

Hannah H. Chu

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EDUCATION

University of California, Riverside - Riverside, CA
Entomology, Ph.D.

Expected Grad: 2024

John Jay College of Criminal Justice, CUNY - New York, NY
Forensic Science, B.S. (Hons.) – Concentration in Molecular Biology – Minor in Mathematics

August 2015 – May 2019

HONORS, AWARDS & SCHOLARSHIPS

Presidential Membership Award, Genetics Society of America, 2021

Lauren and Mildred Anderson Immature Insects Award, Entomology Dept. UC-Riverside, 2020

Jonas E. Salk Scholarship, City University of New York, 2019-2023

Honors Program Scholarship, John Jay College, 2015-2019

Hecht Scholarship, John Jay College, 2015-2019

Presidential Scholarship, John Jay College 2015-2019

Best Inquiry-Based Research Project, English Dept. John Jay College, 2016

RESEARCH EXPERIENCE

University of California, Riverside

July 2019 – present

YAMANAKA LAB – Naoki Yamanaka, PhD

“Identifying a Juvenile Hormone Importer in *Drosophila melanogaster*”

- Examining the genetic basis of hormone-mediated phenotypes in fruit flies. Analyzing effects of hormone signaling and control on insect development.

John Jay College of Criminal Justice, CUNY

August 2016 – August 2019

ROSATI LAB – Jennifer Rosati, PhD

“The Effects of Drug Metabolites on Dipteran Larval Development”

- Determined presence of drug metabolites ingested by blow fly larvae. Quantified metabolites in larvae using GCMS and LCMS. Observed differences of larval development when reared on metabolite-spiked tissue and compared results to established life cycles in literature.

“The Diversity of Forensically Important Blow Flies in Manhattan”

- Analyzed and compared the species composition and relative abundance in a park habitat vs. urban habitat. Compiled a database of forensically important flies to aid future legal investigations. Investigated the diversity indices of the samples in order to identify ecological implications of temperature and other environmental conditions. Trained new lab members to identify blow fly species based on physical characteristics.

“The effect of tissue type on the development of two forensically important blow fly species, *Phormia regina* (Meigen) and *Lucilia sericata* (Meigen)”

- Collaborated with two lab members to examine the effects of tissue type on the development of two commonly used forensic species: the common green bottle fly, *Lucilia sericata* and the common black bottle fly, *Phormia regina*. Discovered species-specific differences in development due to tissue type as well as effects that varied with respect to life stage.

University of Florida – Summer Research Program

May 2018 – August 2018

HAHN LAB – Daniel Hahn, PhD

“Effects of metabolic rate on the lifespan of the apple maggot *Rhagoletis pomonella*”

- Identified the relationship between metabolic rate and lifespan in apple maggot flies to establish whether viability selection contributes to speciation of *Rhagoletis pomonella*. Used R to data mine from collected samples and data over the past year.

“What is the arrangement of the genetic architecture of thermal performance?”

- Designed experimental setup to determine the molecular level physiological tactics that underlie differences in thermal traits and whether they have been shaped by natural selection on a broad scale. Evaluated the relative contributions of molecular level tactics and the stability of thermal proteins (*Hsps*) that organisms use to respond to temperature stress.

“Analysis of mutations and expression of ABCA1 and ABCA2 genes in cabbage loopers resistant to Bt toxin Cry2Ab”

- Classified the mutations and expression levels of the ABCA1 and ABCA2 genes in the larval midgut of resistant and susceptible cabbage looper pests (*Trichoplusia ni*) to the Bt toxin Cry2Ab. Resistance to this popular organic pesticide has been linked to these two genes. Discovering the mutations may aid in future targeted genetic engineering to prevent pest resistance to Bt.

