



President Jere W. Morehead, University of Georgia

ANDREW DAVIS TUCKER



President James W. Wagner, Emory University

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# TWO PRESIDENTS, ONE GOAL

UGA-Emory partnership targets global health research

by Lori Johnston (ABJ '95)

Sixty miles separate UGA and Emory University. For years, faculty, researchers and investigators from both schools have driven those miles, talked on the phone and emailed to combine expertise, share resources and brainstorm about how they can work together.

Now, the presidents of both universities are providing more support and resources to grow the partnership, which currently has active grants totaling at least \$65 million and involving work by both institutions to address global health challenges.

UGA President Jere W. Morehead (JD '80) and Emory President James W. Wagner are uniting with a clear focus and purpose to expand the collaborative effort, which began organically and seeks to pave the way for improvements in health care. They met shortly after Morehead was named president in 2013 and have been meeting often since then.

They believe that UGA and Emory have the potential together to achieve major science breakthroughs, create a national hub for infectious disease research and introduce life-saving discoveries in areas such as influenza, tuberculosis,

malaria and HIV. The partnership also could help bolster the state's bioscience sector through the creation of startup companies and licensed products, boosting Georgia's stature in the United States and globally.

"For the University of Georgia to work with another great university like Emory does much to help us leverage our state resources in a way that will ultimately benefit the state more than if we just did it on our own," Morehead says.

After a meeting on Emory's main campus in Atlanta in the fall, Morehead and Wagner showed their solidarity by sitting side by side at one end of a conference table for a discussion of the partnership. Morehead believes Emory's collaborations with public institutions, including its nationally recognized work with Georgia Tech in biomedical engineering, will be one of Wagner's legacies when he leaves his role in August.

"Now we're building a similar opportunity with the University of Georgia, and I am confident that Jim has done so much work on this issue that it will continue after he steps down as president," Morehead says. "Seeing collaborations such as the Emory/Georgia Tech collaboration or the Emory/University of Georgia collaboration, those are very positive things for the state of Georgia."

## HIGH HOPES FOR SUCCESS

During ongoing meetings, Morehead, Wagner, UGA Provost Pamela Whitten, Emory Provost Claire Sterk and other senior administrators from both institutions review existing relationships and explore new opportunities and ways to advance the partnership. Once they identify experts and programs with common interests, the university presidents expect to see progress by the next meeting.

"Is there a will and is there an opportunity? That's what

we ask. I think the presidents may help provide some of the will," Wagner says.

"At least they listen to us while we're in the room," Morehead says, smiling.

"They're very polite," Wagner quips. "They're very polite."

Both institutions already have seen results via multimillion dollar research grants and discoveries in infectious disease, as well as vaccine and antiviral research and development. Some successes result from longtime friends and colleagues working together, while others stem from more recent efforts.

"It's building more and more momentum and collaboration between the two universities," says Ralph Tripp, Georgia Research Alliance (GRA) Eminent Scholar and GRA Chair of Animal Health Vaccine Development in UGA's College of Veterinary Medicine.

Three key contracts and grants demonstrate how the public-private partnership already is seeing success:

- The Emory-UGA Center of Excellence for Influenza Research and Surveillance received a \$3.6 million federal contract, with potential funding totaling \$26.7 million over seven years, for the surveillance of swine influenza viruses and investigations of swine immune responses. The National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health, awarded the contract in 2014.
- UGA and Emory are part of a consortium in the midst of a five-year contract worth up to \$19.4 million to study the malaria epidemic. It's one of the largest contracts ever awarded in this field by the NIAID and helped establish the Malaria Host-Pathogen Interaction Center. The center is led by Emory's Mary Galinski and co-principal



Ralph Tripp

SPECIAL



Dr. Walter Orenstein

JACK KEARSE

**Tripp and Orenstein are investigating swine influenza viruses and immune responses via a \$3.6 million contract awarded to the Emory-UGA Center of Excellence for Influenza Research and Surveillance. CEIRS was launched and funded in 2007, when the National Institute of Allergy and Infectious Diseases created a network of six national centers. Those centers played a key role in the nation's response to the 2009 H1N1 influenza pandemic.**



Dr. Henry Blumberg

JACK KEARSE



Fred Quinn

DOT PAUL

Quinn first met Blumberg while working at the Centers for Disease Control and Prevention. Now at UGA, Quinn is collaborating with Blumberg to develop a rapid diagnostic test for latent tuberculosis, which affects about one-third of the world's population.

