

# calsequestrin 2 (E-12): sc-390999

## BACKGROUND

Calsequestrin (CS), also known as CSQ, is the major calcium-binding protein of cardiac and skeletal muscle whose function is to sequester calcium in the lumen of the sarcoplasmic reticulum (SR). In mammals, there are two forms of this protein, calsequestrin 1 and calsequestrin 2, which encode fast-twitch skeletal muscle and cardiac calsequestrin, respectively. The form of calsequestrin 1 known as Calmitin is located in the terminal cisternae luminal spaces of the SR of fast skeletal muscle cells. Calsequestrin 2 is present in the terminal cisternae luminal spaces of the SR in both cardiac and slow skeletal muscle cells. In addition, calsequestrin regulates the ryanodine receptor signalling (RyR) through Triadin and Junctin.

## CHROMOSOMAL LOCATION

Genetic locus: CASQ2 (human) mapping to 1p13.1; Casq2 (mouse) mapping to 3 F2.2.

## SOURCE

calsequestrin 2 (E-12) is a mouse monoclonal antibody raised against amino acids 21-80 mapping near the N-terminus of calsequestrin 2 of human origin.

## PRODUCT

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

calsequestrin 2 (E-12) is available conjugated to agarose (sc-390999 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-390999 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390999 PE), fluorescein (sc-390999 FITC), Alexa Fluor<sup>®</sup> 488 (sc-390999 AF488), Alexa Fluor<sup>®</sup> 546 (sc-390999 AF546), Alexa Fluor<sup>®</sup> 594 (sc-390999 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-390999 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-390999 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-390999 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## APPLICATIONS

calsequestrin 2 (E-12) is recommended for detection of calsequestrin 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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 (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for calsequestrin 2 siRNA (h): sc-43277, calsequestrin 2 siRNA (m): sc-43278, calsequestrin 2 siRNA (r): sc-60078, calsequestrin 2 shRNA Plasmid (h): sc-43277-SH, calsequestrin 2 shRNA Plasmid (m): sc-43278-SH, calsequestrin 2 shRNA Plasmid (r): sc-60078-SH, calsequestrin 2 shRNA (h) Lentiviral Particles: sc-43277-V, calsequestrin 2 shRNA (m) Lentiviral Particles: sc-43278-V and calsequestrin 2 shRNA (r) Lentiviral Particles: sc-60078-V.

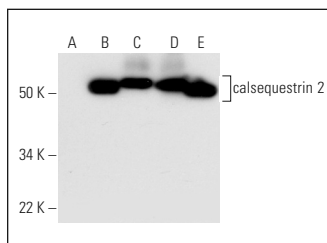
Molecular Weight of calsequestrin 2: 40-46 kDa.

Positive Controls: calsequestrin 2 (h): 293T Lysate: sc-172435.

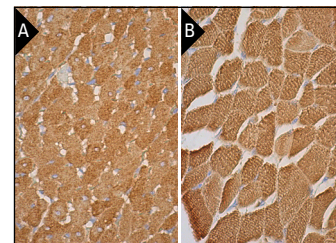
## RECOMMENDED SUPPORT REAGENTS

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<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



calsequestrin 2 (E-12): sc-390999. Western blot analysis of calsequestrin 2 expression in non-transfected: sc-117752 (A) and human calsequestrin 2 transfected: sc-172435 (B) 293T whole cell lysates and mouse heart (C), rat heart (D) and human heart (E) tissue extracts.



calsequestrin 2 (E-12): sc-390999. Immunoperoxidase staining of formalin fixed, paraffin-embedded rat heart muscle tissue showing cytoplasmic staining of myocytes (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human skeletal muscle tissue showing cytoplasmic staining of myocytes (B).

## SELECT PRODUCT CITATIONS

- Maurya, S.K., et al. 2018. Sarcolipin signaling promotes mitochondrial biogenesis and oxidative metabolism in skeletal muscle. *Cell Rep.* 24: 2919-2931.
- Belli, R., et al. 2019. Metabolic reprogramming promotes myogenesis during aging. *Front. Physiol.* 10: 897.
- Kim, J.H., et al. 2022. Calsequestrin 2 overexpression in breast cancer increases tumorigenesis and metastasis by modulating the tumor microenvironment. *Mol. Oncol.* 16: 466-484.
- Watanabe, S., et al. 2022. Skeletal muscle releases extracellular vesicles with distinct protein and microRNA signatures that function in the muscle microenvironment. *PNAS Nexus* 1: pgac173.
- Jacob, H., et al. 2023. Ergotamine stimulates human 5-HT4-serotonin receptors and human H2-histamine receptors in the heart. *Int. J. Mol. Sci.* 24: 4749.

## 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.