



# Borealin siRNA (h): sc-60277

## BACKGROUND

Borealin is a 280-amino acid protein that stabilizes the bipolar mitotic spindle. Borealin is part of a complex called Aurora B kinase that has essential regulatory roles at centromeres and the central spindle in cells undergoing mitosis. This complex makes up the enzymatic core of the chromosomal passenger complex (CPC). It is possible that the Borealin subunit directs the CPC to centromeric DNA. Deletion of Borealin delays mitotic progression and causes kinetochore-spindle to mis-attach. Deletion also causes an increase in bipolar spindles associated with ectopic asters. These extra poles, which form after chromosomes acquire their bipolar orientation, seriously disrupt chromosome allotment during anaphase. It is true that inappropriate chromosomal segregation and cell division may cause aneuploidy leading to cancer, so an abnormal expression of Borealin may lead to gastric cancer.

## REFERENCES

1. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 609977. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
2. Gassmann, R., et al. 2004. Borealin: a novel chromosomal passenger required for stability of the bipolar mitotic spindle. *J. Cell Biol.* 166: 179-191.
3. Sampath, S.C., et al. 2004. The chromosomal passenger complex is required for chromatin-induced microtubule stabilization and spindle assembly. *Cell* 118: 187-202.
4. Vagnarelli, P., et al. 2004. Chromosomal passengers: the four-dimensional regulation of mitotic events. *Chromosoma* 113: 211-222.

## CHROMOSOMAL LOCATION

Genetic locus: CDCA8 (human) mapping to 1p34.3.

## PRODUCT

Borealin 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 Borealin shRNA Plasmid (h): sc-60277-SH and Borealin shRNA (h) Lentiviral Particles: sc-60277-V as alternate gene silencing products.

For independent verification of Borealin (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-60277A, sc-60277B and sc-60277C.

## 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

Borealin siRNA (h) is recommended for the inhibition of Borealin 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

Borealin (A-5): sc-376635 is recommended as a control antibody for monitoring of Borealin 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 Borealin gene expression knockdown using RT-PCR Primer: Borealin (h)-PR: sc-60277-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Peng, R., et al. 2020. Identification of core genes involved in the metastasis of clear cell renal cell carcinoma. *Cancer Manag. Res.* 12: 13437-13449.
2. Di Cesare, E., et al. 2023. Aurora B SUMOylation is restricted to centromeres in early mitosis and requires RANBP2. *Cells* 12: 372.

## 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.