## UNITED FOR A GREATER IMPACT

The strength of the UGA-Emory partnership lies in the institutions' complementary research programs and their willingness to share resources and expertise. UGA's focus on "one health," or the fusion of multiple disciplines including environmental health, animal health and human health, complements Emory's tremendous expertise in human health, says David Lee, UGA's vice president for research.

When the Food and Drug Administration awarded Fred Quinn, UGA Athletic Association Professor of Infectious Diseases, a \$1 million grant to develop a new diagnostic test for tuberculosis, he turned to Emory's Dr. Henry M. Blumberg for collaboration. Blumberg's research focuses on tuberculosis, which kills about 1.5 million people worldwide each year, and he also provided a key connection to a clinical research network in Atlanta. Without Blumberg's help, Quinn would have needed to turn to colleagues in another major city, such as Miami, New York or Los Angeles.

Quinn and Blumberg, a professor in the Division of Infectious Diseases at the Emory School of Medicine and professor of epidemiology and global health at the Emory Rollins School of Public Health, are developing a highly sensitive and specific rapid diagnostic test to identify latent tuberculosis, a form that affects about one-third of the world's population.

investigator Jessica Kissinger, a UGA genetics professor and director of UGA's Institute of Bioinformatics. Georgia Tech and the Centers for Disease Control (CDC) Foundation also are involved in the contract.

- A five-year, \$2.8 million NIH grant is funding efforts to develop a vaccine that could prevent the early phase of HIV spread and could protect against HIV infection and AIDS. Biao He, GRA Distinguished Investigator and Fred C. Davison Distinguished University Chair in Veterinary Medicine at UGA, and Dr. Paul Spearman, Emory professor of pediatrics and microbiology, are collaborating on a vaccine that uses a virus known as PIV5. UGA's He is the world's leading expert in the use of PIV5 as a vaccine.

The Malaria Host-Pathogen Interaction Center is funded by a five-year contract worth up to \$19.4 million. Scientists led by Galinski are building a "molecular encyclopedia" cataloguing how malaria parasites interact with their human and animal hosts. Kissinger leads a team that is organizing, distributing and mining the massive quantities of data produced by the project with the goal of identifying new opportunities to diagnose the disease, which causes an estimated 660,000 deaths annually.



Jessica Kissinger

ROBERT NEWCOMB



Mary Galinski

JACK KEARSE



David Lee

PETER FREY

**UGA's vice president of research credits the Georgia Research Alliance for funding the development of science and technology in core facilities at both institutions, as well as fostering a climate of interaction.**

UGA and Emory's influenza contract is a surveillance effort seeking to identify flu viruses in swine that could potentially become human pandemic strains as well as evaluating the immune response to flu viruses and vaccines. The research is being led by Tripp on the UGA side, focused on animals, and Dr. Walter Orenstein, a professor of medicine and associate director of the Emory Vaccine Center. Tripp often talks with Emory experts two or three times a week to discuss approaches, ideas and tools.

"We move faster by working together," Tripp says.

In addition to faculty expertise, the research programs meet different needs. UGA faculty cite Emory's experienced Clinical Trials Unit, which provides access to human patients, and the Yerkes National Primate Research Center, for primate research related to work in malaria, HIV and other infectious agents.

## TURNING INNOVATIONS INTO ENTERPRISES

Emory is one of the top collaborators in UGA's biomedical portfolio, says Derek Eberhart, director of UGA's Innovation Gateway, which seeks to move technologies to the marketplace through licensing and startups. The schools hold joint intellectual property and licenses for numerous projects. Eberhart says Georgia and Emory are among the top 75 in the world in the number of issued patents. Both schools have strong commercial programs, and their Tech Transfer offices work together.

Three examples reflect recent UGA-Emory successes:

- **Pharmasset:** Emory and UGA jointly owned anti-HIV technologies that were licensed to this clinical-stage pharmaceutical startup.
- **Cocrystal Pharma:** This biotechnology company developing novel antiviral therapeutics for human diseases merged in 2014 with RFS Pharma, a biotech company founded by renowned drug developer and Emory professor Raymond Schinazi. RFS Pharma, founded in 2004, originally licensed a series of anti-HIV drugs from Emory University and the UGA Research Foundation.
- **Glycomics research:** UGA's Complex Carbohydrate Research Center (CCRC) and Emory's Glycomics Center have had successful interactions with industry through research services, direct technology licensing and startup company formation. Biotechnology company Galectin Therapeutics established a collaborative drug discovery program with Geert-Jan Boons, carbohydrate chemist at the CCRC and UGA Foundation Distinguished Professor in Biochemical Sciences.



