



## PRODUCT DATA SHEET

**Product:** Anti-ZAP-70 pAb

**Cat. No.:** PC-507 (100 µg)

**Specificity:**

Reacts with the C-terminal part of human ZAP-70 protein tyrosine kinase. The ZAP-70 (zeta-associated protein of 70 kDa) tyrosine kinase was identified as a tyrosine phosphoprotein that associates with TCR zeta subunit and undergoes tyrosine phosphorylation following TCR stimulation. ZAP-70 is a Syk family tyrosine kinase primarily expressed in T and NK cells that plays an essential role in signaling through the TCR. TCR-mediated activation of T cells is crucial to the immune response. In humans, ZAP-70 gene mutations resulting in lower ZAP-70 protein expression levels or expression of catalytically inactive ZAP-70 proteins, have been identified. ZAP-70 deficiency results in the absence of mature CD8+ T cells and the prevention of TCR-mediated activation of CD4+ T cells, and it can lead to severe combined immunodeficiency. ZAP-70 is a cytosolic protein that migrates at 70 kDa in SDS-PAGE. It contains two N-terminal SH2 domains (Src homology domain 2) and a C-terminal kinase domain. The crystal structure of the ZAP-70 SH2 domains in complex with a TCR zeta subunit peptide was described. During T cell activation, the binding of ZAP-70 SH2 domains to the phosphorylated zeta subunit on the activated TCR complex causes a co-localization with the Lck tyrosine kinase that phosphorylates ZAP-70 on Tyr493 in the activation loop. ZAP-70 autophosphorylates multiple tyrosines in the region between the SH2 domains and the kinase domain, including the binding sites for additional SH2-containing signaling proteins such as SLP-76, LAT, Lck, PLCgamma1, Vav, Shc, Ras-GAP, and Abl. ZAP-70-mediated activation of these downstream effectors leads to the release of intracellular calcium stores, and the transcription of interleukin-2 and other genes important for an immune response.

**Immunogen:**

Bacterially expressed fusion protein representing the C-terminal part (160 amino acids) of human ZAP-70.

**Species Reactivity:**

Human. Other species not tested.

**Positive Control:**

Jurkat T cell line

**Host:**

Rabbit

**Gene Location:**

Human chromosome 2q12

**Format:**

100 µg purified pAb at 1 mg/mL from rabbit antiserum in PBS with 15 mM sodium azide, pH 7.4.

**Storage:**

Store undiluted pAb at 4°C. Aliquot and store diluted pAb at -20°C. Avoid repeated freeze/thaw cycles.

**Application and Suggested Dilution:**

- Western blot: Use at a 1:1,000 dilution. Use standard reducing SDS-sample buffer.

The optimal dilution for a specific application should be determined by the researcher.

**Limitations:**

For *in vitro* research use only. Not for use in diagnostics or in humans.

**Warranty:**

No warranties, expressed or implied, are made regarding the use of this product. KAMIYA BIOMEDICAL COMPANY is not liable for any damage, personal injury, or economic loss caused by this product.