The Faculty of Medicine of Harvard University
Curriculum Vitae

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Education

1997	B.A.	Liberal Arts Major: Molecular Biology	Bennington College
2004	Ph.D.	Neuroscience (Mentors: Alex L. Kolodkin, Ph.D. and David D. Ginty, Ph.D.)	Johns Hopkins University School of Medicine, Biochemistry, Cellular and Molecular Biology Program, Baltimore, MD
2023	Honorary Master's degree		Harvard University, MA

Postdoctoral Training

06/04 - 08/11	Postdoctoral Fellow	Neuroscience, Stem cells (Mentor: Rene Hen, Ph.D.)	Columbia University, New York, NY

Faculty Academic Appointments

09/11 - 02/12	Lecturer	Psychiatry	Harvard Medical School
09/11 -	Principal Faculty	Harvard Stem Cell Institute	Harvard University
03/12 -10/17	Assistant Professor	Psychiatry	Harvard Medical School

10/17- 12/23	Associate Professor	Psychiatry	Harvard Medical School
12/23-	Professor	Psychiatry	Harvard Medical School

Appointments at Hospitals/Affiliated Institutions

08/97 - 08/98	Research Fellow	Department of Biological Regulation (Mentor: Yosef Yarden, Ph.D.)	Weizmann Institute of Science, Israel
09/11 - 11/14	Assistant in Research	Psychiatry	Massachusetts General Hospital
04/12 -	Faculty Affiliate	Program in Neuroscience (PiN)	Harvard Medical School
06/12 – 09/21	Member	Biological & Biomedical Science (BBS)	Harvard Medical School
11/14 - present	Associate Researcher	Psychiatry	Massachusetts General Hospital
09/15 -	Associate Member		BROAD Institute of Harvard and MIT
07/18-	Faculty Steering Committee		Harvard Brain Science Initiative (HBI)

Other Professional Positions

05/16 -01/20	Co-Founder	LabMate Inc.	20 days per year
06/20-	Co-Founder	TAP Neuro Inc.	4 hours/week
03/25-	Co-Founder	LIPOS BIO Inc	4 hours/week

Major Administrative Leadership Positions

Local

2013	Faculty Co-Chair, Harvard Stem Cell Institute Malkin Retreat	Harvard University
2014 - 2018	Co-Director, Graduate Course BBS (CB226) -- Concepts in Development, Self Renewal and Repair	Harvard Medical School
2013, 2017	Chair of Recruitment Committee Center for Regenerative Medicine	Massachusetts General Hospital

National and International

2014	Co-organizer, Adult Neurogenesis: From stem cells to therapies	Tata Institute of Fundamental Research, Mumbai, India
2015	Co-organizer, Watching the Brain Think, Israeli-American Kavli Frontiers of Science symposium, Jerusalem, Israel	Israel Academy of Science and Humanities; National Academy of Sciences
2017	Chair and Co-organizer, Kavli Frontiers of Science symposium, Irvine, CA	National Academy of Sciences

Committee Service

Local

2012 - 2013	Center for Regenerative Medicine Recruitment Committee	Massachusetts General Hospital Chair
2012 - 2021	Human Developmental and Regenerative Biology Senior Thesis Committee	Harvard University
2013 -	Home Base PTSD Research Scientific Committee	Massachusetts General Hospital
2013 -	Program in Neuroscience Admissions Interviews	Harvard Medical School
2014 -	MGH/McLean Research Concentration Program Working advisory group for psychiatry residents	Massachusetts General Hospital
2016-2019	Center for Regenerative Medicine Executive Committee on Research (ECOR) Representative	Massachusetts General Hospital
2016-2017	Chair, Center for Regenerative Medicine Recruitment Committee	Massachusetts General Hospital
2017-	Review Panel for Tosteson and Fund for Medical Discovery Postdoctoral Fellowship Awards	Massachusetts General Hospital
2018 - 2020	Committee on Fundamental Research (CFR) Executive Committee on Research (ECOR) Representative	Massachusetts General Hospital
2018 -	Harvard Stem Cell Institute Retreat Poster session Faculty Judge	Harvard University

2019-	Mass General Neuroscience Leadership Council	Massachusetts General Hospital
2019-	Review Panel for MGH Research Scholars Round 1	Massachusetts General Hospital
2021-	Co-founder and co-organizer MGH/MEE Neural Circuits seminars for trainees	Massachusetts General Hospital/ MEE

Regional

2014 - 2018	Dimensional Application Advisory Committee	Bennington College, Bennington, VT

National and International

07/12 - 06/15	External Thesis Advisor, Candidate: Soyoung Rhee	SUNY, Stony Brook, NY
10/15	Faculty Opponent, Thesis Defense Candidate: Guilia Zanni	Goteburg University, Goteburg, Sweden
01/19	External Thesis Appraiser Candidate: Axel Guskjolen	University of Toronto, Ontario, Canada
2020-2022	Federation of European Neuroscience Societies (FENS)	SFN appointed Program Committee
2019-2024	Society For Neuroscience	Program Committee, Chair: Neurodegenerative disorders and Injury
2025-2027	American College of Neuropsychopharmacology	Program Committee

Professional Societies

2004 -	Society for Neuroscience	Member
2004 -	Molecular and Cellular Cognition Society	Member
2009 - 2022	Faculty of 1000	Associate Faculty Member
2011 -	Faculty of 1000 Animal Genetics section	Faculty Member
2012	International Society for Stem Cell Research	Reviewer

2014 -	American College of Neuropsychopharmacology 2014 - 2019 2019-	 Associate Member Member

Grant Review Activities

2012	Investigator Initiated Research Grant	Alzheimer's Association, USA External Reviewer
2013	Internal CSR Catalyst Grant Competition	Heart and Stroke Foundation Center for Stroke Recovery Research, Canada Ad hoc Member, External Expert Reviewer
2013	Neurophysiology of Systems	Medical Research Council, UK Ad hoc Member
2015	Neuroscience	Agence Recherche, Neuroscience, French National Research Agency (ANR), France Ad hoc Member, External Reviewer
2016	Special Emphasis Panel/SRG PO1 2016/05 ZNS1 SRB-N (10)	National Institute of Neurological Disorders and Stroke (NINDS) Ad hoc Member
2017	Special Emphasis Panel/Scientific Review Group 2018/01 ZRG1 MDCN-B (02)	National Institutes of Health
2019	Special Emphasis Panel/SRG P01 2020/01 ZAG1 ZIJ-6 (J1)	National Institute of Aging
2019	Alzheimer's Association Research Grant New To Field Program	AARG
2020	INSERM Atip-Avenir 2020	INSERM
2020	Neurobiology of Learning and Memory LAM Study section	National Institutes of Health
2021	ZRG1 IFCN-E (02) Special Emphasis Panel	National Institutes of Health
2023	ZRG1 ICN (02) Special Emphasis Panel	National Institutes of Health

Editorial Activities

Ad hoc Reviewer

Brain Plasticity
Brain, Structure and Function
Behavioral Brain Research

Biological Psychiatry
Cell Stem Cell
Cell Reports
eLife
Experimental Cell Research
Frontiers in Neural Circuits
Hippocampus
Nature
Nature Communications
Nature Methods
Nature Neuroscience
Nature Medicine
Nature Reviews Neuroscience
Neuron
Journal of Biological Chemistry
The Journal of Neuroscience
Neurogenesis
Neuropsychopharmacology
Molecular Psychiatry
Neuropharmacology
Molecular Brain
PLOS Computational Biology
Proceedings of the National Academy of Sciences (PNAS)
Science
Science Advances
Stem Cell Reports

Honors and Prizes

1995	Career Center Grant for Research	Bennington College	Undergraduate Research
1995	Summer Undergraduate Research Fellowship	Rockefeller University	Undergraduate Research
1995	Summer Undergraduate Research Fellowship (declined)	Weizmann Institute of Science	Undergraduate Research
2002	First prize, Graduate Student Association, 4th year Poster Competition	Johns Hopkins University School of Medicine	Doctoral Research
2006	Health Emotions Research Institute Award	University of Wisconsin, Madison	Travel Award
2009	3rd Annual Julius Axelrod Lecture Travel Award	Society for Neuroscience	Career Development Travel Award

2010	Early Career Travel Award	American College of Neuropsychopharmacology	Career Development Travel Award
2010	Translational Neuroscience Symposium Award (canceled)	Roche	Symposium Travel Award
2011	New Investigator Award	American Society of Clinical Psychopharmacology	Career Development Award
2011	Janett Rosenberg Trubatch Career Development Award	Society for Neuroscience	Career Development Award
2013	Kavli Fellow	National Academy of Sciences	Early Career scientist recognition
2019-2024	James and Audrey Foster MGH Research Scholar Award	MGH	

Report of Funded Projects

Funding Information

Past

2006 - 2008 Molecular mechanisms underlying the sensitive period for anxiety
National Alliance for Research on Schizophrenia and Depression
Young Investigator Award
PI ($60,000)
The goal of this study was to determine the contributions of serotonin-dependent candidate circuit maturation genes on maturation of hippocampal circuits and anxiety-like behaviors.

2008 - 2010 Understanding how experience dependent plasticity mechanisms encode vulnerability to anxiety disorders: A role for Klf-9 dependent neural circuit maturation
Sackler Institute for Developmental Psychobiology, Columbia University
PI ($100,000)
The goal of this project was to determine if Klf-9 dependent neural circuit maturation when compromised during the early post-natal period confers vulnerability to early life stressors.

2008 - 2010 The role of a novel regulator of hippocampal circuit maturation in mediating the behavioral effects of antidepressants.
National Alliance for Research on Schizophrenia and Depression
Young Investigator Award
PI ($60,000)
The goal of this study was to determine if Kruppel-like factor 9 dependent neural circuit maturation is necessary and sufficient for the behavioral effects of antidepressants.

