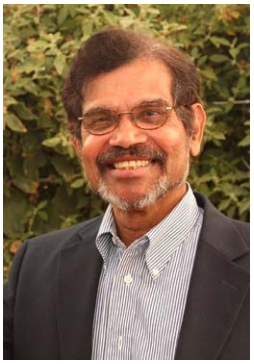
American Society of Pharmacognosy

Winter 2022

Discovering Nature's Molecular Potential

ASP Newsletter: Winter 2022, Volume 58, Issue 4

New ASP Fellows Announced



Dr. Leslie Gunatilaka
PHOTO: THE UNIVERSITY OF ARIZONA

Dr. Ikhlas Khan
PHOTO: OLE MISS COMMUNICATIONS

Dr. Hung-wen (Ben) Liu
PHOTO: UT AUSTIN

Dr. Nicholas Oberlies
PHOTO: UNC GREENSBORO

Dr. Philip Proteau
PHOTO: COURTESY OF PHILIP PROTEAU

By Vanessa Nepomuceno, PhD

The ASP announced four new ASP Fellows, Drs. Leslie Gunatilaka, Ikhlas Khan, Nicholas Oberlies and Philip Proteau. These new Fellows, nominated by the existing Fellows and ratified by the ASP Executive Committee during the 2022 annual meeting, include prominent long-time members of ASP as well as others with distinguished careers in natural product research. In addition, Dr. Hung-wen (Ben) Liu joined the rank of ASP Fellow by virtue of receiving the 2022 Norman R. Farnsworth ASP Research Achievement Award, the highest honor bestowed by the Society.

ASP Fellows Chair Dr. Gordon Cragg wrote, "It is my pleasure and privilege to welcome these prominent members of our Society as new members of the ASP Fellows community. As outlined in the article below, they have made, and continue to make, outstanding contributions to the advancement of our discipline, and we look forward to their serving as advisors to the ASP and as advocates for the ASP and the natural products field."

Recognition of the ASP Fellows is a time-honored ASP tradition. Fellows are recognized for their sustained and extraordinary scientific contributions and serve as global advocates for the Society. They actively contribute to the ASP by providing counsel in scientific and professional matters that are pertinent to the Society. Among this august group of scientists are previous ASP "Norman R. Farnsworth Research Achievement Award" recipients (formerly known as the ASP Research Achievement Award).

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Employment Service

The Society offers a placement service to aid our members in seeking positions or employees. This service is available only to ASP members and is free to both the applicant and the employer.
For more information see the services website.

www.pharmacognosy.us/jobs/

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Editor's Corner

American Society of Pharmacognosy

By Edward J. Kennelly, PhD

In this issue of the *Newsletter*, we highlight five new ASP Fellows that were approved by the Executive Committee at the 2022 annual meeting in Charleston. Please read the lead article to learn more about these distinguished scientists, Drs. Leslie Gunatilaka, Ikhlas Khan, Hung-wen (Ben) Liu, Nicholas Oberlies and Philip Proteau. I also want to thank Dr. Vanessa Nepomuceno for taking on writing this article. Vanessa started writing for the *Newsletter* as a doctoral student and has enthusiastically continued to undertake assignments for almost five years. The *Newsletter* relies on volunteers like Vanessa to write articles, and we appreciate the many authors who contribute to this publication. If you have an interest in writing for the *ASP Newsletter*, please be sure to reach out to us.

The Diversity, Equity and Inclusion Committee continues to be a very active part of the Society, and this issue includes two of their "Taking Action" contributions. ASP Vice President Dr. Tawnya McKee has written a very helpful article about how to apply for a grant, from the perspective of an NIH program director. Her insightful advice is useful not only for new investigators but for seasoned scientists as well. The DEI Committee also reviewed their special event at the 2022 ASP Annual Meeting on inclusive membership, with two guest speakers. Finally, the DEI Committee continues to offer undergraduate summer research to support Black, Indigenous and/or Latinx undergraduate students in lab-based research under the supervision of an ASP faculty mentor. If you know of potential applicants, please be sure to forward the announcement in this issue.

An important mission of the *Newsletter* is to recognize the achievements of ASP members. When I learned that the University of Illinois at Chicago was honoring ASP member Dr. Brian Murphy with their inaugural Global Engagement Faculty Award, I wanted to be sure to cover this somehow in the *ASP Newsletter*. Through much discussion, Brian agreed to write about his experience in Vietnam as long as he could focus on the achievements of his Vietnamese colleagues. I think the resulting article provides important insights on what it takes to develop a meaningful and productive international collaboration in natural products. If you know of professional achievements of ASP members that you think should be covered in the *Newsletter*, please be sure to send us the information.

The *ASP Newsletter* continues to look for ways to streamline its content. After a poll of ASP members by the *ASP Newsletter* Advisory Committee in summer 2022, we were able to get a better sense of what members want in the *Newsletter*. We have been in conversations with the ASP Executive Committee about ways to make changes, and we hope to implement more of these over the course of 2023. If you have particular requests, please reach out to us. I especially want to acknowledge and thank the former chair of the *ASP Newsletter* Committee, Dr. Michael Mullowney, for all his help thinking about how to implement changes in the *Newsletter*. His perspective and hard work has been extremely valuable. Michael has stepped down as chair but will continue to participate in the committee.

I hope you have a great holiday season. Being on sabbatical in the laboratory of ASP member Dr. Roger Linington has provided me with new insights about natural product metabolomics. As I head back to New York, I will take the lessons I learned working in this mountaintop campus with an amazing group of scientists back to my own group. I wish us all a productive 2023! ■

New ASP Fellows Announced

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Dr. Leslie Gunatilaka is the Director for the Natural Products Center at the University of Arizona. He received his BS in chemistry from the University of Ceylon, Sri Lanka and doctorate in chemistry from the University of London. Gunatilaka remained at the University of London for his postdoctoral fellowship under the guidance of Prof. Derek H.R. Barton, a Nobel Laureate in Chemistry. Gunatilaka held academic appointments at the University of Peradeniya, Sri Lanka and Virginia Polytechnic Institute and State University before joining the University of Arizona in 1997. Currently, he is a professor with the School of Natural Resources and the Environment in UA's College of Agriculture and Life Sciences. Gunatilaka has over 200 publications and is a Fellow of the Academy of Sciences for the Developing World, Italy, and the National Academy of Sciences, Sri Lanka. His research interests include: the discovery, identification of protein targets, and structure-activity relationship studies of natural products; maximization of chemical diversity and production of microbial and plant secondary metabolites; and scientific investigation of medicinal plants and herbal supplements. Gunatilaka commented,

> **"I was pleasantly surprised, but humbled and honored to receive Gordon's message about my election as a Fellow of the ASP, a Society that is committed to promoting and advancing natural product science. I am indeed grateful to the current ASP Fellows for recognizing our international and multidisciplinary collaborative research efforts in natural products-based drug discovery and development. As a Fellow, I look forward to sharing my excitement for natural products research and help foster innovative approaches for natural products-based drug discovery within the ASP community."**

Dr. Ikhlas Khan received his bachelor's degree in chemistry and his master's degree in organic chemistry from Aligarh Muslim University in India. He continued on to complete his doctorate in pharmacy at the Institute for Pharmaceutical Biology in Munich, supervised by the late Dr. Hildebert Wagner. Khan did his postdoctoral studies at the Department of Pharmacy at the Swiss Federal Institute of Technology in Zurich, Switzerland before joining the University of Mississippi as a research assistant professor. He is now a distinguished professor and director of the National Center for Natural Products Research. In addition to authoring over 700 articles, Khan is the recipient of numerous awards, a member of the advisory board for *Planta Medica* and has served on committees for the US National Institutes of Health. His research interests include the utilization of analytical tools in evaluating the quality and safety of dietary supplements, microbial transformation and fingerprinting and standardization of marker compounds in plant natural products.

> **"I am honored to be elected as a Fellow of the ASP," Khan stated. "I am humbled to join the group of eminent scientists and the group of Fellows who serve the natural product community."**

Dr. Nicholas Oberlies is the Patricia A. Sullivan Distinguished Professor of Chemistry in the Department of Chemistry and Biochemistry at the University of North Carolina at Greensboro (UNCG). He obtained his bachelor's degree in chemistry from Miami University in Ohio and pursued his doctorate in medicinal chemistry and pharmacognosy from Purdue University. He then went on to complete a postdoctoral fellowship at American Cyanamid before joining the Natural Products Laboratory at Research Triangle Institute. In 2009, he became a faculty member at UNCG. An author on over 200 publications, Oberlies has also received several accolades including the 40 Under 40 Leadership Award from the *Triangle Business Journal* and the North Carolina Distinguished Speaker Award from the NC division of the American Chemical Society. His research group works on many projects including the discovery of bioactive metabolites from fungi, investigating the chemistry of milk thistle, and understanding the mechanisms underlying drug-diet interactions. When asked to comment about this honor, Oberlies responded demurely,

> **"Sitting amongst this team of scientists, many of whom I have looked up to for decades, is humbling and an extreme honor."**

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Notably, Proteau has been dedicated to scientific literature, having served as associate editor of the *Journal of Natural Products* from 2008 until 2020 when he was appointed editor-in-chief. As editor, Proteau has brought increased exposure to natural products biosynthesis studies and insightful perspective pieces to engage readers of the journal.

