

Benedict J. Kolber, Ph.D.

Curriculum Vitae

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I. Professional Preparation and Experience

A. Education

Post-Doctoral Research Fellow: 12/2009 – 11/2011

Washington University in St. Louis

St. Louis, MO

Supervisor: Professor of Anesthesiology Robert Gereau IV, Ph.D.

Department of Anesthesiology and Washington University Pain Center

Post-Doctoral Research Associate: 11/2008 – 12/2009

Washington University in St. Louis

St. Louis, MO

Supervisor: Professor of Anesthesiology Robert Gereau IV, Ph.D.

Department of Anesthesiology and Washington University Pain Center

Ph.D. in Neuroscience: 8/2003 – 11/2008

Washington University in St. Louis

St. Louis, MO

Supervisor: Professor of Pediatrics Louis Muglia, M.D. Ph.D.

Program in Neuroscience, Division of Biomedical and Biological Sciences, Department of Pediatrics

B.S. in Biology and Psychology: 8/1999 – 5/2003

University of Dayton

Dayton, OH

Supervisor: Professor Carissa Krane, Ph.D.

Majors: Biology and Psychology Minor: Chemistry Graduated Summa Cum Laude (GPA 4.0)

B. Academic Appointments (*Current Primary Position)

Associate Professor*, Department of Neuroscience (8/2020 – Present)

University of Texas at Dallas, Richardson, TX

Adjunct Associate Professor, Neurobiology (7/2019 – Present)

University of Pittsburgh School of Medicine, Pittsburgh, PA

Core Faculty, Pittsburgh Center for Pain Research (2/2019 – Present)

University of Pittsburgh School of Medicine, Pittsburgh, PA

Associate Professor (with tenure), Department of Biological Sciences (7/2018 – 7/2020)

Duquesne University, Pittsburgh, PA

Research and Education Coordinator, Chronic Pain Research Consortium (2/2012 – 7/2020)

Duquesne University, Pittsburgh, PA

Assistant Professor, Department of Biological Sciences (12/2011 – 7/2018)

Duquesne University, Pittsburgh, PA

Instructor, Neuroscience Program and Department of Biology (6/2009 – 11/2011)

Washington University in St. Louis, St. Louis, MO

Graduate Student Instructor, Program in Neuroscience (8/2007 – 11/2007)

Washington University in St. Louis, St. Louis, MO

Graduate Student Teaching Assistant, Program in Neuroscience, Dept of Biology (8/2005 – 12/2005)

Washington University in St. Louis, St. Louis, MO

Graduate Student Research Assistant, Program in Neuroscience, Dept of Pediatrics (8/2003 – 11/2008)

Washington University in St. Louis, St. Louis, MO

Lab Instructor, Department of Biological Sciences (6/2001 – 8/2001)

University of Dayton, Dayton, OH

Undergraduate Student Research Assistant, Department of Biological Sciences (5/2001 – 5/2003)

University of Dayton, Dayton, OH

C. Memberships in professional organizations

- American Society for Cell Biology (2014 – 2017)
- Council on Undergraduate Research (since 2013)
- International Association for the Study of Pain (since 2013)
- American Pain Society (2010 – 2019)
 - Co-Chair of Basic Science Shared Interest Group (2013 – 2015)
- Faculty for Undergraduate Neuroscience (FUN) (since 2010)
- National Science Teacher's Association (2010 – 2013)

- Society for Neuroscience (since 2004)
- American Physiological Society (2002-2008; 2012 – Present)

II. Scholarship

A. Scholarly publications

As of February 1, 2020: My publications have been cited 1028 times.

1. Peer-reviewed publications based on work done at Duquesne University as an Assistant and Associate Professor since Dec 2011

^{UG} – Undergraduate author mentored; ^G – Graduate author mentored;
^{PD} – Postdoc author mentored; ^C – Corresponding author

- 1) Allen H^G, Bobnar H^G, **BJ Kolber^C** (2020). Left and Right Hemispheric Lateralization of the Amygdala in Pain. *Progress in Neurobiology*. (In Press; accepted 7/22/2020)
- 2) Lewter L^{PD}, Johnson M^{UG}, Treat A^{PD}, Kassick AJ, Averick S, **BJ Kolber^C** (2020). Slow-sustained delivery of naloxone reduces typical naloxone-induced precipitated opioid withdrawal effects in male morphine-dependent mice. *Journal of Neuroscience Research* (In Press; accepted 3/31/2020).
- 3) Koroshetz WJ... [+ 26 others including **Kolber BJ**] (2020). Framework for advancing rigorous research. *eLife* 9: e55915. doi: [10.7554/eLife.55915](https://doi.org/10.7554/eLife.55915)
- 4) Polaski AM^G, Phelps AL, Szucs KA, Ramsey AM^{UG}, Kostek MC, **BJ Kolber^C** (2019). The dosing of aerobic exercise therapy on experimentally-induced pain in healthy female participants. *Scientific Reports* 9: 14842. doi: [10.1038/s41598-019-51247-0](https://doi.org/10.1038/s41598-019-51247-0)
- 5) Kassick AJ, Allen HA^G, Yerneni SS, Pary F, Kovaliov M, Cheng C, Pravetoni M, Tomycz ND, Whiting DM, Nelson TL, Feasel M, Campbell PG, **Kolber BJ**, S Averick (2019). Covalent poly(lactic acid) nanoparticles for the sustained delivery of naloxone. *ACS Applied Bio Materials* 2(8): 3418-3428. doi: [10.1021/acsabm.9b00380](https://doi.org/10.1021/acsabm.9b00380)
- 6) Tseuguem PP, Ngangoum DAM, Pouadjeu JM, Piégang BN, Sando Z, **Kolber BJ**, Tidgewell KJ, TB Nguelefack^C (2019). Aqueous and methanol extracts of *Paullinia pinnata L. (Sapindaceae)* improve inflammation, pain and histological features in CFA-induced mono-arthritis: Evidence from in vivo and in vitro studies. *Journal of Ethnopharmacology* 2019 May 23;236:183-195. doi: [10.1016/j.jep.2019.02.048](https://doi.org/10.1016/j.jep.2019.02.048). Epub 2019 Mar 5. PubMed PMID: 30849505.
- 7) Polaski AM^G, Phelps AL, Kostek MC, Szucs KA, & **B Kolber^C** (2019). Exercise-induced hypoalgesia: A meta-analysis of exercise dosing for the treatment of chronic pain. *PLoS ONE* 14(1): e0210418. doi: [10.1371/journal.pone.0210418](https://doi.org/10.1371/journal.pone.0210418)
- 8) Baktay J^{UG}, Miller Neilan R^C, Behun M^{UG}, McQuaid N^{UG}, & **B Kolber** (2019). Modeling neural behavior and pain during bladder distention using an Agent-based model of the central nucleus of the amygdala. *SPORA: A Journal of Biomathematics* 5(1): 1-13. doi: [10.30707/spora5.1baktay](https://doi.org/10.30707/spora5.1baktay); PMID: 30793094; PMCID: PMC6380509
- 9) Lax N^G, Parker SA, Hilton E^{UG}, Seliman Y^{UG}, Tidgewell K^C, & **B Kolber^C** (2018). Cyanobacterial extract with serotonin receptor subtype 7 (5-HT₇R) affinity modulates depression and anxiety-like behavior in mice. *Synapse* Jul 10:e22059. doi: [10.1002/syn.22059](https://doi.org/10.1002/syn.22059)
- 10) Lax N^G, Chen R, Leep S^{UG}, Ulrich K, Yu L, & **B Kolber^C** (2017). Polymorphine provides extended analgesic-like effects in mice with spared nerve injury. *Molecular Pain* 13: 1-12. doi: [10.1177/1744806917743479](https://doi.org/10.1177/1744806917743479)
- 11) **BJ Kolber^C** (2017). It's what's on the inside that counts: Evidence for intracellular GPCR signaling in inflammatory pain. *PAIN* April 2017 158 (4): 541-542. doi: [10.1097/j.pain.0000000000000843](https://doi.org/10.1097/j.pain.0000000000000843); PMID: 28141636
- 12) Sadler KE^G, Gartland N^{UG}, Cavanaugh J & **BJ Kolber^C** (2017). Central amygdala activation of extracellular signal-regulated kinase 1 and age-dependent changes in inflammatory pain sensitivity in mice. *Neurobiology of Aging* 56: 100-107. doi: [10.1016/j.neurobiolaging.2017.04.010](https://doi.org/10.1016/j.neurobiolaging.2017.04.010)
- 13) Sadler KE^G, McQuaid N^{UG}, Cox AC^{UG}, Behun MN^{UG}, Trouten AM^{UG} & **BJ Kolber^C** (2017). Divergent functions of the left and right central amygdala in visceral nociception. *PAIN* April 158(4): 747-759. doi: [10.1097/j.pain.0000000000000830](https://doi.org/10.1097/j.pain.0000000000000830); PMID: 28225716

