

# p-PYK2 (14F6): sc-81512

## 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 CAK $\beta$  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

- Schaller, M.D., et al. 1992. pp125FAK, a structurally distinctive protein-tyrosine kinase associated with focal adhesions. *Proc. Natl. Acad. Sci. USA* 89: 5192-5196.
- 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.
- Lipfert, L., et al. 1992. Integrin-dependent phosphorylation of the protein tyrosine kinase pp125FAK in platelets. *J. Cell Biol.* 119: 905-912.
- 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.
- Schaller, M.D., et al. 1994. Autophosphorylation of the focal adhesion-associated protein tyrosine kinase, pp125FAK, directs SH2-dependent binding of pp60src. *Mol. Cell. Biol.* 14: 1680-1688.
- Lev, S., et al. 1995. Protein tyrosine kinase PYK2 involved in Ca<sup>2+</sup>-induced regulation of ion channel and MAP kinase functions. *Nature* 376: 737-745.
- Zrihan-Licht, S., et al. 2000. RAFTK/PYK2 tyrosine kinase mediates the association of p190 RhoGAP with RasGAP and is involved in breast cancer cell invasion. *Oncogene* 19: 1318-1328.

## CHROMOSOMAL LOCATION

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

## SOURCE

p-PYK2 (14F6) is a mouse monoclonal antibody raised against a synthetic phosphopeptide corresponding to amino acid residues surrounding tyrosine 402 of PYK2 of human origin.

## PRODUCT

Each vial contains 50  $\mu$ g IgG<sub>1</sub> in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, PEG and sucrose.

## APPLICATIONS

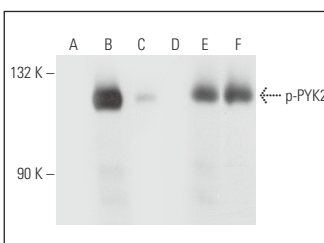
p-PYK2 (14F6) is recommended for detection of Tyr 402 phosphorylated PYK2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)]; non cross-reactive with the non-phosphorylated form of PYK2 or with unrelated phosphorylation sites.

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: 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 (14F6): sc-81512 (A,B,C) and PYK2 (N-19): sc-1514 (D,E,F).

## SELECT PRODUCT CITATIONS

- Wang, H.Y., et al. 2017. PTI-125 binds and reverses an altered conformation of filamin A to reduce Alzheimer's disease pathogenesis. *Neurobiol. Aging* 55: 99-114.
- Azizi, R., et al. 2019. Inhibition of discoidin domain receptor 1 reduces epithelial-mesenchymal transition and induce cell-cycle arrest and apoptosis in prostate cancer cell lines. *J. Cell. Physiol.* 234: 19539-19552.
- Zhang, X., et al. 2021. Pyruvate kinase M2 contributes to TLR-mediated inflammation and autoimmunity by promoting PYK2 activation. *Front. Immunol.* 12: 680068.

## 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.