Integrins alpha4beta1, alpha8beta1, alphaVbeta1, alphaVbeta3, alphaVbeta6 bind Fibronectin matrix

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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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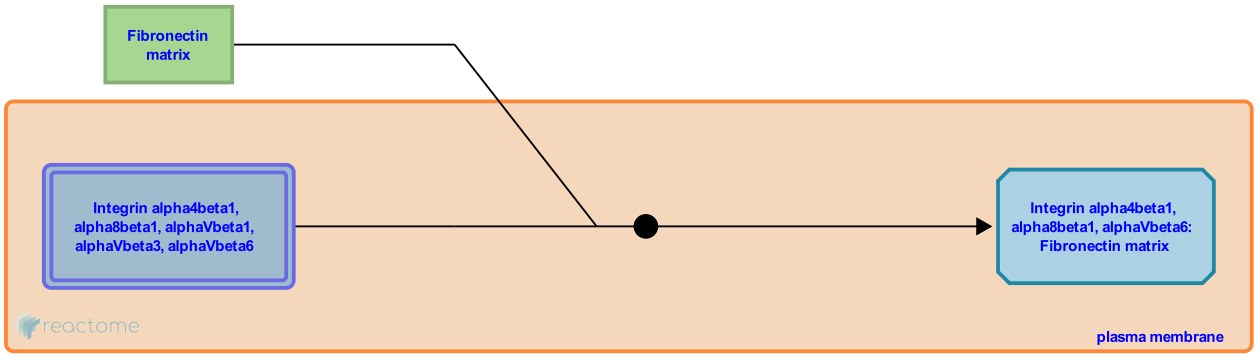
Stable identifier: R-HSA-216050

Type: binding

Compartments: extracellular region, plasma membrane



Several integrins are able to bind fibronectin (FN1). Alpha5beta1 is a specialist FN1 receptor (Singh et al. 2010). The alpha4beta1 (VAL-4) integrin has been suggested to play an important role in haemopoiesis. Fibronectin and VCAM-1 are the main ligands for VLA-4. The H1 region present in all FN isoforms represents the binding site for VLA-4, alphaIIbBeta3, which is highly expressed on platelets where it predominantly binds fibrinogen leading to thrombus formation but also binds FN1 (Savage et al. 1996). Alpha4beta1 mediates cell-cell contacts and cell-matrix contacts through the ligands VCAM-1 and FN1, respectively (Humphries et al. 1995), this is suggested to play an important role in haemopoiesis. The H1 region present in all FN isoforms represents the binding site for VLA-4. Integrins alpha3beta1, alpha4beta7, alphaVbeta1, 3 (Wu et al. 1996, Johansson et al. 1997), 6 (Busk et al. 1992) and alpha8beta1 (Muller et al. 1995, Farias et al. 2005) are all able to bind FN1.

Tenacious binding of free fibronectin to cells leads to enhanced fibronectin matrix assembly and the formation of a polymerized fibronectin "cocoon" around the cells. This process is enhanced in the presence of CEACAM molecules.

Literature references

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Editions

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