

SERCA3 (PL/IM430): sc-81759

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.

REFERENCES

1. Aubier, M. and Viires, N. 1998. Calcium ATPase and respiratory muscle function. *Eur. Respir. J.* 11: 758-766.
2. Anger, M., et al. 1998. Cellular distribution of Ca^{2+} pumps and Ca^{2+} release channels in rat cardiac hypertrophy induced by aortic stenosis. *Circulation* 98: 2477-2486.

CHROMOSOMAL LOCATION

Genetic locus: ATP2A3 (human) mapping to 17p13.2; Atp2a3 (mouse) mapping to 11 B4.

SOURCE

SERCA3 (PL/IM430) is a mouse monoclonal antibody raised against platelet intracellular membranes 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. Also available azide-free for blocking, sc-81759 L, 200 μ g/0.1 ml.

SERCA3 (PL/IM430) is available conjugated to agarose (sc-81759 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-81759 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-81759 PE), fluorescein (sc-81759 FITC), Alexa Fluor[®] 488 (sc-81759 AF488), Alexa Fluor[®] 546 (sc-81759 AF546), Alexa Fluor[®] 594 (sc-81759 AF594) or Alexa Fluor[®] 647 (sc-81759 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-81759 AF680) or Alexa Fluor[®] 790 (sc-81759 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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RESEARCH USE

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

APPLICATIONS

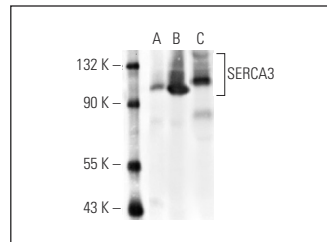
SERCA3 (PL/IM430) is recommended for detection of SERCA3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for SERCA3 siRNA (h): sc-41295, SERCA3 siRNA (m): sc-41296, SERCA3 shRNA Plasmid (h): sc-41295-SH, SERCA3 shRNA Plasmid (m): sc-41296-SH, SERCA3 shRNA (h) Lentiviral Particles: sc-41295-V and SERCA3 shRNA (m) Lentiviral Particles: sc-41296-V.

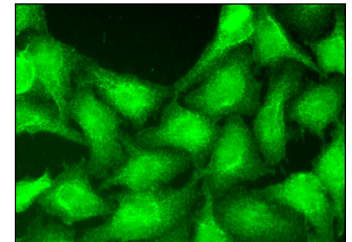
Molecular Weight of SERCA3: 97 kDa.

Positive Controls: CCRF-CEM cell lysate: sc-2225, HL-60 whole cell lysate: sc-2209 or human platelet extract: sc-363773.

DATA



SERCA3 (PL/IM430) HRP: sc-81759 HRP. Direct western blot analysis of SERCA3 expression in HL-60 (A) and CCRF-CEM (B) whole cell lysates and human platelet extract (C). Cruz Marker[™] Molecular Weight Standards detected with Cruz Marker MW Tag-HRP: sc-516732.



SERCA3 (PL/IM430): sc-81759. Immunofluorescence staining of formalin-fixed HeLa cells showing cytoplasmic, membrane and nuclear localization.

SELECT PRODUCT CITATIONS

1. Dionisio, N., et al. 2011. Acidic NAADP-releasable Ca^{2+} compartments in the megakaryoblastic cell line MEG01. *Biochim. Biophys. Acta* 1813: 1483-1494.
2. Nam, M., et al. 2017. Mitochondrial retrograde signaling connects respiratory capacity to thermogenic gene expression. *Sci. Rep.* 7: 2013.
3. Pluthero, F.G. and Kahr, W.H.A. 2018. Imaging platelets and megakaryocytes by high-resolution laser fluorescence microscopy. *Methods Mol. Biol.* 1812: 13-31.
4. Marchesini, M., et al. 2020. Blockade of oncogenic NOTCH1 with the SERCA inhibitor CAD204520 in T cell acute lymphoblastic leukemia. *Cell Chem. Biol.* 27: 678-697.e13.
5. Bertocci, L.A., et al. 2021. Calcium handling genes are regulated by promoter DNA methylation in colorectal cancer cells. *Eur. J. Pharmacol.* E-published.

STORAGE

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