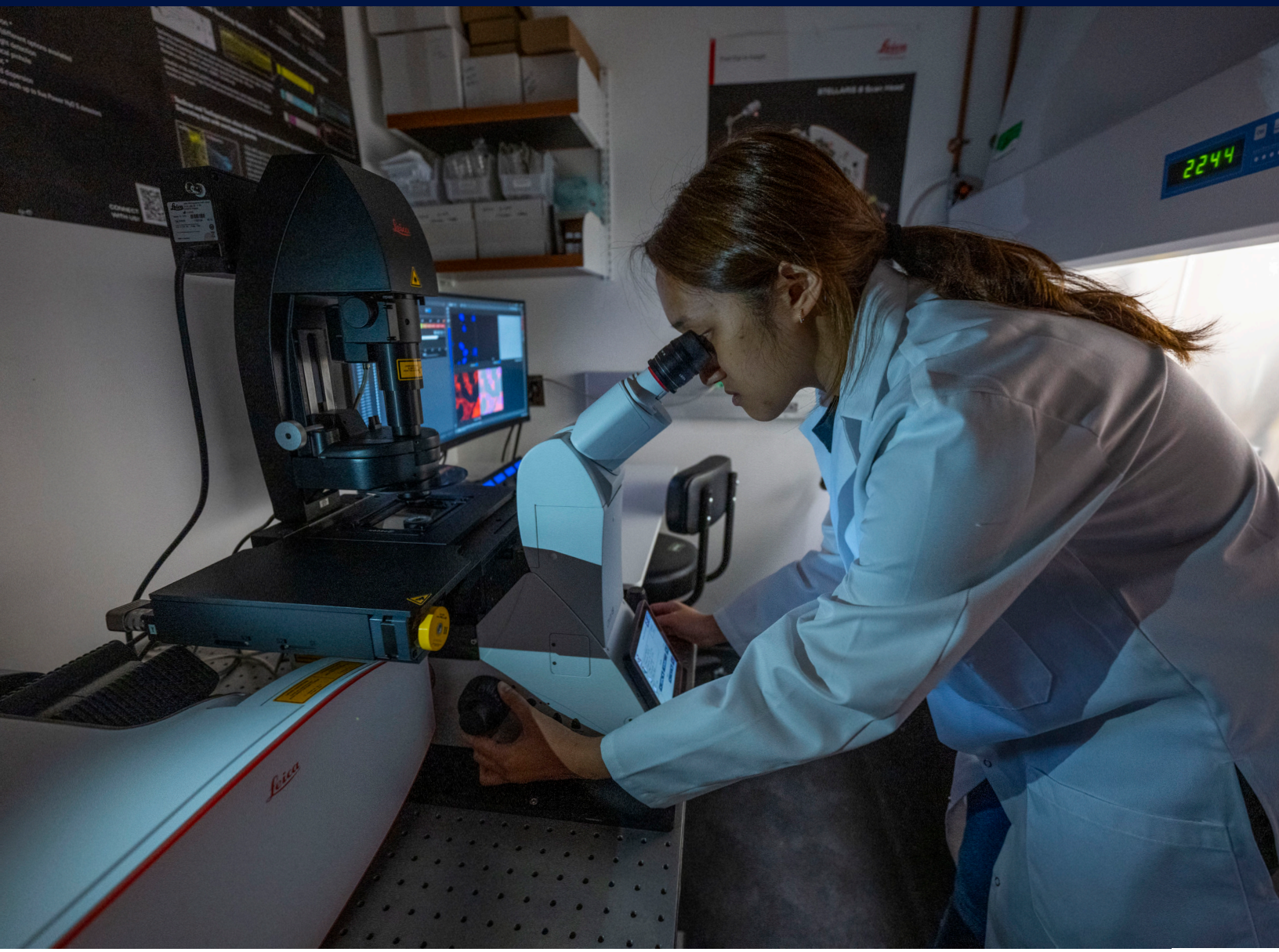
UCONN | SCHOOL OF PHARMACY



Department of Pharmaceutical Sciences

A graduate student works with USP Dissolution Apparatus II to test the sustained release formulations.

