



HXK III (h): 293T Lysate: sc-114733

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 full length 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: HK3 (human) mapping to 5q35.2.

PRODUCT

HXK III (h): 293T Lysate represents a lysate of human HXK III transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

APPLICATIONS

HXK III (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive HXK III antibodies. Recommended use: 10-20 μ l per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

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.