

# Human IL-1 beta / IL-1F2 Protein, premium grade

Catalog # ILB-H4110



BIOSYSTEMS  
**Acro**

## Features and Advantages

- Seamless Transition from Preclinical to Clinical: Same cell clone, process, and QC as GMP products.
- Enhanced Production Standards: AOF raw materials, pharma-grade excipients, Grade B+A (ISO 5) environment.
- Comprehensive Quality Control: Additional strict testing for process impurities, sterility, and mycoplasma.
- Cost-Effective Solution: GMP-comparable quality at an economical price for early development.
- Risk Mitigation: Enhanced safety through rigorous impurity control and comprehensive testing.

## Synonym

IL1B, IL-1BETA, IL1F2, IL-1 $\beta$

## Source

Human IL-1 beta, premium grade (ILB-H4110) is expressed from *E. coli* cells. It contains AA Ala 117 - Ser 269 (Accession # [P01584-1](#)).

Predicted N-terminus: Met

**It is produced under our rigorous quality control system that incorporates a comprehensive set of tests including sterility and endotoxin tests. Product performance is carefully validated and tested for compatibility for cell culture use or any other applications in the early preclinical stage.**

**GMP-ILBH16 is the GMP version of this ILB-H4110. These two proteins display indistinguishable performance profiles, thereby ensuring a seamless transition for end users from early preclinical stage to later clinical phases.**

## Molecular Characterization

IL-1 beta(Ala 117 - Ser 269)  
P01584-1

This protein carries no "tag".

The protein has a calculated MW of 17.5 kDa. The protein migrates as 18 kDa $\pm$ 3 kDa when calibrated against [Star Ribbon Pre-stained Protein Marker](#) under reducing (R) condition (SDS-PAGE).

## Endotoxin

Less than 0.01 EU per  $\mu$ g by the LAL method / rFC method.

## Host Cell Protein

<0.5 ng/ $\mu$ g of protein tested by ELISA.

## Host Cell DNA

<0.02 ng/ $\mu$ g of protein tested by qPCR.

## Sterility

Negative

## Mycoplasma

Negative

## Purity

>95% as determined by SDS-PAGE.

>95% as determined by SEC-HPLC.

## Formulation

Lyophilized from 0.22  $\mu$ m filtered solution in PBS, pH7.4 with trehalose as protectant.

Contact us for customized product form or formulation.

## Reconstitution

Please see Certificate of Analysis for specific instructions.

**For best performance, we strongly recommend you to follow the reconstitution protocol provided in the CoA.**

## Storage

For long term storage, the product should be stored at lyophilized state at -20°C or lower.

**Please avoid repeated freeze-thaw cycles.**

This product is stable after storage at:

- -20°C to -70°C for 12 months in lyophilized state;
- -70°C for 3 months under sterile conditions after reconstitution.

## ACRO Quality Management System

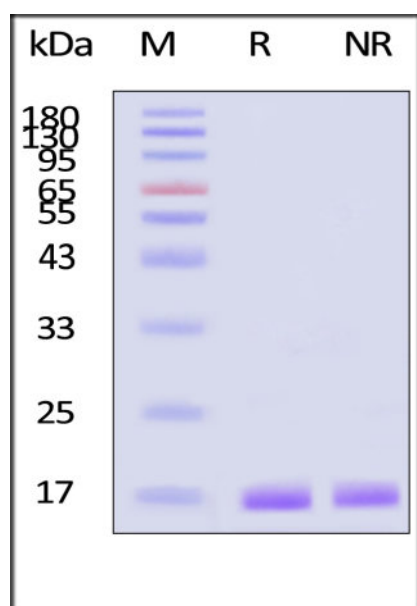
- [QMS\(ISO, GMP\)](#)
- [Quality Advantages](#)
- [Quality Control Process](#)

## Quality Description

**ACRO's Research-grade** products are suitable for a wide range of cell culture applications, particularly for research use in academic institutions. These products are sterilized by filtration, followed by lyophilization where applicable. Typical specifications include endotoxin levels of <0.01 EU/ $\mu$ g and purities >95%. Biological activity is calibrated against WHO/NIBSC standards when available.

