

April 2023

## Anna M.W. Taylor, PhD

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### DEGREES AND CERTIFICATIONS

2015-2017 **Postdoctoral Scholar**, University of California, Los Angeles  
2011-2015 **Postdoctoral Scholar**, University of California, Irvine  
2006-2011 **Ph.D (Pharmacology)** McGill University, Montreal, Canada  
2001-2005 **Bachelor of Science (Pharmacology)** Queen's University, Kingston, Canada

### ACADEMIC APPOINTMENTS

2023- **Associate Professor**, Department of Pharmacology, U Alberta  
2019- **Adjunct Assistant Professor**, Department of Anesthesiology and Pain Medicine, UAlberta  
2017 - 2023 **Assistant Professor**, Department of Pharmacology, U Alberta

### INTERRUPTIONS AND DELAYS

Maternity and Parental Leave August 2021-February 2022  
Maternity and Parental Leave April 2018-January 2019

### AWARDS AND RECOGNITIONS

2020 Peter Lougheed Research Award  
2020 Canadian Pain Society Early Career Award  
2020-2025 Canada Research Chair, Tier 2 in Pain and Addiction  
2019 American College for Neuropsychopharmacology Editors' Early Career Award  
2016 American Pain Society Future Leaders in Pain Research Award

### Accomplishments of trainees

- CIHR Canada Graduate Scholarship (Dworsky-Fried (MSc), Nickols (MSc), Chadwick (MSc))
- Alberta Innovates Graduate Scholarship (Chadwick (MSc))
- FOMD Dean's Scholarship (Wass (MSc), Dworsky-Fried (MSc))
- Walter H Johns Graduate Fellowship (Dworsky-Fried (MSc))
- FOMD Graduate Student Recruitment Scholarship (Dworsky-Fried (MSc))
- David and Beatrice Reidford Research Scholarship (Gallo (MD))
- NSERC Undergraduate Research Award (Wass (BSc), Chen (BSc))
- Alberta Innovates Summer Undergraduate Studentship (Chen (BSc))
- Alberta MS Society Summer Studentship (Chen (BSc))
- Best Poster Presentation, Department of Pharmacology (Dworsky-Fried (MSc), Sugiarto (BSc))

### FUNDING

#### Current

Natural Sciences and Engineering Research Council Discovery Grant (Anna Taylor, PI)

*Determining the biological basis for phenotypic sex differences in kappa opioid receptor function*

The goals of this research program are to establish two mouse genetic models (Four Core Genotype and XY\*) in order to dissect out the gonadal and sex chromosome influence mediating the sex difference kappa opioid receptor effects in rodents. \$182,500 (2018-2024)

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Canadian Institutes for Health Research Project Grant (Anna Taylor, PI)

*Central amygdala inflammation and chronic pain*

This grant examines the role of inflammation in mediating endogenous pain control in the amygdala in an animal model of multiple sclerosis \$799,426 (2021-2026)

Canada Research Chair Research Stipend (Anna Taylor, PI)

*Canada Research Chair in Pain and Addiction*

This is an unrestricted grant that provides support for ongoing research studies focused on neuronal and behavioural adaptations underlying chronic pain and addiction phenotypes.

### **Completed**

American Pain Society Future Leaders in Pain Research Award (Anna Taylor, PI)

*Revealing a gut-brain microbiome connection following chronic opioid treatment*

This award supported a pilot study examining the impact of opioids on the gut microbiota composition \$USD25,000 (2016-2018)

National Institutes for Health K99/R00 Pathway to Independence Award (Anna Taylor, PI)

*Influence of chronic pain on mesolimbic dopamine activity and motivated behaviour*

This award provides support (salary and consumables) during the last two years of a postdoctoral fellowship (K99), and the first 3 years of a faculty position (R00). This award cannot be held outside of the US; therefore, I declined the latter half of this award to accept a tenure track position in Canada. The goal of this project was to examine the impact of chronic pain on the mesolimbic dopamine system and relevant motivated behaviours. \$USD 1,065,000 (2016-2018)

Canadian Pain Society Pfizer/CPS Early Career Award (Anna Taylor, PI)

*Central amygdala inflammation driving multiple sclerosis related pain*

Pilot grant examining the role of inflammation in mediating endogenous pain control in the amygdala in an animal model of multiple sclerosis \$50,000 (2020-2021)

Canada Foundation for Innovation John R. Evans Leaders Fund (Anna Taylor, PI)

