SANTA CRUZ BIOTECHNOLOGY, INC.

BRSK2 siRNA (h): sc-96315

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. BRSK2 (BR serine/threonine kinase 2), also known as SAD1, STK29 or PEN11B, is a 736 amino acid protein that contains one protein kinase domain and is preferentially expressed in brain and testis. One of several members of the Ser/Thr protein kinase family, BRSK2 uses magnesium as a cofactor to catalyze the ATP-dependent phosphorylation of target proteins and is thought to be involved in microtubule assembly, neuronal polarization and synaptic development. Additionally, BRSK2 may function as an autoantigen involved in small-cell lung cancer-associated limbic encephalitis. Five isoforms of BRSK2 exist due to alternative splicing events.

REFERENCES

1. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 609236. 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. Sabater, L., et al. 2005. BR serine/threonine kinase 2: a new autoantigen in paraneoplastic limbic encephalitis. J. Neuroimmunol. 170: 186-190.
5. Guo, Z., et al. 2006. BRSK2 is activated by cyclic AMP-dependent protein kinase A through phosphorylation at Thr260. Biochem. Biophys. Res. Commun. 347: 867-871.
6. 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.
7. Bright, N.J., et al. 2008. Investigating the regulation of brain-specific kinases 1 and 2 by phosphorylation. J. Biol. Chem. 283: 14946-14954.

CHROMOSOMAL LOCATION

Genetic locus: BRSK2 (human) mapping to 11p15.5.

PRODUCT

BRSK2 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see BRSK2 shRNA Plasmid (h): sc-96315-SH and BRSK2 shRNA (h) Lentiviral Particles: sc-96315-V as alternate gene silencing products.

For independent verification of BRSK2 (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-96315A, sc-96315B and sc-96315C.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

BRSK2 siRNA (h) is recommended for the inhibition of BRSK2 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 µM in 66 µl. 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 BRSK2 gene expression knockdown using RT-PCR Primer: BRSK2 (h)-PR: sc-96315-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Bakula, D., et al. 2017. WIPI3 and WIPI4 β-propellers are scaffolds for LKB1-AMPK-TSC signalling circuits in the control of autophagy. Nat. Commun. 8: 15637.
2. Rosenthal, C.K. 2017. EGFR probes matrix stiffness. Nat. Cell Biol. 19: 600.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.