Kavya Devarakonda

Freelance academic science writer
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Education

Sep 2021 Ph.D., Neuroscience
Icahn School of Medicine at Mount Sinai, New York, NY

May 2013 B.S., Neurobiology, *cum laude*
Minor in business administration
Georgetown University, Washington, DC

Research Experience

2016–2022 *Icahn School of Medicine at Mount Sinai, New York, NY*
Postdoctoral Fellow (2021–2022)
Graduate Assistant (2016–2021)
- Supervisors: Dr. Sarah Stanley and Dr. Paul Kenny
- Dissertation title: "Hypothalamus-projecting medial amygdala neurons regulate rapid glycemic responses"

Jan–Mar 2016 *Laboratory Rotation, Icahn School of Medicine at Mount Sinai, New York, NY*
- Supervisor: Dr. Ming-Hu Han and Dr. Stacy Ku
- Investigated changes in ventral tegmental area circuits after chronic social defeat stress using immunohistochemistry and *in vitro* electrophysiology

Aug–Dec 2015 *Laboratory Rotation, Icahn School of Medicine at Mount Sinai, New York, NY*
- Supervisors: Dr. Paul Kenny and Dr. Richard O'Connor
- Assessed changes in operant responding for sucrose pellets in mice with lesioned striatal cholinergic interneurons

2013–2015 *Postbaccalaureate Intramural Research Training Award (IRTA) Fellowship, National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), Bethesda, MD*
- Supervisors: Dr. Alexxai Kravitz and Dr. Kevin Hall
- Measured dopamine D2 receptor expression, physical activity, food intake, and body composition in mice on a high-fat diet
- Investigated the role of the striatal indirect pathway in movement and obesity with designer receptors exclusively activated by designer drugs (DREADDs)
- Constructed a low cost, open source operant chamber based on the Arduino microcontroller platform

Awards

2021 The Advancement of Women in Science Graduate Achievement Award, Icahn School of Medicine at Mount Sinai
2019 2nd place, Best Poster by a Graduate Student ($100 prize), Friedman Brain Institute Annual Retreat, Icahn School of Medicine at Mount Sinai
2018 Outstanding Leadership by a Student in the Graduate School, Student Council, Icahn School of Medicine at Mount Sinai
2017-2019 Travel Award ($400), Icahn School of Medicine at Mount Sinai
2017 Best Record of Achievement in Neuroscience (BRAIN) Award ($2000 prize), Friedman Brain Institute, Icahn School of Medicine at Mount Sinai
2017 David J. Berman Award for Study Guide Generosity Student Award, Student Council, Icahn School of Medicine at Mount Sinai
2015 Travel Grant (£400), *Disease Models and Mechanisms* Journal

Writing and Editing Experience

2022-Present *Freelance academic science writer,* New York, NY
- Write, edit, and consult on the science of grants, manuscripts, and other documents for biomedical scientists

2015–2021 *Contributing author-member*, Neuronline, Society for Neuroscience, Washington, DC
- Wrote articles on mentorship, networking, career paths, and other professional development and training topics

2014–2015 *Editor,* The iNFORMER fellows newsletter, NIDDK, Bethesda, MD
- Solicited and edited articles by NIDDK fellows for the quarterly issues
- Developed, researched, and wrote articles about scientific research and policy

2014–2015 *Member,* NIH Fellows Editorial Board, Bethesda, MD
- Edited NIH fellows' scientific documents (e.g., manuscripts and grant applications) for grammar, form, and clarity
- Acted as lead editor on at least one document per month
- Discussed 1-3 documents submitted to the board at weekly meetings

2009–2013 *The Hoya* student newspaper, Georgetown University, Washington, DC
- As *contributing editor* (Nov 2011 – May 2013) trained new staff members, developed and produced special issues, and stood in for absent editors during production
- As *editorial board member* (April – Nov 2011) debated important on-campus issues, and researched and drafted 300- to 500-word editorials reflecting the opinion of the editorial board
- As *copy chief* (Nov 2010 – April 2011) led and trained staff of 17 deputy editors and assistants to ensure accuracy of all text in print and online
- As *copy editor* (Sep 2009 – Nov 2010) proofread text copy for grammatical, stylistic, and factual accuracy

