

Background

Interleukin-5 (IL-5) is a 40 kDa, secreted, heparin-binding, disulfide-linked homodimeric glycoprotein that belongs to the α -helical group of cytokines (1 - 3). IL-5 is primarily produced by CD4⁺ Th2 cells, but other cell types such as eosinophils, endothelial cells, mast cells, visceral (airway) smooth muscle cells, bronchial epithelium, CD16⁺ NK cells and $\gamma\delta$ T cells can also produce IL-5. Equine IL-5 is synthesized as a 134 amino acid (aa) precursor that contains a 19 aa signal sequence and a 115 aa mature segment. There are four α -helices, two potential N-linked glycosylation sites, and two cysteines that form interchain disulfide bonds with a second, antiparallel IL-5 molecule (3, 4). While human and mouse IL-5 have a potential NLS in their sequence, it is unclear if equine IL-5 has such a sequence. Mature horse IL-5 shares 71%, 89%, 88%, 83%, 66% and 63% aa sequence identity with mature human, bovine, feline, canine, mouse and rat IL-5, respectively.

The receptor for IL-5 consists of a 60 kDa ligand-binding subunit (IL-5 R α) and a 120 kDa signal-transducing subunit (β_c). It is suggested that dimeric IL-5 binding to IL-5 R α recruits β_c , which subsequently covalently links with IL-5 R α . This trimeric complex then associates with another trimeric complex to form the physiologic IL-5 receptor (6). Following binding, IL-5 has targeted effects. It promotes the maturation and migration of eosinophils, partially through the effects of eotaxin. It mobilizes eosinophils and CD34⁺ progenitors from marrow. It also enhances Ig release from B cells and contributes to IL-4 production. Finally, it primes basophils for histamine and leukotriene release (1, 2, 7).

References:

1. Lalani, T. *et al.* (1999) *Ann. Allergy Asthma Immunol.* **82**:317.
2. Martinez-Moczygemba, M. and D.P. Huston (2003) *J. Allergy Clin. Immunol.* **112**:653.
3. Zabeau, L. *et al.* (2003) *Curr. Drug Targets Inflamm. Allergy* **2**:319.
4. Vandergriff, E.V. and D.W. Horohov (1998) GenBank Accession # O02699.
5. Geijsen, N. *et al.* (2001) *Cytokine Growth Factor Rev.* **12**:19.
6. Bagley, C.J. *et al.* (1997) *Blood* **89**:1471.
7. Mattes, J. and P.S. Foster (2003) *Curr. Drug Targets Inflamm. Allergy* **2**:169.

Description

Source	Murine myeloma cell line, NS0-derived Leu20 - Gly134, with a C-terminal 6-His tag Accession # O02699
N-terminal Sequence Analysis	Leu20
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	13.9 kDa (monomer)

Specifications

SDS-PAGE	19 kDa, reducing conditions
Activity	Measured in a cell proliferation assay using TF-1 human erythroleukemic cells. Kitamura, T. <i>et al.</i> (1989) <i>J. Cell Physiol.</i> 140 :323. The ED ₅₀ for this effect is typically 4 - 16 ng/mL.
Endotoxin Level	<1.0 EU per 1 μ g 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 μ m filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

Preparation and Storage

Reconstitution	Reconstitute at 50 μ g/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. <ul style="list-style-type: none"> ● 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.

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NOT FOR USE IN HUMANS.