Human Latent Transforming Growth Factor β1 (hLatent TGF-β1)

**Source:** Recombinant human latent TGF-β1 (hLatent TGF-β1) Leu30-Ser390 (Accession #P01137) was expressed in human 293 cells at Cell Signaling Technology.

**Molecular Characterization:** Recombinant (hLatent TGF-β1) contains no "tags" and the nonglycosylated small latent TGF-β1 complex has a calculated MW of 41.251. DTT-reduced protein migrates as 40 and 13 kDa polypeptides, and the non-reduced cystine-linked homodimers migrate as 80 and 25 kDa proteins. The expected amino-terminal ALDTN of recombinant hTGF-β1 and the expected amino-terminal LSTSK of recombinant latency-associated peptide (LAP) were verified by amino acid sequencing.

**Endotoxin:** Less than 0.01 ng endotoxin/1 µg hLatent TGF-β1.

**Purity:** >98% as determined by SDS-PAGE of 6 µg reduced (+) and non-reduced (-) recombinant hLatent TGF-β1. All lots are greater than 98% pure.

**Bioactivity:** The bioactivity of recombinant hLatent TGF-β1 was determined by assessing inhibition of IL-4 induced HT-2 cell proliferation. The ED_{50} of each lot is between 0.2-10 ng/ml after acid activation.

**Background References:**


**Formulation:** With carrier: A 0.22 µm filtered solution of 0.25 mg/ml hLatent TGF-β1 in PBS, pH 7.2 and 25% (v/v) glycerol containing 20 µg BSA per 1 µg hLatent TGF-β1. Carrier free: A 0.22 µm filtered solution of 0.25 mg/ml hLatent TGF-β1 in PBS, pH 7.2 and 25% (v/v) glycerol.

**Storage:** Stable at -20°C for 1 year after receipt. Maintain sterility. Store at -20°C should be in a manual defrost freezer.

**Applications:** Optimal concentration for the desired application should be determined by the user.

**Background:** Latent TGF-β1 is a complex of two proteins, latency associated protein (LAP) and TGF-β1, which is derived from cleavage of a common 75 kDa precursor protein (1). The LAP protein spatially and temporally regulates TGF-β1 activity by sequestering TGF-β1 in the extracellular matrix in conjunction with latent TGF-β1 binding proteins (LTBP)(1). The release of TGF-β1 is activated by a number of stimuli including proteases, thrombospondin-1, reactive oxygen species, and some integrins (1). Active TGF-β1 binds to TpRII homodimer, which then complexes with TpRI homodimer (2.3). The oligomeric receptor complex phosphorylates subsets of the Smad proteins that then act to induce or repress a number of target genes (3-5). TGF-β1 binding can also activate the Erk2, p38, and Jnk pathways via TAK1 (5). Active TGF-β1 activities include proliferation, angiogenesis, and promotion or inhibition of many immune events (2.4.5). Latent TGF-β1 is present on the surface of regulatory T cells in association with GARP and may contribute directly to their immunosuppressive activity (6.7).