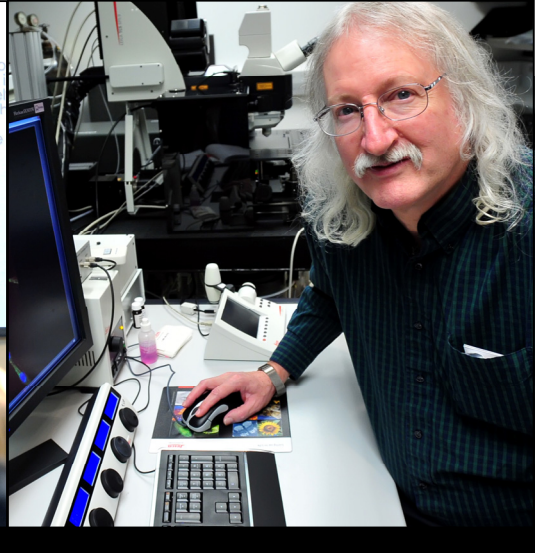

Experimental Program to Stimulate Competitive Research

EPSCoR

West Virginia is one of 27 states and territories eligible to participate in the National Science Foundation's EPSCoR initiative—the Experimental Program to Stimulate Competitive Research.

EPSCoR is intended to expand and enhance the research capability of scientists in states that traditionally have lacked strong university-based research efforts, to help them to compete more successfully for a portion of the federal academic R&D budget. In West Virginia, the program is administered by the West Virginia Higher Education Policy Commission's Division of Science and Research.

Marshall University is participating in the following EPSCoR projects:

Bionanotechnology for Public Security and Environmental Safety

In 2010, West Virginia EPSCoR received unprecedented funding from the National Science Foundation to launch extensive research in bionanotechnology at Marshall University, West Virginia University and West Virginia State University. This $20 million grant—the largest single NSF award in West Virginia history—began in August 2010 and continues for five years.

Under this award, researchers are working to bring together bionanotechnology and molecular sciences to create hand-held devices—essentially a laboratory on a chip—that can remotely identify potential environmental threats, pollutants and even diseases. This technology would have widespread and significant impacts on security, environment and medicine. Innovations in these areas have the potential to create new marketable technologies and devices—and the jobs to manufacture them.

At Marshall, EPSCoR researchers are studying nanobiology to develop novel sensors and produce nanomachines that will facilitate early and sensitive detection of environmental insults and hazardous conditions. Researchers also are studying cellular development to discover new sources of adult stem cells for neurological disorders, and to understand the role of genes in development and the relationship between cell biology and the environment.

Cyberinfrastructure for Transformational Scientific Discovery

In 2009, West Virginia EPSCoR received a three-year, $2.6 million NSF grant to enhance cyberinfrastructure across the state's higher education system. The grant assists with scientific discovery by building capacity and promoting the use of high-performance computing cluster resources.

More than $1 million of the grant funds are being used at Marshall to help upgrade computing networks and enhance immersive visualization capabilities, allowing faculty researchers—and their students—to collaborate in real time without geographic limitations.

Researcher profiles on reverse.

www.marshall.edu/murc/epscor

MARSHALL

SENIOR PERSONNEL
MARSHALL UNIVERSITY

Brian Antonsen, Ph.D.
Assistant Professor, Biological Sciences

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Dr. Antonsen's research focuses on how an animal's experience changes its nervous system and subsequent behavior.

Eric Blough, Ph.D.
Associate Professor, Biological Sciences

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Dr. Blough's research is focused on using nanotechnology to develop new means to diagnose, monitor and treat chronic disease.

Tina Cartwright, Ph.D.
Assistant Professor, Education

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Dr. Cartwright is working to increase the representation and advancement of women and minorities in academic science and engineering careers.

Michael L. Norton, Ph.D.
Professor, Chemistry

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Dr. Norton's laboratory focuses on self-organized optoelectronic chemical sensors using molecular lithography to detect threat agents in the environment.

F. Robin O'Keefe, Ph.D.
Associate Professor, Biological Sciences

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Robin O'Keefe is a vertebrate paleontologist and evolutionary biologist who studies how animal shape changes over time in response to developmental, evolutionary and abiotic forces.

Elmer M. Price, Ph.D.
Professor and Chair, Biological Sciences

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Dr. Price's research involves the study of cellular differentiation and function, focusing on neural stem cells and vascular cells, with the goal of developing novel therapies and detection methods.

Gary E. Schultz, Ph.D.
Assistant Professor, Biological Sciences

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Dr. Schultz is exploring the diversity of the bacterial community in various ecosystems, including the Ohio and Guyandotte Rivers, to learn how to better understand and manipulate ecosystems.

Wendy C. Trzyna, Ph.D.
Associate Professor, Biological Sciences

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Dr. Trzyna's research focuses on how microbes respond to and tolerate various stresses in diverse environments, leading toward an understanding of how single cells accommodate stressful conditions.

Bin Wang, Ph.D.
Assistant Professor, Chemistry

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Dr. Wang's research is focused on RNA structural determination and RNA nanotechnology that ultimately could be used in hand-held sensors to improve threat detection.

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