

GEORGIA PANAGIOTAKOS, Ph.D.

Sandler Faculty Fellow

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EDUCATION

Stanford University School of Medicine Ph.D., Neuroscience <i>Thesis: Electrical activity and cell fate specification in the normal developing brain and in neuropsychiatric disease</i>	01/2015
Massachusetts Institute of Technology B.S., Biology	06/2005

RESEARCH INTERESTS

I am a cellular, molecular and developmental neuroscientist focused on understanding the precise mechanisms by which neural stem cells integrate intrinsic and extrinsic signals to generate the diversity of cell types in the brain. These interests initially manifested in research conducted at Memorial Sloan Kettering Cancer Center, where we published a series of papers investigating the specification and *in vivo* integration of pluripotent stem cell derivatives in normal or diseased brain states. Using this background as a springboard, during my doctoral work at Stanford I initiated a novel research direction demonstrating a role for electrically-evoked calcium signals through a psychiatric disease-relevant calcium channel on the regulation of genetic programs specifying neuronal identity. Based on the broad implications of this work, I was selected to bypass postdoctoral training and launch my independent research program as a Sandler Faculty Fellow at the University of California, San Francisco. As an independent investigator, I have established a research team that is integrating a variety of complementary approaches to interrogate the roles of calcium signaling, electrical activity and ion channel splicing in sculpting brain development, with an eye towards understanding how these fundamental mechanisms are altered to give rise to neurodevelopmental disorders and co-opted in neurodegeneration and brain tumor formation.

RESEARCH EXPERIENCE

Sandler Faculty Fellow, University of California, San Francisco 2014–present
Department of Biochemistry and Biophysics, Broad Center of Regeneration Medicine

- As an independent investigator, established a research program focused on defining the cellular and molecular mechanisms by which calcium signaling orchestrates developmental transitions
- Interrogating cell type-specific roles for calcium signaling via the calcineurin/NFAT pathway on neuronal differentiation in the developing cortex
- Elucidating mechanisms by which intracellular calcium stores and store-operated calcium entry regulate embryonic neurogenesis
- Defining convergent defects in differentiation and calcium signaling across the autism spectrum
- Exploring the reactivation of developmental signaling mechanisms in adult neurological disorders

Our work to date has resulted in two senior author manuscripts (details in Publications section; most recent drafts of unpublished studies available on request) and various collaborations in and out of UCSF. We have been funded by the Sandler Foundation through the UCSF Program for Breakthrough Biomedical Research, the UCSF Pilot Award for Junior Investigators, the UCSF Broad Center for Regeneration Medicine and Stem Cell Research, the Simons Foundation, and most recently, our first NIH R01 and R56 grants through the National Institute of Mental Health.

Doctoral Student, Stanford University School of Medicine 2007–2015
Departments of Neurobiology and Neurosurgery
Advisors: **Ricardo Dolmetsch and Theo Palmer**

- Developed *in utero* electroporation platform to study calcium signaling in the embryonic cortex

- Discovered that calcium influx through a disease-relevant calcium channel reciprocally regulates the relative abundance of neuronal subtypes in the developing cerebral cortex
- In a collaboration with Thomas Portmann, used single-cell Fluidigm arrays to quantify cell type-specific striatal defects in a mouse model of *16p11.2* deletion syndrome
- Advised and trained lab members in the development of human stem cell-based platforms to study cellular phenotypes arising from disease-causing mutations *in vitro*

This work resulted in a total of 6 peer-reviewed publications and a first and corresponding author manuscript that was published in eLife. My graduate studies were funded through a Stanford University neuroscience fellowship and an NIH F31 predoctoral fellowship.

Research Assistant, Memorial Sloan Kettering Cancer Center, NY

2003–2007

Department of Neurosurgery

Advisors: **Viviane Tabar and Lorenz Studer**

- Spearheaded projects demonstrating *in vivo* integration of various mouse and human pluripotent stem cell derivatives, including skeletal myoblasts, neural progenitor cells, and neurons
- Used somatic cell nuclear transfer-derived dopaminergic neurons as cell replacement therapy to treat individual Parkinsonian mice
- Interrogated the long-term cellular effects of whole brain irradiation damage
- Developed novel organotypic explant models to investigate the functional interplay between different cell types in human brain tumors, including glioma stem cells, and to screen for therapeutic targets

This work resulted in a total of ten peer-reviewed publications, including articles in Nature Medicine, Nature Biotechnology, and Genes & Development.

