GMP Human TGF-Beta 1 / TGFB1 Protein

Catalog # GMP-TG1H25

Product Details

TGF-β1 (Transforming Growth Factor-β1) is a key member of the TGF-β superfamily with broad biological functions, including regulation of cell growth, differentiation, apoptosis, and immunomodulation. In MSC culture, low concentrations of TGF-β1 help maintain MSC proliferation and stemness, while at high concentrations under specific induction conditions (e.g., chondrogenic differentiation), it serves as a critical inductive factor. In iPSC culture, TGF-β1/Activin-Nodal signaling is essential for maintaining pluripotency and is commonly used to drive differentiation toward endodermal and mesodermal lineages.

Product Features and Advantages

- **Specific Stem Cell Expansion Driver**: Efficiently supports hPSC and MSC expansion while maintaining stemness over multiple passages.
- **Reliable Large-Scale Supply**: Ensures batch production capacity, supporting robust and consistent manufacturing scale-up.
- **High Lot-to-Lot Consistency**: Ensures reliable and reproducible performance in every batch, supporting scalable applications.

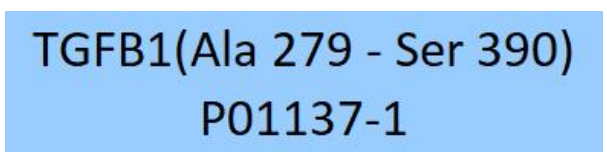
GMP Platform Advantages

- **Quality Assurance**: Global QMS with comprehensive and stringent QC release criteria.
- **End-to-End GMP Compliance**: Full manufacturing and QC under a cGMP system.
- **Comprehensive Control of Adventitious Agents**: Stringent biosafety from cell banks to final release.
- **Comprehensive Regulatory Support**: Includes RSF and DMF to meet global requirements.
- **Resilient Supply Chain**: Intelligent modular facilities ensure a stable global supply.
- **Professional Support**: Extensive manufacturing and application expertise to accelerate development.

Source

GMP Human TGF-Beta 1 Protein (GMP-TG1H25) is expressed from human 293 cells (HEK293). It contains AA Ala 279 - Ser 390 (Accession # P01137-1).

Molecular Characterization



This protein carries no "tag".

The protein has a calculated MW of 12.8 kDa. The protein migrates as 13 kDa±3 kDa when calibrated against Star Ribbon Pre-stained Protein Marker under reducing (R) condition (SDS-PAGE).

N-terminal Sequence Analysis

Ala-Leu-Asp-Thr-Asn-Tyr-Cys-Phe-Ser-Ser-Thr-Glu-Lys-Asn-Cys-Cys
(Routinely tested)

Endotoxin

Less than 10 EU/mg, tested by the LAL method in compliance with USP <85> and Ph. Eur. 2.6.14.

Host Cell Protein

<0.5 ng/μg of protein tested by ELISA.

Host Cell DNA

<0.02 ng/μg of protein tested by qPCR.

Sterility

Sterility testing was performed using the membrane filtration method in compliance with USP <71> and Ph. Eur. 2.6.1.

Mycoplasma

Negative

Purity

>95% as determined by SDS-PAGE.

Formulation

Lyophilized from 0.22 μm filtered solution in 100 mM HAC, pH3.0 with protectants.

Contact us for customized product form or formulation.

Vial Specification

2R (13 mm neck finish)

Shipping

This product is supplied and shipped with blue ice, please inquire the shipping cost.

Storage

Upon receipt, store it immediately at -20°C or lower for long term storage.

Please avoid repeated freeze-thaw cycles.

