

Jacob Nordman, Ph.D.

Assistant Professor
Southern Illinois University School of Medicine
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EXPERIENCE

October 2021 - Present	Assistant Professor Southern Illinois University School of Medicine, Department of Physiology, Carbondale, IL
March 2023 - Present	Assistant Professor (cross-appointed) Southern Illinois University School of Medicine, Department of Pharmacology, Springfield, IL
May 2014 – September 2021	Postdoctoral Fellow NIMH at NIH, Bethesda, MD
January 2020 - May 2021	Graduate School Faculty and Lead Instructor for FAES NIH, Bethesda, MD
May 2016 – August 2019	Postdoctoral Research Associate (PRAT) Fellowship NIGMS at NIH, Bethesda, MD
September 2008 – June 2009	Post-Baccalaureate IRTA NCI at NIH, Bethesda, MD

EDUCATION

September 2009 – May 2014	Ph.D. Neuroscience George Mason University, Fairfax, VA
September 2005 – December 2007	BS in Molecular, Cellular, and Developmental Biology University of Colorado, Boulder, CO

PUBLICATIONS (in reverse order, * = co-first author, § = corresponding author)

Manuscripts

1. M. Potegal, **J.C. Nordman***§ (2023) Non-angry aggressive arousal and angriffsberietschaft: A narrative review of the phenomenology and physiology of proactive/offensive aggression motivation and escalation in people and other animals. *Neuroscience and Biobehavioral Reviews*, 147, 105110, doi.org/10.1016/j.neubiorev.2023.105110.
2. C.J. Bartsch, S. Aaflaq, J.T. Jacobs, M. Smith, F. Summa, S. Skinner, E.S. Qasem, R. Thompson, Z. Li, **J.C. Nordman**§ (2023) A single dose of ketamine enhances early life stress-induced aggression with no effect on fear memory, anxiety-like behavior, or depression-like behavior in mice. *Behavioral Neuroscience*, accepted.

3. C.J. Bartsch, **J.C. Nordman**^{*§} (2022) Promises and Pitfalls of NMDA receptor antagonists in treating violent aggression. *Frontiers in Behavioral Neuroscience*, 16, doi.org/10.3389/fnbeh.2022.938044.
4. **J.C. Nordman**[§], C.J. Bartsch, Z. Li, (2022) Opposing effects of NMDA receptor antagonists on aggression induced by early life stress. *Aggress Behav*, 48(3):365-373.
5. **J.C. Nordman**[§] (2021) Anger management: mechanisms of glutamate receptor-mediated synaptic plasticity underlying animal aggression. *Int J Biochem Cell Biol*, doi: 10.1016/j.biocel.2021.106120.
6. **J.C. Nordman**, X. Ma, Q. Gu, M. Potegal, H. Li, A.V. Kravitz, Z. Li (2020) Potentiation of Divergent Medial Amygdala Pathways Drives Experience-Dependent Aggression Escalation. *J Neurosci* 40, 4858-4880. (**Featured article and cover**).
7. **J.C. Nordman**, X. Ma, Z. Li (2020) Traumatic stress induces aggression increase through synaptic potentiation in the medial amygdala circuits. *eNeuro*. DOI: <https://doi.org/10.1523/ENEURO.0448-17.2019>. (**Featured article**).
8. **J.C. Nordman** & Z. Li (2020) The dorsal raphe regulates the duration of attack through the medial orbitofrontal cortex and medial amygdala. *eNeuro*. <https://www.eneuro.org/content/2020/10/14/ENEURO.0331-20.2020>.
9. J.R. King, **J.C. Nordman**, S.P. Bridges, M.K. Lin, N. Kabbani (2015) Identification and Characterization of a G Protein-binding Cluster in alpha7 Nicotinic Acetylcholine Receptors. *J Biol Chem* 290, 20060-20070.
10. S.D. Alsharari, J.R. King, **J.C. Nordman**, P.P. Muldoon, A. Jackson, A.Z. Zhu, R.F. Tyndale, N. Kabbani, M.I. Damaj (2015) Effects of Menthol on Nicotine Pharmacokinetic, Pharmacology and Dependence in Mice. *PLoS One* 10, e0137070.
11. **J.C. Nordman**, W.S. Phillips, N. Kodama, S.G. Clark, C.A. Del Negro, N. Kabbani (2014) Axon targeting of the alpha 7 nicotinic receptor in developing hippocampal neurons by Gpr11 regulates growth. *J Neurochem* 129, 649-662.
12. **J.C. Nordman**, P. Muldoon, S. Clark, M.I. Damaj, N. Kabbani (2014) The alpha4 nicotinic receptor promotes CD4+ T-cell proliferation and a helper T-cell immune response. *Mol Pharmacol* 85, 50-61. (**Cover**)
13. **J.C. Nordman**. & N. Kabbani (2014) Microtubule dynamics at the growth cone are mediated by alpha7 nicotinic receptor activation of a Gαq and IP3 receptor pathway. *FASEB J* 28, 2995-3006.
14. J.M. Jia*, Z. Hu*, **J. Nordman***, Z. Li (2014) The schizophrenia susceptibility gene dysbindin regulates dendritic spine dynamics. *J Neurosci* 34, 13725-13736.
15. B.A. Corgiat*, **J.C. Nordman***, N. Kabbani (2014) Chemical crosslinkers enhance detection of receptor interactomes. *Front Pharmacol* 4, 171.
16. N. Kabbani, **J.C. Nordman**, B.A. Corgiat, D.P. Veltri, A. Shehu, V.A. Seymour, D.J. Adams (2013). Are nicotinic acetylcholine receptors coupled to G proteins? *Bioessays* 35, 1025-1034.
17. A. Ashoor, **J.C. Nordman**, D. Veltri, K.H. Yang, Y. Shuba, L. Al Kury, B. Sadek, F.C. Howarth, A. Shehu, N. Kabbani, M. Oz (2013) Menthol inhibits 5-HT3 receptor-mediated currents. *J Pharmacol Exp Ther* 347, 398-409.