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Dr. Philip Proteau obtained a bachelor's degree in chemistry from the University of Washington and a master's degree in organic chemistry from the California Institute of Technology. He then earned a doctorate in medicinal and natural products chemistry at Oregon State University under the supervision of ASP Fellow Dr. William Gerwick. As an NIH postdoctoral research fellow, he worked on isoprenoid biosynthetic pathways at the University of Utah under Dr. Dale Poulter. Currently, he is an associate professor at Oregon State University. His highly collaborative research endeavors include the discovery of novel anti-fungal cyclic peptides, known as hassallidins, and the synthesis of a small fungal metabolite to revise a structure. Notably, Proteau has been dedicated to scientific literature, having served as associate editor of the *Journal of Natural Products* from 2008 until 2020 when he was appointed editor-in-chief. As editor, Proteau has brought increased exposure to natural products biosynthesis studies and insightful perspective pieces to engage readers of the journal. When reached for comment, Proteau stated,

> **"I am deeply honored to be selected as an ASP Fellow. This recognition was completely unexpected, but I am looking forward to working with this group of distinguished scientists to serve the Society in a new capacity."**

Dr. Ben Liu the George H. Hitchings Regents Chair in Drug Design in the College of Pharmacy at the University of Texas at Austin, received the 2022 Norman R. Farnsworth ASP Research Achievement Award at the 2022 ASP Annual Meeting in Charleston, and a detailed description of his career and research accomplishments appeared in the last issue of the *Newsletter.*

Selection as an ASP Fellow is among the highest honors that the Society can impart to a research scientist in the field of natural products. The Society celebrates and congratulates these exceptional individuals. Along with gratitude for their dedication to advancing ASP initiatives, the Society looks forward to their continued success and work towards the advancement of natural product science.

Over the past year prominent members of the Society have passed away, including three Fellows, Drs. George Robert (Bob) Pettit, K-H Lee and Otto Sticher, and two honorary members, Drs. John Cassady and Hildebert Wagner. ASP Fellows are anticipated to serve lifetime terms, and these valued members were no exception. The Society remembers them fondly along with their lasting legacy of scientific achievement and tireless dedication to the ASP. ■

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Sanchez Awarded 2022 ASP Suffness Award

By Roger Linington, PhD and Phil Crews, PhD

Dr. Laura Sanchez, associate professor of chemistry and biochemistry at the University of California, Santa Cruz (UCSC), was awarded the 2022 ASP Matt Suffness Young Investigator Award. Her award lecture has been rescheduled for the 2023 ASP Annual Meeting in Bethesda, MD.

ASP President Dr. Amy Wright states, "Dr. Laura Sanchez is a shining star of ASP and very deserving of receiving the Suffness Award for Excellence in Natural Products Research. The breadth and impact of her work is exceptional, and I am confident that Dr. Suffness, who was an inspiration to many of us, would be equally pleased at her receiving the 2022 award."

Sanchez began her scientific training at Whitman College where she earned the opportunity to participate in the Research Experiences for Undergraduates' Summer Undergraduate Research Fellow program at UCSC. Charmed by the location and research environment in Santa Cruz and the exciting outcome of being included as co-author on a publication while still an undergraduate,[1] she returned to UCSC to pursue a PhD degree.

During this period she engaged in natural products discovery by employing synthesis alongside mode of action determination for microbial natural products and was supported by a National Science Foundation predoctoral fellowship. One of the most highly cited publications from her dissertation describes the discovery of new lead compounds for leishmaniasis.[2] Continuing scientific growth was propelled by an interest in using analytical approaches, and this occurred when Sanchez moved to the University of California San Diego for postdoctoral studies.

With support from a National Institutes of Health Institutional Research and Academic Career Development Award she developed tools and technologies as part of the Global Natural Products Social Molecular Networking (GNPS) group, becoming an expert in mass spectrometry-based methods in natural products science. Sanchez was a co-author on the GNPS seminal, highly cited publication (n = 1,645).[3] From there she transitioned to a highly successful independent career at the University of Illinois at Chicago where she quickly rose to the rank of associate professor of pharmaceutical sciences and cemented her signature for collaborative research. Strikingly, just before moving back to UCSC in 2021, she was among 110 co-authors on an attention-grabbing paper published on metabolomic data mining and data integration.[4]

Dr. Laura Sanchez at the UCSC campus.
PHOTO: CAROLYN LAGATTUTA

Sanchez's independent research career has focused on applications of tandem and imaging mass spectrometry to study the chemical basis of interspecies communication. Applications of this technology range from the examination of host-microbe interactions (e.g. *Vibrio cholerae* colonization of murine tissue) to the development of new biomarkers for early-stage detection of ovarian cancer. Central to these studies is a focus on integrating data from separate disciplines (e.g. analytical chemistry and microbiology) to uncover new relationships between small molecules and their cognate functions in complex systems. This work represents an exciting new direction for the field, using modern technologies to address complex and important research questions that were previously inaccessible in the "pre-omics" era.

Mentoring and outreach continues to be a central focus for Sanchez and her professional engagements at UCSC, and she is deeply engaged in STEM programs. Immedi-

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"The breadth and impact of her work is exceptional, and I am confident that Dr. Suffness, who was an inspiration to many of us, would be equally pleased at her receiving the 2022 award."

Sanchez Awarded 2022 ASP Suffness Award

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Sanchez speaking at the SIMB annual meeting.

ately on arriving at UCSC as a faculty member in 2021, she joined an NIH funded Bridges to the Baccalaureate Program in the Chemical and Biological Sciences. Recently she also became affiliated with the UCSC team heading a new STEM venture, the UCSC-HBCU Network for Success in the Chemical/Biological Sciences. Furthermore, in October 2021 she participated as one of the speakers, along with Associate Prof. Alegra Eroy-Reveles (UCSC) and ASP member Prof. Daniel Romo (Baylor U) in the inaugural UCSC Symposium *Powered by Chemistry, Strengthened by Diversity*. Sanchez used past lessons learned in academia and delivered inspirational stories that were much appreciated by the many younger scientists in attendance.

Overall, the ASP community can continue to look forward to many more exciting discoveries being made by Sanchez and her team. Her pathway to discovery continues to be robust because of deep training in bioanalytic chemistry. Often Sanchez will tell anyone that will listen to her (or read her >6,000 tweets), "I was always fascinated by the chemical arsenal that microbes are capable of producing."

Sanchez is emerging as a thoughtful mentor and an impactful role model. Throughout her academic career Sanchez has never been surrounded by a lot of other Hispanics. In this regard, a few years ago, she noted that the low representation of her ethnic group has only become more apparent as she has risen in the field. "The older you get, the more you realize you're the only one in the room that looks like you," said Sanchez. Another observation from Sanchez is "having and listening to good mentors can help the most. But finding a good mentor can be more difficult than people think. A mentor should be someone who wants the best for a student, which is not necessarily always the student's supervisors. Sometimes students find out too late that the person they thought was their mentor doesn't have their back. Finding your support network/village can be difficult. You need to seek it earlier. Don't wait until there is a crisis."

Sanchez clearly is well deserving of the 2022 ASP Matt Suffness Younger Investigator Award, given her status as a top young investigator and her commitment to carrying on the memory and legacy of the late Dr. Suffness. Many longtime ASP members can still remember Suffness as a tireless leader who devoted his career to interdisciplinary research. Associate Professor Laura Sanchez embodies this philosophy with her deep commitment to interdisciplinary research and her ongoing dedication to providing training and advancement opportunities to trainees in the field. Together, these attributes make her an ideal recipient for this major ASP award. ■

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ASP Gears Up for 2023 Washington, DC Area Meeting

By Craig Hopp, PhD

Planning is well underway for the 2023 ASP Annual Meeting from **July 22-26** in Rockville, MD, with easy access to the heart of Washington, DC. Registration and abstract submission will open in mid-January. The theme of the meeting is Innovation Through Interaction and promises to highlight cutting edge science in a historical venue.

Be sure to mark your calendars with the following important meeting dates. The deadline for abstract submission is **April 15**. We also encourage the ASP membership to submit nominations or applications for the many awards offered by ASP. These include the Suffness Award, Tyler Prize, Farnsworth Award, and various travel grants and awards. The award submission deadline is **February 15**. Please visit the meeting website frequently at http://aspmeetings.pharmacognosy.us/ for additional updates.

The venue for the 2023 ASP Annual Meeting is the Bethesda North Marriott Hotel and Conference Center. The hotel is steps away from the North Bethesda metro station which will take you directly to the National Mall downtown. It is also across the street from a recently redeveloped area known as Pike and Rose. There are too many bars, restaurants, and other attractions to list! If you want a place for a run, bike ride, or just a relaxing stroll, the Bethesda Trolley Trail is close by and provides a four mile path to explore.

