

INTERCELLULAR ADHESION

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Recognition and adhesion among cells play major roles in normal biological processes such as morphogenesis and differentiation, and abnormal processes such as metastatic invasion of normal tissues.

Intercellular adhesion has been studied extensively over the past 70 years, following early observations by Wilson and Holtfreter showing that the process could be investigated *in vitro*. While the biological properties of various systems have been defined, nothing is known concerning the biochemical mechanisms underlying specific cell recognition and adhesion. One of the major problems inherent in the biochemical studies is that only trace components on cell surfaces appear to be required for the process. Moreover, our studies have shown that intercellular adhesion involves more than one step even in the first few minutes of cell-cell contact.

Recent progress in two areas suggest that these problems may be resolved: (a) Fully differentiated cells, such as hepatocytes and adipocytes, adhere rapidly and show marked adhesive specificity. Plasma membranes from these sources retain this property. This means that the quantity of material available for biochemical analysis will not be limiting, as is the case with embryonic and tissue cultured cells. (b) Hepatocytes show marked specificity in recognizing and adhering to sugars covalently linked to solid substrata, such as polyacrylamide gels. If the gels represent simple models of cell surfaces, analysis of cell surface adhesive phenomena will be greatly facilitated.

The potential significance of these results will be discussed.