SANTA CRUZ BIOTECHNOLOGY, INC.

METTL3 siRNA (m): sc-149387

BACKGROUND

METTL3 (methyltransferase like 3), also known as M6A, IME4, Spo8 or MT-A70, is a 580 amino acid nuclear speckle protein belonging to the methyltransferase superfamily, which includes DNA methyltransferases (Dnmt), histone methyltransferases and catechol-O-methyl transferases, as well as many others. Members of this family have enzymatic activity that results in the transfer of a methyl group to and from DNA, RNA or amino acids. Widely expressed at low levels, it is suggested that METTL3 may be associated with nuclear pre-mRNA splicing components. Considered a N6-methyltransferase, METTL3 methylates adenosine residues of some mRNAs. N6-methyladenosine is present at internal sites of several mRNAs, which may play a role in the efficiency of mRNA splicing, transport or translation. The gene encoding METTL3 is located on human chromosome 14, which houses over 700 genes and comprises nearly 3.5% of the human genome. Produced by alternative splicing events, two isoforms of METTL3 exists.

REFERENCES

1. Bokar, J.A., et al. 1997. Purification and cDNA cloning of the AdoMet-binding subunit of the human mRNA (N^6-adenosine)-methyltransferase. RNA 3: 1233-1247.
2. Bujnicki, J.M., et al. 2002. Structure prediction and phylogenetic analysis of a functionally diverse family of proteins homologous to the MT-A70 subunit of the human mRNA:m_6A methyltransferase. J. Mol. Evol. 55: 431-444.
3. Clancy, M.J., et al. 2002. Induction of sporulation in *Saccharomyces cerevisiae* leads to the formation of N^6-methyladenosine in mRNA: a potential mechanism for the activity of the IME4 gene. Nucleic Acids Res. 30: 4509-4518.
4. Heilig, R., et al. 2003. The DNA sequence and analysis of human chromosome 14. Nature 421: 601-607.
5. McGraw, S., et al. 2007. Temporal expression of factors involved in chromatin remodeling and in gene regulation during early bovine *in vitro* embryo development. Reproduction 133: 597-608.

CHROMOSOMAL LOCATION

Genetic locus: Mettl3 (mouse) mapping to 14 C2.

PRODUCT

METTL3 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 METTL3 shRNA Plasmid (m): sc-149387-SH and METTL3 shRNA (m) Lentiviral Particles: sc-149387-V as alternate gene silencing products.

For independent verification of METTL3 (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-149387A, sc-149387B and sc-149387C.

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

METTL3 siRNA (m) is recommended for the inhibition of METTL3 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 METTL3 gene expression knockdown using RT-PCR Primer: METTL3 (m)-PR: sc-149387-PR (20 µl, 572 bp). 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.