SANTA CRUZ BIOTECHNOLOGY, INC.

SerRS siRNA (m): sc-76481

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. SerRS (seryl-tRNA synthetase), also known as SERS or SARS, is a 514 amino acid member of the class-II aminoacyl-tRNA synthetase family that catalyzes the tRNASer-serine aminoacylation reaction. Localized to the cytoplasm, SerRS exists as a homodimer and contains a core catalytic domain and a tRNA-binding domain. In addition to recognizing and serylating tRNASer, SerRS can also recognize and serylate tRNASec (tRNAselenocysteine). Via this interaction, SerRS is implicated in selenocysteine (Sec) biosynthesis.

REFERENCES

1. Miseta, A., et al. 1991. Mammalian seryl-tRNA synthetase associates with mRNA *in vivo* and has homology to elongation factor 1 α. J. Biol. Chem. 266: 19158-19161.
2. Wu, X.Q., et al. 1993. The long extra arms of human tRNA((Ser)Sec) and tRNA(Ser) function as major identify elements for serylation in an orientation-dependent, but not sequence-specific manner. Nucleic Acids Res. 21: 5589-5594.
3. Vincent, C., et al. 1997. Genomic organization, cDNA sequence, bacterial expression, and purification of human seryl-tRNA synthase. Eur. J. Biochem. 250: 77-84.
4. Heckl, M., et al. 1998. Minimal tRNA(Ser) and tRNA(Sec) substrates for human seryl-tRNA synthetase: contribution of tRNA domains to serylation and tertiary structure. FEBS Lett. 427: 315-319.
5. Yokogawa, T., et al. 2000. Characterization and tRNA recognition of mammalian mitochondrial seryl-tRNA synthetase. J. Biol. Chem. 275: 19913-19920.
6. Casas, C., et al. 2001. Antibodies against c-Jun N-terminal peptide cross-react with neo-epitopes emerging after caspase-mediated proteolysis during apoptosis. J. Neurochem. 77: 904-915.

CHROMOSOMAL LOCATION

Genetic locus: Sars (mouse) mapping to 3 F3.

PRODUCT

SerRS 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 SerRS shRNA Plasmid (m): sc-76481-SH and SerRS shRNA (m) Lentiviral Particles: sc-76481-V as alternate gene silencing products.

For independent verification of SerRS (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-76481A, sc-76481B and sc-76481C.

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

SerRS siRNA (m) is recommended for the inhibition of SerRS 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

SerRS (C-2): sc-271032 is recommended as a control antibody for monitoring of SerRS 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 SerRS gene expression knockdown using RT-PCR Primer: SerRS (m)-PR: sc-76481-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.