

SignalSilence® PIAS3 siRNA I



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For Research Use Only. Not For Use In Diagnostic Procedures.

✓ 10 µM in 300 µl
(3 nmol)

Species Cross-Reactivity: H, (Mk)

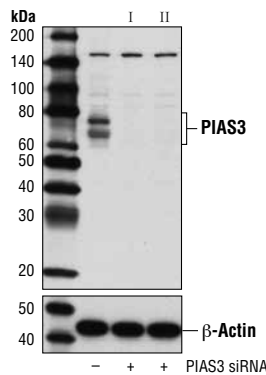
Description: SignalSilence® PIAS3 siRNA I from Cell Signaling Technology (CST) allows the researcher to specifically inhibit PIAS3 expression using RNA interference, a method whereby gene expression can be selectively silenced through the delivery of double stranded RNA molecules into the cell. All SignalSilence® siRNA products from CST are rigorously tested in-house and have been shown to reduce target protein expression by western analysis.

Background: The protein inhibitor of activated Stat (PIAS) proteins, which include PIAS1, PIAS3, PIASx, and PIASy, were originally characterized based on their interaction with the Stat family of transcription factors (1,2). PIAS1, PIAS3, and PIASx interact with and repress Stat1, Stat3, and Stat4, respectively (1-3). Deletion of PIAS1 leads to inhibition of interferon-inducible genes and increased protection against infection (4). The PIAS family contains a conserved RING domain that has been linked to a function as a small ubiquitin-related modifier (SUMO) ligase, coupling the SUMO conjugating enzyme Ubc9 with its substrate proteins (5,6). Numerous studies have now shown that PIAS family members can regulate the activity of transcription factors through distinct mechanisms, including NF-κB (7,8), c-Jun, p53 (5,9), Oct-4 (10), and Smads (11,12). The activity of PIAS1 is regulated by both phosphorylation and arginine methylation. Inflammatory stimuli can induce IKK-mediated phosphorylation of PIAS1 at Ser90, which is required for its activity (13). In addition, PRMT1 induces arginine methylation of PIAS1 at Arg303 following interferon treatment and is associated with its repressive activity on Stat1 (14).

Specificity/Sensitivity: SignalSilence® PIAS3 siRNA I inhibits human and monkey PIAS3 expression.

Directions for Use: CST recommends transfection with 100 nM SignalSilence® PIAS3 siRNA I 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. Each vial contains the equivalent of 100 transfections, which corresponds to a final siRNA concentration of 100 nM per transfection in a 24-well plate with a total volume of 300 µl per well.

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 RD cells, transfected with 100 nM SignalSilence® Control siRNA (Unconjugated) #6568 (-), SignalSilence® PIAS3 siRNA I (+), or SignalSilence® PIAS3 siRNA II #9031 (+), using PIAS3 (D5F9) XP® Rabbit mAb #9042 (upper) or β-Actin (D6A8) Rabbit mAb #8457 (lower). The PIAS3 (D5F9) XP® Rabbit mAb confirms silencing of PIAS3 expression, while the β-Actin (D6A8) Rabbit mAb is used as a loading control.

Entrez-Gene ID #10401
Swiss-Prot Acc. #Q9Y6X2

Storage: PIAS3 siRNA I 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) Liu, B. et al. (1998) *Proc Natl Acad Sci USA* 95, 10626-31.
- (2) Chung, C.D. et al. (1997) *Science* 278, 1803-5.
- (3) Arora, T. et al. (2003) *J Biol Chem* 278, 21327-30.
- (4) Liu, B. et al. (2004) *Nat Immunol* 5, 891-8.
- (5) Schmidt, D. and Müller, S. (2002) *Proc Natl Acad Sci USA* 99, 2872-7.
- (6) Kotaja, N. et al. (2002) *Mol Cell Biol* 22, 5222-34.
- (7) Liu, B. et al. (2005) *Mol Cell Biol* 25, 1113-23.
- (8) Tahk, S. et al. (2007) *Proc Natl Acad Sci USA* 104, 11643-8.
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- (10) Tolkunova, E. et al. (2007) *J Mol Biol* 374, 1200-12.
- (11) Long, J. et al. (2004) *Proc Natl Acad Sci USA* 101, 99-104.
- (12) Murdoch, R.N. and Edwards, T. (1992) *Biochem Int* 28, 1029-37.
- (13) Liu, B. et al. (2007) *Cell* 129, 903-14.
- (14) Weber, S. et al. (2009) *Genes Dev* 23, 118-32.