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Phospho-BTK (Y551) Antibody

Rabbit mAb
Catalog # AP90731

Product Information

Application	WB, IF, ICC
Primary Accession	Q06187
Reactivity	Human
Clonality	Monoclonal
Other Names	BTK, AGMX1, AT, ATK, XLA, PSCTK1, B-cell progenitor kinase, BPK, Bruton tyrosine kinase, Tyrosine-protein kinase BTK, IMD1;
Isotype	Rabbit IgG
Host	Rabbit
Calculated MW	76281

Additional Information

Dilution	WB 1:500~1:2000 ICC/IF 1:50~1:200
Purification	Affinity-chromatography
Immunogen	A synthesized peptide derived from human Phospho-BTK (Y551)
Description	Bruton's tyrosine kinase (Btk) is a member of the Btk/Tec family of cytoplasmic tyrosine kinases. Like other Btk family members, it contains a pleckstrin homology (PH) domain and Src homology SH3 and SH2 domains. Btk plays an important role in B cell development. Activation of B cells by various ligands is accompanied by Btk membrane translocation mediated by its PH domain binding to phosphatidylinositol-3,4,5-trisphosphate.
Storage Condition and Buffer	Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol. Store at +4°C short term. Store at -20°C long term. Avoid freeze / thaw cycle.

Protein Information

Name	BTK
Synonyms	AGMX1, ATK, BPK
Function	Non-receptor tyrosine kinase indispensable for B lymphocyte development, differentiation and signaling (PubMed:19290921). Binding of antigen to the B-cell antigen receptor (BCR) triggers signaling that ultimately leads to B-cell activation (PubMed:19290921). After BCR engagement and activation at the plasma membrane, phosphorylates PLCG2 at several sites, igniting the downstream signaling pathway through calcium mobilization, followed by activation of the protein kinase C (PKC) family members (PubMed:11606584). PLCG2 phosphorylation is performed in close cooperation with the adapter protein B-cell linker protein BLNK (PubMed:11606584). BTK acts as a platform to bring together a diverse array of signaling proteins and is implicated in

cytokine receptor signaling pathways (PubMed:16517732, PubMed:17932028). Plays an important role in the function of immune cells of innate as well as adaptive immunity, as a component of the Toll-like receptors (TLR) pathway (PubMed:16517732). The TLR pathway acts as a primary surveillance system for the detection of pathogens and are crucial to the activation of host defense (PubMed:16517732). Especially, is a critical molecule in regulating TLR9 activation in splenic B-cells (PubMed:16517732, PubMed:17932028). Within the TLR pathway, induces tyrosine phosphorylation of TIRAP which leads to TIRAP degradation (PubMed:16415872). BTK also plays a critical role in transcription regulation (PubMed:19290921). Induces the activity of NF-kappa-B, which is involved in regulating the expression of hundreds of genes (PubMed:19290921). BTK is involved on the signaling pathway linking TLR8 and TLR9 to NF-kappa-B (PubMed:19290921). Acts as an activator of NLRP3 inflammasome assembly by mediating phosphorylation of NLRP3 (PubMed:34554188). Transiently phosphorylates transcription factor GTF2I on tyrosine residues in response to BCR (PubMed:9012831). GTF2I then translocates to the nucleus to bind regulatory enhancer elements to modulate gene expression (PubMed:9012831). ARID3A and NFAT are other transcriptional target of BTK (PubMed:16738337). BTK is required for the formation of functional ARID3A DNA-binding complexes (PubMed:16738337). There is however no evidence that BTK itself binds directly to DNA (PubMed:16738337). BTK has a dual role in the regulation of apoptosis (PubMed:9751072). Plays a role in STING1- mediated induction of type I interferon (IFN) response by phosphorylating DDX41 (PubMed:25704810).

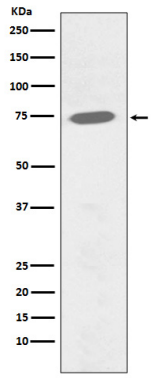
Cellular Location

Cytoplasm. Cell membrane; Peripheral membrane protein. Nucleus Membrane raft {ECO:0000250|UniProtKB:P35991}. Note=In steady state, BTK is predominantly cytosolic. Following B-cell receptor (BCR) engagement by antigen, translocates to the plasma membrane through its PH domain Plasma membrane localization is a critical step in the activation of BTK. A fraction of BTK also shuttles between the nucleus and the cytoplasm, and nuclear export is mediated by the nuclear export receptor CRM1.

Tissue Location

Predominantly expressed in B-lymphocytes.

Images



Western blot analysis of Phospho-BTK (Y551) expression in Ramos cell lysate treated with Pervanadate.

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