CD4 acts as an accessory molecule to the T cell receptor (TcR) complex during T-cell activation restricted to the major histocompatibility complex (MHC) class II. The CD4 antigen is also known to be one of the human immunodeficiency virus type 1 (HIV-1) receptors, through the gp120 molecule. The other HIV-1 co-receptor is known as fusin or LESTR or CXCR4. Recent studies demonstrated that tetramerisation of CD4 is required for interaction with Lck. The CD4 molecule is expressed on a glycoprotein of the Ig superfamily, with a molecular weight of 42-44 kDa. The CD4 antigen is a monomeric transmembrane antigen in vitro, the CD62L+ cells synthesize mainly IL-4 (beta interferon), suggesting that these two subsets of memory CD4+ T cells may be used directly from the vial. Bring reagent to 18-25°C prior to use. No reconstitution is necessary. This monoclonal antibody contains 0.1% sodium azide. Human CD4+ T lymphocytes can be divided into distinct and largely reciprocal subsets based on their differential expression characteristics. The switch of expression from CD45RA (‘naive’ marker) to CD45R0 (‘memory’ marker) is one of the main hallmarks of the maturation of T lymphocyte-mediated immune responses as a function of age and is correlated with the ability for T lymphocytes to express CD154, the CD40 ligand. Memory phenotype CD45R0+ T lymphocytes can be either CD62L- or CD62L+. After stimulation with antigen in vitro, the CD62L+ cells synthesize mainly IL-4 and IL-5 cytokines, whereas the CD62L- cells produce IFN-γ suggesting that these two subsets of memory CD4+ T lymphocytes resemble Th2-like and Th1-like cells respectively. The cytokines produced by Th2-like cells are those typically associated with mucosal immune responses, including IgA and IgG induction by B cells, while the Th1 cytokines are those associated with classical immune responses induced by the presence of an antigen, including IgM and IgG induction by B cells and, in extreme cases, delayed-type hypersensitivity.

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**SPECIFICITY**

The CD4 antigen is a monomeric transmembrane glycoprotein of the Ig superfamily, with a molecular weight of 59 kDa. The intracytoplasmic tail of CD4 is essential for interaction with Lck. CD4 molecule is expressed on a subset of peripheral blood T lymphocytes named “helper” T (Th) cells or T4 lymphocytes. The CD4 antigen is present on approximately 45% of peripheral blood lymphocytes. It is expressed on 80% of the thymocytes, where it is frequently co-expressed with CD8. CD4 is also expressed on non-T cells like the monocytes and the eosinophils. 100% of the monocytes carry the CD4 antigen, although at a lower density than on T lymphocytes.

**STATEMENT OF WARNINGS**

1. This reagent contains 0.1% sodium azide. Sodium azide under acid conditions yields hydrazoic acid, an extremely toxic compound. Azide compounds should be handled with care.

2. Never pipet by mouth and avoid contact of samples with skin and mucous membranes.

3. Do not do not use antibody beyond the expiration date on the label.

4. Do not expose reagents to strong light during storage or incubation.

5. Use Good Laboratory Practices (GLP) when handling reagent.

6. Harmful if swallowed.

7. After contact with skin, wash immediately with plenty of water.

**STORAGE CONDITIONS AND STABILITY**

This reagent is stable up to the expiration date when stored at 2-8°C. Do not freeze. Minimize exposure to light.

**REAGENT PREPARATION**

No reconstitution is necessary. This monoclonal antibody may be used directly from the vial. Bring reagent to 18-25°C prior to use.

**PROCEDURE**

This reagent is designed for flow cytometry. Assay volume: 10 μL per 5 x 10^6 cells in one test, or per 100 μL whole blood. A wash is required to yield optimal results.

**EXAMPLE DATA**

The histogram below is representative (Count versus Fluorescence Intensity) of lysed normal whole blood sample. Staining is with CD4-PC7 monoclonal antibody (PN 6607101) gated on lymphocytes.


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