

# SignalSilence® GSK-3α/β siRNA

✓ 10µM in 300 µl  
(100 transfections)

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rev. 07/11/11

This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

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

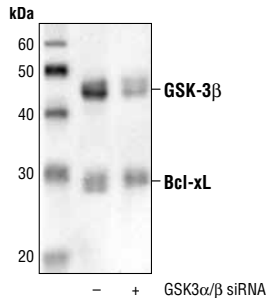
**Description:** SignalSilence® GSK-3α/β siRNA from Cell Signaling Technology allows the researcher to specifically inhibit GSK-3α and GSK-3β expression using RNA interference, a method in which gene expression can be selectively silenced through the delivery of double stranded RNA molecules into the cell. All SignalSilence® siRNA products are rigorously tested in-house and have been shown to reduce protein expression in specified cell lines.

**Background:** Glycogen synthase kinase-3 (GSK-3) was initially identified as an enzyme that regulates glycogen synthesis in response to insulin (1). GSK-3 is a ubiquitously expressed serine/threonine protein kinase that phosphorylates and inactivates glycogen synthase. GSK-3 is a critical downstream element of the PI3 kinase/Akt cell survival pathway whose activity can be inhibited by Akt-mediated phosphorylation at Ser21 of GSK-3α and Ser9 of GSK-3β (2,3). GSK-3 has been implicated in the regulation of cell fate in *Dictyostelium* and is a component of the Wnt signaling pathway required for *Drosophila*, *Xenopus* and mammalian development (4). GSK-3 has been shown to regulate cyclin D1 proteolysis and subcellular localization (5).

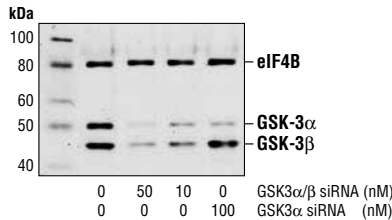
Small Interfering RNA (siRNA) has been used to specifically silence GSK-3α and β expression, causing an upregulation of beta-catenin protein levels (6).

**Directions for Use:** CST recommends transfection with 50 nM GSK-3α/β siRNA 48 hours prior to cell lysis. See Protocol for transfection procedure.

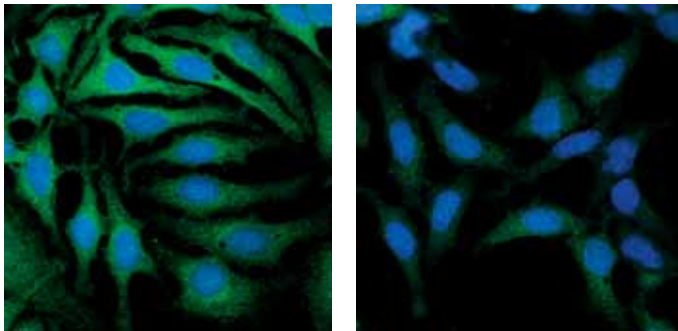
**Specificity/ Sensitivity:** GSK-3α/β siRNA will inhibit human, mouse and rat GSK-3α/β expression.



Western blot analysis of extracts from HeLa cells, untransfected or transfected with GSK-3α/β siRNA. GSK-3β was detected using GSK-3β Antibody #9332, and Bcl-xL was detected using Bcl-xL Antibody #2762. The GSK-3β Antibody confirms silencing of GSK-3β expression, and the Bcl-xL Antibody is used to control for loading and siRNA specificity.



Western blot analysis of extracts from HeLa cells, untransfected or transfected with either GSK-3α/β siRNA or GSK-3α siRNA. GSK-3α and GSK-3β were detected using a GSK-3α/β antibody, and eIF4B was detected using eIF4B Antibody #3592. The GSK-3α/β antibody confirms silencing of GSK-3α and β expression, and the eIF4B Antibody is used to control for loading and siRNA specificity.



Confocal immunofluorescent analysis of HeLa cells, mock-transfected (left) or transfected with SignalSilence® GSK-3α/β siRNA (right), using GSK-3-α/β (D75D3) XP™ Rabbit mAb #5676 (green). Actin filaments have been labeled with DY-554 phalloidin (red). Blue pseudocolor = DRAQ5® #4084 (fluorescent DNA dye).

**Entrez-Gene ID** #2931, 2932  
**Swiss-Prot Acc.** #P49840, P49841

**Storage:** GSK-3α/β 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) Verstrepen, L. et al. (2009) *Biochem Pharmacol* 78, 105-14.
- (2) Beyaert, R. et al. (2000) *Biochem Pharmacol* 60, 1143-51.
- (3) Lee, E.G. et al. (2000) *Science* 289, 2350-4.
- (4) Dixit, V.M. et al. (1990) *J Biol Chem* 265, 2973-8.
- (5) Wertz, I.E. et al. (2004) *Nature* 430, 694-9.