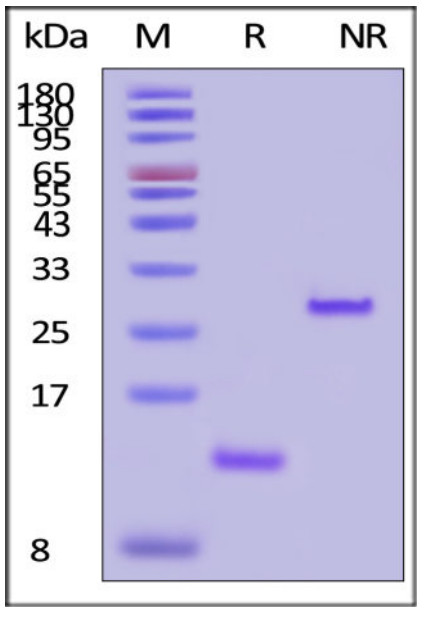
This product is stable after storage at:

- -20°C to -70°C for 5 years in lyophilized state;
- -70°C for 12 months under sterile conditions after reconstitution.

ACRO Quality Management System

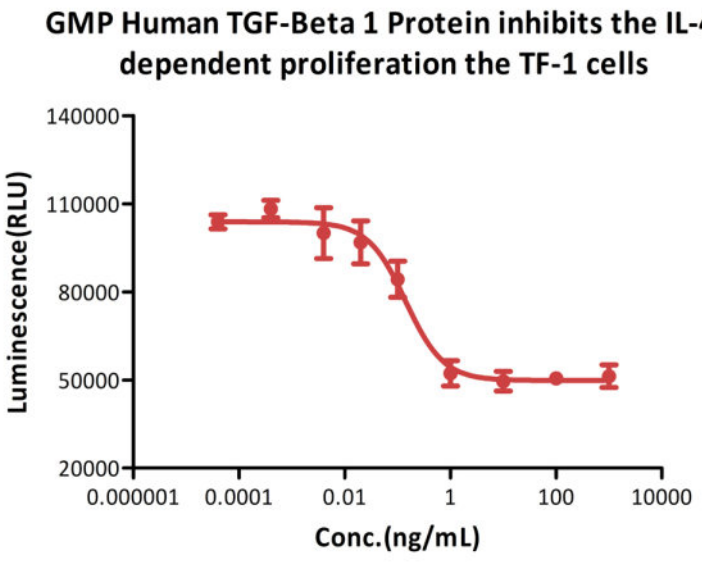
- QMS(ISO, GMP)
- Quality Advantages
- Quality Control Process

SDS-PAGE

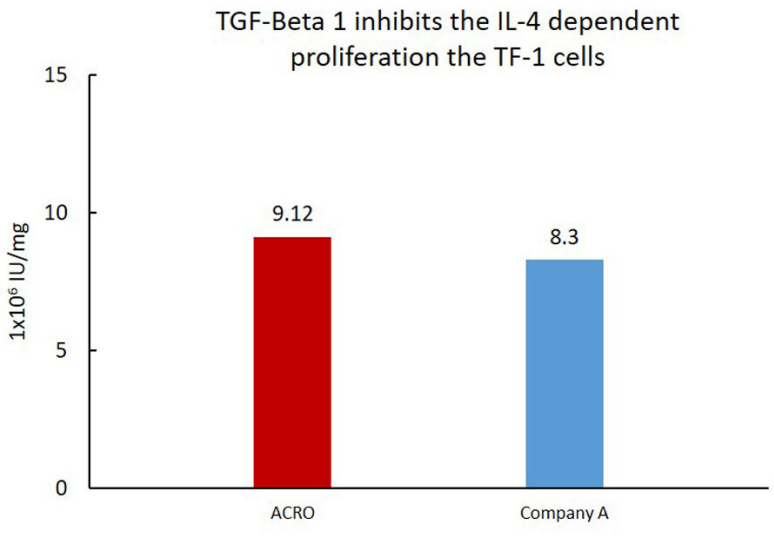


GMP Human TGF-Beta 1 Protein on SDS-PAGE under reducing (R) and non-reducing (NR) conditions. The gel was stained with Coomassie Blue. The purity of the protein is greater than 95% (With Star Ribbon Pre-stained Protein Marker).

