

DESCRIPTION

Source *E. coli*-derived human TGF-beta 3 protein
Ala301-Ser412
Accession # P10600.1
Produced using non-animal reagents in an animal-free laboratory.

N-terminal Sequence Analysis Ala301

Predicted Molecular Mass 13 kDa

SPECIFICATIONS

SDS-PAGE 10 kDa, under reducing conditions.

Activity Measured by its ability to inhibit the IL-4-dependent proliferation of HT-2 mouse T cells. Tsang, M. *et al.* (1995) Cytokine 7:389. The ED₅₀ for this effect is 7.50-75.0 pg/mL.

The specific activity of Recombinant Human TGF-β3 is >1.9 x 10⁷ IU/mg, which is calibrated against the Human TGF-β3 WHO International Standard (NIBSC code: 09/234).

Endotoxin Level <0.10 EU per 1 µg of the protein by the LAL method.

Purity >97%, by SDS-PAGE with quantitative densitometry by Coomassie® Blue Staining.

Formulation Lyophilized from a 0.2 µm filtered solution in Acetonitrile and TFA with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

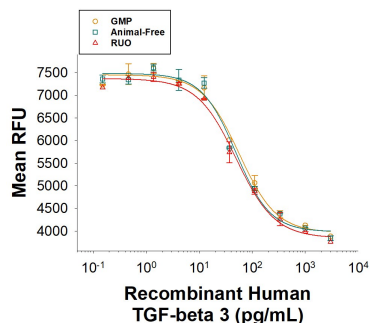
Reconstitution Reconstitute at 500 µg/mL in 4 mM HCl.

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.

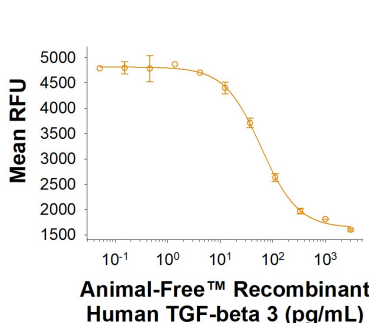
DATA

Bioactivity



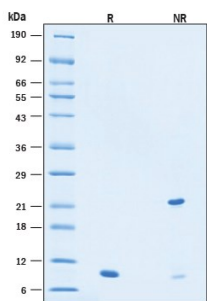
Equivalent Bioactivity of GMP, Animal-Free, and RUO grades of Recombinant Human TGF-beta 3. Equivalent bioactivity of GMP (Catalog # BT-TGFB3-GMP), Animal-Free (Catalog # BT-TGFB3-AFL) and RUO (Catalog # BT-TGFB3) grades of Recombinant Human TGF-beta 3 as measured by its ability to inhibit the IL-4-dependent proliferation of HT-2 mouse T cells (orange, green, red, respectively).

Bioactivity



Animal-Free™ Recombinant Human TGF-beta 3 Protein Bioactivity. Animal-Free™ Recombinant Human TGF-beta 3 (Catalog # BT-TGFB3-AFL) inhibits recombinant mouse IL-4 induced proliferation in the HT-2 mouse T cell line. The ED₅₀ for this effect is 7.50-75.0 pg/mL.

SDS-PAGE



Animal-Free™ Recombinant Human TGF-beta 3 Protein SDS-PAGE. 2 µg/lane of Animal-Free™ Recombinant Human TGF-beta 3 Protein (Catalog # BT-TGFB3-AFL) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 10 kDa under reducing conditions.

BACKGROUND

TGFβ3 (transforming growth factor-beta 3) is a member of a TGF-β superfamily subgroup that is defined by their structural and functional similarities (1-5). TGF-β3 and its closely related proteins, TGF-β1 and -β2, act as cellular switches to regulate immune function, cell proliferation, and epithelial-mesenchymal transition (4, 6, 7). The non-redundant biological effects of TGF-β3 include involvement in palatogenesis, chondrogenesis, and pulmonary development (1, 2, 7-9). Human TGF-β3 cDNA encodes a 412 amino acid (aa) precursor that contains a 20 aa signal peptide and a 392 aa proprotein. The proprotein is processed by a furinlike convertase to generate a 220 aa latency-associated peptide (LAP) and a 112 aa mature TGF-β3 (10, 11). Mature human TGF-β3 shows 100%, 99%, and 98% aa identity with mouse/dog/horse, rat, and pig TGF-β3, respectively. TGF-β3 is secreted as a complex with LAP. This latent form of TGF-β3 becomes active upon cleavage by plasmin, matrix metalloproteases, thrombospondin-1, and a subset of integrins (12). TGF-β3 binds with high affinity to TGF-β RII, a type II serine/threonine kinase receptor. This receptor then phosphorylates and activates type I serine/threonine kinase receptors, TGF-β RI or ALK-1, to modulate transcription through Smad phosphorylation (13-15). The divergent biological effects exerted by individual TGF-β isoforms is dependent upon the recruitment of co-receptors (TGF-β RIII and endoglin) and the subsequent initiation of Smad-dependent or -independent signaling pathways (14, 16, 17).

References:

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MANUFACTURING SPECIFICATIONS**Animal-Free Manufacturing Conditions**

Our dedicated controlled-access animal-free laboratories ensure that at no point in production are the products exposed to potential contamination by animal components or byproducts. Every stage of manufacturing is conducted in compliance with R&D Systems' stringent Standard Operating Procedures (SOPs). Production and purification procedures use equipment and media that are confirmed animal-free.

Production

- All molecular biology procedures use animal-free media and dedicated labware.
- Dedicated fermentors are utilized in committed animal-free areas.

Purification

- Protein purification columns are animal-free.
- Bulk proteins are filtered using animal-free filters.
- Purified proteins are stored in animal-free containers in a dedicated cold storage room.

Quality Assurance

- Low Endotoxin Level.
- No impairment of biological activity.
- High quality product obtained under stringent conditions.
- For ex vivo research or bioproduction, [additional documentation](#) can be provided.

[Please read our complete Animal-Free Statement](#)