

# Active Recombinant Human Mature TGF-beta 1 Protein

Catalog No.: RP01458

Recombinant

2 Publications

## Sequence Information

Species	Gene ID	Swiss Prot
Human	7040	P01137

### Tags

No tag

### Synonyms

TGFB1; CED; DPD1; LAP; TGFB; TGFbeta; transforming growth factor beta-1; TGF-beta 1; CED; DPD1; LAP; TGFB; TGFbeta; TGF-β

## Product Information

Source	Purification
HEK293 cells	> 95% by SDS-PAGE.

### Endotoxin

&lt;0.1EU/μg

### Formulation


Lyophilized from a 0.22 μm filtered solution of 50 mM Glycine, 150 mM NaCl, pH 3.5.

### Reconstitution

Centrifuge the vial before opening. Reconstitute to a concentration of 0.1-0.5 mg/mL in sterile distilled water. Avoid vortex or vigorously pipetting the protein. For long term storage, it is recommended to add a carrier protein or stabilizer (e.g. 0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose), and aliquot the reconstituted protein solution to minimize free-thaw cycles.

## Contact

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## Background

TGF-beta 1 is a member of the transforming growth factor beta (TGF-beta) family. The transforming growth factor-beta family of polypeptides are involved in the regulation of cellular processes, including cell division, differentiation, motility, adhesion and death. TGF-beta 1 positively and negatively regulates many other growth factors. It inhibits the secretion and activity of many other cytokines including interferon-γ, tumor necrosis factor-alpha and various interleukins. It can also decrease the expression levels of cytokine receptors. Meanwhile, TGF-beta 1 also increases the expression of certain cytokines in T cells and promotes their proliferation, particularly if the cells are immature. TGF-beta 1 also inhibits proliferation and stimulates apoptosis of B cells, and plays a role in controlling the expression of antibody, transferrin and MHC class II proteins on immature and mature B cells. As for myeloid cells, TGF-beta 1 can inhibit their proliferation and prevent their production of reactive oxygen and nitrogen intermediates. However, as with other cell types, TGF-beta 1 also has the opposite effect on cells of myeloid origin. TGF-beta 1 is a multifunctional protein that controls proliferation, differentiation and other functions in many cell types. It plays an important role in bone remodeling as it is a potent stimulator of osteoblastic bone formation, causing chemotaxis, proliferation and differentiation in committed osteoblasts. Once cells lose their sensitivity to TGF-beta1-mediated growth inhibition, autocrine TGF-beta signaling can promote tumorigenesis. Elevated levels of TGF-beta1 are often observed in advanced carcinomas, and have been correlated with increased tumor invasiveness and disease progression.

## Basic Information

### Description

Active Recombinant Human Mature TGF-beta 1 Protein is produced by HEK293 cells expression system. The target protein is expressed with sequence (Ala279-Ser390) of human Mature TGF-beta 1 (Accession #NP\_000651.3) fused with no tag.

### Bio-Activity

1. Measured by its binding ability in a functional ELISA. Immobilized Human TGF-beta 1 at 2 μg/mL (100 μL/well) can bind Human TGFBR2 with a linear range of 0.78-11 ng/mL. 2. Measured by its ability to inhibit the IL-4 (Catalog: RP01161) dependent proliferation of HT-2 mouse T cells. The ED<sub>50</sub> for this effect is 42-168 pg/mL, corresponding to a specific activity of  $6 \times 10^6 \sim 2.4 \times 10^7$  units/mg.

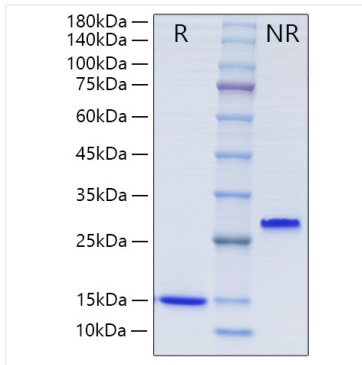
### Storage

Store the lyophilized protein at -20°C to -80°C for long term.

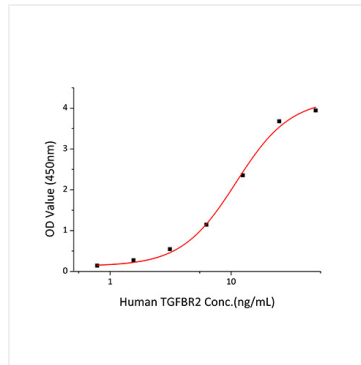
After reconstitution, the protein solution is stable at -20°C for 3 months, at 2-8°C for up to 1 week.

