

# human IL-10, tag-free

Interleukin 10

Cat. no. P2020-146

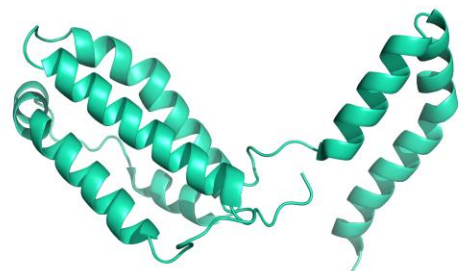
## Product Information

Protein:	human IL-10, tag-free (~ 18.8 kDa)
Uniprot#:	P22301
Sequence:	MSPGGGTQSENSCTHFPGNLPNMLRDLRDAFSRVKTFQMKDQLDNLLKESLLEDFKGY LGCQALSEMIQFYLEEVMQAENQDPDIKAHVNSLGENLKLRLRLRRCHRFLPCENKSK AVEQVKNAFNKLQEKGIYKAMSEFDIFINYIEAYMTMKIRN
	Methionine at pos. 1 might be present due to cloning constraints.
Source:	Recombinantly expressed in HEK293 cells.
Tag(s):	None.
Purification:	Purified by affinity chromatography and subsequent buffer exchange. N-terminal His-tag removed by TEV cleavage (cleavage reaction purified by inverse affinity chromatography).
Formulation:	PBS; pH 7.4.  Liquid, stored and shipped at -80 °C.
Purity:	> 90 % (will be determined by densitometry of Coomassie stained gel, example next page)
Concentration:	Will be determined by BCA-Assay.
Long-term storage:	No recommendations.
Comment:	Protein migrates at higher molecular weight during SDS-PAGE due to posttranslational modifications.

## **Background Information:**

Interleukin-10 (IL-10) is a cytokine that plays a crucial role in the regulation of both innate and adaptive immune responses and controls inflammatory processes. It was first identified in the early 1990s and has since been extensively studied for its immunoregulatory functions. IL-10 is produced by various immune cells, including effector T cells, B cells, classically and especially alternatively activated macrophages, dendritic cells (DCs), as well as certain non-immune cells.

IL-10 is often referred to as an "anti-inflammatory cytokine" because of its ability to suppress inflammation. It inhibits the production of pro-inflammatory cytokines like interleukin-1 (IL-1), interleukin-6 (IL-6), interleukin-12 (IL-12) and tumor necrosis factor-alpha (TNF- $\alpha$ ). Moreover, IL-10 suppresses expression of MHC class II and costimulatory molecules B7-1/B7-2 on monocytes and



*Structural model of human IL-10, tag-free*

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macrophages, thereby impeding T cell activation and differentiation in the lymph nodes.

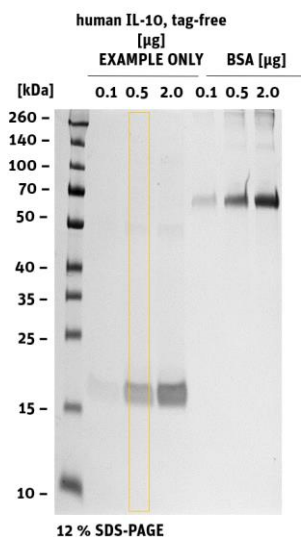
IL-10 is both produced by macrophages and DCs and inhibits their function by suppressing production of inflammatory cytokines indicating a sophisticated negative feedback mechanism that limits potential damage to tissues.

The non-covalently associated homodimer IL-10 binds to the type II cytokine receptor IL-10 consisting of two IL-10 R alpha chains. Binding results in the recruitment of two IL-10 R beta chains, which are essential for signal transduction. Signaling induces activation of Janus Kinase 1 (JAK1), Tyrosine Kinase 2 (TYK2), and the transcription factor STAT3.

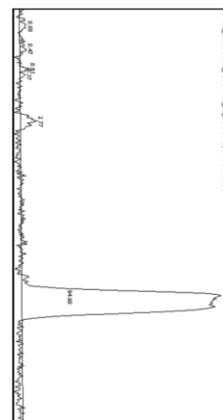
Dysregulation of IL-10 is implicated in various diseases. For example, deficient IL-10 production or function is associated with inflammatory bowel diseases (IBD) like Crohn's disease and ulcerative colitis. Conversely, excessive IL-10 production can contribute to immune evasion by certain pathogens and promote the survival of cancer cells by suppressing anti-tumor immune responses.

Noteworthy, while human IL-10 is able to activate also murine cells, murine IL-10 is inactive on human cells.

## Quality Information (provided for each lot):



SDS-PAGE/Coll.Coomassie



	Area	Percent
1	113.728	0.881
2	61.071	0.473
3	78.778	0.611
4	47.364	0.367
5	356.799	2.766

Histogram (of marked lane in gel picture)