ITGA4:ITGB1 binds natalizumab

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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


Reactome database release: 82

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Integrins are the receptors that mediate cell adhesion to the extracellular matrix (ECM). They are involved in cell adhesion and recognition in a variety of processes including embryogenesis, hemostasis, tissue repair, immune response and metastatic diffusion of tumor cells. Integrin alpha-4 (ITGA4) is a receptor for fibronectin. ITGA4 functions as a heterodimer of an alpha subunit and the beta subunit of either the beta-1 chain or the beta-7 chain (ITGA4:ITGB1 shown here).

Natalizumab (Tysabri) is a humanised monoclonal antibody against the cell adhesion molecule α4-integrin. It is a medication used to treat multiple sclerosis and Crohn's disease (No authors 2004). It binds to the α4-subunit of α4b1 and α4b7 integrins expressed on the surface of all leukocytes except neutrophils, and inhibits the α4-mediated adhesion of leukocytes to their counter-receptors. This is thought to reduce the ability of inflammatory immune cells to attach to and pass through the cell layers lining the intestines and blood–brain barrier (Rice et al. 2005).

Literature references