

# Sp4 siRNA (h): sc-36545

## BACKGROUND

The Sp transcription factor family includes Sp1, Sp2, Sp3 (SPR-2) and Sp4 (SPR-1). Sp transcription factors share similar structures but do not share similar functions. All four proteins contain a highly conserved DNA-binding domain composed of three zinc fingers at the C-terminus. Sp family members bind the consensus sequence GGGGCGGGGC and other closely related sequences which are known as GC boxes. Sp1, Sp3 and Sp4 share a high affinity for GC boxes while Sp2 does not. Sp2 only weakly binds to GT boxes. Sp1, Sp2 and Sp3 are ubiquitously expressed, while Sp4 is abundantly expressed in brain with limited expression in other tissues. Sp1 and Sp3, but not Sp2 or Sp4, interact with E2, a regulatory element for the  $\beta$ 4 subunit of neuronal nicotinic acetylcholine receptors. Sp3 is the only Sp member to inhibit Sp1 and Sp4 mediated transcription.

## REFERENCES

1. Kadonaga, J.T., et al. 1988. The Control of Human Retrovirus Gene Expression: Promoter-selective activation of transcription by Spl. In Franza, B.R., Jr., et al, eds. Cold Spring Harbor, New York: Cold Spring Harbor Laboratory, 239-250.
2. Hagen, G., et al. 1992. Cloning by recognition site screening of two novel GT box binding proteins: a family of Sp1 related genes. Nucleic Acids Res. 20: 5519-5525.

## CHROMOSOMAL LOCATION

Genetic locus: SP4 (human) mapping to 7p15.3.

## PRODUCT

Sp4 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 Sp4 shRNA Plasmid (h): sc-36545-SH and Sp4 shRNA (h) Lentiviral Particles: sc-36545-V as alternate gene silencing products.

For independent verification of Sp4 (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-36545A, sc-36545B and sc-36545C.

## 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

Sp4 siRNA (h) is recommended for the inhibition of Sp4 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.

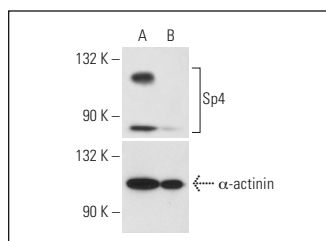
## GENE EXPRESSION MONITORING

Sp4 (B-1): sc-390124 is recommended as a control antibody for monitoring of Sp4 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 Sp4 gene expression knockdown using RT-PCR Primer: Sp4 (h)-PR: sc-36545-PR (20  $\mu$ l, 546 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## DATA



Sp4 siRNA (h): sc-36545. Western blot analysis of Sp4 expression in non-transfected control (A) and Sp4 siRNA transfected (B) HeLa cells. Blot probed with Sp4 (V-20): sc-645.  $\alpha$ -actinin (H-2): sc-17829 used as specificity and loading control.

## SELECT PRODUCT CITATIONS

1. Tsai, W.B., et al. 2009. Resistance to arginine deiminase treatment in melanoma cells is associated with induced argininosuccinate synthetase expression involving c-Myc/HIF-1 $\alpha$ /Sp4. Mol. Cancer Ther. 8: 3223-3233.
2. Catar, R., et al. 2017. IL-6 *trans*-signaling links inflammation with angiogenesis in the peritoneal membrane. J. Am. Soc. Nephrol. 28: 1188-1199.

## 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.