

# Calpain 1 (5B3): sc-32796

## BACKGROUND

Calpain 1, also designated  $\mu$ -calpain, is an intracellular calcium-dependent protease that cleaves cyto-skeletal and submembranous proteins. Calpains are nonlysosomal, calcium-activated intracellular cysteine proteases. Calpains 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. 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. 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.

## REFERENCES

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- Takano, E., et al. 1993. Molecular diversity of Calpastatin in human erythroid cells. *Arch. Biochem. Biophys.* 303: 349-354.
- Kawasaki, H., et al. 1996. Regulation of the Calpain-Calpastatin system by membranes (review). *Mol. Membr. Biol.* 13: 217-224.
- Johnson, G.V., et al. 1997. Calpains: intact and active? *Bioessay* 19: 1011-1018.
- Barta, J., et al. 2003. Calpain 1-dependent degradation of troponin I mutants found in familial hypertrophic cardiomyopathy. *Mol. Cell. Biochem.* 251: 83-88.
- Altznauer, F., et al. 2004. Calpain 1 regulates Bax and subsequent Smac-dependent caspase-3 activation in neutrophil apoptosis. *J. Biol. Chem.* 279: 5947-5957.
- Ben-Aharon, I., et al. 2005. The expression of Calpain 1 and Calpain 2 in spermatogenic cells and spermatozoa of the mouse. *Reproduction* 129: 435-442.

## CHROMOSOMAL LOCATION

Genetic locus: CAPN1 (human) mapping to 11q13.1; Capn1 (mouse) mapping to 19 A.

## SOURCE

Calpain 1 (5B3) is a mouse monoclonal antibody raised against amino acids 92-104 of the small 28 kDa subunit of Calpain of human origin.

## PRODUCT

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

## APPLICATIONS

Calpain 1 (5B3) is recommended for detection of Calpain 1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2  $\mu\text{g}$  per 100-500  $\mu\text{g}$  of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for Calpain 1 siRNA (h): sc-29885, Calpain 1 siRNA (m): sc-29886, Calpain 1 siRNA (r): sc-60099, Calpain 1 shRNA Plasmid (h): sc-29885-SH, Calpain 1 shRNA Plasmid (m): sc-29886-SH, Calpain 1 shRNA Plasmid (r): sc-60099-SH, Calpain 1 shRNA (h) Lentiviral Particles: sc-29885-V, Calpain 1 shRNA (m) Lentiviral Particles: sc-29886-V and Calpain 1 shRNA (r) Lentiviral Particles: sc-60099-V.

Molecular Weight of Calpain 1 large subunit: 80 kDa.

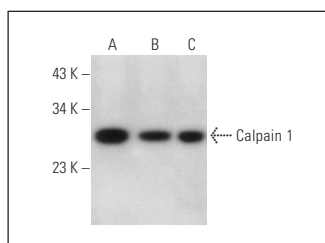
Molecular Weight of Calpain 1 small subunit: 30 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, MDA-MB-231 cell lysate: sc-2232 or A-431 whole cell lysate: sc-2201.

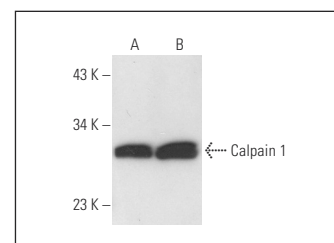
## RECOMMENDED SUPPORT REAGENTS

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).

## DATA



Calpain 1 (5B3): sc-32796. Western blot analysis of Calpain 1 expression in PC-3 (A), SCC-4 (B) and MDA-MB-231 (C) whole cell lysates.




Calpain 1 (5B3): sc-32796. Western blot analysis of Calpain 1 small subunit expression in K-562 (A) and A-431 (B) whole cell lysates.

## 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.



See **Calpain 1 (D-11): sc-271313** for Calpain 1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.