SANTA CRUZ BIOTECHNOLOGY, INC.

# Smad2 siRNA (m): sc-38375

## BACKGROUND

Smad proteins, the mammalian homologs of the *Drosophila* mothers against decapentaplegic (Mad), have been implicated as downstream effectors of TGFβ/BMP signaling. Smad1 (also designated Madr1 or JV4-1) and Smad5 are effectors of BMP-2 and BMP-4 function, while Smad2 (also designated Madr2 or JV18-1) and Smad3 are involved in TGFβ and activin-mediated growth modulation. Smad4 (also designated DPC4) has been shown to mediate all of the above activities through interaction with various Smad family members. Smad6 and Smad7 regulate the response to activin/TGFβ signaling by interfering with TGFβ-mediated phosphorylation of other Smad proteins.

## CHROMOSOMAL LOCATION

Genetic locus: Smad2 (mouse) mapping to 18 E3.

## PRODUCT

Smad2 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Smad2 shRNA Plasmid (m): sc-38375-SH and Smad2 shRNA (m) Lentiviral Particles: sc-38375-V as alternate gene silencing products.

For independent verification of Smad2 (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-38375A, sc-38375B and sc-38375C.

## 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

Smad2 siRNA (m) is recommended for the inhibition of Smad2 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 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.

## RESEARCH USE

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

## GENE EXPRESSION MONITORING

Smad2/3 (C-8): sc-133098 is recommended as a control antibody for monitoring of Smad2 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 Smad2 gene expression knockdown using RT-PCR Primer: Smad2 (m)-PR: sc-38375-PR (20 µl, 536 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS


1. Cabello-Verrugio, C., et al. 2011. Connective tissue growth factor induction by lysophosphatidic acid requires transactivation of transforming growth factor type β receptors and the JNK pathway. Cell. Signal. 23: 449-457.
2. Yang, L., et al. 2013. Transforming growth factor-β signaling in hepatocytes promotes hepatic fibrosis and carcinogenesis in mice with hepatocyte-specific deletion of TAK1. Gastroenterology 144: 1042-1054.
3. Zhang, Y., et al. 2014. High glucose increases Cdk5 activity in podocytes via transforming growth factor-β1 signaling pathway. Exp. Cell Res. 326: 219-229.
4. Yang, L., et al. 2014. Transforming growth factor β signaling in hepatocytes participates in steatohepatitis through regulation of cell death and lipid metabolism in mice. Hepatology 59: 483-495.
5. Pokharel, S.M., et al. 2016. Autophagy, TGF-β, and SMAD-2/3 signaling regulates interferon-β response in respiratory syncytial virus infected macrophages. Front. Cell. Infect. Microbiol. 6: 174.
6. Zheng, X., et al. 2017. TGF-β1 induces Fstl1 via the Smad3-c-Jun pathway in lung fibroblasts. Am. J. Physiol. Lung Cell. Mol. Physiol. 313: L240-L251.
7. Li, W., et al. 2018. Gremlin2 regulates the differentiation and function of cardiac progenitor cells via the Notch signaling pathway. Cell. Physiol. Biochem. 47: 579-589.
8. Kleefeldt, J.M., et al. 2020. Commercially available transfection reagents and negative control siRNA are not inert. Anal. Biochem. 606: 113828.


## PROTOCOLS

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