

# Department of Biomedical Sciences Newsletter

Congratulations to those that have received service recognition as UNE employees! Thank you for your service.

**Frank Daly** - 25 years of service  
**Kathleen Becker** - 5 years of service  
**Talia Lizotte** - 5 years of service  
**Russ Ferland** - 5 years of service

Congratulations to **Dr. Scott Wood** on receiving the 2024 ASME Rising Star of Mechanical Engineering award from the American Society of Mechanical Engineering at the International Mechanical Engineering Congress and Exposition in Portland, Oregon in November.

Congratulations to **Dr. Scott Wood** on receiving a one-year CCSR (COBRE) Pilot Project titled: "Establishing a novel in vitro disease model of aging cartilage

Congratulations to **Dr. Lindsey Fitzsimons** on her 1st place finish in the 2024 ThermoFisher Imaging Contest (see this link for more information about her and her winning image <https://www.thermofisher.com/blog/life-in-the-lab/photomicrography-winners-capture-the-beauty-of-research/>)

## DBMS Faculty meeting dates:

- January 22, 2025; 1-2 pm
- February 26, 2025; 1-2 pm
- March 26, 2025; 1-2 pm

*Feel free to send any agenda items for discussion at our faculty meeting to Angela Morse.*

## 2025 UNE COM Seminars:

All seminars hosted by the department will be posted on our seminar link on our site: <https://sites.une.edu/biomedicalsciences/seminar-series/>

## Shared Governance Meetings:

### COMFA

Wednesday, January 22  
12-1pm

Thursday, February 20  
12-1pm

Wednesday, March 26  
12-1pm

**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.

## [Faculty / Student / Staff Highlights:](#)

**Scott Wood, PhD** was notified that his first patent application, United States Utility Patent Application No. 16/838,511, MICROPATTERNED HYDROGEL FOR CELL CULTURES was issued as U.S. Patent No. 12,098,354 on September 24, 2024.

**Harry Filippakis, PhD** served as reviewer on a study section for the 2024 LAM Foundation grant program on November 8, 2024 in Scottsdale, Arizona.

**Scott Wood, PhD** was recognized as a 2024 ASME Rising Star of Mechanical Engineering in November.

The CCSR (new COBRE) had a very successful first annual External Advisory Committee Site Visit in September, including a well-attended “Meet the CCSR Advisors” at a public reception in the art gallery in Ripich Commons.

UNE COM student doctor [Gabriel DeOliveira](#) (Mentor: **Dr. Katie Becker**) has been accepted into the American Society for Bone and Mineral Research (ASBMR) Student Cohort Program. This program offers student participants valuable opportunities, including complimentary ASBMR membership, access to educational seminars and resources, networking with basic, translational, and clinical researchers, and the chance to provide feedback on the program to ASBMR.

## [New Peer-Reviewed Publications \(from PubMed \(links enabled below\)\)](#)

### [The Nociceptor Primary Cilium Contributes to Mechanical Nociceptive Threshold and Inflammatory and Neuropathic Pain.](#)

**Fitzsimons LA**, Staurengo-Ferrari L, Khomula EV, Bogen O, Araldi D, Bonet IJM, Green PG, Jordan EE, Sclafani F, Nowak CE, Moulton JK, Ganter GK, Levine JD, **Tucker KL**.

J Neurosci. 2024 Nov 20;44(47):e1265242024. doi: 10.1523/JNEUROSCI.1265-24.2024.

### [Sex-specific role of RNA-binding protein, pAUF1, on prolonged hypersensitivity after repetitive ischemia with reperfusion injury.](#)

Quijas MM, **Queme LF**, Woodke ST, Weyler AA, Buesing D, Butterfield A, Joshi DP, Mitxelena-Balardi I, Ulrich-Lai YM, Jankowski MP.

Pain. 2024 Oct 8. doi: 10.1097/j.pain.0000000000003415.

