SANTA CRUZ BIOTECHNOLOGY, INC.

CaM (N-19): sc-1989

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The level of intracellular calcium is tightly regulated in all eukaryotic cells. A modest increase in this level can result in a myriad of physiological responses, most of which are mediated by calmodulin (CaM), the universal calcium sensor. CaM directly modulates the activity of protein kinases and phosphatases, ion channels and nitric oxide synthetases. It is generally involved in such diverse processes as cell proliferation, endocytosis, cellular adhesion, protein turn over and smooth muscle contraction. CaM (calmodulin) is an acidic protein, 148 amino acids in length, with 4 helix-loop-helix calcium binding domains. In humans, three distinct genes have been identified (CALM1, CALM2 and CALM3); each encoding the identical protein. CALML3 (calmodulin-like 3, or calmodulin-related protein NB-1) shares significant sequence identity with CaM and it is suggested that it may competitively bind CaM substrates. Interestingly, CaM has been shown to associate with the carboxy-terminus of the dystrophin gene product, implying that it may regulate its activity.

REFERENCES

1. Vogel, H.J. 1994. The Merck Frosst Award Lecture 1994. Calmodulin: a versatile calcium mediator protein. Biochem. Cell Biol. 72: 357-376.
2. Nairn, A.C., et al. 1994. Calcium/calmodulin-dependent protein kinases. Sem. Cancer Biol. 5: 295-303.
3. Saimi, Y., et al. 1994. Ion channel regulation by calmodulin binding. FEBS Lett. 350: 155-158.
4. Crivici, A., et al. 1995. Molecular and structural basis of target recognition by calmodulin. Annu. Rev. Biophys. Biomol. Struct. 24: 85-116.
5. Tokuwa, N., et al. 1995. Calcium, calmodulin and cell cycle progression. Cell. Signal. 7: 93-104.

CHROMOSOMAL LOCATION

Genetic locus: CALM1 (human) mapping to 14q32.11, CALML3 (human) mapping to 10p15.1; Calm1 (mouse) mapping to 12 E, Calml3 (mouse) mapping to 13 A1.

SOURCE

CaM (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of CaM I of human origin.

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-1989 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

RESEARCH USE

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

APPLICATIONS

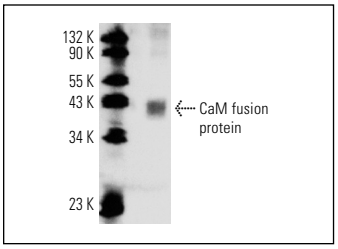
CaM (N-19) is recommended for detection of calmodulin and CALML3 (calmodulin-like 3) of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting 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).

CaM (N-19) is also recommended for detection of calmodulin and CALML3 (calmodulin-like 3) in additional species, including equine, canine, bovine, porcine and avian.

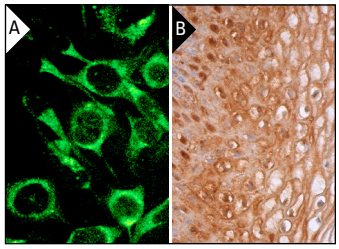
Molecular Weight of CaM: 17 kDa.

Positive Controls: rat brain extract: sc-2392, rat liver extract: sc-2395 or mouse brain extract: sc-2253.

DATA



CaM (N-19): sc-1989. Western blot analysis of human recombinant CaM fusion protein.



CaM (N-19): sc-1989. Immunofluorescence staining of methanol-fixed SJRH30 cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human vagina tissue showing cytoplasmic and nuclear staining of squamous epithelial cells (**B**).

SELECT PRODUCT CITATIONS

1. Saarikettu, J., et al. 2004. Calcium/calmodulin inhibition of transcriptional activity of E-proteins by prevention of their binding to DNA. J. Biol. Chem. 279: 41004-41011.
2. Cenac, N., et al. 2004. PAR2 activation alters colonic paracellular permeability in mice via IFN-γ-dependent and -independent pathways. J. Physiol. 558: 913-925.
3. Wehrens, X.H., et al. 2004. Ca^{2+}/calmodulin-dependent protein kinase II phosphorylation regulates the cardiac ryanodine receptor. Circ. Res. 94: e61-e70.
4. Berglund, S.R., et al. 2009. Proteomic analysis of low dose arsenic and ionizing radiation exposure on keratinocytes. Proteomics 9: 1925-1938.
5. Edin, S., et al. 2010. Interaction of calmodulin with Bcl10 modulates NF-κB activation. Mol. Immunol. 47: 2057-2064.
6. Hui, S., et al. 2011. Peptide-mediated disruption of calmodulin-cyclin E interactions inhibits proliferation of vascular smooth muscle cells and neointima formation. Circ. Res. 108: 1053-1062.