LU 3rd ANNUAL LEONARD A. LEVY SYMPOSIUM 2025

Highlighting Research on Biomedical, Pharmaceutical and Health Sciences

LARKIN UNIVERSITY
Change Your Life

November 20, 2025
Lecture Hall 105, Larkin University
18301 N. Miami, 33169

LU 3rd ANNUAL LEONARD A. LEVY SYMPOSIUM 2025

Welcome to LU Symposium 2025

On behalf of Larkin University, it is my honor to welcome you to the Third Annual Leonard A. Levy Research Symposium. This event stands as a proud tradition—celebrating the creativity, dedication, and collaboration that drive discovery at Larkin University.

The past year has been a remarkable one for our institution. We welcomed our first class in the Physician Assistant program, completed our inaugural Summer Research Program, and enrolled the largest post-pandemic cohorts yet in both our Pharmacy and Biomedical Sciences programs. These milestones reflect the continued growth of our academic and research enterprise.

We have also strengthened our research foundation through the establishment of the LU Office of Research and the appointment of Dr. Shrestha as Research Manager, enhancing the infrastructure that supports our faculty and student scholars.

The Leonard A. Levy Research Symposium highlights the breadth of biomedical, pharmaceutical, and clinical research across our community and welcomes contributions from our partners at Florida International University, Barry University and Nova Southeastern University. Together, we celebrate inquiry, innovation, and shared learning.

This year's program introduces an exciting new tradition—the "Larkin University Researcher of the Year" Award—and features a keynote address by Dr. Francisco Fernandez-Lima, Professor at FIU.

As we gather today, may we continue to advance the spirit of discovery that defines Larkin University and strengthens our collective pursuit of knowledge.

Welcome to the Third Annual Leonard A. Levy Research Symposium.

Sincerely,

Rudi H. Ettrich, *RNDr.*, MSc., Ph.D.
President/CEO
Larkin University

LU 3rd ANNUAL LEONARD A. LEVY SYMPOSIUM 2025

DETAIL SCHEDULE

Time	Activity
9:00 AM – 9:15 AM	Coffee and light breakfast, Room 112
9:15 AM – 9:25 AM	Welcome Remarks, Lecture Hall 105 Rudi H. Ettrich, Ph.D., President/CEO, Larkin University
9:25 AM – 10:05 AM	Keynote Session Francisco Alberto Fernandez Lima, Ph.D., Professor, FIU *Title: Biological Mass Spectrometry: From small Molecules to Mega Dalton Complexes*
10:05 AM – 11:45 AM	Morning Session Chair: Sandeep Sheth, Ph.D., Associate Professor, Larkin University
10:05 AM –10:25 AM	Zuzana Zajickova, Ph.D., Professor, Barry University *Title: Organic-silica Sol-gel Monoliths: Optimizing Separation Performance in Capillary Liquid Chromatography by Tuning Preparation Conditions*
10:25 AM – 10:45 AM	Dedeepya Pasupuleti, Ph.D., Assistant Professor, Larkin University *Title: A High-Throughput In Vitro T-Cell Screening Platform to Support AI-Driven Vaccine Design and Immunogenicity Prediction*
10:45 AM – 10:55 AM	Coffee Break, Room 112
10:55 AM –11:15 AM	Thomas A. Edwards, Ph.D., Professor, Larkin University *Title: Designer Proteins for Manipulation of Intracellular Pathways*
11:15 AM –11:35 AM	Priscilla Ryder, Ph.D., Associate Professor, Larkin University *Title: Do Adverse Childhood Experiences (ACEs) Influence getting recommended vaccines for Florida Residents ages 50+?*
11:35 AM – 11:45 AM	LU Researcher of the Year Award
11:45 AM – 12:30 PM	Networking Lunch, Room 112
12:30 PM – 13:50 PM	Afternoon Session Chair: Thomas A. Edwards, Ph.D., Professor, Larkin University
12:30 PM – 12:50 PM	Rajendra Pangeni, Ph.D., Assistant Professor, NSU *Title: Targeting Epigenetic Regulation in Tumor Evolution and Cancer Stemness for Therapeutic Intervention*
12:50 PM – 13:10 PM	Kristal Potter, Ph.D., Assistant Professor, Larkin University *Title: Unlocking Performance: Pharmacogenomic Insights for Athletes*
13:10 PM – 13:30 PM	Umar-Farouk Mamani, Ph.D., Assistant Professor, Larkin University *Title: Rational Design and Development of Proteolytically Stable Anti-PD-L1 Peptides for Cancer Immunotherapy*
12:30 PM – 13:50 PM	Aarajana Shrestha, Ph.D., Researcher, Larkin University *Title: Discovery of Mithramycin 2'-Oxime (AK-B46): A Hope for Treating Rare Cancer in Children and Younger Adults*
13:50 PM – 13:55 PM	Certificate Distribution
13:55 PM – 14:00 PM	Closing Remarks, Rudi H. Ettrich, Ph.D., President/CEO, LU