2009 - 2011 Harnessing adult hippocampal neurogenesis to enhance learning and modulate mood.
NIH/NIMH, 5K99MH086615 Pathway to Independence Award
PI ($166,440, Direct Costs)
This proposal sought to determine the impact of stimulating adult hippocampal neurogenesis on learning and memory and regulation of mood.

2011 - 2014 Harnessing adult hippocampal neurogenesis to enhance learning and modulate mood
NIH/NIMH, 4R00MH086615-03
PI ($581,760, Direct Costs)
This proposal sought to determine the impact of stimulating adult hippocampal neurogenesis on learning and memory and regulation of mood.

2012 - 2015 Linking connectivity of adult-born neurons with encoding functions
Whitehall Foundation
PI ($225,000, Direct costs)
This project interrogated how a protocadherin dictates connectivity of adult-born neurons.

2012 - 2016 Reversing age related impairments in pattern separation to improve episodic memory formation.
The Ellison Medical Foundation
PI ($400,000, Direct costs)
This project investigated whether restoring synaptic connectivity in distinct regions within the medial temporal lobe of aged rodents will reverse age-related cognitive decline in pattern separation.

2015 - 2016 Generation of Human Hippocampal CA3 neurons
HSCI Development Grant
co-PI ($100,000, Direct costs). Other Co-PI: Rakesh Karmacharya
This project sought to develop protocols to generate hippocampal CA3 neurons from human induced pluripotent stem cells.

2015 – 2016 Re-engineering excitation-inhibition connectivity to rejuvenate memory circuits in aging
ECOR Deliberative Interim Support Funding (ISF)
PI ($75,000, Direct costs)
This project sought to address critiques of Ro1AG048908 for resubmission.

2015 - 2016 Maintaining Memory Fidelity in Aging and Alzheimer's Disease
Ellison Family Funds (Philanthropic support)
PI, ($400,000, Direct costs)
The proposed research aimed to generate insights into how hippocampal connectivity maintains precision of remote memories in aging and mouse models of Alzheimer’s Disease.

2016 – 2017 Identification of novel pro-neurogenic factors to enhance memory processing during aging
Massachusetts Alzheimer’s Disease Research Center/Harvard Neurodiscovery Center Neurodegenerative Disease Pilot Study Grant

PI ($40,000, Direct costs)

2014 – 2019 Molecular control of excitation-inhibition balance to encode ambiguous threats
NIH/NIMH 1-R01MH104175
PI ($1.625 million, Direct costs)
The proposed research aims to causally link feed-forward excitation-inhibition balance in dentate gyrus (DG)-CA3 circuit with discrimination of ambiguous threats and global remapping, identify hippocampal outputs that broadcast pattern separation dependent computations to extrahippocampal limbic circuits, and pharmacologically re-engineer DG-CA3 circuitry to improve global remapping.

2017 – 2019 Illuminating the neurobiology of human hippocampal pyramidal neurons in schizophrenia
National Alliance for Research on Schizophrenia and Depression
Independent Investigator Award
PI, ($100,000, Direct Costs)
The goal of this study is to generate hippocampal pyramidal neurons from human fibroblasts.

2017-2019 Characterization of novel secreted pro-neurogenic enzyme
Harvard Stem Cell Institute
Seed Grant
PI, ($83,334, Direct costs)
The proposal aims to characterize the pro-neurogenic potential of a secreted enzyme in adult and aged mice and using induced human neural stem cells.

2016 - 2021 Re-engineering excitation-inhibition connectivity to rejuvenate memory circuits in aging
NIH/NIA 1R01AG048908-01A1
PI, ($1.25 million, Direct costs)
This grant will determine how targeting excitation-inhibition balance in the aging hippocampus will improve memory processing.

2018-2021 Regulation of subcortical circuits by adult hippocampal neurogenesis
Blue Guitar Fund, Harvard Stem Cell Institute
PI, ($250,000, Direct costs)
This grant will determine how stimulation of adult-hippocampal neurogenesis modulates subcortical circuits.

2018-2021 Targeting feed-forward inhibition in DG-CA3 to improve memory in AD
Alzheimer's Association International Research Grant - New to the Field Program
PI, ($136,365, Direct Costs)
This project will investigate the role of feed-forward inhibition in DG-CA3 in AD

2020-2022 Transcription control of adult hippocampal neural stem cell homeostasis
NIH/NINDS R56NS117529-01
PI, ($350,000, Direct costs)
This project will investigate the role of the transcription factor Klf9 in regulation of neural stem homeostasis in the adult hippocampus

2021-2022 Alzheimer's Disease Supplement 3R01MH111729-04S1 ($186, 637, Direct Costs)

2017-2023 Contributions of hippocampal oxytocin receptors to social recognition
NIH/NIMH 1R01MH111729 - 01A1
PI, ($1.25 million, Direct Costs)
This project will investigate the role of hippocampal oxytocin receptors in social memory

2019-2024 Interrogating plasticity and heterogeneity of inhibitory neurons as gatekeepers of memory processing
James and Audrey Foster MGH Research Scholar
PI, ($500,000, Direct costs)
This project will examine the molecular and physiological basis of inhibitory neuron plasticity and heterogeneity in hippocampal-septal circuits

2020-2025 Linking molecules, circuits and behavior to promote plasticity and memory in the aging Brain
Glial mechanisms by which sleep preserves cognitive function and plasticity in aging
Simons Collaboration on Plasticity and the Aging Brain
PI, ($1.875 million, Direct costs)
This project will investigate the molecular regulation of inhibitory interneurons in aging hippocampus and regulation of neurogenesis and microglia

2023-2025 Targeting neurogenesis-inhibition coupling to improve memory in aging/ Diversity Supplement
NIH/NIA 1R01AG076612-01S1
PI, ($123,032, Direct costs)
This project will investigate how inhibitory circuits in the aging hippocampus influence social cognition

2024-2025 Inaugral Shenoy Undergraduate Research Fellowship in Neuroscience
SIMONS Foundation
$11,500
Support undergraduate research in autism and neuroscience

Current

2025-2030	Linking molecules, circuits and behavior to promote plasticity and memory in the aging Brain Glial mechanisms by which sleep preserves cognitive function and plasticity in aging Simons Collaboration on Plasticity and the Aging Brain PI, ($1.875 million, Direct costs) This project will investigate the molecular regulation of inhibitory interneurons in aging hippocampus and regulation of neurogenesis and microglia
2021-	Harvard Brain Science Initiative (HBI) Community Building Grant Co-Founder and co-Director ($5000) Goal is to bolster the career development of basic neuroscience trainees at MGH and MEE
2022-2027	Targeting neurogenesis-inhibition coupling to improve memory in aging NIH/NIA 1R01AG076612-01 PI, ($2.35 Million, Direct costs) This project will investigate the role of neurogenesis-dependent GABAergic inhibition in memory in aging
2023-2028	Hippocampal synaptic and circuit mechanisms mediating Dyrk1a functions in social cognition NIH/NIMH 1R01MH131652-01 PI, ($1.935 Million, Direct costs) This proposal will investigate whether we can target a molecular and circuit mechanism in adulthood to reverse impairments in social cognition circuitry and behavior resulting from developmental loss of one allele of Dyrk1a.
2025-2026	Shenoy Undergraduate Research Fellowship in Neuroscience SIMONS Foundation $11,500 Support undergraduate research in autism and neuroscience

Report of Local Teaching and Training

Teaching of Students in Courses

2003	Neuroanatomy Laboratory course	Johns Hopkins University School of Medicine
	1st year medical students	Teaching Assistant; 5 hours per week for 8 weeks
2012	Lecture in BBS Nanocourse Stem Cells	MGH and Harvard Medical School

	Graduate students	1 hour lecture
2013, 2015	Lecture in DRB Boot Camp Graduate students	MGH and Harvard Medical School 1 hour lecture and 3 hour practicals
2013, 2015, 2018, 2019 2022	Lecture in MCB graduate level course: Interesting Questions in Physical Biology Graduate students	Harvard University 1 hour lecture
2014	Graduate Course Stem Cell and Regenerative Biology SCRB 200 Graduate students	Harvard University 3 hour lecture and discussion
2019-	Lecture in SCRB 140 Development and Molecular basis of Regeneration Undergraduates and Graduates	Harvard University 1 hour lecture
2014 - 2018	Course Co-director Graduate Course BBS Program CB 226: Concepts in Development, Self-renewal and Repair Graduate students	Harvard Medical School 3 hours per week for 13-14 weeks, Fall Semester
2021-	Co-founder and Director of Neural Circuits Trainee Seminars	MGH and MEE 1.5 hours/month
2022-	Neuroscience section, HBTM 235 Leder Human Biology and Translational Medicine Program Graduate students of Harvard and MIT	Harvard Medical School 3 hours lecture & discussion session, Fall semester, 3 classes, 80 hours initial prep

Formal Teaching of Residents, Clinical Fellows and Research Fellows (post-docs)

2011 - 2013	Lecture in PGY2 Neuroscience Course Psychiatry residents	MGH 1 hour lecture
2020-	Clinical and Translational Research Academy Mentor	Harvard Medical School 3 hours/week

Laboratory and Other Research Supervisory and Training Responsibilities

2001	Supervision of undergraduate student	Johns Hopkins University School of Medicine 160 hours
2005 - 2010	Co-supervision of graduate students with PI	Columbia University 3 hours per day

