

DESCRIPTION

Source *Spodoptera frugiperda*, Sf 9 (baculovirus)-derived
Ala303-Ser414
Accession # P61812
Produced in an animal component free process (ACFP).

N-terminal Sequence Analysis Ala303

Structure / Form Disulfide-linked homodimer

Predicted Molecular Mass 12.7 kDa (monomer)

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 ED₅₀ for this effect is 0.025-0.25 ng/mL.

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

Purity >97%, by SDS-PAGE under reducing conditions and visualized by silver stain.

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

PREPARATION AND STORAGE

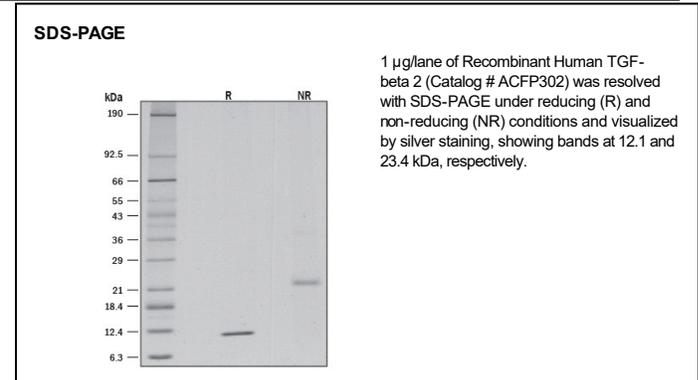
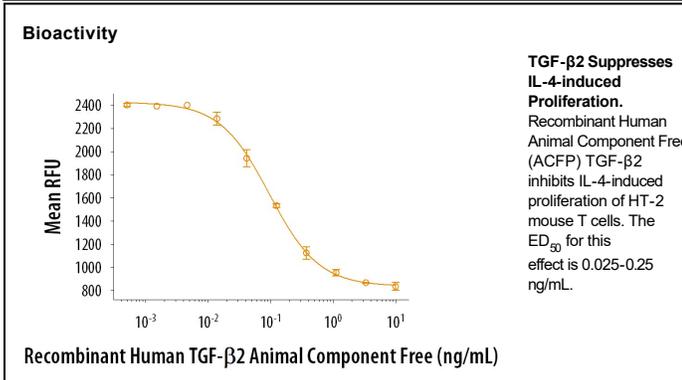
Reconstitution Reconstitute at 100 µg/mL in sterile 4 mM HCl

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



BACKGROUND

TGF- β 2 (transforming growth factor beta 2) is one of three closely related mammalian members of the large TGF- β superfamily that share a characteristic cysteine knot structure (1 - 7). TGF- β 1, -2 and -3 are highly pleiotropic cytokines 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 2, mice with targeted deletion show defects in development of cardiac, lung, craniofacial, limb, eye, ear and urogenital systems (2). Human TGF- β 2 cDNA encodes a 414 amino acid (aa) precursor that contains a 19 aa signal peptide and a 395 aa proprotein (8). A furin-like convertase processes the proprotein to generate an N-terminal 232 aa latency-associated peptide (LAP) and a C-terminal 112 aa mature TGF- β 2 (8, 9). Disulfide-linked homodimers of LAP and TGF- β 2 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 is activated from latency by pathways that include actions of the protease plasmin, matrix metalloproteinases, thrombospondin 1 and a subset of integrins (10). Mature human TGF- β 2 shows 100% aa identity with porcine, canine, equine and bovine TGF- β 2, and 97% aa identity with mouse and rat TGF- β 2. It demonstrates cross-species activity (1). TGF- β 2 signaling begins with binding to a complex of the accessory receptor betaglycan (also known as TGF- β RIII) and a type II ser/thr kinase receptor termed TGF- β RII. This receptor then phosphorylates and activates another ser/thr kinase receptor, TGF- β RI (also called activin receptor-like kinase (ALK) -5), or alternatively, ALK-1. The whole complex phosphorylates and activates Smad proteins that regulate transcription (3, 11, 12). Use of other signaling pathways that are Smad-independent allows 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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7. Mittl, P.R.E. *et al.* (1996) Protein Sci. **5**:1261.
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MANUFACTURING SPECIFICATIONS

Animal Component-Free Process (ACFP) Manufacturing Conditions

R&D Systems Animal Component-Free Process (ACFP) recombinant proteins are expressed in an animal-free certified *Sf 9* insect cell line using dedicated animal-free raw materials and labware. Production and purification procedures use equipment and media that are confirmed animal-free but performed outside our dedicated animal-free laboratories. Every stage of the manufacturing process follows R&D Systems' stringent Standard Operating Procedures (SOPs). The certified *Sf 9* insect cell bank has undergone extensive testing to certify the lack of cytopathogens by screening for various viruses, Mycoplasma, and Spiroplasmas using both *in vitro* and *in vivo* testing methods. For *ex vivo* research or bioproduction, [additional documentation](#) can be provided.

[Please read our complete ACFP Statement](#)