

Calpain 1 (D-11): sc-271313

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

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

CHROMOSOMAL LOCATION

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

SOURCE

Calpain 1 (D-11) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 8-33 near the N-terminus of Calpain 1 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.

Calpain 1 (D-11) is available conjugated to agarose (sc-271313 AC), 500 μg /0.25 ml agarose in 1 ml, for IP; to HRP (sc-271313 HRP), 200 $\mu\text{g}/\text{ml}$, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271313 PE), fluorescein (sc-271313 FITC), Alexa Fluor[®] 488 (sc-271313 AF488), Alexa Fluor[®] 546 (sc-271313 AF546), Alexa Fluor[®] 594 (sc-271313 AF594) or Alexa Fluor[®] 647 (sc-271313 AF647), 200 $\mu\text{g}/\text{ml}$, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-271313 AF680) or Alexa Fluor[®] 790 (sc-271313 AF790), 200 $\mu\text{g}/\text{ml}$, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-271313 P, (100 μg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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STORAGE

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

APPLICATIONS

Calpain 1 (D-11) is recommended for detection of Calpain 1 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

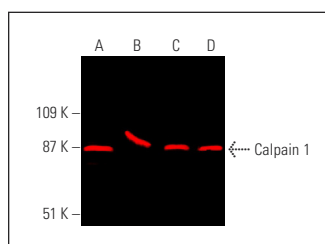
Suitable for use as control antibody for Calpain 1 siRNA (h): sc-29885, Calpain 1 siRNA (m): sc-29886, Calpain 1 siRNA (r): sc-60099, Calpain 1 shRNA Plasmid (h): sc-29885-SH, Calpain 1 shRNA Plasmid (m): sc-29886-SH, Calpain 1 shRNA Plasmid (r): sc-60099-SH, Calpain 1 shRNA (h) Lentiviral Particles: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

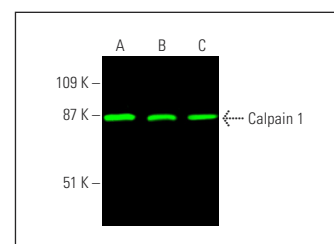
Molecular Weight of Calpain 1 small subunit: 30 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201, MCF7 whole cell lysate: sc-2206 or TF-1 cell lysate: sc-2412.

DATA



Calpain 1 (D-11): sc-271313. Near-infrared western blot analysis of Calpain 1 expression in TF-1 (A), A-431 (B), SCC-4 (C) and MCF7 (D) whole cell lysates. Blocked with UltraCruz[®] Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 790: sc-516181.



Calpain 1 (D-11): sc-271313. Near-infrared western blot analysis of Calpain 1 expression in A-431 (A), SCC-4 (B) and MCF7 (C) whole cell lysates. Blocked with UltraCruz[®] Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.

SELECT PRODUCT CITATIONS

- Liu, J., et al. 2013. Electrical stimulation by semi-implantable electrodes decreases the levels of proteins associated with sciatic nerve injury-induced muscle atrophy. *Mol. Med. Rep.* 8: 245-249.
- Ciotti, S., et al. 2020. GSK3 β is a key regulator of the ROS-dependent necrotic death induced by the quinone DMNQ. *Cell Death Dis.* 11: 2.
- Metwally, E., et al. 2021. Ttm50 facilitates Calpain activation by anchoring it to calcium stores and increasing its sensitivity to calcium. *Cell Res.* 31: 433-449.
- Weninger, G., et al. 2022. Calpain cleavage of Junctophilin-2 generates a spectrum of calcium-dependent cleavage products and DNA-rich NT1-fragment domains in cardiomyocytes. *Sci. Rep.* 12: 10387.

RESEARCH USE

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