Department of Biomedical Sciences Newsletter

We said goodbye to **Dr. Meghan May** as she embarks on her new adventure. Best of luck and thanks for everything.

Congratulations to **Dr. Ian Meng** on being awarded an NIH U01 award titled "Central and peripheral mechanisms of corneal pain." **Dr. Meng** has been featured on CBS13 WGME (link here) and in the Portland Press Herald (link here).

Congratulations to **Dr. Kerry Tucker** on being awarded an NIH R21 award titled "Role of nociceptor primary cilia in inflammatory and neuropathic pain."

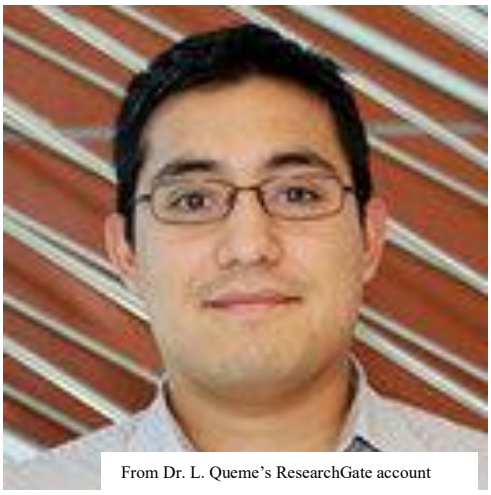
Welcome to **Dr. Luis Queme** as a new faculty member in the Department of Biomedical Sciences. His lab and office are in Stella.

CALL FOR PROPOSALS:

R&S Faculty Mini-grants RFA Available

Due date is January 19th, 2023. Find the RFA and details at https://www.une.edu/research/office-sponsoredprograms/minigrants.

NOTE: Publication costs for papers which have COM students as authors are eligible to be considered for up to $250/student by the SGA's educational enhancement fund (link enabled). These requests are vetted by the finance committee of the SGA and processed by RSAS.



From Dr. L. Queme's ResearchGate account

Please join me in welcoming **Dr. Luis F. Queme,** as the newest faculty member in the Department of Biomedical Sciences. He received his MD from Francisco Marroquin University, School of Medicine (Guatemala City, Guatemala) and his PhD from the Research Institute of Environmental Medicine, Nagoya University Graduate School of Medicine (Nagoya, Japan). He comes to us from the Pain Management Lab, Cincinnati Children's Hospital Medical Center (Cincinnati, OH).

Faculty / Student / Staff Highlights:

New Publications (from PubMed (links enabled))

Non-alcoholic fatty liver disease (NAFLD) and mental illness: Mechanisms linking mood, metabolism and medicines.
Gangopadhyay A, Ibrahim R, Theberge K, **May M**, **Houseknecht KL**.
Front Neurosci. 2022 Nov 15;16:1042442.
doi: 10.3389/fnins.2022.1042442. eCollection 2022.

Discovery of κ Opioid Receptor (KOR)-Selective d-Tetrapeptides with Improved *In Vivo* Antinociceptive Effect after Peripheral Administration.
Stefanucci A, Della Valle A, Scioli G, Marinaccio L, Pieretti S, Minosi P, Szucs E, Benyhe S, Masci D, Tanguturi P, Chou K, Barlow D, **Houseknecht K**, Streicher JM, Mollica A.
ACS Med Chem Lett. 2022 Oct 17;13(11):1707-1714.
doi: 10.1021/acsmedchemlett.2c00237

To Infinity and Beyond: Expanding the Scope of Basic Sciences in Meeting Accreditation Standards.
Haudek SB, Bahner I, Belovich AN, Bonaminio G, Brenneman A, Brooks WS, Chinn C, El-Sawi N, Habal S, Haight M, Ikonne U, McAuley RJ, McKell D, **Rowe R**, Taylor TAH, Thesen T.
Med Sci Educ. 2022 Aug 4;32(5):1239-1245.
doi: 10.1007/s40670-022-01605-x.

New Publications (from bioRxiv (links enabled in blue)) – a preprint, a preliminary version of a manuscript that has not completed peer review at a journal.

