SANTA CRUZ BIOTECHNOLOGY, INC.

PYK2 (E-3): sc-393181

The Power to Question

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 CAKb 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

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.

CHROMOSOMAL LOCATION

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

SOURCE

PYK2 (E-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 980-1009 at the C-terminus of PYK2 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.

PYK2 (E-3) is available conjugated to agarose (sc-393181 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-393181 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393181 PE), fluorescein (sc-393181 FITC), Alexa Fluor® 488 (sc-393181 AF488), Alexa Fluor® 546 (sc-393181 AF546), Alexa Fluor® 594 (sc-393181 AF594) or Alexa Fluor® 647 (sc-393181 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393181 AF680) or Alexa Fluor® 790 (sc-393181 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-393181 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

STORAGE

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

APPLICATIONS

PYK2 (E-3) is recommended for detection of PYK2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

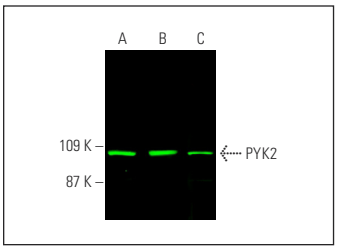
PYK2 (E-3) is also recommended for detection of PYK2 in additional species, including equine, canine and porcine.

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.

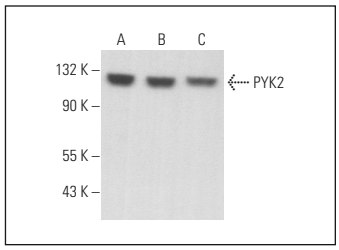
Molecular Weight of PYK2: 120 kDa.

Positive Controls: RAW 264.7 whole cell lysate: sc-2211, Raji whole cell lysate: sc-364236 or NAMALWA cell lysate: sc-2234.

DATA



PYK2 (E-3): sc-393181. Near-infrared western blot analysis of PYK2 expression in RAW 264.7 (**A**) and Raji (**B**) whole cell lysates and rat brain tissue extract (**C**). Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.



PYK2 (E-3): sc-393181. Western blot analysis of PYK2 expression in Raji (**A**), GA-10 (**B**) and NAMALWA (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Lin, C.C., et al. 2018. Up-regulation of PYK2/PKCα-dependent haem oxygenase-1 by CO-releasing molecule-2 attenuates TNF-α-induced lung inflammation. Br. J. Pharmacol. 175: 456-468.
2. Azizi, R., et al. 2019. Inhibition of didscoidin 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.
3. Zhu, M., et al. 2020. Suppression of store-operated Ca^{2+} entry regulated by silencing Orai1 inhibits C6 glioma cell motility via decreasing PYK2 activity and promoting focal adhesion. Cell Cycle 19: 3468-3479.
4. Alves, G.F., et al. 2022. Pharmacological inhibition of FAK-PYK2 pathway protects against organ damage and prolongs the survival of septic mice. Front. Immunol. 13: 837180.

RESEARCH USE

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