Secretion and activation of the latent large complex of TGF-beta-1

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Introduction

Reactome is open-source, open access, manually curated and peer-reviewed pathway database. Pathway annotations are authored by expert biologists, in collaboration with Reactome editorial staff and cross-referenced to many bioinformatics databases. A system of evidence tracking ensures that all assertions are backed up by the primary literature. Reactome is used by clinicians, geneticists, genomics researchers, and molecular biologists to interpret the results of high-throughput experimental studies, by bioinformaticians seeking to develop novel algorithms for mining knowledge from genomic studies, and by systems biologists building predictive models of normal and disease variant pathways.
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Literature references

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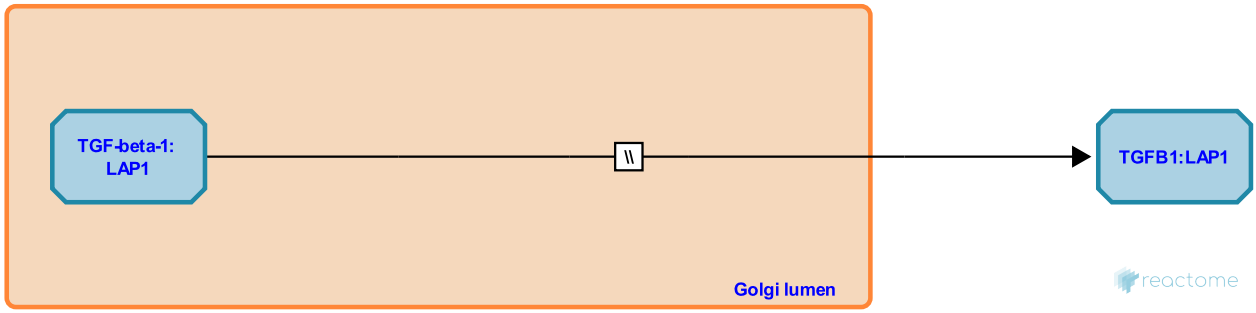
Compartments: Golgi lumen, extracellular region



The large latent complex (LLC) of TGF-beta-1 (TGFB1) is secreted by exocytosis to the extracellular region. TGF-beta-1 in the LLC (called small latent TGF-beta complex (SCL)) cannot interact with the receptors and for this reason we say that it requires "activation". This means release from the LLC. This release is achieved by many mechanisms: proteolytic cleavage of the LTBPs, thrombospondin-1 binding to the LLC, integrin alphaV-beta6 binding to the LLC, reactive oxygen species, plasmin or other proteases and low pH. The release of mature dimeric TGF-beta-1 is essentially a mechanical process that demands cleavage and opening of the LLC structure so that the caged mature C-terminal TGF-beta-1 polypeptide is released to reach the receptor (Annes et al. 2003, Keski-Oja et al. 2004).

Literature references

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