Undergraduate Researcher, Massachusetts Institute of Technology, MA

2000–2003

Center for Biomedical Engineering

Advisor: **Shuguang Zhang**

- Performed experiments optimizing the use of self-assembling peptide hydrogels as a substrate for *in vitro* hepatocyte differentiation
- Performed experiments to test the efficacy of hydrogel-based scaffolds as permissive substrates for regeneration following lesions to the hamster optic tract

This work resulted in my first publication in 2003.

High School Intern, Memorial Sloan Kettering Cancer Center, NY

1998–1999

Department of Developmental Biology

Advisor: **Kathryn Anderson**

- Westinghouse Science Talent Search participant and Lockheed Martin Research Symposium finalist
- Used classical fly genetics to identify novel genes involved in innate immunity

RESEARCH FUNDING

Ongoing Research Support

11/2014–12/31/2021 *UCSF Faculty Fellow Support*

University of California, San Francisco

Sandler Foundation, Program for Breakthrough Biomedical Research Grant*Role: Principal Investigator*

The Sandler Faculty Fellows Program at UCSF provides salary support, a startup grant, and an annual research grant to launch my independent research career.

Sandler Fellows are small group leaders with Principal Investigator status.

12/2020–10/2025

Calcium-Dependent Regulation of Neural Fate in Development and Disease

National Institute of Mental Health

NIH R01 MH125004-01*Role: Principal Investigator*

The central objective of this proposal is to interrogate the mechanisms by which intracellular calcium signals link extracellular cues with intrinsic differentiation programs and to elucidate how alternative splicing refines these signals.

07/2021–07/2022 *Cell type signaling specificity of the neurodevelopmental disease-associated DYRK1A kinase*
 National Institute of Mental Health
NIH R56 MH127075-01
 (R01 selected by NIMH for 1 yr R56 funding, R01-A1 to be submitted in Nov)
Role: Principal Investigator
 The proposed research tests the ideas that NFAT transcriptional targets underlie deficits in stem cell maintenance and differentiation resulting from cortex-specific *Dyrk1a* inactivation (AIM 1), that DYRK1A and calcium signaling through CaN/NFAT play key roles in cortical astroglialogenesis (AIM 2), and that cell type specific NFAT targets contribute to DYRK1A signaling specificity (AIM 3)

Completed Research Support

09/2019–03/31/2021 *Calcium signaling and calcium channel diversity as regulators of human cortical development*
 University of California, San Francisco
Broad Center Seed Grant Award
Role: Principal Investigator
 Building on our work in mice, the purpose of this proposal is to begin to define the mechanisms by which intracellular calcium signals orchestrate human corticogenesis.

01/2018–12/2018 *Molecular tuning of intracellular calcium in differentiating embryonic neural progenitor cells*
 University of California, San Francisco
Pilot Award for Junior Investigators in Basic and Clinical/Translational Sciences
Role: Principal Investigator
 The major goals of this project were to elucidate how splice variants of the ER calcium sensor *Stim2* with opposing functions shape calcium signals in the developing brain, and how manipulating their levels impacts cell cycle exit during corticogenesis.

10/2017–10/2018 *Exploring calcium signaling defects in a mouse model of 16p11.2 deletion*
 Simons Foundation, Autism Research Initiative
SFARI Explorer Award
Role: Principal Investigator
 This study was aimed at exploring convergent defects in cortical neuron differentiation and calcium signaling in a 16p11.2 deletion mouse model.

