

# Cdk5 (DC 17): sc-249

## 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 cell cycle by binding to cyclin-Cdk complexes and modulating their activity. Several Cdk proteins have been identified, including Cdk2-Cdk8, PCTAIRE-1-3, PITSLRE and PITSLRE. Cdk5 is thought to be involved in the G<sub>1</sub>/S transition of the cell cycle and is highly expressed in mature neurons. Activity of Cdk5 increases significantly during neuronal differentiation. Cdk5 has been postulated to be a neurofilament or Tau protein kinase, based on its ability to phosphorylate these proteins *in vitro*.

## CHROMOSOMAL LOCATION

Genetic locus: CDK5 (human) mapping to 7q36.1; Cdk5 (mouse) mapping to 5 A3.

## SOURCE

Cdk5 (DC 17) is a mouse monoclonal antibody raised against recombinant full length Cdk5 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Cdk5 (DC 17) is available conjugated to agarose (sc-249 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-249 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-249 PE), fluorescein (sc-249 FITC), Alexa Fluor® 488 (sc-249 AF488), Alexa Fluor® 546 (sc-249 AF546), Alexa Fluor® 594 (sc-249 AF594) or Alexa Fluor® 647 (sc-249 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-249 AF680) or Alexa Fluor® 790 (sc-249 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

## APPLICATIONS

Cdk5 (DC 17) is recommended for detection of Cdk5 of mouse, rat, human and *Drosophila melanogaster* 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).

Suitable for use as control antibody for Cdk5 siRNA (h): sc-29263, Cdk5 siRNA (m): sc-35047, Cdk5 shRNA Plasmid (h): sc-29263-SH, Cdk5 shRNA Plasmid (m): sc-35047-SH, Cdk5 shRNA (h) Lentiviral Particles: sc-29263-V and Cdk5 shRNA (m) Lentiviral Particles: sc-35047-V.

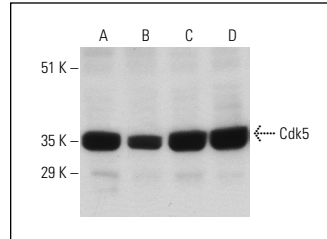
Molecular Weight of Cdk5: 35 kDa.

Positive Controls: Jurkat nuclear extract: sc-2132, HeLa nuclear extract: sc-2120 or SK-BR-3 nuclear extract: sc-2134.

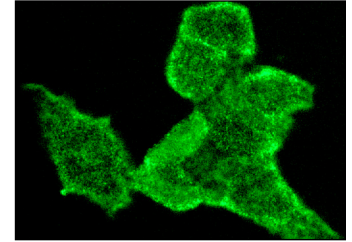
## STORAGE

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

## DATA



Cdk5 (DC 17): sc-249. Western blot analysis of Cdk5 expression in HeLa (A), K-562 (B), Jurkat (C) and SK-BR-3 (D) nuclear extracts.



Cdk5 (DC 17): sc-249. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic and nuclear staining.

## SELECT PRODUCT CITATIONS

- Jayaraman, D., et al. 1995. Increased phosphorylation of neurofilament subunits in PC-12 cells and rat dorsal root ganglion neurons treated with N-acetyl-Leu-Leu-norleucinal. *Int. J. Dev. Neurosci.* 13: 753-758.
- Yang, H.S. and Hinds, P.W. 2006. Phosphorylation of ezrin by cyclin-dependent kinase 5 induces the release of Rho GDP dissociation inhibitor to inhibit Rac1 activity in senescent cells. *Cancer Res.* 66: 2708-2715.
- Cheung Z.H., et al. 2007. Cdk5 is involved in BDNF-stimulated dendritic growth in hippocampal neurons. *PLoS Biol.* 5: e63.
- Kaminosono, S., et al. 2008. Suppression of mutant Huntingtin aggregate formation by Cdk5/p35 through the effect on microtubule stability. *J. Neurosci.* 28: 8747-8755.
- Rubio de la Torre, E., et al. 2009. Combined kinase inhibition modulates parkin inactivation. *Hum. Mol. Genet.* 18: 809-823.
- Tsutsumi, K., et al. 2010. Phosphorylation of AATYK1 by Cdk5 suppresses its tyrosine phosphorylation. *PLoS ONE* 5: e10260.
- Lee, K.Y., et al. 2012. Cdk5 mediates vimentin Ser 56 phosphorylation during GTP-induced secretion by neutrophils. *J. Cell. Physiol.* 227: 739-750.
- Hsu, F.N., et al. 2013. Cyclin-dependent kinase 5 modulates STAT3 and androgen receptor activation through phosphorylation of Ser<sup>727</sup> on STAT3 in prostate cancer cells. *Am. J. Physiol. Endocrinol. Metab.* 305: E975-E986.
- Takahashi, M., et al. 2014. Valproic acid downregulates Cdk5 activity via the transcription of the p35 mRNA. *Biochem. Biophys. Res. Commun.* 447: 678-682.
- Lai, K.O., et al. 2015. Cyclin-dependent kinase 5 (Cdk5)-dependent phosphorylation of p70 ribosomal S6 kinase 1 (S6K) is required for dendritic spine morphogenesis. *J. Biol. Chem.* 290: 14637-14646.

## RESEARCH USE

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