SANTA CRUZ BIOTECHNOLOGY, INC.

# Cdk4 (DCS-35): sc-23896

SANTA CRUZ BIOTECHNOLOGY

*The Power to Question*

## BACKGROUND

Cell cycle progression is controlled in part by a family of cyclin proteins and cyclin dependent kinases (Cdks). Cdk proteins work in concert with the cyclins to phosphorylate key substrates involved in each phase of cell cycle progression. Another family of proteins, Cdk inhibitors, also plays a role in regulating the cell cycle by binding to cyclin-Cdk complexes and modulating their activity. Several Cdk proteins have been identified, including Cdk2-Cdk8, PCTAIRE-1-PCTAIRE-3, PITALRE and PITSLRE. Cdk4, in complex with D-type cyclins, is thought to regulate cell growth during the $G_1$ phase of the cell cycle. This association with a D-type cyclin upregulates Cdk4 activity, whereas binding to the Cdk inhibitor p16 downregulates Cdk4 activity. Activation of the Cdk4-cyclin complexes requires phosphorylation on a single threonyl residue of Cdk4, catalyzed by a Cdk-activating protein (CAK).

## CHROMOSOMAL LOCATION

Genetic locus: CDK4 (human) mapping to 12q14.1; Cdk4 (mouse) mapping to 10 D3.

## SOURCE

Cdk4 (DCS-35) is a mouse monoclonal antibody raised against full length recombinant human Cdk4, with epitope mapping to amino acids 1-20.

## PRODUCT

Each vial contains 200 µg $IgG_1$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Cdk4 (DCS-35) is available conjugated to agarose (sc-23896 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-23896 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-23896 PE), fluorescein (sc-23896 FITC), Alexa Fluor® 488 (sc-23896 AF488), Alexa Fluor® 546 (sc-23896 AF546), Alexa Fluor® 594 (sc-23896 AF594) or Alexa Fluor® 647 (sc-23896 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-23896 AF680) or Alexa Fluor® 790 (sc-23896 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.



## APPLICATIONS

Cdk4 (DCS-35) is recommended for detection of Cdk4 of mouse, rat and human origin by Western Blotting (starting dilution 1:1,000, dilution range 1:1,00-1:2,000), 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).

Suitable for use as control antibody for Cdk4 siRNA (h): sc-29261, Cdk4 siRNA (m): sc-29262, Cdk4 shRNA Plasmid (h): sc-29261-SH, Cdk4 shRNA Plasmid (m): sc-29262-SH, Cdk4 shRNA (h) Lentiviral Particles: sc-29261-V and Cdk4 shRNA (m) Lentiviral Particles: sc-29262-V.

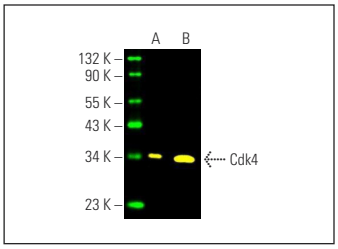
Molecular Weight of Cdk4: 34 kDa.

Positive Controls: F9 cell lysate: sc-2245, HeLa whole cell lysate: sc-2200 or MCF7 whole cell lysate: sc-2206.

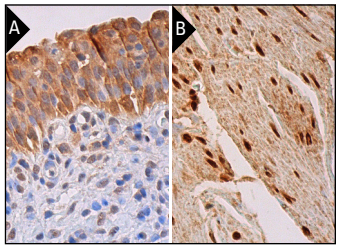
## STORAGE

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

## DATA




Cdk4 (DCS-35) Alexa Fluor® 488: sc-23896 AF488. Direct fluorescent western blot analysis of Cdk4 expression in HeLa (**A**) and F9 (**B**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker MW Tag-Alexa Fluor® 680: sc-516730.




Cdk4 (DCS-35): sc-23896. Immunoperoxidase detection of Cdk4 protein in formalin fixed, paraffin-embedded human urinary bladder tissue, showing cytoplasmic and nuclear staining of urothelial cells. Detection reagent used: m-IgGκ BP-HRP: sc-516102 (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human smooth muscle tissue showing cytoplasmic and nuclear staining of smooth muscle cells (**B**).

## SELECT PRODUCT CITATIONS

1. Depoortere, F., et al. 2000. Transforming growth factor β selectively inhibits the cyclic AMP-dependent proliferation of primary thyroid epithelial cells by preventing the association of cyclin D3-Cdk4 with nuclear $p27^{kip1}$. Mol. Biol. Cell 11: 1061-1076.
2. Kumar, V., et al. 2017. Role of a-kinase anchor protein (AKAP4) in growth and survival of ovarian cancer cells. Oncotarget 8: 53124-53136.
3. Zhang, J., et al. 2018. Cyclin D-Cdk4 kinase destabilizes PD-L1 via cullin 3-SPOP to control cancer immune surveillance. Nature 553: 91-95.
4. Almajdoob, S., et al. 2018. Resveratrol attenuates hyperproliferation of vascular smooth muscle cells from spontaneously hypertensive rats: role of ROS and ROS-mediated cell signaling. Vascul. Pharmacol. 101: 48-56.
5. Lee, M.G., et al. 2018. Heteronemin, a marine sesterterpenoid-type metabolite, induces apoptosis in prostate LNcap cells via oxidative and ER stress combined with the inhibition of topoisomerase II and Hsp90. Mar. Drugs 16 pii: E204.
6. Menon, R.T., et al. 2018. Hyperoxia disrupts extracellular signal-regulated Kinases 1/2-induced angiogenesis in the developing lungs. Int. J. Mol. Sci. 19 pii: E1525.
7. Hee, Y.T., et al. 2018. LEE011 and ruxolitinib: a synergistic drug combination for natural killer/T-cell lymphoma (NKTCL). Oncotarget 9: 31832-31841.
8. Hsu, C.L., et al. 2018. Integrated genomic analyses in PDX model reveal a cyclin-dependent kinase inhibitor Palbociclib as a novel candidate drug for nasopharyngeal carcinoma. J. Exp. Clin. Cancer Res. 37: 233.

## RESEARCH USE

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