

# The American Society of Pharmacognosy

Spring 2020

Discovering  
Nature's  
Molecular  
Potential

The ASP Newsletter: Spring 2020, Volume 56, Issue 1

## Phil Proteau 6<sup>th</sup> Editor-in-Chief of the *Journal of Natural Products*

**Author's Note:** When the ASP Newsletter invited me to write a few thoughts about my former PhD student and current colleague, Phil Proteau, upon the occasion of his taking over the reins as the 6<sup>th</sup> editor-in-chief of the *Journal of Natural Products*, I jumped at the opportunity! This is especially the case given Dr. Doug Kinghorn's brilliant "Welcome to Phil" to the journal editorship which comprehensively traces Phil's academic journey from University of Washington, CalTech, Oregon State University, University of Utah, and then back to Oregon State for his independent career.<sup>1</sup> As such, there is no need for me to recount this aspect of Phil's academic life, and I can restrict my comments to "the rest of the story."

By William Gerwick, PhD

Indeed, it is with considerable fondness that I recall some of Phil's major characteristics, as well as a few memories of times we shared. When Phil first joined my laboratory in the College of Pharmacy at Oregon State for his PhD studies, following his MS from CalTech, I was struck by his thoughtful approach to joining a new laboratory. It was clear that he had carefully considered an approach for this next phase in his life. For the first couple of months, he was in an observation and inquiry mode, learning the specific protocols and research methods in place in my laboratory at the time. It was only after this initial surveillance period that Phil began to gently offer suggestions to his lab mates and myself stemming from his background ex-



Phil Proteau PHOTO: ROSITA PROTEAU

periences. As a result, we upgraded and modernized a number of our laboratory operations at the time. Phil is a superb natural products laboratory chemist! His exceptional rigor in science is another general characteristic. I saw it during his doctoral work in his description of novel oxylipins from various macroalgae as well as his work on the challenging structure of the cyanobacterial UV sunscreen pigment scytonemin. In the former case, due to their inherent chemical instability, it is with the most careful and meticulous laboratory technique that polyunsaturated oxylipin natural products can be isolated and characterized. Phil was able to isolate a number of highly

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**ICNPR 2020 Canceled ...page 14**

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# EDITOR'S CORNER

By Edward J. Kennelly, PhD



I am writing this column from my apartment in the Bronx, a little after the nightly 7:00 pm cheers for the healthcare workers who are battling the COVID-19 pandemic in this hot zone, New York City. When we started gathering articles for this spring issue of the *Newsletter*, I could not have imagined how a viral infectious disease could completely alter my neighborhood, the country, the ASP, and the world.

The pre-COVID-19 focus of this *Newsletter* was the joyful introduction of Dr. Phil Proteau as the new editor-in-chief of the society's flagship publication, the *Journal of Natural Products*. It was truly a pleasure to put together this overview, including ASP Fellow Dr. Bill Gerwick's front page introduction of his long-time colleague, and quotes from many people who have worked with Phil over the years, often in his role as associate editor of the *Journal of Natural Products*. I hope you will take time to learn more about Phil and join us in congratulating him on his new position. The *Newsletter* also looked back at the five previous editors of the *Journal*, and it is fascinating to think of how far this publication has come since its first issue in 1938. In a separate column, former *Journal of Natural Products* Editor, Dr. Doug Kinghorn, reflects on his 26 years leading the journal.

As you can see, the front page of this celebratory newsletter is marred by a red banner announcing the cancelation of ICNPR 2020 as a causality of the coronavirus outbreak. The *Newsletter* was delayed until this decision was finalized, and it is with great sadness that we cover the formal announcement from ASP President Dr. Barry O'Keefe. As co-chair of the Scientific Advisory Committee with Dr. Guy Carter, I want to thank the many people who devoted so much time and effort putting together a diverse and exciting program, including Drs. Nadja Cech, Stefan Gafner, Rachel Mata, Susan Mooberry, and Barry O'Keefe. A special word of thanks to Dr. Roy Okuda, who agreed to the idea of a San Francisco-based international congress when I, as ASP president, proposed it to him in 2016 during the congress in Copenhagen. Roy's enthusiasm and commitment for all that ASP stands for has permeated throughout the entire organization process that has been ongoing for years. Roy's local organizing committee, Drs. Taro Amagata, Scott Baggett, John Kim, Nam-Cheol Kim, Shichang Miao, and Laura Miller Conrad, are also commended. Finally, I want to acknowledge the amazing work of ASP Business Manager Ms. Laura Stoll, who spent so much time organizing the detail of the congress, and then having to work to dismantle things in a way that would not adversely impact the future of the society. Despite the sad news, it is evident that with the current spread of the virus, it was the right decision.

ASP fellows are stepping up during the pandemic to offer advice and suggestions to members. The new chair of the ASP fellows, Dr. Gordon Cragg, has written an article detailing the fellows' response with regard to coronavirus that included a March letter to all members and a comprehensive reading list. I personally was very grateful when ASP Fellow Dr. Dave Newman spoke to my CUNY phytochemistry class about chloroquine for the treatment of COVID-19. Dave's encyclopedic knowledge of natural product drugs truly engaged and amazed my students and me. ASP member Dr. Stephan Gafner has also written an informative article for the American Botanical Council about the history of chloroquine.

