

GMP Recombinant Human IL-18 (carrier-free)

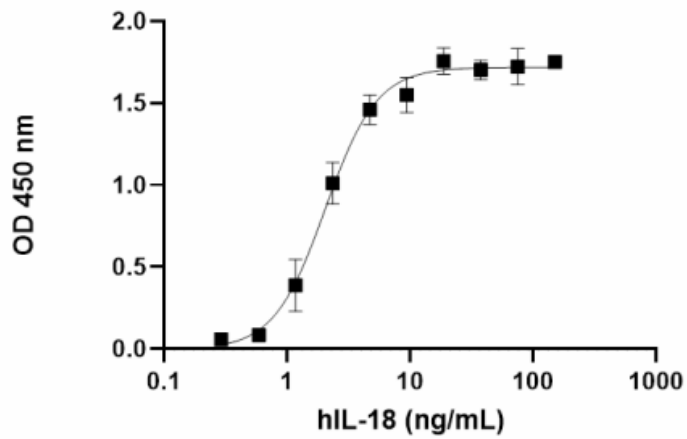
Catalog# / Size	592114 / 25 µg 592116 / 100 µg
Other Names	Interferon-gamma-inducing factor, IGIF, IL-1g, IL18, IL1F4
Description	<p>IL-18 was first identified as IFN-β-inducing factor (IGIF). It is a member of the IL-1 family of cytokines and similar to IL-1β, IL-18 is initially synthesized as an inactive precursor without a signal peptide and is cleaved into the mature form by activated caspase 1. Caspase 1-independent maturation of IL-18 is induced by FASL. Mature IL-18 binds directly to the IL-18 receptor alpha chain and then recruits IL-18 receptor beta chain to form a high affinity complex. The high affinity complex recruits MyD88 and leads to IRAK/TRAF6 pathway activation and NF-κB nuclear translocation. IL-18 in combination with IL-12 shows a synergistic effect on IFNβ production. Without costimulation, IL-18 alone does not induce IFNβ production. IL-18 can induce IFNβ production from splenocytes, liver macrophages, T lymphocytes, and natural killer cells. IL-18 also enhances the production of GM-CSF and IL-12. IL-18 enhances Th1 cell development by synergizing with IL-12 and promotes Th2 cell differentiation in the presence of TCR activation. IL-18 plays a major role in autoimmune and inflammatory diseases. It has been implicated in many diseases such as eczema, psoriasis, inflammatory bowel disease, metabolic syndromes, hemophagocytic syndrome, sepsis, and acute kidney injury. Blocking of IL-18 activity has been an attractive therapeutic approach for autoimmune disease. It has been shown that neutralization of IL-18 has reduced both intestinal IFNβ and TNFα production and resulted in a dose dependent reduction in colitis severity in mice. IL-18 is also able to induce angiogenesis, migration, proliferation and immune escape, and has been associated with cancer. Several publications show that IL-18 gene polymorphism may be risk factors for several cancers.</p>
Quality Statement	<p>BioLegend Cell-Vive™ GMP Recombinant proteins are manufactured and tested in accordance with USP Chapter 1043, Ancillary Materials for Cell, Gene and Tissue-Engineered Products and Ph. Eur. Chapter 5.2.12 in a dedicated GMP facility compliant with ISO 13485:2016. Specifications and processes include:</p> <ul style="list-style-type: none">• Low endotoxin level (≤ 0.1 EU/µg)• Purity (≥ 95% or higher)• Bioburden testing• Mycoplasma testing• Batch-to-batch consistency• Vendor qualification• Raw material traceability and documentation• Documented procedures and employee training• Equipment maintenance and monitoring records• Lot-specific certificates of analysis• Quality audits per ISO 13485:2016• QA review of released products
Product Details	
Source	Human IL-18, amino acids Tyr 37-Asp193 (Accession# NP-001553) was expressed in <i>E. coli</i> .
Molecular Mass	The 157 amino acid recombinant protein has a predicted molecular mass of approximately 18 kD. The DTT-reduced and non-reduced protein migrates at approximately 18 kD by SDS-PAGE. The predicted N-terminal amino acid is Tyr.
N-terminal Sequence Analysis	Tyr-Phe-Gly-Lys-Leu-Glu-Ser-Ala-Leu-Gln
Purity	≥ 95%, as determined by Coomassie stained SDS-PAGE.
Formulation	0.1 µm filtered protein solution is in PBS pH 7.2 with 10mM DTT, 1mM EDTA, and 10% Glycerol
Endotoxin Level	Less than or equal to 0.1 EU per µg of protein as determined by the LAL method.

