

JUNE 2023 BIOCHEMISTRY NEWS



CONGRATULATIONS TO...

Sydney Beechboard (graduate student, Mesecar lab) received a Molecular Biophysics T32 Training Fellowship.

The Fellowship will provide a biophysics-focused research environment geared toward different professional career tracks, with an emphasis on developing the skills required for effective teamwork with diverse networks of collaborators. The program is expected to augment the experience of all students at Purdue interested in biophysical careers by establishing new courses, symposia, comprehensive seminar programs, and special topics career sessions.

Three Biochemistry students received Martin Agriculture Research Scholarships for 2023-2024. The Martin Ag Research Scholarship is the College's most prestigious undergraduate research award for our students who demonstrate high academic performance, quality research contributions, and a desire for continued learning about research in agriculture. Please join us in congratulating: **Amirah Haweit** (Deering Lab, Food Science), **Josh Kaluf** (Ogas Lab), and **Shelby Sliger** (Ogas Lab).

Nine Biochemistry Undergraduate students were chosen to participate in SCARF. SCARF is a summer program that is open to Purdue College of Agriculture undergraduate students and is a paid 11-week program where students experience in-depth, hands-on research, participate in a series of science communication workshops, and attend faculty seminars and industry tours. Please join us in congratulating: **Chloe Chui** (Liu Lab), **Chris D'Acosta** (Mark Hall Lab), **Marcella Dibble** (Mark Hall Lab), **Addison Hill** (Casey Lab, Animal Science), **Makayla Marlin** (Weake Lab), **Raine Pruitt** (Weake Lab), **Tommy Sheely** (Kirchmaier Lab), **Charlie Thrift** (Kuang Lab, Animal Science), **Alice Westermann-Vilwock** (Ogas Lab).

Marco Hadisurya and Yi-Kai Liu, Tao lab and collaborators were featured in a Purdue Exponent article for discovering a urine test for Parkinson's Disease. Read the article [here](#).

Dr. Raymond Hammerschmidt (BS, 1974) retired last July from Michigan State after nearly 42 years as a faculty member. He stayed on as Professor Emeritus to work on a few projects. In reflecting back, my Purdue undergrad biochemistry education served me very well (I graduated with a BS in the spring 1974). I had excellent classes with Drs. Butler, Regnier, Kolhaw, and Kuć, and I did my senior thesis research with Joe Kuć. The research project led to my interest in the biochemistry and physiology of plant-pathogen interactions as well as my first peer-reviewed paper. I did my Ph.D. with Joe Kuć at the University of Kentucky before coming to MSU in 1980. Below are two photos of Dr. Hammerschmidt taken by Dr. Dave Krogmann for a photo display on biochemistry undergrad research. The photos are of him placing seeds onto germination paper for an induced disease resistance experiment. (Fall 1973)



MAY GRADUATES...

The Department of Biochemistry recently said goodbye to 35 undergraduate students and three graduate students. Click the link to see our graduates and where they are heading.

[May 2023 graduates](#)

NEW FACES...



Chris Mormino recently joined the Biochemistry Department as the shipping/receiving clerk. Please feel free to stop by the storeroom (BCHM 18) to say hello and introduce yourself.

Chris has been at Purdue for a little over 18 months. He previously worked in Physics and Astronomy.

Outside of work, Chris watches a lot of soccer, plays tennis, watches movies, and does some occasional woodworking. He currently lives in Downtown Lafayette.

IN MEMORY...

Dr. Andrew Alpert, 2023 Distinguished Agriculture Alumni for Biochemistry, passed away on May 29th. He was the President and CEO of PolyLC, Inc. in Maryland. Dr. Alpert received his Ph.D. in Biochemistry from Purdue in 1980. While at Purdue, he studied protein separation methods under Dr. Fred Regnier.



GOING THE EXTRA MILE...

Dr. Natalia Dudareva, Distinguished Professor, traveled to Perugia, Italy, June 7-10, 2023, and gave a talk titled "Plant olfaction: a lesson from nature" at the World Petunia Days meeting.

She also traveled to Castelldefels, Spain, June 11-16, 2023 to the Gordon Research Conference on Plant Metabolic Engineering and gave a talk titled "Volatile secondary metabolites: how to overcome their toxicity".

Dr. Humi Gowher Associate Professor, was invited to be on the faculty panel at Stowers Institute postdoctoral training program "The New Faculty Search Group" June 22-23, 2023. The program aims to assist our postdocs in preparing their application materials for their upcoming academic job searches.

Dr. Ann Kirchmaier, Associate Professor, presented at the Chromatin and Epigenetics EMBL Conference in Heidelberg Germany, May 15-18, 2023, "Fumarase, which Produces an Inhibitor of Histone Demethylases, is a Chromosomal Locus-Specific DNA Replication Stress Response Factor". Faeze Saatchi, Ronard Kwizera, Harish Kothandaraman, Nadia Atallah-Lanman and Ann Kirchmaier. She also presented at the 2023 Midwest DNA Repair Symposium in Iowa City, IA 5/5-5/7/23. "Contribution of Fumarase to Alternate Mechanisms of Double-Stranded DNA Break Repair". Faeze Saatchi, Avery Hurst, Ann Kirchmaier.

Ronard Kwizera presented at the Indiana Cancer Research Day, Indiana University & Bren Simon Comprehensive Cancer Center, Indianapolis, In. on May 4, 2023. "The Roles of Fumarase in Cellular Responses to DNA Replication Stress". Ronard Kwizera, Faeze Saatchi, harish Kothandaraman, Nadia Atallah Lanman and Ann Kirchmaier.

