

XIN JIN

Date Prepared: June 13, 2023

Address: 10550 N. Torrey Pines Rd, DNC-210G, La Jolla CA 92037

Work Phone: 857-784-8000

Work Email: xinjin@scripps.edu

Lab Website: jin.scripps.edu



APPOINTMENTS

- 2021.7- *Assistant Professor*, Department of Neuroscience, Scripps Research
Core member, Dorris Neuroscience Center, Scripps Research
- 2016-2021 *Junior Fellow*, Society of Fellows, Harvard University
- 2011-2016 *Graduate researcher*, Lab of Cori Bargmann, The Rockefeller University
Thesis: Aversive Olfactory Imprinting in *C. elegans*
- 2008-2010 *Undergraduate researcher*, Lab of Alice Ting, MIT
Thesis: Development of Novel Fluorophores for Live Cell and Super-Resolution Imaging
- 2009.5- *Undergraduate researcher*, Lab of Ben Cravatt, Scripps Research
2009.8 Structure and Functional Studies on Chemical Inhibitors of Endocannabinoid Hydrolases

EDUCATION

- 2010-2016 *Ph.D. in Biology*, The Rockefeller University, New York, NY
2008-2010 *B.Sc. in Chemistry*, Massachusetts Institute of Technology, Cambridge, MA

AWARDS AND FELLOWSHIPS

- 2022 '35 Innovators Under 35' by MIT Technology Review
- 2022 Klingenstein-Simons Fellowship Award in Neuroscience
- 2022 Larry L. Hillblom Foundation Start-up Award
- 2022 International Society of Autism Research (INSAR) Early Career Investigator Award
- 2022 Donald E. and Delia B. Baxter Foundation Young Investigator Award
- 2020 Intersections Science Fellows
- 2020 Presidential Member Award, Genetics Society of America
- 2019 Allison Doupe Fellowship, McKnight Endowment Fund
- 2016 Junior Fellow, Harvard Society of Fellows, Harvard University
- 2016 Kaluza Prize finalist for graduate thesis, American Society of Cell Biology
- 2015 Trainee Professional Development Award, Society for Neuroscience
- 2013 Blackstone Presentation Award, Champalimaud Neuroscience Symposium
- 2012 HHMI International Student Predoctoral Fellowship
- 2011 Women and Science Fellowship, The Rockefeller University
- 2010 Outstanding Research Award, Department of Chemistry, MIT
- 2010 Novartis Fellowship for Research, MIT
- 2009 Lindau Meeting of Nobel Laureates participant, Germany
- 2009 American Chemical Society Fellowship, 239th ACS National Meeting
- 2009 Paul E. Grey Research Fellowship for Undergraduate Research, MIT
- 2007 National Scholarship, Ministry of Education of China

2007 L'Oreal Outstanding Women Future Scientist Award, L'Oreal China
2004-05 National Championships in Chemistry Olympiad, 37th International Chemistry Olympiad representative of China

GRANTS

2023 NIH R01 - *In vivo* Perturb-map: scalable genetic screens with single-cell and spatial resolution in intact tissues (Principal Investigator)
2023 DISC Foundation Award, California Institute of Regenerative Medicine (CIRM) – Functional genomics to study cellular convergence across ASD risk genes in neurodevelopment (Principal Investigator)
2023 Collaborative Innovation Award, Scripps Research - Functional *IN-vivo* Discovery of Receptors (FINDR) to de-orphan secreted signaling proteins (Principal Investigator)
2022 CZI Collaborative Pairs Pilot Project Awards, Chan Zuckerberg Initiative - *In vivo* CRISPR to uncover determinants of neurodegeneration (Co-Investigator)
2022 The G. Harold and Leila Y. Mathers Foundation Award - *In vivo* scalable dissection of epigenetic mechanisms of aging (Principal Investigator)
2022 One Mind Rising Star Award - Seeing the perturbations: *in vivo* genetic screening approaches to psychiatric disorders (Principal Investigator)
2021 Impetus Award (Principal Investigator)
2021 Simons Foundation Autism Research Initiative (SFARI) - Anatomical, molecular, and systems approaches to elucidate the mechanism of sex bias in ASD (Principal Investigator)
2019 NARSAD Young Investigator Award, Brain and Behavior Research Foundation
2018 William F. Milton Award, Harvard University (Principal Investigator)
2017 Shark Tank Pilot Award, Broad Institute (Principal Investigator)

