

#7062 Store at -20°C

# SignalSilence® JMJD2B siRNA II



✓ 10 µM in 300 µl (100 transfections)

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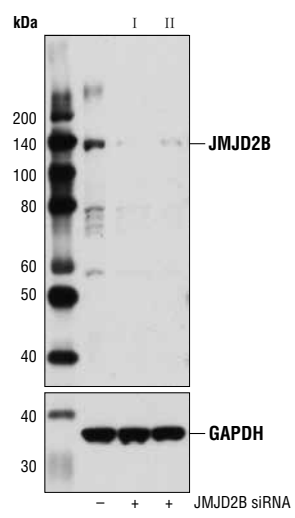
For Research Use Only. Not For Use In Diagnostic Procedures.

### Species Cross-Reactivity: H

**Description:** SignalSilence® JMJD2B siRNA II from Cell Signaling Technology (CST) allows the researcher to specifically inhibit JMJD2B 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:** The methylation state of lysine residues in histone proteins is a major determinant of the formation of active and inactive regions of the genome and is crucial for proper programming of the genome during development (1,2). Jumonji C (JmjC) domain-containing proteins represent the largest class of potential histone demethylase proteins (3). The JmjC domain can catalyze the demethylation of mono-, di-, and tri-methyl lysine residues via an oxidative reaction that requires iron and α-ketoglutarate (3). Based on homology, both humans and mice contain at least 30 such proteins, which can be divided into 7 separate families (3). The jumonji domain-containing protein 2 (JMJD2) family, also known as the JmjC domain-containing histone demethylation protein 3 (JHDM3) family, contains four members: JMJD2A/JHDM3A, JMJD2B/JHDM3B, JMJD2C/JHDM3C, and JMJD2D/JHDM3D. In addition to the JmjC domain, these proteins also contain JmjN, PHD, and tudor domains, the latter of which has been shown to bind to methylated histone H3 at Lys4 and Lys9, and methylated histone H4 at Lys20 (4,5). JMJD2 proteins have been shown to demethylate di- and tri-methyl histone H3 at Lys9 and Lys36 and function as both activators and repressors of transcription (6-11). JMJD2A, JMJD2C, and JMJD2D function as coactivators of the androgen receptor in prostate tumor cells (7). In contrast, JMJD2A also associates with Rb and NCoR corepressor complexes and is necessary for transcriptional repression of target genes (8,9). JMJD2B antagonizes histone H3 Lys9 tri-methylation at pericentric heterochromatin (10). JMJD2C, also known as GASC1, is amplified in squamous cell carcinomas and metastatic lung carcinoma and inhibition of JMJD2C expression decreases cell proliferation (11,12). JMJD2C has also been identified as a downstream target of Oct-4 and is critical for the regulation of self-renewal in embryonic stem cells (13).

**Directions for Use:** CST recommends transfection with 100 nM SignalSilence® JMJD2B siRNA II 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 (-), SignalSilence® JMJD2B siRNA I #7435 (+), or SignalSilence® JMJD2B siRNA II (+), using JMJD2B (D7E6) Rabbit mAb #8639 (upper) or GAPDH (D16H11) XP® Rabbit mAb #5174 (lower). The JMJD2B (D7E6) Rabbit mAb confirms silencing of JMJD2B expression, while the GAPDH (D16H11) XP® Rabbit mAb is used as a loading control.

**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.

Entrez-Gene ID #23030  
Swiss-Prot Acc. #O94953

**Storage:** SignalSilence® JMJD2B siRNA II 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:

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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.