Kevin J. Mastro

Department of Neurobiology
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CURRENT POSITION

2017-Present | Harvard Medical School, Boston Children's Hospital, Boston, MA
Postdoctoral Fellow, Department of Neurobiology
Advisors: Drs Beth Stevens and Bernardo Sabatini

EDUCATION

2017 | University of Pittsburgh
PhD in Neurobiology, Center for Neuroscience at the University of Pittsburgh
Dissertation: Behavioral and synaptic plasticity of genetically distinct populations of GPe neurons in health and disease
Contributions to Science:

1. Established the first genetic strategy to differentiate subpopulations of neurons in the external segment of the globus pallidus (GPe) (Mastro et al., 2014)
2. Demonstrated the neuronal subpopulations differ across a range of parameters: electrophysiological properties, topographic organization and axonal projection patterns (Mastro et al., 2014)
3. Cell-specific manipulations in the GPe provides long-lasting relief from immobility in a rodent model of Parkinson's disease and the inhibition of one of the subpopulations is necessary for the induction and maintenance of this recovery in motor function (Mastro et al., 2017).

2012 | University of Connecticut
B.S. in Biological Sciences and Psychology, Research Track (graduated cum laude with honors)
Minor in Behavioral Neuroscience
Honors Thesis: *Simultaneous recordings of single unit activity in CA1 and CA2 in the Ventral and Dorsal subregions of the hippocampus*
Extracurricular Activities: College Admissions Liaison and tour guide with University of Connecticut Admissions Office; President of Kappa Kappa Psi (Service Fraternity); Principal drum major of the University of Connecticut marching band

PUBLICATIONS

In prep | **Mastro, K. J.,** Wang W., Stevens, B. L., Sabatini, B. L. (*in prep*) Redefining adolescence in mouse: Systematic reorganization of frontal cortical area impacts reward-based decision-making.

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

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 ABSTRACTS/INVITED SEMINARS

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

2019 **Mastro K.J.**, Willing C.R., Wang W., Stevens B, Sabatini B (2019) PFC development across adolescence in mouse. Society of Neuroscience. Chicago, IL USA Poster Presentation

2019 **Mastro K.J.,** Johnson M.J., Willing C.R., Wang W. Sabatini B.L, Stevens B.L. (2019) Complement C4 activation and environmental perturbations on neural circuits relevant for neuropsychiatric disease. Gordon Research Conference, Ventura, CA. Poster Presentation

2018 **Mastro K.J.,** Wang W., Sabatini B.L, Stevens B.L. (2018) Functional Consequence of Complement Activity on Neural Circuits Relevant for Neuropsychiatric disease. Broad Institute, Cambridge, MA. Seminar Presentation

TEACHING EXPERIENCE

2022 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 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	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 students:** Fall, spring and summer research terms Responsibilities: Organize projects, provide individual instruction, and promote intellectual curiosity and autonomy Department of Biological Sciences, Carnegie Mellon University, Pittsburgh, PA

SELECTED AWARDS AND HONORS

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

SERVICE ACTIVITIES

University Service

2020-Present	Executive Member, Diversity Committee Neurobiology, Harvard Medical School, Boston, MA 02115
2020-Present	STEM Committee, BLGT Chair, Resident Tutor Kirkland House, Harvard University, Cambridge, MA 02138
2018-2020	STEM Committee, Non-Resident Tutor Adams House, Harvard University, Cambridge, MA 02138
2016	Graduate Program Admissions, Executive Member Center for Neuroscience, University of Pittsburgh, Pittsburgh, PA USA

2016	Student Invited Colloquium, Chair Center for Neural Basis of Cognition, University of Pittsburgh & Carnegie Mellon University, Pittsburgh, PA USA
2015	Social Community, Co-Chair Center for Neural Basis of Cognition, University of Pittsburgh & Carnegie Mellon University, Pittsburgh, PA USA
2015	Annual CNUP Retreat, Executive Member Center for Neuroscience, University of Pittsburgh, Pittsburgh, PA USA
2012-2014	Pitt/UPMC Health Sciences LGTQI Alliance, Executive Member University of Pittsburgh, Pittsburgh, PA

Educational 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 throughout the Greater Pittsburgh Area, University of Pittsburgh, Pittsburgh, PA USA

REFERENCES

Beth Stevens, PhD
Associate Professor, *Postdoctoral Advisor*
Department of Neurology
Boston Children's Hospital, Boston, MA USA

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Bernardo Sabatini, PhD/MD
Alice and Rodman W. Moorhead III Professor, *Postdoctoral Advisor*
Department of Neurobiology
Harvard Medical School, Boston, MA USA

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Aryn Gittis, PhD
Assistant Professor, *Graduate Advisor*
Department of Biological Sciences
and Center for the Neural Basis of Cognition
Carnegie Mellon University, Pittsburgh, PA USA

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Peter Strick, PhD
Thomas Detre Endowed Chair in Neuroscience
Director, Systems Neuroscience Institute (SNI)
Director, Neuroscience Imaging Center (NIC)
Scientific Director, University of Pittsburgh Brain Institute (UPBI)
University of Pittsburgh, Pittsburgh PA USA

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Gord Fishell, PhD
Professor of Neurobiology
Harvard Medical School
and the Stanley Center at the Broad Institute
Harvard Medical School, Boston MA USA

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