

DESCRIPTION

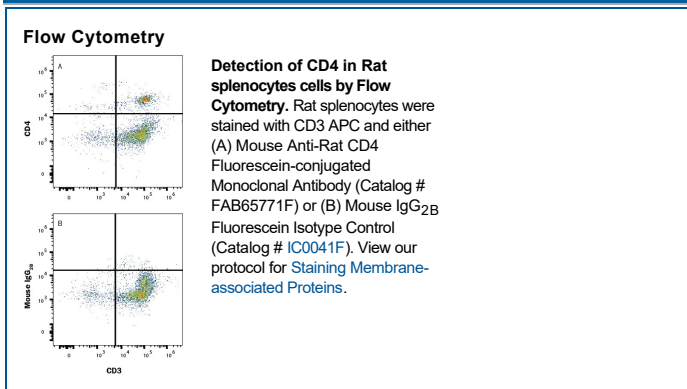
Species Reactivity	Rat
Specificity	Recognizes the rat CD4 cell surface antigen expressed by T helper cells, monocytes and macrophages. Clone OX38 competes for binding with clone W3/25.
Source	Monoclonal Mouse IgG _{2B} Clone # OX38
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	MLR generated rat T cells
Conjugate	Fluorescein Excitation Wavelength: 488 nm Emission Wavelength: 515-545 nm (FITC)
Formulation	Supplied in a saline solution containing BSA and Sodium Azide. See Certificate of Analysis for details. *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.

Flow Cytometry	Titration recommended for optimal concentration with starting range of 0.1-1 µg/1 million cells. Sample used for this experiment was Rat splenocytes
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DATA



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. <ul style="list-style-type: none"> 12 months from date of receipt, 2 to 8 °C as supplied.

BACKGROUND

CD4 (cluster of differentiation 4), also known as L3T4 or T4, is a 55 kDa single chain type I transmembrane glycoprotein belonging to the immunoglobulin (Ig) superfamily. CD4 is predominantly expressed on most thymocytes, a subset of mature T lymphocytes, and weakly on monocytes, tissue macrophages, dendritic cells, and granulocytes. It is also expressed on neurons and glial cells in the brain (1). 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. CD4+ SP cells (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 (2). The extracellular region of CD4 consists of 372 amino acids (aa) with four immunoglobulin-like domains (D1-D4). The structures of D1 and D3 resemble variable (IgV) domains while D2 and D4 resemble constant (IgC) domains (3).

Given its critical role in T cell development, CD4 also has diverse immunology-related functions. CD4 acts as a coreceptor with the T-cell receptor (TCR) during T cell activation and thymic differentiation by binding directly to major histocompatibility complex (MHC) class II antigens and associating with the protein tyrosine kinase, Lck (4). This interaction contributes to the formation of the immunological synapse (5). Defects in antigen presentation cause dysfunction of CD4+ T cells and the almost complete loss of MHC II expression on B cells in peripheral blood, as observed in severe combined immunodeficiency (SCID) (6). CD4 also functions as a receptor for the human immunodeficiency virus (HIV) by binding to gp120, the envelope glycoprotein of HIV-1. It has been shown that the V-like domains are critical for binding to gp120 (7). In immune mediated and infectious diseases of the central nervous system, CD4 functions as an indirect mediator of neuronal damage (8).

References:

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