THE EFFECTS OF SERUM PROTEINS ON THE ADHESION OF LYMPHOCYTES

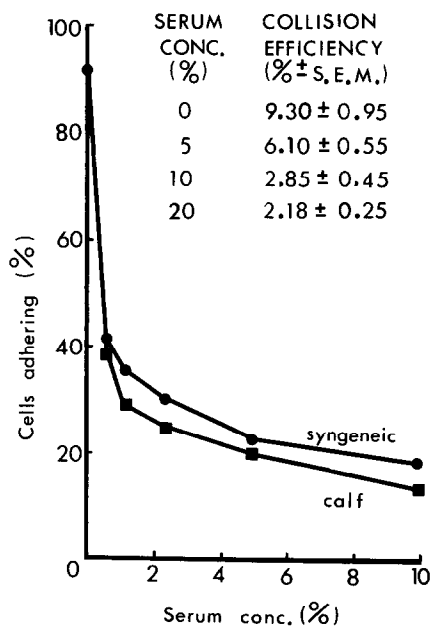
S. Kellie and Clive W. Evans (Anatomy and Experimental Pathology) and G.D. Kemp (Biochemistry and Microbiology), University of St Andrews, St Andrews, Fife, KY16 9TS, Scotland.

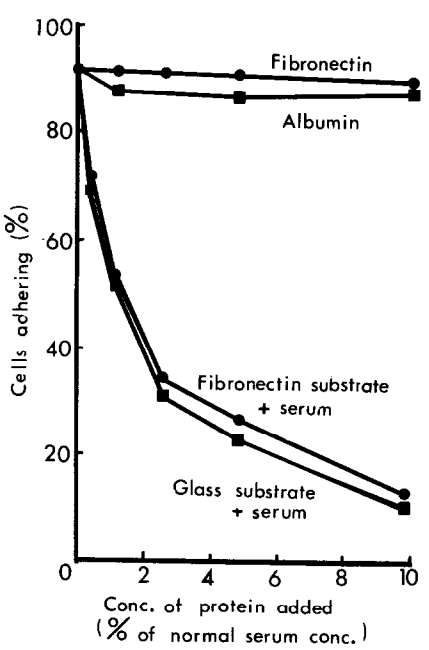
The adhesion of murine lymphocytes to glass was investigated using observation chambers. Pooled lymph node lymphocytes in RPMI 1640 medium, supplemented with up to 10% serum, were injected into the chambers. The chambers were incubated at 37°C for 1 hr. and then inverted and the cells adhering to the upper surface counted. In serum-free medium 91.0 ± 7.2% of the cells were adherent. The addition of increasing amounts of horse, sheep or calf serum progressively inhibited the number of lymphocytes adhering with only 11.3% adhering in the presence of 10% calf serum. Syngeneic serum or plasma gave similar results(Fig.1).

The adhesion-inhibiting component was heat stable to 60°C for 30 mins and was not albumin nor fibronectin which were without effect (Fig.2). Following purification, the MW was estimated by PAGE to be about 100,000D with a subunit MW of 30,000D.

The adhesion-inhibiting component also acted on lymphocyte cell-cell adhesion as assessed by Couette viscometry[1](Inset). Lymphocytes can adhere *in vitro* in shear rates in excess of 1000 sec^{-1} yet they do not normally aggregate in the blood *in vivo*[2]. We suggest that lymphocyte aggregation and lymphocyte-endothelial cell adhesion may be prevented *in vivo* by a plasma-inhibitory molecule.

1. Curtis, A.S.G. (1969) J. Embryol. exp. Morph. 22, 305-325
2. Evans, C.W. and Proctor, J.(1978) J. Cell Sci. 33, 17-36





0309–1651/80/080777–01/$02.00/0