PSNA Spring 2025

psna-online.org

Newsletter

Volume 63, Number 1

President's Message: Spring 2025

Dear Members of the Phytochemical Society of North America,

Greetings from London, Ontario, Canada!

As we welcome the vibrant season of spring—a time of renewal and growth—I'm delighted to share that the PSNA2025 meeting in Toronto is just a month away. Our local organizing committee, led by Dr. Nikola Kovinich, has been working diligently to develop an engaging scientific program, featuring an outstanding lineup of keynote speakers. We are grateful for the generous support of our sponsors and funding agencies- in particular, conference grants from the Canadian Institutes of Health Research (CIHR) and the National Science Foundation (NSF). These funds will provide valuable travel support for students and postdocs—an excellent opportunity for early-career researchers to share their work and expand their professional networks. I look forward to reconnecting with colleagues, exploring new collaborations, and celebrating the achievements of our community. Further meeting details can be found in the PSNA2025 section of this newsletter.

In addition, I'm pleased to announce that PSNA has renewed its collaboration with *Phytochemical Reviews* and *Frontiers in Plant Science*. As part of the partnership with Frontiers in Plant Science, PSNA receives publication revenue for every Research Topic edited or co-edited by a PSNA member. If you are currently serving as a guest editor for a Research Topic in *Frontiers in Plant Science*, we encourage you to reach out to us.

As my term as President comes to a close, it is my great pleasure to welcome Dr. Brenda Winkel as the incoming President of the Society for 2025-2026. Dr. Winkel, a professor in the Department of Biological Sciences at Virginia Tech, brings a wealth of experience and outstanding leadership that will be instrumental in guiding PSNA into its next chapter. I would also like to extend my heartfelt thanks to the current PSNA Advisory Board and the Executive Committee for their unwavering support and dedication throughout my tenure. It has been an honor to serve alongside such a committed and inspiring group of colleagues.

Thank you for your continued support of the Phytochemical Society of North America. I look forward to a season filled with innovation, collaboration, and meaningful connections, and to welcoming many of you in Toronto.

Wishing you a productive and inspiring spring!

Warm regards,
Sangeeta Dhaubhadel
PSNA President (2024-2025)

Phytochemical Society of North America

The Phytochemical Society of North America (PSNA) is a nonprofit scientific organization whose membership is open to anyone with an interest in phytochemistry and the role of plant substances in related fields. Annual membership dues are U.S. $100 for regular members and $30 for student members. Annual meetings featuring symposium topics of current interest and contributed papers by conference participants are held throughout the United States, Canada, and Mexico. PSNA meetings provide participants with exposure to the cutting-edge research of prominent international scientists, but are still small enough to offer informality and intimacy that are conducive to the exchange of ideas. This newsletter is circulated to members to keep them informed of upcoming meetings and developments within the society, and to provide a forum for the exchange of information and ideas. If you would like additional information about the PSNA, or if you have material that you would like included in the newsletter, please contact the PSNA Secretary or visit our website at www.psna-online.org. Also check the PSNA website for regular updates.

The PSNA is an all-volunteer organization which depends on its membership to run the organization. We appreciate the time and effort these volunteers are putting in to keep the organization up and running. As a member, please consider volunteering to serve on one of these committees. The PSNA can always use more help!

PSNA Executives 2024-2025

President: Dr. Sangeeta Dhaubhadel

Research interests: Seed quality and defense-related traits in legume crops such as soybean, pea and common bean. Our research goal is to understand the molecular mechanisms underlying the synthesis of specialized metabolites involved in those traits and identify the regulators that control the synthesis/accumulation of these beneficial compounds in legumes.

London Research and Development Centre
Agriculture and Agri-Food Canada
1391 Sandford St, London, ON N5V 4T3

Phone: (226) 678-5916
Sangeeta.dhaubhadel@agr.gc.ca

President Elect: Dr. Brenda Winkel

Research Interests: The intracellular organization and function of flavonoid metabolism in plants. Our current work focuses on the influence of flavonoids on the plant circadian clock. Recent work suggests that this may involve modulation of cellular redox status, either directly through antioxidant activity or indirectly through targeted interactions with proteins in the chloroplast.

