

# 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. The form of calsequestrin 1, also known as Calmitin, is located in the SR's terminal cisternae luminal spaces of fast skeletal muscle cells. Calsequestrin 2 is present in SR's terminal cisternae luminal spaces of both cardiac and slow skeletal muscle cells. In addition, calsequestrin regulates the ryanodine receptor signalling (RyR) through triadin and junctin.

## REFERENCES

- Barker, P.A., et al. 1988. An improved method for the isolation of rat cardiac sarcoplasmic reticulum. *Mol. Cell. Biochem.* 84: 87-95.
- 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.
- 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.
- Cho, J.H., et al. 2000. Calsequestrin, a calcium sequestering protein localized at the sarcoplasmic reticulum, is not essential for body-wall muscle function in *Caenorhabditis elegans*. *J. Cell Sci.* 113: 3947-3958.
- Nori, A., et al. 2000. Site-directed mutagenesis and deletion of three phosphorylation sites of calsequestrin of skeletal muscle sarcoplasmic reticulum. Effects on intracellular targeting. *Exp. Cell Res.* 260: 40-49.
- Shin, D.W., et al. 2000. The asp-rich region at the carboxyl-terminus of calsequestrin binds to  $Ca^{2+}$  and interacts with triadin. *FEBS Lett.* 486: 178-182.
- Nori, A., et al. 2001. Targeting of calsequestrin to the sarcoplasmic reticulum of skeletal muscle upon deletion of its glycosylation site. *Exp. Cell Res.* 265: 104-113.

## 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  $\mu$ g IgG<sub>2b</sub> 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  $\mu$ g per 100-500  $\mu$ 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.

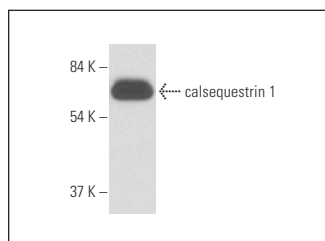
Molecular Weight of calsequestrin 1: 63 kDa.

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 $\kappa$  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).

## DATA



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

## SELECT PRODUCT CITATIONS

- Popova, O.B., et al. 2012. Identification of ATP-binding regions in the RyR1  $Ca^{2+}$  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](http://www.scbt.com) for detailed protocols and support products.