#6367 Store at -20°C

SignalSilence® TTK siRNA I

☑ 10 µM in 300 µl
(100 transfections)

Cell Signaling TECHNOLOGY®

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New 10/10

Species Cross-Reactivity: H

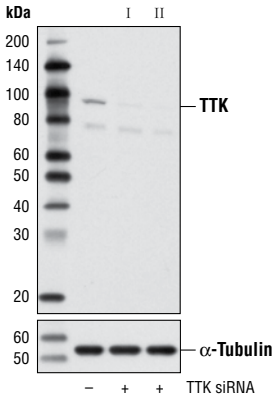
Description: SignalSilence® TTK siRNA I from Cell Signaling Technology (CST) allows the researcher to specifically inhibit TTK expression using RNA interference, a method whereby gene expression can be selectively silenced through the delivery of double stranded RNA molecules into the cell. All SignalSilence®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

Background: TTK (Mps1, PYT) is a cell cycle regulated dual specificity kinase present in rapidly proliferating tissues and cell lines (1-3). TTK localizes to kinetochores and centromeres and is an essential component of the mitotic spindle checkpoint as well as centrosome duplication (4-6). The mitotic checkpoint inhibits entry into anaphase until all chromosomes are attached to the spindle; inhibition of this process leads to genomic instability and tumorigenesis. Phosphorylation of the BLM helicase at Ser144 by TTK maintains chromosome stability during mitosis (7). Small molecule inhibitors of TTK can block the spindle checkpoint response, thereby making TTK a potential therapeutic target (8,9).

TTK also participates in the DNA damage response by directly phosphorylating and activating the cell cycle checkpoint kinase Chk2 at Thr68. Two targets phosphorylated by Chk2 are the cell cycle phosphatase cdc25 and the transcription factor p53. Inactivation of cdc25 phosphatase results in the accumulation of inactive cyclin B and cell cycle arrest following DNA damage. Phosphorylation of p53 by active Chk2 stabilizes the transcription factor and promotes cell cycle arrest and apoptosis in response to DNA damage (10).

Directions for Use: CST recommends transfection with 100 nM TTK 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.

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 OVCAR8 cells, transfected with 100 nM SignalSilence® Control siRNA (Unconjugated) #6568 (-), SignalSilence® TTK siRNA I (+) or SignalSilence® TTK siRNA II #6368 (+), using TTK (D15B7) Rabbit mAb #5469 (upper) or α-Tubulin (11H10) Rabbit mAb #2125 (lower). The TTK (D15B7) Rabbit mAb confirms silencing of TTK expression, while the α-Tubulin (11H10) Rabbit mAb is used as a loading control.

Entrez-Gene ID #7272
Swiss-Prot Acc. #P33981

Storage: TTK 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) Mills, G.B. et al. (1992) *J. Biol. Chem.* 267, 16000-16006.
(2) Stucke, V.M. et al. (2002) *EMBO J.* 21, 1723-1732.
(3) Lindberg, R.A. et al. (1993) *Oncogene* 8, 351-359.
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(5) Dou, Z. et al. (2003) *Cell Res.* 13, 443-449.
(6) Abrieu, A. et al. (2001) *Cell* 106, 83-93.
(7) Leng, M. et al. (2006) *Proc. Natl. Acad. Sci. USA* 103, 11485-11490.
(8) Schmidt, M. et al. (2005) *EMBO Rep.* 6, 866-872.
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(10) Wei, J.H. et al. (2005) *J. Biol. Chem.* 280, 7748-7757.

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.