Recombinant Human IL-11 GMP

Catalog Number: 218-GMP

DESCRIPTION

Source	*Spodoptera frugiperda*, *Sf* 9 (baculovirus)-derived Pro22-Leu199 Accession # P20809.1 Produced in an animal component free process (ACFP). Manufactured and tested under cGMP guidelines.
N-terminal Sequence Analysis	Pro-Gly-Pro-Pro-Pro-Gly-Pro-Pro-Arg-Val
Predicted Molecular Mass	19 kDa

SPECIFICATIONS

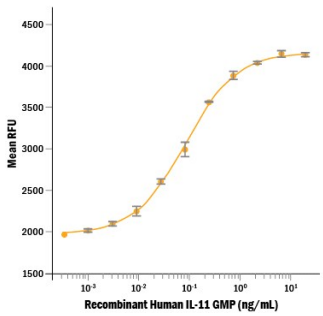
SDS-PAGE	20 kDa, reducing conditions
Activity	Measured in a cell proliferation assay using T11 mouse plasmacytoma cells. Nordan, R.P. *et al.* (1987) J. Immunol. **139**:813. The ED_{50} for this effect is 0.02-0.12 ng/mL. The specific activity of recombinant human IL-11 is approximately 1.05 x 10^4 units/µg, which is calibrated against recombinant human IL-11 WHO Standard (NIBSC code: 92/788).
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE with silver staining, under reducing conditions.
Mycoplasma	Negative when tested in a ribosomal RNA hybridization assay.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS and EDTA. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** ● A minimum of 6 months when stored at ≤ -20 °C as supplied. Refer to lot specific COA for the Use by Date. ● 3 months, 2 to 8 °C under sterile conditions after reconstitution.

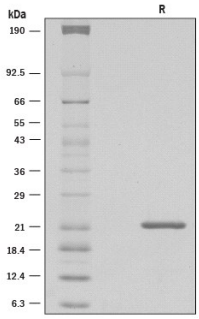
DATA

Bioactivity



GMP-grade Recombinant Human IL-11 (Catalog # 218-GMP) stimulates cell proliferation of the T11 mouse plasmacytoma cell line. The ED_{50} for this effect is 0.02-0.12 ng/mL.

SDS-PAGE



1 µg/lane of Recombinant Human GMP-grade IL-11 was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a single band at 21 kDa.

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BACKGROUND

IL-11 (Interleukin 11) is a pleiotropic cytokine in the IL-6 family, which also includes LIF, CNTF, Oncostatin M, Cardiotrophin-1, IL-27 and IL-31 (1-3). In humans, IL-11 was also independently discovered as an adipogenesis inhibitory factor (AGIF) (3). The human IL-11 cDNA encodes a 199 amino acid (aa) precursor, which generates a 178 aa, 19 kDa mature unglycosylated protein. Mature human IL-11 shares 88%, 88%, and 96% aa sequence identity with mouse, rat and canine IL-11, respectively. IL-11 is secreted by osteoblasts, synoviocytes, fibroblasts, chondrocytes, intestinal myofibroblasts, and trophoblasts, among other cell types (1). It is found in the plasma mainly during inflammation, such as that associated with viral infection, cancer, or inflammatory arthritis, and is considered to be primarily anti-inflammatory (1). It stimulates hematopoiesis and thrombopoiesis, regulates macrophage differentiation, and confers mucosal protection in the intestine (1). It has also been found to enhance T cell polarization toward Th2, promote B cell IgG production, increase osteoclast bone absorption, protect endothelial cells from oxidative stress, and regulate epithelial proliferation and apoptosis (1). IL-11 synergizes with several other cytokines to produce these effects, and its effects overlap with those of IL-6 (1). IL-11 receptor activation requires formation of a complex of two IL-11 molecules with two molecules of the ligand-binding IL-11 R α subunit and two molecules of the ubiquitously expressed cell signaling β subunit, gp130 (4). A soluble form of IL-11 R α can bind IL-11 and either form a signaling complex with gp130 on the cell surface, or inhibit cell surface IL-11 R α/gp130 signaling (5-7).

References:

1. Putoczki, T. and M. Ernst (2010) J. Leukoc. Biol. **88**:1109.
2. Paul, S.R. *et al.* (1990) Proc. Natl. Acad. Sci. USA **87**:7512.
3. Kawashima, I. *et al.* (1991) FEBS Lett. **283**:199.
4. Barton, V.A. *et al.* (2000) J. Biol. Chem. **275**:36197.
5. Curtis, D.J. *et al.* (1997) Blood **90**:4403.
6. Baumann, H. *et al.* (1996) J. Immunol. **157**:284.
7. Karow, J. *et al.* (1996) Biochem. J. **318**:489.

MANUFACTURING SPECIFICATIONS

GMP Proteins

R&D Systems, a Bio-Techne Brand's GMP proteins are produced according to relevant sections of the following documents: WHO TRS, No. 822, 1992 Annex 1, Good Manufacturing Practices for Biological Products; USP Chapter 1043, Ancillary Materials for Cell, Gene and Tissue-Engineered Products and USP Chapter 92, Growth Factors and Cytokines Used in Cell Therapy Manufacturing.

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- Material review process for variances
- Monitoring of stability over product shelf-life

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- N-terminal amino acid analysis, SDS-PAGE analysis, and endotoxin level (as determined by LAL assay) performed on each bulk QC lot, not on individual bottlings of each QC lot
- Post-bottling lot-specific bioassay results (compliance with an established range) and results of microbial bioburden testing (using broth culture, Sabourand's dextrose and blood agar plates with results reported at 3 days and at 7 days
- Mycoplasma testing by ribosomal RNA hybridization assay

Additional testing and documentation requested by the customer can be arranged at an additional cost. Testing may include, but is not limited to, USP <61> bioburden testing, positive identity testing, testing for adventitious agents and testing for residual host cell content.

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