

The era of ARRA is keeping Georgia science afloat

Last May, the Medical College of Georgia's Beth NeSmith received one of the nation's first American Recovery and Reinvestment Award (ARRA) grants devoted to science. The \$147,000 not only allowed NeSmith, assistant professor of physiological and technological nursing in the MCG School of Nursing and the grant's principal investigator, to investigate cocaine-related renal disease, it enabled her to hire three people to support her research. Since then, that \$147,000 trickle has turned into an ARRA flood for Georgia. The state's five largest research institutions have since received \$178.4 million in grants, creating or saving hundreds of research jobs. That is especially important in Georgia, because the state had been making a push to increase its research activity (see *Nature* 445, 790-791; 2007), but hit a snag when the state decided to use tobacco settlement money once pledged for science, to balance the state's budget. The grants have been used to build research infrastructure, hire young investigators and launch research programs that may, eventually, return money to the state's beleaguered economy. Administrators from all five institutions—the Medical College of Georgia, Emory University, University of Georgia at Athens, Georgia State University and the Georgia Institute of Technology all say the funds have allowed them to ramp up research programs in trying times, continue to hire top researchers—and, hopefully, position them for future funds when the ARRA program ends in 2011 and scientists nationwide will compete for a tighter pool of money, since lawmakers will almost certainly limit new funding in attempts to rein in the US's burgeoning budget deficit. Here's a look at how each of those institutes have benefited:

Emory University, Atlanta

With \$87.5 million over 231 total awards, Emory has been the single biggest recipient of ARRA dollars in Georgia. David Stephens,

the Vice President for Research in Emory's Woodruff Health Sciences Center, says that the ARRA money benefits the university's science pool from grad student to principal investigator. "This had enabled us to do things scientifically we wouldn't have been able to do, or do as quickly, if this program hasn't come around," Stephens says.

One of the biggest projects is \$15 million awarded in 2009 to build a new vaccine and transplantation research facility at Emory's Yerkes National Primate Research Center. Stuart Zola, Yerkes director, says the building, which includes an animal biosafety level 3 facility, will allow the university to better compete for scientists and grants well after the ARRA eclipses. "We do have some remarkably good scientists here," Zola says. "This will allow us to attract even more, by making sure the infrastructure is available to support the grants and program we envision." The center already has over 200 programs in infectious diseases and transplantation underway. The facility's groundbreaking should draw in even more, Zola says.

Some ARRA grants to Georgia institutions help science across the nation. Allan Kirk, scientific director of the Emory Transplant Center and a Georgia Research Alliance Eminent Scholar, received \$1.6 million to look at issues affecting organ transplantation in children. Kirk had already participated in a clinical trial studying transplantation, but this extends the work by helping children and teens help prevent their bodies from rejecting organs, in sites including Stanford University and the University of California, Los Angeles. After a kidney transplant, patients must take drugs to prevent rejection by the immune system. These drugs already have onerous side effects and children's rapidly changing bodies make the side effects even harder to cope with. Kirk's project helps tailor anti-rejection drugs to the individual child and develop child-friendly tests for monitoring

the immune system's state.

Kirk's initial \$6 million grant studied transplantation focusing primarily on physiology. The extra \$1.2 million allows scientists to look at psychology and behavior. "Because children are immunologically maturing at the time they are least emotionally secure, their indiscretions are likely to have bad outcomes from a transplant standpoint, especially in teenagers." The ARRA grant means scientists at several sites can develop non-invasive diagnostics for children to look for signs of rejection and, in some cases, use social networking technology to remind teenagers to be compliant in taking their anti-rejection medicine.

University of Georgia, Athens

UGA's 118 awards worth \$37.4 million helped avoid cuts to the university's research program in a tough budgetary year, says David Lee, the university's vice president for research. "The competitive awards to UGA faculty helped to alleviate some of the impact of budget cuts for our state's flagship research university by preserving experienced research teams, providing additional funding for existing research projects and important research infrastructure, leveraging institutional commitments, and jump-starting important lines of research," Lee says. "This is especially true for the expanding life sciences sector at UGA, but also for research in energy, environmental and physical sciences. Lee says these research efforts will help the state's economy after the ARRA program ends, because he anticipates new products and companies emerging from UGA's research efforts.

But for now, it is keeping many researchers' projects afloat. Without \$2 million in ARRA support, Nancy Manley, UGA's chair of developmental biology, says that her research program on the thymus, the organ in humans that produces disease-fighting T-cells would likely have been discontinued. Instead, a \$2 million ARRA Award allowed her to hire two undergraduate students for two years, three new postdocs, retain senior research scientists, a technician and administrative support.

She anticipates the funding will help her compete for further NIH

money after ARRA expires. But, more importantly, the funds will help her move her findings in mice genes to humans, to help humans better fight diseases as they age.

Stephen Dalton, UGA Chair in Molecular Cell Biology, is using \$600,000 in ARRA funds to supplement an earlier \$9.2 million in order to accelerate work in stem cell research. He's hired new postdocs and grad students, expanded the scope of his research, and better positioned himself for the next round of grants.

