#3275 Store at –20°C

p39 Antibody

✓ 100 µl
(10 western blots)

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This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

Entrez-Gene ID # 8941
Swiss-Prot Acc. # Q13319

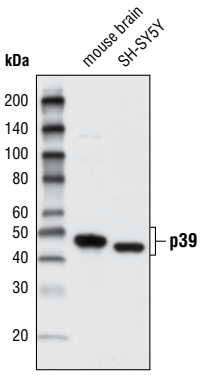
Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W Endogenous	H, M, R	39–45 kDa	Rabbit**

Background: Cyclin-dependent kinases (CDKs) are serine/threonine kinases that are activated by cyclins and govern eukaryotic cell cycle progression. While CDK5 shares high sequence homology with its family members, it is thought mainly to function in postmitotic neurons, regulating the cytoarchitecture of these cells. Analogous to cyclins, p35 and p39 associate with and activate CDK5 despite the lack of sequence homology. CDK5 is ubiquitously expressed, but high levels of kinase activity are detected primarily in the nervous system due to the narrow expression pattern of p35 and p39 in post-mitotic neurons. A large number of CDK5 substrates have been identified although no discrete substrates have been attributed as a function of p35 vs. p39. Amongst many, substrates of CDK5 include p35 and p39. p35 is rapidly degraded (T1/2 <20 min) by the ubiquitin-proteasome pathway (1). However, p35 stability increases as CDK5 kinase activity decreases, and this is likely a result of decreased phosphorylation of p35 at Thr138 by CDK5 (2). NGF activates Erk and EGR1, and induces p35 expression in PC12 cells (3). Proteolytic cleavage of p35 by calpain produces p25 upon neurotoxic insult, resulting in prolonged activation of CDK5 by p25. Accumulation of p25 is found in neurodegenerative diseases such as Alzheimer's disease and Amyotrophic Lateral Sclerosis (ALS) (4-5).

CDK5-null mice are perinatal lethal, whereas p35 or p39-null mice are viable. However, p35 and p39 double-null mutants display phenotypes identical to those of the CDK5-null mutant mice (6). Association of p39 but not p35 with CDK5 promotes Munc18-1 phosphorylation and Ca^{2+}-dependent exocytosis (7). p39 binds to the actin cytoskeleton associated protein muskelin, and localizes to lamellipodia, fillopodia and growth cones of neurons (8,9).

Specificity/Sensitivity: p39 Antibody detects endogenous levels of total p39 protein.

Source/Purification: Polclonal antibodies are produced by immunizing animals with a synthetic peptide surrounding Thr90 of human p39. Antibodies are purified by peptide affinity chromatography.



Western blot analysis of extracts from mouse brain and SH-SY5Y cells using p39 Antibody.

Background References:

(1) Dhavan, R. and Tsai, L.H. (2001) *Nat. Rev. Mol. Cell Biol.* 2, 749–759.

(2) Patrick, G.N. et al. (1998) *J. Biol. Chem.* 273, 24057–24064.

(3) Harada, T. et al. (2001) *Nat. Cell Biol.* 3, 453–459.

(4) Lee, M.S. et al. (2000) *Nature* 405, 360–364.

(5) Kusakawa, G. et al. (2000) *J. Biol. Chem.* 275, 17166–17172.

(6) Ko, J. et al. (2001) *J. Neurosci.* 21, 6758–6771.

(7) Lilja, L. et al. (2004) *J Biol Chem* 279, 29534–29541.

(8) Ledee, D.R. et al. (2005) *J. Biol. Chem.* 280, 21376–21383.

(9) Humbert, S. et al. (2000) *J. Cell Sci.* 113 (Pt 6), 975–983.

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. *Do not aliquot the antibody.*

***Species cross-reactivity is determined by western blot.**

****Anti-rabbit secondary antibodies must be used to detect this antibody.**

Recommended Antibody Dilutions:

Western blotting	1:1000

For application specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended companion products.

IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.

Applications Key: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide

Species Cross-Reactivity Key: **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **Mi**—mink **C**—chicken **Dm**—D. melanogaster **X**—Xenopus **Z**—zebrafish **B**—bovine **Dg**—dog **Pg**—pig **Sc**—S. cerevisiae **Ce**—C. elegans **Hr**—Horse **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.

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