

#### DESCRIPTION

<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human TGF-beta 1 in direct ELISAs.
<b>Source</b>	Monoclonal Mouse IgG <sub>2B</sub> Clone # 1018746
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	Chinese Hamster Ovary cell line, CHO-derived human TGF-beta 1 protein Ala279-Ser390 Accession # P01137
<b>Conjugate</b>	Alexa Fluor 750 Excitation Wavelength: 749 nm Emission Wavelength: 775 nm
<b>Formulation</b>	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide.  *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

#### APPLICATIONS

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the Technical Information section on our website.

	Recommended Concentration	Sample
<b>Intracellular Staining by Flow Cytometry</b>	0.25-1 µg/10 <sup>6</sup> cells	PC-3 human prostate carcinoma cell line fixed and permeabilized with FlowX FoxP3/Transcription Factor Fixation & Perm Buffer Kit (Catalog # FC012)

#### PREPARATION AND STORAGE

<b>Shipping</b>	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	<b>Protect from light. Do not freeze.</b> <ul style="list-style-type: none"> <li>12 months from date of receipt, 2 to 8 °C as supplied.</li> </ul>

#### BACKGROUND

TGF-β1 (transforming growth factor beta 1) is one of three closely related mammalian members of the large TGF-β superfamily that share a characteristic cystine knot structure (1-7). TGF-β1, -2 and -3 are highly pleiotropic cytokines that are proposed to act as cellular switches that regulate processes such as immune function, proliferation and epithelial-mesenchymal transition (1-4). Each TGF-β isoform has some non-redundant functions; for TGF-β1, mice with targeted deletion show defects in hematopoiesis and endothelial differentiation, and die of overwhelming inflammation (2). Human TGF-β1 cDNA encodes a 390 amino acid (aa) precursor that contains a 29 aa signal peptide and a 361 aa proprotein (8). A furin-like convertase processes the proprotein to generate an N-terminal 249 aa latency-associated peptide (LAP) and a C-terminal 112 aa mature TGF-β1 (8, 9). Disulfide-linked homodimers of LAP and TGF-β1 remain non-covalently associated after secretion, forming the small latent TGF-β1 complex (8-10). Covalent linkage of LAP to one of three latent TGF-β binding proteins (LTBPs) creates a large latent complex that may interact with the extracellular matrix (9, 10). TGF-β is activated from latency by pathways that include actions of the protease plasmin, matrix metalloproteases, thrombospondin 1 and a subset of integrins (10). Mature human TGF-β1 shares 100% aa identity with pig, dog and cow TGF-β1, and 99% aa identity with mouse, rat and horse TGF-β1. It demonstrates cross-species activity (1). TGF-β1 signaling begins with high-affinity binding to a type II ser/thr kinase receptor termed TGF-β RII. This receptor then phosphorylates and activates a second ser/thr kinase receptor, TGF-β RI (also called activin receptor-like kinase (ALK) -5), or alternatively, ALK-1. This complex phosphorylates and activates Smad proteins that regulate transcription (3, 11, 12). Contributions of the accessory receptors betaglycan (also known as TGF-β RIII) and endoglin, or use of Smad-independent signaling pathways, allow for disparate actions observed in response to TGF-β in different contexts (11).

#### References:

- Derynck, R. and K. Miyazono (2008) Cold Spring Harbor Laboratory Press, 29.
- Dunker, N. and K. Kriegelstein (2000) Eur. J. Biochem. **267**:6982.
- Wahl, S.M. (2006) Immunol. Rev. **213**:213.
- Chang, H. *et al.* (2002) Endocr. Rev. **23**:787.
- Lin, J.S. *et al.* (2006) Reproduction **132**:179.
- Hinck, A.P. *et al.* (1996) Biochemistry **35**:8517.
- Mittl, P.R.E. *et al.* (1996) Protein Sci. **5**:1261.
- Derynck, R. *et al.* (1985) Nature **316**:701.
- Miyazono, K. *et al.* (1988) J. Biol. Chem. **263**:6407.
- Oklu, R. and R. Hesketh (2000) Biochem. J. **352**:601.
- de Caestecker, M. *et al.* (2004) Cytokine Growth Factor Rev. **15**:1.
- Zuniga, J.E. *et al.* (2005) J. Mol. Biol. **354**:1052.

# Human TGF- $\beta$ 1 Alexa Fluor® 750-conjugated Antibody

Monoclonal Mouse IgG<sub>2B</sub> Clone # 1018746

Catalog Number: IC10502S

100  $\mu$ g

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