- 14) Kostek M, Polaski AG, **Kolber B**, Ramsey AUG, Kranjec A & K Szucs^C (2016). A Protocol of Manual Tests to Measure Sensation and Pain in Humans. *Journal of Visual Experimentation* (118): e54130, (2016). doi: [10.3791/54130](https://doi.org/10.3791/54130)
 - 15) Lax N^G, Morris J & **BJ Kolber^C** (2016). A partial-flip classroom exercise in a large introductory general biology course increases performance at multiple levels. *Journal of Biological Education* Nov: 1-15. doi: [10.1080/00219266.2016.1257503](https://doi.org/10.1080/00219266.2016.1257503)
 - 16) Long CC^{UG}, Sadler KE^G & **BJ Kolber^C** (2016). Hormonal and molecular effects of restraint stress on formalin-induced pain-like behavior in male and female mice. *Physiology and Behavior* Oct 165: 278-285. doi: [10.1016/j.physbeh.2016.08.009](https://doi.org/10.1016/j.physbeh.2016.08.009); PMID: 27520589
 - 17) Wolz MJ^{UG}, Sadler KE^G, Long CC^{UG}, Brenner D, Kim BS, Gereau IV RW & **BJ Kolber^C** (2016). Post-inflammatory hyperpigmentation following human cold pain testing. *PAIN Reports* 1: e569. doi: [10.1097/PR9.0000000000000569](https://doi.org/10.1097/PR9.0000000000000569)
 - 18) **Kolber BJ^{C,*}** Janjic J, Pollock J & K Tidgewell^{C,*} (2016). Summer undergraduate research: A new pipeline for pain clinical practice and research. *BMC Medical Education* 2016 May 4 16(1): 135. doi: [10.1186/s12909-016-0648-7](https://doi.org/10.1186/s12909-016-0648-7); PMID: 27142616 / PMCID: PMC4855323 *Equal contribution and corresponding authors
 - 19) Lax NC^G, KT Ahmed, Ignatz CM^{UG}, Spadafora C, **Kolber BJ^{C,*}** & KT Tidgewell^{C,*} (2016). Marine cyanobacteria-derived serotonin receptor 2C active fraction induces behavioral effects in mice. *Pharmaceutical Biology* 2016 Nov;54(11): 2723-2731. Epub 2016 May 14. doi: [10.1080/13880209.2016.1181659](https://doi.org/10.1080/13880209.2016.1181659); PMID: 27181630 / PMCID: PMC5155707 *Equal contribution and corresponding authors
 - 20) Sadler KE^G & **BJ Kolber^C** (2016). Urine trouble: Alterations in brain function associated with bladder pain. *Journal of Urology* Jul;196(1): 24-32. doi: [10.1016/j.juro.2015.10.198](https://doi.org/10.1016/j.juro.2015.10.198); PMID: 26905019 / PMCID: PMC4914416
 - 21) **BJ Kolber^C** (2015). mGluRs from head to toe in pain. *Progress in Molecular Biology and Translational Science*, 131: 281-324. doi: [10.1016/bs.pmbts.2014.12.003](https://doi.org/10.1016/bs.pmbts.2014.12.003); PMID: 25744677
 - 22) Lax NC^G, George DC^{UG}, Ignatz C^{UG} & **BJ Kolber^C** (2014). The mGluR5 antagonist fenobam induces analgesic conditioned place preference in mice with spared nerve injury. *PLoS One* 2014 Jul 25;9(7): e103524. doi: [10.1371/journal.pone.0103524](https://doi.org/10.1371/journal.pone.0103524); PMID: 25061818 / PMCID: PMC4111598
 - 23) Nolan T, Geffert L^G, **Kolber BJ**, Madura J & Surratt C^C (2014). Discovery of novel-scaffold monoamine transporter ligands via in silico screening with the S1 pocket of the serotonin transporter. *ACS Chemical Neuroscience* 2014 Sep 17;5(9): 784-92. doi: [10.1021/cn500133b](https://doi.org/10.1021/cn500133b); PMID: 25003748 / PMCID: PMC4176318
 - 24) **Kolber BJ^{**}**, Konsolaki M^{**}, Verzi MP, Wagner CR, McCormick JR & K Schindler^{C^{**}} (2014). Sex-specific differences in Meiosis: Real-world applications. *Course Source* 1: 1-6. doi: [10.24918/cs.2014.8](https://doi.org/10.24918/cs.2014.8); ^{**Contributed equally to manuscript}
 - 25) Sadler KE^G, Stratton JU^G & **BJ Kolber^C** (2014). Urinary bladder distention evoked visceromotor responses as a model for bladder pain in mice. *Journal of Visual Experimentation* (86): e51413. doi: [10.3791/51413](https://doi.org/10.3791/51413); PMID: 24798516 / PMCID: PMC4181312
 - 26) Sadler KE^G, Stratton JU^G, DeBerry JJ & **BJ Kolber^C** (2013). Optimization of a pain model: Effects of body temperature and anesthesia on bladder nociception in mice. *PLoS One* Nov 5 8(11): e79617. doi: [10.1371/journal.pone.0079617](https://doi.org/10.1371/journal.pone.0079617); PMID: 24223980 / PMCID: PMC3818235
 - 27) Crock LW^{**}, **Kolber BJ^{**c}**, Morgan C, Sadler KE^G, Vogt SK, Bruchas MR & RW Gereau IV (2012). Central amygdala mGluR5 in the modulation of visceral pain. *Journal of Neuroscience* Oct 10;32(41): 14217-26. doi: [10.1523/JNEUROSCI.1473-12.2012](https://doi.org/10.1523/JNEUROSCI.1473-12.2012); PMID: 23055491 / PMCID: PMC3494864
^{**Co-first authors}
2. **Publications 28-38 below were completed prior to start of position at Duquesne University**
- 28) Dong H, Murphy K, Meng L, Montalvo-Ortiz J, Zeng Z, **Kolber BJ**, Zhang S, Muglia LJ & JG Csernansky^C (2012). Corticotrophin releasing factor accelerates neuropathology and cognitive decline in a mouse model of Alzheimer disease. *Journal of Alzheimer's Disease* Jan 1;28(3): 579-92. doi: [10.3233/JAD-2011-111328](https://doi.org/10.3233/JAD-2011-111328); PMID: 22045495 / PMCID: PMC3494090

- 29) Montana MC, Conrardy BA, Cavallone LF, **Kolber BJ**, Rao LK, Greco SC & RW Gereau^C (2011). Metabotropic glutamate receptor 5 antagonism with fenobam: Examination of analgesic tolerance and side effect profile in mice. *Anesthesiology* Epub 2011 Oct 27 2011; Dec;115(6): 1239-50. doi: [10.1097/ALN.0b013e318238c051](https://doi.org/10.1097/ALN.0b013e318238c051); PMID 22037639 / PMCID 3226928
- 30) Arnett MG, **Kolber BJ**, Boyle MP & LJ Muglia^C (2011). Behavioral insights from mouse models of forebrain- and amygdala-specific glucocorticoid receptor genetic disruption. *Molecular Cellular Endocrinology* Apr 10;336(1-2): 2-5. Epub 2010 Nov 20. doi: [10.1016/j.mce.2010.11.011](https://doi.org/10.1016/j.mce.2010.11.011); PMID 21094675 / PMCID 3172614
- 31) Liu Q, Zhang J, Zerbinatti C, Zhan Y, **Kolber BJ**, Herz J, Muglia LJ & G Bu^C (2011) Lipoprotein receptor LRP1 regulates leptin signaling and energy homeostasis in the adult central nervous system. *PLoS Biology* Jan 11; 9(1): e1000575. doi: [10.1371/journal.pbio.1000575](https://doi.org/10.1371/journal.pbio.1000575); PMID 21264353 / PMCID 3019112
- 32) **Kolber BJ**^C (2011). Extended problem-based learning improves scientific communication in senior-biology students. *Journal of College Science Teaching* 41(1): 32-39. [Article Link](#)
- 33) **Kolber BJ**, Montana MC, Carrasquillo Y, Xu J, Heinemann SF, Muglia LJ & RW Gereau^C (2010). Activation of metabotropic glutamate receptor 5 in the amygdala modulates pain-like behavior. *Journal of Neuroscience* 30(24): 8203-8213. doi: [10.1523/JNEUROSCI.1216-10.2010](https://doi.org/10.1523/JNEUROSCI.1216-10.2010); PMID 20554871 / PMCID2898903
- 34) **Kolber BJ**, Howell MP, Wieczorek L, Kelley CL, Onwuzurike CC^{UG}, Nettles SA, Vogt SK & LJ Muglia^C (2010). Transient early forebrain CRH elevation causes lasting anxiogenic and despair-like changes in mice. *Journal of Neuroscience* 30(7): 2571-2581. doi: [10.1523/JNEUROSCI.4470-09.2010](https://doi.org/10.1523/JNEUROSCI.4470-09.2010); PMID 20164342 / PMCID 2969849
- 35) **Kolber BJ** & LJ Muglia^C (2009). Defining brain region-specific glucocorticoid action during stress by conditional gene disruption in mice. *Brain Research* Oct 13;1293: 85-90. doi: [10.1016/j.brainres.2009.03.061](https://doi.org/10.1016/j.brainres.2009.03.061); PMID 19361487 / PMCID 2821940
- 36) **Kolber BJ**, Roberts MS, Howell MP, Wozniak DF, Sands MS & LJ Muglia^C (2008). Central amygdala glucocorticoid receptor action promotes fear conditioning through a CRH-dependent network. *Proceedings of the National Academy of Sciences* 105(33): 12004-12009. doi: [10.1073/pnas.0803216105](https://doi.org/10.1073/pnas.0803216105); PMID 18695245 / PMCID 2575312
- 37) **Kolber BJ**, Wieczorek L & LJ Muglia^C (2008). Hypothalamic-pituitary-adrenal axis dysregulation and behavioral analysis of mouse mutants with altered glucocorticoid or mineralocorticoid receptor function. *Stress* 11(5): 321-328. doi: [10.1080/10253890701821081](https://doi.org/10.1080/10253890701821081); PMID 18609295 / PMCID 2744095
- 38) Boyle MP, **Kolber BJ**, Vogt SK, Wozniak DF & LJ Muglia^C (2006). Forebrain glucocorticoids receptors modulate anxiety-associated locomotor activation and adrenal responsiveness. *Journal of Neuroscience* 26(7): 1971-1978. doi: [10.1523/JNEUROSCI.2173-05.2006](https://doi.org/10.1523/JNEUROSCI.2173-05.2006); PMID 16481429
3. **In review or in preparation publications based on work done at Duquesne University**
UG – Undergraduate author mentored; *G* – Graduate author mentored;
PD – Post-doc author mentored *C* – Corresponding author
- 1) Polaski AM^G, Phelps AL, Smith TJ, Helm ER, Morone NE, Szucs KA, Kostek MC, **BJ Kolber**^C (2020). Integrated meditation and exercise therapy: A randomized controlled pilot of a combined non-pharmacological intervention reduces disability and pain in patients with chronic low back pain. (*In Review*).
- 2) Richter B, Mac Z, Hays ME, Adhikari S, Pham HQ, Le TQ, Sclabassi RJ, Richter F, Cheng B, Whiting DM, **Kolber BJ**, Nelson TL, S Averick (2020). Novel conductive fibers for nerve *in vivo* neural stimulation. (*In Review*).
- 3) Parker SJ, Rague A, Wright T, Lax N^G, **Kolber BJ**, Cavanaugh J, KJ Tidgewell (2020). Linear Hexadepsipeptide from Marine Cyanobacteria (*Okeania sp.*) Induces Apoptosis in Triple Negative Breast Cancer Cells. (*In Preparation*) *Journal of Medicinal Chemistry*.
4. **Invited and edited (non-peer reviewed) publications based on work done at Duquesne University**
^G – Graduate author mentored; ^C – Corresponding author