Geert-Jan Boons

DOROTHY KOZLOWSKI

**Boons and biotechnology company Galectin Therapeutics have partnered on a collaborative drug discovery program. He is UGA Foundation Distinguished Professor in Biochemical Sciences and a carbohydrate chemist at the Complex Carbohydrate Research Center. The CCRC is one of few comprehensive centers of glycoscience expertise, with 16 faculty-led research groups and a history of attracting nearly \$250 million in total research funding.**

Likewise, experts with UGA colleges and schools, such as the College of Veterinary Medicine, and facilities such as the Animal Health Research Center are attractive to Emory. The Animal Health Research Center is a biosafety level 3 agriculture facility that has the ability to work on highly pathogenic influenza infections. Emory provides critical expertise and the clinical context for the research. “Otherwise we would have to reinvent the wheel,” Tripp says. “Now, there’s an ecosystem of people working in animals and humans and trying to understand how we can look at the dynamics and evolution with flu and animals so that we can prevent transmission to humans. If you can block transmission, you can block disease.”

UGA also is in discussions with Emory about potential future partnerships with its new Clinical and Translational Research Unit on UGA’s Health Sciences Campus. Together, the schools can conduct animal trials and human clinical trials that are necessary when working with a vaccine, diagnostic test or therapeutic candidate in development for general human use.

Likewise, experts with UGA colleges and schools can look at transmission of the influenza virus from a bird to a pig collaboratively with Emory looking at the human side. “That is a beautiful example of where we can team up to look at the whole picture,” Quinn says.

## MUTUAL APPRECIATION

Administrators and faculty say the UGA-Emory collaboration has been going on for decades. In many cases, the faculty, researchers and investigators know each other from working together previously in doctoral programs and organizations such as the Atlanta-based CDC. For example, Quinn first met Blumberg at the CDC, where he also worked in

a lab with Dr. David Stephens, now vice president for research in Emory’s Woodruff Health Sciences Center.

“We’ve had an advantage with already-established collaborations, and we’ve continued them over the years,” Quinn says. He adds that having the presidents meet and provide opportunities for UGA and Emory to collaborate could speed up efforts.

It’s been a natural, organic and evolving effort. Lee says: “There was this very strong foundation of collaboration, so I think the purpose of the conversations (between the presidents) to a large degree is: How do we build on that further?”

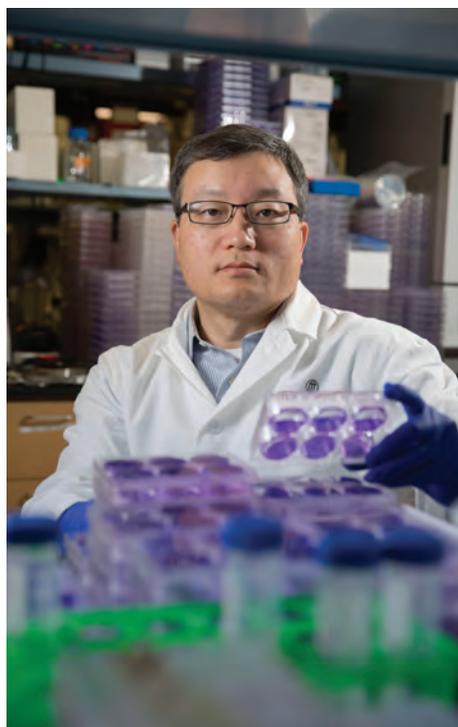
New UGA professors, such as GRA Eminent Scholar in Infectious Diseases Ted Ross, are developing projects of interest with Emory faculty counterparts. The Emory relationship was not a deciding factor when Ross

accepted the UGA position, but he says it could sway other noted researchers to join UGA and help expand its research enterprise.

“UGA works with a lot of stellar institutions around the country, and that’s really important. Emory is one of those,” says Ross, who conducted his post-doctoral work at Emory from 1998–00.