Finally, I am sad to report that ASP Fellow Dr. Mansukh Wani, 95, passed away from natural causes on April 11. We will run a tribute to him in the next *Newsletter*. With the pandemic, I guess that many of us have been touched directly or indirectly by untimely deaths and other difficult situations, like the loss of employment. I hope the best for you and your loved ones. Please keep us informed of any ASP-related coronavirus or other issues that the *Newsletter* may cover at [asp.newsletter@lehman.cuny.edu](mailto:asp.newsletter@lehman.cuny.edu).

## 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/](http://www.pharmacognosy.us/jobs/)

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### His exceptional rigor in science is another general characteristic.

### Phil has a nearly encyclopedic knowledge of many aspects of the natural products sciences.

unstable natural products, including several possessing chain-broken divinyl ether functionalities.<sup>2</sup>

In his other major project as a PhD student, his work with scytonemin is a classic example of a proton deficient natural product (and multiple aspects of symmetry) in that this 544 molecular weight compound possesses only seven proton resonance bands.<sup>3</sup> By careful deductive logic of the spectroscopic data, combined with chemical degradation studies, Phil completed this structure assignment; reassuringly, its challenging structure has been confirmed by total synthesis. Because of its important ecological and biological activities, as well as its use as a biogeochemical marker, this publication has been cited 259 times in the scientific literature.

Phil has a nearly encyclopedic knowledge of many aspects of the natural products sciences. This comes in part from his lifelong scholarly habits of reading the scientific literature, serving as an associate editor of the *Journal of Natural Products* for 12 years, and his enthusiastic discussion of all things natural product with his colleagues and students. However, it also comes from his exceptional ability to retain and utilize nearly everything he has read or heard or encountered in his academic career. The joke about Phil during his PhD time was that his brain was like a petabyte computer with complete random access to any part at any time! And while this may be a slight exaggeration, it is nevertheless a generally true characteristic about Phil; he is exceptionally gifted in his accumulated knowledge of natural products and chemical biology.



TOP: Beaver Believer Phil attending an Oregon State football game.

BOTTOM: Phil and his family after their annual Thanksgiving Day Turkey Run 2019.

PHOTOS COURTESY DR. PHIL PROTEAU

I would be remiss to not identify that Phil is also a gifted athlete. During his doctoral work, we had opportunities to travel together on several local as well as more distant field collection trips. Phil was very comfortable in the water and an excellent scuba diver, and contributed valuably to the collection of a number of marine specimens important to our work at the time, including one of our flagship molecules from Curaçao, namely curacin A.<sup>4</sup> Moreover, Phil is an active runner and is often seen in the early morning at annual ASP meetings going out for a jog with several of his ASP colleagues.

Phil is one of the fairest individuals I know, and it is my opinion that this derives from his strong moral character. His essential mindset appears to me to be of one who has looked in the mirror, really looked in the mirror, and said to himself, "I want to live up to the standards and principles that I admire most in a person." This is a characteristic I saw in Phil as a student and subsequently as a colleague, and then as the associate editor of the *Journal of Natural Products* in charge of the review of many of our papers. This will certainly be an important aspect of his tenure as editor-in-chief in that authors can rest assured that Phil will have given very careful and detailed consideration of each and every paper that comes across his desk.

It has been a delight for me to see how Phil has grown and developed in the course of his independent academic career at Oregon State. He has a large capacity for hard work; he has put in the long hours to become the exceptionally knowledgeable

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### I would be remiss to not identify that Phil is also a gifted athlete.

## Phil Proteau: 6<sup>th</sup> Editor-in-Chief of the *Journal of Natural Products*

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**His essential mindset appears to me to be of one who has looked in the mirror, really looked in the mirror, and said to himself, “I want to live up to the standards and principles that I admire most in a person.”**

scientist that he is. Combined with his passion for natural products science, his deep interest into all the “nooks and crannies” of organic chemistry, structure elucidation, spectroscopy and chemical nomenclature, he is exceptionally qualified for leading the natural products community through this editorship. Additionally, Phil has a mature and seasoned view to mentorship of students at all levels, from undergrad-



uates, graduates and postdoctoral staff in his laboratory and department, to the many authors that he interacts with through the *Journal of Natural Products*. Indeed, I have been pleased to be the recipient of some of this wise counsel through his serving as editor of many of our marine natural product papers in the *Journal*. Ironic but true – mentorship can be a two-way street!

Hence, I am completely confident that under Phil Proteau’s experienced, fair and energetic guidance, the *Journal of Natural Products* will continue to flourish and become ever more impactful to those with interests in the natural products sciences. We are lucky to have one such as Phil as part of our community,

and we are the benefactors of his willingness to give so generously of his time and mentorship for the improvement of our scientific discipline of natural products. ■



TOP CENTER PHOTO: Phil hiking Oregon’s Mount Hood.

BOTTOM LEFT PHOTO: Phil at the 2019 ASP Annual Meeting in Madison, Wisconsin.