Teaching and Mentoring Experience

2018–2021 *Supervisor*, Stanley Laboratory, Icahn School of Medicine at Mount Sinai, New York, NY
- *Michelle Caizaguano* (May 2020 – May 2021): senior at The High School for Math, Science and Engineering (HSMSE) at the City College of New York (CCNY) via the Center for Excellence in Youth Education (CEYE) at Mount Sinai
  - Project: Quantifying social behaviors in male mice lacking hypothalamus-projecting amygdala neurons during a resident intruder paradigm
- *Abigail Shtekler* (Nov 2019 – May 2021): junior/senior at Fordham University
  - Senior paper on the role of hypothalamus-projecting medial amygdala neurons in feeding earned an A
- *Marija (Mac) Borozan* (Jan 2020 – May 2020): senior at HSMSE at CCNY via CEYE, attending University of California at Berkeley in fall 2020
  - Project/poster: Validation of the use of the Enhanced Synaptic Activity Response Element (ESARE) as a model with which to study glucose-inhibited neurons
    - Finalist at the 2020 New York City Science and Engineering Fair
- *Kaetlyn Conner* (Aug 2018 – Aug 2019): senior at Fordham University, currently a research specialist in the CARE laboratory under Dr. Judith Morgan at the University of Pittsburgh
  - Thesis: "Glucose-sensing neurons in the medial amygdala and their role in glucose homeostasis"
    - "Highly Commended" (top 10%) by The Global Undergraduate Awards
  - American Heart Association Founders Affiliate Undergraduate Student Fellowship ($5000, June-Aug 2019)

- *Jamaal Spence* (June 2018 – Aug 2019): junior/senior at The Dalton School, attending the University of Pennsylvania in fall 2020
    - Project: Staining and quantifying cfos expression in the mouse medial amygdala after fasting and refeeding

2016–2017 *Teaching Assistant*, Principles of Neural Science, Behavior and Brain Pathophysiology Units 1-3 ("Systems Neuroscience," "Cellular and Molecular Neuroscience," and "Behavioral and Cognitive Neuroscience"), Icahn School of Medicine at Mount Sinai, New York, NY

- Supervised and graded exams for the graduate-level introductory course
- Led review sessions prior to the four exams
- Designed exam questions based on material presented by guest lecturers

2015–2016 *Mentor,* First Generation Scholars, Icahn School of Medicine at Mount Sinai, New York, NY

- In the fall, guided a potential first generation college student through the college application process, including 7 weekly meetings to develop and edit the student's college essay
- In the spring, prepared 8 students for the SAT general test over 6 weekly sessions

2010–2011 *Peer Advisor*, Georgetown College Dean's Office, Georgetown University, Washington, DC

- Advised freshmen students on academic issues such as selecting courses and declaring a major

2010 *Teaching Assistant*, Biology Department, Georgetown University, Washington, DC

- Taught 12 introductory biology students laboratory techniques
- Assisted professors with supervising lab sessions, and grading exams and lab reports

Volunteer and Service Experience

2015–2020 Mount Sinai Women in Science Group, New York, NY

- As *president* (August 2017 – August 2020), oversaw annual budget of $1000, and managed the activities of 2 vice presidents and 5 committee chairs.
- As a *vice president* (June 2016 – August 2017), represented graduate student interests at the Mount Sinai Women in Science and Medicine steering committee monthly meetings. Managed a fundraiser than earned $300.
- As a *member of the professional development committee* (Sep 2015 – June 2016), organized an academic networking event and a panel on science writing, which were attended by 30+ graduate students and postdoctoral fellows

2013–Present *Member*, Georgetown University Alumni Admissions Program

- Interview 3-4 prospective first-year and transfer undergraduate students each year as part of the Georgetown University undergraduate admissions process

2016–2017 *Member*, Mental Health Working Group, Mount Sinai Dean's Task Force on the Learning Environment, New York, NY

- Inventoried mental health services available to Mount Sinai trainees and identified gaps in these services
- Made recommendations to improve the location, access, breadth, and communication regarding trainee mental health services
- As part of the larger task force, attend monthly meetings to coordinate activities to improve access to mental health services, well-being activities, and coping/resilience skills within the Icahn School of Medicine at Mount Sinai

2014–2015 *Postbaccalaureate Representative*, NIDDK Fellows Advisory Board, Bethesda, MD

- Attended monthly meetings to plan the annual NIDDK fellows retreat and quarterly issues of the NIDDK fellows newsletter

Policy Experience

2012 *Intern*, Office of Government Relations, American Association for the Advancement of Science, Washington, DC
- Attended congressional hearings and other professional discussions regarding national science policy
- Reported on science policy issues in Science and Technology in Congress and AAAS Policy Alert
- Produced and managed social media content

2009–2010 *Intern,* District Office of Former U.S. Rep. John Hall (D-NY), Carmel, NY
- Performed administrative tasks such as mail correspondence, telephone reception, aggregation of press clippings, and copying and faxing of documents
- Helped organize and oversee the 2009 Congressional Art Competition

Professional Societies

2014–Present *Member*, Society for Neuroscience
2015, 2019 *Member*, Society for Study of Ingestive Behavior
2014-2015 *Member*, D.C. Science Writers Association
2013–2015 *Member*, D.C. Chapter, Society for Neuroscience

Grant Support

07/01/18 – 06/30/20 American Heart Association Predoctoral Fellowship
"Role of amygdala glucose-sensing neurons in feeding and obesity"
18PRE33960254

09/01/15 – 08/31/17 Icahn School of Medicine at Mount Sinai
Training Program in Neuroscience
Institutional NRSA T32 MH087004

Publications

Bayne M., Alvarsson A.*, **Devarakonda K.***, Li R., Jimenez-Gonzalez M., Garibay D., Conner K., Varghese M., Serasinghe M., Chipuk J., Hof P., and Stanley S. (2020) Repeated hypoglycemia remodels neural inputs and disrupts mitochondrial function to blunt glucose-inhibited GHRH neuron responsiveness*. JCI Insight*, 5(21):e133488.

