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[Marker Primary Antibody]

Rabbit Anti-Phospho-FAk (Tyr861)/AF647 Conjugated antibody

Catalog Number: SL3160R-AF647

FOR RESEARCH USE ONLY

[DATASHEET]

Host:	Rabbit
Isotype:	IgG
Clonality:	Polyclonal
Target:	Anti-Phospho-FAK(Tyr861)/AF647
Immunogen:	KLH conjugated Synthesised phosphopeptide derived from human FAK around the phosphorylation site of Tyr861
Purification:	affinity purified by Protein A
Concentration:	1mg/ml
Storage:	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. The lyophilized antibody is stable at room temperature for at least one month and for greater than a year when kept at -20°C. When reconstituted in sterile pH 7.4 1M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.
Applications:	IF=1:100-500 not yet tested in other applications. optimal dilutions/concentrations should be determined by the end user.
Reactivity:	Human,Mouse,Rat(predicted:Chicken,Dog,Cow,Horse)
Background:	background: Non-receptor protein-tyrosine kinase implicated in signaling pathways involved in cell motility, proliferation and apoptosis. Activated by tyrosine-phosphorylation in response to either integrin clustering induced by cell adhesion or antibody cross-linking, or via G-protein coupled receptor (GPCR) occupancy by ligands such as bombesin or lysophosphatidic acid, or via LDL receptor occupancy. Plays a potential role in oncogenic transformations resulting in increased kinase activity. [SUBCELLULAR LOCATION] Cell junction, focal adhesion. Cell membrane; Peripheral membrane protein; Cytoplasmic side. Note=Constituent of focal adhesions. **Function:** Non-receptor protein-tyrosine kinase that plays an essential role in regulating cell migration, adhesion, spreading, reorganization of the actin cytoskeleton, formation and disassembly of focal adhesions and cell protrusions, cell cycle progression, cell proliferation and apoptosis. Required for early embryonic development and placenta development. Required for

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	embryonic angiogenesis, normal cardiomyocyte migration and proliferation, and normal heart development. Regulates axon growth and neuronal cell migration, axon branching and synapse formation; required for normal development of the nervous system. Plays a role in osteogenesis and differentiation of osteoblasts. Functions in integrin signal transduction, but also in signaling downstream of numerous growth factor receptors, G-protein coupled receptors (GPCR), EPHA2, netrin receptors and LDL receptors. 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 the AKT1 signaling cascade. Promotes activation of MAPK1/ERK2, MAPK3/ERK1 and the MAP kinase signaling cascade. Promotes localized and transient activation of guanine nucleotide exchange factors (GEFs) and GTPase-activating proteins (GAPs), and thereby modulates the activity of Rho family GTPases. Signaling via CAS family members mediates activation of RAC1. Recruits the ubiquitin ligase MDM2 to P53/TP53 in the nucleus, and thereby regulates P53/TP53 activity, P53/TP53 ubiquitination and proteasomal degradation. Phosphorylates SRC; this increases SRC kinase activity. Phosphorylates ACTN1, ARHGEF7, GRB7, RET and WASL. Promotes phosphorylation of PXN and STAT1; most likely PXN and STAT1 are phosphorylated by a SRC family kinase that is recruited to autophosphorylated PTK2/FAK1, rather than by PTK2/FAK1 itself. Promotes phosphorylation of BCAR1; GIT2 and SHC1; this requires both SRC and PTK2/FAK1. Promotes phosphorylation of BMX and PIK3R1. Isoform 6 (FRNK) does not contain a kinase domain and inhibits PTK2/FAK1 phosphorylation and signaling. Its enhanced expression can attenuate the nuclear accumulation of LPXN and limit its ability to enhance serum response factor (SRF)-dependent gene transcription. **Subunit:** Interacts (via first Pro-rich region) with CAS family members (via SH3 domain), including BCAR1, BCAR3, CASS4 and NEDD9. Interacts with GIT1. Interacts with SORBS1. Interacts with RGNEF. Interacts with SHB. Interacts with PXN and TLN1. Interacts with STAT1. Interacts with DCC. Interacts with WASL. Interacts with ARHGEF7. Interacts with GRB2 and GRB7 (By similarity). Component of a complex that contains at least FER, CTTN and PTK2/FAK1. Interacts with BMX. Interacts with TGFB1I1. Interacts with STEAP4. Interacts with ZFYVE21. Interacts with ESR1. Interacts with PIK3R1 or

