Recombinant Mouse TGF-β2
Catalog Number: 7346-B2/CF

DESCRIPTION
Source
Chinese Hamster Ovary cell line, CHO-derived
Met1-Ser414
Accession # NP_033393

N-terminal Sequence Analysis
Aia303

Structure / Form
Disulfide-linked homodimer

Predicted Molecular Mass
12.7 kDa

SPECIFICATIONS
SDS-PAGE
10 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 0.05-0.3 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 HCl. See Certificate of Analysis for details.

PREPARATION AND STORAGE
Reconstitution
Reconstitute at 100 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.

- 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.

BACKGROUND
TGF-β2 (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-β1, -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-β2, mice with targeted deletion show defects in development of cardiac, lung, craniofacial, limb, eye, ear and urogenital systems (2). Mouse TGF-β2 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 283 aa latency-associated peptide (LAP) and a C-terminal 112 aa mature TGF-β2 (8, 9). Disulfide-linked homodimers of LAP and TGF-β2 remain non-covalently associated after secretion, forming the small latent TGF-β2 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 metalloproteases, thrombospondin 1 and a subset of integrins (10). Mature mouse TGF-β2 shares 100% aa identity with rat TGF-β2, and 97% aa identity with human, porcine, canine, equine and bovine TGF-β2. It demonstrates cross-species activity (1). In most cells, TGF-β2 signaling begins with binding to a complex of the accessory receptor betaglycan (also known as TGF-β RI) and a type II ser/thr kinase receptor termed TGF-β RII, which 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). In bone-related cells, however, TGF-β2 also signals through TGF-β RIIb (a splice variant of TGF-β RII), independently of TGF-β RIII (13). Use of other signaling pathways that are Smad-independent allows for disparate actions observed in response to TGF-β in different contexts (11).

REFERENCES: