ACTIN AND MYOSIN FROM PLATELETS AND MUSCLE ARE SUBSTRATES FOR FIBRINOLIGASE. Isaac Cohen, Joyce Bruner-Lorand, Tikoes A. Blankenberg and Laszlo Lorand. Department of Biochemistry and Molecular Biology, Northwestern University, Evanston, Illinois, U.S.A.

Fibrinoligase (thrombin and calcium activated factor XIII) from human plasma catalyzes the incorporation of dansylcadaverine and ^{14}C -putrescine into myosin and actin prepared from either human platelets or rabbit skeletal muscle. An average of 3 to 4 moles of amine are incorporated per mole of myosin of either type when the enzyme is used under saturating conditions. The rate of incorporation is 1.4 to 2 fold faster for filamentous than for soluble myosin.

Electrophoretic analysis on polyacrylamide and agarose gels in the presence of sodium dodecyl sulfate and 2-mercaptoethanol was used for locating the acceptor sites and for the detection of possible cross-links. Both heavy and light chains of platelet as well as muscle myosin incorporate dansylcadaverine and ^{14}C -putrescine. However, in quantitative terms, the incorporation into the light chains of either type is only a small fraction of that incorporated into the heavy chains. Fibrinoligase also catalyzes the formation of highly cross-linked polymers in both myosin and actin (platelet or muscle) indicating the presence of acceptor and donor sites in the two contractile proteins.

PLATELET VOLUME DISTRIBUTION IN PRIMARY AND SECONDARY THROMBOCYTOPENIAS.

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Platelet volume distribution was studied using a Coulter Z Bic channelyser model C 1000 in 28 idiopathic thrombopenic purpura (I.T.P.) and in 59 thrombocytopenias attributed to a failure of production. In 40 cases platelet volume distribution had an abnormal pattern with a first peak due to particles smaller than 3 N^3 . This abnormal curve was encountered in both groups of thrombocytopenias and its frequency was in good correlation with the degree of thrombocytopenia. In 24 out of these 40 cases the albumin gradient separation gives a platelet suspension the volume distribution curve of which has a normal pattern. In 16 other cases (6 I.T.P. + 10 secondary thrombocytopenias) it was not possible to suppress the interference of the smaller particles. An increase of the mean platelet volume and of the Karparkin index (% of platelets $> 12\text{ N}^3$) was present in 18 out of 22 I.T.P. but was also occasionally found in secondary thrombocytopenias. Electron microscopic and cytoenzymologic studies were used to identify the smaller particles of about 1 N diameter and to determine the relative proportion of red cells and platelets fragments. It is also important to investigate if these particles are present in circulating blood or are formed after blood collection.

ISOPYCNICITY AND RELATIONS BETWEEN PLATELET VOLUME, DENSITY AND AGE. B. Boneu, C. Caranobe, F. Vigoni, A. Blasco, R. Bierme. Haemostasis laboratory, blood bank center, Toulouse, FRANCE.

The conflicting results, published in literature, concerning the correlation and significance of platelet volume, density and age are possibly due to the different experimental procedures utilized: medium, densities or centrifugation. We present here the results obtained in man with two methods of centrifugation (I: 800g/60mn; II: 7000g/20mn) and three different linear isosmolar gradients (a: Ludox-PVP; b: Albumin; c: Metrizamide).

With the methods I a, b, c we obtain only one gaussian platelet population. There is an evident relationship between apparent platelet densities and their volumes: the denser the platelets the larger they are. The platelets of each fraction present a log normal volume distribution. The platelet survival studies (^{51}Cr) demonstrate that platelet volume and age are independent. With the methods II a, b, c we also obtain only one gaussian platelet population but no significant variation of volume between dense and light platelets (except for Ludox-PVP). The mathematical analysis of platelet kinetics (^{75}Se - ^{51}Cr) indicates: (1) that young platelets (age $< 48\text{h}$) present the same heterogeneity as the whole platelet population, but the mean density is lower; (2) the potential survival of platelets of various densities is identical; (3) the young platelets increase slightly their density during the first four days of their survival. Thus there is continuously some sort of exchange between platelet populations. (peripheral maturation phenomenon).

In conclusion ours are conflicting results too. We demonstrate in fact that the second method achieves an isopycnic separation but not the first one.