

P009 Platelet integrins $\alpha_2\beta_1$ and $\alpha_{IIb}\beta_3$ cross talk during platelet activation

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Platelet integrins $\alpha_2\beta_1$ and $\alpha_{IIb}\beta_3$ fail to bind their soluble ligands under resting conditions. However, after platelet stimulation, a conformational change is induced enabling ligand binding. Activation of $\alpha_2\beta_1$ and $\alpha_{IIb}\beta_3$ was demonstrated in flow cytometry using the activation-dependent antibodies IAC-1 and PAC-1. Blockage of fibrinogen binding to $\alpha_{IIb}\beta_3$ by Aggrastat resulted in a marked decrease in convulxin-dependent $\alpha_2\beta_1$ activation in platelet rich plasma (85% inhibition of IAC-1 binding). Addition of fibrinogen to convulxin activated washed platelets resulted in a 3 to 7-fold increase in IAC-1 binding, suggesting that fibrinogen- $\alpha_{IIb}\beta_3$ binding contributes to $\alpha_2\beta_1$ -activation. Perfusion chamber studies confirmed these results: Aggrastat-treated platelets adhered to a collagen surface but failed to bind IAC-1 (> 85% inhibition). Preliminary results suggest also the reverse: $\alpha_2\beta_1$ -collagen binding seems to enhance $\alpha_{IIb}\beta_3$ activation. Addition of collagen to convulxin stimulated washed platelets resulted in a 2-fold increase in PAC-1 binding. In addition, PAC-1 binding to platelets, adhering to a collagen surface under flow conditions, was reduced with 50% in the presence of a blocking anti- $\alpha_2\beta_1$ antibody. In conclusion, these results show a high degree of platelet integrin cross talk.