

Courtney R. McDermott, PhD

CURRICULUM VITAE

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EDUCATION

2018 – 2024 PhD Rutgers University, NJ. Neuroscience
2014 – 2018 BA Queens College, NY. Neuroscience-Biology

RESEARCH EXPERIENCE

2026 – Present *Placental extracellular vesicle modulation of neurodevelopment in human iPSC models of autism*
Postdoctoral Associate Mentor: Morgan Firestein, PhD
Rutgers Child Health Institute of NJ, NJ Co-Mentor: Zhiping Pang, MD, PhD

2024 – 2025 *Scent of Security: How maternal presence and oxytocin shape innate and inherited responses to stress*
Postdoctoral Scientist Mentor: Bianca Jones Marlin, PhD
Columbia University's Zuckerman Institute, NY

2018 – 2024 *The effects of the 16p11.2 deletion and early life microbial alterations on hippocampal neurogenesis and behavior*
PhD Candidate in Neuroscience Mentor: Emanuel DiCicco-Bloom, MD
Rutgers University, NJ Co-Mentor: Martin J. Blaser, MD

2014 – 2018 *Cholesterol-lowering drugs alter brain steroid levels in a songbird model system*
Undergraduate Researcher, Honors Thesis Mentor: Carolyn Pytte, PhD
Queens College CUNY, NY

2016 *Using high-throughput screening techniques to uncover the molecular mechanisms of synapse elimination*
Summer Research Assistant Mentor: Beth Stevens, PhD
Boston Children's Hospital, MA

2015 *The effects of growth factor stimulation on neurite extension in autism patient derived neural stem cells*
Summer Research Assistant Mentor: Emanuel DiCicco-Bloom, MD
Rutgers University, NJ

2014 – 2015 *The acute impact of exercise on cognitive functioning in healthy young adults*
Undergraduate Researcher Mentor: Jeffery Halperin, PhD
Queens College CUNY, NY

FUNDING AND FELLOWSHIPS

2025 - 2026 **Kavli Scholars Fellowship**
PI: Courtney R. McDermott

2022 - 2024 **1F99NS130926-02** NIH NINDS F99/K00 Predoctoral to Postdoctoral Advancement in Neuroscience Award
PI: Courtney R. McDermott

2021 - 2022 **CAUT22AFP011** Graduate Student Fellowship, New Jersey Governor's Council for Autism Research, a component of the NJ Department of Health
PI: Courtney R. McDermott

- 2019 - 2020 **TL1TR003019** Predoctoral Training Grant, National Center for Advancing Translational Sciences (NCATS), a component of the NIH
PI: Courtney R. McDermott
- 2017 - 2018 **Federal PELL Grant**
Recipient: Courtney R. McDermott
- 2015 - 2017 **5T34GM070387-12** Undergraduate Training Grant, Maximizing Access to Research Careers (MARC), a component of the NIH
PI: Zahra Zakeri, PhD
- 2015 **R25MN09572** NIH/NIMH "Summer Undergraduate Research Program in Molecular and Developmental Neurobiology, Rutgers University, NJ"
PI: Janet Alder, PhD

HONORS AND AWARDS

- 2023 Rutgers Aaron J. Shatkin Graduate Research Award
- 2023 University of Utah Rising Stars in Neuroscience Recipient
- 2023 Association for Clinical and Translational Sciences Outstanding Predoctoral Scholar Award
- 2022 Society for Neuroscience Trainee and Professional Development Award
- 2019 NJ Autism Center of Excellence Travel Award
- 2019 Gordon Private Foundation Gift
- 2018 Neuroscience Excellence Award
- 2018 John V. Conti Graduation Award in Psychology
- 2018 Excellence in Neuroscience Research Award (Undergraduate Thesis)
- 2017 Northeast Undergraduate Research Organization for Neuroscience Frye Pioneering Research Award
- 2017 George Axelrad Chemistry Research Award
- 2017 Faculty for Undergraduate Neuroscience Travel Award
- 2016 Raphell Sims Lakowitz Undergraduate Research Award
- 2015 Honors in Mathematics and Natural Sciences
- 2015 Biology Honors Society