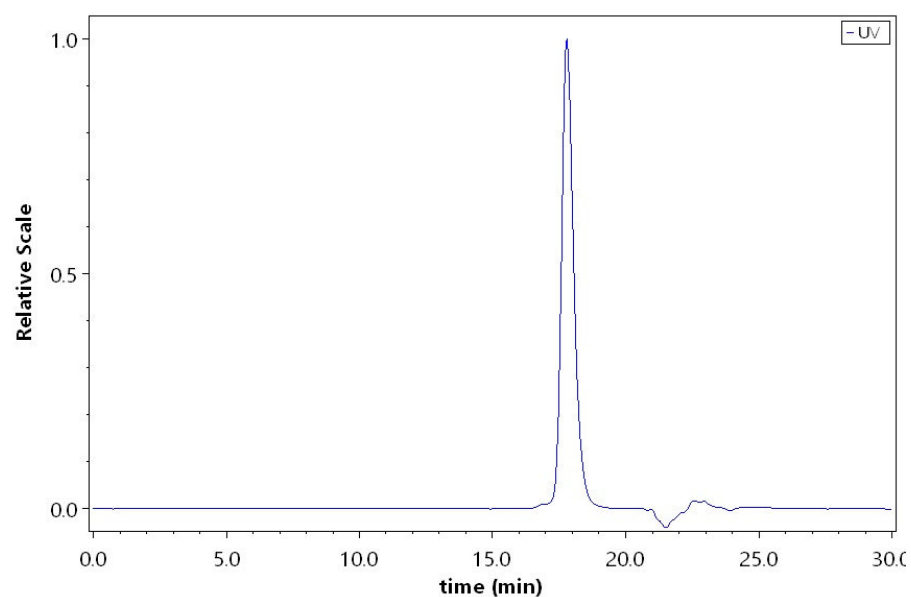
**ACRO's Premium-grade (Pre-GMP)** products are characterized by their high quality and enhanced safety profiles, making them ideal for early-stage discovery and manufacturing processes in cell therapy companies. A key advantage is their seamless transition to corresponding GMP-grade versions. Biological activity is calibrated against WHO/NIBSC standards when available. Typical specifications include endotoxin levels of <0.01 EU/ $\mu$ g and purities >95%. In addition, rigorous testing is conducted to ensure the absence of mycoplasma, HCD, and HCP, thereby guaranteeing product safety.

## SDS-PAGE



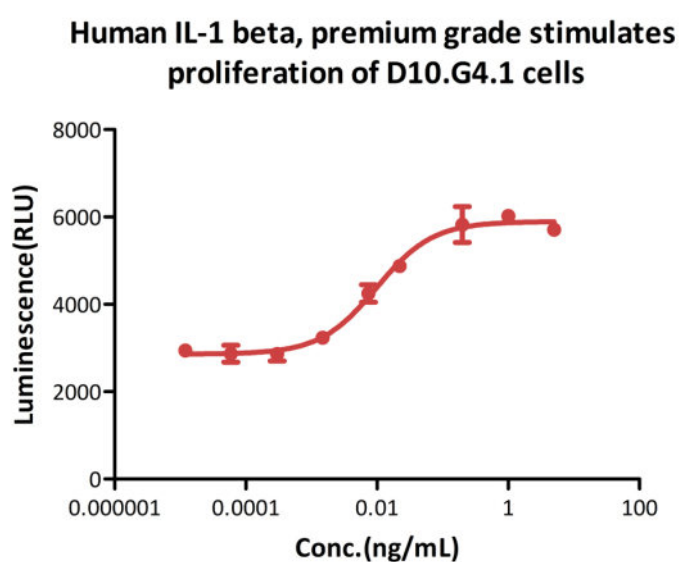
Human IL-1 beta, premium grade on SDS-PAGE under reducing (R) and non-reducing (NR) conditions. The gel was stained with Coomassie Blue. The purity of the protein is greater than 95% (With [Star Ribbon Pre-stained Protein Marker](#)).

