# Kay M. Tye, Ph.D.

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## *Positions*

**Howard Hughes Medical Institute** (2021-Present)
Investigator

**Salk Institute for Biological Studies,** La Jolla CA (2019-Present)
Wylie Vale Professor, Systems Neuroscience Laboratory

**Massachusetts Institute of Technology,** Cambridge MA (2018-2019)
Associate Professor with Tenure, Dept. of Brain and Cognitive Sciences, Picower Institute for Learning and Memory

**Massachusetts Institute of Technology,** Cambridge MA (2012 - 2017)
Assistant Professor, Dept. of Brain and Cognitive Sciences, Picower Institute for Learning and Memory

**Stanford University** at Stanford, CA (2009 - 2011)
Post-Doctoral Fellow advised by **Karl Deisseroth**

**Ernest Gallo Clinic and Research Center** at UCSF, Emeryville CA (2008 - 2009)
Post-Doctoral Fellow co-advised by **Patricia H. Janak** and **Antonello Bonci**

**University of California at San Francisco,** San Francisco CA (2004 - 2008)
Ph.D. in Neuroscience, Defended Thesis May 30, 2008, Degree Conferred September 9, 2008
Following one year of rotations, joined **Patricia H. Janak** laboratory September 2005

**Massachusetts Institute of Technology,** Cambridge MA (1999 - 2003)
B.S. in Brain and Cognitive Sciences, Biology minor, graduated June 2003 with GPA of 4.9/5.0

## *Previous Research Experience*

**Post-Doctoral Fellow** (September 2009 – December 2011)
Stanford University at Stanford, CA
*Karl Deisseroth Laboratory*
Using novel optogenetic techniques to dissect the neural circuitry underlying psychiatric disease.

**Post-Doctoral Fellow** (May 2008 - August 2009)
Ernest Gallo Clinic and Research Center associated with UCSF, Emeryville CA
*Antonello Bonci and Patricia H. Janak Laboratories*
Examined the role of dopamine in modulating learning and learning-induced synaptic plasticity in the amygdala.

**Graduate Student** (August 2005 - May 2008)
University of California at San Francisco, San Francisco CA
*Patricia H. Janak Laboratory*
Studied electrophysiological properties of amygdala neurons *in vitro* during reward-seeking behavior.

***Honors and Awards (Selected)***

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|---|---|
| 2005-2008 | National Science Foundation Graduate Research Fellow |
| 2009 | Harold M. Weintraub Award (Outstanding Achievement in Biosciences) |
| 2009 | Donald B. Lindsley Prize (Outstanding Ph.D. Thesis in Behavioral Neuroscience) |
| 2009 | European Brain and Behavior Society Post-Doctoral Fellow Award |
| 2009-2012 | National Research Service Award Post-Doctoral Research Fellow |
| 2010 | Stanford University Post-Doctoral Award (Best in Bioengineering) |
| 2012 | Jeptha H. and Emily V. Wade Fund Award |
| 2012 | American College of Neuropsychopharmacology Travel Award |
| 2012 | Kavli Foundation Frontiers Fellow |
| 2012-2014 | Whitehall Foundation Research Award |
| 2013-2015 | Klingenstein Fellowship Award |
| 2013-2015 | Whitehead Career Development Professorship |
| 2013-2014 | NARSAD Young Investigator Award |
| 2013-2018 | NIH Director's New Innovator Award (DP2; NIDDK) |
| 2014-2015 | Sloan Research Fellow, Alfred P. Sloan Foundation |
| 2014 | Commitment to Caring, MIT Graduate Mentoring Award |
| 2014 | TR35, Technology Review's Top 35 Innovators Under 35 |
| 2015-2019 | New York Stem Cell Foundation, Neuroscience Robertson Investigator Award |
| 2015 | BCS Award for Excellence in Undergraduate Advising |
| 2015 | Harold E. Edgerton Faculty Achievement Award |
| 2015 | Award for Outstanding Undergraduate Research (UROP) Faculty Mentor |
| 2015-2018 | McKnight Scholar Award |
| 2016 | Presidential Early Career Award for Scientists and Engineers (PECASE) |
| 2016 | Daniel X. Freedman Award (for Exceptional Basic Research) |
| 2016 | Society for Neuroscience (SFN) Young Investigator Award |
| 2017 | Science News Top 10 Scientists to Watch |
| 2017-2022 | NIH Director's Pioneer Award (DP1; NCCIH) |
| 2018 | Award for Outstanding Postdoctoral Mentorship (MIT) |
| 2019-2024 | Member of the Board of Scientific Counselors (NIMH) |
| 2019 | Wylie Vale Endowed Chair |
| 2019 | Tsuneko and Reiji Okazaki Award |
| 2020-Present | Kavli Institute for the Brain and Mind Member |
| 2020 | TED Talk selected speaker for TED event at National Academy of Sciences |
| 2020 | ACNP Daniel H. Efron Research Award |
| 2021-2031 | NIMH MERIT Award |
| 2021 | Blavatnik National Award Laureate for Young Scientists |

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| 2021-Present | Howard Hughes Medical Institute Investigator |
| 2023 | Featured in an exhibit at California Science Center in Los Angelos, CA |
| 2024 | Joseph Erlanger Distinguished Lectureship, American Physiological Society |
| 2024 | Plenary Speaker at FENS |

