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Human IL-27 Recombinant Protein Carrier-Free

Catalog Number: 34-8279
Also Known As: Interleukin-27, EBI3, p29, IL-30, IL27
RUO: For Research Use Only

Product Information

Contents: Human IL-27 Recombinant Protein Carrier-Free
REF Catalog Number: 34-8279
Handling Conditions: For best recovery, quick-spin vial prior to opening. Use in sterile envrioment.
Source: Human EBI3 (met 1-lys229; accession #NM_005755) linked through a (gly-gly-gly-gly-ser)3 to mature P28/IL-30 (phe 29-pro 243; accession # NM_145659) tagged at the C-terminal with thr-gly-his10 was expressed in human 293 cells.
Molecular Mass: After removal of the secretion signal the mature EBI3-linker-mature P28-His10 protein has a predicted molecular mass of approximately 49,000. On non-reducing and reducing SDS-PAGE the linked protein migrates as a 55 kDa protein due to glycosylation.
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 a bioassay of IL-27-mediated inhibition of IL-2 production by mouse splenocytes activated with immobilized anti-CD3 and soluble anti-CD28 antibodies (Villarino, A.V., et al. 2006. J. Immunol. 176: 237). The ED_{50} for this is typically below 100 ng/ml, corresponding to a specific activity of greater than 1.0 x 10^4 U/mg.

Formulation: Sterile liquid; 20 mM NaH_2PO_4, pH 6.0, 0.6M NaCl. 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

IL-27, a member of the IL-12 family, is a heterodimeric protein consisting of the p40-related protein Epstein-Barr virus-induced gene 3 (EBI3) non-covalently linked to an IL-12p35-related protein, p28 (also known as IL-30). IL-27 is produced by activated APCs and mature dendritic cells. IL-27 exerts its activities on NK cells and naïve CD4+ T cells; mRNA expression analysis of IL-27 receptor components (WSX-1/TCCR and gp130) suggests that IL-27 may also target other cells, including mast cells and monocytes. Binding of IL-27 to WSX-1/gp130 activates JAK1, STAT1, and STAT3 and STAT1/3 phosphorylation. WSX-1/TCCR-deficient mice develop impaired Th1 responses and are more susceptible to infection with L. monocytogenes suggesting that Th1 responses require IL-27. Although activation of WSX-1 is required for the initiation of Th1 responses, it is not necessary for maintaining Th1 responses. IL-27 alone is not able to induce the differentiation of CD4+ T cells into IFN-γ-producing cells, suggesting a role for IL-27 as an initial activator of Th1 responses. An important effect of IL-27 in initiating Th1 responses is the induction of the Th1-specific transcription factor T-bet as well as the suppression of the Th2-specific transcription factor GATA-3. T-bet plays a critical role in Th1 differentiation by its ability to maintain IL-12Rβ2 expression following CD4+ T cell activation.

Recent studies indicate that IL-27 has a potent antitumor activity. In vitro, IL-27 has been found to act directly on naïve CD8 cells, generating CTL with enhanced granzyme B expression. In vivo, IL-27 has been reported to augment CTL activity, inhibit tumor growth, and induce complete regression of primary and metastatic neuroblastoma tumors.

Applications Reported

The recombinant human IL-27 (EBI3/p28) has been reported useful for bioassay.

Applications Tested

This recombinant human IL-27 (EBI3/p28) has been tested in bioassay for inhibition of IL-2 production by mouse splenocytes activated with immobilized anti-CD3 and soluble anti-CD28 antibodies (Villarino, A.V., et al. 2006. J. Immunol. 176: 237). The ED_{50} for this is typically below 100 ng/ml, corresponding to a specific activity of greater than 1.0 x 10^4 U/mg.

References

Stumhofer, J.S., et al. 2006. IL-27 negatively regulates the development of IL-17-producing T helper cells during chronic inflammation of the central nervous system. Nature Immunol. 7: 937-45.
Villarino, A., et al. 2006. IL-27 Limits IL-2 Production during Th1 Differentiation. J. Immunol. 176: 237 - 247.
Salcedo, R., et al. 2004. IL-27 mediates complete regression of orthotopic primary and metastatic murine neuroblastoma tumors: role for CD8+

T cells. J. Immunol. 173: 7170-7182.
Morishima, N., et al. 2005. Augmentation of effector CD8+ T cell generation with enhanced granzyme B expression by IL-27. J. Immunol. 175: 1686-1693.
Owaki, T., et al. 2005. A role for IL-27 in early regulation of Th1 Differentiation. J. Immunol. 175: 2191-2200.

Related Products

34-8239 Human IL-23 Recombinant Protein Carrier-Free
88-7239 Human IL-23 (p19/p40) Platinum ELISA

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