## SEC-HPLC



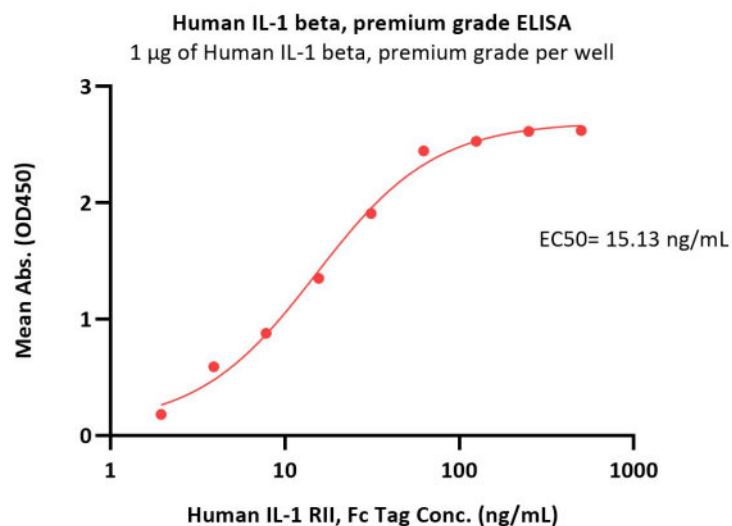
The purity of Human IL-1 beta, premium grade (Cat. No. ILB-H4110) was greater than 95% as determined by SEC-HPLC.

## Bioactivity-CELL BASE



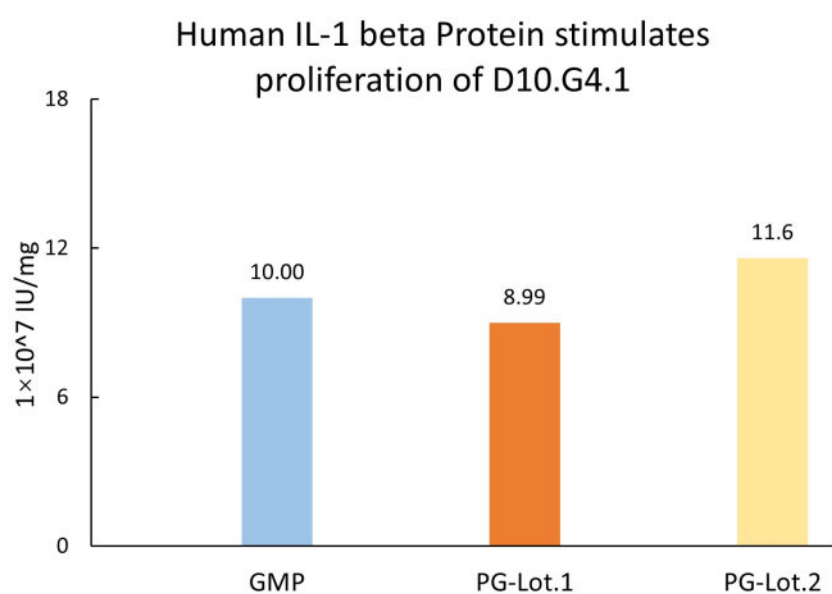
Human IL-1 beta, premium grade (Cat. No. ILB-H4110) stimulates proliferation of D10.G4.1 cells. The specific activity of Human IL-1 beta, premium grade is  $>5.00 \times 10^7$  IU/mg, which is calibrated against WHO International Standard INTERLEUKIN-1 BETA (IL-1 $\beta$ , Human rDNA derived) (NIBSC code: 86/680) (QC tested).

## Bioactivity-ELISA



Immobilized Human IL-1 beta, premium grade (Cat. No. ILB-H4110) at 10 µg/mL (100 µL/well) can bind Human IL-1 RII, Fc Tag (Cat. No. IL2-H4256) with a linear range of 2-63 ng/mL (QC tested).

## Bioactivity-Stability



Cell-based assay demonstrates batch-to-batch consistency between Acro's GMP and PG IL-1 beta.

## Background

Interleukin-1 beta (IL-1 $\beta$ ) is also known as catabolin, is a cytokine protein that in humans is encoded by the IL1B gene. IL-1 $\beta$  precursor is cleaved by caspase 1 (interleukin 1 beta convertase). Cytosolic thiol protease cleaves the product to form mature IL-1 beta.

IL1 $\beta$  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 IL1 $\alpha$  and IL1 $\beta$  are regulated independently, they bind to the same receptor and exert identical biological effects.

IL-1 $\beta$  is a member of the interleukin 1 cytokine family. This cytokine is produced by activated macrophages as a proprotein, which is proteolytically processed to its active form by caspase 1 (CASPI/ICE). This cytokine is an important mediator of the inflammatory response, and is involved in a variety of cellular activities, including cell proliferation, differentiation, and apoptosis. The induction of cyclooxygenase-2 (PTGS2/COX2) by this cytokine in the central nervous system (CNS) is found to contribute to inflammatory pain hypersensitivity. This gene and eight other interleukin 1 family genes form a cytokine gene cluster on chromosome 2.

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