

Graduate Research Faculty Mentors*

Butler University, Department of Pharmaceutical Sciences



Pamela Crowell, PhD
Professor of Pharmaceutical Sciences (Pharmacology)
Chair, Department of Pharmaceutical Sciences
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Pancreatic cancer is common and very difficult to treat with existing chemotherapy. Dr. Crowell's lab has discovered that isoprenoids such as perillyl alcohol inhibit the growth of human pancreatic tumor cells. In future studies, she plans to study the mechanism of action of isoprenoids, and test the hypothesis that they will improve pancreatic cancer chemotherapy by testing combinations of isoprenoids and conventional cancer chemotherapy. In addition, she has discovered that the human PRL tyrosine phosphatases regulate the cell cycle and have cancer-causing properties. Her goal is to develop PRL phosphatases as novel molecular targets for pancreatic cancer chemotherapeutic development.



Nandita G. Das, PhD, RPh
Associate Professor of Pharmaceutical Sciences (Pharmaceutics)
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Dr. Nandita Das' research involves targeted delivery of siRNA against neurodegenerative diseases such as Alzheimer's and Huntington's disease, and modulation of Multi-Drug Resistance (Pgp and MRP) in cancer. Specifically, Dr. Das' research projects involve fabrication and characterization of lipospheres and liposomes for nanomedicine applications. She has been awarded competitive individual research grants from the NIH, the NSF and from the Pharmaceutical Research Manufacturers' Association, in addition to other extramural research grants and contracts from pharmaceutical companies. Her undergraduate research students have earned the AACP WalMart award and graduate students have earned the AAPS-Amgen and AAPS-AstraZeneca awards. Details of Dr. Das' accomplishments and research activities can be found on <http://blue.butler.edu/~ndas>.



Sudip K. Das, PhD
Professor of Pharmaceutical Sciences (Pharmaceutics)
Director of Graduate Program and Research in Pharmaceutical Sciences
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Dr. Sudip Das' research involves nanotechnology approaches in targeted delivery of siRNA and small molecule drugs for the treatment of cancer. Specifically, Dr. Sudip Das' research projects involve fabrication and characterization of polymer nanoparticles for nanomedicine applications. He has been awarded competitive individual research grants from the NIH, Medical Research Council of Canada (Canadian Institutes of Health Research), and from the Parenteral Drug Association Foundation, as well as extramural research grants and contracts from pharmaceutical companies. His undergraduate research students have received Pfizer UG research and AFPE Gateway research awards and graduate students have obtained AAPS-Gattefossé, AAPS-Amgen and AAPS-AstraZeneca awards. Dr. Das has served on the leadership roles at AACP and AAPS and serves on the editorial boards of reputed journals. Details of Dr. Das' accomplishments and research activities can be found on <http://www.linkedin.com/in/sudipkdas> & <http://blue.butler.edu/~sdas/research.htm>.



Alexandre Erkine, PhD
Associate Professor of Pharmaceutical Sciences (Pharmacology)
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Dr. Erkine's major research emphasis involves new drug design and screening, gene engineering, and gene expression mechanisms. Students working with Dr. Erkine will be involved in engineering new gene constructs for analysis of compounds potentially used later as drug leads for oncology, neuropharmacology, and as cytoprotective agents. Students can expect from their research experience to obtain skills in molecular biology techniques, to have exposure to the medical/pharmacology research ideology and to participate in new drug discovery projects. Dr. Erkine's research is supported by grants from the NSF and the NIH. A more detailed description of Dr. Erkine's research and grant activities can be found on his web page: <http://blue.butler.edu/~aerkine>.



Hala Fadda, PhD, MRPharmS
Associate Professor of Pharmaceutical Sciences (Pharmaceutics)
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For the effective design of oral, modified release dosage forms which behave in a reproducible manner, we need to have a clear understanding of the *in vivo* conditions to which they will be subjected. Dr. Fadda's current research collaborations with medical schools are enabling her to understand drug behavior in healthy individuals as well those who are ill. She is working on the fundamental characterization of the gastrointestinal mucosa and luminal environment and utilizing this knowledge in several different ways. First, she is setting up an *in vitro* drug release model that better simulates the dynamic and diverse nature of the gastrointestinal tract. Then she plans to design oral, modified release systems that have a more predictable performance in humans with reduced inter-individual variability.



W. Conrad Hong, PhD
Assistant Professor of Pharmaceutical Sciences (Pharmacology)
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Imbalanced neurotransmission has been implicated in several psychiatric and neurological diseases. Dr. Hong studies signaling mechanisms of dopamine in the brain, particularly the dopamine transporter (DAT), a membrane carrier uniquely expressed on dopamine neurons. DAT and its close homologs (the serotonin transporter and norepinephrine transporter) are important targets of therapeutic agents such as antidepressants and ADHD medications, and abused psychostimulants cocaine and methamphetamine. He has developed tools to probe drug-induced conformational changes of DAT and to examine the intracellular trafficking of DAT in dopamine neurons. His research goals are to elucidate novel regulatory mechanisms of DAT function and to search for new therapeutic strategies for mental illnesses caused by dysfunctional dopamine neurotransmission. More detail about Dr. Hong's research experience can be found at <https://www.linkedin.com/pub/w-conrad-hong/43/560/1b9>.



C. Patience Masamha, PhD
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Understanding the molecular mechanisms that are involved in oncogenesis is critical in identifying biomarkers for early disease detection and in the development of targeted anti-cancer therapeutics. The central dogma of biology is that DNA is first transcribed to messenger RNA transcripts, which are then translated into protein. Recent studies have found that this process is even more complex than previously thought, the so called proverbial "dark matter of biology". Dr. Masamha uses the latest next-generation sequencing technologies, bioinformatics and a wide array of molecular biology techniques to study the global RNA transcriptome, identify genes that are altered in cancer and elucidate the molecular mechanisms involved in the process. Hence, her research involves collaborations with colleagues across various institutions and from different disciplines. Dr. Masamha's research has resulted in first author publications in *Nature*, *Cancer Research* and *Anti-Cancer Drug Targets*. She was also a recipient of a DoD Visionary Postdoctoral Fellowship Award.