Did you know the location for America's capitol was personally chosen by George Washington in 1790? From that point onward, Washington, DC has become a living archive of our nation's history. Whether you want to visit one of the numerous Smithsonian museums, galleries, and the National Zoo (all free admission!), view all the monuments along the National Mall, or take in the historic neighborhoods and their world class cuisine, there is something for visitors of all ages and interests. Navigating the city is made easy by the extensive metro rail and bus system. There are many additional attractions nearby including George Washington's home (Mount Vernon), Maryland's Eastern Shore, and the Shenandoah mountains.

Topics for the various symposia and sessions have been selected. Currently, our opening symposia for Sunday are titled "Where Chemistry and Biology Meet" and "Natural Products that Modify Macromolecular Interactions." The organizing committee is busy identifying and inviting a diverse and exciting roster of speakers. We are proud to highlight award presentations from Laura Sanchez (2022 Suffness Award), Djaja Djendoel Soejarto (2022 Tyler Prize), Robert Verpoorte (2023 Tyler Prize), and Sheo Singh (2023 Farnsworth Award). Our social event will be at the Smokey Glen Farm where we look forward to a family friendly evening featuring a great barbeque and games. Start brushing up on your cornhole skills now!

We look forward to seeing all our new and old friends at next year's meeting! ■

Currently, our opening symposia for Sunday are titled "Where Chemistry and Biology Meet" and "Natural Products that Modify Macromolecular Interactions."

Taking Action: ASP 2022 DEI Special Event on Inclusive Mentorship

DEI Workshop 2022 PHOTO: WENDY STRANGMAN

By Wendy Strangman, PhD

This year's special diversity, equity and inclusion (DEI) workshop at the 2022 ASP meeting in Charleston, SC centered on the theme "Inclusive Mentorship" and was led by two fantastic facilitators, Professor Shanina Sanders Johnson from Spelman College and Professor Marvella Ford from the Medical University of South Carolina. With over 120 ASP members in attendance, the educational and interactive event was a great success.

LEFT: Dr. Shanina Sanders Johnson PHOTO: COURSE HERO
RIGHT: Dr. Marvella Ford PHOTO: EMMA C. VOUGHT

Both speakers presented not only about their professional development as women of color in chemistry but also provided specific actions we can take to improve mentoring of students and trainees in our research groups and programs. The second half of the workshop was an interactive question and answer session between the facilitators and the ASP attendees and provided a diverse pool of questions and conversations that continued throughout the remainder of the ASP conference.

Sanders Johnson started off the workshop by defining mentoring and provided an overview of how she rose through the ranks of academia. In particular, she highlighted the importance that mentoring had in the success of trainees. She spoke about how effective mentoring for women and underrepresented students in STEM can be highly impactful toward helping to develop "science identities" and directly leads to increased retention in STEM field careers.

Importantly, Sanders Johnson also outlined concrete steps ASP members and others can take to intentionally improve their mentoring. These included best practices such as ensuring that expectations are aligned and that rapport is built between the mentor and mentee (including showing an interest in the identities of your STEM trainees outside of their scientific contributions) as well as encouraging mentees to take ownership for their portion of the mentorship experience.

These positive actions can reinforce mentee's beliefs in their abilities as well as help to balance invalidating experiences women and people of color often experience both in STEM career paths and in the rest of their life experiences. Sanders Johnson provided specific examples of actions mentors can take to aid their trainees outside of the lab in developing networking skills such as introducing mentees to their professional networks and encouraging them to participate in professional organizations like the ASP.

Finally, she stressed that effective mentorship is not an individual task but that "mentorship networks" at the departmental and organizational levels should be established and utilized, as these can provide safe spaces and additional guidance for both mentors and mentees on power dynamics, mentoring strategies, and evidence-based tools. Mentorship networks can also provide accountability mechanisms and review and evaluation of mentorship experiences.

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Taking Action:

ASP 2022 DEI Special Event on Inclusive Mentorship

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Ford echoed the concepts introduced by Sanders Johnson and added her experiences and personal insights advancing from high school to her current role as a full professor and Associate Director of Population Sciences and Cancer Disparities at the MUSC Hollings Cancer Center. She provided additional insights into effective mentoring models such as the "Mentoring Up" program for effective postdoctoral scholar mentorship, which complemented the student traineeship best practices illustrated by Sanders Johnson. Mentoring Up includes six key components: 1) maintaining effective communication, 2) establishing and aligning expectations, 3) assessing understanding of scientific research, 4) addressing diversity, 5) fostering independence, and 6) promoting professional development.

Ford also stressed the importance of creating and maintaining a formal mentoring contract between mentor and mentee that outlines roles, responsibilities and expected outcomes for both parties. She discussed the pilot study called Disparities Research Equalizing Access for Minorities (DREAM) scholar program which incorporated both scholarship and career development components. This program, which incorporates mentoring and focused writing retreats for participants, resulted in a high level of publications and grant proposals authored by the largely female and minority comprised cohort that acted as a springboard for their continued success.

Focused programs like the DREAM project can provide high impact results with long lasting effects in promoting diversity, equity and inclusion goals and could be a goal of future ASP events. ■

2023 ASP Summer Research Fellowship

We need **you** to help spread the word to help us recruit the next generation of natural products scientists! Please share with your colleagues and approach students to apply to the **ASP Summer Research Fellowship Program**.

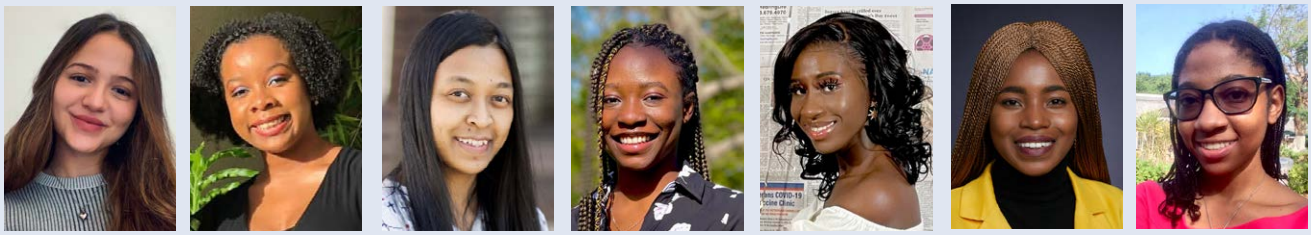
We offer a 2.5-month program to support Black, Indigenous and/or Latinx undergraduate students in lab-based research under the supervision of an ASP faculty mentor. The program includes:

$5,000 stipend
Lab research experience
Professional development workshops

Applications are due **February 1-March 1, 2023:**

https://www.pharmacognosy.us/asp-summer-research-fellowship/

Proud former recipients below:



Lorena Valentin, Victoria Casimir, Jessia Raherisoanjato, Nana Oblie, Ama Boamah, Mitchelle Katemauswa, Ariel Richards.

Taking Action: Grant Tips from an NCI Program Director, Part I

By Tawnya McKee, PhD

One of the most daunting things you will face when starting an academic career is obtaining and maintaining research funding. There are funding opportunity announcements (FOAs) for every career stage, as a graduate student, postdoc, staff or research scientist, and it is essential as an assistant professor and beyond. With overall success rates of R01s holding around 15% NIH-wide, it may seem like an impossible task, but it is not.

As a program director at the National Institutes of Health (NIH), National Cancer Institute (NCI), part of my job is to be your advocate: helping figure out the system, identifying funding opportunities (FOAs) that fit your research, and helping navigate the grant process when submitting your grant applications. Once funded, I also monitor your progress, making sure all the federal requirements that come with your award are met. There are hundreds of program directors all over the NIH in every institute, and each has an area(s) of scientific expertise that is reflected in the grant portfolio we administer. I cannot write your application, and I do not get to pick who gets funded, but I do know the process; I can help identify which study section to request and help figure out how to respond effectively to review critiques. Once the review takes place and you have your summary statement, we should talk. But I'm getting ahead of myself…

The entire grants process can be viewed as having five basic parts: Process, Opportunities, Application, Review, and Response. Most new or young investigators race to begin with writing applications. Experience has taught me that those who take a more systematic approach are often funded earlier than those who go straight to writing applications. So where should you start?

General Process. To be successful writing grant applications, you need to understand both the institution funding the grant and the process they use to determine which applications they will fund. Before doing anything else, you should get acquainted with the institution. I am a federal employee. The federal government has many agencies that fund research. There is NIH, National Science Foundation, Department of Defense, and those are just the ones that come to mind immediately. Beyond the government, there are lots of other grant funding sources including foundations and societies. Each has a focus where they put their money, and each has a unique process. It is essential to understand these as you apply.

