

Propel Research to Build a

Healthier Georgia




Supporting the

Translational Research Building



AUGUSTA
UNIVERSITY



ON THE COVER: Drs. Claudia Cox and Stuart Thompson are working to stop a bacterium often found in undercooked poultry that makes millions sick with GI issues.

The lab of Dr. Lawrence Layman, left, studies human development to improve the outcomes for patients with infertility, pregnancy loss and assisted reproductive technologies.

Advancing Lifesaving Discoveries

Imagine a cure for childhood cancer, a treatment to reverse Alzheimer's, or the ability to prevent diabetes.

There is no greater force for the advancement of the human condition than the modern research university. Augusta University is bringing scientific explorations and pioneering solutions to the forefront by advancing lifesaving discoveries today.

Help us accelerate the timetable and our impact by supporting the construction of a much-needed new

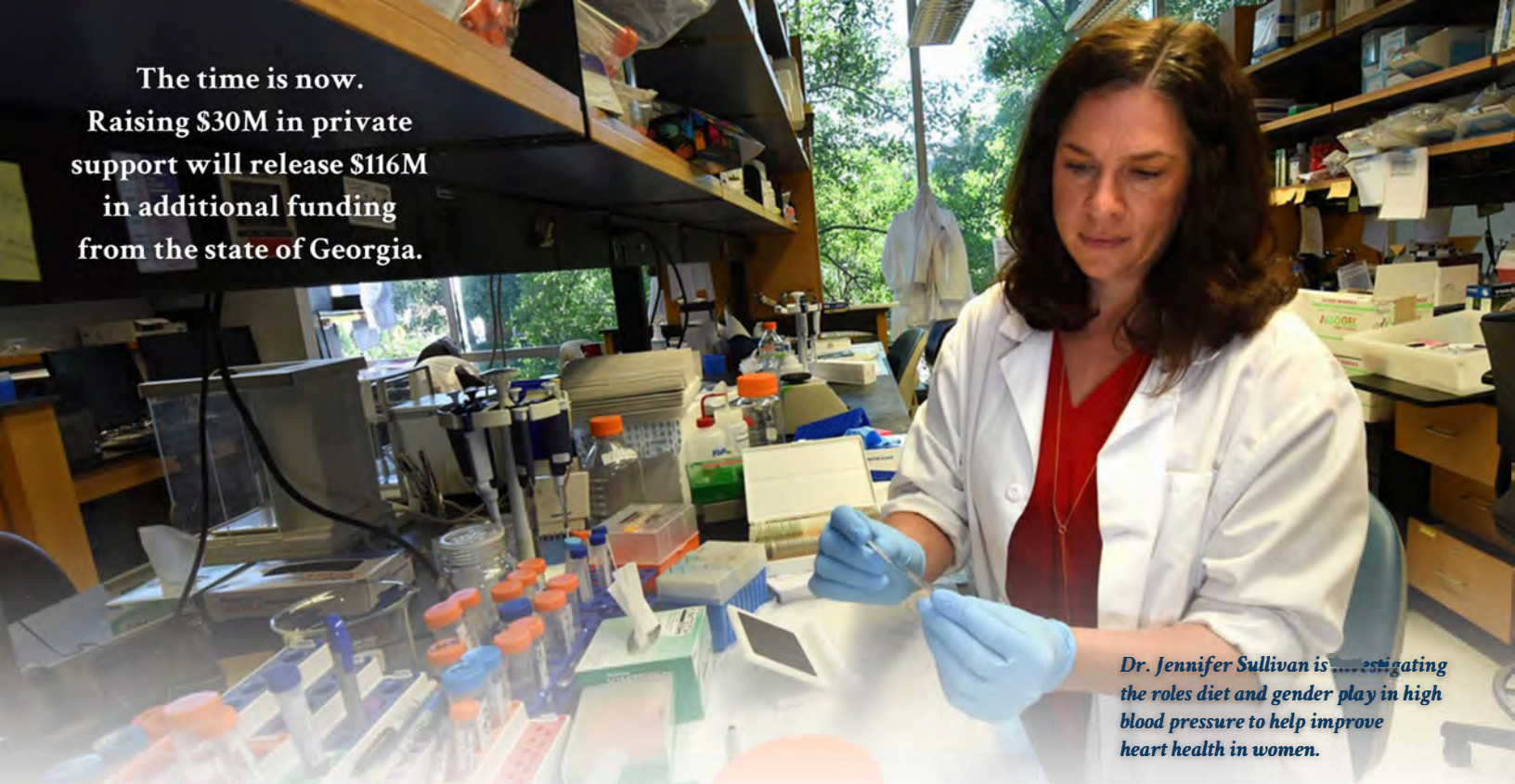
TRANSLATIONAL RESEARCH BUILDING.

