Newsletter

Volume 62, Number 1



Message from Dhirendra Kumar, PSNA President

Dear PSNA colleagues,

First of all, I would like to thank you all for your continued support to society. I cannot believe that almost a year has passed since I took over as the President of the PSNA. During this time the PSNA advisory committee worked tirelessly to help advance the mission of this society. One of the major of the advisorv committee each year is to help plan for future annual meetings of the PSNA.

This year's annual meeting is organized by Dr. Rocio Diaz de la Graza and Dr. Veronica M. Galindo Rivas at the Tecnologico de Monterrey, Mexico, from July 15-19, 2024. scientific organizing committee has put together an exciting scientific program through various symposia that topics like, include Food Security & Metabolic Wellness,



Synthetic Biology, Plant Plant Human **Functional** and Connections, Plant-Environment Interactions, Indigenous Connections, and much more. International There is an Collaborations/ Grant applications workshop that may be interesting both to the young members and the established scientists who are looking to broaden their research. For more information please visit: https://psna2024.com/# . If you have not registered for the meeting, please do so as soon as possible. You do not want to miss this excellent opportunity.

Phytochemical Society of North America

Phytochemical Society of The (PSNA) America North a nonprofit scientific organization whose membership is open to anyone with an interest 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**

President's message continued...

We also worked to secure venues for future meetings: In 2025: York University, Toronto, Canada (to be Organized by Dr. Nikola Kovinich); 2026: University of Wisconsin-Madison, Wisconsin, USA (to be Organized by Dr. Hiroshi Maeda and Dr. Mike Sullivan); 2027: Cornell University, Ithaca, NY, USA (to be Organized by Dr. Georg Jander); 2028: State Arkansas University, Jonesboro, Arkansas, USA (to be Organized by Dr. Argelia Lorence). On behalf of the PSNA members and advisory committee, I would like to thank all the meeting organizers for kindly agreeing to organize future meetings. If are interested organizing a future meeting, please contact any member **PSNA** of the advisory committee.

During 2024 our long-standing Editor-in-Chief Dr. Reinhard Jetter decided to step down to focus on other projects. We at PSNA are grateful to Dr. Jetter for providing long years of service. We are excited to announce that Dr. Deyu Xie, a long-standing member, past president of PSNA, organizer of a successful meeting at Raleigh, North Carolina, USA, has taken over as the new Editor-in-Chief of Phytochemistry Reviews. PSNA has established a revenuesharing agreement Frontiers in Plant Sciences. If you are considering guest edit an issue for Frontiers in Plant Sciences, please let them know that you are a PSNA member. revenues/ royalties collected are used by PSNA to support various awards. Dr. Deyu Xie is leading this initiative. Please reach out to him or any members of the PSNA advisory committee for

any additional information.

The Young Members Committee is a relatively new committee in the PSNA. In a very short time, it has clearly shown its importance. Currently is chaired by Dr. William Hay. I encourage young members to contact Dr. Hay if you would like to be involved in the society.

The PSNA Awards Committee headed by Dr. Hiroshi Maeda and his team has been working tirelessly to select this year's Neish awardees and The Plant Journal-PSNA Early Career awardees. I am looking forward to their presentations at the 2024 meeting. Please consider applying/ nominating a deserving candidate for these awards.

As my term as PSNA president is drawing to a close, I would like to extend a warm welcome to Dr. Sangeeta Dhaubhadel, who will serve as the President of the **PSNA** for 2024-2025. Dhaubhadel has been serving **PSNA** secretary President-Elect. For the last year we have worked closely, and I will continue to do so in the future in my capacity as past president. Dr. Dhaubhadel has been a dedicated supporter of our society for many years, by serving on various committees and recently as the Secretary. Currently, Dr. Dhaubhadel is a Research Scientist at Agriculture and Agri-Food Canada and an Adjunct Professor in Department of Biology, Western University, Canada. She is a well-organized leader and I am confident that under leadership our society will reach greater heights.

PSNA is a volunteer-led society and we at PSNA need you to consider volunteering your time to help maintain and grow this society. We are always looking for volunteers at all levels. So, do

meetings provide participants with exposure to the cuttingedge research of prominent international scientists, but are small enough to offer informality and intimacy that are conducive to the exchange ideas. This newsletter is circulated to members to keep them informed of upcoming meetings and developments within the society, and the provide forum for a exchange of information and ideas. lf 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.psnaonline.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!

not hesitate, and reach out to us.

