

# IGRP (H-60): sc-66932

## BACKGROUND

Glucose-6-phosphatase (G6Pase), is a multicomponent enzyme system that hydrolyzes glucose-6-phosphate in the final step of gluconeogenesis and gluconeolysis. G6Pase localizes to the endoplasmic reticulum, and while liver, kidney and intestine are the only tissues that express the first identified isoform, G6Pase- $\alpha$ , a second form, designated G6Pase- $\beta$ , contributes to blood glucose homeostasis in a wider range of tissues. Islet-specific G6Pase catalytic subunit-related protein (IGRP), a homolog of the catalytic subunit of G6Pase, may play a role in the regulation of islet metabolism and in Insulin secretion induced by metabolites. The exact catalytic activity of IGRP is not defined. Identification of inhibitors of IGRP have potential therapeutic benefits for treatment of type 2 diabetes resulting from Insulin secretion defects. Structurally, IGRP has been shown to be a glycoprotein held in the endoplasmic reticulum by nine transmembrane domains, which are then degraded in cells through the proteasome pathway generating MHC class I presented peptides.

## REFERENCES

1. Arden, S.D., et al. 1999. Molecular cloning of a pancreatic islet-specific glucose-6-phosphatase catalytic subunit-related protein. *Diabetes* 48: 531-542.
2. Ebert, D.H., et al. 1999. Structure and promoter activity of an islet-specific glucose-6-phosphatase catalytic subunit-related gene. *Diabetes* 48: 543-551.
3. Martin, C.C., et al. 2001. Cloning and characterization of the human and rat islet-specific glucose-6-phosphatase catalytic subunit-related protein (IGRP) genes. *J. Biol. Chem.* 276: 25197-25207.
4. Petrolonis, A.J., et al. 2004. Enzymatic characterization of the pancreatic islet-specific glucose-6-phosphatase-related protein (IGRP). *J. Biol. Chem.* 279: 13976-13983.
5. Shieh, J.J., et al. 2004. The islet-specific glucose-6-phosphatase-related protein, implicated in diabetes, is a glycoprotein embedded in the endoplasmic reticulum membrane. *FEBS Lett.* 562: 160-164.
6. Mukherjee, R., et al. 2005. Identification of CD4<sup>+</sup> T cell-specific epitopes of islet-specific glucose-6-phosphatase catalytic subunit-related protein: a novel  $\beta$  cell autoantigen in type 1 diabetes. *J. Immunol.* 174: 5306-5315.
7. Shieh, J.J., et al. 2005. In islet-specific glucose-6-phosphatase-related protein, the  $\beta$  cell antigenic sequence that is targeted in diabetes is not responsible for the loss of phosphohydrolase activity. *Diabetologia* 48: 1851-1859.

## CHROMOSOMAL LOCATION

Genetic locus: G6PC2 (human) mapping to 2q31.1; G6pc2 (mouse) mapping to 2 C2.

## SOURCE

IGRP (H-60) is a rabbit polyclonal antibody raised against amino acids 1-60 mapping at the N-terminus of Glucose-6-phosphatase catalytic subunit 2 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

IGRP (H-60) is recommended for detection of IGRP of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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).

IGRP (H-60) is also recommended for detection of IGRP in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for IGRP siRNA (h): sc-45250, IGRP siRNA (m): sc-45251, IGRP shRNA Plasmid (h): sc-45250-SH, IGRP shRNA Plasmid (m): sc-45251-SH, IGRP shRNA (h) Lentiviral Particles: sc-45250-V and IGRP shRNA (m) Lentiviral Particles: sc-45251-V.

Molecular Weight of IGRP: 41 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## 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) or our catalog for detailed protocols and support products.