

Gregory F. Corder, Ph.D.

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– Curriculum Vitae –

Research Experience & Employment

- 2019 – **Assistant Professor** (Tenure-track), Dept. of Psychiatry and Dept. of Neuroscience, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA
- 2013 – 2018 **Postdoc**, Dept. of Anesthesiology, Perioperative and Pain Medicine, Stanford University, Palo Alto, CA
- Mentor: Gregory Scherrer, Ph.D.
- 2009 – 2013 **Graduate Student**, Dept. of Physiology, University of Kentucky, Lexington, KY
- Mentor: Bradley Taylor, Ph.D.
- 2008 – 2009 **Visiting Scientist**, Dept. of Physiology, University of Kentucky, Lexington, KY
- 2007 – 2008 **Research Technician**, Dept. of Pharmacology, Tulane University, New Orleans, LA

Education

- 2013 **Doctor of Philosophy (Ph.D.)**, Dept. of Physiology, University of Kentucky, Lexington, KY
- 2007 **Bachelor of Science (B.S.), Cell and Molecular Biology**, Tulane University, New Orleans, LA
- 2003 **IB Diploma**, International Baccalaureate Diploma Programme, Hillsborough High School, Tampa, FL

Funding and Research Support

Current Funding

- 2020 – 2025 **DP2 NIH Director's New Innovator Award - GM140923-01**
- *Agency*: National Institute of General Medical Sciences (NIGMS)
 - *Title*: Harnessing cortical neuromodulation to disrupt pain perception
- 2020 – 2021 **Whitehall Foundation Award**
- *Title*: Integrative cortical circuits for attention to pain
- 2020 – 2022 **NARSAD Young Investigator Award**
- *Source*: Brain & Behavior Research Foundation
 - *Title*: Elucidating the amygdalar circuit pathology and psychiatric disorders resulting from neonatal opioid withdrawal
- 2020 – 2022 **Pathways Research Award**
- *Source*: Alkermes, Inc.
 - *Title*: Prevention of neurodevelopmental disabilities associated with neonatal opioid withdrawal
- 2019 – 2022 **R00 (Independent Phase) - Pathway to Independence Award - DA043609**
- *Agency*: National Institute on Drug Abuse (NIDA)
 - *Title*: Deconstructing the Network Mechanisms of Chronic Pain and Reward in the Amygdala

Completed Funding

- 2017 – 2018 **K99 (Mentored Phase) - Pathway to Independence Award - DA043609**
- *Agency*: National Institute on Drug Abuse (NIDA)
 - *Title*: Deconstructing the Network Mechanisms of Chronic Pain and Reward in the Amygdala
- 2016 – 2017 **F32 NRSA Postdoctoral Fellowship - DA041029**
- *Agency*: National Institute on Drug Abuse (NIDA)
 - *Title*: Synaptic mechanisms of opioid-induced hyperalgesia and tolerance
- 2013 – 2015 **T32 Training Grant - DA35165-2** (Prime award 5T32DA035165-03, PI Sean Mackey)
- *Agency*: National Institute on Drug Abuse (NIDA)
 - *Title*: Genetic targeting of the limbic brain for the relief of chronic pain
- 2014 **The Dean's Fellowship**
- *Institute*: Stanford University School of Medicine
 - *Title*: Identification of amygdala circuits underlying chronic pain

- 2012 – 2013 **F31 NRSA Predoctoral Fellowship - DA032496**
- *Agency:* National Institute on Drug Abuse (NIDA)
 - *Title:* Prolonged activation of endogenous opioid analgesia after inflammation
- 2009 – 2010 **Integrated Biomedical Sciences Research Fellowship**
- *Institute:* University of Kentucky, College of Medicine

Patents

- 2020 Scherrer, G, Schnitzer, M, **Corder, G**. An Amygdalar Neural Ensemble that Encodes the Unpleasantness of Pain. U.S. Provisional Application Serial No. 62/962,581
- 2017 Scherrer, G, Tawfik, VL, **Corder, G**. Methods For Attenuating Or Preventing Mu(μ)-Opioid Receptor Mediated Tolerance And Opioid-Induced Hyperalgesia. US 15/873,762

