

## **Autumn S. Ivy, MD, PhD**

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### **PROFESSIONAL APPOINTMENTS:**

**Assistant Professor, Departments of Neurology and Neurodevelopmental Medicine  
Director, BRAVE<sup>2</sup> Neuroscience Research Lab**

**Attending Pediatric Neurologist (March 2024 – present)**

Kennedy Krieger Institute  
Johns Hopkins School of Medicine

**Assistant Professor, tenure-track (July 2017 – February 2024)**

Step IV, Department of Pediatrics, University of California- Irvine (UCI) School of Medicine

Joint Appointments: Departments of Neurology, Anatomy/Neurobiology, Physiology / Biophysics, Neurobiology/Behavior

**Attending Pediatric Neurologist (March 2018 – January 2024)**

UC Irvine Medical Center  
Children's Hospital Orange County (CHOC), Division of Neurology

### **EDUCATION:**

**Lucile Packard Children's Hospital, Stanford Hospitals and Clinics - Stanford, CA**

*Combined Pediatric and Child Neurology residency program: July 2012 – June 2017*

*Pediatric Residency: Completed June 2014*

*Child Neurology Fellowship: July 2014 – June 2017*

**University of California-Irvine Medical Scientist Training Program – Irvine, CA**

*Medical Scientist Training Program: July 2004 – June 2012*

*PhD: awarded December 2010*

*MD: awarded June 2012*

**California State University, Los Angeles – Los Angeles, CA**

*Tuition fully supported by: NIH-NIGMS Minority Biomedical Research Support (MBRS), 1999-2000; Minority Access to Research Careers (MARC-U\*STAR) training program, 2000–2002; and the Arnold and Mabel Beckman Scholars Program, 2002-2004.*

*Bachelor of Science: General Biology; Magna Cum Laude, awarded June 2004*

*Licensure and certification:*

California: Medical Licensure: #A126865

Maryland: Medical Licensure: #D0101347

Current Board Certification:

American Board of Psychiatry and Neurology, Special Qualifications in Child Neurology  
(September 2017)

**RESEARCH FUNDING:**

- July 2023 – April 2026 NIMH U24 Award: *UC Irvine Center for the production and distribution of cell-type-specific viral targeting reagents*  
Role: Co-Investigator (PI: Xiangmin Xu)  
Amount: \$3.8M
- July 2020 – June 2024 Robert Wood Johnson Foundation, AMFDP Fellowship  
(Four-year Career Development Award)  
Project title: *"Adolescent exercise following chronic early-life stress: Models, mechanisms, and translation."*  
Role: PI  
Amount: \$420,000
- Dec 2021 – Dec 2024 UC-HBCU Initiative: Neuroscience Summer Institute and Graduate Admission Pathways (in partnership with Delaware State University)  
Role: PI  
Amount: \$595,000
- Dec 2021 – Dec 2023 Child Neurology Foundation PERF Elterman Research Award  
Project title: *"Targeting Epigenetic Mechanisms of Exercise to Preserve Cognitive Function After Early-Life Adversity."*  
Role: PI  
Amount: \$100,000
- August 2021 – July 2022 Children's Hospital Orange County (CHOC) CSO Small Grants Program  
Project Title: *"Identifying Targetable Epigenetic Mechanisms of Early-Life Seizures and Exercise Intervention"*  
Role: PI  
Amount: \$43,000
- May 2021 – April 2022 Robert and Sylvia Mapel Research Innovation Award  
Project title: *"Early-life Exercise Modulates the Neuronal Chromatin Landscape to Enable Memory Performance."*  
Role: PI  
Amount: \$20,000
- July 2017- June 2020 NIH-NINDS Child Neurologist Career Development Award

(K12 NS098482)  
Project title: *"Epigenetics of early-life exercise and cognition"*  
Role: PI  
Amount: \$460,000

Feb 2020 - Feb 2021      Conte Center @ UCI Seed Grant  
Project title: *"Can adolescent exercise 'treat' early-life adversity? Identifying epigenetic targets using the Emx-NuTRAP mouse model."*  
Role: PI  
Amount: \$25,000

March 2019-June 2020      UCI Institute for Clinical and Translational Sciences Pilot Project Award  
Project Title: *"Early-life exercise rescues cognitive impairments after chronic early-life stress: Epigenetic mechanisms in preclinical models."*  
Role: PI  
Amount: \$25,000

