

GPD2 (D-9): sc-393620

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.

REFERENCES

1. Shaw, M.A., et al. 1982. Human mitochondrial glycerol phosphate dehydrogenase (GPDm) isozymes. *Ann. Hum. Genet.* 46: 11-23.
2. Ferrer, J., et al. 1996. Mitochondrial glycerol-3-phosphate dehydrogenase. Cloning of an alternatively spliced human islet-cell cDNA, tissue distribution, physical mapping, and identification of a polymorphic genetic marker. *Diabetes* 45: 262-266.

CHROMOSOMAL LOCATION

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

SOURCE

GPD2 (D-9) is a mouse monoclonal antibody raised against amino acids 428-727 mapping at the C-terminus of GPD2 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.

APPLICATIONS

GPD2 (D-9) 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

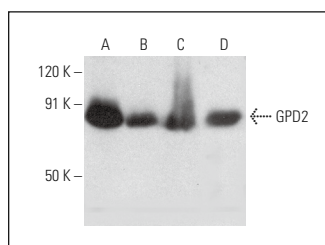
Molecular Weight of GPD2: 81 kDa.

Positive Controls: ZR-75-1 cell lysate: sc-2241, Hs 181 Tes whole cell lysate: sc-364779 or MCF7 whole cell lysate: sc-2206.

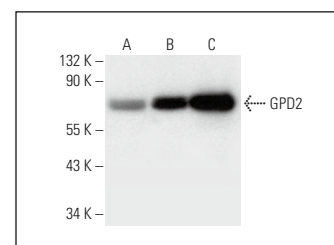
RECOMMENDED SUPPORT REAGENTS

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



GPD2 (D-9): sc-393620. Western blot analysis of GPD2 expression in ZR-75-1 (A), RT-4 (B), MCF7 (C) and C6 (D) whole cell lysates.



GPD2 (D-9): sc-393620. Western blot analysis of GPD2 expression in Hs 181 Tes (A), OVCAR-3 (B) and ZR-75-1 (C) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Yuan, L., et al. 2018. Switching off IMMP2L signaling drives senescence via simultaneous metabolic alteration and blockage of cell death. *Cell Res.* 28: 625-643.
2. 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.
3. Oh, S., et al. 2023. Non-bioenergetic roles of mitochondrial GPD2 promote tumor progression. *Theranostics* 13: 438-457.

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 for detailed protocols and support products.