Dept. of Biological Sciences
Virginia Tech
211 A. Steger Hall (MC0477)
1015 Life Science Circle
Blacksburg, VA 24061, USA

Phone: (540) 231-3013
winkel@vt.edu

Past President: Dr. Dhirendra Kumar

Research interests: Understanding the salicylic acid-mediated biotic and abiotic signaling pathway in plants. Most of the current research in my lab is focused on the characterization of the SABP2-interacting proteins. We hope to develop stress resistant crop plants with less dependence on pesticides and other chemicals.

Dept. of Biological Sciences
Box 70703
East Tennessee State University
Johnson City, TN 37614-1710

Phone: (423) 439-6928
kumard@etsu.edu

Secretary: Dr. Nik Kovinich

Research interests: The evolution and molecular mechanisms of transcription factor networks that regulate the synthesis of important pharmaceutical metabolites in plants. Our current research focuses on elucidating and bioengineering the transcription factor networks that regulate the synthesis of phytoalexins and cannabinoids, important pharmaceutical and plant defense metabolites.

Dept. of Biology
York University
4700 Keele Street, Life Sciences Bldg., 327D
Toronto, ON Canada, M3J 1P3

Phone: (416) 736-2100
kovinich@yorku.ca

Treasurer: Dr. Philipp Zerbe

Research interests: Functional genomics, metabolomics, biochemical and genetic approaches to investigate the biosynthesis, regulation and function of specialized terpenoid metabolites in bioenergy, food and medicinal plants with the goal to develop resources for crop optimization and natural product engineering.

Dept. of Plant Biology
College of Biological Sciences
University of California, Davis
605 Hutchison Drive, Davis, CA 95616

Phone: (530) 754-9652
pzerbe@ucdavis.edu

Editor-in-Chief, Phytochemistry Reviews: Dr. De-Yu Xie

Research interests: Understanding the structure and biosynthesis of plant natural products, particularly flavonoids, terpenes, and alkaloids. Using a combinatorial approach involving phytochemistry, metabolomics, molecular biology, and biochemistry, we study their structures, biogenesis, and metabolic biology. We leverage these insights to produce novel pharmaceuticals and biofuels through metabolic engineering. Additionally, we are exploring innovative methods to screen for natural products with anti-cancer, anti-malaria, anti-viral, and anti-aging properties.

Dept. of Plant and Microbial Biology
North Carolina State University
Campus Box 7612
Raleigh, NC 27695-7612

Phone: (919) 515-2129
dxie@ncsu.edu

ADVISORY BOARD 2024-2025

Thuy Dang
University of British Columbia

Bjoern Hamberger
Michigan State University

William Hay
USDA-ARS

Praveen Khatri
Agriculture and Agri-Food Canada

Hiroshi Maeda
University of Wisconsin-Madison

Soheil Mahmoud
University of British Columbia

These following Past Presidents of the PSNA are also serving on the Advisory Board

Mark Berhow
USDA-ARS

David Gang
Washington State University

Argelia Lorence
Arkansas State University

Dorothea Tholl
Virginia Tech

Li Tian
University of California, Davis

Mark Lange
Washington State University

Fred Stevens
Oregon State University

Lloyd Sumner
University of Missouri

Deyu Xie
North Carolina State University

Ex officio: the PSNA Executive Committee 2024-2025

OTHER COMMITTEES

Membership Committee
Philipp Zerbe (Chair, University of California, Davis)
Daniel Owens (member, University of Hawai'i at Mãnoa)

Awards & Recognition Committee
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Lucas Busta (member, University of Minnesota Duluth)
Thu-Thuy Dang (member, University of British Columbia)
Argelia Lorence (member, Arkansas State University)
Deyu Xie (member, NC State University)

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Mark Berhow (member, USDA ARS NCAUR)
Mark Lange (member, Washington State University)

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Gabrielle Wyatt (Chair elect, UC Davis)
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Aida Shahabi (member, York University)
Melissa Ly (member, York University)
Sarah Pullano (member, York University)
Hyejung Kwon (member, York University)

PSNA Election 2025

Leading us into future...