The Grant Process at NIH. There is a lot of information about the general grants process at NIH, both on the NIH website but also on the websites of every NIH institute as well (NCI; NICCIH; NIGMS). There are also webinars, podcasts, and even a devoted YouTube channel. These resources will explain the grants process, take you through the grant application writing process, and much more. Many universities also offer grant writing classes, which should definitely be taken if offered. However, you need to be aware of what agency they assume you are applying to as it will inform what you emphasize in your application.

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To be successful writing grant applications, you need to understand both the institution funding the grant and the process they use to determine which applications they will fund.

Taking Action: Grant Tips from an NCI Program Director, Part I

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For example, NIH is a biology-focused place. That does not mean that they are not interested in chemistry or that they are not interested in how chemistry can move the mission forward. It means that everything is envisioned through a biological lens and successful applications are too. Chemistry is the tool; biology is the why. Successful applications are centered around biology. For example, in my portfolio I have many technology-development grants. Even though the overall goal is the development of a technology (for instance, developing a chip that mimics a tissue like bone marrow), they are always formed by the context of a specific biological need (the need for more effective drug development targeting that tissue specifically, like bone metastases).

NIH publishes a list of all funding opportunities and notices in the NIH Guide daily. At the end of each week (usually on Friday afternoon), they send a Weekly NIH Funding Opportunities and Notices email to the NIH Guide LISTSERV summarizing new FOA postings for the week.

Opportunities. At NIH all applications for grants must be in response to a funding opportunity announcement or FOA. Funding announcements fall into several categories: R (R01, R03, R21, R33) research announcements; T (T32, T35) training announcements; K (K01, K08, K23, K99/R00) career development announcements; F (F30, F31) fellowship announcements; administrative supplement announcements; and post-award action announcements: Type 6 Successor-in-Interest (PI change within the same organization) and Type 7 Change of Recipient Organization (PI moves to a different organization and the grant-holding institution releases the grant to the new institution). The parent or omnibus FOAs are for investigator-initiated research. For a list of FOAs please visit grants.nih.gov/grants/guide/parent_announcements.htm.

Every institute at the NIH participates in the R01 parent, but they do not all participate (accept applications) in all the parent FOAs. For example, the NCI does not accept applications for the parent R21 FOA; they accept R21s that are in response to NCI-specific FOAs only. Each institute lists their FOAs on their website. NIH publishes a list of all funding opportunities and notices in the NIH Guide daily. At the end of each week (usually on Friday afternoon), they send a Weekly NIH Funding Opportunities and Notices email to the NIH Guide LISTSERV summarizing new FOA postings for the week. NCI often refers to this mailing as the "weekly Table of Contents" or "weekly TOC." Subscribe today! It is an easy way to be informed about all the new opportunities. The FOA will identify applications that are due, budget limits, earliest start dates, areas of particular interest and special requirements and/or review criteria. Read and follow them carefully.

At the bottom of every FOA are listed program directors (PDs) from (usually) every participating institute. If you have questions about a particular FOA, they are the experts (generally they were involved in writing it and getting their institute to participate) and should be contacted first if you have questions about whether your research is appropriate for a particular FOA. It is important to take any opportunity to meet PDs. NCI often has a booth at many major meetings and that is one way to meet them. You can also identify who covers your research area by looking at staff websites. Here are the sites for two ASP members who are PDs at NIH: Patrick Still, www.nccih.nih.gov/about/staff/patrick-still, and Barbara Sorkin, ods.od.nih.gov/About/Barbara_Sorkin.aspx. These websites can help identify PDs that handle grants in your area of research.

Reach out and get to know them by setting up an appointment (by email; do not just call them out of the blue) to discuss your research, to help you identify FOAs and study sections, and to discuss your summary statements. Those who develop a relationship with the PDs assigned to their applications do much better on revision applications. In my case, 85% of the funded grantees in my portfolio have spoken to me at least once; many talk to me about every application. These relationships help me see where the field is moving or needs to move and where there are gaps and opportunities. As a student or postdoc, your PDs most likely will be in the institute's training branch; they can also help with mid-career training or re-entry as well. For me, my interactions with the applicants are a favorite part of my job.

Next time we will discuss writing applications, the review process and summary statements: how to approach and respond effectively to them. ■

Hot Topics in Pharmacognosy

Miscellaneous Current "Musings"

By David J. Newman, DPhil

This commentary will cover both antibiotic and cytotoxic structures that have either novel elements in their structure(s) and novel targets or are produced using methods that have been developed that are targeted against what might be considered activation of "microbial dark matter," thus giving access to novel small molecule agents via activation of the source microbe's DNA.

SELENOSULFONAMIDE DERIVATIVES

The first agents to be discussed are antifungal agents that contain selenium rather than the usual sulfur atoms. These are small molecule agents that, though synthetic, use molecular scaffolds that are very common in natural products and variants thereof. These seleno-containing molecules have the unusual target carbonic anhydrases (Enzyme Code 4.2.1.1) in pathogenic fungi. The recent paper by Angeli et al.[1] in *ACS Infectious Diseases* demonstrates the potency of very simple seleno-derivatives (as shown below). Although these derivatives have very little activity against the usual human fungal pathogens such as *C. albicans* and *C. glabrata*, there are simple selenosulfonamides (**1-3**) with MICs of <1 ug.ml^{-1} against *M. pachydermatis;* though ketoconazole was superior, the figures were comparable to amphotericin which is not a drug that patients want to use due to its significant side effects. From a hemolytic and/or cytotoxicity aspect, selected compounds demonstrated a ten-fold safety factor when compared at their MICs, with some (not shown) being superior to ketoconazole.

Though a clinical candidate was not identified at this stage, the simple chemistries utilized bodes well for future agents against the *Malassezia* spp., which are involved in a variety of skin diseases both in humans and in animals and for which there are no easy treatments.

CRYPTIC ANTIPROLIFERATIVE METABOLITES

The second paper is one from the Seyedsayamdost group at Princeton[2] covering the targeted discovery of cryptic metabolites that uncovered antiproliferative agents. This is work that has built on the extensive work performed by this group at Princeton since the early report by Seyedsayamdost in *PNAS* in 2014.[3] In that paper he demonstrated that trimethoprim at subinhibitory concentration acted as a global activator of at least five biosynthetic pathways in the pathogenic microbe *B. thailandensis*.

In the 2022 paper, the Princeton group reported using *S. clavuligerus* (the producer of the well-known beta-lactamase inhibitor clavulanate) as the host organism (reported in 2017 as having at least 49 putative secondary metabolite clusters, 24 in its lineal chromosome and the rest in its 1.8 Mb-plasmid (pSCL4) with 25, though there are three more plasmids whose contents had not yet been published as of 2017).[4] In addition, they utilized *S. griseus* and *Amycolatopsis jejuensis*. These were coupled to a high throughput assay system using MTT as the indicator for test cell growth/inhibition using HCT116 and MDA-MB-231 cell lines. They did remove some of the elicitors known to have antiproliferative activity from their analyses. They discovered the polycyclic clavamates plus other agents, some known but none that currently would be suitable for development. However, the system was not designed to find "clinical candidate" but to demonstrate its flexibility and usefulness by extending the "HiTES system" to find cytotoxins, which they succeeded in doing.

ACTIVATION OF CRYPTIC CLUSTERS IN E. COLI

If we now move from New Jersey to Connecticut, the Crawford group at Yale have just published a very interesting paper on what can be produced when *E. coli* is placed under a cellular stress. In this paper[5] they reported that, though they expected to find another pyrazinone-related molecule when they continued to investigate the result of erythromycin-induced translational stress, instead they discovered an unexpected tetracyclic

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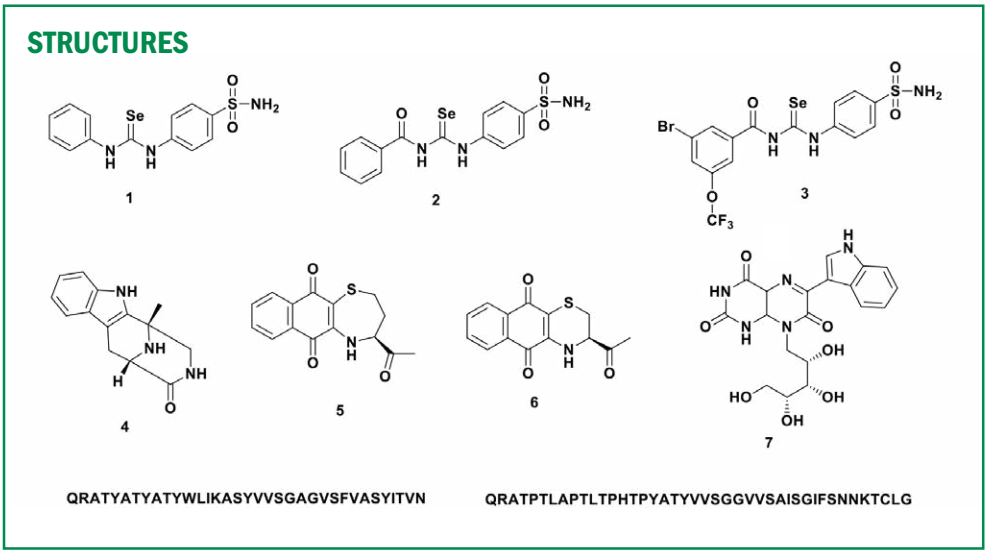

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indole alkaloid (**4**) plus two naphthoquinone metabolites (**5, 6**) and four lumazines. One of the lumazines (**7**) is an indole-functionalized analogue that modulates the anti-inflammatory fate of isolated T_H17 cells and is also an aryl hydrocarbon agonist.