## *Awards to Trainees*

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|---|---|
| 2013-2015 | SNSF Swiss Fellowship to Anna Beyeler (Postdoctoral Fellow) |
| 2013-2016 | NSF GRFP to Edward Nieh (Graduate student) |
| 2013 | Simons Center Fellowship to Romy Wichmann (Postdoctoral Fellow) |
| 2013-2015 | Simons Center Fellowship to Gillian Matthews (Postdoctoral Fellow) |
| 2014-2015 | JFDP fellowship to Gwendolyn Calhoon (Postdoctoral Fellow) |
| 2014-2015 | NWO Rubicon Fellowship to Romy Wichmann (Postdoctoral Fellow) |
| 2014-2016 | NARSAD Young Investigator to Anthony Burgos Robles,Postdoctoral Fellow) |
| 2014-2018 | NSF GRFP to Caitlin Vander Weele (Graduate student) |
| 2015-2017 | Picower Clinical Fellowship to Eyal Kimchi (Postdoctoral Fellow) |
| 2015-2018 | NSF GRFP to Christopher Leppla (Graduate student) |
| 2016-2018 | NARSAD Young Investigator to Anna Beyeler (Postdoctoral Fellow) |
| 2016-2018 | NARSAD Young Investigator to Gwendolyn Calhoon (Postdoctoral Fellow) |
| 2016-2018 | F32 NRSA fellowship to Cody Siciliano (Postdoctoral Fellow) |
| 2016-2018 | Charles A. King Fellowship to Gillian Matthews (Postdoctoral Fellow) |
| 2016-2019 | CIHR fellowship to Fergil Mills (Postdoctoral Fellow) |
| 2017-2018 | F32 NRSA fellowship to Jakob Olsen (Postdoctoral Fellow) |
| 2017-2019 | NARSAD Young Investigator to Romy Wichmann (Postdoctoral Fellow) |
| 2018-2019 | JPB Foundation Fellowship to Avraham Libster (Postdoctoral Fellow) |
| 2018-2019 | Simons Center Fellowship to Nancy Padilla (Postdoctoral Fellow) |
| 2018-2020 | NARSAD Young Investigator to Cody Siciliano (Postdoctoral Fellow) |
| 2018-2020 | K99 fellowship to Cody Siciliano (Postdoctoral Fellow) |
| 2018-2020 | K08 fellowship to Eyal Kimchi (Postdoctoral Fellow) |
| 2019-2021 | K99 fellowship to Fergil Mills (Postdoctoral Fellow) |
| 2019-2020 | Ford Fellowship to Nancy Padilla (Postdoctoral Fellow) |
| 2019-2022 | Burroughs Fellowship to Nancy Padilla (Postdoctoral Fellow) |
| 2020-2021 | L'Oreal Women Fellowship to Nancy Padilla (Postdoctoral Fellow) |
| 2020-2022 | K99 fellowship to Nancy Padilla (Postdoctoral Fellow) |
| 2020-2023 | K00 fellowship to Austin Coley (Postdoctoral Fellow) |
| 2022-2024 | K99 fellowship to Hao Li (Postdoctoral Fellow) |
| 2022-2024 | K99 fellowship to Reesha Patel (Postdoctoral Fellow) |
| 2022-2028 | NSF GRFP to Raymundo Miranda (Graduate student) |
| 2022-2023 | McNair Scholars Award to Alexandra Garcia (Undergraduate Student) |
| 2022-2023 | Salk Women & Science Research Award to Caroline Jia (Graduate Student) |
| 2023-2024 | Salk Women & Science CD Award to Jianna Cressy (Graduate Student) |
| 2023-2024 | HDSI UG Scholarship to Kevin Zhang (Undergraduate Student) |
| 2023-2024 | UCSD BRAP Scholarship Alexandra Garcia (Undergraduate Student) |
| 2023-2024 | McNair Scholars Award to Sarah Flores (Undergraduate Student) |

## *Outreach and Service for Broader Impacts (selected)*

**DISCOVER Symposium (2024-Present)**
Director/Co-founder of the DISCOVER symposium which is aimed to discover diverse talent and match individuals considering an academic postdoctoral training opportunity with PI's at Salk Institute. I run the program from and work closely with Salk Administration to conduct the call for applications, the selection process, running the symposium and setting up potential interviews.

**AAMC MOSAIC Mentor (2024)**
Served as a mentor for the MOSAIC Program whose goal is to facilitate the transition of promising postdoctoral researchers from diverse backgrounds into independent faculty careers in research-intensive institutions.

**The Kavli Institute for Brain and Mind – Colors of the Brain Faculty Mentor (2023-Present)**
Served as a mentor for undergraduates from historically underrepresented backgrounds

**Salk Summer Undergraduate Research Fellowship (SURF) Mentor (2023-Present)**
Mentored undergraduate students in the Salk Summer Undergraduate Research Fellowship, a 10-week paid research internship, fostering hands-on training and networking opportunities. Contributed to broadening STEM research access, emphasizing diversity by encouraging applications from underrepresented backgrounds.

**UCSD Summer Training Academy for Research Success (STARS) Mentor (2023-Present)**
Mentored students in the UC San Diego Summer Training Academy for Research Success (STARS), an eight-week summer research academy catering to community college students, undergraduates, recent graduates, and master's students.

**STARTneuro Mentor (2023)**
Served a faculty mentor for STARTneuro, a competitive program that trains, mentors, and funds diverse transfer students as they enter neuroscience research. Have since hired my STARTneuro mentee as a research assistant and now as a lab manager.

**BUMMP Mentor (2023-Present)**
Served as a faculty mentor for the Biology Undergraduate and Master's Mentorship Program at the University of California, San Diego whose primary aim is to equip undergraduate and Master's students, especially those from underserved backgrounds or facing research limitations, with awareness and strength to advance in science.

**Reviewer for the Freeman Hrabowski HHMI Competition (2023-Present)**
Reviewed applications for the semifinalist and finalist rounds, helping to select 30 scholars from 800+ applicants.

