

Sean Meng

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Education

CALIFORNIA INSTITUTE OF TECHNOLOGY (CALTECH)

Doctor of Philosophy (PhD), Neurobiology

Pasadena, CA

HARVARD COLLEGE

A.B., Neurobiology (with *High Honors*). GPA: 3.9/4

Cambridge, MA

May 2026

PHILLIPS ACADEMY ANDOVER

High School Diploma. GPA: 5.83/6

Andover, MA

June 2022

Experience

Church Lab

Wyss/HMS

Boston, MA

Mar 2025 – Present

Undergraduate Researcher

- Working with George Church, PhD, and Juseong Lee, PhD, to design and construct high-capacity **gene delivery vectors** using restriction enzyme cloning and Gibson assembly.
- Culturing MRC-5, hs27, ARPE-19 cell lines for high-throughput transductions and gene expression analysis, **validating vector function** through fluorescence imaging and qPCR.

Sabatini Lab/

Stevens Lab

Boston, MA

HHMI/HMS/BCH

May 2023 – Present

Undergraduate Researcher

- Working with Bernardo L. Sabatini, MD PhD, Beth Stevens, PhD, and Kevin Mastro, PhD, to integrate behavioral analysis and fluorescence lifetime photometry (FLIP-R) to investigate **tonic/phasic Nucleus Accumbens (NAc) dopamine dynamics** in aged mice cohort.
- Investigated pyramidal neuron and **PV-interneuron excitatory/inhibitory (E/I) balance** and **reward-driven behavior** in adolescent/maturation mouse cohorts, utilizing fiber photometry and slice electrophysiology.
- Collaborated with visiting scholar Nathan Mallet (École Normale Supérieure) to investigate reward event-aligned dopaminergic signaling in the NAc in schizophrenia (GRIN2A KO) model mice.

Engrail Therapeutics

Intern

San Diego, CA

Apr 2023 – Jun 2023

- Worked with preclinical R&D and toxicology teams on ENX- 104 and 105, D2/D3 receptor antagonists for CNS disorders. Generated efficacy and safety datasets to support IND submission and gained exposure to IND- enabling pharmacology and regulatory processes. Supported clinical team in launching ENX-102, GABA(A) PAM, Phase II trial, developing e-protocol and site adherence details, and coordination with CROs.

Ratai Lab

MGH

Boston, MA

Undergraduate Researcher

Dec 2022 – May 2023

- Worked with Eva Ratai, PhD to investigate **early tumoral biomarkers** (NAA/Cho, Lac/NAA, ml/c-Cr) for predicting failure of antiangiogenic (Bevacizumab-based therapy) treatment in Recurrent Glioblastoma via MRSI.
- Collaborated with Gaab Lab (Boston Children's Hospital) on **BabyBOLD** study, detecting significant metabolite differences in dyslexia-inclined preschool-age subjects via MRSI.

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Haifan Lin Lab Yale Stem Cell Centre Summer Lab Intern

New Haven, CT
Jun 2019 – Aug 2019

- With guidance from Nils Neuenkirchen, PhD, supported ChIP-seq analysis and recombinant protein synthesis for **Piwi proteins and RNA Polymerase II regulation** project.

Yale Centre for Emotional Intelligence Research Intern and AI Courseware Developer

New Haven, CT
Jun 2019 – Sep 2021

- Brokered joint venture between China-based NetDragon Websoft and U.S.-based YCEI. Allocated budget of 40 employees in Graphic Design, AI development, Video production, etc. departments.
- Led building of **RULER training material into AI-courseware series @ NetDragon Websoft FuZhou campus** – combining human movement, speech, and expression replication technology with student feedback recognition capabilities to increase curriculum delivery scope and incorporate personalized learning.