Residual Host Cell Protein Content	≤ 0.500 ng/μg by ELISA
Concentration	25 μg & 100 μg sizes are bottled at 0.5 mg/mL
Storage & Handling	Unopened vial can be stored between 2°C and 8°C for up to 2 weeks, at -20°C for up to six months, or at -70°C or colder until the expiration date. For maximum results, quick spin vial prior to opening. The protein can be aliquoted and stored at -20°C or colder. Stock solutions can also be prepared at 50 - 100 μg/mL in appropriate sterile buffer, carrier protein such as 0.2 - 1% endotoxin-free BSA or HSA can be added when preparing the stock solution. Aliquots can be stored between 2°C and 8°C for up to one week or stored at -20°C or colder for up to 3 months. Avoid repeated freeze/thaw cycles
Activity	The ED ₅₀ is 1.5 - 9 ng/mL, as determined by a dose-dependent induction of IFN γ secretion by KG-1 cells. The specific activity is ≥2.3 x 10 ⁶ IU/mg when compared against the WHO International Standard for Human IL-18 (NIBSC code: 03/200).
Application	Bioassay Cell Culture
Application Notes	BioLegend carrier-free recombinant proteins provided in liquid format are shipped on blue ice. Our comparison testing data indicates that when handled and stored as recommended, the liquid format has equal or better stability and shelf-life compared to commercially available lyophilized proteins after reconstitution. Our liquid proteins are verified in-house to maintain activity after shipping on blue ice and are backed by our 100% satisfaction guarantee . If you have any concerns, contact us at tech@biolegend.com .
Application References	1. Orzalli MH, <i>et al.</i> 2018. <i>Mol Cell</i> . 71:825. PubMed
(PubMed link indicates BioLegend citation)	2. Foltz JA, <i>et al.</i> 2018. <i>Cancers (Basel)</i> . 10:. PubMed
	3. Stebbing J, <i>et al.</i> 2021. <i>Sci Adv</i> . 7:00. PubMed
Disclaimer	BioLegend Cell-Vive™ GMP Recombinant proteins are for research use only. Suitable for <i>ex vivo</i> cell processing. Not for injection or diagnostic or therapeutic use. Not for resale. BioLegend will not be held responsible for patent infringement or other violations that may occur with the use of our products.

Antigen Details

Structure	Cytokine
Distribution	The major sources of IL-18 are macrophages and dendritic cells. IL-18 precursor is constitutively expressed in endothelial cells, keratinocytes, and intestinal epithelial cells. It is also expressed by renal parenchymal cells (tubular epithelial cells, podocytes, and mesangial cells).
Function	IL-18 is essential for both innate and adaptive immunity. IL-18 induces synthesis of TNF, IL-1, Fas ligand, and several inflammatory chemokines. VEGF-D increases the expression and the secretion of IL-18 from gastric cancer cell lines. IL-18 binding protein (IL-18BP) binds to mature IL-18 with high affinity and prevents its interaction with IL-18Ra. IL-1F7 is a negative regulator of IL-18. IL-18 mRNA is induced by stress and bacteria in adrenal cortex and mouse osteoblasts respectively.
Interaction	CD4 and CD8 lymphocytes, NK cells, splenocytes, and smooth muscle cells.
Ligand/Receptor	IL-18 receptor (heteromeric complex of alpha and beta subunits).
Bioactivity	IL-18 induces IFN γ secretion by KG-1 cells.
Biology Area	Cell Biology, Immunology, Neuroinflammation, Neuroscience
Molecular Family	Cytokines/Chemokines
Antigen References	1. Okamura H, <i>et al.</i> 1995. <i>Nature</i> . 378:88-91. 2. Siegmund B, <i>et al.</i> 2001. <i>Am J Physiol Regul Integr Comp Physiol</i> . 281:R1264-73. 3. Rodriguez-Galán MC, <i>et al.</i> 2005. <i>J Immunol</i> . 174:2796-804. 4. Alboni S, <i>et al.</i> 2010. <i>J Neuroinflammation</i> . 7:9. 5. Dinarello CA, <i>et al.</i> 2013. <i>Front Immunol</i> . 4:289. 6. Fabbri M, <i>et al.</i> 2015. <i>J Leukoc Biol</i> . 97:665-75.
Gene ID	3606

Product Data



Recombinant human IL-18 induces the production of IFN γ in KG-1 cells in a dose dependent manner. The ED₅₀ for this effect is 1.5 – 9.0 ng/mL.

For Research Use Only. Suitable for *ex vivo* cell processing. Not for injection or diagnostic or therapeutic use.

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