*Pain and Addiction Laboratory*

Infrastructure support to establish a discovery-based biomedical laboratory examining the impact of chronic pain and opioid dependence on affective and motivational circuits in rodents \$398,742 (2018-2021)

Peter Lougheed Research Award (Anna Taylor, PI)

*Central amygdala inflammation and chronic pain*

The goal of this research program is to determine the causal mechanism impacting central amygdala signaling in an animal model of autoimmune-associated chronic pain. \$40,000 (2021-2022)

Canadian Research Initiative in Substance Misuse Seed Grant (Anna Taylor, PI)

*Preclinical investigation for the use of brexpiprazole for opioid use disorder*

This grant examines whether the partial dopamine agonist, brexpiprazole, is effective at mitigating symptoms of opioid withdrawal in an animal model of opioid use disorder. \$15,000 (2021-2022)

### **PUBLICATIONS**

Formatting Legend: **My name** is bolded; my learners' names are underlined. My role is indicated in brackets at the end of the citation.

1. Nickols JR, Dursun S, **Taylor AMW** (2023) "Preclinical evidence for the use of the atypical antipsychotic, brexpiprazole, for opioid use disorder" *Neuropharmacology*, in press

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2. Galleguillos D, Wang Q, Steinberg N, Zaidi A, Shrivastava G, Dhimi K, Daskhan G, Schmidt E, Dworsky-Fried Z, Giuliani F, Churchward M, Power C, Todd K, **Taylor AMW**, Macauley M, Sipione S (2022) "Anti-inflammatory role of GM1 and other gangliosides on microglia" *Journal of Neuroinflammation* (IF:8.32), 19(1):9 (contributing author, trainee contributing author)
3. Dworsky-Fried Z, Faig CA, Vogel HA, Kerr BJ, **Taylor AMW** (2022) "Central amygdala inflammation drives pain hypersensitivity and attenuates morphine analgesia in experimental autoimmune encephalomyelitis" *Pain* (IF: 7.93), 163(1):e49-e61 (corresponding author, PI, trainee first author, trainee contributing author), selected as "Editor's Choice" article
4. Dworsky-Fried Z, Chadwick C, Kerr BJ, **Taylor AMW** (2021) "Multiple sclerosis and the endogenous opioid system" *Frontiers in Neuroscience* (IF: 5.15), 15: 741503 (corresponding author, PI, trainee first author, trainee contributing author)
5. Parker KE, Sugiarto E, **Taylor AMW**, Pradhan AA, Al-Hasani R (2020) "Pain, motivation, migraine and the microbiome: New frontiers for opioid systems and disease" *Molecular Pharmacology* (IF: 3.98), 98(4):433-444 (contributing author, trainee contributing author)
6. Dworsky-Fried Z, Kerr B, **Taylor AMW** (2020) "Microbes, Microglia, and Pain" *Neurobiology of Pain* (IF: 3.51), 7:100045 (corresponding author, PI, trainee first author)
7. **Taylor AMW**, Chadwick C, Mehrabani S, Hrcir H, Arnold A, Evans CJ (2020) "Sex differences in kappa opioid receptor anti-nociception is influenced by the number of X chromosomes in mouse" *Journal of Neuroscience Research* (IF: 4.16), 100(1):183-190. (lead author, PI, corresponding author, trainee contributing author)
8. Severino A, Mittal N, Hakiman N, Velarde N, Minasyan A, Alberta R, Torres C, Romaneschi N, Johnston C, Tiwari S, Lee A, **Taylor AMW**, Gaveriaux-Ruff C, Kieffer BL, Evans CJ, Cahill CM, Walwyn WM (2020) "Mu opioid receptors on striatal-centric neuronal populations mediate distinct aspects of opioid reward-related behaviors" *eNeuro* (IF: 4.36), 7(5):eneuro.0146-20.2020 (contributing author)
9. Huang A, **Taylor AMW**, Ghogha A, Pribadi M, Wang Q, Tanya K, Cahill CM, Coppola G, Evans CJ (2020) "Genetic and functional analysis of a Pacific Hagfish opioid system". *Journal of Neuroscience Research* (IF: 4.16), 100(1):19-34 (contributing author)
10. Liu S, Pickens S, Burma N, Ibarra-Lecue I, Yang H, Xue L, Cook C, Hakimian J, Severino J, Severino A, Luetow L, Komarek K, **Taylor AMW**, Olmstead MC, Carroll FI, Bass C, Andrews A, Walwyn W, Trang T, Evans E, Leslie F, Cahill CM (2019) "Kappa opioid receptors drive a tonic aversive component of chronic pain" *Journal of Neuroscience* (IF: 6.71), 39(21):4162-4178 (contributing author)
11. Lee K, Vuong H, Nusbaum D, Hsiao E, Evans C, **Taylor AMW** (2018) "The gut microbiota mediates reward and sensory responses associated with regimen-selective morphine dependence" *Neuropsychopharmacology* (IF: 8.29), 43(13):2606-2614 (PI, corresponding author)
12. Yu X, **Taylor AMW**, Lu T-Y, Diaz-Castro B, Golshani P, Evans CJ, Khakh BS (2018) "Reducing Astrocyte Calcium Signaling In Vivo Alters Striatal Microcircuits and Causes Repetitive Behavior" *Neuron* (IF:17.17), 99(6):1170-1187 (contributing author)
11. **Taylor AMW** (2017) "Corticolimbic circuitry in the modulation of chronic pain and substance abuse" *Progress in Neuropsychopharmacology and Biological Psychiatry* (IF: 5.07), 87B:159-332 (sole author)
12. Cahill CM and **Taylor AMW** (2017) "Neuroinflammation – A co-occurring phenomenon linking chronic pain and opioid dependence" *Current Opinions in Behavioral Sciences* (IF: 4.46), 13:171-177 (contributing author)
13. **Taylor AMW**, Mehrabani, S, Liu, S, Taylor AJ, Cahill, CM (2017) "Topography of microglial activation in sensory and affect related brain regions in a mouse model of chronic pain" *Journal of Neuroscience Research* (IF: 4.16), 95(6):1330-1335 (lead author)
14. **Taylor AMW**, Castonguay A, Ghogha A, Vayssiere P, Pradhan AAA, Xue L, Wu J, Levitt P, De Koninck Y, Evans CJ, Cahill CM (2016) "Neuroimmune regulation of GABAergic neurons within

