Recombinant Mouse IL-15

Catalog Number: 447-ML

DESCRIPTION

Source	*E. coli*-derived Asn49-Ser162, with an N-terminal Met Accession # P48346
N-terminal Sequence Analysis	Met
Predicted Molecular Mass	13.4 kDa

SPECIFICATIONS

Activity	Measured in a cell proliferation assay using CTLL-2 mouse cytotoxic T cells. The ED_{50} for this effect is 2-15 ng/mL.
Endotoxin Level	<1.0 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in Tris and NaCl with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in sterile PBS 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 15 (IL-15) is a widely expressed 14 kDa cytokine that is structurally and functionally related to IL-2 and plays an important role in many immunological diseases (1, 2). Mature mouse IL-15 shares 70% and 96% amino acid sequence identity with human and rat IL-15, respectively. IL-15 binds with high affinity to IL-15 Rα (3). It binds with lower affinity to a complex of IL-2 Rβ and the common gamma chain (γc) which are also subunits of the IL-2 receptor complex (4). IL-15 associates with IL-15 Rα in the endoplasmic reticulum, and this complex is expressed on the cell surface (5). The dominant mechanism of IL-15 action is known as transpresentation in which IL-15 and IL-15 Rα are coordinately expressed on the surface of one cell and interact with complexes of IL-2 Rβ/γc on adjacent cells (6). This enables cells to respond to IL-15 even if they do not express IL-15 Rα (5). In human and mouse, soluble IL-15-binding forms of IL-15 Rα can be generated by proteolytic shedding and bind up nearly all the IL-15 in circulation (7-9). Soluble IL-15 Rα functions as an inhibitor that limits IL-15 action (3, 8). Ligation of membrane-associated IL-15/IL-15 Rα complexes also induces reverse signaling that promotes activation of the IL-15/IL-15 Rα expressing cells (10). IL-15 induces or enhances the differentiation, maintenance, or activation of multiple T cell subsets including NK, NKT, Th17, Treg, and $CD8^+$ memory cells (11-15). An important component of these functions is the ability of IL-15 to induce dendritic cell differentiation and inflammatory activation (10, 13). IL-15 exhibits anti-tumor activity independent of its actions on NK cells or $CD8^+$ T cells (16). It also inhibits the deposition of lipid in adipocytes, and its circulating levels are decreased in obesity (17).

References:

1. De Sabatino, A. *et al.* (2011) Cytokine Growth Factor Rev. **22**:19.
2. Grabstein, K. *et al.* (1994) Science **264**:965.
3. Giri, J.G. *et al.* (1995) EMBO J. **14**:3654.
4. Giri, J. *et al.* (1994) EMBO J. **13**:2822.
5. Dubois, S. *et al.* (2002) Immunity **17**:537.
6. Castillo, E.F. and K.S. Schluns (2012) Cytokine **59**:479.
7. Budagian, V. *et al.* (2004) J. Biol. Chem. **279**:40368.
8. Mortier, E. *et al.* (2004) J. Immunol. **173**:1681.
9. Bergamaschi, C. *et al.* (2012) Blood **120**:e1.
10. Budagian, V. *et al.* (2004) J. Biol. Chem. **279**:42192.
11. Mortier, E. *et al.* (2003) J. Exp. Med. **205**:1213.
12. Gordy, L.E. *et al.* (2011) J. Immunol. **187**:6335.
13. Harris, K.M. (2011) J. Leukoc. Biol. **90**:727.
14. Xia, J. *et al.* (2010) Clin. Immunol. **134**:130.
15. Schluns, K.S. *et al.* (2002) J. Immunol. **168**:4827.
16. Davies, E. *et al.* (2010) J. Leukoc. Biol. **88**:529.
17. Barra, N.G. *et al.* (2010) Obesity **18**:1601.

bio-techne®
Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 Canada TEL 855 668 8722 China TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449