SANTA CRUZ BIOTECHNOLOGY, INC.

mt-TyrRS siRNA (h): sc-95920

BACKGROUND

The fidelity of protein synthesis requires efficient discrimination of amino acid substrates by aminoacyl-tRNA synthetases. Aminoacyl-tRNA synthetases function to catalyze the aminoacylation of tRNAs by their corresponding amino acids, thus linking amino acids with tRNA-contained nucleotide triplets. mt-TyrRS (tyrosyl-tRNA synthetase, mitochondrial), also known as tyrosine-tRNA ligase and tyrosal-tRNA synthetase 2, is a 477 amino acid protein that belongs to the class-I aminoacyl-tRNA synthetase family. Containing a 16-amino acid mitchondrial targeting signal, mt-TyrRS is localized to the mitochondrial matrix where it exists as a homodimer and functions primarily to catalyze the attachment of tyrosine to tRNA(Tyr) in a two-step reaction. First, tyrosine is activated by ATP to form Tyr-AMP, then it is transferred to the acceptor end of tRNA(Tyr).

REFERENCES

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6. Dormeyer, W., van Hoof, D., Braam, S.R., Heck, A.J., Mummery, C.L. and Krijgsveld, J. 2008. Plasma membrane proteomics of human embryonic stem cells and human embryonal carcinoma cells. J. Proteome Res. 7: 2936-2951.
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CHROMOSOMAL LOCATION

Genetic locus: YARS2 (human) mapping to 12p11.21.

PROTOCOLS

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

PRODUCT

mt-TyrRS siRNA (h) 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 mt-TyrRS shRNA Plasmid (h): sc-95920-SH and mt-TyrRS shRNA (h) Lentiviral Particles: sc-95920-V as alternate gene silencing products.

For independent verification of mt-TyrRS (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-95920A, sc-95920B and sc-95920C.

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

mt-TyrRS siRNA (h) is recommended for the inhibition of mt-TyrRS expression in human 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 mt-TyrRS gene expression knockdown using RT-PCR Primer: mt-TyrRS (h)-PR: sc-95920-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.