Thank you for your continued support for our society. Have an enjoyable and productive 2024! I cannot wait to see you at the 2024 meeting.

Sincerely, Dhirendra Kumar President (2023-2024)



PSNA EXECUTIVES 2022-2023

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Advisory Board 2022-2023

Denisse Atenea de Loera Carrera. Universidad Autónoma de San, Louis Potosí

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PSNA ELECTION 2024

Leading us into the future...



DEAR PSNA MEMBERS,

are pleased to announce that the nomination process for the PSNA President position for 2025-2026, the PSNA secretary for 2024-2027, and the PSNA Treasurer for 2024-2027 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. The PSNA Advisory Council carefully reviewed all the nominations, and after reaching out to the candidates for their willingness to serve, we are excited to announce that the following candidates have accepted nominations.

The election will commence on June 27th and will be open until July 5th. All active members will receive an email invitation to vote. We encourage all society members to participate in the election process and help decide the PSNA office bearers. These candidates will be running against any potential write-in PSNA member candidates that are proposed by the electorate. Please watch out for the emails from PSNA.

PSNA President 2025-2026:

Dr. Brenda S. J. Winkel is the sole candidate for the position of PSNA President for 2025–2026. Dr. Winkel is currently a professor in the Department of Biological Sciences at Virginia Tech. See below the message from Professor Winkel.

Dear colleagues,

It is an honor to be nominated to serve as PSNA president for 2025-2026. I am a professor of biological sciences at Virginia Tech, where I have been a member of the



faculty for 32 years. I earned my Ph.D. with Rich Meagher at the University of Georgia and did postdoctoral training with Howard Goodman at Harvard Medical School/Massachusetts General Hospital. My leadership experience includes serving as founding director of Virginia Tech's Molecular Plant Sciences Program (2004-2006) and eight years as head of the large Department of Biological Sciences (2010-2018). My research group established Arabidopsis flavonoid biochemistry as a model for understanding the intracellular organization of plant specialized metabolism, building on the pioneering work of Geza Hrazdina at Cornell in the 70's and 80's. Highlights include publishing, in 1999, the first direct evidence for enzyme interactions in the flavonoid pathway, consistent with the long-suspected "flavonoid metabolon." Subsequent discoveries included the surprising localization of these enzymes to the nucleus (2005) and very recently the finding that flavonoids influence the circadian clock (2022), possibly through highlyspecific interactions with protein targets in the chloroplast, the focus of our current work.

I attended my first PSNA Annual Meeting in 2001 in Oklahoma City, OK. Organized by Rick Dixon, then at the Noble Foundation, it was widely seen as the first conference to highlight the emerging connections between classical biochemistry and molecular approaches in the phytochemistry field. I also attended the meetings at the Danforth Center (2007) and at East Tennessee State (2019). I remember these occasions well, also as ones where I first met many of the greats in the phytochemistry field for the first time. However, it

PSNA ELECTION 2024

Continued...

was not until then-president Dorothea Tholl invited me to help organize the 61st conference in 2022 at Virginia Tech that I developed an appreciation for the "behind-the-scenes" workings of the PSNA, including its highly-effective leadership team that continues to place a premium on supporting and promoting the next generation of phytochemists.

In 2024, the PSNA finds itself in a very strong position, the legacy of ongoing innovation by its leadership present and past. For example, the society is now beautifully represented by the newly-redesigned web site, which not only provides details for upcoming conferences four years in advance (!), but lists phytochemistry-related job openings, and provides a user-friendly portal for renewing annual memberships. Similarly, the recent hybrid conference formats and the virtual seminar series are broadening the society's accessibility and reach. These innovations are helping to sustain a robust and vibrant phytochemistry community, one that I would be honored to serve as president in concert with the society's forward-looking leadership and advisory/support committees.

PSNA Secretary 2024-2027:

Dr. Nikola Kovinich is the candidate for the position of PSNA Secretary for 2024-2027. See below the message from Professor Kovinich.

