



# BORIS siRNA (h): sc-60279

## BACKGROUND

Brother of the regulator of imprinted sites (BORIS) is a mammalian transcription factor that is paralogous to the CCCTC-binding factor (CTCF), an ubiquitous 11 zinc finger (ZF) protein that organizes epigenetically controlled chromatin insulators that regulate imprinted genes in soma. BORIS is a 663 amino acid DNA binding protein. It is expressed at high levels in the testis and in low levels in the prostate in a mutually exclusive pattern that correlates with the resetting of methylation marks during male germ cell differentiation. Abnormal expression of BORIS is linked to many types of cancer including breast, prostate, ovary, gastric, liver, endometrial, glioma, colon and esophagus.

## REFERENCES

1. Klenova, E.M., et al. 2002. The novel BORIS + CTCF gene family is uniquely involved in the epigenetics of normal biology and cancer. *Semin. Cancer Biol.* 12: 399-414.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 607022. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
3. Vatolin, S., et al. 2005. Conditional expression of the CTCF-paralogous transcriptional factor BORIS in normal cells results in demethylation and derepression of MAGE-A1 and reactivation of other cancer-testis genes. *Cancer Res.* 65: 7751-7762.
4. Hong, J.A., et al. 2005. Reciprocal binding of CTCF and BORIS to the NY-ESO-1 promoter coincides with derepression of this cancer-testis gene in lung cancer cells. *Cancer Res.* 65: 7763-7774.
5. D'Arcy, V., et al. 2006. The potential of BORIS detected in the leukocytes of breast cancer patients as an early marker of tumorigenesis. *Clin. Cancer Res.* 12: 5978-5986.
6. Hoffmann, M.J., et al. 2006. Epigenetic control of CTCFL/BORIS and OCT4 expression in urogenital malignancies. *Biochem. Pharmacol.* 72: 1577-1588.
7. Looijenga, L.H., et al. 2006. Genomic and expression profiling of human spermatocytic seminomas: primary spermatocyte as tumorigenic precursor and DMRT1 as candidate chromosome 9 gene. *Cancer Res.* 66: 290-302.

## CHROMOSOMAL LOCATION

Genetic locus: CTCFL (human) mapping to 20q13.31.

## PRODUCT

BORIS siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs 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 BORIS shRNA Plasmid (h): sc-60279-SH and BORIS shRNA (h) Lentiviral Particles: sc-60279-V as alternate gene silencing products.

For independent verification of BORIS (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-60279A, sc-60279B and sc-60279C.

## 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

BORIS siRNA (h) is recommended for the inhibition of BORIS expression in human 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.

## GENE EXPRESSION MONITORING

BORIS (F-1): sc-377085 is recommended as a control antibody for monitoring of BORIS gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor BORIS gene expression knockdown using RT-PCR Primer: BORIS (h)-PR: sc-60279-PR (20  $\mu$ l, 469 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Makovski, A., et al. 2012. Intronic promoter drives the BORIS-regulated expression of FerT in colon carcinoma cells. *J. Biol. Chem.* 287: 6100-6112.

## RESEARCH USE

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