

Active Recombinant Human TNF

Cat. No. TNF-431H Lot. No. (See product label)

SPECIFICATION

Species Human

Source Yeast

Description

Tumor necrosis factor is a cytokine involved in systemic inflammation and is a member of a group of cytokines that all stimulate the acute phase reaction. TNF is mainly secreted by macrophages. TNF causes apoptotic cell death, cellular proliferation, differentiation, inflammation, tumorigenesis and viral replication, TNF is also involved in lipid metabolism, and coagulation. TNF's primary role is in the regulation of immune cells. Dysregulation and, in particular, overproduction of TNF have been implicated in a variety of human diseases-autoimmune diseases, insulin resistance, and cancer.

Biochem/physiol Actions

Tumor necrosis factor- α , also known as cachectin, is expressed as a 26 kDa membrane bound protein and is then cleaved by TNF- α converting enzyme (TACE) to release the soluble 17 kDa monomer, which forms homotrimers in circulation. TNF- α plays roles in antitumor activity, immune modulation, inflammation, anorexia, cachexia, septic shock, viral replication and hematopoiesis. TNF- α is expressed by a great variety of cells, with numerous inductive and suppressive agents. Primarily, TNF- α is produced by macrophages in response to immunological challenges such as bacteria (lipopolysaccharides), viruses, parasites, mitogens and other cytokines. TNF- α is cytotoxic for many transformed cells (its namesake activity) but in normal diploid cells, it can stimulate proliferation (fibroblasts), differentiation (myeloid cells) or activation (neutrophils). TNF- α also shows antiviral effects against both DNA and

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RNA viruses and it induces production of several other cytokines. Although TNF- α is used in clinical trials as an antitumor agent, TNF- α and the related molecule TNF- β (LT- α) share close structural homology with 28% amino acid sequence identity and both activate the same TNF receptors, TNFR1 and TNFR2. Mouse and human TNF- α share 79% amino acid sequence identity. Unlike human TNF- α , the mouse form is glycosylated.

Physical Form Solution in phosphate buffered saline containing 1 mg/ml bovine serum albumin.

Assay $\geq 95\%$ (SDS-PAGE).

Form buffered aqueous solution.

Activity $\geq 2 \times 10^7$ units/mg.

Mol Wt mol wt ~ 17.4 kDa.

Total Impurities endotoxin, tested.

Suitability cell culture tested.

Storage Temp -20°C .

Pathways

Adipocytokine signaling pathway; Allograft rejection; Alzheimer"s disease; Alzheimer"s disease; Amyotrophic lateral sclerosis (ALS); Apoptosis; Asthma; Cytokine-cytokine receptor interaction; Fc epsilon RI signaling pathway; Graft-versus-host disease; Hypertrophic cardiomyopathy (HCM); Hematopoietic cell lineage; MAPK signaling pathway; Natural killer cell mediated cytotoxicity; RIG-I-like receptor signaling pathway; Systemic lupus erythematosus; T cell receptor signaling pathway; TGF-beta signaling pathway; Toll-like receptor signaling pathway; Type I diabetes

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mellitus; Type II diabetes mellitus; Apoptosis; Hematopoietic cell lineage

GENE INFORMATION

Gene Name

TNF tumor necrosis factor (TNF superfamily, member 2) [Homo sapiens]

Synonyms

TNF; tumor necrosis factor (TNF superfamily, member 2); DIF; TNFA; TNFSF2; TNF-alpha; Tumor necrosis factor; Tumor necrosis factor ligand; TNF-a; Cachectin; Tumor necrosis factor, membrane form; Tumor necrosis factor, soluble form; superfamily member 2; OTTHUMP00000029281; OTTHUMP00000037669; cachectin; APC1 protein; TNF superfamily, member 2; TNF, macrophage-derived; TNF, monocyte-derived; Tumor necrosis factor ligand superfamily member 2; tumor necrosis factor (TNF superfamily, member 2); tumor necrosis factor alpha

Gene ID

7124

mRNA Refseq

NM_000594

Protein Refseq

NP_000585

MIM

91160

UniProt ID

P01375

Chromosome Location


6p21.3

Function

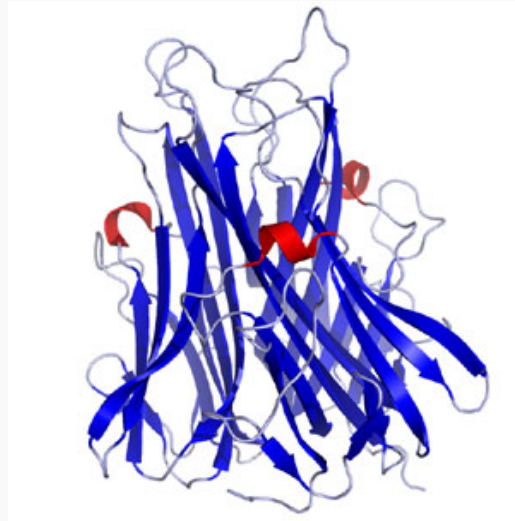
cytokine activity; identical protein binding; tumor necrosis factor receptor binding

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PDB rendering based
on 1TNF.



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