

### Analyte Specific Reagent.

Analytical and performance characteristics are not established.

### SPECIFICITY

Interleukin-2 (IL-2) is a monomeric protein with one potential O-linked glycosylation site responsible for size and charge heterogeneity of the mature molecule. All isoforms of the IL-2 molecule resulting in a molecular weight ranging from 15 to 20 kDa show an identical biological activity (1).

The high affinity IL-2 receptor (IL2-R) is a trimeric complex composed of three polypeptides chains,  $\alpha$  (IL-2R $\alpha$ , Tac, p55, or CD25),  $\beta$  (IL-2R $\beta$ , p75, or CD122), and  $\gamma$  (IL-2R $\gamma$  or p64). T lymphocytes express an intermediate-affinity IL-2 receptor that comprises  $\beta/\gamma$  or  $\alpha/\gamma$  chain complex. IL2-R $\beta$  and IL-2R $\gamma$  chains are involved in IL-2-mediated cellular signaling (1, 2).

Described originally as a growth factor for T lymphocytes (T Cells Growth Factor: TCGF), IL-2 is a lymphokine produced by activated T lymphocytes including CD4<sup>+</sup> (T helper, or Th cells) and CD8<sup>+</sup> lymphocytes (T cytotoxic/suppressor, or Tc cells) (3). Secreted-IL-2 induces IL-2-receptor synthesis and IL-2 production, constituting by this way the major autocrine growth factor for activated T lymphocytes (2). IL-2 stimulates the activation of T lymphocytes and enhances growth and differentiation of immuno-competent cells such as B lymphocytes, monocytes, macrophages and NK cells (1). IL-2 enhances the generation of cytotoxic T lymphocytes (4, 5).

IL-2 is involved in Th1/Th2 (T helper 1 / T helper 2) cytokine pathways regulating Th1 cells as an autocrine growth factor (3, 5 – 7). The cytokines produced by Th1 and Th2 lymphocyte subsets determine a symmetrical pathway of the immune response. Activated CD4<sup>+</sup> T lymphocytes of the Th1 profile secrete IL-2, IFN $\gamma$  (interferon  $\gamma$ ), and TNF $\beta$  (Tumor Necrosis Factor  $\beta$ ). Th1 profile of cytokines secretion is reported to be involved in cellular immunity, delayed type hypersensitivity reactions (DHT) and activation of cytotoxic and inflammatory functions (3). Activated CD4<sup>+</sup> T lymphocytes of the Th2 profile produce essentially IL-4, IL-10 and IL-5. Th1 and Th2 pathways each enhances the development of cells pertaining to the same subset while suppressing the expansion and/or effector functions of the other subset (5, 8 – 10).

Th1- or Th2-cytokines profile is not specifically produced by Th lymphocytes, but also by Tc lymphocytes allowing a generalized nomenclature (6): Th1- or Th2-like cytokines profile may be termed Type 1 or Type 2 response (3, 6, 8, 9).

### REAGENT

IOTest Anti-IL2-PE Conjugated Antibody  
PN IM2718U – 2 mL Liquid – 20 µL / test\*.

|                     |   |
|---------------------|---|
| <b>Clone</b>        | N7.48A  |
| <b>Isotype</b>      | IgG2a, mouse  |
| <b>Source</b>       | Serum-free culture supernatant  |
| <b>Purification</b> | Ion exchange or affinity chromatography                                     |
| <b>Conjugation</b>  | R-phycoerythrin (PE) is conjugated at 0.5 – 1.5 moles of PE per mole of Ig. |
| <b>Fluorescence</b> | PE (orange-red)<br>Excites at 486 – 580 nm<br>Emits at 568 – 590 nm         |

### REAGENT CONTENTS

This reagent is provided in phosphate-buffered saline, with 0.1% sodium azide (NaN<sub>3</sub>) as preservative, and 2.0 mg / mL bovine serum albumin (BSA).

### 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. Do not use antibody beyond the expiration date on the label.
3. Samples and all material coming in contact with them should be handled as if capable of transmitting infection and disposed of with proper precautions.
4. Never pipet by mouth and avoid contact of samples with skin and mucous membranes
5. Minimize exposure of reagent to light during storage or incubation.
6. Avoid microbial contamination of reagents or incorrect results might occur.
7. Use good laboratory practices when handling this reagent.

### 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.

### EVIDENCE OF DETERIORATION

Any change in the physical appearance of this PE-labeled reagent (clear colorless to pinkish liquid) or any major variation in values obtained for control samples may indicate deterioration and the reagent should not be used.

### REAGENT PREPARATION

No preparation is necessary. This monoclonal antibody may be used directly

from the vial. Bring reagent to 18 – 25°C prior to use.

### SELECTED RESEARCH REFERENCES

1. Callard, R.E., Gearing, A.J.H., "The cytokines and their receptors: Interleukins IL-2", 1994, in: *The Cytokine FactsBook*, Academic Press, 39-45.
2. Kaplan, D., "Autocrine secretion and the physiological concentration of cytokines", 1996, *Immunol. Today*, 7, 17, 303-304.
3. Mosmann, T.R., Sad, S., "The expanding universe of T-cell subsets: Th1, Th2 and more", 1996, *Immunol. Today*, 3, 17, 138-146.
4. Grimm, E.A., Owen-Schaub, L., "The IL-2 mediated amplification of cellular cytotoxicity", 1991, *J. Cell Biochem.*, 4, 45, 335-339.
5. Abbas, A.K., Murphy, K.M., Sher, A., "Functional diversity of helper T lymphocytes", 1996, *Nature*, 383, 787-793.
6. Carter, L.L., Swain, S.L., "Single cell analyses of cytokine production", 1997, *Curr. Opin. Immunol.*, 9, 177-182.
7. Jung, T., Shauer, U., Heusser, C., Neumann, C., Rieger, C., "Detection of intracellular cytokines by flow cytometry", 1993, *J. Immunol. Methods*, 159, 197-207.
8. Sander, B., Anderson, J., Anderson, U., "Assessment of cytokines by immunofluorescence and the paraformaldehyde-saponin procedure", 1991, *Immunol. Rev.*, 119, 65-93.
9. Romagnani, S., "Biology of human TH1 and TH2 cells, 1995, *J. Clin. Immunol.*, 3, 15, 121-129.
10. Borish, L., Rosenwasser, L., "TH1/TH2 lymphocytes: Doubt some more", 1997, *J. Allergy Clin. Immunol.*, 99, 161-164.

### PRODUCT AVAILABILITY

IOTest Anti-IL2-PE Conjugated Antibody  
PN IM2718U – 2 mL Liquid – 20 µL / test\*.

PE is licensed under patent 4,520,110.

For additional information in the USA, call 800-526-7694.

Outside the USA, contact your local Beckman Coulter representative.

[www.beckmancoulter.com](http://www.beckmancoulter.com)

### TRADEMARKS

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(\*) : 20 µL is the quantity of product sufficient to stain

5 x 10<sup>5</sup> cells in a standard immunofluorescence assay

# IOTest<sup>®</sup> Anti-IL2-PE

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PN IM2718U – 2 mL Liquid – 20 µL / test\* – Clone N7.48A

Manufactured by:  
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5 x 10<sup>5</sup> cells in a standard immunofluorescence assay

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I-IM2718U 2006-09-06

