KELSEY LUCERNE, PHD
Nash Family Department of Neuroscience
Icahn School of Medicine at Mount Sinai

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"I am a neuroscientist with over seven years of research experience, specializing in preclinical models of addiction. I am looking to apply my training in research strategy, collaboration, and science communication to the healthcare and biotechnology fields."

EDUCATION

Icahn School of Medicine at Mount Sinai — Aug. 2018 – May 2022
Doctor of Philosophy in Neuroscience — New York, NY

- Elective coursework: Pharmacoeconomics, Grade: A; Science Communication, Grade: A
- Interviews applicants to the graduate school as a 'Student Interviewer' each year.

Temple University — 2014 – 2018
Bachelor of Science in Neuroscience — Philadelphia, PA

- Graduated *Summa Cum Laude* from Temple's Honors College with a distinction in neuroscience research.

RESEARCH EXPERIENCE

Laboratory of Translational Psychiatry — 2018 – Present
PhD Candidate — New York, NY

- Designs experiments quantifying complex interactions between peripheral systems (immune system, gut microbiome, metabolome) and the brain in preclinical models of psychiatric disease.
- Analyzes large datasets, distilling complicated information into comprehensive and digestible concepts for publication.
- Mentors junior colleagues on the technical and conceptual skills required for successful scientific research.

Behavioral Neurophysiology Lab — 2015 – 2018
Undergraduate Research Assistant — Philadelphia, PA

- Implemented to projects investigating the shared neurobiology between stress and cocaine addiction, and how these may predispose individuals to psychiatric disease.
- Collaborated with colleagues to design and perform experiments, analyze results, and derive insights, culminating in co-authorship on two peer reviewed manuscripts.

BUSINESS EXPERIENCE

Mount Sinai Innovation Partners (MSIP) Fellowship — Oct. 2021 – Present
Program Fellow — New York, NY

- Collaborated with a team of scientists, attorneys, and business professionals to analyze viability of proposed technologies for commercialization, providing a final recommendation to MSIP's technology transfer office.
- Liaised between scientists and business partners, gathering data and generating collateral for Mount Sinai Innovation Partner's Marketing and Outreach office to enhance marketing success.

The Solution Lab — May – July 2021
Project Analyst — New York, NY

- Analyzed healthcare landscape for a top pharmaceutical company, providing deliverables detailing state of pipeline, unmet needs, and opportunities for innovation.
- Identified attractive adjacencies for our client to explore, providing final recommendation and next steps.

MENTORING & OUTREACH

Mentoring in Neuroscience Discovery at Sinai (MiNDS) 2019 – Present

Co-President New York, NY

- Coordinates large-scale science outreach efforts, including public lecture series and an annual 'Brain Fair', aimed at making neuroscience education engaging and accessible.
- Promotes engagement with STEM across communities through management and creation of content for MiNDS social media accounts.

Friedman Brain Institute Social Media Ambassador 2021 – Present

Social Media Ambassador New York, NY

- Elevates impact of Mount Sinai achievements by promoting them across social media (Twitter and Instagram).
- Directs the neuroscience graduate student Instagram page (@mountsinaibrainstudents), curating and creating content to promote the graduate program.

Neuroscience Department "Big Sibling" Program 2019 – 2020

Mentor New York, NY

- Fostered relationship with an incoming neuroscience graduate student, mentoring and supporting them to facilitate their transition into Mount Sinai.

Temple's National Honor Society in Neuroscience (Nu Rho Psi) 2017 – 2018

President Philadelphia, PA

- Mentored Temple students in career development within the field of neuroscience
- Organized events to promote science outreach at Temple University and the local communities in North Philadelphia Temple students in career development within the field of neuroscience

TEACHING EXPERIENCE

Icahn School of Medicine at Mount Sinai, *New York, NY*

- Molecular Pathogenesis of Neuropsychiatric Disorders (BSR 1708), *Teaching Assistant* 2020, Present
  - Lead an independent lecture on 'Scientific Writing,' created the course syllabus and grading rubrics for the final paper, coordinated and organized lectures with faculty.

- MiNDS teaching partnership with PS171, *Volunteer Educator* 2018 – Present
  - Implements monthly neuroscience lessons to 7th graders at local middle school.

Temple University, *Philadelphia, PA*

- Fundamentals of Neuroscience (NSCI 1051), *Undergraduate Teaching Assistant* 2017
  - Awarded highly competitive scholarship funding teaching apprenticeship for the course 'Fundamentals of Neuroscience' for the spring semester of 2017.
  - Lead independent, in-depth review sessions before each exam covering course material.

- Resnick Academic Support Center, *Math and Science Tutor* 2016 – 2017
  - Created lesson plans and worked one-on-one with multiple clients across the course of each semester.
  - Tutored subjects including College Algebra, Precalculus, Calculus, General Biology, and Neuroanatomy.

PUBLICATIONS

Lucerne K.E., Cathomas F, Teague C.D., Hofford R.S., Osman A.O., Guccione F., Dave Y., Euston T., Human Immune Monitoring Core at Mount Sinai, Nestler E.J., Russo S.J., Kiraly D.D. (**IN PREPARATION**) The cytokine granulocyte-macrophage colony-stimulating factor (GM-CSF) is a peripheral immune factor that mediates behavioral and molecular responses to cocaine.

Brady L.J.*, Erickson K.R.*, **Lucerne K.E.**, Osman A., Kiraly D.D., Calipari E.S. (2021) Granulocyte colony-stimulating factor (G-CSF) enhances cocaine effects in the nucleus accumbens via a dopamine release-based mechanism.