18. A. Ashoor, **J.C. Nordman**, D. Veltri, K.H. Yang, L. Al Kury, Y. Shuba, M. Mahgoub, F.C. Howarth, B. Sadek, A. Shehu, M. Oz (2013). Menthol binding and inhibition of alpha7-nicotinic acetylcholine receptors. PLoS One 8, e67674.
19. **J.C. Nordman**, N. Kabbani (2012) An interaction between alpha7 nicotinic receptors and a G-protein pathway complex regulates neurite growth in neural cells. J Cell Sci 125, 5502-5513. (**Cover**).
20. N. Kabbani, M.P. Woll, **J.C. Nordman**, R. Levenson (2012) Dopamine receptor interacting proteins: targeting neuronal calcium sensor-1/D2 dopamine receptor interaction for antipsychotic drug development. Curr Drug Targets 13, 72-79.

Book Chapters

1. N. Kabbani* & **J.C. Nordman*** (2013) Capture of D2 dopamine receptor signaling complexes in striatal cells for mass spectrometry proteomic analysis. Methods Mol Biol 964, 43-60.

Editorials

1. **J.C. Nordman**[§], C. Summers, K. Ball, (2023) The Impact of Chronic Stress on Neuroplasticity and Abnormal Behavior. Frontiers in Behavioral Neuroscience, accepted.

GRANTS AND AWARDS

2023 - 2026

NIH

1 R15 HD110925-01A1

Title: The Impact of Early Life Stress On Amygdala Circuitry And Chronic Excessive Aggression

Amount: \$445,000

PI: Jacob Nordman

NICHD at NIH, Bethesda, MD

July 2022 – June 2023

Research Seed Grant

Title: Opposing effects of Ketamine and Memantine on Early Life Stress-Induced Aggression (ELSIA)

Amount: \$15,000

PI: Jacob Nordman

SIU SOM

May 2016 – August 2019

Postdoctoral Research Associate (PRAT) Fellowship Award

1 F12 GM119962

Title: Neural Mechanisms in the Medial Amygdala Underlying Aggression

Amount: \$200,000

PI: Jacob Nordman

NIGMS at NIH, Bethesda, MD

July 2017, 2018, 2019

The Fellows Award for Research Excellence (FARE)

Amount: \$6,000

May 2018	NIH, Bethesda, MD NIMH IRP OFT Trainee Travel Award Amount: \$1,500 NIMH at NIH, Bethesda, MD
May 2016, 2017	Outstanding Mentor Award from Eleanor Roosevelt High School Science and Technology Internship Program Eleanor Roosevelt High School, Oxon Hill, MD
Fall 2014	Dissertation Completion Grant Amount: \$10,000 George Mason University, Fairfax, VA

Pending Grants

2024 – 2026	NIH R21 Title: Neural mechanisms of socially transmitted aggression Requested amount: \$408,375 PI: Jacob Nordman
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Student Honors and Awards

Fall 2023 – Spring 2024	Florence M. Foote Physiology Scholarship for Elana S. Qasem (\$5,000)
Spring 2023	Lonnie Russell Undergraduate Research Award for Caitlyn Bartsch
Spring 2023	Emma Smith Hough Library Research Scholarship Award for Sophia Aaflaq (\$1,500)
Fall 2023 – Spring 2024	Postbaccalaureate Intramural Research Training Award (IRTA) to Caitlyn Bartsch
Fall 2022 – Spring 2023	Cayman Biomedical Research Institute (CABRI) Undergraduate Fellowship for Caitlyn Bartsch (\$2,500)
August 2023 – August 2024	REACH Award for Elana S. Qasem (\$4,000)
August 2023 – August 2024	REACH Award for Sophia Aaflaq (\$4,000)
June 2023 – August 2023	Mentored Professional Enrichment Experience (MPEE) Internship for Oliver Caldwell (\$5,000)
August 2022 – August 2023	REACH Award for Caitlyn Bartsch (\$4,000)
August 2022 – August 2023	REACH Award for Savannah Skinner (\$4,000)
November 2022	Trainee Professional Development Award (TPDA) from the Society for Neuroscience for Caitlyn Bartsch (\$1,000)

