

# GPD2 (D-12): sc-390830



The Power to Question

## BACKGROUND

GPD2 (glycerol-3-phosphate dehydrogenase 2, mitochondrial), also known as GDH2 or GPDM, is a 727 amino acid protein belonging to the FAD-dependent glycerol-3-phosphate dehydrogenase family. GPD2 is involved in the conversion of glycerol-3-phosphate (G-3-P) to dihydroxyacetone phosphate (DHAP) while reducing enzyme-bound FAD. Localizing to the outer surface of the inner mitochondrial membrane, GPD2 acts in conjunction with GPD1 (a cytosolic NAD-linked GPD) to form a glycerol phosphate shuttle that ultimately results in the reoxidation of NADH formed during glycolysis. While widely expressed in adult and fetal tissue, GPD2 is found at highest levels in human pancreatic islets where it is essential for pancreatic B-cell glucose-sensory function. Decreased levels of GPD2 leads to impaired glucose-stimulated Insulin release in noninsulin-dependent diabetes mellitus. Existing as two alternatively spliced isoforms, GPD2 contains two EF-hand domains and maps to human chromosome 2q24.1.

## CHROMOSOMAL LOCATION

Genetic locus: GPD2 (human) mapping to 2q24.1; Gpd2 (mouse) mapping to 2 C1.1.

## SOURCE

GPD2 (D-12) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 463-492 within an internal region of GPD2 of human origin.

## PRODUCT

Each vial contains 200 µg IgM 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-390830 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## APPLICATIONS

GPD2 (D-12) is recommended for detection of GPD2 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).

GPD2 (D-12) is also recommended for detection of GPD2 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for GPD2 siRNA (h): sc-94819, GPD2 siRNA (m): sc-145685, GPD2 shRNA Plasmid (h): sc-94819-SH, GPD2 shRNA Plasmid (m): sc-145685-SH, GPD2 shRNA (h) Lentiviral Particles: sc-94819-V and GPD2 shRNA (m) Lentiviral Particles: sc-145685-V.

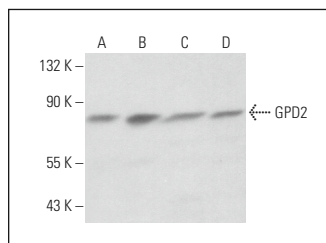
Molecular Weight of GPD2: 81 kDa.

Positive Controls: L6 whole cell lysate: sc-364196, BC<sub>3</sub>H1 cell lysate: sc-2299 or A-673 cell lysate: sc-2414.

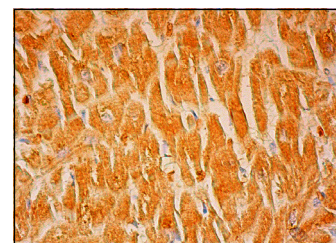
## RECOMMENDED SUPPORT REAGENTS

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 L-Agarose: sc-2336 (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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohisto-mount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



GPD2 (D-12): sc-390830. Western blot analysis of GPD2 expression in L6 (A), BC<sub>3</sub>H1 (B), SJRH30 (C) and A-673 (D) whole cell lysates. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



GPD2 (D-12): sc-390830. Immunoperoxidase staining of formalin fixed, paraffin-embedded human heart muscle tissue showing cytoplasmic staining of myocytes.

## SELECT PRODUCT CITATIONS

1. Liu, X., et al. 2018. Mitochondrial glycerol 3-phosphate dehydrogenase promotes skeletal muscle regeneration. *EMBO Mol. Med.* 10: e9390.
2. Di Magno, L., et al. 2020. Phenformin inhibits hedgehog-dependent tumor growth through a complex I-independent redox/corepressor module. *Cell Rep.* 30: 1735-1752.e7.
3. Li, X., et al. 2021. mGPDH deficiency leads to melanoma metastasis via induced Nrf2. *J. Cell. Mol. Med.* 25: 5305-5315.
4. Qu, H., et al. 2024. Mitochondrial glycerol 3-phosphate dehydrogenase deficiency exacerbates lipotoxic cardiomyopathy. *iScience* 27: 109796.

## 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.