

#### **BTK Antibody (Center)**

Purified Rabbit Polyclonal Antibody (Pab) Catalog # AP7699c

## **Specification**

## **BTK Antibody (Center) - Product Information**

Application IHC-P, IF, WB,E Primary Accession Q06187

Reactivity
Human
Host
Clonality
Polyclonal
Isotype
Calculated MW
Antigen Region

Human
Rabbit
Polyclonal
Rabbit IgG
76281
209-239

## **BTK Antibody (Center) - Additional Information**

#### Gene ID 695

#### **Other Names**

Tyrosine-protein kinase BTK, Agammaglobulinemia tyrosine kinase, ATK, B-cell progenitor kinase, BPK, Bruton tyrosine kinase, BTK, AGMX1, ATK, BPK

#### Target/Specificity

This BTK antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 209-239 amino acids from the Central region of human BTK.

## **Dilution**

IHC-P~~1:50~100 IF~~1:10~50 WB~~1:1000

E~~Use at an assay dependent concentration.

## **Format**

Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation 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**

BTK Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

## **BTK Antibody (Center) - 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.

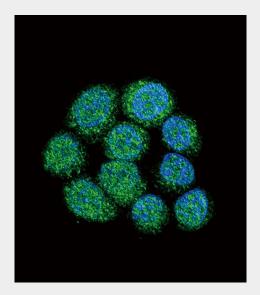
## **BTK Antibody (Center) - Protocols**

Provided below are standard protocols that you may find useful for product applications.

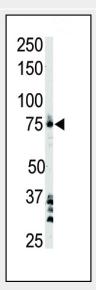
- Western Blot
- Blocking Peptides
- Dot Blot
- <u>Immunohistochemistry</u>
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

## BTK Antibody (Center) - Images

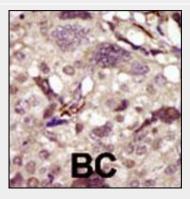




Confocal immunofluorescent analysis of BTK Antibody (Center)(Cat#AP7699c) with 293 cell followed by Alexa Fluor 488-conjugated goat anti-rabbit IgG (green).DAPI was used to stain the cell nuclear (blue).



The anti-BTK Pab (Cat. #AP7699c) is used in Western blot to detect BTK in Ramos cell lysate.



Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been



evaluated. BC = breast carcinoma; HC = hepatocarcinoma.

# **BTK Antibody (Center) - Background**

BTK plays a crucial role in B-cell ontogeny. This protein transiently phosphorylates GTF2I on tyrosine residues in response to B-cell receptor cross-linking. Defects in BTK are the cause of X-linked agammaglobulinemia type 1 (XLA). XLA is a humoral immunodeficiency disease which results in developmental defects in the maturation pathway of B-cells. Affected boys have normal levels of pre-B-cells in their bone marrow but virtually no circulating mature B-lymphocytes. This results in a lack of immunoglobulins of all classes and leads to recurrent bacterial infections like otitis, conjunctivitis, dermatitis, sinusitis or fatal sepsis or meningitis within the first years of life.

## **BTK Antibody (Center) - References**

Marquez, J.A., et al., EMBO J. 22(18):4616-4624 (2003). Jefferies, C.A., et al., J. Biol. Chem. 278(28):26258-26264 (2003). Horwood, N.J., et al., J. Exp. Med. 197(12):1603-1611 (2003). Goodman, P.A., et al., Leuk. Lymphoma 44(6):1011-1018 (2003). Noordzij, J.G., et al., J. Clin. Immunol. 22(5):306-318 (2002).