PHOTO: DR. GUIDO F. PAULI

**Combined with his passion for natural products science, his deep interest into all the “nooks and crannies” of organic chemistry, structure elucidation, spectroscopy and chemical nomenclature, he is exceptionally qualified for leading the natural products community through this editorship.**

### LITERATURE CITED

- 1 Kinghorn, A. D. Dr. Philip J. Proteau to become the new editor-in-chief of the *Journal of Natural Products*. *J. Nat. Prod.* **2019**, 82, 3207. <https://pubs.acs.org/doi/10.1021/acs.jnatprod.9b01157>
- 2 Proteau, P. J. and Gerwick, W. H. Divinyl ethers and hydroxy fatty acids from three species of *Laminaria* (Brown Algae). *Lipids*. **1993**, 28, 783-787.
- 3 Proteau, P. J., Gerwick, W. H., Garcia-Pichel, F. and Castenholz, R. Indolic structure of scytonemin, an ultraviolet sunscreen pigment from the sheaths of cyanobacteria. *Experientia*. **1993**, 49, 825-829.
- 4 Gerwick, W. H., Proteau, P. J., Nagle, D. G., Hamel, E., Blokhin, A. and Slate, D. Structure of curacin A, a novel antimetabolic, antiproliferative, and brine shrimp toxic natural product from the marine cyanobacterium *Lyngbya majuscula*. *J. Org. Chem.* **1994**, 59, 1243-1245.

## Phil Proteau: 6<sup>th</sup> Editor-in-Chief of the *Journal of Natural Products*



I am very impressed by Phil's overall thoughtfulness and his tendency to consider a given situation from different points of view. He is always willing to seek advice from others before making any judgement. It is because of these attributes and his inherent sense of fairness that he has been such an outstanding associate editor for *J. Nat. Prod.* for the last 11 years. He also has the tact and diplomacy to be a really superb editor-in-chief for the journal in the forthcoming years.

—Douglas Kinghorn, PhD



Phil is a quiet man of discretion, admirable qualities for an editor-in-chief of the *Journal of Natural Products*. There are many interactions I have had with Phil over the years that have convinced me that he is a level-headed and conscientious colleague and researcher. I believe that he is an individual to have confidence in and to whom you can talk to in confidence.

—Barry O'Keefe, PhD

PHOTO CREDIT: RHODA BAER PHOTOGRAPHY



I have known Phil Proteau for nearly thirty years. Phil and I overlapped throughout most of our PhD programs with Bill Gerwick, spending hundreds of hours traveling, collecting samples, and working together. One of the first things that struck me about Phil was his keen intellect, in particular his detailed understanding of the principles in organic and natural products chemistry. As I came to know Phil on a more personal level, I became even more impressed by his honesty, integrity, and his constant drive to “do the right thing,” even under difficult situations. When working with a team, Phil always endeavors, not only to do a great job, but he looks out for other team members by treating them with mutual respect and compassion. I have the highest respect for Phil as a scientist, colleague, and as one of my oldest and dearest friends. In recent years, as both an author and reviewer, I have witnessed how these traits have made Phil an outstanding associate editor for the *Journal of Natural Products*, and I am confident that it will continue to serve him well as the new editor-in-chief.

—Dale Nagle, PhD

PHOTO CREDIT: UNIVERSITY OF MISSISSIPPI STOCK PHOTO

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## Phil Proteau: 6<sup>th</sup> Editor-in-Chief of the *Journal of Natural Products*

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A striking attribute of Phil Proteau is his dedication to facilitating research while simultaneously upholding scientific rigor. In discussions with Phil of the robustness of varying types of data in publications, his ability to sort through sometimes multi-layered analyses to focus on and evaluate raw data for inconsistencies is consistently impressive. More remarkable still is his ability to very quickly offer alternative solutions that would address these inconsistencies and enhance scholarship. Indeed, based on personal communications, I know that this sentiment is mirrored by authors of *Journal of Natural Products* publications internationally.

–Kerry McPhail, PhD



My first interaction with Phil as an editor at *J. Nat. Prod.* was for the seminal work that defined my graduate research on the mode of action for the almiramides. I was very impressed when we got our reviews back that Phil had taken the time to edit the manuscript by hand, which ultimately led to a manuscript I am very proud of in its final published form. Having worked now with many other editors and editing myself, I am amazed that he put so much of his own time into our work, and I deeply appreciate it to this day. I continue to strive to put as much detail into every manuscript my lab publishes and to provide a positive experience for authors, with Phil leading the way as my example.

–Laura Sanchez, PhD

PHOTO CREDIT: JENNY FONTAINE



I have interacted with Phil several times in his role as associate editor, and he is always both a gentleman and a scholar (and extremely thorough). There was a particular instance where we made a slight error in structure elucidation (effectively, missing the fact that the structure likely tautomerized). In fact, the reviewers did not catch it, but Phil did, as editor. It was a simple oversight on our part (on a structure tucked into the supplement), but I was really mad at myself for letting it get that far before catching it myself. Phil was very polite and simply told me that this is what the review process was for. He could have castigated me or, at the very least, poked fun at me. He did none of that. He simply picked up his red pen and moved on to the next manuscript. In fact, I think he even thanked me for submitting the paper to *J. Nat. Prod.*

–Nicholas Oberlies, PhD

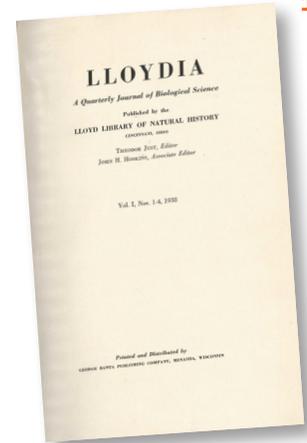
# Lloydia and Journal of Natural Products Editors



PHOTO PROVIDED BY THE NOTRE DAME ARCHIVES.

