

P011 Engagement of platelet integrin $\alpha_5\beta_1$ by fibronectin supports adhesion but not spreading

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Recent studies have shown that platelet adhesion and subsequent aggregation can occur *in vivo* in the absence of the two principal platelets adhesive ligands, von Willebrand factor and fibrinogen. These results highlight a possible role for fibronectin in supporting thrombus formation. The aim of the present study was to evaluate the molecular mechanisms and subsequent activation pathways associated with fibronectin-dependent platelet adhesion. We provide evidence that platelets can adhere to fibronectin via the integrins $\alpha_{IIb}\beta_3$ and $\alpha_5\beta_1$ but that only engagement of the former is able to promote platelet spreading. This is mediated through an interaction with the tenth type III domain (10FIII) in fibronectin, although this is further potentiated by engagement of the synergy site. Fibronectin promotes spreading through $\alpha_{IIb}\beta_3$ -mediated tyrosine phosphorylation of focal adhesion kinase (FAK) and phospholipase C (PLC) γ_2 . In contrast, $\alpha_5\beta_1$ and $\alpha_v\beta_3$ do not promote tyrosine phosphorylation. Our data demonstrates that fibronectin is able to support adhesion via integrin $\alpha_5\beta_1$ and $\alpha_{IIb}\beta_3$ but that only the latter is capable of promoting spreading.