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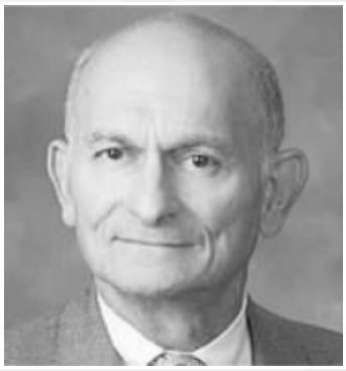
About Dr. Leonard A. Levy



Dr. Leonard A. Levy, D.P.M., M.P.H. (1935-2023) was born in New York. graduated of Thomas Jefferson High School, New York University, NY College of Podiatric Medicine, and Columbia University, where he was the first podiatrist to receive an M.P.H. degree. A lifelong leader and tireless champion of innovation in medical education, beginning as dean and later president of the California College of Podiatric Medicine, he also held senior positions at SUNY Stony Brook, University of Texas-Houston, and was founding dean of the College of Podiatric Medicine and Surgery at the University of Osteopathic Medicine and Health Sciences in Des Moines, Iowa. A Fulbright Scholar at Comenius University in Bratislava, Slovakia, he maintained relationships there with faculty and exchange students. He retired in 2016 as professor emeritus from Nova Southeastern University College of Osteopathic Medicine. Even in retirement, he continued writing, lecturing and mentoring in the health professions and served on the Larkin University Board of Trustees where he led the research committee that developed research strategic planning. Over his long-lasting career he played an influential role in the lives of many of us and will forever be remembered as part of the legacy of Larkin University. As a recognition of his influence of the shape of our University, the LU Research Lab was named in his honor **Leonard A Levy Research Laboratory.**

Symposium Sponsor

The Annual Leonard A. Levy Research Symposium is made possible by a generous donation by Eleonore Levy

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Highlighting Research on Biomedical, Pharmaceutical and Health Sciences

November 20, 2025 | 9:00 AM – 2:00 PM | Lecture Hall 105

KEYNOTE SPEAKER

"Biological Mass Spectrometry: From Small Molecules to Mega Dalton Complexes"

Francisco Fernandez-Lima, Ph.D.
Professor, Department of Chemistry and Biochemistry
Florida International University

SPEAKERS

Zuzana Zajickova, Ph.D.
Professor of Chemistry
College of Arts and Science
Barry University

Rajendra Pangeni, Ph.D.
Assistant Professor
College of Osteopathic Medicine
Nova Southeastern University

Thomas A. Edwards, Ph.D.
Professor
College of Biomedical Sciences
Larkin University

Priscilla Ryder, Ph.D.
Associate Professor
College of Pharmacy
Larkin University

Dedeepya Pasupuleti, Ph.D.
Assistant Professor
College of Pharmacy
Larkin University

Umar-Farouk Mamani, Ph.D.
Assistant Professor
College of Pharmacy
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Kristal Potter, Pharm.D.
Assistant Professor
College of Pharmacy
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Aarajana Shrestha, Ph.D.
Researcher
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LU 3rd ANNUAL LEONARD A. LEVY SYMPOSIUM 2025

Keynote Speaker

Title: *Biological Mass Spectrometry: From small Molecules to Mega Dalton Complexes*

Francisco Fernandez-Lima., Ph.D.
Professor
Department of Chemistry and Biochemistry
Florida International University