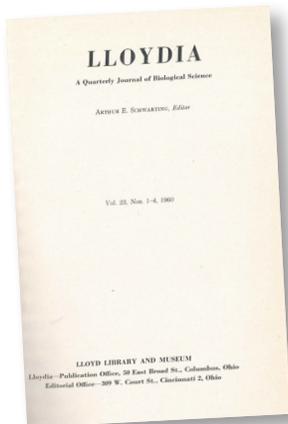
## **THEODORE K. JUST** Volumes 1-22 (1938-1959)

First editor of *Lloydia*, Dr. Theodore K. Just, was born in Austria and earned a PhD from the University of Vienna in 1928. He immigrated to the US soon after graduation to join the faculty of the University of Notre Dame. In 1946 he left for the Chicago Natural History Museum (Field Museum) and became the chief curator of the Department of Botany in 1947. Dr. Just edited *Lloydia*, volumes 1-22, beginning in 1938 through 1959.



*Lloydia* first volume  
Volume 1, 1938

1938



*Lloydia*  
Volume 23, 1960

## **ARTHUR E. SCHWARTING** Volumes 23-39 (1960-1976)

Dr. Arthur E. Schwarting of the University of Connecticut served as the first *Lloydia* editor under the auspices of the ASP's journal publication. In 1960 ASP charter members, Dr. Norman R. Farnsworth and Varro E. (Tip) Tyler, negotiated "A Statement of Principles Regarding the Publication of *Lloydia*" initiating the joint publication of the journal with the ASP and the Lloyd Library & Museum. Dr. Schwarting initiated the publication of review articles, ASP annual meeting presentation abstracts, and coverage of natural products symposiums. He set a high standard for the quality of *Lloydia* as a major scientific publication.

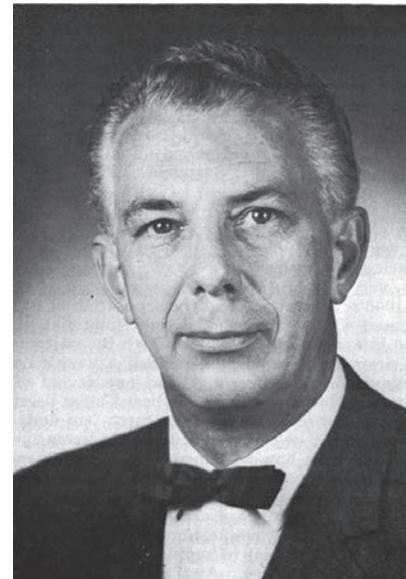


PHOTO PROVIDED BY BARRY O'KEEFE

1976

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## Lloydia and Journal of Natural Products Editors

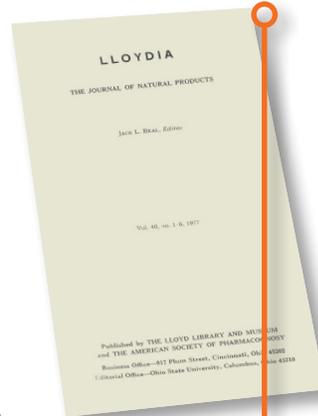
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IMAGE PROVIDED BY BOB BRUEGGEMEIER AS SCANS FROM AN OHIO SCRIPT PUBLICATION/SPRING 1998, WHICH MEMORIALIZED DR. BEAL.

### JACK L. BEAL Volumes 40-46 (1977-1983)

Dr. Jack L. Beal of The Ohio State University College of Pharmacy became the *Lloydia* editor in 1977. Beal established a new editorial advisory board for *Lloydia*. By 1979 the title was revised to precisely reflect its content, launching the *Journal of Natural Products* (*Lloydia*), and continued the publishing partnership of the ASP and the Lloyd Library & Museum. Under Beal's leadership the editorial content focused on research articles instead of reviews. Authors published their research in the format of multiple reports demonstrating scientific studies over time.



*Lloydia*  
Volume 40, 1977

### JAMES E. ROBBERS Volumes 47-56 (1984-1993)

Dr. James E. Robbers of the Purdue University College of Pharmacy led the *Journal of Natural Products* team which included two associate editors, a managing editor, an editor's secretary, and the 24-member editorial advisory board. The *Journal of Natural Products* took shape, similar to as it is today, with many significant research articles, review articles, and a prominence of marine natural products chemistry. Robbers continued the tradition of reviews based on symposiums and lectures delivered at the ASP annual meetings.

