Datasheet: PHP291

Description:	RECOMBINANT HUMAN TGF ALPHA
Name:	TGF ALPHA
Format:	Rec. Protein
Product Type:	Recombinant Protein
Quantity:	100 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 1 ml ddH_2O. 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 *E.coli* and purified by ion exchange chromatography
Source	E.coli
Buffer Solution	50 mM Tris-HCl, 0.15 M Sodium Chloride
Preservative Stabilisers	1.0% Trehalose
Endotoxin Level	< 1.0 EU/ug
Approx. Protein	100 µg/ml after reconstitution

Concentrations	
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 ED_{50} 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 ED_{50} 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 (TGFα) regulates granulosa cell tumor (GCT) cell proliferation and migration through activation of multiple pathways. PLoS One. 7 (11): e48299.

Storage	Prior to reconstitution store at -20°C. Following reconstitution store at -20°C. This product should be stored undiluted. 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.
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: https://www.bio-rad-antibodies.com/SDS/PHP291 20394
Regulatory	For research purposes only

Related Products

Recommended Useful Reagents

alamarBlue® (BUF012A)
RECOMBINANT HUMAN TGF ALPHA (PHP037)

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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
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