Recombinant Human TGF-β3

Catalog Number: 8420-B3/CF

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived human TGF-beta 3 protein Ala301-Ser412 Accession # P10600
N-terminal Sequence Analysis	Ala301
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	13 kDa

SPECIFICATIONS

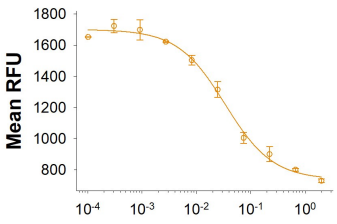
SDS-PAGE	9-11 kDa, reducing conditions
Activity	Measured by its ability to inhibit the IL-4-dependent proliferation of HT-2 mouse T cells. Tsang, M. *et al.* (1995) Cytokine **7**:389. The ED_{50} for this effect is 0.01-0.04 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
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 50 µg/mL in 4 mM HCl.
Shipping	The product is shipped at ambient temperature. 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



Measured by its ability to inhibit the IL-4-dependent proliferation of HT-2 mouse T cells. The ED_{50} for this effect is 0.01-0.04 ng/mL.

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BACKGROUND

TGF-β3 (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 furin-like 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 latent complex. This latent form of TGF-β3 is activated by integrins, thrombospondin-1, plasmin, and matrix metalloproteases (12, 13). It can also be activated by extreme pH and reactive oxygen species (1-5, 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 (14-16). 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 (15, 17, 18).

References:

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