OUTREACH, SERVICE, AND VOLUNTEERING

- 2019 - Present Scribe, Eagles Autism Foundation Grant Review Panel, West Palm Beach, FL
- 2023 - 2024 Committee Member, Rutgers SGS Graduate Student Advisory Committee, New Brunswick, NJ
- 2023 - 2024 Manuscript Reviewer, Aresty Rutgers Undergraduate Research Journal
- 2023 - 2024 Application Reviewer, Rutgers NJACTS TL1 Predoctoral Selection Committee
- 2022 - 2024 Volunteer, STEM Grads Giving Back - Upward Bound Math-Science, Piscataway, NJ
- 2022 - 2024 Peer Role, PEERS at The Rutgers Center for Adult Autism Services, New Brunswick, NJ
- 2019 - 2024 Graduate Mentor Fellow, Rutgers Honors College, New Brunswick, NJ
- 2019 - 2024 Facilitator, Central New Jersey Regional Brain Bee, Piscataway, NJ
- 2022 Abstract Reviewer, 2023 ACTS Translational Science Conference, Washington DC.
- 2020 - 2021 Graduate Student Associate, Rutgers STEM K-12 Program, New Brunswick, NJ
- 2017 - 2018 Peer Mentor, HSI-STEM Project, Queens College, Flushing, NY
- 2015 - 2018 Volunteer, New York Cares, New York, NY
- 2016 Hospital Volunteer NewYork-Presbyterian Hospital, Weill Cornell Medical Center, Department of Neurology, New York, NY
- 2015 Volunteer, Queens College Psychological Center, Queens College, Flushing, NY

PUBLICATIONS

1. **McDermott, C.R.**, Gao, G, Mirmajlesi, A, Ntim, C, Kimbark, K, Thomas, D, Mughal, Z, Zhang, X, Zhou, X, Popov, D, Halchenko, A, Xing, J, Thakker-Varia, S, Alder, A, Millonig, J.H, Samuels, B, Blaser, M.J, DiCicco-Bloom, E. The 16p11.2 microdeletion influences how early-life microbiota perturbations affect hippocampal development and behavior throughout the lifespan. *bioRxiv*. 26 February 2025; doi: <https://doi.org/10.1101/2025.02.25.639888>
2. DiCicco-Bloom, E., **McDermott, C.R.** Neural Development and Neurogenesis. Chapter 1.4, In: Kaplan & Sadock's Comprehensive Textbook of Psychiatry, Eleventh Edition, Ed. May 2024. B.J. Sadock, V.A. Sadock, P. Ruiz, Wolters Kluwer, Philadelphia.
3. Connacher, R., Williams, M., Prem, S., Yeung, P. L., Matteson, P., Mehta, M., Markov, A., Peng, C., Zhou, X., **McDermott, C.R.**, Pang, Z. P., Flax, J., Brzustowicz, L., Lu, C. W., Millonig, J. H., & DiCicco-Bloom, E. Autism NPCs from both idiopathic and CNV 16p11.2 deletion patients exhibit dysregulation of proliferation and mitogenic responses. *Stem Cell Reports*. 2022 Jul 12;17(7):1786. PMID: 35830838.
4. **McDermott, C.R.**, Farmer, C, Gotham, K, Bal, V. Measurement of subcategories of repetitive behaviors in autistic adolescents and adults. *Autism in Adulthood*. 11 March 2020, 2(1):48-60. PMID: 32766532.
5. Aronowitz, J.V, Newman, K.L, **McDermott, C.R.** Estradiol Modulates Hemispheric Lateralization of Auditory Evoked Neural Activity in Male European Starlings (*Sturnus Vulgaris*). *Journal of Neuroscience Journal Club*. 16 August 2017, 37(33): 7800-7802; PMID: 28821600.

