

DESCRIPTION

Source	<i>E. coli</i> -derived Ala117-Ser269 Accession # NP_000567 Produced using non-animal reagents in an animal-free laboratory.
N-terminal Sequence Analysis	Ala117 & Pro118
Predicted Molecular Mass	17 kDa

SPECIFICATIONS

Activity	Measured in a cell proliferation assay using D10.G4.1 mouse helper T cells. Symons, J.A. <i>et al.</i> (1987) in Lymphokines and Interferons, a Practical Approach. Clemens, M.J. <i>et al.</i> (eds): IRL Press. 272. The ED ₅₀ for this effect is <12 pg/mL. The specific activity of Recombinant Human IL-1β is approximately 1.4 x 10 ⁵ IU/μg, which is calibrated against recombinant human IL-1β WHO International Standard (NIBSC code: 86/680).
Endotoxin Level	<0.01 EU per 1 μg of the protein by the LAL method.
Purity	>97%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 μm filtered solution in PBS with trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.2 mg/mL in sterile 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. <ul style="list-style-type: none"> • 12 months from date of receipt, -20 to -70 °C as supplied. • 12 months, 2 to 8 °C under sterile conditions after reconstitution.

BACKGROUND

IL-1 is a name that designates two pleiotropic cytokines, IL-1α (IL-1F1) and IL-1β (IL-1F2), which are the products of distinct genes. IL-1α and IL-1β are structurally related polypeptides that share approximately 21% amino acid (aa) identity in human. Both proteins are produced by a wide variety of cells in response to inflammatory agents, infections, or microbial endotoxins. While IL-1α and IL-1β are regulated independently, they bind to the same receptor and exert identical biological effects. IL-1 RI binds directly to IL-1α or IL-1β and then associates with IL-1 R accessory protein (IL-1 R3/IL-1 R AcP) to form a high-affinity receptor complex that is competent for signal transduction. IL-1 RII has high affinity for IL-1β but functions as a decoy receptor and negative regulator of IL-1β activity. IL-1ra functions as a competitive antagonist by preventing IL-1α and IL-1β from interacting with IL-1 RI (1-4). The human IL-1β cDNA encodes a 269 aa precursor. A 116 aa propeptide is cleaved intracellularly by the cysteine protease IL-1β-converting enzyme (Caspase-1/ICE) to generate the active cytokine (5-7). The 17 kDa mature human IL-1β shares 96% aa sequence identity with rhesus and 67%-78% with canine, cotton rat, equine, feline, mouse, porcine, and rat IL-1β.

References:

1. Allan, S.M. *et al.* (2005) Nat. Rev. Immunol. **5**:629.
2. Boraschi, D. and A. Tagliabue (2006) Vitam. Horm. **74**:229.
3. Kornman, K.S. (2006) Am. J. Clin. Nutr. **83**:475S.
4. Isoda, K. and F. Ohsuzu (2006) J. Atheroscler. Thromb. **13**:21.
5. March, C.J. *et al.* (1985) Nature **315**:641.
6. Auron, P.E. *et al.* (1984) Proc. Natl. Acad. Sci. **81**:7907.
7. Martinon, F. and J. Tschopp (2007) Cell Death Differ. **14**:10.

MANUFACTURING SPECIFICATIONS

Animal-Free Manufacturing Conditions

Our dedicated controlled-access animal-free laboratories ensure that at no point in production are the products exposed to potential contamination by animal components or byproducts. Every stage of manufacturing is conducted in compliance with R&D Systems' stringent Standard Operating Procedures (SOPs). Production and purification procedures use equipment and media that are confirmed animal-free.

Production

- All molecular biology procedures use animal-free media and dedicated labware.
- Dedicated fermentors are utilized in committed animal-free areas.

Purification

- Protein purification columns are animal-free.
- Bulk proteins are filtered using animal-free filters.
- Purified proteins are stored in animal-free containers in a dedicated cold storage room.

Quality Assurance

- Low Endotoxin Level.
- No impairment of biological activity.
- High quality product obtained under stringent conditions.
- For *ex vivo* research or bioproduction, [additional documentation](#) can be provided.

[Please read our complete Animal-Free Statement](#)

PRODUCT SPECIFIC NOTICES

This product is covered by one or more of the following U.S. patents: 5,681,933 and 5,474,899.