Sterile

#8406

Human Transforming Growth Factor β2 (hTGF-β2)

Cell Signaling TECHNOLOGY®

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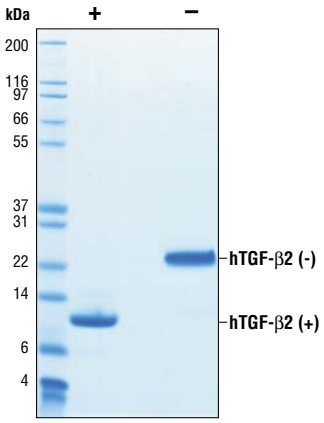
For Research Use Only. Not For Use In Diagnostic Procedures.

Source: Recombinant human TGF-β2 (hTGF-β2) Ala303-Ser414 (Accession #NP_003229) was expressed in human 293 cells at Cell Signaling Technology.

Molecular Characterization: Recombinant hTGF-β2 contains no "tags" and the nonglycosylated protein has a calculated MW of 12,719. DTT-reduced protein migrates as a 12 kDa polypeptide and the non-reduced cystine-linked homodimer migrates as a 24 kDa protein. The expected amino-terminal ALDAA of recombinant hTGF-β2 was verified by amino acid sequencing.

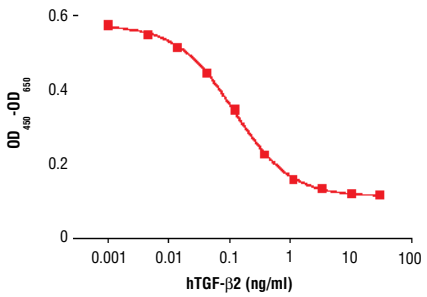
Endotoxin: Less than 0.01 ng endotoxin/1 μg hTGF-β2.

Purity: >98% as determined by SDS-PAGE of 6 μg reduced (+) and non-reduced (-) recombinant hTGF-β2. All lots are greater than 98% pure.

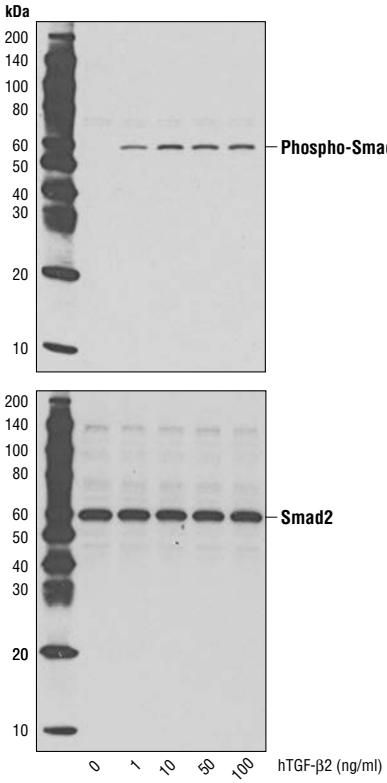


The purity of recombinant hTGF-β2 was determined by SDS-PAGE of 6 μg reduced (+) and non-reduced (-) recombinant hTGF-β2 and staining overnight with Coomassie Blue.

Bioactivity: The bioactivity of recombinant hTGF-β2 was was determined by assessing inhibition of IL-4 induced HT-2 cell proliferation. The ED_{50} of each lot is between 0.1-0.3 ng/ml.



◀ *The inhibition of IL-4 induced proliferation in HT-2 cells treated with increasing concentrations of hTGF-β2 was assessed. After 48 hour treatment with hTGF-β2, cells were incubated with a tetrazolium salt and the OD_{450}-OD_{650} was determined.*



Western blot analysis of extracts from HT-1080 cells untreated or treated with TGF-β2 for 15 minutes, using Phospho-Smad2 (Ser465/467) (138D4) Rabbit mAb #3108 (upper) and Smad2 (86F7) Rabbit mAb #3122 (lower).

Formulation: With carrier: Lyophilized from a 0.22 μm filtered solution of 35% acetonitrile and 0.1% trifluoroacetic acid containing 20 μg BSA per 1 μg hTGF-β2.

Carrier free: Lyophilized from a 0.22 μm filtered solution of 35% acetonitrile and 0.1% trifluoroacetic acid.

Reconstitution:
With carrier: Add sterile 4 mM HCl containing 0.1% BSA to a final hTGF-β2 concentration of greater than 50 μg/ml. Solubilize for 30 minutes at room temperature with occasional gentle vortexing.

Carrier free: Add sterile 4 mM HCl, or 4 mM HCl containing protein to minimize absorption of hTGF-β2 to surfaces. Solubilize for 30 minutes at room temperature with occasional gentle vortexing. Stock hTGF-β2 should be greater than 50 μg/ml.

Storage: Stable in lyophilized state at -20°C for 1 year after receipt. Sterile stock solutions reconstituted with carrier protein are stable at 4°C for 2 months and at -20°C for 6 months. Avoid repeated freeze-thaw cycles.

Maintain sterility. Storage at -20°C should be in a manual defrost freezer.

Applications: Optimal concentration for the desired application should be determined by the user.

Background: TGF-β2 is produced by eosinophils, astrocytes, glioblastoma and other cancer derived cell types (1-6). TGF-β2 inhibits antigen-induced T-cell proliferation, inhibits epithelial cell proliferation, induces mesenchymal cell proliferation and has cell specific effects on apoptosis (1-8). TGF-β2 binds to TβRII and binding is promoted by TβRIII. TβRI then complexes with TβRII and TβRIII (3,5). Signaling involves phosphorylation of the SMAD proteins (2,3,9). TGF-β2 also activates Erk2, p38, and JNK pathways (9). Knockout of TGF-β2 in mice severely impacts heart, lung and eye development (10).

Background References:

(1) Balzar, S. et al. (2005) *J Allergy Clin Immunol* 115, 110-7.

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(4) Hinz, S. et al. (2007) *Cancer Res* 67, 8344-50.

(5) Damstrup, L. et al. (1993) *Br J Cancer* 67, 1015-21.

(6) Constam, D.B. et al. (1992) *J Immunol* 148, 1404-10.

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(8) Dufour, C. et al. (2008) *Am J Physiol Endocrinol Metab* 294, E794-801.

(9) Moustakas, A. and Heldin, C.H. (2009) *Development* 136, 3699-714.

(10) Dünker, N. and Krieglstein, K. (2000) *Eur J Biochem* 267, 6982-8.