

### Analyte Specific Reagent.

Analytical and performance characteristics are not established.

### SPECIFICITY

The CD64 is a single chain, type I transmembrane molecule with a molecular weight of 72 kDa. The core protein with a molecular weight close to 55 kDa is heavily N-glycosylated (1).

CD64 is also known as the high-affinity receptor for IgG (Fc $\gamma$ RI). It is one, with CD32 (Fc $\gamma$ RII) and CD16 (Fc $\gamma$ RIII), of three distinct receptors for IgG found on human leukocytes. CD64 has structural similarity with CD32, CD16, as well as with Fc $\epsilon$ RI $\alpha$  (2). CD64 molecule binds polymeric or aggregated-IgG. However it is the only receptor able to bind monomeric IgG with an affinity subclass-specific (i. e. decreasing affinity for IgG subclass: IgG1 > IgG3 >> IgG4 >> IgG2) (1, 2).

In contrast with CD32 and CD16 constituted by two immunoglobulins-like (Ig-like) extracellular domains, CD64 present three Ig-like extracellular domains.

CD64 molecule is constitutively expressed on monocytes, macrophages, and a subset of dendritic cells (3, 4). The expression of CD64 on polymorphonuclear neutrophils is weak but can be upregulated by interferon- $\gamma$  (IFN- $\gamma$ ) or granulocyte colony-stimulating factor (G-CSF).

CD64 is involved in antibody-dependant cytotoxicity, clearance of immune complexes, and phagocytosis of IgG opsonized targets. The association of CD64 with the Fc receptor  $\gamma$  chain homodimer is required for its signal transduction activity ( $\gamma$  chain is also a subunit of Fc $\epsilon$ RI, Fc $\gamma$ RIIIA (CD16), and Fc $\alpha$ R (CD89) (5, 6).

The 22 monoclonal antibody has been assigned to the CD64 cluster of differentiation at the 4th International Workshop on Human Leukocyte Differentiation Antigens in Vienna, Austria, in 1989 (WS Code: 96, Section: M) (7).

### REAGENT

IOTest CD64-PE Conjugated Antibody  
PN IM3601U – 2 mL Liquid – 20 µL / test\*.

<b>Clone</b>	22
<b>Isotype</b>	IgG1, mouse
<b>Immunogen</b>	Human monocytes
<b>Hybridoma</b>	P3/NS1-Ag4-1 x balb/c
<b>Source</b>	Ascites fluid
<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.

**Fluorescence** PE (orange-red)  
Excites at 486 – 580 nm  
Emits at 568 – 590 nm

### REAGENT CONTENTS

This reagent is provided in phosphate-buffered saline, with 0.1% sodium azide (Na<sub>3</sub>N) 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. Huizinga, T.W.J., Roos, D., von dem Borne, E.G.Kr., "Neutrophil Fc- $\gamma$  Receptor: a two-way bridge in the immune system", 1990, *Blood*, 6, 75, 1211-1214.

2. Ravetch, J.V., Kinet, J.P., "Fc receptors", 1991, *Annu. Rev. Immunol.*, 9, 457-492.
3. Grage-Griebenow, E., Zawatzky, R., Kahlert, H., Brade, L., Flad, H.D., Ernst, M., "Identification of a novel dendritic cell-like subset of CD64+/CD16+ blood monocytes", 2001, *Eur. J. Immunol.*, 31, 48-56.
4. Grage-Griebenow, E., Flad, H.D., Ernst, M., "Heterogeneity of human peripheral blood monocyte subsets", 2001, *J. Leucocyte Biol.*, 69, 11-20.
5. Ravetch, J.V., "Fc receptor", 1997, *Curr. Opin. Immunol.*, 9, 121-125.
6. Masuda, M., "Association of all three types of Fc $\gamma$ R (CD64, CD32, and CD16) with a  $\gamma$ -chain homodimer in cultured human monocytes" 1993, *Immunol.*, 12, 151, 71-88.
7. Majdic, O., "Cluster report : CD64", 1989, *Leucocyte Typing IV., White Cell Differentiation Antigens*. W. Knapp, et al., Eds., Oxford University Press, 835-836.

### PRODUCT AVAILABILITY

IOTest CD64-PE Conjugated Antibody  
PN IM3601U – 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.

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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