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DERMAL EXUDATE MACROPHAGES: INDUCTION IN DERMAL CHAMBERS AND RESPONSE TO LYMPHOKINES

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Skin macrophages, or those arriving to the skin after some appropriate stimulus, are involved in intracellular infections such as leprosy. Current concepts favor the view that macrophage activation by lymphokines is important, but that in lepromatous leprosy, macrophage stimulation does not take place. However, actual lymphokine sensitivity of dermal macrophages has not been directly demonstrated. It would be useful to have a source of such macrophages in significant quantities enough to do cytologic, biochemical and immunologic studies. Cells should be obtained by a relatively easy procedure that would not impair health of the donor. The method should provide a way for repeated or continuous harvesting. We have designed a chamber, which introduced at the dermal-subcutaneous junction of the dorsal skin of guinea pigs, is tolerated for a sufficient time. Exudates may be induced and repeatedly harvested. Under appropriate conditions, about 30 x 10^6 cells are obtained per chamber. More than half are macrophages with a viability of 70 to 90% lymphocytes are also present (5-30%). Macrophages from such source migrate in vitro. When obtained from animals in which delayed hypersensitivity has been induced this migration is significantly inhibited by the corresponding antigen. There is good correlation between inhibition of migration of dermal and peritoneal exudate macrophages. These findings indicate that macrophages from dermal exudates are susceptible to the effect of lymphokines. This in turn lends credence to current thoughts of macrophage activation by lymphocytes in certain dermal intracellular infections such as leprosy. The range of potential use of dermal chambers is wide. They may be employed when in vivo sequential studies of cell to cell or cell-parasite interactions are planned.

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