

Store at
-20°C

#34995

Branched-Chain Amino Acid Metabolism Antibody Sampler Kit



Cell Signaling
TECHNOLOGY®

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For Research Use Only. Not For Use In Diagnostic Procedures.

Product Includes	Product #	Quantity	Mol. Wt.	Isotype/Source
BCAT1 (D6D4K) Rabbit mAb	88785	20 µl	43 kDa	Rabbit IgG
BCAT2 (D8K30) Rabbit mAb	79764	20 µl	39 kDa	Rabbit IgG
BCKDH-E1α (E4T3D) Rabbit mAb	90198	20 µl	49 kDa	Rabbit IgG
Phospho-BCKDH-E1α (Ser293) (E2V6B) Rabbit mAb	40368	20 µl	49 kDa	Rabbit IgG
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat

See www.cellsignal.com for individual component applications, species cross-reactivity, dilutions and additional application protocols.

Description: The Branched-Chain Amino Acid Metabolism Antibody Sampler Kit provides an economical means of detecting select components involved in the branched-chain amino acid (BCAA) metabolism pathway. The kit includes enough antibodies to perform two western blot experiments with each primary antibody.

Background: BCAT1 and BCAT2 are cytosolic and mitochondrial branched-chain aminotransferases, respectively (1,2). Research studies have implicated BCAT1 in distant metastasis in patients with advanced colorectal cancer (3). Disruption of BCAT2 in mice leads to higher levels of plasma branched-chain amino acids (BCAAs), reduced adiposity and body weight, and increased energy expenditure, suggesting its role in regulating insulin sensitivity (4). BCAAs leucine, isoleucine, and valine are essential amino acids in mammals, but elevated levels of BCAAs have been implicated in cardiovascular and metabolic disorders (5). The branched-chain α -keto acid dehydrogenase complex (BCKDH) catalyzes the rate-limiting step in the BCAA degradation pathway (6,7). Branched-chain α -keto acid decarboxylase (BCKDH-E1) is one of three enzymatic components in this complex (7). The α subunit of BCKDH-E1 (BCKDH-E1 α) is critical for the regulation of BCKDH. Phosphorylation of BCKDH-E1 α was shown to play a key role in regulating the enzymatic activity of this complex (7-9). Phosphorylation of BCKDH-E1 α at Ser293 inactivates BCKDH (7,8). A significant elevation in plasma BCAA levels was reported to correlate with increased phosphorylation of BCKDH-E1 α at Ser293 and suppressed BCKDH activity in the liver of diabetic mice (9).

Specificity/Sensitivity: Each antibody in the Branched-Chain Amino Acid Metabolism Antibody Sampler Kit detects endogenous levels of its target protein. BCAT1 (D6D4K) Rabbit mAb does not cross-react with BCAT2 protein. BCAT2 (D8K30) Rabbit mAb does not cross-react with BCAT1 protein. Phospho-BCKDH-E1 α (Ser293) (E2V6B) Rabbit mAb recognizes endogenous levels of BCKDH-E1 α protein only when phosphorylated at Ser292 of mature human BCKDH-E1 α , Ser293 of mature mouse BCKDH-E1 α , or Ser293 of mature rat BCKDH-E1 α .

Source/Purification: Monoclonal antibodies are produced by immunizing animals with synthetic peptides corresponding to residues near the amino terminus of human BCAT1 protein, residues surrounding Leu39 of human BCAT2 protein, residues near the carboxy terminus of human BCKDH-E1 α protein, and a synthetic phosphopeptide corresponding to residues surrounding Ser292 of mature human BCKDH-E1 α protein, which corresponds to Ser293 of mature mouse BCKDH-E1 α protein and Ser293 of mature rat BCKDH-E1 α protein.

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibodies.

Please visit www.cellsignal.com for validation data and a complete listing of recommended companion products.

Background References:

- (1) Bledsoe, R.K. et al. (1997) *Biochim Biophys Acta* 1339, 9-13.
- (2) Suryawan, A. et al. (1998) *Am J Clin Nutr* 68, 72-81.
- (3) Yoshikawa, R. et al. (2006) *World J Gastroenterol* 12, 5884-9.
- (4) She, P. et al. (2007) *Cell Metab* 6, 181-94.
- (5) Li, T. et al. (2017) *Cell Metab* 25, 374-385.
- (6) Shin, A.C. et al. (2014) *Cell Metab* 20, 898-909.
- (7) Lu, G. et al. (2009) *J Clin Invest* 119, 1678-87.
- (8) Harris, R.A. et al. (1997) *Adv Enzyme Regul* 37, 271-93.
- (9) Lian, K. et al. (2015) *Diabetes* 64, 49-59.

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Applications: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide **Species Cross-Reactivity:** H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—Horse All—all species expected **Species enclosed in parentheses are predicted to react based on 100% homology.**