SANTA CRUZ BIOTECHNOLOGY, INC.

BCKDK (H-280): sc-134640

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

BCKDK (branched chain ketoacid dehydrogenase kinase), also known as BCKDHKIN, is a 412 amino acid mitochondrial matrix protein that exists as a monomer and contains one histidine kinase domain. Expressed ubiquitously, BCKDK catalyzes the ATP-dependent phosphorylation and subsequent inactivation of the branched-chain α-ketoacid dehydrogenase (BCKD) complex, a regulatory enzyme complex that plays a crucial role in the catabolic pathways of valine, leucine and isoleucine. Specifically, the BCKD complex functions as the second enzyme in branched-chain amino acid (BCAA) catabolism, effectively catalyzing the irreversible oxidative decarboxylation of BCAAs. Due to the ability of BCKDK to regulate the activity of the BCKD complex, BCKDK plays an essential role in the catabolic pathways of branched-chain amino acid metabolism.

REFERENCES

1. Popov, K.M., Zhao, Y., Shimomura, Y., Kuntz, M.J. and Harris, R.A. 1992. Branched-chain α-ketoacid dehydrogenase kinase. Molecular cloning, expression, and sequence similarity with histidine protein kinases. J. Biol. Chem. 267: 13127-13130.
2. Popov, K.M., Hawes, J.W. and Harris, R.A. 1997. Mitochondrial α-ketoacid dehydrogenase kinases: a new family of protein kinases. Adv. Second Messenger Phosphoprotein Res. 31: 105-111.
3. Suryawan, A., Hawes, J.W., Harris, R.A., Shimomura, Y., Jenkins, A.E. and Hutson, S.M. 1998. A molecular model of human branched-chain amino acid metabolism. Am. J. Clin. Nutr. 68: 72-81.
4. Machius, M., Chuang, J.L., Wynn, R.M., Tomchick, D.R. and Chuang, D.T. 2001. Structure of rat BCKD kinase: nucleotide-induced domain communication in a mitochondrial protein kinase. Proc. Natl. Acad. Sci. USA 98: 11218-11223.
5. Chang, C.F., Chou, H.T., Chuang, J.L., Chuang, D.T. and Huang, T.H. 2002. Solution structure and dynamics of the lipoic acid-bearing domain of human mitochondrial branched-chain α-keto acid dehydrogenase complex. J. Biol. Chem. 277: 15865-15873.
6. Sweatt, A.J., Wood, M., Suryawan, A., Wallin, R., Willingham, M.C. and Hutson, S.M. 2004. Branched-chain amino acid catabolism: unique segregation of pathway enzymes in organ systems and peripheral nerves. Am. J. Physiol. Endocrinol. Metab. 286: E64-E76.

CHROMOSOMAL LOCATION

Genetic locus: BCKDK (human) mapping to 16p11.2; Bckdk (mouse) mapping to 7 F3.

SOURCE

BCKDK (H-280) is a rabbit polyclonal antibody raised against amino acids 1-280 mapping at the N-terminus of BCKDK of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

BCKDK (H-280) is recommended for detection of BCKDK of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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).

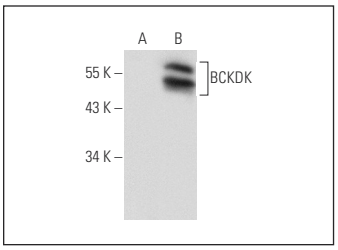
BCKDK (H-280) is also recommended for detection of BCKDK in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for BCKDK siRNA (h): sc-93313, BCKDK siRNA (m): sc-141669, BCKDK shRNA Plasmid (h): sc-93313-SH, BCKDK shRNA Plasmid (m): sc-141669-SH, BCKDK shRNA (h) Lentiviral Particles: sc-93313-V and BCKDK shRNA (m) Lentiviral Particles: sc-141669-V.

Molecular Weight of BCKDK: 46 kDa.

Positive Controls: human fetal brain tissue extract or BCKDK (h4): 293T Lysate: sc-158293.

DATA



BCKDK (H-280): sc-134640. Western blot analysis of BCKDK expression in non-transfected: sc-117752 (**A**) and human BCKDK transfected: sc-158293 (**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 or our catalog for detailed protocols and support products.

MONOS Satisfaction Guaranteed

Try **BCKDK (F-10): sc-374424** or **BCKDK (E-12): sc-374425**, our highly recommended monoclonal alternatives to BCKDK (H-280).