PUBLISHED CONFERENCE ABSTRACTS

1. **McDermott, C.R.**, Zelmanoff, D, Sloboda, B, Yizhar, O, Marlin, B.J. *Shining light on the developing brain: A minimally invasive transcranial optogenetic approach for neural circuit manipulation in pre-weaning mice*. 2025 Society for Neuroscience Meeting. San Diego, CA. Poster#422.03.
2. **McDermott, C.R.**, Gao, Z, Mirmajlesi, A, Kimbark, K, Ntim, C, Mughal, Z, Zhang, X, Zhou, X, Millonig, J.H, Samuels, B, Blaser, M.J, DiCicco-Bloom, E. *The interplay between genetic vulnerability and environmental exposures on the infant gut microbiome-brain axis: Implications for neurodevelopmental disorders*. November 15th, 2023: Society for Neuroscience Meeting. Washington, DC. Poster #450.04.
3. **McDermott, C.R.**, Mirmajlesi, A, Gao, Z, Kimbark, K, Ntim, C, Zhang, X, Zhou, X, Millonig, J.H, Samuels, B, Blaser, M.J, DiCicco-Bloom, E. *Early life antibiotic exposure and genetic risk in neurodevelopmental disorders: Effects on the gut microbiome, neurogenesis, and behavior*. April 18th, 2023: Association for Clinical and Translational Science Meeting. Washington, DC.
4. **McDermott, C.R.**, Mirmajlesi, A, Gao, Z, Kimbark, K, Ntim, C, Zhang, X, Zhou, X, Millonig, J.H, Samuels, B, Blaser, M.J, DiCicco-Bloom, E. *Early life antibiotic exposure and genetic risk in neurodevelopmental disorders: Effects on the gut microbiome, neurogenesis, and behavior*. November 14th, 2022: Society for Neuroscience Meeting. San Diego, CA. Poster #357.17.
* Invited to write highlights for *Spectrum* (Autism Newsletter): <https://doi.org/10.53053/NAMQ5673>
5. **McDermott, C.R.**, Zhang, X, Zhou, X, Millonig, J.H, Blaser, M.J, DiCicco-Bloom, E. DiCicco-Bloom, E. *Early life antibiotic exposure alters postnatal neurogenesis in 16p11.2 neurodevelopmental disorder mice*. May 12th, 2022: International Society for Autism Research Meeting. Austin, TX. Poster #401.003.
6. **McDermott, C.R.**, Bal, V. *Validity of subcategories of repetitive behaviors in adolescents and adults with ASD*. May 4th, 2019: International Meeting for Autism Research. Montreal, CAN. Poster #233.018.
7. **McDermott, C.R.**, Narayanan, N, Srinivasan, S, Phan, M.L, Vicario, D.S, Pytte, C.L. *Simvastatin increases neuroestradiol in female zebra finches*. November 12th, 2017: Society for Neuroscience Meeting. Washington, DC. Poster #159.20.
8. Prem, S., Williams, M., **McDermott, C.R.**, Zhou, X., Matteson, P.G., Yeung, P., Lu, C.W., Pang, Z., Brzustowicz, L.M., Millonig, J.H., DiCicco-Bloom, E. *Autism Patient-Derived Neural Stem Cells Display Neurite Extension and Migration Defects*. May 12th, 2016: International Meeting for Autism Research Meeting. Baltimore, MD. Poster #109.122
9. **McDermott, C.R.**, Page, K., Abreu, N., Uvaydov, S., Lin, K., Bickerton, L., Harding, C., Pytte, C.L. *Mold-Induced Inflammation Alters New Neuron Survival in the Mouse Hippocampus*. November 12th, 2015: Annual Biomedical Research Conference for Minority Students. Seattle, WA. Poster #A228.

