SANTA CRUZ BIOTECHNOLOGY, INC.

PAK5 siRNA (h): sc-39062

BACKGROUND

The p21-activated kinase (PAK) family of protein kinases are Serine/Threonine protein kinases that bind to and, in some cases, are stimulated by activated forms of the small GTPases, Cdc42 and Rac. PAK5, a member of the PAK family of protein kinases contains a Cdc42/Rac 1 interactive binding (CRIB) motif at the N-terminus and a Ste20-like kinase domain at the C-terminus. PAK5 preferentially binds to Cdc42 in the presence of GTP and the CRIB motif is essential for this interaction. PAK5 operates downstream of Cdc42 and Rac and antagonizes Rho in the pathway, leading to neurite development. PAK5 is a functional protein kinase, but, unlike PAK-I family kinases (PAK1, 2, and 3), the kinase activity of PAK5 does not seem to require the binding of Cdc42. PAK5 is highly expressed in mammalian brain but is not expressed in most other tissues. PAK5 colocalizes and binds to both the Actin and MT networks and its subcellular localization is regulated during cell cycle progression.

REFERENCES

1. Cau, J., Faure, S., Comps, M., Delsert, C. and Morin, N. 2001. A novel p21-activated kinase binds the Actin and microtubule networks and induces microtubule stabilization. J. Cell Biol. 155: 1029-1042.
2. Pandey, A., Dan, I., Kristiansen, T.Z., Watanabe, N.M., Voldby, J., Kajikawa, E., Khosravi-Far, R., Blagoev, B. and Mann, M. 2002. Cloning and characterization of PAK5, a novel member of mammalian p21-activated kinase-II subfamily that is predominantly expressed in brain. Oncogene 21: 3939-3948.
3. Dan, C., Nath, N., Liberto, M. and Minden, A. 2002. PAK5, a new brain-specific kinase, promotes neurite outgrowth in N1E-115 cells. Mol. Cell. Biol. 22: 567-577.
4. Jaffer, Z.M. and Chernoff, J. 2002. p21-Activated kinases: three more join the PAK. Int. J. Biochem. Cell Biol. 34: 713-717.
5. SWISS-PROT/TrEMBL (12585290). World Wide Web URL: http://www.expasy.ch/sprot/sprot-top.html

CHROMOSOMAL LOCATION

Genetic locus: PAK7 (human) mapping to 20p12.2.

PRODUCT

PAK5 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 PAK5 shRNA Plasmid (h): sc-39062-SH and PAK5 shRNA (h) Lentiviral Particles: sc-39062-V as alternate gene silencing products.

For independent verification of PAK5 (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-39062A, sc-39062B and sc-39062C.

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 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

PAK5 siRNA (h) is recommended for the inhibition of PAK5 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 PAK5 gene expression knockdown using RT-PCR Primer: PAK5 (h)-PR: sc-39062-PR (20 µl, 479 bp). 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.