

# CellGenix® GMP Recombinant Human Interleukin-6 (rh IL-6)



## Product Information

CellGenix® Recombinant Human IL-6 reliably stimulates the maturation of immature to mature dendritic cells (DCs) and promotes the proliferation of cord blood derived hematopoietic stem cells (HSCs/CD133<sup>+</sup> cells). It is produced in our dedicated animal-free GMP facility ensuring maximum safety for optimal use in ATMP manufacturing. No animal- or human-derived components are present in the final product and no animal- or human-derived materials were used in production (ADCF Level 2).

## Features and Benefits

- Seamless transition from early development to clinical stages with consistent product quality & performance
- Exceptional batch-to-batch consistency to ensure optimal cell expansion and differentiation
- Manufactured in compliance with applicable GMP guidelines and in accordance with USP Chapter <1043>, Ph. Eur. General Chapter 5.2.12 and ISO 20399:2022
- We offer expert regulatory support in all phases from development to post-approval to assist you in safely bringing your product to the market. Drug Master File filed FDA CBER (USA)

## Application

Interleukin-6 (IL-6) is a multifunctional cytokine that acts both pro-inflammatory and anti-inflammatory. It regulates acute phase responses, inflammatory reactions, hematopoiesis, bone metabolism, cancer progression and immune responses. It is produced primarily by T cells, monocytes and macrophages.

IL-6 is used in the cell and gene therapy space for the *ex vivo* maturation of immature DCs and proliferation of HSCs.

## Product Characteristics

<b>Source</b>	<i>E. coli</i>
<b>Description</b>	Human Interleukin-6, accession # P05231, Pro29-Met212 N-terminal Met and C-terminal 6xHis-tag Molecular mass 21.9 kDa
<b>Formulation</b>	Lyophilized from a 0.2 µm-filtered solution containing 1.5 mM potassium phosphate, 8.1 mM sodium phosphate, 2.7 mM potassium chloride and 137 mM sodium chloride, pH 7.5.
<b>Intended use</b>	For further manufacturing use

## Quality Parameters

<b>Identity</b>	Confirmed by DNA-sequencing of the expression plasmid in end-of-production cells and N-terminal sequencing of the final product
<b>Activity</b>	80-250 x 10 <sup>6</sup> IU /mg calibrated against NIBSC #89/548 Measured in a cell proliferation assay using an IL-6-dependent cell line, B9
<b>Purity</b>	≥ 98 %, as determined by SDS-PAGE (under reducing and non-reducing conditions, visualized by Coomassie staining)
<b>Product-related proteins</b>	≤ 15 % oligomers as determined by SDS-PAGE (under non-reducing conditions, visualized by Coomassie staining)
<b>Host-cell DNA</b>	≤ 200 ng/mg, as determined with a fluorimetric assay
<b>Host-cell protein</b>	≤ 1.0 µg/mg, as determined by ELISA
<b>Endotoxin</b>	≤ 50 EU/mg, as determined by LAL gel clot test according to Ph. Eur. and USP
<b>Sterility</b>	Sterility test according to Ph. Eur. and USP of the vial product
<b>Mass per vial</b>	<b>50 µg:</b> 43 - 57 µg, <b>1000 µg:</b> 900 - 1100 µg as determined by spectrophotometrical measurement
<b>Animal-derived component-free</b>	<b>ADCF Level 2:</b> The final product contains neither animal- nor human-derived materials. ADCF Level 2 cytokines are produced in our dedicated animal-free facility. No animal-derived components are used throughout the complete production process. All ADCF Level 2 cytokines are produced in <i>E. coli</i> .

## Shipment and Storage

<b>Transport</b>	Ambient temperature. Please refer to Technical Note "Shipment of CellGenix® Preclinical and GMP Cytokines at Ambient Temperatures".
<b>Shelf Life</b>	Minimum 6 months from date of shipping
<b>Storage and Stability</b>	Store lyophilized cytokine at -20 °C to -80 °C. <ul style="list-style-type: none"><li>Store a 250 µg/mL reconstituted cytokine solution for 4 weeks at 2 °C to 8 °C under sterile conditions after reconstitution. Store in the original container.</li><li>Store a 100 µg/mL reconstituted cytokine solution for 4 months at -20 °C to -80 °C under sterile conditions after reconstitution. Store in aliquots in polypropylene cryogenic vials.</li></ul> Avoid repeated freeze/thaw cycles.

# Handling Instructions

<b>Reconstitution</b>	Recommended in sterile water to a final concentration of 250 µg/mL for 50 µg vials and for 1000 µg vials. We recommend to not vortex the solution. The solution can be turbid, this however does not influence the activity.
<b>Dilution</b>	Recommended in CellGenix® serum-free media. For dilution with protein free medium, a carrier protein (0.1-1 % albumin or 1-10 % appropriate serum) has to be included. Failure to dilute product according to these instructions may result in loss of activity.

## Packaging

CellGenix® cytokines are provided in glass vials, closed with vacuum rubber stoppers and sealed with aluminum tear off caps. The following material is used:

### Glass vials

For 50 µg vials: Glass vials (2 mL; colorless; 35.00 x 13.75 mm) with DIN Crimp Neck N13-2 made from borosilicate glass hydrolytic type I (in compliance with Ph. Eur. 3.2.1 and USP <660> glass containers for pharmaceutical use).

For 1 mg vials: Glass vials (6 mL; colorless; 40.00 x 22.00 mm) with DIN Crimp Neck N20 made from borosilicate glass hydrolytic type I (in compliance with Ph. Eur. 3.2.1 and USP <660> glass containers for pharmaceutical use).

### Vacuum rubber stoppers, Type I butyl rubber

The formulation is 4023/50/grey. This corresponds to bromobutyl rubber with a hardness of 50 (hardness measured in shore A). This is compliant with Ph. Eur. 3.2.9 Type 1 and with the physicochemical tests as described in USP General Chapter <381> "Elastomeric Closures for Injections".

## Ordering Information

Product Description	Size & Package	Storage	Cat. No.
CellGenix® GMP rh IL-6	50 µg	-20 °C to -80 °C	1004-050
CellGenix® GMP rh IL-6	1 mg	-20 °C to -80 °C	1004-1000

### Aluminum tear off caps

Aluminum tear off caps (13 mm; gold) are produced in accordance to valid quality criteria for metal caps.

The container closure has been validated after a storage period of up to 5 years at -80 °C by verification of sterility. In addition, the container closure has been demonstrated according to USP <671>.

## Sartorius is Your Reliable Supply Partner

High-quality raw materials are essential to ensure safety, efficacy and batch-to-batch consistency. We propose premium-grade raw materials suitable from preclinical development to the manufacturing of the therapy. Our GMP grade products allow for the safe use in clinical trials and commercial manufacturing.

Our GMP cytokines include documented evidence of lot specific sterility, activity, and shelf-life. Our experts will help simplify your raw material qualification and validation efforts. We provide customized solutions to your enquiries, as well as quality control services to ensure the quality of our products. Our regulatory expertise guarantees a suited service to your regulatory procedures, ensuring an extensive support every step of the process.

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