Honors & Awards

- 2020 **Top 50 (#49) in 2020 NIH funding to US Psychiatry PIs**, Blue Ridge Institute for Medical Research (BRIMR.org)
- 2020 **DP2 NIH Director's New Innovator Award**
- 2020 **Whitehall Foundation Award**
- 2020 **Alkermes Pathways to Research Award**
- 2019 **Top 10 (#3) Pain Research Forum (PRF) News Stories of the Decade**, Wang et al. *Neuron*. 2018
- 2019 **Top 10 (#5) PRF Papers of the Decade**, Wang et al. *Neuron*. 2018
- 2019 **Top 10 (#10) PRF Papers of the Week in 2019**, Corder et al. *Science* 2019
- 2018 **Travel Award**, American College of Neuropsychopharmacology (ACNP) 57th Annual Meeting, Hollywood, FL
- 2018 **Best Poster Award**, Bio-X Interdisciplinary Initiatives Seed Grant Program Symposium, Stanford University
- 2018 **Travel Award**, 17th World Congress on Pain, IASP, Boston, MA
- 2018 **Travel Award**, International Narcotics Research Conference (INRC), San Diego
- 2018 **Thomas L. Skinner Memorial Lecture Award for Doctoral Alumni Excellence**, University of Kentucky
- 2017 **Best Poster Award**, Gordon Research Conference (GRC): Amygdala in Emotion, Cognition, & Disease
- 2017 **K99/R00 Pathway to Independence Award**, National Institute on Drug Abuse (NIDA)
- 2017 **Best Poster Award**, finalist, IASP Neuropathic Pain SIG, Gothenburg, Sweden
- 2017 **Travel Award**, International Narcotics Research Conference (INRC)
- 2017 **Carl Storm Fellowship**, Gordon Research Conferences
- 2016 **F32 Postdoctoral National Research Service Award**, National Institute on Drug Abuse (NIDA)
- 2016 **GPU Grant Award**, NVIDIA Corporation
- 2016 **Travel Award**, 2016 Computational and Systems Neuroscience Meeting (COSYNE 16)
- 2015 **Top Talk Award**, Dept. of Molecular and Cellular Physiology, Stanford University
- 2015 **Best T32 Fellow Research Award**, Dept. of Anesthesia, Stanford University
- 2015 **Travel Award**, International Narcotics Research Conference (INRC)
- 2015 **Best Scientific Presentation Award (talk)**, The Neuroscience Forum, Stanford School of Medicine
- 2014 **The Dean's Fellowship**, Stanford University School of Medicine
- 2014 **Neuroscience Institute Interdisciplinary Postdoctoral Fellowship**, Honorable Mention, Stanford
- 2014 **"Top Science Advance in Pain Research, 2012-2013"**, NIH Interagency Pain Research Coordinating Committee (IPRCC) for publication Corder et al. *Science* 2013
- 2013 **T32 Training Grant**, National Institute on Drug Abuse (NIDA)
- 2012 **F31 Predoctoral National Research Service Award**, National Institute on Drug Abuse (NIDA)
- 2012 **Trainee Travel Award**, 14th World Congress on Pain, IASP, Milan, Italy
- 2012 **Best Graduate Student Seminar**, Physiology Seminar Series, University of Kentucky
- 2010 & 2012 **Travel Award - International Presentation**, The Graduate School of University of Kentucky
- 2009 & 2011 **Travel Award - Domestic Presentation**, The Graduate School of University of Kentucky
- 2010 **1st Place Graduate Student Poster**, Dept. of Physiology 50th Anniv. Gala, University of Kentucky
- 2010 **1st Place Poster**, Spring Neuroscience Meeting, Bluegrass Chapter of the Society for Neuroscience (SfN)
- 2009 **Integrated Biomedical Sciences Research Fellowship**, University of Kentucky, College of Medicine

