

Policy on the Importance of Basic Research

Of the research conducted in the field of behavioral neuroendocrinology, a substantial portion does not immediately result in marketable products for the health care industry. How, then, does such research benefit society? To answer this question, it is important to understand the goals of basic biological research. The majority of biological research conducted in the U.S. is not focused on any one particular application, such as a treatment for a human disease. Rather, its goal is to expand knowledge and understanding of basic underlying principles. A large part of the mission of the National Institutes of Health is “to expand the knowledge base in medical and associated sciences in order to enhance the Nation's economic well-being and ensure a continued high return on the public investment in research”. This is the type of research that most behavioral endocrinologists conduct. An understanding of basic human biology is essential in order to develop treatments for disorders and disease. Akin to a mechanic who requires a basic understanding of how a car is supposed to work, biomedical breakthroughs begin with a solid foundation of knowledge of how the body works when it is functioning properly.

This foundation of knowledge comes from conducting basic research with a variety of model organisms that are well-suited for the in-depth study of a particular system. For example, Hodgkin and Huxley, scientists who studied how nerves conduct electrical signals, chose to work with squid because of its large neurons that were easy to study. As a result, most of what we know about the conduction of nerve impulses in humans originally came from research on squid. Similarly, most of what we know about genes and pattern development in humans originally came from work on fruit flies. More recent research has confirmed that the mechanisms that operate in these models hold true for humans and other mammals. Behavioral endocrinologists work with a wide variety of model organisms including rats, mice, songbirds, sheep, fish, and frogs.

Although not studying humans or human disease directly, the results of behavioral neuroscience research contributes toward an understanding of a wide variety of human disorders.