*Journal of Natural Products*  
Volume 47, 1984

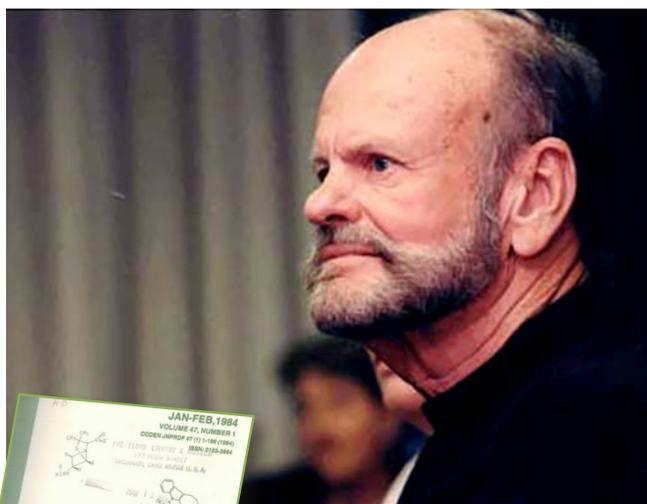


IMAGE PROVIDED BY BARRY O'KEEFE

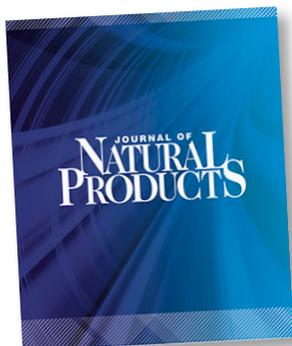


1977

1993

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October 1, 1994  
Volume 57, Issue 10

## A. DOUGLAS KINGHORN Volumes 57-82 (1994-2019)

Dr. A. Douglas Kinghorn of the University of Illinois, Chicago College of Pharmacy, now of The Ohio State University College of Pharmacy has served as editor of the *Journal of Natural Products* since 1994. Between 1993 and 1996 Kinghorn represented the ASP on the negotiating team in the collaboration with the American Chemical Society to co-publish the *Journal of Natural Products*. With Dr. Kinghorn's leadership, the *Journal of Natural Product's* impact factor grew and total citations increased. In 2001 Kinghorn led the establishment of the ASP Foundation's inception of the annual *Arthur E. Schwarting Award* and *Jack L. Beal Award* for the best papers in the *Journal of Natural Products*. His editorship tenure has presided over the publication of multiple special issues honoring ASP members and is now issued electronically in addition to printed form.



PHOTO PROVIDED BY DR. A. DOUGLAS KINGHORN

1994



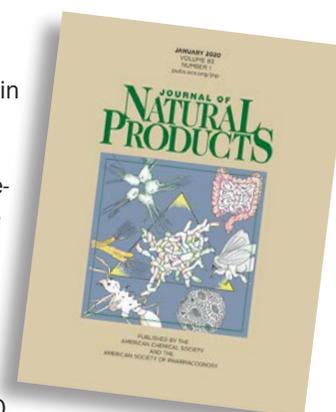
## PHILIP J. PROTEAU Volumes 83- (2020-present)



PHOTO: ROSITA PROTEAU

Dr. Philip J. Proteau of Oregon State University's College of Pharmacy recently was named as the 6<sup>th</sup> editor-in-chief of the *Journal of Natural Products*. Proteau received his BS from the University of Washington in 1985, MS from CalTech in 1989, and PhD in Medicinal/Natural Products Chemistry from Oregon State in 1993. He was an NIH Postdoctoral Fellow with the University of Utah's Department of Chemistry until 1995 before returning to Oregon State where he is now an associate professor with the department of pharmaceutical sciences. Since 2008 Proteau served as an associate editor of the *Journal of Natural Products* and began his tenure as the new editor-in-chief in January 2020.

January 2020 issue:  
Half a century of chemical ecology:  
research from the Clardy lab



present



# Reflections on 26 Years of Editing *J. Nat. Prod.*

By A. Douglas Kinghorn, PhD

In December 2019, my formal tenure as the editor-in-chief of the *Journal of Natural Products* came to an end after 26 years. I am thrilled that this role now has been taken by Philip J. Proteau, PhD, of Oregon State University, who has served as associate editor for over ten years, and hence already is thoroughly familiar with the workings of the journal. In the present short article, I will update a similar piece I wrote a few years ago (“Reflections of Serving as Editor of the *Journal of Natural Products* Since 1994,” *ASP Newsletter*, **2013**, 49 (4), 5-7). The main focus of the present article, however, is how the journal has evolved over the last decade specifically. For those who may be interested, I authored a chapter providing a detailed history of *J. Nat. Prod.* in the ASP’s 50<sup>th</sup> anniversary volume (*50 Years of Progress in Natural Products Research, 1959-2009*, G.M. Cragg, J.M. Beutler, W.P. Jones, Eds., pp. 259-266). This chapter described the individual contributions of the four earlier editors-in-chief of *Lloydia* (the forerunner journal of *J. Nat. Prod.*) and *J. Nat. Prod.*, namely, Drs. Theodore K. Just (1938-1959), Arthur E. Schwarting (1960-1976), Jack L. Beal (1977-1983), and James E. Robbers (1984-1993). Also covered in this chapter was a summary of the deliberations that led to the co-publication of *J. Nat. Prod.* by the American Society of Pharmacognosy (ASP) and the American Chemical Society (ACS), which was formalized in 1996 for volume 59. This above-mentioned, wonderfully edited, 50-year memorial volume of our Society by Gordon Cragg, John Beutler, and Will Jones may be accessed

**These are truly incredible data showing clearly the extended reach of the journal to a wider scientific community.**

through the ASP website ([www.pharmacognosy.us/](http://www.pharmacognosy.us/)).

