

SERCA2 (F-1): sc-376235



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 (F-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 2-29 at the N-terminus of SERCA2 of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

SERCA2 (F-1) is available conjugated to agarose (sc-376235 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376235 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376235 PE), fluorescein (sc-376235 FITC), Alexa Fluor[®] 488 (sc-376235 AF488), Alexa Fluor[®] 546 (sc-376235 AF546), Alexa Fluor[®] 594 (sc-376235 AF594) or Alexa Fluor[®] 647 (sc-376235 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-376235 AF680) or Alexa Fluor[®] 790 (sc-376235 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-376235 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

Alexa Fluor[®] is a trademark of Molecular Probes, Inc., Oregon, USA

STORAGE

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

PROTOCOLS

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

APPLICATIONS

SERCA2 (F-1) is recommended for detection of SERCA2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

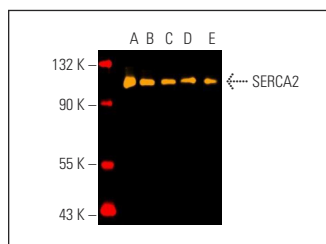
SERCA2 (F-1) is also recommended for detection of SERCA2 in additional species, including equine, canine, bovine and porcine.

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.

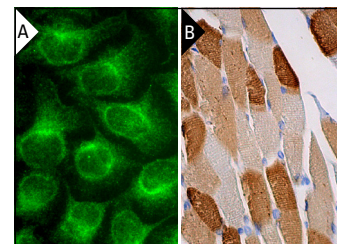
Molecular Weight of SERCA2: 100 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, MCF7 whole cell lysate: sc-2206 or K-562 whole cell lysate: sc-2203.

DATA



SERCA2 (F-1) Alexa Fluor[®] 594: sc-376235 AF594. Direct fluorescent western blot analysis of SERCA2 expression in A-431 (A), K-562 (B), MCF7 (C), HeLa (D) and IMR-32 (E) whole cell lysates. Blocked with UltraCruz[®] Blocking Reagent: sc-516214. Cruz Marker[™] Molecular Weight Standards detected with Cruz Marker MW Tag-Alexa Fluor[®] 790: sc-516731.



SERCA2 (F-1): sc-376235. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human skeletal muscle tissue showing cytoplasmic staining of myocytes (B).

SELECT PRODUCT CITATIONS

1. Park, H.W., et al. 2014. Pharmacological correction of obesity-induced autophagy arrest using calcium channel blockers. *Nat. Commun.* 5: 4834.
2. Karakus, E., et al. 2020. The orphan solute carrier SLC10A7 is a novel negative regulator of intracellular calcium signaling. *Sci. Rep.* 10: 7248.
3. Goshovska, Y.V., et al. 2021. Induction of glutathione synthesis provides cardioprotection regulating NO, AMPK and PPAR α signaling in ischemic rat hearts. *Life* 11: 631.
4. Combot, Y., et al. 2022. Seipin localizes at endoplasmic-reticulum-mitochondria contact sites to control mitochondrial calcium import and metabolism in adipocytes. *Cell Rep.* 38: 110213.

RESEARCH USE

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