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ONR NOTICE, 27 JUL 1971

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FINAL REPORT

on

**STUDIES CONDUCTED UNDER A RESEARCH
CONTRACT BETWEEN THE UNIVERSITY OF
IOWA AND THE OFFICE OF NAVAL RESEARCH**

FOR THE PERIOD 1 SEPTEMBER 1954 TO 1 SEPTEMBER 1963

from

**Department of Microbiology
College of Medicine
University of Iowa
Iowa City, Iowa**

Contract No: Nonr - 1509(01) Role of Complement in Vivo

Project: NR 103-276

**Report Submitted by: Wayburn S. Jeter
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21 June 1967

Studies conducted at the University of Iowa under Contract No.: Nonr - 1509(01), Project No.: 103-276 by Albert P. McKee and Wayburn S. Jeter over the period from 1 September 1954 to 1 September 1963 resulted in a number of significant findings and several publications.

In the early work, antibody was prepared in rabbits to the complements of guinea pigs, mice, monkeys, and human beings. Subsequently, the antibody was proven by as many indirect methods as possible to be directed against complement, and the specificity of the antibodies was demonstrated.

Our efforts were turned next to studies on the physical and chemical characteristics of anticomplement. Following this, we initiated studies dealing with the biological activities of the antibodies.

We found that antibody against human complement blocked the capacity of human neutrophils to phagocytose pneumococci in the presence of antipneumococcal serum. The action on the cells appeared to be a permanent rather than a transient one.

In a study of the effect of anticomplement on resistance and immunity to a variety of infectious agents in mice, we noted that the antibody effectively lowered resistance and immunity to several gram-positive bacterial pathogens, whereas it had no effect on gram-negative, viral, and toxin activities within these animals.

Attempts to locate the antigenic components within various types of body cells and in plasma protein fractions did not yield much fruit.

A number of oral presentations at national meetings were given and several published papers written as a result of these studies. These are listed below:

1. McKee, A. P., and W. S. Jeter. 1955. The demonstration of an antibody against complement. *Bacteriol. Proc.* 1955:95.
2. McKee, A. P., and W. S. Jeter, 1956. The demonstration of an antibody against complement. *J. Immunol.* 76: 112-118.
3. Jeter, W. S., A. P. McKee, and R. J. Mason. 1956. Effect of anticomplement on phagocytosis by human leucocytes. *Bacteriol. Proc.* 1956: 92.

4. Jeter, W. S. and A. P. McKee. 1957. Some physical and chemical properties of antibody against complement. *Fed. Proc.* 1957: 558.
5. Jeter, W. S. and A. P. McKee. 1957. Some physical and chemical properties of antibody against complement. *Proc. Soc. Exptl. Biol. Med.* 96: 118-121.
6. Jeter, W. S. 1960. Changes in resistance and immunity produced by an antibody against complement. *Bacteriol. Prod.* 1960: 17.
7. Jeter, W. S., A. P. McKee, and R. J. Mason. 1961. Inhibition of immune phagocytosis of *D. pneumociae* by human neutrophils with antibody against complement. *J. Immunol.* 96: 386-391.
8. McKee, A. P., and W. S. Jeter. 1962. Effect of antibody against complement on resistance and immunity. *J. Immunol.* 88: 702-707.
9. Soderberg, R. R., and W. S. Jeter. 1962. Effect of antisera to fractions of human plasma on immune phagocytosis by neutrophils. *Bacteriol. Proc.* 1962. 78.
10. Mason, R. J. 1958. Effect of Anticomplement on Resistance of mice to infection with *S. typhimurium*. Ph.D. Dissertation, State University of Iowa.

In addition to the published results of the study, the project assisted materially in the form of stipends and supplies and equipment for the training of several graduate students. Among these are Rachel Mason and Robert Soderberg.