

## DESCRIPTION

**Source** *E. coli*-derived  
Ser19-Asn132  
Accession # Q864V6.1

**N-terminal Sequence Analysis** Ser19

**Predicted Molecular Mass** 12.6 kDa

## SPECIFICATIONS

**Activity** Measured in a cell proliferation assay using TF-1 human erythroleukemic cells. Kitamura, T. *et al.* (1989) *J. Cell Physiol.* **140**:323. The ED<sub>50</sub> for this effect is typically 2-8 ng/mL.

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

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

**Formulation** Lyophilized from a 0.2 µm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

## PREPARATION AND STORAGE

**Reconstitution** Reconstitute at 25 µg/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.

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

**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.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

## BACKGROUND

IL-13 is a 17 kDa immunoregulatory cytokine that plays a key role in the pathogenesis of allergic asthma and atopy. It is secreted by Th1 and Th2 CD4<sup>+</sup> T cells, NK cells, visceral smooth muscle cells, eosinophils, mast cells, and basophils (1, 2). IL-13 circulates as a monomer with two internal disulfide bonds that contribute to a bundled four  $\alpha$ -helix configuration (3, 4). Mature rhesus IL-13 shares 94%, 58%, and 60% amino acid sequence identity with human, mouse, and rat IL-13, respectively. Despite the low homology, it exhibits cross-species activity between human, mouse, and rat (5, 6). IL-13 has diverse activities on numerous cell types (7). On macrophages, IL-13 suppresses the production of proinflammatory cytokines and other cytotoxic substances. On B cells, IL-13 induces immunoglobulin class switching to IgE, upregulates the expression of MHC class II, CD71, CD72, and CD23, and costimulates proliferation. IL-13 upregulates IL-6 while downregulating IL-1 and TNF- $\alpha$  production by fibroblasts and endothelial cells. IL-13 binds with low affinity to IL-13 R $\alpha$ 1, triggering IL-13 R $\alpha$ 1 association with IL-4 R $\alpha$ . This high affinity receptor complex also functions as the type 2 IL-4 receptor complex (8, 9). Additionally, IL-13 binds with high affinity to IL-13 R $\alpha$ 2 which is expressed intracellularly, on the cell surface, and as a soluble molecule (10 - 13). IL-13 R $\alpha$ 2 regulates the bioavailability of both IL-13 and IL-4 and is overexpressed in glioma and several bronchial pathologies (9, 14, 15). Compared to wild type IL-13, the atopy-associated R110Q variant of IL-13 elicits increased responsiveness from eosinophils that express low levels of IL-13 R $\alpha$ 2 (16).

## References:

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