2011 -	Supervision of laboratory technicians / MGH Center for Regenerative Medicine, Sahay lab	MGH Daily mentorship, 5 hours per week
2012 -	Supervision of postdoctoral research fellows / MGH Center for Regenerative Medicine, Sahay lab	MGH Daily mentorship, 2-3 hours per week
2012 -	Supervision of graduate student research / MGH Center for Regenerative Medicine, Sahay lab	MGH Daily mentorship, 3-5 hours per week
2013 –	Supervision of undergraduate student research / MGH Center for Regenerative Medicine, Sahay lab	MGH Daily mentorship, 1-2 hours per week
2020-2023	Cientific Latino's minority graduate student mentorship initiative (GSMI)	2 hour/month

Formally Mentored Medical, Dental and Graduate Students

2012 - 2014	Melissa Boldridge, A.B. Department of Stem Cell and Regenerative Biology, Harvard University Class of 2014. PhD Program in Nutritional Sciences and Toxicology, Univ. California at Berkeley (2019-) Senior Honors Thesis
2013 - 2015	Shannen Kim, A.B. Neurobiology, Harvard University Class of 2015 Senior Honors Thesis in Mind, Brain and Behavior. Co-author on publication in *Hippocampus*. Recipient of 2013 Harvard College Research Fellowship, 2014 Harvard Stem Cell Institute Undergraduate Research Program (HIP), Phi Beta Kappa Honor Society*, summa cum laude* in Neurobiology. Medical Student, UCSF Medical School (2017-)
2013 - 2016	Alexia Zagouras, A.B. Department of Stem Cell and Regenerative Biology and Anthropology, Harvard University Class of 2016 Recipient of 2015 Harvard Stem Cell Institute Undergraduate Research Program (HIP) award and 2016 Thomas Hoopes Prize for outstanding scholarly work or research (Amar Sahay and Arthur Kleinman, co-mentors), co-author *eLife* 2022. Medical student, Cleveland Clinic Lerner College of Medicine of Case Western Reserve University (2018-)
2012	Amelia Chang, Member, BBS Program, Preliminary Qualifying Exam
2012	HuiXin Xu, Member, BBS Program, Preliminary Qualifying Exam
2013	Fongching Chau, Member, BBS Program
2012 -2018	Tara Raam, Graduate Ph.D. Program in Neuroscience, Harvard University

Raam et al, *Nature Communications* 2017, 2017 Wisconsin Emotion Symposium Travel Awardee. 2018-Postdoctoral Fellow at UCLA. 2022 NARSAD Young Investigator Awardee.

2012 - 2019 Hugo-Vega Ramirez, graduate student, Program in Neuroscience, Harvard University, Howard Hughes Medical Institute Gilliam Fellow
Co-authored publication in *Neuron*.

2016-2018 Alec Reed, Department of Stem Cell and Regenerative Biology, Harvard University, Class of 2018, Recipient of 2015 Harvard Stem Cell Institute Undergraduate Research Program (HIP) award, Senior honors Thesis, Medical student, Harvard Medical School (2018-).

2017- 2020 James Coleman, Department of Stem Cell and Regenerative Biology, Harvard University, Class of 2021, Recipient of 2018 Harvard Stem Cell Institute Undergraduate Research Program (HIP) award, co-author *eLife* 2022

2017-2020 Debolina Ghosh, Department of Stem Cell and Regenerative Biology, Harvard University, Class of 2021, Concentration in Neurobiology, Recipient of 2019 Harvard Stem Cell Institute Undergraduate Research Program (HIP) award, Summa Cum Laude Neuroscience Thesis, Highest honors in Neuroscience, co-author *eLife* 2022, Case Western Reserve Medical School (2020-)

2018-2019 Victor Steininger, Masters Thesis (Bioengineering), recipient 2018 Harvard-EPFL Bertarelli Fellowship, Ecole Polytéchnique Fédérale de Lausanne

2018 Peter Angelli, Member, Program in Neuroscience, Preliminary Qualifying Exam

2018 Blake Chancellor, Member, BBS program, Preliminary Qualifying Exam
Dissertation Defense External examiner

2018-2023 Michael Florea, Member, BBS program, Preliminary Qualifying Exam
Dissertation Advisory Committee

2018-2022 Rebecca Senft, Member, Program in Neuroscience, Dissertation Advisory Committee

2023 Peter Angelli, Member, Program in Neuroscience, Thesis Defense Committee

2023 Chris Reid, Member, Program in Neuroscience, Thesis Defense Committee

Other Mentored Trainees and Faculty

2005 - 2010 Kimberly N. Scobie, Ph.D. /Assistant Director, Princeton Neuroscience Institute
Career stage: Graduate trainee of Dr. Rene Hen (PI) at Columbia University. Mentoring role: Postdoctoral Co-research advisor. Accomplishments: First author on publication in *The Journal of Neuroscience* and second author on publication in *Nature*.

2009 - 2011 Alexis S. Hill / Assistant Professor, Department of Biology, College of Wooster, MA
Career stage: Graduate trainee of Dr. Rene Hen (PI) at Columbia University. Mentoring role: Postdoctoral Co-research advisor. Accomplishments: Third author on publication in *Nature* and first author on publication in *Neuropsychopharmacology*.

2011 - 2013 Sally Levinson, B.S./PhD Program in Neuroscience, New York University
Career stage: Technician in my lab. Mentoring role: Research advisor. Accomplishments: Co-author on publication in *Frontiers in Neural Circuits*. Abstract submitted to 2016 Society For Neuroscience Meeting, San Diego, CA.

2012 - 2013 Sreyan Chowdhury, B.S./PhD Program in Biomedical Sciences, Columbia University
Career stage: Summer intern 2012, 2013. Mentoring role: Research advisor. Accomplishments: 2012 Harvard Stem Cell Institute Undergraduate Research Program.

2013 - 2015 Tomer Langberg, B.S./ Ph.D. Program in Molecular cellular Biology, UC Berkeley
Career stage: Technician in my lab. Mentoring role: Research advisor. Accomplishments: Co-author on Besnard et al, *Cell Reports* (2018)

2013 - 2014 Genelle Rankin, B.A./Ph.D. Program in Neuroscience, Harvard Medical School
Career stage: Winter intern 2013, 2014. Mentoring role: Research advisor. Accomplishments: Co-author on publication in *Hippocampus*.

2013 - 2014 Craig Russo, B.S / Associate, Venture capital
Career stage: Summer intern 2012, 2013. Mentoring role: Research advisor. Accomplishments: 2013 Harvard Stem Cell Institute Undergraduate Research Program (HIP). Co-author on publication in *Neuron* and *Hippocampus*.

2014 - 2015 Soyoung Rhee, Ph.D. / SUNY Stony Brook Class of 2015
Career stage: Graduate student. Mentoring role: External Thesis Advisor.

2015 Guilia Zanni, Ph.D. / Gothenburg University Class of 2015
Career stage: Graduate student. Mentoring role: External Thesis Advisor "Opponent", Gothenburg University, Sweden.

2015 - 2016 Duong Chu, B.S. / Medical Student, Queens University School of Medicine, Ontario, CN
Career stage: Technician in my lab. Mentoring role: Research advisor. Accomplishments: Co-author on abstract submitted to 2016 Society For Neuroscience Meeting, San Diego, CA. Medical student, Queen's University Medical School, Ontario, Canada (2017-)

2016-2017 Dylan O'Hara, B.A/Bennington College Class of 2018
Career stage: Winter term intern. Mentoring role: Research advisor. Accomplishments: Admitted SURF program Vollum Institute 2017. Ph.D Program in Neuroscience, SUNY Stony Brook (2018-)

2016-2018 Michael Taeho Kim, B.S/ Ph.D program, BBS, Harvard Medical School

Career stage: Technician in my lab. Mentoring role: Research advisor. Accomplishments: Co-author on Guo et al, *Nature Medicine* 2018 and Besnard et al, *Nature Neuroscience* 2019.

2016-2018 Charlotte Herber, B.S/ Yale University, Class of 2018
Career stage: Junior and Senior. Mentoring role: Research advisor.
Accomplishments: Co-author on Guo et al, *Nature Medicine* 2018, Guo et al *eLife* 2022. MSTP Program Stanford University (2018-)

2016 Alvar Paris, B.S.
Career stage: Senior, Cambridge University. Mentoring role: Research advisor.
Accomplishments: 2016 Harvard Stem Cell Institute Undergraduate Research Program.

2017- Cinzia Vicidomini, Ph.D./Postdoctoral Fellow
Career stage: Postdoctoral Fellow. Mentoring role: Research advisor.
Accomplishments: 2018 NARSAD Young Investigator Award, co-author *Cell Reports* 2018, First author Review in *Neuron* 2020, 2021MGH ECOR Fund for Medical Discovery (FMD) Fundamental Research Fellowship Award

2017- Hannah Twarkowski, Ph.D./ DFG Return Fellow, Data Architect, Germany
Career stage: Postdoctoral Fellow. Mentoring role: Research advisor.
Accomplishments: 2018 German Ministry of Science DFG Postdoctoral Fellowship, co-author *Nature Neuroscience* 2019, First author *eLife* 2022

2017- Yu-Tzu Shih, Ph.D./Postdoctoral Fellow
Career stage: Postdoctoral Fellow. Mentoring role: Research advisor.
Accomplishments: 2018 Taiwan Ministry of Science Postdoctoral Fellowship, 2021MGH ECOR Fund for Medical Discovery (FMD) Fundamental Research Fellowship Award, co-author *eLife* 2022, lead author *Neuron* 2023, lead co-first author, manuscript under revision at *Nature*

2017 Chay Graham, B.S.
Career stage: Senior, Cambridge University. Mentoring role: Research advisor.
Accomplishments: 2017 Harvard Stem Cell Institute Undergraduate Research Program.

