Data Sheet (Cat.No.TMAZ-0057)

TargetMol

Anti-LAP-TGF-β1 Monoclonal Antibody

Product Details

Ig Type:	Rabbit monoclonal IgG
Reactivity:	Human
Conjugation:	Unconjugated
Molecular Weight:	150 kDa
Purification:	Protein A Affinity Purified

Applications

Verified Activity:	Flow cytometry analysis of LAP-TGF-β1 overexpressed 440F cells with TMAZ-0057, followed by goat anti-rabbit IgG-ABflo 647 (red line). The isotype control is rabbit IgG (black line).
Application:	ELISA, FCM
Recommended	0.1-0.2 μg/10E6 cells for FCM; 1 ng/μl for ELISA

Properties

Purity:	> 95% as determined by SDS-PAGE.
Stability & Storage:	Store at -20°C or -80°C for 12 months. Avoid repeated freeze-thaw cycles.
Shipping:	Shipping with blue ice.

Antigen Details

Immunogen:	LAP-TGF-β1
Antigen Species:	Human
Gene ID:	7040
Uniprot ID:	P01137
Synonyms:	Transforming growth factor beta-1 proprotein
Biology Area:	Immunology Research

Research Background

Transforming growth factor beta-1 proprotein: Precursor of the Latency-associated peptide (LAP) and Transforming growth factor beta-1 (TGF-beta-1) chains, which constitute the regulatory and active subunit of TGF-beta-1, respectively|Required to maintain the Transforming growth factor beta-1 (TGF-beta-1) chain in a latent state during storage in extracellular matrix (PubMed: 28117447). Associates non-covalently with TGF-beta-1 and regulates its activation via interaction with 'milieu molecules', such as LTBP1, LRRC32/GARP and LRRC33/NRROS, that control activation of TGF-beta-1 (PubMed: 19651619, PubMed: 19750484, PubMed: 2022183, PubMed: 22278742, PubMed: 8617200, PubMed: 8939931). Interaction with LRRC33/NRROS regulates activation of TGF-beta-1 in macrophages and microglia (Probable). Interaction with LRRC32/GARP controls activation of TGF-beta-1 on the surface of activated regulatory T-cells (Tregs) (PubMed: 19651619, PubMed: 19750484, PubMed: 22278742). Interaction with integrins (ITGAV: ITGB6 or ITGAV: ITGB8) results in distortion of the Latency-associated peptide chain and subsequent release of the active TGF-beta-1 (PubMed: 22278742, PubMed: 28117447)|Multifunctional protein that regulates the growth and differentiation of various cell types and is involved in various processes, such as normal development,

immune function, microglia function and responses to neurodegeneration (By similarity). Activation into mature form follows different steps: following cleavage of the proprotein in the Golgi apparatus, Latency-associated peptide (LAP) and Transforming growth factor beta-1 (TGF-beta-1) chains remain non-covalently linked rendering TGF-beta-1 inactive during storage in extracellular matrix (PubMed: 29109152). At the same time, LAP chain interacts with 'milieu molecules', such as LTBP1, LRRC32/GARP and LRRC33/NRROS that control activation of TGF-beta-1 and maintain it in a latent state during storage in extracellular milieus (PubMed: 19651619, PubMed: 19750484, PubMed: 2022183, PubMed: 22278742, PubMed: 8617200, PubMed: 8939931). TGF-beta-1 is released from LAP by integrins (ITGAV: ITGB6 or ITGAV: ITGB8): integrin-binding to LAP stabilizes an alternative conformation of the LAP bowtie tail and results in distortion of the LAP chain and subsequent release of the active TGF-beta-1 (PubMed: 22278742, PubMed: 28117447). Once activated following release of LAP, TGF-beta-1 acts by binding to TGF-beta receptors (TGFBR1 and TGFBR2), which transduce signal (PubMed: 20207738). While expressed by many cells types, TGF-beta-1 only has a very localized range of action within cell environment thanks to fine regulation of its activation by Latency-associated peptide chain (LAP) and 'milieu molecules' (By similarity). Plays an important role in bone remodeling: acts as a potent stimulator of osteoblastic bone formation, causing chemotaxis, proliferation and differentiation in committed osteoblasts (By similarity). Can promote either T-helper 17 cells (Th17) or regulatory T-cells (Treg) lineage differentiation in a concentration-dependent manner (By similarity). At high concentrations, leads to FOXP3-mediated suppression of RORC and down-regulation of IL-17 expression, favoring Treg cell development (By similarity). At low concentrations in concert with IL-6 and IL-21, leads to expression of the IL-17 and IL-23 receptors, favoring differentiation to Th17 cells (By similarity). Stimulates sustained production of collagen through the activation of CREB3L1 by regulated intramembrane proteolysis (RIP) (PubMed: 25310401). Mediates SMAD2/3 activation by inducing its phosphorylation and subsequent translocation to the nucleus (PubMed: 25893292, PubMed: 29483653, PubMed: 30696809). Positively regulates odontoblastic differentiation in dental papilla cells, via promotion of IPO7-mediated translocation of phosphorylated SMAD2 to the nucleus and subsequent transcription of target genes (By similarity). Can induce epithelial-to-mesenchymal transition (EMT) and cell migration in various cell types (PubMed: 25893292, PubMed: 30696809)

Tel:781-999-4286 E_mail:info@targetmol.com Address:34 Washington Street,Wellesley Hills,MA 02481