

BCKDK (h4): 293T Lysate: sc-158293

BACKGROUND

BCKDK (branched chain ketoacid dehydrogenase kinase), also known as BCKDKIN, 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.
7. Wynn, R.M., Kato, M., Machius, M., Chuang, J.L., Li, J., Tomchick, D.R. and Chuang, D.T. 2004. Molecular mechanism for regulation of the human mitochondrial branched-chain α -ketoacid dehydrogenase complex by phosphorylation. *Structure* 12: 2185-2196.
8. Brosnan, J.T. and Brosnan, M.E. 2006. Branched-chain amino acids: enzyme and substrate regulation. *J. Nutr.* 136: 207S-211S.

CHROMOSOMAL LOCATION

Genetic locus: BCKDK (human) mapping to 16p11.2.

RESEARCH USE

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

PRODUCT

BCKDK (h4): 293T Lysate represents a lysate of human BCKDK transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

APPLICATIONS

BCKDK (h4): 293T Lysate is suitable as a Western Blotting positive control for human reactive BCKDK antibodies. Recommended use: 10-20 μ l per lane.

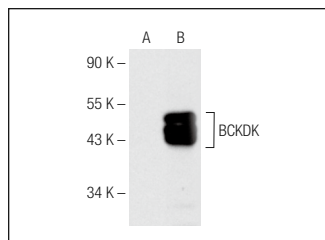
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

BCKDK (E-12): sc-374425 is recommended as a positive control antibody for Western Blot analysis of enhanced human BCKDK expression in BCKDK transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

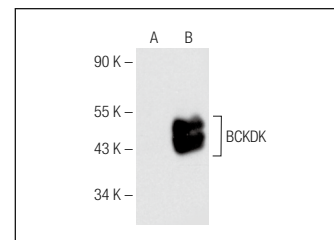
RECOMMENDED SUPPORT REAGENTS

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

DATA



BCKDK (E-12): sc-374425. Western blot analysis of BCKDK expression in non-transfected: sc-117752 (A) and human BCKDK transfected: sc-158293 (B) 293T whole cell lysates.



BCKDK (F-10): sc-374424. 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 -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.