SANTA CRUZ BIOTECHNOLOGY, INC.

Calpain 3 (C-16): sc-23502

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Calpain, an intracellular calcium-dependent protease that cleaves cytoskeletal and submembranous proteins, plays a role in cytoskeletal reorganization and muscle protein degradation. Calpain is a heterodimer composed of a small regulatory subunit and one of three large catalytic subunits, designated Calpain 1, Calpain 2 and Calpain 3. Calpain 3 (calpain p94) is a muscle-preferred calcium activated neutral protease that localizes to the nucleus. The gene encoding human Calpain 3 maps to chromosome 15q15.1. Mutations involving the Calpain 3 gene are associated with limb-girdle muscle dystrophy type 2A, a form of autosomal recessive and progressive neuromuscular disorder. 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.

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.
4. Richard, I., et al. 1993. Mutations in the proteolytic enzyme Calpain 3 cause limb-girdle muscular dystrophy type 2A. Cell 81: 27-40.
5. Sorimachi, H., et al. 1993. Muscle-specific Calpain, p94, is degraded by autolysis immediately after translation, resulting in disappearance from muscle. J. Biol. Chem. 268: 10593-10605.
6. Johnson, G.V. and Guttmann, R.P. 1997. Calpains: intact and active? Bioessays 19: 1011-1018.

CHROMOSOMAL LOCATION

Genetic locus: CAPN3 (human) mapping to 15q15.1; Capn3 (mouse) mapping to 2 E5.

SOURCE

Calpain 3 (C-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of Calpain 3 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-23502 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

Calpain 3 (C-16) is recommended for detection of Calpain 3, and to a lesser extent, a broad range of Calpain family members 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA.

Calpain 3 (C-16) is also recommended for detection of Calpain 3, and to a lesser extent, a broad range of Calpain family members in additional species, including equine, canine, bovine, porcine and avian.

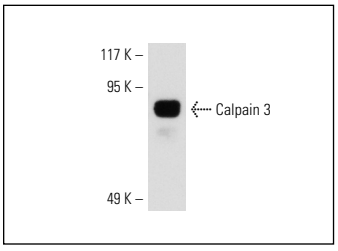
Molecular Weight of Calpain 3: 94 kDa.

Positive Controls: mouse brain extract: sc-2253.

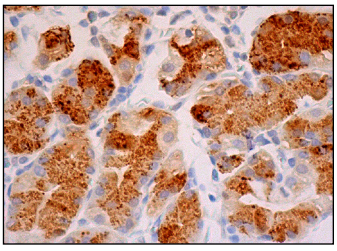
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

DATA



Calpain 3 (C-16): sc-23502. Western blot analysis of Calpain 3 expression in mouse brain tissue extract.



Calpain 3 (C-16): sc-23502. Immunoperoxidase staining of formalin fixed, paraffin-embedded human stomach tissue showing cytoplasmic staining of glandular cells.

RESEARCH USE

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