Bio:

Dr. Francisco Fernandez-Lima's current and long-term research objective is the study of scientific problems at the molecular and cellular level at the interface of physics, chemistry, and biology. His research program focuses on the development of new mass spectrometry-based technologies and methods to address research problems related to human diseases. After his pioneer work on the development of trapped ion mobility spectrometry (2010-2012), a comprehensive body of work has shown its potential in biomedical sciences. He has developed several analytical platforms (e.g., TIMS-TOF MS and TIMS-FT-ICR MS), and more recently enabled them with electron and UV fragmentation strategies for the structural elucidation and characterization of biomolecular complexes. Noteworthy is their recent top “double” down MS analysis, capable of characterizing intact proteoforms with varying post-translational modifications (positional isomers) in a single experiment. He received a BS (2001) and MS (2003) in Nuclear Physics from the Institute of Nuclear Sciences and Technology (Havana, Cuba) and a PhD (2006) in Applied Physics from the Pontific Catholic University of Rio de Janeiro (Brazil) under the guidance of Dr. Enio F. da Silveira. He performed post-doctoral studies (2007-2010) at Texas A&M University under the mentorship of Dr. David H. Russell and Dr. Emile A. Schweikert. He is the recipient of a NIH K99/R00 Pathway to Independence, NSF CAREER and NIH MIRA awards. He has published over 180 peer-reviewed research articles, 2 book chapters and a patent on topoisomer separations.

Abstract:

Mass spectrometry (MS) technologies are emerging as the analytical gold standard for the identification and characterization of molecular components with wide applications in biomedical sciences, pharmaceutical sciences, and clinical diagnostics. My research group has focused on the development of emerging MS technologies for the characterization and structural elucidation of biomolecules at physiologically relevant conditions. Recent innovations in speed, accuracy, and sensitivity have established Ion Mobility Spectrometry – Mass Spectrometry as a powerful tool for the separation and identification of structural and conformational isomers. In particular, we pioneered the use of Trapped Ion Mobility Spectrometry coupled to Mass Spectrometry (TIMS-MS, 2011) as a high-throughput technique for the study of biomolecules (e.g., peptides, proteins, DNA, and their complexes), as well as the kinetic intermediates involved during structural and conformational transitions as a function of the molecular environment and binding partners. Over the last few years, we have complemented TIMS-MS with hydrogen-deuterium exchange (HDX), electron and UV-based fragmentation, and ultra-high resolution mass spectrometry (FT-ICR MS). These tools, when applied synergistically, allow for a comprehensive characterization of the intramolecular interactions that define higher-order biomolecular structures as well as the intermolecular interactions that stabilize protein-ligand, protein-protein, and protein-DNA complexes. During this talk, we will demonstrate these capabilities for the case of disordered proteins, post-translationally modified peptides and proteins, and protein-DNA complexes.

LU 3rd ANNUAL LEONARD A. LEVY SYMPOSIUM 2025

Guest Speaker

Title: *Organic-silica Sol-gel Monoliths: Optimizing Separation Performance in Capillary Liquid Chromatography by Tuning Preparation Conditions*

Zuzana Zajickova, Ph.D.
Professor and Chair
Department of Chemistry and Physics
Barry University

Bio:

Dr. Zajickova is an analytical chemist specializing in separation science, with research focusing on the development and applications of monolithic separation media for chromatography. She earned her BS in Chemical Technology and MS in Analytical Chemistry from the Slovak Technical University in Bratislava, Slovak Republic, and completed her Ph.D. in Analytical Chemistry at Florida Atlantic University. She has held research appointments at Lawrence Berkeley National Laboratory and was a U.S. Fulbright Scholar at the Faculty of Pharmacy, Charles University in the Czech Republic. With support from the National Science Foundation, Dr. Zajickova established an undergraduate research group in separation science at Barry University. Under her mentorship, the group has published in peer-reviewed scientific journals and presented work at numerous conferences, including the American Chemical Society National Meetings and International Symposium on High-Performance Liquid Phase Separations. Dr. Zajickova also serves as an expert reviewer for various scientific journals and funding agencies.

