

**BACKGROUND**

Cyclin dependent kinases, known as Cdks, regulate transitions in the eukaryotic cell cycle. Cdk 5 is required for proper development of the mammalian central nervous system and is predominantly expressed in neurons. Neuronal Cdk5 can be activated by two accessory proteins designated p35<sup>nck5a</sup> and p39<sup>nck5ai</sup>, which is also known as p39. The human p39 gene maps to chromosome 2q35 and encodes a 367-amino acid protein. p35 and p39 both share limited similarity to cyclins and may define a distinct family of cyclin-dependent kinase activating proteins. During embryonic rat brain development, the expression pattern of p39 appears to have an inverse relationship to that of Cdk5 and p35, suggesting that these proteins may have region-specific and developmental stage-specific functions in rat brain. p39 can localize to lamellipodial and filopodial structures of cells and in growth cones of neurons. In addition, p39 can colocalize with Actin, suggesting that p39 plays a role in regulating Actin cytoskeletal dynamics in cells. The temporal and spatial expression of p39 in synaptic junctions indicates a possible role of the p39/cdk5 kinase at the synapse.

**REFERENCES**

1. Tang, D., et al. 1995. An isoform of the neuronal cyclin-dependent kinase 5 (Cdk5) activator. *J. Biol. Chem.* 270: 26897-26903.
2. Cai, X.H., et al. 1997. Changes in the expression of novel Cdk5 activator messenger RNA (p39<sup>nck5ai</sup> mRNA) during rat brain development. *Neurosci. Res.* 28: 355-360.
3. Honjyo, Y., et al. 1999. Immunohistochemical localization of CDK5 activator p39 in the rat brain. *Neuroreport* 10: 3375-3379.
4. Wu, D.C., et al. 2000. The expression of Cdk5, p35, p39, and Cdk5 kinase activity in developing, adult, and aged rat brains. *Neurochem. Res.* 25: 923-929.

**CHROMOSOMAL LOCATION**

Genetic locus: CDK5R2 (human) mapping to 2q35; Cdk5r2 (mouse) mapping to 1 C3.

**SOURCE**

p39 (F-4) is a mouse monoclonal antibody raised against amino acids 6-75 mapping near the N-terminus of p39 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.

p39 (F-4) is available conjugated to agarose (sc-365781 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365781 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365781 PE), fluorescein (sc-365781 FITC), Alexa Fluor® 488 (sc-365781 AF488), Alexa Fluor® 546 (sc-365781 AF546), Alexa Fluor® 594 (sc-365781 AF594) or Alexa Fluor® 647 (sc-365781 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365781 AF680) or Alexa Fluor® 790 (sc-365781 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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

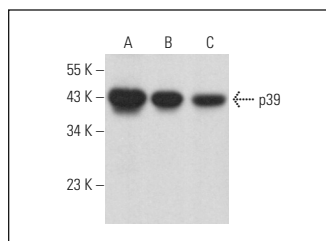
**APPLICATIONS**

p39 (F-4) is recommended for detection of p39 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).

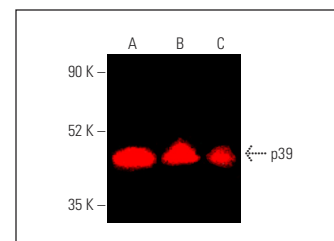
Suitable for use as control antibody for p39 siRNA (h): sc-42156, p39 siRNA (m): sc-42157, p39 shRNA Plasmid (h): sc-42156-SH, p39 shRNA Plasmid (m): sc-42157-SH, p39 shRNA (h) Lentiviral Particles: sc-42156-V and p39 shRNA (m) Lentiviral Particles: sc-42157-V.

Molecular Weight of p39: 39 kDa.

Positive Controls: mouse cerebellum extract: sc-2403, mouse brain extract: sc-2253 or rat brain extract: sc-2392.

**DATA**

p39 (F-4): sc-365781. Western blot analysis of p39 expression in mouse brain (A), rat brain (B) and rat hippocampus (C) tissue extracts.



p39 (F-4): sc-365781. Near-Infrared western blot analysis of p39 expression in rat brain (A), mouse brain (B) and mouse cerebellum (C) tissue extracts. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgG<sub>1</sub> BP-CFL 790: sc-533666.

**SELECT PRODUCT CITATIONS**

1. Bankston, A.N., et al. 2013. p39, the primary activator for cyclin-dependent kinase 5 (Cdk5) in oligodendroglia, is essential for oligodendroglia differentiation and myelin repair. *J. Biol. Chem.* 288: 18047-18057.
2. Ouyang, L., et al. 2020. p39-associated Cdk5 activity regulates dendritic morphogenesis. *Sci. Rep.* 10: 18746.
3. Casas, M., et al. 2023. NPC1-dependent alterations in K<sub>v</sub>2.1-Ca<sub>v</sub>1.2 nanodomains drive neuronal death in models of Niemann-Pick Type C disease. *Nat. Commun.* 14: 4553.

**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.

**PROTOCOLS**

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