

Synonym

DIF,TNF-alpha,TNFA,TNFSF2,cachexin,cachectin,TNF α

Source

ActiveMax® Human TNF-alpha, Tag Free, low endotoxin (active trimer) (MALS verified) (AMS.TNA-H4211) is expressed from human 293 cells (HEK293). It contains AA Val 77 - Leu 233 (Accession # P01375-1).

Predicted N-terminus: Val 77

Molecular Characterization

TNF-alpha(Val 77 - Leu 233)
P01375-1

This protein carries no "tag".

The protein has a calculated MW of 17.4 kDa. The protein migrates as 17 kDa and 18 kDa under reducing (R) condition (SDS-PAGE).

Endotoxin

Less than 0.1 EU per μ g by the LAL method.

Purity

>95% as determined by SDS-PAGE.

>95% as determined by SEC-MALS.

Formulation

Lyophilized from 0.22 μ m filtered solution in PBS, pH7.4. Normally trehalose is added as protectant before lyophilization.

Contact us for customized product form or formulation.

Reconstitution

Please see Certificate of Analysis for specific instructions.

For best performance, we strongly recommend you to follow the reconstitution protocol provided in the CoA.

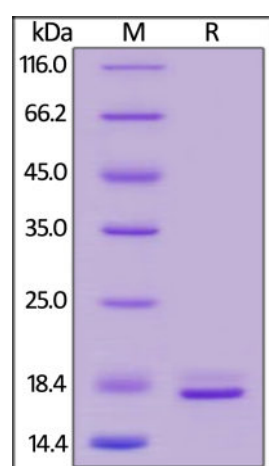
Storage

For long term storage, the product should be stored at lyophilized state at -20°C or lower.

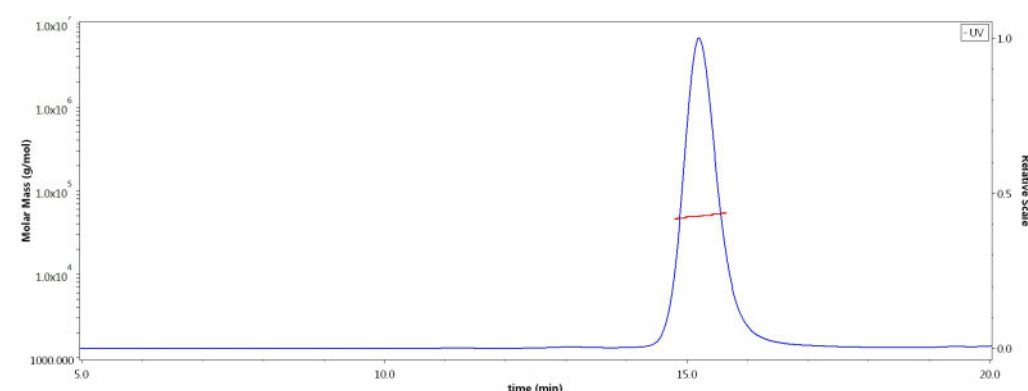
Please avoid repeated freeze-thaw cycles.

This product is stable after storage at:

- -20°C to -70°C for 12 months in lyophilized state;
- -70°C for 6 months under sterile conditions after reconstitution.

SDS-PAGE

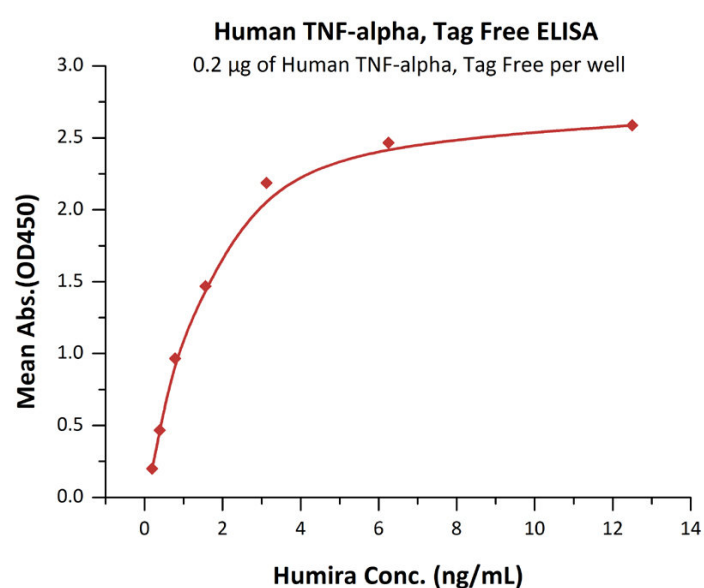
ActiveMax® Human TNF-alpha, Tag Free, low endotoxin (active trimer) (MALS verified) on SDS-PAGE under reducing (R) condition. The gel was stained overnight with Coomassie Blue. The purity of the protein is greater than 95%.

