abcam

ab278650

Biotin Anti-BTK (phospho Y551) antibody [BtkY551-G12]

Recombinant

Key facts

Isotype	IgG
Host species	Rabbit
Conjugation	Biotin
Storage buffer	Preservative: 0.09% Sodium azide Constituents: PBS, 0.2% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	Synthetic Peptide within Human BTK pY551. The exact immunogen used to generate this antibody is proprietary information. Database link Q06187
Clone number	BtkY551-G12
Purification technique	Affinity purification Protein A/G
Light chain type	kappa

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	5 µL for 10^6 Cells

Notes	-

Not recommended

Species	Synthetic peptide - Human
Dilution info	-
Notes	-

ELISA

Tested

Species	Synthetic peptide - Human, Human
Dilution info	-
Notes	-

Target data

See full target information BTK pY551

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).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle, Store in the dark

Notes

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	BTK or Bruton's tyrosine kinase is an important enzyme in the body that functions mainly in signaling pathways within cells. It is known for its involvement in the development and activation of B cells and is expressed in cells of the hematopoietic system. The BTK protein has a molecular weight of about 76 kDa. Researchers can study BTK using tools like the BTK ELISA kit which helps measure its presence in biological samples. Furthermore there are specific anti-BTK antibodies which assist in the detection of BTK bands during analysis. BTK inhibitors like BTK C481S have been developed to regulate its activity.

Biological function summary	BTK plays an important role in the immune response by transmitting signals from the B cell receptor to the inside of the cell which promotes B cell maturation and survival. It operates as part of a larger signal transduction complex that includes other proteins and molecules. For accurate quantification of BTK expression a BTK sandwich ELISA kit may be utilized capturing and revealing the BTK protein's presence in sample preparations.
Pathways	BTK associates with both the B cell receptor signaling and the PI3K-Akt pathway. These pathways are critical for the proper functioning and proliferation of B cells. BTK interacts with proteins like PLCγ2 and BLNK in the signaling cascade highlighting its central role in transmitting extracellular signals to elicit appropriate cellular responses.
Associated diseases and disorders	BTK is closely linked to X-linked agammaglobulinemia (XLA) a genetic condition marked by an absence of mature B cells. This highlights the connection between BTK function and immune competence. Moreover aberrant BTK activity has been implicated in some types of B cell malignancies such as chronic lymphocytic leukemia (CLL). The BTK pathway's dysregulation in these disorders may involve interactions with proteins like SYK suggesting that targeting BTK could offer therapeutic benefits in managing such conditions.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

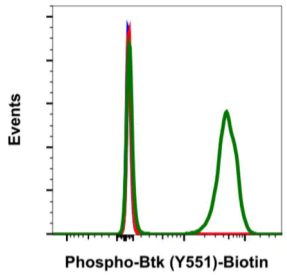
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

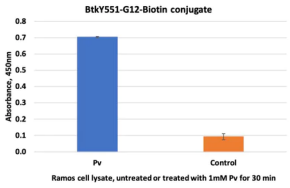
3 product images



Flow Cytometry - Biotin Anti-BTK (phospho Y551) antibody [BtkY551-G12] (ab278650)

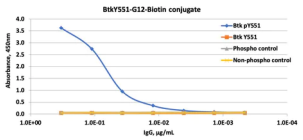
BTK (phospho Y551) Flow Cytometry staining using rabbit Anti-BTK (phospho Y551) antibody

Flow cytometric analysis of Ramos cells secondary antibody only negative control (blue) or untreated (red) or treated with pervanadate (green) using ab278650 at 0.1 µg/mL.



ELISA - Biotin Anti-BTK (phospho Y551) antibody [BtkY551-G12] (ab278650)

Direct ELISA using Ramos cellular lysate coated directly to the plate surface after lysis following no treatment or treatment with 1mM pervanadate for 30 min. ELISA wells were tested in duplicate using 0.12 mg/mL total protein coated lysate and 1 ug/mL ab278650.



ELISA - Biotin Anti-BTK (phospho Y551) antibody [BtkY551-G12] (ab278650)

Peptide ELISA using ab278650 titered starting from 0.3 ug/mL shows binding to only Btk pY551 phospho peptide and no cross-reactivity to Btk Y551 non-phospho peptide or to control peptides.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.