

p-Cdk5 (Tyr 15): sc-12918

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.

CHROMOSOMAL LOCATION

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

SOURCE

p-Cdk5 (Tyr 15) is available as either goat (sc-12918) or rabbit (sc-12918-R) polyclonal affinity purified antibody raised against a short amino acid sequence containing Tyr 15 phosphorylated Cdk5 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-12918 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-Cdk5 (Tyr 15) is recommended for detection of Tyr 15 phosphorylated Cdk5 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).

p-Cdk5 (Tyr 15) is also recommended for detection of correspondingly phosphorylated Cdk5 in additional species, including equine, canine, bovine, porcine and avian.

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: A-431 + EGF whole cell lysate: sc-2202, SH-SY5Y cell lysate: sc-3812 or SK-N-SH + nocodazole cell lysate: sc-2289.

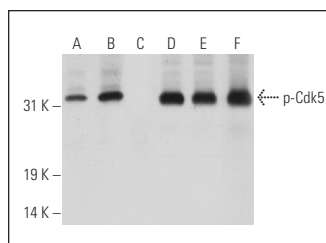
STORAGE

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

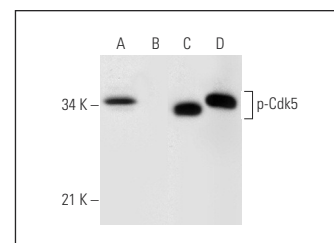
RESEARCH USE

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

DATA



Western blot analysis of Cdk5 phosphorylation in untreated (A, D), calyculin A treated (B, E) and calyculin A and lambda protein phosphatase treated (C, F) SH-SY5Y whole cell lysates. Antibodies tested include p-Cdk5 (Tyr 15)-R: sc-12918-R (A, B, C) and Cdk5 (C-B): sc-173 (D, E, F).



Western blot analysis of Cdk5 phosphorylation in untreated (A, C) and lambda protein phosphatase (sc-200312A) treated (B, D) SK-N-MC whole cell lysates. Antibodies tested include p-Cdk5 (Tyr 15)-R: sc-12918-R (A, B) and Cdk5 (J-3): sc-6247 (C, D).

SELECT PRODUCT CITATIONS

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- Qiao, F., et al. 2008. Distinct functions of Cdk5(Y15) phosphorylation and Cdk5 activity in stress fiber formation and organization. *Exp. Cell Res.* 314: 3542-3550.
- Hsiao, Y.H., et al. 2008. N-acetylcysteine prevents β -amyloid toxicity by a stimulatory effect on p35/cyclin-dependent kinase 5 activity in cultured cortical neurons. *J. Neurosci. Res.* 86: 2685-2695.
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- Varrin-Doyer, M., et al. 2009. Phosphorylation of collapsin response mediator protein 2 on Tyr 479 regulates CXCL12-induced T lymphocyte migration. *J. Biol. Chem.* 284: 13265-13276.
- Courapied, S., et al. 2010. The cdk5 kinase regulates the STAT3 transcription factor to prevent DNA damage upon topoisomerase I inhibition. *J. Biol. Chem.* 285: 26765-26778.
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- Crews, L., et al. 2011. Modulation of aberrant CDK5 signaling rescues impaired neurogenesis in models of Alzheimer's disease. *Cell Death Dis.* 2: e120.
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