**NIH Early Independence Awardee Webinar (2022)**
Participated in a panel to share experiences as a PI and provide advice and guidance to attendees on a range of subjects including grants management, applying for funding, career advice and time/lab management.

**NGP Success Through Failure Panel (2022)**
Participated in a panel for UCSD students sharing life experiences in academia and how to motivate oneself through failure

**X-STEM All Access Virtual Conference (2021)**
Participated in a mental health/neuroscience focused panel for X-STEM whose goal is to get kids excited about careers in STEM

**Diversity and Inclusion Task Force (2020-Present)**
Co-Chair of this Salk Institute committee which has the goal to increase inclusion and diversity of Black, Indigenous and People of Color (BIPoC), combat systemic racism and injustice and ensure Salk is a place where all members of the community can thrive

**Campus Climate Advisory Committee (2020-Present)**
Member of this Salk Institute committee which has the goal to identify cultural issues of concern to various campus constituent groups and to understand the bases for these concerns

**TED Talk (2019 recording, posted 2020)**
Speaker at the TED Talk hosted at the National Academy of Sciences

**Celebration of Woman in Neuroscience, SFN (2019)**

Served as moderator for a panel discussion focused on the advancements women have made in the Neuroscience field over the last 50 years and what still needs to be done

**Breaking Barriers for Women, SFN (Professional Women's Nexus)**
Served as mentor for young women in the session

**Career Development Panelist, ACNP (2017)**
Provided perspective on navigating a tenure-track academic career path.

**Speaker in Diversity Luncheon at CoSyne (2017)**
Spoke about personal experiences and strategies to work towards gender parity through raising awareness of implicit bias.

**Professional Women's Nexus (2016)**
Panelist in the annual PWN meeting affiliated with the Society for Neuroscience meeting in San Diego.

**Commitment to Caring (2014)**
Was nominated and recognized for outstanding mentorship of graduate students by the Office of the Dean for Graduate Education at MIT.

**Science Club for Girls (2012-2019)**
Volunteer with underprivileged girls or females that are under-represented minorities (aged 12-17) from local public schools to form lasting mentorship relationships, speak on panels, give presentations, and give lab tours with real research demonstrations with the goal of promoting awareness and feasibility of Science-Technology-Engineering-Math (STEM) careers. Encourage girls to be a role-model and mentor to local K-5 aged children through open workshops to experience the rewards of mentoring in STEM careers.

**Boston Brain Bee (2012-2019)**
Volunteer as panelist, keynote speaker and ongoing mentor to students from local high schools competing in an annual neuroscience bee.

**Women in Life Sciences (2006-Present)**
Participated in a peer-mentoring group where students, post-docs and faculty connect to form lasting bonds and offer career and life advice.

**Quattro Alliance for Science Integration (2005-2007)**
Volunteered for over 1000 hours to plan and teach 16 life science lessons to two 3$^{rd}$-grade classrooms of non-native speakers of English in Bay Area public schools using creative and interactive teaching strategies, including multi-day retreats.

**Scientist-Teacher Action Team (STAT) Program (2004-2005)**
Volunteered to work with teachers to design, plan and teach 8 science lessons to students at San Francisco public schools.

**Freshman Leadership Program (1999-2003)**
Volunteered to work with ~100 incoming MIT freshman per year to develop communication, leadership and mentorship skills while building confidence and increasing awareness of underprivileged populations. Special emphasis was given to issues of: mental health, gender biases, racism, and socio-economic backgrounds.

**MIT Disabilities Office (2002-2003)**
Worked with the disabilities office to provide learning resources to students that were blind, had learning disabilities, mental health problems or other physical disabilities.

**Cambridge-Boston Outreach (1999-2000)**
Volunteered to work with underprivileged youth, K-5$^{th}$ grade, to increase literacy using non-traditional, interactive learning strategies.

## *Invited Talks (selected)*

Synaptic plasticity in the amygdala following cue-reward learning. (2007) Gordon Research Conference: Amygdala in health and disease, Lewiston, ME.

Amygdala processing of reward-related memories: The relationship among synapses, spikes and behavior. (2008) University of Maryland, Baltimore, MD.

Mechanisms underlying the acquisition and retrieval of cue-reward associations. (2008) Janelia Farms Research Campus, Loudoun County, VA.

Increases in phasic activity and potentiation of synapses onto amygdala neurons mediates stimulus-reinforcement learning. (2008) Massachusetts Institute of Technology, Cambridge, MA.

Rapid changes in phasic firing of amygdala neurons and strengthening of thalamo-amygdala synapses mediates cue-reward learning. (2009) Stanford University, Stanford, CA.

The formation and retrieval of cue-reward associations: Amygdala activity and synaptic strength. (2009) Harold M. Weintraub Graduate Student Award Symposium. Seattle, WA.

Dopamine gates learning-induced plasticity in a subset of synapses on amygdala neurons. (2009) 41st European Brain and Behavior Society Meeting. Rhodes Island, Greece.

Application of novel imaging and optogenetic techniques to dissecting the neural mechanisms underlying anxiety. (2010) Stanford University Post-Doctoral Award Symposium. Stanford, CA.

Optogenetic dissection of amygdala microcircuits underlying anxiety and reward. (2011) Tufts University, Boston, MA.

The neural basis underlying motivated behavior: From reward to anxiety. (2011) Massachusetts Institute of Technology, Cambridge, MA.

Neural mechanisms underlying conditioned reward-seeking behavior and unconditioned anxiety. (2011) Cornell University, Ithaca NY.

Novel optogenetic techniques to dissect neural circuits underlying motivated behaviors relevant to addiction and anxiety. (2011) University of California at San Francisco, Emeryville, CA.

The functional role of amygdala microcircuits in motivated behavior. (2011) Johns Hopkins University, Baltimore, MD.

