

Robert Ader: Psychologist, Past President of the American Psychosomatic Society, and Pioneer in Psychoneuroimmunology Research

Robert Ader was born on February 20, 1932, in the Bronx, New York, and died at the age of 79 years on December 20, 2011, in Pittsford, NY. Robert (Bob) Ader had an extraordinary impact on the fields of psychology, psychiatry, and psychosomatic medicine in general and psychoneuroimmunology (PNI) in particular. In his 1980 presidential address to the American Psychosomatic Society (1), Bob first used the term *psychoneuroimmunology* with the parenthetical caveat, “if there can be said to be such a field.” In this seminal address, he challenged the reductionistic strategies underlying most contemporaneous immunologic research and argued that “immune processes are homeostatic processes and, as such, can be completely understood only within the context of an integrated system of adaptive mechanisms ultimately regulated by the central nervous system” (1).

After graduating from Tulane University, New Orleans, he received his PhD in psychology at Cornell University, NY, in 1957. Soon after, he was appointed assistant professor in the Department of Psychiatry at the University of Rochester School of Medicine and Dentistry, Rochester, NY. His early studies addressed the effects of psychological “stress” on susceptibility to infectious disease (published in *Psychosomatic Medicine* (2,3) and early maternal stress in animal models of gastric disease (published in *Science* (4,5).

Bob began his collaborative work in PNI with Nicholas (Nick) Cohen, an immunologist at the University of Rochester, in what he said was an “accident; [he] was forced into it by [his] data” (6). While studying taste aversion learning in rats, his experimental study design paired a novel, distinctively flavored conditioned stimulus, saccharin, with the unconditioned effects of a drug, cyclophosphamide, to induce a conditioned and transient stomach upset. In these experiments, Bob observed that some animals unexpectedly died. Furthermore, the mortality rate, like the magnitude of the conditioned taste aversion response, varied directly with the volume of saccharin consumed on the one drug trial. After these serendipitous observations, Bob wrote that “as a psychologist, I was unaware that there were no connections between the brain and the immune system. Therefore, I was free to make up any story I wanted in an attempt to explain this orderly relationship” (6). Indeed, he formulated the novel hypothesis that, in the course of conditioning the avoidance behavior (i.e., taste aversion), the immunosuppressive effects of cyclophosphamide were also being conditioned. This hypothesis was first presented as a letter to the editor of *Psychosomatic Medicine* in 1974 (7). The next year, Bob together with Nick deliberately tested the influence of the central nervous system on the immune system to demonstrate behav-



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iorally conditioned immune suppression (8). From this groundbreaking beginning, dramatic evidence was first provided that supported the inextricable relationship between the brain and the immune system. Subsequent work replicated and substantially extended these findings by systematically examining the implications of an immune system that is responsive to behavioral influences, for example, in a mouse model of systemic lupus erythematosus (9), in regulation of an antibody response (10), and most recently in a clinical pharmacological trial for the treatment of psoriasis (11).

In addition to his research, Bob championed the field of PNI. He had multiple important leadership positions, among which were president of the American Psychosomatic Society and president of the Academy of Behavioral Medicine Research. He was cofounder of the Psychoneuroimmunology Research Society. He launched the journal *Brain, Behavior, and Immunity*, which remains after 25 years as one of the leading vehicles for publishing research on the effects of the brain and behavior on modulating immunity and the role of immune system processes in the regulation of neural and endocrine functions and behavior. Bob coalesced this emerging field of PNI by inviting scientists who were generating data on brain-immune system interactions to contribute to a landmark textbook named *Psychoneuroimmunology* that was first published in 1981. Now in its fourth edition, *Psychoneuroimmunology* is the most comprehensive handbook emphasizing that the brain and immune system represent a single, integrated system of defense and adaptation. Although these ideas have been challenged, the field of PNI is now well established.

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Bob spent his entire career as a professor of psychiatry and of psychology at the University of Rochester School of Medicine and Dentistry and was named the George Engel Professor of Psychosocial Medicine. From 1969 to 1999, he held a continuing Research Scientist Award from the National Institute of Mental Health. In 1970 to 1971, Bob was a visiting professor at the Rudolf Magnus Institute for Pharmacology in Utrecht, the Netherlands, and during the 1992 to 1993 academic year, he was a fellow at the Center for Advanced Study in the Behavioral Sciences at Stanford University.

Finally, the impact that Bob had on the field of PNI and more broadly on psychosomatic medicine extends far beyond his writings and his academic accomplishments. As a lifelong teacher to so many in our Society, he challenged us to think rigorously about a range of unstudied questions, and as a friend, he imparted interest and encouragement that inspired confidence to pursue lines of inquiry that were often difficult for some in the biomedical sciences to accept. Indeed, as I wrote to Bob in a Festschrift in his honor, "The friendship you have given so freely to aid the careers of many is a legacy that endures, to be passed to the next generation." It is in this spirit that Bob ended his presidential address to our Society more than 30 years ago, "The available data prompt one to ask questions that haven't been asked before and while we still need questions about 'what is,' we also need questions about 'what could be.' I invite you to ask some of these questions, and I invite the interdisciplinary coordination that will be required to answer them" (1).

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