SANTA CRUZ BIOTECHNOLOGY, INC.

LeuRS siRNA (m): sc-75417

BACKGROUND

Cytoplasmic leucyl-tRNA synthetase (LeuRS), also known as Leucine-tRNA ligase or LARS, is a 1176 amino acid protein belonging to the class-I aminoacyl-tRNA synthetase family. Localized to the cytoplasm, LeuRS functions primarily in aminoacylation, ATP binding and RNA splicing. The primary structure that facilitates these roles is the C-terminal domain extension, which is indispensable for the interaction of LeuRS with other molecules, such as cytosolic arginyl-tRNA synthetase. The gene encoding LeuRS maps to chromosome 5q32. Chromosome 5 encodes 6% of human genomic DNA and is associated with Cockayne syndrome and familial adenomatous polyposis.

REFERENCES

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2. Karkhanis, V.A., et al. 2006. A viable amino acid editing activity in the leucyl-tRNA synthetase CP1-splicing domain is not required in the yeast mitochondria. J. Biol. Chem. 281: 33217-33225.
3. Zhai, Y., et al. 2007. Modulation of substrate specificity within the amino acid editing site of leucyl-tRNA synthetase. Biochemistry 46: 3331-3337.
4. Lue, S.W. and Kelley, S.O. 2007. A single residue in leucyl-tRNA synthetase affecting amino acid specificity and tRNA aminoacylation. Biochemistry 46: 4466-4472.
5. Nawaz, M.H., et al. 2007. Molecular and functional dissection of a putative RNA-binding region in yeast mitochondrial leucyl-tRNA synthetase. J. Mol. Biol. 367: 384-394.
6. Rock, F.L., et al. 2007. An antifungal agent inhibits an aminoacyl-tRNA synthetase by trapping tRNA in the editing site. Science 316: 1759-1761.
7. Yao, P., et al. 2008. Unique residues crucial for optimal editing in yeast cytoplasmic leucyl-tRNA synthetase are revealed by using a novel knockout yeast strain. J. Biol. Chem. 283: 22591-22600.

CHROMOSOMAL LOCATION

Genetic locus: Lars (mouse) mapping to 18 B3.

PRODUCT

LeuRS 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 LeuRS shRNA Plasmid (m): sc-75417-SH and LeuRS shRNA (m) Lentiviral Particles: sc-75417-V as alternate gene silencing products.

For independent verification of LeuRS (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-75417A, sc-75417B and sc-75417C.

RESEARCH USE

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

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

LeuRS siRNA (m) is recommended for the inhibition of LeuRS 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor LeuRS gene expression knockdown using RT-PCR Primer: LeuRS (h)-PR: sc-75416-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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