

## Latent TGF beta 1 Protein, Mouse, Recombinant (His), Biotinylated

### General Information

Synonyms:	transforming growth factor, beta 1;transforming growth factor, $\beta$ 1;TGFbeta1;TGF $\beta$ 1;TGF $\beta$ 1;TGF- $\beta$ 1;TGF-beta1;Tgfb-1;Tgfb
Protein Construction:	A DNA sequence encoding the mouse Latent TGF $\beta$ 1 (P04202) (Met1-Ser390) was expressed with a C-terminal polyhistidine tag. The purified protein was biotinylated in vitro. Predicted N terminal: Leu 30
Species:	Mouse
Expression Host:	HEK293 Cells
Accession:	P04202
Molecular Weight:	42.7 kDa (predicted)

### QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 95 % as determined by SDS-PAGE.
Endotoxin:	< 1.0 EU/ $\mu$ g of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 $\mu$ m filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

### Preparation and Storage

#### Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

#### Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

#### Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein 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- $\gamma$ , 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- $\beta$ 1-mediated growth inhibition, autocrine TGF- $\beta$  signaling can promote tumorigenesis. Elevated levels of TGF- $\beta$ 1 are often observed in advanced carcinomas, and have been correlated with increased tumor invasiveness and disease progression.

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### Reference

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- Assoian R, et al. (1983) Transforming growth factor- $\beta$  in human platelets. Identification of a major storage site, purification, and characterization. *J Biol Chem.* 258(11):7155-60.

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