Fellowships

06/2010–06/2013 *L-type calcium channel regulation of neuronal differentiation*
 National Institute of Mental Health
NIH F31 Predoctoral fellowship, #MH090648-01
Role: Principal Investigator, Doctoral Candidate
Mentors: Palmer/Dolmetsch

09/2009–06/2010 *Neuroscience Fellowship*
 Stanford University School of Medicine
 Institute for Neuro-Innovation and Translational Neurosciences
Frances B. Nelson Predoctoral fellowship
Role: Doctoral Candidate
Mentors: Palmer/Dolmetsch

HONORS & AWARDS

2012 Stanford University School of Medicine Graduate Education Teaching Award in recognition of excellence in teaching

2011 Member of United States delegation, 61st Lindau Meeting of Nobel Laureates

- 2010 Stanford University School of Medicine Graduate Education Teaching Award in recognition of excellence in teaching
- 1999 Finalist, Lockheed Martin Research Symposium

PUBLICATIONS

Peer-reviewed publications

- Braun S*, Petrova R*, Tang J, Krokhotin A, Miller E, Tang Y, and **Panagiotakos G¶**, Crabtree GR¶. BAF subunit switching regulates chromatin accessibility to control cell cycle exit in the developing mammalian cortex. Preprint *bioRxiv* 910794, <https://www.biorxiv.org/content/10.1101/2020.01.17.910794v1>; cover article, *Genes & Development*, 35(5-6): 335-353. **2021** Mar 1. PMID: 33602870. (**¶co-senior, co-corresponding author**)
- Panagiotakos G#**, Haveles C, Arjun A, Petrova R, Portmann T, Pasca S, Rana A, Palmer TD and Dolmetsch R. Aberrant calcium channel splicing drives defects in cortical differentiation in Timothy Syndrome. *eLife*, 2019; 8: e51037. **2019** Dec 23. PMID: 31868578. (**# corresponding author**)
– recommended in Faculty of 1000 (Andy Golden)
- Kaster DB, Ozuysal Y, **Panagiotakos G**, and Baccus SA. “Adaptation of Inhibition Mediates Retinal Sensitization.” Preprint *bioRxiv* 214130. *Current Biology*, S0960-9822(19)30841-3. **2019**. PMID: 31378605.
- Mayer S, Chen J, Velmeshv D, Mayer A, Eze UC, Bhaduri A, Cunha CE, Jung D, Arjun A, Li E, Alvarado B, Wang S, Lovegren N, Gonzalez ML, Szpankowski L, Leyrat A, West JAA, **Panagiotakos G**, Alvarez-Buylla A, Paredes M, Nowakowski TJ, Pollen AA, and Kriegstein AR. “Multimodal single-cell analysis reveals physiological maturation in the developing human neocortex.” *Neuron*, 102:143-158. **2019**. PMID: 30770253.
- Cheli VT, Santiago González DA, Zamora NN, Lama TN, Spreuer V, Rasmusson RL, Bett GC, **Panagiotakos G**, and Paez PM. “Enhanced oligodendrocyte maturation and myelination in a mouse model of Timothy syndrome.” *Glia*, 66:2324-2339. **2018**. PMID: 30151840.
- Birey F*, Andersen J*, Makinson CD*, Islam I, Wei W, Huber N, Fan CH, Metzler KRC, **Panagiotakos G**, Thom N, O’Rourke NA, Steinmetz LM, Bernstein JA, Hallmayer J, Huguenard JR, and Pasca SP. “Assembly of functionally-integrated forebrain spheroids from human pluripotent cells to study development and disease.” *Nature*, 545:54-59. **2017**. PMID: 28445465.
– comment in: Camp JG & Treutlein B. *Nature*, 2017 May 3; 545: 39-40, and Thodeson DM & Hsieh J. *Epilepsy Curr*, 2017 Sept-Oct; 17: 311-313.
- Leone DP, **Panagiotakos G**, Heavner WE, Joshi P, Zhao Y, Westphal H, and McConnell SK. “Compensatory actions of Ldb adaptor proteins during corticospinal motor neuron differentiation.” *Cereb Cortex*, 27:1686-1699. **2017**. PMID: 26830346.
- Portmann T, Yang M*, Mao R*, **Panagiotakos G***, Ellegood J, Dolen G, Bader PL, Grueter BA, Gould C, Fisher E, Clifford K, Reengarajan P, Kalikhman D, Loureiro D, Saw NL, Zhengqui Z, Miller MA, Lerch JP, Henkelman M, Shamloo M, Malenka RC, Crawley JN, and Dolmetsch R. “Behavioral abnormalities and circuit defects in the basal ganglia of a mouse model of 16p11.2 deletion syndrome.” *Cell Reports*, 7:1077–92. **2014**. PMID: 24794428. (***signifies equal contributions**)
- Yucel G, Altindag B, Gomez-Ospina N, Rana A, **Panagiotakos G**, Lara MF, Dolmetsch R, and Oro AE. “State-dependent signaling by Ca_v1.2 regulates hair follicle stem cell function.” *Genes & Development*, 27:1217-1222. **2013**. PMID: 23752588. (cover article).
– preview in *Genes & Development Perspective* “The incidental pore: Ca_v1.2 and stem cell activation in quiescent hair follicles” by Pierre Coulombe and Michael Caterina
- Gomez-Ospina N, **Panagiotakos G**, Portmann T, Pasca SP, Rabah D, Budzillo A, Kinet JP, and Dolmetsch R. “A promoter in the coding region of the calcium channel gene CACNA1C generates the transcription factor CCAT.” *PLoS One*, 8:e60526. **2013**. PMID: 23613729.
- Osterhout JA, Josten N, Yamada J, Pan F, Wu SW, Nguyen PL, **Panagiotakos G**, Inoue YU, Egusa SF, Volgyi B, Inoue T, Bloomfield SA, Barres BA, Berson DM, Feldheim DA, and Huberman AD. “Cadherin-6 mediates axon-target matching in a non-image-forming visual circuit.” *Neuron*, 71: 632-639. **2011**. PMID: 21867880.
– recommended in Faculty of 1000 (Tina Schwabe and Tom Clandinin)
– comment in: Rebsam A & Mason CA. *Neuron*, 2011 Aug 25; 71: 566-568.
- Hovinga KE, Wang R, Shimizu F, **Panagiotakos G**, Van Der Heijden M, Moayedpardazi H, Correia AS, Soulet D, Major T, Menon J, and Tabar V. “Inhibition of Notch signaling in glioblastoma targets

