

Cytokines

Human Recombinant TGF-beta 1

Transforming growth factor beta 1



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Catalog #	78067	5 µg
	78067.1	100 µg
	78067.2	500 µg
	78067.3	1000 µg

Product Description

Transforming growth factor beta 1 (TGF-β1) is a member of the TGF-β superfamily and regulates diverse cellular phenotypes. TGF-β1 binds to serine-threonine kinase type I and II receptors and activates signal transduction through SMAD2/3 proteins, thus regulating a variety of functions, including cell proliferation, differentiation, wound healing, apoptosis, and metabolism (Massagué; McDowell et al.). During human embryogenesis, TGF-β1 is expressed by endothelial and hematopoietic tissues and acts as an endogenous autocrine growth regulator in those cells (Gatherer et al.). Together with basic fibroblast growth factor (bFGF), TGF-β1 supports the culture of undifferentiated human embryonic stem cells and induced pluripotent stem cells (Amit et al.). TGF-β1 is produced in latent form by many blood cells and is present in high amounts in platelets and bones. Once activated, TGF-β1 helps to maintain immune homeostasis by modulating B cell response and mediating immunosuppressive effects on T cells and neutrophils (Letterio & Roberts).

Product Information

Alternative Names:	Cartilage-inducing factor, Differentiation inhibiting factor, LAP, Latency-associated peptide, TGFB1, TGF-beta-1, Transforming growth factor β 1
Accession Number:	P01137
Amino Acid Sequence:	ALDTNYCFSS TEKNCCVRQL YIDFRKDLGW KWIHEPKGYH ANFCLGPCPY IWSLDTQYSK VLALYNQHNP GASAAPCCVP QALEPLPIVY YVGRKPKVEQ LSNMIVRSCK CS
Predicted Molecular Mass:	12.8 kDa monomer, 25.6 kDa dimer
Species:	Human
Cross Reactivity:	Mouse, Rat, Cow, Dog, Horse, Pig
Formulation:	Lyophilized from a sterile-filtered aqueous solution containing 0.1% trifluoroacetic acid and trehalose.
Source:	CHO

Specifications

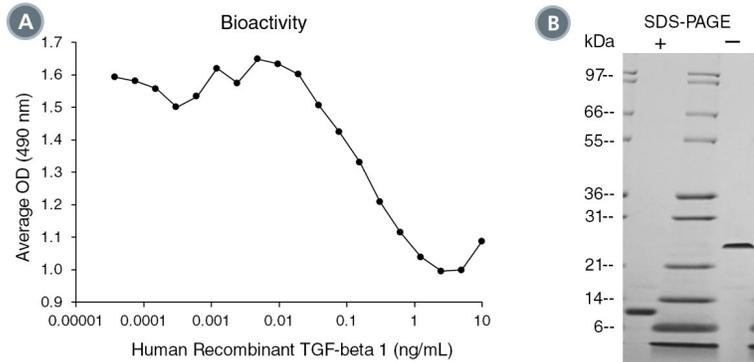
Activity:	The specific activity is $\geq 2.0 \times 10^6$ units/mg ($EC_{50} \leq 0.5$ ng/mL) as determined by the ability to inhibit IL-4-induced HT-2 cell proliferation.
Purity:	$\geq 95\%$
Endotoxin Level:	Measured by kinetic Limulus amoebocyte lysate (LAL) analysis and is ≤ 1 EU/µg protein.

Preparation and Storage

Storage:	Store at -20°C to -80°C.
Stability:	Stable as supplied for 12 months from date of receipt.
Preparation:	Centrifuge vial before opening. Reconstitute the product in 10 mM hydrochloric acid to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex.

OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at 2 - 8°C for more than 1 month or at -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data



(A) The biological activity of Human Recombinant TGF-beta 1 was tested by the ability to inhibit IL-4-induced HT-2 cell proliferation. Inhibition of cell proliferation was measured after 2 days of culture using a fluorometric assay method. The EC50 is defined as the effective concentration of the growth factor at which cell proliferation inhibition is at 50% of maximum. The EC50 in the above example is 0.17 ng/mL.

(B) 1 μ g of Human Recombinant TGF-beta 1 was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant TGF-beta 1 is a homodimer of 12.8 kDa subunits with a predicted molecular mass of 25.6 kDa.

Related Products

For a complete list of cytokines, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

References

- Amit M et al. (2004) Feeder layer- and serum-free culture of human embryonic stem cells. *Biol Reprod* 70(3): 837–45.
- Gatherer D et al. (1990) Expression of TGF-beta isoforms during first trimester human embryogenesis. *Development* 110(2): 445–60.
- Letterio JJ & Roberts AB. (1998) Regulation of immune responses by TGF-beta. *Annu Rev Immunol* 16: 137–61.
- Massagué J. (2000) How cells read TGF-beta signals. *Nat Rev Mol Cell Biol* 1(3): 169–78.
- McDowell N et al. (1997) Activin has direct long-range signalling activity and can form a concentration gradient by diffusion. *Curr Biol* 7(9): 671–81.

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