

# INNOVATIVE SOLUTIONS *to* GLOBAL NEEDS



**TECHNOLOGY COMMERCIALIZATION OFFICE**  
2012 ANNUAL REPORT  
THE UNIVERSITY OF GEORGIA

## IMPROVING LIVES, IN GEORGIA AND BEYOND

From vaccine development to advances in biofuels, the discoveries made in UGA laboratories lead to greater understanding of the world around us and create new possibilities for improving lives in Georgia and beyond.

But to have full impact, our discoveries must reach the marketplace. So we are especially proud of the many successful collaborations between our faculty researchers and the expert staff of the Technology Commercialization Office. Working together, they are harnessing our expertise and resources to secure a better future for our university, the State of Georgia and our global society.

Described in these pages are some of the metrics by which University of Georgia's successful technology commercialization efforts are gauged. But just as important are the stories about some of the products, services, therapies and diagnostics that the Technology Commercialization Office has brought to the marketplace through partnerships with industry, for they have the potential to impact millions of lives.



**David Lee**  
Vice President  
for Research

Sincerely,

David Lee, Ph.D.

DAVID LEE

Vice President for Research

Executive Vice President of the University of Georgia Research Foundation, Inc.

The University of Georgia Research Foundation, Inc. (UGARF) is a Georgia, non-profit corporation established in 1978 with the broad mission to support scientific, literary, educational, and charitable purposes. UGARF is a recognized collaborative organization to the Board of Regents of the University System of Georgia and maintains an important relationship with the University of Georgia. Pursuant to the Intellectual Property Administration Agreement between UGARF and the Board of Regents of the University System of Georgia, UGARF serves an important role as the owner of intellectual property developed by University personnel and is responsible for the protection and administration of such intellectual property. The Technology Commercialization Office licenses UGARF's intellectual property portfolio.

## FY 2012 POINTS OF PRIDE

UGA's Technology Commercialization Office is consistently ranked among the top technology transfer offices in the country.

### Disclosures, Licenses and Options

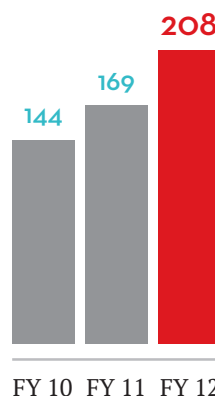
**TOP 5**

among all U.S. universities  
for total license and option  
agreements executed for the  
5th consecutive year

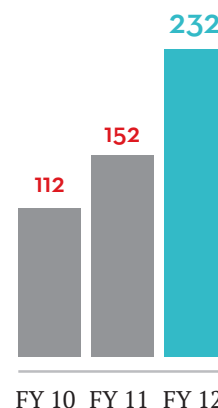
**OVER 1,000**

active licenses

#### Invention Disclosures



#### Licenses and Options



### License Revenues

**TOP 15**

among public universities  
in licensing revenue

**TOP 35**

among public & private  
universities in licensing revenue



**\$132 MILLION**

in cumulative revenue over the past 10 years

**Top 10 Product Categories** UGA is known for its breadth of technologies, from a variety of agricultural products to diagnostics and pharmaceuticals.

**350+** commercial products have originated from UGA research





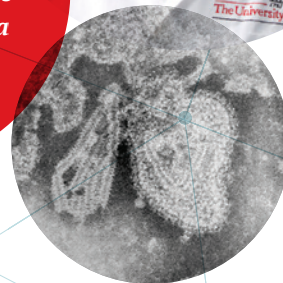
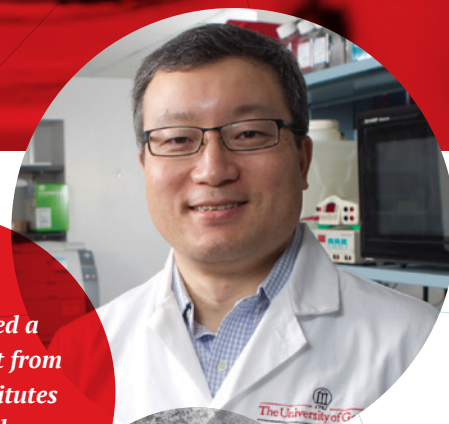
## 2012 TECHNOLOGY HIGHLIGHTS FROM LABORATORY TO MARKETPLACE

**Biao He**, Infectious Diseases,  
College of Veterinary Medicine

**Challenge:** In recent years, large outbreaks of mumps have occurred in vaccinated populations for a variety of reasons, including resistance to the vaccine due to mutations and genetic variations in the infectious virus strain.

**Impact:** Using an innovative technique, vaccine candidates have been generated and are currently being tested in animal models. If successful, this patent-pending innovation may lead to the commercialization of a new vaccine that combats a strain of mumps that is resistant to the standard measles, mumps and rubella (MMR) vaccine.

