

ABTEILUNG FÜR KLINISCHE PHYSIOLOGIE  
LEITER: PROF. DR. T. M. FLIEDNER

ULM (DONAU) August 5, 1975

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Upton, L. I., New York

Dear Gene,

yesterday we had a reason to discuss our research project in which we wanted to study the fate and function of granulocytes in patients with granulocytopenia with respect to their efficiency in migrating to sites of infection and through the epithelial mucosa. I think both of us are interested in this problem since we started to study the elimination of granulocytes via the mucosal-membranes of the mouse. At that time we felt that the granulocytes exercise their main function after they have migrated out of the blood into the tissues and through the tissues onto the epithelial surfaces.

In this project we found out that few if any methods are available to really quantify the emigration of granulocytes and their appearance on epithelial surfaces in the human body. It occurred to us that it might well be that the lung has one of the major sites of granulocyte emigration and that the continuous emigration of granulocytes through the lung might be an important mechanism of maintaining the integrity of the epithelial surface of the lung. Since you are at the present time considering a larger lung project, I wonder whether you have also considered to initiate a study on the migration of granulocytes from the blood stream to the epithelial surfaces of the lung. I would consider this to be a very important project since one might assume that the epithelial surface is maintained in its integrity by the action of granulocytes. I think it is too simple to assume that the function of granulocytes is exhausted in their capability of phagocytosis. I wonder whether the granulocytes by the virtue of their particular metabolism contribute something to the integrity of the epithelial surface just as much as the platelets guarantee the integrity of endothelial lining.

My concrete question is whether you are considering to initiate any project in this direction because the major problem would be the quantitative measurement of granulocyte emigration through the lung. Here it may be that some

nuclear medicine methods would be suitable or should be developed such as labeling granulocytes by technetium or other suitable isotopes and developing a method of quantifying the elimination of granulocytes through the lung. One might possibly conceive of standardizing a constant lung volume and estimating the loss of granulocytes through this volume under various conditions. I could for instance foresee that in certain lung conditions induced by environmental pollution that the migration is either increased or decreased and that perhaps the development of lung fibrosis or other problems might be associated also with a disturbed lung granulocyte emigration function. In any event I think here is an interesting problem and I wonder whether you are planning to do something about it and if so whether the cooperative adventure might be of interest. Of course, the financial means of our group are limited and therefore, we wonder whether, if such a collaboration could be established, there is any grant money which we might apply for.

With best personal regards, I remain,

Sincerely yours,

*Ted*

Theodor M. Fliedner, M.D.

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