

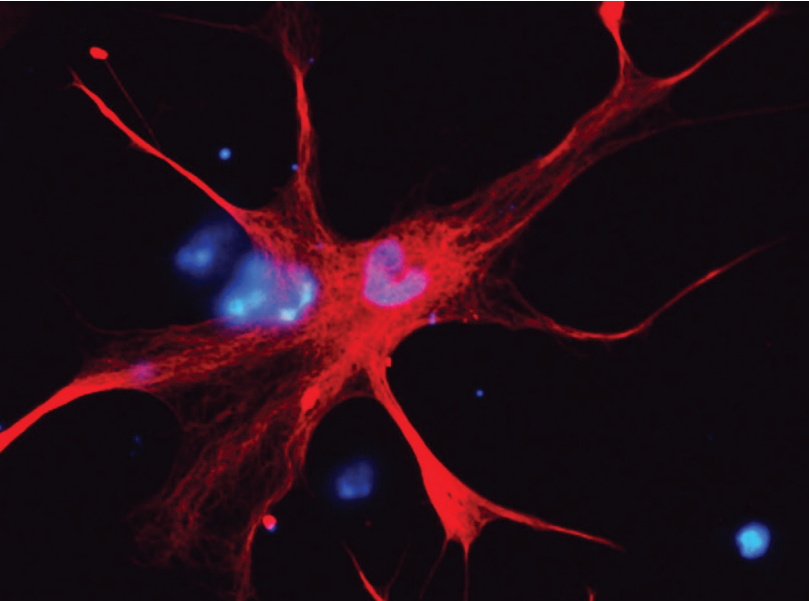


UNIVERSITY OF  
**GEORGIA**

Innovation Gateway  
*Office of Research*

**675+**  
**PRODUCTS**

introduced to  
the marketplace



**\$128 MILLION**

annual economic impact  
from jobs created



**160+ COMPANIES**

launched based on  
UGA research

# INNOVATION GATEWAY

*As the university's intellectual property licensing and startup support arm, Innovation Gateway streamlines the path from the laboratory or field to the marketplace, ensuring that University of Georgia research discoveries reach their full potential for public benefit.*

Innovation Gateway fosters a network of industry, economic development, and university partners, amplifying its ability to develop new products and companies based on the university's research. Since 2015, new invention disclosures and licensing revenues are up 30 percent, startup projects have increased 40 percent, and more than 20 startup companies have been launched.

This approach was recognized in 2017 when the University Economic Development Association named Innovation Gateway a finalist in a North American competition recognizing innovative programs that develop economic prosperity locally and beyond.

## LICENSING

Innovation Gateway's licensing program works with University of Georgia researchers to identify technologies with commercial potential, protect intellectual property, and identify possible paths to the marketplace. Hundreds of technologies from UGA's diverse research enterprise are available for licensing and development.

### Treating Rare Diseases

Sales of Alexion's Kanuma® reached \$39 million in FY 2017, its first full year on the market, compared to \$2.4 million in FY 2016. The enzyme therapy, which is produced using UGA-developed technology, treats the rare disease lysosomal acid lipase deficiency (LAL-D). It is approved in the U.S., Europe, and Japan.



## FROM DISCOVERY TO MARKET



### DISCOVER

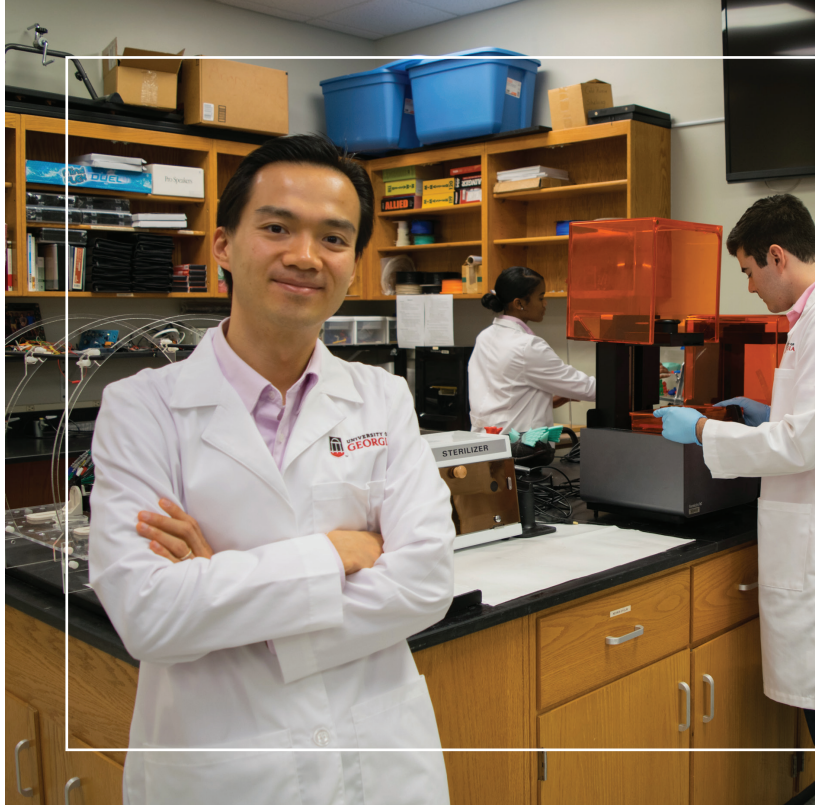
**EUREKA!** After years of painstaking work, researchers make a discovery that may have commercial potential, so they get in touch with Innovation Gateway.