Pharmaceutical Sciences at UConn: Innovative, Entrepreneurial, Connected to the World

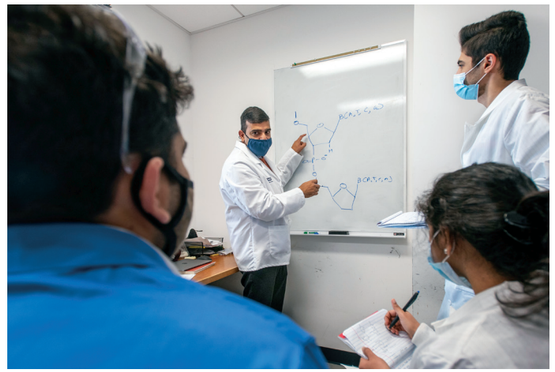
Part of the nationally acclaimed School of Pharmacy, UConn's Department of Pharmaceutical Sciences allows our graduate students to customize their studies to align with their research interests, collaborate with world-renowned faculty, and pursue specialized training to complement their core studies.

With 18 faculty members, UConn's Department of Pharmaceutical Sciences offers expertise in Pharmaceutics and Medicinal Chemistry, as well as Pharmacology and Toxicology. Our faculty, whose research and discoveries have resulted in patents, contracts, and improved health worldwide, are eager to mentor those who share their passion to contribute to the global scientific community. At UConn, our graduate students enjoy a robust partnership with their faculty mentors.

In addition to specialized research training in areas such as drug discovery, mode of action, drug formulation, and safety, all disciplines have unique core courses providing fundamental concepts critical to each discipline. Our department enjoys significant success in placing our Pharm.D. and Ph.D. graduates both locally and nationally in government, industry, and academia.

The flexibility of our program also allows Pharm.D. candidates to customize their studies to garner additional expertise within pharmaceutical sciences and related research. Designed for students who want to work as a pharmacist for a pharmaceutical company or are planning to pursue a joint Pharm.D./Ph.D. degree, this course of study allows a wide range of options and offers easy integration with existing science minors and UConn's pharmacy program.

Raman Bahal, associate professor, explains the role of nucleic acid chemistry and its applications to the design of antisense oligonucleotides for cancer therapy.



Laura Nolan, instructor specialist, and Robin Bogner, professor, freeze dry vials for their sterile compounding course.

Pharmaceutics

Pharmaceutics, the science and engineering of drug dosage form design, is a multidisciplinary field requiring expertise in chemistry, engineering, pharmacy, material science, mathematics, and the biological sciences. Research areas range from fundamental studies of the physiochemical properties of drugs and related molecules to dosage form design, processing and manufacturing, as well as dosage form in vitro and in vivo characterization and performance testing.

At the cusp of innovation, pharmaceutics sets the stage to make beneficial contributions to patients' healthcare as well as to the scientific community. Pharmaceutical scientists are currently developing new materials and formulations for improved drug delivery systems, and engineering new systems to improve and expedite the drug development process. Active research is crucial in this graduate program and emphasizes the physical, chemical, and engineering aspects of pharmaceutics. Our graduate students also have the opportunity to participate in the highly acclaimed Kildsig Center for Pharmaceutical Processing Research (**cppr.uconn.edu**).

Pharmaceutics graduate students typically do a summer internship in the pharmaceutical industry and obtain employment in the industry, government, or academia upon graduation.

Raman Bahal
Associate Professor

Research Focus: New delivery strategies for synthetic nucleic acid analogues and natural product derived molecules. Develop and optimize novel gene editing based strategies, selectively targeting microRNAs for treating malignant and non-malignant diseases.

Robin Bogner
Professor

Research Focus: Freeze-drying process modeling and optimization, formulation and performance of pharmaceutical solids — both freeze-dried parenterals and oral dosage forms, amorphous drug solubility, reconstitution of lyophilized protein therapeutics, stability of compounded preparations.

Diane Burgess
Distinguished Professor, Pfizer Distinguished Chair of Pharmaceutical Technology

Research Focus: Drug delivery (microspheres, nanoparticles, liposomes, emulsions, hydrogels); in vitro and in vivo performance testing; continuous manufacturing of complex parenterals; implantable sensors for metabolic monitoring.

