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Product Data Sheet

Recombinant Human TGF-β1 (carrier-free)

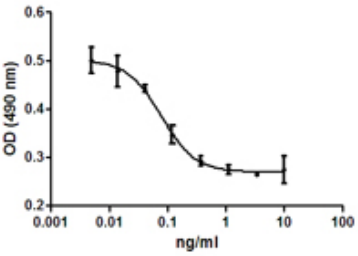
Catalog # / Size: 580702 / 10 µg
580704 / 25 µg
580706 / 100 µg

Source: Human TGF-β1, amino acids Ala279-Ser390 (Accession # NM_000660) was expressed in CHO cells. Mature TGF-β1 was purified from the conditioned media.

Molecular Mass: Recombinant human TGF-β1 exists as a disulfide linked homodimer, consisting of two 112 amino acid monomers, each with a predicted molecular mass of approximately 12.8 kDa. The non-reduced protein migrates as a homodimer, at approximately 26kDa by SDS-PAGE. The DTT-reduced protein migrates as a monomer, at approximately 13kDa by SDS-PAGE.

Purity: Purity is >98%, as determined by Coomassie stained SDS-PAGE.

Endotoxin Level: Endotoxin level is <0.1 EU/µg (<0.01 ng/µg) protein as determined by the LAL method.



TGF-β1 inhibits the proliferation of HT-2 cells induced by IL-4.

Activity: TGF-β1 inhibits the proliferation of mouse HT-2 cells induced by IL-4. The ED50 is from 0.05 to 0.2 ng/ml, corresponding to a specific activity of 0.5 to 2.0 x 10^7 Units/mg.

Preparation: 10-100 µg sizes are bottled at 200 µg/mL. 500 µg sizes and larger are bottled at the concentration indicated on the vial.

Formulation: 0.22 µm filtered protein solution is in 30% Acetonitrile, 0.1% TFA (trifluoroacetic acid).

Storage: Unopened vial can be stored at 4°C for three months or -20° to -70°C for six months. For maximum results, quick spin vial prior to opening. Stock solutions should be prepared at no less than 10 µg/mL in buffer containing carrier protein such as 1% BSA or HSA or 10% FBS. For long term-storage, aliquot into polypropylene vials and store in a manual defrost freezer. **Avoid repeated freeze/thaw cycles.**

Applications:

Applications: Bioassay

Application References: 1. Alcaide P, *et al*. 2012. *J. Immunol*. 188:1421. PubMed

Description: TGF-β1 is synthesized in cells as a 390-amino acid. Furin cleaves the protein at residue 278, yielding an N-terminal cleavage product which corresponds to the latency-associated peptide (LAP), and the 25-kD C-terminal portion of the precursor constitutes the mature TGF-β1. TGF-β activators can release TGF-β from LAP. These activators include proteases that degrade LAP, thrombospondin-1, reactive oxygen species, and integrins avb6 and avb8. Mouse TGF-β converts naïve T cells into regulatory T (Treg) cells that prevent autoimmunity. Although human TGF-β1 is widely used for inducing FOXP3+ *in vitro*, it might not be an essential factor for human Treg differentiation. Th17 murine can be induced from naïve CD4+ T cells by the combination of TGF-β1 and IL-6 or IL-21. Nevertheless, the regulation of human Th17 differentiation is distinct. TGF-β1 seems to have dual effects on human Th17 differentiation in a dose-dependent manner. While TGF-β1 is required for the expression of RORγt, in human naive CD4+ T cells from cord blood, TGF-β1 can inhibit the function of RORγt at high doses. By using serum-free medium, it has been clarified that the optimum conditions for human Th17 differentiation areTGF-β1, IL-1β, and IL-2 in combination with IL-6, IL-21 or IL-23.

Antigen References:
1. Zou Z and Sun PD 2004. *Prot Exp Purif* 37:265.
2. Annes JP, *et al.* 2003. *J Cell Sci* 116:217.
3. Puthawala K, *et al.* 2008. *Am J Respir Crit Care Med* Vol 177:82.
4. Valcourt U, *et al.* 2005. *Mol Biol Cell* 16:1987.
5. Takatori H, *et al.* 2008. *Mod Rheumatol* DOI 10.1007/s10165-008-0099-z.
6. Manel N, *et al.* 2008. *Nat Immunol.* 9:641.

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