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SRC Antibody

Purified Mouse Monoclonal Antibody (Mab)
Catalog # AM7718a

Product Information

Application	WB, IF, E
Primary Accession	P12931
Reactivity	Human, Rat, Mouse
Host	Mouse
Clonality	Monoclonal
Isotype	Mouse IgG1
Clone Names	17AT28
Calculated MW	59835

Additional Information

Gene ID	6714
Other Names	Proto-oncogene tyrosine-protein kinase Src, Proto-oncogene c-Src, pp60c-src, p60-Src, SRC, SRC1
Target/Specificity	This Src antibody is generated from mouse immunized with a recombinant protein of full length human SRC.
Dilution	WB~~1:2000 IF~~1:10~50 E~~Use at an assay dependent concentration.
Format	Purified monoclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein G column, followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	SRC Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	SRC (HGNC:11283)
Synonyms	SRC1
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

(PubMed:34234773). 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) (PubMed:21411625). 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 (PubMed:25501895). Also plays a role in PDGF-mediated tyrosine phosphorylation of both STAT1 and STAT3, leading to increased DNA binding activity of these transcription factors (By similarity). Involved in the RAS pathway through phosphorylation of RASA1 and RASGRF1 (PubMed:11389730). Plays a role in EGF-mediated calcium-activated chloride channel activation (PubMed:18586953). 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 (PubMed:7853507). 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:14585963, PubMed:8755529). 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 (PubMed:38346942). This leads to DUSP18-mediated SRC dephosphorylation and inactivation, down-regulation of osteoclast differentiation and activity, and consequently suppression of bone resorption (By similarity). Promotes energy production in osteoclasts by activating mitochondrial cytochrome C oxidase (PubMed:12615910). Phosphorylates DDR2 on tyrosine residues, thereby promoting its subsequent autophosphorylation (PubMed:16186108). Phosphorylates RUNX3 and COX2 on tyrosine residues, TNK2 on 'Tyr-284' and CBL on 'Tyr-731' (PubMed:20100835, PubMed:21309750). Enhances RIGI-elicited antiviral signaling (PubMed:19419966). Phosphorylates PDPK1 at 'Tyr-9', 'Tyr-373' and 'Tyr-376' (PubMed:14585963). Phosphorylates BCAR1 at

	'Tyr-128' (PubMed:22710723). Phosphorylates CBLC at multiple tyrosine residues, phosphorylation at 'Tyr-341' activates CBLC E3 activity (PubMed:20525694). Phosphorylates synaptic vesicle protein synaptophysin (SYP) (By similarity). Involved in anchorage-independent cell growth (PubMed:19307596). Required for podosome formation (By similarity). Mediates IL6 signaling by activating YAP1-NOTCH pathway to induce inflammation-induced epithelial regeneration (PubMed:25731159). Phosphorylates OTUB1, promoting deubiquitination of RPTOR (PubMed:35927303). Phosphorylates caspase CASP8 at 'Tyr-380' which negatively regulates CASP8 processing and activation, down-regulating CASP8 proapoptotic function (PubMed:16619028). Mediates laminin-induced activation of RAC1 signaling through phosphorylation of syntrophin (By similarity).
Cellular Location	Cell membrane; Lipid-anchor. Mitochondrion inner membrane. Nucleus. Cytoplasm, cytoskeleton. Cytoplasm, perinuclear region. Cell junction, focal adhesion. Cell junction. Note=Localizes to focal adhesion sites following integrin engagement (PubMed:22801373). Localization to focal adhesion sites requires myristoylation and the SH3 domain (PubMed:7525268). Colocalizes with PDLIM4 at the perinuclear region, but not at focal adhesions (PubMed:19307596)
Tissue Location	Expressed ubiquitously. Expressed in the skin (at protein level) (PubMed:22294297). Platelets, neurons and osteoclasts express 5-fold to 200-fold higher levels than most other tissues [Isoform 2]: Expressed in brain.

Background

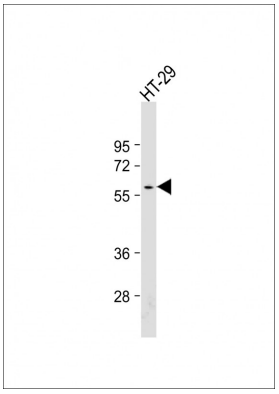
This gene is highly similar to the v-src gene of Rous sarcoma virus. This proto-oncogene may play a role in the regulation of embryonic development and cell growth. The protein encoded by this gene is a tyrosine-protein kinase whose activity can be inhibited by phosphorylation by c-SRC kinase. Mutations 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.