Psychopharmacology, PMID: 34487190.
*Indicates equal contribution

Lucerne, K.E., Osman, A., Meckel, K.R., & Kiraly, D.K. (2021) Contributions of neuroimmune and gut-brain signaling to vulnerability of developing substance use disorders. *Neuropharmacology*, PMID: 33965398.

Lucerne, K.E. & Kiraly, D.K. (2020) The role of gut-immune-brain signaling in substance use disorders. *International Review of Neurobiology*, PMID: 33648673.

Fosnocht, A. Q., **Lucerne, K. E.**, Ellis, A. S., Olimpo, N. A., & Briand, L. A. (2019). Adolescent social isolation increases cocaine seeking in male and female mice. *Behavioural brain research*, PMID: 30296530.

Ellis, A. S., Fosnocht, A. Q., **Lucerne, K. E.**, & Briand, L. A. (2017). Disruption of GluA2 phosphorylation potentiates stress responsivity. *Behavioural brain research*, PMID: 28668281

SELECT PRESENTATIONS

Oral Presentations

Lucerne, K.E., Teague, C.T., Kiraly, D.D. *Defining GM-CSF as a mediator of behavioral and molecular responses to cocaine*. The College on Problems of Drug Dependence Annual Scientific Meeting; 2021 June; Virtual.

Lucerne, K.E., Kiraly, D. D. *GM-CSF regulates molecular and behavioral responses to cocaine*. Icahn School of Medicine at Mount Sinai Annual Neuroscience Retreat**;** 2020 April; New York, NY. ***Awarded second place for Student Data Blitz Presentation***.

Poster Presentations

Lucerne, K.E., Teague, C.T., Kiraly, D.D. *GM-CSF alters cocaine-induced behavioral responses and transcriptional regulation in the NAc*. Poster presented at The annual meeting of the Society for Neuroscience; 2021 Nov 10; Virtual.

Lucerne, K.E., Teague, C.T., Kiraly, D.D. *The role of GM-CSF in behavioral and molecular responses to cocaine*. Poster presented at Innovators in Neuroscience: From Molecules to Mind Conference; 2021 May 25; Virtual.

Lucerne, K.E., Calipari E.S., Godino, A., & Kiraly, D.D. *Investigating GM-CSF as a mediator of gut-brain signaling in addiction-like behaviors.* Poster presented at Mind, Mood, & Microbes Annual Conference; 2021 May 19; Virtual.

Lucerne, K.E., Teague, C.T., Kiraly, D.D. *The role of GM-CSF in behavioral and molecular responses to cocaine*. Poster presented at Icahn School of Medicine at Mount Sinai Annual Neuroscience Retreat; 2021 April 30; Virtual.

Lucerne, K.E., Calipari E.S., Godino, A., & Kiraly, D.D. *Investigating GM-CSF as a mediator of gut-brain signaling in addiction-like behaviors.* Poster presented at The annual meeting of the Society for Neuroscience; 2019 Oct 23; Chicago, IL.

Lucerne, K.E., Calipari E.S., Godino, A., & Kiraly, D.D. *Investigating GM-CSF as a mediator of gut-brain signaling in addiction-like behaviors.* Poster presented at Icahn School of Medicine at Mount Sinai Annual Neuroscience Retreat; 2019 May 10; New York, NY.

Lucerne, K. E., Lenz, J. D., Ellis, A.E., Fosnocht, A. Q., and Briand, L.A. *The Role of Glutamate Receptor Trafficking in Vulnerability to a Social Defeat Stress*. Poster presented at: Temple University Neuroscience Spring Poster Symposium; 2017 April 20; Philadelphia, PA. ***Awarded first place Undergraduate Poster***.

Lucerne, K. E., Lenz, J. D., Ellis, A.E., Fosnocht, A. Q., and Briand, L.A. *The Role of Glutamate Receptor Trafficking in Vulnerability to a Social Defeat Stress*. Poster presented at: The annual meeting of the Society for Neuroscience; 2017 Nov 14; Washington D. C.

HONORS and AWARDS

Graduate Achievement Award for Science Advocacy	2022
The College on Problems of Drug Dependence (CPDD) Early Career Investigator Award	2021
National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP) Honorable Mention	2019
Temple University Honors College Distinction in Neuroscience Research	2018
Temple University Dean's List	2014 – 2018
Liberal Arts Undergraduate Research Award (LAURA)	2017
Diamond Peer Teacher Award	2017
Creative Arts, Research and Scholarship (CARAS) Travel Grant	2017
Creative Arts, Research and Scholarship (CARAS) Project Grant	2016
Temple University Founder's Scholarship	2014

GENERAL SKILLS & PROFICIENCIES

- Science Communication
- Presentations (Written and Oral)
- Problem-Solving
- Microsoft Office (Word, Excel, PowerPoint)
- Project Management
- Relationship Building
- Interpersonal Communication
- Science Writing

LABORATORY SKILLS and TECHNIQUES

Behavioral Models of Psychiatric Disorders

- Models of addictive-like behavior:
  - Intravenous self-administration in mouse model
  - Conditioned place preference
  - Locomotor sensitization
- Models of depressive-like behavior:
  - Chronic variable stress
  - Chronic social defeat stress
  - Social interaction testing

Molecular Techniques

- Immunohistochemistry
- Western blot
- qPCR, PCR
- RNA, DNA purification
- ELISA
- RNAscope *In Situ* hybridization

Surgeries & Procedures

- Intrajugular catheterization
- Stereotaxic viral injections
- Ovariectomies
- Retro-orbital injections
- Bone Marrow Chimerism generation

Data Analysis

- R (basic)
- Ingenuity Pathway Analysis
- Gene Ontology Analysis
- GraphPad Prism