I am an Associate Professor of Systems Biology at York University in Toronto, Canada. My research focuses on the transcription factor networks that regulate the biosynthesis of important pharmaceutical and agriculturally-relevant specialized metabolites in plants, and on developing genetic engineering approaches for Cannabis sativa.



Il received my Ph.D. in 2011 from Carleton University in Ottawa, Canada, under co-supervisors Brian Miki and John 'Thor' Arnason. My PhD advisors included Sangeeta Dhaubhadel (AAFC) and Vincenzo de Luca (Brock University). My postdoctoral studies in Dr. Erich Grotewold's lab at the Ohio State University focused on understanding fundamental mechanisms of metabolite transport in plants. In 2012, I was awarded a Pelotonia Postdoctoral Fellowship to study how semi-synthesis could be combined with plant metabolic engineering to produce novel anticancer drugs. In July of 2015, I joined West Virginia University as an Assistant Professor to

research how plants regulate the biosynthesis of phytoalexins, which are pathogen-inducible metabolites that have important roles in plant defense, and are also pharmaceuticals in industry.

As a student, in 2009 I attended my first PSNA conference at Towson University, Maryland. My PhD cosupervisor, John 'Thor' Arnason (University of Ottawa), encouraged me to attend, mainly because of what a great culture it is. The collegiality and positivity of the members at that meeting was life-changing. That was my first international meeting. I won a 'Best Oral Presentation' award, and, in 2022, the Arthur Neish Young Investigator Award. That year, I joined the PSNA Advisory and the Publications Committees. I have been serving the PSNA in that capacity ever since.

As PSNA Secretary, I will record minutes and organize the Advisory Committee meetings. I will ensure that the items on the agenda are carried out completely. My plans for the PSNA are to help its growth in membership, especially the young members, so that they may earn the friendships and intellectual experiences that this amazing society has to offer.

PSNA Treasurer 2024-2027:

Dr. Philipp Zerbe is the candidate for the position of PSNA Treasurer for 2024-2027. See below the message from Professor Zerbe.

I am a Professor at the Department of Plant Biology at UC Davis. My group investigates the diversity, biosynthesis, and function of terpenoid specialized metabolites in crop stress defenses and environmental adaptation in food and bioenergy crops. In addition, we are interested in the



discovery and characterization of terpenoid-metabolic pathways relevant to crop aroma metabolism as well as the production of bioactive terpenoids in several medicinal plants.

I got involved with PSNA since 2015 through encouragement by my postdoctoral PI. My plans as a treasurer for PSNA would be Continue managing our financial accounts, taxes, CA non-profit organization, and assist with the improve of membership payments through the new website.

63RD ANNUAL MEETING OF THE PHYTOCHEMICAL SOCIETY OF NORTH AMERICA



The PSNA at Tecnológico de Monterrey is prepared to be an exceptional gathering, with a specific focus on translational research in phytochemistry. Assembled at the esteemed Instituto Tecnológico y de Estudios Superiores de Monterrey (Tecnológico de Monterrey), this event brings together foremost experts, researchers, and practitioners dedicated to bridging the gap between fundamental discoveries in unlocking the potential of plant compounds to address various societal challenges and improve quality through translational phytochemistry. To learn more click here https://psna2024.com/

ERICH GROTEWOLD

Professor and Chairperson of the Department of Biochemistry, MSU



Plenary talk: Dr. Erich Grotewold is a renowned scientist in the area of plant systems biology. His main research focus is on understanding the control of plant gene expression and establishing the architecture of plant gene regulatory networks.

Workshops:

Plant Metabolic Networks: Dr. Charles Hawkins

Deadlines:

Please visit https://psna2024.com/

Symposia Sessions and Keynote Speakers





Dr. Codruta Ignea



David Wishart



Leticia M. Cano Asseleih



CICY - Centro de Investigación Científica de Yucatán



Elizabeth Floyd Center, Baton Rouge, Louisiana.