June 2015 – Dec 2016      Neuroscience Scholars Track, Clinical Fellow, Tony Wyss-Coray Laboratory, Stanford University

Jan 2009 – Jan 2012      Pre-doctoral NRSA, NIMH (F31 MH087467)  
Project Title: *"Mechanisms of the effects of early-life stress on cognitive function."*

### **HONORS and AWARDS:**

1999      Minority Biomedical Research Support (MBRS) Program, CSULA  
2000      Minority Access to Research Careers (MARC)\*U-STAR Program, CSULA  
2002      Minority International Research Training program, Oxford University, UK  
2003      Arnold and Mabel Beckman Scholars Program  
2004      Outstanding Senior Award, Graduating Class of 2004, CSULA  
2005      Sigma Xi Award for Outstanding Research Presentation, MSTP Retreat  
2009      Rebecca Lee, MD Scholarship, Association of Black Women Physicians  
2010      Dean's Service Award, UC Irvine SOM  
2012      Graduation with Distinction in Neurology and Research, UC Irvine SOM  
2013      New Century Scholar, Academic Pediatrics Association (APA)  
2015      Travel Award, Pellock Child Neurology Residents Seminar in Epilepsy  
2016      Young Investigator Award, Neurobiology of Disease in Children (NDC), Child Neurology Society  
2017      UCI ADVANCE Career Development Award, Faculty Success Program  
2019      Robert Wood Johnson Foundation, Amos Medical Faculty Development Program (AMFDP) Career Development Award

- 2020 Service in Social Justice Award, Department of Neurobiology & Behavior, UCI BioSci
- 2020 “Top-Performing Provider”, Children’s Hospital Orange County (CHOC)
- 2021 Travel Award to Enhance and Empower Diversity, International Brain Research Organization (IBRO)
- 2021 PERF Elterman Research Award, Child Neurology Foundation
- 2021 SOM Outstanding Early-Career Faculty Research Award (Runner up)
- 2022 UCI School of Medicine Teaching Award: Best Basic Science Lecturer

**INVITED LECTURES AND SEMINARS:**

*Research Seminars:*

- 2016 Speaker, Stanford Neurology Grand Rounds, Palo Alto, CA
- 2017 Speaker, Stanford Neurology Grand Rounds, Palo Alto, CA
- 2017 Speaker, Child Neurology Society Annual meeting, Kansas City, MO
- 2018 Speaker, UCI Epicenter Symposium, Irvine, CA
- 2018 Speaker, UCI Neurology Grand Rounds, Irvine, CA
- 2018 Speaker, UCLA Pediatric Traumatic Brain Injury meeting, Los Angeles, CA
- 2018 Speaker, UCI Camp Neuro, Irvine, CA
- 2018 Speaker, UCI Physiology / Biophysics Seminar, Irvine CA
- 2018 Speaker, Child Neurology Society Annual meeting, Chicago, IL
- 2019 Speaker, UC-Wide Neurotrauma meeting, Santa Clara, CA
- 2019 Speaker, CHLA Neurology Grand Rounds, Los Angeles, CA
- 2019 Speaker, Child Neurology Society Annual meeting, Charlotte, NC
- 2019 Speaker, RWJF Amos Medical Faculty Development Program Finalist Presentation, Chicago, IL
- 2020 Speaker, UCI Center for the Neurobiology of Learning and Memory Colloquium, Irvine, CA
- 2020 Keynote Speaker, UC Irvine Brain Bee, Irvine, CA
- 2020 Speaker, USC Biokinesiology Seminar Series (virtual), Los Angeles, CA
- 2020 Keynote Speaker, CSULA-MORE Programs Annual Retreat (virtual), Los Angeles, CA
- 2021 Speaker, NIH-NIDDK TREADDS Seminar Series (virtual), Bethesda, MD
- 2021 Speaker, UCI CNLM “Evenings to Remember,” (virtual) Irvine, CA
- 2021 Speaker, UCI Conte Center Annual Symposium (virtual), Irvine, CA
- 2021 Speaker, Baylor College of Medicine Child Neurology Grand Rounds (virtual)
- 2021 Panel Speaker, Society of Biological Psychiatry Annual Meeting (virtual)
- 2021 Platform Speaker, Child Neurology Society Annual Meeting, Boston, MA
- 2021 Platform Speaker, “Hot Topics Symposium” American College of Neuropsychopharmacology (ACNP) Annual Meeting, San Juan, PR, USA
- 2021 Speaker, UC Irvine Department of Neurology Grand Rounds
- 2022 Speaker, Annual Neurology Meeting, Texas Neurological Society
- 2022 Speaker, Barlow Memorial Lecture Neurology Grand Rounds, Massachusetts General Hospital
- 2022 Speaker, UCI Microbiology and Molecular Genetics Seminar Series, Irvine, CA
- 2022 Speaker, UCI CNLM Spring Meeting

