SANTA CRUZ BIOTECHNOLOGY, INC.

ArgRS siRNA (m): sc-72533

BACKGROUND

The fidelity of protein synthesis requires efficient discrimination of amino acid substrates by aminoacyl-tRNA synthetases. ArgRS (arginyl-tRNA synthetase), also known as RARS or DALRD1, belongs to the class-I aminoacyl-tRNA synthetase family that includes the related proteins LeuRS, ValRS and IleRS. These proteins are large monomeric proteins and play a major role in catalyzing the aminoacylation of tRNA by their cognate amino acid. ArgRS localizes to the cytoplasm and exists as a monomer but can also associate with other tRNA synthetases and auxiliary proteins to form a multisubunit complex. In the presence of ATP, arginine (Arg) and tRNA, ArgRS joins Arg to tRNA(Arg) at its synthetic active site. Two cytoplasmic forms of ArgRS have been described in mammals, differing by the addition of a 73 amino acid sequence that is required for ArgRS assembly into the multi-subunit complex.

REFERENCES

1. Lazard, M. and Mirande, M. 1993. Cloning and analysis of a cDNA encoding mammalian arginyl-tRNA synthetase, a component of the multisynthetase complex with a hydrophobic N-terminal extension. Gene 132: 237-245.
2. Girjes, A.A., Hobson, K., Chen, P. and Lavin, M.F. 1995. Cloning and characterization of cDNA encoding a human arginyl-tRNA synthetase. Gene 164: 347-350.
3. Quevillon, S., Robinson, J.C., Berthonneau, E., Siatecka, M. and Mirande, M. 1999. Macromolecular assemblage of aminoacyl-tRNA synthetases: identification of protein-protein interactions and characterization of a core protein. J. Mol. Biol. 285: 183-195.
4. Robinson, J.C., Kerjan, P. and Mirande, M. 2000. Macromolecular assemblage of aminoacyl-tRNA synthetases: quantitative analysis of protein-protein interactions and mechanism of complex assembly. J. Mol. Biol. 304: 983-994.
5. Li, J., Yao, Y.N., Liu, M.F. and Wang, E.D. 2003. Arginyl-tRNA synthetase with signature sequence KMSK from *Bacillus stearothermophilus*. Biochem. J. 376: 773-779.

CHROMOSOMAL LOCATION

Genetic locus: Rars (mouse) mapping to 11 A4.

PRODUCT

ArgRS 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 ArgRS shRNA Plasmid (m): sc-72533-SH and ArgRS shRNA (m) Lentiviral Particles: sc-72533-V as alternate gene silencing products.

For independent verification of ArgRS (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-72533A, sc-72533B and sc-72533C.

PROTOCOLS

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

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

ArgRS siRNA (m) is recommended for the inhibition of ArgRS 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 ArgRS gene expression knockdown using RT-PCR Primer: ArgRS (m)-PR: sc-72533-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.