- cancer stem cells via an endothelial cell intermediate." *Stem Cells*, 28:1019-29. **2010**. PMID: 20506127.
13. Tabar V, Tomishima M*, **Panagiotakos G***, Wakayama S, Menon J, Chan B, Mizutani E, Al Shamy G, Ohta H, Wakayama T, and Studer L. "Therapeutic cloning in individual parkinsonian mice." *Nat Med*, 14:379-381. **2008**. PMID: 18376409. (***signifies equal contributions**)
 14. Elkabetz Y, **Panagiotakos G**, Al Shamy G, Socci ND, Tabar V, ,and Studer L. "Human embryonic stem cell-derived neural rosettes reveal a functionally distinct early neural stem cell stage." *Genes & Development*, 22:152-165. **2008**. PMID: 18198334. (cover article).
– recommended in Faculty of 1000 (Claudio Stern)
 15. Lee G, Elkabetz Y*, Kim H*, Al Shamy G, **Panagiotakos G**, Barberi T, Tabar V, and Studer L. "Prospective isolation and directed differentiation of human embryonic stem cell-derived neural crest stem cells." *Nat Biotech*, 25:1468-75. **2007**. PMID: 18037878.
 16. **Panagiotakos G**, Al Shamy G, Chan B, Abrams R, Greenberg E, Saxena A, Bradbury M, Edgar M, Gutin P, and Tabar V. "The long-term impact of whole brain irradiation on the neural stem cell and oligodendrocyte precursor compartments." *PLoS One*, 2:e588. **2007**. PMID: 17622341.
 17. Bradbury M, **Panagiotakos G**, Chan BK, Tomishima M, Zanzonico P, Vider J, Ponomarev V, Studer L, and Tabar V. "Optical bioluminescence imaging of human embryonic stem cell progeny in the CNS." *J Neurochem*, 102: 2029-2039. **2007**. PMID: 17555555.
 18. Lee H, Al Shamy G, Elkabetz Y, Schoefield CM, Harrison N, **Panagiotakos G**, Socci ND, Tabar V and Studer L. "Directed differentiation and transplantation of human embryonic stem cell derived motoneurons." *Stem Cells*, 25:1931-9. **2007**. PMID: 17478583.
 19. Barberi T, Bradbury M*, Dincer Z*, **Panagiotakos G**, Socci ND, and Studer L. "Derivation of engraftable skeletal myoblasts from human embryonic stem cells." *Nat Med*, 13:642-648. **2007**. PMID: 17417652
 20. Park CH, Kang JS, Shin YH, Chang MY, Chung S, Koh HC, Zhu MH, Oh SB, Lee YS, **Panagiotakos G**, Tabar V, Studer L, and Lee SH. "Acquisition of in vitro and in vivo functionality of Nurr1-induced dopamine neurons." *FASEB J*, 20:2553-5. **2006**. PMID: 17077287.
 21. Tabar V, **Panagiotakos G**, Greenberg E, Chan BK, Sadelain M, Gutin P, and Studer L. "Migration and differentiation of neural precursors derived from human embryonic stem cells in the adult rat brain." *Nat Biotech*, 23:601-6. **2005**. PMID: 15852001.
– recommended in Faculty of 1000 (Arturo Alvarez-Buylla)
 22. Semino C, Merok J, Crane GG, **Panagiotakos G**, and Zhang S. "Functional differentiation of hepatocyte-like spheroid structures from putative liver progenitor cells in three-dimensional peptide scaffolds." *Differentiation*, 71:262-270. **2003**. PMID: 12823227.

