SANTA CRUZ BIOTECHNOLOGY, INC.

GPD1 (E-7): sc-376219

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Voltage-gated sodium channels drive the initial depolarization phase of the cardiac action potential, therefore, critically determine conduction of excitation through the heart. As a member of the NAD-dependent glycerol-3-phosphate dehydrogenase family, glycerol-3-phosphate dehydrogenase 1 (GPD1) is a 349 amino acid cytoplasmic protein that catalyzes the formation of glycerone phosphate and NADH from sn-glycerol 3-phosphate and NAD^+. Inhibited by zinc ions and sulfate, GPD1 exists as a homodimer and may have similar functions as GPD1L (glycerol-3 phosphate dehydrogenase-1 like). GPD1L is thought to affect trafficking of the cardiac sodium current to the cell surface and mutations in the gene encoding GPD1L are thought to be involved in sudden infant death syndrome (SIDS).

CHROMOSOMAL LOCATION

Genetic locus: GPD1 (human) mapping to 12q13.12; Gpd1 (mouse) mapping to 15 F1.

SOURCE

GPD1 (E-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 321-347 at the C-terminus of GPD1 of human origin.

PRODUCT

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

GPD1 (E-7) is available conjugated to agarose (sc-376219 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376219 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376219 PE), fluorescein (sc-376219 FITC), Alexa Fluor® 488 (sc-376219 AF488), Alexa Fluor® 546 (sc-376219 AF546), Alexa Fluor® 594 (sc-376219 AF594) or Alexa Fluor® 647 (sc-376219 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376219 AF680) or Alexa Fluor® 790 (sc-376219 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-376219 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

GPD1 (E-7) is recommended for detection of GPD1 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 GPD1 siRNA (h): sc-95691, GPD1 siRNA (m): sc-145683, GPD1 shRNA Plasmid (h): sc-95691-SH, GPD1 shRNA Plasmid (m): sc-145683-SH, GPD1 shRNA (h) Lentiviral Particles: sc-95691-V and GPD1 shRNA (m) Lentiviral Particles: sc-145683-V.

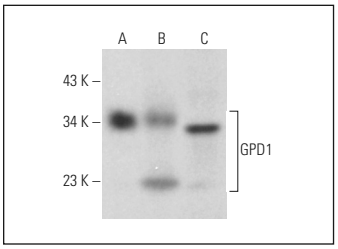
Molecular Weight (predicted) of GPD1: 38 kDa.

Molecular Weight (observed) of GPD1: 37-43 kDa.

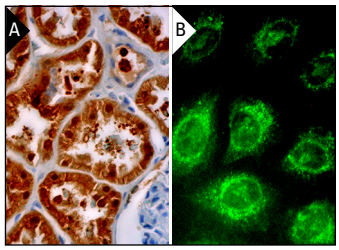
STORAGE

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

DATA



GPD1 (E-7): sc-376219. Western blot analysis of GPD1 expression in Hep G2 whole cell lysate (**A**) and human fetal liver (**B**) and rat liver (**C**) tissue extracts



GPD1 (E-7): sc-376219. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic and nuclear staining of cells in tubules (**A**). Immunofluorescence staining of methanol-fixed HeLa cells showing mitochondrial localization (**B**).

SELECT PRODUCT CITATIONS

1. Benabdelkamel, H., et al. 2015. Mature adipocyte proteome reveals differentially altered protein abundances between lean, overweight and morbidly obese human subjects. Mol. Cell. Endocrinol. 401: 142-154.
2. Zhou, C., et al. 2017. Identification of glycerol-3-phosphate dehydrogenase 1 as a tumour suppressor in human breast cancer. Oncotarget 8: 101309-101324.
3. Liu, X., et al. 2018. Mitochondrial glycerol 3-phosphate dehydrogenase promotes skeletal muscle regeneration. EMBO Mol. Med. 10: e9390.
4. Yoneten, K.K., et al. 2019. Comparative proteome analysis of breast cancer tissues highlights the importance of glycerol-3-phosphate dehydrogenase 1 and monoacylglycerol lipase in breast cancer metabolism. Cancer Genomics Proteomics 16: 377-397.
5. James, J., et al. 2021. Single mutation in the NFU1 gene metabolically reprograms pulmonary artery smooth muscle cells. Arterioscler. Thromb. Vasc. Biol. 41: 734-754.
6. Liu, R., et al. 2021. A HIF1α-GPD1 feedforward loop inhibits the progression of renal clear cell carcinoma via mitochondrial function and lipid metabolism. J. Exp. Clin. Cancer Res. 40: 188.
7. Pflug, K.M., et al. 2023. NFκB-inducing kinase maintains mitochondrial efficiency and systemic metabolic homeostasis. Biochim. Biophys. Acta Mol. Basis Dis. 1869: 166682.

RESEARCH USE

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

PROTOCOLS

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