2018-2020 Haley Zanga, B.S./Loyola University School of Medicine, Chicago Class of 2026
Career stage: Technician in my lab, co-author *eLife* 2022

2018 Travis Goode, Ph.D./Postdoctoral Fellow
Career stage: Postdoctoral Fellow, 2020 NARSAD Young Investigator Award, Lead Author on Perspective in *Neuron* 2020, SOBP 2023 Travel Awardee, 2023 NIMH K99/R00 Awardee, Interviewing Faculty positions

2018-2021 Samara Miller, Ph.D./Postdoctoral Fellow (UCLA)
Career stage: Postdoctoral Fellow
Accomplishments: Miller and Sahay, *Nature Neuroscience* 2019, second author on *Cell Reports* 2020.

2019 Michael Kritzker-Cohen M.D, Ph.D.
Career stage: Postdoctoral Fellow, T32 MGH Psychiatry

2020-2022 Robert William Meara, B.S/Tevard Biosciences
Career stage: Lab technician
Accomplishments: co-author *eLife* 2022

2022- Jason Alipio, Ph.D
Career stage: Postdoctoral Fellow
Accomplishments: NIA Diversity Supplement, co-author *Neuron* 2023

Graduated to Faculty

2012 -2017 Kathleen McAvoy, PhD/ Senior Research Scientist, Arvinas Pharma.
Career stage: Postdoctoral Fellow. Mentoring role: Research advisor. Accomplishments: First author publications in *Neuron*, *Hippocampus*, *Frontiers in Systems Neuroscience, Neurotherapeutics,* co-author *Nature Communications.* Recipient of 2015 Health Emotions Institute Travel Award.

2012 – 2020 Antoine Besnard, Ph.D./ Tenure track, Assistant Professor, INSERM, France. Career stage: Instructor. Mentoring role: Research advisor. Accomplishments: Recipient of 2012 Fondation Bettencourt Fellow, 2014 NARSAD Young Investigator Award, 2014 Health Emotions Institute Travel Award, 2016 MGH ECOR Fund for Medical Discovery (FMD) Postdoctoral Fellowship Award. Besnard and Sahay, *Neurospsychopharmacology* 2016, Besnard et al, *Cell Reports* 2018, Besnard et al *Nature Neuroscience* 2019, Besnard and Sahay, *Cell Reports* 2020, Besnard and Sahay *Brain Behavior Research* 2020, *Frontiers in Systems Neuroscience* (co-first author) and *Frontiers in Neural Circuits* (co-author).

2012 -2020 Nannan Guo, Ph.D. / Tenure track, Assistant Professor, Department of Neurobiology, Southern Medical University, China) Career stage: Instructor. Mentoring role: Research advisor. Accomplishments: Guo et al, *Nature Medicine* (2018), Guo et al, *eLife* 2022, First author on Book Chapter (2015), co-first author Review in *Neuron* 2020. Invited Speaker at 2019 Japan Neuroscience Society Meeting.

2019 -2022 Ain Chung, Ph.D. /Tenure track, Assistant Professor, Department of Bioengineering, Korea Advanced Institute of Science and Technology (KAIST), Seoul, Korea. Also received offer from Department of Psychological Sciences, Purdue University, IN) Career stage: Postdoctoral Fellow. Mentoring role: Research advisor.

2018 -2026 Travis D. Goode, Ph.D. /Interviewing for faculty positions (January 2026)
Career stage: Postdoctoral Fellow. Mentoring role: Research advisor.

Local Invited Presentations

No presentations below were sponsored by outside entities.

2011 Adult neurogenesis, Anxiety and Depression / Invited Talk
MGH Leadership Council in Psychiatry

2012 Harnessing adult hippocampal neurogenesis to enhance cognition and modulate mood / Translational Neuroscience Lecture
Psychiatric Neurogenetics Unit, MGH

2012 Harnessing adult hippocampal neurogenesis to enhance cognition and modulate mood / Grand Rounds
Center for Addiction Medicine, MGH

2012 Harnessing adult hippocampal neurogenesis to enhance cognition and modulate mood / PTSD seminar; Invited talk
Home Base Program, MGH

2013 Adult hippocampal neurogenesis, pattern separation-completion balance and overgeneralization of fear / MGH Inaugural Grand Rounds: Translating basic neuroscience insights into PTSD mechanisms & circuits
Department of Psychiatry, MGH

2013 Harnessing adult hippocampal neurogenesis to enhance cognition and modulate mood / Seminar series; Invited talk
Department of Psychiatry, McLean Hospital

2014 Harnessing adult hippocampal neurogenesis to enhance cognition and modulate mood / Invited talk
Depression Clinical & Research Program, MGH

2014 Rejuvenating memory circuits with new neurons in adulthood and aging / Invited talk
Stem Cells 2.0, Harvard Stem Cell Institute, MGH

2015 Molecular mechanisms, neural circuits and pathways underlying fear generalization / PTSD seminar
Home Base Program, MGH

2015 Re-engineering and rejuvenating memory and mood circuits with new brain cells / Invited talk
Seminar to MGH Chiefs Council, MGH

2015	Rejuvenating and re-engineering memory circuits in adulthood and aging / Invited seminar; host: Brad Hyman Department of Neurology, MGH
2016	Enhancing memory precision to combat PTSD / Medical Grand Rounds Department of Medicine, MGH
2018	Hippocampal circuit mechanisms underlying social memory processing / Harvard Interdisciplinary Oxytocin research initiative, MGH
2018	Rejuvenating and re-engineering hippocampal circuits to modulate memory interference/ Boston Children's Hospital NeuroBehavioral Core Symposium
2018	Adult hippocampal neurogenesis: Neural stem cells, circuits and memory BBS sponsored seminar, MGH
2020	Rejuvenating and re-engineering memory and emotion circuits ECOR sponsored research Scholars Update, MGH
2022	A transcriptional regulator of neural stem cell expansion and anticipatory neurogenesis in the adult brain DRB sponsored seminar, HMS
2022	Improving cognition in the aging brain BIDMC Division of Gerontology Grand Rounds, HMS

Report of Regional, National and International Invited Teaching and Presentations

Invited Presentations and Courses

No presentations below were sponsored by outside entities.

Regional

2013	Genetic modulation of neuronal competition homeostasis in the adult dentate gyrus to enhance hippocampal functions (selected oral abstract) Abcam Brain Repair and Reprogramming, Cambridge, MA
2016	Rejuvenating and re-engineering memory circuits in adulthood and aging / Invited talk Department of Biology, Boston University, Boston, MA
2016	Rejuvenating memory circuits to constrain fear generalization and age-related cognitive decline / Invited talk Neuron to Synapse and Optogenetics, Burlington, MA
2016	Optimizing aging memory circuits: Insights from rejuvenating, re-engineering and reprogramming approaches/Invited Talk

Stem Cell 2.0, Boston, MA

2017 Rejuvenating and re-engineering memory circuits in adulthood and aging / Invited talk
Department of Molecular and Cellular Biology, Brown University, Providence, RI

2024 Neotenic expansion of adult-born neurons reconfigures inhibition to enhance social cognition/Graduate student invited seminar
WPI, Worcester, MA

2025 Rejuvenation, Re-wiring and Restoration of memory circuits to preserve cognition. cognition/Invited talk
Harvard Stem Cell Institute at 20, HMS, Boston, MA

2025 On Synapses, Memory and Neural Networks
Diamond Middle School lecture, Lexington, MA

2026 Pro-cognitive restoration of PV interneuron plasticity in neurodevelopmental disorders /Invited Talk
Rosamund Stone Zander and Hansjoerg Wyss Translational Neuroscience Center (TNC), Children's Hospital, Harvard Medical School

National

2009 Increasing adult hippocampal neurogenesis is sufficient to improve pattern separation but not Mood (selected oral abstract)
Molecular Cellular Cognition Society Meeting, Chicago, IL

2009 Increasing adult hippocampal neurogenesis is sufficient to enhance pattern separation but not Mood (selected oral abstract)
Synapses: From Molecules to Circuits & Behavior, Cold Spring Harbor Laboratory Meetings, New York

2010 Impact of increasing adult hippocampal neurogenesis on cognition and mood (selected oral abstract)
Basic Neuroscience of Mood Disorders and Their Treatment, American College of Neuropsychopharmacology Meeting, Miami, FL

2011 Targeting adult neurogenesis to modulate hippocampal functions in cognition and mood / Faculty Candidate Interview; Invited seminar
MGH Center for Regenerative Medicine, Harvard Medical School, MA; University of Pittsburgh, PA; University of Southern California, CA; Northwestern University, IL; University of Utah, UT; Scripps Institute, FL; University of Virginia, VA; University of Michigan, MI; University of California, Irvine, CA, Rutgers University, NJ (declined), University of Rochester, NY (declined), Medical University of South Carolina, SC (declined), Duke University-NUS, Singapore, (declined).