Dear PSNA members,

We are pleased to announce that the nomination process for the PSNA President position for 2026-2027, and the PSNA Treasurer for 2025-2028 has been completed. We thank all members who participated in the nomination process. To ensure a fair and transparent nomination process, we followed a procedure that included both self-nominations and nominations by others through a survey sent out to all active PSNA members. We are excited to announce that the following candidates have accepted nominations. The election will commence on June 1 and will be open until June 8. All the active members will receive an email invitation to vote. These candidates will be running against any potential write-in PSNA members candidates that are proposed by the electorate. PSNA encourages all the society members to participate in the election process and help decide the PSNA office bearers. Please participate and show your support for the ongoing efforts of the PSNA!

PSNA President 2026-2027:

Dr. Soheil Mahmoud is the sole candidate for the position of PSNA President for 2026-2027. Dr. Mahmoud is an Associate Professor in the Depart of Biology at University of British Columbia (UBC), Okanagan Campus.

Dr. Mahmoud completed his graduate work in the area of plant molecular biology at the University of Calgary. He did his postgraduate studies in the laboratory of professor Croteau at the Washington State University, where he worked on the metabolic engineering of monoterpene biosynthesis in peppermint. In 2006 he joined the Biology faculty at UBC's Okanagan campus to study regulation of volatile isoprenoid metabolism in aromatic plants. He has been a member of the PSNA for over 20 years.

PSNA Treasurer 2025-2028:

Dr. Jeongmin Kim is the candidate for the position of PSNA Treasurer for 2025-2028. Dr. Kim is an Associate Professor in plant biochemistry at the University of Florida. See below the message from Professor Kim.

I am an Associate Professor in the Department of Horticultural Sciences at the University of Florida in Gainesville, FL, USA. My lab investigates plant specialized metabolism, with a focus on phenylpropanoids and defense compounds in crops and medicinal plants. Currently, we are exploring the metabolic crosstalk that links plant growth and defense as part of my NSF CAREER award project. Our goal is to enhance crop yield, nutritional value, and resilience to environmental stresses through genetic modification and metabolic engineering.

I earned my Ph.D. from Purdue University, where I studied plant abiotic stress responses under the mentorship of Dr. Ray Bressan. I then continued at Purdue as a postdoctoral researcher in Dr. Clint Chapple's lab, where I gained extensive training in plant biochemistry and specialized metabolism. Since joining the University of Florida as an Assistant Professor in 2017, I have led the Biochemical Genetics Lab. I became a member of PSNA in 2021 through a colleague's recommendation. As a candidate for PSNA Treasurer, my goal is to support the society by responsibly managing its financial accounts. I look forward to helping the society grow by contributing through service and collaboration with fellow board members.

The 64th annual meeting of the PSNA will be held in **Toronto, Canada at York University** on **June 24-28, 2025**. This long-standing conference brings together researchers with interest in the chemistry, biochemistry and genetics of plant natural products, their Synthetic Biology and their effects on human, animal, and plant physiology and pathology, as well as their uses in agriculture, pharmacology, and industry. To learn more click here https://www.psna2025.com/

Plenary Speaker & PSNA Pioneer Award Recipient

VINCENZO DE LUCA

Professor Emeritus, Brock University

Dr. De Luca is a renowned scientist that specializes on the elucidation of natural product biosynthesis and its cellular organization in plants.

Symposia Sessions and Keynote Speakers

Elizabeth Sattely
(Stanford Univ. & HHMI)

Mark Lange
(Washington State Univ.)

Peter Facchini
(Univ. of Calgary)

Yang Qu
(Univ. of New Brunswick)

Jonathan Ferrier
(Dalhousie Univ.)

Diana Roopchand
(Rutgers Univ.)

Cristiana Argueso
(Colorado State Univ.)

