

## DESCRIPTION

<b>Species Reactivity</b>	Rat
<b>Specificity</b>	Detects rat IL-18/IL-1F4 in direct ELISAs and Western blots. In direct ELISAs, this antibody shows 100% cross-reactivity with recombinant mouse IL-18 and no cross-reactivity with recombinant human IL-18, recombinant porcine IL-18, recombinant rat (rr) IL-1 $\alpha$ , or rrIL-1 $\beta$ .
<b>Source</b>	Monoclonal Mouse IgG <sub>1</sub> Clone # 69604
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant rat IL-18/IL-1F4 His37-Ser194 Accession # P97636.1
<b>Formulation</b>	Lyophilized from a 0.2 $\mu$ m filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 $\mu$ m 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.

	Recommended Concentration	Sample
<b>Western Blot</b>	1 $\mu$ g/mL	Recombinant Rat IL-18/IL-1F4 (Catalog # 521-RL)

## PREPARATION AND STORAGE

<b>Reconstitution</b>	Reconstitute at 0.5 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. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <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

Interleukin-18 (IL-18), also known as IL-1F4 and IFN- $\gamma$  inducing factor (IGIF), is a member of the IL-1 family of cytokines and is a key molecule in the innate immune response (1). Rat IL-18 is synthesized as a 24 kDa proprotein that contains a 36 amino acid (aa) propeptide and a 158 aa mature region (2). Under inflammatory conditions, the propeptide is cleaved by Caspase-1 in the cytoplasm to liberate the mature nonglycosylated 18 kDa monomeric IL-18 (3, 4). Mature rat IL-18 shares 91% aa sequence identity with mouse IL-18 and 60% - 64% aa sequence identity with human, canine, feline, porcine, and rhesus IL-18. IL-18 is secreted by a variety of cell types including macrophages, dendritic cells, and epithelial cells (1, 5). Circulating mature IL-18 is sequestered by soluble IL-18 binding proteins (IL-18 BP) that inhibit IL-18 bioactivity (6). IL-18 interacts with the widely expressed IL-18 R $\alpha$  which then recruits the signaling subunit IL-18 R $\beta$  (7, 8). The IL-1 family member IL-1F7 also binds to IL-18 R $\alpha$  but does not recruit IL-18 R $\beta$  or induce signaling (9). IL-1F7 binds IL-18 BP and enhances its neutralizing effect on IL-18 activity (9). IL-18 synergizes with other cytokines to activate NK, Th1, and Th17 cells and to increase the production of IFN- $\gamma$  (1, 5, 10-12). IL-18 can also promote Th2 cytokine release which reduces the effectiveness of antiviral responses (13, 14). Increased levels of active IL-18 contribute to the severity of autoimmunity and hypertension, while deficiency of IL-18 results in symptoms of metabolic syndrome (1, 5, 15, 16). In cancer, IL-18 stimulates Th1 and NK cells to target tumor cells, but it can also promote angiogenesis, metastasis, and tumor cell immune evasion (11).

### References:

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