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AUGUST 2021



CACPR Member Spotlight:

Getting to know Rachel (Roxy) L. Cundiff-O'Sullivan, BS, MA, and a PhD Candidate in Neuroscience working in the Colloca Lab, Department of Pain & Translational Symptom Science

Q: Can you tell us about your background?

A: I attended Loyola University Chicago for bachelors degrees in psychology and cognitive/behavioral neuroscience. My junior year, I was awarded the Loyola University Provost Fellowship to explore whether attention initiates the synesthetic experience in sub-populations of people with grapheme-color synesthesia. After graduation, I matriculated into the University of Chicago's one-year Master of Arts in the Program in Social Sciences (MAPSS), with a concentration in psychology/neuroscience. My thesis examined the relationship between chronic pain, psychological distress, and alexithymia, a condition in which people are unable to adequately recognize or describe their emotional states, leaving them with heightened somatic responses to varied emotional states. In the year between my master's and PhD, I worked as a clinical research assistant in the department of Anesthesiology at Northwestern University, working on multiple projects from the pain clinic to the operating room.

I'm now a third year PhD candidate in neuroscience working in Dr. Luana Colloca's lab exploring the neurobiological mechanisms underlying the relationship between pain

catastrophizing and pain in chronic orofacial pain patients. I chose UMB to pursue my PhD in the Program in Neuroscience (PiN) because of the large number of faculty dedicated to pain neuroscience, and I was impressed by the resources available to its students focused on clinical neuroscience applications. What was most important to me was the strong sense of community among all the students, faculty, and staff in PiN which was apparent even as I was interviewing. The support from the PiN community and Dr. Colloca has made me feel like a valued member in the scientific community, which has been integral to my growth as a scientist. I have already felt a tremendous improvement in my skills as a translational neuroscience researcher.

Q: Why research and why your current research interests?

A: My original career goal was to go to medical school. I started doing research as an undergrad to make my application to medical school more competitive, but I fell in love with the process of research. My project made me realize that what I was really most interested in was *learning* about health and medicine, and being in an intellectual environment that is constantly changing as our knowledge is updated with more and improved research studies grew more appealing to me than seeing patients every day. I knew that I wanted to do more clinically relevant research, particularly in the field of chronic pain, because of my personal history with pain. I have lived with musculoskeletal pain daily since childhood, though it wasn't until I was 22 that I finally received a diagnosis of fibromyalgia. The feelings of hopelessness after repeated, failed treatments, though initially difficult, became my main source of motivation. I don't want anyone else to suffer in the way I have. I felt the best way I could help others and learn to cope with my own pain was to contribute to the scholarship seeking to understand how pain can change the way our brain functions. My current research bridges the worlds of health psychology and pain neuroscience, understanding how our perceptions and emotions can alter the neurobiological processes responsible for the perception of pain.

Q: We know that you have been awarded with the TL1 scholarship: how do you think the TL1 will promote your career?

A: I am incredibly honored to have been selected for the TL1 training award. The TL1 program hosts numerous seminars and requires awardees to complete a certificate program to spend an intensive year immersed in training to develop and refine the unique skills required for clinical and translational research. The support from the TL1 award will provide the foundation of technical and analytical skills that will significantly improve my ability to critically evaluate the literature and conduct rigorous, clever, and impactful research studies. I am thankful and excited that I will not only have a chance to learn from successful translational science researchers but will have the support to put this knowledge to practical use as I work on my dissertation. This program will augment my development as a clinical neuroscientist to eventually run my own pain neuroscience lab in the future.

Q: What are your future plans?

A: After completing my degree, I hope to secure a postdoctoral position in either a pediatric pain neuroscience lab or a computational neuroimaging lab. My ultimate goal is to run my own, well-funded lab at a university teaching hospital in Chicago using functional MRI to continue my work in chronic pain and health psychology. Hopefully, I will also contribute to important health policy to advocate for the millions living with chronic pain.

Q: Is there something about pain management and your choices that you would like to share with the CACPR readership?

A: I would just like to say that I'm honored to be a new CACPR trainee! I really appreciate the center's focus on multidisciplinary research, approaching chronic pain from a very broad, more holistic perspective. I'm excited to join this community of scientists dedicated to chronic pain research and will hopefully learn from some of the successes of the other members.

CACPR Member Laurels

Highlights of recent grant awards, publications, and presentations.

Luana Colloca, MD, PhD, MS

Grant:

2021-2026 Colloca L, PI (25%)

Title: "Neural Mechanisms of Immersive Virtual Reality in Chronic Pain"

Sponsor: National Center for Complementary & Integrative Health (NCCIH) of the National Institutes of Health (NIH), **R01 AT011347-01A1**

Total costs: \$3,094,000

Project goal: Investigating the physiological mechanisms of immersive virtual reality in chronic pain patients.

Publications:

Colloca L, Kisaalita NR, Bizien M, Medeiros M, Sandbrink F, Mullins CD. Veteran engagement in opioid tapering research: a mission to optimize pain management. Pain Rep. 2021 Jun 3;6(2):e932. doi: 10.1097/PR9.0000000000000932. eCollection 2021 Jul-Aug.

