

## DESCRIPTION

|                           |                                                                                                                                                                                                                                                                             |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Species Reactivity</b> | Human                                                                                                                                                                                                                                                                       |
| <b>Specificity</b>        | Detects human LAP TGF- $\beta$ 1 in direct ELISAs and Western blots.                                                                                                                                                                                                        |
| <b>Source</b>             | Polyclonal Goat IgG                                                                                                                                                                                                                                                         |
| <b>Purification</b>       | Antigen Affinity-purified                                                                                                                                                                                                                                                   |
| <b>Immunogen</b>          | <i>S. frugiperda</i> insect ovarian cell line Sf 21-derived and Chinese hamster ovary cell line CHO-derived recombinant human LAP TGF- $\beta$ 1 Leu30-Ser390<br>Accession # P01137                                                                                         |
| <b>Conjugate</b>          | Alexa Fluor 405<br>Excitation Wavelength: 405 nm<br>Emission Wavelength: 421 nm                                                                                                                                                                                             |
| <b>Formulation</b>        | Supplied 0.2mg/ml in 1X PBS with RDF1 and 0.09% Sodium Azide<br><br>*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.

|                            |                                                                        |
|----------------------------|------------------------------------------------------------------------|
| <b>Neutralization</b>      | Optimal dilution of this antibody should be experimentally determined. |
| <b>Western Blot</b>        | Optimal dilution of this antibody should be experimentally determined. |
| <b>Immunocytochemistry</b> | Optimal dilution of this antibody should be experimentally determined. |

## 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> | Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied                          |

## BACKGROUND

TGF- $\beta$ 1 (transforming growth factor beta 1) and the closely related TGF- $\beta$ 2 and - $\beta$ 3 are members of the large TGF- $\beta$  superfamily. TGF- $\beta$  proteins are highly pleiotropic cytokines that regulate processes such as immune function, proliferation and epithelial-mesenchymal transition (1-3). Human TGF- $\beta$ 1 cDNA encodes a 390 amino acid (aa) precursor that contains a 29 aa signal peptide and a 361 aa proprotein (4). A furin-like convertase processes the proprotein within the trans-Golgi to generate an N-terminal 249 aa (aa 30-278) latency-associated peptide (LAP) and a C-terminal 112 aa mature TGF- $\beta$ 1 (aa 279-390) (4-6). Disulfide-linked homodimers of LAP and TGF- $\beta$ 1 remain non-covalently associated after secretion, forming the small latent TGF- $\beta$ 1 complex (4-8). Purified LAP is also capable of associating with active TGF- $\beta$  with high affinity, and can neutralize TGF- $\beta$  activity (9). Covalent linkage of LAP to one of three latent TGF- $\beta$  binding proteins (LTBPs) creates a large latent complex that may interact with the extracellular matrix (5-7). TGF- $\beta$  activation from latency is controlled both spatially and temporally, by multiple pathways that include actions of proteases such as plasmin and MMP9, and/or by thrombospondin 1 or selected integrins (5, 8). The LAP portion of human TGF- $\beta$ 1 shares 91%, 92%, 85%, 86% and 88% aa identity with porcine, canine, mouse, rat and equine TGF- $\beta$ 1 LAP, respectively, while mature human TGF- $\beta$ 1 portion shares 100% aa identity with porcine, canine and bovine TGF- $\beta$ 1, and 99% aa identity with mouse, rat and equine TGF- $\beta$ 1. Although different isoforms of TGF- $\beta$  are naturally associated with their own distinct LAPs, the TGF- $\beta$ 1 LAP is capable of complexing with, and inactivating, all other human TGF- $\beta$  isoforms and those of most other species (9). Mutations within the LAP are associated with Camurati-Engelmann disease, a rare sclerosing bone dysplasia characterized by inappropriate presence of active TGF- $\beta$ 1 (10).

## PRODUCT SPECIFIC NOTICES

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