

Animal-Free IL-1 beta Protein, Human (His)

Cat. No.:	HY-P700096AF
Synonyms:	Interleukin-1 beta; IL-1 beta; IL1F2; IL1B; IL-1BETA; IL1F2; IL-1β; IL-1 beta; IL-1B ; Interleukin-1 β; IL-1 β; IL-1β; IL-1 β
Species:	Human
Source:	E. coli
Accession:	P01584 (A117-S269)
Gene ID:	3553
Molecular Weight:	Approximately 18.48 kDa

PROPERTIES

AA Sequence	<p>M A S A P V R S L N C T L R D S Q Q K S L V M S G P Y E L K A L H L Q G Q D M E</p> <p>Q Q V V F S M S F V Q G E E S N D K I P V A L G L K E K N L Y L S C V L K D D K</p> <p>P T L Q L E S V D P K N Y P K K K M E K R F V F N K I E I N N K L E F E S A Q F</p> <p>P N W Y I S T S Q A E N M P V F L G G T K G G Q D I T D F T M Q F V S S</p>
Biological Activity	<p>1.Measure by its ability to induce proliferation in D10.G4.1 cells. The ED₅₀ for this effect is <10 pg/mL. The specific activity of recombinant human IL-1 beta is approximately >1.5 x 10⁸ IU/mg.</p> <p>2.Measure by its ability to induce IL-8 secretion in HT29 cells. The ED₅₀ for this effect is ≤5.1 ng/mL.</p>
Appearance	Lyophilized powder
Formulation	Lyophilized from a solution containing 1X PBS, pH 8.0.
Endotoxin Level	<0.1 EU per 1 μg of the protein by the LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH ₂ O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	<p>IL-1 beta Protein stands as a potent pro-inflammatory cytokine, recognized for its diverse roles in orchestrating immune responses. Originally identified as a major endogenous pyrogen, IL-1 beta induces a cascade of inflammatory events, including prostaglandin synthesis, neutrophil influx and activation, T-cell and B-cell activation, cytokine production, as well as fibroblast proliferation and collagen production. It plays a pivotal role in immune cell differentiation, promoting Th17 differentiation of T-cells and synergizing with IL-12 to induce IFNG synthesis from T-helper 1 (Th1) cells. Additionally, IL-1</p>
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beta contributes to angiogenesis by inducing VEGF production, working synergistically with TNF and IL-6. Notably, it plays a key role in transducing inflammation downstream of pyroptosis, being specifically released into the extracellular milieu through the gasdermin-D (GSDMD) pore. In the context of microbial infection, IL-1 beta acts as a sensor of *S. pyogenes* infection in the skin, undergoing cleavage and activation by the pyogenes SpeB protease, leading to an inflammatory response that curtails bacterial growth during invasive skin infection. However, the cleavage of IL-1 beta by SpeB has a dual role, promoting streptococcal infection of the nasopharynx by disrupting colonization resistance mediated by the microbiota.

Caution: Product has not been fully validated for medical applications. For research use only.

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