Leadership & Activities

Harvard OpenBio Laboratory Founding Team, Co-President, former Co-Director of Engagement

Cambridge, MA
Feb 2023 – Present

- Established Harvard's **first independent student-run research laboratory** and built the operational backbone of the space, including BSL-1 workflows, standardized protocols, QC checkpoints, and training systems that ensure reproducibility across student-designed and executed experiments. **Led weekly lab meeting** across all in-house projects.
- Spearheaded inaugural **Explore incubator program**, secured independent funding from Emergent Ventures and Pillar VC, established dedicated lab space at SEAS, and support successfully published undergraduate projects like *'Utilizing Machine Learning Techniques to Identify Cilia and Cilia Attributes in Postmortem Tissue Samples.'*
- Launched **OpenBio x Khan Academy**, a collaboration to develop high-quality lab techniques video and grassroots biohackathon series, aiming to democratize research training and inspire the next generation of scientists.
- Built and directed the **Harvard Undergraduate OpenBio Laboratory Summer Research Institute (SRI)**, a free-of-cost program matching >200 underserved high school students to PhD mentors nationwide (Harvard, Yale, Stanford, Berkeley, Duke). Published an indexed special issue with *The Young Researcher*, featuring first-author student projects, amplifying early scientific voices.
- Developed **OpenBio LabMatch**, an annual program matching talented undergraduates to leading partner research labs, fostering direct mentorship and career growth in the life sciences.
- Led **Revolutionizing Life: Frontiers of Biotechnology Conference** (Spring 2025), **Future of Biology Conference** (Spring 2024), co-organized the **Future of Synthetic Biology Virtual Conference** (Spring 2023), creating global platforms for early-career researchers and industry leaders to share insights and advance collaboration. >1500 attendees from 17 countries; 20+ partner organizations (MIT, Stanford, Cornell, NYU, UToronto, UBC, Ashesi University, Imperial, RWTH Aachen, Synbio Indonesia, Biologica360 Pakistan, etc.)

Harvard College China Forum Co-Director of Programming

Cambridge, MA
Sep 2022 – Jun 2024

- Co-directed the **28th Annual China Forum (2024)**, defining program vision, discussion themes, and speaker roster, with a focus on China's role in global innovation, economic policy, and cross-border collaboration.
- Sourced and led the **27th Annual Conference (2023) Keynote Panel**, guiding conversations on US-China collaboration from **public policy, medical, legal, and investment angles**, bringing together thought leaders to explore critical challenges and opportunities.

Harvard Radcliffe Chinese Students Association; Asian American Brotherhood Secretary, Former Social Chair; Service Chair

Cambridge, MA
Sep 2022 – Present

- Organize weekly **Heat-n-Eats** meal packaging in collaboration with Harvard University Dining Services, providing consistent support for vulnerable populations in the Cambridge area.
- Coordinate youth education initiatives in Boston's Chinatown, supporting mentorship, academic enrichment, and cultural programming for underserved students.

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- Lead service initiatives for the Harvard Square Homeless Shelter, fostering a strong commitment to community support and direct impact.
- Organized cultural programming for AY 2023-2024, building inclusive spaces for celebration, connection, and cultural pride.

Phillips Academy Andover Student Body Co-President

Andover, MA
Sep 2021 – June 2022

- Campaigned in forum/debate/3 voting rounds
- Created the "Blue Plates Program" – working with multiple sponsors and through 2 fundraising rounds, secured \$10,000 in funding to execute a program that would bring connectivity between faculty and students and foster a greater sense of community at Andover.

Awards & Recognitions

Chen Graduate Fellow

Issued by Tianqiao and Chrissy Chen Institute for Neuroscience · July 2026

Thomas Temple Hoopes Prize

Issued by Harvard University (Hoopes Prize Committee) · May 2026

Top senior thesis at Harvard College. Awarded to senior thesis, "Rewired by Time: A Dopaminergic Account of Cognitive Flexibility Across the Mouse Lifespan".

National Science Foundation Graduate Research Fellowship Program (NSF GRFP)

Issued by The National Science Foundation · April 2026

Rhodes Scholarship (Finalist)

Issued by The Rhodes Trust · Nov 2025

Selected as a finalist for the Rhodes Scholarship. Participated in final-round interviews with the regional committee.

Yun Family Research Fellows Fund for Revolutionary Thinking

Issued by Harvard University (Committee of Yun Family Research Fellows Fund for Revolutionary Thinking) · Jan 2025

Awarded to Spring/Summer 2025 project "Decoding Cognitive Resilience in Aging: A Multimodal Investigation via Genes, Circuits, and Behavior"

TIME Fellowship

Issued by TIME Initiative in conjunction with the Academy for Health & Lifespan Research · Jan 2025

Talent accelerator of the aging field's next leaders to imagine what's possible, seed deep connections with peers and mentors, and drive the field of aging biology.

