LILLIAN K. PADGITT-COBB

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EDUCATION AND PROFESSIONAL PREPARATION

Salk Institute, La Jolla, CA *September 2022 - present*
Postdoctoral Fellow
Plant Molecular and Cellular Biology Laboratory
Advisor: Dr. Todd Michael

Oregon State University (OSU), Corvallis, OR *September 2015 - July 2022*
PhD, Biochemistry and Biophysics *GPA: 3.73*
Defense date: July 21, 2022
Research focus: Using genomic data science to uncover biological insights about the evolution of hop (*Humulus lupulus*)
Advisors: Dr. David Hendrix and Dr. John Henning

Barrett Honors College, Arizona State University, Tempe, AZ *2013 - 2015*
BA, Biochemistry, *summa cum laude* *GPA: 3.8*
Honors Thesis Title: "Examining the Effect of Vinegar on Glucose Response: Single-Blind Crossover Study and Review of Literature"
Advisor: Dr. Carol Johnston

Paradise Valley Community College, Phoenix, AZ *2011 - 2013*
Green River Community College, Auburn, WA *2007*

University of Washington, Seattle, WA *2005 - 2006*
Music Performance

Central Washington University, Ellensburg, WA *2004 - 2005*
Music Performance

AWARDS AND GRANTS

NSF Plant Genome Postdoctoral Research Fellowship *2022 - 2025*
Title: Single-cell experiments to uncover gene regulation in the glandular trichomes of hemp flowers

USDA NIFA AFRI Predoctoral Fellowship *2020 - 2022*
Title: Chromosome-level assembly and genomic data science to reveal insights about cone development, disease resistance, and the evolution of hop

Travel grant to attend PyCascades, Seattle, WA *2019*

OSU University Graduate Student Travel Award to attend PAG XXVII, San Diego, CA *2018*

Selected to attend ComSciCon-Pacific Northwest, Seattle, WA *2017*

Selected to participate in the Total Evidence Divergence Dating Virtual Workshop led by the Vascular Plant Timeline Working Group (month-long virtual workshop, held by researchers at UC Berkeley) *2022*

RELEVANT PUBLICATIONS SINCE 2020

Carey SB, Bentz PC, Lovell JT, Akozbek LM, Havill JS, **Padgitt-Cobb L**, Lynch RC, Allsing N, Osmanski A, Easterling KA, Orozco LR, Hale H, McCoy H, Meharg Z, McKay J, Grimwood J, Vergara D, Guerrero RF, Kane NC, Michael TP, Muehlbauer GJ, Harkess A. The evolution of heteromorphic sex chromosomes in plants. bioRxiv. 2024 December. https://doi.org/10.1101/2024.12.09.627636

Lynch RC*, **Padgitt-Cobb LK***, Garfinkel AR, Knaus BJ, Hartwick NT, Allsing N, Aylward A, Mamerto A, Kitony JK, Colt K, Murray ER, Duong T, Trippe A, Crawford S, Vining K, Michael TP. Domesticated cannabinoid synthases amid a wild mosaic cannabis pangenome. bioRxiv, 2024 May. https://doi.org/10.1101/2024.05.21.595196 (accepted for publication in *Nature*).

* equal contribution

Henning JA, Wiseman MS, Gent DH, **Padgitt-Cobb L**, Appiah-Kubi R, Hendrix DA. Genetic mapping and QTL analysis of multigenic resistance to powdery mildew (Podosphaera macularis) in hop (*Humulus lupulus* L.). Crop Science. 2024 Sep;64(5):2823-39.

Padgitt-Cobb LK, Pitra NJ, Matthews PD, Henning JA, Hendrix DA. An improved assembly of the "Cascade" hop (*Humulus lupulus*) genome uncovers signatures of molecular evolution and refines time of divergence estimates for the Cannabaceae family. Horticulture Research. 2023 Feb;10(2):uhac281. https://doi.org/10.1093/hr/uhac281

Eriksen RL, **Padgitt-Cobb LK**, Randazzo AM, Hendrix DA, Henning JA. Gene expression of Agronomically important secondary metabolites in cv. 'USDA Cascade' hop (*Humulus lupulus* L.) cones during critical developmental stages. Journal of the American Society of Brewing Chemists. 2022 Oct 6;80(4):356-69.

https://doi.org/10.1080/03610470.2021.1973328

Padgitt-Cobb LK, Kingan SB, Wells J, Elser J, Kronmiller B, Moore D, Concepcion G, Peluso P, Rank D, Jaiswal P, Henning J. A draft phased assembly of the diploid Cascade hop (*Humulus lupulus*) genome. The plant genome. 2021 Mar;14(1):e20072. https://doi.org/10.1002/tpg2.20072

Eriksen RL, **Padgitt-Cobb LK**, Townsend MS, Henning JA. Gene expression for secondary metabolite biosynthesis in hop (*Humulus lupulus* L.) leaf lupulin glands exposed to heat and low-water stress. Scientific Reports. 2021 Mar 4;11(1):5138.

