Cotton Rat CD4 Alexa Fluor® 488-conjugated Antibody

Antigen Affinity-purified Polyclonal Sheep IgG
Catalog Number: AF6676G
100 µg

DESCRIPTION

Species Reactivity	Cotton Rat
Specificity	Detects cotton rat CD4 in direct ELISAs. In direct ELISAs, approximately 15% cross-reactivity with recombinant mouse CD4, approximately 5% cross-reactivity with recombinant human CD4, and less than 1% cross-reactivity with recombinant canine CD4 and recom
Source	Polyclonal Sheep IgG
Purification	Antigen Affinity-purified
Immunogen	Mouse myeloma cell line NS0-derived recombinant cotton rat CD4
Conjugate	Alexa Fluor 488 Excitation Wavelength: 488 nm Emission Wavelength: 515-545 nm
Formulation	Supplied 0.2mg/ml in 1X PBS with RDF1 and 0.09% 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.*

CyTOF-ready	Optimal dilution of this antibody should be experimentally determined.
Flow Cytometry	Optimal dilution of this antibody should be experimentally determined.

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). CD4 contains four immunoglobulin-like domains in its extracellular region. Within the ECD, human CD4 shares approximately 52% aa sequence identity with mouse and rat CD4, while mouse and rat CD4 share 73% identity. 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 (2). $CD4^+$ 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 (3). CD4 is re-expressed on circulating $CD8^+$ T cells upon activation and contributes to their cytotoxic effector activity (4). In human, CD4 is additionally expressed on macrophages, neutrophils, monocytes, NK cells, and neurons and glial cells in the brain (5 - 8). Similar CD4 distribution between species cannot be assumed as demonstrated by its presence on macrophages in human and rat but not in mouse (5). CD4 binds directly to MHC class II molecules on antigen presenting cells (9). This interaction contributes to the formation of the immunological synapse which is focused around the TCR-MHC class II-antigenic peptide interaction (1, 10). 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 (11). CD4 also functions as a chemotactic receptor for IL-16 and, in human, as a coreceptor for the gp120 surface glycoprotein of HIV-1 (6, 12-14). CD4 associates with adhesion molecule CD44 at the cell surface, and triggers CD44-mediated cell adhesion (15).

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