2011 Impact of increasing adult hippocampal neurogenesis on cognition and mood (selected oral abstract)
Keystone Symposia, Adult Neurogenesis, Taos, NM

2013 Harnessing adult hippocampal neurogenesis to enhance cognition and modulate mood / Invited talk
New Scholars Series, Reed College, Portland, OR

2013 Harnessing adult hippocampal neurogenesis to enhance cognition and modulate mood / Invited talk
Kavli-National Academy of Science "Frontiers of Science" symposium, Irvine, CA

2013 Harnessing adult hippocampal neurogenesis to enhance cognition and regulate mood / Invited talk
Penn State Neuroscience 2013 Graduate student invited speaker, Hershey, PA

2014 Re-engineering memory circuits with new neurons / Invited talk
American Psychological Association Annual Meeting, Washington, DC

2014 Rejuvenating and re-engineering memory circuits in adulthood and aging / Invited talk
Vollum Institute of Neuroscience, Portland, OR

2015 Rejuvenating and re-engineering memory circuits in adulthood and aging / Invited talk
State University of New York, Stony Brook, NY

2015 Tuning adult hippocampal neurogenesis to constrain fear generalization in adulthood and aging / Invited talk
ACNP Meeting, Hollywood, FL

2015 Local circuits and neural pathways linking adult hippocampal neurogenesis with fear generalization / Invited talk
ACNP Meeting, Plenary Session, Hollywood, FL

2016 Rejuvenating and re-engineering memory circuits in adulthood and aging / Invited talk
Department of Molecular Biology, UT Southwestern, Dallas, TX

2016 Hippocampal circuit mechanisms underlying fear generalization / Invited talk
Society of Biological Psychiatry, Atlanta, GA

2016 Rejuvenating and re-engineering memory circuits in adulthood and aging /Invited Talk
Eli and Edythe Broad Center for Regenerative Medicine and Stem Cells, UCSF, CA.

2017 Rejuvenating and re-engineering memory circuits in adulthood and aging /Invited Talk
Keystone Meeting, Lake Tahoe, CA

2017 Rejuvenating and re-engineering aging memory circuits/Invited Talk

Neuroplasticity, Neuroregeneration and Brain Repair, New York Academy of Sciences, NY

2017 Rejuvenating memory circuits in adulthood and aging /Invited Talk
University of Virginia, VA

2017 Rejuvenating memory circuits in aging /Invited Talk
Cognitive Aging Summit III, NIH, Bethesda, MD

2018 Hippocampal circuit mechanisms underlying memory discrimination and generalization /Invited Talk
Department of Pharmacology, University of Washington, Seattle

2018 Dentate granule cell recruitment of feedforward inhibition governs engram maintenance and remote memory generalization /Invited Talk
Learning and Memory 2018, Huntington Beach, CA

2018 Molecular re-engineering of aging memory circuits/Invited Speaker
Samsung Global Research Symposium on Molecular Neuroscience, Mountain View, CA

2018 Hippocampal circuit mechanisms underlying memory discrimination and generalization /Invited Talk
Department of Neuroscience, Johns Hopkins University, Baltimore, MD

2018 Stem cells and disease modeling: Neuropsychiatric and neurodegenerative Disease/Chair, Nanosymposium, Society for Neuroscience Annual Meeting, San Diego, CA

2019 Inhibitory interneurons: Gatekeepers of indexing, discrimination and generalization/Invited Speaker
University of California, Irvine, Center for the Neurobiology of Learning and Memory Colloquium series

2019 Inhibition, Memory Interference and Indexing/Invited Speaker
Gordon Research Conference, Inhibition in the CNS, Newry, Maine

2019 Dentate granule cells, memory discrimination and generalization/Selected Speaker
Annual Molecular Psychiatry Meeting, San Francisco, CA

2019 Neurogenesis, memory interference and memory indexing/Invited Speaker
Neuroscience Seminar series, University of Wisconsin, Madison

2019 Contribution of new neurons to hippocampal functions/Invited Speaker
Minisymposium, Adult Hippocampal neurogenesis in humans and rodents: New evidence and New perspectives. Society for Neuroscience Annual Meeting, Chicago, Illinois

2019 Rejuvenating and re-engineering aging memory circuits/Invited Speaker
Plasticity in the aging brain, Simons Foundation, New York City, NY

2020	Rejuvenating, re-engineering and restoring aging memory circuits/Invited Speaker NIA Summit on Neurogenesis and Aging, NIH, Washington DC (Virtual)
2020	Decoding Hippocampal-lateral septal projection logic governing contextual calibration of defensive behaviors/Invited Speaker (Virtual) Inscopix World wide Webinars in Neuroscience, Palo Alto California
2021	A transcriptional regulator of neural stem cell expansion and anticipatory neurogenesis in the adult brain/Invited Speaker (Virtual) MDI Biological Laboratory, Bar Harbor, Maine, USA
2021	Adult hippocampal neurogenesis, memory and aging/Invited Speaker (Virtual) Stem cells and Aging Workshop, sponsored by NIA, MDI Biological Laboratory, Bar Harbor, Maine, USA
2021	Rejuvenating and Re-engineering aging memory circuits /Invited Speaker GSA 2021 Annual Scientific Meeting, Phoenix, Arizona, USA
2021	Lateral Septum: From ontogeny to Function in Motivated Behaviors /Selected symposium ACNP Meeting, San Juan, Puerto Rico, USA
2022	Improving Cognition in the Aging Brain /Plenary lecture ASNR 60th Annual Meeting and Symposium Neuroradiologicum XXII, New York, USA
2022	A dentate gyrus inhibitory microcircuit governs memory consolidation/Invited Talk Neuroscience Seminar Series, University of Alabama, Birmingham, AL
2023	Re-engineering memory circuits to improve cognition /Invited Talk Neuroscience Seminar Series, University of North Carolina, Chapel Hill, NC, USA
2023	An inhibitory circuit-based enhancer of Dyrk1a function reverses Dyrk1a-associated impairment in social cognition/Symposium International Learning and Memory Meeting, Huntington Beach, CA, USA
2023	Re-engineering memory circuits to improve cognition/Invited Talk Neuroscience Seminar Series, O'Donnell Brain Institute, UT Southwestern, Dallas, TX
2023	Re-engineering inhibitory microcircuits to improve cognition/Invited Talk Center for Neural Science and Medicine Neuroscience seminar series, Cedars-Sinai Medical Center, Los Angeles, CA
2024	Rejuvenating memory circuits /Invited Talk Distinguished Speaker Seminar Series, Department of Stem Cell Biology and Regenerative Medicine, USC, Los Angeles, CA

2025 Pro-cognitive restoration of PV interneuron plasticity in neurodevelopmental disorders /Invited Talk
Gordon Research Conference, Inhibition in the CNS, Newry, Maine

2025 Neotenic expansion of new neurons reconfigures inhibition to enhance social cognition /Invited Talk
University of Illinois at Chicago, Chicago, IL

2025 Pro-cognitive restoration of PV interneuron plasticity in neurodevelopmental disorders /Invited Talk
Experience-driven dynamics in cortical inhibition for learning and memory, Society for Neuroscience Mini Symposium, San Diego, CA

2026 Pro-cognitive restoration of PV interneuron plasticity in neurodevelopmental disorders /Invited Talk
University of Michigan, Ann Arbor, MI, USA

International

2009 Harnessing adult hippocampal neurogenesis to enhance cognition and regulate mood / Invited talk
8th Dutch Endo-Neuro-Psycho Meeting, Hippocampal Neuroplasticity in Health and Disease, Doorwerth, The Netherlands

2010 Harnessing adult hippocampal neurogenesis to enhance cognition and regulate mood / (selected oral abstract)
Adult Neurogenesis: Structure and Function, Frauenchiemsee, Germany

2013 Genetic modulation of neuronal competition homeostasis in the adult dentate gyrus to enhance hippocampal functions / Invited talk
Abcam Neurogenesis, Matsushima, Miyagi, Japan

2014 Re-engineering the adult dentate gyrus through neuronal competition to enhance memory precision
Adult Neurogenesis: From stem cells to therapies, Mumbai, India

2014 Rejuvenating the dentate gyrus with stage-specific expansion of adult-born neurons to enhance memory precision in adulthood and aging / (selected oral abstract)
Keystone Symposia, Adult Neurogenesis, Stockholm, Sweden

2014 Rejuvenating and re-engineering memory circuits in adulthood and aging / Invited talk
Johannes Gutenberg University of Mainz & Program Translational Neuroscience, Germany.

2015 Rejuvenating and re-engineering memory circuits in adulthood and aging / Invited talk
Weizmann Institute of Science, Rehovot, Israel

2015 Local circuits and neural pathways linking adult hippocampal neurogenesis with fear generalization / Invited talk
Harvard- Ludwig-Maximillians-Universität in Munich (LMU) Young Scientist Forum, Munich, Germany

2015 Rejuvenating and re-engineering memory circuits in adulthood and aging / Seminar
Gothenburg University, Sweden

2016 Rejuvenating and re-engineering memory circuits in adulthood and aging / Invited talk
1st Neurogenesis Fusion Conference, Cancun, Mexico

2016 How adult-born neurons link encoding with emotional responses / Invited talk
3 rd Eurogenesis Meeting, Adult Neurogenesis in Physiology and Disease, Bordeaux, France.

2017 Rejuvenating and re-engineering memory circuits in adulthood and aging / Invited talk
Center for Regenerative Therapies, Dresden, Germany

2019 Hippocampal circuit mechanisms underlying discrimination and generalization/Invited Talk
Campbell Family Mental Health Research Institute, Toronto, Ontario, Canada

2019 Inhibitory interneurons: Gatekeepers of indexing, discrimination and generalization/Invited Talk
Neuroscience Distinguished Lectureship series, Collaborative Program in Neuroscience, University of Toronto, Ontario, Canada.