July 2022	Chandrashekar Memorial Award for Caitlyn Bartsch (\$1,000)
July 2022	Chandrashekar Memorial Award for Savannah Skinner (\$1,000)
June 2022 – August 2022	Mentored Professional Enrichment Experience (MPEE) Internship for Fletcher Summa (\$5,000)
June 2022 – August 2022	Mentored Professional Enrichment Experience (MPEE) Internship for Molly Smith (\$5,000)

TEACHING

Spring 2023, 2024	Instructor for PHSL 410B/511B Department of Physiology at SIU SOM, Carbondale, IL
Fall 2022 - present	Instructor for UHON 499-705 Department of Physiology at SIU SOM, Carbondale, IL
Spring - present	Instructor for PHSL 510 Department of Physiology at SIU SOM, Carbondale, IL
Fall 2022 - present	Instructor for PHSL 500 Department of Physiology at SIU SOM, Carbondale, IL
Spring 2022 - present	Instructor for PHSL 492-707 Special Problems in Physiology Department of Physiology at SIU SOM, Carbondale, IL
Spring 2022 - present	Tutor for Neuromuscular and Behavior Unit Department of Physiology at SIU SOM, Carbondale, IL
Spring 2021	Instructor for BIOL 350/351 Fundamentals in Cellular Neuroscience FAES at NIH, Bethesda, MD
Fall 2020, 2021	Instructor for BIOL 325/6 Human Neuroscience at NIH FAES at NIH, Bethesda, MD

MENTORSHIP/SERVICE

2022 – present	Grant Review Committee SIU SOM, Carbondale, IL
2022 – Present	Study Section Reviewer for Pathophysiological Basis of Mental Disorders and Addictions Study Section (PMDA) National Institutes of Health, Bethesda, MD
2023 – Present	Physiology Awards Committee SIU SOM, Carbondale, IL
March 2023	SIU Extern Program Mentored 2 students
2022	Society for Neuroscience's Program Committee

2022 – present	Honorary Degree & Distinguished Service Award Committee SIUC, Carbondale, IL
2021 – Present	Currently mentoring 4 undergraduate students in my lab Department of Physiology at SIU SOM, Carbondale, IL
2022	Mentored Professional Enrichment Experience (MPEE) Mentored 3 medical students
2022 – Present	Graduate Program Committee Department of Physiology at SIU SOM, Carbondale, IL
2022 – Present	Faculty Search Committee Department of Physiology at SIU SOM, Carbondale, IL
2022 – Present	Chair of Physiology Seminar Committee Department of Physiology at SIU SOM, Carbondale, IL
2023 – Present	Ph.D. Committee Member for Nooshin Mojahed Department of Physiology at SIU SOM, Carbondale, IL
2023 – Present	Ph.D. Committee Member for Karthika Murugesan Department of Physiology at SIU SOM, Carbondale, IL
2022 – Present	Ph.D. Committee Member for Sakia Ferdousy Department of Physiology at SIU SOM, Carbondale, IL
2022 – Present	Ph.D. Committee Member for Natalee Hite Department of Physiology at SIU SOM, Carbondale, IL
2017 - 2019	High School Scientific Training & Enrichment Program (Hi-STEP) NIMH at NIH, Bethesda, MD
2018 - 2019	Summer Internship Program (SIP) in Biomedical Science NIH, Bethesda, MD
2015 - 2019	Eleanor Roosevelt High School Science and Technology Internship Program NIH, Bethesda, MD
2018 - 2020	Judge for The Fellows Award for Research Excellence (FARE) NIH, Bethesda, MD
2010 - 2014	Aspiring Scientists Summer Internship Program (ASSIP) George Mason University, Fairfax, VA

COLLABORATIONS

Benjamin Richardson, Ph.D. – Assistant Professor, Southern Illinois University School of Medicine, Springfield, IL

Buffy Ellsworth, Ph.D. – Associate Professor, Southern Illinois University School of Medicine, Carbondale, IL

Kristin Delfino, Ph.D. – Research Assistant Professor, Southern Illinois University School of Medicine, Springfield, IL

Diana Sarko, Ph.D. – Associate Professor, Southern Illinois University School of Medicine, Carbondale, IL

