

Calpastatin (A-1): sc-376547

BACKGROUND

Calpains are nonlysosomal, calcium-activated intracellular cysteine proteases that 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. 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.

CHROMOSOMAL LOCATION

Genetic locus: CAST (human) mapping to 5q15.

SOURCE

Calpastatin (A-1) is a mouse monoclonal antibody raised against amino acids 409-708 of Calpastatin of human origin.

PRODUCT

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

Calpastatin (A-1) is available conjugated to agarose (sc-376547 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376547 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376547 PE), fluorescein (sc-376547 FITC), Alexa Fluor[®] 488 (sc-376547 AF488), Alexa Fluor[®] 546 (sc-376547 AF546), Alexa Fluor[®] 594 (sc-376547 AF594) or Alexa Fluor[®] 647 (sc-376547 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-376547 AF680) or Alexa Fluor[®] 790 (sc-376547 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor[®] is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

Calpastatin (A-1) is recommended for detection of Calpastatin of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

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

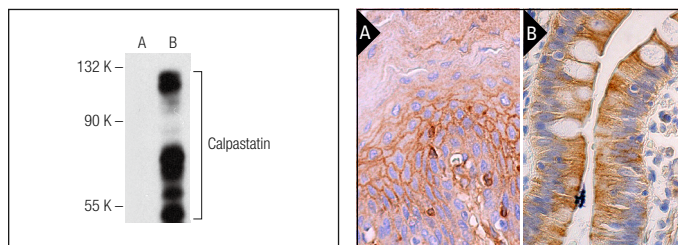
Molecular Weight of Calpastatin: 126 kDa.

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

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



Calpastatin (A-1): sc-376547. Western blot analysis of Calpastatin expression in non-transfected: sc-117752 (A) and human Calpastatin transfected: sc-170217 (B) 293T whole cell lysates.

Calpastatin (A-1): sc-376547. Immunoperoxidase staining of formalin fixed, paraffin-embedded human esophagus tissue showing cytoplasmic and membrane staining of squamous epithelial cells (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing cytoplasmic staining of glandular cells (B).

SELECT PRODUCT CITATIONS

1. Temel, S.G., et al. 2019. A novel homozygous nonsense mutation in CAST associated with PLACK syndrome. *Cell Tissue Res.* 378: 267-277.
2. Nettersheim, J.A., et al. 2021. DNA polymerase η is a substrate for calpain: a possible mechanism for pol η retention in UV-induced replication foci. *J. Cell Sci.* 134: jcs258637.
3. Stillger, M.N., et al. 2023. Changes in calpain-2 expression during glioblastoma progression predisposes tumor cells to temozolomide resistance by minimizing DNA damage and p53-dependent apoptosis. *Cancer Cell Int.* 23: 49.

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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.