- 1) **BJ Kolber** (2020). "Alumni Voices of the African Immersion Experience – Natural Products Drug Discovery in Cameroon" in Enhancing Global Consciousness on College Campuses and Beyond: Proceedings of the 2020 Global Voices Symposium. Ed. JA Amin; University of Dayton Publishing, Lulu Press: 96-99.
- 2) Bobnar HG, **BJ Kolber**^C (2020). Preparing optrodes for extracellular recording with optogenetic manipulation of cell-type specific neurons. Published in *The Carrier* newsletter of David Kopf Instruments, 97, Feb 2020.
- 3) **BJ Kolber**^C (2018). Best practices in mentoring students: A reflection. *The Flourishing Academic* blog published by Duquesne University Center for Teaching Excellence. Edited by Laurel Willingham-McLain. April 24, 2018 [Article Link](#)
- 4) **BJ Kolber**^C (2018). Beg, borrow, appeal – Using existing resources to build summer research programs that feed the pipeline of future neuroscientists. Edited by Carlita Favero. *Faculty for Undergraduate Neuroscience (F.U.N.)* Quartley Newsletter January 2018 (http://funfaculty.org/drupal/Newsletter_Issues)
- 5) Sadler KE^G & **BJ Kolber**^C (2014). Beyond the Abstract: Optimization of a pain model: Effects of body temperature and anesthesia on bladder nociception in mice. Edited by John Robertson. *UroToday* [Article Link](#)
- 6) Sadler KE^G & **BJ Kolber**^C (2014). Beyond the Abstract: Urinary bladder distention evoked visceromotor responses as a model for bladder pain in mice Divergent functions of the left and right central amygdala in visceral nociception. Edited by John Robertson. *UroToday* [Article Link](#)

B. Grants awarded

1. Grants awarded while at Duquesne University as PI or co-PI *Active

- 1) **Title:** Understanding the role of the amygdala in chronic neuropathic pain.
Years of funding: 2020 – 2022
Funding agency: Commonwealth of Pennsylvania
Grant number: CURE Award
Role: Principal Investigator
Date submitted: 9/2019
Status: I was selected to receive this grant. However, it was not transferrable to another state so I had to turn it down in April 2020 when I took a job at the University of Texas at Dallas.
- 1) ***Title:** A novel TRP modulator YB-2 to fight opioid crisis and treat chronic pain.
Years of funding: 2019 – 2020
Funding agency: NIH (NIDA) SBIR
Grant number: 1R43- DA050405
Role: co-Investigator
Budget: \$73,587 to Duquesne (\$53,324 direct to Kolber)
Date Received: 9/2019
- 2) ***Title:** Impact of amygdala lateralization on processing and modulation of bladder pain.
Years of funding: 2018 – 2023
Funding agency: NIH (NIDDK)
Grant number: 1R01-DK115478A1
Role: Principal investigator
Budget: \$1,549,080 (\$1,195,690 direct to Kolber)
Date Received: 8/2018 (8/2019 Supplement to Promote Diversity in Health-Related Research)
- 3) ***Title:** CNS drug discovery from the ocean: Utilizing cyanobacteria to treat comorbid pain and depression.
Years of funding: 2018 – 2021
Funding agency: NIH NCCIH
Grant number: R15-AT008060-02
Role: co-Principal Investigator (co-PI Kevin Tidgewell)
Budget: \$511,928 (total costs); \$221,255 (direct costs to Kolber)
Date Received: 7/2018 (7/2019 Supplement to Promote Diversity in Health-Related Research)

- 4) ***Title:** Using ethnopharmacologic knowledge from Cameroon to develop novel Sigma 2 receptor agonists for pain treatment.
Years of funding: 2018 – 2019 (2021 NCE)
Funding Agency: International Association for the Study of Pain
Grant Number: 2018 IASP Collaborative Research Grant
Role: Principal Investigator
Budget: \$15,000
Date Received: 5/2018
- 5) ***Title:** Pain and Neurodegenerative Undergraduate Research Experiences: Interacting with community partners to build specialized and enhanced neurologic disease programs for undergraduates.
Years of funding: 2018 – 2023
Funding agency: NIH NINDS
Grant number: R25-NS100118-A1
Role: Principal Investigator (primary); co-PIs (Tidgewell, Mike Cascio, Rita Mihailescu)
Budget: \$539,989 (\$27,259 direct to Kolber)
Date Received: 1/2018
- 6) **Title:** Kappa opioid receptor signaling is emerging as the underlying mechanism through which stress exacerbates pain disorders, but whether KOR antagonists will relieve stress-induced pain remains untested.
Years of funding: 2017 – 2018
Funding agency: Clinical and Translational Science Institute, University of Pittsburgh and Virginia Kaufmann Foundation
Grant number: Pain Research Challenge
Role: co-Investigator (Sarah Ross PI)
Budget: \$75,000 (\$15,000 direct to Kolber)
Date received: 5/2017
- 7) **Title:** “Walking” OR Combining two known analgesic interventions (exercise & meditation) in a novel interaction study to treat patients with chronic pain.
Years of funding: 2017 – 2018 (2019 NCE)
Funding agency: Clinical and Translational Science Institute, University of Pittsburgh and Virginia Kaufmann Foundation
Grant number: Pain Research Challenge
Role: co-Investigator (Matthew Kostek PI)
Budget: \$75,000 (\$44,771 direct to Kolber)
Date received: 5/2017
- 8) **Title:** A multi-continent collaboration in pain research and treatment: Using ethnopharmacological knowledge from Cameroon to develop novel pain treatments.
Years of funding: 2017 – 2018
Funding agency: Duquesne University Center for African Studies
Grant number: Rev. Alphons Loogman, C.S.Sp. Faculty Research Grant
Role: Principal Investigator
Budget: \$6,000
Date received: 4/2017
- 9) **Title:** The Neurodegenerative Undergraduate Research Experience (NURE): Utilizing community partners to build a specialized and enhanced neurological disease research program for underrepresented undergraduates.
Years of funding: 2016 – 2017
Funding agency: Duquesne University Charles Leach II Fund
Grant number: n/a
Role: Principal Investigator
Budget: \$25,000
Date received: 6/2016
- 10) **Title:** Theranostic Pain Nanomedicines: imaging inflammation, reducing pain and need for opioids.

- Years of funding:** 2015 – 2018
Funding agency: NIH NIDA
Grant number: R21DA039621 CEBRA
Role: co-Investigator (Jelena Janjic PI)
Budget: \$330,000 (\$50,000 direct to Kolber)
Date received: 4/2015
- 11) **Title:** Development of an extensive active learning strategy for a large introductory science course.
Years of funding: 2015 – 2016
Funding agency: American Society for Cell Biology
Grant number: Mentoring Active Learning and Teaching”(MALT) Award for early career educators
Role: Primary Investigator
Budget: \$1200
Date received: 11/2014
- 12) **Title:** A role for the amygdala in age-related increases in pain sensitivity.
Years of funding: 2014 – 2015
Funding agency: Duquesne Chronic Pain Research Consortium
Grant number: Research Stimulator Grant
Role: co-Principal Investigator (Jane Cavanaugh co-PI)
Budget: \$2,954 (direct to Kolber and co-PI)
Date received: 9/2014
- 13) **Title:** Cyanobacterial natural products to treat comorbid pain and depression.
Years of funding: 2014 – 2017 (2018 NCE)
Funding agency: NIH NCCIH
Grant number: NCCIH R15 AT008060
Role: co-Principal Investigator (Tidgewell co-PI)
Budget: \$392,796 (\$150,000 direct to Kolber)
Date received: 7/2014
- 14) **Title:** Chronic pain research consortium interdisciplinary award.
Years of funding: 2014 – 2017
Funding agency: Duquesne University Office of the Provost
Grant number: Provost's Interdisciplinary Research Consortia Grant
Role: co-Investigator (Janjic/John Pollock co-PIs)
Budget: \$25000 (direct costs) per year award administered as an award by PI's and co-I's
Date received: 6/2014
- 15) **Title:** Managing pain: Testing the social aspects of exercise therapy using a multi-school collaborative approach with an animal model of muscle pain.
Years of funding: 2014 – 2017
Funding agency: Duquesne University
Grant number: Faculty Development Fund
Role: Principal Investigator
Budget: \$9700 (\$4850 direct to Kolber)
Date received: 5/2014
- 16) **Title:** Probing the role of hemispheric lateralization in the modulation of bladder pain.
Years of funding: 2013 – 2015
Funding agency: International Association for the Study of Pain (IASP) and ScanIDesign Research Foundation
Grant number: Early Career Research Grant
Role: Principal Investigator
Budget: \$20,000
Date received: 4/2013
- 17) **Title:** Cyanobacterial natural products to treat comorbid pain and depression.
Years of funding: 2013 – 2015
Funding agency: Duquesne University
Grant number: Faculty Development Fund

Role: co-Investigator (Tidgewell PI)
Budget: \$10,000 (\$2,245 direct to Kolber)
Date received: 4/2013

- 18) **Title:** Cyanobacterial natural products to treat comorbid pain and depression.
Years of funding: 2013 – 2015
Funding agency: American Pain Society
Grant number: Sharon S. Keller Award in Chronic Pain
Role: Principal Investigator
Budget: \$35,000 (\$19,500 direct to Kolber)
Date received: 4/2013
- 19) **Title:** Treating comorbid major depression and chronic pain with novel compounds that target both individual diseases.
Years of funding: 2012 – 2014
Funding agency: The Pittsburgh Foundation with the Jacob A. and Frieda M. Hunkele Charitable Trust for Research of Dreaded Diseases
Grant number: n/a
Role: Principal Investigator
Budget: \$6,000
Date received: 5/2012

2. **Grants awarded while at Duquesne University with Kolber as Faculty Sponsor**

***Active**

- 1) ****Title:** Probing bladder pain physiology through the interrogation of specific cell types in the amygdala.
Years of funding: 2020 – 2023
Funding agency: NIH National Institutes of Diabetes and Digestive and Kidney Diseases (NIDDK)
Grant number: NIDDK National Service Research Award (NRSA) F31DK
Role: Faculty Sponsor for graduate student Harley Bobnar (co-Sponsor Bradley Taylor)
Budget: \$154,020 (total direct costs to Bobnar)
Date submitted: 8/2019
****Status:** This award was selected for funding but Bobnar left the PhD program prior to move to Texas so no money was actually awarded for the grant.
- 2) **Title:** Characterization of zymosan-induced bladder pain in female mice treated as both neonates and adults.
Years of funding: 2019 – 2020
Funding agency: Beta Beta Beta Biology Honors Society
Grant number: Undergraduate Research Award
Role: Faculty Sponsor for undergraduate student Olivia Babyok
Budget: \$600
Date received: 10/2019
- 3) **Title:** An agent-based model of pain-related neural activity in the amygdala.
Years of funding: 2019
Funding agency: National Institute for Mathematical and Biological Sciences
Grant number: NIMBioS Undergraduate Research Conference (URC) Travel Award
Role: Faculty Sponsor for undergraduate student Gabrielle Majetic
Budget: \$674
Date received: 10/2019
- 2) ***Title:** Investigation of cell-type specific contributions to bladder pain modulation in the central amygdala.
Years of funding: 2019 – 2022
Funding agency: NIH NIDDK
Grant number: NRSA F31 DK121484-01
Role: Faculty Sponsor for graduate student Heather Allen
Budget: \$42,226 (Yr 1)
Date received: 1/2019

