INVITED SYMPOSIUM XIII

Platelet Macromolecules.

THE FUNCTIONAL SIGNIFICANCE OF PLATELET MACROMOLECULES. E.F. Lüscher, Theodor Kocher Institute, University of Berne, Berne, Switzerland.

Besides the equipment of enzymes, substrates and structural proteins common to all living cells, the platelet contains a variety of macromolecules which are directly involved in its specific biological functions. Although any selection may be arbitrary, the following functions primarily involve macromolecules:

- contractility based on cytoplasmic and membrane linked actomyosin (AM), responsible not only for active contraction of pseudopodes and clot retraction, but also for shape change. Disputed is the participation of AM in the release reaction.
- upkeep of distinct shape, mediated by the microtubular (MT) system. The activation of AM leading to shape change is incompatible with intact MT, suggesting a subtle interplay between both systems.
- influence on extracellular activities by means of released macromolecules.
- membrane function, involving adhesivity, aggregability, as well as the presence of receptors for external stimulators of platelet activity and the capacity to react upon stimulation in such a way that a signal for the induction of sequential reactions is created. Examples of such secondary reactions of membrane constituents will be discussed and compared with other cells.

PLATELET CONTRACTILE PROTEINS. T.D. Pollard Harvard Medical School, Department of Anatomy, Boston, MA, USA.

Platelets contain a high concentration of the contractile proteins actin and myosin. The properties of these proteins are generally similar to their counterparts in muscle, suggesting that the platelet actin and myosin can generate contractile force. Both proteins are localized in the cytoplasm and little or none of either is present on the outer surface. The distribution of actin in the filopodia and myosin in the body of activated platelets suggests that the force for clot retraction is generated by retraction of the filopodia using a mechanism similar to that in muscle contraction.