Publications

Peer-reviewed publications – See also [Google Scholar](#) and [PubMed \(NCBI My Bibliography\)](#) * denotes equal contributions

- Xu A, Larsen B, Henn A, Baller EB, Scott JC, Sharma V, Adebimpe A, Basbaum AI, **Corder G**, Dworkin RH, Edwards RR, Woolf CJ, Eickhoff SB, Eickhoff CR, Satterthwaite TD. Brain Responses to Noxious Stimuli in Patients With Chronic Pain: A Systematic Review and Meta-analysis. *JAMA Network Open*. 2021 Jan 4;4(1):e2032236. doi: 10.1001/jamanetworkopen.2020.32236. PMID: 33399857
- Corder, G***, Ahanonu, B*, Grewe, B, Wang, D, Schnitzer, MJ, Scherrer, G. An amygdalar neural ensemble that encodes the unpleasantness of pain. *Science*. 2019 Jan. 18; 363(6424):276-281. doi: 10.1126/science.aap8586. PMID: 3065440
 - [Scientists Find Brain Cells That Make Pain Hurt](#). NPR
 - [Targeting Certain Brain Cells Can Switch Off Pain](#). Scientific American
 - [A Neural Ensemble in the Amygdala Makes Pain Unpleasant](#). Pain Research Forum

- [Painkillers: Scientists Figured Out How to Decouple Pain From Suffering](#). Inverse
 - [Silencing brain cells in mice can make them no longer care about pain](#). NewScientist
 - [Traiter la douleur sans opioïdes](#). Le Devoir
3. Jones, JM, Foster, W, Twomey, CR, Burdge, J, Ahmend, OM, Pereira, TD, Wojick, JA, **Corder, G**, Plotkin, J, Abdus-Saboor, I. A machine-vision approach for automated pain measurement at millisecond timescales. *eLife*. 2020 Aug 6;9:e57258. doi: 10.7554/eLife.57258.
 4. Nelson TS, Fu W, Donahue RR, **Corder GF**, Hökfelt T, Wiley RG, Taylor BK. Facilitation of neuropathic pain by the NPY Y1 receptor-expressing subpopulation of excitatory interneurons in the dorsal horn. *Scientific Reports*. 2019 May 10;9(1):7248. doi: 10.1038/s41598-019-43493-z.
 5. **Corder, G***, Tawfik, VL*, Wang, D*, Sypek, ES*, Low, SA, Dickinson, JR, Sotoudeh, C, Clark, JD, Barres, B, Bohlen, C Scherrer, G. Loss of μ -opioid receptor signaling in nociceptors, and not spinal microglia, abrogates morphine tolerance without disrupting analgesia. *Nature Medicine*. 2017 Feb; 23(2):164-173. doi: 10.1038/nm.4262.
 - [Opioids: keeping the good, eliminating the bad](#). Nature Medicine
 - [Improving opioids](#). Nature Reviews Neuroscience
 - [Mu-Opioid Receptors on Nociceptors, Not Microglia, Drive Morphine Tolerance and Hyperalgesia in Mice](#). Pain Research Forum
 - [Nature Outlook: Opioids](#)
 - [Nature Collection: Glial Cells in Health and Disease](#)
 6. Wang, D, Tawfik, VL, **Corder, G**, Low, SA, Basbaum, AI, Scherrer, G. Functional Divergence of Delta and Mu Opioid Receptors Organization in CNS Pain Circuits. *Neuron*. 2018 Apr 4;98(1):90-108.e5. doi: 10.1016/j.neuron.2018.03.002.
 7. Manglik, A*, Henry, L*, Aryal, DP*, McCorvy, JD, Dengler, D, **Corder, G**, Bernat, V, Huang, X, Sassano, MF, Giguere, PM, Levit, A, Lober, S, Hubner, H, Duan, D, Scherrer, G, Kobilka, BK, Gmeiner, P, Roth, BL, Shoichet, BK. Structure-based discovery of biased μ -opioid receptor analgesics with reduced side effects. *Nature*. 2016 Sep 8;537(7619):185-190. doi: 10.1038/nature19112.
 8. Rowe R, Ellis G, Harrison J, Bachstetter A, **Corder GF**, Van Eldik L, Taylor BK, Marti F, Lifshitz J. Diffuse traumatic brain injury induces prolonged immune dysregulation and potentiates hyperalgesia following a peripheral immune challenge. *Molecular Pain*. 2016 May 13;12. doi: 10.1177/1744806916647055.
 9. Taylor, BK, Fu, W, Kuphal, KE, Stiller, CO, Winter, MK, Chen, W, **Corder, GF**, Urban, JH, McCarson, KE, Marvizon, JC. Inflammation enhances Y1 receptor signaling, neuropeptide Y-mediated inhibition of hyperalgesia, and substance P release from primary afferent neurons. *Neuroscience*. 2014 Jan 3;256:178-94. doi: 10.1016/j.neuroscience.2013.10.054.
 10. **Corder, G**, Doolen, S, Winter, MW, Jutras, BL, He, Y, Hu, X, Wieskopf, JS, Mogil, JS, Storm, DR, Wang, ZJ, McCarson, KE, Taylor, BK. Constitutive μ -opioid receptor activity leads to long-term endogenous analgesia and dependence. *Science*. 2013 Sep 20;341(6152):1394-9. doi: 10.1126/science.1239403.
 - [A painful addiction](#). Nature Reviews Neuroscience
 - [Opioid Receptor Activity Masks Traces of Past Pain Long After Injury](#). Pain Research Forum
 11. Solway, BM, Bose, S, **Corder, G**, Donahue, R, Taylor, BK. Tonic inhibition of chronic pain by Neuropeptide Y. *PNAS*, USA. 2011 Apr 26;108(17):7224-9. doi: 10.1073/pnas.1017719108.
 12. **Corder, G**, Siegel, A, Intondi, AB, Zhang, X, Zadina, JE, Taylor, BK. A novel method to quantify histochemical changes throughout the mediolateral axis of the substantia gelatinosa after spared nerve injury: characterization with TRPV1 and substance P. *Journal of Pain*. 2010 Apr;11(4):388-98. doi: 10.1016/j.jpain.2009.09.008.

