

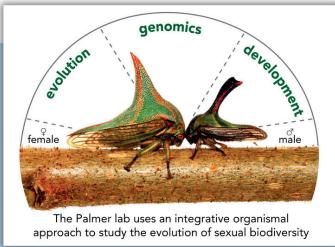
# Biology Faculty Research Profiles

## Dr. Daniela Palmer

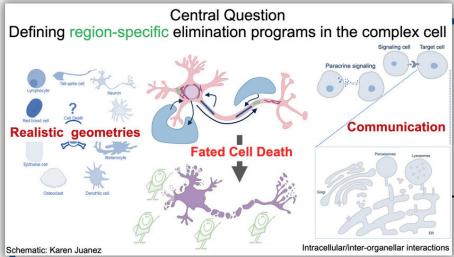
Assistant Professor

[treehoppers.org](http://treehoppers.org)

In the Palmer lab, we study the evolution of biodiversity from genomes to organisms. We are especially interested in sexual traits and their genetic and developmental underpinnings. insects called treehoppers that show remarkable diversity in their genomes, morphology, and behavior.



The Palmer lab uses an integrative organismal approach to study the evolution of sexual biodiversity

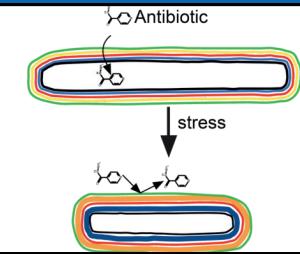


The Ghose lab studies the programmed death and clearance of cells of complex structure in the living animal. Using the model organism *C. elegans* and advanced imaging and CRISPR techniques, we aim to understand how complicated structures, such as neurons, die and how cells communicate with one another in the context of programmed cell death.

## Dr. Piya Ghose

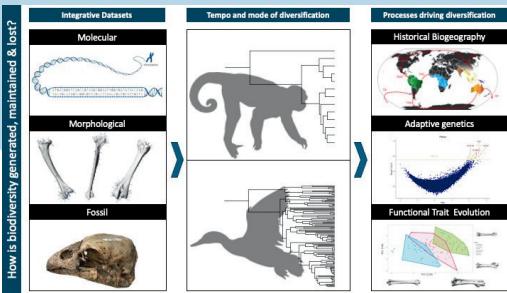
Assistant Professor

[ghoselab.uta.edu](http://ghoselab.uta.edu)



In the Boutte Lab, we study how mycobacteria build and alter their cell walls in different conditions. The mycobacteria include the pathogen *M. tuberculosis*, and our work helps us understand how *Mtb* survives infection and antibiotic treatment. Regulation of the cell wall under stress leads to tolerance to antibiotics, which complicates treatment.

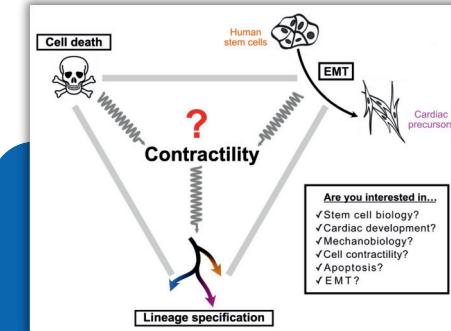
The IDER lab integrates genetics, morphometrics and paleontological data to understand the drivers of biodiversity and adaptation in terrestrial tetrapods. By building comprehensive phylogenies, we can investigate adaptive genetic and phenotypic traits in the context of evolutionary ecology.



## Dr. JC Buckner

Assistant Professor

[iderlab.org](http://iderlab.org)

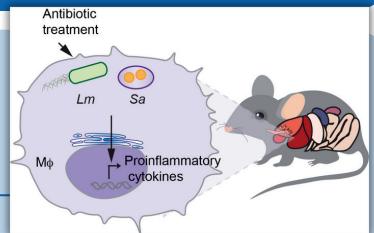


The Fort Lab investigates how human stem cells become cardiac cells. We are especially interested in understanding how physical forces, such as contractility, and the ways cells adhere to one another, influence these decisions. By combining stem cell models with advanced imaging and molecular tools such as CRISPR, we aim to uncover the rules of human development and how these processes are disrupted in patients with congenital heart disease.

## Dr. Qing Tang

Assistant Professor

[qingtanglab.github.io](http://qingtanglab.github.io)

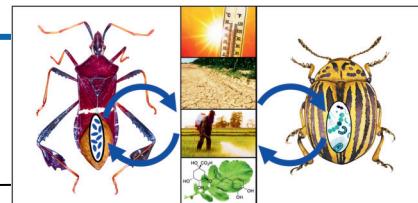


The Tang lab focuses on uncovering the mechanisms underlying antimicrobial resistance and host-bacterial interactions in infectious diseases. Using cutting-edge, multidisciplinary approaches together with tissue culture and animal infection models—we aim to understand how antibiotics influence bacterial physiology and pathogenesis, and how these processes, in turn, affect host immune responses.