Thus, though working in quite different systems, these recent papers demonstrate that the "dark matter" in microbes contains a large series of unexpected molecules which can lead to novel agents against a variety of diseases, thus adding to the potential of even very well studied microbes dating from even the dawn of active agents from microbes.

RIPPS FROM B. CEREUS

To finish, the recent paper by Fan et al.[6] identifies the interesting RiPP lantibiotic isolated from the toxin-producing *B. cereus* SJ1. This compound consists of two polypeptides, Bsjα (**8**) and Bsjß (**9**), known as Bicereucin (**8 plus 9**). This hemolytic dimer is active against MRSA and vancomycin-resistant *Enterococci*. What is of import is the presence in both strands of two D-Ala residues which play essential roles in the antibiotic activity; then by subtle modifications, the authors' derived variants Bsjα^{S17A} plus native Bsjß or Bsjα^{S30A} plus Bsjß^{T19A} maintained antibiotic activities with no hemolytic activity. Thus, these could lead to novel antibiotics in due course. ■

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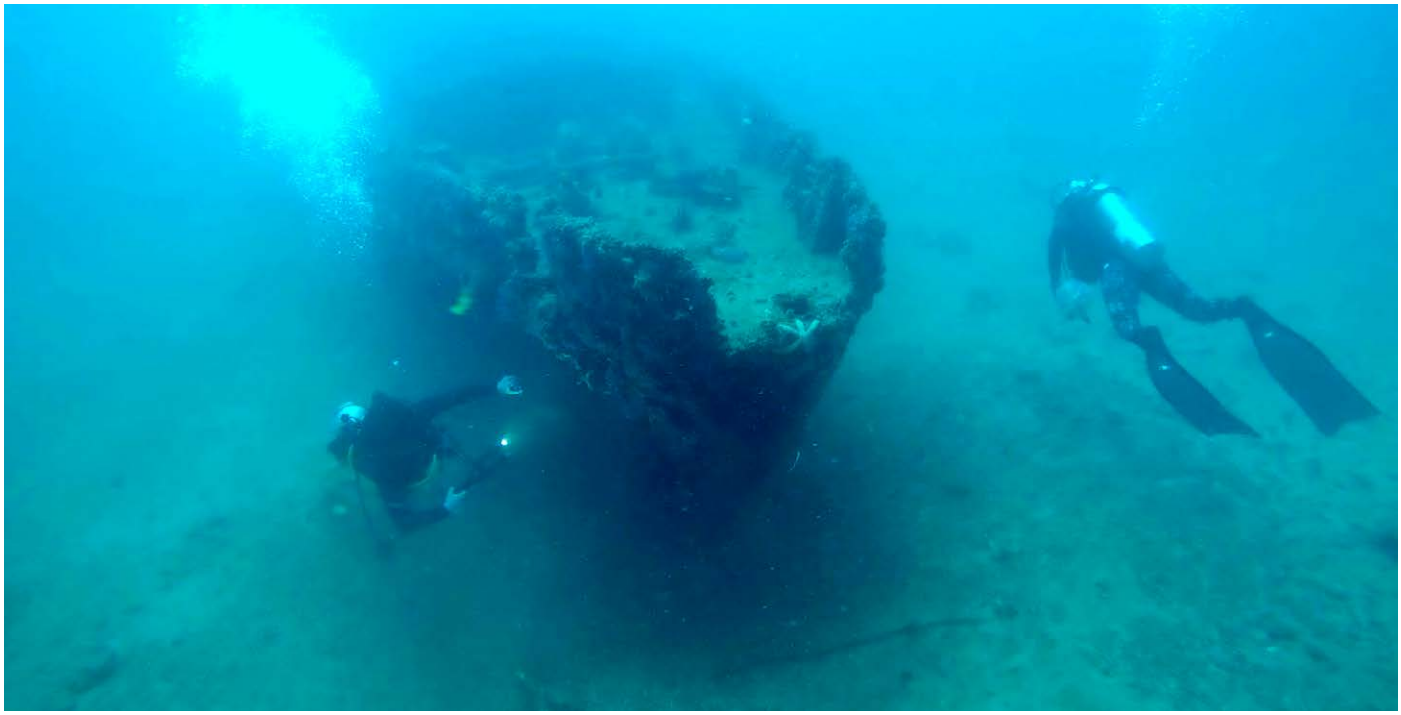
Pharmacognosy Field Notes:
A Growing US-Vietnam Partnership in Natural Products Antibiotic Discovery

Editor's Note:
ASP member Dr. Brian Murphy, a professor at the University of Illinois Chicago, College of Pharmacy, in the Department of Pharmaceutical Sciences, has been recognized by his institution with the inaugural Global Engagement Faculty Award based on his work in Vietnam. Murphy describes the history of this international partnership below.



Dr. Brian Murphy and "Mr. Phuong" escaping dynamite fishing off a shipwreck in Phu Qui Island.

By Brian Murphy, PhD

Partnership between the University of Illinois Chicago (UIC) and the Vietnam Academy of Science and Technology (VAST) dates back to the early 1990s, when Professors Doel Soejarto and Nguyen Van Hung led collaborative teams to engage in drug discovery, biodiversity conservation, and economic development in Vietnam. This program, which focused predominantly on terrestrial medicinal plants, involved multiple institutions across the US, Vietnam, and Laos, and was funded by the MacArthur Foundation (1994-1999) and the National Institutes of Health under an International Cooperative Biodiversity Groups grant (1998-2012). The partnership accomplished several impactful outcomes, which will be covered in Soejarto's 2022 ASP Tyler Prize address at the 2023 ASP Annual Meeting.

In 2010, the same year I was hired as an assistant professor at UIC, VAST established the Institute of Marine Biochemistry (IMBC) in Hanoi. Its mission was to engage in research and technology development projects centered on natural product discoveries from greater than 3,000 km of coastline along Vietnam's eastern shore. Then Director of IMBC Chau Van Minh and Deputy Director Van Cuong Pham set out to create marine microbial

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Pharmacognosy Field Notes: A Growing US-Vietnam Partnership in Natural Products Antibiotic Discovery

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ABOVE LEFT: **NIH D43 trainees**

ABOVE RIGHT: **NIH D43 trainees on a collection expedition. L-R: Dr. Quyen Thi Vu, Dr. Tuan Anh Tran, Dr. Linh Nguyen, Trang Thu Duong, Mai Anh Nguyen.**

natural products expertise at the institute; so after an introduction from Soejarto, a new collaboration formed between my laboratory and that of Prof. Pham. Our long-term objective was to acquire NIH funding to support drug discovery, training of early career scientists, and capacity building within IMBC. However, to accomplish this, we had to first prove to future reviewers that a partnership between our two institutions could result in publication of results in peer-reviewed journals.

We initially sought small seed grants from UIC in order to support the travel of an IMBC student to train in my laboratory for six months (Quyen Vu, July 2014 – December 2014). We used these funds to create a pilot microorganism and small molecule fraction library at IMBC, which over the course of the next few years led to four collaborative publications and the graduation of Vu. I made several trips to Vietnam between 2011 and 2015. During these years Pham worked to negotiate sample collection permits at various marine locations across the East Sea, while I provided field collection workshops for IMBC students. These early years of collaboration were critical, as it was during these visits that we built trust, as-

NIH D43 Annual Meeting in Hanoi, Vietnam.

