SANTA CRUZ BIOTECHNOLOGY, INC.

G6Pase-α (C-14): sc-27198

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

1. Goh, B.H., et al. 2003. Evidence for the expression of both the hydrolase and translocase components of hepatic glucose-6-phosphatase in murine pancreatic islets. Biochem. Biophys. Res. Commun. 307: 935-941.
2. Guionie, O., et al. 2003. Identification and characterization of a new human glucose-6-phosphatase isoform. FEBS Lett. 551: 159-164.
3. Shieh, J.J., et al. 2003. A glucose-6-phosphate hydrolase, widely expressed outside the liver, can explain age-dependent resolution of hypoglycemia in glycogen storage disease type 1α. J. Biol. Chem. 278: 47098-47103.

CHROMOSOMAL LOCATION

Genetic locus: G6PC (human) mapping to 17q21.31; G6pc (mouse) mapping to 11 D.

SOURCE

G6Pase-α (C-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of G6Pase-α of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-27198 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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.

APPLICATIONS

G6Pase-α (C-14) is recommended for detection of G6Pase-α of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

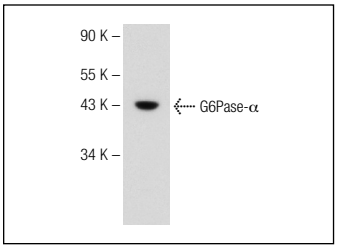
G6Pase-α (C-14) is also recommended for detection of G6Pase-α in additional species, including equine and canine.

Suitable for use as control antibody for G6Pase-α siRNA (h): sc-105380, G6Pase-α siRNA (m): sc-145294, G6Pase-α shRNA Plasmid (h): sc-105380-SH, G6Pase-α shRNA Plasmid (m): sc-145294-SH, G6Pase-α shRNA (h) Lentiviral Particles: sc-105380-V and G6Pase-α shRNA (m) Lentiviral Particles: sc-145294-V.

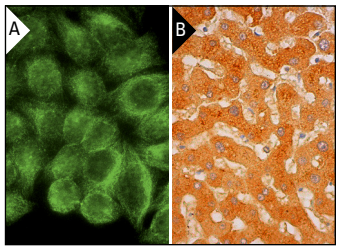
Molecular Weight of G6Pase-α: 36 kDa.

Positive Controls: rat liver extract: sc-2395 or rat kidney extract: sc-2394.

DATA



G6Pase-α (C-14): sc-27198. Western blot analysis of G6Pase-α expression in rat kidney tissue extract.



G6Pase-α (C-14): sc-27198. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human liver tissue showing cytoplasmic staining of hepatocytes (**B**).

SELECT PRODUCT CITATIONS

1. Nakaoka, F., et al. 2010. Anti-diabetic effects of globin digest and its active ingredient Leu-Ser-Glu-Leu in ICR mice, streptozotocin-induced diabetic mice and KK-Ay mice. Life Sci. 86: 424-434.
2. Im, S.S., et al. 2011. Peroxisome proliferator-activated receptor α is responsible for the up-regulation of hepatic glucose-6-phosphatase gene expression in fasting and db/db Mice. J. Biol. Chem. 286: 1157-1164.
3. Haase, T.N., et al. 2011. Role of PGC-1α in exercise and fasting-induced adaptations in mouse liver. Am. J. Physiol. Regul. Integr. Comp. Physiol. 301: R1501-R1509.