- 3) **Title:** Investigating the role of amygdala kappa opioid receptors in the modulation of stress-induced pain.
Years of funding: 2018
Funding agency: American Physiological Society
Grant number: Undergraduate Summer Research Fellowship Program
Role: Faculty Sponsor to undergraduate Meeraal Zaheer
Budget: \$5,900 (\$300 direct to Kolber)
Date received: 4/2018
- 4) **Title:** Calcitonin Gene-Related Peptide: A potential origin of central amygdala lateralization to regulate bladder pain.
Years of funding: 2017
Funding agency: IES Brain Research Foundation
Grant number: IES Brain Research Foundation Summer Fellowship
Role: Faculty Sponsor to undergraduate Abigail Cox
Budget: \$2,500 (note – money turned down but student still included in fellowship program and all associated activities)
Date received: 4/2017
- 5) **Title:** Investigating presynaptic origins of central amygdala lateralization in bladder pain processing
Years of funding: 2016 – 2017
Funding agency: Beta Beta Beta Biology Honors Society
Grant number: Undergraduate Research Award
Role: Faculty Sponsor for undergraduate Abigail Cox
Budget: \$1000
Date received: 11/2016
- 6) **Title:** Age dependent changes in amygdala signaling responsible for altered pain sensitivity.
Years of funding: 2016
Funding agency: Duquesne University Aging Research and Teaching Consortium
Grant number: ARTC Stimulator Program
Role: Faculty Sponsor for graduate student Katelyn Sadler
Budget: \$2,250
Date received: 5/2016
- 7) **Title:** Understanding the persistent physiological mechanisms of interstitial cystitis/bladder pain syndrome.
Years of funding: 2016 – 2017
Funding agency: American Physiological Society
Grant number: Undergraduate Summer Research Fellowship Program
Role: Faculty Sponsor for undergraduate Abigail Cox
Budget: \$5,900 (\$300 direct to Kolber)
Date received: 3/2016
- 8) **Title:** Analysis of sex-based differences in a mouse model of stress-induced analgesia.
Years of funding: 2015
Funding agency: Council for Undergraduate Research (CUR)
Grant number: Biology Division Travel Award
Role: Faculty Sponsor for undergraduate Caela Long
Budget: \$250
Date received: 9/2015
- 9) **Title:** Effects of central amygdala lateralization on descending control of bladder pain.
Years of funding: 2014 – 2017
Funding agency: NIH NIDDK
Grant number: NRSA F31DK104538-01
Role: Faculty Sponsor for graduate student Katelyn Sadler
Budget: \$113,925
Date received: 9/2014
- 10) **Title:** Managing pain: Testing the dosing and social aspects of exercise therapy using animal models.

Years of funding: 2014

Funding agency: Irene and Eric Simon Brain Research Foundation

Grant number: Summer Fellowship Program

Role: Faculty Sponsor for undergraduate Austin Ramsey

Budget: \$2,500

Date received: 4/2014

11) **Title:** Modulation of depression and pain through the biochemically active properties of compounds within marine cyanobacteria.

Years of funding: 2013 – 2014

Funding agency: Beta Beta Beta Biology Honors Society

Grant number: Undergraduate Research Award

Role: Faculty Sponsor for undergraduate Christopher Ignatz

Budget: \$800

Date received: 11/2013

Related: CI won the John C. Johnson Award for Excellence in Student Research at the Tri-Beta District Convention 3/29/2014, which included registration and up to \$700 travel to the National Convention

12) **Title:** Understanding the physiology of bladder pain through a UTI model in mice.

Years of funding: 2012 – 2013

Funding agency: American Physiological Society

Grant number: Undergraduate Summer Research Fellowship Program

Role: Faculty Sponsor for undergraduate Jarred Stratton

Budget: \$5,600 (\$300 direct to Kolber)

Date received: 4/2012

3. **Grants pending (under review or in preparation)**

1) **Title:** Sustained release of naloxone for opioid overdose and reduction of withdrawal using a next generation drug delivery system.

Years of funding: 2020 – 2025

Funding agency: NIH NIDA

Grant number: UG3/UH3 DA050302-A1

Role: co-Principal Investigator (co-PI Saadyah Averick)

Date to be submitted: Winter 2019/2020

Status: To be submitted Winter 2019/2020 (01 application 4/2019 Priority Score = 49)

2) **Title:** Investigation of cell-type specific contributions to neuropathic pain modulation in the central amygdala.

Years of funding: 2020 – 2023

Funding agency: NIH National Institutes of Neurological Disorders and Stroke (NINDS)

Grant number: NINDS National Service Research Award (NRSA) F32

Role: Faculty Sponsor for post-doc Lakeisha Lewter

Budget: \$151,128 (total direct costs to Lewter)

Date submitted: 1/2020

Status: To be reviewed Summer 2020

2. **Grants awarded prior to Duquesne University**

1) **Title:** Cellular and molecular mechanisms underlying amygdala-dependent pain modulation.

Years of funding: 2010 – 2011

Funding agency: NIH NINDS

Grant number: F32 NS067761-01

Role: Principal Investigator (lab of Robert Gereau IV)

Budget: \$87,070

Date received: 2/2010

2) **Title:** Amygdala GR function in stress activation and promotion.

Years of funding: 2006 – 2008

Funding agency: NIH NIMH

Grant number: F31 MH075250-03
Role: Principal Investigator (lab of Louis Muglia)
Budget: \$80,373
Date received: 7/2006

- 3) **Title:** Methods of aquaporin homeostasis: A link between aquaporins and RAS-mediated AVP regulation
Years of funding: 2002
Funding agency: American Physiological Society
Grant number: Undergraduate Summer Research Fellowship Program
Role: Undergraduate Investigator (lab of Carissa Krane)
Budget: \$6,500
Date received: 4/2002

C. Scholarly presentations at international, national, regional, and local meetings

1. Presentations based on work done at Duquesne University

UG – Undergraduate mentored; G – Graduate mentored; HS – High school student mentored;

Presenter of data

Selections below from 103 posters/oral presentations at meetings since 2012

- 1) Allen H^G, Cox A, & **BJ Kolber** (2019). “CGRP in the left central amygdal reduces bladder pain in female mice. Poster presentation at the Annual Society for Neuroscience Meeting, Chicago, IL Oct 19-23, 2019 (Abstract #11445-SfN).
- 2) Pum Tseuguem P, Mouga Ngangoum AD, Tsague Kenfack M, **Kolber BJ**, Tidgewell KJ, & TB Nguelefack (2019). TNA-alpha, IL-1beta and myeloperoxidase inhibitors contribute to the analgesic and anti-inflammatory curative effects of the aqueous and methanol extracts of *Paullinia pinnata* (Sapindaceae) in mon-arthritis in rats. Poster presentation at the Annual Society for Neuroscience Meeting, Chicago, IL Oct 19-23, 2019 (Abstract #F43).
- 3) **Kolber BJ** (2019). “The implications of a longer-lasting Narcan.” Invited oral presentation at the First Integrative Health Summit at Duquesne University, Pittsburgh PA, Oct 2019.
- 4) Polaski A^G, Phelps A, Kostek M, Szucs K, & **BJ Kolber** (2019). “Dose-related effects of moderate intensity aerobic exercise on sensitivity to experimentally-induced pain in healthy female participants.” Poster presentation at the American College of Sports Medicine Annual Conference, Orlando FL, May 2019.
- 5) **BJ Kolber** (2019). “Neuromodulation of Bladder Pain by the Central Amygdala: Implication of Basic Sciences Findings on Imaging Data from Patients.” Invited oral presentation as part of session “Limbic System Influence and Dysregulation in Urologic Pain Syndromes” at the Society for Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction (SUFU) Annual Winter Meeting in Miami FL, Feb 26, 2019.
- 6) **BJ Kolber** (2018). “Effects of a Cameroonian natural product extract with 5-HT₃ receptor affinity in mouse and human DRG.” Presentation at the 2nd Pain Mechanisms Conference Taormina, Italy, June 4-6, 2018.
- 7) Baktay J^{UG}, Neilan R, Behun M^{UG} & **BJ Kolber** (2018). “A computational model of the central nucleus of the amygdala during bladder pain.” Poster presentation at the Duquesne University Undergraduate Research and Scholarship Symposium and Research Symposium April 11, 2018 (#153).
Honorable Mention BSNES Poster Award (\$100)
- 8) Riskus S^{UG}, Polaski A, & **BJ Kolber** (2018). “Exploration of sex differences in experimentally induced inflammatory muscle pain.” Poster presentation at the Duquesne University Undergraduate Research and Scholarship Symposium and Research Symposium April 11, 2018 (#101).
- 9) Polaski A^G, Phelps A, Kostek M, Szucs K & **BJ Kolber** (2018). “Dose-dependent effect of moderate intensity exercise on sensitivity to pain in humans.” Poster presentation at the Duquesne University Graduate Student Research Symposium March 15, 2018 (#28).
- 10) Allen H^G, Cox A & **BJ Kolber** (2018). “Behavioral characterization of cyclophosphamide-induced cystitis in mice.” Poster presentation at the Duquesne University Graduate Student Research

Symposium March 15, 2018 (#16).

- 11) Behun MUG, McQuaid NG, Goldschmidt B & **BJ Kolber** (2017). "Fabrication of a Timed-Pressure Regulator (TPR) to Enable the Study of Bladder Pain." Poster presentation at the BMES 2017 Annual Meeting in Phoenix, AZ, Oct 14, 2017 (Abstract #3047). Refereed abstract.
- 12) Behun MUG & **BJ Kolber** (2017). "Fabrication of a Timed-Pressure Regulator (TPR) to Enable the Study of Bladder Pain." Poster presentation at the Icahn School of Medicine at Mount Sinai, NYC, NY, Sept 16, 2017.

Winner of the 2017 Best Neuroscience Poster Award

- 13) Parker S, **Kolber BJ** & K Tidgewell (2017). "Marine cyanobacteria, a source for lead compounds to treat pain and depression." Poster presentation at the American Society of Pharmacognosy annual meeting Portland, OR, July 30, 2017 (Abstract #P-232).
- 14) Cox AUG, Sadler KG & **BJ Kolber** (2017). "Characterizing neurophysiological mechanisms of chronic bladder pain regulation through the central amygdala." Poster presentation at the Annual Duquesne University Undergraduate Research Program Symposium in Pittsburgh, PA, July 28, 2017 (Abstract #146).

PURE/NURE Reviewed Abstract Award – Won 2nd place prize for blinded peer-reviewed abstract (\$25).

