abcam

ab38871

Anti-ZAP70 antibody [ZAP-03]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.4 Preservative: 0.097% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Fragment Protein within Human ZAP70. The exact immunogen used to generate this antibody is proprietary information. Database link P43403
Clone number	ZAP-03
Purification technique	Affinity purification Protein A
Specificity	ab38871 recognises ZAP-70, a 70 kDa protein tyrosine kinase expressed in Tand NK cells.
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purified from hybridoma culture supernatant. Purity >95% by SDS-PAGE.

Reactivity data

WB

Tested

Species	Human
Dilution info	0.5 µg/mL

Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	2-5 µg/mL
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Target data

See full target information ZAP70

Function

Tyrosine kinase that plays an essential role in regulation of the adaptive immune response. Regulates motility, adhesion and cytokine expression of mature T-cells, as well as thymocyte development. Also contributes to the development and activation of primary B-lymphocytes. When antigen presenting cells (APC) activate T-cell receptor (TCR), a serie of phosphorylations lead to the recruitment of ZAP70 to the phosphorylated TCR components CD3E and CD247/CD3Z through ITAM motif at the plasma membrane (PubMed:7509083). This recruitment serves to localization to the stimulated TCR and to relieve its autoinhibited conformation. Release of ZAP70 active conformation is further stabilized by phosphorylation mediated by LCK. Subsequently, ZAP70 phosphorylates at least 2 essential adapter proteins: LAT and LCP2. In turn, a large number of signaling molecules are recruited and ultimately lead to lymphokine production, T-cell proliferation and differentiation. Furthermore, ZAP70 controls cytoskeleton modifications, adhesion and mobility of T-lymphocytes, thus ensuring correct delivery of effectors to the APC. ZAP70 is also required for TCR-CD247/CD3Z internalization and degradation through interaction with the E3 ubiquitin-protein ligase CBL and adapter proteins SLA and SLA2. Thus, ZAP70 regulates both T-cell activation switch on and switch off by modulating TCR expression at the T-cell surface. During thymocyte development, ZAP70 promotes survival and cell-cycle progression of developing thymocytes before positive selection (when cells are still CD4/CD8 double negative). Additionally, ZAP70-dependent signaling pathway may also contribute to primary B-cells formation and activation through B-cell receptor (BCR).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks

Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot

Supplementary info

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

Activity summary	ZAP70 also known as Zeta-chain-associated protein kinase 70 is a tyrosine kinase that plays an important role in T-cell receptor signaling. The protein has a molecular mass of approximately 70 kDa. ZAP70 is mainly expressed in T cells and natural killer (NK) cells. It gets activated upon T-cell receptor engagement initiating downstream signaling cascades essential for T-cell function and adaptive immune response.
Biological function summary	ZAP70 is instrumental in the signaling cascade that activates T cells in response to antigen recognition. It forms part of a larger signaling complex following the engagement of the T-cell receptor with antigens. This complex transmits critical activation signals leading to further cellular responses such as cytokine production and cell proliferation. ZAP70's function ensures appropriate immune responses and helps maintain immune system balance.
Pathways	ZAP70 plays an integral role in T-cell receptor signaling pathways. This protein interacts with other signaling molecules like Lck and LAT facilitating the transmission of activation signals within the cell. As part of the T-cell activation pathway ZAP70 helps to bridge receptor-ligand interactions with cellular responses enabling the immune cells to combat infections effectively.
Associated diseases and disorders	ZAP70 mutations or dysregulations can lead to severe immunodeficiencies or autoimmune diseases. For example ZAP70 deficiency results in severe combined immunodeficiency (SCID) which severely impairs immune function. Additionally aberrant ZAP70 activity has links to certain autoimmune disorders like rheumatoid arthritis where it influences abnormal immune signaling. Understanding the biochemical pathways that involve ZAP70 provides insight into managing these diseases and developing therapeutic strategies.

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.

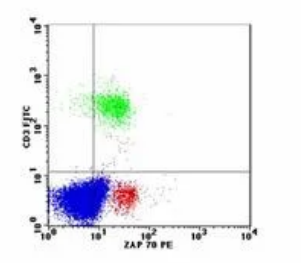
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In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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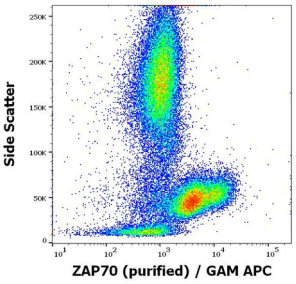
6 product images



Flow Cytometry (Intracellular) - Anti-ZAP70 antibody [ZAP-03] (ab38871)

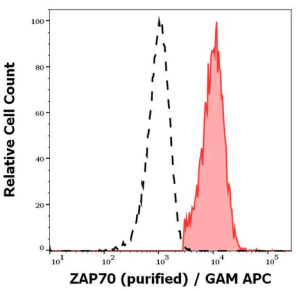
ZAP70 Flow Cytometry (Intracellular) staining using mouse Anti-ZAP70 antibody

Intracellular Flow Cytometry analysis of the human peripheral blood of a patient with B-cell chronic lymphatic leukemia (B-CLL) using antibody ab38871; Dot Plot diagram shows the distribution of lymphocyte populations: T-lymphocytes (green), B-lymphocytes (blue) and NK cells (red).



