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KO-Validated Anti-BCKDK Rabbit Polyclonal Antibody

Rabbit polyclonal antibody
Catalog # AGI2405

Specification

KO-Validated Anti-BCKDK Rabbit Polyclonal Antibody - Product Information

Application	**WB**
Primary Accession	O14874
Reactivity	**Rat, Human, Mouse**
Clonality	**Polyclonal**
Isotype	**Rabbit IgG**
Calculated MW	**Predicted, 46 kDa, observed, 42 kDa KDa**
Gene Name	**BCKDK**
Aliases	**BCKDK; Branched Chain Keto Acid Dehydrogenase Kinase; [3-Methyl-2-Oxobutanoate Dehydrogenase [Lipoamide]] Kinase, Mitochondrial; Branched-Chain Alpha-Ketoacid Dehydrogenase Kinase; BCKDH Kinase; EC 2.7.11.4; BCKDHKIN; BDK; 3-Methyl-2-Oxobutanoate Dehydrogenase [Lipoamide] Kinase, Mitochondrial; Branched Chain Alpha-Ketoacid Dehydrogenase Kinase; Branched Chain Ketoacid Dehydrogenase Kinase; BCKD-Kinase; EC 2.7.11.1; EC 2.7.11; BCKDKD**
Immunogen	**A synthesized peptide derived from human BCKDK**

KO-Validated Anti-BCKDK Rabbit Polyclonal Antibody - Additional Information

Gene ID	**10295**

Other Names
Branched-chain alpha-ketoacid dehydrogenase kinase, BCKDH kinase, BCKDHKIN, BDK, 2.7.11.1, [3-methyl-2-oxobutanoate dehydrogenase [lipoamide]] kinase, mitochondrial, 2.7.11.4, BCKDK {ECO:0000303|PubMed:29779826, ECO:0000312|HGNC:HGNC:16902}

KO-Validated Anti-BCKDK Rabbit Polyclonal Antibody - Protein Information

Name BCKDK {ECO:0000303|PubMed:29779826, ECO:0000312|HGNC:HGNC:16902}

Function
Serine/threonine-protein kinase component of macronutrients metabolism. Forms a functional kinase and phosphatase pair with PPM1K, serving as a metabolic regulatory node that coordinates branched-chain amino acids (BCAAs) with glucose and lipid metabolism via two distinct phosphoprotein targets: mitochondrial BCKDHA subunit of the branched- chain alpha-ketoacid dehydrogenase (BCKDH) complex and cytosolic ACLY, a lipogenic enzyme of Krebs cycle

(PubMed:24449431, PubMed:29779826, PubMed:37558654). Phosphorylates and inactivates mitochondrial BCKDH complex a multisubunit complex consisting of three multimeric components each involved in different steps of BCAA catabolism: E1 composed of BCKDHA and BCKDHB, E2 core composed of DBT monomers, and E3 composed of DLD monomers. Associates with the E2 component of BCKDH complex and phosphorylates BCKDHA on Ser-337, leading to conformational changes that interrupt substrate channeling between E1 and E2 and inactivates the BCKDH complex (PubMed:29779826, PubMed:37558654). Phosphorylates ACLY on Ser-455 in response to changes in cellular carbohydrate abundance such as occurs during fasting to feeding metabolic transition. Refeeding stimulates MLXIPL/ChREBP transcription factor, leading to increased BCKDK to PPM1K expression ratio, phosphorylation and activation of ACLY that ultimately results in the generation of malonyl-CoA and oxaloacetate immediate substrates of de novo lipogenesis and glucogenesis, respectively (PubMed:29779826). Recognizes phosphosites having SxxE/D canonical motif (PubMed:29779826).

Cellular Location
Mitochondrion matrix {ECO:0000250|UniProtKB:Q00972, ECO:0000305|PubMed:24449431}
Note=Detected in the cytosolic compartment of liver cells {ECO:0000250|UniProtKB:Q00972}

Tissue Location
Ubiquitous.

KO-Validated Anti-BCKDK Rabbit Polyclonal Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

KO-Validated Anti-BCKDK Rabbit Polyclonal Antibody - Images

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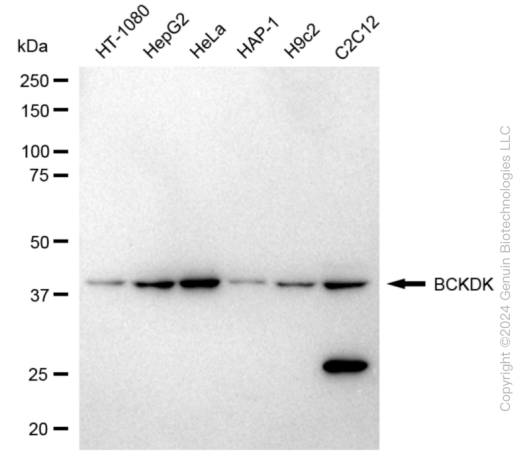
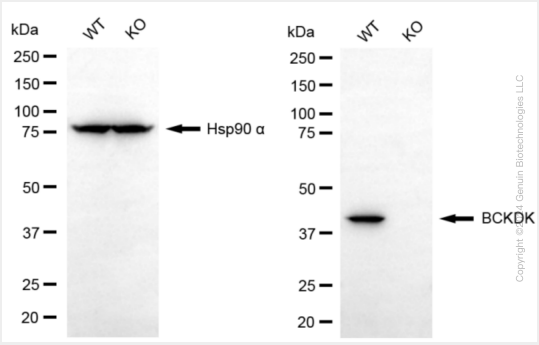


Western blotting analysis using anti-BCKDK antibody (Cat#AGI2405). Total cell lysates (30 µg) from various cell lines were loaded and separated by SDS-PAGE. The blot was incubated with anti-BCKDK antibody (Cat#AGI2405, 1:5,000) and HRP-conjugated goat anti-rabbit secondary antibody respectively.



Western blotting analysis using anti-BCKDK antibody (Cat#AGI2405). BCKDK expression in wild type (WT) and BCKDK knockout (KO) 293T cells with 20 µg of total cell lysates. Hsp90 α serves as a loading control. The blot was incubated with anti-BCKDK antibody (Cat#AGI2405, 1:5,000) and HRP-conjugated goat anti-rabbit secondary antibody respectively.