Reviews / Book Chapters

13. Ahanonu, B, **Corder, G**. Chapter: Recording Pain-related Brain Activity in Behaving Animals using Calcium Imaging and Miniature Microscopes. Book: Contemporary approaches to the study of pain: from molecules to neural networks. Editor: Rebecca Seal. Publisher: Springer Nature. *In Press*.
14. Kimmey BA, McCall NM, Wooldridge LM, Satterthwaite TD, **Corder G**. Engaging endogenous opioid circuits in pain affective processes. *Journal Neuroscience Research*. 2020 Dec 13. doi: 10.1002/jnr.24762
15. McCall, N, Wojick, J, **Corder, G**. Anesthesia Analgesia in the Amygdala. *Nature Neuroscience*, News & Views. 2020 May. Doi: 10.1038/s41593-020-0645-3
16. **Corder, G***, Castro, D*, Bruchas, M, Scherrer, G. Exogenous and endogenous opioids in pain. *Annual Review of Neuroscience*. 2018 May 31. doi: 10.1146/annurev-neuro-080317-061522.
17. Taylor, BK and **Corder, G**. Endogenous analgesia, dependence, and latent pain sensitization. *Current Topics in Behavioral Neuroscience*. 2014 Sep 17. doi 10.1007/7854_2014_351. PMID: 25227929.

Invited Presentations and Seminars

Extramural Talks

- 2020 **Engaging endogenous opioid analgesia to disrupt pain perception**. Symposium: PAIN AND EMOTION—BRAIN, BODY, AND BEYOND. #WeAreAllInThis Together COVID-19 Journal Club.