2019 Hippocampal circuit mechanisms underlying discrimination and generalization/Invited Speaker
EMBO Workshop, Molecular neuroscience: From genes to circuits in health and disease, Bangalore, India

2019 Dentate granule cells and memory precision/Invited Speaker
2nd Neurogenesis Fusion Conference, Nassau, Bahamas

2019 Dentate granule cells, memory discrimination and generalization/Invited Talk
4th Eurogenesis Meeting, Adult Neurogenesis in Physiology and Disease, Bordeaux, France

2019 Hippocampal Inhibition, Memory Interference and Indexing/ Invited talk
Hebb 70: Synapses, Engrams, and Disease/
Symposium to celebrate 70th Anniversary of Donald Hebb's "The Organization of Behavior, Toronto

2020 XIV. International Magdeburg Learning & Memory Meeting 2020/Invited Talk

	Learning And Memory: Cellular and Systemic Views, Magdeburg, Germany (Postponed due to Covid 19)
2021	Hippocampal Inhibition, Memory Interference and Indexing/ Invited talk Neurosur 2021 Symposium (Harvard/ University of Chile, the University of Santiago de Chile, the University of Valparaiso Joint Meeting)
2021	Understanding how a hippocampal inhibitory microcircuit contributes to memory consolidation and generalization/invited speaker https://www.crowdcast.io/e/amarsahays-wwndev-forum
2022	A dentate gyrus inhibitory microcircuit governs memory consolidation/Invited Talk Neuronal representation - From Synapses and microcircuits to behavior, July 1-2, Freiburg, Germany
2022	Lateral septal inhibitory neurons govern calibrate defensive and appetitive behaviors/Plenary Speaker Brain mapping & Psychiatric disorders, Korea Brain Research Institute, Daegu, Korea
2024	Neotenic expansion of adult-born neurons reconfigures inhibition to enhance social Cognition/Invited Speaker Institute of Neuroscience, CEBSIT, Chinese Academy of Sciences, Shanghai, China
2024	Neotenic expansion of adult-born neurons reconfigures inhibition to enhance social Cognition/Invited Speaker SMU, Guongzhou, China
2026	Re-engineering inhibition to enhance cognition /Invited Talk Aging and Adult Neurogenesis International Symposium, Academia Sinica, Taiwan
2026	Pro-cognitive restoration of PV interneuron plasticity in neurodevelopmental disorders /Invited Talk Symposium: Inhibitory neurons-From synapses and microcircuits to behavior University of Freiburg, Freiburg, Germany

Report of Technological and Other Scientific Innovations

Strategies that stimulate adult neurogenesis and improve cognition (2010)	Provisional US Patent Application; April 13, 2010 (expired) We demonstrated in proof of concept study that stimulating neurogenesis by targeting the Bax gene improved memory.
Agents and Methods for diagnosing and treating	Provisional US Patent Application; March 13, 2014 (Application 61/952, 485)

behavioral disorders (2014)	We identified a gene important for memory in adulthood and aging and demonstrated a strategy targeting this gene to improve memory.
Memory-regulating agents and methods (2019)	US Patent 10, 287, 580 (Issued May 14, 2019) Methods for inhibition of Ablim3 to improve memory in aging, Alzheimer's disease and PTSD.
Vectors and Methods for treatment of neurodegeneration, delaying cognitive decline and improving memory	PCT/US2023/016901 Gene Therapy for reducing neuroinflammation and preserving memory in aging and Alzheimer's disease.

Report of Education of Patients and Service to the Community

Activities

No activities below were sponsored by outside entities.

1995	Genetics Course, Mount Anthony Union High School, VT / Co-instructor. Developed practical component of course to study genetics using yeast model system.

Report of Scholarship

Peer-Reviewed Scholarship in print or other media

Research Investigations

1. Giger RJ, Cloutier JF*, **Sahay A***, Prinjha RK*, Levengood DV, Moore SE, Pickering S, Simmons D, Rastan S, Walsh FS, Kolodkin AL, Ginty DD, Geppert M. Neuropilin-2 is required in vivo for selective axon guidance responses to secreted semaphorins. *Neuron.* 2000 Jan;25(1):29-41. PMID:10707970. (* equal contribution)

2. **Sahay A**, Molliver ME, Ginty DD, Kolodkin AL. Semaphorin 3F is critical for development of limbic system circuitry and is required in neurons for selective CNS axon guidance events. *The Journal of Neuroscience.* 2003; 23(17): 6671-6680. PMID: 12890759.

3. Cloutier JF*, **Sahay A***, Chang EC, Tessier-Lavigne M, Dulac C, Kolodkin AL, Ginty DD. Distinct requirements for Semaphorin 3F and Slit-1 in axonal targeting, fasciculation and segregation of olfactory receptor sensory neuron projections. *The Journal of Neuroscience*. 2004; 24(41): 9087-9096. PMID: 15483127. (* equal contribution)

4. **Sahay A***, Kim CH*, Sepkuty JP, Cho E, Huganir RL, Ginty DD, Kolodkin AL. Secreted semaphorins modulate synaptic transmission in the adult hippocampus. *The Journal of Neuroscience.* 2005; 25(14): 3613-3620. PMID:15814792. (* equal contribution)

5. Scobie KN, Hall BJ, Wilke SA, Klemenhagen KC, Fujii-Kuriyama Y, Ghosh A, Hen R, **Sahay A**. Krüppel-like factor 9 (Klf-9) is necessary for late-phase neuronal maturation in the developing dentate gyrus and during adult hippocampal neurogenesis. *The Journal of Neuroscience.* 2009; 29(31): 9875-9887. PMC2753873.

6. Weber T, Baier V, Pauly R, **Sahay A**, Baur M, Herrmann E, Ciccolini F, Hen R, Kronenberg G, Bartsch D. Inducible gene expression in GFAP+ progenitor cells of the SGZ and the dorsal wall of the SVZ– a novel tool to manipulate and trace adult neurogenesis. *Glia.* 2011; 59(4):615-626. PMID: 21294160.

7. **Sahay A***, Scobie KN, Hill AS, O'Carroll CM, Kheirbek MA, Burghardt NS, Fenton AA, Dranovsky A, Hen R*. Increasing adult hippocampal neurogenesis is sufficient to improve pattern separation. *Nature.* 2011; 472 (7344): 466-470. PMC3084370. *Co-corresponding author.
   - "New Neurons, New Opportunities", Leading Edge, Learning & Memory, *Cell* 145, May 13, 2011
   - Research Highlights, *Nature Reviews Neuroscience*, Volume 12, June 2011
   - "New strategy for stimulating neurogenesis may lead to drugs to improve cognition and mood", Eurekalert, April 3, 2011
   - "More Young Neurons Equals Better Brain Function", Massachusetts Alzheimer's Disease Research Center (http://madrc.mgh.harvard.edu), April 4, 2011
   - "Engineered Mice Make Better Choices", *MIT Technology Review*, April 6, 2011
   - "Nurturing newborn neurons sharpens minds in mice Also lifts mood when combined with exercise- NIH-funded study", NIH Press Release, April 3, 2011
   - Cited > 1700 times

8. Tata PR, Mou H, Pardo-Saganta A, Zhao R, Prabhu M, Law BM, Vinarsky V, Cho JL, Breton S, **Sahay A**, Medoff BD, Rajagopal J. Dedifferentiation of committed luminal epithelial cells into functional stem cells *in vivo. Nature.* 2013; 503(7475):218-223. PMC4035230.

9. Ikrar T, Guo N, He K, Besnard A, Levinson S, Hill A, Lee HK, Hen R, Xu X, **Sahay A**. Adult neurogenesis modifies excitability of the dentate gyrus. *Frontiers in Neural Circuits*. 2013;7:204. PMC3872742.

10. Hill AS, **Sahay A***, Hen R*. Increasing adult hippocampal neurogenesis is sufficient to reduce anxiety and depression-like behaviors. *Neuropsychopharmacology.* 2015; 40(10):2368-2378. PMC4538351. * Co-corresponding author.

11. McAvoy K, Russo C, Kim S, Rankin G, **Sahay A**. Fluoxetine induces input-specific dendritic spine remodeling in adulthood and middle age. *Hippocampus.* 2015; 25(11):1429-1446. PMC4596739.

12. McAvoy K, Scobie KN, Berger S, Russo C, Guo N, Decharatanachart P, Miake-LyeS , Whalen M, Nelson M, Bergami M, Bartsch D, Hen R, Berninger B, **Sahay A**. Modulating neuronal competition dynamics in the dentate gyrus to rejuvenate aging memory circuits. *Neuron*. 2016; 91(6):1356-1373.

    - "Encouraging Integration". Research Highlights in *Nature Reviews Neuroscience*, Volume 17, number 11, November, 2016.
    - Previewed in *"*Re-engineering the Hippocampus" in *Neuron*, 2016; 91(6): 1190-1191.

- "Making memories stronger and more precise during aging". EurekAlert, 1 September 2016.
- "Identifying mechanisms that may keep memories sharp in the aging brain". Featured in Newsroom, National Institute on Aging.

13. Kaluski S, Portillo M, Besnard, A, Stein D, Einav M, Zhong L, Ueberham U, Arendt T, Mostoslavsky R, **Sahay A**, Toiber D. Neuroprotective functions for the histone deacetylase SIRT6. *Cell Reports*. 2017; 18(13):3052-3062.

14. Raam T, McAvoy K, Besnard A, Veenema A, **Sahay A**. Hippocampal oxytocin receptors are necessary for discrimination of social stimuli *Nature Communications*. 2017. 8(1):2001.
    - HMS News and research. Study reveals an oxytocin-fueled brain circuit that regulates social recognition https://hms.harvard.edu/news/social-memory
    - Boston Globe Dec 14, 2017. How the brain distinguishes friends from strangers

15. Culig L, Surget A, Bourdey M, Khemissi W, Le Guisquet AM, Vogel E, **Sahay A**, Hen R, Belzung C. Increasing adult hippocampal neurogenesis in mice after exposure to unpredictable chronic mild stress may counteract some of the effects of stress. *Neuropharmacology* 2017; 126:179-189

16. Dietrich J, Baryawno N, Nayyar N, Valtis YK, Yang B, Ly I, Besnard A, Severe N, Gustafsson KU, Andronesi OC, Batchelor TT, **Sahay A**, Scadden DT. Bone marrow drives central nervous system regeneration after radiation injury. *Journal of Clinical Investigation* 2018; 128(1) 281-293.

