

# p-Cdk5 (B-4): sc-271981

## BACKGROUND

Cyclin-dependent kinase 5 (Cdk5) is found in its active form only in neuronal cells. Like other members of the Cdk family, Cdk5 catalytic activity is influenced by both p35 binding and phosphorylation. The Serine 159 residue is the major phosphorylation target for Cdk5-activating kinases. Cdk5 requires both p35 binding and phosphorylation at Serine 159 for maximal rates of activation. In addition, casein kinase I, but not casein kinase II, can phosphorylate and activate Cdk5 *in vitro*. Phosphorylation of Cdk5 by c-Abl occurs on Tyrosine 15 and enhances p35/Cdk5 kinase activity. Active c-Abl kinase leads to Cdk5 tyrosine phosphorylation, and this phosphorylation is enhanced by Cdk5 and Abl enzyme substrate (CABLES). Phosphorylation of either Serine 159 or Tyrosine 15 dramatically increases Cdk5 activation.

## REFERENCES

- Hellmich, M.R., et al. 1992. Neuronal Cdc2-like kinase: a Cdc2-related protein kinase with predominantly neuronal expression. Proc. Natl. Acad. Sci. USA 89: 10867-10871.
- Shetty, K.T., et al. 1993. Cdc2-like kinase from rat spinal cord specifically phosphorylates KSPXK motifs in neurofilament proteins: isolation and characterization. Proc. Natl. Acad. Sci. USA 90: 6844-6848.
- Lew, J., et al. 1994. A brain-specific activator of cyclin-dependent kinase 5. Nature 371: 423-426.
- Sharma, P., et al. 1999. Regulation of cyclin-dependent kinase 5 catalytic activity by phosphorylation. Proc. Natl. Acad. Sci. USA 96: 11156-11160.
- Zukerberg, L.R., et al. 2000. Cables links Cdk5 and c-Abl and facilitates Cdk5 tyrosine phosphorylation, kinase upregulation, and neurite outgrowth. Neuron 26: 633-646.

## CHROMOSOMAL LOCATION

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

## SOURCE

p-Cdk5 (B-4) is a mouse monoclonal antibody epitope corresponding to a short amino acid sequence containing Ser 159 phosphorylated Cdk5 of human origin.

## PRODUCT

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

## STORAGE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.

## APPLICATIONS

p-Cdk5 (B-4) is recommended for detection of Ser 159 phosphorylated Cdk5 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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.

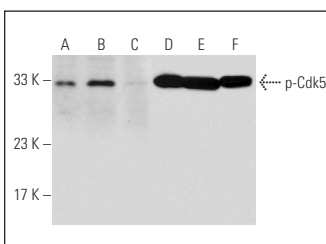
Molecular Weight of p-Cdk5: 35 kDa.

Positive Controls: SK-N-SH cell lysate: sc-2410, SH-SY5Y cell lysate: sc-3812 or A-431 whole cell lysate: sc-2201.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



Western blot analysis of Cdk5 phosphorylation in untreated (A, D), nocodazole treated (B, E) and nocodazole and lambda protein phosphatase (sc-200312A) treated (C, F) SK-N-SH whole cell lysates. Antibodies tested include p-Cdk5 (B-4): sc-271981 (A, B, C) and Cdk5 (J-3): sc-6247 (D, E, F).

## SELECT PRODUCT CITATIONS

- Sanchez, A.M., et al. 2013. Effects of progesterone and medroxyprogesterone on actin remodeling and neuronal spine formation. Mol. Endocrinol. 27: 693-702.

## RESEARCH USE

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