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Pharmacognosy Field Notes: A Growing US-Vietnam Partnership in Natural Products Antibiotic Discovery

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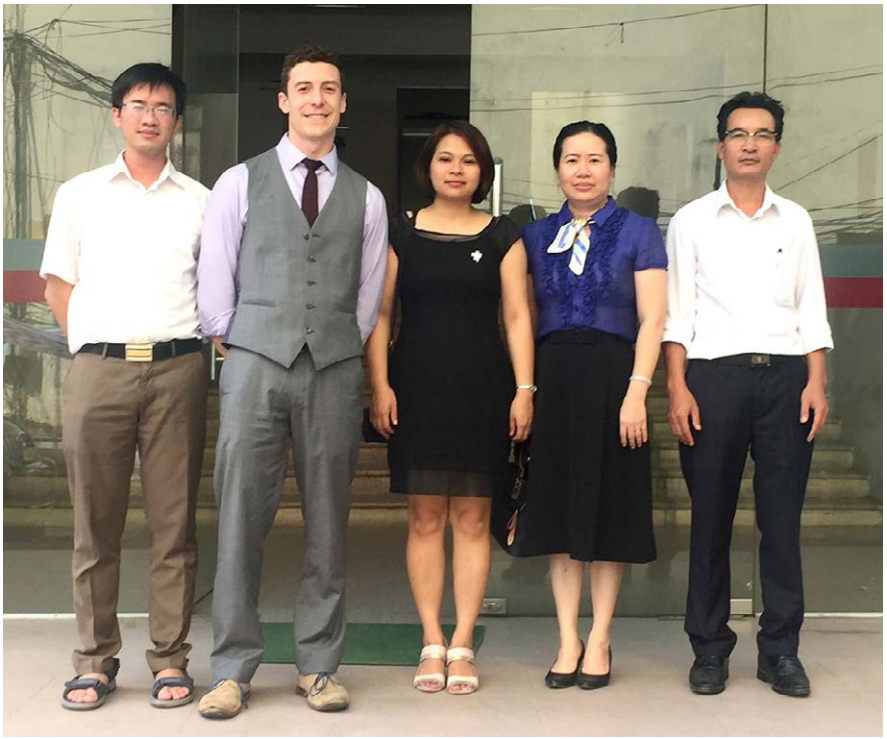
sembled data that would put us in a favorable position to acquire NIH funding, and detailed specific long-term goals for our partnership.

Given the rich history of natural products research at VAST, particularly from medicinal plants, IMBC was an ideal site for an international drug-discovery collaboration. IMBC presently has ~80 full-time researchers and permanent staff. I was fortunate to partner with several professors who all run successful discovery programs: Pham (currently Director of Scientific Affairs at IMBC), whose research bridges natural product synthesis and discovery from plants and marine-derived bacteria; Dr. Huong Thi Mai Doan (currently Deputy Director of IMBC), whose research now focuses on the creation of marine bacterial libraries and generation of natural product lead libraries from marine-derived bacteria, and the discovery of bioactive natural products from a variety of sources; Dr. Hai Dang Nguyen (currently Vice Rector at the University of Science and Technology of Hanoi), whose expertise lies in molecular biology, microbiology, and small molecule analytics; and Dr. Minh Le Thi Hong, whose research now focuses on natural product discovery from marine-derived bacteria and fungi.



LEFT TO RIGHT: **Drs. Hai Dang Nguyen, Brian Murphy, Quyen Thi Vu, Huong Thi Mai Doan, Van Cuong Pham.**

Backed by multiple years of preliminary data, in 2017 Pham and I applied for and received an NIH D43 grant to continue our partnership. The goals of the D43 mechanism were to strengthen infectious disease research capacity in international partnering countries. The first funding period of our D43 program (2017–2022) was designed to bridge a gap between basic/translational and clinical antibiotic research by creating infrastructure and a researcher training program at IMBC and the National Institute of Hygiene and Epidemiology (NIHE) in Hanoi. Our plan was to utilize host-country resources to develop antibiotic discovery research infrastructure to combat *Mycobacterium tuberculosis*. The program accomplishments: we transitioned two

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Over the past decade our collaborative team built research infrastructure for a self-sustaining marine microbial natural products discovery program at IMBC/USTH/NIHE. To evidence this success, in the past four years IMBC researchers published greater than ten studies related to microbial natural product discovery that are independent of UIC, highlighting their growing expertise in an area that complements their already strong natural products discovery programs.

Pharmacognosy Field Notes: A Growing US-Vietnam Partnership in Natural Products Antibiotic Discovery

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Linh, Tuan Anh, Quyen, Hue Thi Nguyen.

IMBC and one NIHE postdoctoral trainees to independent investigator positions at their home institutions through two years of intensive research and PI training at UIC; we provided research and classroom training in antibiotic discovery to predoctoral students at IMBC; and we enhanced biological assay research infrastructure through creation of an in vitro *M. tuberculosis* screening program at NIHE.

The three trainees are now running their own research programs at IMBC/NIHE and are poised to train the next generation of natural products scientists at VAST. Dr. Tuan Anh Tran, who studied in the laboratory of Dr. Alessandra Eustaquio at UIC, was co-author on two publications during his training. His research focused on genome mining of natural products from neglected Actinobacteria and the development of a CRISPR-Cas12a system for genome engineering of a *Burkholderia* sp. Importantly, Tran's program is the first research program in Vietnam to introduce the study of natural product biosynthesis and genome mining. Dr. Linh Nguyen, who studied in my laboratory and was co-author on two publications, studied bioinformatics-guided antibiotic discovery and will incorporate several novel microbial library building and screening methods at IMBC. Dr. Lien Pham studied at the Institute for Tuberculosis under Drs. Sanghyun Cho and Scott Franzblau at UIC, was co-author on one study, and has been trained and became proficient in employing a suite of in vitro bioassays involving *M. tuberculosis* that will serve as the bridge between IMBC and NIHE natural product discovery programs. The three new investigators were recently awarded an NIH R01 grant ("Identification of antimicrobial reagents against TB and ESKAPE pathogens from bacteria collected in Vietnam," NIAID R01AI160696-01, PI Tran, PI L. Nguyen, Co-I L. Pham).

Over the past decade our collaborative team built research infrastructure for a self-sustaining marine microbial natural products discovery program at IMBC/USTH/NIHE. To evidence this success, in the past four years IMBC researchers published greater than ten studies related to microbial natural product discovery that are independent of UIC, highlighting their growing expertise in an area that complements their already strong natural products discovery programs. Looking forward (2022–2027), our team aims to develop antibiotic discovery-focused coursework at USTH/IMBC that serves to recruit the next generation of infectious disease researchers in Hanoi, create additional areas of disease fighting expertise through long-term postdoctoral training, and strengthen the support network of IMBC researchers through administrative training. We aim to continue to elevate northern Vietnam as a center for natural products collaboration in the next decade. ■

We aim to continue to elevate northern Vietnam as a center for natural products collaboration in the next decade.

Meet a New ASP Member

Dr. Shaurya Chanana

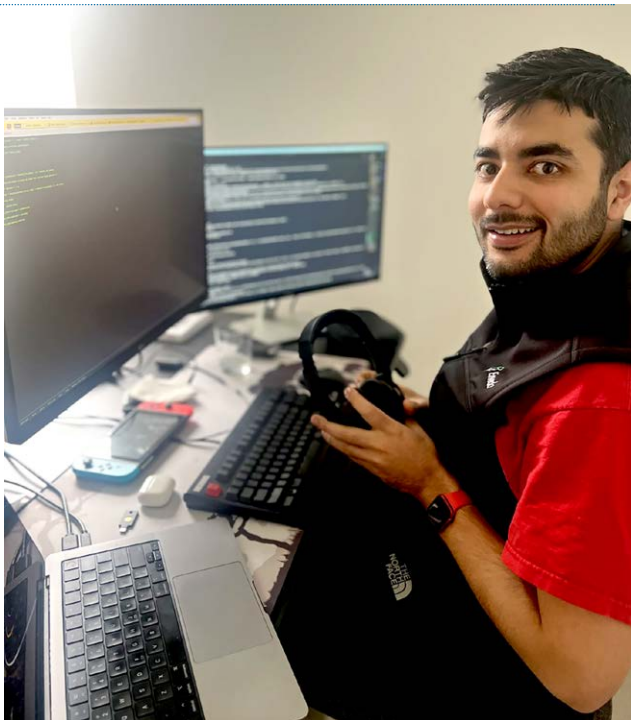
Dr. Shaurya Chanana *is our featured new member in this issue of the* Newsletter.
After receiving his PhD from the University of Wisconsin Madison with Professor Tim Bugni, he then worked at the National Cancer Institute with Jason Evans, Dr. Tanja Grkovic, and Dr. Barry O'Keefe. He has since transferred to Enveda Biosciences where he now works as a data scientist and software engineer. We are pleased to welcome Dr. Chanana to ASP!

By Wendy Strangman, PhD

What are your research interests in pharmacognosy?
My current research interests are in medicinal plants and how they can be helpful for human health and disease. Plants have been used throughout history as a source of food, building materials, and medicine, thus underscoring their importance in our lives. With the number of health problems looming over the human population today, we need access to both interesting sources of drugs as well as chemically novel and biologically active drugs. In order to investigate potentially useful chemicals, we're using metabolomics to our advantage. I wear two hats at Enveda; as a data scientist, I find solutions to initially intractable metabolomics problems, and as a software engineer, I productionize that solution to be scalable.

What is your scientific background?
My journey started out in BITS, Pilani in India where I obtained a bachelor's degree in pharmacy (Hons). My encounter with natural products was in a course titled Pharmacognosy. It was a very lightweight survey course with a few deep dives in some key areas.

It piqued my interest, but it was after joining Prof. Tim Bugni's lab for my PhD at the University of Wisconsin–Madison that I really got into natural products-based drug discovery. Led by Tim, our group was always trying to get better at finding novel natural products for use in human health from marine invertebrate-associated bacteria. What's important to realize is that we dealt with many thousands of metabolites and 99% of them were completely unknown. I was able to find my niche doing statistical analyses on this vast metabolomic data obtained from the microbes so that we could prioritize specific chemical compounds that could be of interest to our group. I built a few successful tools and algorithms to speed up the process of finding novel chemical entities from the thousands of unknowns.