Abstract:

Chromatographic columns are central to effective mixture separation in liquid chromatography. Monolithic columns prepared from 3-(methacryloyloxy)propyltrimethoxysilane (MPTMS) attracted much attention due to their rapid in situ photopolymerization and dual organic-inorganic functionality. Initially, we have compared chromatographic performance of thermally (TSG) and photo-polymerized sol-gel (PSG) monoliths in the reversed-phase mode. TSG monoliths exhibited slightly more hydrophobic surfaces and fewer residual silanols compared to PSG monoliths and comparable steric selectivity and column efficiency. Building on these findings, we further investigated functional modifications to enhance selectivity and retention. Subsequently, we have explored the feasibility of single-pot approach towards preparation of C18 and fluorinated TSG monoliths by the addition of an appropriate monomer directly into a polymerization mixture. C18 columns showed strong affinity towards alkylbenzenes, better retention and resolution for planar and non-planar analytes, while fluorinated phases enhanced retention and selectivity for fluorinated compounds.

LU 3rd ANNUAL LEONARD A. LEVY SYMPOSIUM 2025

Guest Speaker

Title: *Epigenetic regulation of long non-coding RNA in glioblastoma multiforme (GBM) and glioblastoma stem cells (GSCs).*

Rajendra Pangeni, Ph.D.
Assistant Professor
College of Osteopathic Medicine
Nova Southeastern University

Bio:

Dr. Rajendra Pangeni is an assistant professor of Genomics at Nova Southeastern University. Prior joining this position, he completed his PhD in molecular oncology from the University of Wolverhampton, UK. He received his post-doctoral trainings from Northwestern University Chicago and City of Hope National Medical Center, Duarte, California. During his post doctoral works, Dr. Pangeni worked on glioblastoma (one of the most aggressive brain tumors) and non-small cell lung cancer using genome wide DNA methylation array, RNA sequencing, stem cells, mouse models, and other genetic and epigenetics approaches.

At Nova Southeastern University, Dr. Pangeni is working on identifying genes that could be used as potential biomarkers and therapeutic targets in Glioblastoma, Gulf War illness, chronic fatigue syndrome (CFS), other genetic/epigenetic diseases. He uses single cell transcriptomics, whole-genome bisulfite sequencing, and other state-of-the-art technologies and laboratory approaches.

Research Interests: Cancer and metastases, stem cells, Biomarkers, Experimental therapeutics, genomics and epigenomics.

Abstract:

Glioblastoma multiform (GBM) is one of the most aggressive forms of brain tumors with a median survival of only 15 months. Despite the current treatments such as surgery and chemo-and radiation therapies, the clinical outcome of patients remains very dismal. GBM tumors are extremely heterogeneous with the role of Glioma Stem cells (GSCs) contributing to treatment resistance and tumor aggressiveness. Epigenetic regulation plays a pivotal role in GBM and GSCs. Long non-coding RNAs (lncRNAs) are non-protein coding genes which are emerging as key modulators of tumor progression and therapy resistance. The goal of our study is to uncover novel therapeutic lncRNA targets that disrupt tumor growth and improve treatment outcomes in patients.

This presentation explores the intricate mechanisms of lncRNA methylation, highlighting its contribution to transcriptional dysregulation, stemness, and patients' survival in GBM.

LU 3rd ANNUAL LEONARD A. LEVY SYMPOSIUM 2025

Speaker

Title: *Designer Proteins for Manipulation of Intracellular Pathways*

Thomas A. Edwards, Ph.D.
Professor
College of Biomedical Sciences
Larkin University

Bio:

Dr. Edwards has 20 years of experience in teaching and research in a university environment. Dr. Edwards has taught an array of classes in Biochemistry and Biomedical Sciences and supervised 29 graduate students through to a Ph.D. He has been an Investigator on grants focused on structural/chemical biology and virology worth >$16million and published 76 peer-reviewed manuscripts, with an h-index of 36. At the University of Leeds (2005-2022) he served as Deputy Head of the School of Molecular and Cellular Biology (2018-2021) and Deputy Director of the Astbury Centre for Structural Molecular Biology (2012-2018). Dr Edwards recently arrived at Larkin University to continue bench research, to teach Biochemistry and Genetics, and is currently the Chair of the Larkin University Research Advisory Committee.

