

GMP IL-1 beta Protein, Human

Cat. No.:	HY-P70586G
Synonyms:	Interleukin-1 beta; Catabolin; IL1F2; IL1B
Species:	Human
Source:	E. coli
Accession:	P01584 (A117-S269)
Gene ID:	3553
Molecular Weight:	Approximately 17.0 kDa

PROPERTIES

AA Sequence	<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 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 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 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	The specific activity is > 4×10 ⁶ U/mg.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 µm filtered solution of 20 mM Tris, 150 mM NaCl, pH 7.5.
Endotoxin Level	<0.05 EU/µg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in injection water.
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>Interleukin-1β (IL-1β) is one of the pro-inflammatory cytokines and is produced and secreted by a variety of cell types although the vast majority of studies have focussed on its production within cells of the innate immune system, such as monocytes and macrophages^{[1][2]}.</p> <p>IL-1β is produced as inactive pro-IL-1β (encoded by pro-IL-1b) in response to inflammatory stimuli, including both microbial products and endogenous danger-associated molecules. IL-1β gene expression and synthesis of pro-IL-1β occurs after activation of pattern recognition receptors (PRRs). Inflammatory stimuli also drive activation of cytosolic CARD and PYHIN domain-containing PRRs that recruit ASC and caspase-1 (Casp-1) to assemble into the multiprotein complex inflammasome.</p>
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Pro-Casp-1 (encoded by pro-Casp-1), activated by the inflammasome, cleaves pro-IL-1 β into the bioactive IL-1 β . IL-1 β acts in an autocrine/paracrine manner via the type I IL-1 receptor (IL-1R1)^{[1][2][3]}. IL-1 β could regulate the inflammatory response, and is involved in a variety of cellular activities, including cell proliferation, differentiation, and apoptosis. IL-1 β also plays a significant regulator of reproduction in females^{[1][2][3]}.

REFERENCES

- [1]. Jan Petrasek, et al. IL-1 receptor antagonist ameliorates inflammasome-dependent alcoholic steatohepatitis in mice. *J Clin Invest*. 2012 Oct;122(10):3476-89.
- [2]. Karina Zitta, et al. Interleukin-1beta regulates cell proliferation and activity of extracellular matrix remodelling enzymes in cultured primary pig heart cells. *Biochem Biophys Res Commun*. 2010 Sep 3;399(4):542-7.
- [3]. Kenichi Shimada, et al. Caspase-1 dependent IL-1 β secretion is critical for host defense in a mouse model of Chlamydia pneumoniae lung infection. *PLoS One*. 2011;6(6):e21477.
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Caution: Product has not been fully validated for medical applications. For research use only.

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