Optogenetics: Development and Application. (2011) ***Keynote Lecture***: Belgium Society for Neuroscience. Leuven, Belgium.

Dissecting Anxiety Circuits: A Reverse Translation Approach. (2011) 50th Annual Meeting: American College for Neuropsychopharmacology, Waikaloa, HI.

Amygdala Microcircuits: Application of Optogenetic Tools. (2012) Winter Conference on Brain Research, Snowbird, UT.

A Causal Role for Dopamine in Depression. (2012) Winter Conference on Brain Research, Snowbird, UT.

Selective Manipulation and Visualization of Neural Circuits. (2012) Speaker and Symposium Co-Chair. Winter Conference on Neural Plasticity, St. Kitts & Nevis.

Applying Optogenetics to Study Psychiatric Disease. (2012) Plenary Lecture: Optogenetics and Pharmacogenetics in Neuronal Function and Dysfunction (Pre-SFN Conference). New Orleans, LA.

Brain Stimulation Methods in Basic Science. (2012) Kavli Foundation Frontiers of Science Symposia. Irvine, CA.

Dissecting the Neural Circuits Underlying Anxiety. (2012) ***Keynote Lecture***: 21st Annual Puerto Rico Society for Neuroscience. San Juan, PR.

A Causal Role for Dopamine Neurons in Depression-Related Behaviors. (2012) 51st Annual Meeting: American College for Neuropsychopharmacology, Hollywood, FL.

Differential Roles for Amygdala Projections in Anxiety. (2013) Seminar series: Harvard Brain Science Institute. Cambridge, MA.

Using Optogenetics to Understand Neural Circuits in Animal Models of Brain Disease. (2013) ***Keynote Lecture***: 5th Texas A&M Neuroscience Symposium. College Station, TX.

Dissecting the Neural Circuits Underlying Anxiety. (2013) Seminar: MacLean Hospital, Harvard Medical School. Belmont, MA.

Dissecting the Neural Circuits Underlying Anxiety. (2013) Neurobiology Seminar Series: University of Chicago. Chicago, IL.

Activating Dopamine Neurons Acutely Reverses a Stress-induced Depression-like Phenotype. (2013) Psychiatric Genetics and Translational Research Seminar: Massachusetts General Hospital. Boston, MA.

Optogenetic dissection of novel circuits that control anxiety-related behavior. (2013) Plenary Speaker and Symposium Chair: Optogenetics 2013 Meeting on Neuronal Function to Mapping and Disease Therapeutics. Waltham, MA.

Distinct function of basolateral amygdala neurons based on projection target. (2013) Session Speaker and Discussion Leader, Gordon Research Conference: Amygdala in health and disease. Stonehill College, Stonehill, MA.

Neural encoding dynamics of VTA-projecting lateral hypothalamic neurons during a reward-related task. (2013) Session Speaker: Catecholamines, Gordon Research Conferences, Mt. Snow. West Dover, VT.

Dissecting Neural Circuits Underlying Behaviors Relevant to Psychiatric Disease. (2013) National Institute of Health. Bethesda, MD.

Applying Optogenetics to Probing Animal Models of Brain Disease. (2013) Boston University School of Medicine. Boston, MA.

Dissecting Neural Circuits in Animal Models of Psychiatric Disease. (2013) Duke University. Durham, NC.

Dissecting Neural Circuits Underlying Behaviors Relevant to Psychiatric Disease. (2013) Harvard Medical School/Boston Children's Hospital. Boston, MA.

Neural Circuits Encoding Emotion and Motivation. (2013) University College of London. London, UK.

Distinct Amygdala Projections Mediate Different Behaviors. (2013) Molecular and Cellular Cognition Society. San Diego, CA.

Basolateral Amygdala Projections to the Ventral Hippocampus and Prefrontal Cortex in Anxiety-Like Behaviors. (2013) Symposium: "The Emotional Triad." Society for Neuroscience Meeting. San Diego, CA.

Dissecting Neural Circuits Underlying Behaviors Relevant to Psychiatric Disease in Animal Models. (2013) Massachusetts General Hospital/Health, Sciences & Technology Athinoula A. Martinos Center. For Biomedical Imaging. Charlestown, MA.

Optogenetic approaches to understanding motivated behaviors. (2013) Hong Kong University of Science and Technology. Clear Water Bay, Hong Kong.

Synapses Encoding Valence in the Amygdala. (2014) Neurobiology of Learning and Memory. Park City, UT.

Neural Circuits Mediating Motivated Behaviors. (2014) University of Minnesota. Minneapolis, MN.

Dissecting Neural Circuits Underlying Motivated Behaviors. (2014) University of Concordia, Center for Studies in Behavioral Neurobiology. Montreal, Canada.

Distinct Functions of Different Amygdala Projections on Emotional Valence. (2014) Wisconsin Symposium on Emotion: Neural bases of adaptive and maladaptive emotion regulation. Madison, WI.

Optogenetic Dissection of Neural Circuits Underlying Anxiety. (2014) American Psychiatric Association. New York, NY.

Optogenetic Probing of the mesocorticolimbic system. (2014) Neuroscience School of Advanced Studies. Causal Neuroscience: from synaptic plasticity to adaptive behavior. Cortona, Italy.

Distinct Amygdala Projections Control Opposing Behavioral Outputs. (2014) Neuroscience Seminars, Biological Discovery in Woods Hole. Woods Hole, MA.

Amygdala Projections in Unconditioned and Conditioned Valence. (2014) 9$^{th}$ Federation of European Neuroscience Societies Forum. Milan, Italy.

Distinct Amygdala Projections Control Opposing Behavioral Outputs. (2014) RIKEN Brain Science Institute Summer Program. Tokyo, Japan.

