

GCKR (B-9): sc-166841

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. 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; Gckr (mouse) mapping to 5 B1.

SOURCE

GCKR (B-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1-35 at the N-terminus of GCKR of human origin.

PRODUCT

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

GCKR (B-9) is available conjugated to agarose (sc-166841 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166841 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166841 PE), fluorescein (sc-166841 FITC), Alexa Fluor® 488 (sc-166841 AF488), Alexa Fluor® 546 (sc-166841 AF546), Alexa Fluor® 594 (sc-166841 AF594) or Alexa Fluor® 647 (sc-166841 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166841 AF680) or Alexa Fluor® 790 (sc-166841 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-166841 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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APPLICATIONS

GCKR (B-9) is recommended for detection of GCKR of mouse, rat and 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), 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).

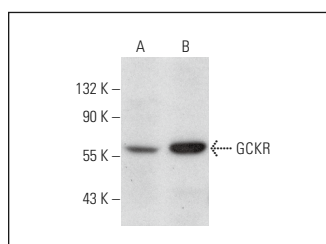
GCKR (B-9) is also recommended for detection of GCKR in additional species, including equine and porcine.

Suitable for use as control antibody for GCKR siRNA (h): sc-35460, GCKR siRNA (m): sc-35461, GCKR shRNA Plasmid (h): sc-35460-SH, GCKR shRNA Plasmid (m): sc-35461-SH, GCKR shRNA (h) Lentiviral Particles: sc-35460-V and GCKR shRNA (m) Lentiviral Particles: sc-35461-V.

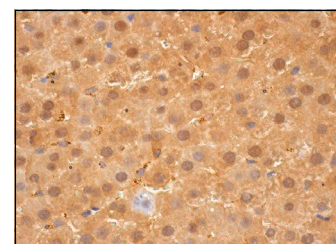
Molecular Weight of GCKR: 68 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, human liver extract: sc-363766 or mouse liver extract: sc-2256.

DATA



GCKR (B-9): sc-166841. Western blot analysis of GCKR expression in Hep G2 whole cell lysate (A) and human liver tissue extract (B).



GCKR (B-9): sc-166841. Immunoperoxidase staining of formalin fixed, paraffin-embedded human liver tissue showing cytoplasmic and nuclear staining of hepatocytes.

SELECT PRODUCT CITATIONS

1. Li, M., et al. 2019. Berberine alleviates hyperglycemia by targeting hepatic glucokinase in diabetic db/db mice. *Sci. Rep.* 9: 8003.
2. Sreelekshmi, M. and Raghu, K.G. 2021. Vanillic acid mitigates the impairments in glucose metabolism in Hep G2 cells through BAD-GK interaction during hyperinsulinemia. *J. Biochem. Mol. Toxicol.* 35: 1-8.

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.