

# IFN- $\gamma$ siRNA (h): sc-39606

## BACKGROUND

Interferon (IFN)- $\gamma$  is an antiviral and antiparasitic agent produced by CD4<sup>+</sup>/CD8<sup>+</sup> lymphocytes and natural killer cells that undergo activation by antigens, mitogens or alloantigens. IFN- $\gamma$  production modulates T cell growth and differentiation and inhibits the growth of B cells. Synthesis of IFN- $\gamma$  is inducible by IL-2, FGF and EGF. The active form of IFN- $\gamma$  is a homodimer with each subunit containing six helices. The dimeric structure of human IFN- $\gamma$  is stabilized by non-covalent interactions through the interface of the helices. IFN- $\gamma$  translated precursor is 166 amino acids, including the 23 amino acid secretory sequence. Multiple forms exist due to variable glycosylation and under non-denaturing conditions due to dimers and tetramers.

## REFERENCES

- Young, H.A., et al. 1995. Role of IFN- $\gamma$  in immune cell regulation. *J. Leukoc. Biol.* 58: 373-381.
- Dinarelli, C.A., et al. 1998. Overview of interleukin-18: more than an IFN- $\gamma$  inducing factor. *J. Leukoc. Biol.* 63: 658-664.
- Okamura, H., et al. 1998. Regulation of IFN- $\gamma$  production by IL-12 and IL-18. *Curr. Opin. Immunol.* 10: 259-264.
- Costa-Pereira, A.P., et al. 2002. The antiviral response to  $\gamma$  interferon. *J. Virol.* 76: 9060-9068.
- Zika, E., et al. 2003. Histone deacetylase 1/mSin3A disrupts IFN- $\gamma$ -induced CIITA function and major histocompatibility complex class II enhanceosome formation. *Mol. Cell. Biol.* 23: 3091-3102.
- Schroder, K., et al. 2004. IFN- $\gamma$ : an overview of signals, mechanisms and functions. *J. Leukoc. Biol.* 75: 163-189.

## CHROMOSOMAL LOCATION

Genetic locus: IFNG (human) mapping to 12q15.

## PRODUCT

IFN- $\gamma$  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 IFN- $\gamma$  shRNA Plasmid (h): sc-39606-SH and IFN- $\gamma$  shRNA (h) Lentiviral Particles: sc-39606-V as alternate gene silencing products.

For independent verification of IFN- $\gamma$  (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-39606A, sc-39606B and sc-39606C.

## 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- $\gamma$  siRNA (h) is recommended for the inhibition of IFN- $\gamma$  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

IFN- $\gamma$  (E-10): sc-373727 is recommended as a control antibody for monitoring of IFN- $\gamma$  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 IFN- $\gamma$  gene expression knockdown using RT-PCR Primer: IFN- $\gamma$  (h)-PR: sc-39606-PR (20  $\mu$ l, 545 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

- Duque, G., et al. 2009. Autocrine regulation of interferon  $\gamma$  in mesenchymal stem cells plays a role in early osteoblastogenesis. *Stem Cells* 27: 550-558.
- Banerjee, P.P., et al. 2019. KIR2DL4-HLAG interaction at human NK cell-oligodendrocyte interfaces regulates IFN- $\gamma$ -mediated effects. *Mol. Immunol.* 115: 39-55.

## 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.