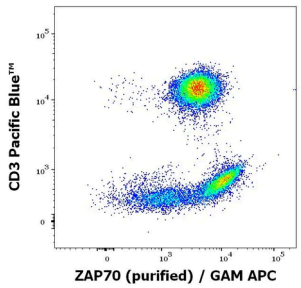
Flow Cytometry (Intracellular) - Anti-ZAP70 antibody [ZAP-03] (ab38871)

Flow cytometry intracellular staining pattern of human peripheral whole blood using ab38871 (concentration in sample 9 µg/ml, GAM APC).



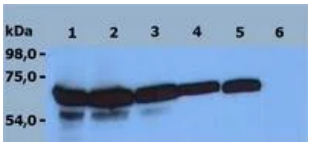
Flow Cytometry (Intracellular) - Anti-ZAP70 antibody [ZAP-03] (ab38871)

Separation of human CD3 negative ZAP70 positive lymphocytes (red-filled) from neutrophil granulocytes (black-dashed) in flow cytometry analysis (intracellular staining) of peripheral whole blood stained using ab38871 (concentration in sample 9 µg/ml, GAM APC).



Flow Cytometry (Intracellular) - Anti-ZAP70 antibody [ZAP-03] (ab38871)

Flow cytometry multicolor intracellular staining of human peripheral whole blood stained using ab38871 (concentration in sample 9 µg/ml, GAM APC) and anti-human CD3 (UCHT1) Pacific Blue™ antibody (20 µl reagent / 100 µl of peripheral whole blood).



Western blot - Anti-ZAP70 antibody [ZAP-03] (ab38871)

ZAP70 Western blot staining of HPB-ALL peripheral blood leukemia T-cell line using mouse Anti-ZAP70 antibody

Western Blotting analysis of HPB-ALL peripheral blood leukemia T-cell line; SDS-PAGE; 10% separating gel, 4% stacking gel; Reducing conditions. ZAP-70 is a molecule susceptible to degradation. It is recommended to use freshly prepared cell lysates (protease inhibitors are essential) to avoid non-specific staining of degradation products. Western Blotting analysis of HPB-ALL peripheral blood leukemia T-cell line; SDS-PAGE; 10% separating gel, 4% stacking gel. ZAP-70 is a molecule susceptible to degradation. It is recommended to use freshly prepared cell lysates (protease inhibitors are essential) to avoid non-specific staining of degradation products.
Lane 1:
Western blot - Anti-ZAP70 antibody [ZAP-03] (ab38871) at 4 µg/mL

Lane 2:
Western blot - Anti-ZAP70 antibody [ZAP-03] (ab38871) at 2 µg/mL

Lane 3:
Western blot - Anti-ZAP70 antibody [ZAP-03] (ab38871) at 1 µg/mL

Lane 4:
Western blot - Anti-ZAP70 antibody [ZAP-03] (ab38871) at 0.5 µg/mL

Lane 5:
ZAP-70 specific antibody 1E7.2 at 1 µg/mL

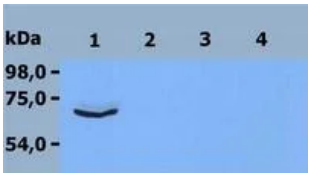
Lane 6:
Isotypic control PPV-06 (mouse IgG1).

All lanes:
HPB-ALL peripheral blood leukemia T-cell line

Performed under reducing conditions.

Predicted band size: 69 kDa

Observed band size: 55 kDa, 70 kDa



Western blot - Anti-ZAP70 antibody [ZAP-03] (ab38871)

Western Blotting analysis of HPB-ALL peripheral blood leukemia T-cell line and RAMOS human Burkitt lymphoma cell line; SDS-PAGE; 10% separating gel, 4% stacking gel.
Lanes 1 - 2:
Western blot - Anti-ZAP70 antibody [ZAP-03] (ab38871) at 0.5 µg/mL

Lanes 3 - 4:
Isotypic control PPV-06 (mouse IgG1)

Lanes 1 and 3:
HPB-ALL cell line

Lanes 2 and 4:
RAMOS cell line

Performed under reducing conditions.

Predicted band size: 69 kDa

Observed band size: 70 kDa

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