- 2022 Platform Speaker, International Behavioral Neuroscience Society, Glasgow, Scotland
- 2022 Keynote Speaker, Irvine Summer Institute in Neuroscience, Irvine, CA
- 2022 Speaker, “ResearchED\_United States” National Conference for K-12 educators, Frederick, MD
- 2023 Speaker, National Institute of Aging (NIA) Speaker Series (virtual), Bethesda, MD
- 2023 Speaker, Department of Psychology Lecture series, Northeastern University, Boston, MA
- 2023 Speaker, UCLA Southern California Learning and Memory Meeting, CA
- 2023 Grand Rounds Speaker, Hawk-IDDRC Seminar Series, University of Iowa, IA
- 2023 Grand Rounds Speaker, Department of Pediatrics, The Hospital for Sick Children, Toronto, Ontario, Canada
- 2023 Speaker, Bruce Berg Memorial Lecture, UCSF Department of Neurology, San Francisco, CA
- 2024 Speaker, Winter Neuroscience Conference, Park City, UT
- 2024 Speaker, Keystone Conference on Exercise Biology, Santa Fe, NM
- 2024 Panel Speaker, FLUX Symposium, Baltimore, MD

*Seminars on Equity & Diversity in Science/Medicine:*

- 2017 Panel Speaker, UCI Women in Medicine Panel, Irvine, CA
- 2018 Workshop Presenter, UCI LMSA/SNMA Pre-health conference, Irvine, CA
- 2020 Annual Speaker, LEAD-ABC lecture series, “Resilience and Empowerment,” Irvine, CA
- 2020 Speaker, UCI CNLM Seminar, “Becoming Anti-Racist,” 170+ attendees, Irvine, CA
- 2021 Panel Speaker, “COVID19 Vaccine Hesitancy in Black and Latinx Communities” Irvine, CA
- 2022 Panel Speaker, UCI SNMA/LMSA Premed Conference Women in Medicine Panel
- 2023 “What Matters to Me and Why” Guest Speaker, UCI Health, Irvine, CA

**PROFESSIONAL SOCIETIES:**

- 2012- 2014 Junior Member, American Academy of Pediatrics
- 2015- 2017 Stanford Society of Physician Scholars (SSPS)
- 2017- Member, Child Neurology Society (CNS)
- Member, American Academy of Neurology (AAN)
- Member, Society for Neuroscience (SfN)
- Member, American Neurological Association (ANA)
- 2020- Member, American Association for the Advancement of Science (AAAS)
- 2023- Member, Society for Pediatric Research

**PROFESSIONAL SERVICE:**

- 2004-2006 Organizer, UCI School of Medicine Coalition for Valuing Diversity
- 2005-2006 Assistant to the Regional Director, Student National Medical Association
- 2006-2010 Student Member, Society for Neuroscience (SfN)
- 2006- 2010 Co-Coordinator, UCI “Stress Club” Seminar Series
- 2006- 2008 Student Member, UCI School of Medicine Admissions Committee

2008- 2010 Co-coordinator, UCI MSTP Distinguished Lecture Series  
 2017 UCI PRIME-LC Admissions Committee and Faculty Mentor  
 2018 UCI Medical Scientist Training Program (MSTP) Faculty Mentor  
 2019 UCI LEAD-ABC Faculty Mentor  
 2019 Minority Science Program (MSP) Application reviewer, UCISOM  
 2019 UCI BIO199 Excellence in Research Reviewer  
 2020 Judge, Excellence in Research for Undergraduate Students, UCISOM  
 2020 Mentor, UCI CNLM NSF-REU, Irvine Summer Internship in Neurosciences  
 2020 Member, Board of Reviewing Editors, *eLife* journal  
 2020 NIH CMAD Study Section, Early Career Reviewer  
 2021 Associate Editor, Behavioral Neurology, *Child Neurology Open*  
 2021 Reviewer and Mentor, *Neurology* Journal Residents and Fellows Section  
 2021 Selection Committee, Executive Director of the Child Neurology Society

