SANTA CRUZ BIOTECHNOLOGY, INC.

αPAK (N-20): sc-882

BACKGROUND

Three 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 Ste 20, 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. There are eight sites of autophosphorylation on γPAK, including Ser 19, Ser 141 and Thr 402, and phosphorylation of Ser 141 and Thr 402 is correlated with γPAK activation. 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.

CHROMOSOMAL LOCATION

Genetic locus: PAK1 (human) mapping to 11q13.5; Pak1 (mouse) mapping to 7 E2.

SOURCE

αPAK (N-20) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping at the N-terminus of αPAK of rat origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

αPAK (N-20) is available conjugated to agarose (sc-882 AC), 500 µg/0.25 ml agarose in 1 ml, for IP.

Blocking peptide available for competition studies, sc-882 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

αPAK (N-20) is recommended for detection of αPAK p68 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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). αPAK (N-20) is also recommended for detection of αPAK p68 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for αPAK siRNA (h): sc-29700, αPAK siRNA (m): sc-29701, αPAK shRNA Plasmid (h): sc-29700-SH, αPAK shRNA Plasmid (m): sc-29701-SH, αPAK shRNA (h) Lentiviral Particles: sc-29700-V and αPAK shRNA (m) Lentiviral Particles: sc-29701-V.

Molecular Weight of αPAK: 65 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, F9 cell lysate: sc-2245 or 3T3-L1 cell lysate: sc-2243.

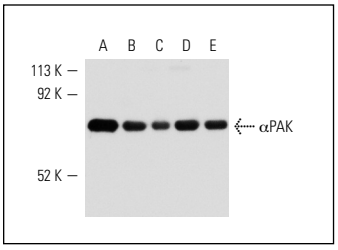
RESEARCH USE

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

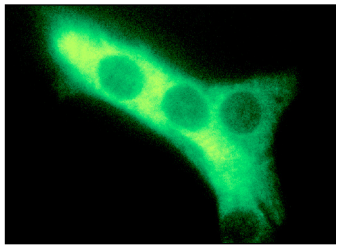
STORAGE

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

DATA



αPAK (N-20): sc-882. Western blot analysis of αPAK expression in EOC 20 (**A**), NIH/3T3 (**B**), F9 (**C**), 3T3-L1 (**D**) and C3H/10T1/2 (**E**) whole cell lysates.



αPAK (N-20): sc-882. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

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2. Wilkes, M.C., et al. 2009. Erbin and the NF2 tumor suppressor Merlin cooperatively regulate cell-type-specific activation of PAK2 by TGF-β. Dev. Cell 16: 433-444.
3. Romero, A.M., et al. 2010. Chronic ethanol exposure alters the levels, assembly, and cellular organization of the actin cytoskeleton and microtubules in hippocampal neurons in primary culture. Toxicol. Sci. 118: 602-612.
4. Sosa-García, B., et al. 2010. A role for the retinoblastoma protein as a regulator of mouse osteoblast cell adhesion: implications for osteogenesis and osteosarcoma formation. PLoS ONE 5: e13954.
5. Ming, J., et al. 2011. Interleukin-7 up-regulates cyclin D1 via activator protein-1 to promote proliferation of cell in lung cancer. Cancer Immunol. Immunother. 61: 79-88.
6. Andrique, L., et al. 2012. ErbB3(80 kDa), a nuclear variant of the ErbB3 receptor, binds to the Cyclin D1 promoter to activate cell proliferation but is negatively controlled by p14ARF. Cell. Signal. 24: 1074-1085.
7. Itakura, A., et al. 2013. p21-Activated kinase (PAK) regulates cytoskeletal reorganization and directional migration in human neutrophils. PLoS ONE 8: e73063.
8. Moshfegh, Y., et al. 2014. A Trio-Rac1-Pak1 signalling axis drives invadopodia disassembly. Nat. Cell Biol. 16: 574-586.