Reviews

23. Pasca SP#, **Panagiotakos G#**, and Dolmetsch R#. "Generating human neurons in vitro and using them to understand neuropsychiatric disease." *Annu Rev Neurosci*, 37:479–501. **2014**. PMID: 25002278. (**# co-corresponding author**)
24. **Panagiotakos G** and Tabar V. "Brain cancer stem cells." *Curr Neurol and Neurosci Reports*, 7:215-220. **2007**. PMID: 17488587.

Manuscripts in revision/submission/preparation (current versions available on request)

25. Petrova R, Arjun A, Wu B, Torres T, Hamid S, Delgado R, Ki C, Keefe M, Su Z, Qiu L, Pedrozo V, Pippin H, Kriegstein AR, Nowakowski TJ, Ellegood J, Lerch JP, Lim D, Graef I, Darmanis S & **Panagiotakos G**[¶]. The disease-associated DYRK1A kinase regulates cortical development via cell type-specific modulation of calcium signaling. *Being finalized for submission; to be posted shortly on bioRxiv*. (**¶ senior, corresponding author**)
26. Arjun A, Petrova R, and **Panagiotakos G**[¶]. Open channels to neurological disease: Calcium and activity-dependent signaling in the developing cortex. Invited review, *being finalized for submission, Development*. (**¶ senior, corresponding author**)
27. **Panagiotakos G**^{¶¶} and Pasca SP[¶]. A matter of space and time: emerging roles for disease-associated proteins in neural development. Perspective, *submitted, Neuron* (**co-corresponding authors**).

SELECTED PRESENTATIONS

Invited Oral Presentations

1. "O Ca⁽²⁺⁾ptain! My Ca⁽²⁺⁾ptain! Dynamic regulation of intracellular signaling during cortical development." *Stanford University Frontiers in Biology Seminar Series, June 2021*.
2. "Calcium channel signaling in cortical development and disease." *UCSF Developmental and Stem Cell Biology Symposium, 2017*.
3. "The self-sculpting brain." *10th World Conference of Science Journalists, 2017*.
4. "Advances in autism research." Panelist, *MIT Alumni Faculty Forum, 2016*.
5. "Defining the role of voltage-gate calcium channels in regulating neurogenesis." *UCSF Faculty Fellow Applicant Seminar, 2013*.
6. "A function for the disease relevant L-type calcium channel Ca_v1.2 in early brain development and neuronal differentiation." *Stanford Institute for Neuro-Innovation and Translational Neurosciences Annual Retreat, 2013*.
7. "How does Ca_v1.2 regulate neural development?" *Stanford Neurosciences Program Recruitment Weekend, 2011*.
8. "Human embryonic stem cell-derived neural precursors integrate into the subventricular zone and contribute to the adult neural stem cell pool." *Cornell University Department of Neurosurgery Research Conference, 2005*.