## Regional/National/International Presentations

### Research Talks:

**Dr. Ian Meng** presented a research talk titled [“My eyes hurt so bad”; unraveling therapeutic prospects](#)” on September 27, 2024 at Understanding the neurobiology of pain; new prospects – An international symposium at CERVO in Canada.

**Dr. Mark Schuenke** presented a talk titled "Nerves Have Feelings Too: The Potential Impact of Nerve Surgery on Nervi Nervorum" at the Association of Extremity Nerve Surgeons Annual Symposium in Key West, FL. November 2024.

**Dr. Mark Schuenke** served as an instructor for the Fundamental Peripheral Nerve Course at the Association of Extremity Nerve Surgeons Annual Symposium in Key West, FL. November 2024.

**Dr. Ben Harrison** presented a research talk titled "Cd2ap and Rab5-mediated endosomal transport in basal forebrain cholinergic neurons" at MDIBL, Biology of Aging, on November 6, 2024.

**Dr. Lindsey Fitzsimons** presented a research talk titled "Loss of CELF4 in renal DRG neurons leads to acute onset of glomerular disease" at the American Society for Nephrology Meeting in San Diego in November.

**Dr. Derek Molliver** gave a talk at MHIR titled "Bioenergetic regulation of sensory neuron function" on December 12, 2024.

### Poster Presentations:

**Wood S.** Unraveling Cellular Disease Mechanisms Through Mechanobiology: Bridging Basic Science and Translational Medicine. American Society of Mechanical Engineers (ASME) 2024 International Mechanical Engineering Congress and Exposition (IMECE2024), Portland, OR.

## **Society for Neuroscience Annual Meeting (October 2024) Chicago, IL**

[PSTR068.02 - Differential endogenous pain inhibition between male and female rats in temporomandibular joint osteoarthritis pain](#)

J. HOWARD, A. DEL GRECO, T. KING

[PSTR068.03 - Sex differences in facial nerve injury induced spontaneous pain behaviors](#)

A. FELIX, J. ZUKE, D. GIUVELIS, **I. D. MENG**, **T. E. KING**

[PSTR068.04 - Sex differences in knee joint pain in relation to joint pathology and innervation](#)

A. DEL GRECO, M. MUETH, **E. GRICKOVA-DUZEVIK**, **B. J. HARRISON**, **T. E. KING**

[TJP03.01SU - Teaching rodent behavior research skills to UNEs undergraduate students](#)

D. GIUVELIS, A. FELIX, J. ZUKE, **I. D. MENG**, **T. E. KING**

[PSTR068.04 - Sex differences in knee joint pain in relation to joint pathology and innervation](#)

A. DEL GRECO, M. MUETH, **E. GRICKOVA-DUZEVIK**, **B. J. HARRISON**, **T. E. KING**

[PSTR165.14 - Rna-binding protein celf4 modulates nerve growth factor signaling](#)

P. NEUFELD, M. MUETH, **L. A. FITZSIMONS**, **E. GRICKOVA-DUZEVIK**, **B. J. HARRISON**

[PSTR165.15 - Uncovering mechanisms of post-transcriptional regulation in persistent pain](#)

M. MUETH, P. NEUFELD, **L. A. FITZSIMONS**, **E. GRICKOVA-DUZEVIK**, **B. J. HARRISON**

[PSTR165.16 - Regulation of DRG neuron excitability, glomerular structure, and renal function by the RNA-binding protein CELF4](#)

**L. A. FITZSIMONS**, M. MUETH, **B. HARRISON**

[PSTR038.19 - Neonatal pain alters the excitability of neurons expressing corticotropin releasing factor \(CRF\) in the central nucleus of the amygdala.](#)

M. E. TOMASCH, **L. F. QUEME**, M. A. BURMAN

[PSTR165.17 - Stress Due to Loss-of-Enrichment Induces Mechanical Hypersensitivity and Increased Activity in Satellite Glial Cells](#)

L. T. HOWLAND, A. R. FRENCH, **L. F. QUEME**

[PSTR165.21 - Prolactin receptor modulates hypersensitivity in female mice following repeated ischemia with reperfusion injury](#)