Bao-Hua Song
(Univ. of North Carolina)

SYMPOSIUM I: Metabolic engineering and Plant Synthetic Biology: Elizabeth Sattely
SYMPOSIUM II: Cannabis and Plant-derived Pharmaceuticals: Mark Lange
SYMPOSIUM III: Gene Discovery and Functional Plant Genomics: Peter Facchini
SYMPOSIUM IV: Plant Metabolomics and Pathway Discovery: Yang Qu
SYMPOSIUM V: Indigenous Connections and Traditional Botanical Medicines: Jonathan Ferrier
SYMPOSIUM VI: Phytochemistry of Functional Foods and Human Nutrition: Diana Roopchand
SYMPOSIUM VII: Plant Immunity and Microbiome Interactions: Cristiana Argueso
SYMPOSIUM VIII: Chemical Ecology and Plant-Organismal Interactions : Bao-Hua Song

Meet us at York University, Toronto

PSNA-Frontiers in Plant Science Collaboration

If you are serving as a guest editor/co guest editor for any Research Topics in Frontiers in Plant Science please contact Nik Kovinich (kovinich@yorku.ca). Support PSNA!

Young Members Committee *welcomes you to PSNA 2025*

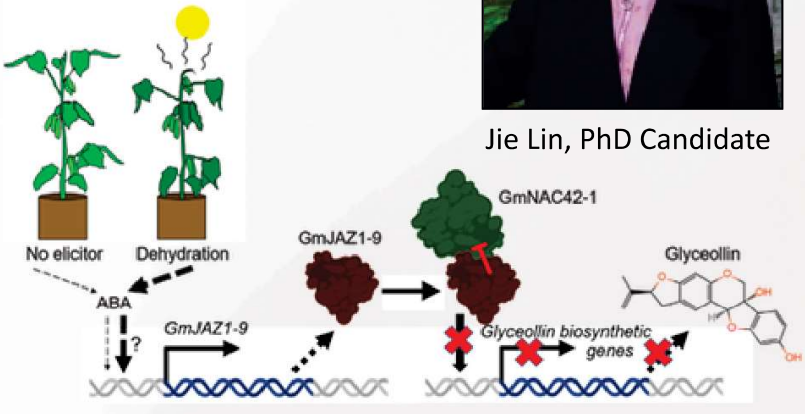
Spring is in the air, and the Young Member Committee is buzzing with excitement as we prepare for PSNA 2025 at York University, Toronto. Get ready for a dynamic program filled with fun and enriching learning activities designed to connect you with both pioneers and emerging leaders in phytochemistry. We're crafting interactive workshops and panel discussions that will provide invaluable opportunities to learn from the leading experts. Building on the success of last year's events, we will once again host PhytoChem Stories, which will provide in-depth accounts of the career trajectories of successful professionals, offering inspiration and guidance for young members. Our goal is to equip young members with the tools and knowledge necessary to thrive in their scientific pursuits.

This spring, the YMC is also launching a new initiative to bring you closer to the history and evolution of phytochemistry. We are thrilled to share our interview with Dr. Vincenzo De Luca, PSNA Pioneer Award recipient and renowned scientist in phytochemistry, whose insights and career milestones will inspire young members. We aim to make this a regular feature, conducting interviews with both established and early-career scientists to provide diverse perspectives and valuable lessons. And, of course, Trivia Night will return with a fresh concept and exciting challenges, providing a fantastic opportunity for learning, networking, and fun for everyone. For more updates, follow our Instagram @psna.official, X @psnaofficial, and Bluesky @psna-official.bsky.social pages! Stay tuned for more details on the PSNA 2025 program. We look forward to seeing you in Toronto!

Publication Highlight

Jie Lin, PhD Candidate

PhD student Jie Lin and colleagues at York University have made a significant advancement in understanding how plants suppress phytoalexin biosynthesis during times of active plant growth. Phytoalexins, such as the glyceollins of soybean, have major roles in protecting plants from microbial pathogens. While the positive regulation of phytoalexin synthesis remains a topic of intense investigation, little was known about how phytoalexin pathways remained suppressed in the absence of pathogen infection.



