

Recombinant Human TGF- α (Animal-Free)

Catalog# / Size	717602 / 100 μ g
Regulatory Status	RUO
Other Names	TGFA
Description	TGF- α was initially identified in the culture medium of several transformed cell lines. TGF- α is structurally and functionally related to the epidermal growth factor and belongs to the EGF subfamily that also includes amphiregulin (AR), heparin binding EGF-like growth factor (HB-EGF), betacellulin (BTC), epiregulin (EPR), and epigen (EPG). TGF- α is derived from a transmembrane precursor (20-22 kD); pro-TGF α undergoes several posttranslational modifications that include N- and O-linked glycosylation and palmitoylation. The pro-TGF α includes a glycosylated N-terminal domain, a TGF- α region with the EGF-like motif, a linker sequence that joins the ectodomain to the transmembrane domain, and an intracellular portion. TGF- α is proteolytically released from the membrane by tumor necrosis factor- α converting enzyme (TACE/ADAM-17). TGF- α is cleaved at the N- and C-terminus of the EGF motif; the proteolytic cleavage at the C-terminus is required to release the soluble form. The N-terminal cleavage of pro-TGF α occurs at the cell surface by TACE-independent activity. TGF- α plays a key role regulating follicle development and tumorigenesis. TGF- α and its receptor are highly expressed in papillary thyroid carcinoma. Also, TGF- α polymorphism has been associated with oral birth defects.

Product Details

Source	Human TGF- α , amino acids (Val40-Ala89) (Accession# NM_003236) was expressed in <i>E. coli</i> .
Molecular Mass	The 55 amino acid recombinant protein has a predicted Molecular mass of 5.5 kD. The predicted N-terminal amino acid is Val.
Purity	>98%, as determined by Coomassie stained SDS-PAGE and HPLC analysis.
Formulation	Lyophilized, carrier-free.
Endotoxin Level	Less than 0.1 ng per μ g of protein.
Storage & Handling	Unopened vial can be stored at -20°C or -70°C. For maximum results, quick spin vial prior to opening. Reconstitute in water to a concentration of 0.1-1.0 mg/ml. Do not vortex. It is recommended to further dilute in a buffer, such as 5% Trehalose, and store working aliquots at -20°C to -80°C. Avoid repeated freeze/thaw cycles.
Activity	The expected ED ₅₀ is \leq 0.2 ng/ml, corresponding to a specific activity of $\geq 5 \times 10^6$ units/mg, as determined by its ability to stimulate the proliferation of mouse Balb/c 3T3 cells.
Application	Bioassay

Antigen Details

Structure	Cytokine
Distribution	Expressed by many human tumors, human granulosa cells, theca cells, keratinocytes, and a number of epithelial cells.
Function	TGF- α has angiogenic properties. It is a potent mitogen, and it induces KGN (human granulosa cell tumor) cell proliferation, cell viability, cell cycle progression, and cell migration. Also, it induces cell proliferation and differentiation in epithelial and neuronal cells.
Interaction	Human granulosa cells and epithelial cells.
Ligand/Receptor	EGFR
Bioactivity	Human TGF- α is able induce proliferation of Balb/c 3T3 cells.
Cell Type	Neural Stem Cells, Mesenchymal Stem Cells, Hematopoietic stem and progenitors, Embryonic

Stem Cells

Biology Area Cell Biology, Signal Transduction, Stem Cells

Molecular Family Growth Factors, Cytokines/Chemokines

Antigen References

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2. Sunnarborg SW, *et al.* 2002. *J. Biol. Chem.* 277:12838.
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4. Sull JW, *et al.* 2009. *Hum. Genet.* 126:385.
5. Degl'Innocenti D, *et al.* 2010. *PLoS One* 5:e12701.
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Gene ID [7039](#)

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