M. QUIJAS, **L. F. QUEME**, M. C. HOFMANN, M. P. JANKOWSKI

[PSTR276.04 - Afferent derived T-cell mobilizing chemokine, CCL27a, regulates muscle hypersensitivity after repetitive ischemia with reperfusion injury](#)

G. M. TRIPATHI, **L. F. QUEME**, M. QUIJAS, K. PROPSOM, K. KELLERMAN, M. P. JANKOWSKI

Nanosymposium at SfN titled: **New Insights Into Mechanisms of Synaptic Dysfunction in Alzheimer's Disease**

Oral Presentation by **L. A. FITZSIMONS**

[NANO39.05 - Cholinergic neurons of the basal forebrain express CD2AP that may contribute to the pathogenesis of Alzheimer's Disease via RAB5-mediated endosomal transport.](#)

**L. A. FITZSIMONS**, J. E. LOVELY, M. MUETH, M. ATIF-SHEIKH, K. P. KOTREDES, G. R. HOWELL, **B. J. HARRISON**

**UNE COM Research and Scholarship Fall Forum on Friday, November 1, 2024**

**Presentations:**

Basic Science Category – Student Doctors Vishva Patel OMS-II and Carleigh Rosenberg OMS-II with their presentation titled “Exploring Metabolic Vulnerabilities in Tuberous Sclerosis Complex: The Role of Tryptophan and the Kynurenine Pathway in Macropinocytosis”

Mentor: **Dr. Harry Filippakis**

Clinical Science – Student Doctor Henry Ortiz OMS-II with his presentation titled “Assessing Parasympathetic Function and Hypoalgesia Induced by Noxious Electrical Stimulation”

Case Study – Student Doctors Jyotika Vallurupalli OMS-II and Sarah Trent OMS-II with their presentation titled “Resource Constraints and Disease Management: A Case Study of Disease Progression in La Sabana, Panama”

**Posters:**

Optimizing Pediatric Oncology Care: Comprehensive Interventions for Chemotherapy-Induced Peripheral Neuropathy in Pediatric Cancer Patients

Antoniou P, Weiss A, Bean EN, **Cao L**

Investigating the Role of the Saphenous Nerve in Tibial Fracture Healing

Baracewicz J, Walter A, Erb A, Lizotte T, Caradonna P, Long P, Felix A, **King T**, **Becker K**

Lumbar spinal cord expression of Tollip and pIRAK1 in iTat mice, a model of HIV associated peripheral neuropathy

Canonico D, Bean E, **Cao L**

Utilizing Machine Learning for the Recognition of Behavior Patterns of Chronic Pain in Mouse Models

Chong J, Del Greco A, **King T, Queme L**

Chemotherapy Regimens Impact CD4+ T cells and Nerve Loss in Peripheral Tissue in Chemotherapy-Induced Peripheral Neuropathy

Cott RC, Ferreira KG, Whitaker EE, Mecum N, **Goode DJ**

Cell Signaling in Sensory Neurons

DeTroia C, Addleson E, **Molliver D**

Tollip and Cytokine Expression Profile in Doxycycline-Induced Transgenic Tat Mice: A Model of HIV-Associated Peripheral Neuropathy (HIV-PN)

Donnelly PJ, Bean E, **Cao L**

Differences in Synovial Growth Factor and Immune Cells Between Sexes Contributing to Pain

Gurralla S, Guzzetti A, Giunta P, **Goode D, King T**

Navigating the Integration of Generative Artificial Intelligence in Undergraduate Medical Education: Insights from a Survey at University of New England College of Osteopathic Medicine

Ichikawa T\*, Aloimonos T\*, Callaway C, **Spicer D**

Unraveling the Molecular Dynamics of Pain by Investigating Effects of Mitochondrial Uncoupling Drugs on Mouse Dorsal Root Ganglion Sensory Neurons

Joseph M, Tomasch M, **Molliver DC**

A Want and a Need: Firearm Harm Reduction Education Should Be Included in Medical School Curriculum

