EARS2 siRNA – Probable Glutamate--Trna Ligase, Mitochondrial Isoform 1 (Human)

PRODUCT OVERVIEW

Product Name	EARS2, siRNA
Full Product Name	EARS2 siRNA (Human)
Product Gene Name	EARS2 sirna
Product Synonym Names	KIAA1970; Probable glutamate--tRNA ligase mitochondrial; Glutamyl-tRNA synthetase; GluRS
Host	Synthetic
Species Reactivity	Human
Form/Format	Lyophilized powder
Purity/Purification	> 97%
Specificity	EARS2 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	59,989 Da
OMIM	612799
3D Structure	ModBase 3D Structure for Q5JPH6
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 EARS2 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 EARS2 sirna	RNA Interference (RNAi)
Related Product Information for EARS2 sirna	MBS8205156 is an siRNA targeting EARS2. Also known as EARS2 siRNA (Human). Reactive in Human. Host: Synthetic. siRNA to inhibit EARS2 expression using RNA interference
Other Notes	Small volumes of EARS2 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 EARS2. It may not necessarily be applicable to this product.

NCBI GI #	134288884
NCBI GeneID	124454
NCBI Accession #	NP_001077083.1
UniProt Primary Accession #	Q5JPH6
UniProt Secondary Accession #	Q86YH3; Q8TF31; B3KTT2; D3DWF1
UniProt Related Accession #	Q5JPH6
GenBank Nucleotide #	NM_001083614.1
NCBI Official Full Name	probable glutamate--tRNA ligase, mitochondrial isoform 1
NCBI Official Synonym Full Names	glutamyl-tRNA synthetase 2, mitochondrial
NCBI Official Symbol	EARS2
NCBI Official Synonym Symbols	MSE1; gluRS; COXPD12
UniProt Protein Name	Probable glutamate--tRNA ligase, mitochondrial
UniProt Synonym Protein Names	Glutamyl-tRNA synthetase; GluRS
Protein Family	Probable glutamate--tRNA ligase
UniProt Gene Name	EARS2
UniProt Synonym Gene Names	KIAA1970; GluRS
UniProt Entry Name	SYEM_HUMAN
NCBI Protein Information	probable glutamate--tRNA ligase, mitochondrial
NCBI Summary for EARS2	This gene encodes a member of the class I family of aminoacyl-tRNA synthetases. These enzymes play a critical role in protein biosynthesis by charging tRNAs with their cognate amino acids. This protein is encoded by the nuclear genome but is likely to be imported to the mitochondrion where it is thought to catalyze the ligation of glutamate to tRNA molecules. Mutations in this gene have been associated with combined oxidative phosphorylation deficiency 12 (COXPD12). Alternative splicing results in multiple transcript variants. [provided by RefSeq, Mar 2015]
UniProt Comments for EARS2	EARS2: Catalyzes the attachment of glutamate to tRNA(Glu) in a two-step reaction: glutamate is first activated by ATP to form Glu-AMP and then transferred to the acceptor end of tRNA(Glu). Belongs to the class-I aminoacyl-tRNA synthetase family. Protein type: Cofactor and Vitamin Metabolism - porphyrin and chlorophyll; Ligase; EC 6.1.1.17; Mitochondrial; Translation Chromosomal Location of Human Ortholog: 16p12.2 Cellular Component: mitochondrion; mitochondrial matrix Molecular Function: glutamate-tRNA(Gln) ligase activity; glutamate-tRNA ligase activity; ATP binding; tRNA binding Biological Process: tRNA aminoacylation for protein translation; glutamyl-tRNA aminoacylation; gene expression Disease: Combined Oxidative Phosphorylation Deficiency 12
Research Articles on EARS2	**1.** This study presented that a new neurological disease, early-onset leukoencephalopathy with thalamus and brainstem involvement and high lactate, defined by a peculiar biphasic clinical course and caused by mutations in a single gene, EARS2.

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