

PRODUCT INFORMATION

Latent TGF- β 1 (human, recombinant)

Item No. 30606

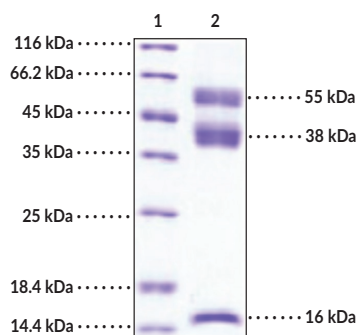


Overview and Properties

Synonyms:	CED, DPD1, TGFB
Source:	Recombinant human C-terminal His-tagged TGF- β 1 expressed in HEK293 cells
Amino Acids:	1-390 (full length)
Molecular Weight:	42.4 kDa for LAP-bound TGF- β 1
Storage:	-80°C (as supplied); avoid repeated freeze/thaw cycles
Stability:	≥ 1 year
Purity:	$\geq 95\%$ estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile PBS, pH 7.4, 5% trehalose, 5% mannitol
Bioactivity:	See figures for details

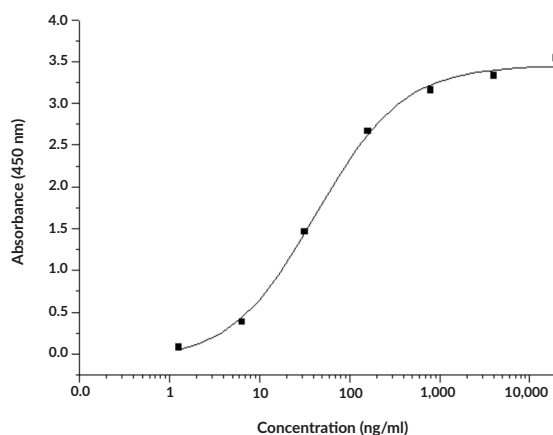
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: MW Markers
Lane 2: TGF- β 1

SDS-PAGE Analysis of TGF- β 1. This protein has a calculated molecular weight of 42.4 kDa. It has an apparent molecular weight of approximately 16, 38, and 55 kDa for mature TGF- β 1, LAP, and LAP-bound TGF- β 1, respectively, due to glycosylation.



Binding of biotinylated TGF- β R2 to immobilized TGF- β 1. Immobilized human TGF- β 1-His at 10 μ g/ml (100 μ l/well) can bind biotinylated human TGF- β R2-Fch with an EC_{50} value of 50-200 ng/ml.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

Transforming growth factor $\beta 1$ (TGF- $\beta 1$) is a multifunctional cytokine and member of the TGF- β superfamily.^{1,2} It is an extracellular dimeric protein that is produced by multiple cell types, including macrophages, platelets, neutrophils, regulatory T cells, and renal tubular cells, and is the most abundantly expressed isoform of TGF- β . TGF- $\beta 1$ is expressed as a proprotein that is cleaved in the Golgi to form a latency-associated peptide (LAP) and mature TGF- $\beta 1$.² LAP and TGF- $\beta 1$ remain non-covalently bound until mature TGF- $\beta 1$ is released from latency by various proteins, including matrix metalloproteinases and plasmin, to regulate immune function, epithelial-mesenchymal transition, and cell proliferation. Severe acute respiratory syndrome coronavirus (SARS-CoV) papain-like protease induces TGF- $\beta 1$ -dependent type I collagen production, a marker of pulmonary fibrosis, in A549 cells and mouse lung.³ Expression of constitutively active TGF- $\beta 1$ induces Alzheimer's disease-like cerebrovascular stiffness and vascular hypertrophy in mice.⁴ Serum and urine levels of TGF- $\beta 1$ are increased in patients with type 2 diabetes.⁵ Cayman's TGF- $\beta 1$ (human, recombinant) protein can be used for ELISA, Western blot, and cell-based assay applications. The LAP-bound form of this protein consists of 370 amino acids and has a calculated molecular weight of 42.4 kDa. By SDS-PAGE, under reducing conditions, the apparent molecular mass of the protein is 16, 38, and 55 kDa for mature TGF- $\beta 1$, LAP, and LAP-bound TGF- $\beta 1$, respectively, due to glycosylation.

References

1. Martelossi Cebinelli, G.C., Paiva Trugilo, K., Badaró Garcia, S., *et al.* TGF- $\beta 1$ functional polymorphisms: A review. *Eur. Cytokine Netw.* **27(4)**, 81-89 (2016).
2. Khalil, N. TGF- β : From latent to active. *Microbes Infect.* **1(15)**, 1255-1263 (1999).
3. Wang, C.-Y., Lu, C.-Y., Li, S.-W., *et al.* SARS coronavirus papain-like protease up-regulates the collagen expression through non-Samd TGF- $\beta 1$ signaling. *Virus Res.* **235**, 55-66 (2017).
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5. Qiao, Y.-C., Chen, Y.-L., Pan, Y.-H., *et al.* Changes of transforming growth factor beta 1 in patients with type 2 diabetes and diabetic nephropathy: A PRISMA-compliant systematic review and meta-analysis. *Medicine (Baltimore)* **96(15)**, e6583 (2017).

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