

SERCA1 (N-19): sc-8093

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: ATP2A1 (human) mapping to 16p11.2; Atp2a1 (mouse) mapping to 7 F3.

SOURCE

SERCA1 (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of SERCA1 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-8093 P, (100 μg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

SERCA1 (N-19) is recommended for detection of SERCA1 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

SERCA1 (N-19) is also recommended for detection of SERCA1 in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for SERCA1 siRNA (h): sc-36482, SERCA1 siRNA (m): sc-36483, SERCA1 shRNA Plasmid (h): sc-36482-SH, SERCA1 shRNA Plasmid (m): sc-36483-SH, SERCA1 shRNA (h) Lentiviral Particles: sc-36482-V and SERCA1 shRNA (m) Lentiviral Particles: sc-36483-V.

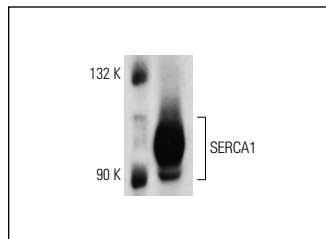
Molecular Weight of SERCA1: 110 kDa.

Positive Controls: A-10 cell lysate: sc-3806 or rat skeletal muscle tissue extract.

STORAGE

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

DATA



SERCA1 (N-19): sc-8093. Western blot analysis of SERCA1 expression in rat skeletal muscle tissue extract.

SELECT PRODUCT CITATIONS

- Rose, A.J., et al. 2004. Effect of exercise on protein kinase C activity and localization in human skeletal muscle. *J. Physiol.* 561: 861-870.
- Parsons, J.T., et al. 2004. Neuronal-specific endoplasmic reticulum $\text{Mg}^{2+}/\text{Ca}^{2+}$ ATPase Ca^{2+} sequestration in mixed primary hippocampal culture homogenates. *Anal. Biochem.* 330: 130-139.
- Ginzburg, L., et al. 2005. Defective calcium homeostasis in the cerebellum in a mouse model of Niemann-Pick A disease. *J. Neurochem.* 95: 1619-1628.
- Wootton, L.L., et al. 2006. The effects of the phenylalanine 256 to valine mutation on the sensitivity of sarcoplasmic/endoplasmic reticulum Ca^{2+} ATPase (SERCA) Ca^{2+} pump isoforms 1, 2, and 3 to Thapsigargin and other inhibitors. *J. Biol. Chem.* 281: 6970-6976.
- Tsika, R.W., et al. 2008. Overexpression of TEAD-1 in transgenic mouse striated muscles produces a slower skeletal muscle contractile phenotype. *J. Biol. Chem.* 283: 36154-36167.
- Scheibe, R.J., et al. 2008. Carbonic anhydrases IV and IX: subcellular localization and functional role in mouse skeletal muscle. *Am. J. Physiol., Cell Physiol.* 294: C402-C412.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.

MONOS
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Try **SERCA1 (A-6): sc-515162** or **SERCA1 (G-8): sc-365098**, our highly recommended monoclonal alternatives to SERCA1 (N-19).