	PIK3R2. Interacts with SRC, FGR, FLT4 and RET. Interacts with EPHA2 in resting cells; activation of EPHA2 recruits PTPN11, leading to dephosphorylation of PTK2/FAK1 and dissociation of the complex. Interacts with EPHA1 (kinase activity-dependent). Interacts with CD4; this interaction requires the presence of HIV-1 gp120. Interacts with PIAS1. Interacts with ARHGAP26 and SHC1. Interacts with RB1CC1; this inhibits PTK2/FAK1 activity and activation of downstream signaling pathways. Interacts with P53/TP53 and MDM2. Interacts with LPXN (via LD motif 3). **Subcellular Location:** Cell junction, focal adhesion. Cell membrane; Peripheral membrane protein; Cytoplasmic side. Cytoplasm, cell cortex. Cytoplasm, cytoskeleton. Cytoplasm, cytoskeleton, centrosome. Nucleus. Note=Constituent of focal adhesions. Detected at microtubules. **Tissue Specificity:** Detected in B and T-lymphocytes. Isoform 1 and isoform 6 are detected in lung fibroblasts (at protein level). Ubiquitous. **Post-translational modifications:** Phosphorylated on tyrosine residues upon activation, e.g. upon integrin signaling. Tyr-397 is the major autophosphorylation site, but other kinases can also phosphorylate this residue. Phosphorylation at Tyr-397 promotes interaction with SRC and SRC family members, leading to phosphorylation at Tyr-576, Tyr-577 and at additional tyrosine residues. FGR promotes phosphorylation at Tyr-397 and Tyr-576. FER promotes phosphorylation at Tyr-577, Tyr-861 and Tyr-925, even when cells are not adherent. Tyr-397, Tyr-576 and Ser-722 are phosphorylated only when cells are adherent. Phosphorylation at Tyr-397 is important for interaction with BMX, PIK3R1 and SHC1. Phosphorylation at Tyr-925 is important for interaction with GRB2. Dephosphorylated by PTPN11; PTPN11 is recruited to PTK2 via EPHA2 (tyrosine phosphorylated). Microtubule-induced dephosphorylation at Tyr-397 is crucial for the induction of focal adhesion disassembly; this dephosphorylation could be catalyzed by PTPN11 and regulated by ZFYVE21. Sumoylated; this enhances autophosphorylation. DISEASE: Note=Aberrant PTK2/FAK1 expression may play a role in cancer cell proliferation, migration and invasion, in tumor formation and metastasis. PTK2/FAK1 overexpression is seen in many types of cancer. **Similarity:** Belongs to the protein kinase superfamily. Tyr protein kinase family. FAK subfamily.

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	Contains 1 FERM domain. **Database links:** **Entrez Gene:** 5747 Human **Entrez Gene:** 14083 Mouse **Entrez Gene:** 25614 Rat Omim: 600758 Human **SwissProt:** Q05397 Human **SwissProt:** P34152 Mouse **SwissProt:** O35346 Rat **Unigene:** 395482 Human **Unigene:** 254494 Mouse **Unigene:** 2809 Rat Important **Note:** This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications. FAK is an important member of integrin-mediated signal transduction. It has tyrosine protein kinase activity and can undergo autophosphorylation. FAK itself is a substrate of caspase. As a signaling molecule, FAK participates in inhibiting apoptosis and directly participates in the regulation of multiple cellular functions. 1. FAK (focal adhesion kinase) is a tyrosine kinase. The invasive growth of tumor cells is a multi-step complex process involving various biochemical factors, and the focal adhesion kinase (FAK)-mediated signal transduction system is one of the most important cellular signal transduction pathways. Tumor cells must adhere to the extracellular matrix, and by promoting extracellular matrix signal transduction dependent on PTK kinase activity, they subsequently affect cell adhesion, movement, and migration. 2. Focal adhesion kinase (FAK) is an important member of integrin-mediated signal transduction. It has tyrosine protein kinase activity and can undergo autophosphorylation. As a signaling molecule, FAK also exhibits crosstalk with other intracellular signal transduction pathways and directly participates in the regulation of multiple cellular functions. 3. Although the exact function of FAK remains unclear, several experiments suggest that FAK may have two roles: first, FAK participates in the formation and regulation of focal adhesions during cell spreading and movement; second, FAK participates in signal transduction processes to inform the nucleus that the cell has anchored. In recent years, the role of FAK in apoptosis has also been confirmed.