

# Mx1 siRNA (h): sc-45260

## BACKGROUND

The Dynamin family of microtubule-associated proteins function as GTPases that are involved in microtubule bundling and endocytosis. In mice, Mx2 (myxovirus resistance protein 2) and Mx1 (myxovirus resistance protein 1) are members of the Dynamin family that are involved in the immune response to viral infections. Localized to the cytoplasm, Mx2 contains one GED domain and is expressed in response to viral infection or treatment by IFN- $\alpha$ /IFN- $\beta$ . Once expression is induced, Mx2 accumulates in the cytoplasm and inhibits the replication of vesicular stomatitis virus (VSV), thereby conferring resistance to VSV infection. Unlike Mx2, Mx1 is localized to the nucleus where, upon induction by IFN- $\alpha$ /IFN- $\beta$ , it provides selective resistance to infection by the highly lethal H5N1 influenza virus. In humans, MxA and MxB function in a similar manner to Mx1 and Mx2, conferring resistance to specific target viruses.

## REFERENCES

1. Lindenmann, J. 1964. Inheritance of resistance to influenza virus in mice. *Proc. Soc. Exp. Biol. Med.* 116: 506-509.
2. Staeheli, P., et al. 1986. Mx protein: constitutive expression in 3T3 cells transformed with cloned Mx cDNA confers selective resistance to influenza virus. *Cell* 44: 147-158.

## CHROMOSOMAL LOCATION

Genetic locus: MX1 (human) mapping to 21q22.3.

## PRODUCT

Mx1 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 Mx1 shRNA Plasmid (h): sc-45260-SH and Mx1 shRNA (h) Lentiviral Particles: sc-45260-V as alternate gene silencing products.

For independent verification of Mx1 (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-45260A, sc-45260B and sc-45260C.

## 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

Mx1 siRNA (h) is recommended for the inhibition of Mx1 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

Mx1 (E-5): sc-271024 is recommended as a control antibody for monitoring of Mx1 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 Mx1 gene expression knockdown using RT-PCR Primer: Mx1 (h)-PR: sc-45260-PR (20  $\mu$ l, 564 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Croner, R.S., et al. 2014. Quantitative proteome profiling of lymph node-positive vs. -negative colorectal carcinomas pinpoints Mx1 as a marker for lymph node metastasis. *Int. J. Cancer* 135: 2878-2886.
2. Zhou, J., et al. 2017. Mx is not responsible for the antiviral activity of interferon- $\alpha$  against Japanese encephalitis virus. *Viruses* 9: 5.
3. Sooryanarain, H., et al. 2017. ISG15 modulates type I interferon signaling and the antiviral response during hepatitis E virus replication. *J. Virol.* 91: e00621-17.
4. Zhou, J., et al. 2018. Porcine Mx1 protein inhibits classical swine fever virus replication by targeting nonstructural protein NS5B. *J. Virol.* 92: e02147-17.
5. Wang, Y., et al. 2022. MAGI1 inhibits interferon signaling to promote influenza A infection. *Front. Cardiovasc. Med.* 9: 791143.

## RESEARCH USE

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