Abstract:

Self-assembled peptides are promising templates for the design of inhibitors of protein–protein interactions (PPIs), and small proteins and polypeptides that can be expressed in cells from recombinant genetic material are attractive molecules as new therapeutics. In addition, targeted protein degradation (TPD) is a therapeutic strategy to remove disease-causing proteins by routing them to the ubiquitin-proteasome, autophagy, or lysosme machineries. For instance, Proteolysis-Targeting Chimeras (PROTACs) are synthetic hetero-bifunctional small molecules that bind simultaneously the target and an E3 ubiquitin ligase to drive degradation at the proteasome. Despite considerable success, designing such molecules is challenging and the number of currently addressable ubiquitin E3 ligases is limited. I will demonstrate the development of hetero-bifunctional de novo proteins as alternatives for TPD that enable access to more E3s and targets.

LU 3rd ANNUAL LEONARD A. LEVY SYMPOSIUM 2025

Speaker

Title: *Do Adverse Childhood Experiences (ACEs) Influence getting recommended vaccines for Florida Residents ages 50+?*

Priscilla Ryder, MPH, Ph.D.
Associate Professor
College of Pharmacy
Larkin University

Bio:

Dr. Ryder, currently Associate Professor at Larkin University College of Pharmacy, Department of Administrative and Clinical Science, has been a health and behavior researcher for more than thirty-five years. Her work focuses on health status/service utilization/quality of life in underserved populations, HIV prevention, medication adherence, factors affecting medication adherence, and perceptions of the role of community pharmacists. She is trained in epidemiology and gerontology, receiving a Master of Public Health degree in epidemiology and biostatistics from the University of California at Berkeley School of Public Health, a Ph.D.in epidemiology at the University of Maryland School of Medicine, Department of Epidemiology and Public Health, Division of Gerontology, and a postdoctoral fellowship at the Lamy Center for Drugs and Aging in the Pharmaceutical Health Services Research Department in the University of Maryland Pharmacy School. Prior to taking her position at Larkin University in 2017, Dr. Ryder was on the faculty of Butler University College of Pharmacy and Health Sciences for nine years. She has presented at numerous national and international conferences and mentored more than forty student researchers.

Abstract:

Background: Adverse childhood experiences (ACEs), traumatic events that occur before the age of 18, are associated with numerous adult physical and mental health outcomes. ACEs are also associated with negative health behaviors. Little is known about the effects of ACEs on health behaviors such as getting recommended immunizations.

Methods: This investigation used data from the 2023 Behavioral Risk Factor Surveillance System from Florida for respondents ages 50+. ACEs were summed to give a score ranging from zero to eight. Bivariate analysis was performed to assess associations between the exposure variable (ACE score) and report of receipt of shingles or pneumonia vaccination. Logistic regression models were created to assess effects of ACEs on vaccinations controlling for covariables.

Results: The typical respondent was a White, retired, female, high school graduate Medicare beneficiary. 3679 (44.6%) and 4597 (55.0%) reported getting shingles and pneumonia vaccines, respectively. In bivariate analysis, ACEs were highly associated with being vaccinated (Chi-square (8) = 26.557, $p < 0.001$)—the higher the number of ACEs, the smaller the percentage vaccinated. ACEs lost significance in binary logistic models. Factors that increased the odds of being vaccinated were having a personal health care provider and being retired, while being Black or Hispanic (both vaccines), being Asian (pneumonia vaccine only), and reporting poor mental health decreased the odds of vaccination, adjusting for education and home ownership.

Conclusions: The effect of ACEs disappeared when adjusted for socioeconomic and health factors. The relationship between ACEs and immunization may be mediated by socioeconomic factors.