PMID: 34104838 Free PMC article. No abstract available.

Colagiuri B, Park J, Barnes K, Sharpe L, Boakes RA, **Colloca L**, Livesey EJ. Pre-Exposure, But Not Overshadowing, Inhibits Nocebo Hyperalgesia. J Pain. 2021 Jul;22(7):864-877. doi: 10.1016/j.jpain.2021.02.008. Epub 2021 Feb 23. PMID: 33636369

Evans K, **Colloca L**, Pecina M, Katz N. What can be done to control the placebo response in clinical trials? A narrative review.

Contemp Clin Trials. 2021 Jul 6;107:106503. doi: 10.1016/j.cct.2021.106503. Online ahead of print.

PMID: 34237458

Bedford T, Adediran T, Haycock NR, Mullins CD, Medeiros M, Wright T, Curatolo M, Hamlin L, **Colloca L**. Patient and Provider Acceptability of a Patient Preauthorized Concealed Opioid Reduction.

Pain Med. 2021 Jul 25;22(7):1651-1659. doi: 10.1093/pm/pnaa454.

PMID: 33674821

Mardian A, Perez L, Pun T, Cheung M, Porter J, De Bruyne K, Kao MC, Flood P, Moore N, **Colloca L**, Cramer E, Ashton-James CE, Lorig K, Mackey SC, Darnall BD.

Engagement in Prescription Opioid Tapering Research: the EMPOWER Study and a Coproduction Model of Success.

J Gen Intern Med. 2021 Aug 13. doi: 10.1007/s11606-021-07085-w. Online ahead of print.

PMID: 34389937

Workshops:

1. Harnessing Placebo and Avoiding Nocebo in Sports and Exercise: Novel Understanding of the Neurobiological Mechanisms. Virtual Workshop: American College of Sports Medicine (ACSM) Annual Meeting and World Congresses, Segunda-Feira, June 4, 2021 (150 min)

2. Context matters: Placebo and nocebo effects for pain management. Virtual Workshop: European Alliance of Associations for Rheumatology (EULAR) Annual Congress 2021, Virtual meeting, June 4, 2021 (90 min)

3. Social Mechanisms Underlying the Pain Experience: An Innovative Multidisciplinary, Multi-Specie Approach. Virtual Workshop: Luana Colloca, MD, PhD, MS | Christian Keyzers | Loren Martin for the International Association for Study of Pain – Virtual Conference (90 min) Lecture

4. Placebo effects in the response to pain treatment. NIDDK Workshop Pancreatic Pain: Knowledge Gaps and Research Opportunities in Adults and Children. Virtual conference, July 21, 2021 (45 min)

Ken Ren, PhD, MD

Presented in the symposium:

Stem Cell-based Therapies for Treatment of Chronic Orofacial Pain Conditions

At the 2021 IADR/AADR/CADR General Session

New Grant Award Spotlight

Richard J. Traub, PhD along with co-Investigators Ohannes Melemedjian, PhD, and Alison Scott, PhD and Bob Ernst, PhD from the Department of Microbial Pathogenesis in School of Dentistry were awarded a new 4 year, \$1.4 million DOD grant entitled “Pain and the Immune System: A Novel Therapeutic Approach.” Collaboratively they will test a novel molecule developed by Ernst/Scott that acts as a weak agonist at the TLR4 receptor in several stress-induced pain models in mice. In contrast to TLR4 antagonists, this molecule will maintain immunosufficiency, decreasing the risk of infection when used to alleviate chronic pain.

Accolade



Congratulations to Asaf Keller, PhD, CACPR Executive Committee Member on becoming the **Chair, Department of Anatomy and Neurobiology at the University of Maryland, School of Medicine**

"I am interested in the neurobiology of sensory perception. How the brain shapes how we perceive events inside us (interoception) and outside of us (exteroception). I find it useful to study how the broken informs about the whole, or, how damage to the nervous system reveals its normal functions. Our laboratory uses rodent models in which the nervous system is perturbed by abnormal experiences, or exposure to drugs of abuse. Research on chronic pain provides a particularly powerful model for understanding how abnormal sensory perceptions arise, and why pain can become permanent. Our laboratory is particularly interested in mechanisms by which the brain can modulate pain perception ("top-down" regulation), and how we might harness these mechanisms for pain relief.

I have been studying these questions even before I joined the Department of Anatomy & Neurobiology at the University of Maryland School of Medicine, in 1995. In 2019 I was appointed Interim Chairman of our department, and earlier this year I became the permanent Chairman. We have recently recruited two new faculty members and are now searching for two additional ones. Our department plans to build on its strengths in three spheres of neuroscience: sensory systems and pain, motivated behavior and addiction, and aging and neurodegeneration. We are also committed to increasing the diversity of our faculty and trainees."

-Asaf Keller, PhD

The UM Center to Advance Chronic Pain Research (CACPR) is a multidisciplinary center composed of nationally and internationally renowned clinical and preclinical translational scientists whose principle research focus is on the physiological, genetic, and psychosocial underpinnings of the development and persistence of debilitating chronic pain conditions.



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