SANTA CRUZ BIOTECHNOLOGY, INC.

GCK (G-6): sc-17819

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 β 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.

CHROMOSOMAL LOCATION

Genetic locus: GCK (human) mapping to 7p13; Gck (mouse) mapping to 11 A1.

SOURCE

GCK (G-6) is a mouse monoclonal antibody raised against amino acids 318-405 of GCK of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

GCK (G-6) is available conjugated to agarose (sc-17819 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-17819 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-17819 PE), fluorescein (sc-17819 FITC), Alexa Fluor® 488 (sc-17819 AF488), Alexa Fluor® 546 (sc-17819 AF546), Alexa Fluor® 594 (sc-17819 AF594) or Alexa Fluor® 647 (sc-17819 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-17819 AF680) or Alexa Fluor® 790 (sc-17819 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

GCK (G-6) is recommended for detection of GCK of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1,000), 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) 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 siRNA (m): sc-35459, GCK siRNA (r): sc-270360, GCK shRNA Plasmid (h): sc-35458-SH, GCK shRNA Plasmid (m): sc-35459-SH, GCK shRNA Plasmid (r): sc-270360-SH, GCK shRNA (h) Lentiviral Particles: sc-35458-V, GCK shRNA (m) Lentiviral Particles: sc-35459-V and GCK shRNA (r) Lentiviral Particles: sc-270360-V.

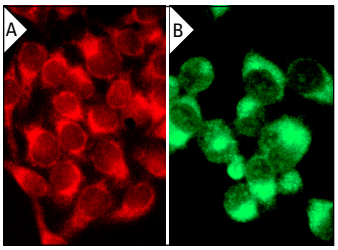
Molecular Weight of GCK: 50 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or Hep G2 cell lysate: sc-2227.

STORAGE

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

DATA



GCK (G-6): sc-17819. Immunofluorescence staining of methanol-fixed HeLa (**A**) and MIA PaCa-2 (**B**) cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Zheng, Y.C., et al. 2016. Comparison of regulation mechanisms of five mulberry ingredients on Insulin secretion under oxidative stress. J. Agric. Food Chem. 64: 8763-8772.
2. Schönrogge, M., et al. 2018. α-cyano-4-hydroxycinnamate impairs pancreatic cancer cells by stimulating the p38 signaling pathway. Cell. Signal. 47: 101-108.
3. Li, M., et al. 2019. Berberine alleviates hyperglycemia by targeting hepatic glucokinase in diabetic db/db mice. Sci. Rep. 9: 8003.
4. Essaouiba, A., et al. 2020. Microwell-based pancreas-on-chip model enhances genes expression and functionality of rat islets of Langerhans. Mol. Cell. Endocrinol. 514: 110892.
5. Perrin-Cocon, L., et al. 2021. A hexokinase isoenzyme switch in human liver cancer cells promotes lipogenesis and enhances innate immunity. Commun. Biol. 4: 217.
6. Sreelekshmi, M., et al. 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.
7. Kuter, K.Z., et al. 2021. Increased β-hydroxybutyrate level is not sufficient for the neuroprotective effect of long-term ketogenic diet in an animal model of early Parkinson's disease. Exploration of brain and liver energy metabolism markers. Int. J. Mol. Sci. 22: 7556.
8. Pietrobon, C.B., et al. 2021. Pancreatic steatosis in adult rats induced by nicotine exposure during breastfeeding. Endocrine 72: 104-115.
9. Wang, L., et al. 2022. TOX4, an Insulin receptor-independent regulator of hepatic glucose production, is activated in diabetic liver. Cell Metab. 34: 158-170.e5.

RESEARCH USE

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