LU 3rd ANNUAL LEONARD A. LEVY SYMPOSIUM 2025

Speaker

Title: *A High-Throughput In Vitro T-Cell Screening Platform to Support AI-Driven Vaccine Design and Immunogenicity Prediction*

Dedeepya Pasupuleti, Ph.D.
Assistant Professor
College of Pharmacy
Larkin University

Bio:

Dr. Dedeepya Pasupuleti is an Assistant Professor and research scientist specializing in translational pharmaceutical sciences. Her work bridges vaccine development, oncology, and brain-targeted drug delivery. She designs nanoparticle- and microparticle-based vaccines to enhance dendritic cell targeting and T-cell activation, creating AI-compatible datasets that support machine-learning–driven vaccine design. In oncology, she integrates cancer genomics databases into pharmacy education, providing students with hands-on experience analyzing large datasets and developing computational skills for precision medicine. Dr. Pasupuleti also investigates receptor-mediated, brain-targeted delivery systems such as aspirin formulations for ischemic stroke to improve therapeutic outcomes. In analytical chemistry, her research focuses on trace analysis using LC-MS/MS, differential mobility spectrometry, and gas chromatography. She develops advanced ion-filtering methods and stabilizing compensation voltages to improve analytical resolution, sensitivity, and reproducibility. Currently serving as Secretary to the PDPD community and AAPS, and as a member of Rho Chi, Dr. Pasupuleti has received multiple awards for research excellence, authored peer-reviewed publications, and presented at international conferences. Dedicated to mentorship and innovative pedagogy, she trains the next generation of scientists to integrate experimental, computational, and translational approaches in pharmaceutical research.

Abstract:

Understanding CD4+ and CD8+ T-cell activation is central to designing effective vaccines, particularly as AI-based tools increasingly guide epitope prediction and antigen selection. However, these computational models require high-quality experimental datasets for training and validation, and current preclinical workflows rely heavily on animal studies. To address this gap, we developed a high-throughput in vitro overlay assay that generates structured, quantitative immunogenicity data suitable for integration into machine-learning-driven vaccine design pipelines. Microparticle (MP) and nanoparticle (NP) vaccine formulations were evaluated using a Carboxyfluorescein succinimidyl ester (CFSE) T-cell proliferation assay. Dendritic cells (DCs) were stimulated with particulate vaccine candidates and overlaid onto CFSE-labeled T cells, enabling quantification of antigen presentation and T-cell activation by flow cytometry at multiple time points. A representative panel of bacterial and viral vaccine formulations including Neisseria gonorrhoeae strains, H1N1 influenza, Zika virus, and SARS-CoV-2 variants were tested alongside adjuvants such as Alum, MF59, AddaVax™, and CpG. The assay revealed pathogen-specific T-cell repertoire patterns. N. gonorrhoeae formulations induced comparable CD4+ and CD8+ proliferation, whereas H1N1 produced a pronounced shift toward CD8+ expansion. Antigen dose and adjuvant selection further modulated proliferation indices and subset distribution. By generating reproducible, high-resolution functional data including T-cell subset ratios, dose-response curves, and adjuvant-dependent activation profiles this platform provides experimental outputs well-suited for machine-learning models that predict immunogenicity and optimize vaccine design. Overall, the overlay assay serves as a practical, rapid screening tool that strengthens the feedback loop between computational prediction and wet-lab validation in early-stage vaccine development.

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LU 3rd ANNUAL LEONARD A. LEVY SYMPOSIUM 2025

Speaker

Title: *Rational Design and Development of Proteolytically Stable Anti-PD-L1 Peptides for Cancer Immunotherapy*

Umar-Farouk Mamani, Ph.D.
Assistant Professor
College of Pharmacy
Larkin University

Bio:

Dr. Umar-Farouk Mamani is an Assistant Professor and researcher at Larkin University College of Pharmacy. With over a decade of experience in pharmaceutical research, Dr. Mamani brings specialized expertise in peptide drug design, and HPLC–MS analytical characterization. His research focuses on the development of peptide-based therapeutics and targeting ligands for drug delivery, with a particular emphasis on cancer immunotherapy. His primary interest lies in developing therapeutic peptides targeting immune checkpoints such as PD-L1 (Programmed Cell Death Ligand 1) and CD47 (Cluster of Differentiation 47). Dr. Mamani's current work aims to address the growing challenge of resistance to checkpoint blockade therapy through two key approaches: (1) creating bifunctional peptide constructs capable of simultaneous blockade of multiple immune checkpoints, and (2) combinatorial strategies that integrate peptide-based immune checkpoint inhibitors with nanoparticle formulations of immunostimulants and chemotherapeutic agents to enhance efficacy against resistant cancers. Dr. Mamani research has been published in peer-reviewed journals, presented at regional and national conferences, and has resulted in three U.S. patents. Before joining Larkin University, Dr. Mamani earned his Ph.D. in Pharmaceutical Sciences and completed a postdoctoral fellowship at the University of Missouri – Kansas City, where he developed multivalent anti-PD-L1 peptide constructs for cancer therapy.