New Approaches in Understanding Neural Circuits in Stress and Cognition. (2014) Donders Institute Summer School. Nijmegen, Netherlands.

Decoding Neural Circuits that Control Compulsive Feeding. (2015) 30th Annual Sackler Winter Conference: in developmental psychobiology. Providenciales, Turks&Caicos Islands.

Neural Circuits that Process Emotional and Motivational Valence. (2015) Seminar: UT Health Science Center, San Antonio. San Antonio, TX.

Cellular Substrate for Social Isolation. (2015) Winter Conference on Brain Research. Big Sky, MT.

Neural Circuits in Emotional and Motivational Valence. (2015) Distinguished Speaker Series: University of Southern California, Dornsife. Los Angeles, CA.

New Insights into Valence Processing. (2015) Mount Sinai Hospital. New York, NY.

Neural Circuits Important for Valence Processing. (2015) University of Pennsylvania. Philadelphia, PA.

A Circuit Mechanism for Processing Valence. (2015) Motivational Circuits in Natural and Learned Behaviors. Janelia Research Campus, Loudoun County, VA.

Neural Circuits Important for Valence Processing. (2015) University of North Carolina. Chapel Hill, NC.

A conversation on attachment with Mark Epstein, Arlene Shechet and Kay Tye. (2015) The Rubin Museum, New York, NY.

Amygdala Circuitry in Valence Processing. (2015) Cold Spring Harbor Labs. Cold Spring Harbor, NY.

Neural Circuits Important for Valence Processing. (2015) Hotchkiss Brain Institute, Calgary, Canada.

Synaptic and activity changes in the amygdala with positive and negative valence processing. (2015) New York Stem Cell Retreat, Montauk, NY.

Divergent routing of valence-related information from the amygdala. (2015) Amygdala Gordon Research Conference, Stonehill, MA.

A neural substrate for loneliness. (2015) Duke Neurobiology Retreat. ***Keynote Lecture***. Wilmington, NC.

Neural Activity in Processing Positive and Negative Valence. (2015) 54th Annual Meeting: American College for Neuropsychopharmacology, Hollywood, FL.

Inhibitory Input from the Lateral Hypothalamus to the Ventral Tegmental Area Disinhibits Dopamine Neurons and Drives Motivated Behaviors. (2016) Neuronal Circuits, Cold Spring Harbor Labs, NY.

Dorsal Raphe Dopamine Neurons in Social Isolation. (2016) NYSCF Annual Meeting, Montauk, NY.

The Effect of Stress on the Dopaminergic System. (2016) MIT Picower Institute for Learning and Memory Spring Symposium 2016, Cambridge, Massachusetts.

Neural Circuits Important for Valence Processing. (2016) International IZKF Symposium. ***Keynote Lecture*.** Muenster, GERMANY.

Exploration of the Neural Circuits that Promote Overeating and Other Compulsive Behaviors. (2016) NIDDK Obesity Neuroscience Talks, Bethesda, Maryland

Dissecting the Functional Role of Dopamine Neurons in the Dorsal Raphe. (2016) Dopamine 2016, Vienna AUSTRIA.

Neural Circuits Underlying Positive and Negative Valence. (2016) University of Basel Seminar, Basel, SWITZERLAND

Translational Perspectives on Amygdala Circuitry. (2016) Roche Brain Talks, Basel, SWITZERLAND.

Neural Circuits Underlying Positive and Negative Valence. (2016) EPFL Life Sciences Seminar Series, Lausanne, SWITZERLAND.

Neural Mechanisms of Positive and Negative Emotional Valence. (2016) Boston College Colloquium, Chestnut Hill, MA.

Neural Circuits Important for Valence Processing. (2016) The Brain Conferences: New Insights into Psychiatric Disorders Through Computational, Biological, and Developmental Approaches, Copenhagen, DENMARK.

Neural Circuits Underlying Positive and Negative Valence. (2016) Bordeaux Neurocampus Conferences: Probing Neuronal Circuits During Behavior, Bordeaux, FRANCE.

Neural Circuits in Valence Processing. (2016) 4th Annual Molecular Psychiatry Meeting, Maui, Hawaii.

Neural Circuits Important for Valence Processing. (2016) Columbia Neuroscience Seminar, New York, New York.

A Corticoamygdala Circuit Encodes Observational Fear Learning. (2016) S4SN 2016 Annual Meeting, San Diego, California.

Simultaneous optical stimulation of dopamine terminals and imaging of calcium dynamics in the prefrontal cortex. (2016) Inscopix SFN Event. ***Keynote Lecture.*** San Diego, California.

Dopamine Biases Prefrontal Circuits Towards Aversion. (2016) SFN Neuroscience 2016, San Diego, California.

Neural Circuit Mechanisms Underlying Motivation and Emotion. (2016) MIT Alumni Association Event, San Diego, California.

Neural Circuits Underlying Positive and Negative Valence. (2016) University of California, Irvine Seminar.

Understanding Network-Level Interactions Across Large Scale Limbic Circuits. (2016) ACNP Annual Meeting, Hollywood, Florida.

Neural Circuit Mechanisms Underling Motivation and Emotion. (2016) National Yang-Ming University Seminar, Taipei, TAIWAN.

Neural Circuit Mechanisms Underling Motivation and Emotion. (2016) Academia Sinica Seminar, Taipei, TAIWAN.

Neural Circuit Mechanisms of Valence Encoding. (2017) Kavli Salon: Systems Neuroscience I (Circuit Mechanisms), Havana, CUBA

Neural Circuits Involved in Processing Emotional Valence. (2017) University of California - San Diego Neurosciences Seminar Series, San Diego, California

Neural Circuits Underlying Positive & Negative Valence. (2017) Stanford University Neuroscience Institute Seminar Series, Stanford, California.

