

## **The mitosis of fibroblasts in cell culture is enhanced by binding GP IIb-IIIa of activated platelets on fibrinogen.**

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A fibroblast cell culture model enables us to measure the mitogenic ability mediated by growth factors released from stimulated platelets under different conditions. Simultaneously the growth factors secreted in the culture medium were determined. Cell mitotic rate was measured by incorporation of <sup>3</sup>H-thymidine on days 3, 5 and 7 of culture. PDGF, TGF-beta, EGF and IGF-I were determined by Western blot. When fibroblasts were grown on surfaces precoated with a mixture of fibrinogen and thrombin-stimulated platelets, the <sup>3</sup>H-thymidine uptake (196,645 +/- 56,864 cpm/ml) was increased, in comparison to fibroblasts grown on uncoated surfaces, in medium supplemented with FBS (28,855 +/- 7329 cpm/ml). Neither thrombin-stimulated platelets without fibrinogen nor fibrinogen alone had positive effects on the mitogenic activity of fibroblast. Growth factors were identified only in a culture medium in which the cells were grown on surfaces precoated with fibrinogen and thrombin-stimulated platelets. Blocking the platelet integrin GP IIb-IIIa inhibited the release of growth factors from thrombin-stimulated platelets and consecutively the stimulation of mitosis by fibrinogen and activated platelets was absent. Antibodies against the growth factors added to the medium suppressed the stimulation of cell mitosis. These results show that delivery of growth factors from platelets' secretory granules is dependent on binding of fibrinogen to GP IIb-IIIa.