How cells, tissues, & organs function

The atmosphere in UTMB's Cell Biology Program is one of rigorous academic inquiry combined with intellectual and technological resources. The program is designed to help you meet your highest scholarly and career goals. It emphasizes research training built on a foundation of core courses, with an outstanding faculty sharing unique expertise in advanced techniques. As a grad student, you will help pioneer the development and application of these techniques, and become equipped for the constantly changing scientific world and career opportunities that await you upon graduation.

Research Opportunities

The Program [https://www.utmb.edu/ncba](https://www.utmb.edu/ncba)

The multidisciplinary Cell Biology Program is an interdepartmental program, designed to provide the academic and research skills necessary to develop and investigate hypotheses regarding all aspects of morphology, physiology, biochemistry, genetics, and development of cells, tissues, and organisms. The program strives to:

- Impart a foundation of knowledge about the basic science underlying our understanding of how cells, tissues, and organs function;
- Foster an integrated education that includes projects which focus on molecular, cellular, and whole-animal systems;
- Provide laboratory experiences that allows students to conduct independent research and contribute to our knowledge base;
- Afford students with an opportunity to learn how to effectively communicate their research and its underlying science.

The curriculum emphasizes the development of research, teaching, and communication skills. It provides a strong background in cell and molecular biology, with opportunities to pursue specific interests in greater depth. Students learn how to teach and present seminars, and how to write and defend research proposals. You’ll be at the vanguard of current research topics and techniques, and you may choose from a wide variety of research concentrations.

The Cell Biology Graduate students elect officers of a student body, named Society of Cell Biology graduate students (SoCB), which organizes several events including an annual Cell Biology Symposium and monthly journal clubs, and all students in the program are expected to take part in

### Research Opportunities in the Following Research Areas (Research Directors)

1. Neuronal cell biology: development, trauma, regeneration, neurodegenerative diseases, vision and other senses (Zhang/Kayed)
2. Reproductive and Placental Biology (Menon and Saade)
3. Neuroimmunology (Cai and Tang)
4. Nutrition and Metabolism (Rasmussen and Fry)

Other areas of research opportunities (Faculty with expertise in the research areas)

1. Stem Cells/Wound Healing and Cancer (Herndon/Sowers/Singh/Emmett/Wu/Finnerty/Enkhbaatar)
2. Infectious and Immune diseases, and role of Microbiota (McBride/Cong/Pinchuk)
3. Organ response to drugs and toxins (Elferink, C; Ameredes, B)
these activities, and offer to serve on the committees.

Timetable [https://gsbs.utmb.edu/course-descriptions/cell-biology-graduate-program-(cell)]

You will take the Basic Biomedical Science Curriculum courses and do at least three (7-week) laboratory rotations during the first year. You are expected to have selected the laboratory and mentor with whom you want to do your dissertation research by the summer of year 1. You’ll take advanced courses in Cell biology and other areas, based on the focus of your chosen specialty, in the summer of year 1 and in the fall of year 2. Upon completion of course work, you’ll appear for your qualifying exams as part of the requirement for admission to candidacy, and concentrate on your dissertation research thereafter. It is expected that during the fifth year, you’ll complete your proposed dissertation research and successfully defend your dissertation.

Benefits

Your benefits include a graduate assistantship stipend of $29,000 in addition to comprehensive health insurance coverage, valued at over $6,200/year. Dependent coverage, and dental and vision plans are available for a nominal charge. Your tuition and fees are paid. Other benefits include free membership in the Field House, a free Student Wellness center, and discounts at many local businesses and restaurants.

Facilities/Community

You’ll use the latest techniques in the laboratories of the cell biology faculty, and use the many core services available to all researchers at UTMB, as described below:

- A DNA Recombinant Laboratory that aids in sequencing DNA, transcriptomes and non-coding RNAs and conducts DNA microarray analysis;
- Transgenic Core Facilities that support generation of transgenic and knockout mice;
- Next Generation Sequencing (NGS) Core utilizes an Illumina HiSeq 1500 sequencing system to perform massively parallel sequencing for genetic analysis;
- An advanced bioinformatics facility for analysis of genomic, proteomic and metabolomics data, and provide group training and support software development for high-end users;
- A leading-edge proteomic core facility that analyzes known and unknown proteins using mass spectrometry, proteins by NMR, LS/MS, protein chips, and the latest technology in proteomics and aids investigators in expressing large-scale proteins;
- Unique electrophysiological setups in various laboratories that measure ocular, auditory, and pain responses;
- Microinjection and confocal microscopy that examines function of specific molecules at the single-cell level;
- A small-animal in vivo imaging and MRI facilities that measures changes in specific body components;
- A state-of-the-art NMR facility that analyzes structure-function relationships of molecules;
- A highly sophisticated video image analysis system that scores changes in protein and RNA expression at cell and tissue levels;
- And a well-furnished clinical research center that supports translational research.

Research-specific equipment is available in the laboratory of cell biology faculty that allows you to perform your investigations.

Application Information [https://www.utmb.edu/OnlineApp/Login_Main.asp?strPurpose=ViewApplication]

Graduate students are selected on the basis of academic achievement, degree of motivation, and promise for future careers in the biomedical sciences. When you enter the program, you’ll enroll in an academically rigorous degree plan, tailored to your individual background and interests, with strong emphasis on independent laboratory research.

For more information:
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For ADA information, please contact:
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Scan this QR code on your phone to link to the Cell Biology website.