SANTA CRUZ BIOTECHNOLOGY, INC.

HXK I (G-1): sc-46695

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The hexokinases utilize Mg-ATP as a phosphoryl donor to catalyze the first step of intracellular glucose metabolism, the conversion of glucose to glucose-6-phosphate. Four hexokinase isoenzymes have been identified, including hexokinase I (HXK I), hexokinase II (HXK II), hexokinase III (HXK III) and hexokinase IV (HXK IV, also designated glucokinase or GCK). Hexokinases I-III each contain an N-terminal cluster of hydrophobic amino acids. Glucokinase lacks the N-terminal hydrophobic cluster. The hydrophobic cluster is thought to be necessary for membrane binding. This is substantiated by the finding that glucokinase has lower affinity for glucose than do the other hexokinases. HXK I has been shown to be expressed in brain, kidney and heart tissues as well as in hepatoma cell lines. HXK II is involved in the uptake and utilization of glucose by adipose and skeletal tissues. Of the hexokinases, HXK III has the highest affinity for glucose. Glucokinase is expressed in pancreatic β cells where it functions as a glucose sensor, determining the "set point" for Insulin secretion.

CHROMOSOMAL LOCATION

Genetic locus: HK1 (human) mapping to 10q22.1; Hk1 (mouse) mapping to 10 B4.

SOURCE

HXK I (G-1) is a mouse monoclonal antibody raised against amino acids 316-410 of HXK I 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.

HXK I (G-1) is available conjugated to agarose (sc-46695 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-46695 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-46695 PE), fluorescein (sc-46695 FITC), Alexa Fluor® 488 (sc-46695 AF488), Alexa Fluor® 546 (sc-46695 AF546), Alexa Fluor® 594 (sc-46695 AF594) or Alexa Fluor® 647 (sc-46695 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-46695 AF680) or Alexa Fluor® 790 (sc-46695 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

HXK I (G-1) is recommended for detection of HXK I of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

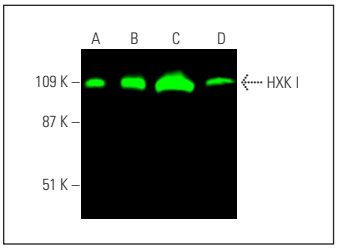
Suitable for use as control antibody for HXK I siRNA (h): sc-39044, HXK I siRNA (m): sc-39045, HXK I shRNA Plasmid (h): sc-39044-SH, HXK I shRNA Plasmid (m): sc-39045-SH, HXK I shRNA (h) Lentiviral Particles: sc-39044-V and HXK I shRNA (m) Lentiviral Particles: sc-39045-V.

Molecular Weight of HXK I: 120 kDa.

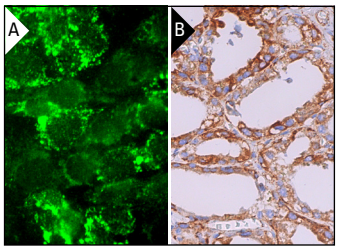
STORAGE

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

DATA



HXK I (G-1): sc-46695. Near-infrared western blot analysis of HXK I expression in human brain (**A**) and mouse brain (**B**) tissue extracts and U-87 MG (**C**) and EOC 20 (**D**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.



HXK I (G-1): sc-46695. Immunofluorescence staining of formalin-fixed Hep G2 cells showing mitochondrial localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human seminal vesicle tissue showing cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Lin, C.C., et al. 2012. Loss of the respiratory enzyme citrate synthase directly links the Warburg effect to tumor malignancy. Sci. Rep. 2: 785.
2. Barbero-Camps, E., et al. 2014. Endoplasmic reticulum stress mediates amyloid β neurotoxicity via mitochondrial cholesterol trafficking. Am. J. Pathol. 184: 2066-2081.
3. Anderson, M., et al. 2017. Hexokinase 2 promotes tumor growth and metastasis by regulating lactate production in pancreatic cancer. Oncotarget 8: 56081-56094.
4. Gao, X. and Han, H. 2018. Jolkinolide B inhibits glycolysis by downregulating hexokinase 2 expression through inactivating the Akt/mTOR pathway in non-small cell lung cancer cells. J. Cell. Biochem. 119: 4967-4974.
5. Tseng, P.L., et al. 2018. Decreased succinate dehydrogenase B in human hepatocellular carcinoma accelerates tumor malignancy by inducing the Warburg effect. Sci. Rep. 8: 3081.
6. Tseng, P.L., et al. 2018. The decrease of glycolytic enzyme hexokinase 1 accelerates tumor malignancy via deregulating energy metabolism but sensitizes cancer cells to 2-deoxyglucose inhibition. Oncotarget 9: 18949-18969.
7. McGuire, J.L., et al. 2019. Pioglitazone improves working memory performance when administered in chronic TBI. Neurobiol. Dis. 132: 104611.
8. Hou, Y., et al. 2021. YTHDC1-mediated augmentation of miR-30d in repressing pancreatic tumorigenesis via attenuation of RUNX1-induced transcriptional activation of Warburg effect. Cell Death Differ. E-published.

RESEARCH USE

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

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