

Cytokines

Human Recombinant TGF-beta 1



Scientists Helping Scientists™ | WWW.STEMCELL.COM

TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713

INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM

FOR GLOBAL CONTACT DETAILS VISIT OUR WEBSITE

Transforming growth factor beta 1

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, Latency-associated peptide, TGFB1, TGF-beta-1, LAP, 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

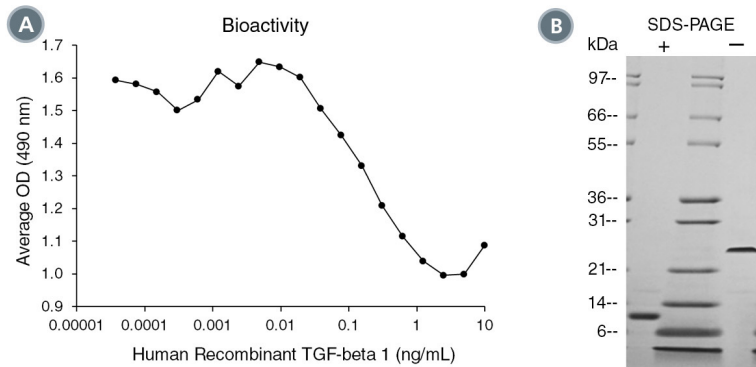
Specifications

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 ≤ 1.0 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. Resuspend the product in 10 mM hydrochloric acid containing 0.1% bovine serum albumin (BSA) to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. Store at 2 - 8°C for up to 1 month or at -20°C to -80°C for up to 3 months. Avoid repeated freeze-thaw cycles. NOTE: If reconstituted product will be used immediately BSA is not required.

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. 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 is at 50% of maximum. The EC50 in the above example is 0.17 ng/mL.

(B) 1 µg of Human Recombinant TGF-beta 1 was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining.

Related Products

For a complete list of cytokines, as well as related products available from STEMCELL Technologies, please visit our website at 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.

STEMCELL TECHNOLOGIES INC.'S QUALITY MANAGEMENT SYSTEM IS CERTIFIED TO ISO 13485. PRODUCTS ARE FOR RESEARCH USE ONLY AND NOT INTENDED FOR HUMAN OR ANIMAL DIAGNOSTIC OR THERAPEUTIC USES UNLESS OTHERWISE STATED.

Copyright © 2017 by STEMCELL Technologies Inc. All rights reserved including graphics and images. STEMCELL Technologies & Design, STEMCELL Shield Design, and Scientists Helping Scientists are trademarks of STEMCELL Technologies Canada Inc. All other trademarks are the property of their respective holders. While STEMCELL has made all reasonable efforts to ensure that the information provided by STEMCELL and its suppliers is correct, it makes no warranties or representations as to the accuracy or completeness of such information.