Bioactivity-ELISA**SEC-MALS**

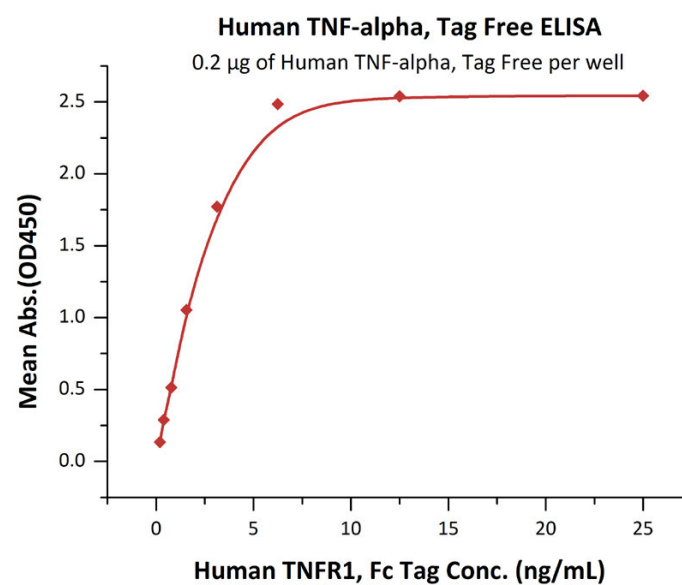
The purity of ActiveMax® Human TNF-alpha, Tag Free, low endotoxin (active trimer) (MALS verified) (Cat. No. AMS.TNA-H4211) was more than 95% in HP-SEC, and around 47-60 kDa verified by SEC-MALS.

ActiveMax® Human TNF-alpha Protein, Tag Free, low endotoxin (active trimer) (MALS verified)

Catalog # AMS.TNA-H4211

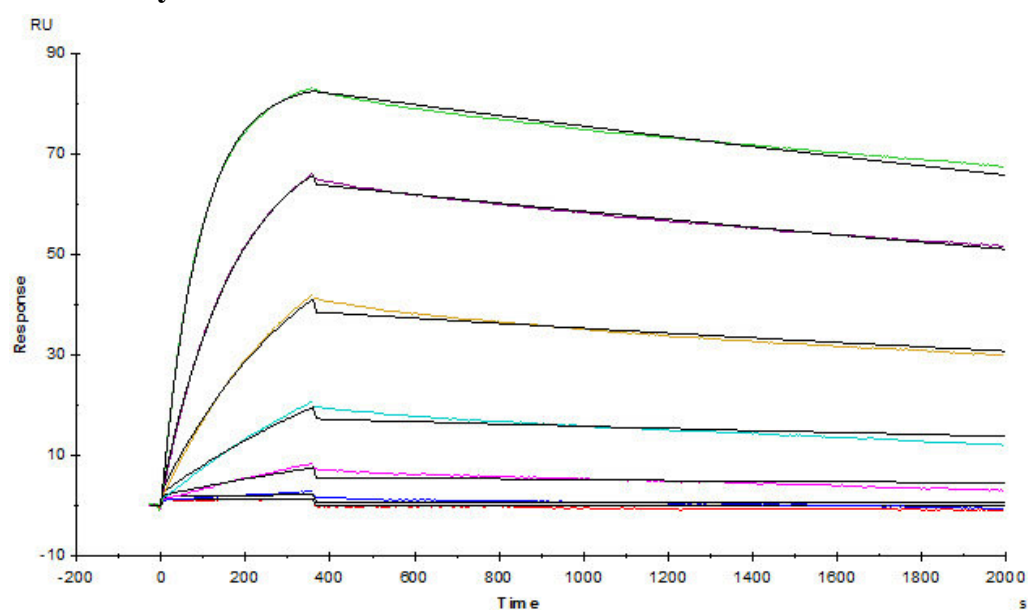


Immobilized ActiveMax® Human TNF-alpha, Tag Free, low endotoxin (active trimer) (MALS verified) at 2 µg/mL (100 µL/well) can bind Humira with a linear range of 0.2-2 ng/mL (QC tested).



