

## DESCRIPTION

<b>Species Reactivity</b>	Rat
<b>Specificity</b>	Detects rat IL-1 $\beta$ /IL-1F2 in ELISAs and Western blots. In sandwich immunoassays, less than 0.8% cross-reactivity with recombinant mouse (rm) IL-1 $\beta$ is observed and less than 0.2% cross-reactivity with recombinant human (rh) IL-1 $\alpha$ , recombinant rat IL-1 $\alpha$ , recombinant porcine (rp) IL-1 $\alpha$ , rhIL-1 $\beta$ , rpIL-1 $\beta$ , rhIL-1 RA, rmIL-1 RA, rpIL-1 RA, rhIL-1 RII, rmIL-1 RI Fc Chimera, rhIL-1 Rrp2 Fc Chimera, and rhIL-1 RAcP Fc Chimera is observed.
<b>Source</b>	Polyclonal Goat IgG
<b>Purification</b>	Antigen Affinity-purified
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant rat IL-1 $\beta$ /IL-1F2 (R&D Systems, Catalog # 501-RL) Val117-Ser268 Accession # Q63264
<b>Formulation</b>	Lyophilized from a 0.2 $\mu$ m filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

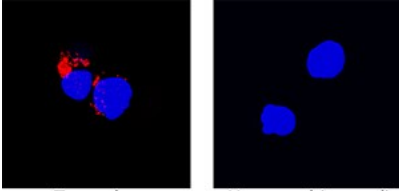
## APPLICATIONS

**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.

	Recommended Concentration	Sample
<b>Western Blot</b>	0.1 $\mu$ g/mL	Recombinant Rat IL-1 $\beta$ /IL-1F2 (Catalog # 501-RL)
<b>Immunocytochemistry</b>	5-15 $\mu$ g/mL	See Below
<b>Rat IL-1<math>\beta</math>/IL-1F2 Sandwich Immunoassay</b>		<b>Reagent</b>
<b>ELISA Capture</b>	0.2-0.8 $\mu$ g/mL	Rat IL-1 $\beta$ /IL-1F2 Antibody (Catalog # AF-501-NA)
<b>ELISA Detection</b>	0.1-0.4 $\mu$ g/mL	Rat IL-1 $\beta$ /IL-1F2 Biotinylated Antibody (Catalog # BAF501)
<b>Standard</b>		Recombinant Rat IL-1 $\beta$ /IL-1F2 (Catalog # 501-RL)

## DATA

**Immunocytochemistry**



**IL-1 $\beta$ /IL-1F2 in Rat Splenocytes.** IL-1 $\beta$ /IL-1F2 was detected in immersion fixed rat splenocytes treated with PMA and calcium ionomycin using Goat Anti-Rat IL-1 $\beta$ /IL-1F2 Biotinylated Antigen Affinity-purified Polyclonal Antibody (Catalog # BAF501) at 15  $\mu$ g/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Streptavidin (red; Catalog # NL999) and counterstained with DAPI (blue). Specific staining was localized to cytoplasm. View our protocol for [Fluorescent ICC Staining of Non-adherent Cells](#).

## PREPARATION AND STORAGE

<b>Reconstitution</b>	Reconstitute at 0.2 mg/mL in sterile PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	<p><b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b></p> <ul style="list-style-type: none"> <li>• 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>• 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>• 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

## BACKGROUND

IL-1 is a name that designates two pleiotropic cytokines, IL-1 $\alpha$  (IL-1F1) and IL-1 $\beta$  (IL-1F2, IL1B), which are the products of distinct genes. IL-1 $\alpha$  and IL-1 $\beta$  are structurally related polypeptides that share approximately 26% amino acid (aa) identity in rat. Both proteins are produced by a wide variety of cells in response to inflammatory agents, infections, or microbial endotoxins. While IL-1 $\alpha$  and IL-1 $\beta$  are regulated independently, they bind to the same receptor and exert identical biological effects. IL-1 RI binds directly to IL-1 $\alpha$  or IL-1 $\beta$  and then associates with IL-1 R accessory protein (IL-1 R3/IL-1 R AcP) to form a high-affinity receptor complex that is competent for signal transduction. IL-1 RII has high affinity for IL-1 $\beta$  but functions as a decoy receptor and negative regulator of IL-1 $\beta$  activity. IL-1ra functions as a competitive antagonist by preventing IL-1 $\alpha$  and IL-1 $\beta$  from interacting with IL-1 RI. Intracellular cleavage of the IL-1 beta precursor by Caspase-1/ICE is a key step in the inflammatory response. The 17 kDa molecular weight mature rat IL-1 $\beta$  shares 90% aa sequence identity with cotton rat and mouse and 67%-78% with canine, equine, feline, human, porcine, and rhesus macaque IL-1 $\beta$ . IL-1 $\beta$  functions in a central role in immune and inflammatory responses, bone remodeling, fever, carbohydrate metabolism, and GH/IGF-I physiology. IL-1 beta 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.