

GCK (G-5): sc-55496

BACKGROUND

Glucokinase (also designated hexokinase IV, HXKIV or GCK) plays a key role in the regulation of glucose-induced Insulin secretion. GCK is expressed in pancreatic beta cells where it functions as the major glucose sensor of the body, determining the "set point" for Insulin secretion. GCK is also expressed in the liver, where it catalyzes the first committed step in the disposal of glucose. Phosphorylation of glucose by glucokinase appears to be the rate-limiting step for glucose catabolism. A lack of glucokinase activity leads to reduced Insulin secretion and hyperglycemia, and has been implicated as a cause for maturity onset diabetes of the youth (MODY). In fact, heterozygous point mutations in the gene encoding GCK have been detected in individuals suffering from MODY.

REFERENCES

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2. Hosokawa, H., et al. 1995. Upregulated hexokinase activity in isolated islets from diabetic 90% pancreatectomized rats. *Diabetes* 44: 1328-1333.
3. Grupe, A., et al. 1995. Transgenic knockouts reveal a critical requirement for pancreatic β cell glucokinase in maintaining glucose homeostasis. *Cell* 83: 69-78.
4. Liang, Y., et al. 1995. Variable effects of maturity onset diabetes of youth (MODY)-associated glucokinase mutations on substrate interactions and stability of the enzyme. *Biochem. J.* 309: 167-173.
5. Bali, D., et al. 1995. Animal model for maturity onset diabetes of the young generated by disruption of the mouse glucokinase gene. *J. Biol. Chem.* 270: 21464-21467.
6. Tu, J., et al. 1996. Glucose regulates the maximal velocities of glucokinase and glucose utilization in the immature fetal rat pancreatic islet. *Diabetes* 45: 1068-1075.
7. Heimberg, H., et al. 1996. The glucose sensor protein glucokinase is expressed in glucagon-producing α cells. *Proc. Natl. Acad. Sci. USA* 93: 7036-7041.
8. Ferre, T., et al. 1996. Correction of diabetic alterations by glucokinase. *Proc. Natl. Acad. Sci. USA* 93: 7225-7230.

CHROMOSOMAL LOCATION

Genetic locus: GCK (human) mapping to 7p13.

SOURCE

GCK (G-5) is a mouse monoclonal antibody raised against amino acids 318-405 mapping near the C-terminus of GCK (glucokinase) of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

GCK (G-5) is recommended for detection of GCK of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ 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).

Suitable for use as control antibody for GCK siRNA (h): sc-35458, GCK shRNA Plasmid (h): sc-35458-SH and GCK shRNA (h) Lentiviral Particles: sc-35458-V.

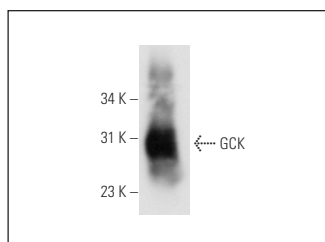
Molecular Weight of GCK: 50 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker[™] Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 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 m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

DATA



GCK (G-5): sc-55496. Western blot analysis of human recombinant GCK protein.

SELECT PRODUCT CITATIONS

1. Dhanesha, N., et al. 2012. Inhibition of 11 β -hydroxysteroid dehydrogenase 1 by carbenoxolone affects glucose homeostasis and obesity in db/db mice. *Clin. Exp. Pharmacol. Physiol.* 39: 69-77.

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 for detailed protocols and support products.