Recombinant BCKD protein (His tag)

Catalog Number	541728
Synonyms	BCKDH kinase; BCKDHKIN; BDK; [3-methyl-2-oxobutanoate dehydrogenase [lipoamide]] kinase, mitochondrial
Species	Human
Expression System	E. coli
Accession	O14874
Molecular Weight	Predictes a molecular mass of 33.86 kDa. In SDS-PAGE under reducing conditions, it migrates as an approximately 35 kDa band.

Product Information

Sequence Region	57-337
Form	Lyophilized powder
Formulation	Lyophilized from sterile PBS, pH 7.4
Purity	>89%, by SDS-PAGE with Coomassie Brilliant Blue staining.
Endotoxin	Not tested.
Activity	Not tested.
Stability	Samples are stable for up to twelve months from date of receipt at -70℃
Protein Construction	DNA encoding 57-337 aa (O14874) were fused with 6His tag.

Storage & Handling

Reconstitution	Reconstitute at 0.25 μg/μl in sterile water for short-term storage. Reconstitution with 50% glycerol solution is recommended for longer term storage (see Stability and Storage for more details). If a different concentration is needed for your purposes please adjust the reconstitution volume as required (please note: the ion concentration of the final solution will vary according to the volume used). Note: Centrifuge vial before opening. When reconstituting, gently pipet and wash down the sides of the vial to ensure full recovery of the protein into solution.
Storage	Store it under sterile conditions at -20℃ to -80℃. It is recommended that the protein be aliquoted for optimal storage. Avoid repeated freeze-thaw cycles.
Shipping	In general, recombinant proteins are provided as lyophilized powder which are shipped at ambient temperature. Bulk packages of recombinant proteins are provided as frozen liquid. They are shipped out with blue ice unless customers require otherwise.

Description

Description	Recombinant Human Branched-chain alpha-ketoacid dehydrogenase kinase (BCKDK) fragment (residues 57-337) is a highly purified protein designed for metabolic pathway research. This 281-amino acid fragment maintains structural stability and solubility, making it ideal for functional studies, biochemical assays, and structural analysis of this key regulatory kinase. Branched-chain alpha-ketoacid dehydrogenase kinase (BCKDK) is a serine/threonine-protein kinase that serves as a crucial metabolic regulatory node coordinating branched-chain amino acids (BCAAs) with glucose and lipid metabolism. The full-length protein functions in mitochondrial matrix and cytosolic compartments, where it forms a kinase-phosphatase pair with PPM1K. BCKDK phosphorylates and inactivates the mitochondrial BCKDH complex by targeting BCKDHA subunit at Ser-337, thereby regulating BCAA catabolism. Additionally, it phosphorylates cytosolic ACLY at Ser-455 in response to cellular carbohydrate availability, linking nutrient status to lipogenesis and glucogenesis pathways through the generation of malonyl-CoA and oxaloacetate. This kinase recognizes phosphosites with the SxxE/D canonical motif and plays a vital role in metabolic transitions during fasting-to-feeding cycles.