

TEFM siRNA (h): sc-94086

BACKGROUND

The circular mitochondrial genome contains 37 genes that encode the RNA constituents of the mitochondrial translational apparatus. Gene expression in mitochondria relies upon several nuclear genes that encode protein components required for transcription and translation of MtDNA-encoded genes, as well as protein and RNA components necessary for MtDNA replication. Mitochondrial RNA polymerase (MtrPOL) modulates gene expression in the mitochondria by providing the RNA primers for replication/initiation. It also participates in the maintenance and propagation of the mitochondrial genome. TEFM (transcription elongation factor, mitochondrial), also known as C17orf42, is a 360 amino acid transcription elongation factor that regulates transcription of the mitochondrial genome. Existing as two alternatively spliced isoforms, TEFM is suggested to strongly promote MtrPOL processivity. The gene encoding TEFM is located on human chromosome 17q11.2.

REFERENCES

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- Fish, J., et al. 2004. Discovery of a major D-loop replication origin reveals two modes of human mtDNA synthesis. *Science* 306: 2098-2101.
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- Minczuk, M., et al. 2011. TEFM (c17orf42) is necessary for transcription of human mtDNA. *Nucleic Acids Res.* 39: 4284-4299.
- Posse, V., et al. 2015. TEFM is a potent stimulator of mitochondrial transcription elongation *in vitro*. *Nucleic Acids Res.* 43: 2615-2624.
- Agaronyan, K., et al. 2015. Mitochondrial biology. Replication-transcription switch in human mitochondria. *Science* 347: 548-551.

CHROMOSOMAL LOCATION

Genetic locus: TEFM (human) mapping to 17q11.2.

PRODUCT

TEFM siRNA (h) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TEFM shRNA Plasmid (h): sc-94086-SH and TEFM shRNA (h) Lentiviral Particles: sc-94086-V as alternate gene silencing products.

For independent verification of TEFM (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-94086A, sc-94086B and sc-94086C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

TEFM siRNA (h) is recommended for the inhibition of TEFM expression in human 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 μ M in 66 μ l. 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 TEFM gene expression knockdown using RT-PCR Primer: TEFM (h)-PR: sc-94086-PR (20 μ l, 569 bp). 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.