Recombinant Human TGF-beta 3

Catalog Number: BT-TGFB3

DESCRIPTION

Source	*E. coli*-derived human TGF-beta 3 protein Ala301-Ser412 Accession # P10600.1
N-terminal Sequence Analysis	Ala301
Predicted Molecular Mass	13 kDa

SPECIFICATIONS

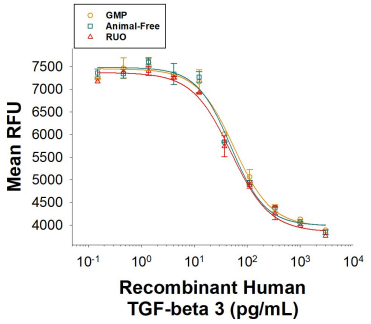
SDS-PAGE	10 kDa, under reducing conditions.
Activity	Measured by its ability to inhibit the IL-4-dependent proliferation of HT-2 mouse T cells. Tsang, M. *et al.* (1995) Cytokine **7**:389. The ED_{50} for this effect is 7.50-75.0 pg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
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 the 20 µg size at 100 µg/mL in 4mM HCl. Reconstitute all other sizes at 500 µg/mL in 4mM 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.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

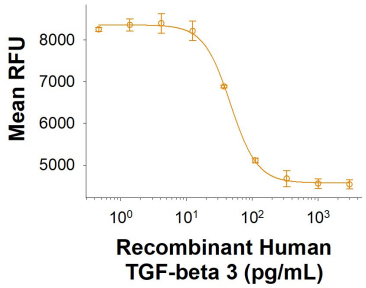
DATA

Bioactivity



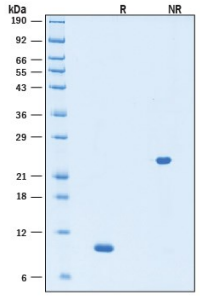
Equivalent Bioactivity of GMP, Animal-Free, and RUO grades of Recombinant Human TGF-beta 3. Equivalent bioactivity of GMP (Catalog # BT-TGFB3-GMP), Animal-Free (Catalog # BT-TGFB3-AFL) and RUO (Catalog # BT-TGFB3) grades of Recombinant Human TGF-beta 3 as measured by its ability to inhibit the IL-4-dependent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

Bioactivity



Recombinant Human TGF-beta 3 Protein Bioactivity. Recombinant Human TGF-beta 3 Protein (Catalog # BT-TGFB3) inhibits recombinant mouse IL-4 induced proliferation in the HT-2 mouse T cell line. The ED_{50} for this effect is 7.50-75.0 pg/mL.

SDS-PAGE



Recombinant Human TGF-beta 3 Protein SDS-PAGE. 2 µg/lane of Recombinant Human TGF-beta 3 Protein (Catalog # BT-TGFB3) 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.

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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 latencyassociated 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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