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- the ventral tegmental area during withdrawal from chronic morphine” *Neuropsychopharmacology* (IF: 8.29), 41(4): 949-959 (lead author)
15. Cahill CM, Walwyn W, **Taylor AMW**, Pradhan AAA, Evans CJ (2016) “Allostatic mechanisms of opioid tolerance beyond desensitization and downregulation” *Trends in Pharmacological Sciences* (IF: 14.82), 37(11):963-976 (contributing author)
  16. **Taylor AMW**, Becker S, Schweinhardt, P, Cahill CM (2016) “Mesolimbic dopamine signaling in acute and chronic pain: implications for motivation, analgesia and addiction” *Pain* (IF: 7.93), 157(6):1194-1198 (lead author, corresponding author)
  17. **Taylor AM**, Castonguay A, Taylor, AJ, Murphy NP, Ghogha A, Cook C, Xue L, Olmstead MC, De Koninck Y, Evans CJ, Cahill CM (2015) “Microglia disrupt mesolimbic reward circuitry in chronic pain” *Journal of Neuroscience* (IF: 6.71), 35(22):8442-8450 (lead author)
  18. Charrua A, Pinto R, **Taylor AMW**, Canelas A, Ribeiro-da-Silva A, Cruz CD, Birder LA, Cruz F (2015) “Can the adrenergic system be implicated in the pathophysiology of bladder pain syndrome/interstitial cystitis? A clinical and experimental study” *Neurourology and Urodynamics* (IF: 2.69), 34(5): 489-496 (contributing author)
  19. **Taylor AMW**, Roberts KW, Pradhan AA, Walwyn W, Lutfy K, Carroll FI, Cahill CM, Evans CJ (2014) “Kappa opioid receptor-mediated analgesia is blocked by a delta opioid receptor agonist” *British Journal of Pharmacology* (IF:9.74), 172(2):e102334 (lead author)
  20. **Taylor AMW**, Murphy NP, Evans CJ, Cahill CM (2014) “Correlation between ventral striatal catecholamine content and nociceptive thresholds in neuropathic mice” *Journal of Pain* (IF:4.62), 15(8): 878-885 (lead author)
  21. Cahill CM, **Taylor AMW**, Cook C, Ong E, Moron JA, Evans CJ (2014) “Does the kappa opioid receptor system contribute to pain aversion?” *Frontiers in Pharmacology* (IF: 5.98), 5:253 (contributing author)
  22. **Taylor AMW** and Ribeiro-da-Silva A (2012) “Consequences of the ablation of non-peptidergic afferents in an animal model of trigeminal neuropathic pain” *Pain* (IF: 7.93), 153: 1311-1319 (lead author)
  23. Farmer MA, **Taylor AMW**, Bailey AL, McIntyre LC, Milagrosa ZE, Crissman HP, Bennet GJ, Ribeiro-da-Silva A, Binik TM, and Mogil JS (2011) “Recurrent vulvovaginal candidiasis as an etiology of provoked vestibulodynia” *Science Translational Medicine* (IF:17.99), 3(101):101ra91 (contributing author)
  24. **Taylor AMW** and Ribeiro-da-Silva A (2011) “GDNF levels in the lower lip skin in rat model of trigeminal neuropathic pain: Implications for non-peptidergic fiber re-innervation and parasympathetic sprouting” *Pain* (IF: 7.93), 52(7):1502-1510 (lead author)
  25. **Taylor AMW**, Peleshok JC, and Ribeiro-da-Silva A (2009) “Distribution of P2X3-immunoreactive fibers in hairy and glabrous skin of the rat” *Journal of Comparative Neurology* (IF: 3.22), 514(6):555-566 (lead author)
  26. Riedl MS, Schnell SA, Overland AC, Chabot-Dore AJ, **Taylor AMW**, Ribeiro-da-Silva A, Elde RP, Wilcox GL, and Stone LS (2009) “Co-expression of alpha2a adrenergic and delta opioid receptors in substance P-Containing terminals in rat dorsal horn” *Journal of Comparative Neurology* (IF: 3.22), 513(4): 385-398 (contributing author)
  27. Holdridge SC, Armstrong SA, **Taylor AMW**, and Cahill CM (2007) “Behavioral and morphological evidence for the involvement of glial cell activation of delta opioid receptor function: implications for the development of opioid tolerance” *Molecular Pain* (IF:3.77), 3:7 (contributing author)