- 15) Zapadka AUG, Lax NG, Tidgewell K & **BJ Kolber** (2017). "Phylogenetic relationships of marine cyanobacteria serving as possible targets for pain and depression." Poster presentation at the Annual Duquesne University Undergraduate Research Program Symposium in Pittsburgh, PA, July 28, 2017 (Abstract #148).

PURE/NURE Reviewed Abstract Award – Won 2nd place prize for blinded peer-reviewed abstract (\$25).

- 16) Sadler KG, Behun MNUG, McQuaid NA, Neilan R & **BJ Kolber** (2017). "Asymmetric nociceptive properties of the left and right central amygdala." Poster Presentation at the American Pain Society National Conference, Pittsburgh, PA, May 2017 (Abstract #108). *The Journal of Pain*, Vol. 18, Issue 4, S4.
- 17) Zapadka AUG, Seliman YUG, Hilton EUG, Lax NCG, Tidgewell KT & **BJ Kolber** (2017). "Phylogenetic Relationships of Cyanobacteria serving as Possible Targets for Pain." Poster Presentation at the American Pain Society National Conference, Pittsburgh, PA, May 2017 (Abstract #164). *The Journal of Pain*, Vol. 18, Issue 4, S17.

Winner of the "Best in Show: Basic Science Poster" at the American Pain Society Annual Meeting.

- 18) Polaski AMG, Kostek MC, Szucs KA & **BJ Kolber** (2017). "Dose-dependent effect of walking exercise on pressure pain in humans." Poster Presentation at the American Pain Society National Conference, Pittsburgh, PA, May 2017 (Abstract #454). *The Journal of Pain*, Vol. 18, Issue 4, S87.
- 19) Behun MUG, McQuaid NAG & **BJ Kolber** (2017). "Approaching neuroscience using an engineering view." Poster presentation at the Duquesne University Undergraduate Research and Scholarship Symposium (URSS), April 2017 (Abstract #7). Poster presentation at the University of Pittsburgh BioE Day, April 2017.

URSS – Phi Kappa Phi National Honors Society Outstanding Research Award (\$500)

Pitt BioE Day – First Prize in the Undergraduate Category (\$200)

- 20) Cox AUG, Lax NG, Welsh W, Peng Y & **BJ Kolber** (2017). "A Comparative Study of Two Analgesic Compounds, Fenobam Sulfate and Fenobam Free Base, Using a Model of Inflammatory Nociception." Poster presentation at the Duquesne University Undergraduate Research and Scholarship Symposium, April 2017 (Abstract #17). Poster presentation at the American Physiological Society Experimental Biology Meeting, Chicago, IL April 2017 (#D23 812.8).

URSS – Office of Research for Outstanding Poster Award (\$125)

- 21) Sadler K^G & **Kolber B** (2016). Divergent roles of the left and right central amygdala in visceral pain modulation. Poster presentation at New Frontiers of Pain Research in the 21st Century meeting at The University of Alabama at Birmingham, Birmingham, AL, Oct 14-15, 2016.
- Travel Award from the University of Birmingham (\$1000)*
- 22) **Kolber BJ**, Sadler K^G & N McQuaid^G (2016). "Functional differences between left and right cerebral hemisphere control of bladder pain." Poster presentation at the IASP World Congress, Yokohama, Japan, Sept 28, 2016 (PW0399).
- 23) **BJ Kolber**, Wolz M^{UG} & K Sadler^G (2016). "Failure to translate: unexpected side effects discovered when adapting the mouse cold plantar assay for use in healthy human volunteers." Poster presentation at the American Pain Society Annual Meeting in Austin, TX, May 11-14, 2016 (Abstract #347 *The Journal of Pain, Vol. 17, Issue 4, S62*).
- 24) Sadler K^G & **BJ Kolber** (2016). "Opposing roles of the left and right central amygdala in bladder pain modulation." Oral presentation at the "Clinical and Basic Science Data Blitz" at the American Pain Society Annual Meeting in Austin, TX, May 11, 2016. Presentation proposal was chosen in a competitive peer-reviewed process.
- Presentation by Sadler won "Best Data Blitz Presentation"*
- 25) Cox A^{UG}, Sadler K^G & **BJ Kolber** (2016). "Modeling chronic bladder pain in male and female mice: Exploring the chronicity of repeated cyclophosphamide injections." Poster presentation at the Duquesne University Undergraduate Research and Scholarship Symposium, Duquesne University April 6, 2016 (Abstract #65).
- Outstanding Scholarship Award from the Provost (\$250) and Honorable Mention BSNES Poster Award (\$100)*
- 26) Hilton E^{UG}, Tidgewell K & **BJ Kolber** (2016). "Investigation of a cyanobacterial collection from Curacao for CNS activity." Poster for presentation at the Experimental Biology ASPET 2016 meeting in San Diego, April 4, 2016 (Abstract # 763).
- Recipient of Undergraduate Travel Award from ASPET (\$1000)*
- 27) Sadler K^G, Trouten A^{UG} & **BJ Kolber** (2015). "Asymmetrical involvement of the left and right central amygdala in bladder pain." Poster presentation at the Duquesne University Graduate Student Research Symposium Nov 6, 2015.
- Poster won Bayer School Award for Top Poster (\$300)*
- 28) Lax N^G, Ignatz C^{UG}, Hilton E^{UG}, Ahmed T, Tidgewell K & **BJ Kolber** (2015). "Understanding the role of serotonin receptor subtypes 7 and 2C (5-HT7/2C) in comorbid pain and depression using novel compounds derived from marine cyanobacteria." Poster presentation at the Annual Society for Neuroscience Meeting, Chicago, IL Oct 17-21, 2015 (Abstract #635.21).
- 29) Long C^{UG}, Sadler K & **BJ Kolber** (2015). "Analysis of Sex-Based Differences in a Mouse Model of Stress-Induced Analgesia." Poster presentation at the Annual Society for Neuroscience Meeting, Faculty for Neuroscience Poster Session, Chicago, IL Oct 17-21, 2015.
- Travel award from the Council for Undergraduate Research (\$250)*
- 30) Lax N^G, Hilton T^{UG}, Ahmed T, Tidgewell K & **BJ Kolber** (2015). "Characterization of serotonin receptor subtype 7 (5-HT7) in pain and depression using novel compounds derived from marine cyanobacteria." Poster presentation at the Center for Neuroscience at the University of Pittsburgh Annual Retreat at Oglebay Resort, WV Sept 11-13, 2015.
- Poster won the best Predoctoral Poster prize at the retreat*
- 31) Cox A^{UG}, Lax N^G, Peng Y, Welsh W & **BJ Kolber** (2015). "Extended pain relieving effects of fenobam sulfate, a non-opioid analgesic, in a mouse model of inflammatory pain." Poster presentation at the Annual Duquesne University Metals in Biology Symposium in Pittsburgh, PA, Sept 25, 2015.
- Poster won 2nd Place Poster prize at the symposium*
- 32) Sadler K^G, Trouten A^{UG} & **BJ Kolber** (2015). "Hemispheric lateralization of bladder pain modulation." Poster presentation at the Department of Biological Sciences Retreat at Pymatuning Research

Station, Sept 21-22, 2015.

Poster won the best Predoctoral Poster prize at the retreat (\$250)

- 33) Sadler K^G, Trouten A^{UG} & **BJ Kolber** (2015). "Hemispheric lateralization of bladder pain modulation." Poster presentation at the American Pain Society Annual Meeting in Palm Springs, CA, May 13-16, 2015 (Abstract #359 *The Journal of Pain*, 16(4), S1: S65).
- 34) Lax N^G, Hilton T^{UG}, Ahmed T, Tidgewell K & **BJ Kolber** (2015). "Characterization of serotonin receptor subtype 7 (5-HT7) in pain and depression using novel compounds derived from marine cyanobacteria." Poster presentation at the American Pain Society Annual Meeting in Palm Springs, CA, May 13-16, 2015 (Abstract #293 *The Journal of Pain*, 16(4), S1: S49).
- 35) Gulli A^{HS}, Sadler K^G & **BJ Kolber** (2015). "Location of pERK and CRH in the central nucleus of the amygdala (CeA)." Poster presentation at the STEM-ulate Science Showcase at the University of Pittsburgh, March 28, 2015.

Gulli awarded a first place prize for poster

- 36) Lax N^G, Hilton E^{UG}, Ahmed K, Tidgewell KJ & **BJ Kolber** (2014). "Characterization of serotonin receptor subtype 2C (5-HT2C) in pain and depression using novel compounds derived from marine cyanobacteria." Poster presentation at the Annual Society for Neuroscience 2014 Washington D.C. Nov 18, 2014 (Abstract #527.17/EE7).
- 37) **Kolber BJ** (2014). "Using optogenetics to dissect higher brain control of bladder pain." Oral presentation symposium at the American Pain Society Annual meeting Tampa Bay, FL, May 1, 2014. Symposium entitled "Optogenetics in Pain." Symposium proposal was organized and submitted by me and was chosen in a competitive peer-reviewed process.
- 38) **Kolber BJ** (2014). "Fiat lux." Oral presentation symposium at the American Pain Society Annual meeting Tampa Bay, FL, May 1, 2014. Symposium entitled "Optogenetics in Pain." Symposium proposal was organized and submitted by me and was chosen in a competitive peer-reviewed process.
- 39) Ignatz CM^{UG}, Lax N^G, Tidgewell K & **BJ Kolber** (2014). "Depression, Pain, and Anxiety Modulation through a Novel CNS Active Marine Cyanobacteria Compound." Poster presentation at the Duquesne University Undergraduate Research and Scholarship Symposium, Duquesne University, April 9, 2014.

Excellence in Research in the Basic Sciences Award sponsored by the Bayer School of Natural and Environmental Science (\$300)

- 40) Ignatz CM^{UG}, Lax N^G, Tidgewell K & **BJ Kolber** (2014). "Depression, Pain, and Anxiety Modulation through a Novel CNS Active Marine Cyanobacteria Compound." Poster presentation at the Tri-Beta Regional Convention at Grove City College in Grove City Pennsylvania, March 29, 2014.

John C. Johnson Award for Excellence in Student Research for a first place poster (\$700 travel award)

- 41) Sadler K^G, Stratton JM^{UG} & **BJ Kolber** (2013). "Effects of body temperature and isoflurane induction on urinary bladder distention." Poster presentation at the Annual Society for Neuroscience 2013 meeting in San Diego, CA, Nov 9-13, 2013 (Abstract #643.13).
- 42) **BJ Kolber** (2013). "Lateralization of amygdala function in modulating pain." Competitive peer-reviewed poster presentation at the "Amygdala in Health and Disease" Gordon Conference, July 28-Aug 1, 2013.
- 43) Sadler K^E, Stratton JM^{UG} & **BJ Kolber** (2013). "Effects of temperature, anesthesia, and infection on urinary bladder pain-like responses in mice." Poster for presentation at the Experimental Biology 2013 meeting in Boston, April 20-24, 2013 (Abstract #691.16 Page 207).
- 44) George DC^{UG} & **BJ Kolber** (2012). "Inhibition of metabotropic glutamate receptor 5 reduces on-going spontaneous pain as measured by conditioned place preference in mice." Competitive process, oral presentation at the 2012 Midwest/Great Lakes Undergraduate Research Symposium Wooster, OH, Sept 29, 2012.