17. Guo N, Soden ME, Herber C, Kim MT, Besnard A, Lin P, Ma X, Cepko CL, Zweifel LS, **Sahay A**. Dentate granule cell recruitment of feedforward inhibition governs engram maintenance and remote memory generalization *Nature Medicine*. 2018; 24(4):438-449.
    - News and Views in *Nature Medicine*
    - "Switch" that could improve memory identified, The Harvard Gazette
    - Investigators identify neural circuit genetic "switch" that maintains memory precision, EurekAlert 12 March 2018.
    - NIH Director discussed this paper in his monthly blog on advances in sciences and medicine https://directorsblog.nih.gov/2018/05/24/unlocking-the-brains-memory-retrieval-system/

18. Besnard A, Langberg T, Levinson S, Chu D, Vicidomini C, Scobie KN, Dwork AJ, Arango V, Rosoklija GB, Mann JJ, Hen R, Leonardo ED, Boldrini M, **Sahay A**. Targeting Kruppel-like factor 9 in excitatory forebrain neurons protects against chronic stress-induced impairments in dendritic spines and fear responses *Cell Reports* 2018 23 (11): 3183-3196.
    - HMS News and research. Blocking key protein prevents impact of stress on neurons and alters fear response in mice. https://hms.harvard.edu/news/silencing-stress

19. Besnard A, Gao Y, Kim MT, Twarkowski H, Langberg T, Feng W, Xu X, Saur D, Zweifel L, Davison I and **Sahay A.** Dorsolateral septum somatostatin interneurons gate mobility to calibrate context specific behavioral fear responses *Nature Neuroscience* 2019 22 (3): 436-446

    - Massachusetts General study identifies brain cells that modulate behavioral response to threats https://www.eurekalert.org/pub_releases/2019-02/mgh-mgs021119.php

- Threat sensors: the neurons that regulate fear response
  https://hsci.harvard.edu/news/threat-sensors

20. Besnard A, Miller S and **Sahay A.** Distinct dorsal and ventral hippocampal CA3 outputs govern contextual fear discrimination. *Cell Reports* 2020; 30(7):2360-2373.

21. Centonze A, Lin S, Tika E, Sifrim A, Fioramonti M, Malfait M, Song Y, Wuidart A, Van Herck J, Dannau A, Bouvencourt G, Dubois C, Dedoncker N, **Sahay A**, de Maertelaer V, Siebel CW, Van Keymeulen A, Voet T, Blanpain C. Heterotypic cell-cell communication regulates glandular stem cell multipotency. *Nature* 2020; 584, 608–613

22. Besnard A, and **Sahay A.** Enhancing adult neurogenesis promotes contextual fear memory discrimination and activation of hippocampal-dorsolateral septal circuits *Beh Brain Research* 2020; Sep 16;112917. doi: 10.1016/j.bbr.2020.112917.

23. Choi S, Zhang B, Ma S, Gonzalez-Celeiro M, Stein D, Jin X, Kim ST, Kang Y, Besnard A, Rezza A, Grisanti L, Buenrostro J, Rendl M, Nahrendorf M, **Sahay A**, Hsu Y. Corticosterone inhibits GAS6 to govern hair follicle stem-cell quiescence. *Nature* 2021;592, 428-432

24. Guo N, McDermott KD, Shih YS, Zanga H, Ghosh D, Herber C, Meara WR, Coleman J, Zagouras A, Wong LP, Sadreyev R, Gonçalves JT and **Sahay A**. Transcriptional regulation of neural stem cell expansion in the adult hippocampus. *eLife* 2022;11:e72195

25. Twarkowski H, Steininger V, Kim MJ, and **Sahay A**. A dentate gyrus-CA3 inhibitory circuit promotes evolution of hippocampal-cortical ensembles during memory consolidation. *eLife* 2022 11:e70586

26. Shih Y-T, Alipio JB and **Sahay, A**. An inhibitory circuit-based enhancer of DYRK1A function reverses *Dyrk1a*-associated impairment in social recognition. *Neuron* 2023;111(19): 3084-3101

- Some social issues in DYRK1A model mice stem from faulty inhibitory circuits
  Autism Spectrum News. https://www.spectrumnews.org/news/some-social-issues-in-dyrk1a-model-mice-stem-from-faulty-inhibitory-circuits/

27. Vicidomini C, Goode TD, McAvoy KM, Yu R, Beveridge CH, Iyer SN, Victor MB, Leary N, Evans L, Steinbaugh MJ, Lai ZW, Lyon MC, Silvestre MRFS, Bonilla G, Sadreyev RI, Walther TC, Sui SH, Saido T, Yamamoto K, Murakami M, Tsai LH, Chopra G, and **Sahay A.** An aging-sensitive compensatory secretory phospholipase that confers neuroprotection and cognitive resilience. (Accepted, *Nature Neuroscience* 2026)

28. Goode TD, Bernstein MX, Totty MS, Alipio JB, Vicidomini C, Besnard A, Pathak D, Besnard A, Chizari D, Sachdev N, Kritzer-Cheren MD, Chung A, Duan X, Macosko E, Hicks SC, Zweifel LS, and **Sahay A.** A dorsal hippocampus-prodynorphinergic dorsolateral septum-to-lateral hypothalamus circuit mediates contextual gating of feeding. *Neuron* Feb 12, 2026

- MGB Press release
- Lay person write up Neuroscience News
- MSN MedExpress

29. Chung A, Alipio JB, Ghosh M, Evans L, Miller SM, Goode TD, Mehta I, Ahmed OJ, **Sahay A.** Neotenic expansion of adult-born dentate granule cells reconfigures GABAergic inhibition to enhance social memory consolidation. *Research Square* 2025 (Accepted, *Nature Neuroscience*)

30. Shih YT, Alipio JB, Klaft ZJ, Green N, Wong LP, Sadreyev R, Hyun JH, Dulla C, **Sahay A.** Pro-cognitive restoration of experience-dependent parvalbumin inhibitory neuron plasticity in neurodevelopmental disorders (Accepted, *Nature* 2026)

Other peer-reviewed scholarship

1. **Sahay A***, Hen R*. The role of adult hippocampal neurogenesis in depression. *Focus on Emotion and Disorders of Emotion* issue. *Nature Neuroscience.* 2007; 10(9):1110-1115. Review. PMID:17726477. *Co-corresponding author.

2. **Sahay A**, Wilson DA, Hen R. Pattern separation: A common function for new neurons in hippocampus and olfactory Bulb. *Neuron.* 2011; Special Issue: Reviews on stem cells and adult neurogenesis, 70(4):582-588. Review. PMC3109085.

3. Ho NF, Hooker JM, **Sahay A**, Holt DJ, Roffman JL. In vivo imaging of adult hippocampal neurogenesis: progress, pitfalls and promise. *Molecular Psychiatry.* 2013; 18(4):404-416. Review. PMC3711219.

4. Kheirbek MA, Klemenhagen KC, **Sahay A***, Hen R*. Neurogenesis and generalization: a new approach to stratify and treat anxiety disorders. *Nature Neuroscience.* 2012; 15(12):1613-1620. Review. PMC3638121. *Co-corresponding author

5. Besnard A, **Sahay A**. Adult hippocampal neurogenesis, fear generalization and stress. *Neuropsychopharmacology.* 2016; 41(1):24-44. PMC4677119.

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7. Widge A, **Sahay A**. Closing the Loop in Deep Brain Stimulation for psychiatric disorders: Lessons from Motor Neural Prosthetics. *Neuropsychopharmacology.* 2016; 41(1):379-380. PMC4677134.

8. McAvoy K, **Sahay A**. Targeting adult neurogenesis to optimize hippocampal circuits in aging. *Neurotherapeutics*. 2017; 14(3):630-645. PMID28536851

9. Guo N, **Sahay A**. Neural circuits serve as periscopes for NSCs. *Cell Stem Cell*. 2017; 21(5):557 - 559.

10. Miller, S.M, **Sahay, A.** Functions of adult-born neurons in hippocampal memory interference and indexing. *Nature Neuroscience.* 2019 22(10): 1565-1575

11. Vicidomini C, Guo N and **Sahay A**. Communication, cross talk and signal integration in the adult hippocampal neurogenic niche. *Neuron* 2020 105(2):220-235

12. Goode, TD, Tanaka K, **Sahay A***, and McHugh TJ*. Integrated Index: Engrams, Place Cells, and Hippocampal Memory. *Neuron* 2020 107(5):805-820 *Co-corresponding author

13. Mohapatra, AN, and **Sahay A*.** Parvalbumin interneuron cell state plasticity in cognition and neurodevelopmental disorders. In Review, *Nature Neuroscience*

Peer Reviewed scientific or medical scholarship/materials in print or other media

Reviews, chapters, monographs and editorials

1. **Sahay A**, Hen R, Duman RS. Hippocampal neurogenesis: Depression and Antidepressant responses. Editors: Gage FH, Kempermann G and Song H. "*Adult Neurogenesis" Cold Spring Harbor Laboratory Press* 2007, 483-503.

2. **Sahay A***, Drew MR, Hen R*. Dentate gyrus neurogenesis and Depression "The Dentate Gyrus: A comprehensive Guide to Structure, Function and Clinical Implications". Editor: Scharfman H. *Progress in Brain Research.* 2007, 163:697-822. PMID:17765746. * Co-corresponding author

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Thesis

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Narrative Report

Area of Excellence-Investigation

Adaptively responding to the environment is critical to optimal navigation of our world. The hippocampus plays a critical role in this process by generating memories of our experiences, transferring these memories for storage or consolidation to the prefrontal cortex and recalling and routing memories to subcortical circuits to calibrate defensive and motivated behaviors (e.g., approach, cadence, avoidance, reward seeking). It is intuitive to think how aberrations in hippocampal circuit mechanisms underlying memory processing or storage or linkage of mnemonic information with subcortical circuits are the basis for cognitive impairments in brain disorders. Using a bottom-up gene->synapse->circuit->network->systems level approach, my lab has generated fundamental insights into molecular, circuit and network

plasticity mechanisms supporting cognition. Since psychiatric and neurological disease risk genes converge upon these same mechanisms, our science may ultimately guide therapeutic strategies to alleviate cognitive impairments associated with aging, neurodevelopmental disorders, Alzheimer's Disease and PTSD.

