

# IRF-5 siRNA (h): sc-72044

## BACKGROUND

Interferon regulatory factor 5 (IRF-5), belongs to the IRF family of DNA-binding factors, which includes IRF-1, IRF-2, IRF-3, IRF-4, IRF-6, IRF-7, ISGF-3 $\gamma$  p48 and IFN consensus sequence-binding protein (ICSBP). The IRF family regulate both interferon and interferon-inducible genes. IRF-5, like IRF-3 and IRF-7, is a direct transducer of virus-mediated signaling and plays a role in the expression of multiple cytokines/chemokines. Although IRF-5 is a direct target of p53, its cell cycle regulatory and proapoptotic effects are p53 independent.

## REFERENCES

1. Darnell, J.E., Jr., et al. 1994. JAK-Stat pathways and transcriptional activation in response to IFNs and other extracellular signaling proteins. *Science* 264: 1415-1421.
2. Mamane, Y., et al. 1999. Interferon regulatory factors: the next generation. *Gene* 237: 1-14.
3. Barnes, B.J., et al. 2001. Virus-specific activation of a novel interferon regulatory factor, IRF-5, results in the induction of distinct interferon  $\alpha$  genes. *J. Biol. Chem.* 276: 23382-23390.
4. Mori, T., et al. 2002. Identification of the interferon regulatory factor 5 gene (IRF-5) as a direct target for p53. *Oncogene* 21: 2914-2918.
5. Barnes, B.J., et al. 2002. Multiple regulatory domains of IRF-5 control activation, cellular localization, and induction of chemokines that mediate recruitment of T lymphocytes. *Mol. Cell. Biol.* 22: 5721-5740.
6. Barnes, B.J., et al. 2003. Virus-induced heterodimer formation between IRF-5 and IRF-7 modulates assembly of the IFN $\alpha$  enhanceosome *in vivo* and transcriptional activity of IFN $\alpha$  genes. *J. Biol. Chem.* 278: 16630-16641.

## CHROMOSOMAL LOCATION

Genetic locus: IRF5 (human) mapping to 7q32.1.

## PRODUCT

IRF-5 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 IRF-5 shRNA Plasmid (h): sc-72044-SH and IRF-5 shRNA (h) Lentiviral Particles: sc-72044-V as alternate gene silencing products.

For independent verification of IRF-5 (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-72044A, sc-72044B and sc-72044C.

## 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

IRF-5 siRNA (h) is recommended for the inhibition of IRF-5 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

IRF-5 (C-6): sc-390364 is recommended as a control antibody for monitoring of IRF-5 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<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor IRF-5 gene expression knockdown using RT-PCR Primer: IRF-5 (h)-PR: sc-72044-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. Sharma, M.D., et al. 2018. Activation of p53 in immature myeloid precursor cells controls differentiation into Ly6c<sup>+</sup>CD103<sup>+</sup> monocytic antigen-presenting cells in tumors. *Immunity* 48: 91-106.
2. Yamaguchi, R., et al. 2022. IL-23 production in human macrophages is regulated negatively by tumor necrosis factor  $\alpha$ -induced protein 3 and positively by specificity protein 1 after stimulation of the toll-like receptor 7/8 signaling pathway. *Heliyon* 8: e08887.

## 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.