

# SignalSilence® $\beta$ 2-microglobulin siRNA I



✓ 10  $\mu$ M in 300  $\mu$ l  
(100 transfections)

**Orders** ■ 877-616-CELL (2355)  
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**For Research Use Only. Not For Use In Diagnostic Procedures.**

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

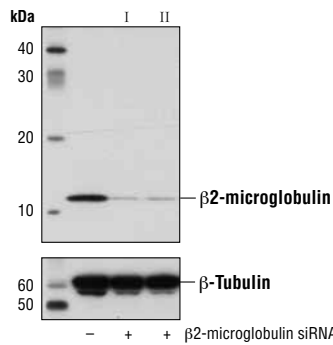
**Description:** SignalSilence®  $\beta$ 2-microglobulin siRNA I from Cell Signaling Technology (CST) allows the researcher to specifically inhibit  $\beta$ 2-microglobulin expression using RNA interference, a method whereby gene expression can be selectively silenced through the delivery of double stranded 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:**  $\beta$ 2-microglobulin (B2M) is a principal component of the Major Histocompatibility Complex (MHC) class I molecule, a ternary membrane protein complex that displays fragments derived from proteolyzed cytosolic proteins on the surface of cells for recognition by the surveillance immune system (1,2). As an integral component of the MHC class I complex,  $\beta$ 2-microglobulin plays a critically important role in immune system function (3). It has important relevance to cancer biology; for example, research studies have shown that nearly one-third of diffuse large B cell lymphomas contain mutations that inactivate  $\beta$ 2-microglobulin gene function, thereby allowing tumor cells to escape immune detection (4). In addition,  $\beta$ 2-microglobulin has been identified as an amyloid preprotein with collagen-binding affinity (5); its accumulation in osteoarthritic lesions of long-term dialysis patients is reportedly a contributing factor to the condition known as amyloid osteoarthropathy (6).

**Directions for Use:** CST recommends transfection with 100 nM SignalSilence®  $\beta$ 2-microglobulin 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.

**Specificity/Sensitivity:** SignalSilence®  $\beta$ 2-microglobulin siRNA I inhibits human, mouse, and monkey  $\beta$ 2-microglobulin expression.

**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 100 nM SignalSilence® Control siRNA (Unconjugated) #6568 (-), SignalSilence®  $\beta$ 2-microglobulin siRNA I (+), or SignalSilence®  $\beta$ 2-microglobulin siRNA II #7774 (+), using  $\beta$ 2-microglobulin Antibody #9899 (upper) or  $\beta$ -Tubulin (9F3) Rabbit mAb #2128 (lower). The  $\beta$ 2-microglobulin Antibody confirms silencing of  $\beta$ 2-microglobulin expression, while the  $\beta$ -Tubulin (9F3) Rabbit mAb is used as a loading control.

Entrez-Gene ID #567  
Swiss-Prot Acc. #P61769

**Storage:** Storage:  $\beta$ 2-microglobulin 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) Krangel, M.S. et al. (1979) *Cell* 18, 979-91.
- (2) Collins, E.J. et al. (1995) *Proc Natl Acad Sci U S A* 92, 1218-21.
- (3) Marx, J.I. (1974) *Science* 185, 428-9.
- (4) Challa-Malladi, M. et al. (2011) *Cancer Cell* 20, 728-40.
- (5) Gorevic, P.D. et al. (1985) *J Clin Invest* 76, 2425-9.
- (6) Ohashi, K. (2001) *Pathol Int* 51, 1-10.

**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.