Human CD4 Alexa Fluor® 647-conjugated Antibody

Monoclonal Mouse IgG_1 Clone # 1033236

Catalog Number: FAB37913R

100 µg

DESCRIPTION

Species Reactivity	Human
Specificity	
Source	Monoclonal Mouse IgG_1 Clone # 1033236
Purification	Protein A or G purified from hybridoma culture supernatant
Conjugate	Alexa Fluor 647 Excitation Wavelength: 650 nm Emission Wavelength: 668 nm
Formulation	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

	Recommended Concentration	Sample
Flow Cytometry	0.25-1 µg/10^6 cells	Human blood lymphocytes

PREPARATION AND STORAGE

Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Protect from light. Do not freeze.** • 12 months from date of receipt, 2 to 8 °C as supplied.

BACKGROUND

CD4, also known as L3T4, T4, and W3/25, is an approximately 55 kDa type I transmembrane glycoprotein that is expressed predominantly on thymocytes and a subset of mature T lymphocytes. It is a standard phenotype marker for the identification of T cell populations (1). Mature human CD4 consists of a 371 amino acid (aa) extracellular region containing four immunoglobulin-like domains, a 22 aa transmembrane segment, and a 40 aa cytoplasmic domain (2). Within the ECD, human CD4 shares approximately 52% aa sequence identity with mouse and rat CD4. CD4 is expressed along with CD8 on double positive T cells during their development in the thymus. Either CD4 or CD8 expression is then lost, giving rise to single positive (SP) $CD4^+$ or $CD8^+$ mature T cells (3). $CD4^+$ SP cells, also known as T helper cells, further differentiate into multiple subsets of $CD4^+$ cells including Th1, Th2, Th17, Tfh, and Treg cells which regulate humoral and cellular immunity (4). CD4 is reexpressed on circulating $CD8^+$ T cells upon activation and contributes to their cytotoxic effector activity (5). In human, CD4 is additionally expressed on macrophages, neutrophils, monocytes, NK cells, and neurons and glial cells in the brain (6-9). Similar CD4 distribution between species cannot be assumed as demonstrated by its presence on macrophages in human and rat but not in mouse (6). CD4 binds directly to MHC class II molecules on antigen presenting cells (10). This interaction contributes to the formation of the immunological synapse which is focused around the TCR-MHC class II-antigenic peptide interaction (1, 11). Palmitoylation of two cysteine residues in the cytoplasmic tail of CD4 promotes the localization of CD4 in lipid rafts and its ability to augment TCR signaling *via* activation of the tyrosine kinase Lck (12). CD4 also functions as a chemotactic receptor for IL-16 and, in human, as a co-receptor for the gp120 surface glycoprotein of HIV-1 (7, 13-15).

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