

Cdk2 (AN4.3): sc-53220

BACKGROUND

In vertebrates, as in yeast, multiple cyclins have been identified, including a total of eight such regulatory proteins in mammals. In contrast to the situation in yeast, the Cdc2 p34 kinase is not the only catalytic subunit identified in vertebrates that can interact with cyclins. While Cdc2 p34 is essential for the G₂ to M transition in vertebrate cells, a second Cdc2-related kinase has also been implicated in cell cycle control. This protein, designated cyclin-dependent kinase 2 (Cdk2) p33, also binds to cyclins and its kinase activity is temporally regulated during the cell cycle. Several additional Cdc2 p34-related cyclin dependent kinases have been identified. These include Cdk3-Cdk8, PCTAIRE-1-3 and KKIALLRE.

REFERENCES

1. Riabowol, K., et al. 1989. The Cdc2 kinase is a nuclear protein that is essential for mitosis in mammalian cells. *Cell* 57: 393-401.
2. Morla, A.O., et al. 1989. Reversible tyrosine phosphorylation of Cdc2: dephosphorylation accompanies activation during entry into mitosis. *Cell* 58: 193-203.
3. Pines, J. and Hunter, T. 1989. Isolation of a human cyclin cDNA: evidence for cyclin mRNA and protein regulation in the cell cycle and for interaction with p34^{Cdc2}. *Cell* 58: 833-846.
4. Kobayashi, H., et al. 1991. Cyclins and their partners during *Xenopus* oocyte maturation. *Cold Spring Harb. Symp. Quant. Biol.* 56: 437-447.

CHROMOSOMAL LOCATION

Genetic locus: CDK2 (human) mapping to 12q13.2; Cdk2 (mouse) mapping to 10 D3.

SOURCE

Cdk2 (AN4.3) is a mouse monoclonal antibody raised against recombinant Cdk2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Cdk2 (AN4.3) is recommended for detection of Cdk2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for Cdk2 siRNA (h): sc-29259, Cdk2 siRNA (m): sc-29260, Cdk2 shRNA Plasmid (h): sc-29259-SH, Cdk2 shRNA Plasmid (m): sc-29260-SH, Cdk2 shRNA (h) Lentiviral Particles: sc-29259-V and Cdk2 shRNA (m) Lentiviral Particles: sc-29260-V.

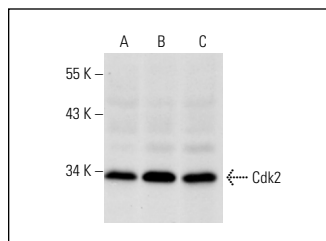
Molecular Weight of Cdk2: 34 kDa.

Positive Controls: Cdk2 (m): 293T Lysate: sc-119146, K-562 whole cell lysate: sc-2203 or NAMALWA cell lysate: sc-2234.

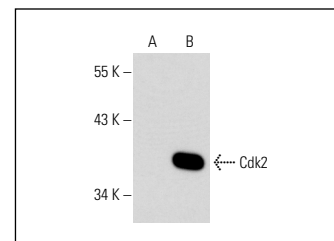
STORAGE

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

DATA



Cdk2 (AN4.3): sc-53220. Western blot analysis of Cdk2 expression in K-562 (A), HeLa (B) and NAMALWA (C) whole cell lysates.



Cdk2 (AN4.3): sc-53220. Western blot analysis of Cdk2 expression in non-transfected: sc-117752 (A) and mouse Cdk2 transfected: sc-119146 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Hafeez, B.B., et al. 2008. A dietary anthocyanidin delphinidin induces apoptosis of human prostate cancer PC3 cells *in vitro* and *in vivo*: involvement of nuclear factor κB signaling. *Cancer Res.* 68: 8564-8572.
2. Su, Y., et al. 2010. Human RecQL4 helicase plays critical roles in prostate carcinogenesis. *Cancer Res.* 70: 9207-9217.
3. Xu, Z.W., et al. 2010. Targeting the Na⁺/K⁺-ATPase α1 subunit of hepatoma Hep G2 cell line to induce apoptosis and cell cycle arresting. *Biol. Pharm. Bull.* 33: 743-751.
4. Napione, L., et al. 2012. IL-12-dependent innate immunity arrests endothelial cells in G₀-G₁ phase by a p21^{Cip1/Waf1}-mediated mechanism. *Angiogenesis* 15: 713-725.
5. Shi, H., et al. 2012. Cell-based proteome profiling of potential dasatinib targets by use of affinity-based probes. *J. Am. Chem. Soc.* 134: 3001-3014.
6. Liu, Z., et al. 2013. CASZ1 inhibits cell cycle progression in neuroblastoma by restoring pRb activity. *Cell Cycle* 12: 2210-2218.
7. Seoane, M., et al. 2019. Lineage-specific control of TFIIF by MITF determines transcriptional homeostasis and DNA repair. *Oncogene* 38: 3616-3635.
8. Zhou, Y., et al. 2020. The requirement for cyclin E in c-Myc overexpressing breast cancers. *Cell Cycle* 19: 2589-2599.
9. Yeung, T.K., et al. 2021. One-step multiplex toolkit for efficient generation of conditional gene silencing human cell lines. *Mol. Biol. Cell.* E-published.

RESEARCH USE

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



See **Cdk2 (D-12): sc-6248** for Cdk2 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.