

Cdk4 (DCS-31): sc-56277

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 G₁ 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-31) is a mouse monoclonal antibody raised against full length Cdk4 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.

Cdk4 (DCS-31) is available conjugated to agarose (sc-56277 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-56277 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-56277 PE), fluorescein (sc-56277 FITC), Alexa Fluor® 488 (sc-56277 AF488), Alexa Fluor® 546 (sc-56277 AF546), Alexa Fluor® 594 (sc-56277 AF594) or Alexa Fluor® 647 (sc-56277 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-56277 AF680) or Alexa Fluor® 790 (sc-56277 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

Cdk4 (DCS-31) is recommended for detection of Cdk4 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); non cross-reactive with other Cdk types.

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.

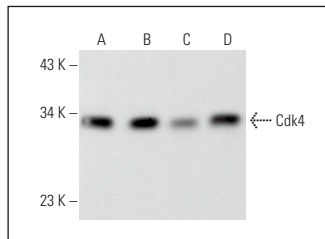
Molecular Weight of Cdk4: 34 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, MCF7 whole cell lysate: sc-2206 or MDA-MB-231 cell lysate: sc-2232.

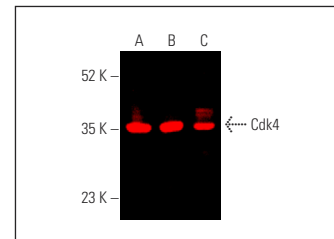
STORAGE

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

DATA



Cdk4 (DCS-31): sc-56277. Western blot analysis of Cdk4 expression in HeLa (A), MCF7 (B), MDA-MB-231 (C) and ZR-75-1 (D) whole cell lysates. Detection reagent used: m-IgGκ Bp-HRP: sc-516102.



Cdk4 (DCS-31): sc-56277. Near-Infrared western blot analysis of Cdk4 expression in MCF7 (A), HeLa (B) and Ramos (C) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgG_{2a} Bp-CFL 790: sc-542740.

SELECT PRODUCT CITATIONS

1. Roger, P.P., et al. 1999. Nature of the critical labile event that controls RB phosphorylation in the cyclic AMP-dependent cell cycle of thyrocytes in primary culture. *Exp. Cell Res.* 252: 492-498.
2. Fischer, B.M., et al. 2013. Increased expression of senescence markers in cystic fibrosis airways. *Am. J. Physiol. Lung Cell. Mol. Physiol.* 304: L394-L400.
3. Han, Y.S., et al. 2015. Fucoidan inhibits the migration and proliferation of HT-29 human colon cancer cells via the phosphoinositide-3 kinase/Akt/mechanistic target of rapamycin pathways. *Mol. Med. Rep.* 12: 3446-3452.
4. Colleoni, B., et al. 2017. JNKs function as Cdk4-activating kinases by phosphorylating Cdk4 and p21. *Oncogene* 36: 4349-4361.
5. Foronda, M., et al. 2019. Tankyrase inhibition sensitizes cells to CDK4 blockade. *PLoS ONE* 14: e0226645.
6. Orimoto, A., et al. 2020. Primary and immortalized cell lines derived from the Amami rabbit (*Pentalagus furnessi*) and evolutionally conserved cell cycle control with CDK4 and Cyclin D1. *Biochem. Biophys. Res. Commun.* 525: 1046-1053.
7. Amici, S.A., et al. 2021. PRMT5 promotes cyclin E1 and cell cycle progression in CD4 Th1 cells and correlates with EAE severity. *Front. Immunol.* 12: 695947.
8. Martinez-Monleon, A., et al. 2022. Amplification of CDK4 and MDM2: a detailed study of a high-risk neuroblastoma subgroup. *Sci. Rep.* 12: 12420.
9. Kim, J.Y., et al. 2023. MiR-221 and miR-222 regulate cell cycle progression and affect chemosensitivity in breast cancer by targeting ANXA3. *Exp. Ther. Med.* 25: 127.

RESEARCH USE

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