SANTA CRUZ BIOTECHNOLOGY, INC.

HXK I (A-2): sc-390517

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.

REFERENCES

1. Katzen, H.M. and Schimke, R.T. 1965. Multiple forms of hexokinase in the rat: tissue distribution, age dependency and properties. Proc. Natl. Acad. Sci. USA 54: 1218-1225.
2. Arora, K.K., Fanciulli, M. and Pedersen, P.L. 1990. Glucose phosphorylation in tumor cells. Cloning, sequencing and overexpression in active form of a fulllength cDNA encoding a mitochondrial bindable form of hexokinase. J. Biol. Chem. 265: 6481-6488.
3. Stoeffel, M., Froguel, P., Takeda, J., Zouali, H., Vionnet, N., Nishi, S., Weber, I.T., Harrison, R.W., Pilkis, S.J. and Lesage, S. 1992. Human glucokinase gene: isolation, characterization and identification of two missense mutations linked to early-onset non-Insulin-dependent (type 2) diabetes mellitus. Proc. Natl. Acad. Sci. USA 89: 7698-7702.
4. Deeb, S.S., Malkki, M. and Laakso, M. 1993. Human hexokinase II: sequence and homology to other hexokinases. Biochem. Biophys. Res. Commun. 197: 68-74.
5. Palma, F., Agostini, D., Mason, P., Dacha, M., Piccoli, G., Biagiarelli, B., Fiorani, M. and Stocchi, V. 1996. Purification and characterization of the carboxyl-domain of human hexokinase type III expressed as fusion protein. Mol. Cell. Biochem. 155: 23-29.

CHROMOSOMAL LOCATION

Genetic locus: Hk1 (mouse) mapping to 10 B4.

SOURCE

HXK I (A-2) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 899-918 of HXK I of mouse origin.

STORAGE

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

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.

Blocking peptide available for competition studies, sc-390517 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

HXK I (A-2) is recommended for detection of HXK I of mouse and rat 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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

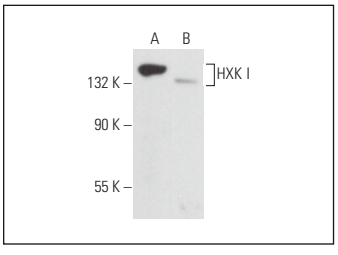
Molecular Weight of HXK I: 120 kDa.

Positive Controls: mouse brain extract: sc-2253, rat brain extract: sc-2392 or EOC 20 whole cell lysate: sc-364187.

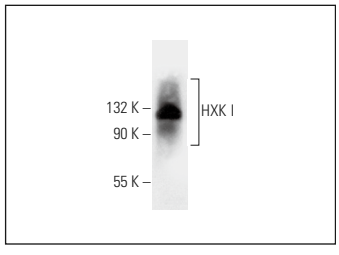
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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



HXK I (A-2): sc-390517. Western blot analysis of HXK I expression in rat brain tissue extract (**A**) and EOC 20 whole cell lysate (**B**).



HXK I (A-2): sc-390517. Western blot analysis of HXK I expression in mouse brain tissue extract.

RESEARCH USE

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