SANTA CRUZ BIOTECHNOLOGY, INC.

PANK1 siRNA (m): sc-76041

BACKGROUND

The pantothenate kinase (PANK) family of proteins catalyzes the first step in coenzyme A (CoA). Pantothenate kinase 1 (PANK1) is a 598 amino acid member of the pantothenate kinase family that plays a role in the physiological regulation of the intracellular CoA concentration. Localized to the cytoplasm, PANK1 is strongly inhibited by acetyl-CoA and manyl-CoA, as well as by high concentration of non-esterified CoA (CoASH). Four known isoforms of PANK1 exist as a result of alternative splicing events. Of these isoforms, PANK1α and PANK1β have been identified as the catalytically active isoforms. Isoform PANK1α is most highly expressed in brain, heart, kidney, liver, skeletal muscle and kidney. Isoform PANK1β is detected at much lower levels in kidney, liver, brain and testis and is not detected in heart or skeletal muscle.

REFERENCES

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4. Ni, X., et al. 2002. Cloning and characterization of a novel human pantothenate kinase gene. Int. J. Biochem. Cell Biol. 34: 109-115.
5. Ramaswamy, G., et al. 2004. PPARα controls the intracellular coenzyme A concentration via regulation of PANK1α gene expression. J. Lipid Res. 45: 17-31.
6. Tilton, G.B., et al. 2006. Plant coenzyme A biosynthesis: characterization of two pantothenate kinases from *Arabidopsis*. Plant Mol. Biol. 61: 629-642.
7. Hong, B.S., et al. 2007. Crystal structures of human pantothenate kinases. Insights into allosteric regulation and mutations linked to a neurodegeneration disorder. J. Biol. Chem. 282: 27984-27993.
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CHROMOSOMAL LOCATION

Genetic locus: Pank1 (mouse) mapping to 19 C1.

PRODUCT

PANK1 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PANK1 shRNA Plasmid (m): sc-76041-SH and PANK1 shRNA (m) Lentiviral Particles: sc-76041-V as alternate gene silencing products.

For independent verification of PANK1 (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-76041A, sc-76041B and sc-76041C.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

PANK1 siRNA (m) is recommended for the inhibition of PANK1 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 µM in 66 µl. 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.

GENE EXPRESSION MONITORING

PANK1 (B-9): sc-390865 is recommended as a control antibody for monitoring of PANK1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PANK1 gene expression knockdown using RT-PCR Primer: PANK1 (m)-PR: sc-76041-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.