Bodhi Chaudhuri
Professor

Research Focus: Pharmaceutical technology, multi-scale modeling of pharmaceutical and biomedical systems, transport phenomena in complex fluids, discrete element method, powder technology, and 3D printing.

Xiuling Lu
Professor
Pharmaceutics Division Coordinator

Research Focus: Formulation development, characterization and assessment, drug delivery systems, multifunctional nanocarriers for improved cancer therapy, theranostic nanomedicine.

Na Li
Assistant Professor

Research Focus: Enhancing the permeability and bioavailability of oral drugs. Understanding the fundamental science underlying the formulation, manufacturing, pharmacokinetics, and metabolism of various drugs and formulations. Exploring interactions between orally ingested drug/bioactive/food and the gut microbiome.

Medicinal Chemistry

At the intersection of chemistry and biology, Medicinal Chemistry is a robust area of research and study focused on the development of new drugs to treat human diseases. Key areas of concentration within the discipline are structural biology, including the determination of drug target structures using X-ray crystallography and nuclear magnetic resonance (NMR); the design, synthesis, and evaluation of new therapeutic agents; the isolation and identification of marine natural products, and elucidating cellular signaling pathways with small molecule probes.

Current research projects span the development of small molecule therapeutics for cancer, infectious disease, and a variety of neurodegenerative disorders. Additional ongoing projects are aimed at understanding signaling as it relates to cell proliferation, adhesion, and trafficking, and exploring the interactions between the cannabinoid receptor and its cytosolic regulatory proteins.

Ph.D. graduates are intellectual leaders in drug development, discovery, and research, investigating both medicinal agents found in plants and new synthetic drug possibilities.

Chathura S. Abeywickrama
Assistant Professor

Research Focus: Small-molecule fluorescent probes for subcellular targets and biosensing applications, fluorophore-drug analogs and fluorophore-drug conjugate for targeted drug delivery and tracking, and development of novel fluorescent imaging dyes with visible and near-infrared (NIR) emissions.

M. Kyle Hadden
Professor and Director of Research and Graduate Programs

Research Focus: Early stage drug development focusing on the design, synthesis, and evaluation of small molecules as therapeutic agents for the treatment of cancer.

Hunmin Jung
Assistant Professor

Research Focus: Structure-guided development of: anticancer agents targeting DNA lesion repair and *de novo* nucleotide biosynthesis pathways; modulators that inhibit or enhance the incorporation of non-natural nucleotides into DNA or RNA; antidiabetic agents/biomarkers targeting glucose sensing transcription factors; antibacterial/antiviral agents targeting DNA repair/bypass and nucleotide metabolism.

Olga Vinogradova
Associate Professor
Medicinal Chemistry Division Coordinator

Research Focus: Structural biology, protein-protein/protein-ligand interactions, rational drug design, integral membrane proteins and across-membrane signal transduction, nanodiscs, NMR.

Andrew Wiemer
Professor

Research Focus: Discovery of drugs and drug targets related to cancer and immunology.

Dennis Wright
Professor

Research Focus: The design, synthesis, and development of small molecule therapeutics primarily for the treatment of infectious disease and cancer.

Raman Bahal works with his graduate student in his lab.

Assistant professor L. Cody Smith, with his graduate student, sets up an assay to determine how immune cells in the lung generate energy.