Enrique Herbet Pucheta Instituto Politécnico Nacional



ling-Ke Weng



Laila Pamela Partida

SYMPOSIUM I: Chemistry, Food Security & Nutrition- Dr. Elizabeth Floyd SYMPOSIUM II: Gene Discovery & Functional Genomics - Dr. Andrea Doseff

SYMPOSIUM III: Plant Synthetic Biology- Dr. Codruta Ignea

SYMPOSIUM IV: Translational Phytochemistry Symposium- Jing-Ke Weng SYMPOSIUM V: Ecology & Plant & Environment Interactions - Dr. Laila P. Partida

SYMPOSIUM VI: Indigenous Connections Symposium- Dr. Blanca Marina Vera, Dr.

Letica Cano SYMPOSIUM VI: New Technologies, Analytics & Pathway Discovery Symposium- Dr.

Enrique Pucheta SYMPOSIUM VII: Computational Biology- Dr. David Wishart

PSNA EXECUTIVES 2022-2023

Current PSNA Executive Committee Members

President: 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.

President Elect & Secretary: 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.

Past President: Li Tian

Research interests: My research group is interested in understanding how phytonutrients (e.g. phenolics) are made in plants using molecular, genetic, and biochemical tools. We also examine how accumulation of phytonutrients in plants is controlled by different factors under various environmental conditions. Our long-term goal is to apply the knowledge obtained from these investigations to improve the nutritional value and agronomic performance of crop plants.

Treasurer: 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.

Editor-in-Chief, Phytochemistry Reviews: Deyu Xie

Research interests: My group investigates structure, biosynthesis, metabolic engineering, medicinal and other applications of plant natural products. We use an integrative approach of functional genomics, metabolomics, genomics, biochemistry, and genetics to discover new compounds and elucidate the biosynthesis of flavonoids and terpenoids.















Organizing Committee

Lucas Busta University of Minnesota Duluth Lars Kruse University of British Columbia

Gaurav Moghe Cornell University

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

Your Publication Highlights in the PSNA Newsletter

The PSNA newsletter (also shared on Twitter and Facebook) 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 Sangeeta Dhaubhadel (sangeeta.dhaubhadel@agr.gc.ca).

We look forward to hearing from you!

Meet PSNA's New Editor-in-Chief: Dr. De-Yu Xie



Dr. De-Yu Xie is a Co-Editor-in-Chief for Phytochemistry Review. He is a full professor in the Department of Plant & Microbial Biology, North Carolina State University. Dr. Xie earned his Ph.D. in Plant Physiology in the Institute of Botany, Chinese Academy of Sciences in 1997. Then, he completed his postdoc training at the National University of Singapore from Aug. 1997 to Dec. 2000 at Noble Foundation from Jan. 2001 to May 2005. In Aug. 2005, he started his tenure-track assistant professor in his current department. He was a recipient of the Arthur C. Neish Young Investigator award of PSNA in 2009. He served as the president to serves as an associate editor for Planta, Frontiers in Plant Sciences, and Journal of Integrative Plant Biology. He serves a Co-Editor-in-Chief for Planta from August to December 2023.

His research interests center on structure, biosynthesis, metabolic engineering, and medicinal application of plant natural products. His research themes focus on plant flavonoids and terpenoids. In plant flavonoids, his main scientific contributions include (1) the discovery of the anthocyanidin reductase (ANR) pathway and metabolic engineering of flavan-3-ols and proanthocyanidins, (2) flavonoid carbon cation, and (3) the discovery of plant papanridins, flavanol polymerase, and flavanol polymerization. Other topics in plant flavonoids include structures of biosynthesis, regulation, and metabolic engineering of anthocyanins and flavonols. In plant terpenoids, his main contributions include cytogenetics of Artemisia annua, crystallization artemisinin from transgenic materials, development of self-pollinated A. annua, and discovery of artemisinin biosynthesisnion-glandular trichome cells. In addition, his lab has been interested in developing molecular tools for plant improvement folite plant traits.

An appreciation from Zhen Wang: Recipient of the PSNA2023 Arthur C. Neish Young Investigator Award

On November 16th, 2018, Dr. Vincenzo De Luca invited me to visit his lab at Brock University. By then, I just started my independent research lab in the University at Buffalo, SUNY. I had no prior publications in the plant natural product research field as a graduate student or a postdoc. However, I steadfastly believed in plants' magnificent healing power since my family used to give me traditional Chinese medicine when I was sick. I was very grateful for Dr. De Luca's warm invitation as I was this new kid in the block and he was a well-respected expert who I secretly admired from reading his papers. In Dr. De Luca's greenhouse filled with beautiful blossoms of periwinkle, the plant that produces the anti-cancer drug vinblastine and vincristine, I asked him which professional conferences he would recommend, he



highly recommended the Phytochemical Society of North America to me. That was the first time I learned about PSNA.