- 2020 **Chair + Speaker of Symposium: Convergence of somatosensory and affective components of pain in the amygdala.** IASP World Congress. Amsterdam, Netherlands (canceled due to COVID-19)
- 2020 **Pain emotion: Integrating subcortical valence into the cingulate cortex.** Society for Affective Science Conference. San Francisco (April 2020 – cancelled due to COVID-19)
- 2020 **Cortical circuits for valence coding and attention.** LSU D'Angelo Neuroscience Workshop. New Orleans, LA (March 2020 – postponed due to COVID-19)
- 2019 **Why pain hurts: Discovering the brain cells that make pain unpleasant.** NGG Public Lecture. Philadelphia, PA
- 2019 **Choreography of deep brain neural ensembles encoding pain affect.** Society for Neuroscience Annual Meeting. Chicago, IL
- 2019 **Why!? Why was I programmed to feel pain?: Neural circuits encoding the unpleasantness of nociception.**
- National Institute on Drug Abuse (NIDA) | Division of Neuroscience and Behavior. Bethesda, MD
 - International Narcotics Research Conference. New York, NY
 - American College of Neuropsychopharmacology (ACNP) 58th Annual Meeting, Orlando, FL
 - Temple University. CSAR, Philadelphia, PA
- 2019 **Long-term *in vivo* calcium imaging of evolving deep-brain neural dynamics during chronic pain.** Boston University | Center for Systems Neuroscience | Inscopix User Group Meeting East. Boston, MA
- 2019 **Hunting for the pain pathways: Visualizing nociceptive ensembles with single-neuron resolution.**
- American Pain Society. Milwaukee, WI
- 2018 **Novel *in vivo* imaging and virtual reality paradigms to dissect circuits underlying brain plasticity.** American College of Neuropsychopharmacology (ACNP) 57th Annual Meeting, Hollywood, FL
- 2017 - 2018 **Dynamic neural mechanisms of pain perceptions, and molecular remodeling by opioids (Job Talks)**
- Harvard Medical School | Brigham and Women's Hospital | Dept. of Anesthesiology
 - University of Washington | Dept. of Biological Structure
 - University of California, San Diego | Dept. of Anesthesiology
 - Washington University in St. Louis | Dept. of Anesthesiology
 - University of Maryland, Baltimore | Dept. of Anatomy and Neurobiology
 - University of Minnesota | Dept. of Pharmacology
 - University of Michigan | Molecular & Behavioral Neuroscience Institute & Dept. of Pharmacology
 - University of Pennsylvania | Dept. of Psychiatry
 - University of Pittsburgh | Dept. of Neuroscience (declined)
 - Georgetown University | Dept. of Pharmacology and Physiology (declined)
 - Vanderbilt University | Dept. of Pharmacology (declined)
- 2018 **Dynamic neural mechanisms of pain perceptions, and molecular remodeling by opioids.** Tulane University | Brain Institute
- 2018 **Dynamic neural mechanisms of pain perceptions, and molecular remodeling by opioids.** Thomas L. Skinner Memorial Lecture | University of Kentucky
- 2018 **Dynamic encoding of pain perception within hierarchical neural ensembles.** International Narcotic Research Conference (INRC), San Diego, CA
- 2017 **Amygdalar neural ensembles encoding the aversive quality of pain experience.** Gordon Research Seminar (GRS) | Amygdala Function in Emotion, Cognition & Disease. Stonehill College, MA
- 2017 **Opioidergic circuits encoding pain affect and motivation.** (Hot Topic series). International Narcotic Research Conference (INRC), Chicago, IL
- 2017 **Neural ensemble abstractions of nociceptive information in the amygdala drive pain affective behavior.** IASP Neuropathic Pain SIG. Gothenburg, Sweden
- 2017 **A neural circuit for pain aversion: Nociceptive abstractions in the amygdala.** University of California, San Francisco (UCSF) | Wheeler Center for the Neurobiology of Addiction

Institutional | Departmental Talks

- 2020 **Pain in the brain, or: How mice learned to stop worrying and love inanimate objects.** MINDcore, Penn
- 2019 **Why!? Why was I programmed to feel pain? An amygdalar neural ensemble that encodes the unpleasantness of noxious information.**
- Penn | Center for Neurobiology and Behavior
 - Penn | Konrad Kording Group Meeting
- 2018 **Dynamic mechanisms of pain perceptions and the future of non-opioid pain therapies.** Stanford CVRI Symposium