RESEARCH INTERESTS

My lab develops and applies novel technologies to uncover the molecular and mechanistic basis of neuropsychiatric illnesses. I was trained across disciplines including chemical biology and tool development (with Alice Ting and Feng Zhang), molecular genetic neuroscience (with Cori Bargmann), and developmental neurobiology (with Paola Arlotta). My postdoctoral work as a Junior Fellow combined genomic technology development, developmental neurobiology, and machine learning to develop *in vivo Perturb-seq*. This is a high-throughput approach to introduce pooled genetic perturbation through CRISPR-Cas9 genome editing and read out their perturbation effects with single-cell RNA analysis, performing in living tissues *in vivo*. I piloted this method to systematically characterize a panel of *de novo* risk genes implicated in autism spectrum disorders and identified recurrent, cell type-specific effects across cohorts of risk genes within this complex, developing neural tissue. In my newly established lab since 2021, we will continue the theme of developing and applying genomic and chemical biology tools to analyze cell type diversity and spatial organizations during brain aging and disease states.

PUBLICATIONS

^Corresponding authors. *Co-first authors.

1. Pignoni M, Uzquiano A, Paulsen B, Kedaigle A, Yang SM, Symvoulidis P, Adiconis X, Velasco S, Sartore R, Kim K, Tucewicz A, Tsafou K, **Jin X**, Barrett L, Chen F, Boyden E, Regev A, Levin JZ, Arlotta P. Cell-type specific developmental defects in PTEN-mutant cortical organoids converge on abnormal circuit activity. *bioRxiv*. doi: <https://doi.org/10.1101/2022.11.15.516664>

2. Li H*, Namburi P*, Olson JM*, Borio M, Lemieux M, Beyeler A, Calhoun GG, Hitora-Imamura N, Libster A, Bal A, **Jin X**, Choudhury SR, Shi X, Felix-Ortiz AC, Fuente V, Page V, King HO, Izadmehr EM, Batra K, Keyes L, Padilla N, McCulloch KM, Wichmann R, Ressler KJ, Fiete I, Zhang F, Tye KM. Neurotensin guides valence-specific plasticity, ensemble dynamics, and behavior. *Nature* 2022; 608, 586–592. PMID: 35859170.
3. Uzquiano A*, Kedaigle A*, Velasco S, Adiconis X, Pigoni M, Paulsen B, Kim K, Tucewicz A, Murray E, **Jin X**, Chen F, Regev A, Levin JZ, Arlotta P. Proper acquisition of cell class identity in organoids allows definition of fate specification programs of the human cerebral cortex. *Cell* 2022;185(20):3770-3788.e27. PMID: 36179669.
4. Kannan S*, Altae-Tran H*, **Jin X**, Madigan V, Oshiro R, Makarova KS, Koonin EV, Zhang F. New Cas13 family enables compact RNA base editors. *Nature Biotechnology*, 40, 194–197 (2022). PMID: 34462587.
5. Segel, M.; Lash, B.; Song, J.; Ladha, A.; Liu, C.C.; **Jin, X.**; Mekhedov, S.; Macrae, R.K.; Koonin, E.V.; Zhang, F. Mammalian retrovirus-like protein PEG10 packages its own mRNA and can be pseudotyped for intercellular mRNA delivery. *Science* 2021; 373, 882-889. PMID: 34413232.
6. Choi S, Zhang B, Ma S, Gonzalez-Celeiro M, Stein D, **Jin X**, Kim S, Kang Y-L, Besnard A, Rezza A, Grisanti L, Buenrostro J, Rendl M, Nahrendorf M, Sahay A, Hsu Y-C. Stress hormone corticosterone governs hair follicle stem cell quiescence by suppressing a dermal niche activator Gas6. *Nature* 2021; 592:428–432. PMID: 33790465.
7. Qiu M*, Glass Z*, Chen J, Haas M, **Jin X**, Zhao X, Rui X, Ye Z, Li Y, Zhang F, Xu Q. Lipid nanoparticle-mediated delivery of Cas9 mRNA achieves organ-specific *in vivo* genome editing of *Angptl3*. *PNAS* 2021; 118(10): e2020401118. PMID: 33649229.
8. **Jin X**, Simmons S, Guo A, Shetty AS, Ko M, Nguyen L, Robinson E, Oyler P, Curry N, Deangeli G, Lodato S, Levin JZ, Regev A, Zhang F, Arlotta P. *In vivo* Perturb-Seq reveals neuronal and glial abnormalities associated with Autism risk genes. *bioRxiv* doi: <https://doi.org/10.1101/791525>. *Science* 2020; 370 (6520):eaaz6063. PMID: 33243861.

