

GPD1 (G-9): sc-390379



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 glycero 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).

REFERENCES

1. Gwynn, B., et al. 1990. Sequence conservation and structural organization of the glycerol-3-phosphate dehydrogenase promoter in mice and humans. *Mol. Cell. Biol.* 10: 5244-5256.
2. Albertyn, J., et al. 1994. GPD1, which encodes glycerol-3-phosphate dehydrogenase, is essential for growth under osmotic stress in *Saccharomyces cerevisiae*, and its expression is regulated by the high-osmolarity glycerol response pathway. *Mol. Cell. Biol.* 14: 4135-4144.
3. Lin, H., et al. 2002. Phospholipase C interacts with Sgd1p and is required for expression of GPD1 and osmoresistance in *Saccharomyces cerevisiae*. *Mol. Genet. Genomics* 267: 313-320.
4. Ou, X., et al. 2006. Crystal structures of human glycerol 3-phosphate dehydrogenase 1 (GPD1). *J. Mol. Biol.* 357: 858-869.
5. Park, J.J., et al. 2006. GRB14, GPD1, and GDF8 as potential network collaborators in weight loss-induced improvements in Insulin action in human skeletal muscle. *Physiol. Genomics* 27: 114-121.

CHROMOSOMAL LOCATION

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

SOURCE

GPD1 (G-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 123-155 within an internal region of GPD1 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-390379 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.

APPLICATIONS

GPD1 (G-9) 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

GPD1 (G-9) is also recommended for detection of GPD1 in additional species, including bovine and porcine.

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.

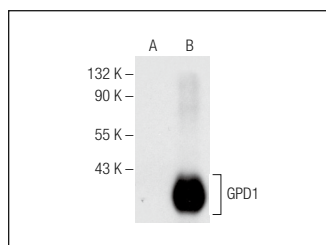
Positive Controls: human liver extract: sc-363766 or GPD1 (h): 293T Lysate: sc-114223.

RECOMMENDED SUPPORT REAGENTS

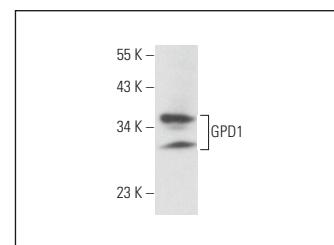
To ensure optimal results, the following support reagents are recommended:

- 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.
- 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).
- 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



GPD1 (G-9): sc-390379. Western blot analysis of GPD1 expression in non-transfected: sc-117752 (A) and human GPD1 transfected: sc-114223 (B) 293T whole cell lysates.



GPD1 (G-9): sc-390379. Western blot analysis of GPD1 expression in human liver tissue extract.

SELECT PRODUCT CITATIONS

1. Oh, S., et al. 2023. Non-bioenergetic roles of mitochondrial GPD2 promote tumor progression. *Theranostics* 13: 438-457.

RESEARCH USE

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