INVITED PRESENTATIONS/PANELS

1. Queens College, CUNY Neuroscience Seminar Series. “*The interplay between genetic vulnerability and environmental exposures on the developing gut microbiome-brain axis*”. April 10th, 2023. Flushing, NY.
2. University of Utah Rising Stars in Neuroscience Symposium. “*Early life antibiotic exposure and genetic risk in neurodevelopmental disorders: Effects on the gut microbiome, neurogenesis, and behavior*”. May 22nd, 2023. Salt Lake City, UT & Virtual.
3. Panelist, Rutgers SGS Graduate Student Advisory Committee Fireside Chat. “*Beyond Coping: A Social Perspective on Graduate Student Mental Health*”. April 24th, 2023. Piscataway, NJ.
4. Rowan University Undergraduate Neuroscience Club. “*Early life cephalosporin antibiotic exposure alters neurodevelopment and behavior*”. January 31st, 2023. Glassboro, NJ.
5. Guest speaker, NJACTS “*Voices of Scientists*” Podcast. October 14th, 2022. Piscataway, NJ
6. Panelist, “Rutgers Fellowship Application Workshop for Biomedical PhD Students”. September 13th, 2022. Virtual.
7. Panelist, Queens College CUNY MARC Alumni Day. October 15th, 2021. Virtual.
8. NJ ACTS Workforce Development Spring 2021 Internship Program, “Life as a TL1 Scholar at Rutgers”. March 23rd, 2021. Virtual.
9. Queens College CUNY MARC Alumni Day, “*Identification and functional assessment of cellular phenotypes in autism neural precursor cells*”. November 1st, 2019. Flushing, NY.

VOLUNTARY PRESENTATIONS

1. Rutgers School of Graduate Studies Research Café, “*Early life alterations to the gut microbiome and its effects on neurodevelopment and behavior*.” April 3rd, 2024. New Brunswick, NJ & Virtual.
2. NIH F99/K00 D-SPAN BrainTrust Scholar Presentations, “*Early life alterations to the gut microbiome and its effects on neurodevelopment*.” May 15th, 2023. Virtual.
3. Rutgers University Center for Autism Research, Education & Services Conference, “*Early life antibiotic exposure and genetic risk in neurodevelopmental disorders: Effects on the gut microbiome, neurogenesis, and behavior*.” October 26th, 2022: Piscataway, NJ.
4. Rutgers Neuroconnections, “*Early-life dysregulation of the gut microbiome is associated with altered neurodevelopment in the 16p11.2 deletion mouse model of autism*.” October 12th, 2020. Virtual.
5. Rutgers Neuroconnections Seminar Series (Rotation project): “*Validity of subcategories of repetitive behaviors in adolescents and adults with ASD*” June 5th, 2019: Piscataway, NJ.
6. Rutgers Summer Undergraduate Research Program Presentation Day. “The Effects of Growth Factor Stimulation on Neurite Extension in Autism Patient Derived Neural Stem Cells.” July 30th, 2015: Piscataway, NJ.

SELECT POSTER PRESENTATIONS

1. **McDermott, C.R.**, Mirmajlesi, A, Gao, Z, Kimbark, K, Ntim, C, Zhang, X, Zhou, X, Millonig, J.H, Samuels, B, Blaser, M.J, DiCicco-Bloom, E. *Early life antibiotic exposure and genetic risk in neurodevelopmental disorders: Effects on the gut microbiome, neurogenesis, and behavior*. Rutgers Graduate Research in Interdisciplinary Biosciences Conference. April 11th, 2023. New Brunswick, NJ. **Second place poster award.**
2. **McDermott, C.R.**, Zhang, X, Zhou, X, Millonig, J.H, Blaser, M.J, DiCicco-Bloom, E. *Early life microbiome dysbiosis and autism: Effects on neurodevelopment*. October 28th, 2021: Rutgers University Center for Autism Research, Education & Services Conference.
3. **McDermott, C.R.**, Zhang, X, Zhou, X, Millonig, J.H, Blaser, M.J, DiCicco-Bloom, E. *Early life microbiome dysbiosis and autism: Effects on neurodevelopment*. May 14th, 2021: Rutgers University Microbiome Program Annual Retreat. Virtual.
4. **McDermott, C.R.**, Yakubov, D., Barnes, J., Jackson, M., Schneier, E. *Peer mentors as general student advisors*. May 11th, 2018: Reimagining Science Education Conference at Queens College. Flushing, NY.

