

# Calpastatin (2Q31): sc-70486

## BACKGROUND

Calpains are nonlysosomal, calcium-activated intracellular cysteine proteases that mediate specific  $\text{Ca}^{2+}$ -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., Ueda, M., Tsunekawa, S., Murakami, T., Maki, M., Hatanaka, M. and Murachi, T. 1991. Molecular diversity of erythrocyte Calpastatin. *Biomed. Biochim. Acta* 50: 517-521.
3. Takano, E., Nosaka, T., Lee, W.J., Nakamura, K., Takahashi, T., Funaki, M., Okada, H., Hatanaka, M. and Maki, M. 1993. Molecular diversity of Calpastatin in human erythroid cells. *Arch. Biochem. Biophys.* 303: 349-354.
4. Kawasaki, H. and Kawashima, S. 1996. Regulation of the Calpain-Calpastatin system by membranes. *Mol. Membr. Biol.* 13: 217-224.
5. Johnson, G.V. and Guttman, R.P. 1997. Calpains: intact and active? *Bioessays* 19: 1011-1018.
6. Elce, J.S., Hegadorn, C. and Arther, J.S.C. 1997. Autolysis,  $\text{Ca}^{2+}$  requirement, and heterodimer stability in m-Calpain. *J. Biol. Chem.* 272: 11268-11275.

## CHROMOSOMAL LOCATION

Genetic locus: CAST (human) mapping to 5q15; Cast (mouse) mapping to 13 C1.

## SOURCE

Calpastatin (2Q31) is a mouse monoclonal antibody raised against human erythrocyte calpastatin.

## PRODUCT

Each vial contains 200  $\mu\text{g}$  IgG<sub>1</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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

## APPLICATIONS

Calpastatin (2Q31) is recommended for detection of Calpastatin of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu\text{g}$  per 100-500  $\mu\text{g}$  of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Calpastatin siRNA (h): sc-29889, Calpastatin siRNA (m): sc-29890, Calpastatin shRNA Plasmid (h): sc-29889-SH, Calpastatin shRNA Plasmid (m): sc-29890-SH, Calpastatin shRNA (h) Lentiviral Particles: sc-29889-V and Calpastatin shRNA (m) Lentiviral Particles: sc-29890-V.

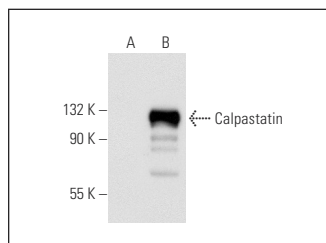
Molecular Weight of Calpastatin: 126 kDa.

Positive Controls: Calpastatin (m): 293T Lysate: sc-118967, Calpastatin (h3): 293T Lysate: sc-170217 or HeLa whole cell lysate: sc-2200.

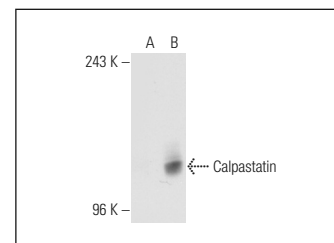
## RECOMMENDED SUPPORT REAGENTS

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.

## DATA



Calpastatin (2Q31): sc-70486. Western blot analysis of Calpastatin expression in non-transfected: sc-117752 (A) and human Calpastatin transfected: sc-170217 (B) 293T whole cell lysates.



Calpastatin (2Q31): sc-70486. Western blot analysis of Calpastatin expression in non-transfected: sc-117752 (A) and mouse Calpastatin transfected: sc-118967 (B) 293T whole cell lysates.

## RESEARCH USE

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