

# CELLULAR BIOLOGY NEWSLETTER

## A Welcome from the Head



Dear CBIO Family,

As we welcome the new year, we're excited to reconnect and share the latest updates from the Department of Cellular Biology at the University of Georgia. This past year has been filled with advancements, new initiatives, and impressive achievements by our faculty and students.

Dr. Vasant Muralidharan made a breakthrough in malaria research, uncovering the role of a crucial protein in the *Plasmodium falciparum* parasite, offering new directions for vaccine and drug development. Dr. Nadja Zeltner earned a prestigious CAREER award for her work modeling human diseases using parasymphathetic neurons derived from stem cells.

We're also expanding educational opportunities. Dr. Sam Kurup launched a study-away program in Kerala, India, focused on zoonotic and veterinary disease diagnostics. Additionally, neuroscience initiatives are progressing, with more updates to come.

Dr. Julie Stanton was honored with the 2023-2024 Josiah Meigs Distinguished Teaching Professorship for her outstanding instruction.

Our graduate students continue to excel, with Baihetiya Baierna receiving an American Heart Association fellowship for her research on ubiquinone synthesis in *Toxoplasma gondii*.

This fall, we celebrated the completion of Phase 1 modernization of the Cedar Street Building C. The new spaces include labs, microscopy rooms, insect containment facilities, and more. As Taylor Medlock-Lanier, a doctoral student, shared at the dedication, "Moving into our new space has greatly increased opportunities for collaboration."

Thank you for your continued support. We look forward to another year of excellence and innovation.

### Highlights

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## CBIO Spring 2025 Seminars



**2/18/2025**  
**Bing Ye**  
Professor of Cell & Developmental Biology, University of Michigan



**2/25/2025**  
**Julia Gouvea**  
Associate Professor, Education; Biology, Tufts University



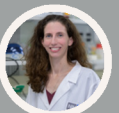
**3/11/2025**  
**Heike Kroeger**  
Assistant Research Scientist, Department of Cellular Biology, University of Georgia



**3/18/2025**  
**Sarah Kucenas**  
Professor of Biology, University of Virginia



**3/25/25**  
**Mayssa Mokalled**  
Assistant Professor of Developmental Biology, Washington University in St. Louis



**4/1/2025**  
**Erin Davies**  
Stadtman Investigator, Cancer and Developmental Biology Laboratory, NCI/CCR, NIH



**4/8/2025**  
**Nathan Schmidt**  
Associate Professor of Pediatrics; Adjunct Associate Professor of Microbiology & Immunology, Indiana University



**4/15/2025**  
**Radhika Subramanian**  
Assistant Professor of Genetics, Harvard Medical School

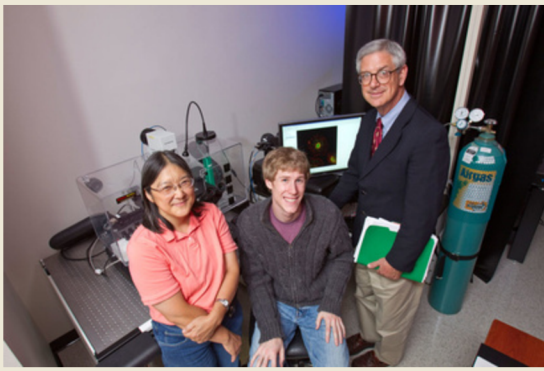


**4/29/2025**  
**Yi-Wei Chang**  
Assistant Professor of Biochemistry and Biophysics, UPenn

Room 404A, Biological Sciences Building, Tuesdays, 11:10 AM

**Coming soon: CBIO t-shirt**





## Recognizing Excellence in Student Achievement with the Fechheimer and Furukawa Award

*By Julie Stanton*

Cellular Biology has a long tradition of excellent research mentoring, exemplified by our emeritus colleagues, Dr. Marcus Fechheimer and Dr. Ruth Furukawa. During their time as faculty in the Zoology and then Cellular Biology Departments, Marcus and Ruth mentored numerous graduate and undergraduate students in their lab.

