**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 specific 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.

CD4 acts as an accessory molecule to the T cell receptor (TcR) complex during T-cell activation restricted to the major histocompatibility complex 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 MHC class II-dependent binding, whereas HIV-1 gp120 can bind to single CD4 molecules.

Other studies suggest that CD4 should function as the receptor for IL-16. IL-16 is a chemotaxic factor for CD4+ T cells, as well as for monocytes and eosinophils. IL-16 seems also to be a growth factor for CD4+ T lymphocytes, but is not able to induce cell division.

Human CD4+ T lymphocytes can be divided into distinct and largely reciprocal subsets based on their differential expression of the CD45 isoforms CD45RA and CD45R0. 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 response as a function of age and is correlated with the ability for T lymphocytes to express CD154, the CD40 ligand. Memory phenotype CD45R0+ T4 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 IL-4 and IL-5 production by B cells, while the Th1 cytokines are those associated with classical immune responses induced by the presence of an antigen, including IFN-γ and TNF-α induction by B cells and, in extreme cases, delayed-type hypersensitivity.

CD28 costimulation of T lymphocytes is critical for development of the Th2-like cells and in absence of this signaling pathway, cells are not primed to produce Th2 cytokines and are oriented by default to the Th1-like subset. The lack of CD28 expression defines a CD4+ Th cell subset with a Th0/Th2-like profile of cytokine secretion in normal individuals.

**REAGENT PREPARATION**

1. This reagent contains 0.1% sodium azide. Sodium azide under acidic conditions yields hydrazoic acid, an extremely toxic compound. Azide compounds should be flushed with running water while being discarded. These precautions are recommended for transmitting infection and disposed of with proper precautions.

2. Never pipet by mouth and avoid contact of samples or incubation.

3. Always wash eyes and skin with water after contact with samples.

4. Contact Beckman Coulter Customer Service to obtain the Safety Data Sheet.

5. Safety Data Sheet is available at techdocs.beckmancoulter.com

**STATEMENT OF WARNINGS**

- May produce an allergic reaction.
- Iodocetamide <0.1%.
- Sodium azide.
- Safety Data Sheet is available at techdocs.beckmancoulter.com

**REAGENT CONTENTS**

- Contact Beckman Coulter Customer Service to obtain the antibody concentration in the IOTest reagent.

**STORAGE CONDITIONS AND STABILITY**

- 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.

**PROCEDURE**

- 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.

**SELECTED RESEARCH REFERENCES**


7. König, R., Shen, X., Germain, R. N., "Involvement of both major histocompatibility complex class II α and β chains in CD4 function indicates a role for ordered


PRODUCT AVAILABILITY
IOTest CD4-PC7 Conjugated Antibodies
6607101 - 100 tests - 10 µL/test

TRADEMARKS
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