- 2017 **Keeping the Good, Losing the Bad: μ -opioid receptor signaling in nociceptors drives morphine tolerance.** Stanford Neuroscience and Pain Laboratory (SNAPL) Seminar
- 2016 **Revealing a functional coding schema within the amygdalar pain network.** Dept. of Molecular and Cellular Physiology Annual Retreat, Stanford School of Medicine
- 2015 **Evolving amygdala neuronal networks shape unpleasantness under neuropathic pain states.** Neuroscience Forum, Stanford School of Medicine
- 2015 **μ -Opioid receptors in primary afferent nociceptors mediate morphine tolerance.** Arastradero Neuroscience Seminar, Stanford
- 2014 **Visualizing chronic pain in freely behaving mice: Calcium imaging of basolateral amygdala neural hyperactivity.** Stanford Anesthesia Research & Development Seminar series
- 2014 **Opioid signaling in neural circuits underlying the sensory and affective components of pain.** Dept. of Molecular and Cellular Physiology, Stanford, Science Friday Seminar series

Mentorship & Teaching

Graduate Student mentorship

- 2021 – **Sophie Rogers** (Graduate Student Advisor, Corder Lab, Penn)
- 2021 – **Lindsay Ejoh** (Graduate Student Advisor, Corder Lab, Penn)
- 2020 – **Lisa Wooldrige** (Graduate Student Advisor, Corder Lab, Penn)
- 2019 – **Jessica Wojick** (Graduate Student Advisor, Corder Lab, Penn)
- 2020 – **Melanie Schaffler** (Thesis Committee Member, Abdus-Saboor Lab, Penn)
- 2020 – **Catherine Ubri** (Committee Member, Akiva Cohen Lab, Penn)
- 2020 – **Leah Middleton** (Thesis Committee Member, Ishmail Abdus-Saboor Lab, Penn)
- 2020 – **Nitsan Goldstein** (Thesis Committee Member, Nick Betely Lab, Penn)
- 2020 **Adrienne Jo** (Thesis Committee Member, Penn)
- 2020 **Katherine Webb** (Thesis Committee Member, Mariella De Biasi, Penn)
- 2014 – 2018 **Jasmine Dickinson** (Scherrer Lab, Stanford University → Data analyst at tech start-up)
- 2013 – 2018 **Biafra Ahanonu** (Schnitzer Lab, Stanford University → UCSF Postdoc with Allan Basbaum)

Postdoctoral Fellow mentorship

- 2020 – **Gregory Salimando, Ph.D.** (Corder Lab, Penn)
- 2020 – **Blake Kimmey, Ph.D.** (Corder Lab, Penn)
- 2019 – **Nora McCall, Ph.D.** (Corder Lab, Penn)
- Training Program in Neuropsychopharmacology (T32-MH014654; Corder Lab, Prime award PI Wade Berrettini)

Undergraduate, Nursing and Medical Student mentorship

- 2020 – **Justin James** (Corder Lab, Penn, Work Study Program)
- 2019 – **Shivanki Juneja** (Corder Lab, Penn. Senior Independent Researcher)
- 2019 – **Simay Ipek** (Corder Lab, Penn., Student Worker)
- 2019 – **Emily Lo** (Corder Lab, Penn. PURM Program Student and Student Worker)
- 2019 – 2020 **Lauren Marconi** (Corder Lab, Penn. Research Specialist B and Lab Manager)
- 2019 – 2019 **Angelina Heyler** (Corder Lab, Penn. PURM Program Student)
- 2014 – 2016 **Chaudy Sotoudeh** (Scherrer Lab, Stanford University → Medical student, Still University School of Medicine)
- 2013 – 2015 **Sarah Low** (Scherrer Lab, Stanford University → Resident, Dept. Anesthesia, Mass. General)
- 2012 **Jennifer Grasch** (Taylor Lab, UK. → Medical student, Vanderbilt University School of Medicine)