Neural Circuits Underlying Positive & Negative Valence. (2017) Cosyne 2017, Salt Lake City, Utah.

Neural Circuits Underlying Positive & Negative Valence. (2017) Johns Hopkins Neuroscience Seminar, Baltimore, Maryland.

Neural Circuits Underlying Positive & Negative Valence. (2017) New York University Center for Neural Science Colloquium Series, New York, NY.

Neural Circuits of Emotional Valence: Competing Motivational Signals. (2017) 2017 Integrative Center for Learning and Memory ***Distinguished Lecture***, Los Angeles, CA.

Neural Circuits Underlying Positive & Negative Valence. (2017) Seminar at Yale University, New Haven, CT.

Neural Circuits Underlying Positive & Negative Valence. (2017) Learning, Memory, and Synaptic Plasticity Conference, Copenhagen, DENMARK.

Neural Circuits Underlying Positive & Negative Valence. (2017) Francis Crick Symposium - Transforming Neurosciences: Question & Experiments, Suzhou, CHINA.

Neural Circuits Underlying Positive & Negative Valence. (2017) The 28th International Forum on Frontiers of Neuroscience, Shanghai, CHINA.

Amygdala Inputs to Prefrontal Cortex Guide Behavior and Conflicting Cues of Reward and Punishment. (2017) NYSCF Innovator Retreat, Montauk, NY.

Dopamine in the PFC Increases Signal-to-Noise for Aversive Stimuli. (2017) Gordon Conference: Catecholamines, Newry, ME

Neural Circuits: Gaps and Opportunities. (2017) Workshop organized at NIMH. Bethesda, MD.

Dopamine in the PFC Increases Signal-to-Noise for Aversive Stimuli. (2017) Seminar: University of British Columbia, CANADA.

A neural substrate for social isolation and its relation to social rank. (2017) Symposium: Massachusetts Institute of Technology, Cambridge, MA.

Neural Circuits in Motivational Valence. (2017) Gairdner/York University Symposium: Neural Plasticity: Synapses to circuits. Toronto, CANADA.

Dissecting neural circuits in social homeostasis. (2018) Sackler Winter Conference on Developmental Psychobiology. Mauna Lani, HI.

Dopamine increases signal-to-noise ratio of cortico-brainstem neurons to aversive stimuli. (2018) 2nd Conference on the Neurobiology of Mental Health. Geneva, SWITZERLAND.

Neural Circuits in Motivational Valence. (2018) Department of Neurobiology at University of California, San Diego Seminar. San Diego, CA.

Amygdala Circuits in Valence Coding. Workshop: Computational affective neuroscience: algorithms for survival (2018). COSYNE, Breckenridge, CO.

Neural Circuits in Motivational Valence. (2018) Seminar, Salk Institute, San Diego, CA.

Neural Circuits in Motivational Valence. (2018) Seminar, University of California at San Francisco. San Francisco, CA.

Neural Circuits in Motivational Valence. (2018) ***Distinguished Lecture*** at University of Pittsburgh. (2018) Pittsburgh, PA.

Neural Circuits in Motivational Valence. (2018) Klingenstein-Simons Fellowship Awards Symposium. New York, NY.

Neural Circuits in Motivational Valence. (2018) Plenary at CAN, Canadian Neuroscience Meeting. Vancouver, British Columbia, CANADA.

Dopamine in the PFC Increases Signal-to-Noise for Aversive Stimuli. (2018) New York Stem Cell Foundation Innovators Retreat. Montauk, NY.

Dopamine in the PFC Increases Signal-to-Noise for Aversive Stimuli. (2018) Quantitative Biology meeting on Brains and Behavior: Order and Disorder in the Nervous System. Cold Spring Harbor Laboratory, New York.

Neural Circuits for Compulsive Sucrose Consumption. (2018) NIH High-Risk High-Reward Research Symposium. Bethesda, MD.

Neural Circuits for Valence Coding. (2018) McKnight Neuroscience Conference. Aspen, CO.

Neural Circuits Important for Valence Processing. (2018) University of Amsterdam, Swammerdam. Amsterdam, NETHERLANDS.

Dopamine in the PFC Increases Signal-to-Noise for Aversive Stimuli. (2018) Cognition Gordon Research Conference. Newry, ME.

Neural Circuit Motifs in Valence Processing. (2018) Plenary Lecture, 75th Anniversary of Schroedinger: What is Life? Trinity College. Dublin, IRELAND.

Neural Circuit Motifs in Valence Processing. (2018) Molecular Psychiatry. Kauai, HI.

Neural Circuit Motifs in Valence Processing. (2018) ***Keynote Lecture***, Women's Graduate Program. Brown University. Providence, RI.

Neural Circuit Motifs in Valence Processing. (2018) ***Keynote Lecture***, University of Connecticut Interdisciplinary Neuroscience Program. Storrs, CT.

A cortical-brainstem circuit predicts and controls the development of compulsive alcohol drinking. (2019) 2nd Munich Winter Conference on Stress. Munich, GERMANY.

Applying AI to study neural circuit mechanisms of social homeostasis in individuals and supraorganismal groups. (2019) Artificial Intelligence and the Brain: A Kavli Institute for Brain and Mind Symposium. University of California, San Diego. La Jolla, CA.

Neural circuit mechanisms of emotional and social processing (2019) New York Stem Cell Foundation Innovator Retreat. New York, NY.

What investigating neural pathways can reveal about mental health. (2019) TED@NAS. TED Institute hosted at the National Academy of Sciences, Washington, DC.

Novel Approaches to Studying Motivated Behavior (2019) Neuroscience Workshop Cutting Edge Seminar. NIDA/NIAAA, Rockville, MD.

