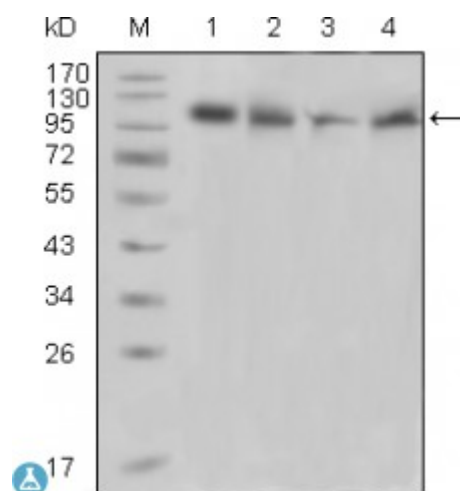


Anti-PYK2 antibody



Description	Mouse monoclonal to PYK2.
Model	STJ98345
Host	Mouse
Reactivity	Human
Applications	ELISA, IHC, WB
Immunogen	Purified recombinant fragment of PYK2 (aa815-997) expressed in E. Coli.
Immunogen Region	815-997aa
Gene ID	2185
Gene Symbol	PTK2B
Dilution range	WB 1:500-1:2000IHC 1:200-1:1000ELISA 1:10000
Specificity	PYK2 Monoclonal Antibody detects endogenous levels of PYK2 protein.
Tissue Specificity	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.
Purification	Affinity purification
Clone ID	5E2D5
Note	For Research Use Only (RUO).
Protein Name	Protein-tyrosine kinase 2-beta 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

Clonality	Monoclonal
Conjugation	Unconjugated
Isotype	IgG2a
Formulation	Ascitic fluid containing 0.03% sodium azide.
Storage Instruction	Store at -20°C, and avoid repeat freeze-thaw cycles.
Database Links	HGNC:9612OMIM:601212
Alternative Names	Protein-tyrosine kinase 2-beta 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
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 Localization	Cytoplasm. Cytoplasm, perinuclear region. Cell membrane. Peripheral membrane protein. Cytoplasmic side. Cell junction, focal adhesion. Cell projection, lamellipodium. Cytoplasm, cell cortex. Nucleus. Interaction with NPHP1 induces the membrane-association of the kinase. Colocalizes with integrins at the cell periphery.
Post-translational Modifications	Phosphorylated on tyrosine residues in response to various stimuli that elevate the intracellular calcium concentration; this activation is indirect and may be

mediated by production of reactive oxygen species (ROS). Tyr-402 is the major autophosphorylation site, but other kinases can also phosphorylate Tyr-402. Autophosphorylation occurs in trans, i.e. one subunit of the dimeric receptor phosphorylates tyrosine residues on the other subunit. Phosphorylation at Tyr-402 promotes interaction with SRC and SRC family members, leading to phosphorylation at Tyr-579; Tyr-580 and Tyr-881. Phosphorylation at Tyr-881 is important for interaction with GRB2. Phosphorylated on tyrosine residues upon activation of FGR and PKC. Recruitment by NPHP1 to cell matrix adhesions initiates Tyr-402 phosphorylation. In monocytes, adherence to substrata is required for tyrosine phosphorylation and kinase activation. Angiotensin II, thapsigargin and L-alpha-lysophosphatidic acid (LPA) also induce autophosphorylation and increase kinase activity. Phosphorylation by MYLK promotes ITGB2 activation and is thus essential to trigger neutrophil transmigration during lung injury. Dephosphorylated by PTPN12.