

# HXK III (4F5): sc-81664

## 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  $\beta$  cells where it functions as a glucose sensor, determining the "set point" for Insulin secretion.

## REFERENCES

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- 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.
- 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.
- 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.
- 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.

## SOURCE

HXK III (4F5) is a mouse monoclonal antibody raised against full length recombinant HXK III of human origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG<sub>1</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

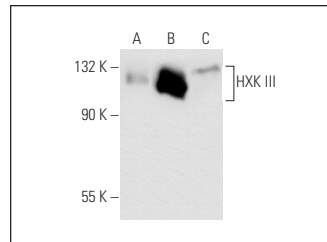
HXK III (4F5) is recommended for detection of HXK III of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for HXK III siRNA (h): sc-39046, HXK III shRNA Plasmid (h): sc-39046-SH and HXK III shRNA (h) Lentiviral Particles: sc-39046-V.

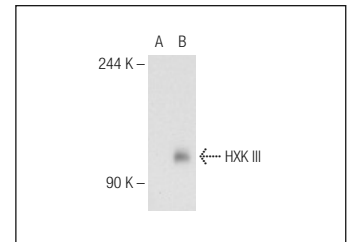
Molecular Weight of HXK III: 100 kDa.

Positive Controls: HXK III (h2): 293T Lysate: sc-159695, Hep G2 cell lysate: sc-2227 or HeLa whole cell lysate: sc-2200.

## DATA



HXK III (4F5): sc-81664. Western blot analysis of HXK III expression in non-transfected 293T: sc-117752 (A), human HXK III transfected 293T: sc-159695 (B) and HeLa (C) whole cell lysates.



HXK III (4F5): sc-81664. Western blot analysis of HXK III expression in non-transfected: sc-117752 (A) and human HXK III transfected: sc-170538 (B) 293T whole cell lysates.

## 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](http://www.scbt.com) for detailed protocols and support products.