**Biao He obtained a \$1.8 million grant from the National Institutes of Health to develop a mumps vaccine.**



**Jason Locklin**, Chemistry, Franklin College  
of Arts and Sciences

**Challenge:** According to the Centers for Disease Control and Prevention, approximately one of every 20 hospitalized patients will contract a healthcare-associated infection. Lab coats, scrub suits, uniforms, gowns, gloves and linens are known to harbor the microbes that cause patient infections.

**Impact:** This simple and inexpensive antimicrobial technology works on natural and synthetic materials. The technology can be applied during the manufacturing process or at home, and is not removed when laundered. Unlike other antimicrobial technologies, repeated applications are unnecessary to maintain effectiveness. In addition to textiles, other markets for the antimicrobial technology include military apparel and gear, food packaging, plastic furniture, pool toys, medical and dental instrumentation, bandages and plastic items.

**Jason Locklin and his team invented a new technology that can inexpensively render medical linens and clothing, face masks, paper towels – and even smelly socks – permanently germ-free.**



**Debra Mohnen**, Complex Carbohydrate Research Center

**Challenge:** Plant cell walls are resistant to being easily broken down into the sugars that are the source of biofuel.

**Impact:** Debra Mohnen and colleagues have genetically engineered plants with less resistance to breakdown into cellulose, the primary source for production of biofuels and commodity chemicals. The technology is applicable to virtually any biofuels crop. It is licensed to a company conducting scale-up studies in conjunction with multiple grasses that are potential sources of biomass for the production of biofuels.


**A series of genetic modifications in plants has the potential to revolutionize the production of biomass for biofuels.**




**Paul Raymer**, Crop & Soil Sciences, College of Agricultural and Environmental Sciences

**Challenge:** High-salt water sources are common in coastal golf course settings.

**Impact:** SeaStar™, a seashore paspalum variety, is the latest turfgrass variety developed at UGA. Its salt tolerance solves a problem for the golf course manager by allowing a beautiful seaside setting while maintaining a healthy, thriving turf. Advantages to SeaStar™ include an excellent turf color, which persists later in the season, a superior tolerance to short-term drought, and an ability to be used over an entire golf course, since it thrives at a variety of mowing heights. SeaStar™ is now growing on golf courses in the eastern United States and soon will be on international golf courses. Phillip Jennings Turf Farms, a Georgia company, licensed the rights to produce and market SeaStar™.



*The UGA turfgrass program has fostered an industry of turfgrass production and sales in Georgia and worldwide. In Georgia alone, the farm gate value exceeds \$100 million.*



*A team of UGA researchers is creating interactive tools to teach scientific principles to high school students.*

**IS3D, LLC**, a partnership of faculty from the College of Veterinary Medicine, the Franklin College of Arts and Sciences, the Grady College of Journalism and the College of Education

**Challenge:** Complex scientific processes have traditionally been taught using static, 2-D drawings that often fail to engage students.

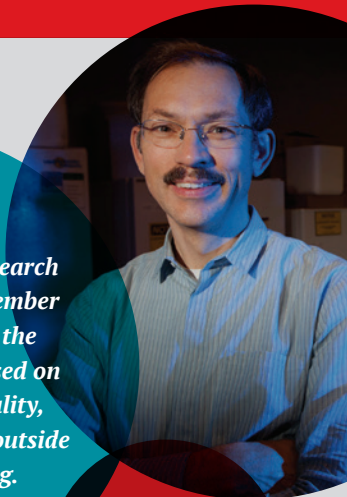
**Impact:** IS3D, a UGA startup company, licensed the technology developed by UGA faculty and staff, and launched their first product as an app for Apple and Android platforms in 2011. Osy Osmosis™, or Osy, is a fun educational game designed to teach the principle of osmosis, or how water moves in and out of cells. The company has since launched two additional products. An iBook, funded through a Small Business Innovative Research (SBIR) grant awarded to IS3D, focuses on cell signaling. It is the first in a suite of complementary materials designed to help students learn how the nervous system works.

## 2012 INVENTOR OF THE YEAR

### GEERT-JAN BOONS: FIGHTING CANCER WITH CARBOHYDRATES

Geert-Jan Boons, Franklin Professor of Chemistry, is renowned for his many contributions to the field of carbohydrate and glycoconjugate research. His group has studied extensively the development of new and better methods for synthesizing complex molecules; the use of new methods in the synthesis and study of complex carbohydrates; the development of synthetic cancer and bacterial vaccines; and the use of synthetic compounds for the study of innate immunity. In collaboration with the Mayo Clinic, Boons developed a vaccine prototype for cancers that share a distinct carbohydrate signature.