Featured in: Nature Genetics, The Spectrum

9. Allen WE*, Altae-Tran H*, Briggs J*, **Jin X**, McGee G*, Tedijanto C*, Raghavan R, Shi A, Kamariza M, Nova N, How We Feel Project, Zhang F, Lin X. Population-scale longitudinal mapping of COVID-19 symptoms, behaviour and testing. *Nat Hum Behav* 2020 4, 972-982. PMID: 32848231.
10. Petchsung M, Jantarug K, Pattama A, Aphicho K, Suraritdechachai S, ... **Jin X**, Gootenberg J, Abudayyeh O, Zhang F, Horthongkham N, Uttamapinant C. Clinical validation of a Cas13-based assay for the detection of SARS-CoV-2 RNA. *Nat Biomed Eng* 2020; 38, 870-874. PMID: 32848209.
11. Liu H, Yang W, Wu T, Duan F, Soucy E, **Jin X**, Zhang Y. Cholinergic sensorimotor integration regulates olfactory steering. *Neuron* 2018, 97(2), 390-405. PMID: 29290549.
12. Dennis EJ, Dobosiewicz M, **Jin X**, Duvall LB, Hartman PS, Bargmann CI, Voshall LB. A natural variant and engineered mutation in a GPCR promote DEET resistance in *C. elegans*. *Nature* 2018; 562:119-23. PMID: 30258230.
13. **Jin X**, Pokala N, Bargmann CI. Distinct Circuits for the Formation and Retrieval of an Imprinted Olfactory Memory. *Cell* 2016; 164(4):632-43. PMID: 26871629.

Featured in: The Scientist, Current Biology

14. Abrahamsson S, Ilic R, Wisniewski J, Mehl B, Yu L, Chen L, Davanco M, Oudjedi L, Fiche J.B., Hajj B, **Jin X**, Pulupa J, Cho C, Mir M, El Beheiry M, Darzacq X, Nollmann M, Dahan M, Wu C, Lionnet T, Liddle JA, Bargmann CI. Multifocus microscopy with precise color multi-phase diffractive optics applied in functional neuronal imaging. *Biomedical optics express* 2016; 7(3):855-69. PMID: PMC4866461.
15. **Jin X***, Uttamapinant C*, Ting AY. Synthesis of 7-aminocoumarin by Buchwald-Hartwig cross coupling for specific protein labeling in living cells. *Chembiochem* 2011; 12(1):65-70. PMID: PMC4857190.
16. Long JZ, LaCava M, **Jin X**, Cravatt BF. An anatomical and temporal portrait of physiological substrates for fatty acid amide hydrolase. *Journal of Lipid Research* 2011; 52(2):337-44. PMID: PMC3023554.
17. Long JZ, **Jin X**, Adibekian A, Li W, Cravatt BF. Characterization of tunable piperidine and piperazine carbamates as inhibitors of endocannabinoid hydrolases. *Journal of Medicinal Chemistry* 2010; 53(4):1830-42. PMID: PMC2828288.
18. Long JZ, Nomura DK, Vann RE, Walentiny DM, Booker L, **Jin X**, Burston JJ, Sim-Selley LJ, Lichtman AH, Wiley JL, Cravatt BF. Dual blockade of FAAH and MAGL identifies behavioral processes regulated by endocannabinoid crosstalk in vivo. *Proceedings of the National Academy of Sciences of the USA* 2009; 106(48):20270-5. PMID: PMC2787168.

PATENT

X Jin, P Arlotta, A Regev, F Zhang, S Simmons. *Methods of in vivo evaluation of gene function*. Provisional US Patent US20210172017A1, filed 2019/9/19.