Kempner Institute KURE Fellowship

Issued by Harvard University (Committee of Kempner KURE) · Jan 2025

Awarded to Spring 2025 project "Tracking Cognitive Decline via Neural-Behavioral Data Integration"

Herchel Smith Fellowship

Issued by Harvard University (Committee of Herchel Smith Undergraduate Science Research Program) · Mar 2024

Awarded to Summer 2024 project "Delineating Contributions of PFC Inhibitory and Excitatory Inputs to Cognitive Resilience vs Decline"

Kempner Institute KRANIUM Fellowship (in tandem with PRISE)

Issued by Harvard University (Committee of Kempner KRANIUM) · Mar 2024

Awarded to Summer 2024 "Informing "Explore/Exploit" Balance through Insights from Age-Dependent PFC Circuit Modulation"

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Roberts Family Fellowship (Harvard University Technology Innovation Fellows)

Issued by Committee of Harvard University Roberts Family Tech Innovation Fellowship across Faculty of Arts & Sciences (FAS), Harvard John A. Paulson School of Engineering and Applied Sciences (SEAS) and Harvard Business School (HBS) · Mar 2024

Awarded to recognize and support building out Harvard Undergraduate OpenBio Laboratory and related initiatives with the overarching mission of fostering a collaborative community centered around biology that moves the world forward, through democratizing access to resources and education.

Kempner Institute KURE Fellowship

Issued by Harvard University (Committee of Kempner KURE) · Nov 2023

Awarded to Term-Time 2023-2024 “Informing “Exploration/Exploitation” Balance Through Decision-Making Algorithm Maturation in Mice”

John Harvard Scholar

Issued by Harvard University · Nov 2024

Awarded to students in the top 5 percent of their class based on academic year GPA, in recognition of outstanding academic achievement.

Publications

[PUBLICATION] Mastro K, Lee W-C, Wang W, **Meng S**, Stevens B, Sabatini B. Delayed developmental maturation of frontal cortical circuits impacts decision-making. *In Resubmission*.

[PUBLICATION] Mastro K, Melain A, Stanwicks L, **Meng S**, Stevens B, Sabatini B. Alterations in reward-based decision-making in mouse and marmoset across the lifespan. *In Prep*.

[PRESENTATION] Mastro K, Lee W-C, Wang W, **Meng S**, Lin Y, Johnson MB, Sabatini B, Stevens B. Age-related changes in prefrontal cortex drives cellular, circuit and reward-based decision making in mouse and marmoset. Nanosymposium presented at: Society for Neuroscience Annual Meeting (SfN); 2025 Nov; San Diego, CA, United States.

[POSTER] **Meng S**, Mastro K, Sabatini B. Informing “Exploration/Exploitation” Balance Through Decision-Making Algorithm Maturation in Mice. Poster session presented at: Harvard URAF Undergraduate Research Showcase; 2025 Apr; Cambridge, MA, United States.

[POSTER] **Meng S**, Mastro K, Sabatini B. “Exploration/Exploitation” Behavioral Tendencies Across Mouse Maturation. Poster session presented at: Harvard HUROS Fair; 2024 Sep; Cambridge, MA, United States.

[POSTER] **Meng S**, Lee W-C, Lord-Arond K, Mastro K, Wang W, Sabatini B. Identifying prefrontal cortex excitatory neural correlates to age-related shifts in decision-making strategy through fiber photometry system. Poster session presented at: Kempner Institute Symposium; 2024 Aug; Harvard University, Cambridge, MA, United States.

[POSTER] Mallet N, **Meng S**, Mastro K, Sabatini B. Development and pathophysiology of the dopaminergic system during adolescence and its role in cognitive flexibility in mice. Poster session presented at: Année de recherche pré-doctorale à l'étranger (ARPE) Poster Session; 2023 April; École Normale Supérieure Paris–Saclay, France. Affiliated with Harvard Medical School Department of Neurobiology, Howard Hughes Medical Institute, and École Normale Supérieure Paris–Saclay.