468 (B) 293 whole cell lysates.



Cdk7 (N-19) sc-723. Immunofluorescence staining of methanol-fixed K-562 cells showing nuclear staining (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human bone marrow tissue showing nuclear and cytoplasmic staining of hematopoietic cells (B).

SELECT PRODUCT CITATIONS

1. Belyavskiy, M., et al. 1998. The structural protein ODV-EC27 of *Autographa californica* nucleopolyhedrovirus is a multifunctional viral cyclin. Proc. Natl. Acad. Sci. USA 95: 11205-11210.
2. Masaki, T., et al. 2000. Hepatocellular carcinoma cell cycle: study of Long-Evans cinnamon rats. Hepatology 32: 711-720.
3. Johnson, K.M., et al. 2002. TFIIID and human mediator coactivator complexes assemble cooperatively on promoter DNA. Genes Dev. 16: 1852-1863.
4. Ito, S., et al. 2004. *In vivo* potentiation of human oestrogen receptor α by Cdk7-mediated phosphorylation. Genes Cells 9: 983-992.
5. Colton, S.L., et al. 2006. The involvement of ataxia-telangiectasia mutated protein activation in nucleotide excision repair-facilitated cell survival with cisplatin treatment. J. Biol. Chem. 281: 27117-27125.
6. Yu, J., et al. 2007. Gambogic acid-induced G₂/M phase cell-cycle arrest via disturbing Cdk7-mediated phosphorylation of Cdc2/p34 in human gastric carcinoma BGC-823 cells. Carcinogenesis 28: 632-638.
7. Yang, Y., et al. 2008. Oroxylin A induces G₂/M phase cell-cycle arrest via inhibiting Cdk7-mediated expression of Cdc2/p34 in human gastric carcinoma BGC-823 cells. J. Pharm. Pharmacol. 60: 1459-1463.

RESEARCH USE

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

MONOS
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Try **Cdk7 (C-4): sc-7344** or **Cdk7 (C-5): sc-365075**, our highly recommended monoclonal alternatives to Cdk7 (N-19). Also, for AC, HRP, FITC, PE, Alexa Fluor[®] 488 and Alexa Fluor[®] 647 conjugates, see **Cdk7 (C-4): sc-7344**.