IOTest®
CD4-PC7

6607101 - 100 tests

PN 4238106-C

For Research Use Only.
Not for use in diagnostic procedures.

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.[1] CD4 molecule is expressed on a specific subset of peripheral blood T lymphocytes named "helper" T (Th) cells or T4 lymphocytes.[2] The CD4 antigen is present on approximately 45% of peripheral blood lymphocytes.[3] It is expressed on 80% of the thymocytes, where it is frequently co-expressed with CD8.[4] 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 T4 lymphocytes.

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.[4] The other HIV-1 co-receptor is known as fusin or LESTR or CXCR4.[5] Recent studies demonstrated that tetramerisation of CD4 is required for MHC class II-dependent binding[6,7], whereas HIV-1 gp120 can bind to single CD4 molecules.[8]

Other studies suggest that CD4 should function as the receptor for IL-16.[9] IL-16 is a chemoattractant factor for CD4+ T cells[10], as well as for monocytes and eosinophils.[9] IL-16 seems also to be a growth factor for CD4+ T lymphocytes, but is not able to induce cell division.[9]

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.[11] 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 T4 lymphocytes to express CD154, the CD40 ligand.[12] Memory phenotype CD45R0+ T4 lymphocytes can be either CD62L+ or CD62L-.[13] 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.[14] The cytokines produced by Th2-like cells are those typically associated with mucosal immune responses, including IgA and IgE 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.[15,16]

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.[17] The lack of CD7 expression defines a CD4+ Th cell subset with a Th0/Th2-like profile of cytokine secretion in normal individuals.[18]

REAGENTS

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

CLONE:	SFCI12T4D11
ISOTYPE:	IgG1
IMMUNOGEN:	Peripheral blood lymphocytes
HYBRIDOMA:	NS1 x BALB/c
SOURCE:	Conditioned media
PURIFICATION:	Affinity chromatography
CONJUGATION:	PC7 is conjugated at a Molar Ratio PC7/Ig : 0.5-1.5 Excitation wavelength at 486-580 nm Emission wavelength at 710-800 nm
BUFFER:	2 mg/mL bovine serum albumin in phosphate-buffered saline containing 0.1% sodium azide.

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 flushed with running water while being discarded. These precautions are recommended to avoid deposits in metal piping in which explosive conditions can develop. If skin or eye contact occurs, wash excessively with water.
2. Specimens, samples and all material coming in contact with them should be handled as if capable of transmitting infection and disposed of with proper precautions.
3. Never pipet by mouth and avoid contact of samples with skin and mucous membranes.
4. Do not use antibody beyond the expiration date on the label.
5. Do not expose reagents to strong light during storage or incubation.
6. Use Good Laboratory Practices (GLP) when handling reagent.
7. Harmful if swallowed.
8. 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.

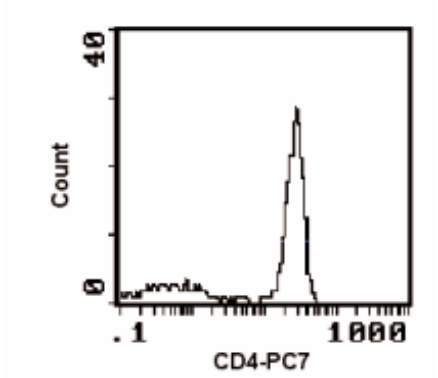
PROCEDURE

This reagent is designed for flow cytometry. Assay volume; 10 µL per 5 x 10^5 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.

Figure 1:
Acquisition with a COULTER® EPICS® XL™ and XL-MCL™ flow cytometer.



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