

BCKDK (F-10): sc-374424

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., et al. 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., et al. 1997. Mitochondrial α -ketoacid dehydrogenase kinases: a new family of protein kinases. *Adv. Second Messenger Phosphoprotein Res.* 31: 105-111.
3. Suryawan, A., et al. 1998. A molecular model of human branched-chain amino acid metabolism. *Am. J. Clin. Nutr.* 68: 72-81.

CHROMOSOMAL LOCATION

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

SOURCE

BCKDK (F-10) is a mouse monoclonal antibody raised against amino acids 1-280 mapping at the N-terminus of BCKDK of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

BCKDK (F-10) is available conjugated to agarose (sc-374424 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-374424 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374424 PE), fluorescein (sc-374424 FITC), Alexa Fluor[®] 488 (sc-374424 AF488), Alexa Fluor[®] 546 (sc-374424 AF546), Alexa Fluor[®] 594 (sc-374424 AF594) or Alexa Fluor[®] 647 (sc-374424 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-374424 AF680) or Alexa Fluor[®] 790 (sc-374424 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

BCKDK (F-10) is recommended for detection of BCKDK of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

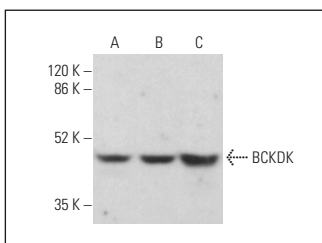
Suitable for use as control antibody for BCKDK siRNA (h): sc-93313, BCKDK siRNA (m): sc-141669, BCKDK shRNA Plasmid (h): sc-93313-SH, BCKDK shRNA Plasmid (m): sc-141669-SH, BCKDK shRNA (h) Lentiviral Particles: sc-93313-V and BCKDK shRNA (m) Lentiviral Particles: sc-141669-V.

Molecular Weight of BCKDK: 46 kDa.

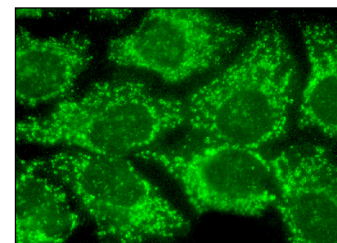
Positive Controls: Hep G2 cell lysate: sc-2227, HUV-EC-C whole cell lysate: sc-364180 or MCF7 whole cell lysate: sc-2206.

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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ 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

BCKDK (F-10): sc-374424. Western blot analysis of BCKDK expression in HUV-EC-C (A), MCF7 (B) and Hep G2 (C) whole cell lysates. Detection reagent used: m-IgG κ BP-HRP: sc-516102.



BCKDK (F-10): sc-374424. Immunofluorescence staining of methanol-fixed HeLa cells showing mitochondrial localization.

SELECT PRODUCT CITATIONS

1. He, Q.Z., et al. 2022. 3,6-dichlorobenzo[b]thiophene-2-carboxylic acid alleviates ulcerative colitis by suppressing mammalian target of rapamycin complex 1 activation and regulating intestinal microbiota. *World J. Gastroenterol.* 28: 6522-6536.
2. Wei, P., et al. 2022. Baitouweng decoction alleviates dextran sulfate sodium-induced ulcerative colitis by suppressing leucine-related mTORC1 signaling and reducing oxidative stress. *J. Ethnopharmacol.* 304: 116095.

RESEARCH USE

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