

# IFN- $\alpha$ 21 siRNA (h): sc-105558

## BACKGROUND

The genes encoding type I interferons (IFNs), which include 14 IFN- $\alpha$  genes (one of which is IFN- $\alpha$ 2), 1 IFN- $\beta$  gene, 1 IFN- $\omega$  (also known as IFN- $\alpha$  II1) gene and a number of IFN- $\omega$  pseudogenes, are clustered on human chromosome 9. IFN- $\alpha$  and - $\beta$  are cytokines that are widely known to induce potent antiviral activity. They exert a variety of other biological effects, including antitumor and immunomodulatory activities and are increasingly used clinically to treat a range of malignancies, myelodysplasias and autoimmune diseases. IFN- $\omega$  is antigenically different from human IFN- $\alpha$ , IFN- $\beta$  or IFN- $\gamma$ , but is a component of natural mixtures of IFN species produced by virus-induced leukocytes or Burkitt's lymphoma cells. The type I interferon receptor (IFN- $\alpha$ R) interacts with IFN- $\alpha$ , IFN- $\beta$  and IFN- $\omega$ , and seems to be a multisubunit receptor.

## REFERENCES

1. Adolf, G.R. 1987. Antigenic structure of human interferon  $\omega$ 1 (interferon- $\alpha$  II1): comparison with other human interferons. *J. Gen. Virol.* 68: 1669-1676.
2. Lim, J.K., et al. 1994. Intrinsic ligand binding properties of the human and bovine  $\alpha$ -interferon receptors. *FEBS Lett.* 350: 281-286.
3. Hussain, M., et al. 1996. Identification of interferon- $\alpha$  7, - $\alpha$  14 and - $\alpha$  21 variants in the genome of a large human population. *J. Interferon Cytokine Res.* 16: 853-859.
4. Mire-Sluis, A.R., et al. 1996. An anti-cytokine bioactivity assay for interferon- $\alpha$ , - $\beta$  and - $\omega$ . *J. Immunol. Methods* 195: 55-61.
5. Cutrone, E.C., et al. 1997. Contributions of cloned type I interferon receptor subunits to differential ligand binding. *FEBS Lett.* 404: 197-202.
6. Rozera, C., et al. 1999. Interferon (IFN)- $\beta$  gene transfer into TS/A adenocarcinoma cells and comparison with IFN- $\alpha$ : differential effects on tumorigenicity and host response. *Am. J. Pathol.* 154: 1211-1222.
7. Barthe, C., et al. 2001. Expression of interferon- $\alpha$  (IFN- $\alpha$ ) receptor 2c at diagnosis is associated with cytogenetic response in IFN- $\alpha$ -treated chronic myeloid leukemia. *Blood* 97: 3568-3573.
8. Eriksen, K.W., et al. 2004. Bi-phasic effect of interferon (IFN)- $\alpha$ : IFN- $\alpha$  up- and downregulates interleukin-4 signaling in human T cells. *J. Biol. Chem.* 279: 169-176.
9. Suyama, T., et al. 2005. Upregulation of the interferon  $\gamma$  (IFN- $\gamma$ )-inducible chemokines IFN-inducible T cell chemoattractant and monokine induced by IFN- $\gamma$  and of their receptor CXCR3 in human renal cell carcinoma. *Cancer* 103: 258-267.

## CHROMOSOMAL LOCATION

Genetic locus: IFNA21 (human) mapping to 9p21.3.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

## PRODUCT

IFN- $\alpha$ 21 siRNA (h) is a pool of 2 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 IFN- $\alpha$ 21 shRNA Plasmid (h): sc-105558-SH and IFN- $\alpha$ 21 shRNA (h) Lentiviral Particles: sc-105558-V as alternate gene silencing products.

For independent verification of IFN- $\alpha$ 21 (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-105558A and sc-105558B.

## 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

IFN- $\alpha$ 21 siRNA (h) is recommended for the inhibition of IFN- $\alpha$ 21 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.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor IFN- $\alpha$ 21 gene expression knockdown using RT-PCR Primer: IFN- $\alpha$ 21 (h)-PR: sc-105558-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.