## Dr. Alison Ravenscraft

Assistant Professor

[ravenscraftlab.com](http://ravenscraftlab.com)



Ravenscraft Lab aims to understand how an insect's gut microbiota impact ecosystem-level processes. We study a wide range of species, from leaffooted bugs to Colorado potato beetles. We ask whether, when, and how much the gut microbiota influence insects' ability to withstand stressors like climate extremes, pesticides, and the natural chemical defenses of plants.

## Dr. Woo-Suk Chang

Professor

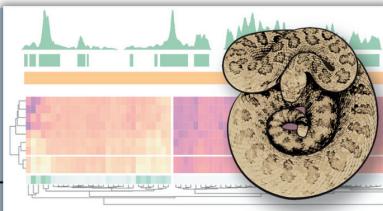
[climatesmartsoybeans.com](http://climatesmartsoybeans.com)

The Chang Lab focuses on soil microbiomes related to climate change and probiotics-related human gut microbiomes. We collaborate with farmers to implement climate-smart practices aimed at reducing greenhouse gas emissions. The lab also studies the effects of fermented soybean products on gut health and microbiome composition.

## Dr. Todd Castoe

Professor

[castoelaboratory.org](http://castoelaboratory.org)



The Castoe Lab studies genome biology and evolutionary genomics, focusing on how genomes evolve and function, and on how novel or extreme traits arise. We use snakes as models to investigate gene regulatory networks, regeneration, and speciation, and schistosome parasites to address questions relevant to disease transmission and human health. Our research integrates large-scale population and functional genomic datasets with computational approaches.

## Dr. Anita Quintana

Associate Professor

The Quintana lab studies brain and facial development. We use zebrafish to understand how changes to cholesterol and vitamin B12 metabolism disrupt development and cause disease. Our research helps to understand more about genetics, metabolism, and development. A deeper understanding of development may help to prevent or reduce the prevalence of birth defects.

## Dr. Esther Betran

Professor

[betranlab@uta.edu](mailto:betranlab@uta.edu)

The Betran Lab is interested in novelty in the genomes. We focus on the origin of new genes and their functions. We try to understand their role in genome evolution, adaptation and species differences. The model organism we use for this is *Drosophila* and the current projects are on duplicated genes and genes "domesticated" from transposable elements.

## Dr. Alicia Rogers

Assistant Professor

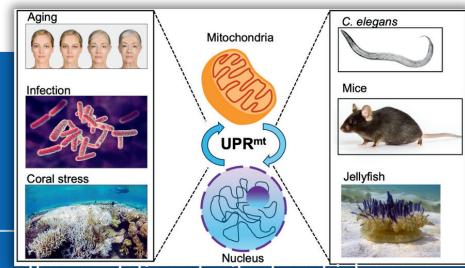
[akrogerslab.org](http://akrogerslab.org)

The Rogers Lab seeks to understand how small RNA-mediated gene regulation maintains robust execution of cellular and physiological processes during normal and stress conditions. We aim to establish a comprehensive map of the regulatory logic embedded within small RNA pathways that coordinates pathway homeostasis and gene expression.

## Dr. Mark Pellegrino

Associate Professor

[pellegrinolab.uta.edu](http://pellegrinolab.uta.edu)



The Pellegrino lab studies the regulation of mitochondrial recovery by the pathway known as the mitochondrial unfolded protein response (UPRmt). We are investigating the role of the UPRmt in aging, host-pathogen interactions/ immunity, and coral stress resistance. We employ multidisciplinary approaches in the study of the UPRmt and leverage various model systems, including the nematode *C. elegans*, the jellyfish *C. xamachana*, and mice

## Dr. Laura Mydlarz

Professor

[themydlarzlab.com](http://themydlarzlab.com)

The Mydlarz Lab investigates coral disease and immunity, with a focus on the mechanisms that drive resistance and susceptibility. Using next-generation sequencing and gene expression analyses, the lab decodes complex immune pathways and links them to organismal responses. The lab is focused on understanding coral immune responses to coral diseases in the Virgin Islands. We aim to advance strategies to protect coral reefs and preserve ecosystem resilience.

## Dr. Shane DuBay

Assistant Professor

[shanedubay.com](http://shanedubay.com)

We use natural history collections to understand environmental change and its diverse impacts. Work in the lab focuses on urban ecology and evolution, environmental health, and environmental justice.

## Dr. Luke Frishkoff

Associate Professor

[frishkofflab.wordpress.com](http://frishkofflab.wordpress.com)

The Frishkoff Lab studies how biodiversity evolves and is maintained across scales, and how human activities shape ecological and evolutionary patterns. We conduct field research on reptiles and amphibians in Texas, the Caribbean, and Central and South America to explore whether independent speciation events in different regions produce ecologically similar communities without shared species.



## Dr. Matt Walsh

Professor

[walsh-lab.uta.edu](http://walsh-lab.uta.edu)

The Walsh Lab is broadly interested in the connection between ecological processes and patterns of phenotypic change. We utilize field and lab approaches to better understand how and why evolution occurs in fish on the island of Trinidad and plankton in lakes in Alaska.

For more information about the Department of Biology visit our website or contact [askbiology@uta.edu](mailto:askbiology@uta.edu)

