SANTA CRUZ BIOTECHNOLOGY, INC.

IRF-7 siRNA (h): sc-38011

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-3γ p48 and IFN consensus sequence-binding protein (ICSBP).

CHROMOSOMAL LOCATION

Genetic locus: IRF7 (human) mapping to 11p15.5.

PRODUCT

IRF-7 siRNA (h) is a target-specific 19-25 nt siRNA designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see IRF-7 shRNA Plasmid (h): sc-38011-SH and IRF-7 shRNA (h) Lentiviral Particles: sc-38011-V as alternate gene silencing products.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

IRF-7 siRNA (h) is recommended for the inhibition of IRF-7 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 µM in 66 µl. 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-7 (G-8): sc-74472 is recommended as a control antibody for monitoring of IRF-7 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-7 gene expression knockdown using RT-PCR Primer: IRF-7 (h)-PR: sc-38011-PR (20 µl, 593 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Génin, P., et al. 2009. Differential regulation of human interferon A gene expression by interferon regulatory factors 3 and 7. Mol. Cell. Biol. 29: 3435-3450.
2. Olagnier, D., et al. 2014. Inhibition of dengue and chikungunya virus infections by RIG-I-mediated type I interferon-independent stimulation of the innate antiviral response. J. Virol. 88: 4180-4194.
3. Choi, H.J., et al. 2015. Targeting interferon response genes sensitizes aromatase inhibitor resistant breast cancer cells to estrogen-induced cell death. Breast Cancer Res. 17: 6.
4. Rollenhagen, C., et al. 2015. Enhancing interferon regulatory factor 7 mediated antiviral responses and decreasing nuclear factor κB expression limit HIV-1 replication in cervical tissues. PLoS ONE 10: e0131919.
5. Ogony, J., et al. 2016. Interferon-induced transmembrane protein 1 (IFITM1) overexpression enhances the aggressive phenotype of SUM149 inflammatory breast cancer cells in a signal transducer and activator of transcription 2 (Stat2)-dependent manner. Breast Cancer Res. 18: 25.
6. Doganay, S., et al. 2017. Single-cell analysis of early antiviral gene expression reveals a determinant of stochastic IFNB1 expression. Integr. Biol. 9: 857-867.
7. Xu, Y.Y., et al. 2019. Upregulation of PITX2 promotes letrozole resistance via transcriptional activation of IFITM1 signaling in breast cancer cells. Cancer Res. Treat. 51: 576-592.
8. Ohtani, F., et al. 2021. Role of interferon regulatory factor 7 in corneal endothelial cells after HSV-1 infection. Sci. Rep. 11: 16487.
9. Sheikh, T.N., et al. 2021. Growth inhibition and induction of innate immune signaling of chondrosarcomas with epigenetic inhibitors. Mol. Cancer Ther. 20: 2362-2371.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.