

Calpastatin (R-19): sc-7561

BACKGROUND

Calpains are nonlysosomal, calcium-activated intracellular cysteine proteases that mediate specific Ca^{2+} -dependent processes including cell fusion, mitosis and meiosis. Calpains are heterodimers of a small regulatory subunit and one of three large catalytic subunits, designated Calpain 1, Calpain 2 and Calpain p94. Calpain 1 is an intracellular calcium-dependent protease that cleaves cytoskeletal and submembranous proteins. Calpain-1 co-localizes with human leukocyte antigen-DR (HLA-DR) on activated microglia in the aging brain. Calpain influences the process of spermatogenesis and the events preceding fertilization, such as the acrosome reaction. Calpastatin regulates Calpain by inhibiting both the proteolytic activity of Calpain and its binding to membranes. Calpastatin exists in two types, tissue type and erythrocyte type, resulting from both alternative splicing and proteolytic processing.

REFERENCES

1. Murachi, T. 1984. Calcium-dependent proteinases and specific inhibitors: Calpain and Calpastatin. *Biochem. Soc. Symp.* 45: 149-167.
2. Takano, E., et al. 1991. Molecular diversity of erythrocyte Calpastatin. *Biomed. Biochim. Acta* 50: 517-521.

CHROMOSOMAL LOCATION

Genetic locus: Cast (mouse) mapping to 13 C1.

SOURCE

Calpastatin (R-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of Calpastatin of rat 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-7561 P, (100 μg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Calpastatin (R-19) is recommended for detection of Calpastatin of mouse and rat 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Calpastatin siRNA (m): sc-29890, Calpastatin shRNA Plasmid (m): sc-29890-SH and Calpastatin shRNA (m) Lentiviral Particles: sc-29890-V.

Molecular Weight of Calpastatin: 126 kDa.

Positive Controls: A-10 cell lysate: sc-3806, WEHI-231 whole cell lysate: sc-2213 or rat heart extract: sc-2393.

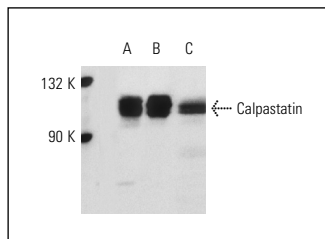
RESEARCH USE

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

STORAGE

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

DATA



Calpastatin (R-19): sc-7561. Western blot analysis of Calpastatin expression in WEHI-231 (A) and A-10 (B) whole cell lysates and rat heart extract (C).

SELECT PRODUCT CITATIONS

1. Barnoy, S., et al. 2003. Caspase-1-induced Calpastatin degradation in myoblast differentiation and fusion: cross-talk between the caspase and calpain systems. *FEBS Lett.* 546: 213-217.
2. Sanvicens, N., et al. 2004. Oxidative stress-induced apoptosis in retinal photoreceptor cells is mediated by calpains and caspases and blocked by the oxygen radical scavenger CR-6. *J. Biol. Chem.* 279: 39268-39278.
3. Lin, H., et al. 2004. Role and differential expression of Calpastatin mRNA and protein in cultured cardiomyocytes exposed to hypoxic stress. *Mol. Cell. Biochem.* 265: 63-70.
4. Vaisid, T., et al. 2005. Caspase-1 activity is required for neuronal differentiation of PC12 cells: cross-talk between the caspase and calpain systems. *Biochim. Biophys. Acta* 1743: 223-230.
5. Haim, K., et al. 2006. Expression and immunolocalization of the Calpain-Calpastatin system during parthenogenetic activation and fertilization in the rat egg. *Reproduction* 131: 35-43.
6. Wei, W., et al. 2006. Degradation of C/EBP β in cultured myotubes is calpain-dependent. *J. Cell. Physiol.* 208: 386-398.
7. Barnoy, S., et al. 2007. Calpastatin in rat myoblasts: transient diminution and decreased phosphorylation depend on myogenin-directed myoblast differentiation. *Int. J. Biochem. Cell Biol.* 39: 253-261.
8. Vaisid, T., et al. 2008. Amyloid β peptide toxicity in differentiated PC12 cells: Calpain-Calpastatin, caspase, and membrane damage. *J. Neurosci. Res.* 86: 2314-2325.

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Try **Calpastatin (PI-11): sc-32324**, our highly recommended monoclonal alternative to Calpastatin (R-19).