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**Protein and Non-protein phosphatase selective antibodies**

**Glucose-6-Phosphatase catalytic unit 2 (G6PC2) selective Antibodies (Cat # G6PC2-101AP)**

Alternate nomenclature:FKBP12-rapamycin associated protein,

Serum glucose homeostasis is tightly controlled by a balance of glucose absorption via the gut, production primarily by the liver and utilization by both insulin-sensitive and insulin insensitive transport of glucose in to various tissues. Such precise control of serum glucose levels involves hormonal and neuronal interactions in various types of cells. The loss of such homeostatic control of glucose is a diagnostic of diabetes. Type 2 diabetes mellitus is a leading cause of kidney failure, blindness and lower limb amputations and afflicts more than 170 million worldwide.

Recently, it has been shown that variation in the gene of a protein Glucose 6 phosphatase catalytic domain 2 (G6PC2) in pancreas may explain why different people have different levels of fasting glucose levels, a factor that affects disease risk (1). Molecular cloning of G6PC2 identified two splice variants that differ by the presence and absence of Exon 4 in BALB/C and ob/ob mice and in insulinoma tissue (2). The longer cDNA including exon 4 has approximately 50% homology with glucose-6-phosphatase catalytic subunit (*G6pc*) across a variety of species including humans and is membrane bound in the endoplasmic reticulum. The significant homology between G6PC and G6PC2 has been observed across species and its membrane bound in the endoplasmic reticulum fraction. The shorter form of G6PC2 species variant was found in human pancreas and is located in intron 3 just 26 bp proximal to exon 4. The longer variant G6PC hydrolyzes glucose-6-phosphate to glucose and a phosphate group, however, despite sequence similarities the G6PC2 has little or no hydrolase activity (3). Slightly higher G6PC2 associated hydrolase activity is reported a cell over expressing this gene. The streptozotocin treated mice exhibit 3-fold higher expression of G6PC2 expression suggesting glucose cycling in these mice may be an indicator of G6PC2 activity. Variation in G6PC2 may increase glucose cycling in  $\beta$  cells, resulting in altered generation of ATP, which would have implications for insulin secretion. In addition, G6PC2-induced alterations in  $\beta$  cell glucose metabolism would also have downstream effects on phosphoinositide 3-kinase activity, which regulates pancreas duodenum homeobox-1 (PDX1) binding to the insulin gene and subsequent insulin gene transcription (4).

The G6PC2-selective antibody was generated against a peptide from near N-terminus of the protein corresponding to amino acids 83-105 of the G6PC2 a 154 amino acid protein. The affinity purified mono epitope-specific rabbit polyclonal antibody strongly labels a 48kDa and a 20 kDa band in G6PC2 western blot control samples. The G6PC2 rabbit mono-epitope specific polyclonal antibodies are affinity purified on immobilized antigen affinity matrix, the affinity purified antibodies are also available in FITC and Biotin-conjugated form for use in IHC and cells labeling experiments. Limited quantities of antigenic blocking peptide and western blot positive controls samples are also available. FabGennix has a wide range of antibodies to kinases and phosphatase, for a complete listing please visit [www.FabGennix.com](http://www.FabGennix.com)

Catalog #	Host Species	Nature	Cross reactivity	Volume	Qty
G6PC2-101AP	Rabbit	Affinity purified G6PC2 antibody	R, M, H, monk	200ul	100ug
FITC-G6PC2	Rabbit	FITC-conjugated G6PC2 Antibody	R, M, H,monk	100 $\cong$ g	100ug
Biotin-G6PC2	Rabbit	Biotinylated G6PC2 antibody	R, M, H, monk	250 ug	100ug
P-G6PC2	n/a	Antigenic blocking peptide for G6PC2	R, M, H,monk	5 appl	250ug
PC-G6PC2	n/a	Western blot positive control for G6PC2	R, M, H, monk	5 appl	For 5 applications

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

**Immunogen:** Synthetic peptide unique to G6PC2 and common in larger variant of glucose 6 phosphatase. The peptide sequence corresponds to amino acids 85-103.

**Concentration:** G6PC2-101AP, FITC-G6PC2 and Biotin-G6PC2 IgG concentrations 0.55-0.65 mg/ml.

**Applications:** Antibody G6PC2-101AP is ideal for WB, use of this antibody in other applications has not yet worked out. The dilution of G6PC2-101AP 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.

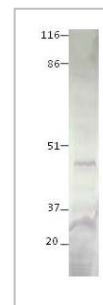
**Reactivity:** This antibody detects a band of 45-47kDa in PC-G6PC2 samples. The antibody also reacts to a 20kDa protein in PC-G6PC2 samples and in rat pancreas extracts.

**Protocols:** Standard protocol for various applications (WB, IMM and IHC) of this antibody is provided with the product specification sheet, however, FabGennix Int. Inc.

**Form/Storage:** The antiserum is supplied in antibody stabilization buffer with 0.02% sodium azide. For long-term storage of antibodies, store at -20°C. FabGennix Int. Inc. does not recommend storage of very dilute antibody solutions unless they are prepared in specially formulated multi use antibody dilution buffer (Cat # DilUbuffer). Working solutions of antibodies in DilUbuffer should be filtered through 0.45  $\mu$  filter after every use for long-term storage.

**References:**

- Boustia-Naji et al., Polymorphism with in the G6PC2 gene is associated with fasting plasma glucose levels. Science Exp. 10.1126, 1156489, 2008.
- Arden S.D., et al. Molecular cloning of a pancreatic islet-specific glucose-6-phosphatase catalytic subunit-related protein. Diabetes. 1999;48:531-542. doi: 10.2337/diabetes.48.3.531.
- Petrolonis A.J., et al. Enzymatic characterization of the pancreatic islet-specific glucose-6-phosphatase-related protein (IGRP). J. Biol. Chem. 2004;279:13976-13983. doi: 10.1074/jbc.M307756200.
- Shieh J.-J., Pan C.-J., Mansfield B.C., Chou J.Y. The islet-specific glucose-6-phosphatase-related protein, implicated in diabetes, is a glycoprotein embedded in the endoplasmic reticulum membrane. FEBS Lett. 2004;562:160-164. doi: 10.1016/S0014-5793(04)00223-6.



Western blot of G6PC2 using G6PC2-101AP (1:500) in diluObuffer) and PC-G6PC2 sample. MW of two G6PC2 variants are 47kDa and 20kDa.

\*For users who may require large amounts of G6PC2-101AP, FITC-G6PC2 and Biotin-G6PC2, 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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