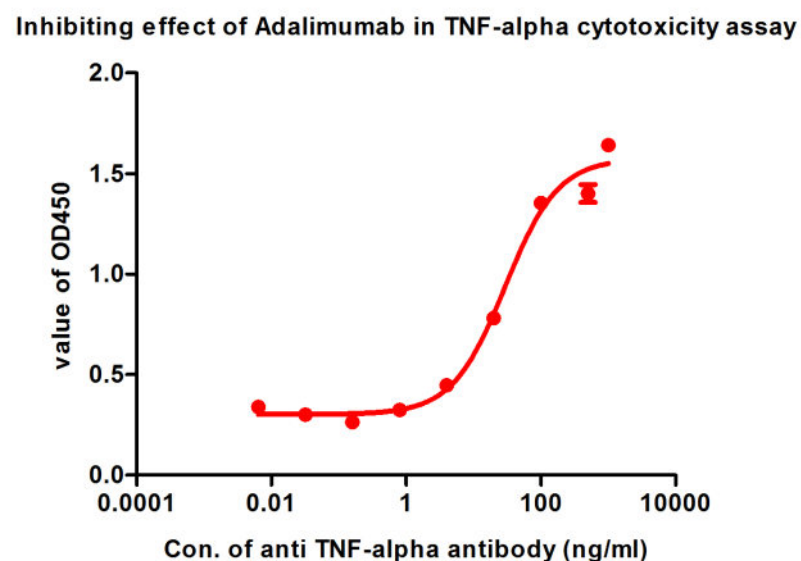
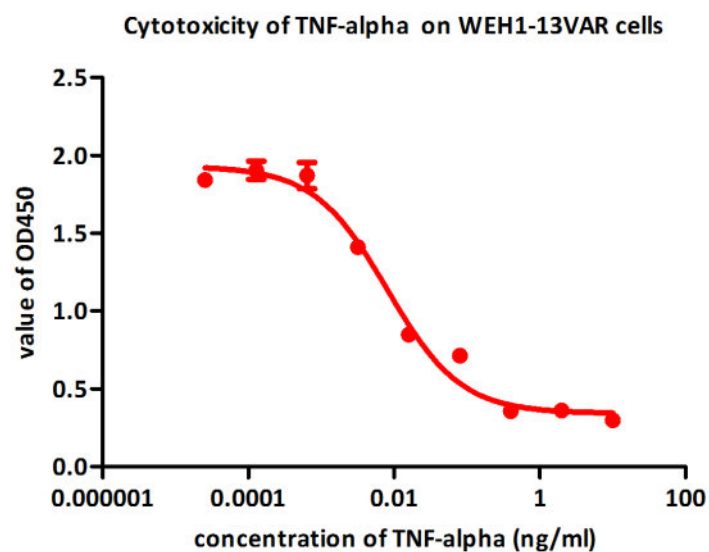
Immobilized ActiveMax® Human TNF-alpha, Tag Free, low endotoxin (active trimer) (MALS verified) at 2 µg/mL (100 µL/well) can bind Human TNFR1, Fc Tag with a linear range of 0.2-3 ng/mL (Routinely tested).

Bioactivity-SPR



Humira (Adalimumab) captured on CM5 chip via anti-human IgG Fc antibodies surface, can bind ActiveMax® Human TNF-alpha, Tag Free, low endotoxin (active trimer) (MALS verified) (Cat. No. AMS.TNA-H4211) with an affinity constant of 0.255 nM as determined in a SPR assay (Biacore T200) (Routinely tested).

Bioactivity-Cell based assay



ActiveMax® Human TNF-alpha Protein, Tag Free, low endotoxin (active trimer) (MALS verified)

