Cytokines

Rat Recombinant TNF-alpha

Tumor necrosis factor alpha

Catalog #	78124	10 µg
	78124.1	50 µg

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Product Description

Tumor necrosis factor-alpha (TNF-α) is a pro-inflammatory cytokine that activates NF-κB, MAPK, and PI3K/AKT pathways. Activated T cells and macrophages are the primary producers of TNF-α in response to inflammation and infectious conditions. Many other cell types have been shown to produce TNF-α, among them B cells, NK cells, mast cells, neutrophils, dendritic cells, microglia, endothelial cells, smooth muscle cells, cardiomyocytes, and fibroblasts. TNF-α has cytotoxic effects on cancerous cells by stimulating anti-tumor immunosuppressive responses. TNF-α stimulates expression of E- and P-selectins, thus facilitating adhesion of neutrophils, monocytes, and memory T cells to activated platelets and endothelial cells (Zelová & Hošek). Other effects of TNF-α include vasodilatation and edema formation. In vitro studies of adult rat neural progenitor cells (NPCs) demonstrate that TNF-α reduces neurogenesis in dentate gyrus-derived NPCs, and promotes astrogliogenesis in subventricular zone-derived NPCs (Borsini et al.).

Product Information

Alternative Names:	Cachectin, Cytotoxin, Differentiation-inducing factor, DIF, Necrosin, TNFA, TNFSF2, Tumor necrosis factor
Accession Number:	P16599
Amino Acid Sequence:	MLRSSSQNSS DKPVAHVVAN HQAEEQLEWL SQRANALLAN GMDLKDNQLV VPADGLYLIY SQVLFKGQGC PDYVLLTHTV SRFAISYQEK VSLLSAIKSP CPKDTPEGAE LKPWYEPMYL GGVFQLEKGD LLSAEVNLPK YLDITESGQV YFGVIAL
Predicted Molecular Mass:	17.4 kDa
Species:	Rat
Cross Reactivity:	Human, Mouse
Formulation:	Lyophilized after dialysis against phosphate-buffered saline.
Source:	P. pastoris

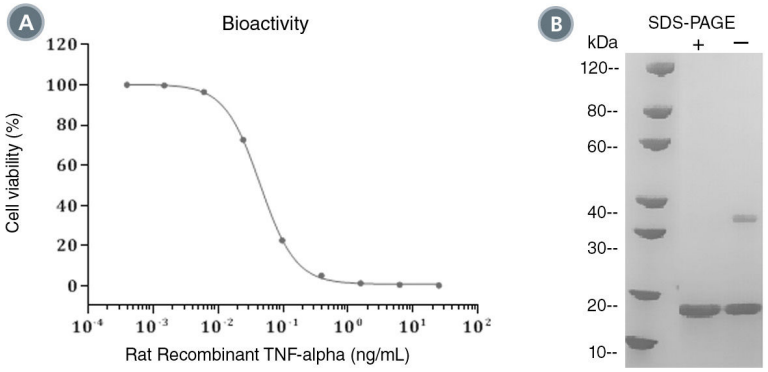
Specifications

Activity:	The specific activity is ≥ 2.0 x 10^7 units/mg (EC50 ≤ 0.05 ng/mL) as determined by a cytotoxicity assay of mouse L929 cells in the presence of actinomycin D.
Purity:	≥ 95%
Endotoxin Level:	Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 0.2 EU/µg protein.

Preparation and Storage

Storage:	Store at -80°C.
Stability:	Stable as supplied for 12 months from date of receipt.
Preparation:	Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. As a general guide, do not store at 2 - 8°C for more than 2 weeks or at -20°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data



(A) The biological activity of Rat Recombinant TNF-alpha was tested by its ability to inhibit cell growth of mouse L929 cells. Cell viability was measured using a fluorometric assay method. The EC50 is defined as the effective concentration of the growth factor at which cell proliferation is at 50% of maximum. The EC50 in the above example is less than 0.05 ng/mL.
(B) 2 µg of Rat Recombinant TNF-alpha was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Rat Recombinant TNF-alpha has a predicted molecular mass of 17.4 kDa.

Related Products

For a complete list of cytokines, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

References

Borsini A. et al. (2015) The role of inflammatory cytokines as key modulators of neurogenesis. Trends in Neurosciences 38(3): 145–57.
Zelová H & Hošek J. (2013) TNF-α signalling and inflammation: interactions between old acquaintances. Inflamm Res 62(7): 641–51.