SANTA CRUZ BIOTECHNOLOGY, INC.

MetRS siRNA (m): sc-75776

BACKGROUND

MetRS is a cytoplasmic methionyl-tRNA synthetase. It belongs to the class-I aminoacyl-tRNA synthetase family and contains one GST-like domain and one WHEP-TRS domain. Methionyl-tRNA synthetase is an enzyme that catalyzes the esterification of a Met residue to its compatible cognate tRNA to form Met-tRNA. This enzyme performs its functions with high precision by synchronously recognizing the anticodon region and the aminoacylation region, which are separated by approximately 70 angstroms in space. MetRS is thereby considered allosteric, in that its trinucleotide anticodons bind the enzyme at a site removed from its catalytic domains.

REFERENCES

1. Lage, H. and Dietel, M. 1996. Cloning of a human cDNA encoding a protein with high homology to yeast methionyl-tRNA synthetase. Gene 178: 187-189.
2. Ko, Y.G., et al. 2000. Nucleolar localization of human methionyl-tRNA synthetase and its role in ribosomal RNA synthesis. J. Cell Biol. 149: 567-574.
3. Kaminska, M., et al. 2001. The appended C-domain of human methionyl-tRNA synthetase has a tRNA-sequestering function. Biochemistry 40: 14309-14316.
4. Pacher, M., et al. 2006. Impact of constitutive IGF1/IGF2 stimulation on the transcriptional program of human breast cancer cells. Carcinogenesis 28: 49-59.
5. Zimny, J., et al. 2006. Protective mechanisms against homocysteine toxicity: the role of bleomycin hydrolase. J. Biol. Chem. 281: 22485-22492.
6. Han, J.M., et al. 2006. Hierarchical network between the components of the multi-tRNA synthetase complex: implications for complex formation. J. Biol. Chem. 281: 38663-38667.
7. Chwatko, G., et al. 2007. Mutations in methylenetetrahydrofolate reductase or cystathionine β-synthase gene, or a high-methionine diet, increase homocysteine thiolactone levels in humans and mice. FASEB J. 21: 1707-1713.

CHROMOSOMAL LOCATION

Genetic locus: Mars (mouse) mapping to 10 D3.

PRODUCT

MetRS 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 MetRS shRNA Plasmid (m): sc-75776-SH and MetRS shRNA (m) Lentiviral Particles: sc-75776-V as alternate gene silencing products.

For independent verification of MetRS (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-75776A, sc-75776B and sc-75776C.

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

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

MetRS (H-1): sc-166850 is recommended as a control antibody for monitoring of MetRS 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 MetRS gene expression knockdown using RT-PCR Primer: MetRS (m)-PR: sc-75776-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.