

**DESCRIPTION**

**Source** *E. coli*-derived  
Tyr37-Asp193  
Accession # AAK13416

**N-terminal Sequence Analysis** Tyr37

**Predicted Molecular Mass** 18.2 kDa

**SPECIFICATIONS**

**Activity** Measured by its ability to induce IFN- $\gamma$  secretion by KG-1 human acute myelogenous leukemia cells in the presence of TNF- $\alpha$ . The ED<sub>50</sub> for this effect is 1-4 ng/mL in the presence of 20 ng/mL recombinant human TNF- $\alpha$ .

**Endotoxin Level** <1.0 EU per 1  $\mu$ g of the protein by the LAL method.

**Purity** >97%, by SDS-PAGE under reducing conditions and visualized by silver stain.

**Formulation** Supplied as a 0.2  $\mu$ m filtered solution in Tris, NaCl, EDTA, TCEP and PEG 8000. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

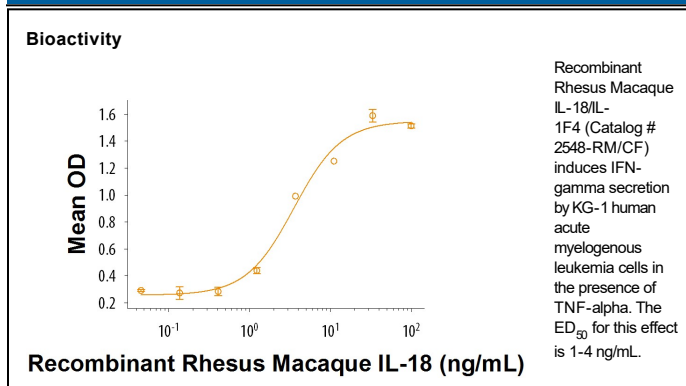
**Reconstitution** It is recommended that sterile PBS be added to the vial to prepare a working stock solution of no less than 100  $\mu$ g/mL. The carrier-free protein should be used immediately upon reconstitution to avoid losses in activity due to non-specific binding to the inside surface of the vial. For long term storage as a dilute solution, a carrier protein (e.g. 0.1% HSA or BSA) should be added to the vial.

**Shipping** The product is shipped with dry ice or equivalent. Upon receipt, store it immediately at the temperature recommended below.

**Stability & Storage** Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

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

**DATA**



**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). Rhesus IL-18 is synthesized as a 24 kDa proprotein that contains a 36 amino acid (aa) propeptide and a 157 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 rhesus IL-18 shares 96% aa sequence identity with human IL-18 and 60% - 76% with mouse, rat, canine, feline, and porcine 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, 11, 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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