

IL-1 beta Protein, Human (His-Avi)

Cat. No.:	HY-P78459
Synonyms:	Interleukin-1 beta; IL-1 beta; IL1F2; IL1B; IL-1BETA; IL1F2; IL-1 β ; IL-1 beta; IL-1B ; Interleukin-1 β ; IL-1 β ; IL-1 β ; IL-1 β
Species:	Human
Source:	E. coli
Accession:	P01584 (A117-S269)
Gene ID:	3553
Molecular Weight:	Approximately 20.1 kDa

PROPERTIES

Biological Activity	Immobilized Human IL-1 Beta His at 5 $\mu\text{g}/\text{mL}$ (100 $\mu\text{L}/\text{Well}$) on the plate. Dose response curve for Human IL-1 RII hFc with the EC_{50} of < 0.44 $\mu\text{g}/\text{mL}$ determined by ELISA.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.22 μm filtered solution of PBS, pH 7.4. Normally 5% trehalose is added as protectant before lyophilization.
Endotoxin Level	<1 EU/ μg , determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 $\mu\text{g}/\text{mL}$ 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>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. Pro-Casp-1 (encoded by pro-Casp-1), activated by the inflammasome, cleaves pro-IL-1β into the bioactive IL-1β. IL-1β acts in an autocrine/paracrine manner via the type I IL-1 receptor (IL-1R1)^{[1][2][3]}.</p> <p>IL-1β could regulate the inflammatory response, and is involved in a variety of cellular activities, including cell proliferation, differentiation, and apoptosis. IL-1β also plays a significant regulator of reproduction in females^{[1][2][3]}.</p>
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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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