SELECTED TALKS

- 2023 The 9th Annual BRAIN Initiative meeting, panel speaker
- 2023 CZI Neurodegenerative Disease Network Challenge annual meeting, invited speaker
- 2023 Society of Fellows reunion symposium, invited speaker, Harvard University
- 2023 Biophysics and chemical biology seminar series, invited speaker, UCSF
- 2023 Genomic seminar series, invited speaker, Genentech
- 2023 Department of Cognitive Science, UCSD, seminar speaker
- 2023 GRC: Molecular and Tissue Engineering for Understanding Human Brain in Health and Disease, invited speaker
- 2023 Genomic Sciences Seminar Series, Univ Virginia, seminar speaker
- 2022 Society for Neuroscience SfN annual meeting mini-symposium, panel speaker
- 2022 Boston-California Stem Cell Junior PI meeting, invited speaker
- 2022 Neurogenomics seminar series, invited speaker, Imperial College London, UK
- 2022 UC Irvine Center for Neural Circuit Mapping Conference, invited speaker
- 2022 GRC: Emerging Technologies to Study Nervous System Development, Function & Neurological Disease, invited speaker
- 2022 Seaver Autism Center Conference, invited speaker, Icahn School of Medicine at Mt Sinai, New York
- 2022 GRC: Systemic Processes, Omics Approaches and Biomarkers in Aging, invited speaker
- 2022 Neuro2022 Japan Neuroscience Annual Meeting, Panel speaker
- 2022 Simons Foundation Autism Research Initiative (SFARI) Investigator meeting, New York
- 2022 Molecular Psychiatry, panel speaker, Maui, Hawaii

- 2021 Genetics, Bioinformatics, and Systems Biology Colloquium, UCSD Institute for Genomic Medicine
- 2021 Biology and Biological Engineering Division, Caltech
- 2021 World Congress of Psychiatric Genetics, International Society of Psychiatric Genetics, panel speaker
- 2021 Genomics of Brain Disorders, Wellcome Genome Campus, panel speaker
- 2021 Departmental seminar, Pioneer Campus, Helmholtz Zentrum München, Germany
- 2021 Virtual Science Day on Psychiatric Disorders panel speaker, 10x Genomics
- 2021 INSAR International meeting for Autism Research, panel speaker
- 2021 Society of Neuroscience (SfN) Global Connectome, panel speaker
- 2021 Intersections Science Fellow Symposium, panel speaker
- 2021 Department of Molecular Biology and Department of Physiology, UT Southwestern
- 2021 Department of Molecular Biology, Baylor College of Medicine
- 2021 Gladstone Institute, UCSF
- 2021 Department of Genetics, Yale School of Medicine
- 2021 Cellular Genetics Seminar, Wellcome Sanger Institute, UK
- 2020 Department of Genetics and Department of Neuroscience, University of Wisconsin Madison
- 2020 Departmental seminar, Institute of Systems Biology
- 2020 American College of Neuropsychopharmacology (ACNP) annual meeting, panel speaker
- 2020 Departmental seminar, The Friedman Brain Institute, Icahn School of Medicine at Mount Sinai
- 2020 International Common Disease Alliance (ICDA) Scientific Meeting, panel speaker
- 2020 NeuroMatch Virtual Conference
- 2020 NeuroLaunchpad seminar series
- 2020 Neurotech 2020 Virtual Symposium, MIT, panel speaker
- 2020 NeuroZoom seminar series
- 2020 Program of Cellular and Molecular Medicine, Boston Children's Hospital and Harvard Medical School
- 2020 Advance Genomic Technology Development Meeting, NHGRI
- 2020 Departmental seminar, Jack Baskin School of Engineering, UCSC
- 2020 Advances in Genome Biology and Technology (AGBT), Marco Island, Florida
- 2020 Department of Developmental Biology and Department of Genetics, Stanford University
- 2020 Department of Neuroscience and Kennedy Krieger Institute, Johns Hopkins School of Medicine
- 2020 Department of Cell Biology, Duke University School of Medicine
- 2020 Zuckerman Institute, Columbia University
- 2019 Quantitative Biology Seminar (QBS) series, Harvard University
- 2019 Neurobiology department seminar, University of Alabama at Birmingham
- 2019 Annual Meeting of the Scientific Advisory Board of Klarman Cell Observatory
- 2019 Cell Symposia: single cells—technology to biology, Singapore
- 2018 Neuroscience formal seminar, UCSF
- 2018 Molecular Mechanisms of Neuronal Connectivity, Cold Spring Harbor Laboratory
- 2017 Keystone symposium: Synapses and circuits: formation, function, and dysfunction
- 2016 Neuronal Circuits, Cold Spring Harbor Laboratory
- 2015 Hypothalamic Circuits for Control of Survival Behaviors, HHMI Janelia Campus

LEADERSHIP, MENTORING AND OUTREACH

■ TEACHING

- 2021- NEU200 lecture and discussion, UCSD (undergrad and grad level)