Teaching

- 2019 – 2021 **Course Director**, *First-Year Journal Club*, Neuroscience Graduate Group, Penn
- 2020 **Lecturer**, *From bench to bedside and back again: Translational pipelines for Neuropsychiatric therapies*, Psychiatry Residents PGY4, Penn
- 2019 **Lecturer**, *Electricity. Light. Viruses: Tools to understand neural circuits and their function*, Psychiatry Residents PGY4, Penn
- 2019 **Lecturer**, *Introduction to Pain*, N306 Nursing, Penn
- 2019 **Lecturer**, *Pain and Pleasure Systems in the Brain*, Translational Topics in Neuroscience, Penn
- 2019 **Lecturer**, *Neuroscience in the Media*, PGY1 Psychiatry Residency Program, Penn
- 2018 **Lecturer**, Preparing for Faculty Careers Course (VPTL 231), Stanford University
- 2013 **Guest Lecturer**, Grant Writing Workshop, University of Kentucky

Service to Profession and Community

Invited Grant Reviewer

- 2020 **NIH Study Section** – HEAL Initiative, Special Emphasis Panel ZRG1 ETTN-H (11): Small business panel on Drug Discovery for Aging, Neuropsychiatric and Neurologic Disorders
- 2020 **NIH Study Section** – HEAL Initiative, Special Emphasis Panel ZRG1 IFCN-E (07)
- 2020 **NIH Study Section** – HEAL Initiative, R01 Special Emphasis Panel ZRG1 IFCN-N (55): *NS-18-043: Discovery and Validation of Novel Targets for Safe and Effective Pain Treatment*
- 2020 **NIH Study Section** – HEAL Initiative, Panel R631/R33: *PAR 18 742: Exploring Epigenomic or Non Coding RNA Regulation in the Development, Maintenance, or Treatment of Chronic Pain*
- 2019 **NIH Study Section** – HEAL Initiative, Panel Early Phase Pain Investigation Network (EPPIC-Net)
- 2019 **NIH Study Section** – HEAL Initiative, Panel UG3/UH3 and U44: *RFA-NS-19-010: Optimization of Non-addictive Therapies [Small Molecules and Biologics] to Treat Pain*
- 2019 & 2020 **International Anesthesia Research Society (IARS) Study Section** – Mentored Research Awards

Invited Journal Editor + Reviewer

2019 – Present **Review Editor** at *Frontiers in Neural Circuits* and *Frontiers in Pain Research* (Pain Mechanisms section)

2019 – Present **Ad hoc reviewer** for *Nature Neuroscience*, *Nature Medicine*, *Neuron*, *Journal of Neuroscience*, *Neuropsychopharmacology*, *PLoS One*, *Pain*, *British Journal of Pharmacology*

Academic and educational outreach

- 2015 – 2017 **Judge**, Synopsys Science and Technology Championship, San Jose, CA
- 2011 – 2013 **Judge**, Central Kentucky Regional Science and Engineering Fair, Lexington, KY
- 2009 – 2013 **Volunteer educator**, Brain Awareness Week, Fayette County Elementary Schools, Lexington, KY
- 2006 – 2008 **Operating Room Volunteer**, Dept. of Surgery, Children's Hospital, New Orleans, LA
- 2005 **Middle school teacher** (6 – 8th grade biology), Terrace Community Middle School, Tampa, FL
- *During Fall semester closure of Tulane due to Hurricane Katrina*

Contributions in popular press articles

- [Why Is Pain So Painful \(And How Can You Stop It Without Risking Addiction\)?](#) **Neurology Today**
- [Deep Brain Optogenetic Control Without Implants.](#) **The Scientist**
- [Remote Control of Peripheral Nerves.](#) **The Scientist**
- [Young, brilliant and broke: Push to fund young biomedical scientists.](#) **San Jose Mercury News.**
- ["The Searing Sea" & "The Receiving End".](#) **Interstellate magazine**, Vol. 2
- [Doing a flip from aversion to reward.](#) **Pain Research Forum.**

Posters & Abstracts

(Only displaying *Presenting Author* posters/abstracts at nation-wide domestic and international conferences)

McCall, NM, Wojcik, JA, Marconi, L, Lo, Emily, Heyeler, A, **Corder, G.** Mapping the Pain Affect Pathway: Amygdalar nociceptive neurons project to the Nucleus Accumbens. International Narcotics Research Conference (INRC), 201, New York, NY

Corder, G., Ahanonu, B, Grewe, B, Wang, D, Schnitzer, MJ, Scherrer, G. An amygdalar neural ensemble encoding the unpleasantness of painful experiences.

