Monoclonal Antibodies Detecting Human Antigens

BD FastImmune™ Anti-Human IL-1β (AS10)

Research applications include studies of:
- Inflammatory response\(^1\,^2\)
- Monocyte function\(^1\)
- Endothelial cell function\(^3\)
- Rheumatoid arthritis\(^4\)
- Sepsis\(^5\)

DESCRIPTION

Specificity

The Anti-Human Interleukin-1β (Anti-Hu–IL-1β) antibody recognizes a 13- to 17-kilodalton (kDa) polypeptide.\(^6\)

Antigen distribution

Interleukin-1 (IL-1) is initially synthesized as a 33-kDa precursor that is subsequently processed during or after secretion to molecular weight forms in the range of 13 to 17 kDa.\(^6\) IL-1 is primarily produced by monocytes/macrophages, although it can also be synthesized by epidermal, epithelial, lymphoid, and vascular tissues.\(^1\) Two forms of IL-1 have been described, IL-1α and IL-1β. Both forms recognize the same cell surface receptors and share various biological activities.\(^2\) Mature IL-1β is present in the cytoplasm and secreted upon stimulation while IL-1α is associated with the surface of cells that are involved in antigen presentation.\(^7\) The 33-kDa IL-1β precursor is cleaved into an active extracellular form by interleukin-1β–converting enzyme (ICE), a membrane-bound cysteine protease.\(^8\) There are two IL-1 receptors, type I and type II. The type I receptor is an 80-kDa transmembrane glycoprotein. The type II receptor is a 68-kDa transmembrane glycoprotein.\(^2\) Both receptors bind mature IL-1α, IL-1β, and interleukin-1 receptor antagonist (IL-1RA) proteins.\(^9\)

IL-1 is a chemoattractant for lymphocytes. It regulates various aspects of T- and B-lymphocyte development, including maturation of thymic T- and B-cell precursors and synthesizes lymphokines and their receptors.\(^10\) It stimulates the production of IL-2, IFNs, IL-3, IL-6, and colony stimulating factors (CSFs).\(^1\) IL-1, TNF, and IL-6 share the ability to stimulate T and B lymphocytes, augment cell proliferation, and initiate or suppress gene expression for several proteins.\(^2\) IL-1 downregulates the TNF and IL-1 receptors.\(^2\,^11\)

As an important element of the cytokine network, IL-1 induces augmentation or suppression of host responses to infection or inflammation.\(^1,^2\) IL-1 modulates both in vivo and in vitro endothelial function.\(^3\)

For Research Use Only. Not for use in diagnostic or therapeutic procedures.
Clone

The Anti-Hu–IL-1β antibody, clone AS10, is derived from fusion of P3X63Ag8 myeloma cells with splenocytes from BALB/c mice immunized with recombinant human IL-1β.

Composition

The Anti-Hu–IL-1β antibody is composed of mouse IgG1 heavy chains and kappa light chains.

Product configuration

The following are supplied in phosphate buffered saline (PBS) containing a stabilizer and a preservative.

<table>
<thead>
<tr>
<th>Form</th>
<th>Number of tests</th>
<th>Volume per test (µL)a</th>
<th>Amount provided (µg)</th>
<th>Total volume (mL)</th>
<th>Concentration (µg/mL)</th>
<th>Stabilizer</th>
<th>Preservative</th>
</tr>
</thead>
<tbody>
<tr>
<td>FITC</td>
<td>50</td>
<td>20</td>
<td>3</td>
<td>1.0</td>
<td>3</td>
<td>Gelatin</td>
<td>0.1% Sodium azide</td>
</tr>
<tr>
<td>PE</td>
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<td>20</td>
<td>3</td>
<td>1.0</td>
<td>3</td>
<td>Gelatin</td>
<td>0.1% Sodium azide</td>
</tr>
</tbody>
</table>

* a. Volume required to stain 10⁶ cells.

PROCEDURE

Visit our website (bdbiosciences.com) or contact your local BD representative for the lyse/wash protocol for direct immunofluorescence.

Method for intracellular cytokine detection

**Abbreviated Intracellular Staining Procedure:** After surface staining activated whole blood with fluorescent-conjugated monoclonal antibodies, lyse the red blood cells by adding 2 mL of 1X BD FACS™ lysing solution (Cat. No. 349202). Vortex gently and incubate 5 to 10 minutes at room temperature. Centrifuge at 500 x g for 5 minutes; remove the supernatant. Add 500 µL of 1X BD FACS Permeabilizing Solution (Cat. No. 340457). Vortex and incubate for 10 minutes at room temperature in the dark. Wash by adding PBS containing 0.5% bovine serum albumin (BSA) and 0.1% NaN₃, and centrifuge for 5 minutes. Add 20 µL of fluorescent-conjugated intracellular antibodies. Vortex and incubate for 30 minutes at room temperature in the dark. Repeat wash step. Resuspend cells in 1% paraformaldehyde in PBS.

REPRESENTATIVE DATA

Flow cytometric analysis was performed on activated lysed whole blood with a gate set on the CD45⁺ mononuclear cells. Laser excitation was at 488 nm.

**Figure 1** Four-hour LPS–activated lysed whole blood analyzed with a BD FACScan™ flow cytometer

HANDLING AND STORAGE

Store vials at 2°C–8°C. Conjugated forms should not be frozen. Protect from exposure to light. Each reagent is stable until the expiration date shown on the bottle label when stored as directed.
WARNING

All biological specimens and materials coming in contact with them are considered biohazards. Handle as if capable of transmitting infection\textsuperscript{12,13} and dispose of with proper precautions in accordance with federal, state, and local regulations. Never pipette by mouth. Wear suitable protective clothing, eyewear, and gloves.

CHARACTERIZATION

To ensure consistently high-quality reagents, each lot of antibody is tested for conformance with characteristics of a standard reagent. Representative flow cytometric data is included in this data sheet.

WARRANTY

Unless otherwise indicated in any applicable BD general conditions of sale for non-US customers, the following warranty applies to the purchase of these products:

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REFERENCES

11. Matsushima K, Yodoi J, Tagaya Y, Oppenheim JJ. Downregulation of interleukin-1 receptor expression by IL-1 and fate of internalized \textsuperscript{125I}-labeled IL-1β in a human large granular lymphocyte cell line. *J Immunol.* 1986;137:3183-3188.

PATENTS AND TRADEMARKS

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