Kevin J. Mastro

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EDUCATION

2017 | PhD in Neurobiology, Center for Neuroscience at the University of Pittsburgh
2012 | B.S., Biological Sciences and Psychology, Research Track, University of Connecticut

RESEARCH EXPERIENCE

2017 - 2023 | **Postdoctoral Research Fellow**
Advisors: Dr. Beth Stevens, Boston Children's Hospital/Broad Institute
Dr. Bernardo Sabatini, Harvard Medical School
Projects: (1) Transcriptomic analysis of the prolonged maturation of the prefrontal cortex and its age-related decline (2) Age-related changes in prefrontal cortex structure and function, with a focus on decision-making processes (3) Genetic, physiological, and behavioral predictors of cognitive deviations, contributing to the understanding of genetic and environmental risk factor perturbations across the lifespan.

2012-2023 | **Graduate Research Assistant**
Advisor: Dr. Aryn Gittis, Carnegie Mellon University & University of Pittsburgh School of Medicine
Thesis: Harnessing pallidal cell-type diversity to treat neurological disorders
Specialties: Systems Neuroscience, Synaptic Physiology, Cellular and Molecular Biology

2009-2012 | **Undergraduate Research Assistant**
Advisor: Dr. Etan Markus, University of Connecticut
Thesis: Simultaneous recordings of single unit activity in the ventral and dorsal hippocampus
Specialties: Systems Neuroscience, Physiology

AWARDS & HONORS

2022 | Certificate of Distinction in Teaching (Neuro 80), Harvard University, Cambridge, MA
2021 | Society for Neuroscience Trainee Professional Development Award Recipient, Chicago, IL USA
2021 | Certificate of Distinction in Teaching (MCB 80), Harvard University, Cambridge, MA, USA
2021 | Certificate of Distinction in Teaching (MCB 115), Harvard University, Cambridge, MA, USA
2019-2021 | Tommy Fuss Center for Neuropsychiatric Disease, Fuss Center, Boston, MA USA
2019-2020 | William Randolph Hearst Fund Award, Harvard Medical School, Boston, MA USA
2014-2017 | Ruth L. Kirschstein Predoctoral Individual National Research Service Award (NRSA) National Institute of Neurological Disorders and Stroke (NINDS), Bethesda, MD USA
2014 | McClelland Prize for Most Outstanding Poster Center for Neural Basis of Cognition, University of Pittsburgh & Carnegie Mellon University, Pittsburgh, PA USA
2012 | Gelinas Alumni Scholarship for Research in Biomedical sciences Gelinas Academic and Research Committee, Webster, MA USA
2012 | Honors Scholar, Biological Sciences & Psychology University of Connecticut, Storrs, CT USA
2012 | Alumni Association Award for Excellence in Academics and Leadership University of Connecticut, Storrs, CT USA
2011 | Induction in Psi Chi, International Honor Society in Psychology University of Connecticut, Storrs, CT USA
2010 | Behavioral Neuroscience Travel Grant Department of Psychology, University of Connecticut, Storrs, CT USA
2010 | Undergraduate Psychology Research Grant Department of Psychology, University of Connecticut, Storrs, CT USA
2010 | Sophomore Honors Certificate Honors College, University of Connecticut, Storrs, CT USA
2008 | University of Connecticut Award University of Connecticut, Storrs, CT USA
2008 | Gelinas Undergraduate Scholarship for Excellence in Mathematics and Science Gelinas Academic and Research Committee, Webster, MA USA

PUBLICATIONS

In prep | **Mastro, K. J.,** Lin, S., Johnson, M.J., Stevens, B. L., (*in prep*) Convergent and divergent pathway maturations across the human, marmoset, and mouse prefrontal cortex

In prep **Mastro, K. J.,** Stanwicks, L., Stevens, B. L., Sabatini, B. L. (*in prep*) Alteration in reward-based decision making across adolescence in mouse and marmoset.

In prep **Mastro, K. J.,** Wang W., Stevens, B. L., Sabatini, B. L. (*in prep*) Inhibitory maturation in the frontal cortical area drives age-related changes in reward-based decision-making.

2023 Wilton, D.K., **Mastro K., J.**, … Stevens, B. L. (2023) Microglia Mediate Early Corticostriatal Synapse Loss in Huntington's Disease Through Complement-Dependent Mechanisms. Nature Medicine

2020 Vormstein-Schneider, D., Lin, J. D., Pelkey, K. A., Chittajallu, R., Guo, B., Arias-Garcia, M. A., ...**Mastro K. J**… & Dimidschstein, J. (2020). Viral manipulation of functionally distinct interneurons in mice, non-human primates, and humans. Nature Neuroscience.

2019 Willard, A. M., Isett, B. R., Whalen, T. C., **Mastro, K. J.**, Ki, C. S., Mao, X., & Gittis, A. H. (2019). State transitions in the substantia nigra reticulata predict the onset of motor deficits in models of progressive dopamine depletion in mice. eLife, *8*, e42746.

2017 **Mastro, K. J.,** Zitelli, K. T., Willard, A. M., Leblanc, K. H., Kravitz, A. V., & Gittis, A. H. (2017). Cell-specific pallidal intervention induces long-lasting motor recovery in dopamine-depleted mice. Nature Neuroscience, 20(6), 815-823.

2015 **Mastro, K.J.** and Gittis, A.H., 2015. Striking the right balance: cortical modulation of the subthalamic nucleus-globus pallidus circuit. Neuron, 85(2), pp.233-235.

