SANTA CRUZ BIOTECHNOLOGY, INC.

Tβ-4 siRNA (m): sc-45217

BACKGROUND

Proteins in the thymosin β family are highly conserved polar peptides that bind monomeric Actin and thereby inhibit Actin polymerization. These proteins act as the main intracellular G-Actin sequestering peptides. The most abundant thymosin β family member in mammalian cells and tissues is thymosin β-4 (Tβ-4, also designated Seraspenide). Tβ-4 participates in several cellular events including cancerogenesis, apoptosis, angiogenesis, blood coagulation and wound healing. Specifically, Tβ-4 promotes cell migration and adhesion, accelerates healing, reduces inflammation and becomes upregulated in a wide variety of human carcinomas. Due to the effects of Tβ-4 in these events, it may become a protein of significant biological and pharmaceutical relevance.

REFERENCES

1. Huff, T., et al. 2001. β-thymosins, small acidic peptides with multiple functions. Int. J. Biochem. Cell Biol. 33: 205-220.
2. Philp, D., et al. 2003. The Actin binding site on thymosin β-4 promotes angiogenesis. FASEB J. 17: 2103-2105.
3. Bock-Marquette, I., et al. 2004. Thymosin β-4 activates integrin-linked kinase and promotes cardiac cell migration, survival and cardiac repair. Nature 432: 466-472.
4. Huff, T., et al. 2004. Nuclear localisation of the G-Actin sequestering peptide thymosin β-4. J. Cell Sci. 117: 5333-5341.
5. Wang, W.S., et al. 2004. Overexpression of the thymosin β-4 gene is associated with increased invasion of SW480 colon carcinoma cells and the distant metastasis of human colorectal carcinoma. Oncogene 23: 6666-6671.

CHROMOSOMAL LOCATION

Genetic locus: Tmsb4x (mouse) mapping to X F5.

PRODUCT

Tβ-4 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 Tβ-4 shRNA Plasmid (m): sc-45217-SH and Tβ-4 shRNA (m) Lentiviral Particles: sc-45217-V as alternate gene silencing products.

For independent verification of Tβ-4 (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-45217A, sc-45217B and sc-45217C.

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

Tβ-4 siRNA (m) is recommended for the inhibition of Tβ-4 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

Tβ-4 (4H7): sc-293251 is recommended as a control antibody for monitoring of Tβ-4 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 Tβ-4 gene expression knockdown using RT-PCR Primer: Tβ-4 (m)-PR: sc-45217-PR (20 µl, 365 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Ying, Y., et al. 2024. Thymosin β4 regulates the differentiation of thymocytes by controlling the cytoskeletal rearrangement and mitochondrial transfer of thymus epithelial cells. Int. J. Mol. Sci. 25: 1088.

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.