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phospho-Src (Tyr529) Rabbit pAb

Catalog # AP96173

Product Information

Application	WB, IHC-P, IHC-F, IF, E
Primary Accession	P05480
Other Accession	P05480
Reactivity	Rat, Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Calculated MW	59891
Physical State	Liquid
Immunogen	KLH conjugated Synthesised phosphopeptide derived from mouse Src around the phosphorylation site of Tyr529
Epitope Specificity	YF(p-T)S
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SUBCELLULAR LOCATION	Cell membrane. Mitochondrion inner membrane. Nucleus. Cytoplasm, cytoskeleton. Note=Localizes to focal adhesion sites after integrin engagement. Localization to focal adhesion sites requires myristoylation and the SH3 domain.
SIMILARITY	Belongs to the protein kinase superfamily. Tyr protein kinase family. SRC subfamily. Contains 1 protein kinase domain. Contains 1 SH2 domain. Contains 1 SH3 domain.
SUBUNIT	Interacts with CDCP1, PELP1, TGFB1I1 and TOM1L2. Interacts with DDEF1/ASAP1 via its SH3 domain. Interacts with CCPG1. Interacts with the cytoplasmic domain of MUC1, phosphorylates it and increases binding of MUC1 with beta-catenin. Interacts with RALGPS1 via its SH3 domain. Interacts with CAV2 (tyrosine phosphorylated form). Interacts (via the SH3 domain and the protein kinase domain) with ARRB1; the interaction is independent of the phosphorylation state of SRC C-terminus. Interacts with FCAMR and PXN. Interacts with ARRB2. Interacts with ARRB1. Interacts with SRCIN1. Interacts with SRCIN1. Interacts with NDFIP2 and more weakly with NDFIP1. Interacts with PIK3CA and/or PIK3C2B, PTK2/FAK1, ESR1 (dimethylated on arginine) and FAK. Interacts (via SH2 and SH3 domain) with TNK2. Interacts (via protein kinase domain) with the tyrosine phosphorylated form of RUNX3 (via runt domain). Interacts with TRAF3 (via RING-type zinc finger domain). Interacts with DDX58, MAVS and TBK1. Interacts (via SH2 domain) with GNB2L1/RACK1; the interaction is enhanced by tyrosine phosphorylation of GNB2L1 and inhibits SRC activity. Interacts (via SH2 domain) with the 'Tyr-402' phosphorylated form of PTK2B/PYK2. Interacts (via SH2 domain) with FLT3 (tyrosine phosphorylated). Identified in a complex containing FGFR4, NCAM1, CDH2, PLCG1, FRS2, SRC, SHC1, GAP43 and CTTN. Interacts with EPHB1; activates the MAPK/ERK cascade to regulate cell migration. Interacts with ERBB2 and STAT1. Interacts with PDGFRA (tyrosine phosphorylated). Interacts with CSF1R. Interacts (via SH2 domain) with the 'Tyr-9' phosphorylated form of PDPK1. Interacts with DDR2. Interacts with AMOTL2; this interaction regulates the translocation of phosphorylated SRC to peripheral cell-matrix

	adhesion sites. Interacts with DDR1 and DAB2.
Post-translational modifications	Myristoylated at Gly-2, and this is essential for targeting to membranes. Dephosphorylated at Tyr-535 by PTPRJ. Phosphorylated on Tyr-535 by c-Src kinase (CSK). The phosphorylated form is termed pp60c-src. Dephosphorylated by PTPRJ at Tyr-424. Normally maintained in an inactive conformation with the SH2 domain engaged with Tyr-535, the SH3 domain engaged with the SH2-kinase linker, and Tyr-424 dephosphorylated. Dephosphorylation of Tyr-535 as a result of protein tyrosine phosphatase (PTP) action disrupts the intramolecular interaction between the SH2 domain and Tyr-535, Tyr-424 can then become autophosphorylated, resulting in SRC activation. Phosphorylation of Tyr-535 by CSK allows this interaction to reform, resulting in SRC inactivation. CDK5-mediated phosphorylation at Ser-74 targets SRC to ubiquitin-dependent degradation and thus leads to cytoskeletal reorganization. Phosphorylated by PTK2/FAK1; this enhances kinase activity. Phosphorylated by PTK2B/PYK2; this enhances kinase activity. S-nitrosylation is important for activation of its kinase activity. Ubiquitinated in response to CDK5-mediated phosphorylation.
DISEASE	Note=SRC kinase activity has been shown to be increased in several tumor tissues and tumor cell lines such as colon carcinoma cells.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	This gene is highly similar to the v-src gene of Rous sarcoma virus. This proto-oncogene may play a role in the regulation of embryonic development and cell growth. The protein encoded by this gene is a tyrosine-protein kinase whose activity can be inhibited by phosphorylation by c-SRC kinase. Mutations in this gene could be involved in the malignant progression of colon cancer. Two transcript variants encoding the same protein have been found for this gene. [provided by RefSeq, Jul 2008]