In the years since 2010, there have been many positive changes to both the content and format of the *J. Nat. Prod.* Beginning in 2011, each colored table of contents became included also as the article abstract graphic, thereby greatly increasing the use of color. In volume 78 in 2015, the first selections from our journal were made for the “ACS Editors’ Choice” feature, which permits meritorious contributions as chosen by the editors to be published with immediate open access. About 25 articles from the *J. Nat. Prod.* have been featured in this manner up to the end of 2019. One of these open access articles was a review by our eminent colleagues, David Newman and Gordon Cragg (“Natural Products as Sources of New Drugs from 1981 to 2014,” *J. Nat. Prod.* **2016**, 79, 629-661). This, according to the recently redesigned website of the journal ([pubs.acs.org/journal/jnprdf](http://pubs.acs.org/journal/jnprdf)), has been viewed over 100,000 times and cited in the literature nearly 1900 times to date! These are truly incredible data showing clearly the extended reach of the journal to a wider scientific community.

In July 2019, *J. Nat. Prod.* had its first virtual issue, and this focused on the reviews and research articles published in the journal of Drs. Cragg and Newman over the years, including when they each were in the role of chief of the Natural Products Branch of the National Cancer Institute (Frederick, MD). Another recent change has been the introduction of supplementary journal issue covers, and these are included along with the electronic versions of our issues. Moreover, we have established a social media presence over the last few years. We are very grateful indeed to be part of the family of journals published or co-published by the Publications Division of the American Chemical Society, which enables us to benefit from these and many other journal development and production advances.



Dr. A. Douglas Kinghorn

PHOTO: NEIL E. PAULI

**By 2010, the number of manuscript submissions to *J. Nat. Prod.* had risen to a sufficient number (935 versus 452 in 1996) to justify adding another associate editor...**

Behind any successful scientific journal are highly dedicated and talented people. Over the last decade, there were some significant changes to the membership of our outstanding editorial team. By 2010, the number of manuscript submissions to *J. Nat. Prod.* had risen to a sufficient number (935 versus 452 in 1996) to justify adding another associate editor, and in April of

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that year, Dr. Cedric Pearce, the CEO/CSO of Mycosynthetix, Inc., Hillsborough, NC was appointed in this role. Owing to his years of pharmaceutical industry experience, Cedric began to handle specifically papers focused on terrestrial microbes and fungi, which has resulted in many more papers of these types published in the journal than previously.

At the end of 2013, Richard (Dick) G. Powell stepped down as associate editor, a position in which he served extremely efficiently since 1991. He was assisted throughout this period by his late wife, Rosemary. For the years 2014 and 2015, Dick was named as honorary editor of the journal as a token of his outstanding service to the natural products community. In 2014, his editorial role was taken over by Dr. Steven Swanson, then of the University of Illinois at Chicago (UIC), whose charge was to specialize on pharmacology-based submissions. Shortly after becoming an associate editor, Steve made a major career move to become dean of the School of Pharmacy, University of Wisconsin-Madison. Despite now having many additional professional responsibilities, Dr. Swanson completed very capably a five-year editorial term. Dr. Joanna Burdette,

**During the past decade, special issues of *J. Nat. Prod.* have continued to be published in March of each year in honor of eminent natural products researchers.**

professor and associate dean, College of Pharmacy, UIC, took over from Steve in October 2019, and again to concentrate on handling more biologically based articles. A final editorial change was the appointment of Dr. Melany Puglisi-Weening, associate professor, Chicago State University, as our new book review editor in January 2017. She replaced Dr. John Cardellina II, who served in this capacity very effectively from 2003-2016. The journal is incredibly fortunate to have retained Drs. Daneel Ferreira and Phil Proteau as associate editors all through the last ten years. They have handled, in turn, plant-focused submissions involving a high degree of spectroscopic data interpretation and marine- and biotechnology-oriented papers. Other associate and assistant editors who have served

the journal in the earlier period 1994-2009 were Drs. Alice Clark, Harry Fong, Bill Gerwick, David Kingston (also as book review editor), and Francis "Fritz" Schmitz, to all of whom I express a very great appreciation.

During the past decade, special issues of *J. Nat. Prod.* have continued to be published in March of each year in honor of eminent natural products researchers. Chronologically, these special issues have been dedicated, in turn, to the late Dr. John Daly and the late Dr. Richard Moore (2010), the late Dr. Koji Nakanishi (2011), Dr. Gordon Cragg (2012), the late Dr. Lester Mitscher (2013), Prof. Dr. Otto Sticher (2014), Dr. William Fenical (2015), Profs. John Blunt and Murray Munro (2016), Dr. Phil Crews (2017), Dr. Susan Band Horwitz (2018), and Drs. Rachel Mata and Barbara Timmermann (2019). We thank all the authors who have contributed to these special issues as well as the guest editors involved.

