

Calpain (B-8): sc-271856

BACKGROUND

Calpain 1 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.* 49: 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.
4. Kawasaki, H. and Kawashima, S. 1996. Regulation of the Calpain-Calpastatin system by membranes (review). *Mol. Membr. Biol.* 13: 217-224.

SOURCE

Calpain (B-8) is a mouse monoclonal antibody raised against amino acids 61-299 mapping near the N-terminus of Calpain 2 of human origin.

PRODUCT

Each vial contains 200 μg IgM 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.

APPLICATIONS

Calpain (B-8) is recommended for detection of Calpain 1, Calpain 2, Calpain 3, Calpain 8, Calpain 9 and Calpain 11 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

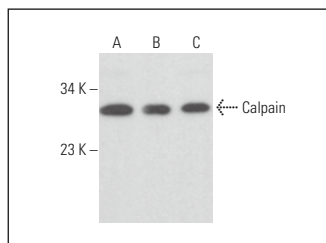
Molecular Weight of Calpain 1/2/3: 80/28/94 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, MCF7 whole cell lysate: sc-2206 or K-562 whole cell lysate: sc-2203.

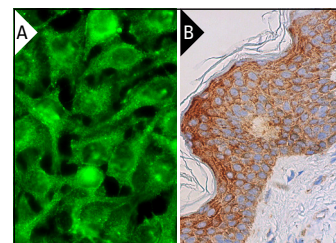
RECOMMENDED SUPPORT REAGENTS

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 L-Agarose: sc-2336 (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 Immunohisto-mount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



Calpain (B-8): sc-271856. Western blot analysis of Calpain expression in HeLa (A), K-562 (B) and MCF7 (C) whole cell lysates. Detection reagent used: m-IgG κ BP-HRP: sc-516102.



Calpain (B-8): sc-271856. Immunofluorescence staining of methanol-fixed HeLa cells showing membrane and cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human skin tissue showing cytoplasmic staining of keratinocytes, Langerhans cells and melanocytes (B).

SELECT PRODUCT CITATIONS

1. He, Q., et al. 2021. MBP-activated autoimmunity plays a role in arsenic-induced peripheral neuropathy and the potential protective effect of mecobalamin. *Environ. Toxicol.* 36: 1243-1253.
2. Meng, H., et al. 2021. Baoyuan decoction (BYD) attenuates cardiac hypertrophy through ANKRD1-ERK/GATA4 pathway in heart failure after acute myocardial infarction. *Phytomedicine* 89: 153617.
3. Kumari, R., et al. 2022. Downregulation of PTEN promotes autophagy via concurrent reduction in apoptosis in cardiac hypertrophy in PPAR $\alpha^{-/-}$ mice. *Front. Cardiovasc. Med.* 9: 798639.
4. Mohamed, O.E., et al. 2023. Morin post-treatment surpassed calpeptin in ameliorating 3-NP-induced cortical neurotoxicity via modulation of glutamate/calpain axis, Kidins220, and BDNF/TrkB/AKT/CREB trajectory. *Int. Immunopharmacol.* 116: 109771.
5. Biswal, L., et al. 2024. Antibody conjugated targeted nanotherapy epigenetically inhibits calpain-mediated mitochondrial dysfunction to attenuate Parkinson's disease. *Carbohydr. Polym.* 346: 122575.

RESEARCH USE

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