SANTA CRUZ BIOTECHNOLOGY, INC.

TRAP-1 siRNA (m): sc-36721

BACKGROUND

Transforming growth factor β (TGFβ) receptor associated binding protein (TRAP-1) participates in the regulation of the TGFβ signaling pathway. TGFβ is a secreted ligand that induces transcription of various targeted genes involved in cell proliferation, differentiation and apoptosis. This is done by sequentially binding to surface TGFβ type II receptors and inducing the autophosphorylation of the type II receptor and the transient transactivation of the type I TGFβ receptor. The signal is then propagated through the Smad family of transcription factors, which leads to the expression of the targeted genes. The cytosolic TRAP-1 protein selectively associates with the phosphorylated type I TGFβ receptors, but not with the unphosphorylated type I- or type II-receptors. TRAP-1 binding to the receptor results in the inhibition of TGFβ signaling, thereby inhibiting the transcription of TGFβ target genes. The carboxy-terminus of TRAP-1 is also able to bind to 5-lipoxygenase, a mediator of lipid metabolism for the production of leukotrienes, where it may then regulate the signaling within leukocytes and other inflammatory mediating cells.

REFERENCES

1. Wrana, J.L., et al. 1994. Mechanism of activation of the TGFβ receptor. Nature 370: 341-347.
2. Heldin, C.H., et al. 1997. TGFβ signalling from cell membrane to nucleus through SMAD proteins. Nature 390: 465-471.
3. Nakao, A., et al. 1997. TGFβ receptor-mediated signalling through Smad2, Smad3 and Smad4. EMBO J. 16: 5353-5362.
4. Charng, M.J., et al. 1998. A novel protein distinguishes between quiescent and activated forms of the type I TGFβ receptor. J. Biol. Chem. 273: 9365-9368.
5. Datta, P.K., et al. 1998. Identification of STRAP, a novel WD domain protein in transforming growth factor signaling. J. Biol. Chem. 273: 34671-34674.
6. Provost, P., et al. 1999. Interaction of 5-lipoxygenase with cellular proteins. Proc. Natl. Acad. Sci. USA 96: 1881-1885.
7. Felts, S.J., et al. 2000. The HSP 90-related protein TRAP-1 is a mitochondrial protein with distinct functional properties. J. Biol. Chem. 275: 3305-3312.
8. Masuda, Y., et al. 2004. Involvement of tumor necrosis factor receptor-associated protein 1 (TRAP-1) in apoptosis induced by β-hydroxyisovaleryl-shikonin. J. Biol. Chem. 279: 42503-42515.
9. Morita, T., et al. 2004. Translocation of the *Dictyostelium* TRAP-1 homologue to mitochondria induces a novel prestarvation response. J. Cell Sci. 117: 5759-5770.

CHROMOSOMAL LOCATION

Genetic locus: Tgfbrap1 (mouse) mapping to 1 B.

PROTOCOLS

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

PRODUCT

TRAP-1 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 TRAP-1 shRNA Plasmid (m): sc-36721-SH and TRAP-1 shRNA (m) Lentiviral Particles: sc-36721-V as alternate gene silencing products.

For independent verification of TRAP-1 (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-36721A, sc-36721B and sc-36721C.

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

TRAP-1 siRNA (m) is recommended for the inhibition of TRAP-1 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 TRAP-1 gene expression knockdown using RT-PCR Primer: TRAP-1 (m)-PR: sc-36721-PR (20 µl, 461 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.