SANTA CRUZ BIOTECHNOLOGY, INC.

Tβ-10 siRNA (m): sc-63095

BACKGROUND

Thymosin β-10 (Tβ-10) is a member of the highly conserved β-thymosin family. It is a monomeric G-Actin sequestering protein of the cytoplasm that regulates Actin dynamics. Tβ-10 consists of 43 amino acids and often forms α-helical structures. Tβ-10 has been shown to act as an Actin-mediated tumor suppressor. Overexpression of this protein inhibits endothelial cell proliferation, migration, invasion and tube formation. In human ovarian cancer cells, Tβ-10 also increases apoptosis frequency. Tβ-10 directly interacts with Ras, resulting in inhibition of the Ras downstream signaling pathways which, in turn, exhibits a negative effect on angiogenesis and tumor growth. More specifically, this inhibitive effect might be mediated by the downregulation of vascular endothelial growth factor (VEGF), VEGF receptor-1 (VEGFR-1) and Integrin αV, which suggests a role for Tβ-10 in anticancer therapy.

REFERENCES

1. Chiappetta, G., et al. 2004. Thymosin β-10 gene expression as a possible tool in diagnosis of thyroid neoplasias. Oncol. Rep. 12: 239-243.
2. Alldinger, I., et al. 2005. Gene expression analysis of pancreatic cell lines reveals genes overexpressed in pancreatic cancer. Pancreatology 5: 370-379.
3. Meeuwsen, S., et al. 2005. Cultured human adult microglia from different donors display stable cytokine, chemokine and growth factor gene profiles but respond differently to a pro-inflammatory stimulus. Neuroimmunomodulation 12: 235-245.
4. Lee, S.H., et al. 2005. Thymosin β-10 inhibits angiogenesis and tumor growth by interfering with Ras function. Cancer Res. 65: 137-148.
5. Rho, S.B., et al. 2005. The identification of apoptosis-related residues in human thymosin β-10 by mutational analysis and computational modeling. J. Biol. Chem. 280: 34003-34007.
6. Huang, C.M., et al. 2006. *In vivo* detection of secreted proteins from wounded skin using capillary ultrafiltration probes and mass spectrometric proteomics. Proteomics 6: 5805-5814.
7. Mu, H., et al. 2006. Thymosin β-10 inhibits cell migration and capillary-like tube formation of human coronary artery endothelial cells. Cell Motil. Cytoskeleton 63: 222-230.

CHROMOSOMAL LOCATION

Genetic locus: Tmsb10 (mouse) mapping to 6 C1.

PRODUCT

Tβ-10 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-10 shRNA Plasmid (m): sc-63095-SH and Tβ-10 shRNA (m) Lentiviral Particles: sc-63095-V as alternate gene silencing products.

For independent verification of Tβ-10 (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-63095A, sc-63095B and sc-63095C.

SSTORAGE 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-10 siRNA (m) is recommended for the inhibition of Tβ-10 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-10 (D-6): sc-514309 is recommended as a control antibody for monitoring of Tβ-10 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-10 gene expression knockdown using RT-PCR Primer: Tβ-10 (m)-PR: sc-63095-PR (20 µl). 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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.