Genorise® Recombinant Canine IL-7

Catalog Number: GR122114

Background

IL-7 is a hematopoietic growth factor secreted by stromal cells in the bone marrow and thymus. It is also produced by keratinocytes,[1] dendritic cells,[2] hepatocytes,[3] neurons, and epithelial cells,[4] but is not produced by normal lymphocytes.[5] IL-7 stimulates the differentiation of multipotent (pluripotent) hematopoietic stem cells into lymphoid progenitor cells (as opposed to myeloid progenitor cells where differentiation is stimulated by IL-3). It also stimulates proliferation of all cells in the lymphoid lineage. It is important for proliferation during certain stages of B-cell maturation, T and NK cell survival, development and homeostasis. IL-7 is a cytokine important for B and T cell development. IL-7 and the hepatocyte growth factor (HGF) form a heterodimer that functions as a pre-pro-B cell growth-stimulating factor. This cytokine is found to be a cofactor for V(D)J rearrangement of the T cell receptor beta (TCRß) during early T cell development.[6] IL-7 can be produced locally by intestinal epithelial and epithelial goblet cells, and may serve as a regulatory factor for intestinal mucosal lymphocytes. Knockout studies in mice suggested that IL-7 plays an essential role in lymphoid cell survival. IL-7 binds to the IL-7 receptor, a heterodimer consisting of Interleukin-7 receptor alpha and common gamma chain receptor,[7] resulting in a cascade of signals important for T-cell development within the thymus and survival within the periphery. IL-7 promotes hematological malignancies (acute lymphoblastic leukemia, T cell lymphoma).[18]

References

1. Heufler C, et al. (1993). J. Exp. Med. 178 (3): 1109–14.
2. Kröncke R, et al. (1996). Eur. J. Immunol. 26 (10): 2541–4.
3. Sawa Y, et al. (2009). Immunity. 30 (3): 447–57.
4. Watanabe M, et al. (1995). J. Clin. Invest. 95 (6): 2945–53.
5. Fry TJ, Mackall CL (2002). Blood. 99 (11): 3892–904.
6. Muegge K, Vila MP, Durum SK (July 1993). "Interleukin-7: a cofactor for V(D)J rearrangement of the T cell receptor beta gene". Science. 261 (5117): 93–5.
7. Noguchi M, et al. (1994). Science. 262 (5141): 1877–80.
8. Or R, et al. (1998). Cytokines Cell. Mol. Ther. 4 (4): 287–94.

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Description

Size: 5 µg

Sources: Expressed in *E. coli*.

Composition: Ser22-His155

Accession #: F1PA28

Molecular weight: 15 kDa

Activity: Measured in a cell proliferation assay using PHA-activated human peripheral lymphocytes. Yokota T et al. (1986) Proc Natl Acad Sci USA 83:5894.

The ED50 for this effect is typically 0.1-0.5 ng/ml.

Endotoxin level: < 0.01 EU per 1 µg of the protein by the LAL method.

Purity: > 95%, by SDS-PAGE under reducing conditions and visualized by silver staining.

Formulation: Lyophilized from a 0.2 µm filtered PBS solution containing BSA.

Reconstitution: Reconstitute at 50-100 µg/ml in sterile PBS and 0.05% azide and store at -20°C ~ -70°C for up to 3 months.

Shipping and storage: The product is shipped at 4 ºC with ice pad or at ambient temperature. Upon receipt, store it immediately at -20°C to avoid loss of activity and use it in 6 months.

DECLARATION

THIS REAGENT IS FOR IN VITRO LABORATORY TESTING AND RESEARCH USE ONLY. DO NOT USE IT FOR CLINICAL DIAGNOSTICS. DO NOT USE OR INJECT IT IN HUMAN AND ANIMALS.

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NOT FOR USE IN HUMANS AND ANIMALS