SANTA CRUZ BIOTECHNOLOGY, INC.

GluRS siRNA (m): sc-75147

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. GluRS (glutamyl-tRNA synthetase 2), also known as EARS2 or MSE1, is a 523 amino acid protein that localizes to the mitochondrial matrix and belongs to the class I aminoacyl-tRNA synthetase family. Participating in protein biosynthesis, GluRS functions to catalyze the ATP-dependent attachment of glutamate to tRNA(Glu), a two-step reaction that involves the ATP-dependent activation of glutamate to form Glu-AMP and the subsequent transfer of the glutamate residue to tRNA(Glu).

REFERENCES

1. Frugier, M., et al. 1994. Identity switches between tRNAs aminoacylated by class I glutaminyl- and class II aspartyl-tRNA synthetases. Biochemistry 33: 9912-9921.
2. Freist, W., et al. 1997. Glutamyl-tRNA sythetase. Biol. Chem. 378: 1313-1329.
3. Quevillon, S., et al. 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., et al. 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. Han, J.M., et al. 2003. Molecular network and functional implications of macromolecular tRNA synthetase complex. Biochem. Biophys. Res. Commun. 303: 985-993.
6. Lee, S.W., et al. 2004. Aminoacyl-tRNA synthetase complexes: beyond translation. J. Cell Sci. 117: 3725-3734.

CHROMOSOMAL LOCATION

Genetic locus: Ears2 (mouse) mapping to 7 F3.

PRODUCT

GluRS 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 GluRS shRNA Plasmid (m): sc-75147-SH and GluRS shRNA (m) Lentiviral Particles: sc-75147-V as alternate gene silencing products.

For independent verification of GluRS (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-75147A, sc-75147B and sc-75147C.

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

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

GluRS (G-1): sc-271728 is recommended as a control antibody for monitoring of GluRS 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 GluRS gene expression knockdown using RT-PCR Primer: GluRS (m)-PR: sc-75147-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.