

Calpain 1 (P-6): sc-81171

BACKGROUND

Calpain 1, also designated μ -calpain, is an intracellular calcium-dependent protease that cleaves cytoskeletal and submembranous proteins. Calpains are nonlysosomal, calcium-activated intracellular cysteine proteases. Calpains 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. 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

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.
3. Takano, E., et al. 1993. Molecular diversity of calpastatin in human erythroid cells. *Arch. Biochem. Biophys.* 303: 349-354.

CHROMOSOMAL LOCATION

Genetic locus: CAPN1 (human) mapping to 11q13.1.

SOURCE

Calpain 1 (P-6) is a mouse monoclonal antibody raised against erythrocyte Calpain 1 large subunit of human origin.

PRODUCT

Each vial contains 200 μg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Calpain 1 (P-6) is recommended for detection of Calpain 1 of 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) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

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

Molecular Weight of Calpain 1 large subunit: 80 kDa.

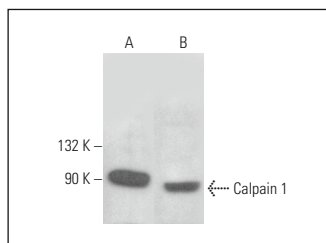
Molecular Weight of Calpain 1 small subunit: 30 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, MDA-MB-231 cell lysate: sc-2232 or A-431 whole cell lysate: sc-2201.

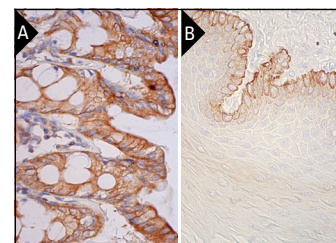
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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 κ BP-FITC: sc-516140 or m-IgG κ 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 κ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



Calpain 1 (P-6): sc-81171. Western blot analysis of Calpain 1 expression in A-431 (A) and MDA-MB-231 (B) whole cell lysates.



Calpain 1 (P-6): sc-81171. Immunoperoxidase staining of formalin fixed, paraffin-embedded human rectum tissue showing cytoplasmic and membrane staining of glandular cells (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human esophagus tissue showing membrane and cytoplasmic staining of squamous epithelial cells. Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214. Detected with m-IgG Fc BP-B: sc-533652 and ImmunoCruz® ABC Kit: sc-516216 (B).

SELECT PRODUCT CITATIONS

1. Jeppesen, D.K., et al. 2014. Quantitative proteomics of fractionated membrane and lumen exosome proteins from isogenic metastatic and nonmetastatic bladder cancer cells reveal differential expression of EMT factors. *Proteomics* 14: 699-712.
2. Jhaveri, D.T., et al. 2016. Using quantitative seroproteomics to identify antibody biomarkers in pancreatic cancer. *Cancer Immunol. Res.* 4: 225-233.

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.