

Peiwei Chen

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Education

- 10/2017 – 06/2024 California Institute of Technology (Caltech)**
PhD in Biology, Certificate of Practice in University Teaching
- 09/2015 – 12/2015 University of Wisconsin-Madison**
Exchange student
- 09/2013 – 06/2017 The Hong Kong University of Science and Technology (HKUST)**
BSc in Biochemistry and Cell Biology, Minor in China Studies
First Class Honors

Research Experience

- 01/2025 – HHMI Hanna Gray Fellow, Cornell University**
- 09/2024 – 12/2024 Postdoctoral Fellow, Cornell University**
“population genetics | comparative genomics | transposon biology | intragenomic conflict”
Advisors: Andrew Clark & Cedric Feschotte
- 07/2018 – 06/2024 PhD Candidate, Caltech**
“piRNA biogenesis | transposon control | germ cell biology”
Advisor: Alexei Aravin
- 09/2017 – 06/2018 Rotation Student, Caltech**
“gut microbiome | zebrafish neural crest migration | enhancer RNA”
Mentors: Sarkis Mazmanian, Marianne Bronner, Angela Stathopoulos
- 07/2017 – 08/2017 R&D Intern, NanoMab Technology Ltd (Shanghai)**
“precision medicine | cancer theranostic | drug target identification”
Mentor: Nicholas Chung Lim Wong
- 09/2016 – 06/2017 Undergraduate Researcher, HKUST**
“neuronal senescence | Alzheimer’s disease | aging”
Mentor: Karl Herrup
- 06/2016 – 08/2016 The Lee Hysan Foundation of Hong Kong Fellow, UCLA**
“macrophage | RNA pol II kinetics | co-transcriptional splicing”
Mentor: Alex Hoffmann
- 06/2015 – 05/2016 Undergraduate Researcher, HKUST**
“muscle stem cell | microRNA | stem cell quiescence and activation”
Mentor: Tom Cheung

& co-correspondence * equal contribution

In preparation

Chen P, Aravin AA. Multifaceted epigenetic effects of intergenerationally inherited piRNAs.

Chen P, Aravin AA, Feschotte C, Clark, AG. Rapid evolution of the piRNA pathway: causes, mechanisms, and consequences. (*invited review for Mol Biol Evol*)

First-authored research publications

- 2025** **Chen P**&, Pan KC*, Park EH*, Luo Y, Lee YCG, Aravin AA&. (2025) Escalation of genome defense capacity enables control of an expanding meiotic driver. **PNAS** 122 (2):e2418541122
<https://doi.org/10.1073/pnas.2418541122>
featured in a Spotlight article by [Emiliano Martí](#) and [Amanda Larracuente](#):
Trends Genet Apr 4:S0168-9525(25)00048-4. <https://doi.org/10.1016/j.tig.2025.03.001>
- 2023** **Chen P**&, Aravin AA&. (2023) Genetic control of a sex-specific piRNA program. **Curr Biol** 33(9):1825-1835.e3. <https://doi.org/10.1016/j.cub.2023.03.057>
featured in a Dispatch article by [Caitlin Pozmanter](#) and [Mark Van Doren](#):
Curr Biol 33(11):R442-R444. <https://doi.org/10.1016/j.cub.2023.04.001>
- 2021** **Chen P**&*, Kotov AA*, Godneeva BK, Bazylev SS, Olenina LV, Aravin AA&. (2021) piRNA-mediated gene regulation and adaptation to sex-specific transposon expression in *D. melanogaster* male germline. **Genes Dev** 35(11-12):914-935. <https://doi.org/10.1101/gad.345041.120>
cover article
Chen P&, Luo Y, Aravin AA&. (2021) RDC complex executes a dynamic piRNA program during *Drosophila* spermatogenesis to safeguard male fertility. **PLoS Genet** 17(9):e1009591.
<https://doi.org/10.1371/journal.pgen.1009591>
featured in a Perspective article by [Anahi Molla Herman](#) and [Emilie Brasset](#):
PLoS Genet 17(9):e1009702. <https://doi.org/10.1371/journal.pgen.1009702>

Co-authored research publication

- 2023** Venkei ZG*, Gainetdinov I*, Bagci A, Starostik MR, Choi CP, Fingerhut JM, **Chen P**, Balsara C, Whitfield TW, Bell GW, Feng S, Jacobsen SE, Aravin AA, Kim JK, Zamore PD&, Yamashita YM&. (2023) A maternally-programmed intergenerational mechanism enables male offspring to make piRNAs from Y-linked precursor RNAs in *Drosophila*. **Nat Cell Biol** 25(10):1495-1505.
<https://doi.org/10.1038/s41556-023-01227-4>

Commentary

- 2021** **Chen P**&, Aravin AA&. (2021) Transposon-taming piRNAs in the germline: Where do they come from? **Mol Cell** 81(19):3884-3885. <https://doi.org/10.1016/j.molcel.2021.09.017>

Research Presentations

Invited talks

2026	Department of Biology Seminar Series, Johns Hopkins University, Baltimore, Maryland
2025	Larry Sandler Memorial Lecture, 66th Annual Drosophila Research Conference, San Diego, California
2024	Harold M. Weintraub Graduate Student Award Symposium, Fred Hutch, Seattle, Washington Everhart Distinguished Graduate Student Lecture Series, Caltech, Pasadena, California
2023	Evolution, Ecology, Genetics, and Genomics Seminar, University of Rochester, Rochester, New York Salk Fellow Search, Salk Institute for Biological Studies, La Jolla, California
2022	Focus on Evolution, University of California Irvine, Irvine, California
2021	Bioinformatics in Biology Seminar, Caltech, <i>virtual</i>

