



IFITM3 siRNA (h): sc-97053

BACKGROUND

IFITM3 (interferon induced transmembrane protein 3), also known as 1-8U or IP15, is a multi-pass membrane protein that belongs to the IFITM (interferon inducible transmembrane) family of proteins. IFITM proteins are induced by type I and type II interferons and contain multiple interferon (IFN)-stimulated response elements (ISREs) in their promoter regions. IFITM proteins play important roles in many cellular processes and their expression requires the presence of the chromatin remodeling SWI/SNF-like BAF complexes. Cellular processes involving IFITM proteins include cellular anti-proliferative activities and homotypic cell adhesion functions of interferons. In addition, IFITM genes are often upregulated in various cancer cells, suggesting a possible role in carcinogenesis. Localizing to the membrane, IFITM3 is a 133 amino acid protein that is induced by IFN- α and IFN- γ . IFITM3 expression can be regulated by TEF-1, Brg-1 and Sp1.

REFERENCES

1. Lewin, A.R., et al. 1991. Molecular analysis of a human interferon-inducible gene family. *Eur. J. Biochem.* 199: 417-423.
2. Pru, J.K., et al. 2001. Pregnancy and interferon- τ upregulate gene expression of members of the 1-8 family in the bovine uterus. *Biol. Reprod.* 65: 1471-1480.
3. Liu, H., et al. 2002. Maximal induction of a subset of interferon target genes requires the chromatin-remodeling activity of the BAF complex. *Mol. Cell. Biol.* 22: 6471-6479.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 605579. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

CHROMOSOMAL LOCATION

Genetic locus: IFITM3 (human) mapping to 11p15.5.

PRODUCT

IFITM3 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 IFITM3 shRNA Plasmid (h): sc-97053-SH and IFITM3 shRNA (h) Lentiviral Particles: sc-97053-V as alternate gene silencing products.

For independent verification of IFITM3 (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-97053A and sc-97053B.

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

IFITM3 siRNA (h) is recommended for the inhibition of IFITM3 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

IFITM3 (F-41): sc-100768 is recommended as a control antibody for monitoring of IFITM3 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 κ BP-HRP: sc-516102 or m-IgG κ 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 κ BP-FITC: sc-516140 or m-IgG κ 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 IFITM3 gene expression knockdown using RT-PCR Primer: IFITM3 (h)-PR: sc-97053-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Li, D., et al. 2011. KLF4-mediated negative regulation of IFITM3 expression plays a critical role in colon cancer pathogenesis. *Clin. Cancer Res.* 17: 3558-3568.
2. Wrensch, F. et al. 2014. IFITM proteins inhibit entry driven by the MERS-coronavirus spike protein: evidence for cholesterol-independent mechanisms. *Viruses* 6: 3683-3698.
3. Phan, Q.T., et al. 2021. The globular C1q receptor is required for epidermal growth factor receptor signaling during *Candida albicans* infection. *mBio* 12: e0271621.

RESEARCH USE

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