In the case of James Prestegard, Professor, Biochemistry and Molecular Biology, and Chemistry, his \$1.9 million NIH grant goes beyond just paying for new hires. He's using the money for instrumentation and resources that will help existing investigators develop better data, including providing expression constructs for enzymes involved in glycan synthesis—the process by which scientists create sugars or complexes containing sugars. These complexes are notoriously hard to produce chemically and Prestegard's work aims to alleviate that. He has also purchased a small animal MRI and MRS system. That instrument supports the work of 17 investigators at UGA and the Medical College of Georgia. "As an instrument grant, hires are not counted but my colleagues and I have pooled funds to hire a manager and the system has begun to produce data," Prestegard says. "This can have a substantial impact on science through the results it produces and the development of new research programs on campus. The instrument allows the monitoring of disease and treatment of disease in mouse models without the need for sacrifice."

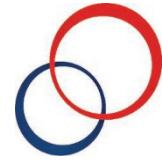
Georgia Institute of Technology

Georgia Tech has received \$36.6 million for 64 separate projects, supporting 65 jobs. Stephen E. Cross, Georgia Tech Executive Vice President for Research, says ARRA money accounts for between 6 and 7 percent of the institute's overall research funding. Cross says his goal is to make the economic impact of those dollars felt well beyond the program's

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Tenure-track Assistant/Associate/Full Professor



The Medical College of Georgia's **Vascular Biology Center** is recruiting faculty at the **Assistant, Associate, or Full Professor, tenure-track**. Successful candidates are expected to have biomedical Ph.D., and/or M.D. degrees and an excellent track record of training and publications in the area of cardiovascular and/or pulmonary pathophysiology. Candidates for Associate or Full Professor should also have active research support from a national funding source and a history of successful funding. The candidate will join an active group of extramurally-funded vascular biologists (currently about \$10 million annually) in recently renovated laboratories utilizing state-of-the-art equipment. He/she will have the opportunity to participate in the two institutional pre- and post-doctoral training programs in Integrative Cardiovascular Biology. A detailed description of VBC faculty and facilities is available at <http://www.mcg.edu/centers/vbc/>. Ample opportunities for collaborative basic and translational research are available and encouraged. The candidate is expected to develop an active, extramurally-funded research program, join a collaborative group of vascular biologists, and contribute to the development of programmatic projects. Highly competitive salary and start-up package are available. E-mail CV, letter describing career objectives, and the names of three references to: Dr. John D. Catravas, Chair of the Search Committee at jcatrava@mcg.edu and apply online at <http://www.mcg.edu/facultyjobs/>.

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Application deadline: Until Filled

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expiration at the end of 2011. "We think there will be a secondary impact, because of our incubator and spin-out operations, and we are starting to do more translational research, as well as bringing industry in to the institute," Cross says.

But a more immediate effect comes from eight young investigators receiving Early Career Development Awards from the National Science Foundation. In tough economic times, younger investigators typically have a tougher time competing for grants. This award helps launch their research, as well as pay for their postdocs and graduate students.

Georgia Tech has also received substantial infrastructure money that will help it bring in more funds in the future, including \$11.6 million to construct the Carbon-Neutral Energy Solutions Laboratory (C-NES), designed to research energy efficiency. The site itself aims to be a study in sustainability, with goals of

achieving carbon neutrality with net-zero site energy use, defined as zero net energy consumption and zero carbon emissions annually.

Georgia Tech is also putting energy into making industry more energy efficient, with \$1.4 million to assess energy usage in 100 large industrial plants and helping them achieve energy savings.

Medical College Georgia

Doug Miller, Dean of the MCG School of Medicine, says that without the \$11 million in ARRA funds, the school would have cut jobs. "In the absence of this funding there would be been a retraction or retrenchment of staffing," Miller says. Instead, the funds allowed creation or retention of 80 positions, as well as expansions in programs that will make the school more competitive for future grants.

The college has been able to expand work in mouse models for diabetes and metabolism in prostate cancer. Graduate school slots have also continued to grow. Besides the ARRA, MCG received some help

from the Georgia Research Alliance, a public-private consortium, to pay for a DNA sequencer used for breast cancer research. That project, like many funded by ARRA, helps team other institutions together for future funding success. "That's allowed us to collaborate effectively on a project with the University of Georgia," says Miller. The ARRA and GRA funding "allows us to attract more faculty and keep more people employed here in Georgia," Miller says.


Georgia State University

GSU has received \$5.8 million for 14 grants that has helped in a variety of ways—paying for postdocs, launching the careers of young researchers, increasing the capacity of a telescope GSU operates in at the Mount Wilson Observatory in California and buying equipment for research projects, says Amy Lederberg, GSU's Associate Vice President for Research. GSU received an additional \$8 million for research infrastructure and is using that money to equip a BioSafety Level

4 facility and buy instruments for a new research center on inflammation. But, perhaps most importantly, says Lederberg, the ARRA money has allowed the university to continue funding graduate students.