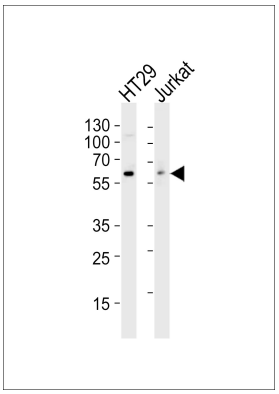
References

Microexon-based regulation of ITSN1 and Src SH3 domains specificity relies on introduction of charged amino acids into the interaction interface. Dergai M, et al. Biochem Biophys Res Commun, 2010 Aug 20. PMID 20659428. Human phosphatidylethanolamine-binding protein 4 promotes transactivation of estrogen receptor alpha (ERalpha) in human cancer cells by inhibiting proteasome-dependent ERalpha degradation via association with Src. Liu H, et al. J Biol Chem, 2010 Jul 16. PMID 20460377. Expression of a Src family kinase in chronic myelogenous leukemia cells induces resistance to imatinib in a kinase-dependent manner. Pene-Dumitrescu T, et al. J Biol Chem, 2010 Jul 9. PMID 20452982. Hydrogen peroxide activates focal adhesion kinase and c-Src by a phosphatidylinositol 3 kinase-dependent mechanism and promotes cell migration in Caco-2 cell monolayers. Basuroy S, et al. Am J Physiol Gastrointest Liver Physiol, 2010 Jul. PMID 20378826. Protein kinase G type Ialpha activity in human ovarian cancer cells significantly contributes to enhanced Src activation and DNA synthesis/cell proliferation. Leung EL, et al. Mol Cancer Res, 2010 Apr. PMID 20371672.

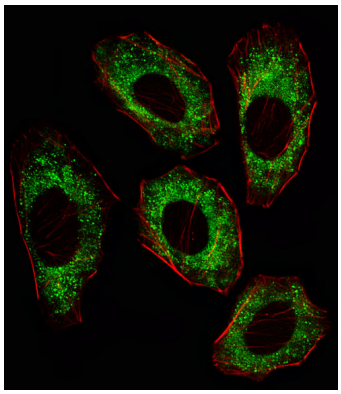
Images

Anti-SRC Antibody at 1:500 dilution + HT-29 whole cell lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Mouse IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 60 kDa Blocking/Dilution buffer: 5% NFDM/TBST.

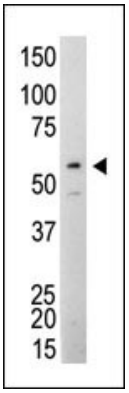




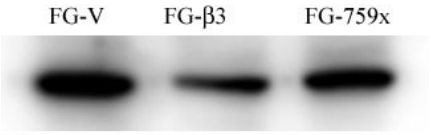
Western blot analysis of lysates from HT29, Jurkat cell line (from left to right), using SRC Antibody(Cat. #AM7718a). AM7718a was diluted at 1:1000 at each lane. A goat anti-mouse IgG H&L(HRP) at 1:3000 dilution was used as the secondary antibody. Lysates at 35µg per lane.



Fluorescent image of A549 cell stained with SRC Antibody(Cat#AM7718a/SD41014A).A549 cells were fixed with 4% PFA (20 min), permeabilized with Triton X-100 (0.1%, 10 min), then incubated with SRC primary antibody (1:25, 1 h at 37℃. For secondary antibody, Alexa Fluor® 488 conjugated donkey anti-mouse antibody (green) was used (1:400, 50 min at 37℃.Cytoplasmic actin was counterstained with Alexa Fluor® 555 (red) conjugated Phalloidin (7units/ml, 1 h at 37℃.SRC immunoreactivity is localized to Cytoplasm significantly.



The anti-Src Mab (Cat. #AM7718a) is used in Western blot to detect Src in Jurkat cell lysate.



FG Pancreatic Carcinoma Cell Lines stably expressing vector along (FG-V) the b3 integrin subunit (FG-b3) or a b3 truncation mutant (FG-759x). Src Mab (AM7718a) was diluted 1:500 in 1% BSA/TBST and incubated Overnight at 4 ℃. After washing 3x 5 min. with TBST the blots were incubated with 1:5000 Goat anti-mouse or Goat anti-mouse secondary antibody for 1 hr at Room temperature. The blots were again washed 3x 5 min. with TBST and developed using ECL reagent.Data and protocol

kindly provided by Dr. Weis of Cheresh Lab, UCSD.

Citations

- TLR4 activation leads to anti-EGFR therapy resistance in head and neck squamous cell carcinoma
- Mammary epithelial-specific disruption of c-Src impairs cell cycle progression and tumorigenesis.
- Diallyl disulfide effect on the invasion and migration ability of HL-60 cells with a high expression of DJ-1 in the nucleus through the suppression of the Src signaling pathway.
- MicroRNA-203 mimics age-related aortic smooth muscle dysfunction of cytoskeletal pathways.
- Src-stimulated IRTKS phosphorylation enhances cell migration.

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