$85 Million Awarded for Research on Human Immunity and Biodefense

A better understanding of the human immune response to potential agents of bioterror and rapid development of countermeasures such as vaccines and therapies are among the objectives of a new program announced today by the National Institute of Allergy and Infectious Diseases (NIAID), one of the National Institutes of Health (NIH). “NIH is dedicated to supporting research that will help in fighting the war on terror,” says NIH Director Elias A. Zerhouni, M.D.

NIAID has named five Cooperative Centers for Translational Research on Human Immunology and Biodefense. Approximately $85 million over four-and-a-half years will support research at

- Baylor Research Institute (Dallas, TX)
- Dana-Farber Cancer Institute (Boston, MA)
- Emory University School of Medicine (Atlanta, GA)
- Stanford University School of Medicine (Stanford, CA)
- University of Massachusetts Medical School (Worcester, MA)

“A particular emphasis of these cooperative centers will be moving new findings about immune system function out of the lab and into clinical trials,” says NIAID Director Anthony S. Fauci, M.D. “The flexibility of the program will allow research projects to be redirected quickly as new information is generated in the lab and the clinic.”

Investigators funded through the new program will form a biodefense research network with a focus on the human immune system. It is much more difficult to perform studies of immunity in humans than in animal models. Human volunteers cannot be deliberately exposed to agents of bioterror to determine the effectiveness of a trial vaccine, for example. Also, differences in human age, sex, race and overall health all influence immune system function.

The absence of necessary technologies is a significant barrier in human immune function research, says Helen Quill, Ph.D., of NIAID’s Division of Allergy, Immunology and Transplantation (DAIT). To overcome this obstacle, researchers at the cooperative centers will, among other measures, develop new ways to get information from single immune cells, so that very small tissue and blood samples can be tested. Imaging technologies will also be developed to allow non-invasive, real-time views of the body as it reacts to vaccine or infection, Dr. Quill notes. The improved techniques could help researchers determine the immune mechanisms responsible for strong versus weak vaccine responses. The information, in turn, will be useful in developing novel vaccines.
“One of the key features of these new centers will be the high degree of information-sharing by all the members,” notes Daniel Rotrosen, M.D., director of DAIT. “Ultimately, we hope to fully characterize human immune responses to disease-causing organisms and develop therapies that strengthen these responses, whether the organisms are deliberately released or arise naturally in the environment,” he says. “The cooperative centers will encourage the kind of synergy needed to meet this goal.”

NIAID is a component of the National Institutes of Health (NIH). NIAID supports basic and applied research to prevent, diagnose, and treat infectious and immune-mediated illnesses, including HIV/AIDS and other sexually transmitted diseases, illness from potential agents of bioterrorism, tuberculosis, malaria, autoimmune disorders, asthma and allergies.