SANTA CRUZ BIOTECHNOLOGY, INC.

PRAK (A-7): sc-46667

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

PRAK (p38-regulated/activated kinase), also referred to as mitogen-activated protein kinase (MAPK)-activated protein kinase (MAPKAPK)-5, is an ubiquitously expressed serine/threonine kinase regulated by p38α and p38β MAP kinases. Activated JNK, p38γ or p38δ are unable to induce phosphorylation of PRAK *in vitro*. Phosphorylation of PRAK occurs *in vivo* in response to p38 activation by stress-related extracellular stimuli including UV light, oxidation and proinflammatory cytokines. Two other substrates for p38, MAPKAPK-2 and MAPKAPK-3/3pK, share approximately 45% sequence homology with PRAK including the phosphorylation motif recognized by p38, Lys-X-Thr-Pro. Activated PRAK has been shown to specifically phosphorylate HSP 27 *in vitro,* suggesting that the protein may play a role in stress-induced small heat shock protein phosphorylation *in vivo*.

CHROMOSOMAL LOCATION

Genetic locus: MAPKAPK5 (human) mapping to 12q24.12; Mapkapk5 (mouse) mapping to 5 F.

SOURCE

PRAK (A-7) is a mouse monoclonal antibody raised against amino acids 294-473 mapping at the C-terminus of PRAK 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.

PRAK (A-7) is available conjugated to agarose (sc-46667 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-46667 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-46667 PE), fluorescein (sc-46667 FITC), Alexa Fluor® 488 (sc-46667 AF488), Alexa Fluor® 546 (sc-46667 AF546), Alexa Fluor® 594 (sc-46667 AF594) or Alexa Fluor® 647 (sc-46667 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-46667 AF680) or Alexa Fluor® 790 (sc-46667 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

PRAK (A-7) is recommended for detection of PRAK of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:200-1:2000), 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), immunohistochemistry (including paraffin-embedded sections) (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 PRAK siRNA (h): sc-36310, PRAK siRNA (m): sc-36311, PRAK shRNA Plasmid (h): sc-36310-SH, PRAK shRNA Plasmid (m): sc-36311-SH, PRAK shRNA (h) Lentiviral Particles: sc-36310-V and PRAK shRNA (m) Lentiviral Particles: sc-36311-V.

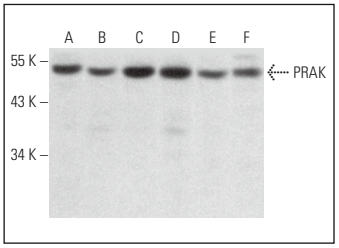
Molecular Weight of PRAK: 54 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, Sol8 cell lysate: sc-2249 or C6 whole cell lysate: sc-364373.

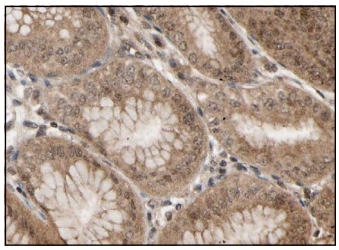
STORAGE

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

DATA



PRAK (A-7): sc-46667. Western blot analysis of PRAK expression in A-431 (**A**), WI-38 (**B**), NIH/3T3 (**C**), Sol8 (**D**), NRK (**E**) and C6 (**F**) whole cell lysates.



PRAK (A-7): sc-46667. Immunoperoxidase staining of formalin fixed, paraffin-embedded human stomach tissue showing cytoplasmic and nuclear staining of glandular cells. Kindly provided by The Swedish Human Protein Atlas (HPA) program.

SELECT PRODUCT CITATIONS

1. Aberg, E., et al. 2006. Regulation of MAPK-activated protein kinase 5 activity and subcellular localization by the atypical MAPK ERK 4/MAPK4. J. Biol. Chem. 281: 35499-35510.
2. Aberg, E., et al. 2009. Docking of PRAK/MK5 to the atypical MAPKs ERK3 and ERK4 defines a novel MAPK interaction motif. J. Biol. Chem. 284: 19392-19401.
3. Dingar, D., et al. 2010. Characterization of the expression and regulation of MK5 in the murine ventricular myocardium. Cell. Signal. 22: 1063-1075.
4. De la Mota-Peynado, A., et al. 2011. Identification of the atypical MAPK Erk3 as a novel substrate for p21-activated kinase (Pak) activity. J. Biol. Chem. 286: 13603-13611.
5. Menon, M.B., et al. 2013. Endoplasmic reticulum-associated ubiquitin-conjugating enzyme Ube2j1 is a novel substrate of MK2 (MAPKAP kinase-2) involved in MK2-mediated TNFα production. Biochem. J. 456: 163-172.
6. Marquis, M., et al. 2014. The non-classical MAP kinase ERK3 controls T cell activation. PLoS ONE 9: e86681.
7. Al-Mahdi, R., et al. 2015. A novel role for atypical MAPK kinase ERK3 in regulating breast cancer cell morphology and migration. Cell Adh. Migr. 9: 483-494.
8. Shrestha, A., et al. 2020. Phosphorylation of steroid receptor coactivator-3 (SRC-3) at serine 857 is regulated by the p38MAPK-MK2 axis and affects NFκB-mediated transcription. Sci. Rep. 10: 11388.
9. Khalil, M.I., et al. 2022. The TLK1-MK5 axis regulates motility, invasion, and metastasis of prostate cancer cells. Cancers 14: 5728.

RESEARCH USE

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