



Fall 11-30-2010

## South Carolina Receives \$16 Million to Improve Biomedical Research

Winthrop University

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### Recommended Citation

Winthrop University, "South Carolina Receives \$16 Million to Improve Biomedical Research" (2010). *Winthrop News 2010*. 174.  
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11/30/2010

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## South Carolina Receives \$16 Million to Improve Biomedical Research

### Quick Facts

- The grant will provide five years of funding for SC INBRE (the IDeA Networks of Biomedical Research Excellence), a network of academic institutions working together to enhance biomedical-research infrastructure and increase competitiveness of researchers in the state.
- USC will oversee the grant and receive a fourth of the \$16 million, while Winthrop will receive the second highest amount at \$2.6 million.



Pat Owens

COLUMBIA, S.C. - Ten colleges and universities in the state, including Winthrop University, have received \$16 million to support a network to develop **biomedical research programs** in areas such as regenerative medicine, biochemistry and molecular biology.

The funding comes from the **National Center for Research Resources**, a division of the National Institutes of Health. The grant will provide five years of funding for **SC INBRE (the IDeA Networks of Biomedical Research Excellence)**, a network of academic institutions working together to enhance biomedical-research infrastructure and increase competitiveness of researchers in the state. It is the continuation of a \$17 million grant received five years ago.

The network comprises the state's three comprehensive research institutions (**University of South Carolina, Clemson and the Medical University of South Carolina**) and seven predominantly undergraduate institutions (**Claflin University, the College of Charleston, Francis Marion University, Furman University, South Carolina State University, USC-Beaufort and Winthrop University**). USC will oversee the grant and receive a fourth of the \$16 million, while Winthrop will receive the second highest amount at \$2.6 million.

"The key to this is developing a research environment and growing research at undergraduate institutions in order to provide research training for students in biomedical science," said **Dr. Lucia Pirisi-Creek** of USC's School of Medicine, the grant's lead investigator.

**SC INBRE** will support at least 28 different research projects. During the five years of funding, six institutions will hire 10 new faculty members who will bring new biomedical research expertise to the state. Projects include the investigation of nanoparticles that may improve treatment of Alzheimer's or Parkinson's disease, stroke or brain cancer; the role of plaque in weakened arteries and how it leads to heart attacks and stroke; and the study of dysfunctional cells in the most prevalent form of epilepsy.

**Winthrop's INBRE program** to date has been very successful, according to **Pat Owens**, chair of the Department of Chemistry, Physics, and Geology. Winthrop achieved all goals and honored all commitments outlined in its ambitious 2004 INBRE proposal. Fourteen faculty members participated in biomedical science research; 15 major research proposals were submitted; and more than \$1.5 million in non-INBRE grant funds were awarded to Winthrop INBRE faculty. Winthrop's investments in facilities and scientific instructional equipment provided opportunities for 96 undergraduate students to engage in INBRE-supported biomedical research.

Meanwhile, the university's summer undergraduate science research experience has evolved from an informal program with a few students into a robust, active, and structured program that engages

increasing numbers of students each year. As a result, 21 Winthrop INBRE students have already matriculated into biomedical science PhD programs. The increased emphasis on biomedical science has also dramatically increased student enrollment and has led to curricular changes that include a new ACS Biochemistry Degree Track, a new Biomedical Research Biology Track, and several new biomedical science courses that have attracted strong student interest.

The **INBRE II** funding at Winthrop, which is expected to be \$2.6 million over the next five years, will allow the university to involve more faculty and students, particularly those from underrepresented and disadvantaged groups, in biomedical research programs. Over the next five years, Winthrop and the National Institutes of Health will each support five target faculty investigator projects on campus. Several other faculty will receive support to mentor undergraduate research. This will increase biomedical research capacity and will provide increased opportunities for undergraduate student research.

“Over the past five years, many scientists have noticed the excellent biomedical research being conducted on campus and have often stated that the INBRE program’s greatest positive impact has been at Winthrop,” **Owens** said. “This success is a direct result of the investments made by Winthrop during the 1990s to modernize its science infrastructure and by the truly exceptional work of faculty research mentors over the past five years.”

