**DESCRIPTION**

**Species Reactivity**
Human

**Specificity**
Detects human IL-1β/IL-1F2 in direct ELISAs and Western blots. In direct ELISAs, less than 15% cross-reactivity with recombinant mouse IL-1β, recombinant porcine IL-1β, recombinant rat IL-1β, recombinant canine IL-1β, recombinant equine IL-1β, recombinant cotton rat IL-1β, recombinant feline IL-1β, and recombinant guinea pig IL-1β is observed.

**Source**
Polyclonal Goat IgG

**Purification**
Antigen Affinity-purified

**Immunogen**
E. coli-derived recombinant human IL-1β/IL-1F2

Accession # NP_000567

**Endotoxin Level**
<0.10 EU per 1 μg of the antibody by the LAL method.

**Formulation**
Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

*Small pack size (-SP) is supplied either lyophilized or as a 0.2 μm filtered solution in PBS.

**APPLICATIONS**

Please Note: Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.

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<tr>
<th>Dual RNAscope ISH-IHC Compatible</th>
<th>Recommended Concentration</th>
<th>Sample</th>
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<td>1-15 µg/mL</td>
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<tr>
<td>Western Blot</td>
<td>0.1 µg/mL</td>
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<tr>
<td>Immunocytochemistry</td>
<td>5-15 µg/mL</td>
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**Neutralization**
Measured by its ability to neutralize IL-1β/IL-1F2-induced proliferation in the D10.G4.1 mouse helper T cell line. Symons, J.A. et al. (1987) in Lymphokines and Interferons, a Practical Approach. Clemens, M.J. et al. (eds): IRL Press. 272. The Neutralization Dose (ND₅₀) is typically 0.004-0.02 µg/mL in the presence of 50 pg/mL Recombinant Human IL-1β/IL-1F2 and 1.25 µg/mL concanavalin A.

**DATA**

**Western Blot**

Detection of Human IL-1β/IL-1F2 by Western Blot. Western blot shows lysates of THP-1 human acute monocytic leukemia cell line untreated (-) or treated (+) with 200 nM PMA for 24 hours and 10 μg/mL LPS and 3 hours. PVDF membrane was probed with 0.1 μg/mL of Goat Anti-Human IL-1β/IL-1F2 Antibody Affinity-purified Polyclonal Antibody (Catalog # AF-201-NA) followed by HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # HAF017). A specific band was detected for IL-1β/IL-1F2 at approximately 36 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

**Immunocytochemistry**

IL-1β/IL-1F2 in Human PBMCs. IL-1β/IL-1F2 was detected in immersion fixed human peripheral blood mononuclear cells (PBMCs) treated with LPS and monensin using Goat Anti-Human IL-1β/IL-1F2 Antibody Affinity-purified Polyclonal Antibody (Catalog # AF-201-NA) at 10 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Goat IgG Secondary Antibody (red; Catalog # NL001) and counterstained with DAPI (blue).

View our protocol for Fluorescent ICC Staining of Cells on Coverslips.
Immunohistochemistry

IL-1β/IL-1F2 was detected in immersion fixed paraffin-embedded sections of human tonsil using Goat Anti-Human IL-1β/IL-1F2 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF-201-NA) at 1 µg/mL for 1 hour at room temperature followed by incubation with the Anti-Goat IgG VisUCyte™ HRP Polymer Antibody (Catalog # VC004). Tissue was stained using DAB (brown) and counterstained with hematoxylin (blue). Specific staining was localized to cytoplasm in lymphocytes. View our protocol for IHC Staining with VisUCyte HRP Polymer Detection Reagents.

Neutralization

Cell Proliferation Induced by IL-1β/IL-1F2 and Neutralization by Human IL-1β/IL-1F2 Antibody. Recombinant Human IL-1β/IL-1F2 (Catalog # 201-LB) stimulates proliferation in the D10.G4.1 mouse helper T cell line in a dose-dependent manner (orange line). Proliferation elicited by Recombinant Human IL-1β/IL-1F2 (50 pg/mL) is neutralized (green line) by increasing concentrations of Goat Anti-Human IL-1β/IL-1F2 Antigen-purified Polyclonal Antibody (Catalog # AF-201-NA). The ND₅₀ is typically 0.004-0.02 µg/mL in the presence of concanavalin A (1.25 µg/mL).

Dual RNAscope ISH-IHC Compatible

IL-1β/IL-1F2 in Human Tonsil Using Dual RNAscope® ISH and IHC. IL-1β/IL-1F2 mRNA was detected in formalin-fixed paraffin-embedded tissue sections of human tonsil probed with ACD RNAscope® Probe (Catalog # 310361) and stained using ACD RNAscope® 2.5 HD Detection Reagents-Red (top image, Catalog # 32260). Adjacent tissue section was processed for immunohistochemistry using R&D Systems Goat Anti-Human IL-1β/IL-1F2 Antigen-purified Polyclonal Antibody (Catalog # AF-201-NA) at 1 µg/mL for 1 hour at room temperature followed by incubation with the Anti-Goat IgG VisUCyte HRP Polymer Antibody (R&D Systems, Catalog # VC004) and DAB chromogen (lower image, yellow-brown). Tissues were counterstained with hematoxylin (blue).

PREPARATION AND STORAGE

Reconstitution

Reconstitute at 0.2 mg/mL in sterile PBS.

Shipping

The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

*Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C

Stability & Storage

Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

IL-1 is a name that designates two pleiotropic cytokines, IL-1α (IL-1F1) and IL-1β (IL-1F2, IL1B), which are the products of distinct genes. IL-1α and IL-1β are structurally related polypeptides that share approximately 21% amino acid (aa) identity in human. Both proteins are produced by a wide variety of cells in response to inflammatory agents, infections, or microbial endotoxins. While IL-1α and IL-1β are regulated independently, they bind to the same receptor and exert identical biological effects. IL-1 RI binds directly to IL-1α or IL-1β and then associates with IL-1 R accessory protein (IL-1 R AcP) to form a high-affinity receptor complex that is competent for signal transduction. IL-1 RI has high affinity for IL-1β but functions as a decoy receptor and negative regulator of IL-1β activity. IL-1ra functions as a competitive antagonist by preventing IL-1α and IL-1β from interacting with IL-1 RI. Intracellular cleavage of the IL-1 β precursor by Caspase-1/ICE is a key step in the inflammatory response. The 17 kDa molecular weight mature human IL-1β shares 96% aa sequence identity with rhesus and 67%-78% with canine, cotton rat, equine, feline, mouse, porcine, and rat IL-1β. IL-1β functions in a central role in immune and inflammatory responses, bone remodeling, fever, carbohydrate metabolism, and GH/IGF-I physiology. IL-1 β dysregulation is implicated in many pathological conditions including sepsis, rheumatoid arthritis, inflammatory bowel disease, acute and chronic myelogenous leukemia, insulin-dependent diabetes mellitus, atherosclerosis, neuronal injury, and aging-related diseases.