SANTA CRUZ BIOTECHNOLOGY, INC.

IGRP (G-16): sc-33472

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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-α, a second form, designated G6Pase-β, contributes to blood glucose homeostasis in a wider range of tissues. Islet-specific G-6-Pase 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 acivity 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

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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 $CD4^+$ T cell-specific epitopes of islet-specific glucose-6-phosphatase catalytic subunit-related protein: a novel β 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 β 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 (G-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of Glucose-6-phosphatase catalytic subunit of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-33472 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

IGRP (G-16) is recommended for detection of IGRP (Glucose-6-phosphatase catalytic subunit) of mouse and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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 (G-16) is also recommended for detection of IGRP (Glucose-6-phosphatase catalytic subunit) in additional species, including equine and canine.

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 donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (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 or our catalog for detailed protocols and support products.