Following their retirement, Marcus and Ruth worked to establish the Fechheimer and Furukawa Award for Excellence by Students in Cellular Biology. The goal of the award is to acknowledge and promote excellence of undergraduate and graduate students in the department with funding to support their scholarly endeavors.

In a recent conversation Marcus said, "After working for over 30 years at UGA, Ruth and I were pleased to be able to create an endowed fund that would recognize excellent academic achievement and contribute to the personal growth and continued success of students."

The award recognizes unusual curiosity and accomplishment in a Cellular Biology course, major, or research lab, and can be used for scholarly endeavors such as conference travel or research training courses. This type of support can be difficult for students to obtain, yet it is vital for their scientific careers. Since the inaugural year in 2024, five students have been recognized with Fechheimer and Furukawa Awards.

Ruth shared, "It has been a joy for us to see our students excel at UGA and then in pursuit of personal and professional goals. It is truly rewarding that some of our colleagues and former students contributed to this fund. We are grateful to have been a part of such a wonderful community."

For more information about the Fechheimer and Furukawa Award, please visit <https://cellbio.uga.edu/scholarships-awards>

## The Grace Thomas Award

*By Kim Klonowski*



*Dr. Grace Thomas (in 1974) when she was given an award for teaching excellence by the Association of Southeastern Biologists.*

Dr. Grace Thomas joined the UGA Department of Zoology in 1957 which later split into many units including the Department of Cellular Biology as well as the Odum School of Ecology. Dr. Thomas' research activity was focused on freshwater bivalves. There are over 10,000 freshwater mussel specimens collected by Dr. Thomas currently housed at the Georgia Museum of Natural History in the Grace Thomas Invertebrate Collection.

In addition to her research, Dr. Thomas was widely recognized for her classroom instruction and student mentoring. She was awarded a 1974 "meritorious teaching" award by the Association of Southeastern Biologists, and to this day an award is named for her in the Department of Cellular Biology. The award recognizes an outstanding graduating Cellular Biology senior that has excelled in several areas associated within the cellular biology discipline, including classroom, seminar & research performance.







## ***Gordhan Patel***

*Dr. Gordhan Patel, Emeritus Professor of Cellular Biology, reflects on the history of the department, which he joined in 1967, when it was still the Department of Zoology.*

*In addition to a distinguished career in research, Dr. Patel served as Head of the department, Dean of the Graduate School, and as interim Vice President for Research and Vice President for the Research Foundation.*

# **Brief History of the Department of Zoology at the University of Georgia**

***by Gordhan L. Patel***

Zoology was one of the oldest biology departments on UGA campus and was located on the North Campus. Some of its distinguished faculty:

·**George Boyd** was department Head, Dean of the Graduate School, and Director of General Research, which became the Office of Vice President for Research in the late 1960's.

·**Eugene Odum** joined the department as an assistant professor and was considered the Father of Systems Ecology. He gained international reputation through his publications and the seminal textbook, "Principles of Ecology" which was adopted widely as the text book. He was awarded the Crafoord Prize, considered the "Nobel Prize for Ecology", in 1987 in Sweden.

·**Barkley McGhee** was head of the department, Alumni Foundation Distinguished Professor as well as President of the National Society of Parasitology.

·**William Cosgrove** was a distinguished parasitologist, who served as the Head of Zoology and shepherded the growth of the Department. In the mid-1960s, he secured NSF funds for the Division of Biological Sciences, which allowed for accelerated development of life sciences at UGA.

·**Horace Lund**, along with other entomologists, split off from Zoology and formed the Department of Entomology along with entomologists from the College of Agriculture.

·**Norman Giles**, member of the National Academy of Scientists. He led the development of Genetics at UGA.

