SANTA CRUZ BIOTECHNOLOGY, INC.

p-CaM I (Thr 117)-R: sc-17022-R

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The level of intracellular calcium is tightly regulated in all eukaryotic cells. A modest increase in the calcium level can result in a myriad of physiological responses, most of which are mediated by calmodulin. Calmodulin (CaM), a 148 amino acid universal calcium sensor, directly modulates the activity of protein kinases and phosphatases, ion channels and nitric oxide synthetases. Approximately 15% of CaM in the cell is phosphorylated and this phosphorylation is mediated by casein kinase II on Thr 79, Ser 81, Ser 101 and Thr 117. Although CaM is constitutively phosphorylated, Insulin increases phosphate incorporation into Serine, Threonine and tyrosine residues in intact cells. Phosphocalmodulin (p-CaM) exhibits altered biological activity. For example, p-CaM reduces activation of the erythrocyte plasma membrane Ca^{2+} pump. This strongly suggests that phosphorylation of CaM is an important component of intracellular signaling.

REFERENCES

1. Sacks, D.B., Davis, H.W., Crimmins, D.L., Persechini, A. and McDonald, J.M. 1992. Casein Kinase II-catalysed phosphorylation of calmodulin is altered by amino acid deletions in the central helix of calmodulin. Biochem. Biophys. Res. Commun. 188: 754-759.
2. Sacks, D.B., Davis, H.W., Crimmins, D.L. and McDonald, J.M. 1992. Insulin-stimulated phosphorylation of calmodulin. Biochem. J. 286: 211-216.
3. Vogel, H.J. 1994. The Merck Forsst Award Lecture 1994. Calmodulin: a versatile calcium mediator protein. Biochem. Cell Biol. 72: 357-376.
4. Nairn, A.C. and Picciotto, M.R. 1994. Calcium/calmodulin-dependent protein kinases. Sem. Cancer Biol. 5: 295-303.
5. Saimi, Y. and Kung, C. 1994. Ion channel regulation by calmodulin binding. FEBS Lett. 350:155-158.
6. Quadroni, M., James, P. and Carafoli, E. 1994. Isolation of phosphorylated calmodulin from rat liver and identification of the *in vivo* phosphorylation sites. J. Biol. Chem. 269: 16116-16122.
7. Crivici, A. and Ikura, M. 1995. Molecular and structural basis of target recognition by calmodulin. Annu. Rev. Biophys. Biomol. Struct. 24: 85-116.
8. Reiling, N., et al. 1996. Nitric oxide synthase: expression of the endothelial, Ca^{2+}/calmodulin-dependent isoform in human B and T lymphocytes. Euro. J. Immunol. 26: 511-516.

CHROMOSOMAL LOCATION

Genetic locus: CALM1 (human) mapping to 14q24-q31; Calm1 (mouse) mapping to 12 E.

SOURCE

p-CaM I (Thr 117)-R is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated Thr 117 of CaM I of human origin.

RESEARCH USE

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

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-17022 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-CaM I (Thr 117)-R is recommended for detection of Thr 117 phosphorylated CaM I 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-CaM I (Thr 117)-R is also recommended for detection of Thr 117 phosphorylated CaM I in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for CaM I siRNA (h): sc-29896, CaM I siRNA (m): sc-29897, CaM I shRNA Plasmid (h): sc-29896-SH, CaM I shRNA Plasmid (m): sc-29897-SH, CaM I shRNA (h) Lentiviral Particles: sc-29896-V and CaM I shRNA (m) Lentiviral Particles: sc-29897-V.

Molecular Weight of p-CaM I: 17 kDa.

Positive Controls: NIH/3T3 + Insulin.

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) and Western Blotting Luminol Reagent: sc-2048. 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.