

SignalSilence® BIN1 siRNA I



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New 03/14

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

Species Cross-Reactivity: H

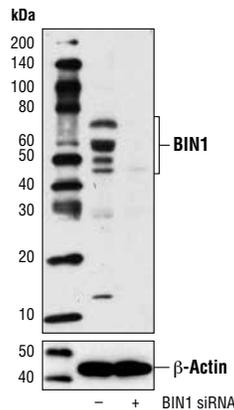
Description: SignalSilence® BIN1 siRNA I from Cell Signaling Technology (CST) allows the researcher to specifically inhibit BIN1 expression using RNA interference, a method whereby gene expression can be selectively silenced through the delivery of double stranded RNA molecules into the cell. All SignalSilence® siRNA products from CST are rigorously tested in-house and have been shown to reduce target protein expression by western analysis.

Background: Bridging integrator 1 (BIN1, AMPHL) is an adaptor protein and putative tumor suppressor expressed as multiple isoforms due to alternative splicing. The BIN1 protein was originally identified as a Myc box-interacting protein with structural similarity to the synaptic vesicle protein amphiphysin (1). BIN1 protein structure contains an amino-terminal amphipathic helix and a BAR domain that is involved in sensing membrane curvature. The protein also includes a Myc-binding domain and a SH3 domain, which are implicated in protein-protein interactions (1). Multiple BIN1 isoforms range in size from approximately 45 to 65 kDa, with the nuclear BIN1 isoform found mostly in skeletal muscle and the cytoplasmic IIA isoform expressed in axon initial segments and nodes of Ranvier of the brain (2,3). Corresponding *BIN1* gene mutations and incorrect splicing can lead to impaired BIN1 membrane-tubulating and protein binding activities, resulting in development of autosomal recessive centronuclear myopathy and myotonic dystrophy (4,5). Genome-wide association studies link the *BIN1* gene with late onset Alzheimer disease (AD) and increased BIN1 mRNA expression is seen in AD brains (6,7).

Directions for Use: CST recommends transfection with 100 nM SignalSilence® BIN1 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 HeLa cells, transfected with 100 nM SignalSilence® Control siRNA (Unconjugated) #6568 (-) or SignalSilence® BIN1 siRNA I (+), using BIN1 Antibody #13679 (upper) or β-Actin (D6A8) Rabbit mAb #8457 (lower). The BIN1 Antibody confirms silencing of BIN1 expression, while the β-Actin (D6A8) Rabbit mAb is used as a loading control.

Entrez-Gene ID #274
UniProt Acc. #000499

Storage: BIN1 siRNA I is supplied in RNase-free water. Aliquot and store at -20°C.

For product specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended companion products.

Background References:

- (1) Sakamuro, D. et al. (1996) *Nat Genet* 14, 69-77.
- (2) Ge, K. and Prendergast, G.C. (2000) *Genomics* 67, 210-20.
- (3) Ramjaun, A.R. et al. (1997) *J Biol Chem* 272, 16700-6.
- (4) Nicot, A.S. et al. (2007) *Nat Genet* 39, 1134-9.
- (5) Fugier, C. et al. (2011) *Nat Med* 17, 720-5.
- (6) Seshadri, S. et al. (2010) *JAMA* 303, 1832-40.
- (7) Chapuis, J. et al. (2013) *Mol Psychiatry* 18, 1225-34.