This carbohydrate-based vaccine elicits a very strong immune response by activating all three components of the immune system, and it has shown great promise in mouse breast cancer models. Boons developed a number of other novel technologies related to metal-free click chemistry reactions, heparin sulfate synthesis and foodborne illness. He has 13 active invention disclosures, 10 pending U.S. patents, more than 15 pending international patents, and is founder of a startup company called ViaMune.



*Each year, the UGA Research Foundation selects a member of the UGA faculty as the Inventor of the Year based on the invention's originality, innovation, and impact outside the university setting.*

**Geert-Jan Boons**

# GOOD FOR GEORGIA, GOOD FOR THE WORLD

**UGA's Technology Commercialization Office** and its partner, the University of Georgia Research Foundation, apply their resources to bringing scientific discoveries to the marketplace to solve real-world problems in Georgia and around the globe.

In Georgia, UGA is renowned for its innovations in agriculture and animal medicine products that not only are commercial successes but also create jobs and economic growth across the state. But around the world, UGA is known for innovations in agriculture and animal medicine, as well as human medicine, energy, food safety, software, and educational tools that save lives and improve quality of life.

## In Georgia

- The poultry industry contributes more than 111,500 jobs to the Georgia economy.
  - Georgia's \$28 billion poultry industry is protected by multiple vaccines developed at UGA.
  - On an average day, Georgia produces 26 million pounds of chicken/ 9.2 million table eggs / 8 million hatching eggs.
- 
- The peanut industry contributes approximately 50,000 jobs in Georgia.
  - Georgia is the #1 state in peanut production, accounting for half of the total production in the U.S. The estimated crop value in the state of Georgia reached a record \$925 million in 2012.
  - UGA-developed peanuts account for more than 90 percent of the southeast U.S. market share for peanuts.



*Blueberries and turfgrass developed at UGA are grown on every continent – except Antarctica.*

- Georgia is the #1 state for acres of blueberries produced, with an estimated crop value exceeding \$250 million.
  - Blueberries are the #1 fruit crop in Georgia, surpassing even peaches.
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- The turfgrass program at UGA has fostered an industry of turfgrass production and sales in Georgia and worldwide.
  - In Georgia alone, the farm gate value of turfgrass exceeds \$75 million.

## Around the World

- UGA's TifSport™ bermudagrass was planted on the 2010 FIFA World Cup Soccer field at the Moses Mabhida Stadium in Durban, South Africa.
- UGA's biofuel, bioenergy and biomaterials innovations are producing cost-efficient fuels and biomaterials that reduce dependence on fossil fuels.
- Four bioenergy discoveries have been licensed to industry, including technologies that use algae as the source of bio-fuels; plant biotechnology that increases the yield of biofuel from biomass; and a technology that allows the conversion of dead trees into sulfur-free biodiesel.

*Bt-Booster helps farmers save crops and money.*



- Bt- Booster, a product that enhances the effectiveness of naturally occurring pesticides, was invented by a UGA entomologist. It protects crops from insects, saving farmers money and protecting the environment.
- A nutcracker designed to crack the hard shells of Argan nuts, used for oil in cosmetics, was developed by a UGA engineer to help Moroccan women whose job it is to crack the nuts using two stones. The simple device will reduce the time they spend cracking nuts, while reducing the risk of injury.
- Clevudine, a therapeutic drug for the treatment of hepatitis B infection, was developed by a UGA College of Pharmacy researcher. It is marketed under the trade names Levovir and Revovir in South Korea and the Philippines, where chronic hepatitis B infections are a significant health and economic burden.
- SilvaKlenz™ and Silvion™, invented by a UGA veterinarian, are wound-cleaning and treatment products that use silver to enhance the potency of antimicrobials – even against drug-resistant pathogens.



## WHAT WE DO

*The University of Georgia Technology Commercialization Office (TCO) serves the university community by connecting industry with university expertise and inventions for the public good, promoting economic development and increasing research visibility. Services include:*

- **Evaluate inventions** for patentability and commercial potential
- **Protect intellectual property (IP) rights** (patents, copyrights, trademarks, etc.)
- **License technologies** to industry for commercialization
- **Negotiate and manage all IP-related agreements/contracts** (including license, option, material transfer, confidentiality and collaborative research agreements)
- **Perform compliance and diligence** function including federal reporting
- **Receive and distribute** license income
- **Support and advise** faculty, students and staff on IP-related matters
- **Maintain active patents**
- **Develop and strengthen strategic partnerships** with universities, industry and government
- **Identify and contact companies** having interests aligned with UGA's research to develop licensing and sponsored research opportunities
- **Enforce IP rights**
- **Increase UGA's research visibility** throughout the world

## TECHNOLOGY COMMERCIALIZATION TEAM

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