

DESCRIPTION

Source *E. coli*-derived
Ala21-Thr153, with an N-terminal Met
Accession # P60568

N-terminal Sequence Analysis Met

Predicted Molecular Mass 15 kDa

SPECIFICATIONS

Activity Measured in a cell proliferation assay using CTLL-2 mouse cytotoxic T cells. Gearing, A.J.H. and C.B. Bird (1987) in *Lymphokines and Interferons, A Practical Approach*. Clemens, M.J. *et al.* (eds): IRL Press. 295.
The ED₅₀ for this effect is typically 0.05-0.25 ng/mL.

Endotoxin Level <0.10 EU per 1 µg of the protein by the LAL method.

Purity >97%, by SDS-PAGE under reducing conditions and visualized by silver stain.

Formulation Lyophilized from a 0.2 µm filtered solution in Acetonitrile and TFA with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 100 µg/mL in sterile 100 mM Acetic Acid containing at least 0.1% human or bovine serum albumin.

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-2 (IL-2) is a O-glycosylated, four α-helix bundle cytokine that has potent stimulatory activity for antigen-activated T cells. It is expressed by CD4⁺ and CD8⁺ T cells, γδ T cells, B cells, dendritic cells, and eosinophils (1 - 3). Mature human IL-2 shares 56% and 66% aa sequence identity with mouse and rat IL-2, respectively. Human and mouse IL-2 exhibit cross-species activity (4). The receptor for IL-2 consists of three subunits that are present on the cell surface in varying preformed complexes (5 - 7). The 55 kDa IL-2 R_α is specific for IL-2 and binds with low affinity. The 75 kDa IL-2 R_β, which is also a component of the IL-15 receptor, binds IL-2 with intermediate affinity. The 64 kDa common gamma chain γc/IL-2 R_γ, which is shared with the receptors for IL-4, -7, -9, -15, and -21, does not independently interact with IL-2. Upon ligand binding, signal transduction is performed by both IL-2 R_β and γc. IL-2 is best known for its autocrine and paracrine activity on T cells. It drives resting T cells to proliferate and induces IL-2 and IL-2 R_α synthesis (1, 2). It contributes to T cell homeostasis by promoting the Fas-induced death of naïve CD4⁺ T cells but not activated CD4⁺ memory lymphocytes (8). IL-2 plays a central role in the expansion and maintenance of regulatory T cells, although it inhibits the development of Th17 polarized cells (9 - 11). Thus, IL-2 may be a key cytokine in the natural suppression of autoimmunity (12, 13).

References:

1. Ma, A. *et al.* (2006) *Annu. Rev. Immunol.* **24**:657.
2. Gaffen, S.L. and K.D. Liu (2004) *Cytokine* **28**:109.
3. Taniguchi, T. *et al.* (1983) *Nature* **302**:305.
4. Mosmann, T.R. *et al.* (1987) *J. Immunol.* **138**:1813.
5. Liparoto, S.F. *et al.* (2002) *Biochemistry* **41**:2543.
6. Wang, X. *et al.* (2005) *Science* **310**:1159.
7. Bodnar, A. *et al.* (2008) *Immunol. Lett.* **116**:117.
8. Jaleco, S. *et al.* (2003) *J. Immunol.* **171**:61.
9. Malek, T.R. (2003) *J. Leukoc. Biol.* **74**:961.
10. Laurence, A. *et al.* (2007) *Immunity* **26**:371.
11. Kryczek, I. *et al.* (2007) *J. Immunol.* **178**:6730.
12. Afzali, B. *et al.* (2007) *Clin. Exp. Immunol.* **148**:32.
13. Fehervari, Z. *et al.* (2006) *Trends Immunol.* **27**:109.