- 45) **Kolber BJ** (2012). "Optogenetic activation of the amygdala in mice increases bladder "pain-like" responses." Oral presentation at the 2012 American Pain Society Annual Meeting in Honolulu, HI, May 16, 2012. Invited presentation at the Basic Science Business Meeting.

D. Invited scholarly presentations at other organizations

1. Seminars based on work done at Duquesne University

- 1) Department of History, Alumni Chair in Humanities Symposium Global Voices of the University of Dayton Campus, University of Dayton, Spring 2020
Seminar entitled "Natural products drug discovery in Cameroon."
- 2) Department of Pain Biology, Aichi Medical University, Spring 2020
Seminar entitled "Exercise therapy for pain: Impact of dosing and integrative approaches on perception and disability."
- 3) National Institute of Physiological Sciences (NIPS), Okazaki, Japan, Spring 2020
Seminar entitled "Role of amygdala CGRP in bladder pain."
- 4) School of Behavioral and Biomedical Sciences, University of Texas at Dallas, Fall 2019
Seminar entitled "Divergent functions of the left and right amygdala in visceral pain."
- 5) Department of Anesthesiology, University of Kansas Medical Center (KUMC), Fall 2019
Seminar entitled "Divergent functions of the left and right amygdala in visceral pain."
- 6) Department of Anesthesiology, University of Kansas Medical Center (KUMC), Fall 2019
- 7) Seminar entitled "Exercise therapy for pain: Impact of dosing and integrative approaches on perception and disability."
- 8) Department of Neurobiology, University of Pittsburgh School of Medicine, Pittsburgh, PA Fall 2018.
Seminar entitled "Divergent functions of the left and right amygdala."
- 9) Graduate School of Pharmaceutical Sciences, Duquesne University, Pittsburgh, PA Fall 2018.
Seminar entitled "Divergent functions of the left and right brain in the control of pain."
- 10) Mt. Lebanon Public Library, Mount Lebanon, PA Fall 2018.
Public seminar entitled "Alternative treatments for chronic pain: Panel discussion."
- 11) Center for Pain Research WiP Symposium, University of Pittsburgh, Pittsburgh, PA Spring 2018.
Seminar entitled "Exploration of Exercise Analgesia in Humans."
- 12) Dept of Zoology, University of Buea, Buea, Cameroon Summer 2017.
Seminar entitled "Using optogenetics to manipulate neurons with light."
- 13) Dept of Animal Behavior, University of Dschang (Université de Dschang), Dschang, Cameroon Summer 2017.
Seminar entitled "Utilizing marine cyanobacteria as a novel source of psychoactive compounds to treat depression and pain."
- 14) Pain Research Forum (www.painresearchforum.org), Summer 2017.
Invited member of "Webinar: Chronic Pelvic Pain."
- 15) Dept of Neuroscience. University of Cincinnati, Cincinnati, OH Spring 2017.
Seminar entitled "Divergent functions of the left and right amygdala in bladder pain."
- 16) Dept of Biology. Wright State University, Dayton, OH Spring 2017.
Seminar entitled "Utilizing marine cyanobacteria as a novel source of psychoactive compounds to treat depression and pain."
- 17) Department of Pain and Neural Sciences, University of Maryland, School of Dentistry, Baltimore, MD Spring 2017.
Seminar entitled "Using evolutionary consistent evidence for left and right brain differences to understand visceral bladder pain."
- 18) Dept of Biology. Indiana University of Pennsylvania, Indiana, PA Fall 2015.
Seminar entitled "Left vs right brain: The ubiquity of asymmetry in vertebrates and implications of mammalian pain."
- 19) Dept of Biology. University of Edinboro in Pennsylvania, Edinboro, PA Spring 2015.
Seminar entitled "Can you hear me? An examination of the art of scientific presenting."

- 20) Rutgers Department of Genetics. Rutgers The State University of New Jersey, New Brunswick, NJ, Spring 2015. "Pain in the brain: Lateralization of the central amygdala in the modulation of pain."
- 21) University of Pittsburgh Center for Pain Research. University of Pittsburgh, Pittsburgh, PA, Fall 2013. Seminar entitled "Pain in the Brain: Lateralization of the central amygdala in the modulation of pain."
- 22) Dept of Biology. Mount Union College (University of Mount Union), Alliance, OH, Fall 2012. Seminar entitled "Can you hear me? An examination of the art of scientific presenting."

2. Seminars based on work done prior to Duquesne University

- 1) Dept of Pediatric Neurology. Washington University in St. Louis, St. Louis, MO, Spring 2011. Seminar entitled "Tips for giving effective professional presentations."
- 2) Dept of Biomedical Sciences. Marquette University, Milwaukee, WI, Spring 2011. Seminar entitled "Pain in the Brain: Evidence for Central Nervous System Control of Pain."
- 3) Dept of Biological Sciences. Depaul University, Chicago, IL, Spring 2011. Seminar entitled "Pain in the Brain: Evidence for Central Nervous System Control of Pain."
- 4) Zoology Dept. Oregon State University, Corvallis, OR, Spring 2011. Seminar entitled "Pain in the Brain: Evidence for Central Nervous System Control of Pain."
- 5) Psychology Dept. Western New England College, Springfield, MA, Spring 2011. Seminar entitled "Pain in the Brain: Evidence for Central Nervous System Control of Pain."
- 6) Psychology Dept. Northeastern University, Boston, MA, Spring 2011. Seminar entitled "Pain in the Brain: Evidence for Central Nervous System Control of Pain."
- 7) Science and Math Division. University of Minnesota, Morris, MN, Fall 2010. Seminar entitled "Pain in the Brain: Evidence for Central Nervous System Control of Pain."
- 8) Dept of Biological Sciences. Duquesne University, Pittsburgh, PA, Fall 2010. Seminar entitled "Pain in the Brain: Evidence for Central Nervous System Control of Pain."
- 9) Freethought Dayton, Dayton, OH, Spring 2010. Seminar entitled "The naturalist's toolbox in the 21st century: How functional imaging is changing our interpretation of philosophy and disease."
- 10) Dept of Biological Sciences. University of Dayton, Dayton, OH, Spring 2009. Seminar entitled "Pavlov's fearful dog: Understanding the role of the endocrine system in fear conditioning."
- 11) Developmental Biology Dept. Washington University in St. Louis, St. Louis, MO, Spring 2008. Seminar entitled "Central amygdala glucocorticoid receptor action promotes fear conditioning."

E. Scholarship awards/citations

- Duquesne University Presidential Award for Excellence in Scholarship (2019)
- Duquesne University Bayer School for Natural and Environmental Sciences Award for Excellence in Scholarship (2019)
- Duquesne University Research Hall of Fame Inductee (2019)
- National Institutes of Health (NIH) Early Career Reviewer (ECR) Program (applied 2012; selected for program 2016)
- International Association for the Study of Pain and Scan|Design Foundation by Inger and Jens Bruun Early Career Investigator Award (2013 – 2015) (included above in "Grants")
- National Institutes of Health (NINDS) Ruth L. Kirschstein Postdoctoral NRSA Fellowship (2/2010 – 11/2011) (included above in "Grants")
- Washington University John Merlie Travel Fellowship (2009)

- Society for Neuroscience Chapter Graduate Student Travel Award (2007)
- National Institutes of Health (NIMH) Ruth L. Kirschstein Predoctoral NRSA Fellowship (7/2006 – 10/2008) (included above in “Grants”)
- Lucille P. Markey Special Emphasis Pathway in Human Pathobiology Fellow (2004 – 2005)
- University of Dayton Bro. Dean Leonard Mann Award to the Outstanding Graduate in the School of Arts and Sciences (2003)
- University of Dayton John E. Dlugos, Jr. Memorial Award of Excellence to the Outstanding Senior major in Biology (2003)
- 2002 American Physiological Society Undergraduate Summer Research Award (2002)
- University of Dayton Cordell W. Hull International Fellow Award for social psychology research in Cameroon, Africa (2002)
- University of Dayton Leopold W. Like, MD Scholars Award (2002)
- University of Dayton Learn, Lead and Serve Award for undergraduate research (2001)
- University of Dayton Pat Gilbert Scholarship (2000)
- University of Dayton Scholars Program (1999 – 2003)
- Dayton Area Academic Scholarship (1999)
- Purdue University Junior Scholar Biology Award (1998)

F. Select media coverage of or related to scholarship

- “Message Received: Looking for the cells in the brain that receive pain signals from the bladder” 10/19/2019 *D.U. Quark*, 4 (1); Valkanas, M. Retrieved from <https://dsc.duq.edu/duquark/vol4/iss1/3>
- “Exercise Can Help Reduce Chronic Pain, Researchers Say” *National Public Radio Morning Edition* 9/9/2019 <https://www.npr.org/templates/transcript/transcript.php?storyId=758943492>; <https://www.npr.org/sections/health-shots/2019/09/23/754869132/exercising-to-ease-pain-taking-brisk-walks-can-help>
- “Next-generation single-dose antidotes for opioid overdoses” *American Chemical Society* 4/1/2019 <https://www.acs.org/content/acs/en/pressroom/newsreleases/2019/april/next-generation-single-dose-antidotes-for-opioid-overdoses.html>
- “Duquesne researchers receive \$1.5M grant to study link between emotions and physical pain” in the *TribLive* 3/12/19 <https://triblive.com/news/health-now/duquesne-researchers-receive-1-5m-grant-to-study-link-between-emotions-and-physical-pain/>
- “A Neural Ensemble in the Amygdala Makes Pain Unpleasant” In the *Pain Research Forum*; 3/7/2019 Quoted for article. <https://www.painresearchforum.org/news/111850-neural-ensemble-amygdala-makes-pain-unpleasant>
- “Pharmacognosy Field Notes: Random Encounter Leads to Cameroon Adventure” *American Society of Pharmacognosy Fall 2017 Newsletter Vol 53 Issue 3* 10/24/2017
- “2017 Distinguished Dissertation Award Winners Announced” *Duquesne University Times* 6/28/2017 (<https://applications.duq.edu/times/2017/06/2017-distinguished-dissertation-award-winners-announced/>)
- “Duquesne Chronic Pain Research Consortium Undergraduate Wins National Fellowship” *Duquesne University News* 4/6/2016 (<http://duq.edu/news/duquesne-chronic-pain-research-consortium-undergraduate-wins-national-fellowship>)
- “Pain response may differ in males, females” CBS News 6/30/2015 (<http://www.cbsnews.com/news/pain-responses-differ-gender-male-female/>)
- *Pain Research Forum* “Closing the sex gap in preclinical pain research.” 5/27/2015; contribute quote as moderator and lead for debate at APS (<http://painresearchforum.org/forums/discussion/54434-closing-sex-gap-preclinical-pain-research>)
- *MedScape* “Abuse Risk Evaluation Changes Opioid Prescribing” 5/15/2015; contribute quote as moderator of APS symposium (<http://www.medscape.com/viewarticle/844734>)
- “Duquesne Undergrad Recognized with Prestigious Science Award” *Duquesne University Times* 3/18/2015 (<http://applications.duq.edu/times/2015/03/duquesne-undergrad-recognized-with-prestigious-science-award/>)
- “Faculty Recognized for Excellence in Student-Learning Assessment” *Duquesne University Times* 12/17/2014 (<http://applications.duq.edu/times/2014/12/faculty-recognized-for-excellence-in-student-learning-assessment/>)