Fast forward three years, after my lab gathered some preliminary data on identifying genes responsible for producing digoxin, an essential drug for heart failure, in foxglove plants, my graduate student Emily Carroll presented these freshly collected data in her poster on the 2021 PSNA meeting (virtually). She won the best poster award! That award was the very first recognition of our work. She and I felt tremendously supported by the nurturing community of PSNA. After the meeting, Emily returned to lab with refreshed enthusiasm, while I started my long journey to submitting proposals to fund our research.

I didn't have any success with my proposals for another two years, so I attended the 2022 PSNA meeting virtually to save the last bit of startup fund for research. However, Emily's progress was robust; she identified the first and the rate-limiting enzyme for digoxin biosynthesis, cytochrome P450 steroid side-chain cleaving enzyme, which had been obscure for half a century since the 70's. This work opened the door to elucidate the entire digoxin biosynthetic pathway and laid the ground work for producing digoxin analogs in microbes.

In early 2023, I started to get nervous about my upcoming tenure evaluation in the fall since I still hadn't secured any funding. That was when Dr. Li Tian nominated me for the Arthur Neish Young Investigator Award. I was extremely grateful for this nomination. In hindsight, this nomination was followed by a string of wonderful events in the next few months. On April 10th, Dr. Hiroshi Maeda, the Chair of the PSNA Award Committee, notified me I got the award! The email knocked me off my chair! I was filled with gratitude for the entire day. What followed a week later was that the National Science Foundation finally decided to fund my research. Two months later, Emily's paper was accepted by Nature Communications. In August, I won another grant from the National Institute of Health. In mid-July, I received the Arthur Neish Young Investigator Award with Drs. Benjamin Lichman, Peter Lundquist, and Gaurav Moghe during the 2024 PSNA annual symposium at Michigan State University. It was so much fun to interact with them and connect with like-minded people. Thanks to the PSNA community, I found my professional home.

Earlier this year, before my tenure dossier was submitted to the College for evaluation, I learned from my Department Chair's letter that many external letters from experts in my field pointed out that I received the PSNA Arthur Neish Young Investigator Award, which speaks loud for the prestige of PSNA awards. I am truly grateful to the PSNA community, which has given tremendous support, inspiration, and encouragement to early-career scientists like me. I feel obligated to give back by serving on the PSNA Young Members Committee and wish to carry the baton to support PSNA and nurture the next generation of phytochemists.



An appreciation from Lars Kruse: Recipient of the PSNA2023 TPJ early Career Award

In 2023, I received the prestigious PSNA-TPJ Early Career Award. This recognition is a great honour and a significant milestone in my journey as a scientist. It places me among distinguished scientists who have previously received this award, an honour that fills me with pride and humility.

My journey with the PSNA, attending meetings over the past years, has been incredibly rewarding. The yearly meetings have become something like a scientific home for me. This award feels like a rite of passage, showing me that my contributions to phytochemical research are recognized and valued within our community.

Moreover, the chance to contribute a review article to The Plant Journal represents a

significant opportunity to share the research that I am passionate about. I am confident that this contribution will facilitate my transition to an independent research position. The recognition and visibility afforded by this award are precious as I navigate the path toward securing a faculty position and leading my own independent research lab. The journey through academia can be daunting and challenging. Acknowledgment of our efforts, as provided by this award, is a vital source of motivation, reminding us of the impact and significance of our work.

This award has also enhanced my self-perception as a scientist and reinforced my confidence in my abilities and contributions to phytochemistry. I am eager to further my involvement with the society and look forward to reconnecting at our forthcoming meetings, whether in Monterrey, Mexico or Toronto, Canada.

Please accept my heartfelt thanks for this recognition and for support from the PSNA and The Plant Journal. I am truly honoured to be a part of this vibrant community and am excited about the future contributions I hope to make to our field and society. Thank you.

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!

