SANTA CRUZ BIOTECHNOLOGY, INC.

PSK2 siRNA (h): sc-76267

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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. PSK2 (prostate-derived STE20-like kinase 2), also known as TAOK1 (TAO kinase 1), TAO1 (thousand and one amino acid protein 1), hKFC-B (kinase from chicken homolog B), MARKK or MAP3K16, is a member of the Ser/Thr protein kinase family and belongs to the GCK-like class of STE20-like kinases. Expressed at high levels in testis and at lower levels in placenta, colon, brain and skeletal muscle, PSK2 localizes to the cytoplasm and phosphorylates MEK-3, thereby activating the p38 MAP kinase pathway. In addition, PSK2 is capable of activating JNK and inducing JNK-dependent morphological changes that lead to apoptosis. Upon activation of caspases, PSK2 is cleaved by caspase-3.

REFERENCES

1. Nagase, T., et al. 2000. Prediction of the coding sequences of unidentified human genes. XVI. The complete sequences of 150 new cDNA clones from brain which code for large proteins *in vitro*. DNA Res. 7: 65-73.
2. Berman, K.S., et al. 2001. Kin-18, a *C. elegans* protein kinase involved in feeding. Gene 279: 137-147.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 610266. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Timm, T., et al. 2003. MARKK, a STE20-like kinase, activates the polarity-inducing kinase MARK/PAR-1. EMBO J. 22: 5090-5101.
5. Zihni, C., et al. 2006. Prostate-derived sterile 20-like kinase 2 (PSK2) regulates apoptotic morphology via c-Jun N-terminal kinase and Rho kinase-1. J. Biol. Chem. 281: 7317-7323.
6. Mansouri, M.R., et al. 2006. Molecular genetic analysis of a *de novo* balanced translocation t(6;17)(p21.31;q11.2) associated with hypospadias and anorectal malformation. Hum. Genet. 119: 162-168.
7. Draviam, V.M., et al. 2007. A functional genomic screen identifies a role for TAO1 kinase in spindle-checkpoint signalling. Nat. Cell Biol. 9: 556-564.
8. Johne, C., et al. 2008. Spred1 and TESK1—two new interaction partners of the kinase MARKK/TAO1 that link the microtubule and Actin cytoskeleton. Mol. Biol. Cell 19: 1391-1403.
9. Wu, M.F. and Wang, S.G. 2008. Human TAO kinase 1 induces apoptosis in SH-SY5Y cells. Cell Biol. Int. 32: 151-156.

CHROMOSOMAL LOCATION

Genetic locus: TAOK1 (human) mapping to 17q11.2.

PROTOCOLS

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

PRODUCT

PSK2 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 PSK2 shRNA Plasmid (h): sc-76267-SH and PSK2 shRNA (h) Lentiviral Particles: sc-76267-V as alternate gene silencing products.

For independent verification of PSK2 (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-76267A, sc-76267B and sc-76267C.

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

PSK2 siRNA (h) is recommended for the inhibition of PSK2 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.

GENE EXPRESSION MONITORING

PSK2 (22): sc-136094 is recommended as a control antibody for monitoring of PSK2 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PSK2 gene expression knockdown using RT-PCR Primer: PSK2 (h)-PR: sc-76267-PR (20 µl). 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.