5. **McDermott, C.R.**, Pytte, C., Phan, M. *Sex differences in the effects of statins on neurosteroids*. February 26th, 2017: NEURON Conference at Quinnipiac University. New Haven, CT. **Poster award.**
6. **McDermott, C.R.**, Page, K., Abreu, N., Uvaydov, S., Lin, K., Bickerton, L., Harding, C., Pytte, C.L. *Mold induced inflammation alters new neuron survival in the mouse hippocampus*. October 19th, 2015: Faculty for Undergraduate Neuroscience at the Society for Neuroscience Meeting. Chicago, IL.
7. **McDermott, C.R.**, Lopez, A., Page, K., Uvaydov, S., Harding, C., Lin, K., Bickerton, L., Pytte, C.L. *Doxycycline increases numbers of microglia in the mouse hippocampus*. April 23rd, 2015: 29th Queens College Chapter for the Scientific Research Society (Sigma Xi) Annual Conference. Flushing, NY.
8. **McDermott, C.R.**, Lopez, A., Uvaydov, S., Harding, C., Pytte, C.L., Page, K. *Doxycycline increases numbers of microglia in the rodent hippocampus following mold exposure*. February 22nd, 2015: NEURON Conference at Quinnipiac University. New Haven, CT.

MENTORSHIP

1. Luke Smith, Neuroscience and Behavior Undergraduate Student, Columbia College – Columbia University, New York, NY. 2024 – 2025. Columbia College Summer Funding Program Recipient.
2. Brea Sloboda, General Studies Undergraduate Student, Columbia University, New York, NY. 2024 – 2025. Incoming PhD Student in Behavioral Systems and Neuroscience at Rutgers University, NJ.
3. Anya Mirmajlesi, Cell Biology & Neuroscience Undergraduate Student, Rutgers University, New Brunswick, NJ. 2021 – 2024. 2023 Rutgers Aresty Fellowship Recipient. Currently a Research Assistant in the Arciniega Lab at NYU, NY.
4. Christiana Ntim, Cell Biology & Neuroscience Undergraduate Student, 2021 – 2024. 2023 NSF-funded Neuroscience Summer Undergrad Research Program at the University of Missouri-Columbia Recipient.
5. Zain Mughal, Cell Biology & Neuroscience Undergraduate Student, Rutgers University, New Brunswick, NJ. 2023 – 2024. Early Decision Acceptance into New Jersey Medical School, Class of 2029.
6. Divya Thomas, Cell Biology & Neuroscience Undergraduate Student, Rutgers University, New Brunswick, NJ. 2023 – 2024. Currently a Masters Student in Biomedical Sciences at Rutgers University.
7. Daniel Popov, Psychology Undergraduate Student, Rutgers University, New Brunswick, NJ. 2022 – 2023.
8. Alisa Halchenko, Neuroscience Undergraduate Student, University of Vermont, VT. Summer 2023.
9. Katherine Kimbark, BS. Summer 2022. Currently a PhD Student in Biomedical Sciences at Penn State College of Medicine, Hershey, PA.

PROFESSIONAL MEMBERSHIPS

2026 - Present	International Society for Extracellular Vesicles
2021 - 2023	Associate, Society for Neuroscience's Neuroscience Scholars Program
2016 - Present	International Society for Autism Research
2015 - Present	Society for Neuroscience
2014 - Present	International Honors in Psychology