A cell-autonomous role for primary cilia in long-range commissural axon guidance.
Alexandre Dumoulin, Nicole H. Wilson, **Kerry L. Tucker**, Esther T. Stoeckli
bioRxiv 2022.10.10.511580
doi: https://doi.org/10.1101/2022.08.15.503894

Regional/National/International Presentations

UNE COM FALL RESEARCH FORUM:

Dawon Lee
Clinical Research
Forgotten Branch of the Intercostal Nerve: Implication for Cryoablation Nerve Block for Pectus Excavatum Repair
Mentor: **Joel Talsma, MS**

Julienne Mumpini
Clinical Research
Cultural Humility Teaching to First-Year Medical Students: Care for the Somali American Muslim Patients Mentor: **Hwyda Arafat, M.D., PhD.**

Carla Champagne
Basic Science Research
Perceived Importance and Success of Integration of Concepts of Diversity and Inclusion, Wellness, and Personal Growth at University of New England College of Osteopathic Medicine
Mentor: **Arafat, Hwyda, MD, PhD**

Vrushabh Daga
Basic Science Research
The Impact of Prophylactic Ceftriaxone Treatment on Antimicrobial Resistance Development by Colonizing Microbes
Mentor: **Meghan May, PhD**

Anwesha Gangopadhyay
Basic Science Research
Effects of Atypical Antipsychotics on the Liver: Exploring Mechanisms Linking Iron Metabolism and Non-Alcoholic Fatty Liver Disease (NAFLD)
Mentor: **Karen Houseknecht, PhD**

Thaddeus Gunther
Basic Science Research
Breakthrough Pain is Maintained at the Level of the Spinal Cord
Mentor: **Dr. Tamara King, PhD**

Ahmad Kohsar
Basic Science Research
Identifying Candidate Drugs to Treat Tat-associated HIV Sensory Neuropathy Through Bioinformatic Analysis
Mentor**: Ling Cao, MD, PhD**

Nic Sian
Basic Science Research
Investigating Differences of Neuroplasticity in the Osteoarthritic Knee of Female Compared to Male Models
Mentor: **Tamara King, PhD**

Peter Wilson-Braun
Basic Science Research
Nerve Conduction Studies in CD137L Knockout Mice Following Sciatic Nerve Crush Injury-Induced Neuropathic Pain
Mentor**: Ling Cao, MD, PhD**

James Withers
Basic Science Research
Understanding Apoptosis Signaling Pathway Gene Expression in Lumbar Spinal Cord in HIV-Associated Sensory Neuropathy using Doxycycline-Inducible Tat Transgenic (iTat) Mice
Mentor**: Ling Cao, MD, PhD**

Jacqueline Klepinger
Other Scholarship (e.g., Literature Review) A
ttitudes and Perceptions of Interprofessional Education Amongst First- and Second-Year Medical Students at UNECOM
Mentor**: Ling Cao, MD, PhD**

1st Place Research Poster Award
Ahmad Kohsar
Identifying Candidate Drugs to Treat Tat associated HIV Sensory Neuropathy Through Bioinformatic Analysis
Authors: Kohsar A, **Harrison B**, **Cao L**.

First Annual Maine Research Symposium on Biomedical Science and Engineering

October 13-15, 2022
https://www.une.edu/news/2022/une-hosts-first-statewide-symposium-biomedical-research-and-engineering

Session Chair:

SESSION 2 - Metabolic/Neural Signaling-Mechanisms of Disease
Session Chair: Karen Houseknecht, PhD

Invited talks:

Lucy Liaw, PhD and **Ian Meng, PhD**
Synergizing COBRE Programs for Maximal Impact

Tamara King, PhD
Towards Understanding Sex Differences in Susceptibility to Develop Osteoarthritis Pain

Derek Molliver, PhD
Do Mitochondria Set the Gain on Pain?