Bioactivity-CELL BASE

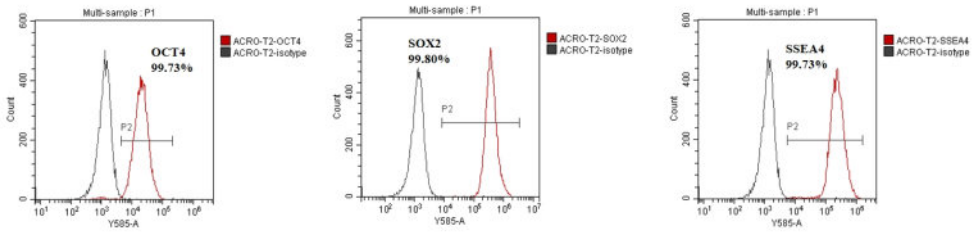


GMP Human TGF-Beta 1 Protein (Cat. No. GMP-TG1H25) inhibits the GMP Human IL-4 Protein (Cat. No. GMP-L04H26) dependent proliferation the TF-1 cells. The specific activity of GMP Human TGF-Beta 1 Protein is > 6.00x10^6 IU/mg, which is calibrated against transforming growth factor β1 (NIBSC code:89/514) (QC tested).



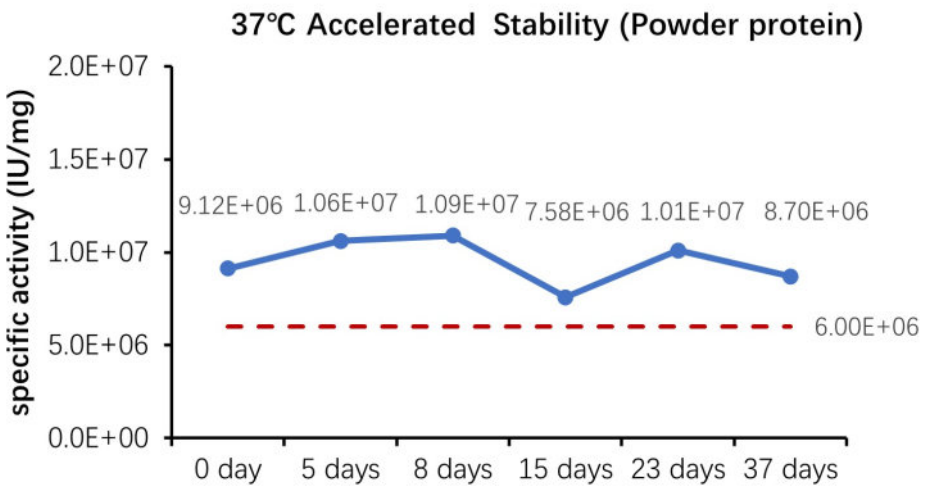
GMP Human TGF-Beta 1 Protein (Cat. No. GMP-TG1H25) exhibits superior activity compared to commercially available product.

Application Data

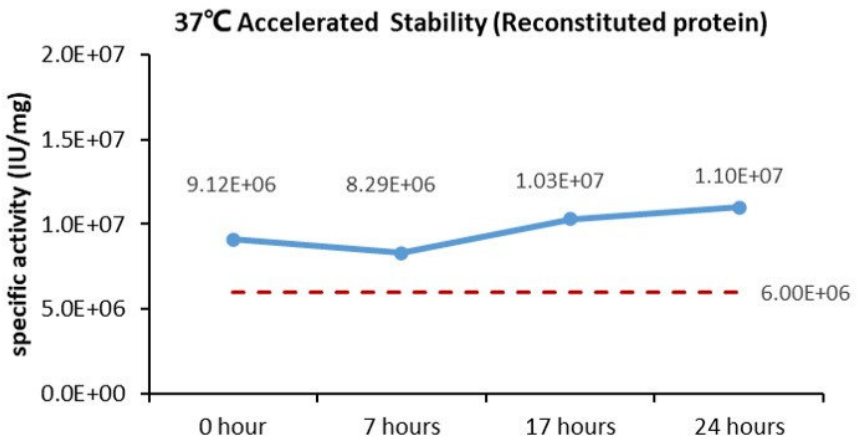


GMP Human FGF basic Protein (Cat. No. GMP-FGCH17) and GMP Human TGF-Beta 1 Protein (Cat. No. GMP-TG1H25) could maintain the stemness of hiPSCs with high expression of stem cell genes OCT4, SOX2, and SSEA4 with GMP Human Laminin 521 Protein (Cat. No. GMP-LA5H24).

