SANTA CRUZ BIOTECHNOLOGY, INC.

αPAK (A-6): sc-166887

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 Ste20, involved in pheromone signaling. The α, β and γPAK isoforms complex specifically with Rac 1 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 Rac 1 and Cdc42, they do not interact with Rho.

SOURCE

αPAK (A-6) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 246-470 mapping at the C-terminus of αPAK 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.

αPAK (A-6) is available conjugated to agarose (sc-166887 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166887 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166887 PE), fluorescein (sc-166887 FITC), Alexa Fluor® 488 (sc-166887 AF488), Alexa Fluor® 546 (sc-166887 AF546), Alexa Fluor® 594 (sc-166887 AF594) or Alexa Fluor® 647 (sc-166887 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166887 AF680) or Alexa Fluor® 790 (sc-166887 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

αPAK (A-6) is recommended for detection of αPAK, βPAK and γPAK 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).

αPAK (A-6) is also recommended for detection of αPAK, βPAK and γPAK in additional species, including equine and bovine.

Molecular Weight of αPAK: 65 kDa.

Positive Controls: CCRF-CEM cell lysate: sc-2225, Hela whole cell lysate: sc-2200 or c4 whole cell lysate: sc-364186.

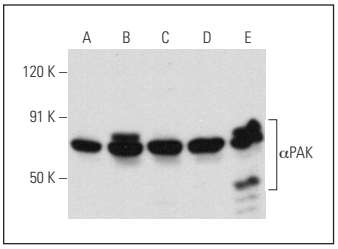
STORAGE

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

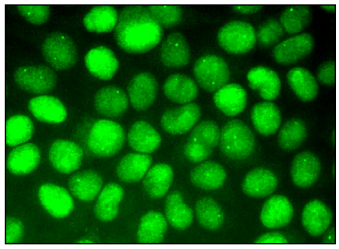
RESEARCH USE

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

DATA



αPAK (A-6): sc-166887. Western blot analysis of αPAK expression in HeLa (**A**), CCRF-CEM (**B**), c4 (**C**), BYDP (**D**) and L8 (**E**) whole cell lysates.



αPAK (A-6): sc-166887. Immunofluorescence staining of formalin-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Badolia, R., et al. 2015. G_q-mediated Akt translocation to the membrane: a novel PIP3-independent mechanism in platelets. Blood 125: 175-184.
2. 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.
3. Jeannot, P., et al. 2017. $p27^{Kip1}$ promotes invadopodia turnover and invasion through the regulation of the PAK1/Cortactin pathway. Elife 6: e22207.
4. Harms, F.L., et al. 2018. Activating mutations in PAK1, encoding p21-activated kinase 1, cause a neurodevelopmental disorder. Am. J. Hum. Genet. 103: 579-591.
5. Liu, X., et al. 2020. Multiple protein and mRNA expression correlations in the rat cerebral cortex after ischemic injury and repair due to buchang naoxintong jiaonang (BNJ) intervention. Biomed. Pharmacother. 125: 109917.
6. Wahedi, H.M., et al. 2020. NED416, a novel synthetic Sirt1 activator, promotes cutaneous wound healing via the MAPK/Rho pathway. Int. J. Mol. Med. 46: 149-158.
7. Zhang, M., et al. 2020. Sea cucumber *Cucumaria frondosa* fucoidan inhibits osteosarcoma adhesion and migration by regulating cytoskeleton remodeling. Oncol. Rep. 44: 469-476.
8. Mizushima, T., et al. 2020. Androgen receptor signaling reduces the efficacy of bacillus Calmette-Guerin therapy for bladder cancer via modulating Rab27b-induced exocytosis. Mol. Cancer Ther. 19: 1930-1942.
9. Romano, R., et al. 2021. RAB7A regulates vimentin phosphorylation through AKT and PAK. Cancers 13: 2220.

PROTOCOLS

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