While you are reading this, an AU investigator is testing a theory that could be the next scientific breakthrough to advance Parkinson's, sickle cell or obesity care.



Dr. Marco Orecchioni discovered a new class of immune receptors, called olfactory receptors, and how they trigger inflammation in atherosclerosis. He aims to find treatments to alter the function of these receptors to treat and prevent disease.

The time is now.
Raising \$30M in private
support will release \$116M
in additional funding
from the state of Georgia.



Dr. Jennifer Sullivan is investigating the roles diet and gender play in high blood pressure to help improve heart health in women.

Building A Healthier Georgia

An investment in a new bench-to-bedside research building at Augusta University is an investment in a healthier Georgia and a healthier future for everyone.

Time is of the essence to seize the moment, leverage resources, and coalesce to make this transformative investment a reality. Augusta University is poised for more growth to improve the future for humankind. We are building for a healthier Georgia.

Our goal is to increase support for and continue to establish dedicated research facilities at Augusta University that match the strengths of our scientific investigators with the needs of our world, both locally and globally.

AU currently has about 889,000 square feet of research space on the Health Sciences Campus, but it is not nearly enough. Based on recent growth and future projections, an additional 300,000 square feet of dedicated research space will be needed over the next 10 years.

The new research building will provide 150,000 square feet of space to create a physical environment that is centralized, advanced, flexible and conducive to collaborative discovery – particularly fostering clinical and bench-to-bedside research.

Fast Facts

- \$146.2 M cost
- 150,000 SF
- Support top-tier researchers
- Advance existing investigators
- Attract new researchers
- \$1 NIH funding = \$2.60 economic activity

About 70% of our health sciences research is housed in buildings that have reached or passed their useful lifespan.

The new research building is estimated to cost \$146.2 million. Augusta University is looking for philanthropic partners to invest a total of \$30 million with public funding providing the remaining cost.

Dr. Klaus Ley, center, leads a team working to develop treatments that utilize the body's immunity to reduce heart disease and strokes.

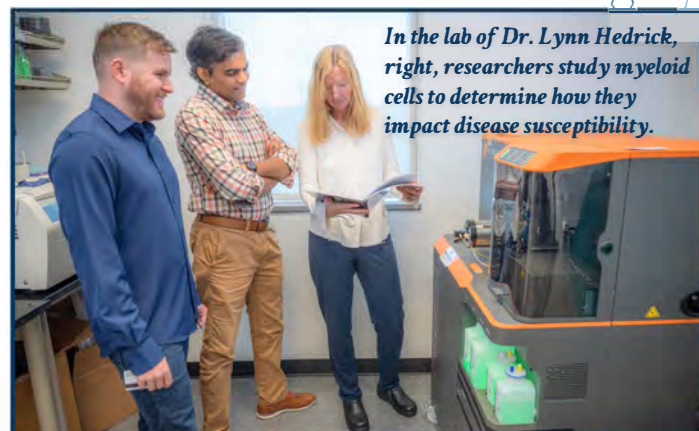
Unlocking Immune System Power

Immunology Center of Georgia brings experts together to study immune system

Preparing the body to better defend itself against health threats requires new approaches and unprecedented collaboration. This is what the Immunology Center of Georgia promises to deliver.