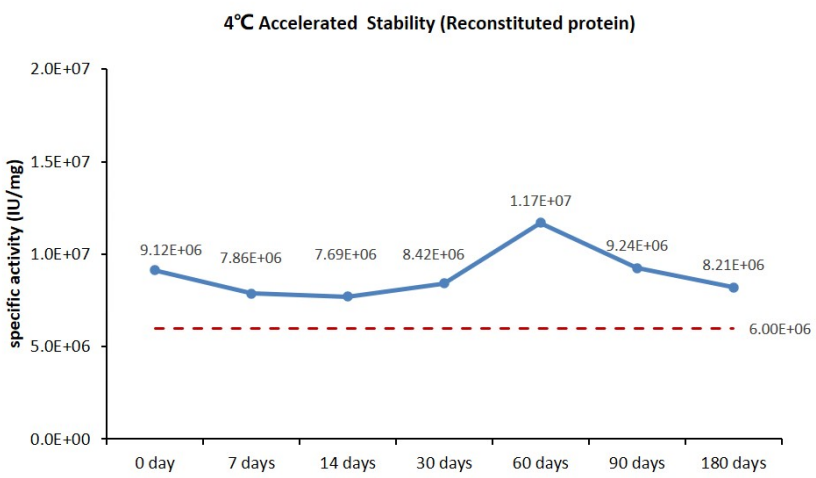
Bioactivity-Stability



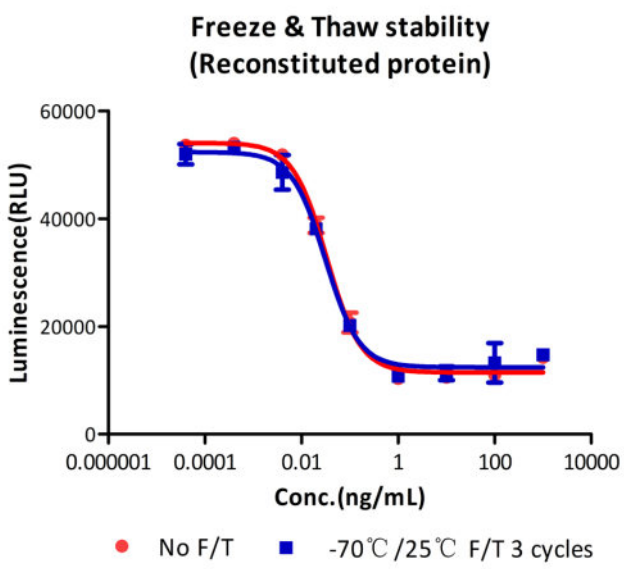
Cell-based assay demonstrates that the lyophilized GMP Human TGF-Beta 1 Protein (Cat. No. GMP-TG1H25) is stable at 37°C for 37 days.



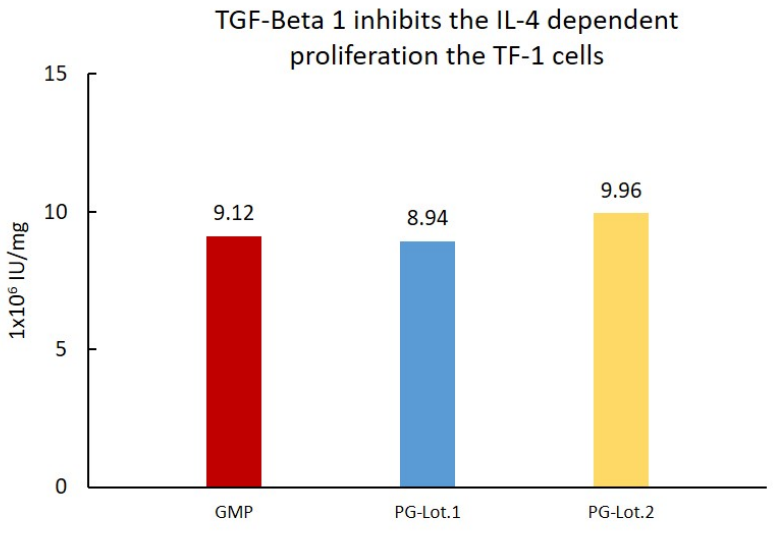
Cell-based assay demonstrates that the reconstituted GMP Human TGF-Beta 1 Protein (Cat. No. GMP-TG1H25) is stable at 37°C for 24 hours.



