Specific antibody against bacteriophage was initiated in cultures of lymph node fragments in response to their stimulation with a cell-free extract derived from macrophages which had been incubated with the antigen. Antibody production failed to occur if the antigen alone was added. [The SC® indicates that this paper has been cited in over 545 publications since 1961.]

Marvin Fishman
Division of Immunology
St. Jude Children's Research Hospital
Memphis, TN 38101

October 6, 1983

"Producing antibodies in vitro was a major goal to be achieved in immunology during the late 1950s and early 1960s. Culturing immunocompetent organ tissues or cells with a variety of antigens had been generally unsuccessful. While working at the Public Health Research Institute of the City of New York in 1957, I entered this research arena after my interest was piqued by several investigators' observations on the anatomical intimacy between macrophages and lymphocytes.1,2 The scavenger property of macrophages, which would result in degradation of antigens, provided the basis for the then current thinking that if macrophages had a role in antibody production, it was a passive one. The concept of a positive involvement of these cells in antibody formation was considered hysteric. Yet it remained intriguing, despite the phagocytic characteristics of macrophages, that they might fill a helper role for lymphocytes in antibody production. This was put to the test and the results were published in the Journal of Experimental Medicine."