

## IL-1 beta Protein, Human (C-His)

<b>Cat. No.:</b>	HY-P78459A
<b>Synonyms:</b>	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
<b>Species:</b>	Human
<b>Source:</b>	E. coli
<b>Accession:</b>	P01584 (A117-S269)
<b>Gene ID:</b>	3553
<b>Molecular Weight:</b>	Approximately 19.0 kDa

### PROPERTIES

<b>AA Sequence</b>	<p>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 Q Q V</p> <p>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 T L</p> <p>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 N W</p> <p>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>
<b>Biological Activity</b>	Measured in a cell proliferation assay using CTLL-2 cells. The ED <sub>50</sub> for this effect is 1.67 pg/mL, corresponding to a specific activity is 5.99×10 <sup>8</sup> units/mg.
<b>Appearance</b>	Lyophilized powder
<b>Formulation</b>	Lyophilized from sterile PBS, pH 7.4.
<b>Endotoxin Level</b>	<1 EU/μg, determined by LAL method.
<b>Reconstitution</b>	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH <sub>2</sub> O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
<b>Storage &amp; Stability</b>	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.
<b>Shipping</b>	Room temperature in continental US; may vary elsewhere.

### DESCRIPTION

<b>Background</b>	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
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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.

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

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