

## Recombinant Human IL-10 (carrier-free)

<b>Catalog# / Size</b>	571002 / 10 µg 571004 / 25 µg 571006 / 100 µg 571008 / 500 µg
<b>Regulatory Status</b>	RUO
<b>Other Names</b>	Interleukin-10, B-TCGF, CSIF, TGIF
<b>Description</b>	IL-10 was first described as a cytokine that is produced by T helper 2 (Th2) cell clones. It inhibits interferon (IFN)- $\gamma$ synthesis in Th1 cell, and therefore it was initially called cytokine synthesis inhibiting factor (CSIF). Macrophages are the main source of IL-10 and its secretion can be stimulated by endotoxin (via Toll-like receptor 4, NF- $\kappa$ B dependent), tumor necrosis factor TNF- $\alpha$ (via TNF receptor p55, NF- $\kappa$ B-dependent), catecholamines, and IL-1. IL-10 controls inflammatory processes by suppressing the expression of proinflammatory cytokines, chemokines, adhesion molecules, as well as antigen-presenting and costimulatory molecules in monocytes/macrophages, neutrophils, and T cells. IL-10 inhibits the production of proinflammatory mediators by monocytes and macrophages such as endotoxin- and IFN- $\gamma$ -induced release of IL-1 $\alpha$ , IL-6, IL-8, G-CSF, GM-CSF, and TNF- $\alpha$ . In addition, it enhances the production of anti-inflammatory mediators such as IL-1RA and soluble TNF $\alpha$ receptors. IL-10 inhibits the capacity of monocytes and macrophages to present antigen to T cells. This is realized by down-regulation of constitutive and IFN $\gamma$ -induced cell surface levels of MHC class II, of costimulatory molecules such as CD86 and of some adhesion molecules such as CD58.

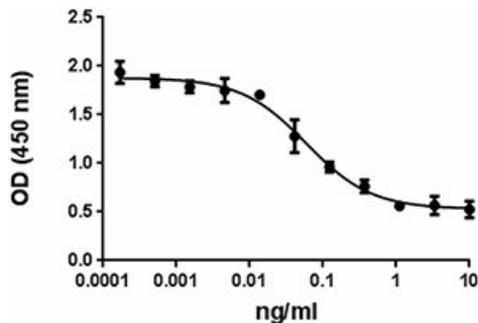
### Product Details

<b>Source</b>	Human IL-10, amino acids Ser19-Asn178 (Accession # NM_000572), was expressed in E. coli.
<b>Molecular Mass</b>	The 160 amino acid recombinant protein has a predicted molecular mass of 18,647 Da. The DTT-reduced protein migrates at approximately 18kDa and the non-reduced protein migrates at approximately 15kDa by SDS-PAGE. The N-terminal amino acid is Serine.
<b>Purity</b>	Purity is >98%, as determined by Coomassie stained SDS-PAGE.
<b>Formulation</b>	0.22 µm filtered protein solution is in 10mM NaH <sub>2</sub> PO <sub>4</sub> , 150mM NaCl, pH 7.2.
<b>Endotoxin Level</b>	Endotoxin level is < 0.1 EU/µg (< 0.01ng/µg) protein as determined by the LAL method.
<b>Concentration</b>	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 <a href="#">Concentration and Expiration Lookup</a> or <a href="#">Certificate of Analysis</a> online tools.
<b>Storage &amp; Handling</b>	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. <b>Avoid repeated freeze/thaw cycles.</b>
<b>Activity</b>	Human IL-10 inhibits the induction of INF $\gamma$ in PHA activated human PBMC. The ED <sub>50</sub> = 0.025 - 0.25 ng/ml.
<b>Application</b>	<a href="#">Bioassay</a>
<b>Application Notes</b>	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 <a href="#">100% satisfaction guarantee</a> . If you have any concerns, contact us at <a href="mailto:tech@biolegend.com">tech@biolegend.com</a> .
<b>Product Citations</b>	<ol style="list-style-type: none"> <li>Ibrahim ML, <i>et al.</i> 2018. Cell Rep. 25:3036. <a href="#">PubMed</a></li> <li>Brasil da Costa FH, <i>et al.</i> 2020. PLoS One. 15:e0230354. <a href="#">PubMed</a></li> </ol>

## Antigen Details

<b>Distribution</b>	IL-10 is produced by Th2 cells, macrophages, DCs, B cells, CD8+ T cells, regulatory T cells (Tregs), Th1 cells and Th17 cells. In addition, IL-10 is expressed by monocytes, B cells, eosinophils, and mast cells.
<b>Function</b>	IL-10 is an immunoregulatory cytokine. Its main function is the limitation and termination of inflammatory responses and the regulation of differentiation and proliferation of several immune cells such as T cells, B cells, natural killer cells, antigen-presenting cells, mast cells, and granulocytes.
<b>Interaction</b>	IL-10R is expressed in monocytes, NK, B and T cells. In addition, Langerhans cells, dermal dendritic cells, eosinophils, mast cells, and endothelial cells can respond to IL-10.
<b>Ligand/Receptor</b>	IL-10 binds to their receptors IL-10R1 and IL-10R2, and initiates a STAT3-dependent signaling cascade.
<b>Biology Area</b>	Cell Biology, Immunology
<b>Molecular Family</b>	Cytokines/Chemokines
<b>Antigen References</b>	<ol style="list-style-type: none"><li>1. Fiorentino DF, et al. <i>J Exp Med</i> 170:2081-2095 1989.</li><li>2. Ho AS, et al. <i>P. Natl. Acad. Sci. USA</i> 90:11267-11271 1993.</li><li>3. Hart PH, et al. <i>J Immunol</i> 157:3672-3680 1996.</li><li>4. Asadullah K, et al. <i>Pharmacol Rev</i> 55:241-269 2003.</li><li>5. Mosser DM and Zhang X <i>Immunol Rev</i> 226:205-218 2008.</li><li>6. Maynard CL and Weaver CT <i>Immunol Rev</i> 226:219-233 2008.</li></ol>
<b>Gene ID</b>	<a href="#">3586</a>

## Product Data



Human IL-10 inhibits the induction of INF $\gamma$  in PHA activated human PBMC.

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