

# BSX siRNA (m): sc-141767

## BACKGROUND

BSX (brain-specific homeobox), also known as BSX1, is a 233 amino acid highly conserved protein that localizes to the nucleus and is a member of the distal-less homeobox family. BSX is a DNA binding protein that functions as a transcriptional activator and is essential for normal postnatal growth and nursing. BSX is a master regulator for the hypothalamic expression of key orexigenic neuropeptide Y (NPY) and agouti-related peptide (AGRP) function. Expressed in the dorsomedial and arcuate nucleus (ARC) of the hypothalamus, BSX is regulated by afferent signals in response to peripheral energy balance. Containing a homeobox DNA-binding domain, BSX may be involved in the pathogenesis of leptin resistance. The gene encoding BSX maps to human chromosome 11q24.1, which houses over 1,400 genes and comprises nearly 4% of the human genome.

## REFERENCES

1. Cremona, M., et al. 2004. BSX, an evolutionary conserved brain specific homeobox gene expressed in the septum, epiphysis, mammillary bodies and arcuate nucleus. *Gene Expr. Patterns* 4: 47-51.
2. Sakkou, M., et al. 2007. A role for brain-specific homeobox factor BSX in the control of hyperphagia and locomotory behavior. *Cell Metab.* 5: 450-463.
3. Chu, H.Y. and Ohtoshi, A. 2007. Cloning and functional analysis of hypothalamic homeobox gene Bsx1a and its isoform, Bsx1b. *Mol. Cell. Biol.* 27: 3743-3749.
4. McArthur, T. and Ohtoshi, A. 2007. A brain-specific homeobox gene, BSX, is essential for proper postnatal growth and nursing. *Mol. Cell. Biol.* 27: 5120-5127.
5. Park, S.Y., et al. 2007. REST is a key regulator in brain-specific homeobox gene expression during neuronal differentiation. *J. Neurochem.* 103: 2565-2574.
6. Nogueiras, R., et al. 2008. BSX, a novel hypothalamic factor linking feeding with locomotor activity, is regulated by energy availability. *Endocrinology* 149: 3009-3015.
7. Coldren, C.D., et al. 2009. Chromosomal microarray mapping suggests a role for BSX and neurogranin in neurocognitive and behavioral defects in the 11q terminal deletion disorder (Jacobsen syndrome). *Neurogenetics* 10: 89-95.

## CHROMOSOMAL LOCATION

Genetic locus: Bsx (mouse) mapping to 9 A5.1.

## PRODUCT

BSX siRNA (m) is a target-specific 19-25 nt siRNA designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see BSX shRNA Plasmid (m): sc-141767-SH and BSX shRNA (m) Lentiviral Particles: sc-141767-V as alternate gene silencing products.

## STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

BSX siRNA (m) is recommended for the inhibition of BSX expression in mouse cells.

## SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10  $\mu$ M in 66  $\mu$ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor BSX gene expression knockdown using RT-PCR Primer: BSX (m)-PR: sc-141767-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.