

# Calponin 1/3 (E-4): sc-136986

## BACKGROUND

Calponin regulates smooth muscle cell contraction and is a marker of smooth muscle cell differentiation. Calponin, an Actin- and tropomyosin-binding protein, is characterized as an inhibitory factor of smooth-muscle actomyosin activity. Calponin is implicated in the regulation of smooth muscle contraction through its interaction with F-Actin and inhibition of the Actin-activated MgATPase activity of phosphorylated myosin. Both properties are lost following phosphorylation (primarily at Serine 175) by protein kinase C or calmodulin-dependent protein kinase II. The three forms of Calponin, Calponin 1 (basic Calponin), Calponin 2 (neutral Calponin) and Calponin 3 (acidic Calponin) are found in smooth muscle tissue. Additionally, Calponin 2 is found in heart muscle tissue and Calponin 3 is found in the brain.

## REFERENCES

1. Tang, D.C., Kang, H.M., Jin, J.P., Fraser, E.D. and Walsh, M.P. 1996. Structure-function relations of smooth muscle Calponin. The critical role of Serine 175. *J. Biol. Chem.* 271: 8605-8611.
2. Masuda, H., Tanaka, K., Takagi, M., Ohgami, K., Sakamaki, T., Shibata, N. and Takahashi, K. 1996. Molecular cloning and characterization of human non-smooth muscle Calponin. *J. Biochem.* 120: 415-424.
3. Doi, M., Kasuya, H., Weir, B., Cook, D.A. and Ogawa, A. 1997. Reduced expression of Calponin in canine basilar artery after subarachnoid haemorrhage. *Acta Neurochir.* 139: 77-81.
4. Kaneko, T., Amano, M., Maeda, A., Goto, H., Takahashi, K., Ito, M. and Kaibuchi, K. 2000. Identification of Calponin as a novel substrate of Rho-kinase. *Biochem. Biophys. Res. Commun.* 273: 110-116.
5. di Gioia, C.R., van de Greef, W.M., Sperti, G., Castoldi, G., Todaro, N., Ierardi, C., Pieruzzi, F. and Stella, A. 2000. Angiotensin II increases Calponin expression in cultured rat vascular smooth muscle cells. *Biochem. Biophys. Res. Commun.* 279: 965-969.
6. Yoshimoto, R., Hori, M., Ozaki, H. and Karaki, H. 2000. Proteolysis of acidic Calponin by  $\mu$ -calpain. *J. Biochem.* 128: 1045-1049.

## CHROMOSOMAL LOCATION

Genetic locus: CNN1 (human) mapping to 19p13.2, CNN3 (human) mapping to 1p21.3; Cnn1 (mouse) mapping to 9 A3, Cnn3 (mouse) mapping to 3 G1.

## SOURCE

Calponin 1/3 (E-4) is a mouse monoclonal antibody raised against amino acids 1-297 representing full length Calponin 1 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

Calponin 1/3 (E-4) is recommended for detection of Calponin 1 of mouse, rat and human origin, and Calponin 3 of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); may cross-react with Calponin 3 of mouse and rat origin.

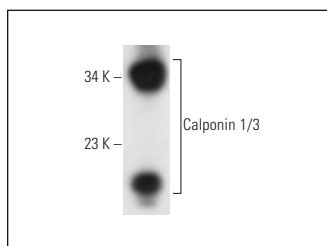
Molecular Weight of Calponin 1/3: 33-36 kDa.

Positive Controls: human smooth muscle extract: sc-363778.

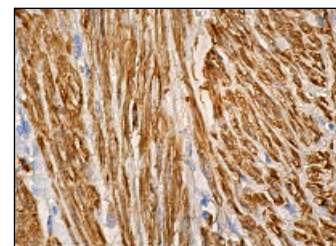
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgG $\kappa$  BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



Calponin 1/3 (E-4): sc-136986. Western blot analysis of Calponin 1/3 expression in human smooth muscle tissue extract.



Calponin 1/3 (E-4): sc-136986. Immunoperoxidase staining of formalin fixed, paraffin-embedded human smooth muscle tissue showing cytoplasmic staining of smooth muscle cells.

## 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.



See **Calponin 1 (CALP): sc-58707** for Calponin 1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.