

#7747 Store at -20°C

# SignalSilence® USP10 siRNA I



✓ 10 µM in 300 µl (100 Transfections)

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

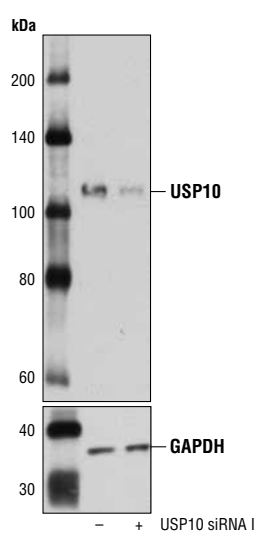
### Species Cross-Reactivity: H

**Description:** SignalSilence® USP10 siRNA I from Cell Signaling Technology (CST) allows the researcher to specifically inhibit USP10 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:** Ubiquitinating enzymes (UBEs) catalyze protein ubiquitination, a reversible process countered by deubiquitinating enzyme (DUB) action (1,2). Five DUB subfamilies are recognized, including the USP, UCH, OTU, MJD, and JAMM enzymes. USP10 possesses amino acid sequences that match the consensus cysteine and histidine boxes representative of the USP family of deubiquitinating enzymes. At the posttranslational level, USP10 appears to be regulated through both protein-protein interactions and phosphorylation. Indeed, interaction of USP10 with Ras-GAP SH3 domain binding protein (G3BP) has been found to inhibit its ability to catalyze the disassembly of ubiquitin chains (3). Furthermore, ATM-mediated phosphorylation of USP10 at Thr42 and Ser337 was shown to promote USP10 stabilization and redistribution from the cytoplasm to the nucleus, where it functions in p53 deubiquitination, stabilization, and activation in response to genotoxic stress (4). Recently, it was shown that USP10 works in concert with USP13 and Vps34 complexes. USP10, along with USP13, appears to deubiquitinate Vps34 complexes to regulate the levels of this class III PI3K. Beclin-1, another component of these complexes, functions to regulate the stability of USP13, which can deubiquitinate and stabilize the levels of USP10. Therefore, Beclin-1, can indirectly regulate p53 stability by controlling the DUB activity of USP10 (5). USP10 also functions in the endosomal compartment, where it has been shown to deubiquitinate CFTR in order to enhance its endocytic recycling and cell surface expression (6,7).

**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.

**Directions for Use:** CST recommends transfection with 100 nM SignalSilence® USP10 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.



Western blot analysis of extracts from 293T cells, transfected with 100 nM SignalSilence® Control siRNA (Unconjugated) #6568 (-) or SignalSilence® USP10 siRNA I (+), using USP10 (D7A5) Rabbit mAb #8501 and GAPDH (14C10) Rabbit mAb #2118. The USP10 (D7A5) Rabbit mAb confirms silencing of USP10 expression, while the GAPDH (14C10) Rabbit mAb is used as a loading control.

Entrez-Gene ID #9100  
Swiss-Prot Acc. #Q14694

**Storage:** USP10 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) Nijman, S.M. et al. (2005) *Cell* 123, 773-86.
- (2) Nalepa, G. et al. (2006) *Nat Rev Drug Discov* 5, 596-613.
- (3) Soncini, C. et al. (2001) *Oncogene* 20, 3869-79.
- (4) Yuan, J. et al. (2010) *Cell* 140, 384-96.
- (5) Liu, J. et al. (2011) *Cell* 147, 223-34.
- (6) Bomberger, J.M. et al. (2009) *J Biol Chem* 284, 18778-89.
- (7) Bomberger, J.M. et al. (2011) *Channels (Austin)* 4, 150-4.

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**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.