reactivity with decreasing glass transition temperature. Chemical modification of polymers and production of copolymers has been undertaken to define the nature of reactive sites. For example, acrylonitrile and aminomethylacrylate copolymers of PMA exhibit more reactivity than PMA.

Sepharose 4B (4% agarose gel beads) appears essentially non-reactive. However, Sepharose with covalently bound heparin promotes extensive platelet adhesion. Pretreatment of this surface with increasing amounts of plasma, but not albumin, produces decreasing surface reactivity.

J. L. Brash and I. A. Feuerstein (McMaster Univ., Hamilton, Ont., Canada): **Kinetics of Platelet Adhesion to Artificial Surfaces in Vitro.** **(184)**

Adhesion of platelets to glass, collagen-coated glass, albumin-coated glass, polystyrene, sulfonated polystyrene and a segmented polyurethane, has been studied in vitro. The apparatus is of the Couette flow type and allows close control of fluid shear and diffusional factors. Suspensions of washed pig platelets constitute the basic platelet medium. This can be modified by adding back red cells and specific plasma proteins in varying concentration and the platelet concentration can be varied without compromising viability. Adhesion is measured by radiolabelling methods.

In the absence of red cells, low levels of adhesion were seen on all surfaces with saturation occurring at 4 to 6 platelets/1000 μ^2 in 2 to 4 minutes. In the presence of red cells adhesion was much greater. Collagen was the most reactive surface and adhesion data was consistent with a platelet diffusivity 10 to 100 times that predicted by Brownian motion. The diffusivity was dependent on shear rate and hematocrit. All other surfaces showed a 2-fold increase in adhesion compared to the values without red cells. However adhesion was independent of hematocrit above 10% and reached a constant value of about 12 (less for albumin monolayer) in 2 to 10 minutes.

H. Lagergren, R. Larsson, P. Olsson, K. Rädegran and J. Swedenborg (Surgical Research Laboratory, Thoracic Clinics, Karolinska Sjukhuset, and Aminkemi AB, Stockholm, Sweden): **Decreased Platelet Adhesion as a Characteristic of Non-Thrombogenic Heparinized Polymer Surfaces.** **(185)**

Non-thrombogenic surfaces with a stable heparin layer were made of ionically bound heparin cross-linked with glutardialdehyde.

In vivo the retention of platelets on heparin coated and untreated arterio-venous plastic shunts were compared. The retention of ^{51}Cr labelled platelets on treated surfaces was less than 5% of that on untreated surfaces. The results were not influenced by systemic heparinisation or fibrinogen depletion.

In vitro heparinized blood was rotated in coated and nontreated tubes. The retention of platelets on treated tubings was less than 0.5% of that on non-treated tubings. The heparin concentration of blood did not influence this platelet retention.

It is concluded that the non-thrombogenic capacity of the heparinized surface is due to inhibited platelet adhesion.

A. Carpentier, J. Relland, S. Carpentier, A. Lessana, J. N. Fabiani, A. Deloche, S. Chauvaud, L. Schahmaneche and G. Gory (Laboratoire d'Etudes de Greffes et Prothèses Cardiaques. Institut Biomédical des Cordeliers. 15, rue de l'Ecole de Médecine, 75006 – Paris): **Tissue Antithrombogenic Inducing Factor: Experimental evidence and practical applications in the construction of cardiac valves and the artificial heart.** **(186)**

Thrombo-embolic complications remain the major problem in human organ support and replacement devices: artificial kidney, artificial heart, cardiac valves. Based on our 7 year experience with heterograft valves which did not present thrombo-embolic problems, we postulated the existence of an anticoagulant factor inherent in tissue valves and in the biopolymers extracted from these valves.