

TFB2M siRNA (h): sc-78569

BACKGROUND

TFB2M (transcription factor B2, mitochondrial), also known as NS5ATP5, Hkp1, Mitochondrial 12S rRNA dimethylase 2, Hepatitis C virus NS5A-transactivated protein 5 or mitochondrial dimethyladenosine transferase 2, is a 396 amino acid mitochondrial protein that belongs to the rRNA adenine N⁶-methyltransferase family. Expressed ubiquitously, TFB2M is an S-adenosyl-L-methionine-dependent methyltransferase which specifically dimethylates mitochondrial 12S rRNA at the conserved stem loop. TFB2M is required for basal transcription of mitochondrial DNA and stimulates transcription independently of its methyltransferase activity. Compared to TFB1M, TFB2M has less methyltransferase activity but activates transcription of mitochondrial DNA more efficiently.

REFERENCES

1. Falkenberg, M., et al. 2002. Mitochondrial transcription factors B1 and B2 activate transcription of human mtDNA. *Nat. Genet.* 31: 289-294.
2. Gleyzer, N., et al. 2005. Control of mitochondrial transcription specificity factors (TFB1M and TFB2M) by nuclear respiratory factors (NRF-1 and NRF-2) and PGC-1 family coactivators. *Mol. Cell. Biol.* 25: 1354-1366.
3. Dubessay, P., et al. 2007. Aging impact on biochemical activities and gene expression of *Drosophila melanogaster* mitochondria. *Biochimie* 89: 988-1001.
4. Cotney, J., et al. 2007. Relative abundance of the human mitochondrial transcription system and distinct roles for h-mtTFB1 and h-mtTFB2 in mitochondrial biogenesis and gene expression. *Nucleic Acids Res.* 35: 4042-4054.

CHROMOSOMAL LOCATION

Genetic locus: TFB2M (human) mapping to 1q44.

PRODUCT

TFB2M 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 TFB2M shRNA Plasmid (h): sc-78569-SH and TFB2M shRNA (h) Lentiviral Particles: sc-78569-V as alternate gene silencing products.

For independent verification of TFB2M (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-78569A, sc-78569B and sc-78569C.

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

TFB2M siRNA (h) is recommended for the inhibition of TFB2M 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.

GENE EXPRESSION MONITORING

TFB2M (2E10): sc-517095 is recommended as a control antibody for monitoring of TFB2M 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 TFB2M gene expression knockdown using RT-PCR Primer: TFB2M (h)-PR: sc-78569-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Chou, C.H., et al. 2015. Aldosterone impairs vascular smooth muscle function: from clinical to bench research. *J. Clin. Endocrinol. Metab.* 100: 4339-4347.

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.