Mouse Pdk2 Antibody (N-Term) Blocking Peptide

PRODUCT OVERVIEW

Product Name	Pdk2, Blocking Peptide
Full Product Name	Mouse Pdk2 Antibody (N-term) Blocking peptide
Product Gene Name	Pdk2 blocking peptide
Product Synonym Names	[Pyruvate dehydrogenase (acetyl-transferring)] kinase isozyme 2; mitochondrial; Pyruvate dehydrogenase kinase isoform 2; PDH kinase 2; Pdk2
Form/Format	Synthetic peptide was lyophilized with 100% acetonitrile and is supplied as a powder. Reconstitute with 0.1 ml DI water for a final concentration of 1 mg/ml.
Specificity	The synthetic peptide sequence used to generate the antibody was selected from the N-term region of Mouse Pdk2. A 10 to 100 fold molar excess to antibody is recommended. Precise conditions should be optimized for a particular assay.
Preparation and Storage	Maintain refrigerated at 2-8 degree C for up to 6 months. For long term storage store at -20 degree C.
Antibody/Peptide Pairs	Pdk2 peptide (MBS9220439) is used for blocking the activity of Pdk2 antibody (MBS9204792)
Molecular Weight	46,041 Da
Cellular Location	Mitochondrion matrix
Tissue Location	Detected in heart (at protein level).
Related Product Information for Pdk2 blocking peptide	Kinase that plays a key role in the regulation of glucose and fatty acid metabolism and homeostasis via phosphorylation of the pyruvate dehydrogenase subunits PDHA1 and PDHA2. This inhibits pyruvate dehydrogenase activity, and thereby regulates metabolite flux through the tricarboxylic acid cycle, down-regulates aerobic respiration and inhibits the formation of acetyl-coenzyme A from pyruvate. Inhibition of pyruvate dehydrogenase decreases glucose utilization and increases fat metabolism. Mediates cellular responses to insulin. Plays an important role in maintaining normal blood glucose levels and in metabolic adaptation to nutrient availability. Via its regulation of pyruvate dehydrogenase activity, plays an important role in maintaining normal blood pH and in preventing the accumulation of ketone bodies under starvation. Plays a role in the regulation of cell proliferation and in resistance to apoptosis under oxidative stress. Plays a role in p53/TP53-mediated apoptosis.
Other Notes	Small volumes of Pdk2 blocking peptide vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.
Searchable Terms for Pdk2 purchase	MBS9220439 is a blocking peptide targeting Pdk2. Also known as Mouse Pdk2 Antibody (N-term) Blocking peptide.

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for Pdk2. It may not necessarily be applicable to this product.

NCBI GI #	341941241
NCBI GeneID	18604
NCBI Accession #	Q9JK42.2
UniProt Primary Accession #	Q9JK42
UniProt Secondary Accession #	Q8VC63
UniProt Related Accession #	Q9JK42
NCBI Official Full Name	[Pyruvate dehydrogenase (acetyl-transferring)] kinase isozyme 2, mitochondrial

NCBI Official Synonym Full Names	pyruvate dehydrogenase kinase, isoenzyme 2
NCBI Official Symbol	Pdk2
UniProt Protein Name	[Pyruvate dehydrogenase (acetyl-transferring)] kinase isozyme 2, mitochondrial
UniProt Synonym Protein Names	Pyruvate dehydrogenase kinase isoform 2; PDH kinase 2
UniProt Gene Name	Pdk2
UniProt Synonym Gene Names	PDH kinase 2
UniProt Entry Name	PDK2_MOUSE
NCBI Protein Information	pyruvate dehydrogenase kinase, isoenzyme 2
UniProt Comments for Pdk2	PDHK2: an atypical protein kinase associated with the mitochondrial matrix. The PDHKs play crucial roles in switching metabolic flux from oxidative phosphorylation towards glycolysis. PDHK2 is expressed in all tissues. Contains a HATPase_c catalytic domain, found in several ATP-binding proteins including protein histidine kinases (PHKs), PHDKs, DNA gyrase B, topoisomerases, heat shock proteins, and DNA mismatch repair proteins. PDHK regulates glucose oxidation through inhibitory phosphorylation of the E1 alpha subunit of the mitochondrial pyruvate dehydrogenase complex (PDHC) at any one of 3 inhibitory serine residues. Inhibitory sites 1, 2, and 3 correspond to S293, S300, and S232 in human PDHA1, respectively. Four PDHK isoenzymes have been described, each with different site specificity: all four phosphorylate sites 1 and 2 but at different rates; for site 1 PDHK2 >PDHK4 >PDHK1 >PDHK3; for site 2, PDHK3> PDHK4 > PDHK2 > PDHK1. Only PDHK1 phosphorylates site 3. PDHKs are recruited to the PDHC by binding to a lipoyl group covalently attached to the inner lipoyl domain of the E2 component. PDHA1 deficiency is the most common enzyme defect in patients with primary lactic acidosis. Suppression of PDH by PDHK inhibits the conversion of pyruvate to acetyl-CoA, attenuates mitochondrial respiration, and may contribute to the increased lactate production observed in many tumors. The PDH pathway is repressed in a majority of non-small cell lung carcinomas. Inhibited by AZD7545, dichloroacetate (DCA), and radicicol. Radicicol inhibits kinase activity by binding directly to the ATP-binding pocket of PDHK, similar to HSP90 from the same ATPase/kinase superfamily. Protein type: Mitochondrial; EC 2.7.11.2; Kinase, protein; Protein kinase, atypical; ATYPICAL group; PDHK family; PDHK subfamily Cellular Component: cytoplasm; intracellular; mitochondrial pyruvate dehydrogenase complex; mitochondrion; nucleoplasm; pyruvate dehydrogenase complex Molecular Function: ATP binding; protein binding; protein complex binding; protein heterodimerization activity; protein homodimerization activity; protein serine/threonine kinase activity; pyruvate dehydrogenase (acetyl-transferring) kinase activity Biological Process: cellular response to nutrient; glucose homeostasis; insulin receptor signaling pathway; peptidyl-serine phosphorylation; protein amino acid phosphorylation; regulation of acetyl-CoA biosynthetic process from pyruvate; regulation of gluconeogenesis; regulation of pH
Research Articles on Pdk2	**1.** These findings reveal that there are divergent roles of PDKs during oocyte maturation and indicate a new mechanism controlling meiotic structure.
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