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INTERNATIONAL

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New Item

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Antibodies to Glyceraldehyde-3-Phosphate Dehydrogenase (GPDH)

Glyceraldehyde-3-phosphate dehydrogenase antibodies. Catalog # GPDH-101AP, P-GPDH and PC-GPDH.

Accession # PO4797 and Alternate Nomenclature: 38 kDa BFA-dependent APD-ribosylation substrate, BARS-38

Glyceraldehyde-3-phosphate dehydrogenase (GPDH) is a glycocytic enzyme which catalyzes the reversible oxidative phosphorylation of glyceraldehyde-3-phosphate in the presence of inorganic phosphate and nicotinamide adenine dinucleotide (NAD) (1). This enzyme exists as a tetramer of identical chains. It is found on a cell's membrane, in the cytoplasm and in the nucleus, therefore, it has been shown to display several different activities. It functions in endocytosis, microtubule bundling, phosphotransfer activity, nuclear tRNA export, DNA replication and DNA repair (2). Recently, GPDH has been shown to play a significant role in the development of diabetic retinopathy and its progression after cessation of hyperglycemia (3). GPDH is also known as an initiation signal for cellular apoptosis or programmed cell death (PCD). Since PCD has shown to play some role in both chronic and acute human neurodegenerative disorders, GAPDH may serve as a target for anti-apoptotic compounds with the potential to slow or prevent the progression of neurodegenerative disorders (4).

PCD was shown to be initiated after the small scale translocation of GPDH in the nucleus that acts as a transcription factor for the synthesis of new GPDH protein. This protein is targeted for nucleus and has the characteristics of a novel isozyme that acts as a transcription factor for pro-apoptotic signals (5). Therefore, increase in nuclear GPDH is associated with susceptible neurons in postmortem samples from patients with a variety of neurodegenerative conditions. Small-molecule compounds that selectively bind GAPDH prevent the increase in GPDH synthesis and nuclear accumulation, hence preventing the cells from undergoing apoptosis (6). Such compounds are being considered as disease-modifying agents for neurodegenerative diseases. GPDH is approximately a 39kDa protein (333 amino acids).

The GPDH-selective antibodies were generated against purified glyceraldehydes-3-phosphate dehydrogenase (GPDH) protein. GPDH -antibodies are affinity purified over immobilized antigen based chromatography, and the purified immunoglobulins are stabilized in antibody stabilization buffer. FabGennix Int. Inc., will also provide limited quantities of antigenic blocking protein for GAPDH -101AP antibody. Antibodies to GPDH (GPDH -101AP) will label ~39kDa protein in Western blot positive control samples for GAPDH and several other tissues. FabGennix Inc. will also conjugate antibodies with secondary enzymes (alk-Pase or HRP) or fluorescent probes upon request at nominal cost.

Catalog #	Host Species	Nature	Cross reactivity	Quantity	Volume
GPDH-101 AP	Rabbit	Affinity purified GPDH antibodies	H, others n.d	100 ug	200ul
FITC- GPDH	Rabbit	FITC-conjugated GPDH antibody	H. others n.d	100ug	200ul
P- GPDH	n/a	Antigenic blocking peptide for GPDH-101AP	n/a	250 ug	100ul
PC- GPDH	n/a	Western blotting positive control for GPDH	n/a	For 5 appl	Inquire

R = rat; M = mouse; H = human; C = chicken; monk = monkey ; * not all variants are labeled equally

Immunogen: Synthetic peptide taken form unique epitope on GPDH corresponding to amino acids - . The GPDH peptide was covalently modified post-synthetically and covalently modified to achieve desired antigenicity. The carrier protein conjugated peptide was used as immunogen for making this antibody.

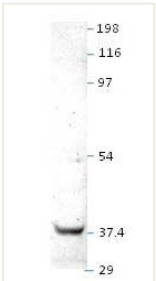
Concentration: GPDH -101AP: IgG concentration 0.64-0.72 mg/ml in antibody stabilization buffer.

Applications: Antibody GPDH -101AP is ideal for WB and ELISA applications, other applications have not been tested. These antibodies do not cross react to human lactoferrin, bovine lactoferrin or bovine serum albumin. The species cross reactivity for these antibodies have not been examined fully. The dilutions for this antibody is for reference only, investigators are expected to determine the optimal conditions for specific assay. WB: > 1:500; IMM & i.p pull-down assays: n.d; IHC n.d. ELISA <1:10,000. Application of this antibody in protocols not listed here does not necessarily exclude its use in such procedures.

Reactivity: This antibody detects a single band of approximately 39kDa in PC- GPDH samples. The antibody does not cross react to….

Protocols: Standard protocol for various applications (WB; IMM and IHC) of this antibody is provided with the product specification sheet, however, FabGennix Inc., strongly recommends investigators to optimize conditions for use of this antibody in their laboratories.

Form/Storage: The antiserum is supplied in antibody stabilization buffer. The affinity-purified antibodies are isolated on immobilized antigen-affinity column and supplied as stabilized product. Store at -20°C for long-term storage. FabGennix Inc. does not recommend storage of very dilute antibody solutions unless they are prepared in specially formulated multi use antibody dilution buffer (Cat # DiluOBuffer). Working solutions of antibodies in DiluOBuffer should be filtered through 0.45um filter after every use for long-term storage.



Western blot of GDPH antibody (GDPH-101AP) with PC-GDPH sample. Antibody dilution 1:500 in diluObuffer. MW of GDPH is 38 kDa.

Notes: Briefly centrifuge to collect liquid, heat or boil PC-GPDH tube for 1-2 minutes to dissolve any precipitate before use. This product is "ready-to-use" for thawing store at room temperature, Repeated freezing and thawing may result in appearance of higher MW immunoreactive bands.

New Reagents: Now you can recycle your western blots (nitrocellulose, supported membranes and PVFD membranes) by using our StripObuffer (Cat FGI-1989). Each stripping is guaranteed to give better signal (up to 8 stripping). No strong pungent smell of reducing agents or heating required. Block in 5X diluObuffer and you are ready for blotting with a new antibody

References:

1. Sirover MA. Role of the glycolytic protein, glyceraldehyde-3-phosphate dehydrogenase, in normal cell function and in cell pathology. J. cell biochem. 7 December 1998; 66(2):133-140.
2. Andrade J, Pearce ST, Zhao H, Barroso M. Interactions among p22, glyceraldehyde-3-phosphate dehydrogenase and microtubules. Biochem J. 2004; 384:327-336.
3. Kanwar M, Kowluru RA. Role of glyceraldehydes-3-phosphate dehydrogenase in the development and progression of diabetic retinopathy. Diabetes. January 2009; 58(1):227-234.
4. Berry MD. Glyceraldehyde-3-phosphate dehydrogenase as a target for small-molecule disease-modifying therapies in human neurodegenerative disorders. J Psychiatry Neurosci. 2004; 29(5):337-345.
5. Ishitani R, Chuan DM. Glyceraldehyder-3-phosphate dehydrogenase antisense oligodeoxynucleotides protect against cytosine arabinonucleoside-induced apoptosis in cultured cerebellar neurons. Proc Natl Acad Sci U S A. 1996; 93:9937-9941.
6. Suresh S, Bressi JC, Kennedy KJ, Verlinde CL, Gelb MH, Hol WG. Conformational changes in *Leishmania mexicana* glyceraldehyde-3-phosphate dehydrogenase induced by designed inhibitors. J Mol Biol. 2001; 309:423-435.

* For users who may require large amounts of GPDH-101AP, please enquire about bulk material discounts.

This Product is for Research Use Only and is NOT intended for use in humans or clinical diagnosis.

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