The Franklin College of Arts & Sciences was organized into five Divisions some time in the late 1950's. Zoology along with Botany, Microbiology, Entomology and Biochemistry became the Division of Biological Sciences with Don Scott, a limnologist as Division Head. Also, in the 1950's, the Department of Zoology, along with other science departments moved to the South Campus into new buildings.

In mid-1960's, the Division of Biological Sciences was successful in securing a five-year development grant from the National Science Foundation in the amount of \$8.7 million. This was supplemented with \$3 million by Governor Carl Sanders. With this total of \$11.7 million, the five departments embarked on a hiring spree! This led to a major growth of all departments in the Division of Biological Sciences.

For the Zoology Department under the headship of William Cosgrove, many of the marine ecologists moved from the Marine Institute on Sapelo Island, that was created by Eugene Odum to the Athens campus. This group was Dirk Frankenberg, Frank Golley, Bob Johannes and Larry Pomeroy, who was a distinguished marine ecologist. Also, others recruited under The Cosgrove headship were Stewart Coward, Gordhan Patel, J.H.D. Bryan, Peter Thompson, Walt Humphreys, Jerry Paulin, Moises Agosin, and Ellen Mattingly.

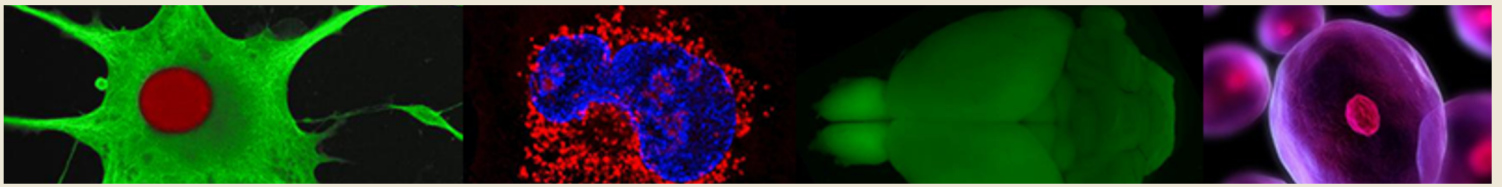
In 1972, the Headship of Zoology moved to Peter Thompson. Under the Thompson headship the following members were recruited: Judy Meyers, Jim Porter, and Ray Damian.

In 1969, the Department of Zoology was awarded an endowment by the Callaway Foundation, which led to the recruitment of Norman Giles, a distinguished geneticist at Yale University who was a member of the National Academy of Sciences. With funding from the NSF development grant, Giles recruited an interdepartmental faculty across the Biological Sciences Division. This group secured a training grant from the National Institutes of Health and created a graduate degree program in genetics. Some of the members of this group were: Wyatt Anderson, Mary Case, and John Avis in Zoology; Dan Vapnek and Bruce Carlton in Microbiology; and Sidney Kushner and Ron Cole in Biochemistry; Sue Wessler in Botany. In 1979, this group of geneticists formed a separate Department of Genetics under the headship of Wyatt Anderson.

In 1981, Peter Thompson stepped down from Zoology headship and the faculty, after an internal search, selected Gordhan Patel to head the Department. From 1981 to 1989, the following faculty joined the Department: Gene Helfman, Rick Tarleton, Marcus Fehheimer, Charles Keith, Bill Fitt, Ron Pulliam, and Karen Porter. Under Patel headship, with funding from NSF and UGA Vice President for Research, the first flow cytometry facility was created on campus.

In July 1989, Patel was appointed to the Deanship of the Graduate School. After one year of Zoology under Larry Pomeroy, Judy Willis was recruited from the University of Illinois to be the Zoology Head. After her brief headship, Zoology was fragmented into the Departments of: Ecology, Marine Sciences, and Cellular Biology.

image source: <https://boomathens.com/ugas-midcentury-buildings-signaled-a-new-era/>



## Who Is Who In CBIO Labs

### ACCESS (Tati Russo-Tait)

The ACCESS lab examines equity and justice issues in college biology/STEM education, with the goal of supporting the development of critically conscious scientists, educators, and administrators who can design humanizing learning environments and equity-minded culture, policies, and institutions.