### EVALUATE

**ANALYSIS** Innovation Gateway experts gauge the invention's market and patent potential. Sometimes they license the invention to an established company that acts as a bridge between researchers and the marketplace. Or, experts might suggest that a startup company is the best path forward.





## Accelerating New Ideas

Innovation Gateway launched UGA I-Corps in fall 2017 with its first cohort of faculty, staff, and students. The STEM-focused accelerator program helps teams from across UGA who are eager to transition their ideas to market-ready products and services. The program is funded by a \$500,000 National Science Foundation award.

Ideas developed during the six-week program ranged from a medical device for measuring metabolic function to a childhood obesity intervention.

Associate Professor of Engineering Zion Tse (above) and his 3T Technologies startup team are developing a device that would allow an IV pump to operate near the large magnets used in clinical magnetic resonance imaging (MRI) at lower cost than technologies currently available.

## STARTUPS

Innovation Gateway's startup program helps University of Georgia researchers, staff, students, and community members launch successful startup companies by guiding them from idea exploration and evaluation to development and scale-up that support sustainable growth.

### Promoting Student Learning

Cambium Learning® Group, a leading educational solutions and services company, acquired Athens-based startup company IS3D, maker of Cogent Education™ interactive software for science education in 2017.



## INCUBATE

**PRODUCT** If researchers go the startup route, Innovation Gateway mentors the young business and helps it grow by providing access to business expertise, funding, equipment and lab space. Once the technology is commercially viable, the company graduates from the business incubator or it may be purchased by another company.



## PRODUCT IN THE MARKETPLACE

**SOLD** When a business makes it this far, it's financially sustainable. Now both the inventors and the university may earn royalties from product sales based on the resources invested.

# Partnering with Industry to Move New Technologies to the Marketplace

*Innovation Gateway helps turn research discoveries into new products by facilitating partnerships with industry or by guiding the launch of new startup companies.*

Over 675 products originating from UGA research have reached the marketplace during the last 39 years. UGA has been ranked among the top 5 universities for new products for four consecutive years.



## **Drought-tolerant TifTuf® Thriving**

UGA-developed TifTuf® bermudagrass has become the new industry standard for drought and wear resistance. TifTuf® uses 30 to 40 percent less water than most bermudagrass cultivars while maintaining better turf quality. Sales are dramatically increasing, with 45 companies producing the bermudagrass for sale as far west as Hawaii and California, throughout the southern U.S., and as far north as Maryland.

*TifTuf® was developed by plant scientists Brian Schwartz (left) and Wayne Hanna (right) of UGA's world-class, warm-season turfgrass breeding program.*

## **Growing Cold-hardy Citrus**

The first cold-hardy citrus cultivars developed at UGA by Wayne Hanna, professor of crop and soil sciences, were licensed recently to a Georgia-based nursery, 1 DOG Ventures. The new citrus — a tangerine, a grapefruit, and a lemon — will help grow Georgia's blossoming citrus industry.



*Sweet Frost™ tangerine originates from an old Chinese cultivar but produces significantly fewer seeds, a characteristic preferred by home gardeners.*



## Protecting Human Health with a Universal Flu Vaccine

Georgia Research Alliance  
Eminent Scholar Ted Ross has partnered with Sanofi Pasteur to develop and test a vaccine that protects against the entire H3N2 family of influenza strains circulating in humans since 1968. The vaccine is a model for developing a universal flu vaccine against other influenza family members.



*Ted Ross (above) is director of UGA's Center for Vaccines and Immunology, a team of scientists creating vaccines to fight emerging and re-emerging diseases such as influenza and Zika.*



## Safeguarding Georgia's Poultry Industry with Vaccines

Poultry vaccines developed by UGA's world-renowned poultry researchers in collaboration with industry partners protect one of the state's most important industries against devastating diseases. The estimated total impact of Georgia's poultry industry exceeds \$28 billion and contributes more than 100,000 jobs to the state's economy.

