SANTA CRUZ BIOTECHNOLOGY, INC.

G6Pase-α (R-13): sc-33841

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Glucose-6-phosphatase (G6Pase), is a multicomponent enzyme system that hydrolyzes glucose-6-phosphate (G6P) 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. Glucocorticoids stimulate the expression of the G6Pase gene while Insulin rapidly inhibits expression via the thymine-rich Insulin response element located within the promoter of the G6Pase gene. Due to its necessary involvement in normal glucose metabolism, G6Pase plays an integral role in diabetes and glycogen storage diseases (GSDs). The presence of different isoforms may explain the ability of some individuals with GSDs to still produce glucose, despite their lack of functional G6Pase-α.

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 CD^{4+} 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: G6pc (rat) mapping to 10q32.1.

SOURCE

G6Pase-α (R-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of G6Pase-α of rat origin.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

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-33841 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

G6Pase-α (R-13) is recommended for detection of G6Pase-α of rat 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).

Molecular weight of G6Pase-α: 36 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.

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.