



Therapeutic Sciences Graduate Program



BROWN

Division of Biology and Medicine

The ***Therapeutic Sciences Graduate Program (TSGP)*** offers advanced training appropriate for academic and research careers in the fields of biology and medical sciences with a focus on determining disease mechanisms and drug actions, and developing novel therapies. The program is funded in part by an NIH training grant (T32) through the NIGMS Program in Pharmacological Sciences. Some features of our PhD program include:

- Small labs, allowing extensive, close, one-on-one faculty-student interactions
- A very diverse, welcoming and inclusive environment (students are 60-65% women, 40-45% from underrepresented groups; 17% of faculty trainers are from underrepresented groups, and 25% are people of color)
- Interdisciplinary with many state-of-the-art methods and supportive collaborations across departments
- Campus- and hospital-based labs, basic and translational science
- Minimal course requirements, and personalized advising, allowing curricular flexibility and customization
- Numerous elective courses on a large variety of topics, presented in Brown's tradition of stellar teaching
- Better mentoring and respect promotes better retention: over the last 20 years, our retention has been >94% overall, >96% of underrepresented students; alumni(ae) outcomes also are outstanding
- Strong connections with industry in pharmaceutical and biotechnology fields (industry internship under development), and an affiliated Biotechnology Master's program

Just a few of our available courses:

- Survey of Modern Therapeutics
- Molecular Pharmacology & Physiology
- Molecular Targets of Drug Discovery
- *In Vitro* Models of Disease
- Cancer Biology
- Stem Cell Engineering
- Biomolecular Interactions: Health, Disease and Drug Design
- Quantitative Approaches to Biology
- Drug and Gene Delivery
- Advanced Molecular & Cellular Neurobiology
- Chemical Biology
- Topics in Signal Transduction

Examples of research topics in the program:

- ◆ NMR and X-ray structures of interacting proteins, and their roles in disease
- ◆ Mechanisms of cancer metastasis, and its treatment
- ◆ Studies of drug targets in the immune system for treating infectious diseases
- ◆ Mechanisms of synaptic plasticity and circuit function in the brain
- ◆ Mechanisms of addiction to alcohol, opiates and other drugs
- ◆ Development of antimicrobials
- ◆ Stem cell differentiation and regulation, and their therapeutic uses
- ◆ Development of drug and gene delivery methods
- ◆ Cell & tissue based therapies
- ◆ Nerve degeneration in alcoholism, fetal alcohol syndrome and Alzheimer's disease
- ◆ Nanoscale mechanical properties of cells, and their role in organ function and disease
- ◆ Mechanisms of cardiac and respiratory diseases and their treatment
- ◆ Mechanisms of sensory transduction in the eye and skin

Our Website:

<https://www.brown.edu/academics/tsgp/>

Program Coordinator: Ms. Jessica Bello, 401-863-3262 TSGP@brown.edu

Program Co-Director: Dr. Anita Zimmerman, Anita_Zimmerman@brown.edu