- 2021- Principles of Neuroscience, Scripps Research (grad level)
- 2021- Cell Biology, Scripps Research (grad level)
- 2021 Guest lecture, Systems Biology Lecture series, Berlin Institute of Health, Max-Delbrück Center
- 2021 Guest lecture, Principles and Applications of Genetic Engineering for Biotechnology and Neuroscience (9.26), MIT
- 2015 Teaching Assistant, Marine Biological Laboratory (MBL) Neurobiology course, Woods Hole
- 2014 Teaching Assistant, Major Advances in Understanding Evolution and Heredity by Dr. Matt Meselson (Harvard), The Rockefeller University
- 2014 Teaching assistant, [iBioSeminar](#) online courses: to develop Dr. Cori Bargmann's lectures to teaching tools, including lecture notes, review assignments
- 2011 Mentor, New York Academy of Science for K12-STEM program for underprivileged high schools
- 2009 Student Tutor, Principle of Chemical Science (5.111), MIT

■ **ACADEMIC SERVICES**

- 2023- Board of Directors Scripps Research subcommittee member
- 2022-23 Scripps Neuroscience junior faculty search committee member
- 2022- Junior Faculty leadership committee, Scripps Research
- 2021-25 Data sharing committee member: Simons Foundation Collaboration group
- 2022- PATHS-Scripps Scholar Program: expanding the UCSD program to the Scripps campus
- 2021-22 Admission committee member for the UCSD neuroscience graduate program
- 2021- NWiS (Network for Women in Science) travel award review committee, Scripps Research
- 2018 Harvard Brain Initiative [Summer Student Lunch](#) series to mentor high schoolers and undergrads

■ **REVIEWING**

Cell, Neuron, Nature Biotechnology, eLife, Nature Communications, Neural Development, Biological Psychiatry. External reviewer for Swiss National Science Foundation, US-Israel Binational Science Foundation, Wellcome Trust Early Career Award.

■ **CURRENT TRAINEES**

- | | | |
|-------|--|---------------------|
| 2023- | Steve Xuzhong Yang, Ph.D. | Postdoctoral fellow |
| 2023- | Ellie Petty | Graduate Student |
| 2022- | Zhilin Wang, Ph.D. | Postdoctoral fellow |
| 2022- | Jill Yuejia Liu
<i>Dorris Neuroscience Scholar</i> | Graduate Student |
| 2022- | Grace Clarke | Research Technician |
| 2022- | Xinhe Zheng
<i>Dorris Neuroscience Scholar</i> | Graduate Student |
| 2021- | Boli Wu
<i>Mark Pearson Endowed Graduate Fellow</i> | Graduate Student |
| 2021- | Patrick Thompson | Graduate Student |
| 2021- | Abdullah Ashiq
<i>Ledell Family Research Fellowship for Science & Engineering</i> | UCSD intern |

2021-	Isha Desai <i>UCSD TRELS award</i>	UCSD intern
2021-	Graham Anderson	Research Technician

■ **FORMER TRAINEES**

2023	Mahdi Shafiei Neyestanak	Rotation Student
2023	Brook Tran	Rotation (UCSD)
2023	Kiera Fleck	Rotation Student
2022	Qing Zhao	Rotation Student
2022	Nancy Ka Neng Cheong	Rotation Student
2022-23	Anjali Srinivasan	UCSD '23 intern
2022	Zhiyi Li	Rotation Student
2021	Leyao Shen	Rotation Student
2021	Chongyang Wu	Rotation Student
2021	Alex Salazar	Rotation Student
2021-22	Kristina Ivanov	Research Technician
2020-23	Joshua Park	MIT '22 intern

■ **PHD THESIS COMMITTEE**

2023-	Qijia Wei	(Chris Parker, Scripps)	Committee member
2022-	Nicholas Villarino	(Artem Patapoutian, Scripps)	Committee member
2022-	Marco Uytiepo	(Anton Maximov, Scripps)	Committee member
2022-	Jared Miller	(Luke Lairson, Scripps)	Committee member
2022-	Kaushik Ganapathy	(Pejman Mohammadi, Scripps)	Committee member
2022-	Celina Nguyen	(Chris Glass & Nicole Coufal, UCSD)	Committee member
2021-	Shayna Reed	(Courtney Miller, Scripps-FL)	Committee member
2021-	Magdalena Armas	(Sam Rodrigues, Crick Institute UK)	Committee member
2021-	Ryan Pak	(Artem Patapoutian, Scripps)	Committee member
2021-23	Yu Wang	(Li Ye & Artem Patapoutian, Scripps)	Committee member

■ **PHD EXTERNAL COMMITTEE**

2023.5	Michael Florea	(Amy Wagers, Harvard University)	External Examiner
--------	----------------	----------------------------------	-------------------