McAuliffe M, McAndrews C, Joseph M, **Queme LF**

Substance Use Disorder Education in New England Medical Schools

Muench A, Vinsel P, **Queme LF**

Impact of demographics and social determinants of health on chronic pain in Maine

Ou P, Bean EN, **Cao L**

Exploring Metabolic Vulnerabilities in Tuberous Sclerosis Complex: The Role of Tryptophan and the Kynurenine Pathway in Macropinocytosis

Patel V\*, Rosenberg C\*, Moyet M, Lafleur S, Cox W, McGrath-Conwell A, Henske EP, **Filippakis H**

A Systematic Review of Risk Factors and Diagnostic Measures of Postpartum Depression among Military Personnel  
Poulin H, Biegel C, Silvia S, **McCullen G**

Using Hands-on Culinary Medicine Education to Increase the Confidence and Ability of Medical Students to Address Lifestyle and Nutrition-related Disease  
Shrestha A, Shah B, Swan-Prung B, Donepudi S, Chhibber M, **Glickova-Duzevik E**, Bouchard C, Cohen M, Oullette-Todd L, **Spicer DB**

Food Insecurity in University of New England Medical Students  
Vellayappan S, **Scully KR**

Investigating Regional Sensory Distribution of the Saphenous Nerve in Tibial Periosteum  
Walter A, Baracewicz J, Lizotte T, Caradonna P, Long P, **King T**, **Becker K**

Probability of Concurrent Incidence of Medial Meniscus Injuries with Anterior Cruciate Ligament Tears: A Literature Review  
Yong C, **McCullen G**

We had a very successful 2024 UNE COM Research and Scholarship Fall Forum with over 400 attendees and 66 student research posters! We wanted to extend a special thank you to our judges and mentors for their contributions to this year's success.

### **Poster Awards:**

#### **For clinical research, congratulations to:**

1<sup>st</sup> place:

Sandhya Vellayappan for the project titled:

Food Insecurity in University of New England Medical Students

Mentor: **Dr. Kyle Scully**

2<sup>nd</sup> place:

Samantha Kobald for the project titled:

Final Clinical and Biomarker Outcomes of a Phase Ib/II Study of Pre-operative Induction Pembrolizumab with Radiation Therapy in Early-Stage Triple Negative and High-Risk Hormone Receptor Positive Breast Cancer (PEARL)

Mentor: Dr. Alice Ho

3<sup>rd</sup> place:

Hailee Poulin, Catherine Biegel and Sophia Silvia for the project titled:

A Systematic Review of Risk Factors and Diagnostic Measures of Postpartum Depression among Military Personnel

Mentor: **Dr. Geoffrey McCullen**

**For basic science, congratulations to:**

1<sup>st</sup> Place:

Vishva Patel and Carleigh Rosenberg for the project titled:

Exploring Metabolic Vulnerabilities in Tuberous Sclerosis Complex: The Role of Tryptophan and the Kynurenine Pathway in Macropinocytosis

Mentor: **Dr. Harry Filippakis**

2<sup>nd</sup> Place:

Albert Kim for the project titled:

De Novo Synthesis of High Purity CD3 Epsilon Peptides Utilizing SUMO Expression System in Bacteria

Mentor: Dr. Carmela Abraham

3<sup>rd</sup> Place:

Maggie Loiselle for the project titled:

Bacterial Metabolic Signaling Drives Neutrophil Responses in Infected Airways

Mentor: Dr. Lael Yonker

## New Funding

**Dr. Scott Wood** officially received notice of funding for his one-year CCSR Pilot Project: "Establishing a novel in vitro disease model of aging cartilage".

## In the News

**Geoffrey McCullen, MD** was interviewed by Al Jazeera about the Floating Doctors trip to Panama that he along with UNE COM students participated. The link to the article can be found here: <https://www.aljazeera.com/features/longform/2024/10/13/the-floating-doctors-mobile-medicine-comes-to-panamas-jungles>