Cytokines

Human Recombinant IL-11

Interleukin 11

Catalog # 78025.1 10 µg
78025 100 µg

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Product Description

Interleukin 11 (IL-11) is a pleiotropic cytokine with effects on various tissues including the bone marrow, brain, and intestinal mucosa (Du & Williams). It belongs to the IL-6 family of cytokines that share a common signal transducer, gp130. IL-11 induces the proliferation of hematopoietic stem cells (Lemoli et al.) and megakaryocytic progenitor cells (Bruno et al.), the maturation of megakaryocytes (Burstein et al.), and the production of platelets (Neben et al.). IL-11 is produced by a variety of cell types including hematopoietic cells, mesenchymal cells, epithelial cells, and neuronal cells. It was first cloned from a cDNA library of the human bone marrow-derived stromal cell line KM-102 (Kawashima et al.). The binding of IL-11 to its receptor induces heterodimerization with the gp130 subunit and activation of JAK tyrosine kinases. IL-11 was the first pharmacologic agent approved for the treatment of chemotherapy-induced thrombocytopenia. IL-11 also plays a role in cancer progression by inducing the proliferation of epithelial cancer cells and the survival of metastatic cells at distant organs. Recently, IL-11 has gained interest for its role in the pathogenesis of diseases in dysregulated mucosal homeostasis associated with STAT3 upregulation, including gastrointestinal cancers (Putoczki et al.).

Product Information

Alternative Names:	Adipogenic inhibitory factor, AGIF, Interleukin-11, Oprelvekin
Accession Number:	P20809
Amino Acid Sequence:	MPGPPPGPPR VSPDPRAELD STVLLTRSLL ADTRQLAAQL RDKFPADGDH NLDSLPTLAM SAGALGALQL PGVLTRLRAD LLSYLRHVQW LRRAGGSSLK TLEPELGTLQ ARLDRLLRRL QLLMSRLALP QPPPDPPAPP LAPPSSAWGG IRAAHAILGG LHLTLDWAVR GLLLLKTRL
Predicted Molecular Mass:	19.3 kDa
Species:	Human
Cross Reactivity:	Mouse, Monkey
Formulation:	Lyophilized from a sterile filtered solution containing 0.1% trifluoroacetic acid.
Source:	E. coli

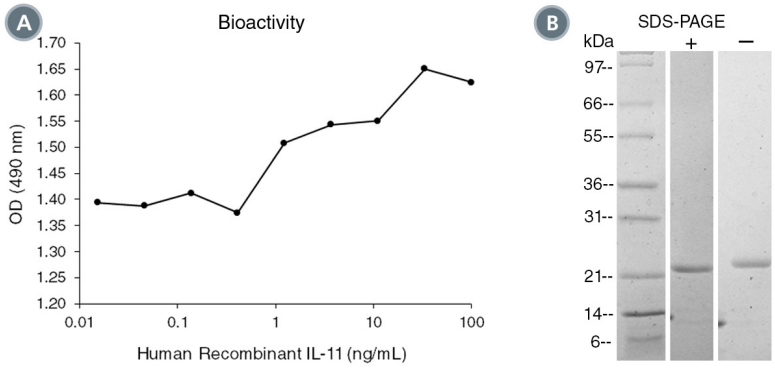
Specifications

Activity:	The specific activity is ≥ 4 x 10^5 units/mg (EC50 ≤ 2.5 ng/mL) as determined by a cell proliferation assay using T11 cells.
Purity:	≥ 95%
Endotoxin Level:	Measured by kinetic limulus amebocyte lysate (LAL) analysis and is ≤ 1 EU/µg protein.

Preparation and Storage

Storage:	Store at -20°C to -80°C.
Stability:	Stable as supplied for 12 months from date of receipt.
Reconstitution:	Centrifuge vial before opening. Resuspend the product in sterile water containing 0.1% bovine serum albumin (BSA) to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. Store at 2 - 8°C for up to 1 month or at -20°C to -80°C for up to 3 months. Avoid repeated freeze-thaw cycles. NOTE: If reconstituted product will be used immediately BSA is not required.

Data



(A) The biological activity of Human Recombinant IL-11 was tested by its ability to promote the proliferation of T11 cells growing in the presence of IL-6. Cell proliferation was measured after 91 hours of culture using a fluorometric assay method. The EC50 is defined as the effective concentration of the growth factor at which cell proliferation is at 50% of maximum. The EC50 in the above example is 0.8 - 1.2 ng/mL.
(B) 1 µg of Human Recombinant IL-11 was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant IL-11 has a predicted molecular mass of 19.3 kDa but migrates to an apparent molecular mass of 23 kDa.

Related Products

For a complete list of cytokines, as well as related products available from STEMCELL Technologies, please visit our website at www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

References

Bruno E et al. (1991) Effects of recombinant interleukin 11 on human megakaryocyte progenitor cells. Exp Hematol 19(5): 378–81.
Burstein SA et al. (1992) Leukemia inhibitory factor and interleukin-11 promote maturation of murine and human megakaryocytes in vitro. J Cell Physiol 153(2): 305–12.
Du X & Williams DA. (1997) Interleukin-11: review of molecular, cell biology, and clinical use. Blood 89(11): 3897–908.
Kawashima I et al. (1991) Molecular cloning of cDNA encoding adipogenesis inhibitory factor and identity with interleukin-11. FEBS Lett 283(2): 199–202.
Lemoli RM et al. (1993) Interleukin-11 stimulates the proliferation of human hematopoietic CD34+ and CD34+CD33-DR- cells and synergizes with stem cell factor, interleukin-3, and granulocyte-macrophage colony-stimulating factor. Exp Hematol 21(13): 1668–72.
Neben TY et al. (1993) Recombinant human interleukin-11 stimulates megakaryocytopoiesis and increases peripheral platelets in normal and splenectomized mice. Blood 81(4): 901–8.
Putoczki TL et al. (2013) Interleukin-11 is the dominant IL-6 family cytokine during gastrointestinal tumorigenesis and can be targeted therapeutically. Cancer Cell 24(2): 257–71.