

**BCKDK Antibody**  
Rabbit mAb  
Catalog # AP92905

## Specification

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### BCKDK Antibody - Product Information

Application	WB
Primary Accession	<a href="#">O14874</a>
Reactivity	Rat
Clonality	Monoclonal
<b>Other Names</b>	
BCKD kinase; BCKDHKIN; Bckdk; BCKDKD; BDK;	
Isotype	Rabbit IgG
Host	Rabbit
Calculated MW	46360 Da

### BCKDK Antibody - Additional Information

Purification	<b>Affinity-chromatography</b>
Immunogen	<b>A synthesized peptide derived from human BCKDK</b>
Description	<b>Catalyzes the phosphorylation and inactivation of the branched-chain alpha-ketoacid dehydrogenase complex, the key regulatory enzyme of the valine, leucine and isoleucine catabolic pathways. Key enzyme that regulate the activity state of the BCKD complex.</b>
Storage Condition and Buffer	<b>Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol. Store at +4°C short term. Store at -20°C long term. Avoid freeze / thaw cycle.</b>

### BCKDK 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](http://www.uniprot.org/citations/24449431), PubMed: [29779826](http://www.uniprot.org/citations/29779826), PubMed: [37558654](http://www.uniprot.org/citations/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:<a href="http://www.uniprot.org/citations/29779826" target="\_blank">29779826</a>, PubMed:<a href="http://www.uniprot.org/citations/37558654" target="\_blank">37558654</a>). 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 gluconeogenesis, respectively (PubMed:<a href="http://www.uniprot.org/citations/29779826" target="\_blank">29779826</a>). Recognizes phosphosites having SxxE/D canonical motif (PubMed:<a href="http://www.uniprot.org/citations/29779826" target="\_blank">29779826</a>).

### 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

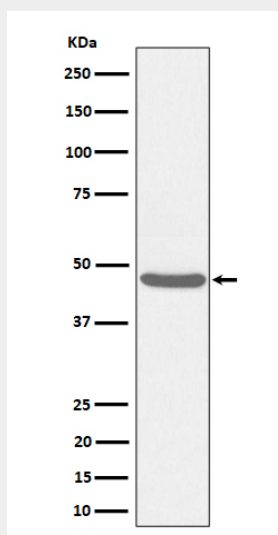
Ubiquitous.

## BCKDK 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 Cytometry](#)
- [Cell Culture](#)

## BCKDK Antibody - Images



Western blot analysis of BCKDK expression in HeLa cell lysate.