In 2022, leaders at the Medical College of Georgia recruited highly acclaimed scientists Klaus Ley, MD, and Catherine "Lynn" Hedrick, PhD, from La Jolla Institute of Immunology to launch and build the Immunology Center of Georgia. Ley and Hedrick, who are also Georgia Research Alliance Eminent Scholars, arrived with a clear vision and purpose: To improve human health by advancing discovery in immunology and vaccinology.

The IMMCG maintains a sharp focus on how to strengthen the immune system's ability to fight the nation's two leading killers: cancer and cardiovascular disease. In partnership with the best clinicians and scientists, the IMMCG is working to advance exploration, uncover knowledge and prepare the next generation of immunologists — all to benefit people everywhere.



In the lab of Dr. Lynn Hedrick, right, researchers study myeloid cells to determine how they impact disease susceptibility.

Unlocking the power and potential of the human immune system takes imagination, determination and collaboration. The immune system is essential to our health and well-being but also is a factor in most diseases, from heart disease and cancer to rheumatoid arthritis, multiple sclerosis and COVID-19.

These expanding efforts in immunology will enable the Medical College of Georgia to better address big questions about health and how to keep our immune system protecting us from disease rather than contributing to it, particularly as we age.

More research space will attract more top-tier researchers to collaborate for lifesaving discoveries.



Dr. Eric Belin de Chantemele analyzes metabolic disorders to determine why they lead to heart disease.

Fighting Cardiovascular Disease

Since 1995, the Vascular Biology Center has made strides in its mission to combat heart disease - the nation's No. 1 killer.

With the increasing frequency of obesity and diabetes, especially in Georgia, cardiovascular disease is reaching epidemic proportions.

The Vascular Biology Center at the Medical College of Georgia at Augusta University specializes in research to better understand the causes and to reduce heart attack, heart failure, stroke, hypertension, diabetes and related cardiovascular diseases.

A tight-knit group of clinicians and scientists collaborate with like-minded investigators from other fields of study across campus.

For example, working with the university's Georgia Cancer Center and Georgia Prevention Institute, the Division of Cardiology and Vascular Biology Center are examining gene variants that may help explain why African Americans are at higher risk for certain cardiac and metabolic conditions – but are protected against others – and why their prostate and breast cancer mortality rates are higher.



In the lab of Dr. Neal Weintraub, left, therapies for better treatment of aortic aneurysm are being developed.

MCG surpassed other grant applicants including the medical schools at Harvard and Vanderbilt to become one of only four centers to receive initial funding from the American Heart Association to study the link between heart disease and cancer, or cardio-oncology.

Cardiology Chair Neal Weintraub, MD, is on the cusp of moving into clinical studies for a new medical therapy for aortic aneurysm. The research also identified a promising biomarker that may help identify patients at risk for aneurysm, which would mean patients could be treated sooner than ever before. This could save many lives because aneurysms have an up to 90% mortality within 48 hours if left untreated or treated improperly.



The University System of Georgia Board of Regents recently named Babak Baban, PhD, (left to right) David C. Hess, MD, and David Munn, MD, as Regents' Entrepreneurs for their success in translating research into a commercial setting to improve patient care. Baban founded Medicinal Cannabis of Georgia, Hess created the lifesaving REACH telestroke network, and Munn has improved childhood cancer care through immunotherapy studies.

Supporting Scientific Breakthroughs

From early oral contraceptives to a modern, vibrating capsule for digestion, the Medical College of Georgia has been a leader in groundbreaking discoveries for 200 years.

While you are reading this, another investigator is testing a theory that could be the next scientific breakthrough to advance Parkinson's, sickle cell or obesity treatments.

Supporting science and research at Augusta University and MCG will benefit infants, children and adults throughout Georgia with innovative breakthrough translational treatments, discoveries and cures.

A new translational research facility will help expand knowledge and attract physician-scientists and researchers to Georgia and the Georgia research ecosystem.

It will serve as a collaborative space, bringing together dozens of basic scientists, clinical investigators and experts from different fields of study and attracting many new researchers to AU. An interdisciplinary approach will foster cooperation, knowledge sharing, and the potential for more groundbreaking discoveries that will positively impact Georgia and beyond.

