SANTA CRUZ BIOTECHNOLOGY, INC.

p-PYK2 (Tyr 402): sc-101790

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The Power to Question

BACKGROUND

PYK2 (proline-rich tyrosine kinase 2), a putative member of the FAK family, exhibits 61% sequence identity with FAK within its kinase domain. Like FAK, PYK2 has been shown to be a cytoplasmic protein tyrosine kinase, which is a substrate for the intrinsic protein tyrosine kinase activity of pp60Src. PYK2 (also designated CAKβ or RAFTK) is highly expressed in the central nervous system. PYK2 is rapidly phosphorylated on tyrosine residues in response to stimuli, which increases intracellular calcium levels and, in turn, activates members of the PKC family of kinases. Specifically, PYK2 is phosphorylated on Tyr 402 after stimulation with heregulin. This promotes the formation of a multiprotein complex that mediates the phosphorylation of p190 RhoGAP by Src. Activation of the PYK2 kinase leads to modulation of ion channel function and the activation of the MAPK signaling pathway. PYK2 also contains phosphorylation sites within the activation loop at Tyr 579 and Tyr 580 and on the potential GRB2-binding site at Tyr 881.

REFERENCES

1. Schaller, M.D., et al. 1992. pp125 FAK, a structurally distinctive protein-tyrosine kinase associated with focal adhesions. Proc. Natl. Acad. Sci. USA 89: 5192-5196.
2. Lipfert, L., et al. 1992. Integrin-dependent phosphorylation of the protein tyrosine kinase pp125 FAK in platelets. J. Cell Biol. 119: 905-912.
3. Hanks, S.K., et al. 1992. Focal adhesion protein-tyrosine kinase phosphorylated in response to cell attachment to Fibronectin. Proc. Natl. Acad. Sci. USA 89: 8487-8491.
4. Guan, J.L., et al. 1992. Regulation of focal adhesion-associated protein tyrosine kinase by both cellular adhesion and oncogenic transformation. Nature 359: 690-692.
5. Schaller, M.D., et al. 1994. Autophosphorylation of the focal adhesion-associated protein tyrosine kinase, pp125 FAK, directs SH2-dependent binding of pp60Src. Mol. Cell. Biol. 14: 1680-1688.
6. Lev, S., et al. 1995. Protein tyrosine kinase PYK2 involved in Ca^{2+} -induced regulation of ion channel and MAP kinase functions. Nature 376: 737-745.

CHROMOSOMAL LOCATION

Genetic locus: PTK2B (human) mapping to 8p21.2; Ptk2b (mouse) mapping to 14 D1.

SOURCE

p-PYK2 (Tyr 402) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Tyr 402 phosphorylated PYK2 of human origin.

PRODUCT

Each vial contains 100 µg IgG 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

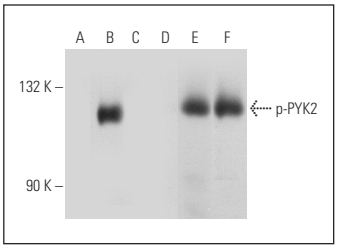
p-PYK2 (Tyr 402) is recommended for detection of Tyr 402 phosphorylated PYK2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for PYK2 siRNA (h): sc-36332, PYK2 siRNA (m): sc-36333, PYK2 shRNA Plasmid (h): sc-36332-SH, PYK2 shRNA Plasmid (m): sc-36333-SH, PYK2 shRNA (h) Lentiviral Particles: sc-36332-V and PYK2 shRNA (m) Lentiviral Particles: sc-36333-V.

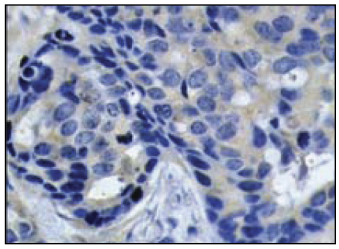
Molecular Weight of p-PYK2: 120 kDa.

Positive Controls: PYK2 (h): 293T Lysate: sc-115595 or Jurkat + PMA cell lysate: sc-24718.

DATA



Western blot analysis of PYK2 phosphorylation in non-transfected: sc-117752 (**A**,**D**), untreated human PYK2 transfected: sc-115595 (**B**,**E**) and lambda protein phosphatase treated human PYK2 transfected: sc-115595 (**C**,**F**) 293T whole cell lysates. Antibodies tested include p-PYK2 (Tyr 402): sc-101790 (**A**,**B**,**C**) and PYK2 (N-19): sc-1514 (**D**,**E**,**F**).



p-PYK2 (Tyr 402): sc-101790. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue showing cytoplasmic staining.

SELECT PRODUCT CITATIONS

1. Vomaske, J., et al. 2010. HCMV pUS28 initiates pro-migratory signaling via activation of Pyk2 kinase. Herpesviridae 1: 2.
2. Fisher, K.D., et al. 2012. Pyk2 regulates H^+-ATPase-mediated proton secretion in the outer medullary collecting duct via an ERK1/2 signaling pathway. Am. J. Physiol. Renal Physiol. 303: F1353-F1362.

RESEARCH USE

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