

PYK2 (5E2D5): sc-130077

BACKGROUND

Focal adhesion kinase (FAK) was initially identified as a substrate for the intrinsic protein tyrosine kinase activity of Src-encoded pp60. The deduced amino acid sequence of FAK p125 has shown it to be a cytoplasmic protein tyrosine kinase whose sequence and structural organization are unique compared to other protein families described. A putative new member of the FAK family, designated PYK2 (proline-rich tyrosine kinase 2), exhibits 61% sequence identity with FAK over its kinase domain. PYK2 (also designated CAK β or RAFTK) is highly expressed in the central nervous system. Activation of the kinase leads to modulation of ion channel function and the activation of the MAPK signaling pathway. PYK2 is rapidly phosphorylated on tyrosine residues in response to stimuli that increase intracellular calcium levels and compounds that activate members of the PKC family of kinases, such as phorbol esters.

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.
- Lipfert, L., et al. 1992. Integrin-dependent phosphorylation of the protein tyrosine kinase pp125FAK in platelets. *J. Cell Biol.* 119: 905-912.
- 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.
- Guan, J.L. and Shalloway, D. 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 Ca²⁺-induced regulation of ion channel and MAP kinase functions. *Nature* 376: 737-745.

CHROMOSOMAL LOCATION

Genetic locus: PTK2B (human) mapping to 8p21.2.

SOURCE

PYK2 (5E2D5) is a mouse monoclonal antibody raised against a recombinant protein corresponding to amino acids 815-997 of PYK2 of human origin.

PRODUCT

Each vial contains 200 μ g IgG_{2a} kappa light chain 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

PYK2 (5E2D5) is recommended for detection of PYK2 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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

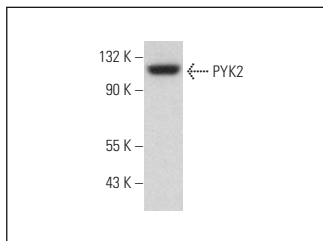
Molecular Weight of PYK2: 120 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, Jurkat + PMA cell lysate: sc-24718 or Ramos cell lysate: sc-2216.

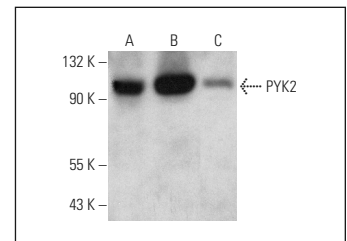
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



PYK2 (5E2D5): sc-130077. Western blot analysis of PYK2 expression in GA-10 whole cell lysate.




PYK2 (5E2D5): sc-130077. Western blot analysis of PYK2 expression in PMA-treated Jurkat (A), NAMALWA (B) and U266 (C) whole cell lysates.

SELECT PRODUCT CITATIONS

- Salazar, S.V., et al. 2019. Alzheimer's disease risk factor Pyk2 mediates Amyloid- β -induced synaptic dysfunction and loss. *J. Neurosci.* 39: 758-772.
- Lee, S., et al. 2019. Pyk2 signaling through Graf1 and RhoA GTPase is required for Amyloid- β oligomer-triggered synapse loss. *J. Neurosci.* 39: 1910-1929.

RESEARCH USE

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



See **PYK2 (E-3): sc-393181** for PYK2 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.