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PYK2 Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1176a

Product Information

Application	WB, IHC, E
Primary Accession	Q14289
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	5E2D5
Isotype	IgG2a
Calculated MW	115875
Description	PYK2: PTK2B protein tyrosine kinase 2 beta, also known as PTK2B, PKB, PTK, CAKB, FAK2, FRNK. Entrez Protein NP_004094. It is a cytoplasmic protein tyrosine kinase which is involved in calcium-induced regulation of ion channels and activation of the map kinase signaling pathway. The encoded protein may represent an important signaling intermediate between neuropeptide-activated receptors or neurotransmitters that increase calcium flux and the downstream signals that regulate neuronal activity. The encoded protein undergoes rapid tyrosine phosphorylation and activation in response to increases in the intracellular calcium concentration, nicotinic acetylcholine receptor activation, membrane depolarization, or protein kinase C activation. This protein has been shown to bind CRK-associated substrate, nephrocystin, GTPase regulator associated with FAK, and the SH2 domain of GRB2. The encoded protein is a member of the FAK subfamily of protein tyrosine kinases but lacks significant sequence similarity to kinases from other subfamilies. Four transcript variants encoding two different isoforms have been found for this gene.
Immunogen	Purified recombinant fragment of PYK2 (aa815-997) expressed in E. Coli.
Formulation	Ascitic fluid containing 0.03% sodium azide.

Additional Information

Gene ID	2185
Other Names	Protein-tyrosine kinase 2-beta, 2.7.10.2, Calcium-dependent tyrosine kinase, CADTK, Calcium-regulated non-receptor proline-rich tyrosine kinase, Cell adhesion kinase beta, CAK-beta, CAKB, Focal adhesion kinase 2, FADK 2, Proline-rich tyrosine kinase 2, Related adhesion focal tyrosine kinase, RAFTK, PTK2B, FAK2, PYK2, RAFTK
Dilution	WB~~1/500 - 1/2000 IHC~~1/200 - 1/1000 E~~N/A

Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	PYK2 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	PTK2B
Synonyms	FAK2, PYK2, RAFTK
Function	Non-receptor protein-tyrosine kinase that regulates reorganization of the actin cytoskeleton, cell polarization, cell migration, adhesion, spreading and bone remodeling. Plays a role in the regulation of the humoral immune response, and is required for normal levels of marginal B-cells in the spleen and normal migration of splenic B-cells. Required for normal macrophage polarization and migration towards sites of inflammation. Regulates cytoskeleton rearrangement and cell spreading in T-cells, and contributes to the regulation of T-cell responses. Promotes osteoclastic bone resorption; this requires both PTK2B/PYK2 and SRC. May inhibit differentiation and activity of osteoprogenitor cells. Functions in signaling downstream of integrin and collagen receptors, immune receptors, G protein-coupled receptors (GPCR), cytokine, chemokine and growth factor receptors, and mediates responses to cellular stress. Forms multisubunit signaling complexes with SRC and SRC family members upon activation; this leads to the phosphorylation of additional tyrosine residues, creating binding sites for scaffold proteins, effectors and substrates. Regulates numerous signaling pathways. Promotes activation of phosphatidylinositol 3-kinase and of the AKT1 signaling cascade. Promotes activation of NOS3. Regulates production of the cellular messenger cGMP. Promotes activation of the MAP kinase signaling cascade, including activation of MAPK1/ERK2, MAPK3/ERK1 and MAPK8/JNK1. Promotes activation of Rho family GTPases, such as RHOA and RAC1. Recruits the ubiquitin ligase MDM2 to P53/TP53 in the nucleus, and thereby regulates P53/TP53 activity, P53/TP53 ubiquitination and proteasomal degradation. Acts as a scaffold, binding to both PDPK1 and SRC, thereby allowing SRC to phosphorylate PDPK1 at 'Tyr-9', 'Tyr-373', and 'Tyr-376'. Promotes phosphorylation of NMDA receptors by SRC family members, and thereby contributes to the regulation of NMDA receptor ion channel activity and intracellular Ca(2+) levels. May also regulate potassium ion transport by phosphorylation of potassium channel subunits. Phosphorylates SRC; this increases SRC kinase activity. Phosphorylates ASAP1, NPHP1, KCNA2 and SHC1. Promotes phosphorylation of ASAP2, RHOU and PXN; this requires both SRC and PTK2/PYK2.
Cellular Location	Cytoplasm. Cytoplasm, perinuclear region. Cell membrane; Peripheral membrane protein; Cytoplasmic side. Cell junction, focal adhesion. Cell projection, lamellipodium. Cytoplasm, cell cortex Nucleus. Note=Interaction with NPHP1 induces the membrane-association of the kinase. Colocalizes with integrins at the cell periphery
Tissue Location	Most abundant in the brain, with highest levels in amygdala and hippocampus. Low levels in kidney (at protein level). Also expressed in spleen and lymphocytes.

References

1. Exp Hematol. 2004 Apr;32(4):365-74. 2. J Cell Sci. 2004 May 15;117(Pt 12):2557-68. 3. Int J Cancer. 2005 Feb 20;113(5):689-98.

Images

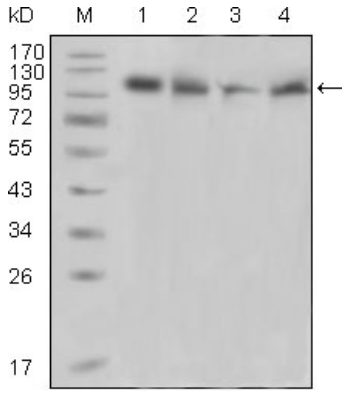


Figure 1: Western blot analysis using PYK2 mouse mAb against Raji (1), PMA induced THP-1 (2), Jurkat (3) and Ramos (4) cell lysate.

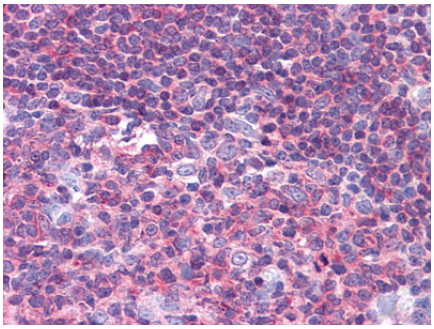


Figure 2: Immunohistochemical analysis of paraffin-embedded human Tonsil tissues using PYK2 mouse mAb.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.