Recombinant Mouse IL-27 p28/IL-30

Catalog Number: 7430-ML/CF

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived mouse IL-27 p28/IL-30 protein Phe29-Ser234, with a C-terminal 10-His tag Accession # Q8K3I6
N-terminal Sequence Analysis	Phe29
Predicted Molecular Mass	24.9 kDa

SPECIFICATIONS

SDS-PAGE	25-35 kDa, reducing conditions
Activity	Measured by its ability to induce CXCL10/IP-10 secretion by THP-1 human acute monocytic leukemia cells. The ED_{50} for this effect is < 35 ng/mL.
Endotoxin Level	<0.01 EU per 1 µg of the protein by the LAL method.
Purity	>90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in HEPES, NaCl and CHAPS. 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.** ● 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.

BACKGROUND

Interleukin-27 p28, also known as IL-30, is a secreted 28 kDa protein that is considered a member of the IL-6/IL-12 interfamily cytokine family. p28/IL-30 is one of several α-chain proteins that can associate with various β-chain proteins to form heterodimeric cytokines in these families. The α-chains (*e.g.* IL-6, IL-11, Cardiotrophin-1, CLC/CNTF, LIF, Oncostatin M, IL-23 p19, IL-27 p28/IL-30, IL-12/IL-35 p35) have a four-helix bundle structure, while the β-chains (*e.g.* EBI-3, CLF-1, IL-12/IL-23 p40) resemble class 1 cytokine receptors. These cytokines utilize heteromeric cell surface receptors which contain shared as well as ligand-specific subunits. Divergent biological responses are obtained from the combinatorial association of cytokine subunits and their interaction with various combinations of receptor subunits. Complexity in this system is increased by the generation of soluble receptors and by the competition between proteins for shared subunit pairing (1-3). p28/IL-30 is expressed by macrophages and dendritic cells, and is up-regulated in these cells by inflammatory stimuli (4-9). It was first described as a partner with EBI-3 in the heterodimeric cytokine IL-27 (4). IL-27 signals through a receptor complex composed of IL-27 Rα/WSX-1/TCCR and gp130 (4, 10, 11). This interaction enhances the proinflammatory activation of naïve $CD4^+$ T cells, NK cells, mast cells, and monocytes and the cytotoxic activity of $CD8^+$ T cells (4, 10, 12). IL-27 also exhibits anti-inflammatory activity, including the induction of IL-10 production by naïve and memory T cells, the activation of regulatory T cells (Treg), and the suppression of Th17 cytokine secretion (13, 14). Alternatively, p28/IL-30 associates with CLF-1 to create a cytokine that triggers responses through IL-27 Rα, IL-6 Rα, and gp130 (6). Like IL-27, p28-CLF-1 heterodimers co-stimulate IFN-γ production by NK cells, and induce IL-10 secretion by $CD4^+$ T cells (6). In contrast to IL-27, however, p28-CLF-1 is reported to promote the differentiation of Th17 cells (6). A third mode of p28 action enables it to stimulate cells that express both IL-6 Rα and gp130, but lack IL-27 Rα (11). Similar to the IL-6 system, the presence of IL-6 Rα on the cell surface is not even required if p28/IL-30 associates with a soluble form of IL-6 Rα. This combination can trigger *trans* signaling through gp130, a mechanism that has been demonstrated for complexes of IL-6 with soluble IL-6 Rα (11). Over-expression of p28/IL-30 *in vivo* interferes with humoral antibody responses and protects from IL-12 induced liver inflammation (7, 15). Mature mouse p28/IL-30 shares 70% and 89% amino acid sequence identity with human and rat p28, respectively

References:

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