*Naola Ferguson-Noel (above) is an associate professor at UGA's Poultry Diagnostic Research Center and developed a vaccine for *Mycoplasma gallisepticum*, a disease that can cause severe economic losses, with Regents' Professor Emeritus Stanley Kleven.*

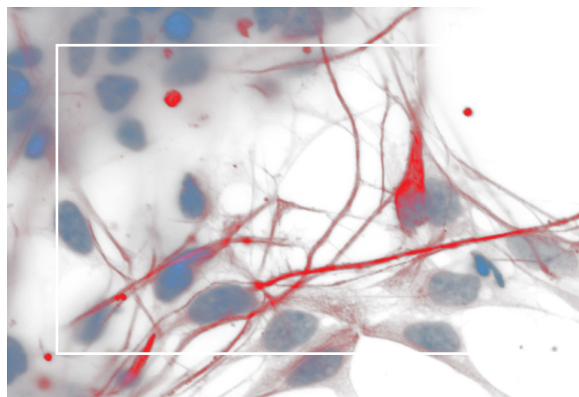
# Transforming Ideas into Innovative Companies

*Innovation Gateway guides entrepreneurs in transforming their ideas into viable companies by providing business education; coaching and mentoring; and access to funding, equipment, and laboratory space.*

Once a technology becomes a commercially viable product, the company graduates from the business incubator or may be purchased by another company.

## External Funding Fuels UGA Startups

Funding from external sources, including Georgia Research Alliance seed funding, federal Small Business Innovation Research and Small Business Technology Transfer programs, and angel and venture capital investors, helps fuel UGA startup companies and facilitate the transition of university technologies into market-relevant products. In FY 2017, UGA startup companies received several highly competitive SBIR/STTR awards to support development of their cutting-edge technologies.



**ArunA Biomedical** is developing treatments for patients with stroke and traumatic brain and spinal cord injuries that focus on repairing damage to the central nervous system. The technology was developed by Steven Stice, Georgia Research Alliance Eminent Scholar and director of UGA's Regenerative Bioscience Center.

*Derived from human neural stem cells, ArunA Biomedical's therapies enhance the nervous system's self-repair mechanisms.*

- **Lectenz® Bio** uses its GlycoSense™ technology to speed up and simplify the detection and discovery of disease biomarkers. The company grew from the research group of Robert J. Woods, professor of biochemistry and molecular biology, at UGA's Complex Carbohydrate Research Center.
- **BiotecEra** develops and commercializes innovative microbial technologies to achieve the sustainable, economic, and eco-friendly production of industrially valuable pharmaceuticals and commodity chemicals. The company was started by Yajun Yan, associate professor, College of Engineering.
- **Abeome** is developing therapeutic antibodies — the fastest growing segment of global drug sales — for the treatment of diseases. The company is based on a technology discovered by Rich Meagher, UGA Distinguished Research Professor of Genetics.



## Engineering Solutions for Society's Challenges

The UGA College of Engineering is one of the fastest-growing public colleges of engineering in the nation. Over the past five years, the college's thriving research program has seen a 250 percent increase in funding, which is driving new solutions for society's most pressing challenges.



*Professor Leidong Mao (left) is developing a technique for the isolation and separation of cancerous tumor cells from blood — a tool that could help researchers better understand cancer and lead to simple tests for detecting and tracking the disease.*

## Startup Pipeline Grows as Engineering Expands

Early-stage engineering and materials science startups originating from faculty in the UGA College of Engineering continue to grow the UGA startup pipeline. Engineering projects have doubled over the last year; they now comprise over 25 percent of projects in the early-stage of the startup pipeline.



*Professor Hitesh Handa (center) has developed a surface coating with an antimicrobial function that attacks harmful bacteria by releasing nitric oxide, a naturally occurring gas with potent antimicrobial properties. His company, Antimicrobial Catheters, is focused on the development of catheters and other medical devices.*

# POINTS OF PRIDE

## TOP 5

*Among all U.S. universities for new products reaching the marketplace:  
**4th consecutive year***

## TOP 10

*Among all U.S. universities for deal flow (licenses/options):  
**10th consecutive year***

## TOP 20

*Among U.S. public universities for total active startup companies  
**14th consecutive year***



**UNIVERSITY OF  
GEORGIA**  
Innovation Gateway  
*Office of Research*

Derek Eberhart, Ph.D.  
Director, Innovation Gateway  
808 Boyd GSRC  
200 D.W. Brooks Drive  
Athens, GA 30602 USA

**Phone:** 706.542.1404  
**Email:** [gateway@uga.edu](mailto:gateway@uga.edu)  
**Web:** [research.uga.edu/gateway](http://research.uga.edu/gateway)

Innovation Gateway promotes entrepreneurship and translates research discoveries into new products and startup companies which drive economic growth.

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