Our groundbreaking research has advanced care or produced benefits related to:

- Alzheimer's and cognition
- remote stroke care
- heart and vascular care
- diabetes and obesity
- cancer immunotherapy
- digestive health and motility
- kidney transplant success
- traumatic injury and PTSD
- reproductive endocrinology
- antibiotic resistance
- infant blindness prevention
- pediatric brain tumors
- fetal and maternity care
- COVID-19 prevention
- and much more



Dr. Ted Johnson and his research team are studying IDO to identify ways to fortify the immune system to fight brain tumors in children.

Inventing New Treatments

Experts in pediatric immunotherapy are giving families hope and improving quality of life for children with cancer.

Immunotherapy is a treatment approach to cancer that harnesses the power of a patient's own immune system to attack cancer.

In the 1990s, Dr. David Munn and his colleague, Dr. Andrew Mellor, discovered the role of IDO (a vital enzyme) in protecting a fetus from being attacked by the mother's immune system during pregnancy. Dr. Ted Johnson was involved as an MD/PhD student at the time. They realized that many tumors use IDO to fool the immune system into tolerating rather than attacking the growing cancer; so, they developed drugs that block IDO.

Over the years, Drs. Munn and Johnson have been able to design regimens that produce an excellent quality of life for children with cancer, with minimal well-tolerated side effects, yet still utilize the tumor-killing power of chemotherapy and radiation.

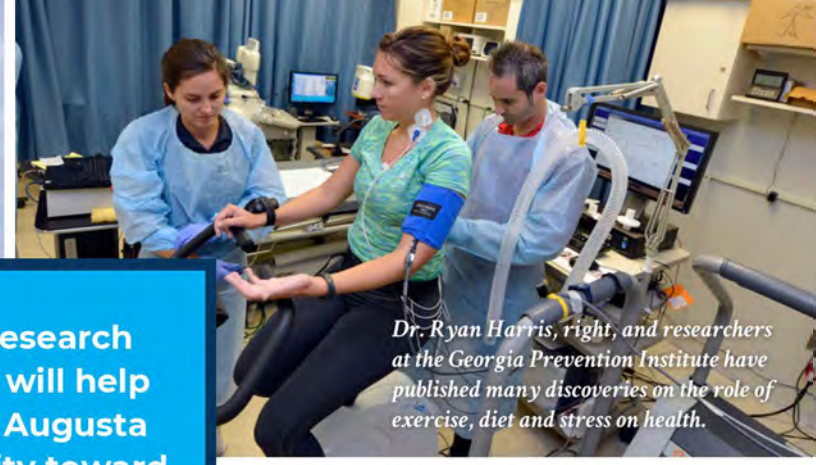
The ultimate goal is to achieve 10 times the treatment potency at one-tenth of the side effects.

Augusta University is a medical destination campus due to its unique clinical ability to provide innovative treatment in an intimate setting to diagnose and treat the most demanding medical challenges. Our translational research speeds lifesaving solutions from the bench to the bedside.

Our pediatric immunotherapy experts are working to improve quality of life for young cancer patients by limiting ultra-high doses of radiation or chemotherapy, allowing more at-home treatment and care. Their goal is to have children returning to school and other activities with more stamina.

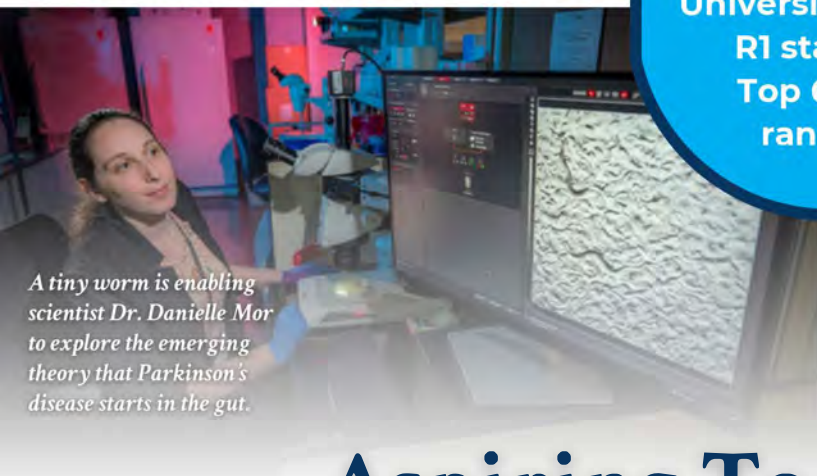


Dr. Guido Verbeck has developed drone technology to make detecting fentanyl easier and safer for law enforcement officers.

