

TNF-alpha/TNFSF2 Protein, Ferret

| | |
|--------------------------|--|
| Cat. No.: | HY-P73445 |
| Synonyms: | Tumor Necrosis Factor; Cachectin; TNF-Alpha; Tnf; Tnfa; Tnfsf2; ICD1 |
| Species: | Others |
| Source: | E. coli |
| Accession: | A3FBF1 (V77-L233) |
| Gene ID: | 101687148 |
| Molecular Weight: | Approximately 17 kDa |

PROPERTIES

| | |
|--------------------------------|---|
| AA Sequence | <p>V K S S S R T P S D K P V A H V V A N P E A E G Q L Q W L S R R A N A L L A N G</p> <p>V E L T D N Q L I V P S D G L Y L I Y S Q V L F K G R G C S S T N V L L T H T I</p> <p>S R F A V S Y Q T K V N L L S A I K S P C Q R E T P E G T E A K P W Y E P I Y L</p> <p>G G V F Q L E K G D R L S A E I N L P A Y L D F A E S G Q V Y F G I I A L</p> |
| Biological Activity | Immobilized Ferret TNF-alpha, No Tag at 0.5 µg/mL (100 µl/well) on the plate. Dose response curve for Human TNFR2, hFc Tag with the EC ₅₀ of ≤14.5 ng/mL determined by ELISA. |
| Appearance | Lyophilized powder |
| Formulation | Lyophilized from a 0.2 µm filtered solution of PBS, pH 7.4. Normally 5% - 8% trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization. |
| Endotoxin Level | <1 EU/µg, determined by LAL method. |
| Reconstitution | It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH ₂ O. |
| Storage & Stability | Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage. |
| Shipping | Room temperature in continental US; may vary elsewhere. |

DESCRIPTION

| | |
|-------------------|---|
| Background | <p>TNF alpha is produced by various types of cells including macrophages, monocytes, neutrophils, T cells, and NK-cells^[2]. The amino acid sequence of human TNF alpha protein has low homology between mouse, rat, bovine, cynomolgus TNF alpha protein. While, human TNF alpha shares 94.85% aa sequence identity with cynomolgus TNF alpha protein, mouse TNF alpha shares 94.47% aa sequence identity with rat TNF alpha protein.</p> <p>TNF alpha exists in two forms; a type II transmembrane protein (tmTNF-α) and a mature soluble protein (sTNF-α). TNF-α</p> |
|-------------------|---|

binds to its receptors, mainly TNFR1 and TNFR2, and then transmits molecular signals for biological functions such as inflammation and cell death. Both sTNF- α and tmTNF- α activate TNFR1, and process a death domain (DD) that interacts with the TNFR1-associated death domain (TRADD) adaptor protein. The TNFR2 signaling pathway is mainly activated by tmTNF- α . TNFR1 signaling tends to be pro-inflammatory and apoptotic. TNFR2 results in NF- κ B and MAPKs and AKT activation, TNFR2 activation is associated with homeostatic bioactivities such as tissue regeneration, cell proliferation, and cell survival, as well as host defense and inflammation^[1].

TNF-alpha is critical for normal immune response, abnormal secretion TNF alpha activates synovial fibroblasts, keratinocytes, osteoclasts, induces rheumatoid arthritis, inflammatory bowel disease, psoriatic arthritis (PsA), and noninfectious uveitis (NIU)^[3]. TNF alpha positively regulates endogenous TNF- α expression levels independently of Pgp efflux activity, induces IHF cells proliferation^[4]. TNF alpha in tissues may promote cancer growth, invasion, and metastasis. Besides, TNF alpha stimulates NF- κ B pathway via TNFR2 and anti-TNF- α MAb significantly suppresses the tumor development in colitis-associated cancer (CAC) mouse^[5]. TNF alpha as a proneurogenic factor activates the SAPK/JNK pathway and can facilitate neuronal replacement and brain repair in response to brain injury^[6].

REFERENCES

- [1]. Horiuchi T, et al. Transmembrane TNF-alpha: structure, function and interaction with anti-TNF agents. *Rheumatology (Oxford)*. 2010 Jul;49(7):1215-28.
- [2]. El-Tahan RR, et al. TNF- α gene polymorphisms and expression. *Springerplus*. 2016 Sep 7;5(1):1508.
- [3]. Jang DI, et al. The Role of Tumor Necrosis Factor Alpha (TNF- α) in Autoimmune Disease and Current TNF- α Inhibitors in Therapeutics. *Int J Mol Sci*. 2021 Mar 8;22(5):2719.
- [4]. Berguetti T, et al. TNF- α Modulates P-Glycoprotein Expression and Contributes to Cellular Proliferation via Extracellular Vesicles. *Cells*. 2019 May 24;8(5):500.
- [5]. Onizawa M, et al. Signaling pathway via TNF-alpha/NF-kappaB in intestinal epithelial cells may be directly involved in colitis-associated carcinogenesis. *Am J Physiol Gastrointest Liver Physiol*. 2009 Apr;296(4):G850-9.
- [6]. Bernardino L, et al. Tumor necrosis factor-alpha modulates survival, proliferation, and neuronal differentiation in neonatal subventricular zone cell cultures. *Stem Cells*. 2008 Sep;26(9):2361-71.
- [7]. Matsuno H, et al. The role of TNF-alpha in the pathogenesis of inflammation and joint destruction in rheumatoid arthritis (RA): a study using a human RA/SCID mouse chimera. *Rheumatology (Oxford)*. 2002 Mar;41(3):329-37.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA