PDHB siRNA – Pyruvate Dehydrogenase E1 Component Subunit Beta, Mitochondrial Isoform 1 (Human)

PRODUCT OVERVIEW

Product Name	PDHB, siRNA
Full Product Name	PDHB siRNA (Human)
Product Gene Name	PDHB sirna
Product Synonym Names	PHE1B; Pyruvate dehydrogenase E1 component subunit beta mitochondrial; PDHE1-B
Host	Synthetic
Species Reactivity	Human
Form/Format	Lyophilized powder
Purity/Purification	> 97%
Specificity	PDHB siRNA (Human) is a target-specific 19-23 nt siRNA oligo duplexes designed to knock down gene expression.
Preparation and Storage	Shipped at 4 degree C. Store at -20 degree C for one year.
Molecular Weight	37,514 Da
OMIM	179060
3D Structure	ModBase 3D Structure for P11177
Negative Control	siRNA Negative Control (Catalog# MBS8241404) is a non-targeting 21 nt siRNA recommended as a negative control for experiments using targeted siRNA transfection.
Quality Control	Oligonucleotide synthesis is monitored base by base through trityl analysis to ensure appropriate coupling efficiency. The oligo is subsequently purified by affinity-solid phase extraction. The annealed RNA duplex is further analyzed by mass spectrometry to verify the exact composition of the duplex. Each lot is compared to the previous lot by mass spectrometry to ensure maximum lot-to-lot consistency.
Directions for Use	We recommends transfection with 100 nM siRNA 48 to 72 hours prior to cell lysis. Before resuspending, briefly centrifuge the tube to ensure the lyophilized siRNA is at the bottom of the tube. Resuspend the siRNA oligos to an appropriate concentration with DEPC water. For each vial, suitable for 250 transfections in 24 well plate (20 pmol for each well).
Components	We offer pre-designed sets of 3 different target-specific siRNA oligo duplexes of human PDHB gene. Each vial contains 5 nmol of lyophilized siRNA. The duplexes can be transfected individually or pooled together to achieve knockdown of the target gene, which is most commonly assessed by qPCR or western blot. Our siRNA oligos are also chemically modified (2'-OMe) at no extra charge for increased stability and enhanced knockdown in vitro and in vivo.
Applications Tested/Suitable for PDHB sirna	RNA Interference (RNAi)
Related Product Information for PDHB sirna	MBS8214043 is an siRNA targeting PDHB. Also known as PDHB siRNA (Human). Reactive in Human. Host: Synthetic. siRNA to inhibit PDHB expression using RNA interference
Other Notes	Small volumes of PDHB sirna 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.

ADDITIONAL DETAILS

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

NCBI GI #	156564403
NCBI GeneID	5162
NCBI Accession #	NP_000916.2
UniProt Primary Accession #	P11177
UniProt Secondary Accession #	Q6FH45; Q9BQ27; Q9UFK3; B2R7L0; B4DDD7
UniProt Related Accession #	P11177
GenBank Nucleotide #	NM_000925.3
NCBI Official Full Name	pyruvate dehydrogenase E1 component subunit beta, mitochondrial isoform 1
NCBI Official Synonym Full Names	pyruvate dehydrogenase (lipoamide) beta
NCBI Official Symbol	PDHB
NCBI Official Synonym Symbols	PDHBD; PHE1B; PDHE1-B
UniProt Protein Name	Pyruvate dehydrogenase E1 component subunit beta, mitochondrial
Protein Family	Pyruvate dehydrogenase E1 component
UniProt Gene Name	PDHB
UniProt Synonym Gene Names	PHE1B; PDHE1-B
UniProt Entry Name	ODPB_HUMAN
NCBI Protein Information	pyruvate dehydrogenase E1 component subunit beta, mitochondrial
NCBI Summary for PDHB	The pyruvate dehydrogenase (PDH) complex is a nuclear-encoded mitochondrial multienzyme complex that catalyzes the overall conversion of pyruvate to acetyl-CoA and carbon dioxide, and provides the primary link between glycolysis and the tricarboxylic acid (TCA) cycle. The PDH complex is composed of multiple copies of three enzymatic components: pyruvate dehydrogenase (E1), dihydrolipoamide acetyltransferase (E2) and lipoamide dehydrogenase (E3). The E1 enzyme is a heterotetramer of two alpha and two beta subunits. This gene encodes the E1 beta subunit. Mutations in this gene are associated with pyruvate dehydrogenase E1-beta deficiency. Alternatively spliced transcript variants have been found for this gene. [provided by RefSeq, Mar 2012]

UniProt Comments for PDHB	PDHB: the beta subunit of pyruvate dehydrogenase (PDH), a mitochondrial matrix enzyme that catalyzes the oxidative decarboxylation of pyruvate, producing acetyl-CoA and CO2. A key enzyme in controlling the balance between lipid and glucose oxidation depending on substrate availability. The pyruvate dehydrogenase (PDH) holoenzyme is a multi-enzyme complex (PDHC) that contains 20-30 copies of pyruvate decarboxylase tetramers (2 alpha:2 beta)(E1), 60 copies of dihydrolipoamide acetyltransferase (E2), six homodimers of dihydrolipoamide dehydrogenase (E3), plus E3 binding proteins. Defects in PDHB are a cause of pyruvate dehydrogenase E1 component deficiency (PDHE1 deficiency), the most common enzyme defect in patients with primary lactic acidosis. It is associated with variable clinical phenotypes ranging from neonatal death to prolonged survival complicated by developmental delay, seizures, ataxia, apnea, and in some cases to an X-linked form of Leigh syndrome (LS). Two alternatively spliced human isoforms have been described. Protein type: Carbohydrate Metabolism - butanoate; EC 1.2.4.1; Carbohydrate Metabolism - glycolysis and gluconeogenesis; Amino Acid Metabolism - valine, leucine and isoleucine biosynthesis; Carbohydrate Metabolism - pyruvate; Carbohydrate Metabolism - citrate (TCA) cycle; Mitochondrial; Oxidoreductase Chromosomal Location of Human Ortholog: 3p21.1-p14.2 Cellular Component: nucleoplasm; mitochondrion; mitochondrial matrix; pyruvate dehydrogenase complex; nucleus Molecular Function: protein binding; pyruvate dehydrogenase activity; pyruvate dehydrogenase (acetyl-transferring) activity Biological Process: acetyl-CoA biosynthetic process from pyruvate; cellular metabolic process; tricarboxylic acid cycle; glucose metabolic process; regulation of acetyl-CoA biosynthetic process from pyruvate; pyruvate metabolic process Disease: Pyruvate Dehydrogenase E1-beta Deficiency
Research Articles on PDHB	**1.** Data indicate that (pro)renin receptor ATP6PA2 interacts with the E1 beta subunit of pyruvate dehydrogenase and controlling its protein stability
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