Dr. Shaurya Chanana PHOTO: DEEPA ACHARYA

After successfully obtaining my doctorate, I was fortunate enough to work with Jason Evans, Dr. Tanja Grkovic, and Dr. Barry O'Keefe at the National Cancer Institute in Frederick, MD. I helped them investigate not just marine but fungal and plant-based metabolomics for new cancer therapies. In addition to being excellent mentors, they showed me how important data management can be with large scale automation in play.

I was then attracted by the mission of Enveda Biosciences, a tech-bio company doing cutting edge research in the domain of plant metabolomics, and their objectives aligned well with my own career goals. I started working with large scale plant metabolomic data to develop new ways to interrogate the metabolomics space more fully and accurately as well as build cloud-based

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Meet a New ASP Member: Shaurya Chanana

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I think as the field of natural product metabolomics grows, it will become increasingly important to have scientists who have been trained in the lab and possess abundant domain context, in addition to coding and data infrastructure skills, to really begin to ask questions that can only be answered with lots of data points.

solutions for a mature metabolomics pipeline that can handle humungous amounts of data.

In order to really understand the problem of large-scale data, let's take an example: a (data) scientist develops a new clustering algorithm that allows them to quickly aggregate hundreds of features from mass spec data into groups. These groups enable the scientist and their group to identify large scale patterns in the bacteria they isolate, and soon they're using those patterns to inform various downstream analyses. However, if that same solution is used for 1 million features, it does not work as quickly or at all. The scientist must figure out how to build a scalable way to deploy that solution in a high-performance cluster or in a cloud service (such as AWS). It is at this translational intersection that I often find myself in my work.

I think as the field of natural product metabolomics grows, it will become increasingly important to have scientists who have been trained in the lab and possess abundant domain context, in addition to coding and data infrastructure skills, to really begin to ask questions that can only be answered with lots of data points. I hope I can continue to grow my skillset and advance the field of natural product metabolomics.

How did you hear about the ASP?
I attended my first ASP meeting when it was held in Lexington, KY in 2018. I was fascinated by the fact that there were literally dozens of us doing interesting things with natural products. It was also a blast putting faces to the names that I'd only seen in papers.

Why did you decide to join ASP?
I formally joined the ASP as a professional in 2022 when I attended the meeting in Charleston, SC. I joined because ASP is very much related to the work I do; it is firmly within the domain of natural products drug discovery.

What would you like to achieve through your membership?
I would like to continue learning about all the exciting research the community is doing and stay in touch with my peers and colleagues at the yearly meetings.

What other scientific societies do you belong to?
Other than the ASP, I belong to the American Society for Mass Spectrometry (ASMS).

What do you like doing in your spare time – movies, activities, etc.?
I try to split my spare time between learning different new things and watching new things. For example, I'm currently learning about the burgeoning field of ML/AI through various short courses. In the watching department, I'm currently consuming a lot of Minecraft content through Twitch and YouTube. And in my spare-spare time, I read a lot of fantasy fiction; I'm currently on *Silence of the Unworthy Gods* by Andrew Rowe.

Is there anything else you would like other ASP members to know about yourself?
Two fun facts: I'm married to another ASP member, Dr. Deepa Acharya, who was featured in the last issue; and I often use a Gwen Stefani song to help people spell my last name. I'll leave that one open so folks can figure it out! ■

I wear two hats at Enveda; as a data scientist, I find solutions to initially intractable metabolomics problems, and as a software engineer, I productionize that solution to be scalable.

New Members of ASP Winter 2022

ASP would like to welcome our new members. The Society's main objectives are to provide the opportunity for association among the workers in pharmacognosy and related sciences, to provide opportunities for presentation of research achievements, and to promote the publication of meritorious research. New members include 7 full members and 18 associate members. We look forward to meeting you and learning more about you and your work.

FULL MEMBERS

Mr. Sam Afoullouss
Ireland

Dr. Omaish Alqahtani
Saudi Arabia

Dr. Neha Garg
United States

Dr. Leslie Gunatilaka
United States

Dr. Chowdhury Hossain
Bangladesh

Mr. Yuya Kakumu
Japan

Dr. Mirjana Seskar
United States

ASSOCIATE MEMBERS

Dr. Abdulfatai Temitope Ajiboye
Nigeria

Mr. Michael Akintubosun
United States

Mr. Ibeabuchi Ali
Nigeria

Ms. Shahzeena Arshad
Pakistan

Ms. Amina Bradley
United States

Mr. José D.D. Cediel-Becerra
United States

Mr. Moctar Chaibou
Niger

Mr. Ezequiel Cruz Rosa
United States

Dr. Lee Goodloe
United States

Mr. Osagie Igbinovia
Canada

Dr. Koshi MacHida
Japan

Mr. Micah Matthew
Nigeria

Dr. J.A.P. McCrary
United States

Dr. Aristide Munvera Mfifen
Cameroon

Mr. James Okafoanyali
Nigeria

Ms. Gabriella Ravin
United States

Ms. Kathleen Streeks
United States

Mr. Otis Wesley
United States

American Society of Pharmacognosy

Conference Calendar

The *Newsletter* is pleased to announce the following upcoming conferences and meetings.
The events portrayed here reflect what listings and notices the *Newsletter* has specifically received.
For a more extensive calendar, please visit the ASP website at www.pharmacognosy.us. If you have a conference or event you would like mentioned, please send us relevant information, including any graphics, at **asp.newsletter@lehman.cuny.edu**.
A number of scientific conferences have been delayed or canceled due to the COVID-19 pandemic.
Please check with conference organizers about the status of any in-person conferences.

2023 ASP Annual Meeting

July 22-26, 2023

Rockville, Maryland

aspmeetings.pharmacognosy.us

ASP Natural Product Sciences Webinar

Monthly Zoom Seminars

Thursdays 4 PM ET / 1 PM PT

www.pharmacognosy.us/natural-product-sciences-webinar/

C&EN Webinars

Various Days and Times

cen.acs.org/collections/webinars.html

SIMB 4th International Conference on Natural Product Discovery and Development in the Genomic Era

January 8-12, 2023

San Diego, California

simbhq.org/np/

Oxford International Conference on the Science of Botanicals (ICSB)

April 24-27, 2023

Oxford, Mississippi

www.oxfordicsb.org

Gordon Research Conference: Natural Products and Bioactive Compounds

July 30-August 4, 2023

Andover, New Hampshire

www.grc.org/natural-products-and-bioactive-compounds-conference/2023/

71st International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA)

July 2-5, 2023

Dublin, Ireland

www.gadublin2023.com

American Society of Pharmacognosy

Capital Communiqués

Natural Product-related News from NIH and Beyond

By Barbara C. Sorkin, PhD

NEWS FROM THE US

Marina LaForgia

✦ The recently announced 2022 L'Oréal fellows include Marina LaForgia, an ecologist at the University of California, Davis, studying seed dispersal.

✦ The Office of Science and Technology Policy (OSTP), on behalf of the United States Global Change Research Program (USGCRP), requests input from the public to help inform the framing, development, and eventual use of the first National Nature Assessment (NNA).

"The NNA will assess nature in the United States; the status, observed trends, and future projections of America's lands, waters, wildlife, biodiversity and ecosystems and the benefits they provide, including connections to the economy, public health, equity, climate mitigation and adaptation, and national security. The NNA considers nature in US states, marine areas (exclusive economic zone), territories, Native or Indigenous lands and waters, and other affiliated areas (as appropriate), as well as its significant interactions with global changes. We welcome comments on the definition of nature, what questions the assessment can help answer, potential audiences and engagement processes, trends and projections, and relevant information sources."

More information on how to respond to this request, including guiding questions, can be found in the Federal Register Notice.

Flora Katz

Dr. Flora Katz, of NIH's Fogarty International Center, is representing HHS to the NNA and notes, "HHS and NIH will be important in exploring the status of 'Nature' and Nature Services with regard to health, health products, scientific discovery, and resiliency. (The NNA) is focused on assessing the state of Nature in the US, although we are aware that there are global interconnections, impacts, and ramifications."

People wishing to participate in the request for information can submit their comments via the USGCRP Contribute site until **11:59 PM ET on March 31, 2023**. For more information on this open call, please visit USGCRP's Open Notices page.

✦ The Biden-Harris Administration National Strategy on Hunger, Nutrition and Health was launched at the White House Conference on Hunger, Nutrition and Health in September. Among the natural product-relevant initiatives included:

- Support advanced training in artificial intelligence for precision nutrition science institutional training programs
- Invest in research to develop and validate new methodologies in nutrition sciences, including leveraging mobile technologies, applying computational approaches, and using artificial intelligence and machine learning
- Plan research to determine the role of diet and other early-life exposures in health and disease

President Joe Biden

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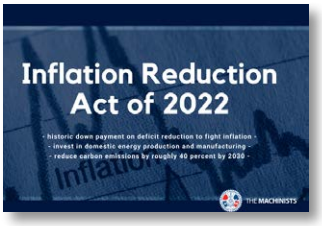
- Research the interplay between nutrition, oral disease, and comprehensive health
- Leverage the Climate and Health Initiative to research the effects of climate change on food quality and nutrition security on the health of populations.

