SANTA CRUZ BIOTECHNOLOGY, INC.

L-Caldesmon (F-1): sc-48427

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Caldesmon, Filamin 1, Nebulin and Villin are differentially expressed and regulated Actin binding proteins. Both muscular and non-muscular forms of Caldesmon have been identified and each has been shown to bind to Actin as well as to calmodulin and myosin. Alternative splicing of the gene encoding Caldesmon results in five isoforms. Muscular Caldesmon (isoform 1), also designated high molecular weight Caldesmon or H-Caldesmon (H-CAD), is expressed predominantly on thin filaments in smooth muscle. Non-muscular Caldesmon (isoforms 2-5), also designated low molecular weight Caldesmon or L-Caldesmon (L-CAD), is widely expressed in non-muscle tissues and cells. Filamin 1, which is ubiquitously expressed and exists as a homodimer, functions to crosslink Actin to filaments. Nebulin is a large filamentous protein specific to muscle tissue that may function as a ruler for filament length. Several isoforms of nebulin are produced by alternative exon usage. Villin is Ca^{2+}-regulated and is the major structural component of the brush border of absorptive cells.

REFERENCES

1. Weihing, R.R. 1988. Actin-binding and dimerization domains of HeLa cell filamin. Biochemistry 27: 1865-1869.
2. Marston, S., et al. 1992. Caldesmon binds to smooth muscle myosin and myosin rod and crosslink thick filaments to actin filaments. J. Muscle Res. Cell Motil. 13: 206-218.
3. Maunoury, R., et al. 1992. Developmental regulation of villin gene expression in the epithelial cell lineages of mouse digestive and urogenital tracts. Development 115: 717-728.
4. Labeit, S. and Kolmerer, B. 1995. The complete primary structure of human nebulin and its correlation to muscle structure. J. Mol. Biol. 248: 308-315.
5. Zhang, J.Q., et al. 1996. cDNA cloning of mouse nebulin. Evidence that the nebulin-coding sequence is highly conserved among vertebrates. Eur. J. Biochem. 239: 835-841.
6. Huber, P.A., et al. 1996. Multiple-sited interaction of caldesmon with Ca^{2+}-calmodulin. Biochem. J. 316: 413-420.

CHROMOSOMAL LOCATION

Genetic locus: CALD1 (human) mapping to 7q33.

SOURCE

L-Caldesmon (F-1) is a mouse monoclonal antibody raised against amino acids 494-793 of L-Caldesmon 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.

STORAGE

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

APPLICATIONS

L-Caldesmon (F-1) is recommended for detection of L-Caldesmon of 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for L-Caldesmon siRNA (h): sc-35768, L-Caldesmon shRNA Plasmid (h): sc-35768-SH and L-Caldesmon shRNA (h) Lentiviral Particles: sc-35768-V.

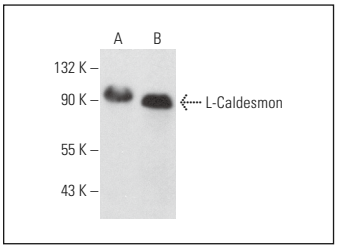
Molecular Weight of L-Caldesmon: 60-80 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Hep G2 cell lysate: sc-2227 or JAR cell lysate: sc-2276.

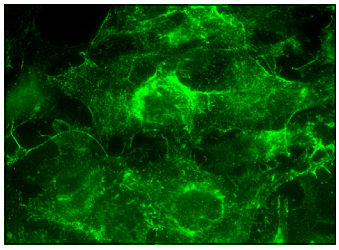
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



L-Caldesmon (F-1): sc-48427. Western blot analysis of L-Caldesmon expression in HeLa (**A**) and Hep G2 (**B**) whole cell lysates.



L-Caldesmon (F-1): sc-48427. Immunofluorescence staining of formalin-fixed Hep G2 cells showing membrane and cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Kokate, S.B., et al. 2022. Caldesmon controls stress fiber force-balance through dynamic cross-linking of myosin II and Actin-tropomyosin filaments. Nat. Commun. 13: 6032.

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.