

p-MARCKS (Ser 159): sc-101730

BACKGROUND

Myristoylated alanine-rich C-kinase substrate (MARCKS) is a major *in vivo* substrate of protein kinase C (PKC) and for the lipid-activated PKC-related kinase (PRK1). Furthermore, PRK1 and PKC phosphorylate MARCKS on the same sites *in vitro*, Serine 152, 156 and 163. MARCKS serves as an *in vitro* substrate for PKC μ as well. However, in contrast to other PKCs, MARCKS is phosphorylated by PKC μ only at Serine 156 and not at Serines 152 and 163, implicating a differential regulation by PKC μ . Therefore, control of MARCKS phosphorylation on these previously identified PKC sites may be regulated under certain circumstances by PRK as well as PKC mediated signalling pathways. MARCKS associates with the plasma membrane in response to PKC-catalyzed phosphorylation of MARCKS. It has been suggested that MARCKS is capable of associating with the plasma membrane through binding to phospholipids without interaction with membranous proteins.

REFERENCES

1. Nakaoka, T., Kojima, N., Hamamoto, T., Kurosawa, N., Lee, Y.C., Kawasaki, H., Suzuki, K. and Tsuji, S. 1993. Phosphatidylserine specific binding protein in rat brain: purification and characterization. *J. Biochem.* 114: 449-452.
2. Verghese, G.M., Johnson, J.D., Vasulka, C., Haupt, D.M., Stumpo, D.J. and Blackshear, P.J. 1994. Protein kinase C-mediated phosphorylation and calmodulin binding of recombinant myristoylated alanine-rich C kinase substrate (MARCKS) and MARCKS-related protein. *J. Biol. Chem.* 269: 9361-9367.
3. Nakaoka, T., Kojima, N., Ogita, T. and Tsuji, S. 1995. Characterization of the phosphatidylserine-binding region of rat MARCKS (myristoylated, alanine-rich protein kinase C substrate). Its regulation through phosphorylation of Serine 152. *J. Biol. Chem.* 270: 12147-12151.
4. Palmer, R.H., Schonwasser, D.C., Rahman, D., Pappin, D.J., Herget, T. and Parker, P.J. 1996. PRK1 phosphorylates MARCKS at the PKC sites: serine 152, Serine 156 and Serine 163. *FEBS Lett.* 378: 281-285.
5. Dieterich, S., Herget, T., Link, G., Bottinger, H., Pfizenmaier, K. and Johannes, F.J. 1996. *In vitro* activation and substrates of recombinant, baculovirus expressed human protein kinase C μ . *FEBS Lett.* 381: 183-187.

CHROMOSOMAL LOCATION

Genetic locus: MARCKS (human) mapping to 6q22.1; Marcks (mouse) mapping to 10 B1.

SOURCE

p-MARCKS (Ser 159) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 159 phosphorylated MARCKS of human origin.

PRODUCT

Each vial contains 100 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

p-MARCKS (Ser 159) is recommended for detection of Ser 159 phosphorylated MARCKS of human and Ser 163 phosphorylated MARCKS of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for MARCKS siRNA (h): sc-35857, MARCKS siRNA (m): sc-35858, MARCKS shRNA Plasmid (h): sc-35857-SH, MARCKS shRNA Plasmid (m): sc-35858-SH, MARCKS shRNA (h) Lentiviral Particles: sc-35857-V and MARCKS shRNA (m) Lentiviral Particles: sc-35858-V.

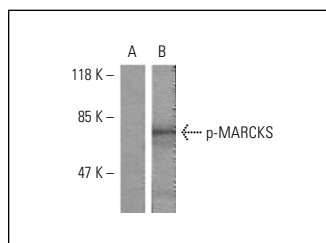
Molecular Weight of p-MARCKS: 80 kDa.

Positive Controls: SK-N-SH cell lysate: sc-2410 or NIH/3T3 whole cell lysate: sc-2210.

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



Western blot analysis of phosphorylated MARCKS expression in starved NIH/3T3 whole cell lysates (A,B). Blots were probed with p-MARCKS (Ser 159): sc-101730 preincubated with its cognate phosphorylated peptide (A) and p-MARCKS (Ser 159): sc-101730 (B).

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.