

Cytokines

Human Recombinant TGF-beta 1 (Cell Culture Ready)



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

Catalog #100-0856

1 mL

Product Description

Transforming growth factor beta 1 (TGF- β 1) is a member of the TGF- β superfamily and regulates diverse cellular phenotypes. TGF- β 1 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- β 1 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- β 1 supports the culture of undifferentiated human embryonic stem cells and induced pluripotent stem cells (Amit et al.). TGF- β 1 is produced in latent form by many blood cells and is present in high amounts in platelets and bones. Once activated, TGF- β 1 helps to maintain immune homeostasis by modulating B cell response and mediating immunosuppressive effects on T cells and neutrophils (Letterio & Roberts). This product is cell culture ready and supplied as a 0.1 mg/mL solution.

Product Information

Alternative Names:	Cartilage-inducing factor, Differentiation inhibiting factor, TGF- β 1, TGF-beta-1, Transforming growth factor beta 1
Accession Number:	P01137 (a.a. 279 - 390)
Amino Acid Sequence:	ALDTNYCFSSTEKNCCVRQLYIDFRKDLGWKWIHEPKGYHANFCLGPCPYIWSLDTQYSKVLALYNQHNP ASAAPCCVPQALEPLPIVYVGRKPKVEQLSNMIVRSCKCS
Predicted Molecular Mass:	12.8 kDa monomer; 25.6 kDa dimer
Species:	Human
Formulation:	0.1 mg/mL solution of dimeric, mature TGF- β 1 in 100 mM acetic acid
Source:	CHO

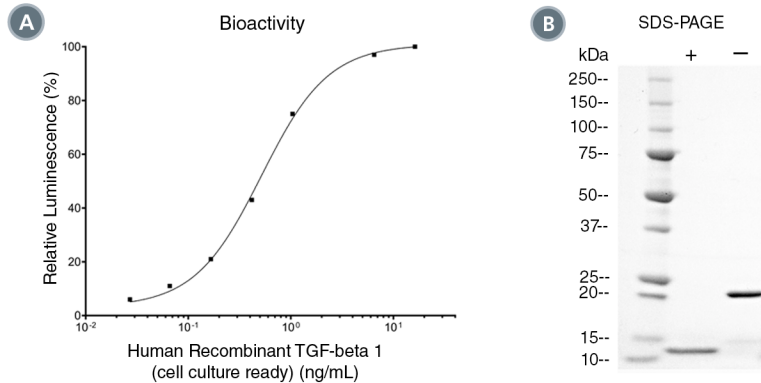
Specifications

Activity:	The EC50 is \leq 1 ng/mL, as determined by SMAD/TGF luciferase assay. Each assay is validated and calibrated against Non WHO Reference Material (NIBSC code: 19/180). EC50 is assay-specific; titrations should be performed to determine the optimal concentration in the application of interest.
Purity:	\geq 95% by SDS-PAGE
Endotoxin Level:	Measured by kinetic Limulus amoebocyte lysate (LAL) analysis; for lot-specific results, contact us at techsupport@stemcell.com .

Preparation and Storage

Storage:	Store at -20 to -80°C.
Stability:	Stable as supplied for at least 3 years from date of manufacture (MFG) on label.
Preparation:	Dilute as necessary before use.

Data



(A) The biological activity of Human Recombinant TGF-beta 1 (cell culture ready) was tested by its ability to induce luciferase expression in a SMAD/TGF luciferase reporter cell line. The EC₅₀ is defined as the effective concentration of the agonist at which luminescence is 50% of maximum. The EC₅₀ in the above example is 0.52 ng/mL. Normalized mean % of three replicate wells is shown for each data point. Each assay is calibrated with a Non WHO International Reference Material (NIBSC code: 19/180).

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

PRODUCTS ARE FOR RESEARCH USE ONLY AND NOT INTENDED FOR HUMAN OR ANIMAL DIAGNOSTIC OR THERAPEUTIC USES UNLESS OTHERWISE STATED. FOR ADDITIONAL INFORMATION ON QUALITY AT STEMCELL, REFER TO WWW.STEMCELL.COM/COMPLIANCE.

Copyright © 2023 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.