Lindsey Cohen, associate professor of psychology, can attest to that importance; it pays for graduate student help in his pediatric pain management work. "The ARRA grant has significantly enhanced productivity in my lab via funding graduate students," says Cohen. "Without the funds, the students might have received funding via teaching or other positions, and they would not have been able to assist in this study."

While all ARRA recipients are grateful for their funds keeping them afloat, they hope that the research personnel and infrastructure the program has so far provided will see them through a difficult 2012, when they will likely find themselves competing for a smaller pool of resources. Administrators acknowledge that year—which marks the era after ARRA—seems both far away and all too close. □



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GEORGIA'S HEALTH SCIENCES UNIVERSITY

TheScientist 2009

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<http://www.med.emory.edu/postdoc/ProPostdoc/index.cfm> and
<http://www.hr.emory.edu/careers/index.html>

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Multiple Faculty Positions Department of Chemistry Emory University

The Department is seeking candidates for two Assistant Professor positions. Applicants should have a proven record of research accomplishments. Successful applicants are expected to establish active independent research programs and have a strong commitment to teaching at both the undergraduate and graduate levels.

The first position is in the area of **C-H functionalization**. Applicants should have research plans related to C-H functionalization, and experience in relevant areas of chemistry such as organic chemistry, inorganic chemistry or computational chemistry. Applicants whose research interests complement those of the faculty in our NSF Phase I Center on C-H Functionalization are particularly encouraged to apply. PhD required. Reference job posting #17791BR.

The second position is for researchers working at the interface of **chemistry and biology**, broadly defined. Candidates whose research plans include *both* experimental and computational approaches are particularly encouraged to apply. PhD required. Reference job posting #17792BR.

Please submit a cover letter stating which position you wish to apply for, curriculum vitae, summary of research interests, specific research plans, and a statement of teaching philosophy in a single PDF file by e-mail to chemsearch@emory.edu. Arrange for three letters of recommendation to be sent to the same address. Review of applications will begin September 24, 2010.

Emory University is an Affirmative Action/Equal Opportunity Employer and encourages applications from women and members of minority groups.

NW202800R



Three faculty positions in Diagnostics and Therapeutics Research at Georgia State University

As part of GSU's Second Century Initiative (2CI) to add 100 faculty members over the next five years in selected areas, the College of Arts and Sciences plans to fill a cluster of three tenure-track faculty positions (rank open) within a year in the areas of chemical probe development (chemical biology), biomarkers, and chemosensors, pending budgetary approval. Emphasis will be on recruiting established investigators with external funding. The planned faculty recruitment is part of an overall effort to establish a Center for Diagnostics and Therapeutics at GSU, and along the strategic directions of Georgia Research Alliance and Georgia Cancer Coalition, two major organizations providing support to biomedical research in Georgia. Each appointment will be made to an academic department in accordance to the individual's degree and area of expertise and will be affiliated with the Center. This Center is housed in the new Petit Science building with 350,000 square feet of space for interdisciplinary research and teaching activities and world-class facilities. The same building also houses the Departments of Biology and Chemistry, the Neuroscience Institute, Center for Biotechnology and Drug Design, an animal facility, a BSL4 lab and several BSL3 labs, Center for Viral Immunology, as well as the Molecular Basis of Disease Program and the Brains and Behavior Program for optimal interactions and collaborations.

Successful candidates must have a Ph.D., M.D. or equivalent degree and demonstrate the ability to establish a vigorous, externally funded research program and to mentor Ph.D. graduate students. Excellence in teaching at both undergraduate and graduate levels is expected. Candidates at senior levels must have strong track records in research and teaching excellence, and in securing external funding.

Applicants should submit a C.V., a detailed research plan(s), a statement of teaching philosophy, and a list of at least three references to:

Dr. Binghe Wang, Diagnostics Faculty Search Committee
Department of Chemistry
Georgia State University
P.O. Box 4098, Atlanta, GA 30302-4098.

Application processing will begin immediately and search will remain open until filled. Georgia State University is a Research University of the University System of Georgia. Offers of employment will be conditional upon background verification.

NW203012R

Postdoctoral Fellow in human immunobiology.

Immediate opening. Project examines how simultaneous ligation of cell surface receptors on dendritic cells and macrophages with a novel ligand, induces an anti-inflammatory phenotype. We are examining the signaling pathways and soluble mediators produced by these cells post-activation. We are also examining how activation of these innate cells by the anti-inflammatory agent leads to reductions in HIV-1 viral loads. Applicants should have Ph.D., M.D., or DVM degree with experience in human immunobiology. Please send C.V., and names of referees to Dr. Donald Harn, Dept. of Infectious Diseases, College of Veterinary Medicine, University of Georgia, Athens, GA. 30602, or to dharn@uga.edu. Applications received by August 31, 2010 are assured full consideration.

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