

Human CD3 (humanized OKT3) Antibody- Human IgG4



Catalog Number: 10977-H001

| General Information | |
|---------------------|--|
| Clone ID: | H001 |
| Ig Type: | Human IgG4 |
| Applications: | Agonist Activity, FCM |
| Specificity: | Human CD3e / CD3 epsilon |
| Formulation: | 0.2 µm filtered solution in Histidine and Arginine buffer containing 120mM NaCl, 0.02% Tween 80, pH6.0 |
| Storage: | < -20°C |

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

Fischer A, *et al.* (2005) CD3 deficiencies. *Curr Opin Allergy Clin Immunol.* 5(6): 491-5.

Wang Y, *et al.* (2009) A conserved CXXC motif in CD3epsilon is critical for T cell development and TCR signaling. *PLoS Biol.* 7(12): e1000253.

Martnez-Martin N, *et al.* (2009) Cooperativity between T cell receptor complexes revealed by conformational mutants of CD3epsilon. *Sci Signal.* 2(83): ra43.

Deford-Watts LM, *et al.* (2009) The cytoplasmic tail of the T cell receptor CD3 epsilon subunit contains a phospholipid-binding motif that regulates T cell functions. *J Immunol.* 183(2): 1055-64.

| Character | Method | Result |
|------------------------|------------------|------------------------------|
| Specificity | ELISA | Human CD3 (Cat:CT026-H0323H) |
| Antibody concentration | UV | > 1 mg/mL |
| Aggregation | SEC-HPLC | < 5% aggregation |
| Purity | SDS-PAGE | > 95% |
| Endotoxin | LAL gel clotting | < 0.50 EU/mg |
| Residual protein A | ELISA | < 1000 ppm |
| Mycoplasma detection | qPCR | Negative |
| Host cell protein | ELISA | < 1000 ppm |

Human CD3 (humanized OKT3) Antibody- Human IgG4

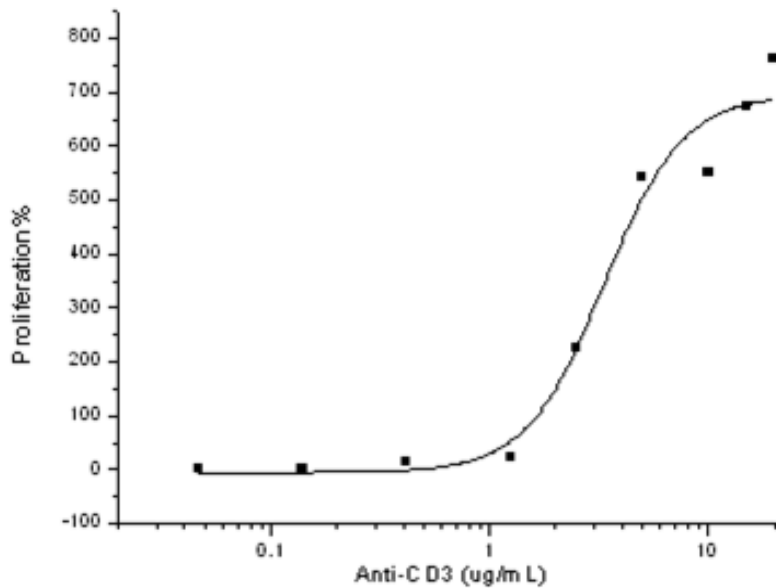


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Applications

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



Human CD3 (humanized OKT3) Antibody-Human IgG4

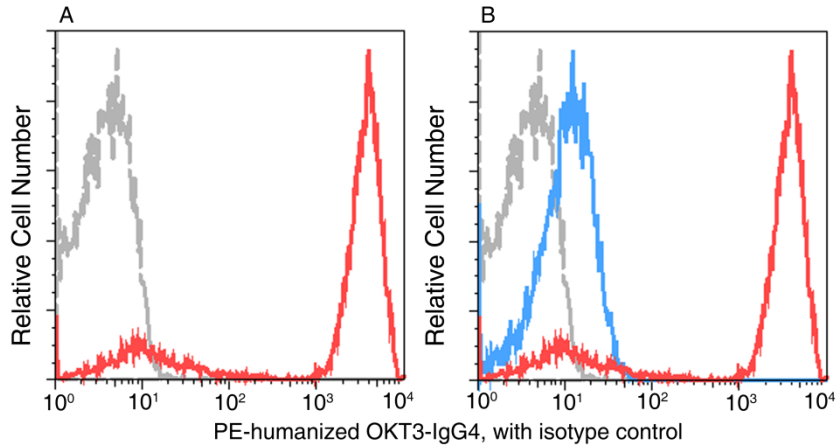


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Applications

Flow Cytometry



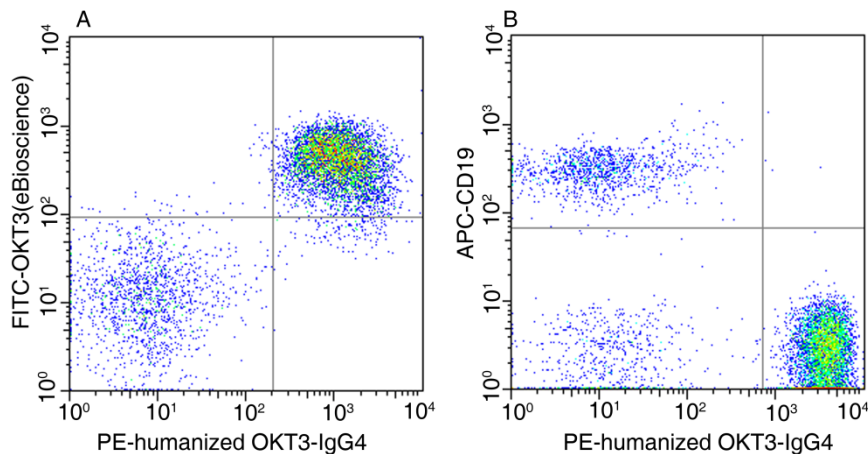
The staining effect of Human CD3 (humanized OKT3) antibody to CD3 of Human Peripheral Blood Lymphocytes by Flow cytometric analysis.

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 FACSCalibur flow cytometry system.

Please refer to www.sinobiological.com/Flow-Cytometry-FACS-Protocols-a-750.html for technical protocols.



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 FACSCalibur flow cytometry system.

Please refer to www.sinobiological.com/Flow-Cytometry-FACS-Protocols-a-750.html for technical protocols.

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