Human CD3 (humanized OKT3) Antibody-
Human IgG4

Catalog Number: 10977-H001

**Preparation**

Human CD3 (humanized OKT3) Antibody is a humanized antibody of Orthoclone OKT3. Orthoclone OKT3 is an immunosuppressant drug given to reduce acute rejection in patients with organ transplants. It is a monoclonal antibody targeted at the CD3 receptor, a membrane protein on the surface of T cells. It was the first monoclonal antibody to be approved for clinical use in humans.

**Specificity**

Human CD3e / CD3 epsilon

**Storage**

This antibody can be stored at 2°C-8°C for one month without detectable loss of activity. Antibody products are stable for twelve months from date of receipt when stored at -20°C to -80°C. **Preservative-Free.** Sodium azide is recommended to avoid contamination (final concentration 0.05%-0.1%). It is toxic to cells and should be disposed of properly. **Avoid repeated freeze-thaw cycles.**

**Background**

T-cell surface glycoprotein CD3 epsilon chain, also known as CD3E, is a single-pass type I membrane protein. CD3E contains 1 Ig-like (immunoglobulin-like) domain and 1 ITAM domain. CD3E, together with CD3-gamma, CD3-delta and CD3-zeta, and the T-cell receptor alpha/beta and gamma/delta heterodimers, forms the T cell receptor-CD3 complex. The CD3 epsilon subunit of the T cell receptor (TCR) complex contains two defined signaling domains, a proline-rich sequence and an immune tyrosine activation motifs (ITAMs), and this complex undergoes a conformational change upon ligand binding that is thought to be important for the activation of T cells. In the CD3 epsilon mutant mice, all stages of T cell development and activation that are TCR-dependent were impaired, but not eliminated, including activation of mature naive T cells with the MHCII presented superantigen, staphylococcal enterotoxin B, or with a strong TCR cross-linking antibody specific for either TCR-Cbeta or CD3 epsilon. T cell receptor-CD3 complex plays an important role in coupling antigen recognition to several intracellular signal-transduction pathways. This complex is critical for T-cell development and function, and represents one of the most complex transmembrane receptors. CD3E plays an essential role in T-cell development, and defects in CD3E gene cause severe immunodeficiency. Homozygous mutations in CD3D and CD3E genes lead to a complete block in T-cell development and thus to an early-onset severe combined immunodeficiency phenotype.

**Reference**


Applications

**Agonist Activity** – Measured by its ability to induce proliferation of human T cells. The ED50 for this effect is typically 2-8 ug/mL.
Applications

Flow Cytometry

The staining effect of Human CD3 (humanized OKT3) antibody to CD3 of Human Peripheral Blood Lymphocytes by Flow cytometric analysis.
A: Lymphocytes were stained with PE-conjugated human CD3 (humanized OKT3) antibody.
B: The binding effect of PE-conjugated humanized OKT3 antibody (Red histograms) in the lymphocytes can be blocked by pre-incubation of the CD3 antibody (Miltenyi Biotec, 130-093-387) for 20min (blue histograms).

Flow cytometry was performed on a BD FACS Calibur flow cytometry system.

CD3+ T cell staining of lymphocytes using Human CD3 (humanized OKT3) antibody by Flow cytometric analysis.
A: Lymphocytes were stained with both PE-conjugated CD3(humanized OKT3) antibody and OKT3-FITC-eBioscience (eBioscience, 11-0037-41).
B: Lymphocytes were stained with PE-conjugated humanized OKT3 antibody and CD19-APC (BD, 555415).

Flow cytometry was performed on a BD FACS Calibur flow cytometry system.