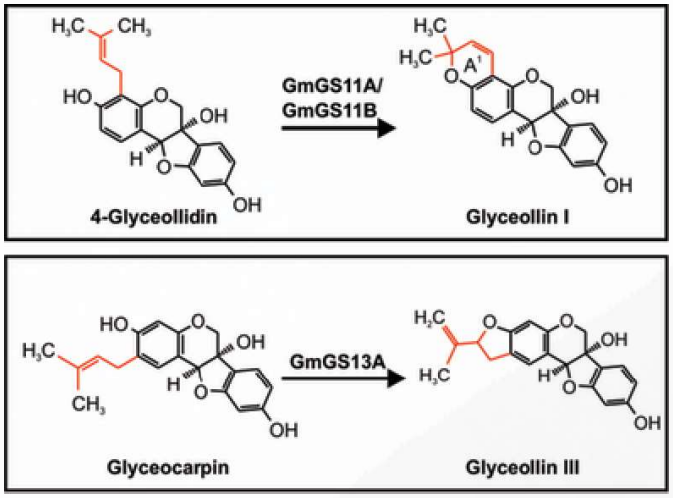
In a recent study published in Current Plant Biology, the team uncovered a novel node of interplay between jasmonic acid (JA) and abscisic acid (ABA) signaling pathways that mediates the long-term suppression of glyceollin synthesis. The study shows that, under long-term dehydration stress, ABA signaling upregulates the expression of JAZ1 genes, whose proteins inhibit the activation of phytoalexin synthesis by interacting with NAC42-type transcription factors. This novel node of ABA-JA interaction opens new avenues for enhancing disease resistance and the production of phytoalexin-based pharmaceuticals in plants. Click here for the full article: https://doi.org/10.1016/j.cpb.2025.100453

Publication Highlight

Praveen Khatri, PhD

The Dhaubhadel Lab at Agriculture and Agri-Food Canada-London, recently ended the four decade long search for the enzymes that conclude glyceollin biosynthesis in soybean. They published a study in *Molecular Plant* identifying three cytochrome P450 prenyl cyclases that catalyze the final committed step in glyceollin biosynthesis. Glyceollins are key antimicrobial phytoalexins that help soybean combat *Phytophthora sojae*, a major pathogen responsible for significant crop losses. These metabolites are also gaining attention for their potential applications in animal health as natural alternatives to antibiotics.

While most glyceollin biosynthetic enzymes were previously identified, the enzyme responsible for the final cyclization step remained unknown. Using transcriptomic analysis of soybean-P. sojae interactions and co-expression network studies, the team identified three cytochrome P450 cyclases (GmGS11A, GmGS11B, and GmGS13A) that catalyze the conversion of glyceollidin and glyceocarpin into glyceollin isomers. Functional assays in yeast and soybean hairy roots confirmed the specificity of these enzymes, marking a major advancement in our understanding of glyceollin biosynthesis.



This discovery opens new avenues for metabolic engineering to enhance soybean disease resistance and biotechnological production of glyceollins for agricultural and pharmaceutical applications.

Check out full article here: https://doi.org/10.1016/j.molp.2025.01.022

Your Publication Highlights in the PSNA Newsletter

The PSNA newsletter (also shared on Facebook, X, Instragram, Bluesky and LinkedIn) highlights your recent publications and features first authors that are current PSNA members. Interested? Then, please send us a brief non-technical summary of your paper including the title and authors, and a publication link and graphical abstract or image, if possible. In addition, provide a photo and a brief statement including the first author's affiliation and research interests.

Please send your contributions (text as word document; images as pdf or jpg files) by email to Nik Kovinch (kovinich@yorku.ca)

We look forward to hearing from you!

Nik Kovinch (Secretary, PSNA)

Co-organized by the ***Botanical Society of America's Phytochemistry Section*** and the ***Phytochemical Society of North America***

Upcoming Phytochemtalks: https://phytochemtalks.github.io/
Recorded Phytochemtalks: https://www.youtube.com/channel/UCFV3OBetZd2-urinwIUVqqw

Organizing Committee

Lucas Busta (University of Minnesota Duluth, USA)
Lars Kruse (University of British Columbia, Canada)
Gaurav Moghe (Cornell University, USA)

Note:

PhytochemTalks is transitioning to **Google Groups**. Please look out for emails with requests to join our group or directly request to join the group via this link: https://groups.google.com/g/phytochemtalks

Become a PSNA Member

Membership in the PSNA is open to anyone with an interest in phytochemistry and the role of plant substances in related fields.

Visit psna-online.org for details!