

Datasheet: PHP291A

Description:	RECOMBINANT HUMAN TGF ALPHA
Name:	TGF ALPHA
Format:	Rec. Protein
Product Type:	Recombinant Protein
Quantity:	10 µg

Product Details

Applications

This product has been reported to work in the following applications. This information is derived from testing within our laboratories, peer-reviewed publications or personal communications from the originators. Please refer to references indicated for further information. For general protocol recommendations, please visit www.bio-rad-antibodies.com/protocols.

	Yes	No	Not Determined	Suggested Dilution
Functional Assays	▪			

Where this product has not been tested for use in a particular technique this does not necessarily exclude its use in such procedures. Suggested working dilutions are given as a guide only. It is recommended that the user titrates the product for use in their own system using appropriate negative/positive controls.

Target Species	Human
Product Form	Purified recombinant protein - lyophilized
Reconstitution	Centrifuge vial prior to reconstitution. Reconstitute to 100 µg/ml by adding 100 µl ddH ₂ O. Care should be taken during reconstitution as the protein may appear as a film at the bottom of the vial. Bio-Rad recommend that the vial is gently mixed after reconstitution. Do not vortex.
Preparation	Recombinant protein expressed in <i>E.coli</i> and purified by ion exchange chromatography
Buffer Solution	50 mM Tris-HCl, 0.15 M Sodium Chloride
Preservative Stabilisers	1.0% Trehalose
Endotoxin Level	< 1.0 EU/ug
Approx. Protein Concentrations	100 µg/ml after reconstitution

**External Database
Links**

UniProt:

[P01135](#) [Related reagents](#)

Entrez Gene:

[7039](#) TGFA [Related reagents](#)

Product Information **Recombinant human transforming growth factor (TGF) alpha**

Growth factors such as TGF alpha and their respective receptors play a crucial role in regulating cell differentiation, proliferation and survival. TGF alpha stimulates cell proliferation and is expressed in a number of tissues including skin, colon, liver and kidney ([Kumar *et al.* 1995](#)).

TGF alpha is one of seven epidermal growth factor receptor (EGFR) ligands ([Singh *et al.* 2016](#)). TGF alpha is synthesized in a precursor transmembrane format, which undergoes proteolytic cleavage to generate the mature extracellular soluble ligand (Singh *et al.* 2016). Membrane bound TGF alpha is also biologically active and induces juxtacrine signaling by binding to EGFR on neighboring cells ([Schneider and Wolf 2008](#)). Upon TGF alpha binding, the EGFR dimerizes resulting in its phosphorylation and kinase domain activation. EGFR phosphorylation activates cell signaling pathways, such as Raf/MEK/ERK1/2 and PI3K/AKT/mTOR pathways ([Wang *et al.* 2012](#)).

Overexpression of TGF alpha is observed in numerous cancer types including triple negative breast cancer and prostate cancer. TGF alpha plays a key role in proliferation and metastasis of tumor cells ([Giricz *et al.* 2013](#), [Qin *et al.* 2014](#)). In addition to tumors, increased TGF alpha levels have been observed in the gastric mucosa of patients suffering from the hyper-proliferative stomach disorder, Ménétrier's disease (MD), which has resulted in the implication of TGF alpha in the pathogenesis of MD ([Huh *et al.* 2015](#)).

The proliferative effect of TGF alpha was demonstrated by performing a cell proliferation assay with Balb/3T3 mouse embryonic fibroblast cells. The expected ED₅₀ for this effect is 0.1-1.0 ng/ml.

**Protein Molecular
Weight**

5.5 kDa

Activity

Confirmed by performing an alamarBlue[®] based cell proliferation assay using human breast cancer cells. The expected ED₅₀ for this effect is 0.1 - 1 ng/ml.

Purity

≥98% determined by silver staining of SDS-PAGE gel

Amino Acid Sequence VVSHFNDCPD SHTQFCFHGT CRFLVQEDKP ACVCHSGYVG ARCEHADLLA

Further Reading

1. Giricz, O. *et al.* (2013) TACE-dependent TGFα shedding drives triple-negative breast cancer cell invasion. [Int J Cancer. 133 \(11\): 2587-95.](#)
2. Huh, W.J. *et al.* (2016) Ménétrier's Disease: Its Mimickers and Pathogenesis. [J Pathol Transl Med. 50 \(1\): 10-6.](#)

3. Kumar, V. *et al.* (1995) Transforming growth factor alpha. [Cell Biol Int. 19 \(5\): 373-88.](#)
4. Qin, W. *et al.* (2014) MicroRNA-124 regulates TGF- α -induced epithelial-mesenchymal transition in human prostate cancer cells. [Int J Oncol. 45 \(3\): 1225-31.](#)
5. Schneider, M.R. & Wolf, E. (2009) The epidermal growth factor receptor ligands at a glance. [J Cell Physiol. 218 \(3\): 460-6.](#)
6. Singh, B. *et al.* (2016) EGF receptor ligands: recent advances. [F1000Res. 5Sep 08 \[Epub ahead of print\].](#)
7. Wang, C. *et al.* (2012) Transforming growth factor alpha (TGF α) regulates granulosa cell tumor (GCT) cell proliferation and migration through activation of multiple pathways. [PLoS One. 7 \(11\): e48299.](#)

Storage	<p>Prior to reconstitution store at -20°C. Following reconstitution store at -20°C.</p> <p>This product should be stored undiluted.</p> <p>Storage in frost-free freezers is not recommended. Avoid repeated freezing and thawing as this may denature the protein. Should this product contain a precipitate we recommend microcentrifugation before use.</p>
Guarantee	Guaranteed for 3 months from the date of reconstitution or until the date of expiry, whichever comes first. Please see label for expiry date.
Acknowledgements	alamarBlue is a trademark of Trek Diagnostic Systems, Inc and is manufactured for Bio-Rad by Trek Diagnostic Systems. U.S. patent 5,501,959
Health And Safety Information	Material Safety Datasheet documentation #20394 available at: 20394: https://www.bio-rad-antibodies.com/uploads/MSDS/20394.pdf
Regulatory	For research purposes only

Related Products

Recommended Useful Reagents

[alamarBlue® \(BUF012A\)](#)

[RECOMBINANT HUMAN TGF ALPHA \(PHP037\)](#)

[SHEEP ANTI HUMAN TGF ALPHA \(9129-7995\)](#)

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To find a batch/lot specific datasheet for this product, please use our online search tool at: [bio-rad-antibodies.com/datasheets](https://www.bio-rad-antibodies.com/datasheets)
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Printed on 29 Aug 2021