

# IL-16 siRNA (h): sc-39647

## BACKGROUND

Cytokines are small, soluble proteins with pleiotropic effects on a variety of cell types. Cytokines have a regulatory function over the immune system and mediate aspects of inflammatory response. They exert their biological effects through the binding of membrane-bound receptors which, in turn, initiate signal transduction cascades that elicit physiological changes in their target cells. Interleukin-16, or IL-16, is a cytokine that has chemoattractant activity on CD4<sup>+</sup> T lymphocytes. It has long been known that eosinophils and CD4<sup>+</sup> T lymphocytes are recruited to sites of allergic inflammation, but the molecular mechanism was poorly understood. IL-16, also referred to as lymphocyte chemoattractant factor, is secreted by activated eosinophils as part of the allergic response along with RANTES, an additional cytokine. Once bound to its cognate receptor, CD4, IL-16 initiates a signal cascade that results in the activation of the PKC family.

## REFERENCES

1. Arend, W.P., et al. 1994. Binding of IL-1 $\alpha$ , IL-1 $\beta$ , and IL-1 receptor antagonist by soluble IL-1 receptors and levels of soluble IL-1 receptors in synovial fluids. *J. Immunol.* 153: 4766-4774.
2. Okamura, H., et al. 1995. Cloning of a new cytokine that induces IFN- $\gamma$  production by T cells. *Nature* 378: 88-91.
3. Cohen, M.C., et al. 1996. Cytokine function: a study in biologic diversity. *Am. J. Clin. Pathol.* 105: 589-598.
4. Ihle, J.N. 1996. Janus kinases in cytokine signalling. *Philos. Trans. R. Soc. Lond., B, Biol. Sci.* 351: 159-166.

## CHROMOSOMAL LOCATION

Genetic locus: IL16 (human) mapping to 15q25.1.

## PRODUCT

IL-16 siRNA (h) 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 IL-16 shRNA Plasmid (h): sc-39647-SH and IL-16 shRNA (h) Lentiviral Particles: sc-39647-V as alternate gene silencing products.

For independent verification of IL-16 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-39647A, sc-39647B and sc-39647C.

## 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

IL-16 siRNA (h) is recommended for the inhibition of IL-16 expression in human 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

IL-16 (A-1): sc-374606 is recommended as a control antibody for monitoring of IL-16 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-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 IL-16 gene expression knockdown using RT-PCR Primer: IL-16 (h)-PR: sc-39647-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Kim, S.D., et al. 2020. The malignancy of liver cancer cells is increased by IL-4/ERK/Akt signaling axis activity triggered by irradiated endothelial cells. *J. Radiat. Res.* 61: 376-387.
2. Yang, X., et al. 2021. Rs41291957 polymorphism in the promoter region of microRNA-143 serves as a prognostic biomarker for patients with intracranial hemorrhage. *Mol. Med. Rep.* 23: 295.

## 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.