Revision 4

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

Cell Signaling TECHNOLOGY®

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MW (kDa):	UniProt ID:	Entrez-Gene Id:
13 and 40	#P01137	7040

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 TβRII homodimer, which then complexes with TβRI 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).

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.

Source / Purification

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

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.

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Background References

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2. Bierie, B. and Moses, H.L. (2006) *Nat Rev Cancer* 6, 506-20.
3. Moustakas, A. and Heldin, C.H. (2009) *Development* 136, 3699-714.
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6. Tran, D.Q. et al. (2009) *Proc Natl Acad Sci U S A* 106, 13445-50.
7. Stockis, J. et al. (2009) *Eur J Immunol* 39, 3315-22.

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster **X:** Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse **GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

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