Poster Presentations:

Faculty Poster Abstracts

Kathleen Becker, PhD
Saphenous Nerve Transection Results in Sensory and Sympathetic Denervation of the Mouse Tibia

Harilaos Filippakis, PhD
Tryptophan catabolism is a metabolic vulnerability in mTORC1-hyperactive cells

Ramaz Geguchadze, PhD
Activity-dependent activation of eukaryotic elongation factor 2 kinase contributes to nociceptor sensitization and pain

Barlow D, Motyl KJ, **Molliver DC**, **Houseknecht KL**
Looking for drugs in all the wrong places: Exploring drug exposure in tissue niches empowers mechanistic pharmacology/toxicology and drug discovery

Tamara King, PhD
Analysis of mid-stage and advanced OA pain states in chemical and surgical murine osteoarthritis models

Derek Molliver, PhD
Mitochondrial regulation of sensory neuron function and pain

Poster Presentations:

Student/Professional Staff Poster Abstracts

Madison Mueth
Sex differences in susceptibility to develop advanced osteoarthritis pain
Mentor(s): **Ben Harrison** and **Tamara King**

Zaid Al-Abbasi
Comparative analysis of Gs-coupled receptor signaling in mouse and human sensory neuron models
Mentor: **Derek Molliver**

Peter Neufeld
RNA-Protein Interactions Stimulated by Nerve Growth Factor in PC12 Cells
Mentor(s): **Ben Harrison** and **Eliza Grlickova-Duzevik**

Josephine Nutakki
Effects of CD137L on Hind Paw Intraepidermal Innervation Following Sciatic Nerve Crush
Mentor: **Ling Cao**

Talia Lizotte
Saphenous Nerve Transection Results in Sensory and Sympathetic Denervation of the Mouse Tibia
Mentor: **Katie Becker**

Caitlin Quattrochio
Analysis of mid-stage and advanced joint pain states in a murine model of trauma induced osteoarthritis
Mentor: **Tamara King**

Caitlyn Daly
Mechanisms underlying sex differences in development of temporomandibular joint pain
Mentor: **Tamara King**

Vrushabh Daga and **Prakash Patel**
The Impact of Prophylactic Ceftriaxone Treatment on Antimicrobial Resistance Development by Colonizing Microbes
Mentor: **Meghan May**

Peter Wilson-Braun
Nerve Conduction Studies in CD137L Knockout Mice Following Sciatic Nerve Crush Injury Induced Neuropathic Pain
Mentor: **Ling Cao**

Thaddeus Gunther
The Role of Spinal Cord Processing of Sensory Input in Maintaining Movement Evoked Breakthrough Pain
Mentor: **Tamara King**

Ahmad Kohsar
Identifying Candidate Drugs to Treat Tat-associated HIV Sensory Neuropathy Through Bioinformatic Analysis
Mentor(s): **Ling Cao** and **Ben Harrison**

Anwesha Gangopadhyay
Mechanistic pharmacology of antipsychotic associated non-alcoholic fatty liver disease (NAFLD): Role of Iron (Fe) metabolism
Mentor: **Karen Houseknecht**

James Withers
Expression of Inflammation Related Genes in Lumbar Spinal Cord in HIV-Associated Sensory Neuropathy using Doxycycline-Inducible Tat Transgenic (iTat) Mice
Mentor: **Ling Cao**

Fajar Alam
Pandemic Parallels: Shared features in the emergence of AIDS and COVID-19 and the lessons learned
Mentor: **Meghan May**

Awards

Clinical poster award:
Vrushabh Daga
The Impact of Prophylactic Ceftriaxone Treatment on Antimicrobial Resistance Development by Colonizing Microbes
Mentor: **M. May**

Graduate student award:
Madison Mueth
Sex differences in susceptibility to develop advanced osteoarthritis pain
Mentors: **B. Harrison** and **T. King**

New Funding

Congratulations to **Dr. Ian Meng** on being awarded an NIH U01 award titled "Central and peripheral mechanisms of corneal pain." **Dr. Meng** has been featured on CBS13 WGME (link here) and in the Portland Press Herald (link here). 1U01EY034709

Congratulations to **Dr. Kerry Tucker** on being awarded an NIH R21 award titled "Role of nociceptor primary cilia in inflammatory and neuropathic pain." 1R21NS130249

Other News:

Dr. Derek Molliver served as a NIH study section member for the HEAL Initiative Center Grant study section, titled "Discovery and Functional Evaluation of Human Pain-Associated Genes and Cells."