2014 **Mastro, K.J.,** Bouchard, R.S., Holt, H.A. and Gittis, A.H., 2014. Transgenic mouse lines subdivide external segment of the globus pallidus (GPe) neurons and reveal distinct GPe output pathways. The Journal of neuroscience, 34(6), pp.2087-2099

SELECTED PRESENTATIONS

2023 **Mastro K.J.**, Wang W., Stevens B, Sabatini B (2022) PFC development across adolescence in mouse and marmoset. ***Gordon Research Series Conference.*** *Modulation of Neural Circuits.* Invited Presentation

2022 **Mastro K.J.**, Wang W., Stevens B, Sabatini B (2022) PFC development across adolescence in mouse and marmoset. ***Princeton University***, Working Memory in Non-human primate working group. Invited Seminar Presentation

2022 **Mastro K.J.**, Wang W., Stevens B, Sabatini B (2022) PFC development across adolescence in mouse and marmoset. ***Synapse Postdoctoral Seminar Series. University of Texas, Southwestern***. Houston, TX USA. Invited Seminar Presentation

2021 **Mastro K.J.**, Wang W., Stevens B, Sabatini B (2021) Prefrontal cortical development over adolescence in mouse and marmoset. **ACNP 2021.** San Juan, PR USA Poster Presentation

2021 **Mastro K.J.,** Schoenbeck E., Stanwicks L., Stevens B. (2021) Reward-based decision making in freely-moving Marmosets**. Society of Neuroscience**. Chicago, IL USA Poster Presentation

2021 **Mastro K.J.**, Wang W., Stevens B, Sabatini B (2021) Prefrontal cortical development over adolescence in mouse. **Society of Neuroscience**. Chicago, IL USA Poster Presentation

2021 **Mastro K.J.**, Wang W., Stevens B, Sabatini B (2021) Prefrontal cortical development across adolescence. **Stanley Center Symposium for Psychiatric Disease**. Broad Institute, Cambridge, MA USA *Invited Seminar Presentation*

2020 **Mastro K.J.**, Wang W., Stevens B, Sabatini B (2020) PFC development across adolescence in mouse and marmoset. **Monash University Neurobiology Seminar**. Monash University, Melbourne, VIC AUS. Invited Seminar Presentation

TEACHING EXPERIENCE

2023
Course Instructor, Sensation does not equal perception (Pre-college course)
Responsibilities: Developed lectures, worksheets, discussion boards and project assignments for an intensive summer course, facilitated an open, inclusive classroom that fostered individual's growth and curiosity

2022, 2023
Teaching Fellow, Methods in Behavioral Research (PSY 1901)
Responsibilities: Led lab sections, develop and curate materials for breakout sections, held office hours, delivered lectures on functional readouts in behavioral research
Department of Psychology, Harvard University, Cambridge, MA 02138

2021, 2022, 2023
Head Teaching Fellow, Introduction to Neurobiology (MCB 80)
Responsibilities: Develop and curate materials for breakout sections, Train teach fellows to disseminate material, held office hours
Department of Neuroscience, Harvard University, Cambridge, MA 02138

2019, 2020, 2021, 2022, 2023
Teaching Fellow, Neurophysiology (MCB 115)
Responsibilities: Lead lab sections, organized and delivered lectures, held office hours
Department of Neuroscience, Harvard University, Cambridge, MA 02138

2016, 2017
Teaching Assistant, Neuroanatomy for Medical Students (Year 1)
Responsibilities: Assisted in labs and dissections, taught weekly workshops, held office hours
Department of Neurobiology University of Pittsburgh, Pittsburgh, PA USA

2014
Teaching Assistant, Neurophysiology (NROSCI 2012)
Responsibilities: Organized and taught weekly discussion groups (~65 students), assisted in lectures, held office hours, produced testing material and grading
Department of Neuroscience University of Pittsburgh, Pittsburgh, PA USA

2012-Present
Mentor undergraduate/graduate students: Fall, spring, and summer research terms
Responsibilities: Organize projects, provide individual instruction, and promote intellectual curiosity and autonomy

SERVICE ACTIVITIES

University Service

2020-Present
Executive Member, Diversity and Inclusion Committee
Neurobiology, Harvard Medical School

2020-Present
STEM Committee, BLGT Chair, First-Gen/Low-Income member, Resident Tutor
Kirkland House, Harvard University

2016
Graduate Program Admissions, Executive Member
Center for Neuroscience, University of Pittsburgh, Pittsburgh, PA

2016
Student Invited Colloquium, Chair
Center for Neural Basis of Cognition, University of Pittsburgh & Carnegie Mellon University

2015
Social Community, Co-Chair
Center for Neural Basis of Cognition, University of Pittsburgh & Carnegie Mellon University

2015
Annual CNUP Retreat, Executive Member
Center for Neuroscience, University of Pittsburgh

2012-2014
Pitt/UPMC Health Sciences LGTQI Alliance, Executive Member/Founding Member

	University of Pittsburgh, Pittsburgh, PA
Science Outreach	
2020-Present	Educational Chair, Diversity Committee Neurobiology, Harvard Medical School, Boston, MA 02115
2012-2017	Science Fair Judge Participate actively in local, region to national (i.e. ISEF) science fairs Greater Pittsburgh Area, PA USA
2012-2017	Brain Outreach Program, Member Provides hands-on tutorials for middle to high school students the Greater Pittsburgh Area, University of Pittsburgh, Pittsburgh, PA USA