

p-Adducin α (Ser 481)-R: sc-16735-R

BACKGROUND

Adducins are a family of cytoskeleton proteins encoded by three genes (α , β and γ). Adducin is a protein associated with the inner leaflet of the plasma membrane and is one of the proteins localized at the spectrin-Actin junction of the membrane skeleton. Adducins promote association of spectrin with Actin and cap the fast growing end of Actin filaments. Adducins contain an N-terminal core, neck and C-terminal tail domains, are substrates for protein kinase A (PKA) and C (PKC) and bind to Ca^{2+} /calmodulin. The major phosphorylation sites common to the Adducins are Ser 726 and Ser 713 in the C-terminal MARCKS-related domains of Adducin α and Adducin β , which are phosphorylated by PKA and PKC, respectively. In addition, PKA phosphorylates Adducin α at Ser 408, 436 and 481. Calmodulin-binding is inhibited by phosphorylation of Adducin β . Calmodulin itself inhibits the rate of phosphorylation of Adducin β , but not Adducin α . Rho-kinase can phosphorylate Adducin α at Thr 445 and Thr 480 downstream of Rho *in vivo*. The phosphorylation of Adducin by Rho-kinase plays an important role in the regulation of membrane ruffling and cell motility. In addition, phosphorylation at Ser 726 of Adducin α is required for cleavage by caspase-3.

REFERENCES

1. Matsuoka, Y., et al. 1996. Adducin regulation. Definition of the calmodulin-binding domain and sites of phosphorylation by protein kinases A and C. *J. Biol. Chem.* 271: 25157-25166.
2. Fukata, Y., et al. 1999. Phosphorylation of Adducin by Rho-kinase plays a crucial role in cell motility. *J. Cell Biol.* 145: 347-361.
3. Gilligan, D.M., et al. 1999. Targeted disruption of the β -Adducin gene (Add2) causes red blood cell spherocytosis in mice. *Proc. Natl. Acad. Sci. USA* 96: 10717-10722.
4. Muro, A.F., et al. 2000. Mild spherocytic hereditary elliptocytosis and altered levels of α - and γ -Adducins in β -Adducin-deficient mice. *Blood* 95: 3978-3985.
5. Psaty, B.M., et al. 2000. Association of the α -Adducin polymorphism with blood pressure and risk of myocardial infarction. *J. Hum. Hypertens.* 14: 95-97.
6. van de Water, B., et al. 2000. Cleavage of the Actin-capping protein α -Adducin at Asp-Asp-Ser-Asp633-Ala by caspase-3 is preceded by its phosphorylation on Serine 726 in cisplatin-induced apoptosis of renal epithelial cells. *J. Biol. Chem.* 275: 25805-25813.

CHROMOSOMAL LOCATION

Genetic locus: ADD1 (human) mapping to 4p16.3; Add1 (mouse) mapping to 5 B1.

SOURCE

p-Adducin α (Ser 481)-R is an affinity purified rabbit polyclonal antibody raised against a peptide mapping Ser 481 phosphorylated Adducin α of human origin.

RESEARCH USE

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

PRODUCT

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

Blocking peptide available for competition studies, sc-16735 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-Adducin α (Ser 481)-R is recommended for detection of Ser 481 phosphorylated Adducin α of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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-Adducin α (Ser 481)-R is also recommended for detection of correspondingly phosphorylated Adducin α in additional species, including equine, canine and bovine.

Suitable for use as control antibody for Adducin α siRNA (h): sc-43253, Adducin α siRNA (m): sc-43254, Adducin α shRNA Plasmid (h): sc-43253-SH, Adducin α shRNA Plasmid (m): sc-43254-SH, Adducin α shRNA (h) Lentiviral Particles: sc-43253-V and Adducin α shRNA (m) Lentiviral Particles: sc-43254-V.

Molecular Weight of p-Adducin α : 105 kDa.

Positive Controls: HT-29 whole cell lysate: sc-364232.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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 or our catalog for detailed protocols and support products.