Poster Presentations (*signifies presenting author)

1. Arjun A*, Tong J, Launer S, Pedrozo V, Petrova R, Khan Y, Rana A and **Panagiotakos G**. "Dissecting the roles of Store-Operated Calcium Entry during the development of the mammalian cerebral cortex". *International Society for Stem Cell Research Conference, 2021*.
2. Arjun A*, Launer S, Tong J, Ahmadzada A, Petrova R, Dua P, Khan Y, and **Panagiotakos G**. "Dissecting the regulation and function of Store-Operated Calcium Entry during mammalian cortical development". *Society for Developmental Biology Annual Conference, 2019*.
3. **Merit Award Recipient:** Petrova R*, Arjun A, Wu B, Torres T, Qui L, Su Z, Ki C, Pippin H, Ellegood J, Graef I, Darmanis S, and **Panagiotakos G**. "Mouse cortex-specific deletion of *Dyrk1a* causes differentiation defects in developing neurons via modulation of calcium/Ca_N/NFAT signaling". *International Society for Stem Cell Research Conference, 2019*.
4. Petrova R*, Pippin H, Arjun A, and **Panagiotakos G**. "Defining the role of L-type calcium channels in gliogenesis and neurodegeneration". *Keystone Symposium, Neurodegenerative Diseases: New Insights and Therapeutic Opportunities, 2019*.
5. Petrova R, Arjun A*, Wu B, Torres T, Su Z, Ki C, Pippin H, Graef I, Darmanis S, and **Panagiotakos G**. "Uncovering cell type-specific roles for the L-type calcium channel/calcineurin/NFAT signaling axis in cell fate determination during cortical neurogenesis". *Society for Developmental Biology West Coast Regional Meeting, 2019*.
6. Petrova R*, Torres T, Arjun A, Wu B, Ki C, Su Z, Darmanis S, and **Panagiotakos G**. "Defining the Role of L-Type Calcium Channels and Calcineurin/NFAT Signaling in Neuronal Specification". *Society for Neuroscience Conference, 2018*.
7. Arjun A*, Tong J, Launer S, Petrova R, Khan Y, Rana A, Dua P, and **Panagiotakos G**. "Dissecting the roles of store-operated calcium entry during development of the cerebral cortex." *Society for Neuroscience Conference, 2018*.
8. Petrova R*, Pippin H, Arjun A, and **Panagiotakos G**. "Defining the role of L-type calcium channels in astroglial development and disease." *CSHL Glia in Health and Disease, 2018*.
9. **Panagiotakos G***, Pasca S, Portmann T, Palmer T, and Dolmetsch R. "Examining the role of the disease relevant exon 8A of Ca_v1.2 in neural development." *Cortical Development Conference, 2011*.
10. **Panagiotakos G***, Krey JF, Palmer TD, and Dolmetsch R. "The Timothy Syndrome mutation in Ca_v1.2 alters differentiation and migration of cortical progenitors." *Society for Neuroscience Conference, 2009*.
11. **Panagiotakos G***, Al Shamy G, Chan B, Abrams R, Bradbury M, et al. "Radiation results in early loss of oligoprogenitors and delayed demyelination in the rodent and human brain." *Society for Neuroscience Conference, 2007*.
12. **Panagiotakos G**, Chan B, Greenberg E, Studer L, and Tabar V. "Human embryonic stem cells contribute to the adult neural stem cell pool." *Society for Neuroscience Conference, 2004*.