Additional Information

Gene ID	20779
Other Names	ASV; SRC1; THC6; c-SRC; p60-Src; pp60c-src; SRC_HUMAN; SRC; Proto-oncogene c-Src; pp60c-src (p60-Src); 2.7.10.2; SRC_MOUSE; SRC_RAT; SRC proto-oncogene, non-receptor tyrosine kinase; v-src avian sarcoma (Schmidt-Ruppin A-2) viral oncogene homolog; Src (phospho-Y529); p-Src; phospho-Src; Src (phospho-Tyr529)
Target/Specificity	Expressed ubiquitously. Platelets, neurons and osteoclasts express 5-fold to 200-fold higher levels than most other tissues.
Dilution	WB=1:500-2000,IHC-P=1:100-500,IHC-F=1:100-500,IF=1:100-500,ELISA=1:5000-10000
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	Src {ECO:0000312|MGI:MGI:98397}
Function	Non-receptor protein tyrosine kinase which is activated following engagement of many different classes of cellular receptors including immune response receptors, integrins and other adhesion receptors, receptor protein

tyrosine kinases, G protein-coupled receptors as well as cytokine receptors. Participates in signaling pathways that control a diverse spectrum of biological activities including gene transcription, immune response, cell adhesion, cell cycle progression, apoptosis, migration, and transformation. Due to functional redundancy between members of the SRC kinase family, identification of the specific role of each SRC kinase is very difficult. SRC appears to be one of the primary kinases activated following engagement of receptors and plays a role in the activation of other protein tyrosine kinase (PTK) families. Receptor clustering or dimerization leads to recruitment of SRC to the receptor complexes where it phosphorylates the tyrosine residues within the receptor cytoplasmic domains. Plays an important role in the regulation of cytoskeletal organization through phosphorylation of specific substrates such as AFAP1. Phosphorylation of AFAP1 allows the SRC SH2 domain to bind AFAP1 and to localize to actin filaments. Cytoskeletal reorganization is also controlled through the phosphorylation of cortactin (CTTN) (Probable). When cells adhere via focal adhesions to the extracellular matrix, signals are transmitted by integrins into the cell resulting in tyrosine phosphorylation of a number of focal adhesion proteins, including PTK2/FAK1 and paxillin (PXN) (By similarity). In addition to phosphorylating focal adhesion proteins, SRC is also active at the sites of cell-cell contact adherens junctions and phosphorylates substrates such as beta-catenin (CTNNB1), delta- catenin (CTNND1), and plakoglobin (JUP). Another type of cell-cell junction, the gap junction, is also a target for SRC, which phosphorylates connexin-43 (GJA1). SRC is implicated in regulation of pre-mRNA-processing and phosphorylates RNA-binding proteins such as KHDRBS1 (Probable). Phosphorylates PKP3 at 'Tyr-195' in response to reactive oxygen species, which may cause the release of PKP3 from desmosome cell junctions into the cytoplasm (By similarity). Also plays a role in PDGF-mediated tyrosine phosphorylation of both STAT1 and STAT3, leading to increased DNA binding activity of these transcription factors (PubMed:9344858). Involved in the RAS pathway through phosphorylation of RASA1 and RASGRF1. Plays a role in EGF-mediated calcium-activated chloride channel activation (By similarity). Required for epidermal growth factor receptor (EGFR) internalization through phosphorylation of clathrin heavy chain (CLTC and CLTCL1) at 'Tyr- 1477'. Involved in beta-arrestin (ARRB1 and ARRB2) desensitization through phosphorylation and activation of GRK2, leading to beta- arrestin phosphorylation and internalization. Has a critical role in the stimulation of the CDK20/MAPK3 mitogen-activated protein kinase cascade by epidermal growth factor (Probable). Might be involved not only in mediating the transduction of mitogenic signals at the level of the plasma membrane but also in controlling progression through the cell cycle via interaction with regulatory proteins in the nucleus (By similarity). Plays an important role in osteoclastic bone resorption in conjunction with PTK2B/PYK2. Both the formation of a SRC-PTK2B/PYK2 complex and SRC kinase activity are necessary for this function. Recruited to activated integrins by PTK2B/PYK2, thereby phosphorylating CBL, which in turn induces the activation and recruitment of phosphatidylinositol 3-kinase to the cell membrane in a signaling pathway that is critical for osteoclast function (PubMed:14739300). Upon activation of the G(q)-dependent KISS1/KISS1R signaling pathway, active SRC is recruited, together with the phosphatase DUSP18, to the KISS1R C-terminus. This leads to DUSP18-mediated SRC dephosphorylation and inactivation, down-regulation of osteoclast differentiation and activity, and consequently suppression of bone resorption (PubMed:38346942). Promotes energy production in osteoclasts by activating mitochondrial cytochrome C oxidase (PubMed:12615910). Phosphorylates DDR2 on tyrosine residues, thereby promoting its subsequent autophosphorylation. Phosphorylates RUNX3 and COX2 on tyrosine residues, TNK2 on 'Tyr-284' and CBL on 'Tyr-738'. Enhances RIGI-elicited antiviral signaling. Phosphorylates PDPK1 at 'Tyr-9', 'Tyr-373' and 'Tyr-376'. Phosphorylates BCAR1 at 'Tyr-226'. Phosphorylates CBLC at multiple tyrosine residues, phosphorylation at

	'Tyr-341' activates CBLC E3 activity. Phosphorylates synaptic vesicle protein synaptophysin (SYP) (By similarity). Involved in anchorage- independent cell growth (By similarity). Required for podosome formation (PubMed:21525037). Mediates IL6 signaling by activating YAP1- NOTCH pathway to induce inflammation-induced epithelial regeneration (PubMed:25731159). Phosphorylates OTUB1, promoting deubiquitination of RPTOR (By similarity). Mediates laminin-induced activation of RAC1 signaling through phosphorylation of syntrophin (PubMed:18044967).
Cellular Location	Cell membrane; Lipid-anchor. Mitochondrion inner membrane. Nucleus Cytoplasm, cytoskeleton. Cytoplasm, perinuclear region {ECO:0000250|UniProtKB:P12931}. Cell junction, focal adhesion. Cell junction {ECO:0000250|UniProtKB:P12931}. Note=Localizes to focal adhesion sites following integrin engagement (PubMed:22801373). Localization to focal adhesion sites requires myristoylation and the SH3 domain. Colocalizes with PDLIM4 at the perinuclear region, but not at focal adhesions {ECO:0000250|UniProtKB:P12931, ECO:0000269|PubMed:22801373}

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