### Oshri Avraham

Our lab develops advanced genetic tools to identify and distinguish dozens of glial cell types and track their dynamics throughout development. These tools enable precise investigation and manipulation of peripheral glial cells, providing insights into their functions in maintaining health and uncovering their behavior and roles in the context of neurological diseases.

### Roberto Docampo

The Docampo lab studies calcium homeostasis and signaling in trypanosomes causing Chagas disease and sleeping sickness. Current efforts are in elucidating the role of calcium channels (InsP3 receptor, mitochondrial calcium uniporter, voltage dependent calcium channel, and Piezo channels), and in the association of calcium to polyphosphate in acidocalcisomes, organelles widely distributed.

### Scott Dougan

The Dougan lab studies axis formation and cell fate decisions in early vertebrate development, using zebrafish as a model system. The presumptive Anterior-Posterior body axis is established during oogenesis by an unknown mechanism that requires ciliary microtubules that transiently appear on oocytes. Our current research focus is to understand how ciliary function polarizing oocytes.

### Jacek Gaertig

The Gaertig lab studies how organelle patterns form inside cells. Using the model ciliate Tetrahymena and genetic approaches, we explore how cells determine the number, size and positions of organelles (such as cilia) in relation to the cell polarity axes.

### Edward Kipreos

The Kipreos laboratory studies the role of folates (a B vitamin) in signaling. In *C. elegans*, folates stimulate the proliferation of germ stem cells and activate serotonergic neurons to control behavior. The laboratory also works on how cullin-RING ubiquitin ligases are globally regulated to control protein degradation.

### Kim Klonowski

We study T cell immunity to respiratory infection across the lifespan. Using primarily mouse models of influenza infection, we seek to understand how T cell responses are regulated in the lung microenvironment to confer protection without prolonged damage to the host. These processes are distinct in earlier versus later in life and understanding these differences is crucial for developing age-appropriate vaccines.

### Heike Kroeger

We investigate vision loss caused by cellular stress signaling, focusing on the role of endoplasmic reticulum homeostasis in maintaining retinal health. Using stem cell models and an innovative lizard model, we study cone photoreceptor cells critical for color vision. Our research aims to uncover mechanisms driving vision loss to develop targeted therapies.

### Sam Kurup

The lab is focused on understanding the mechanism of natural and acquired immunity to malaria investigating the cellular and molecular pathways that help detect and control Plasmodium parasites in the liver and blood stages of the infection. Our goal is to understand the immunology of malaria in order to help design vaccines and drugs that can control and eliminate malaria.

### Karl Lehtreck

Cilia and flagella are widely distributed cell organelles with motile and sensory functions. Loss of cilia function causes diseases characterized, e.g., by male infertility, blindness, skeletal malformations, and kidney cysts. Using in vivo imaging, biochemistry and molecular genetics in the unicellular model *Chlamydomonas*, we analyze how disease-related mutations affect cilia assembly and function.

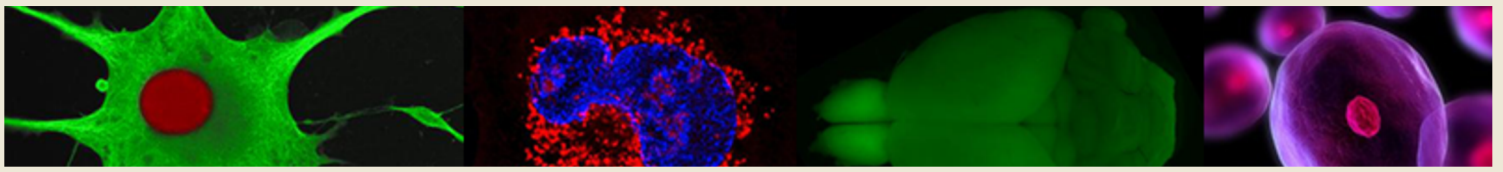
### Silvia Moreno

The Moreno lab studies calcium signaling and its role in the pathogenesis of *Toxoplasma gondii*, an apicomplexan parasite responsible for serious disease in humans and animals. Drug discovery and target validation is an additional area of interest with focus on divergent mitochondrial proteins. The lab uses a variety of cellular and molecular tools.

