SANTA CRUZ BIOTECHNOLOGY, INC.

PAK4 (B-6): sc-393367

BACKGROUND

Three recently identified isoforms of serine/threonine kinases, designated αPAK p68, βPAK p65 and γPAK 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 γPAK isoforms complex specifically with Rac1 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 MEK4 which is involved in the JNK signaling pathway. While the PAK isoforms interact in a GTP-dependent manner with Rac1 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 colocalize with polymerized Actin clusters and with β coat protein in the Golgi. The gene which encodes PAK4 maps to human chromosome 19q13.2.

CHROMOSOMAL LOCATION

Genetic locus: PAK4 (human) mapping to 19q13.2; Pak4 (mouse) mapping to 7 A3.

SOURCE

PAK4 (B-6) is a mouse monoclonal antibody raised against amino acids 101-240 mapping near the N-terminus of PAK4 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

PAK4 (B-6) is recommended for detection of PAK4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PAK4 siRNA (h): sc-39060, PAK4 siRNA (m): sc-39061, PAK4 shRNA Plasmid (h): sc-39060-SH, PAK4 shRNA Plasmid (m): sc-39061-SH, PAK4 shRNA (h) Lentiviral Particles: sc-39060-V and PAK4 shRNA (m) Lentiviral Particles: sc-39061-V.

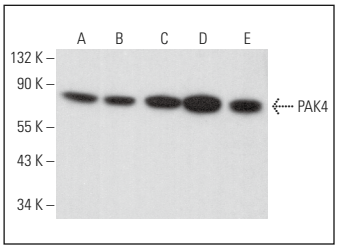
Molecular Weight of PAK4: 68 kDa.

Positive Controls: NTERA-2 cl.D1 whole cell lysate: sc-364181, SH-SY5Y cell lysate: sc-3812 or NIH/3T3 whole cell lysate: sc-2210.

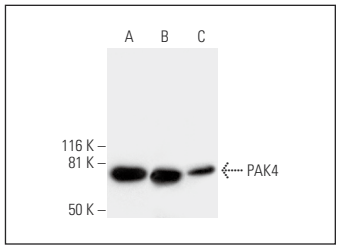
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



PAK4 (B-6): sc-393367. Western blot analysis of PAK4 expression in NIH/3T3 (**A**), Neuro-2A (**B**), F9 (**C**), IMR-32 (**D**) and COLO 205 (**E**) whole cell lysates.



PAK4 (B-6): sc-393367. Western blot analysis of PAK4 expression in NTERA-2 cl.D1 (**A**), SH-SY5Y (**B**) and NIH/3T3 (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Wang, Y., et al. 2016. P21-activated kinase inhibitors FRAX486 and IPA3: inhibition of prostate stromal cell growth and effects on smooth muscle contraction in the human prostate. PLoS ONE 11: e0153312.
2. Mao, K., et al. 2017. MicroRNA-485 inhibits malignant biological behaviour of glioblastoma cells by directly targeting PAK4. Int. J. Oncol. 51: 1521-1532.
3. Mpilla, G., et al. 2019. PAK4-NAMPT dual inhibition as a novel strategy for therapy resistant pancreatic neuroendocrine tumors. Cancers 11: 1902.
4. Xiao, J., et al. 2021. Activation of GPR40 attenuates neuroinflammation and improves neurological function via PAK4/CREB/KDM6B pathway in an experimental GMH rat model. J. Neuroinflammation 18: 160.

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.