

Recombinant Human IL-18 (carrier-free)

Catalog# / Size	592102 / 10 µg 592104 / 25 µg 592106 / 100 µg
Regulatory Status	RUO
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 macrophage, 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>

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.
Purity	>95%, as determined by Coomassie stained SDS-PAGE.
Formulation	0.22 µm filtered protein solution is in PBS with 5 mM DTT.
Endotoxin Level	Less than 0.01 ng/ per µg cytokine as determined by the LAL method.
Concentration	10 and 25 µg sizes are bottled at 200 µg/mL. 100 µg size and larger sizes are lot-specific and bottled at the concentration indicated on the vial. To obtain lot-specific concentration, please enter the lot number in our Concentration and Expiration Lookup or Certificate of Analysis online tools.
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% 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 and 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 IFNγ secretion by KG-1 cell.
Recommended Usage	Bioassay
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.

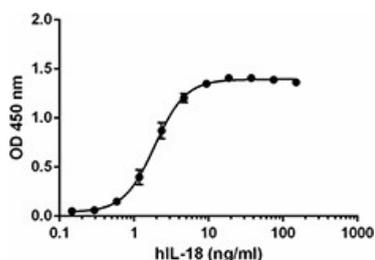
Product Citations

1. Stebbing J, *et al.* 2021. *Sci Adv.* 7:00. [PubMed](#)
2. Orzalli MH, *et al.* 2018. *Mol Cell.* 71:825. [PubMed](#)
3. Foltz JA, *et al.* 2018. *Cancers (Basel).* 10:. [PubMed](#)

Antigen Details

Structure	Cytokine.
Distribution	The major sources of IL-18 are macrophage 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, smooth muscle cells.
Ligand/Receptor	IL-18 receptor (heteromeric complex of alpha and beta subunits).
Biology Area	Cell Biology, Immunology, Neuroinflammation, Neuroscience
Molecular Family	Cytokines/Chemokines
Antigen References	<ol style="list-style-type: none">1. Okamura H, <i>et al.</i> 1995. <i>Nature</i> 378:88.2. Siegmund B, <i>et al.</i> 2001. <i>Am. J. Physiol. Regul. Integr. Comp. Physiol.</i> 281:R1264.3. Rodriguez-Galán MC, <i>et al.</i> 2005. <i>J. Immunol.</i> 174:2796.4. 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. Fabbi M, <i>et al.</i> 2015. <i>J. Leukoc. Biol.</i> 97:665.
Gene ID	3606

Product Data



Human IL-18 mediated IFN γ production in KG-1 cells as detected by ELISA.

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