

#### DESCRIPTION

**Source** *E. coli*-derived  
Ser19-Arg131, with an N-terminal Met  
Accession # Q9N0W9

**N-terminal Sequence Analysis** Met

**Predicted Molecular Mass** 12.5 kDa

#### SPECIFICATIONS

**SDS-PAGE** 10 kDa and 11 kDa, reducing conditions

**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 0.75-3.75 ng/mL.

**Endotoxin Level** <1.0 EU per 1 µg of the protein by the LAL method.

**Purity** >95%, by SDS-PAGE under reducing conditions and visualized by silver stain.

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

#### PREPARATION AND STORAGE

**Reconstitution** Reconstitute at 100 µg/mL in PBS.

**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

Interleukin-13 (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 - 3). IL-13 circulates as a monomer with two internal disulfide bonds that contribute to a bundled four α-helix configuration (4, 5). Mature canine IL-13 shares 69%, 56%, and 55% 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 (6, 7). IL-13 has diverse activities on numerous cell types (8). 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-α production by fibroblasts and endothelial cells. IL-13 binds with low affinity to IL-13 Ra1, triggering IL-13 Ra1 association with IL-4 Ra. This high affinity receptor complex also functions as the type 2 IL-4 receptor complex (9, 10). Additionally, IL-13 binds with high affinity to IL-13 Ra2 which is expressed intracellularly, on the cell surface, and as a soluble molecule (11 - 14). IL-13 Ra2 regulates the bioavailability of both IL-13 and IL-4 and is overexpressed in glioma and several bronchial pathologies (10, 15, 16). 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 Ra2 (17).

#### References:

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