Catalog # AMS.TNA-H4211

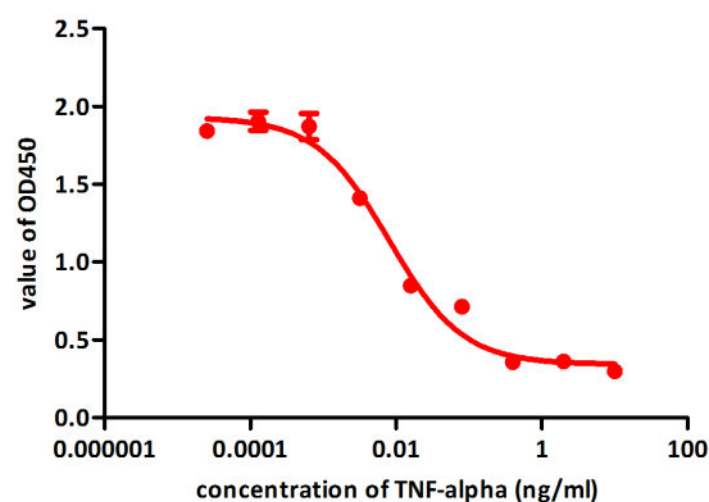
ActiveMax® Human TNF-alpha, Tag Free, low endotoxin (active trimer) (MALS verified) (Cat. No. AMS.TNA-H4211) induces cytotoxicity effect on the WEH1-13VAR cells in the presence of the metabolic inhibitor actinomycin D.

The EC50 for this effect is 0.007-0.014 ng/mL (Routinely tested).

Neutralization assay shows that the cytotoxicity effect of ActiveMax® Human TNF-alpha, Tag Free, low endotoxin (active trimer) (MALS verified) (Cat. No. AMS.TNA-H4211) was inhibited by increasing concentration of Adalimumab. The concentration of TNF-alpha used is 1 ng/mL. The IC50 is 29 ng/mL (Routinely tested).

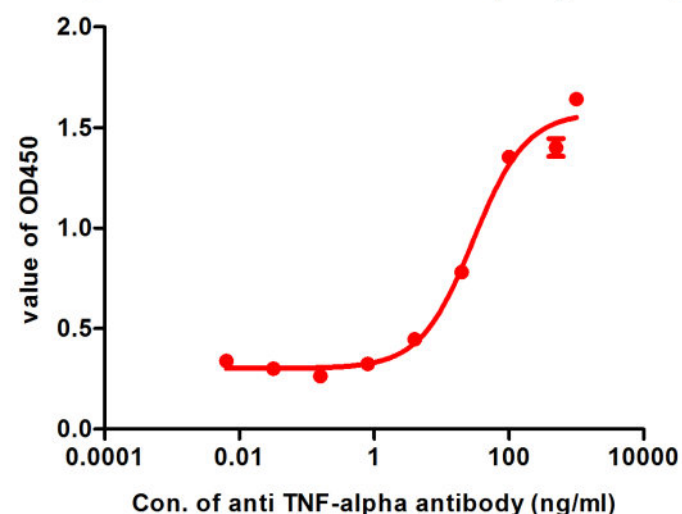
Bioactivity-Cell based assay

Cytotoxicity of TNF-alpha on WEH1-13VAR cells



ActiveMax® Human TNF-alpha, Tag Free, low endotoxin (active trimer) (MALS verified) (Cat. No. AMS.TNA-H4211) induces cytotoxicity effect on the WEH1-13VAR cells in the presence of the metabolic inhibitor actinomycin D. The EC50 for this effect is 0.007-0.014 ng/mL (Routinely tested).

Inhibiting effect of Adalimumab in TNF-alpha cytotoxicity assay



Neutralization assay shows that the cytotoxicity effect of ActiveMax® Human TNF-alpha, Tag Free, low endotoxin (active trimer) (MALS verified) (Cat. No. AMS.TNA-H4211) was inhibited by increasing concentration of Adalimumab. The concentration of TNF-alpha used is 1 ng/mL. The IC50 is 29 ng/mL (Routinely tested).

Background

Tumor necrosis factor alpha (TNF α) is a cytokine produced primarily by monocytes and macrophages. It is found in synovial cells and macrophages in the tissues. The primary role of TNF α is in the regulation of immune cells. TNF α is able to induce apoptotic cell death, to induce inflammation, and to inhibit tumorigenesis and viral replication. Dysregulation of TNF α production has been implicated in a variety of human diseases, including major depression, Alzheimer's disease and cancer. Recombinant TNF α is used as an immunostimulant under the INN tasonermin. TNF α can be produced ectopically in the setting of malignancy and parallels parathyroid hormone both in causing secondary hypercalcemia and in the cancers with which excessive production is associated.

References

- (1) [Dowlati Y, Herrmann N, et al., 2010, Biol Psychiatry 67 \(5\): 446-457.](#)
- (2) [Swardfager W, Lanctot K, et al., 2010, Biol Psychiatry 68 \(10\): 930-941.](#)
- (3) [Locksley RM, Killeen N et al., 2001, Cell 104 \(4\): 487-501.](#)

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