SANTA CRUZ BIOTECHNOLOGY, INC.

SERCA2 (N-19): sc-8095

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

ATP dependent calcium pumps are responsible, in part, for the maintenance of low cytoplasmic free calcium concentrations. The ATP pumps that reside in intracellular organelles are encoded by a family of structurally related enzymes, termed the sarcoplasmic or endoplasmic reticulum calcium (SERCA) ATPases. The sarcoplasmic reticulum of striated muscle is a specialized intracellular membrane system that plays a critical role in the contraction and relaxation of muscle. The SERCAs mediate Ca^{2+} uptake into intracellular stores. SERCA-mediated Ca^{2+} uptake induces and maintains muscular relaxation. The SERCA1 gene is exclusively expressed in type II (fast) skeletal muscle. The SERCA2 gene is subject to tissue-dependent processing which is responsible for the generation of the SERCA2a muscle-specific form expressed in type I (slow) skeletal, cardiac and smooth muscle, and the SERCA2b isoform expressed in all cell types. The SERCA3 gene is not as well characterized and is found in non-muscle cells. SERCA2 plays an important part in regulating cardiac contractile function. SERCA3 is an isoform expressed in several cell types including platelets, lymphoid cells and mast cells. SERCA1, SERCA2 and SERCA3 all undergo alternative splicing.

CHROMOSOMAL LOCATION

Genetic locus: ATP2A2 (human) mapping to 12q24.11; Atp2a2 (mouse) mapping to 5 F.

SOURCE

SERCA2 (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of SERCA2 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-8095 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

SERCA2 (N-19) is recommended for detection of SERCA2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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).

SERCA2 (N-19) is also recommended for detection of SERCA2 in additional species, including equine, canine, bovine, porcine, avian and feline.

Suitable for use as control antibody for SERCA2 siRNA (h): sc-36484, SERCA2 siRNA (m): sc-36485, SERCA2 shRNA Plasmid (h): sc-36484-SH, SERCA2 shRNA Plasmid (m): sc-36485-SH, SERCA2 shRNA (h) Lentiviral Particles: sc-36484-V and SERCA2 shRNA (m) Lentiviral Particles: sc-36485-V.

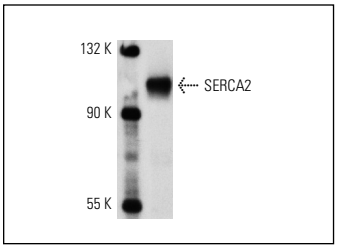
Molecular Weight of SERCA2: 100 kDa.

Positive Controls: rat cardiac extract, T98G cell lysate: sc-2294 or rat heart extract: sc-2393.

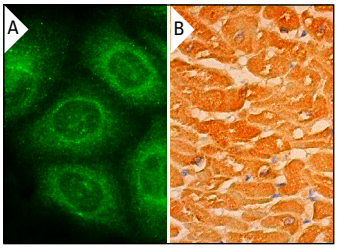
STORAGE

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

DATA



SERCA2 (N-19): sc-8095. Western blot analysis of SERCA2 expression in rat cardiac tissue extract.



SERCA2 (N-19): sc-8095. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human heart muscle tissue showing cytoplasmic staining of myocytes (**B**).

SELECT PRODUCT CITATIONS

1. Most, P., et al. 2001. S100A1: a regulator of myocardial contractility. Proc. Natl. Acad. Sci. USA 98: 13889-13894.
2. Suarez, J., et al. 2008. Alterations in mitochondrial function and cytosolic calcium induced by hyperglycemia are restored by mitochondrial transcription factor A in cardiomyocytes. Am. J. Physiol., Cell Physiol. 295: C1561-C1568.
3. Earls, L.R., et al. 2010. Dysregulation of presynaptic calcium and synaptic plasticity in a mouse model of 22q11 deletion syndrome. J. Neurosci. 30: 15843-15855.
4. Ullrich, N.D., et al. 2011. Alterations of excitation-contraction coupling and excitation coupled Ca^{2+} entry in human myotubes carrying CAV3 mutations linked to rippling muscle. Hum. Mutat. 32: 309-317.
5. Barallobre-Barreiro, J., et al. 2011. Gene expression profiles following intracoronary injection of mesenchymal stromal cells using a porcine model of chronic myocardial infarction. Cytotherapy 13: 407-418.
6. Bennett, C.E., et al. 2013. Exercise training mitigates aberrant cardiac protein O-GlcNAcylation in streptozotocin-induced diabetic mice. Life Sci. 92: 657-663.

RESEARCH USE

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

MONOS Satisfaction Guaranteed

Try **SERCA2 (F-1): sc-376235** or **SERCA2 (IID8): sc-53010**, our highly recommended monoclonal alternatives to SERCA2 (N-19). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **SERCA2 (F-1): sc-376235**.