SANTA CRUZ BIOTECHNOLOGY, INC.

PKN (49): sc-136037

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Rho, the Ras-related small GTPase, is responsible for the regulation of Actin-based cytoskeletal structures including stress fibers, focal adhesions and the contractile ring apparatus. Rho proteins act as molecular switches which are able to turn cytokinesis on and off. Although little is known about signaling downstream of Rho, several proteins have been implicated as Rho effectors. Protein kinase N (PKN) is a fatty acid-activated serine/threonine kinase whose catalytic domain exhibits homology with that of the PKC family. PKN associates with Rho via its amino-terminus, is activated in a GTP-dependent manner and phosphorylates the head-rod domain of neurofilament protein. A second protein, rhophilin, exhibits 40% sequence identity with the amino-terminal Rho-binding domain. The enzymatic activity of rhophilin has not been demonstrated and it is possible that it acts through the recruitment of cytoskeletal components that initiate a kinase signaling cascade. Citron interacts specifically with active Rho and Rac 1 but not Cdc42. Citron exhibits a distinctive protein organization and little homology with the Rho binding domains of PKN and rhophilin.

REFERENCES

1. Kitagawa, M., et al. 1995. Purification and characterization of a fatty acid-activated protein kinase (PKN) from rat testis. Biochem. J. 310: 657-664.
2. Leung, T., et al. 1995. A novel serine/threonine kinase binding the Ras-related RhoA GTPase which translocates the kinase to peripheral membranes. J. Biol. Chem. 270: 29051-29054.

CHROMOSOMAL LOCATION

Genetic locus: PKN1 (human) mapping to 19p13.12; Pkn1 (mouse) mapping to 8 C2.

SOURCE

PKN (49) is a mouse monoclonal antibody raised against amino acids 215-388 of PKN of human origin.

PRODUCT

Each vial contains 50 µg IgG_1 in 0.5 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

PKN (49) is recommended for detection of PKN of mouse, rat, human and canine 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for PKN siRNA (h): sc-36261, PKN siRNA (m): sc-36262, PKN shRNA Plasmid (h): sc-36261-SH, PKN shRNA Plasmid (m): sc-36262-SH, PKN shRNA (h) Lentiviral Particles: sc-36261-V and PKN shRNA (m) Lentiviral Particles: sc-36262-V.

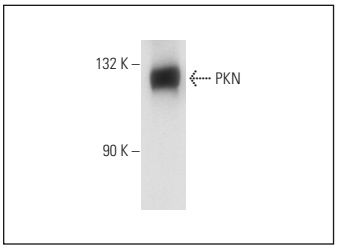
Molecular Weight of PKN: 120 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, MCF7 whole cell lysate: sc-2206 or HeLa whole cell lysate: sc-2200.

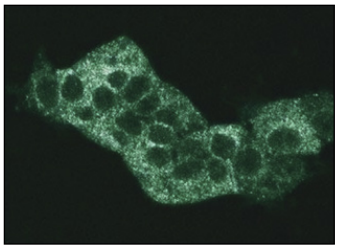
RSTORAGE

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

DATA



PKN (49): sc-136037. Western blot analysis of PKN expression in HeLa whole cell lysate.



PKN (49): sc-136037. Immunofluorescence staining of MCF7 cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Singh, N.K., et al. 2012. Protein kinase N1 is a novel substrate of NFATc1-mediated cyclin D1-CDK6 activity and modulates vascular smooth muscle cell division and migration leading to inward blood vessel wall remodeling. J. Biol. Chem. 287: 36291-36304.
2. James, R.G., et al. 2013. Protein kinase PKN1 represses Wnt/β-catenin signaling in human melanoma cells. J. Biol. Chem. 288: 34658-34670.
3. Jiang, Q., et al. 2014. Golgin-84-associated Golgi fragmentation triggers tau hyperphosphorylation by activation of cyclin-dependent kinase-5 and extracellular signal-regulated kinase. Neurobiol. Aging 35: 1352-1363.
4. Yuan, W., et al. 2016. MicroRNA-126 inhibits colon cancer cell proliferation and invasion by targeting the chemokine (C-X-C motif) receptor 4 and Ras homolog gene family, member A, signaling pathway. Oncotarget 7: 60230-60244.
5. Singh, N.K., et al. 2017. p115 RhoGEF activates the Rac1 GTPase signaling cascade in MCP1 chemokine-induced vascular smooth muscle cell migration and proliferation. J. Biol. Chem. 292: 14080-14091.
6. Xiao, J., et al. 2019. lncRNA HOTAIR promotes gastric cancer proliferation and metastasis via targeting miR-126 to active CXCR4 and RhoA signaling pathway. Cancer Med. 8: 6768-6779.

ESEARCH USE

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

PROTOCOLS

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