## **PUBLICATIONS:**

Peer-reviewed Manuscripts:(*\*senior/corresponding author*)

1. Raus AM, Fuller TD, Nelson NE, Valientes DA, Bayat A, **Ivy AS**. Early-life exercise primes the murine neural epigenome to facilitate gene expression and hippocampal memory consolidation. *Commun Biol*. 2023 Jan 7;6(1):18. doi: 10.1038/s42003-022-04393-7. PMID: 36611093; PMCID: PMC9825372.
2. Raus AM, Fuller TD, Nelson NE, **Ivy AS**. “SIT” with Emx1-NuTRAP mice: Simultaneous INTACT and TRAP for paired transcriptomic and epigenetic sequencing.” *Current Prot Neurosci*. 2022 Oct;2(10)e570. doi: 10.1002/cpz1.570.
3. Valientes DA, Raus AM, **Ivy AS**. “An improved method for individual tracking of voluntary wheel running in pair-housed juvenile mice.” *Bio-Protocol* 2021 Jul; 11:13 (doi: 10.21769/BioProt.4071)
4. **Ivy AS**, Yu T, Kramar E, Parievsky S, Sohn F, Vu T. “A Unique Mouse Model of Early-Life Exercise Enables Hippocampal Memory and Synaptic Plasticity.” *Sci Rep*. 2020 Jun 8;10(1):9174.
5. **Ivy AS** and Standridge, S. “Rett Syndrome: A Timely Review of Mechanistic Discoveries, Current Clinical Approaches, and Trial Updates.” *Seminars Pediatr Neurol*. 2021 Apr; 37:100881.
6. Short AK, Maras PM, Pham AL, **Ivy AS**, Baram TZ. “Blocking CRH receptors in adults mitigates age-related memory impairments provoked by early-life adversity.” *Neuropsychopharm* 2020 Feb; 45(3):515-523.
7. Johnstone DL, Al-Shekaili HH, Tarailo-Graovac M, Wolf NI, **Ivy AS**, et al. “PLPHP deficiency: clinical, genetic, biochemical, and mechanistic insights.” *Brain*. 2019 Mar 1;142(3):542-559.

8. Bolton JL, Molet J, **Ivy AS**, Baram TZ. "New insights into early-life stress and behavioral outcomes." *Curr Opin Behav Sci.* 2017 Apr;14:133-139.
9. **Ivy AS**, Clark C, Baum S, Wusthoff C. "Improving the Identification of Neonatal Encephalopathy: Utility of a Web-Based Video Tool" *Am. Journal Perinat.* 2017 Apr;34(5):520-522.
10. Molet J, Maras PM, Kinney-Lang E, Harris NG, Rashid F, **Ivy AS**, Solodkin A, Obenaus A, Baram TZ. "MRI uncovers disrupted hippocampal microstructure that underlies memory impairments after early-life adversity." *Hippocampus* 2016 Dec 26(12) 1618-1632.
11. Dube CM, Molet J, Singh-Taylor A, **Ivy AS**, Maras PM, Baram TZ. "Hyperexcitability and epilepsy generated by chronic early-life stress." *Neurobiol Stress* 2015; 2:10-19.
12. McClelland S, Korosi A, Cope J, **Ivy AS**, Baram TZ. "Emerging roles of epigenetic mechanisms in the enduring effects of early-life stress and experience on learning and memory." *Neurobiol Learn Mem.* 2011 Jul;96(1):79-88.
13. **Ivy AS**, Rex CS, Chen Y, Dubé C, Maras PM, Grigoriadis DE, Gall CM, Lynch G, Baram TZ. "Hippocampal dysfunction and cognitive impairments provoked by chronic early-life stress involve excessive activation of CRH receptors." *J Neurosci.* 2010 Sep 29;30(39):13005-15.
14. **Ivy AS**, Brunson KL, Sandman C, Baram TZ. "Dysfunctional nurturing behavior in rat dams with limited access to nesting material: a clinically relevant model for early-life stress." *Neurosci* 2008 April 19; (154):1132-1142.
15. Chen MJ, **Ivy AS**, Russo-Neustadt AA. "Nitric Oxide synthesis is required for exercise-induced increases in hippocampal BDNF and phosphatidylinositol 3' kinase expression." *Brain Res Bull* 2006 Jan 15; 68(4):257-68.
16. Russo-Neustadt AA, Alejandre H, Garcia C, **Ivy AS**, Chen MJ. "Hippocampal brain-derived neurotrophic factor expression following treatment with reboxetine, citalopram, and physical exercise." *Neuropsychopharm* 2004 Dec 2; 9(12):2189-99.
17. **Ivy AS**, Rodriguez FG, Garcia C, Chen MJ, Russo-Neustadt AA. "Noradrenergic and serotonergic blockade inhibits BDNF mRNA activation following exercise and antidepressant." *Pharm Biochem Behav.* 2003 April; 75(1):81-85.

