

BRSK1 siRNA (m): sc-141754

BACKGROUND

The phosphorylation and dephosphorylation of proteins on serine and threonine residues is an essential means of regulating a broad range of cellular functions in eukaryotes, including cell division, homeostasis and apoptosis. A group of proteins that are intimately involved in this process are the serine/threonine (Ser/Thr) protein kinases. BRSK1 (BR serine/threonine-protein kinase 1), also known as SAD1, is a 794 amino acid protein that localizes to both the nucleus and the cytoplasm and contains one UBA domain and one protein kinase domain. Expressed in a variety of tissues with highest expression in testis and brain, BRSK1 uses magnesium as a cofactor to catalyze the ATP-dependent phosphorylation of target proteins, including Wee 1 and Cdc25B. Via its kinase activity toward proteins that are involved in microtubule assembly, BRSK1 plays an essential role in neuronal polarization and may be involved in regulating cell cycle arrest in response to DNA damage. Two isoforms of BRSK1 exist due to alternative splicing events.

REFERENCES

1. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 609235. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
2. Lizcano, J.M., et al. 2004. LKB1 is a master kinase that activates 13 kinases of the AMPK subfamily, including MARK/PAR-1. *EMBO J.* 23: 833-843.
3. Lu, R., et al. 2004. Human SAD1 kinase is involved in UV-induced DNA damage checkpoint function. *J. Biol. Chem.* 279: 31164-31170.
4. Kishi, M., et al. 2005. Mammalian SAD kinases are required for neuronal polarization. *Science* 307: 929-932.
5. Inoue, E., et al. 2006. SAD: a presynaptic kinase associated with synaptic vesicles and the active zone cytomatrix that regulates neurotransmitter release. *Neuron* 50: 261-275.
6. King, M.C., et al. 2008. A network of nuclear envelope membrane proteins linking centromeres to microtubules. *Cell* 134: 427-438.

CHROMOSOMAL LOCATION

Genetic locus: Brsk1 (mouse) mapping to 7 A1.

PRODUCT

BRSK1 siRNA (m) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see BRSK1 shRNA Plasmid (m): sc-141754-SH and BRSK1 shRNA (m) Lentiviral Particles: sc-141754-V as alternate gene silencing products.

For independent verification of BRSK1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-141754A, sc-141754B and sc-141754C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support 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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

BRSK1 siRNA (m) is recommended for the inhibition of BRSK1 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 μ M in 66 μ 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

BRSK1 (B-1): sc-376099 is recommended as a control antibody for monitoring of BRSK1 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 κ BP-HRP: sc-516102 or m-IgG κ 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 κ BP-FITC: sc-516140 or m-IgG κ 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 BRSK1 gene expression knockdown using RT-PCR Primer: BRSK1 (m)-PR: sc-141754-PR (20 μ 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.