Abstract:

PD-L1 (Programmed Cell Death Ligand 1) mediates tumor immune evasion by binding to its cognate receptor, PD-1 (Programmed Cell Death Protein 1), on T cells, thereby suppressing antitumor immune responses. Although monoclonal antibodies targeting the PD-1/PD-L1 axis have achieved some clinical success, their widespread use remains limited by high cost, immunogenicity, and the need for parenteral administration. Peptides represent an attractive therapeutic alternative due to their tunable structure, low immunogenicity, and synthetic accessibility; however, their clinical translation is hindered by poor stability and limited oral bioavailability. We previously employed phage display to identify a 9-mer anti-PD-L1 peptide (TR3) that demonstrated modest inhibitory potency but exhibited poor stability, necessitating delivery in nano-micellar formulations. In this work, we optimized the TR3 peptide to develop analogs with enhanced potency, specificity, and proteolytic stability using structure-guided peptide engineering strategies – including cyclization, D-amino acid substitution, N-methylation, and lipid conjugation. These rational modifications yielded peptidomimetic analogs exhibiting improved tumor specificity, over 30-fold increase in PD-L1 inhibitory potency, and more than 90-fold improvement in serum stability.

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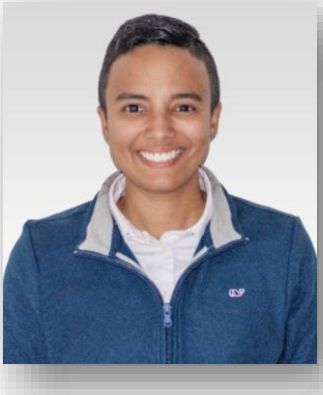
Speaker



Title: *Unlocking Performance: Pharmacogenomic Insights for Athletes*

Kristal Potter, Ph.D.
Assistant Professor
College of Pharmacy
Larkin University

Bio:

Dr. Kristal Potter is an Assistant Professor at Larkin University College of Pharmacy. She received her Bachelor of Science in Neuroscience from Florida Atlantic University and her PharmD from the University of South Florida Taneja College of Pharmacy in 2019. After graduating, she served as a pharmacist in the United States Air Force. In 2022, she transitioned to the Air Force Reserve and began her career in academia. Dr. Potter is passionate about holistic health and patient-centered care. She believes that pharmacists are underutilized and can bring a wealth of drug expertise, problem-solving skills, and personalized medicine to any healthcare team. Her current research focuses on the microbiome, pharmacogenomics, and sports pharmacy.

Abstract:

Pharmacogenomics (PGx) is the study of how genetic differences influence drug response, offering a safer and more effective prescribing model. While PGx is well-established in specialties such as oncology and psychiatry, its application in sports medicine remains limited. Athletes frequently use medications such as NSAIDs, opioids, and SSRIs, and these medications have well-documented gene-drug interactions. This review explores PGx considerations for these commonly used substances in athletic populations, emphasizing how genetic variability in drug-metabolizing enzymes, including CYP2C9, CYP2D6, and CYP2C19, can impact medication efficacy and side effect risk. We summarize current evidence, highlight clinical guidelines, and outline how PGx-guided prescribing could improve athlete care. By integrating PGx into sports medicine, clinicians can tailor medication strategies to each athlete's genetic profile, supporting both health and performance. Broader adoption will require increased clinician education, interdisciplinary collaboration, and research specific to athletic populations, but PGx offers a promising tool for advancing personalized, precision-based athlete healthcare.