**Debra Boyd**, dean of the College of Arts and Sciences, said that Winthrop made a tremendous investment in science education when the administration and the Board of Trustees approved support for the first INBRE initiative, and the investment was successful because of the excellent work by faculty and students who participated. “When faculty and students collaborate on research, both groups benefit from working in that enhanced learning environment,” Boyd said. “The SC INBRE program has provided and will now continue to provide more opportunities for Winthrop students and faculty to participate in collaborative research that will have a direct impact on the health and well-being of individuals.”

Winthrop faculty participating in **INBRE-II** supported research include five biology professors: **Eric Birgbauer, Julian Smith, Heather Evans-Anderson, Laura Glasscock and Kristi Westover**, as well as seven chemistry faculty members: **Nick Grosseohme, Jay Hanna, Jason Hurlbert, Christian Grattan, Robin Lammi, Takita Sumter and Cliff Calloway**.

Sumter, Glasscock and Lammi will assume scientific leadership roles to foster continued expansion of biomedical science research at Winthrop. Lammi will coordinate the summer undergraduate research experience. Calloway and Smith will coordinate facility and equipment infrastructure requirements in chemistry and biology. Owens and Jim Johnston, chair of the Department of Biology, will oversee INBRE administration and budgeting. Lee Miller and Linda McKeown will manage chemistry and biology INBRE budgeting and procurement activities.

#### **About SC EPSCoR/IDeA**

<http://www.scepscoridea.org>

The Experimental Program to Stimulate Competitive Research (EPSCoR) and Institutional Development Awards (IDeA) are federal-state-university partnerships designed to increase research capacity and competitiveness for federal research and development funds. Since 1990, SC EPSCoR/IDeA funds have enabled the hiring of 102 junior, tenure-track faculty members in science and technology at South Carolina’s colleges and universities. SC EPSCoR/IDeA has supported research in disciplines such as biomedical engineering; neuroscience; alternative energy; nanomaterials; structural, chemical, and cellular biology; and environmental science, bringing more than \$185 million in federal research funding to the state.

#### **Breakdown of funding for SC INBRE:**

The **University of South Carolina** will receive approximately \$4 million of the total \$16 million award and will be responsible for providing the management structure and access to core laboratory, computational facilities and bioinformatics to the nine partner institutions. USC’s component of SC INBRE also supports the biomedical engineering program at the School of Medicine and the College of Engineering and Computing.

With just about \$1 million each, **Claflin** and **South Carolina State** universities will expand their biochemistry faculty and train undergraduate and graduate students in their nascent MS in biotechnology program and biomedical research programs, respectively.

**Winthrop** and **Francis Marion** universities, receiving about \$2.6 million and \$1.5 million respectively, will focus their efforts on the graduation and matriculation of significant numbers of undergraduate students into graduate programs in the biomedical sciences.

The **College of Charleston** and **USC-Beaufort**, each receiving about \$1 million, will hire new faculty in neurobiology, chemical biology and structural biology and increase opportunities for minority students in the biomedical sciences.

**Clemson University**, receiving \$1.1 million, will train researchers in bioengineering translational research through close interaction with Greenville Hospital System physicians.

**Furman University**, with \$2.2 million, will further expand its research and training programs in neuroscience, and significantly augment its outreach to K-12 students for the recruitment of young people into the biomedical sciences.

The **Medical University of South Carolina**, with an award of \$1 million, will provide access to the network of institutions to their nationally-recognized facilities for cell culturing and proteogenomics, as well as provide direct support to individual target faculty in regenerative medicine.

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[\[Back to Previous Page\]](#)

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<a href="#">A-Z Site Map</a>	<a href="#">Board of Trustees</a>	<a href="#">Email</a>	<a href="#">Finance &amp; Business</a>	<a href="#">Office of the President</a>	<a href="#">Tuition &amp; Fees</a>
<a href="#">Accessibility</a>	<a href="#">Calendars</a>	<a href="#">Emergency/Safety</a>	<a href="#">Financial Aid</a>	<a href="#">Online Learning (Graduate)</a>	<a href="#">Visit the Campus</a>
<a href="#">Alumni &amp; Friends</a>	<a href="#">Directions</a>	<a href="#">Employment</a>	<a href="#">Library</a>	<a href="#">Records &amp; Registration</a>	<a href="#">Visitors Center</a>
<a href="#">Arts</a>	<a href="#">Directory</a>	<a href="#">Family Programs</a>	<a href="#">Majors &amp; More</a>	<a href="#">Residence Life</a>	<a href="#">Wingspan</a>