Recombinant Human IL-11

Catalog Number: 218-IL

DESCRIPTION

Source	*Spodoptera frugiperda*, *Sf* 21 (baculovirus)-derived Pro22-Leu199 Accession # P20809.1
N-terminal Sequence Analysis	Pro22
Predicted Molecular Mass	19 kDa

SPECIFICATIONS

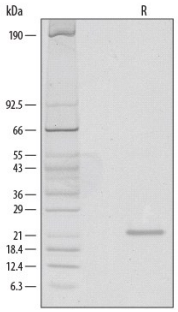
SDS-PAGE	23 kDa, reducing conditions
Activity	Measured in a cell proliferation assay using T11 mouse plasmacytoma cells. Nordan, R.P. *et al.* (1987) J. Immunol. **139**:813. The ED_{50} for this effect is typically 0.02-0.12 ng/mL. The specific activity of recombinant human IL-11 is approximately 1.05 x 10^4 units/µg, which is calibrated against recombinant human IL-11 WHO International Standard (NIBSC code: 92/788).
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>97%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS and EDTA with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 50 µg/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.
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.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

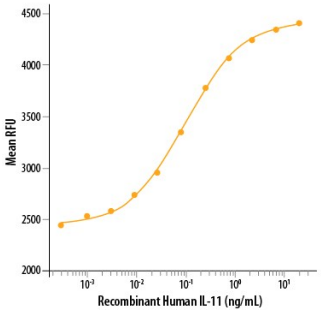
DATA

SDS-PAGE



1 µg/lane of Recombinant Human IL-11 was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a single band at 23 kDa.

Bioactivity



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

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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.

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