### Rachel Roberts-Galbraith

After injury, an organism must mount a series of responses to minimize and repair damage. Humans regenerate relatively poorly, but other organisms—like planarian flatworms—regenerate perfectly after any injury. We study planarians to discover the cells and molecules that drive regeneration, with hopes to inspire future regenerative therapies.





## Who Is Who In CBIO Labs

<b>Cordula Schulz</b>	<b>Julie Stanton</b>	<b>Rick Tarleton</b>	<b>Nadja Zeltner</b>	<b>Mark Farmer</b>
<p>We study stem cells in the gonad of <i>Drosophila melanogaster</i>, focusing on their interactions with environment cells that regulate activity and gametogenesis. Using genetic, molecular, and cell-biological approaches, we investigate how stem cells produce differentiated daughters in response to demand and how these daughters manage amplification divisions.</p>	<p>The overall goal of the Stanton lab is to support learning and persistence in undergraduate science majors. Our biology education research lab focuses on (1) metacognitive development of life science majors, (2) Community Cultural Wealth of Black students in biology, and (3) the experiences of science students from rural backgrounds.</p>	<p>We work exclusively on the protozoan parasite, <i>Trypanosoma cruzi</i>, the cause of Chagas disease, taking a wide-ranging approach to understand the host- (human, dog, macaque and mouse in our case) parasite interaction and are particularly interested in immunological, molecular, biological and bioinformatic studies that have a potential for identifying therapeutic interventions for this infection.</p>	<p>Our lab's main research interests have the common goal to advance the understanding of human disorders and find novel treatments. We are using human pluripotent stem cells (hPSCs) to generate cell types specifically affected in disorders of the peripheral nervous system (PNS). These cells are utilized to establish human in vitro disease models to gain molecular mechanistic insight into the diseases.</p>	<p>The Farmer lab explores the origins of the eukaryotic cell from prokaryotic ancestors. Using a variety of molecular and morphological tools he explores the diversity of Eukaryotic life forms (particularly protists) to better understand what the earliest evolving cells with nuclei were like.</p>

### Graduate Students Association

Happy New Year from the Cellular Biology Graduate Student Association (CBGSA)! We hope 2025 is off to a great start for everyone. A special welcome and best wishes for success to our newest graduate students: Camila Gomes da Silva, Melissa Rogers, Alam Munoz-Beristain, Victoria Sanberg, Michael Valdes, and Woodward L. Young!

We'd also like to thank everyone who attended last year's Holiday Party—your presence made the event a wonderful success!

Looking ahead, CBGSA has exciting plans for 2025, including ILS recruitment activities such as poster sessions and guided tours of Coverdell and our brand-new building. We're also organizing a mental health check-in event with fun painting activities, along with other social gatherings. Plus, CBIO T-shirts will be available soon—stay tuned!

If you're a student interested in getting involved with CBGSA, feel free to reach out to Disha BR ([disha.bangalorerenukprasad@uga.edu](mailto:disha.bangalorerenukprasad@uga.edu)) or Aylla von Ermland ([ayllae@uga.edu](mailto:ayllae@uga.edu)) for information on our meeting schedule.

### Undergraduate Students Association

The Cellular Biology Undergraduate Club is dedicated to fostering a supportive network for social and professional development among cellular biology majors and any student with an interest in the field. Our mission is to bring together students passionate about cellular biology, showcase the benefits of the major, promote research and post-graduate opportunities, and strengthen connections between students and faculty to cultivate a more inclusive and productive academic community. For more information or to get involved, please contact us at [jts37282@uga.edu](mailto:jts37282@uga.edu).



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