Pharmacology & Toxicology

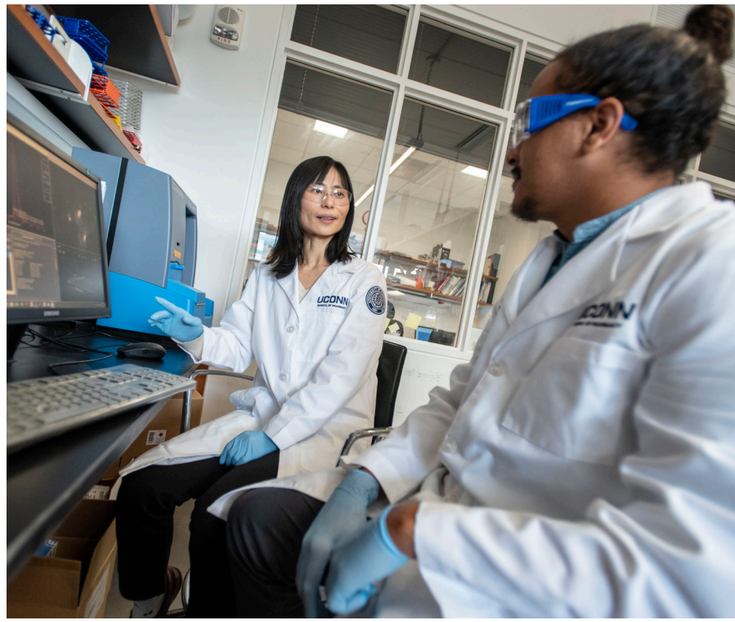
The Pharmacology & Toxicology discipline aims to understand the molecular, cellular, and behavioral effects of drugs, chemicals, and environmental toxicants on biological systems. Students in the Pharmacology & Toxicology graduate program receive didactic and research training in a collaborative, multidisciplinary environment. Our overall research goals are to identify and understand molecular mechanisms of disease pathology and to develop better diagnostic tools and pharmacological therapies. Current areas of research include: drug metabolism, hepatotoxicity, metabolomics, epigenetics, non-coding RNA, inflammation, nuclear receptor signaling, teratology, substance use disorder, behavioral pharmacology, and personalized medicine.

Brian Aneskievich
Professor

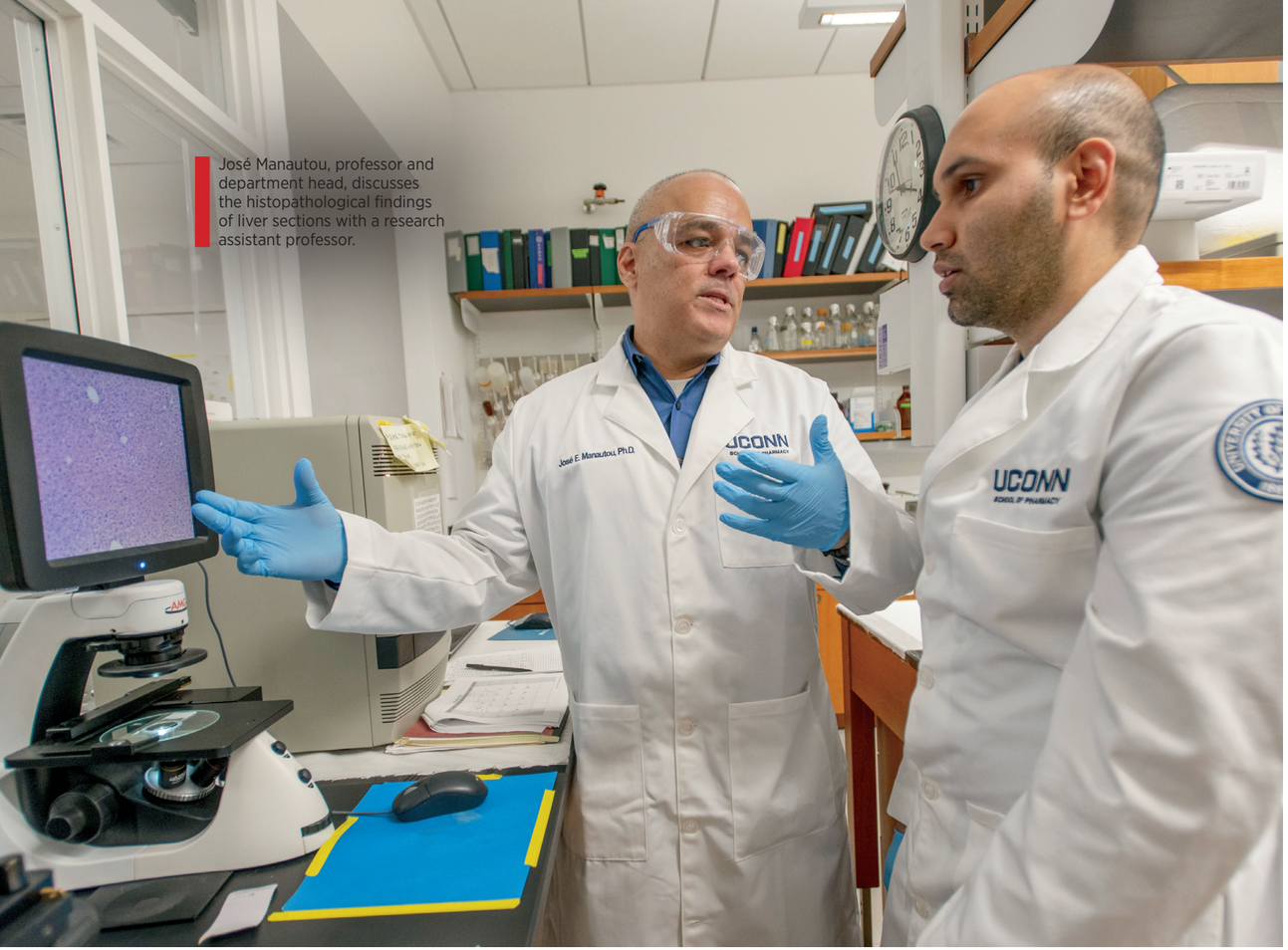
Research Focus: Molecular pharmacology of cell membrane and nuclear receptor signaling control over regulation of gene expression relevant to chronic inflammatory diseases, defects in differentiation, and cancer proliferation.

