SANTA CRUZ BIOTECHNOLOGY, INC.

Calpastatin (PI-11): sc-32324

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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; Cast (mouse) mapping to 13 C1.

SOURCE

Calpastatin (PI-11) is a mouse monoclonal antibody raised against erythrocyte Calpastatin of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Calpastatin (PI-11) is available conjugated to agarose (sc-32324 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-32324 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-32324 PE), fluorescein (sc-32324 FITC), Alexa Fluor® 488 (sc-32324 AF488), Alexa Fluor® 546 (sc-32324 AF546), Alexa Fluor® 594 (sc-32324 AF594) or Alexa Fluor® 647 (sc-32324 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-32324 AF680) or Alexa Fluor® 790 (sc-32324 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Calpastatin (PI-11) is recommended for detection of Calpastatin of mouse, rat and 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 Calpastatin siRNA (h): sc-29889, Calpastatin siRNA (m): sc-29890, Calpastatin shRNA Plasmid (h): sc-29889-SH, Calpastatin shRNA Plasmid (m): sc-29890-SH, Calpastatin shRNA (h) Lentiviral Particles: sc-29889-V and Calpastatin shRNA (m) Lentiviral Particles: sc-29890-V.

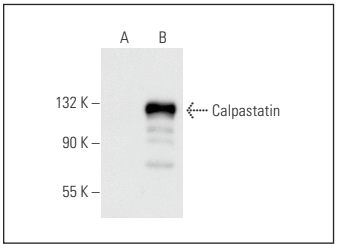
Molecular Weight of Calpastatin: 126 kDa.

Positive Controls: Calpastatin (h3): 293T Lysate: sc-170217, WEHI-231 whole cell lysate: sc-2213 or HeLa whole cell lysate: sc-2200.

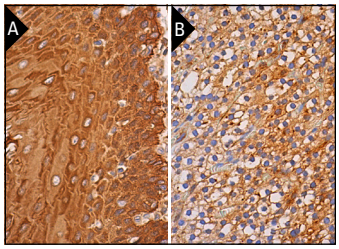
STORAGE

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

DATA



Calpastatin (PI-11): sc-32324. Western blot analysis of Calpastatin expression in non-transfected: sc-117752 (**A**) and human Calpastatin transfected: sc-170217 (**B**) 293T whole cell lysates.



Calpastatin (PI-11): sc-32324. Immunoperoxidase staining of formalin fixed, paraffin-embedded human esophagus tissue showing cytoplasmic staining of squamous epithelial cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human parathyroid gland tissue showing cytoplasmic and membrane staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Uchida, M., et al. 2011. Degradation of filamin induces contraction of vascular smooth muscle cells in type-I collagen matrix honeycombs. Cell. Physiol. Biochem. 27: 669-680.
2. Elkind, E., et al. 2012. Calpastatin upregulation in *Mycoplasma hyorhinis*-infected cells is promoted by the *Mycoplasma* lipoproteins via the NFκB pathway. Cell. Microbiol. 14: 840-851.
3. Leung, J.Y., et al. 2012. Heterogeneity in MYC-induced mammary tumors contributes to escape from oncogene dependence. Oncogene 31: 2545-2554.
4. Wang, L., et al. 2018. Mitofusin 2 regulates axonal transport of Calpastatin to prevent neuromuscular synaptic elimination in skeletal muscles. Cell Metab. 28: 400-414.e8.
5. Nguyen, T.T.T., et al. 2023. Tryptophan-dependent and -independent secretions of tryptophanyl-tRNA synthetase mediate innate inflammatory responses. Cell Rep. 42: 111905.

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.