

CD3 monoclonal antibody

Catalog: MB65770

Host: Mouse

Reactivity: Human

BackGround:

When T cells encounter antigens via the T cell receptor (TCR), information about the quantity and quality of antigens is relayed to the intracellular signal transduction machinery. This activation process depends mainly on CD3 (Cluster of Differentiation 3), a multiunit protein complex that directly associates with the TCR. CD3 is composed of four polypeptides: ζ , γ , ϵ , and δ . Each of these polypeptides contains at least one immunoreceptor tyrosine-based activation motif (ITAM). Engagement of the TCR complex with foreign antigens induces tyrosine phosphorylation in the ITAM motifs and phosphorylated ITAMs function as docking sites for signaling molecules such as ZAP-70 and the p85 subunit of PI-3 kinase. TCR ligation also induces a conformational change in CD3 ϵ , such that a proline region is exposed and then associates with the adaptor protein Nck.

The CD3 ζ invariant chain is a type-I transmembrane protein that exists in the TCR signaling complex as a disulfide-linked homodimer. The cytoplasmic tail of each CD3 ζ monomer contains three distinct ITAM motifs, each containing two tyrosine residues. Phosphorylation of CD3 ζ ITAM tyrosine residues, including Y142, is driven by recruitment of the Lck and Fyn tyrosine kinases to the TCR. Lck/Fyn-mediated ITAM phosphorylation creates docking sites that promote the SH2 domain-dependent recruitment and activation of ZAP-70, which drives amplification of signaling events downstream of the TCR that facilitate T cell activation. Phosphorylation of a pool of p16 CD3 ζ leads to the generation of p21 and p23 species, which differ in the degree of ITAM phosphorylation. It has been proposed that the ratio of p21/p23 contributes to regulating the amplitude of T cell activation. CD3 ζ plays an important role in the assembly and surface expression of the TCR complex. Indeed, research studies have demonstrated that CD3 ζ is degraded in response to

Ag-dependent TCR stimulation as a mechanism to tightly control T cell activation.

Product:

Mouse IgG2a. Liquid in PBS, pH 7.3, and 0.02% sodium azide.

Molecular Weight:

~ 18 kDa

Swiss-Prot:

P04234; P07766; P09693; P20963

Purification&Purity:

The monoclonal antibody was affinity-purified from mouse antiserum by affinity-chromatography using epitope-specific immunogen and the purity is > 95% (by SDS-PAGE).

Applications:

IF (1/50 - 1/200)

Storage&Stability:

Store at 4 °C short term. Aliquot and store at -20 °C long term. Avoid freeze-thaw cycles.

Specificity:

Recognizes human CD3

DATA:



Flow cytometric analysis of human peripheral blood lymphocytes using Anti-CD3 Antibody, followed by anti-mouse IgG PE.

Note:

For research use only, not for use in diagnostic procedure.

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