

IRF-1 siRNA (h): sc-35706

BACKGROUND

Interferon regulatory factor-1 (IRF-1) and IRF-2 have been identified as novel DNA-binding factors that function as regulators of both type I interferon (interferon- α and β) and interferon-inducible genes. The two factors are structurally related, particularly in their N-terminal regions, which confer DNA binding specificity. In addition, both bind to the same sequence within the promoters of interferon- α and interferon- β genes. IRF-1 functions as an activator of interferon transcription, while IRF-2 binds to the same cis elements and represses IRF-1 action. IRF-1 and IRF-2 have been reported to act in a mutually antagonistic manner in regulating cell growth; overexpression of the repressor IRF-2 leads to cell transformation while concomitant overexpression of IRF-1 causes reversion. IRF-1 and IRF-2 are members of a larger family of DNA binding proteins that includes IRF-3, IRF-4, IRF-5, IRF-6, IRF-7, ISGF-3 γ p48 (a component of the ISGF-3 complex) and IFN consensus sequence-binding protein (ICSBP).

REFERENCES

1. Fujita, T., et al. 1988. Evidence for a nuclear factor(s), IRF-1, mediating induction and silencing properties to human IFN- β gene regulatory elements. *EMBO J.* 7: 3397-3405.
2. Harada, H., et al. 1989. Structurally similar but functionally distinct factors, IRF-1 and IRF-2, bind to the same regulatory elements of IFN and IFN-inducible genes. *Cell* 58: 729-739.

CHROMOSOMAL LOCATION

Genetic locus: IRF1 (human) mapping to 5q31.1.

PRODUCT

IRF-1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see IRF-1 shRNA Plasmid (h): sc-35706-SH and IRF-1 shRNA (h) Lentiviral Particles: sc-35706-V as alternate gene silencing products.

For independent verification of IRF-1 (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-35706A and sc-35706B.

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

APPLICATIONS

IRF-1 siRNA (h) is recommended for the inhibition of IRF-1 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 μ M in 66 μ 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.

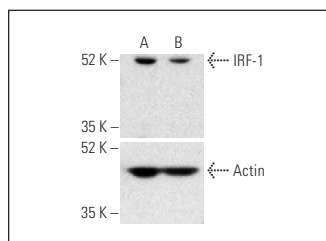
GENE EXPRESSION MONITORING

IRF-1 (E-4): sc-514544 is recommended as a control antibody for monitoring of IRF-1 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 IRF-1 gene expression knockdown using RT-PCR Primer: IRF-1 (h)-PR: sc-35706-PR (20 μ l, 419 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



IRF-1 siRNA (h): sc-35706. Western blot analysis of IRF-1 expression in non-transfected control (A) and IRF-1 siRNA transfected (B) HeLa cells. Blot probed with IRF-1 (C-20): sc-497. Actin (I-19): sc-1616 used as specificity and loading control.

SELECT PRODUCT CITATIONS

1. Kollet, J.I., et al. 2006. IRF-1 and NF κ B p50/cRel bind to distinct regions of the proximal murine IL-12 p35 promoter during costimulation with IFN- γ and LPS. *Mol. Immunol.* 2006: 623-633.
2. Brazeo, P.L., et al. 2019. Linear ubiquitin assembly complex regulates lung epithelial driven responses during influenza infection. *J. Clin. Invest.* 130: 1301-1314.
3. Zhang, M.Q., et al. 2020. A new transcription factor ATG10S activates IFNL2 transcription by binding at an IRF-1 site in Hep G2 cells. *Autophagy* 16: 2167-2179.

RESEARCH USE

For research use only, not for use in diagnostic procedures.