Neural circuit mechanisms of emotional and social processing (2019) Seminar, University of California, Berkeley. Berkeley, CA.

Neural circuit mechanisms of emotional and social processing (2019) ***Award Lecture***. 5th Tsuneko & Reiji Okazaki Award. Nagoya, JAPAN.

Neural circuit mechanisms of emotional and social processing (2020) 10th Takeda Science Symposium on PharmaSciences. Osaka, JAPAN.

Defining and Investigating Fear and Why It Matters. (2020) Panel Member, Winter Conference on Neural Plasticity. Frigate Bay, ST. KITTS AND NEVIS.

Computational Approaches to Visualizing Cortical Activity States in Alcohol Drinking. (2020) Gordon Research Conference: Alcohol and the Nervous System. Galveston, TX.

Neural Circuit Mechanisms of Emotional and Social Processing. (2020) World Wide Neuroscience Seminar Series (Virtual).

Neural Circuit Mechanisms of Emotional and Social Processing. (2020) Wellesley College Seminar Series (Virtual).

Neural Representations of Social Homeostasis. (2020) Argentine Society for Neuroscience Annual Meeting (Virtual).

Neural Representations of Social Dominance. (2020) Salk Science by the Seaside Annual Meeting (Virtual).

Neural Representations of Social Dominance. (2020) University College London, Computational Psychiatry Seminar (Virtual).

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Neural representations of social rank and competitive success. (2020) University of Washington Neuroscience Seminar Series (Virtual).

The Neural Basis of Compulsive Alcohol Drinking: Contribution of Social Factors (2020) American College of Neuropsychopharmacology Annual Meeting (Virtual).

Neural Circuit Mechanisms of Emotional and Social Processing. (2021) NIH Neuroscience Seminar Series (Virtual).

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Neural Circuit Mechanisms of Social Homeostasis. (2021) 11$^{th}$ Annual Society for Social Neuroscience (S4SN) (Virtual).

Neuroadaptations of Social Isolation (2021) Salk Institute, Power of Science Event (Virtual).

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Neural Representations of Social Homeostasis. (2021) University of Texas, San Antonio, Neurobiology Seminar Series (Virtual).

Neural Circuit Mechanisms of Emotional and Social Processing. (2021) 15$^{th}$ Annual Amygdala, Stress, and PTSD Conference: Stress and the Mind (Virtual).

Neural Circuit Mechanisms of Emotional and Social Processing. (2021) Medical University of South Carolina, Neuroscience Colloquium Series (Virtual).

Neural Representations of Social Homeostasis. (2021) Mount Sinai Friedman Brain Institute Translational Neuroscience Seminar Series (Virtual).

Neural Representations of Social Homeostasis. (2021) Columbia University, Center for Theoretical Neuroscience Seminar Series (Virtual).

Neural Circuit Mechanisms of Emotional and Social Processing. (2021) ***Keynote Lecture*****,** International Behavioral Neuroscience Society (IBNS). Puerto Vallarta, MEXICO.

Neural Circuits of Motivational Valance Processing. (2021) The Flynn Lecture, Yale University, Department of Psychiatry (Virtual).

Neural Representations of Social Isolation and Rank. (2021) Brain Initiative Symposium on Social Behavior (Virtual).

Neural Circuit Mechanisms of Emotional and Social Processing. (2021) Max Planck Institute for Brain Research - Connecting Brains: A Worldwide Neuroscience Lecture Series (Virtual).

Neural Representations of Social Homeostasis. (2021) Frontiers in Neuroscience Seminar Series, Emory University (Virtual).

Neural Representations of Social Homeostasis. (2021) Centre for Developmental Neurobiology, NEUReka! Series, King's College London (Virtual).

Neural Underpinnings of Social Homeostasis. (2021) European Brain and Behavior Society (EBBS) Meeting (Virtual).

Neural Representations of Social Homeostasis. (2021) ***The Allen Institute Distinguished Seminar Series***, The Allen Institute (Virtual).

Neural Representations of Social Homeostasis. (2021) NIH Director's Afternoon Lecture Series, National Institutes of Health (Virtual).

The Neural Basis of Social and Emotional Processing. (2021) Science and Gender Equality Symposium SAGE3.0 (Virtual).

Neural Representations of Social Homeostasis. (2021) ***Keynote Lecture*****,** Gordon Research Conference: Cannabinoid Function in the CNS. Ventura, CA.

The Neural Representations of Social and Emotional Processes. (2022) Center for Mind, Brain, Computation and Technology Seminar Series, Stanford University (Virtual).

Neural Computations of Social Homeostasis. (2022) Cosyne, Lisbon, PORTUGAL.

Neural Representations of Social Homeostasis. (2022) Department of Pharmacology Seminar Series, University of Alberta, Canada (Virtual).

Neural Representations of Social Homeostasis. (2022) Penn-Franklin Institute Symposium, Philadelphia, PA.

Neural Representations of Social Homeostasis. (2022) Killam Research Seminar, Montreal Neurological Institute at McGill University, Montreal, Canada (Virtual).

Neural Representations of Social Homeostasis. (2022) ***James L. McGaugh Distinguished Seminar***, UC Irvine, CA (Virtual).

Neural Circuits Underlying Social Isolation Induced Increases in Alcohol Drinking. (2022) ***Plenary Lecture***: Research Society on Alcoholism, Orlando, Florida (Virtual).

Neural Representations of Social Homeostasis. (2022) ***Keynote Lecture***: Gordon Research Conference: Optogenetic Approaches to Understanding Neural Circuits and Behavior, Newry, ME.

Neurocircuitry of Social Homeostasis. (2022) Keystone Symposia, Daejeon, SOUTH KOREA.

