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TPK1 siRNA (m): sc-154570

BACKGROUND

TPK1 (thiamin pyrophosphokinase 1), also known as PP20 (placental protein 20), is a 243 amino acid protein that catalyzes the phosphorylation of thiamine with adenosine 5'-triphosphate to form thiamine pyrophosphate. Thiamine pyrophosphate (TPP) is an essential cofactor of the cytosolic transketolase and of three mitochondrial enzymes involved in the oxidative decarboxylation of either pyruvate, α -ketoglutarate or branched chain amino acids. TPK1 can also catalyze the phosphorylation of pyrithiamine to pyrithiamine pyrophosphate. Belonging to the thiamine pyrophosphokinase family, TPK1 is lowly expressed in a variety of tissues as a homodimer. Mutations in the gene encoding TPK1 results in Thiamine metabolism dysfunction syndrome 5, episodic encephalopathy type (THMD5), an autosomal recessive metabolic disorder due to an inborn error of thiamine metabolism.

REFERENCES

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CHROMOSOMAL LOCATION

Genetic locus: *Tpk1* (mouse) mapping to 6 B2.1.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

TPK1 siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TPK1 shRNA Plasmid (m): sc-154570-SH and TPK1 shRNA (m) Lentiviral Particles: sc-154570-V as alternate gene silencing products.

For independent verification of TPK1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-154570A, sc-154570B and sc-154570C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

TPK1 siRNA (m) is recommended for the inhibition of TPK1 expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 μ M in 66 μ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TPK1 gene expression knockdown using RT-PCR Primer: TPK1 (m)-PR: sc-154570-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.