Cell-based assay demonstrates that the reconstituted GMP Human TGF-Beta 1 Protein (Cat. No. GMP-TG1H25) is stable at 4°C for 180 days.



Cell-based assay demonstrates that the reconstituted GMP Human TGF-Beta 1 Protein (Cat. No. GMP-TG1H25) is stable after 3 freeze-thaw cycles.



Cell-based assay demonstrates batch-to-batch consistency between Acro's GMP and PG TGF-Beta 1.

Background

This gene encodes a secreted ligand of the TGF-beta (transforming growth factor-beta) superfamily of proteins. Ligands of this family bind various TGF-beta receptors leading to recruitment and activation of SMAD family transcription factors that regulate gene expression. The encoded preproprotein is proteolytically processed to generate a latency-associated peptide (LAP) and a mature peptide, and is found in either a latent form composed of a mature peptide homodimer, a LAP homodimer, and a latent TGF-beta binding protein, or in an active form consisting solely of the mature peptide homodimer. The mature peptide may also form heterodimers with other TGFB family members. This encoded protein regulates cell proliferation, differentiation and growth, and can modulate expression and activation of other growth factors including interferon gamma and tumor necrosis factor alpha. This gene is frequently upregulated in tumor cells, and mutations in this gene result in Camurati-Engelmann disease. [provided by RefSeq, Aug 2016]

MANUFACTURING SPECIFICATIONS

ACROBiosystems GMP grade products are produced under a quality management system and in compliance with relevant guidelines: Ph. Eur General Chapter 5.2.12 Raw materials of biological origin for the production of cell-based and gene therapy medicinal products; USP<92>Growth Factors and Cytokines Used in Cell Therapy Manufacturing; USP<1043>Ancillary Materials for Cell, Gene, and Tissue-Engineered Products; ISO/TS 20399-1:2018, Biotechnology - Ancillary Materials Present During the Production of Cellular Therapeutic Products.

ACROBiosystems Quality Management System Contents：

- GMP-certified facility (compliance with FDA cGMP, EMA GMP, ICH, ISO9001/13485/MDSAP, and certified by third-party SGS, UL, and RX360)
- Animal origin-free materials, equipments, and facilities
- Materials sourced only from approved suppliers
- ISO 5 cleanrooms and automatic filling equipment
- Professional quality personnel and training programs
- Validated analytical testing methods in accordance with the ICH guidelines
- Safety Testing (Sterility, Mycoplasma, etc): compliant with USP, EP, etc
- In-depth stability studies
- Fully batch production and control records
- Equipment maintenance and calibration

ACROBiosystems provide rigorous quality control tests (fully validated equipment, processes and test methods) on our GMP grade products to ensure that they meet stringent standards in terms of purity, safety, activity and inter-batch stability, and each bulk QC lot mainly contains the following specific information:

- SDS-PAGE
- Protein content
- Endotoxin level
- Residual Host Cell DNA content
- Residual Host Cell Protein content
- Biological activity analysis
- Microbial testing
- Mycoplasma testing
- In vitro virus assay

- Residual moisture
- Batch-to-batch consistency

ACROBIOSYSTEMS - LEGAL NOTICES FOR GMP GRADE PRODUCTS

1. PRODUCT USE RESTRICTIONS & PROHIBITIONS

1.1 ACROBiosystems ("ACRO") GMP grade products ("Products") are designed for research, manufacturing use or ex vivo use.

1.2 Products are NOT intended for diagnostic purposes or for direct or indirect administration into humans.

1.3 Purchaser shall not market, distribute, or resell Products obtained from ACRO without ACRO's prior written consent.

2. REVERSE ENGINEERING PROHIBITED & CONFIDENTIALITY

2.1 Purchaser shall not reverse-engineer, decompile, disassemble, sequence, analyze via bioinformatics, or otherwise attempt to discover the structure, sequence, composition, construction, manufacturing process, or any trade secret embodied in the Products. Purchaser shall not permit any third party to undertake such activities.