Doctoral Thesis Dissertation:

**Ivy, AS.** "Long term consequences of early-life stress on hippocampal structure and function." Interdepartmental Neuroscience Program, Department of Anatomy and Neurobiology, University of California, Irvine- Irvine, CA 92697. December 2010.  
*Thesis Advisor: Tallie Z. Baram, MD/PhD*

## **TEACHING ACTIVITIES (PRECLINICAL, CLINICAL):**

**Preclinical teaching lectures (medical students):**

MED PHYS 543- Exercise Physiology (3-lecture series, taught Fall 2018 - Fall 2022)  
NEURO LAB - Neuroanatomy wet lab, brain dissections (Fall 2018, 2019)

**Clinical teaching lectures (med students and residents):**

- 2018 "Pediatric Headache", UCI-CHOC Pediatrics Residents Noon Conference
- 2019 "RITE Exam Review", UCI Pediatric Neurology Resident Didactics
- 2019 "Neuroradiology 101", UCI Pediatric Neurology Resident Didactics
- 2019 "Interpreting Clinical Research Studies," Peds Neurology Resident Didactics (annual lecture)
- 2020 "Lysosomal Storage Disorders", UCI Neurology Resident Didactics
- 2020 "Neuro Exam for the General Pediatrician", UCI-CHOC Pediatrics Residents Noon Conference
- 2021 "Concepts in Neuroplasticity for the Child Neurologist", Peds Neurology Resident Didactics (annual lecture)

**Research Honors and Awards Received by Trainees:**

- 2018 Summer Undergraduate Research Program (SURP), UCI  
Recipient: Sijia Yang
- 2018 Undergraduate Research Opportunities Program (UROP), UCI  
Recipient: Sijia Yang
- 2019 UCI CNLM James Tait Goodrich Award for Excellence in Neurobiology  
Recipient: Sonia Parievsky
- 2019 UCI California Alliance for Minority Participation (CAMP) Summer Research  
Recipient: Ijeoma Chikezie
- 2020 Excellence in Undergraduate Research Distinction, UCI School of Medicine  
3 Recipients: Parmida Abdoli, Fred Sohn, Sijia Yang
- 2020 T32 Epilepsy Research Postdoctoral Fellowship  
Recipient: Tyson Fuller, PhD
- 2020 Undergraduate Research Opportunities Program (UROP), UCI  
Recipient: Brian Gomringer
- 2021 UCI "Friends of the CNLM" Award  
Recipient: Brian Gomringer (BIO199 student)
- 2021 NSF Graduate Research Fellowship Program, Honorable Mention  
Recipient: Nellie E. Nelson, BS
- 2021 A.P. Giannini Postdoctoral Fellowship, Finalist  
Recipient: Tyson Fuller, PhD
- 2021 SfN Trainee Professional Development Award  
Recipient: Nellie Nelson, BS, graduate student mentee
- 2021 ABRCMS Poster Presentation Award  
Recipient: Sandra Sandria (Bio199 student)
- 2021 Dr. Lorna Carlin Excellence in Research Award (Honorable Mention)  
Recipient: Anthony Raus, BS, graduate student mentee

- 2022 Stanley Behrens Excellence in Research Award, Runner up  
Recipient: Nellie Nelson, BS, graduate student mentee
- 2022 Howard Schneiderman T32 Fellowship in Learning and Memory  
Recipient: Nellie Nelson, BS, graduate student mentee
- 2023 Summer Undergraduate Research Program (SURP), UCI  
Recipients: Irene Baghdasaryan, Aisha Malik, Suraay Verma