- “Hempfield Grad Making Her Mark in Health Research” *TribLive* 12/11/2014 (<http://triblive.com/neighborhoods/yourhempfield/yourhempfieldmore/7296609-74/research-sadler-award#axzz3Lgg27IV5>)
- “University Garners First NIH NRSA Fellowship for Graduate Student” *Duquesne University Times* 11/13/2014 (<http://applications.duq.edu/times/2014/11/university-garners-first-nih-nrsa-fellowship-for-graduate-student/>)
- “Unraveling the mysteries of pain.” *Duquesne University Magazine Fall 2014* (http://www.duq.edu/Documents/public-affairs/magazine/_pdf/DU%20Mag%20Fall%202014.pdf)
- Interview for *People Behind the Science* podcast. 033: Dr. Ben Kolber: “No Pain, No Gain in the Research of Chronic Pain Mechanisms.” (<http://www.peoplebehindthescience.com/dr-ben-kolber/#more-304> 5/8/2014)
- “Member spotlight: Benedict J. Kolber, Ph.D.” *American Pain Society September E-News* (Monthly newsletter for the American Pain Society). September 2013 (<http://www.americanpainsociety.org/enews/2013/september.html#aps5>)
- “National fellowship funds Duquesne undergraduate researcher of chronic pain.” *Duquesne University Newsroom* May 7, 2012 (<http://newsroom.duq.edu/2012/05/07/national-fellowship-funds-duquesne-undergraduate-researcher-of-chronic-pain/> *link no longer active*)

III. Teaching and Mentoring

A. Graduate/professional courses taught

1. **Courses taught at Duquesne (2012 – 7/2020)**

BIOL 560 – Endocrinology; BIOL 696 – Introduction to Graduate Research; BIOL 690 – Biology Seminar; BIOL 646 – Advanced Topics – Techniques and Tips for Giving Oral Scientific Presentations; BIOL 646 – Advanced Topics – From paralysis to feeling no pain: An advanced topic in channelopathies and electrophysiology; BIOL 679 – Research for credit; NIH NRSA F31 Grant Writing Course.

2. **Courses taught prior to Duquesne**

Washington University in St. Louis (2007 – 2011)

BIO 5565 – Presentation of Scientific Data.

B. Undergraduate courses taught

1. **Courses taught at The University of Texas at Dallas (2020 – Present)**

NSC 4358 – Neuroscience of Pain

2. **Courses taught at Duquesne (2012 – 2020)**

BIOL 111/111L – General Biology; BIOL 490 – Biology Seminar; BIOL 398 – Research for credit; BIOL 460 – Endocrinology; BMED 490 – Research for credit; CMH 490H – Research for credit.

3. **Courses taught prior to Duquesne**

Washington University in St. Louis (2005 – 2011)

BIO 4427 – Problem-based learning in the biomedical sciences; BIO 1112 – Introduction to problem-based learning in biology; BIO 3341 – Principles of the nervous system.

University of Dayton (2001)

BIO 101L – General biology lab. Summer 2001

C. Academic advisement or mentoring

1. **Ph.D. dissertation/thesis committees chaired – Five committees (2012 – Present)**

2. **Ph.D. dissertation committees as a member – 10 committees (2012 – Present)**

3. **Mentored graduate, undergraduate, and high-school students**

- 1) Research advisor for graduate and post-baccalaureate independent research – nine students (2012 – Present)
- 2) Research Advisor for undergraduate independent research – 29 students (2011 – Present)
- 3) Research advisor for Duquesne University Summer Undergraduate Research Program (URP), Pain Undergraduate Research Experience (PURE), and Neurodegenerative Undergraduate Research Experience (NURE) – 19 students (2012 – Present)

- 4) Research advisor for Undergraduate students funded through competitive external undergraduate research or travel grants – Seven students (nine awards) (2012 – Present)
- 5) Undergraduate academic mentor – 8-15 students per semester (2012 – Present)
- 6) Research Advisor for high-school independent research – Three students (2014 – 2018)

D. Other activities relevant for teaching

1. Guest lectures

Duquesne University

PHPR 427/UPNS 491 – Etiology and Assessment of Pain; PSYC 560 – Physiological Psychology.

University of Pittsburgh

MSNBI0 2622 – Mechanisms and Clinical Presentation of Pain.

Carnegie Mellon University

BIO 03-260 – Neurobiology of Disease.

Washington University in St. Louis

BIO 4435 – Introduction to Neurobiology.

2. Educational seminars, workshops, and panels

- 1) **BJ Kolber** (2019). Invited planning committee member of National Academies of Sciences “Enhancing Scientific Reproducibility through Transparent Reporting” Washington, DC 9/24-9/26/19. (Note: also listed below in service)
- 2) **BJ Kolber** (2018). Invited expert participant for “Educational Resource on the Fundamental Principles of Rigorous Neuroscience Research” at the NIH (NINDS), Bethesda, MD 10/22-10/23/2018.
- 3) M Kalarchian, D Nolfi, M Kostek, **B Kolber** (2018). “How to Prepare a Biosketch Workshop.” Workshop organized by Kalarchian to help faculty in the nursing school write and design their biosketches, Duquesne University, School of Nursing, Pittsburgh, PA 1/23/2018.
- 4) **BJ Kolber**, V Giannetti (2017). “The disease model of opioid addiction.” Invited presentation at the Duquesne Forensics Science Symposium “Opium in America: The Science, Law, and Policy of a National Epidemic” Duquesne University, Pittsburgh, PA 10/27/2017.
- 5) **BJ Kolber**, F Fochman (2017). “Where do opioids come from and what do they do.” Invited presentation at the Duquesne Forensics Science Symposium “Opium in America: The Science, Law, and Policy of a National Epidemic” Duquesne University, Pittsburgh, PA 10/27/2017.
- 6) **Kolber BJ** (2017). “Effective poster presentations.” 60min seminar given to the BSNES Graduate Students association (~25 students). Invited by Natalie Hager 10/31/2017.
- 7) **BJ Kolber**, L Willingham-McLain, E Rentschler, P Palmer (2017). “Entering Mentoring.” Coordinated with Center for Teaching Excellence (CTE) (Dr. Laurel Willingham-McLain and Dr. Erin Rentschler) and Dr. Philip Palmer (BSNES) to offer 6-week long workshop on mentoring for undergraduate students for 10 faculty from BSNES, Pharmacy, Health Sciences, and the College. Each week ran for 75 min. Specifically led the workshop for 3 of 6 weeks and co-led the workshop for final session.
- 8) **BJ Kolber** (2016). “Can you hear me? The art of oral scientific presentation.” 60 min seminar given to the BSNES Graduate Students association (~25 students). Invited by Joseph Sallmen 10/2016.
- 9) **BJ Kolber** (2015). “Undergraduate Research and Scholarship Symposium (URSS) Panel Discussion for Undergraduate Recruitment.” Invited to sit on panel to discuss with interested faculty how I have successfully recruited students to participate in the annual URSS. Invited by Christine Pollock 10/2015.
- 10) **R Wright** (2014). “Start where you are: Incorporating active learning.” Invited and organized with the Center for Teaching Excellence workshop by a leader in the STEM Education field, Dr. Robin Wright, Associate Dean College of Biological Sciences, Chair of Department of Biological Education, University of Minnesota 11/2014.
- 11) **BJ Kolber** & J McCormick (2012 – 2016). “Biology departmental mentoring program.” Seminar given to incoming first-semester Biological Sciences majors to help students get the most out of the department mentoring program 9/2012, 9/2013, 9/2014, 9/2015, 9/2016.
- 12) **BJ Kolber** (2012, 2014, 2016). “How to give an effective scientific presentation.” Seminar given to Biological Sciences Ph.D. students prior to oral thesis proposal presentations 10/2012, 4/2014, 3/2016.

- 13) **BJ Kolber** (2012 – Present). “Using scientific teaching to enhance the learning process.” Seminar given to incoming Biology (2012 – 2018) and Chemistry (2013 – 2016) Ph.D. graduate students at Duquesne University 8/2012, 8/2013, 8/2014, 8/2015, 8/2016, 8/2017, 8/2018.
- 14) **BJ Kolber** (2013). Panelist for “Academics: Primarily undergraduate institutions” at the NIH Career Symposium, Bethesda MD 5/2013.
- 15) **BJ Kolber** & J McCormick (2012). Led (with Dr. McCormick) discussion with Biology Department faculty on the problems and potential solutions in our departmental mentoring program 10/2012.
- 16) **BJ Kolber** (2012). Panelist for “Faculty-grad student mentoring relationships” panel discussion organized by Duquesne University Center for Teaching Excellence 10/2012.
- 17) **BJ Kolber** (2011). “Frame of reference” talk on “Seated Bodhisattva Tara in ‘Green manifestation’.” Seminar presented at the Pulitzer Foundation for the Arts, St. Louis, MO 11/2011.
- 18) **BJ Kolber** (2010). Panelist for “Managing mentoring relationships” Professional Development Program panel discussion at Washington University in St. Louis, St. Louis, MO 10/2010.
- 19) **BJ Kolber** (2010). Panelist for “Teaching techniques” panel discussion at the Midstates Math and Science Consortium “Early Career Faculty Workshop” Door County, WI 7/2010.
- 20) **BJ Kolber** (2008). Moderator for panel discussion on “Teaching assistantships” at Washington University in St. Louis, St. Louis, MO 8/2008.

