SANTA CRUZ BIOTECHNOLOGY, INC.

SERCA1 (A-6): sc-515162

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

SOURCE

SERCA1 (A-6) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 851-874 near the C-terminus of SERCA1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 lambda light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

SERCA1 (A-6) is available conjugated to agarose (sc-515162 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-515162 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515162 PE), fluorescein (sc-515162 FITC), Alexa Fluor® 488 (sc-515162 AF488), Alexa Fluor® 546 (sc-515162 AF546), Alexa Fluor® 594 (sc-515162 AF594) or Alexa Fluor® 647 (sc-515162 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-515162 AF680) or Alexa Fluor® 790 (sc-515162 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-515162 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

RESEARCH USE

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

APPLICATIONS

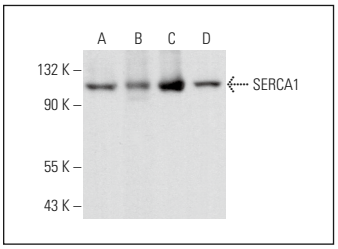
SERCA1 (A-6) is recommended for detection of SERCA1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 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).

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.

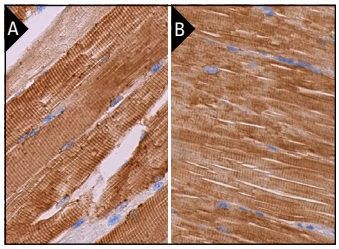
Molecular Weight of SERCA1: 110 kDa.

Positive Controls: human fetal muscle tissue extract, mouse skeletal muscle extract: sc-364250 or rat skeletal muscle extract: sc-364810.

DATA



SERCA1 (A-6): sc-515162. Western blot analysis of SERCA1 expression in rat tongue (**A**), mouse skeletal muscle (**B**), rat skeletal muscle (**C**) and human fetal muscle (**D**) tissue extracts. Detection reagent used: m-IgGλ BP-HRP (Cruz Marker): sc-516132-CM.



SERCA1 (A-6): sc-515162. Immunoperoxidase staining of formalin fixed, paraffin-embedded human skeletal muscle (**A**) and mouse skeletal (**B**) tissue showing cytoplasmic staining of myocytes.

SELECT PRODUCT CITATIONS

1. Hilse, K.E., et al. 2018. The expression of uncoupling protein 3 coincides with the fatty acid oxidation type of metabolism in adult murine heart. Front. Physiol. 9: 747.
2. Madsen, A.B., et al. 2018. β-Actin shows limited mobility and is required only for supraphysiological Insulin-stimulated glucose transport in young adult soleus muscle. Am. J. Physiol. Endocrinol. Metab. 315: E110-E125.
3. Bella, P., et al. 2019. Blockade of IGF2R improves muscle regeneration and ameliorates Duchenne muscular dystrophy. EMBO Mol. Med. 12: e11019.
4. Nagasaka, T., et al. 2020. Morphological alterations of the sarcotubular system in permanent myopathy of hereditary hypokalemic periodic paralysis with a mutation in the CACNA1S gene. J. Neuropathol. Exp. Neurol. 79: 1276-1292.

PROTOCOLS

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