Ronard also presented at the 2023 Midwest DNA Repair Symposium, Iowa City, IA, May 5-7, 2023. "The Roles of Fumarase in Cellular Responses to DNA Replication Stress". Ronard Kwizera, Faeze Saatchi, Harish Kothandaraman, Nadia Atallah Lanman and Ann Kirchmaier.

Ronard presented “The Roles of Fumarase in Cellular Responses to DNA Replication Stress” at the Cancer Research Day, Purdue Institute for Cancer Research on April 1, 2023.

Dr. Seema Mattoo, Associate Professor of Biological Sciences, gave a talk at the Harvard Digestive Diseases Center Spring Symposium, hosted by Harvard Medical School and Boston Children's Hospital, on May 23, 2023, in Boston, MA.

As a member of the Scientific Program Committee, **Dr. Seema Mattoo** also organized and served as Convener for the following sessions at the ASM Microbe Annual Meeting of the American Society for Microbiology, June 15-19, 2023 in Houston TX:

In-Depth Symposia entitled "Close Encounters in Respiratory Disease"

Track Hub entitled “The power of genetic and biochemical screening to define host-pathogen interactions”

Track Hub entitled "Whooping cough-from molecular mechanisms to Vaccines"

Track Hub entitled “Proximity Labeling to Study Host-microbe Interactions”.

Yi-Kai Liu and **Marco Hadisurya** from the Tao Lab attended the 71st conference of the American Society for Mass Spectrometry (ASMS) in Houston, Texas from June 4th – 8th. Yi-Kai Liu presented a poster titled “*Assessing insulin signaling responses by protein phosphorylation surveillance in plasma extracellular vesicles,*” and Marco Hadisurya presented a poster titled “*Personalized extracellular vesicle phosphoproteomics identifies relevant functional signaling for renal cell carcinoma monitoring.*”

Some current and former Tao Lab members also reunited during the ASMS and had lunch together.



GRANTS...

Dr. Ann Kirchmaier received a \$1,000 IPIA International Travel Grant.

Dr. Ann Kirchmaier received a \$2,000 2023-2024 CURE Program grant from Purdue University, Office of Undergraduate Research.

Dr. Ann Kirchmaier received \$15,000 from Women’s Global Health Institute & The Catherin Peachey Fund for her proposal “Revealing Genome Integrity Defect Targets in Breast Cancer.

Dr. Beth Tran received \$50,000 from Purdue University Institute for Cancer Research for her proposal “Defeating Small Cell Lung Cancer: A Trial for Small Molecule/ Immune System Synergy”

RECENT PUBLICATIONS...

Huang, X.Q., **N. Dudareva**. 2023. Plant-specialized metabolism. *Current Biology*. (33)11: PR473-R478

Dar, M.S., I.K. Mensah, M. He, S. McGovern, I.S. Sohal, H. C. Whitlock, N. E. Bippus, M. Ceminsky, M.L. Emerson, H. J. Tan, **M.C. Hall**, **H. Gowher**. 2023. Dnmt3bas coordinates transcriptional induction and alternative exon inclusion to promote catalytically active Dnmt3b expression. *Cell Reports*. Online ahead of print

Lihon, M.V., M. Hadisurya, X. Wu, A. Iliuk, **W. A. Tao**. 2023. Isolation and Identification of Plasma Extracellular Vesicles Protein Biomarkers. *Methods in molecular biology (Clifton N.J.)*. (2660): 207-217.

Sun, J., Q. Li, Y. Ding, D. Wei, M. Hadisurya, Z. Luo, Z. Gu, B. Chen, **W.A. Tao**. 2023. Profiling Phosphoproteome Landscape in Circulating Extracellular Vesicles from Microliters of Biofluids through Functionally Tunable Paramagnetic Separation. *Angewandte Chemis (International ed in English)*. Online ahead of print.

Wu, X, Y.K. Liu, A. B. Iliuk, **W. A. Tao**. 2023. Mass spectrometry-based phosphoproteomics in clinical applications. *Trends in analytical chemistry-TRAC*. Epub.

Hadisurya M., Z. C. Lee, Z. Luo, G. Zhang, Y. Ding, H. Zhang, A. B. Iliuk, R. Pili, R. S. Boris, **W.A. Tao**. Data-Independent Acquisition Phosphoproteomics of Urinary Extracellular Vesicles Enables Renal Cell Carcinoma Grade Differentiation. *Molecular & cellular proteomics: MCP*. Epub.

Bai, Y., G. Yu, H.M. Zhou, O. Amarasinghe, Y. Zhou, P. Zhu, Q. Li, L. Zhang, F. N. Meke, Y. Miao, E. Chapman, **W. A. Tao**, Z.Y. Zhang. 2023. PTP4A2 promotes lysophagy by dephosphorylation of VCP/p97 at Tyr805. *Autophagy* Epub.

Dong, J., J. Miao, Y. Miao, Z. Qu, S. Zhang, P. Zhu, F. Wiede, B. A. Jassim, Y. Bai, Q. Nguyen, J. Lin, L. Chen, T. Tiganis, **W. A. Tao**, Z.Y. Zhang. 2023. Small Molecule Degradors of Protein Tyrosine Phosphatase 1B and T-Cell protein Tyrosine Phosphatase for Cancer Immunotherapy. *Angewandte Chemis (International ed. In English)*. Epub.

Wisecaver, J. H., R. P. Auber, A. L. Pendleton, N. F. Watervoort, T. R. Fallon, O. L. Riedling, S. R. Manning, B. S. Moore, W. W. Driscoll. 2023. Extreme genome diversity and cryptic speciation in a harmful algal-bloom-forming eukaryote. *Current Biology: CB*. 33(11):2246-2259.