

#6476 Store at -20°C

# SignalSilence® Tuberin/TSC2 siRNA I



✓ 10 µM in 300 µl (100 transfections)

Orders ■ 877-616-CELL (2355) orders@cellsignal.com  
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For Research Use Only. Not For Use In Diagnostic Procedures.

### Species Cross-Reactivity: H, (M, R)

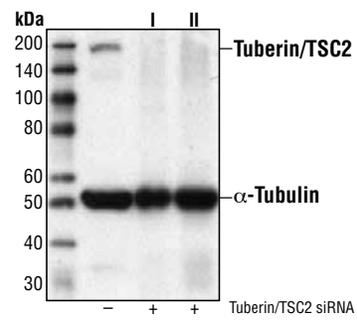
**Description:** SignalSilence® Tuberin/TSC2 siRNA from Cell Signaling Technology (CST) allows the researcher to specifically inhibit tuberlin/TSC2 expression using RNA interference, a method whereby gene expression can be selectively silenced through the delivery of double stranded RNA molecules into 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:** Tuberlin is a product of the TSC2 tumor suppressor gene and an important regulator of cell proliferation and tumor development (1). Mutations in either TSC2 or the related TSC1 (hamartin) gene cause tuberous sclerosis complex (TSC), an autosomal dominant disorder characterized by development of multiple, widespread non-malignant tumors (2). Tuberlin is directly phosphorylated at Thr1462 by Akt/PKB (3). Phosphorylation at Thr1462 and Tyr1571 regulates tuberlin-hamartin complexes and tuberlin activity (3-5). In addition, tuberlin inhibits the mammalian target of rapamycin (mTOR), which promotes inhibition of p70 S6 kinase, activation of eukaryotic initiation factor 4E binding protein 1 (4E-BP1, an inhibitor of translation initiation) and eventual inhibition of translation (3,6,7).

Small interfering RNA (siRNA) has been used to specifically silence tuberlin in HEK293 cells (7).

**Directions for Use:** CST recommends transfection with 100 nM Tuberin/TSC2 siRNA I 48 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 HeLa cells, transfected with non-targeted (-) or SignalSilence® Tuberin/TSC2 siRNA I (+) using a tuberlin/TSC2 antibody and α-Tubulin (11H10) Rabbit mAb #2125. The tuberlin/TSC2 antibody confirms silencing of tuberlin/TSC2 expression, while the α-Tubulin antibody is used as a loading control.

Entrez-Gene ID #7249  
Swiss-Prot Acc. #P49815

**Storage:** Tuberin/TSC2 siRNA I is supplied in RNase-free water. Aliquot and store at -20°C.

Please visit [www.cellsignal.com](http://www.cellsignal.com) for a complete listing of recommended companion products.

### Background References:

- (1) Soucek, T. et al. (1998) *Proc. Natl. Acad. Sci. USA* 95, 15653-15658.
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- (3) Manning, B. D. et al. (2002) *Mol. Cell* 10, 151-161.
- (4) Aicher, L. D. et al. (2001) *J. Biol. Chem.* 276, 21017-21021.
- (5) Dan, H. C. et al. (2002) *J. Biol. Chem.* 277, 35364-35370.
- (6) Goncharova, E.A. et al. (2002) *J. Biol. Chem.* 277, 30958-30967.
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- (8) Inoki, K. et al. (2002) *Nat. Cell Biol.* 4, 648-657.

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