

Wright State Launches New Research Initiatives

By Mark Willis

Wright State University School of Medicine launched major new research initiatives this summer that enhance the Miami Valley region's unique resources for collaboration in biomedical research. The U.S. Department of Defense awarded the school a \$5.8 million grant to study the enigmatic medical problem known as Gulf War Syndrome. A generous gift from the Kettering Fund helped establish a new Center for Brain Research.

"It's a very exciting time for research here," says Howard Part, M.D., Wright State's dean of medicine. "Wright State researchers have developed a center of excellence in brain research and are well on their way in toxicology. Extramural support enables them to focus these research efforts and reach for even broader collaborations in the future."

Investigating Gulf War Syndrome

Wright State researchers under the direction of Mariana Morris, Ph.D., and Daniel Organisciak, Ph.D., will investigate how stressful conditions combined with low-level chemical exposure may damage the body's systems in subtle ways that have eluded diagnosis. The researchers also will determine whether chemical sensitization in military and civilian populations to toxins could result from genetic inheritance.

"We believe this research will lead to better ways of treating chemical exposure and to methods for screening people who may be at greater risk," Dr. Part says.

More than 100,000 veterans of the Persian Gulf War have reported experiencing symptoms associated with Gulf War Syndrome. Despite numerous research studies conducted since the war's end in 1991, the syndrome's cause remains unknown.

"Stress is known to accentuate many pathological conditions such as heart disease, immune

dysfunction and cancer. Gulf War syndrome may be another example," explains Dr. Morris, professor and chair of the Department of Pharmacology and Toxicology at Wright State.

"We want to understand how exposure to these chemicals at low doses affects tissues at the molecular and cellular levels. Previous studies have shown that these substances are toxic in high doses, but we do not know the lower levels where these effects begin," says Dr. Organisciak, professor and chair of Wright State's Department of Biochemistry and Molecular Biology.

Several cutting-edge research tools will be applied to the studies. Gene array technology will allow the researchers to analyze genetic factors associated with low-level chemical sensitization and toxicity. A state-of-the-art imaging facility will be used to determine the location of damage within cells.

Lead partners in the three-year research project include Wright State's Departments of Biochemistry and Molecular Biology, Community Health (Division of Human Biology), Emergency Medicine, and Pharmacology and Toxicology. The project will also work collaboratively with the Tri-Services Toxicology Unit at Wright-Patterson AFB and the Dayton VA Medical Center.

"This project and the potential it offers to our citizens will put Wright State on the map for the Department of Defense," says Congressman David Hobson, 7th District. "It may be the catalyst for other projects that will benefit the entire Miami Valley."

Exploring Brain Function and Structure

A generous gift from the Kettering Fund has been invested in establishing a Center for Brain Research at Wright State. The new center will promote interdisciplinary research collaborations

among scientists and doctors who study how the brain functions in health and disease.

Located in Wright State's Biological Sciences Building, the center will provide shared laboratories and technical staff for researchers in fields as diverse as anatomy, physiology and biophysics, neurology, and psychiatry. It will house state-of-the-art imaging technology together with related facilities for processing anatomical samples and analyzing microscopic images.

Last year a gift from the Kettering Fund funded seed grants to develop innovative new lines of biomedical research at Wright State. In 1996 the Kettering family endowed a scholarship fund for Wright State medical students who make a commitment to treat geriatric patients in the Miami Valley region.

"The Kettering family is pleased to continue its support of Wright State University School of Medicine. The family hopes this gift will open up new horizons for brain research at Wright State that will someday benefit the health of everyone," says Al Leland, executive vice president of Bank One Trust Company in Dayton, who represents the Kettering Fund.

"No single laboratory or experimental approach can solve the technical problems presented by the diversity of structures and functions in the brain and central nervous system," explains Robert Fyffe, Ph.D., who has been appointed as the first director of the Center for Brain Research. "Interdisciplinary collaboration is essential for the future of brain research."

Dr. Fyffe expects to find as many new questions as answers at Wright State's Center for Brain Research. "What starts off as a fundamental research question in basic science can suddenly appear to have direct clinical relevance," he says. "None of us know where the questions will take us."