

## March 2021 Department News



### CONGRATULATIONS TO...

Jing-Ke Weng, Associate Professor of Biology, Massachusetts Institute of Technology (Biochemistry, PhD '09) for the 2021 Distinguished Agriculture Alumni Award. The Distinguished Agriculture Alumni Award was created in 1992 to recognize mid-career alumni of the College of Agriculture.

Kelly Brayton, Professor and Chair of Veterinary Microbiology and Pathology, Washington State University (PhD '93) for the 2020 Distinguished Agriculture Alumni Award.

Biochemistry junior, Jocelyn Sheets (Plaut lab), won 3rd place in the undergraduate oral competition of the Midwest Meeting of the American Society of Animal Science for her talk entitled "Histomorphic Analysis of the Effect of Day and Level of Colostrum Intake on Jejunum".



## GRADUATE STUDENT SPOTLIGHT...

Bob Auber (Wisecaver Lab)



I was born and raised in a small town, Valley City, Ohio. I worked on a farm when I was younger and spent most days working as a landscaper or hand-chopping wood for the winters. I eventually started a family diner with some family friends and initially thought I wanted to apply to culinary school. However, I always had an interest in science because my mother was a science teacher and I admired the passion my high school chemistry and biology teachers had for their subjects. I ultimately chose to attend Ohio University and pursued a degree in Biochemistry. I still stuck to my culinary roots during my time there, working for Ohio University Culinary Services. I was the University's only non-hourly, full-time staff member who was also a student, often working > 60-hours a week. I also performed research under Dr. Michael Held who introduced me to biochemical techniques like agrobacterium transformation, HPLC, and western blotting. We primarily worked on beta-glucan synthases and studied their role in plant cell wall composition.

After graduation, I was interested in applying for master's programs because a PhD seemed too daunting to me, especially since I spent the greater half of my undergrad working instead of studying. After applying to Purdue, I was notified there was not a biochemistry master's program, I could apply for the PhD program instead. Since my deposit was non-refundable, I chose to submit the application anyway. After attending the recruitment event, chatting with current graduate students, and having a drink with Dr. Chapple, I was immediately convinced I wanted to obtain a PhD at Purdue.

I joined Dr. Jennifer Wisecaver's lab the first year she started at Purdue. I suffered greatly from imposter syndrome when I started at Purdue and I knew Dr. Wisecaver was willing to work closely with me as her first graduate student. I was also absolutely captivated by the techniques in the lab. Computational biology proved to be a perfect fit for me as I could work as much as I wanted without waiting days for experiments to run. My rotation project, and now a chapter in my thesis, yielded very exciting results which also drew me to the lab.

In collaboration with Dr. Josh Widhalm in Purdue's Horticulture department, we successfully sequenced, assembled, and annotated the genome of a Chinese medicinal plant. With the genome, we were able to discover the evolutionary origin of a specialized metabolic pathway gene as a retrotransposition event. Along with a strategically designed RNA-seq experiment, we were able to capture the specialized metabolic pathway in a coexpression network. A comprehensive genomic and phylogenetic analysis highlights promising novel gene candidates also participating in the pathway.

My most recent research endeavor has been working with the toxic algae *Prymnesium parvum*. I have successfully sequenced and assembled the genomes of over a dozen different strains using 3rd generation and/or next generation sequencing technologies. We are just beginning to discover the massive variation in ploidy, pan-genome size, and structural rearrangements between the strains.

Overall, my four years in the Wisecaver lab has pushed me to learn new skills and embrace passion for my research. The department has also been a great environment for me to be involved as a mentor. After being elected as the GSO mentoring and outreach chair, I have thoroughly enjoyed coordinating the departments mentoring program and value the personal relationships I have formed with other graduate students. Upon graduation, I intend to either enter a postdoctoral position or enter the job market. I would even consider entering the business side of science and serve as a consultant or even create my own startup.

## GOING THE EXTRA MILE...

Marco Hadisurya attended the US Human Proteome Organization (HUPO) 2021 Virtual Conference and presented a lightning talk and a poster titled, "Quantitative proteomics and phosphoproteomics of urinary extracellular vesicles define diagnostic and prognostic biosignatures for Parkinson's Disease". Marco was also selected as one of the US HUPO Trainee Award Honorable Mentions

Hana Hall presented a talk titled: "Dysregulation of R-loop homeostasis in the aging eye" at the virtual international EMBO/EMBL symposium "Friend or Foe: Transcription and RNA meet DNA Replication and Repair" on March 11th.

## PUBLICATIONS...

Kayanja, G., I.M. Ibrahim, **S. Puthiyaveetil** 2021. Regulation of *Phaeodactylum* plastid gene transcription by redox, light, and circadian signals. *Photosynthesis Research*. **147**(3):317-328.

**Puthiyaveetil, S.**, S. D. McKenzie, G. Kayanja, I. M. Ibrahim 2021. Transcription initiation as a control point in plastid gene expression. *Biochimica et Biophysica Acta (BBA)-Gene Regulatory Mechanisms*. **1864**(3):194689.

## IMPORTANT DATES...

Please join us for the Department of Biochemistry Virtual Seminar Series.  
All seminars will begin at 3:30 pm, unless otherwise noted.

<https://purdue-edu.zoom.us/j/93897924772?pwd=MmJBTmxpZkIKMUwybE9USlIUUVSs4UT09>

Meeting ID: 938 9792 4772 Passcode: Biochem20

March 30 Dr. Judit Villen, Dept. of Genome Sciences, University of Washington

April 6 Dr. Natalia Dudareva, Dept. of Biochemistry, Purdue University

April 13 Dr. Sheryl Tsai, Dept. of Chemistry, University of California, Irvine

April 20 Dr. Frederic Chedin, Dept. of Molecular & Cellular Biology, University of California, Davis

## **ATTENTION BCHM ALUMS...**

We would love to hear from you! If you have had changes in your personal and/or professional life, had a change of address, etc., please let us know! Updates can be sent to [bchm-alumni-friends@purdue.edu](mailto:bchm-alumni-friends@purdue.edu).

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