Recombinant Equine TNF-α

Catalog Number: 1814-ET/CF

DESCRIPTION

Source	*E. coli*-derived Leu78-Leu234, with an N-terminal Met Accession # NP_001075288
N-terminal Sequence Analysis	Met
Predicted Molecular Mass	17.2 kDa

SPECIFICATIONS

Activity	Measured in a cytotoxicity assay using L-929 mouse fibroblast cells in the presence of the metabolic inhibitor actinomycin D. Matthews, N. and M.L. Neale (1987) in Lymphokines and Interferons, A Practical Approach. Clemens, M.J. *et al.* (eds): IRL Press. 221. The ED_{50} for this effect is 0.025-0.1 ng/mL.
Endotoxin Level	<0.01 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 PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in sterile 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

Tumor necrosis factor alpha (TNF-α), also known as cachectin and TNFSF2, is the prototypic ligand of the TNF superfamily. It is a pleiotropic molecule that plays a central role in inflammation, immune system development, apoptosis, and lipid metabolism (1, 2). Equine TNF-α consisits of a 35 amino acid (aa) cytoplasmic domain, a 21 aa transmembrane segment, and a 178 aa extracellular domain (ECD) (3). Within the ECD, equine TNF-α shares 69% - 88% aa sequence identity with bovine, canine, cotton rat, feline, human, mouse, porcine, rat, and rhesus TNF-α. TNF-α is produced by a wide variety of immune, epithelial, endothelial, and tumor cells (1, 2). TNF-α is assembled intracellularly to form a noncovalently linked homotrimer which is expressed on the cell surface (4). Cell surface TNF-α can induce the lysis of neighboring tumor cells and virus infected cells, and it can generate its own downstream cell signaling following ligation by soluble TNFR I (2, 5). Shedding of membrane bound TNF-α by TACE/ADAM17 releases the bioactive cytokine, a 55 kDa soluble trimer of the TNF-α extracellular domain (6-8). TNF-α binds the ubiquitous 55-60 kDa TNF RI (9, 10) and the hematopoietic cell-restricted 80 kDa TNF RII (11, 12), both of which are also expressed as homotrimers (1, 2, 13). Both type I and type II receptors bind TNF-α with comparable affinity (14), although only TNF RI contains a cytoplasmic death domain which triggers the activation of apoptosis. Soluble forms of both types of receptors are released and can neutralize the biological activity of TNF-α (15).

References:

1. Zelova, H. and J. Hosek (2013) Inflamm. Res. **62**:641.
2. Juhasz, K. *et al.* (2013) Expert Rev. Clin. Immunol. **9**:335.
3. Su, X.Z. *et al.* (1991) Gene **107**:319.
4. Tang, P. *et al.* (1996) Biochemistry **35**:8216.
5. Perez, C. *et al.* (1990) Cell **63**:251.
6. Black, R.A. *et al.* (1997) Nature **385**:729.
7. Moss, M.L. *et al.* (1997) Nature **385**:733.
8. Gearing, A.J.H. *et al.* (1994) Nature **370**:555.
9. Schall, T.J. *et al.* (1990) Cell **61**:361.
10. Loetscher, H. *et al.* (1990) Cell **61**:351.
11. Dembic, Z. *et al.* (1990) Cytokine **2**:231.
12. Smith, C.A. *et al.* (1990) Science **248**:1019.
13. Loetscher, H. *et al.* (1991) J. Biol. Chem. **266**:18324.
14. Pinckard, J.K. *et al.* (1997) J. Biol. Chem. **272**:10784.
15. Engelmann, H. *et al.* (1990) J. Biol. Chem. **265**:1531.

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