

calsequestrin 1 (4i392): sc-70491

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. Calsequestrin 1, also known as calmitin, is located in the terminal cisternae luminal spaces of the SR of fast skeletal muscle cells. Calsequestrin 2 is present in terminal cisternae luminal spaces of the SR of both cardiac and slow skeletal muscle cells. In addition, calsequestrin regulates the ryanodine receptor signaling (RyR) through Triadin and Junctin.

REFERENCES

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2. Knudson, C.M., et al. 1989. Specific absence of the α 1 subunit of the dihydropyridine receptor in mice with muscular dysgenesis. *J. Biol. Chem.* 264: 1345-1348.
3. Milner, R.E., et al. 1992. Calcium binding proteins in the sarcoplasmic/endoplasmic reticulum of muscle and nonmuscle cells. *Mol. Cell. Biochem.* 112: 1-13.
4. Ohlendieck, K., et al. 1992. Analysis of excitation-contraction-coupling components in chronically stimulated canine skeletal muscle. *Eur. J. Biochem.* 202: 739-747.
5. Moore, R.A., et al. 1998. A transgenic myogenic cell line lacking ryanodine receptor protein for homologous expression studies: reconstitution of RyR protein and function. *J. Cell Biol.* 140: 843-851.
6. Gunji, K., et al. 1999. A 63 kDa skeletal muscle protein associated with eye muscle inflammation in Graves' disease is identified as the calcium binding protein calsequestrin. *Autoimmunity* 29: 1-9.
7. Shutova, A.N., et al. 1999. Comparative characteristics of sarcoplasmic reticulum preparations from skeletal muscles of the ground squirrel *Spermophilus undulatus*, rats and rabbits. *Biochemistry* 64: 1250-1257.

CHROMOSOMAL LOCATION

Genetic locus: CASQ1 (human) mapping to 1q23.2; Casq1 (mouse) mapping to 1 H3.

SOURCE

calsequestrin 1 (4i392) is a mouse monoclonal antibody raised against purified skeletal muscle sarcoplasmic reticulum of rabbit origin.

PRODUCT

Each vial contains 200 μ g IgG_{2b} 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

calsequestrin 1 (4i392) is recommended for detection of calsequestrin 1 type I and type II of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for calsequestrin 1 siRNA (h): sc-43275, calsequestrin 1 siRNA (m): sc-43276, calsequestrin 1 shRNA Plasmid (h): sc-43275-SH, calsequestrin 1 shRNA Plasmid (m): sc-43276-SH, calsequestrin 1 shRNA (h) Lentiviral Particles: sc-43275-V and calsequestrin 1 shRNA (m) Lentiviral Particles: sc-43276-V.

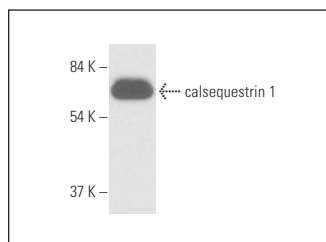
Molecular Weight of calsequestrin 1: 63 kDa.

Positive Controls: mouse heart extract: sc-2254 or rat skeletal muscle extract: sc-364810.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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).

DATA



calsequestrin 1 (4i392): sc-70491. Western blot analysis of calsequestrin 1 expression in rat skeletal muscle tissue extract.

SELECT PRODUCT CITATIONS

1. Popova, O.B., et al. 2012. Identification of ATP-binding regions in the RyR1 Ca²⁺ release channel. *PLoS ONE* 7: e48725.

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.