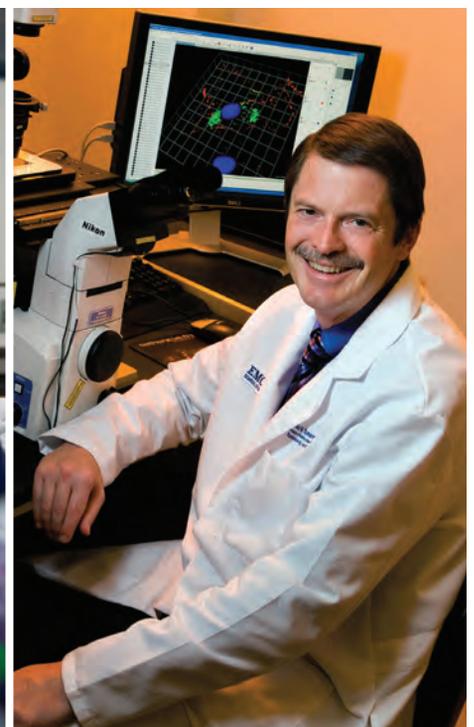
Ross, who is developing UGA’s first vaccine center, is working closely with Rafi Ahmed, GRA Eminent Scholar, world-renowned immunologist and director of the Emory Vaccine Center. The interactions are in the infancy stage, but could be promising in terms of developing a universal flu vaccine if clinical trials are approved, Ross says.

“The more interactions we have, the more ability to get funding for academics as well as business, which



Biao He

PETER FREY



Dr. Paul Spearman

JACK KEARSE

**He and Spearman are collaborating on an HIV vaccine that induces the immune system to attack the virus before it can spread through the body. The vaccine uses another virus, known as PIV5, that He is an expert on—he’s had preliminary success using it to develop a vaccine for rabies, which kills at least 50,000 people a year worldwide.**



Rafi Ahmed

JACK KEARSE



Ted Ross

ANDREW DAVIS TUCKER

The partnership between Ross—who joined UGA in August—and Ahmed is new, but early interactions could be promising in terms of developing a universal flu vaccine if clinical trials are approved. Ross will serve as director for UGA's newly developed Center for Vaccines and Immunology, which promises to unite researchers from different parts of campus to find new ways to combat dangerous pathogens. Ahmed is director of the Emory Vaccine Center.

helps economic development in this state,” Ross says. “It brings in high-level faculty that end up spinning off companies that stay here in Georgia. It helps the whole state of Georgia.”

Lee and others see the potential for UGA and Emory to be involved in new frontiers in health, such as complex carbohydrate research. In 2015, Robert Haltiwanger, one of the nation's leading glycochemistry researchers, joined UGA's Complex Carbohydrate Research Center as the GRA Eminent Scholar in Biomedical Glycoscience.

“With all of the clinical expertise that Emory has, how do we marry up our expertise in glycoscience with their expertise in cancer and other areas in order to actually advance this whole field?” Lee says.

## ADVANCING THE EFFORT

In 2015, both schools also agreed to make core research facilities open to faculty and researchers at each school for the same rates and terms. Emory has 14 core facilities; UGA has 16.

“The doors are wide open for researchers from Emory to go to a UGA facility and vice versa. That's an illustration of making better use of existing resources,” Wagner says.

After the administrators began meeting, UGA also joined Emory and Georgia Tech as collaborators in the Regenerative Engineering and Medicine (REM) research center. Its directors include Steve Stice, GRA Eminent Scholar and director of UGA's Regenerative Bioscience Center. A seed grant program seeks to stimulate and encourage collaborative research. “The heart of the Seed Grant program is that investigators at UGA, Emory or

Georgia Tech will get a grant if they're partnered with an investigator at one of the other institutions,” Lee says. Three UGA/Emory teams were awarded 2015-16 REM seed grants.

Lee also credits the Georgia Research Alliance for funding the development of science and technology in core facilities at both institutions and helping connect counterparts between institutions. “They have helped develop our climate of interaction, and they continue to encourage it in concrete ways,” Lee says.

The days of the lone investigator working on a single project with continual funding are gone. Researchers are more attuned to seeking partners at other institutions. “That truly is the nature of science to try to collaborate. We all find our niche to work from and instead of just keeping your discoveries to yourself, working together opens all kinds of new avenues and new funding,” Tripp says.

UGA and Emory are competing together for a common goal: to defeat influenza, cancer and other global health problems.

“There is a greater proportion of strength that comes from people who are doing similar work joining, or from people who are doing complementary work joining, and the partnership not only allows, but encourages both of those,” Wagner says.

“That really sums up the partnership,” Morehead says.

“As we try to strengthen Georgia's economy and Georgia's stature in the nation and in the world, having more public-private partnerships is an important and positive ingredient.”

—Lori Johnston, a frequent contributor to GM, operates Fast Copy News Service.