2.2 All specifications, data, and know-how related to the Products provided by ACRO are ACRO's confidential information and shall be protected accordingly.

3. LIMITED WARRANTY & DISCLAIMERS

3.1 ACRO warrants solely that Products will conform to their published specifications when used under normal, specified laboratory/manufacturing conditions and within their labeled expiration date. THIS IS THE ONLY WARRANTY PROVIDED.

3.2 Purchaser assumes ALL risk and responsibility for:
(a) Determining the suitability of Products for Purchaser's intended application(s).
(b) Obtaining any necessary regulatory approvals or intellectual property licenses for Purchaser's use.
(c) Compliance with all applicable laws, regulations (including but not limited to cGMP/GLP where claimed), and industry standards.
(d) Conducting all necessary quality control, safety, efficacy, and validation testing of Products within Purchaser's process or final product.
(e) Proper storage, handling, and use of Products according to ACRO's instructions.

3.3 ACRO EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE, INCLUDING BUT NOT LIMITED TO: (A) WARRANTIES OF MERCHANTABILITY; (B) WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE; (C) WARRANTIES OF NON-INFRINGEMENT; AND (D) WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

4. LIMITATION OF LIABILITY

IN NO EVENT SHALL ACRO, ITS AFFILIATES, OR SUPPLIERS BE LIABLE FOR ANY OF THE FOLLOWING, HOWSOEVER ARISING (WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, STATUTE, OR OTHERWISE):
(a) LOST PROFITS, LOST REVENUE, LOST SAVINGS, LOSS OF USE, LOSS OF DATA, BUSINESS INTERRUPTION, OR ANY OTHER INDIRECT, INCIDENTAL, SPECIAL, PUNITIVE, OR CONSEQUENTIAL DAMAGES.
(b) ANY DIRECT DAMAGES, COSTS, OR EXPENSES EXCEEDING THE AMOUNT PAID BY PURCHASER FOR THE SPECIFIC PRODUCT(S) GIVING RISE TO THE CLAIM.
(c) DAMAGES ARISING FROM: (i) MISUSE, ABUSE, OR UNAUTHORIZED MODIFICATION OF PRODUCTS; (ii) USE BEYOND THE EXPIRATION DATE; (iii) IMPROPER STORAGE OR HANDLING; (iv) ACCIDENTAL DAMAGE; (v) FAILURE TO CONDUCT ADEQUATE VALIDATION OR TESTING BY PURCHASER; (vi) INFRINGEMENT CLAIMS RELATED TO PURCHASER'S USE; OR (vii) THE COST OF PROCURING SUBSTITUTE GOODS OR SERVICES.
(d) ANY PERSONAL INJURY, DEATH, OR DAMAGE TO TANGIBLE PROPERTY TO THE EXTENT PERMITTED BY LAW.

5. END USER ACKNOWLEDGEMENT & COMPLIANCE

5.1 By accepting, opening, or using the Products, the End User (Purchaser or its downstream recipient) agrees to be irrevocably bound by all terms herein.

5.2 End User explicitly acknowledges the Products are NOT FOR HUMAN ADMINISTRATION and agrees not to use them in any in vivo human application, directly or indirectly.

5.3 End Users unwilling to accept these terms must immediately: (a) cease all use; (b) notify ACRO or their supplier; and (c) return the unopened, unused Products.

5.4 ACRO reserves the right to audit End User's compliance with these restrictions upon reasonable notice.

ACRO has the right, at its sole discretion, to modify, add or remove any terms herein without notice to Purchaser and/or End User. Any changes to these terms are effective immediately following the updating of such changes on ACRO’s website or published specifications or product-related documents.