Since 2010, three symposia featuring *J. Nat. Prod.* have been held at annual meetings of the ASP. A celebration of the 75<sup>th</sup> volume of the journal (inclusive of its earlier title, *Lloydia*) was held in 2012 at the International Congress of Natural Products Research in New York. Three very strong sup-

**Since 2010, three symposia featuring *J. Nat. Prod.* have been held at annual meetings of the ASP.**

Doug being acknowledged at the 50<sup>th</sup> Anniversary of ASP conference in Honolulu, HI, 2009.

PHOTO: GUIDO F. PAULI



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## Reflections on 26 Years of Editing *J. Nat. Prod.*

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**I would be remiss if I did not mention the very great improvement in the citation metrics shown by *J. Nat. Prod.* over the years, since the current information in this regard is displayed prominently on the journal website.**

porters of the journal, namely Drs. Bill Gerwick, Rachel Mata, and Bob Pettit, spoke at this symposium, which was dedicated to Dr. David J. Slatkin. In 2015, at the ASP meeting held in Copper Mountain, CO, Dick Powell was honored, both for his long-term role as journal associate editor and for his co-discovery of the compound homoharringtonine, which was eventually approved as omacetaxine mepesuccinate by the US FDA as an anti-leukemic agent (Horwitz and Kinghorn, *J. Nat. Prod.* **2015**, 78, 2317-2318).

Last year, at the ASP meeting in Madison, WI, four long-term contributors to the journal were honored, Drs. Gordon Cragg, David Kingston, Rachel Mata, and David Newman, and, at the symposium, they were each introduced by a younger colleague, namely Drs. Kerry McPhail, Brian Murphy, Mario Figueroa, and Leslie-Ann Giddings, respectively. Introductory remarks were given by the symposium chair, Dr. Nadja Cech, and final remarks by Dr. Marcy Balunas, both of whom joined the *J. Nat. Prod.* Editorial Advisory Board in 2019 (Cech et al., *J. Nat. Prod.* **2019**, 82, 2931-2932). Also at the 2019 ASP meeting, an inaugural *J. Nat. Prod.*-ACS poster competition was carried out for graduate students and postdoctoral research associates. We are very thankful to the ACS Publications Division for sponsoring all three of the above-mentioned symposia and this new poster competition.

Some other aspects of our journal activities have not changed substantially since 2010. For example, each year we have continued to make two annual awards for best papers in the journal, honoring two of our former edi-

tors. The Arthur E. Schwarting Award is open to all submissions, whereas the Jack L. Beal Award is restricted to the papers of younger corresponding authors. This annual awards program started in 2001, with the journal editors making initial selections and then a special ad hoc committee of senior natural

**The figures for 2018 were released in June 2019, and the impact factor and the total number cites for the journal both reached their highest ever levels (4.257 and 25,908, respectively).**

Dr. Kinghorn

PHOTO: GUIDO F. PAULI



products scientists providing the final two selections. In 2019, the members of this ad hoc selection committee were Drs. Amy Wright (Chair), Mark Hamann, and Dave Newman. The journal's editorial advisory board (EAB) has continued to convene each year at the ASP meeting, and regularly about two-thirds of the 30 members of this group have attended annually, despite in some cases having to make very long and arduous transcontinental journeys. I am grateful to all those who have served on our EAB while I have been journal editor.

Unfortunately, two very long-term EAB members of *J. Nat. Prod.* passed away during the last decade, Drs. Norman Farnsworth and Koji Nakanishi, with both of these outstanding natural product researchers being greatly missed. In 2019, a new honorary advisory board was established as an extension of the EAB, with Drs. Jon Clardy and David Kingston being the inaugural two members. We have continued to have two new cover illustrations in volumes

73 (2010) through 82 (2019). A particularly striking cover was used in the period July-December 2015, featuring an illustration by the famous French botanical artist, Pierre Joseph Redouté. This showed *Colchicum autumnale*, the plant source of the drug colchicine. This motif was provided by the Lloyd Library and Museum, Cincinnati, OH, the co-publisher of *Lloydia* and *J. Nat. Prod.* with ASP, from 1961-1995.

I would be remiss if I did not mention the very great improvement in the citation metrics shown by *J. Nat. Prod.* over the years, since the current informa-

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## Reflections on 26 Years of Editing J. Nat. Prod.

continued from page 12

tion in this regard is displayed prominently on the journal website. The figures for 2018 were released in June 2019, and the impact factor and the total number cites for the journal both reached their highest ever levels (4.257 and 25,908, respectively). The comparable figures for 2010 were, in turn, 2,872 and 16,840. By contrast, the very first citation metric figures after the first year of co-publication of the journal between ASP and ACS in 1997 were 1.432 (impact factor) and 3,634 (number of cites).