https://doi.org/10.1038/s41598-021-84691-y

Padgitt-Cobb LK, Kingan SB, Henning JA. Genomic analysis of powdery mildew resistance in a hop (*Humulus lupulus* L.) bi-parental population segregating for "R6-locus". Euphytica. 2020 Jan;216(1):10. https://doi.org/10.1007/s10681-019-2543-x

SCIENCE WRITING AND COMMUNICATION

Co-host, Inspiration Dissemination radio show and podcast *2016 - 2021*
Blog entries: http://blogs.oregonstate.edu/inspiration/author/padgittl/

The Biochemistry of Cannabis. Feature article in OSU's Terra Magazine. *Spring 2018*

LEADERSHIP AND OUTREACH

Co-mentor, NSF RaMP (Salk) *Spring 2024 - present*
I am co-mentoring a postbaccalaureate trainee as part of the NSF Research and Mentoring for Postbaccalaureates (RaMP) in Biological Sciences program, a collaborative and synergistic effort between Salk and San Diego Botanic Garden. The focus of the project is an analysis of the genome and transcriptome of the medicinal plant, *Eriodictyon crassifolium*, also known as Yerba Santa, which produces the flavonoid sterubin.

Co-mentor, Heithoff-Brody High School Summer Scholars Program (Salk) *Summer 2023*
I developed educational content and co-mentored a high school student with other members of the Michael lab. The summer project about maize genomics culminated in a poster and talk given by the student at Salk.

Search Committee (OSU) *Spring 2022*
I was on the search committee for a Research Development Coordinator in the College of Science at Oregon State University. I was recruited to participate in the search committee by Professor Vrushali Bokil, Associate Dean of Research and Graduate Studies at the College of Science.

Lead instructor, Computational Biology Camp for Middle School Students (OSU) *2017 - 2021*
I created educational content and was a lead instructor for the camp, which was organized by my graduate advisor, Dr. Hendrix, and other students in the Hendrix lab. Our goal was to introduce students to computational biology using Python and other tools.

Union steward, Coalition of Graduate Employees, AFT 6069 (OSU) *2018 - 2019*

Seminar Coordinator, *2017 - 2018*
Biochemistry and Biophysics Graduate Student Association (OSU)
I organized the following student-invited department visits:

- Dr. Michael Eisen, Professor, UC Berkeley and Howard Hughes Medical Institute, February 27th, 2019
- Dr. Molly Maleckar, Director of Modeling, Allen Institute, October 19, 2018
- Dr. Erin Dueber, Senior Scientist, Genentech, April 28, 2017 – I also organized a question-and-answer session with Dr. Dueber, called "Careers in Biotech," geared towards undergraduate students.

ACADEMIC SERVICE

Ad hoc reviewer

- Journal of Cannabis Research *September 2024 and November 2023*
- Frontiers in Plant Science, Plant Bioinformatics section *February 2022*
- HortScience *July 2021*

SELECTED POSTERS

Padgitt-Cobb L, Henning J, Hendrix D. (2021) A chromosome-level assembly of the "Cascade" hop (*Humulus lupulus*) genome provides insights into Cannabaceae evolution. Center for Quantitative Life Sciences (CQLS) Fall Conference, OSU. Corvallis, OR. Award for "**Best Graduate Student Poster**"

Padgitt-Cobb L, Kingan S, Wells J, Kronmiller B, Moore D, Concepcion G, Peluso P, Rank D, Henning J, Hendrix D. (2019) Assessing Haplotype Variation and Visualizing Synteny in the Diploid Genome Assembly of Hop (*Humulus lupulus*). Plant and Animal Genomes (PAG) XXVII. San Diego, CA.

Padgitt-Cobb L, Moore D, Henning J, Kingan S, Peluso P, Rank D, Hendrix D. (2018) Towards a Phased, Diploid Assembly of the Hop Genome. Center for Genome Research and Biocomputing Spring Conference (CGRB), OSU. Corvallis, OR. Award for "**Best Poster**"

SELECTED TALKS

The dynamic landscape of the *Cannabis sativa* pangenome. UCSD/Salk Plant Biology Seminar. April 2025. San Diego, CA.

The dynamic landscape of transposable elements in the *Cannabis sativa* pangenome. Cannabis Genomics - Origins and Pangenomics Workshop. Plant and Animal Genomes (PAG) 2025. San Diego, CA.

Comparative Genomic Analysis to Uncover Signatures of Molecular Evolution in Hemp (*Cannabis sativa*) and Hop (*Humulus lupulus*). Cannabis Genomics II Workshop: Origins and Pangenomics. Plant and Animal Genomes (PAG) 2023. San Diego, CA.

A chromosome-level assembly of the "Cascade" hop (*Humulus lupulus*) genome provides insights into Cannabaceae evolution. (2021) Center for Quantitative Life Sciences (CQLS) Fall Conference, OSU. Corvallis, OR.

Developing and improving genomic resources for *Humulus lupulus* at HopBase.org. (2021) Fifth International Humulus Symposium. Stuttgart, Germany (virtual conference due to Covid).