Devarakonda K. and Stanley S. (2018) Investigating metabolic regulation using targeted neuromodulation. *Ann N Y Acad Sci*, 1411(1):83-95.

Friend D.M.*, **Devarakonda K.***, O'Neal T.J.*, Skirewski M., Papazoglou I., Kaplan A., Liow J., Guo J., Rane S., Rubenstein M., Alvarez V., Hall K.D., and Kravitz A.V. (2017) Basal ganglia dysfunction contributes to physical inactivity in obesity. *Cell Metab*, 25(2):312-321.

Kravitz A.V., **Devarakonda K.**, and Kreitzer A.C. (2017) Investigating basal ganglia function with cell-type-specific manipulations. In H. Steiner and K. Tseng (Eds.) *Handbook of Basal Ganglia Structure and Function* (2nd ed.). Elsevier Academic Press.

Devarakonda K. and Mobbs C.V. (2016) Mechanisms and significance of brain glucose signaling in energy balance, glucose homeostasis, and food-induced reward. *Mol Cell Endocrinol.* 438:61-69.

Devarakonda K., Nguyen K.P., and Kravitz A.V. (2016) ROBucket: A low cost operant chamber based on the Arduino microcontroller. *Behav. Res. Methods*, 48(2):503-9.

*denotes authors contributed equally

Oral Presentations

Devarakonda K., Li R.M., Jimenez-Gonzalez M., Lehman V.E., Alvarsson A., and Stanley S.A. (2021) Medial amygdala projections regulate the metabolic responses to internal and external signals. *To be presented at the American Diabetes Association 81st Scientific Sessions*, June 25-29, Virtual.

Devarakonda K., Bayne M., Conner K., Garibay, D., Alvarsson, A., Kenny P.J., and Stanley S.A. (2019) Investigating medial amygdala circuits in metabolism. *Society for the Study of Ingestive Behavior Annual Meeting*, July 9-13, Utrecht, Netherlands.

Selected Poster Presentations

Devarakonda K., Bayne M., Conner K., Garibay, D., Alvarsson, A., Kenny P.J., and Stanley S.A. (2019) Investigating medial amygdala circuits in metabolism. *Neuromodulatory Mechanisms Underlying Flexible Brain Functions and Behavior Gordon Research Conference/Seminar*, May 24-31, Les Diablerets, Switzerland.

Devarakonda K., Caballero S.I., Bayne M., Kenny P.J., and Stanley S.A. (2018) Investigating the role of amygdala glucose-sensing neurons in feeding and obesity. *Optogenetic Approaches to Understanding Neural Circuits and Behavior Gordon Research Conference*, July 15-20, Newry, ME.

Devarakonda K. and Stanley S.A. (2017) Characterizing glucose-sensing neurons in the amygdala. *Society for Neuroscience Annual Meeting*, Nov 11-15, Washington, DC.

Devarakonda K., Friend D.M., Guo J., Hall K.D., and Kravitz A.V. (2015) Food intake better predicts weight gain than physical activity and D2 receptor availability. *Society for Neuroscience Annual Meeting*, Oct 16-21, Chicago, IL.

Devarakonda K., Friend D.M., Guo J., Hall K.D., and Kravitz A.V. (2015) Dopaminergic dysfunction, food intake, and physical activity in diet-induced obesity. *Society for the Study of Ingestive Behavior Annual Meeting*, July 7-11, Denver, CO.

Devarakonda K. and Kravitz A.V. (2014) An open source operant conditioning chamber. *Society for Neuroscience Annual Meeting*, Nov 15-19, Washington, DC.

Devarakonda K., Friend D.M., Hall K.D., and Kravitz A.V. (2014) Striatal dopamine D2 receptor expression, physical activity, and weight gain. *The Obesity Society Annual Meeting*, Nov 2-7, Boston, MA.

Technical Skills

Laboratory skills
- histological sectioning (cryostat, microtome, and vibratome)
- immunohistochemistry
- *in situ* hybridization
- stereotactic brain surgery
- light and confocal microscopy
- molecular biology techniques: PCR, gel electrophoresis, bacterial transformation
- ELISAs
- RNA extraction from tissue

Animal behavior (mouse and rat)
- optogenetics, chemogenetics, and magnetogenetics
- metabolic tests: glucose tolerance, insulin tolerance, pyruvate tolerance, cold tolerance
- intraperitoneal and subcutaneous injections
- anxiety-related behavior assays
- operant/instrumental training
- long-term monitoring of food intake and body composition
- animal colony maintenance

Data analysis software: R, ImageJ/Fiji, CellProfiler

Computer programming: R, intermediate HTML/JavaScript, Arduino