- American College of Neuropsychopharmacology (ACNP) Annual Meeting, 2018, Hollywood, FL
- Society for Neuroscience (SfN) Meeting, 2018, San Diego, CA
- IASP World Congress on Pain, 2018, Boston, MA
- International Narcotics Research Conference (INRC), 2018, San Diego, CA

Corder, G., Ahanonu, B, Grewe, B, Beirer, K, Luo, L, Malenka, R, Schnitzer, MJ, Scherrer, G. Amygdalar neural ensembles encoding the aversive quality of pain experience. Gordon Research Conference: Amygdala Function in Emotion, Cognition & Disease, 2017, Easton, MA

Corder, G., Ahanonu, B, Grewe, B, Beirer, K, Luo, L, Malenka, R, Schnitzer, MJ, Scherrer, G. A neural circuit for abstracting nociceptive information into an aversive pain perception.

- International Narcotics Research Conference (INRC), 2017, Chicago, IL
- IASP Neuropathic Pain SIG, Gothenburg, Sweden

Corder, G., Ahanonu, B, Grewe, B, Beirer, K, Luo, L, Malenka, R, Schnitzer, MJ, Scherrer, G. Neural ensemble coding of nociceptive information in the amygdala drives innate pain affective behavior. Society for Neuroscience meeting, 2016, San Diego, CA

Corder, G., Ahanonu, B, Grewe, B, Beirer, K, Luo, L, Malenka, R, Schnitzer, MJ, Scherrer, G. Encoding of noxious information in the amygdala drives pain-affective behaviors.

- Computational and Systems Neuroscience (COSYNE) Meeting, 2016, Salt Lake City, UT
- IASP World Congress on Pain, 2016, Yokohama, Japan

Corder, G., Ahanonu, B., Gewe, B. Schnitzer, M.J., and Scherrer, G. The evolution of amygdala neuronal ensembles encoding neuropathic pain states. International Narcotics Research Conference (INRC), 2015, Phoenix, AZ

Corder, G., Doolen, S., Winter, M., McCarson, K., and Taylor, B.K Opioid inhibition of NMDA-R-dependent

spinal sensitization persists long after the resolution of inflammatory hyperalgesia. *Experimental Biology*, 2013, Boston, MA.

Corder, G., Doolen, S., Winter, M., McCarson, K., and Taylor, B.K. Spinal μ -opioid receptor signaling tonically inhibits NMDA receptor-dependent activation of adenylyl cyclase 1 after injury. 42nd Neuroscience Meeting of Society for Neuroscience, 2012, New Orleans, LA

Corder, G., Doolen, S., Winter, M., Hu, X., He, Y., Wang, Z., McCarson, K., and Taylor, BK. Opioid inhibition of NMDAR-dependent spinal sensitization persists long after the resolution of inflammatory hyperalgesia. 14th World Congress on Pain, International Association for the Study of Pain, 2012, Milan, Italy

Corder, G., Winter, M., Chen, W., Donahue, R., McCarson, K., Marvizon, J-C., and Taylor, B. Activation of NPY Y1 and Y2 receptors reduce spinal presynaptic Substance P release. 41st Neuroscience Meeting of the Society for Neuroscience, 2011, Washington, D.C.

Corder, G. and Taylor B.K. Reinstatement of inflammatory and neuropathic pain with naltrexone: Endogenous CNS opioids mask latent pain sensitization. 13th World Congress on Pain, International Association for the Study of Pain, 2010, Montreal, Canada