

Recombinant Rat TNF- α (carrier-free)

Catalog# / Size	580102 / 10 μ g 580104 / 25 μ g 580106 / 100 μ g
Regulatory Status	RUO
Other Names	Tumor necrosis factor- α , Cachectin, Necrosin, Macrophage cytotoxic factor (MCF), Differentiation inducing factor (DIF), TNF superfamily, member 2, (TNFSF2)
Description	TNF- α was originally described as an endotoxin-induced, macrophage-derived factor that promotes hemorrhagic necrosis of solid tumors and the cachexia of chronic infections. TNF- α has also been implicated in a range of inflammatory, infectious, and malignant disorders. At the cellular level, TNF- α modulates a broad spectrum of responses including inflammation, immunoregulation, proliferation, apoptosis, and antiviral activity. In bone, the cytokine inhibits extracellular matrix deposition, stimulates matrix metalloprotease synthesis, and enhances production of osteoclastogenic cytokines such as M-CSF and RANKL. Chronic exposure to TNF α in vivo increases osteoclastogenesis through two distinct mechanisms. TNF α first affects osteoclastogenesis at the osteoclast precursor stage in the bone marrow by priming these cells to differentiate into cFms+/CD11b+/RANK+/- osteoclast progenitors via a RANKL/RANK independent mechanism. These osteoclast precursors then enter the blood and peripheral tissues where they differentiate into mature osteoclasts in the presence of RANKL, and this process is accelerated by TNF. The role of TNF at this later stage of osteoclast differentiation is RANKL/RANK dependent. Importantly, TNF- α promotes bone resorption both in vitro and in vivo by enhancing the proliferation and differentiation of osteoclast precursors.

Product Details

Source	Rat TNF- α , amino acids Leu80-Leu235 (Accession # NM_012675) was expressed in <i>E. coli</i> .
Molecular Mass	The 157 amino acid N-terminal methionylated recombinant protein has a predicted molecular mass of approximately 17,361 Da. The DTT-reduced protein migrates at approximately 17kDa and the non-reduced protein migrates at approximately 16kDa by SDS-PAGE.
Purity	Purity is >98%, as determined by Coomassie stained SDS-PAGE.
Formulation	0.22 μ m filtered protein solution is in 10mM NaH ₂ PO ₄ , 150mM NaCl, pH 7.2.
Endotoxin Level	Endotoxin level is <0.1 EU/ μ g (<0.01 ng/ μ g) protein as determined by the LAL method.
Concentration	10 and 25 μ g sizes are bottled at 200 μ g/mL. 100 μ g size and larger sizes are lot-specific and bottled at the concentration indicated on the vial. To obtain lot-specific concentration, please enter the lot number in our Concentration and Expiration Lookup or Certificate of Analysis online tools.
Storage & Handling	Unopened vial can be stored between 2°C and 8°C for up to 2 weeks, at -20°C for up to six months, or at -70°C or colder until the expiration date. For maximum results, quick spin vial prior to opening. The protein can be aliquoted and stored at -20°C or colder. Stock solutions can also be prepared at 50 - 100 μ g/mL in appropriate sterile buffer, carrier protein such as 0.2 - 1% BSA or HSA can be added when preparing the stock solution. Aliquots can be stored between 2°C and 8°C for up to one week and stored at -20°C or colder for up to 3 months. Avoid repeated freeze/thaw cycles.
Activity	The ED ₅₀ is 5- 15 pg/ml, corresponding to a specific activity of 2 - 0.66 x 10 ⁸ units/mg, as determined by a dose dependent cytotoxicity assay using L929 cells treated with actinomycin D.
Application	Bioassay
Application Notes	BioLegend carrier-free recombinant proteins provided in liquid format are shipped on blue-ice. Our comparison testing data indicates that when handled and stored as recommended, the liquid format has equal or better stability and shelf-life compared to commercially available lyophilized proteins after reconstitution. Our liquid proteins are verified in-house to maintain activity after shipping on blue ice and are backed by our 100% satisfaction guarantee . If you have any concerns, contact us at tech@biolegend.com .

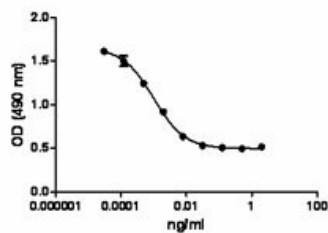
Product Citations

1. Liu S, *et al.* 2018. Cell Death Dis. 9:476. [PubMed](#)

Antigen Details

Structure	TNF superfamily; dimer/trimmer
Distribution	It is produced primarily by macrophages, and it is also be expressed by activated T cells, B cells, NK cells, and neutrophils.
Function	Type II integral membrane protein processed by TACE for secretion; upregulated by interferons, IL-2, GM-CSF, substance P, bradykinin, PAF, immune complexes, cyclooxygenase; downregulated by IL-6, TGF- β , vitamin D3, prostaglandin E2, PAF antagonists
Interaction	Monocytes, neutrophils, macrophages, T cells, fibroblasts, endothelial cells, osteoclasts, adipocytes, astroglia, microglia
Ligand/Receptor	TNFRSF1A (TNF-R1, CD120a, TNFR-p60 Type β , p55); TNFRSF1B (TNF-R2, CD120b, TNFR-p80 Type A, p75)
Bioactivity	Paracrine/endocrine mediator of inflammatory and immune functions; selectively cytotoxic for transformed cells; endothelial cell alterations; chemoattractant
Biology Area	Cell Biology, Immunology, Innate Immunity, Neuroinflammation, Neuroscience
Molecular Family	Cytokines/Chemokines
Antigen References	1. Boyce BF, et al. <i>J Med</i> 54:127-131 2005. 2. Lam J, et al. <i>J Clin Invest</i> 106:1481-1488 2000. 3. Udagawa N, et al. <i>Arthritis Res</i> 4:281-289 2002. 4. Kwon J, et al. <i>Gene</i> 132:227-236 1993.
Gene ID	24835

Product Data



Rat TNF- α cytotoxicity on L929 cells

For research use only. Not for diagnostic use. Not for resale. BioLegend will not be held responsible for patent infringement or other violations that may occur with the use of our products.

*These products may be covered by one or more Limited Use Label Licenses (see the BioLegend Catalog or our website, www.biolegend.com/ordering#license). BioLegend products may not be transferred to third parties, resold, modified for resale, or used to manufacture commercial products, reverse engineer functionally similar materials, or to provide a service to third parties without written approval of BioLegend. By use of these products you accept the terms and conditions of all applicable Limited Use Label Licenses. Unless otherwise indicated, these products are for research use only and are not intended for human or animal diagnostic, therapeutic or commercial use.

BioLegend Inc., 8999 BioLegend Way, San Diego, CA 92121 www.biolegend.com
Toll-Free Phone: 1-877-Bio-Legend (246-5343) Phone: (858) 768-5800 Fax: (877) 455-9587