### Commentaries

1. Dworsky-Fried Z and **Taylor AMW** (2019) “Pain is but a memory” *Lab Animal* (IF: 12.63), 48(4):119-120 (corresponding author, trainee first author)
2. Cahill, CM and Taylor, AMW (2011) “A piece of the puzzle is revealed for delta opioid analgesia” *Pain* (IF: 7.93), 152 (6): 1217-1218 (contributing author)

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## **PRESENTATIONS**

### **Invited Speaker**

#### *International*

1. Neuroscience Seminar Series, University of Washington, St Louis, December 2023, "Claustrocortical control of pain"
2. Neuroscience Seminar Series, University of Pittsburgh, Pittsburgh, USA, October 2020, "Opioids and the gut microbiome. Targeting the gastrointestinal environment as a novel treatment for opioid withdrawal"
3. Neuroscience Seminar Series, Emory University, Atlanta, USA, October 2020, "Opioids and opioid withdrawal"
4. Neuroscience Seminar Series, The Medical University of South Carolina, Charleston, USA, May 2020 "Opioids and the gut microbiome. Targeting the gastrointestinal environment as a novel treatment for opioid withdrawal"
5. Neuroscience Seminar Series, University of Washington, St Louis, USA, June 2020, "Opioids and the gut microbiome. Targeting the gastrointestinal environment as a novel treatment for opioid withdrawal"
6. Seminar Series, Tulane Brain Institute, Tulane University, New Orleans, USA, February 2018, "The morphine-microglia connection: Revealing a brain-gut microbiome connection in opioid dependence"
7. Seminar, Center for Neuroscience and Behavior, Miami University, Miami, Ohio, USA, November 2016

#### *National*

1. Webinar, Women in Learning and Leadership, Canadian Pain Society
2. Seminar Series, Alberta MS Network, University of Calgary, Calgary Canada, July 2021, Central amygdala regulation of pain in an animal model of MS"
3. Pharmacology Seminar Series, McGill University, Montreal Canada (online), May 2020, "Opioids and the gut microbiome. Targeting the gastrointestinal environment as a novel treatment for opioid withdrawal"
4. Seminar Series, University of Calgary, Veterinary Medicine and Hotchkiss Brain Institute, Calgary, Canada, October 2018, "Revealing a gut-brain connection in opioid dependence"
5. Seminar, Division of Biomedical Sciences, Memorial University, St.John's, Canada, October 2016
6. Seminar, Department Physiologie-Pharmacologie, Sherbrook University, Sherbrook Quebec, March 2016
7. Seminar, Department of Neuroscience, Carleton University, Ottawa, Canada, February 2016

