

# Caldesmon (C21): sc-58700

## 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

- Weihing, R.R. 1988. Actin-binding and dimerization domains of HeLa cell Filamin. *Biochemistry* 27: 1865-1869.
- Marston, S., et al. 1992. Caldesmon binds to smooth muscle myosin and myosin rod and crosslinks thick filaments to Actin filaments. *J. Muscle Res. Cell Motil.* 13: 206-218.
- 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.

## CHROMOSOMAL LOCATION

Genetic locus: CALD1 (human) mapping to 7q33; Cald1 (mouse) mapping to 6 B1.

## SOURCE

Caldesmon (C21) is a mouse monoclonal antibody raised against purified Caldesmon of chicken origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Caldesmon (C21) is available conjugated to agarose (sc-58700 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-58700 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-58700 PE), fluorescein (sc-58700 FITC), Alexa Fluor® 488 (sc-58700 AF488), Alexa Fluor® 546 (sc-58700 AF546), Alexa Fluor® 594 (sc-58700 AF594) or Alexa Fluor® 647 (sc-58700 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-58700 AF680) or Alexa Fluor® 790 (sc-58700 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## RESEARCH USE

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

## APPLICATIONS

Caldesmon (C21) is recommended for detection of H-Caldesmon and L-Caldesmon of mouse, rat, human, avian and porcine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Caldesmon siRNA (h): sc-29880, Caldesmon siRNA (m): sc-29881, Caldesmon shRNA Plasmid (h): sc-29880-SH, Caldesmon shRNA Plasmid (m): sc-29881-SH, Caldesmon shRNA (h) Lentiviral Particles: sc-29880-V and Caldesmon shRNA (m) Lentiviral Particles: sc-29881-V.

Molecular Weight of H-Caldesmon: 90-150 kDa.

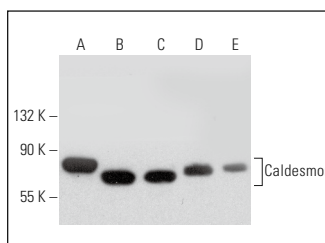
Molecular Weight of L-Caldesmon: 60-80 kDa.

Positive Controls: HOS cell lysate: sc-2275, WI-38 whole cell lysate: sc-364260 or NIH/3T3 whole cell lysate: sc-2210.

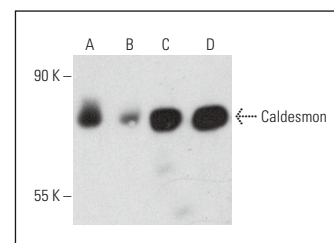
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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 $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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



Caldesmon (C21): sc-58700. Western blot analysis of Caldesmon expression in WI-38 (A), NIH/3T3 (B), BC<sub>3</sub>H1 (C), Neuro-2A (D) and MH-S (E) whole cell lysates.



Caldesmon (C21): sc-58700. Western blot analysis of Caldesmon expression in H4 (A), HOS (B), RPE-J (C) and H19-7/IGF-IR (D) whole cell lysates.

## SELECT PRODUCT CITATIONS

- Parra, E.R., et al. 2012. Vascular dysfunction by myofibroblast activation in patients with idiopathic pulmonary fibrosis and prognostic significance. *Braz. J. Med. Biol. Res.* 45: 665-675.

## STORAGE

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