PROFESSIONAL MEMBERSHIPS

Society for Neuroscience
Society for Developmental Biology

MENTORING EXPERIENCE

Postdoctoral Fellows

Ralitsa Petrova, UCSF 2016–10/2020
 Recipient, Larry L. Hillblom Foundation (LLHF) Postdoctoral Fellowship, 2017-2020
 Recipient, LLHF John S. Spice Award in Aging, 2018
Fellowship Title: Defining the Role of Calcium Channels in Astrocyte Function and Neurodegeneration
 Recipient, ISSCR Abstract Merit Award, 2019
Currently: Senior Scientist, TEVA Pharmaceuticals

Graduate Students

Arpana Arjun, UCSF 2016–present
 Developmental and Stem Cell Biology Graduate Program
 Recipient, Honorable Mention, Dean's Award for Excellence in Mentoring for Graduate Students, 2019

Tony Qu, UCSF (co-mentored with Licia Selleri) 2020–present
 Orofacial Sciences Graduate Program

Undergraduate Students

Ahmad Ahmadzada, University of California, Berkeley 2018–2019

Zachary Su, University of California, Berkeley 2017–2019
Currently: Member, Americorps NCCC

Poorvi Dua, University of California, Berkeley 2018–2019
Currently: Visiting Researcher, Gladstone Institutes

Hayley Pippin, University of California, Berkeley 2017–2019
Currently: Senior Fellow, NASA Ames Research Center

Chris Ki, University of California, Berkeley 2016–2019
Senior Thesis Title: Effects of modulating CaN/NFAT signaling on migration and differentiation in the developing cerebral cortex
Currently: Graduate Student, Carnegie Mellon Neural Computation Program

Elaine Fisher, Stanford University (PI: Dolmetsch) 2013–2014
Currently: Graduate Student, Harvard Medical School

Alex Uphill-Brown, Stanford University (PI: Dolmetsch) 2011–2011
Senior Thesis Title: Investigating the different roles of two isoforms of Ca_v1.2 containing the mutually exclusive exons 8 and 8A
Currently: Orthopedic Surgery Resident, UCLA School of Medicine

Research Technicians

Vicente Pedrozo, UCSF 2019–present

Teresa Torres, UCSF 2017–2019
Currently: Graduate Student, Vanderbilt University School of Medicine, Microbe-Host Interactions Program

Sasha Launer, UCSF 2017–2019
Currently: Clinical Research Coordinator, UCSF School of Medicine

Christos Haveles, UCSF 2015–2017
Currently: Resident, Wright State University, Plastic Surgery Residency Program

Community College Interns

Enrique Barajas (Diablo Valley Community College), UCSF 2018–2019
Currently: Undergraduate Student, UCLA

Jonathan Tong (City College of San Francisco, Biotechnology Program) 2017–2018
Currently: Staff Research Associate, UCSF

High School Students

Yasmeena Khan, UCSF 2017–2018
Currently: Undergraduate Student, Stanford University

TEACHING

Instructor, University of California, San Francisco 2020–present
 Course: Basic Concepts in Cellular and Molecular Neuroscience (Neuro 201A)

Responsibilities: Deliver a two-hour capstone lecture on ion channels in development and disease.

Instructor, University of California, San Francisco 2017–present

Course: Developmental and Stem Cell Biology (DSCB 257)

Responsibilities: Invited annually to design and deliver a one-hour lecture to graduate students on neural stem cells and embryonic brain development, consistently receiving excellent reviews by course directors and students.

Invited Lecturer, Stanford University School of Medicine 2015–present

Course: The Nervous System (NBIO 206)

Responsibilities: Invited annually to design and deliver two 50-minute lectures on the peripheral nervous system and (as of 2017) the spinal cord to approximately 100 medical and graduate students. In this role, I have been consistently ranked among the best lecturers.

Instructor, University of California, San Francisco 2019–2020

Course: Organ Systems and Human Pathophysiology I (BMS118)

Responsibilities: Delivered a two-hour introductory lecture on oxidative metabolism.

Faculty Discussion Leader, University of California, San Francisco 2019–2020

Course: Investigating Human Biology and Disease (BMS 225B)

Responsibilities: Guided group discussions of recently published scientific papers with emphasis placed on analysis of experimental design, key findings and future studies.

