biotechne[®] RDSYSTEMS

Recombinant Human TGF-β1 GMP

Catalog Number: 240-GMP

SISIEN

DESCRIPTION	
Source	Chinese Hamster Ovary cell line, CHO-derived human TGF-beta 1 protein Ala279-Ser390 Accession # P01137.2 Manufactured and tested under cGMP guidelines.
N-terminal Sequence Analysis	Ala-Leu-Asp-Thr-Asn-Tyr-(Cys)-Phe-Ser-Ser
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	12.8 kDa (monomer)

SPECIFICATIONS	
SDS-PAGE	12 kDa, reducing conditions 24 kDa, non-reducing conditions
Activity	Measured by its ability to inhibit the IL-4-dependent proliferation of HT-2 mouse T cells. Tsang, M. <i>et al</i> . (1995) Cytokine 7 :389. The ED ₅₀ for this effect is 0.04-0.2 ng/mL.
	The specific activity of recombinant human TGF-β1 GMP is >1.0 x 10 ⁷ units/mg, which is calibrated against the human TGF-β1 Standard (NIBSC code: 89/514).
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>97%, by SDS-PAGE with silver staining.
Host Cell Protein	< 0.5 ng per µg of protein when tested by ELISA.
Mycoplasma	Negative for Mycoplasma.
Adventitious Virus	Master Cell Bank tested for adventitious viruses
Formulation	Lyophilized from a 0.2 µm filtered solution in Acetonitrile and TFA. See Certificate of Analysis for details.

PREPARATION AND STORAGE		
Reconstitution	Reconstitute at 100 μg/mL in 4 mM HCI.	
Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.	
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles.	
	 A minimum of 12 months when stored at ≤ -20 °C as supplied. Refer to lot specific COA for the Use by Date. 	
	 1 month, 2 to 8 °C under sterile conditions after reconstitution. 	

3 months, ≤ -20 °C under sterile conditions after reconstitution.

DATA



Recombinant Human TGFbeta 1 GMP Protein Bloactivity GMP-grade Recombinant Human TGF-B1 (Catalog # 240-GMP) inhibits Recombinant Mouse IL-4 (Catalog # Catalog # 404-ML) induced proliferation in the HT-2 mouse T cell line. The ED₅₀ for this effect is 0.04-0.2 ng/mL. Four independent lots were tested for activity and plotted on the same graph to show lot-to-lot consistency of GMP TGF-beta 1.

SDS-PAGE



Recombinant Human TGFbeta 1 GMP Protein SDS-PAGE 1 μ g/lane of GMP-grade Recombinant Human TGF- β 1 (Catalog # 240-GMP) was resolved with SDS-PAGE under reducing (R) and nonreducing (NR) conditions and visualized by silver staining, showing single bands at 12 kDa and 24 kDa, respectively.

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BACKGROUND

TGF- β 1 (transforming growth factor beta 1) is one of three closely related mammalian members of the large TGF- β superfamily that share a characteristic cystine knot structure (1-7). TGF- β 1, -2 and -3 are highly pleiotropic cytokines that are proposed to act as cellular switches that regulate processes such as immune function, proliferation and epithelial-mesenchymal transition (1-4). Each TGF- β isoform has some non-redundant functions; for TGF- β 1, mice with targeted deletion show defects in hematopoiesis and endothelial differentiation, and die of overwhelming inflammation (2). Human TGF- β 1 cDNA encodes a 390 amino acid (aa) precursor that contains a 29 aa signal peptide and a 361 aa proprotein (8). A furin-like convertase processes the proprotein to generate an N-terminal 249 aa latency-associated peptide (LAP) and a C-terminal 112 aa mature TGF- β 1 (8, 9). Disulfide-linked homodimers of LAP and TGF- β 1 remain non-covalently associated after secretion, forming the small latent TGF- β 1 complex (8-10). Covalent linkage of LAP to one of three latent TGF- β binding proteins (LTBPs) creates a large latent complex that may interact with the extracellular matrix (9, 10). TGF- β 1 signaling begins with high-affinity binding to a type II ser/thr kinase receptor termed TGF- β RII. This receptor then phosphorylates and activates a second ser/thr kinase receptor, TGF- β RI (also called activin receptor-like kinase (ALK) -5), or alternatively, ALK-1. This complex phosphorylates and activates Smad proteins that regulate transcription (3, 11, 12). Contributions of the accessory receptors betaglycan (also known as TGF- β RIII) and endoglin, or use of Smad-independent signaling pathways, allow for disparate actions observed in response to TGF- β in different contexts (11).

References:

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- 4. Chang, H. et al. (2002) Endocr. Rev. 23:787.
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MANUFACTURING SPECIFICATIONS

GMP Proteins

R&D Systems, a Bio-Techne Brand's GMP proteins are produced according to relevant sections of the following documents: USP Chapter 1043, Ancillary Materials for Cell, Gene and Tissue-Engineered Products and Eu. Ph. 5.2.12, Raw Materials of Biological Origin for the Production of Cell-based and Gene Therapy Medicinal Products.

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- N-terminal amino acid analysis, SDS-PAGE analysis, and endotoxin level (as determined by LAL assay) performed on each bulk QC lot, not on individual bottlings of each QC lot
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