In the field of adult hippocampal neurogenesis, we were the first to demonstrate that increasing adult hippocampal neurogenesis is sufficient to improve memory discrimination in adulthood and aging (*Nature* 2011, *Neuron* 2016). In a manuscript under revision (Chung, Alipio et al, in revision, *Nature Neuroscience*), we identified a parvalbumin inhibitory neuron-dependent circuit mechanism by which a small number of immature neurons exert a disproportionate effect on hippocampal network activity and cognition. This discovery may explain how neoteny of a small number of adult-born hippocampal neurons functionally compensates for decline in adult hippocampal neurogenesis in humans. Thinking about other approaches to boost neurogenesis in the aging brain or following injury led us to ask if we could replenish the cognitive reserve embodied in the pool of neural stem cells in the hippocampus. Our efforts led to discovery of the first transcriptional regulator of neural stem expansion in the adult hippocampus (*eLife* 2022). In a functional genetic screen for synapse-loss induced dentate granule neuron secreted factors we identified a secreted phospholipase whose expression is increased in dentate granule neurons during aging. Our functional analysis demonstrated that this secreted phospholipase confers cognitive resilience during aging and in mouse models of Alzheimer's disease by reducing neuroinflammation and preserving synapses and memory (Global Patent filed 2022, Vicidomini et al, *Nature Neuroscience* 2026).

Complementing these efforts to *rejuvenate* and *replenish* cognitive reserve in the hippocampus during aging, we investigated how we can molecularly *re-engineer* inhibitory circuit connectivity to improve memory precision. We identified a learning-dependent molecular specifier of parvalbumin inhibitory neuron microcircuitry in the hippocampus. We demonstrated how this molecular factor can be harnessed to re-engineer hippocampal circuitry to enhance memory consolidation and precision in adulthood and aging (*Nature Medicine* 2018, US Patent awarded 2019). We built on this work to demonstrate how selectively increasing feed-forward inhibition promotes hippocampal-cortical communication underlying memory consolidation (*eLife* 2022). Only in the last few years has the role for the hippocampus in social cognition come into prominence. Our group was the first to uncover a physiological role for hippocampal Oxytocin receptors in behavior, specifically social cognition (*Nature Communications* 2017). Building on these studies, we have begun investigating how inhibitory neuron microcircuits in the hippocampus contribute to social cognition. We identified a synaptic and an inhibitory circuit mechanism by which *Dyrk1a*, a gene implicated in autism spectrum disorder, contributes to social recognition (*Neuron* 2023). Taken together, these studies highlighted the persistence of experience-dependent parvalbumin inhibitory neuron plasticity in the adult hippocampus. In a study under revision at *Nature*, we instantiate a previously unrecognized genetic and epigenetic program that enables parvalbumin inhibitory neurons to reorganize and reconfigure their intrinsic properties input output connectivity and synaptic plasticity in response to experience. We demonstrate that parvalbumin inhibitory neuron plasticity is a convergent mechanism for neurodevelopmental disorders and that restoring this form of inhibitory neuron plasticity in adulthood is sufficient to suppress seizures and reverse cognitive impairment in a widely used neurodevelopmental disorder risk mouse model (Shih and Alipio et al, in press, *Nature*).

To begin to understand how alterations in hippocampal functions contribute to irregularities in affective behaviors, we began to investigate the neural pathways that link hippocampally computed mnemonic or contextual information with cortical and subcortical circuits that mediate defensive and motivated behaviors (approach, avoidance, cadence, reward seeking etc.). Although the lateral septum is one of the major targets of the hippocampus, the functional significance of this hippocampal target has remained poorly understood. In two studies published in *Nature Neuroscience* and *Cell Reports*, our lab illuminated how hippocampal projections to the lateral septum recruit distinct classes of inhibitory

neurons to calibrate motion during expression of defensive behaviors. In a manuscript under revision (Goode et al, Accepted, *Neuron*), we identify a distinct neuropeptidergic population of lateral septal neurons that links the dorsal hippocampus with lateral hypothalamus to regulate food consumption.

Stress is a major risk factor for psychopathologies such as depression and anxiety disorders. Understanding how brain mechanisms support coping behaviors and confer resilience is key to devising novel therapeutic strategies to moderate the effects of stress on the brain and behavior. Our group was the first to demonstrate how selectively enhancing adult hippocampal neurogenesis was sufficient to prevent chronic stress-induced anxiety-like behavior and promote stress associated coping behavior (*Neuropsychopharmacology* 2015). In thinking about how stress affects neural circuity to mediate overgeneralization of fear in PTSD, we identified a transcriptional regulator of resilience to chronic stress-induced overgeneralization of fear. In a study in *Cell Reports*, we showed how changes in levels of a transcription regulator in the hippocampus in response to chronic stress engenders distinct synaptic and behavioral adaptations in a sex specific way.

Many of our findings have been independently replicated and our papers have garnered over 10,000 citations. My study demonstrating that increasing neurogenesis is sufficient to improve memory has been cited over 2000 times. Our discoveries have led to formulation of several influential review articles and perspectives (*Neuropsychopharmacology* 2016, *Nature Neuroscience* (2007, 2011, 2019, 2026-*in review*) and *Neuron* (January 2020 and *Neuron* August 2020) that continue to shape the leading edge of science on adult hippocampal neurogenesis and memory. Notably, we have reached across the aisle to clinicians to relate fundamental neural circuit mechanisms underlying hippocampal memory processing (memory interference, discrimination, and generalization) with psychiatric disease endophenotypes, age-related cognitive decline and Mild Cognitive Impairment. My research program has secured funding amounting to approximately $15.5 million in direct costs from NIH and private foundations (5 lead PI R01s and two successive SIMONS Foundation SCPAB $1.875 million 5-year awards). I have co-founded or am involved in two biotech/AI startups aimed at restoring cognition in AD.

Teaching

I have mentored numerous undergraduates who have performed senior honors thesis research (including a recipient of the Hoopes Prize for outstanding senior thesis at Harvard), co-authored high-impact publications and gone onto attend prominent medical, graduate and MSTP programs. My laboratory's mentoring style has been profiled by the Harvard Stem Cell Institute and is routinely recognized in thesis critiques. I mentored minority undergraduates through Cientific Latino's graduate student mentorship initiative (GSMI) program. I currently participate in the Shenoy Undergraduate Research Fellowship in Neuroscience (SURFiN) Program funded by the SIMONS foundation to mentor undergraduates whose backgrounds and experiences are underrepresented in science. Postdoctoral trainees have won numerous postdoctoral fellowships including K99/R00 and 3 NARSAD young Investigator Awards. Several graduate and postdoctoral trainees have transitioned into postdoctoral and independent faculty or industry positions, respectively.

I serve on local committees to foster basic neuroscience research including Mass General Neuroscience Leadership Council, scientific council of Homebase which is a Red Sox Foundation and Massachusetts General Hospital Program for treatment of veterans and PTSD, and the newly founded Center for Neuroscience of Psychedelics at MGH. I co-founded a monthly seminar series for trainees in basic neural circuit neuroscience at MGH and Massachusetts Eye and Ear Institute and secured a Harvard Brain Science Initiative (HBI) Community Building Grant for it. In 2017, I co-launched a startup to create sustainable paths for postdoctoral fellows to biotech and pharmaceutical jobs. Although the startup failed 3 years later, I published a white paper documenting my experience in *Cell Mentor* so that other innovators would benefit from my insights and experience.

I co-directed the Harvard BBS Program graduate level stem cell course, Concepts in Development, Self-renewal and Repair CB226, for five consecutive years (2014-2018) at MGH. I give lectures to undergraduates and medical residents as part of courses on Regeneration, Neuroscience and Psychiatry at Harvard University, Harvard Medical School and MGH. I teach the neuroscience section of the Leder Human Biology and Translational Medicine Program to Harvard and MIT graduate students at Harvard Medical School (2022-). I participate in the MGH/McLean research track residency program and HMS Clinical and Translational Research Academy that recruit and train psychiatry residents. I provide R01 level grant writing mentorship to Assistant professors at MGH and co-chaired the Harvard Stem cell Institute Annual Retreat that brings together trainees from across the Harvard ecosystem. On a national and international level, I co-organized the first international meeting of adult neurogenesis in mainland Asia and led national and international Kavli Frontiers of Science symposia. I am a member of the American College of Neuropsychopharmacology and served on the Program Committee for the Society for Neuroscience, SFN, Annual Meeting (2019-2023). Additionally, I served as the SFN appointed member for the Program Committee of the Federation of European Neuroscience Societies (FENS) from 2020-2022. I currently serve on Program Committee of the American College of Neuropsychopharmacolog and the leadership and faculty steering committee of the Harvard Brain Science Initiative (HBI).

Summary

I have established a multifaceted research program and have fostered collaborations within MGH, HMS and BROAD communities. Through my research, publications, mentoring, lecturing, and involvement with professional societies, I continue to promote a culture of inclusion and diversity, generate fundamental insights into hippocampal functions in memory and emotion, and edify new ways to think about alleviating memory and mood impairments that characterize psychiatric and neurological disorders.