

## TGF beta 2 Protein, Mouse, Recombinant (His), Biotinylated

### General Information

Synonyms:	transforming growth factor $\beta$ 2;TGF $\beta$ 2;Tgfb-2;TGF- $\beta$ 2;BB105277;TGF-beta 2;Tgf-beta2;TGFB2;transforming growth factor beta 2
Protein Construction:	A DNA sequence encoding the mouse Tgfb2 (NP_033393.2) (Met1-Ser414) was expressed with a polyhistidine tag at the C-terminus. The purified protein was biotinylated in vitro. Predicted N terminal: Ser 20
Species:	Mouse
Expression Host:	HEK293 Cells
Accession:	P27090
Molecular Weight:	46.9 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:	> 90 % 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 2 (Transforming growth factor beta 2), an extracellular glycosylated protein, which belongs to the TGF-beta family. TGF-beta regulates key mechanisms of tumor development, namely immunosuppression, metastasis, angiogenesis, and proliferation. TGF beta 2 suppression is a promising therapeutic approach for malignant tumor

therapy. The signaling pathway of TGF beta 2/Smad plays an important role in the pathological process in posterior capsule opacification (PCO) after cataract surgery. Silencing Smad2 and Smad3 efficiently blocked the effect of TGF beta 2 on cell proliferation, migration, and extracellular matrix production. TGF beta 2 activation of MEK3/ERK1/2/5 signaling modulates Has2 expression and hyaluronan (HA) production leading to the induction of epithelial to mesenchymal transformation (EMT) events. Besides, the upregulation of the TGF beta 2 level is a common pathological feature of Alzheimer's disease (AD) brains and suggests that it may be closely linked to the development of neuronal death related to AD.

### Reference

- Schlingensiepen KH, et al. (2006) Targeted tumor therapy with the TGF-beta 2 antisense compound AP 12009. *Cytokine Growth Factor Rev.* 17(1-2): 129-39.
- Ghatpande SK, et al. (2010) Transforming growth factor beta2 is negatively regulated by endogenous retinoic acid during early heart morphogenesis. *Dev Growth Differ.* 52(5): 433-55.
- Noguchi A, et al. (2010) Transforming growth factor beta2 level is elevated in neurons of Alzheimer's disease brains. *Int J Neurosci.* 120(3): 168-75.
- Li J, et al. (2011) Comparative effects of TGF- $\beta$ 2/Smad2 and TGF- $\beta$ 2/Smad3 signaling pathways on proliferation, migration, and extracellular matrix production in a human lens cell line. *Exp Eye Res.* 92(3): 173-9.

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