

GCKR (A-8): sc-74552

BACKGROUND

Glucokinase (also designated hexokinase IV or GCK) plays a key role in the regulation of glucose-induced Insulin secretion. GCK is expressed in pancreatic β cells, where it functions as a glucose sensor, determining the "set point" for Insulin secretion. GCK is also expressed in the liver, where it catalyzes the first step in the disposal of glucose. 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). Heterozygous point mutations in the gene encoding GCK have been detected in individuals suffering from MODY. GCK is regulated by GCKR (glucokinase regulatory protein).

REFERENCES

1. Dethoux, M., et al. 1993. Cloning and sequencing of rat liver cDNAs encoding the regulatory protein of glucokinase. *FEBS Lett.* 321: 111-115.
2. Hosokawa, H., et al. 1995. Upregulated hexokinase activity in isolated islets from diabetic 90% pancreatectomized rats. *Diabetes* 44: 1328-1333.
3. 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.
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. 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.
6. Ferre, T., et al. 1996. Correction of diabetic alterations by glucokinase. *Proc. Natl. Acad. Sci. USA* 93: 7225-7230.
7. Tu, J. and Tuch, B.E. 1996. Glucose regulates the maximal velocities of glucokinase and glucose utilization in the immature fetal rat pancreatic islet. *Diabetes* 45: 1068-1075.

CHROMOSOMAL LOCATION

Genetic locus: GCKR (human) mapping to 2p23.3.

SOURCE

GCKR (A-8) is a mouse monoclonal antibody raised against amino acids 1-300 mapping near the N-terminus of GCKR of human origin.

PRODUCT

Each vial contains 200 μ g IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

APPLICATIONS

GCKR (A-8) is recommended for detection of GCKR 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 GCKR siRNA (h): sc-35460, GCKR shRNA Plasmid (h): sc-35460-SH and GCKR shRNA (h) Lentiviral Particles: sc-35460-V.

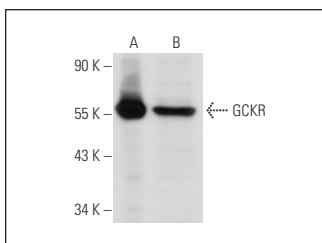
Molecular Weight of GCKR: 68 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227 or Insulin treated Hep G2 whole cell lysate.

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



GCKR (A-8): sc-74552. Western blot analysis of GCKR expression in untreated Hep G2 (A) and Insulin treated Hep G2 (B) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Rees, M.G., et al. 2014. A panel of diverse assays to interrogate the interaction between glucokinase and glucokinase regulatory protein, two vital proteins in human disease. *PLoS ONE* 9: e89335.
2. López Rodríguez, M., et al. 2018. Functional variant in the GCKR gene affects lactate levels differentially in the fasting state and during hyperglycemia. *Sci. Rep.* 8: 15989.

RESEARCH USE

For research use only, not for use in diagnostic procedures.