LU 3rd ANNUAL LEONARD A. LEVY SYMPOSIUM 2025

Speaker

Title: *Discovery of Mithramycin 2'-Oxime (AK-B46): A Hope for Treating Rare Cancer in Children and Younger Adults*

Aarajana Shrestha, Ph.D.
Researcher
Office of Research
Larkin University

Bio:

Dr. Aarajana Shrestha is a pharmaceutical researcher/research manager experienced in the modification of a wide range of enzymes and receptors (including topoisomerase, PPARd, EWS-FLI1, and 4E-BP1) inhibitors to improve their potency and ADME profile. Her previous research was focused on the areas of small molecules, natural product drug discovery, and optimization of novel drugs for cancer and rare diseases. Prior to joining Larkin University, she was a postdoctoral scholar working with Dr. Jon Thorson at the Center for Pharmaceutical Research and Innovation, College of Pharmacy, University of Kentucky. Dr. Shrestha holds a B. Pharm. from Pokhara University, Nepal, and an MS and PhD in Medicinal Chemistry from Yeungnam University, College of Pharmacy, South Korea. From 2020 to 2021, she was National Research Foundation-Korea Research Fellow (KRF Fellow) as a drug discovery chemist at the New Drug Development Center DGMIF, K-MEDIhub. Dr. Shrestha holds 1 US patent, over 30 peer-reviewed scientific publications, and has presented her research at several conferences, including the American Chemical Society, the Gordon Research Conference, and IUPAC.

Apart from serving as the lead chemist on several interdisciplinary drug discovery teams, Dr. Shrestha contributes to research management, strategic planning, patent and manuscript preparation, inventory oversight, electronic data management, presentation of research findings, coordination of meetings and symposia, and the training and mentoring of undergraduate and graduate students. Her current interests include the design and synthesis of NSD2 methyltransferase-targeted molecular glues, drug repurposing for cancer and rare diseases, development of extramural funded projects and pharmaceutical science courses that emphasize active learning, assessment, creativity, curiosity, and inclusivity.

Abstract:

This work is a part of my ongoing drug discovery research for Ewing sarcoma, a rare childhood cancer, conducted with Dr. Jon Thorson at the Center for Pharmaceutical Research and Innovation, College of Pharmacy, University of Kentucky. Ewing sarcoma primarily affects the bones and soft tissues, most commonly in children and young adults. The pathogenesis of this cancer is driven by a chromosomal translocation that fuses the EWS gene with the FLI1 gene, producing the aberrant EWS-FLI1 fusion protein. This fusion protein acts as a potent oncogenic driver, promoting uncontrolled cellular proliferation and tumorigenesis. Mithramycin A (MTM), an aureolic acid-type polyketide natural product, has shown high potency against EWS-FLI1. However, its clinical translation is limited by a narrow therapeutic index, poor selectivity resulting in hepatotoxicity, and suboptimal pharmacokinetic (PK) properties. To overcome these limitations, we previously introduced 2′-oxime conjugation as a novel strategy for MTM derivatization. Through rational drug design and structure–activity relationship (SAR) studies, this study led to members that were equipotent to MTM *in vitro* but demonstrated up to nearly 10-fold improvements of *in vitro* selectivity and PK improvements of 3 orders of magnitude compared to the parent MTM. *In vivo* efficacy studies are currently underway with one of the best members of this series.

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THANK YOU FOR JOINING US!

At Larkin University, we are committed to fostering a collaborative and innovative environment that advances research, education, and service in the biomedical, pharmaceutical, and health sciences.
We are truly grateful for your participation in the LU 3rd Annual Leonard A. Levy (LAL) Symposium, which celebrates research, discovery, and scholarly excellence. We hope today's event was informative and engaging, inspiring new ideas, collaborations, and continued curiosity.

We extend our heartfelt appreciation to our keynote speaker from Florida International University, our guest speakers from Barry University and Nova Southeastern University, and our distinguished speakers from Larkin University for their valuable contributions and insights.

Thank you for being part of this year's symposium.

Sincerely,
Aarajana Shrestha, Ph.D.
Symposium Coordinator
Office of Research
Larkin University

LU Research Advisory Committee 2025
Thomas A. Edwards, Ph.D.
Sandeep Sheth, Ph.D.
Jennifer Thomas, Pharm.D.
Umar-Farouk Mamani, Ph.D.
Bearnard Ashby, MD