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A flow cytometric procedure for the quantification of cell adhesion in complex mixtures of cells.

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Abstract

We present a simple non-radioactive cytometry-based assay that permits the simultaneous quantitation of cell adhesion of distinct subsets of cells contained in a mixture without any previous fractionation. The procedure is simple and highly reproducible and has the advantage of confining the quantitation of cell adhesion to live cells only. This new approach is based on counting the absolute number of cells. This is done by adding known numbers of distinguishable beads to the cell suspension and counting beads and cells in a cytometer. Quantitation of adhesion is accomplished by counting each subpopulation of cells before and after the adhesive process. To illustrate this methodology we determined adhesion of Ramos cells to monolayers of endothelial cells and its inhibition by specific antibodies. Also, we determined adhesion to endothelial cells of B lymphocytes and subsets of T lymphocytes present in a preparation of unfractionated human mononuclear cells. The results presented here demonstrate that the new assay has the required properties to be used in the quantitation of cell adhesion.