#### *Local*

1. Seminar Series, Department of Pharmacology, University of Alberta, May 2023, "Pain in the claustrum"
2. Grand Rounds, Department of Oncology, University of Alberta, April 2023, "Gut microbiota interventions for opioid induced hyperalgesia"
3. NMHI PI Retreat, University of Alberta, Edmonton, Canada June 2022, "Third-generation anti-psychotics as a treatment for opioid use disorder"
4. Dean's Lecture Series, University of Alberta, Edmonton, Canada (cancelled due to COVID19)
5. Anesthesiology Research Day, Department of Anesthesiology, University of Alberta, Edmonton, Canada, May 2019, "Opioids and the gut microbiome. Implications for opioid addiction and chronic pain"
6. Seminar Series, University of Alberta, Department of Medical Genetics, Edmonton, Canada, October 2019, "Pain and reward: Implications for chronic pain and opioid addiction"

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7. Grand Rounds, Department of Psychiatry, University of Alberta, Edmonton, Canada, March 2019, "Pain and inflammation"
8. Research Symposium on Opioids and Addiction, Neurochemical Research Unit, University of Alberta, Edmonton, Canada, March 2018, "Revealing a gut-brain connection in opioid dependence"
9. Neuroscience and Mental Health Institute Seminar Series, University of Alberta, Edmonton, Canada, November 2017, "Using genetic models to understand sex differences in opioid analgesia and affect",
10. Neuroscience and Mental Health Institute Welcome Seminar, University of Alberta, Edmonton, Canada, October 2017, "Inflammation as a modulator of motivated behavior in chronic pain and opioid addiction"
11. Pain Interest Group Seminar Series, University of Alberta, Edmonton, Canada, October 2017, "Gut bacteria control your brain: what this means for opioid addiction"

### **Conference Presentations**

1. Kananaskis Inflammation Workshop, University of Calgary, Banff, Canada, January 2020, "Targeting microglia as a target for chronic pain and opioid addiction"
2. American Pain Society Summit, Anaheim, USA, March 2018, "Chronic opioids impact sensory and affective systems via alterations in the gut microbiome", American Pain Society Summit
3. "Opioids and the gut microbiome. Implications for opioid addiction and chronic pain" Canadian Society of Pharmacology and Therapeutics Annual Meeting, May 2019, Calgary, Canada
4. "Opioid-induced gut microbiota disruption induced via a gut motility mechanism", Spring Pain Meeting, April 2-3 2019, Milwaukee, USA (talk and session chair)
5. "The gut microbiota mediates affective and sensory function associated with regimen-specific morphine dependence" Society for Neuroscience Annual Meeting, November 2018, San Diego, USA,
6. "Neuroimmune regulation of motivational systems in chronic pain", American Pain Society Annual Meeting, May 11-14 2016, Austin, USA
7. "(+) naloxone and microglia: implications for opioids tolerance, hyperalgesia and reward", Winter Conference on Brain Research, Jan 24-29 2015, Snow Bird, Utah
8. "Opioid reward switches to a dopamine dependent process in chronic pain", International Congress on Neuropathic Pain, May 23-26 2013, Toronto, Canada
9. "Non-Peptidergic and parasympathetic fibre plasticity in the lower lip skin following sensory nerve lesion", Society for Neuroscience Annual Meeting, Nov 3-7 2009, San Diego, USA

### **Symposium Organizer**

1. International Narcotic Research Conference, Valencia Spain, July 2022. "The gut brain axis: a key regulator of opioid pharmacology or just a gut feeling" (Symposium organizer and moderator)
2. Winter Conference on Brain Research, Whistler, Canada, January 2018, "A slippery slope to addiction: a role for neuroinflammation" (Panel moderator and presenter)

### **PEER REVIEW ACTIVITIES**

#### **Grant Reviewer**

- |           |   |
|-----------|---|
| 2019      | American Pain Society Future Leaders in Pain Research Award   |
| 2019-2020 | Quebec Pain Research Network Pilot Program<br>MITACS Accelerate Grant Program   |
| 2020      | Canadian Pain Society Trainee Research Awards<br>Agence Nationale de la Recherche (France)                                  |
| 2022      | Health Research Council of New Zealand<br>Canadian Institutes for Health Research, Biological Sciences A (associate member) |