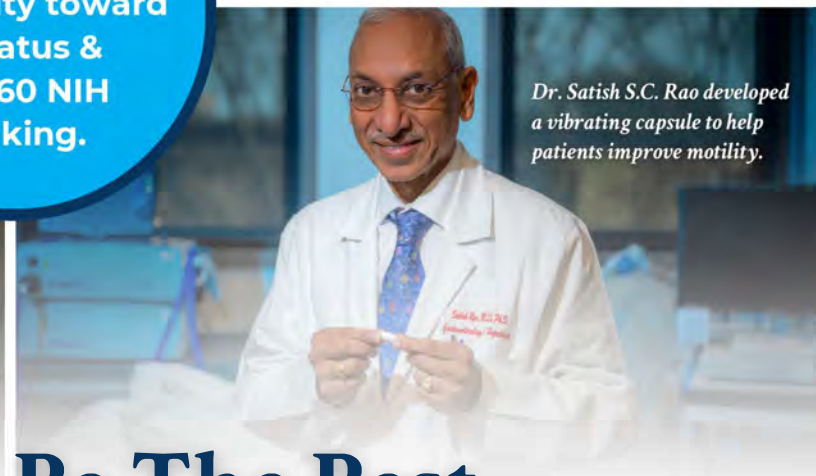


Dr. Ryan Harris, right, and researchers at the Georgia Prevention Institute have published many discoveries on the role of exercise, diet and stress on health.

New research facility will help propel Augusta University toward R1 status & Top 60 NIH ranking.



A tiny worm is enabling scientist Dr. Danielle Mor to explore the emerging theory that Parkinson's disease starts in the gut.



Dr. Satish S.C. Rao developed a vibrating capsule to help patients improve motility.

Aspiring To Be The Best

This **new research building** will propel Augusta University toward its aspirational imperative of becoming an R1 research university and earning a top 60 NIH-ranking by 2030.

The prestige and reputation of a medical school is strongly tied to the level of funding it receives from the National Institutes of Health. The Medical College of Georgia ranks 2nd in the U.S. in NIH funding per faculty member with medical schools less than 700 faculty.

In 2023, MCG NIH funding rose over 17% to total funding of \$60.5 million for MCG and \$62.5 million for Augusta University. MCG ranked 68 of 144 U.S. medical schools in research funding in 2023.

To increase in the NIH funding rankings, MCG needs more research faculty and more research space to house these faculty. This new research building will be a catalyst.

Research opportunities are vital to medical education

- Critical to graduate and undergraduate medical education by offering residents, fellows, and students a rich and robust research experience.
- Makes AU, MCG, and also Georgia, more attractive to residents and fellows, particularly in specialties beyond primary care.
- Research helps physicians make more informed decisions about patient care.
- Research is fundamental to modern health sciences education.

A Legacy of Discovery and Innovative Care

Dr. Virgil Sydenstricker, chair of the Medical College of Georgia Department of Medicine, publishes a report of the first documented case of sickle cell disease, with full autopsy findings.

1923

1945

Dr. Raymond P. Ahlquist, a pharmacologist and later MCG associate dean for basic sciences, publishes research that lays the groundwork for beta blocking drugs, which cause the heart to beat more slowly and with less force, lowering blood pressure.

Dr. William Hamilton, chair of the combined MCG Department of Physiology and Pharmacology, invents the Hamilton Manometer, which measures blood flow and pressure in the cardiovascular system, paving the way for cardiac catheterization.

1948

1956

Drs. Hervey Cleckley and Corbett Thigpen, psychiatrists and faculty in the MCG Departments of Psychiatry and Neurology, present the first case study documenting a patient displaying more than two personalities, resulting in the book and movie *The Three Faces of Eve*.