PRESENTATIONS

1. **Infographic:** “
2. **Poster:** "Drunk Flies: Oviposition Preferences of the Blow fly *Lucilia sericata* (Meigen) on Ethanol-Treated Mediums". New York, New York. March 2019 – *presenter*
3. **Poster:** "Establishing a Protocol for Tissue Differentiation in *Lucilia sericata* (Meigen)". Program for Research Initiatives in Math and Science Symposium. New York, New York. March 2019 – *presenter*
4. **Oral Presentation:** "Choose Charlene: What's Wrong With You? A New Way to Consider the Core Observation of Quantum Mechanics" New York, New York. March 2019 - *co-presenter*
5. **Poster:** “Detection of Drug Metabolites in *Lucilia sericata*”. Program for Research Initiatives in Math and Science Symposium. New York, New York. 2 May 2018. – *presenter*
6. **Oral Presentation:** “The effect of tissue type on the development of two forensically important blow fly species, *Phormia regina* (Meigen) and *Lucilia sericata* (Meigen).” Vancouver, Canada. November 2018 - contributor
7. **Poster:** “Detection of Drug Metabolites in *Lucilia sericata*”. Program for Research Initiatives in Math and Science Symposium. New York, New York. 2 May 2018. - *presenter*
8. **Oral Presentation:** “The Diversity of Forensically Important Flies in New York City”. The Entomological Society of America Annual Conference. Denver, Colorado. 5 November 2017. - *presenter*
9. **Poster:** “Mapping of Bt Cry2Ab resistant gene in the cabbage looper, *Trichoplusia ni*”. The Entomological Society of America Annual Conference. Denver, Colorado. 8 November 2017. - contributor
10. **Poster:** “Understanding the Molecular Mechanism of Insect Resistance to Bt Toxin Cry2Ab”. USDA NIFA Project Directors Meeting. Washington, D.C. 30-31 October 2017. - contributor
11. **Poster:** “Analysis of mutations and expression of ABCA1 and ABCA2 genes in cabbage loopers resistant to Bt toxin Cry2Ab”. Cornell University Summer Research Scholars Symposium. Geneva, New York. 28 July 2017 - *presenter*
12. **Poster:** “The Diversity of Forensically Important Flies in Central Park”. Program for Research Initiatives in Math and Science Symposium. New York, New York. 4 May 2017. – *presenter*

PUBLICATIONS, ARTICLES, AND OTHER WORKS

1. **Blog Post:** Hannah Chu, [“Charlene the Chuon: A new way to communicate the wave-particle duality ... to kids!”, *SciComm@UCR Blog*](#) (2020)
2. **Podcast Episode:** [Supporting STEM Student Success with Dr. Gabriella Sanguinetti](#), *Beyond the Bench Podcast* (2020)
3. **Interview:** [“From Murder Cases to Insect Puberty”](#), interviewed by You Better Werk, Amy Shakespeare (2020)
4. **Blog Post:** Hannah Chu and Madison Sankovitz, [“Our experience at ComSciCon: the perspectives of two entomology Ph.D. students”](#), *SciComm@UCR Blog* (2020)
5. **Blog Post:** Hannah Chu, [“My Short Tenure as a Forensic Entomologist”](#), *Entomology Graduate Student Association at the University of California, Riverside Blog* (2020)
6. **Paper:** Xiaowei Yang, Wenbo Chen, Xiaozhao Song, Xiaoli Ma, Wendy Kain, [Hannah Chu](#), Yun-Ru Chen, Zhang jun Fei, Ping Wang, [“Mutation of ABC transporter ABCA2 confers resistance to Bt toxin Cry2Ab in *Trichoplusia ni*”](#), *Insect Biochemistry and Molecular Biology*, 103209. (2019)

7. **Paper:** Veena Mehta, Joey Fragale, [Hannah Chu](#), and Jennifer Y. Rosati, “The effect of tissue type on the development of two forensically important blow fly species, *Phormia regina* (Meigen) and *Lucilia sericata* (Meigen),” (*Submitted for review*)
8. **Paper:** [Hannah Chu](#), Yoselin Paucar, and Jennifer Y. Rosati, “The Diversity of Forensically Important Blow Flies in Manhattan,” (*In preparation*)

POSITIONS

- Organizing Committee Member, ComSciCon National 2021
- Organizing Committee Member, ComSciCon-LA 2021
- Participant, ComSciCon National Conference 2020
- Seminar Committee Representative, Entomology Graduate Student Association (EGSA)
- Social Media and Technology Committee Member, EGSA
- Outreach Team, EGSA
- Social Media Manager, UCR Entomology Department
- Social Media Manager and active member, SciComm@UCR

VOLUNTEER WORK

Volunteer Tutor – The GO Project

Tutor groups of 1-4 low-income students who are in need of academic intervention. Support the head teacher with instruction and student engagement.

Musician and Instructor – Hanji Guzheng

Perform guzheng (ancient Chinese stringed instrument) pro-bono for breast cancer awareness. Teach students of all ages how to play guzheng.

Claymation Education

Create claymations of scientific topics, such as Einstein’s special relativity thought experiment. [LINK](#)

PROFESSIONAL ORGANIZATIONS

- Genetics Society of America
- Entomological Society of America
- New York Academy of Sciences

EXTRACURRICULAR RESEARCH EXPERIENCE

John Jay College of Criminal Justice, CUNY

February 2017 – June 2019

YAVERBAUM LAB – Daniel M. Yaverbaum, PhD

“Mental Models for Galilean Relativity”

- Creating different models such as board games, online games, Claymation videos, and books for communicating and teaching special and general relativity to physics students.

WORK EXPERIENCE

College Lab Technician, *John Jay College – Science Department*

January 2018 – July 2019

Peer Tutor, *John Jay College – Math and Science Resource Center*

September 2017 – January 2019

Peer Advisor, *John Jay College - Academic Advisement Center*

August 2016 – January 2018