SignalSilence® Smad1 siRNA II

#6227 Store at -20°C

☑ 10 µM in 300 µl
(100 transfections)

Cell Signaling TECHNOLOGY®

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New 03/10

Species Cross-Reactivity: H

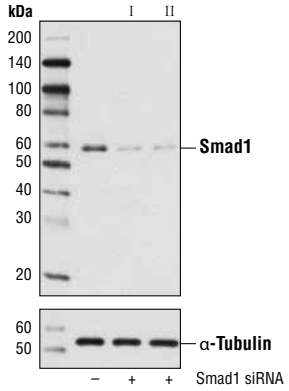
Description: SignalSilence® Smad1 siRNA II from Cell Signaling Technology (CST) allows the researcher to specifically inhibit Smad1 expression using RNA interference, a method whereby gene expression can be selectively silenced through the delivery of double stranded RNA molecules into the cell. All SignalSilence® siRNA products from CST are rigorously tested in-house and have been shown to reduce target protein expression by western analysis.

Background: Bone morphogenetic proteins (BMPs) constitute a large family of signaling molecules that regulate a wide range of critical processes including morphogenesis, cell-fate determination, proliferation, differentiation, and apoptosis (1,2). BMP receptors are members of the TGF-β family of Ser/Thr kinase receptors. Ligand binding induces multimerization, autophosphorylation, and activation of these receptors (3-5). They subsequently phosphorylate Smad1 at Ser463 and Ser465 in the carboxy-terminal motif SSXS, as well as Smad5 and Smad8 at their corresponding sites. These phosphorylated Smads dimerize with the coactivating Smad4 and translocate to the nucleus, where they stimulate transcription of target genes (5).

MAP kinases and CDKs 8 and 9 phosphorylate residues in the linker region of Smad1, including Ser206. The phosphorylation of Ser206 recruits Smurf1 to the linker region and leads to the degradation of Smad1 (6). Phosphorylation of this site also promotes Smad1 transcriptional action by recruiting YAP to the linker region (7).

Directions for Use: CST recommends transfection with 100 nM SignalSilence® Smad1 siRNA II 48 to 72 hours prior to cell lysis. For transfection procedure, follow protocol provided by the transfection reagent manufacturer. Please feel free to contact CST with any questions on use.

Quality Control: Oligonucleotide synthesis is monitored base by base through trityl analysis to ensure appropriate coupling efficiency. The oligo is subsequently purified by affinity-solid phase extraction. The annealed RNA duplex is further analyzed by mass spectrometry to verify the exact composition of the duplex. Each lot is compared to the previous lot by mass spectrometry to ensure maximum lot-to-lot consistency.



Western blot analysis of extracts from ACHN cells, transfected with 100 nM SignalSilence® Control siRNA (Unconjugated) #6568 (-), SignalSilence® Smad1 siRNA I #6223 (+), or SignalSilence® Smad1 siRNA II (+) using Smad1 (D59F7) XP™ Rabbit mAb #6944 (upper) or α-Tubulin (11H10) Rabbit mAb #2125 (lower). The Smad1 (D59F7) XP™ Rabbit mAb confirms silencing of Smad1 expression, while the α-Tubulin (11H10) Rabbit mAb is used as a loading control.

Entrez-Gene ID #4086
Swiss-Prot Acc. #Q15797

Storage: Smad1 siRNA II is supplied in RNAse-free water. *Aliquot and store at -20°C.*

Please visit www.cellsignal.com for a complete listing of recommended companion products.

Background References:

(1) Hogan, B.L. et al. (1996) *Genes Dev.* 10, 1580-1594.

(2) Hoodless, P.A. et al. (1996) *Cell* 85, 489-500.

(3) Klemm, J.D. et al. (1998) *Annu. Rev. Immunol.* 16, 569-592.

(4) Kretzschmar, M. et al. (1997) *Genes Dev.* 11, 984-995.

(5) Whitman, M. (1998) *Genes Dev.* 12, 2445-2462.

(6) Sapkota, G. et al. (2007) *Mol Cell* 25, 441-54.

(7) Alarcón, C. et al. (2009) *Cell* 139, 757-69.

Applications Key: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide

Species Cross-Reactivity Key: **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **Mi**—mink **C**—chicken **Dm**—D. melanogaster **X**—Xenopus **Z**—zebrafish **B**—bovine **Dg**—dog **Pg**—pig **Sc**—S. cerevisiae **Ce**—C. elegans **Hr**—Horse **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.