SANTA CRUZ BIOTECHNOLOGY, INC.

calsequestrin 1 (VIIID12): sc-53012

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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

1. Barker, P.A., et al. 1988. An improved method for the isolation of rat cardiac sarcoplasmic reticulum. Mol. Cell. Biochem. 84: 87-95.
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 Ry_1R 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 (VIIID12) is a mouse monoclonal antibody raised against purified skeletal muscle sarcoplasmic reticulum of rabbit origin.

PRODUCT

Each vial contains 200 µg 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 (VIIID12) 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 µg per 100-500 µg of total protein (1 ml of cell lysate)].

calsequestrin 1 (VIIID12) is also recommended for detection of calsequestrin 1 type I and type II in additional species, including canine and rabbit.

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.

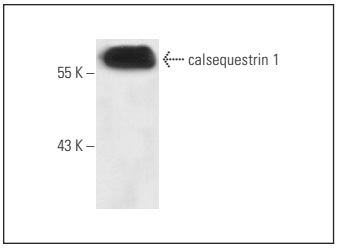
Molecular Weight of calsequestrin 1: 63 kDa.

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-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).

DATA



calsequestrin 1 (VIIID12): sc-53012. Western blot analysis of calsequestrin 1 expression in rat skeletal muscle tissue extract.

SELECT PRODUCT CITATIONS

1. Kanzaki, K., et al. 2018. l-arginine ingestion inhibits eccentric contraction-induced proteolysis and force deficit via S-nitrosylation of calpain. Physiol. Rep. 6: e13582.
2. Tripp, T.R., et al. 2022. Time course and fibre type-dependent nature of calcium-handling protein responses to sprint interval exercise in human skeletal muscle. J. Physiol. 600: 2897-2917.

RESEARCH USE

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