Avoid repeated freeze/thaw cycles.

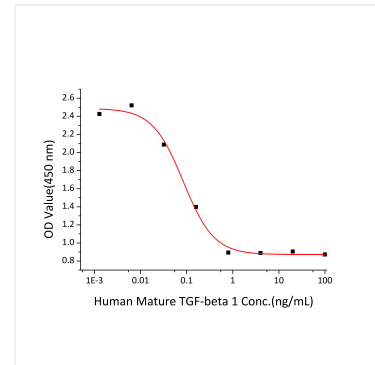
## Validation Data



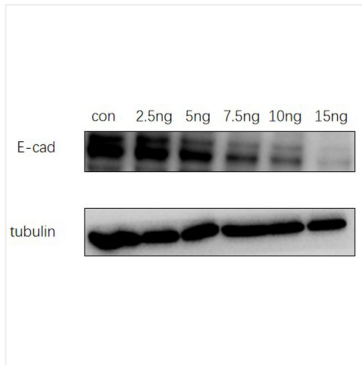
Active Recombinant Human Mature TGF-beta 1 Protein was determined by SDS-PAGE under reducing (R) and non-reducing (NR) conditions, showing bands at 15 kDa and 25-30 kDa, respectively.



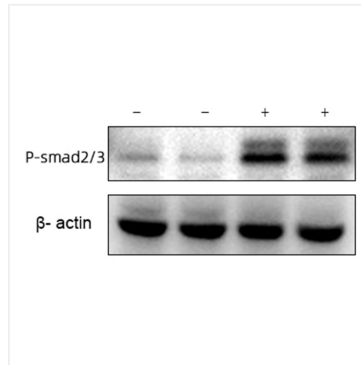
Immobilized Human TGF-beta 1 at 2 µg/mL (100 µL/well) can bind Human TGFBR2 with a linear range of 0.78-11 ng/mL.



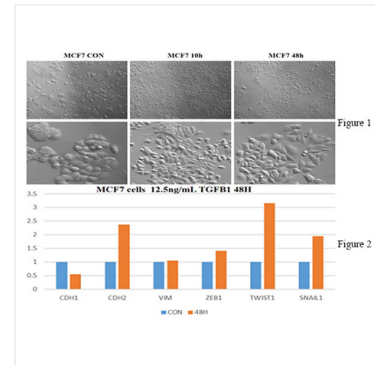
Recombinant Human Mature TGFβ1 inhibit the IL-4(Catalog: RP01161)-dependent proliferation of HT-2 mouse T cells. The ED<sub>50</sub> for this effect is 42-168 pg/mL, corresponding to a specific activity of 6×10<sup>6</sup>~2.4×10<sup>7</sup> units/mg.



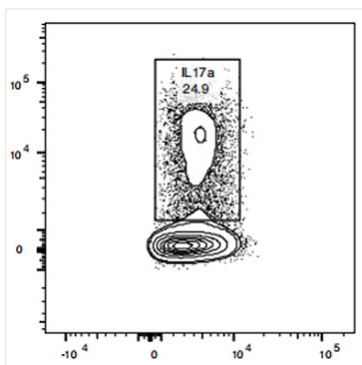
Active Recombinant Human mature TGF-beta1 induces EMT in A549 cells. As the concentration of TGF-beta1 increased, the expression of epithelial cell marker E-cad significantly downregulated.(Customer feedback data)



Active Recombinant Human mature TGF-beta1 stimulates smad2/3 autophosphorylation in Human Umbilical Vein Endothelial Cells (HUVEC). 10ng/mL of Recombinant Human TGF-beta 1 can effectively enhance smad2/3 autophosphorylation.(Customer feedback data)



Active Recombinant Human Mature TGF-beta 1 induces MCF7 cells EMT with a concentration of 12.5 ng/mL. After 10 h, the cell morphology significantly altered, appearing a fusiform shape (figure 1). After 48 h, the change of EMT associated genes are as figure 2. Results showed that the induction was successful.(Customer feedback data)



Recombinant mouse IL-23(Cat. RP02928LQ) and human TGF-β1 were used to induce the mouse T cells differentiate into Th17 cells. Flow cytometry was used to detect the expression of IL-17A. Results showed that Th17 cells were induced successfully.(Customer Feedback Data)