

## TIM-2 siRNA (m): sc-72003

### BACKGROUND

CD4<sup>+</sup> 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-2 inhibits T cell activation *in vitro* and T cell-mediated disease *in vivo*. TIM-2 is expressed preferentially in differentiated Th2 cells, and is critical for the negative regulation of Th2 responses during autoimmune inflammation. Further understanding of the mechanisms by which TIM-2 regulates Th2-effector activity may provide insight into the therapeutic modulation of immune-mediated diseases.

### REFERENCES

1. Kumanogoh, A., et al. 2002. Class IV semaphorin SEMA4A enhances T cell activation and interacts with TIM-2. *Nature* 419: 629-633.
2. Kumanogoh, A. and Kikutani, H. 2003. Immune semaphorins: a new area of semaphorin research. *J. Cell Sci.* 116: 3463-3470.
3. Chakravarti, S., et al. 2005. TIM-2 regulates T helper type 2 responses and autoimmunity. *J. Exp. Med.* 202: 437-444.
4. Chen, T.T., et al. 2005. TIM-2 is expressed on B cells and in liver and kidney and is a receptor for H-ferritin endocytosis. *J. Exp. Med.* 202: 955-965.
5. Mariat, C., et al. 2005. Regulation of T cell dependent immune responses by TIM family members. *Philos. Trans. R. Soc. Lond., B, Biol. Sci.* 360: 1681-1685.
6. Meyers, J.H., et al. 2005. The TIM gene family regulates autoimmune and allergic diseases. *Trends Mol. Med.* 11: 362-369.
7. Rennert, P.D., et al. 2006. T cell, Ig domain, Mucin domain-2 gene-deficient mice reveal a novel mechanism for the regulation of Th2 immune responses and airway inflammation. *J. Immunol.* 177: 4311-4321.
8. Knickelbein, J.E., et al. 2006. Cutting edge: inhibition of T cell activation by TIM-2. *J. Immunol.* 177: 4966-4970.

### CHROMOSOMAL LOCATION

Genetic locus: Timd2 (mouse) mapping to 11 B1.1.

### PRODUCT

TIM-2 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TIM-2 shRNA Plasmid (m): sc-72003-SH and TIM-2 shRNA (m) Lentiviral Particles: sc-72003-V as alternate gene silencing products.

For independent verification of TIM-2 (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-72003A, sc-72003B and sc-72003C.

### 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

### APPLICATIONS

TIM-2 siRNA (m) is recommended for the inhibition of TIM-2 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  $\mu$ M in 66  $\mu$ 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

TIM-2 (RMT2-1): sc-53770 is recommended as a control antibody for monitoring of TIM-2 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).

### RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TIM-2 gene expression knockdown using RT-PCR Primer: TIM-2 (m)-PR: sc-72003-PR (20  $\mu$ l). 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](http://www.scbt.com) for detailed protocols and support products.