Talks selected from abstracts

2025	Annual Meeting of the Society for Molecular Biology & Evolution, Beijing, China
2024	CSHL Germ Cells Meeting, Cold Spring Harbor, New York 3rd Joint Congress on Evolutionary Biology, <i>virtual</i> The Allied Genetics Conference (TAGC), Metro Washington, DC Southern California Evolutionary Genetics and Genomics Meeting, Pasadena, California
2023	SMBE Everywhere GS10: Genetics and Evolution of Sex Differences, <i>virtual</i> Southern California Evolutionary Genetics and Genomics Meeting, Irvine, California
2022	CSHL Germ Cells Meeting, Cold Spring Harbor, New York EMBO Workshop: PIWI proteins and piRNAs, <i>virtual</i> 63rd Annual Drosophila Research Conference, San Diego, California
2021	Drosophila Sex Workshop, <i>virtual</i> 62nd Annual Drosophila Research Conference, <i>virtual</i>
2020	CSHL Transposable Elements Meeting, <i>virtual</i>
2019	Southern California RNA Meeting, Monrovia, California

Poster presentations

2024	CSHL Transposable Elements Meeting, Cold Spring Harbor, New York
2023	64th Annual Drosophila Research Conference, Chicago, Illinois
2022	Stuck on Repeat, Stowers Research Conferences Kansas City, Missouri CSHL Transposable Elements Meeting, Cold Spring Harbor, New York 63rd Annual Drosophila Research Conference, San Diego, California
2020	CSHL Germ Cells Meeting, <i>virtual</i>
2019	84th CSHL Symposium: RNA Control & Regulation, Cold Spring Harbor, New York

Teaching

2024	Construction and Guidance of Biological Defense (TA)	Bi 1i, Caltech
2023	The Cell Cycle and Genomic Stability (TA)	Bi 189, Caltech
2022	Topics in Molecular and Cellular Biology (TA)	Bi 250a, Caltech
2022	Stem Cells and Hematopoiesis (TA and guest lecturer)	Bi 214, Caltech
2021	Stem Cells and Hematopoiesis (TA)	Bi 214, Caltech
2020	Animal Development and Genomic Regulatory Network Design (TA)	Bi 182, Caltech
2019	Morphogenesis of Developmental Systems (TA)	Bi 118, Caltech
2019	Topics in Molecular and Cellular Biology (TA)	Bi 250a, Caltech
2018	Introductory Biology Laboratory (TA)	Bi 10, Caltech

Mentoring

		<u>mentored role</u>	<u>subsequent position</u>
2025 –	Gloria Nien	undergrad researcher	(ongoing)
2025 –	Angelina Zheng	undergrad researcher	(ongoing)
2022 – 23	Eunice Park	undergrad researcher	research assistant at MIT
2022	Iván Argandona Vite	FSRI student	undergrad student at Caltech
2021 – 23	Katherine Pan	undergrad researcher	MD student at Harvard Medical School
2021	Suchitra Dara	undergrad researcher	PhD student at MSK Cancer Center
2019	Victor Garcia	rotation student	PhD student at Caltech
2019	Kyley Burkey	Amgen Scholar	MD/PhD student at University of Kansas

Community Service and Outreach

2025 –	Engagement and Professional Development Committee Member , Genetics Society of America
2025	Session Chair, Regulation of Gene Expression , 66th Annual Drosophila Research Conference
2024 –	Early-career Scientist (ECS) Representative to the Board , Genetics Society of America
2022 – 23	Founder and President , Lab Equipment Access Program (LEAP) leap.caltech.edu
2022 – 23	Accessibility Subcommittee Member , Genetics Society of America
2022 – 23	Organizer and Moderator , Accessibility in STEM (AiS) Workshop Series
2022	Volunteer Tutor , Caltech Y Rise Program
2015 – 17	Head Student Ambassador , The Hong Kong University of Science and Technology
2015	Co-organizer and Volunteer , Cambodia Service Trip
2015	Volunteer , St. Mary's Hospital, Madison, Wisconsin
2015	Volunteer , Henry Vilas Zoo, Madison, Wisconsin
2014 – 15	Peer Mentor , The Hong Kong University of Science and Technology
2014	Volunteer Teacher , Shaqiang Central Elementary School, Sichuan, China

Awards, Fellowships, and Scholarships

Research and academics

2025	Larry Sandler Award, Genetics Society of America press release
2025	Young Investigator Travel Award, Society for Molecular Biology & Evolution
2024	HHMI Hanna H. Gray Fellowship, Howard Hughes Medical Institute press release
2024	Life Science Research Foundation (LSRF) Fellowship - finalist , LSRF
2024	Harold M. Weintraub Graduate Student Award, Fred Hutchinson Cancer Center press release
2024	Everhart Distinguished Graduate Student Lecture Award, Caltech press release
2021	Caltech Center for Evolutionary Science (CES) Grant, Caltech CES
2017	Academic Achievement Medal, HKUST
2016	Lee Hysan Foundation of Hong Kong Fellowship for Oversea Research, Lee Hysan Foundation
2015, 2016	D. H. Chen Foundation Life Science Scholarship, D. H. Chen Foundation
2015	Academic Excellence Award, University of Wisconsin – Madison

Community service

2024	Leadership Award, Caltech
2024	Agent of Change Award, Caltech Center for Inclusion and Diversity
2023	Lucy Guernsey Service Award, Caltech Y
2022	Advocating-Change-Together (ACT) Award, Caltech Y
2016	Reaching Out Award, HKSAR Government Scholarship Fund
2016	Community Service Award, HKUST Alumni Endowment Fund
2016	Professor Edmond Ko Scholarship for Student Mentoring, HKUST