Neural Representations of Social Homeostasis. (2022) HHMI Science Meeting, Chevy Chase, MD.

Neural Representations of Social Homeostasis. (2022) NIMH Scientific Training Day, Washington, D.C. (Virtual).

Neural Mechanisms of Social Homeostasis. (2023) Chen Institute Symposium, Pasadena, CA.

Neural Mechanisms of Social Homeostasis. (2023) ***Keynote Lecture***: JPB Foundation Symposium, New York, NY (Virtual).

How the PFC parses different timescales in socioemotional dimensions. (2023) Cosyne, Mont Tremblant, Canada.

Neural Mechanisms of Social and Emotional Processing. (2023) University of Washington Neurological Institute Seminar, Seattle, Washington.

Associative Learning: Solving the Valence Assignment Problem. (2023) ***Keynote Lecture***: International Conference on Learning and Memory 2023, Huntington Beach, CA.

Neural Mechanisms of Social Homeostasis. (2023) ***Plenary Lecture***: Society of Biological Psychiatry Annual Meeting 2023, San Diego, CA.

Associative Learning: Solving the Valence Assignment Problem. (2023) GRC: Amygdala Function in Cognition, Emotion and Disease 2023, Barcelona, Spain

Neural Mechanisms of Social Homeostasis. (2023) ***Award Lecture***: 6th David L. Garbers Memorial Award Lecture, University of Texas Southwestern Medical Center, Dallas, Texas

Neural Mechanisms of Social Homeostasis. (2023) **Nobel Symposium *The Social Brain***, Stockholm, Sweden

Neural Mechanisms of Social Homeostasis. (2023) ***Keynote Lecture:*** NIH 2nd Annual Investigator Meeting on Interoception Research, Bethesda, Maryland

Neural Mechanisms of Social Homeostasis. (2024) ***Distinguished Lecture Seminar Series:*** Duke University Cell Biology, Durham, North Carolina

Evolving a Toxic Hierarchy into a Sustainable Ecosystem. (2024) Cosyne**,** Lisbon, Portugal.

Psychedelics as a window to lifelong learning (2024) *Cosyne Workshop:* Cascais, Portugal

Longitudinal Visualization of Stress Induced Anhedonia (2024) Lake Conferences: The Neurobiology of Mental Health, Lake Thun, Switzerland

Neural Mechanisms of Social Homeostasis (2024) ***Plenary Lecture***: FENS Forum 2024, Vienna, Austria

Social Rank Modifies Associative Memories (2025) Winter Conference on Neural Plasticity: Nadi, Fiji

Neural Mechanisms of Social Homeostasis (2025) Southern California Learning & Memory Symposium: UCLA, Los Angeles, California

What makes us unique: Deconstructing the sources of individual differences (2025) Workshop organized at Cosyne, Mont Tremblant, Canada.

Neural Computations for Social Homeostasis. Workshop: The Dynamic Brain: Modeling Time-Varying Computations Underlying Natural and Innate Behaviors (2025). Cosyne, Mont Tremblant, Canada.

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## *Professional Services*

**Teaching:**
**At UCSD:** Neu 200B Systems Neuroscience
**At MIT:** 9.17 Systems Laboratory, 9.15 Neural Circuits and Neuromodulatory Systems, 9.011 Lecturer

**Committees and Service:**

**Graduate Admissions:** Systems track and Molecular/Cellular track (2012, 2013)
**Faculty Search:** Brain and Cognitive Sciences Department, Picower Institute; Center of Integrative Biology, Salk Institute
**Salk Institute/UCSD Committees:** Diversity and Inclusion Task Force, Campus Climate Advisory Committee, Academic Committee, Appointments Committee, Salk Fellows Search Committee Co-Chair (2020-2021), Salk Women & Science Advisory Committee, UCSD Altruism/Empathy Initiative Grant Review Committee, Senior Hiring Committee, Faculty Advisory Committee
**Thesis Committees:** 12 not including lab members
**Freshman Advisor**: 2014

**Journal Review:**
Nature, Science, Cell, Nature Neuroscience, Neuron, PNAS, Journal of Neuroscience, Nature Communications, Neuroscience, Physiology, Neuropsychopharmacology, Biological Psychiatry, Molecular Psychiatry, eLife, Cell Reports, Current Opinions on Neurobiology.

**Study Section:**
National Science Foundation (*Ad-Hoc*)
Neurobiology of Learning and Memory (LAM) *(Ad-Hoc)*
Social and Emotional Representation (*Ad-Hoc*)
K99 for NIMH (*Ad-Hoc*)
New Innovator Award, DP2 (*Ad-Hoc*)
NIMH Board of Scientific Counselors (*Standing Member*)
NIH Biobehavioral Regulation, Learning, and Ethology (Ad-Hoc)

**Other:**
SFN-Sponsored Social Chair: Optogenetics Social (2012, 2013)
Elected ACNP Associate Member in 2013, Full Member in 2014
SFN Member
Founding Chair of Optogenetics Gordon Research Conference (vice-chair 2016, chair 2018)
Elected Chair of Amygdala Gordon Research Conference (Elected 2015, vice-chair 2017, chair 2019)
Judge for the TR35 competition
Neuron Advisory Board
Integrative Neuroscience Initiative on Alcoholism: Stress and excessive drinking (INIAstress) External Advisory Board
Midwinter Grass Foundation Trustee Member
Reviewer for HHMI Freeman Hrabowski Scholars Program (2023-Present)
Reviewer for Leon Levy Scholarships in Neuroscience (2023)

**Scientific Council:**
Brain & Behavior Research Foundation (formerly NARSAD)

## *Funding Sources*

Howard Hughes Medical Institute
Dolby Family Fund
NIMH R37 MH102441