

# Transient and persistent aspects of human platelet activation

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### **Transient and persistent aspects of human platelet activation**

**By Jinmi Zou**

1. The reversibility of  $\alpha\text{IIb}\beta\text{3}$  integrin activation in human platelets, as induced by receptor agonists, is steered by protein kinase C isoforms. *(This thesis)*
2. Autocrine released ADP as well as signaling via protein kinase C isoforms contribute to persistent integrin  $\alpha\text{IIb}\beta\text{3}$  activation and hence to stabilized platelet aggregation. *(This thesis)*
3. Regulation of the long-term calcium entry in platelets, stimulated via collagen or thrombin receptors, is achieved by the channel protein Orai1 and by  $\text{Na}^+/\text{Ca}^{2+}$  exchangers in the plasma membrane. *(This thesis)*
4. Protein phosphorylation via conventional and novel protein kinase C isoforms acts as a strong negative regulator of the calcium entry in platelets, thereby suppressing platelet-dependent procoagulant activity and coagulation. *(This thesis)*
5. In whole blood thrombin generation, red blood cells play an initial role, whilst activated platelets support this process at later stage. *(This thesis)*
6. Previously activated platelets that have returned to a resting state can still contribute to the formation of a thrombus. *(De Simone, J Thromb Haemost 2023)*
7. Bridging integrator 2 is a central regulator of platelet activation in thrombosis and thrombo-inflammatory disease settings. *(Volz, J Clin Investig 2020)*
8. An ideal antiplatelet drug selectively inhibits thrombosis, preserving essential hemostatic mechanisms, with research focused on signaling molecules downstream of receptor-mediated platelet activation. *(Gawaz, Nat Rev Cardiol, 2023)*
9. Engagement in scientific research is a fascinating experience, as unexpected experimental outcomes serve as catalysts for uncovering novel mechanisms.
10. Those who work will succeed, and those who walk will arrive at their destination. 为者常成，行者常至——《晏子春秋》 *(Yanzi Chunqiu)*

March 19, 2024