E. Teaching awards/citations

- Beta Beta Beta National Biology Honors Fraternity 2019 Outstanding Advisor Award for the Northeastern Region III (4/2019)
- Early Career Mentoring Award from the Biology Division of the Council of Undergraduate Research (CUR) – Honorable Mention (11/2015)
- Mentoring Active Learning and Teaching (MALT) Award for early career educators from the American Society for Cell Biology (11/2014) (*note – also listed above in “Grants”*)
- Student-Learning Assessment Award from the Duquesne University Office of the Provost for assessment of Department of Biological Sciences Mentoring program – Award to Drs Benedict Kolber and Joseph McCormick (10/2014)
- Mentor Award for Excellence in Advising Graduate Students from the Department of Biological Sciences, Duquesne University (4/2014)
- National Academies Education Fellow in the Life Sciences (2012 – 2013)
- Washington University Graduate School of Arts and Sciences Teaching Citation (2008)

IV. Service

A. Service at The University of Texas at Dallas

1. *Center for Advanced Pain Studies*

- 1) Faculty member, 5/2020 – Present.

B. Service at Duquesne University

2. *Department of Biological Sciences service*

- 2) Review nominations for the School of Science Top Undergraduate Award and Mitch Johnson Award for Outstanding Service, 4/2019.
- 3) Member of Biology faculty search committee, 9/2018-6/2019.
- 4) Developed and implemented a 3 hr neuroscience and pain demonstration for a group of undergraduate neuroscience majors at Thiel College (students supervised by Dr. Greg Butcher), 4/2017.
- 5) Member of “Graduate Program Committee,” 1/2017 – 7/2020
 - Redesigned PhD Qualifying Exam (1/2019-4/2019)
 - Developed and implemented interview weekend for Biology PhD program, 2/2018, 2/2019.
- 6) Committee chair for “First Year Graduate Student Qualifying Exam Committee,” 3/2016 – 7/2016.
- 7) Committee chair “Department Retreat Planning Committee,” 1/2015 – Present. Developed new off-campus retreat for Department of Biological Sciences at Pymatuning Lake. Activities as chair included monthly meetings, coordinating logistics, developing schedule, recruiting presenters, and recruiting participants.
- 8) Departmental mentoring program assessment, revision, and training, 8/2012 – 7/2020.

- 9) Member of Annual Chair Review Committee, 1/2014 – 5/2014.
- 10) Committee chair for “First Year Graduate Student Qualifying Exam Committee,” 3/2012 – 6/2012.
- 11) Hosted 15 external scholarly seminars or lectures, 9/2012 – 7/2020.

3. Bayer School of Natural and Environmental Sciences service

- 1) Represented the Department of Biological Sciences at “Duquesne Fest” 6/2015, 6/2019.
- 2) Presented and gave laboratory tours at “Science Preview Day” 2/2012, 2/2013, 2/2014, 2/2015, 2/2016.
- 3) Judge for Undergraduate Research and Scholarship Symposium at Duquesne, 4/2013.

4. University service

- 1) Organized and coordinated University-wide Personal Protection Equipment (PPE) collection and donation of PPE to local hospitals and clinics for Covid-19 crisis (2020).
- 2) Served on Duquesne University “President’s Faculty Awards for Excellence” nomination and selection committee (2020).
- 3) Member of Founding Dean search committee for new Duquesne Osteopathic School of Medicine (2019).
- 4) Developed and organized Neurodegenerative Undergraduate Research Experience (NURE), a new summer research program designed to introduce students to neuroscience research and clinical experience through working in research labs in multiple schools across campus, 2017 – Present. Funded by Leach Grant 2017 and NIH NINDS R25 (2018-2023) (listed above in “Grants” section).
- 5) Developed and co-Direct the Pain Undergraduate Research Experience (PURE), a new summer research program designed to introduce students to Pain research and clinical experience through working in research labs in five different schools across campus 2015 – Present. Funded by NIH NINDS R25 (2018-2023).
- 6) Reviewer and on selection committee for Undergraduate Research Program undergraduate applications for students doing summer research in four different schools, 3/2015, 3/2016, 3/2017, 3/2018, 3/2019.
- 7) Reviewer for Aging and Teaching Research Consortium Stimulator Grant submissions, 4/2016.
- 8) Faculty mentor for Summer URP program Ethics Forum 6/2013, 6/2014.
- 9) Reviewer for Hunkele Research Grant submissions, 4/2013, 11/2017.
- 10) Moderator for the Summer Undergraduate Research Symposium Oral Presentations, 7/2012.
- 11) Webmaster for Chronic Pain Research Consortium, 1/2012 – 7/2020.
- 12) Coordinator of monthly Pain Journal Club for Chronic Pain Research Consortium, 1/2012 – 7/2020.

C. Professional service (since 12/2011)

1. Frontiers – Systems Neuroscience

- Review Editor (2020-present)

2. National Academies of Science, Engineering, and Medicine

- 1) Invited member of planning committee for 2019 workshop *Enhancing Scientific Reproducibility through Transparent Reporting*.
 - Monthly phone meetings 4/2019-8/2019
 - Attendance and participation in workshop 9/24-9/26/19
 - Invited to serve on workshop panel 9/25/19

3. National Institutes of Health (NIH) Early Career Reviewer Program

- Application submitted and accepted for participation 6/2015.
- Selected (from >1500 ECR applicants (personal communication with SRO)) to serve on Somatosensory and Chemosensory (SCS) NIH Study Section in Bethesda MD (6/21-6/22/16).

4. NIH Study Section Ad-Hoc Reviewer (“continuing submission status” eligible)

- Reviewed grants (5) as Primary (2) or Secondary (3) on HEAL SEP NIH Study Section in Bethesda, MD (11/13/19).
- Reviewed grants (4) as Secondary/tertiary (4) on HEAL SEP NIH Study Section in Bethesda, MD (6/5-6/6/19); Teleconference review.
- Reviewed grants (3) as Primary (1) or Secondary/tertiary (2) on ZNS1 SRB D4 NIH Blueprint ENDURE NIH Study Section in Bethesda, MD (6/3/19).
- Reviewed grants (2) as Primary (1) or Secondary/tertiary (1) on HEAL SEP NIH Study Section in San Diego, CA (2/21/19).

- Reviewed grants (6) as Primary (3) or Secondary/tertiary (3) on Somatosensory and Pain Systems (SPS) NIH Study Section in San Diego, CA (2/20-2/21/19).
- Reviewed grants (2) as Primary (1) or Tertiary (1) reviewer on ZRG1 IFCN-B (02) M Pain mechanisms NIH Study Section Internet Assisted Meeting (11/14-11/15/18).
- Reviewed grants (2) on special emphasis panel: Pain mechanisms NIH Study Section Internet Assisted Meeting (12/12-12/13/17).
- Reviewed grants (7) on somatosensory and Chemosensory (SCS) NIH Study Section in Washington DC (10/26-10/27/16).
- Reviewed grant as Primary Reviewer on ZRG1 DKUS-G 90 NIH Study Section in Chicago, IL (6/30/16); Teleconference review.

5. University of Wisconsin NIH Review Study Section reviewer

- Reviewed grants (3) for UW study to evaluate efficiency of NIH review process (3/2017).

6. NIH NIDDK

- 1) Invited reviewer of O'Brien Center Opportunity Pool Application, 7/18.

7. NIH Center for Scientific Review (CSR)

- 1) Invited reviewer for the 2019 CSR Anonymisation Study (IFCN, BM). Reviewed NIH grants that had been made anonymous to determine the impact of blinding on the NIH review process, 2/19.
- 2) Invited reviewer for the 2018 CSR Anonymisation Study (IFCN, BM). Reviewed NIH grants that had been made anonymous to determine the impact of blinding on the NIH review process, 7/18.

8. External Reviewer for Council on Undergraduate Research (CUR) "Posters on the Hill" competition

- Reviewed abstracts 12/2015 and 12/2016 for "Posters on the Hill" conferences.

9. Ad hoc reviewer of scientific manuscripts – 88 manuscripts (2011 – Present)

10. Invited reviewer of educational textbooks

- Reviewed textbook chapters for:
 - Principle's of Biology – Mason – 2015 (Ch 33 and 35)
 - Biology – Campbell – 2017 (Ch 41)
 - Biology: How Life Works – Morris – 2013 (Ch 19 and 20); 2014 (Ch 36); 2017 (Case 7, Ch 31, 39, 41)
- Reviewed textbook content for:
 - Biology: How Life Works – Morris (2015; 2018)
 - Biology – Brooker (2015-2017)

11. American Pain Society

- 1) Elected as member of Nominating Committee member (2018 – 2019).
- 2) Elected as the Basic Science Shared Interest Group co-chair (5/2013 – 5/2015).
 - a. Co-chair, SFN-Sponsored Social SOC07, Pain Neuroscience Social, Chicago, IL, 10/2015.
 - b. Co-organize, set agenda, moderate and give introductory lecture for Basic Science Research Dinner at the 2015 American Pain Society Annual Meeting, 5/2015.
 - c. Assist in moderation of Basic Science Business meeting at the 2015 American Pain Society Annual Meeting, 5/2015.
 - d. Co-organize, set agenda, moderate "Data Blitz" symposium at the 2015 American Pain Society Annual Meeting, 5/2015.
 - e. Review and select speaker submissions for the "Data Blitz" component of the 2015 American Pain Society Annual Meeting, 1/2015 – 4/2015.
 - f. Co-organize and set agenda for Basic Science Research Dinner at the 2014 American Pain Society Annual Meeting, 5/2014.
 - g. Organize, set agenda, moderate Basic Science Business meeting at the 2014 American Pain Society Annual Meeting, 5/2014.
 - h. Co-organize, set agenda, moderate "Data Blitz" symposium at the 2014 American Pain Society Annual Meeting, 5/2014.
 - i. Review and select speaker submissions for the "Data Blitz" component of the 2014 American Pain Society Annual Meeting, 1/2014 – 4/2014.

12. International Association for the Study of Pain

- 1) Selected to serve on the IASP Fellowships, Grants, and Awards Working Group (FGAWG) (8/2016 – Present) - Scheduled to participate in 4-5 Teleconference meetings per year to review IASP fellowship, grants, collaborative research grants, and World Congress-related awards.
 - a. Reviewed Early Career Investigator Grants (3/2019).
 - b. Reviewed Bonica Fellowship Grants (6/2018).
 - c. Reviewed Early Career Investigator Grants (3/2018).
 - d. Reviewed IASP World Congress Awards (1/2018).
 - e. Reviewed Bonica Fellowship Grants (7/2017).
 - f. Reviewed Collaborative Research Grants (5/2017).
 - g. Reviewed Developing Country Grants (5/2017).
 - h. Reviewed Early Career Investigator Grants (3/2017).

13. American Physiological Society

- 1) Invited judge for American Physiological Society judging at the 2018 Intel International Science and Engineering Fair, Pittsburgh, PA May 2018.

V. References

Available upon request