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2022-2025 Canadian Institutes for Health Research, Biological Sciences C (ad hoc reviewer)  
Associate Member, College of Reviewers, Canadian Institutes of Health Research

### Journal Editorial Board Membership

2016-2017 Associate Editor, Frontiers in Psychiatry  
2021-2026 Associate Editor, Neurobiology of Pain

### Journal Reviewer (ad hoc)

- Journal of Pain
- Pharmacology & Biological Psychiatry
- ACS Chemical Neuroscience
- Pain Research & Management
- Psychopharmacology
- Progress in Neuropsychopharmacology & Biological Psychiatry
- Journal of Neuroscience Research
- PLOS One
- Frontiers in Psychiatry
- Heliyon
- Brain, Behaviour, and Immunology
- Pain

### Conference Programming Committees

2019-present Scientific Program Committee, Canadian Pain Society Annual Meeting  
2021-present Vice-Chair Awards Committee, Canadian Pain Society

### EDUCATION (see Teaching Portfolio for details)

#### Teaching activities

Learner Level	Classroom	Workplace (lab)
Undergraduate	<b>PMCOL 200</b> (15 lectures & coordinator, ~350 students) <b>Dentistry Course I</b> (Pharmacology; 5 lectures, ~25 students) <b>MED</b> (Pharmacology; 7 lectures, ~150 students) <b>BOT380</b> (1 lecture, ~200 students) <b>NUFS 428</b> (1 lecture, ~25 students) <b>NEUR410/510</b> (1 lecture, ~20 students) <b>NEUR472</b> (1 lecture, ~20 students)	PMCOL 301/302 (2 students) PMCOL 401/402 (3 students) PMCOL 498 (2 students) NEUR 498 (3 students) NEUR 450/451 (1 student)

### Graduate Student Supervision

#### Graduated

2018-2020 Zoe Dworsky-Fried, Masters of Science, Department of Pharmacology, University of Alberta  
Current Position: Medical School University of Alberta  
2018-2021 Caylin Chadwick, Masters of Science, Neuroscience and Mental Health Institute, University of Alberta  
Current Position: Clinical Research Assistant

#### Current

2020-present Christian Faig, PhD Candidate, Department of Pharmacology, University of Alberta

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2020-present Olivia Lacaprara, (Co-supervisor), MSc Candidate, Neuroscience and Mental Health Institute, University of Alberta

2021-present Julia Nickols, MSc Candidate, Department of Pharmacology, University of Alberta

2021-present Adam Wass, MSc Candidate, Neuroscience and Mental Health Institute, University of Alberta

### **PROFESSIONAL ACTIVITIES/MEMBERSHIP**

2009-2010 Board Member, Quebec Network for Junior Pain Investigators 2019-present  
Founding Member, Alberta Pain Research Network

2018-present Alberta MS Society, Board Member

2020-present Awards Co-Chair, Canadian Pain Society

### **CONTINUOUS PROFESSIONAL DEVELOPMENT**

2017 Introductory Teaching Workshop, Faculty of Medicine & Dentistry, University of Alberta

An Introduction to Evidence-Based Undergraduate STEM Teaching, The Center for Integration of Research, Teaching, and Learning MOOC

2018 Graduate Student Mentorship Workshop, Faculty of Medicine & Dentistry, University of Alberta

2020 Hosting Large format classes over zoom, CTL

### **SERVICE**

#### **Faculty**

2019-Present Review Committee, FOMD Graduate Student Recruitment Competition

2019 Review Committee, SMART (Sensory Motor Adaptive Rehab Therapy) Innovate Fund Fellowship Competition

2020 Committee Member, Faculty Development Committee

#### **Department**

2019 Judge, Department of Anesthesiology Research Day

2019 Scientific adjudicator, Department of Pharmacology Research Day

2019-present Member, Neuroscience and Mental Health Institute Graduate Studies Committee

2020 Committee Member, Department of Pharmacology Undergraduate Curriculum Review Committee

2022-present Department of Pharmacology Graduate Student Education Committee

#### **Community Outreach**

2019 Presenter, Telus World of Science Dark Matters "Science of Drugs"

2019 Presenter, NMHI Public Lecture, "What your gut is telling your brain"

2019 Lab tour host, Alberta MS Society



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