

# SIRP- $\alpha$ siRNA (m): sc-36493

## BACKGROUND

SIRPs (signal-regulatory proteins) are a family of transmembrane glycoproteins that were identified by their association with the Src homology 2 domain-containing protein-tyrosine phosphatase SHP-2 in response to Insulin. The SIRP family negatively regulates the PI 3-kinase pathway, which may diminish EGFR-mediated motility and survival phenotypes that contribute to transformation of certain cell types. SIRP- $\alpha$ 1 is a transmembrane protein which contains an extracellular portion with three immunoglobulin-like structures and a cytoplasmic region with four potential tyrosine phosphorylation sites. SIRP- $\alpha$  (also known as SIRP- $\alpha$ 1, SIRP- $\alpha$ 2 or SIRP- $\alpha$ 3) is a substrate for activated receptor tyrosine kinases. In its tyrosine phosphorylated form, SIRP- $\alpha$  binds to SH-PTP2 through SH2 interactions and acts as an SH-PTP2 substrate. SIRP- $\alpha$  has been shown to have negative regulatory effects on cellular responses induced by growth factors, oncogenes and Insulin. SIRP- $\beta$ 1 shares extensive sequence homology with SIRP- $\alpha$  in its extracellular portion but lacks the cytoplasmic portion. SIRP- $\gamma$ , originally designated SIRP- $\beta$ 2 (SIRP-B2, CD172g) has unique characteristics from both the  $\alpha$  and  $\beta$  versions. SIRP- $\gamma$  is expressed on the majority of T cells and a proportion of B cells. CD47 associates with SIRP- $\gamma$ , and this interaction signals unidirectionally only.

## REFERENCES

1. Yamauchi, K., et al. 1995. Identification of the major SHPTP2-binding protein that is tyrosine-phosphorylated in response to Insulin. *J. Biol. Chem.* 270: 17716-17722.
2. Fujioka, Y., et al. 1996. A novel membrane glycoprotein, SHPS-1, that binds the SH2-domain-containing tyrosine phosphatase SHP-2 in response to mitogens and cell adhesion. *Mol. Cell. Biol.* 16: 6887-6899.

## CHROMOSOMAL LOCATION

Genetic locus: Sirpa (mouse) mapping to 2 F1.

## PRODUCT

SIRP- $\alpha$  siRNA (m) 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 SIRP- $\alpha$  shRNA Plasmid (m): sc-36493-SH and SIRP- $\alpha$  shRNA (m) Lentiviral Particles: sc-36493-V as alternate gene silencing products.

For independent verification of SIRP- $\alpha$  (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-36493A, sc-36493B and sc-36493C.

## 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

SIRP- $\alpha$  siRNA (m) is recommended for the inhibition of SIRP- $\alpha$  expression in mouse 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

SIRP- $\alpha$  (C-7): sc-376884 is recommended as a control antibody for monitoring of SIRP- $\alpha$  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 SIRP- $\alpha$  gene expression knockdown using RT-PCR Primer: SIRP- $\alpha$  (m)-PR: sc-36493-PR (20  $\mu$ l, 458 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Thomas, S.S., et al. 2013. Signal regulatory protein- $\alpha$  interacts with the Insulin receptor contributing to muscle wasting in chronic kidney disease. *Kidney Int.* 84: 308-316.
2. Wang, X., et al. 2022. MicroRNA-382 promotes M2-like macrophage via the SIRP- $\alpha$ /Stat3 signaling pathway in aristolochic acid-induced renal fibrosis. *Front. Immunol.* 13: 864984.

## 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.