SANTA CRUZ BIOTECHNOLOGY, INC.

TIM-3 siRNA (m): sc-72015

BACKGROUND

CD4+ T helper lymphocytes can be divided into types 1 (Th1) and 2 (Th2) on the basis of their cytokine secretion patterns. Th1 cells and their associated cytokines are involved in cell-mediated immunity to intracellular pathogens and delayed-type hypersensitivity reactions. Th2 cells are involved in the control of extracellular helminthic infections and the promotion of atopic and allergic diseases. T cell Ig- and Mucin-domain-containing molecules (TIMs) are a family of molecules expressed on T cells. TIM-3 is a Th1-specific cell surface protein that regulates macrophage activation and enhances the severity of experimental autoimmune encephalomyelitis in mice. TIM-3 binds galectin-9, thereby inducing apoptosis of Th1 cells. This interaction with galectin-9 also stimulates the phosphorylation of Tim-3 on residue Y265 by the interleukin-inducible T cell kinase, Emt.

REFERENCES

1. Monney, L., et al. 2002. Th1-specific cell surface protein TIM-3 regulates macrophage activation and severity of an autoimmune disease. Nature 415: 536-541.
2. Sánchez-Fueyo, A., et al. 2003. TIM-3 inhibits T helper type 1-mediated auto- and alloimmune responses and promotes immunological tolerance. Nat. Immunol. 4: 1093-1101.
3. Sabatos, C.A., et al. 2003. Interaction of TIM-3 and TIM-3 ligand regulates T helper type 1 responses and induction of peripheral tolerance. Nat. Immunol. 4: 1102-1110.
4. Online Mendelian Inheritance in Man, OMIM™. 2003. Johns Hopkins University, Baltimore, MD. MIM Number: 606652. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Chae, S.C., et al. 2004. Molecular variations in Th1-specific cell surface gene TIM-3. Exp. Mol. Med. 36: 274-278.
6. Khademi, M., et al. 2004. T cell Ig- and mucin-domain-containing molecule-3 (TIM-3) and TIM-1 molecules are differentially expressed on human Th1 and Th2 cells and in cerebrospinal fluid-derived mononuclear cells in multiple sclerosis. J. Immunol. 172: 7169-7176.
7. Simmons, W.J., et al. 2005. TIM-3+ T-bet+ tumor-specific Th1 cells co-localize with and inhibit development and growth of murine neoplasms. J. Immunol. 174: 1405-1415.
8. Koguchi,K., et al. 2006. Dysregulated T cell expression of TIM3 in multiple sclerosis. J. Exp. Med. 203: 1413-1418.
9. van de Weyer, P.S., et al. 2006. A highly conserved tyrosine of TIM-3 is phosphorylated upon stimulation by its ligand galectin-9. Biochem. Biophys. Res. Commun. 351: 571-576.

CHROMOSOMAL LOCATION

Genetic locus: Havcr2 (mouse) mapping to 11 B1.1.

PROTOCOLS

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

PRODUCT

TIM-3 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 TIM-3 shRNA Plasmid (m): sc-72015-SH and TIM-3 shRNA (m) Lentiviral Particles: sc-72015-V as alternate gene silencing products.

For independent verification of TIM-3 (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-72015A, sc-72015B and sc-72015C.

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

TIM-3 siRNA (m) is recommended for the inhibition of TIM-3 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 TIM-3 gene expression knockdown using RT-PCR Primer: TIM-3 (m)-PR: sc-72015-PR (20 µl, 495 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.