

PAK4 (h7): 293T Lysate: sc-158805

BACKGROUND

Three recently identified isoforms of serine/threonine kinases, designated α PAK p68, β PAK p65 and γ PAK p62, have been shown to exhibit a high degree of sequence homology with the *S. cerevisiae* kinase STE20, involved in pheromone signaling. The α , β , and γ PAK isoforms complex specifically with Rac 1 and Cdc42 in their active GTP bound state, inhibiting their intrinsic GTPase activity leading to their autophosphorylation. Once phosphorylated and their affinity for Rac/Cdc42 reduced, the PAK isoforms disassociate from the complex to seek downstream substrates. One such putative substrate is MEK kinase, an upstream effector of MEK-4 which is involved in the JNK signaling pathway. While the PAK isoforms interact in a GTP-dependent manner with Rac 1 and Cdc42, they do not interact with Rho. PAK4 is highly expressed in prostate, testis and colon. PAK4 interacts tightly with GTP-bound but not GDP-bound Cdc42 and weakly with Rac. PAK4 phosphorylates and autophosphorylates and also activates the JNK pathway. Coexpression of PAK4 and activated Cdc42 induces the sustained formation of Actin-enriched filopodia protrusions and causes PAK4 to co-localize with polymerized Actin clusters and with β coat protein in the Golgi. The gene which encodes PAK4 maps to human chromosome 19q13.2.

REFERENCES

1. Didsbury, J., et al. 1989. Rac, a novel Ras-related family of proteins that are botulinum toxic substrates. *J. Biol. Chem.* 264: 16378-16382.
2. Shinjo, K., et al. 1990. Molecular cloning of the gene for the human placental GTP-binding protein G-p (G25K): identification of this GTP-binding protein as the human homolog of the yeast cell-division-cycle protein Cdc42. *Proc. Natl. Acad. Sci. USA* 98: 9853-9857.
3. Boguski, M.S., et al. 1993. Proteins regulating Ras and its relatives. *Nature* 366: 643-654.
4. Lange-Carter, C.A., et al. 1993. A divergence in the MAP kinase regulatory network defined by MEK kinase and Raf. *Science* 260: 315-319.
5. Manser, E., et al. 1994. A brain serine/threonine protein kinase activated by Cdc42 and Rac 1. *Nature* 367: 40-46.
6. Yan, M., et al. 1994. Activation of stress-activated protein kinase by MEKK1 phosphorylation of its activator SEK1. *Nature* 372: 798-800.
7. Martin, G.A., et al. 1995. A novel serine kinase activated by Rac 1/Cdc42Hs-dependent autophosphorylation is related to PAK65 and Ste20. *EMBO J.* 14: 1970-1978.

CHROMOSOMAL LOCATION

Genetic locus: PAK4 (human) mapping to 19q13.2.

PRODUCT

PAK4 (h7): 293T Lysate represents a lysate of human PAK4 transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

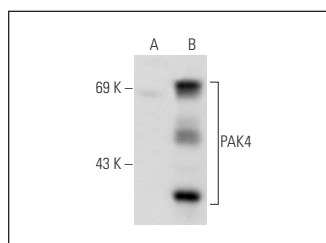
APPLICATIONS

PAK4 (h7): 293T Lysate is suitable as a Western Blotting positive control for human reactive PAK4 antibodies. Recommended use: 10-20 μ l per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

PAK4 (6C1): sc-81532 is recommended as a positive control antibody for Western Blot analysis of enhanced human PAK4 expression in PAK4 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

DATA



PAK4 (6C1): sc-81532. Western blot analysis of PAK4 expression in non-transfected: sc-117752 (**A**) and human PAK4 transfected: sc-158805 (**B**) 293T whole cell lysates.

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.