The first open-heart bypass surgery in Georgia is performed at the Medical College of Georgia by Dr. Robert Ellison.

1957

1968

Pediatric cardiologist Dr. William B. Strong and educator Dr. Maurice Levy founded the Georgia Prevention Institute to fill a void in education and research in health promotion and disease prevention. The GPI was allocated space in 1985 when Strong, Levy and Dr. Frank Treiber (first full-time faculty member and later director) received GPI's first National Institutes of Health grant to study the relationship of childhood diet and exercise on future heart disease.

MCG researchers set a world record for keeping a kidney alive for 5 days. This study helped prepare MCG surgeons for their first successful kidney transplant that same year at then Talmadge Memorial Hospital (now Wellstar MCG Health).

1985

1985

Physician-scientists in pediatric medicine at MCG introduced the Southeast's first ECMO machine – extracorporeal membrane oxygenation – a lifesaving heart-lung bypass for infants and children with critical health problems. ECMO gives the most vulnerable babies (and children) a fighting chance for survival, while pediatric specialists work to repair and restore normal heart and lung function.

1992

Neurologist Dr. Robert Adams and pediatric hematologist/oncologist Dr. Virgil C. McKie use painless transcranial Doppler as first noninvasive method for identifying children with sickle cell disease who are at risk for stroke. Later studies show that regular blood transfusions may significantly reduce stroke risk and help improve sickle cell treatment for children.

1995

Drs. David Munn and Andrew Mellor discovered that the enzyme IDO helps protect a fetus from attack by its mother's immune system during pregnancy. Munn, Mellor, and colleagues proposed that IDO1 could mediate immunosuppression. Dr. Ted Johnson became involved as an MD/PhD student. They realized many tumors use IDO to fool the immune system into tolerating cancer rather than attacking it; so, they developed drugs that block IDO. Munn and Johnson have created cancer treatment regimens (pediatric immunotherapy) for children with tumor-killing power and minimal side effects, improving quality of life.

Dr. John Catravas establishes the MCG Vascular Biology Center, creating a critical mass of accomplished researchers to focus on a single disease area and one particularly important to Georgia: cardiovascular disease. To date, the VBC is one of the most well-funded centers at MCG and across the state.

1998

To save lives and improve the outcomes of stroke patients in rural Georgia, neurologist Dr. David Hess helped develop the REACH remote stroke network in rural Georgia that now connects more than 20 hospitals. REACH enables timely stroke diagnosis and treatment by using the internet to eliminate distance between patients and stroke specialists. Hess co-founded and chaired the Board of Directors of REACH Health Inc., a telestroke company that spun out of MCG and now provides similar services for a variety of acute medical problems, connecting patients, physicians and hospitals worldwide.

2003

A groundbreaking study led by MCG allergist and immunologist Dr. Dennis Ownby overturns long-held beliefs and shows that children raised in homes with dogs and cats actually have less risk of developing allergies and asthma.

2004

The ribbon was cut on the M. Bert Storey Research Building at the Georgia Cancer Center, adding approximately 72,000 SF of lab and office space to foster bench-to-bedside research and ensure that patients have access to the nation's newest and most innovative clinical trials for blood disorders and cancer.


2018

Acute lung failure in adults brought on by the COVID-19 pandemic revealed a critical need for an adult ECMO program. Physician-scientists with MCG and its affiliated health system collaborated to create this interdisciplinary treatment in the adult hospital, which has been successful in saving the lives of adult patients. Both the pediatric and adult ECMO programs at Wellstar MCG Health have been internationally recognized as centers of excellence.

2020

The Medical College of Georgia establishes the Immunology Center of Georgia with a focus on how to strengthen the immune system's ability to fight the nation's two leading killers, cancer and cardiovascular disease.

2022



*With your partnership,
we can more quickly reach
the world with exponential
advances in science, medicine
and innovation.*

*Together,
we can do this.*

*Dr. Rafael Czepielewski's research
explores the relationship between
chronic inflammation, immune
response, and lymphatic vascular
systems, specifically in the context
of inflammatory bowel diseases and
cancer.*



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