Invited Lecturer, Stanford University School of Medicine 2015–2018

Course: Neural Development Core Course (NEPR 202)

Responsibilities: Developed the curriculum with the original course instructor. Designed and delivered three one-hour lectures to graduate students annually on principles underlying the development of the cerebral cortex. I have received uniformly positive feedback from both the students and the course instructors for these lectures.

Co-instructor, University of California, San Francisco 2015

Course: Introduction to Systems and Behavioral Neuroscience (Neuroscience 201C)

Responsibilities: Participated in teaching the human neuroanatomy lab for the introductory systems neuroscience course in the UCSF neuroscience graduate program.

Invited Lecturer, Stanford University 2013

Course: Social and Ethical Issues in the Neurosciences (Neurobiology 201)

Responsibilities: Delivered a one-hour introductory lecture providing a broad overview of human neuroanatomy, brain function and disease for this seminar course aimed at undergraduate and graduate students.

Head Teaching Assistant/Lecturer, Stanford University School of Medicine 2010-2012

Course: The Nervous System (NBIO 206)

Responsibilities: Directed the laboratory portion of this course. Supervised twelve lab teaching assistants in implementing a curriculum encompassing basic neuroanatomy through the development of higher order circuits; designed the midterm and final exams; and prepared and delivered 4-5 lectures on the anatomy of the spinal cord, brainstem and ascending/descending tracts, motor systems and sensory systems. For this work, I was recognized twice across all departments of the School of Medicine with their highest teaching honor, as the recipient of the *Graduate Teaching Award*.

Laboratory Teaching Assistant, Stanford University School of Medicine 2009

Course: The Nervous System (NBIO 206)

Responsibilities: Directed eight neuroanatomy lab sessions for approximately 20-30 graduate and medical students over the course of eight weeks.

Teaching Assistant, Stanford University School of Medicine 2008

Course: Stem Cells and Regenerative Medicine

Responsibilities: During my first year as a graduate student, I served as a teaching assistant for this graduate and medical student course. In this capacity, I supervised weekly discussion sessions; designed and graded weekly problem sets; and critiqued final presentations.

SERVICE, DIVERSITY ENGAGEMENT AND OUTREACH

Diversity, Equity and Inclusion Champion Training, UCSF School of Medicine 2020

Confronting Anti-Black Racism on College Campuses 2020

Two-Day Professional Development Training for Educators, Stanislaus State University

MIT Alumni Advisor Hub 2018–present

Provide mentorship and career advice to current and former MIT students

Thesis/Qualifying Exam Committee member , DSCB and PSPG graduate programs (6 students)	2017–present
Faculty Supervisor, Broad Center Imaging Core , UCSF Parnassus Campus	2015–present
Keynote Speaker , <i>Generation Sci Conference for the Next Generation of Scientists</i> Delivered a lecture at Stanford University for over 150 community college students with an interest in pursuing majors in STEM fields at 4-year colleges	2018
Invited Speaker , <i>World Science Journalism Conference</i>	2017
Invited Speaker , <i>Bay Area “Taste of Science” Festival</i>	2017
Invited Speaker , <i>Sunset Heights Association of Responsible People</i>	2016
Instructor , <i>Expanding Your Horizons</i> Designed neuroscience workshops for a one-day math-science conference for 6th to 12th grade girls at Skyline College	2010
Neuroscience Instructor , <i>Stanford Institutes of Medicine Research Program</i> Designed a neuroscience curriculum, delivered lectures and reviewed applications for this eight-week long high school summer research program.	2008–2013
Lecturer , <i>Stanford Explore Program</i>	2008–2013
Director , <i>Harvard/MIT Hippocratic Societies</i> Organized international conferences on various topics in biomedical sciences aimed towards undergraduate students: 2003 Conference on Neuroscience, 2002 Conference on Infectious Disease, 2001-2002 Lecture Series on International Health and Public Health Policy, Harvard/MIT Hippocratic Societies	1999–2003
Speakers Committee Chair , <i>Harvard/MIT Hippocratic Societies</i> 2001 Conference on Biotechnology	2001