

## Human IL-29 (IFN lambda 1) Recombinant Protein

**Catalog Number:** 14-8299

**Also Known As:** Interleukin-29

**RUO: For Research Use Only. Not for use in diagnostic procedures.**

### Product Information

**Contents:** Human IL-29 (IFN lambda 1) Recombinant Protein

**REF** **Catalog Number:** 14-8299

**Handling Conditions:** For best recovery, quick-spin vial prior to opening. Use in a sterile environment

**Source:** E. coli expressed amino acids gly 20-thr 200 of mature human IL-29 (accession # NM\_172140).

**Molecular Mass:** The protein is not methionylated at the N-terminal and has a predicted molecular mass of 20,018. The DTT reduced protein migrates as a 20 kDa band on SDS-PAGE. The non-reduced protein migrates as a 19 kDa protein on non-reduced SDS-PAGE.

**Purity:** Greater than 98% as determined by SDS-PAGE

**Endotoxin Level:** Less than 0.01 ng/ug cytokine as determined by the LAL assay.

**Bioactivity:** Measured in an assay of inhibition of the cytopathic effect of EMC virus on HepG2 cells. The ED<sub>50</sub> for this effect is typically below 0.50 ng/ml, corresponding to a specific activity of >2.0 x 10<sup>6</sup> U/mg.

**Formulation:** Sterile liquid; phosphate buffered saline, pH 7.2, 1.0% BSA. 0.22 µm filtered.

**Temperature Limitation:** Store at less than or equal to -70°C.

**LOT** **Batch Code:** Refer to Vial

**Use By:** Refer to Vial

### Description

IFN-λs are a novel family of interferons which mediate the induction of anti-viral protection in a wide variety of cells. The three members of the IFN-λ family are λ1, λ2, and λ3, also known as IL-29, IL-28A, and IL-28B, respectively. IFN-λs share with type I IFNs an intracellular signaling pathway that drives the expression of a common set of IFN-stimulated genes. IFN-lambdas induce multiple biological activities, including the upregulation of class I MHC gene product expression to levels comparable to those induced by IFN-α. IL-28 and IL-29 are tested for anti-viral activity by challenging the human hepatocellular carcinoma cell line HepG2 with infection by EMC (following pretreatment of the cells with cytokine).

Consistent with a role in anti-viral protection, the mRNA expression of IFN-lambdas is detectable in cells infected with various viruses. Moreover, monocyte-derived dendritic cells (important producers of IFN-α) express IFN-λ1 mRNA in response to treatment with dsRNA. TLR3 and TLR4 ligands induce IFN-α, IFN-β, IL-28, and IL-29 gene expression in macrophages; this is dependent upon IFN-α.

IFN-lambdas mediate their anti-viral protection through a class II cytokine receptor complex distinct from that of type I IFNs. This is comprised of two essential receptor proteins, CRF2-12/IFN-λR1, which is unique to IFN-lambdas, and CFR2-4/IL-10R2, which is shared with IL-10, IL-22, and IL-26 receptors. Whereas, the two chains of the type I IFN receptor (IFN-AR1 and IFN-AR2) and IL-10R2 are ubiquitously expressed, IFN-λR1 expression is limited and cell-type dependent. IFN-λR1 is not expressed by monocytes, but is up-regulated during GM-CSF/IL-4 induced differentiation of DCs from human monocytes, yielding iDCs which are fully responsive to IFN-λ.

The IFN-λs, IL-28 and IL-29, have recently been reported to prime dendritic cells to induce proliferation of Foxp3-bearing regulatory T cells. IFN-λ-matured DCs express high levels of class I and II MHC gene products, but low levels of costimulatory molecules, and are able to specifically induce IL-2-dependent proliferation of CD4+CD25+FOXP3+ T cell population with contact dependent suppressive activity on T cells.

### Applications Reported

Recombinant human IL-29 is biologically active and is reported for use in biological assay.

### Applications Tested

The recombinant human IL-29 has been tested for inhibition of the cytopathic effect of EMC virus on HepG2 cells. The ED<sub>50</sub> for this effect is typically below 0.50 ng/ml, corresponding to a specific activity of >2.0 x 10<sup>6</sup> U/mg.

### References

Mennechet FJ, Uzé G. IFN-lambda-treated dendritic cells specifically induce proliferation of FOXP3-expressing suppressor T cells. Blood.

2006 Jun 1;107(11):4417-23.

Kotenko SV, Gallagher G, Baurin VV, Lewis-Antes A, Shen M, Shah NK, Langer JA, Sheikh F, Dickensheets H, Donnelly RP. IFN-lambdas mediate anti-viral protection through a distinct class II cytokine receptor complex. *Nat Immunol.* 2003 Jan;4(1):69-77.

Sheppard P, Kindsvogel W, Xu W, Henderson K, Schlutsmeyer S, Whitmore TE, Kuestner R, Garrigues U, Birks C, Roraback J, Ostrander C, Dong D, Shin J, Presnell S, Fox B, Haldeman B, Cooper E, Taft D, Gilbert T, Grant FJ, Tackett M, Krivan W, McKnight G, Clegg C, Foster D, Klucher KM. IL-28, IL-29, and their class II cytokine receptor IL-28R. *Nat Immunol.* 2003 Jan;4(1):63-8.

**Related Products**

14-8109 Human IL-10 Recombinant Protein

14-8199 Human IL-19 Recombinant Protein

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