CHARACTERIZATION OF THE FIBRINOLYTIC COMPONENTS SPECIFIED BY VASCULAR ENDOTHELIAL CELLS. D.J. Loskutoff and T.S. Edgington. Scripps Clinic and Research Foundation, La Jolla, CA, U.S.A.

Vascular endothelial cells derived from rabbit vena cava and maintained in continuous culture retained properties characteristic of intact endothelium and were employed to characterize its fibrinolytic components. Cells growing on ¹²⁵I-fibrin-coated petri dishes synthesized and secreted both: a) a plasminogen activator and b) an inhibitor of fibrinolysis. Cell fractionation studies revealed that all PA was associated with a membrane fraction, while the inhibitor appeared to exist free in the cytosol. The PA was active following SDS-polyacrylamide gel electrophoresis and migrated as a single molecular species with a mol. wt. ~ 50,000. Similar activity and mol. wt. profiles were obtained when intact tissues (superior vena cava; aorta and kidney) and urine were extracted and analyzed. The inhibitor was inactivated upon brief exposure to mildly acidic conditions and had a mol. wt. ~ 80,000. The cells respond to external stimuli (phorbol-myristate-ester) by increased production of both activator and inhibitor, suggesting that the synthesis of these molecules is coordinately regulated. The response is rapid with intracellular changes often apparent within 1-2 hours, and is initiated at the level of gene expression. Changes in extracellular activities appeared 6-8 hours later. The presence of both a PA molecule and a fibrinolytic inhibitor within the same cell, although restricted to different cellular compartments, introduces a previously unappreciated level of complexity to cellular fibrinolytic phenomena and raises difficulties for the interpretation of observations concerning the presence or absence of PA in tissues.

POSTER SYMPOSIUM XII

Platelets: Survival in Animal Models of Thrombosis

THROMBOKINETIC STUDY TO PREDICT EPISODES OF THROMBOGENESIS. S.Koganemaru, Y.Taketomi, A.Kuramoto and K.Okamoto. Research Institute for Nuclear Medicine and Biology, Hiroshima University, Hiroshima and Department of Pathology, Kinki University, Osaka, Japan.

To evaluate platelet participation in the development of cerebrovascular lesion; cerebral infarction and / or bleeding in animal model, platelet survival and thrombopoiesis were measured by ⁷⁵Se-selenomethionine incorporation, using spontaneously hypertensive rat-stroke prone (SHR-SP. Okamoto-Yamori Strain). Our study on this newly established strain, was focused on the early period of life (5 and 10 weeks), when their blood pressure begin to increase above normal and spontaneous hypertension is established. Maximum peak of ⁷⁵Se-selenomethionine uptake into the platelets in circulation came on 3rd day after intravenous injection in SHR-SP as well as in controls (SHR-stroke resistant and normotensive Wistar rat). The value of incorporated activity in SHR-SP of 10 weeks with developing high blood pressure was significantly higher than those of 5 weeks and the controls. Expected survival obtained from the results by ⁷⁵Se-selenomethionine, suggested short survival of SHR-SP in 10 weeks of age, compared with the control. Short survival with increased turnover indicated increased consumption due to extrinsic moments, which might be brought about by vascular damage associated with the development of hypertension.