BD FastImmune™ Anti-Human IL-1ra (AS17)

Form PE
Catalog number 340525

Product availability varies by region. Contact BD Biosciences Customer Support or your local sales representative for information.

RESEARCH APPLICATIONS
Research applications include studies of:
- Sepsis
- Rheumatoid arthritis
- Inflammatory bowel disease

DESCRIPTION
Specificity
The Anti-Human Interleukin-1ra (Anti-Hu–IL-1ra) antibody recognizes a 17- to 25-kilodalton (kDa) polypeptide.

Antigen distribution
Interleukin-1 receptor antagonist is a glycoprotein with molecular weight ranging from 17 to 25 kDa, depending on the degree of glycosylation. Its cDNA has significant amino acid sequence homology to IL-1β (26%) and IL-1α (19%). The gene that codes for IL-1ra is near the gene cluster that codes for IL-1α, IL-1β, and type I and type II receptor on the long arm of chromosome 2.

The IL-1ra molecule was first identified and characterized in the urine of febrile patients and in the supernatant of monocytes cultured on adherent immune complexes. This molecule was called interleukin-1 inhibitor and was found to block the IL-1–induced thymocyte proliferation and regulate the production of prostaglandin (PGE₂) and collagenase in fibroblasts and synovial cells. After purification it was found to block the specific binding of IL-1 to its receptor and was called IL-1 receptor antagonist (IL-1ra).

Two splice variants of IL-1ra have been described, only one of which predicts a consensus signal sequence characteristic of secreted proteins. The secreted form, sIL-1ra, is produced by monocytes cultured on adherent human IgG, by neutrophils after stimulation with TNF-α and GM-CSF and by macrophages. The intracellular splice variant (icIL-1ra), in which part of the first exon coding for the signal sequence is lacking, is constitutively expressed in the cytoplasm of keratinocytes and corneal epithelial cells. When stimulated with PMA, fibroblasts make predominantly icIL-1ra; however, when stimulated with LPS, sIL-1ra predominates.

IL-1ra is the only known cytokine whose sole known function is to inhibit the action of another cytokine. IL-1α, IL-1β, and IL-1ra have similar affinity to type I receptor, but IL-1ra has a much lower affinity for the non-signal transducing type II receptor. Binding of IL-1ra to the type I receptor does not result in signal transduction because IL-1ra lacks one of two receptor binding sites present on both IL-1α and IL-1β.

The production of IL-1ra and IL-1β in peripheral blood mononuclear cells is regulated differently, and the ratio of IL-1β/IL-1ra ratio may be clinically significant. Elevated
serum levels of IL-1ra are detected in experimentally-induced inflammation and in critically ill surgical patients. When administered exogenously this cytokine prevents septic shock and reduces mortality in experimental models of sepsis.\(^1\) IL-1ra prevents the development of immune-complex colitis.\(^2,5\) A lack of endogenous IL-1ra is an important factor in the pathogenesis of inflammatory bowel disease (IBD).\(^4\) IL-1ra is also upregulated in joints of patients with rheumatoid arthritis.\(^2,3\)

**Clone**

The Anti-Hu–IL-1ra antibody, clone AS17, is derived from the fusion of P3X63.Ag8.653 myeloma cells with splenocytes from BALB/c mice immunized with recombinant human IL-1 receptor antagonist.

**Composition**

The Anti-Hu–IL-1ra antibody is composed of mouse IgG\(_1\) heavy chains and kappa light chains.

**Product configuration**

The following is 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>PE</td>
<td>50</td>
<td>20</td>
<td>3.0</td>
<td>1.0</td>
<td>3.0</td>
<td>Gelatin</td>
<td>0.1% Sodium azide</td>
</tr>
</tbody>
</table>

\(^{a}\) Volume required to stain 10\(^6\) cells.

**PROCEDURE**

Visit our website (bdbiosciences.com) or contact your local BD representative for the complete activation and staining protocol, Intracellular Staining Procedure.

**Abbreviated intracellular staining**

1. 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).
2. Vortex gently and incubate for 5 to 10 minutes at room temperature.
3. Centrifuge at 500 x \(g\) for 5 minutes; remove the supernatant. Add 500 µL of 1X BD FACSTM Permeabilizing Solution 2 (Cat. No. 347692).
4. Vortex and incubate for 10 minutes at room temperature in the dark.
5. Wash by adding PBS containing 0.5% bovine serum albumin (BSA) and 0.1% sodium azide (NaN\(_3\)), and centrifuge for 5 minutes.
6. Add 20 µL of fluorescent-conjugated intracellular antibodies.
7. Vortex and incubate for 30 minutes at room temperature in the dark.
8. Repeat wash step.
9. Resuspend cells in 1% paraformaldehyde in PBS.

**REPRESENTATIVE DATA**

Flow cytometric analysis was performed on activated lysed whole blood with a gate set on CD45\(^+\) mononuclear cells. Laser excitation was at 488 nm.
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 infection26,27 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


20. Dripps DJ, Brandhuber BJ, Thompson RC, Eisenberg SP. Interleukin-1 (IL-1) receptor antagonist binds to the 80-kDa IL-1 receptor but does not initiate IL-1 signal transduction. *J Biol Chem.* 1991;266:10331-10336.


