TGF beta 3/TGFB3 Protein, Human/Mouse/Rat (HEK293)

Cat. No.:	HY-P7120
Synonyms:	rHuTGF-β3; TGFB3; LAP
Species:	Human;Rat;Mouse
Source:	HEK293
Accession:	P10600 (A301-S412,Y340F)
Gene ID:	7043
Molecular Weight:	Approximately 12.7 kDa

PROPERTIES

AA Sequence	A L D T N Y C F R N L E E N C C V R P L Y I D F R Q D L G W K W V H E P K G Y F A N F C S G P C P Y L R S A D T T H S T V L G L Y N T L N P E A S A S P C C V P Q D L E P L T I L Y Y V G R T P K V E Q L S N M V V K S C K C S
Biological Activity	1.The ED_{50} is <0.2 ng/mL as measured in a cell proliferation assay using mouse HT-2 cells. 2.Measured by its ability to inhibit the IL-4-dependent proliferation of TF-1 mouse T cells. The ED_{50} for this effect is 10-80 pg/mL.
Appearance	Lyophilized powder
Formulation	Lyophilized after extensive dialysis against 4 mM HCl or 50 mM Glycine-HCl, 150 mM NaCl, pH 2.5.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	Three TGF-β isoforms have been found in mammals: TGF-β1, 2, and 3, which are structurally and functionally similar. TGF-β3 is important in embryonic development, scarless repair of injury in the embryo, adult wound healing and tissue homeostasis. It has an important role in regulating cell migration, angiogenesis, epithelial-mesenchymal transition, apoptosis, modulation of immune function, extracellular matrix (ECM) production and the regulation of ECM remodelling; biological processes that are often required for tumour growth and maintenance[1][2].

As with all members of the family, TGF-β3 is highly conserved across species, with mouse, rat and human TGF-β3 demonstrating >97% sequence homology.

TGF-β3 is released from LAP by integrins: integrin-binding results in distortion of the LAP chain and subsequent release of the active TGF-β3. TGF-β3 is capable of binding directly to the type II receptor (TβRII). TGF-β3 expression increases in fetal wound healing and reduces fibronectin and collagen I and III deposition, and also improves the architecture of the neodermis. Fibroblasts are key cells in the wound healing process. In addition, TGF-β3 may actually play a protective role against tumourigenesis in a range of tissues including the skin, breast, oral and gastric mucosa. TGF-β3 is a more potent inhibitor of DNA synthesis in human keratinocytes compared to TGF-β1 and TGF-β2. TGF-β3 mRNA is expressed in lymphocytes such as $CD4^+$ T cells, $CD8^+$ T cells, γδT cells, and B cells. TGF-β3 has the potential to regulate systemic autoimmune diseases by inhibiting B cells. Moreover, during palatogenesis, TGF-β3 is supposed to transduce signals via both canonical Smad-dependent and non-canonical Smad-independent signaling. In human B cells, TGF-β3 induces phosphorylation of Smad1/5 along with Smad2 and Smad3[1][2][3].

TGF-β3 is involved in cell differentiation, embryogenesis and development. TGF-β3 is crucial in tissue regeneration and scarless tissue repair. TGF-β3 is also involved in palatogenesis, chondrogenesis, and pulmonary development. Furthermore, TGF-β3 plays a role in cancer and immune diseases[1][2][3].

REFERENCES

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