✦ On August 25 the White House Office of Science and Technology Policy updated US policy guidance on **public access to taxpayer-supported research and publications** (e.g., from research supported by US National Institutes of Health (NIH) or National Science Foundation (NSF) awards). By the end of 2025 all agencies are to have updated their policies to end the current optional 12-month embargo and have these resources freely available to the public.

✦ Botanical-related initiatives in the **Inflation Reduction Act,** which was signed on August 16, include the development of "green" hydrogen as well as $20 billion for agricultural conservation and $5 billion to safeguard forests.



✦ Want to know where the science, technology, engineering and mathematics-related Congressional earmarks (now called Community Funding Projects) are requested in the budgets submitted by the US Senate and House for fiscal year 2023? The American Association for the Advancement of Science provides a review and interactive map.

UPDATES FROM THE NIH

✦ Make sure you're using the correct forms for your NIH application!

For due dates on or before January 24, 2023 use Forms G.

For due dates on or after January 25, 2023 use Forms H.

Both versions are now available on the NIH Grants and Funding pages. Updates in the Forms H support the new data management and sharing requirements.

✦ Data Management and Sharing:

- Recently added to the NIH Scientific Data Sharing website are slide sets and videos from the NIH webinars for the data management and sharing requirements that will apply to all for awards from applications received for the January 25, 2023 and all later receipt dates.
- The NCCIH- and ODS-supported Natural Products Magnetic Resonance Database has been added to the list of NIH-supported scientific data repositories.

✦ Would you like to have parenting made a little easier? Since April 2021 National Research Service Award trainees and fellows may request $2500 per year towards the cost of a licensed child care provider: see nexus.od.nih.gov/all/2022/02/10/how-are-childcare-costs-for-nrsa-trainees-and-fellows-requested/.

FUNDING OPPORTUNITIES

NATIONAL INSTITUTE OF DIABETES AND DIGESTIVE AND KIDNEY DISEASES (NIDDK) and five other NIH Institutes
There are two more due dates, June 22 and October 19, 2023, for the Funding Opportunity Announcement PAR-21-253 titled "Identification and Characterization of Bioactive Microbial Metabolites for Advancing Research on Microbe-Diet-Host Interactions." The additional participating institutes are the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), the National Cancer Institute (NCI), the National Institute on Allergy and Infectious Diseases (NIAID), the National Institute of Dental and Craniofacial Research (NIDCR) and the National Institute of Environmental Health Sciences (NIEHS).

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NIGMS Postdoctoral Training Opportunities for Fellows

The National Institute of General Medical Sciences (NIGMS) has several Funding Opportunity Announcements (FOAs) to support individuals at the postdoctoral level. NIGMS strongly encourages applications from scientists in groups underrepresented in the biomedical sciences. In addition to the two programs described below, NIGMS also supports postdoctoral fellows who will be transitioning to independent, tenure track, or equivalent faculty positions through the Pathway to Independence Award (K99/R00) and the Maximizing Opportunities for Scientific and Academic Independent Careers (MOSAIC) Postdoctoral Career Transition Award to Promote Diversity (K99/R00).

NIGMS Postdoctoral Fellowship Support within NIH Intramural Research Laboratories

NIGMS supports high quality research training in the basic biomedical sciences in NIH Intramural research laboratories through its Postdoctoral Research Associate Training (PRAT) Program. PRAT trains fellows in all areas within the NIGMS mission. In addition to three years of stipend support, benefits, and a travel/training allowance, the PRAT program facilitates professional development activities, including training focused on grant-writing, career planning, and communications and leadership skills.

Please see PAR-22-191 for eligibility and due date information. PRAT Program (Fi2) applications are similar to NRSA (F32) postdoctoral fellowship applications (see next page). Additional information is available on a FAQ webpage and through a recent webinar. Applicants must identify and communicate with a potential intramural preceptor before applying to the PRAT Program.

Questions? Please contact one of the PRAT Program co-directors, Drs. Edgardo Falcón-Morales, Michelle Bond, or Shakira Nelson.

PRAT Program (Fi2) Funding Opportunity Announcement (PAR-22-191)
grants.nih.gov/grants/guide/pa-files/PAR-22-191.html
Suggested timeline for application to the PRAT Program
nigms.nih.gov/training/prat/pages/prat-timeline.aspx
PRAT Program Overview and Application Process Webinar
www.youtube.com/watch?v=KoYr9pleipA

NIGMS Postdoctoral Fellowships through Individual Postdoctoral National Research Service Awards (NRSA) (F32)

NIGMS welcomes Ruth L. Kirschstein NRSA F32 applications from highly promising individuals who have the potential to become productive, independent investigators in scientific research fields relevant to the NIGMS mission through PA-21-048.

Please see the FOA for eligibility and receipt date information. Additional information is available on the NIGMS postdoctoral training webpage.

Questions? Please contact the NIGMS Scientific Program Contact, Dr. Michael Sesma.

NRSA (F32) Funding Opportunity Announcement (PA-21-048)
grants.nih.gov/grants/guide/pa-files/PA-21-048.html
NRSA (F32) Program Description and Guidelines
nigms.nih.gov/training/indivpostdoc/Pages/PostdocFellowshipDescription.aspx
NRSA (F32) Links to Application, Review, and Award Resources (including FAQs)
nigms.nih.gov/training/indivpostdoc

ODDS AND ENDS

One of the 2022 Golden Goose awards was for natural products – the conotoxins. The story has supply chain issues, international collaboration and beautiful shells.

GOLDEN GOOSE AWARDEE:
Lourdes J. Cruz

From the Archives:
The Meeting Is Called to Order

An archival collection can hold more than just paper. Artifacts and objects give researchers an opportunity to understand a collection in a unique and tangible way. Read on to find how a new donation to the ASP's archives further illustrates its long history.

By Christine Jankowski, MA

This past October, a special donation, a gavel stand going back to the ASP's early days, was donated on behalf of the ASP to the Lloyd Library and Museum.

In 1963, ASP members Dr. Ralph F. Voigt and Dr. Varro E. Tyler had a project in mind for the organization's fourth annual meeting in Chapel Hill, North Carolina: a gavel and stand to use while presiding over the annual meetings and for executive committee meetings. Tyler gave Voigt wood from the cascara buckthorn tree (*Frangula purshiana*, syn. *Rhamnus purshiana*), native to the Pacific Northwest. The trees grow west of the Cascade Mountains and stretch from California to British Columbia. Because Tyler was teaching at the University of Washington at that time, he could easily source the wood for Voigt to carve and sculpt the gavel.

Of course, the gavel needed an appropriate stand. Also crafted by Voigt, the stand was made of black walnut wood and painted black, with pieces of metal for the block, support clips, and engraved plate. Worn spots from many years of use can be seen on its top side where the gavel head rested, along with its accompanying metal block.

While the gavel is still used today by the ASP, after the 2019 annual meeting it was determined that the aging plywood carrying case should be upgraded to transport the esteemed gavel in style. Voigt's original stand was donated to the Lloyd Library and Museum to join the American Society of Pharmacognosy Collection, housed appropriately close to the Varro E. Tyler Papers.

To many, the idea of special collections means manuscripts and photographs, but artifacts such as these help to round out and bring to life the history.

The original gavel crafted by Voigt continues to live a useful life, stored, protected, and transported in the new carrying case made of *Taxus* wood by ASP member Dr. John Beutler. The new case contains a wooden block and a copy of the inscription from the old stand.

The original stand from 1963 is now at the Lloyd Library and Museum, the official repository of the American Society of Pharmacognosy.

LEFT: The new case that holds the original gavel of the ASP.

PHOTO: COURTESY OF DR. JOHN A. BEUTLER, 2022.

BELOW: Past President Dr. Kenneth Rinehart (left) handing off the gavel to the incumbent president Dr. Charles Hufford (right) at the annual meeting in Santa Cruz, California, 1996.

Many thanks to the ASP for this stand, and to Dr. Beutler who helped organize this donation. ■

INSCRIPTION FROM THE OLD STAND

PRESENTED TO THE AMERICAN SOCIETY OF PHARMACOGNOSY JULY, 1963 BY DR. RALPH F. VOIGT, SCULPTOR AND DR. VARRO E. TYLER, JR. WHO PROVIDED THE WOOD OF RHAMNUS PURSHIANA, THE TREE SUPPLYING CASCARA SAGRADA

Jimmy Orjala, PhD, Treasurer
The American Society of Pharmacognosy
2720 Dundee Road, #260,
Northbrook, Illinois 60062

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Additional information about membership may be obtained by writing to the Treasurer of the Society:
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