Michael Potegal, Ph.D. – Associate Professor, University of Minnesota, Minneapolis, MN

He Li, Ph.D. – Associate Professor, Uniformed Services of the Health Sciences, Bethesda, MD

Alexxai Kravitz, Ph.D. – Associate Professor, Washington University in St. Louis, St. Louis, MO

Imad Damaj, Ph.D. – Professor, Virginia Commonwealth University, Richmond, VA

Christopher Del Negro, Ph.D. – Professor, William and Mary, Williamsburg, VA

Darwin Berg, Ph.D. – Professor, University of California, San Diego, San Diego, CA

Armadu Shehu, Ph.D. – Professor, George Mason University, Fairfax, VA

Murat Oz, Ph.D. – Professor, United Arab Emirates University, Abu Dhabi, United Arab Emirates

David J. Abrams, Ph.D. – Professor, University of Wollongong, Wollongong, Australia

Robert Levenson, Ph.D. – Professor, Penn State University, State College, PA

AD HOC REVIEWER

International Journal of Biochemistry and Cell Biology, Frontiers in Neuroscience, Frontiers in Behavioral Neuroscience, Neuropathology and Applied Neurobiology, Current Pharmaceutical Design, Aggressive Behavior, Neuroscience and Biobehavioral Reviews

EDITORIAL EXPERIENCE

Review Editor for Frontiers in Behavioral Neuroscience

Review Editor for Frontiers in Systems Biology

Special Issue Editor for Frontiers

PROFESSIONAL SOCIETIES

Society for Neuroscience

Sigma Xi Chapter 153

The International Society for Research on Aggression

INVITED SEMINARS AND TALKS

Seminar Series, SIU SOM, Springfield, IL. *The role of early life stress on chronic aggression.* – Fall 2022.

Annual PRAT Symposium, NIH, Bethesda, MD. *Medial Amygdala Circuits in Experience Dependent Violent Aggression.* – Spring 2019.

Neurobiology Interest Group, NIH, Bethesda, MD. *Medial Amygdala Circuits in Experience Dependent Violent Aggression.* – Spring 2019.

Three Minute Thesis, NIH, Bethesda, MD. *Potentiation of a medial amygdala circuit in experience-induced aggression.* – Summer 2018.

2nd Year PRAT Fellow Seminar, NIH, Bethesda, MD. *Potentiation of the Posterior Ventral Medial Amygdala Circuit Promotes Violent Aggression.* – Winter 2018

47th 19th Annual NIMH DRIP Fellows' Scientific Training Day, Leesburg, VA. *Potentiation of the Medial Amygdala Circuit Promotes Violent Aggression.* – Summer 2017

PRAT Three Minute Thesis, NIH, Bethesda. *Potentiation of Medial Amygdala Neurons Promotes Violent Aggression.* – Fall 2016

Peter Baas lab, Drexel University. *Characterizing how the $\alpha 7$ /Gpr1 Interaction Regulates Growth Cone Dynamics in Hippocampal Neurons.* – Spring 2012

Ken Kellar's lab, Georgetown University. *Alpha 7 nicotinic receptor interactomics: new tools for studying development.* – Fall 2011

Robert Levenson's Lab, Penn St. University. *The $\alpha 7$ Nicotinic Receptor Interaction Network: Neurite Growth and Development.* – Spring 2011

Serge Ferre's Lab, NIDA in Baltimore MD. *G Protein Regulated Changes in Neuron Morphology can be Induced through nACh Alpha 7 Receptors.* – Fall 2010

Student Posters (§ = corresponding author)

1. N. Mojahed, C. J. Bartsch, J. T. Jacobs, E. Qasem, Z. Li, **J. C. Nordman**[§] (2023) Opposing effects of ketamine on early life stress-induced aggression. Society for Neuroscience 2023, Washington, D. C.
2. C.J. Bartsch, **J.C. Nordman**[§] (2023) Synaptogenesis in MeA-VmH Neurons After Early Life Stress: Implications for Understanding and Treating Chronic Aggression in Psychiatric Disorders. REACH symposium, Carbondale, IL.
3. S.L. Skinner, E.S. Qasem, R. Thompson, C. Spotanski, F. Summa, **J.C. Nordman**[§] (2023) Socially Transmitted Fight or Flight. REACH symposium, Carbondale, IL.
4. C.J. Bartsch, S.L. Skinner, Z. Li, **J.C. Nordman**[§] (2022) Opposing effects of NMDA receptor antagonists on early life stress-induced aggression. Society for Neuroscience 2022, San Diego, CA.
5. S.L. Skinner, C.J. Bartsch, X. Ma, Q. Gu, A. Kravitz, H. Li, M. Potegal, Z. Li, **J.C. Nordman**[§] (2022) Aggression priming is regulated by diverging medial amygdala pathways. Society for Neuroscience 2022, San Diego, CA.