José Manautou
Professor and Department Head
Boehringer Ingelheim Endowed Chair
Mechanistic Toxicology

Research Focus: Identification and characterization of novel genetic determinants of susceptibility to chemical hepatotoxicity, regulation of liver transporters, and chemical models of hepatoprotection.



Xiuling Lu, professor, explains the HPLC system and drug release analysis to a lab member



José Manautou, professor and department head, discusses the histopathological findings of liver sections with a research assistant professor.

Theodore Rasmussen
Associate Professor

Research Focus: Personalized medicine, stem cell research, and epigenetics as related to cholesterol dysfunction, birth defects, and reproductive biology.

Gregory C. Sartor
Associate Professor
Pharmacology and Toxicology Division Coordinator

Research Focus: Animal models of drug addiction; epigenetics, cell type-specific analysis, and drug discovery.

L. Cody Smith
Assistant Professor

Research Focus: Air pollution and respiratory system toxicology, immunology and inflammatory signaling mechanisms, sex steroids signaling and sex differences in inflammation.

Xiaobo Zhong
Professor

Research Focus: Mechanistic roles of long non-coding RNAs in postnatal liver maturation, alteration of drug metabolism in adults by drug exposure at early life, interindividual variations on drug metabolism and personalized medicine.

Join Our World–Renowned Team

Located at our main campus in Storrs, the School of Pharmacy features state-of-the art labs; easy access to New York, Boston, Hartford, and Providence; and robust interdisciplinary collaboration. Ranked among the top 25 public universities in the nation, UConn is dedicated to human health and scientific research. Our Innovation Partnership Building at UConn Tech Park houses business partners from around the globe who partner with our faculty to conduct innovative, cross-disciplinary research in fields ranging from manufacturing to biomedical engineering to cybersecurity. At our UConn Health campus in nearby Farmington, which is also home to The Jackson Laboratory for Genomic Medicine, is an integrated academic medical center that is entering an era of unprecedented growth in all three areas of its mission: academics, research, and clinical care.

Application Portals:

Pre-professional
admissions.uconn.edu (please check pre-pharmacy on the application)

Pharm.D.
Use **pharmCAS.org**. Transfers will also apply through **admissions.uconn.edu**.

Ph.D.
grad.uconn.edu

Questions?
Email **pharmacy@uconn.edu**

Diane J. Burgess, Distinguished Professor, discusses the outcomes of a continuously manufactured liposome formulation with a graduate student.

Graduate student Kavinda Maduwantha uses the rotary evaporator in the Abeywickrama lab to concentrate a fraction purified by flash chromatography.

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