There are many other persons to be thanked for having helped make the journal the success it has become. The management board of *J. Nat. Prod.* oversees editorial, marketing, and financial matters and is comprised of two representatives each of ACS and ASP, with the journal editor as an *ex officio* member. During the past decade, the ACS representatives were Robert O'Dell, Anne O'Melia and Leslie

Walker, while those for ASP were Jim McAlpine, Jerry McLaughlin, Cedric Pearce, Guido Pauli, and the late David Slatkin. In fact, while he was treasurer of ASP, Dr. Slatkin served on the management board of *J. Nat. Prod.* for about 15 years altogether and, during this time, was always an extremely strong advocate for the overall welfare of the journal. David's daughter, Laura Stoll (ASP business manager), has helped make arrangements for *J. Nat. Prod.* functions at the last few ASP annual meetings.

Two other people who should be acknowledged for their continual individual meticulous efforts on behalf of the journal during the 2010s are Diane Black (associate editor, Global Production Operations, ACS Publication Division, Columbus, OH) and Lisa Dush (journal associate, *J. Nat. Prod.* office, College of Pharmacy, The Ohio State University, Co-

lumbus, OH). The *Journal of Natural Products*, as ever, is dependent also on the continual submission of high-quality articles by our authors and the willingness of volunteer referees to scrutinize these technically.

Already in its first issues in 2020, *J. Nat. Prod.* has a new look when compared with 2019. I am sure that under Phil Proteau's overall editorial direction the journal will continue to gain ever greater scientific recognition and an expanding readership, as a result of having an internationally based author group and due to the ever-widening investigation of natural products from organisms in many new technical directions. I am extremely appreciative that I had the opportunity to lead our journal for so long and for all the encouragement I have had from so many colleagues while editor. ■

**Over to you, Phil, and very best wishes!**

## Support ASP Foundation

By Robert J. Krueger, PhD

**A**s happened over ten years ago, the stock market is taking a terrible beating as I pen this appeal. Our donors are extraordinary in their generosity and loyalty, but we need to enlarge our donor population. We currently count less than 4% of the membership as repeat donors.

*In times such as these we need as many of our members as capable to monetarily support the ASPF. The recent major donations to our foundation are designated to support specific funds so chosen by the donors. As such that money cannot be used for general awards and grants.*

There are two ways to accomplish this: the first is to go to the ASP website ([www.pharmacognosy.us](http://www.pharmacognosy.us)) and click on the donations link using our members clicks donation form. The second is to remember the ASPF in your will. It can be as easy as writing a simple sentence and adding it to that document. Secure the future of your ASPF with a gift like this.

You can designate a fund to support or just put the money into the general corpus. Your gift will support your wishes without giving away any assets today. We have seen in the recent past how powerful this type of bequest can be with the Brady and Bingel estate donations. Naming the ASPF in your will is affordable since the donation occurs after your lifetime and does not affect your current lifestyle. Your gift is flexible until your will goes into effect, and you can alter your bequest. Your bequest is versatile in that you can name a specific monetary amount, a percentage of your estate, or donate stocks or bonds. If you are interested, please contact your attorney to obtain the specific language to use in your state or country. You may also wish to contact your financial advisor regarding the best assets to use.

These two methods for donating are not necessarily exclusive. I am proud to be both an annual donor as well as to have named the ASPF in my will. Thank you for your support and consideration of this plea. ■

# ICNPR 2020 Canceled

By Edward Kennelly, PhD

In a letter dated May 1, 2020, ASP President Dr. Barry O'Keefe announced the pandemic-related cancellation of the International Congress on Natural Products Research that was slated to take place July 25-30 in San Francisco. The meeting will not be re-scheduled.

In his two-page letter, pages 15-16 of this *Newsletter*, addressed to ASP members and international colleagues, Dr. O'Keefe outlined how he, as president of the hosting society, in consultation with the six other participating international societies, namely Society for Medicinal Plant and Natural Product Research (GA); Association Francophone pour l'Enseignement et la Recherche en Pharmacognosie (AFERP); Korean Society of Pharmacognosy (KSP); Phytochemical Society of Europe (PSE); Japanese Society of Pharmacognosy (JSP); and the Italian Society of Phytochemistry and the Science of Medicinal, Food and Fragrant Plants (SIF), have monitored the ongoing situation with the COVID-19 pandemic.

Dr. O'Keefe explained in his letter, **“At this time, due to the present COVID-19 social distancing and international travel restrictions, we are sorry to say that the decision has been made to cancel the 2020 ICNPR meeting in San Francisco.** Unfortunately, also due to the uncertainty of future public health restrictions and pre-existing scheduled meetings of the participating societies, we are not re-scheduling the ICNPR 2020 for a later date but cancelling the meeting outright.”

ASP has committed to fully refunding all registrations for the 2020 ICNPR. In addition, all registrants who have made reservations at the Hyatt Regency Hotel in San Francisco may cancel them at no cost through July 20, 2020.

ASP had projected that ICNPR 2020 could have been the largest-ever gathering of scientists interested in natural products. Co-Chair of the Scientific Advisory Committee and ASP Fellow Dr. Guy Carter stated, “The cancellation of the ICNPR 2020 is such a disappointment for the Scientific Organizing Committee who worked with great enthusiasm to create an exciting program of sym-

## ICNPR 2020

### A Global Perspective on Natural Products Research

July 25 to 30, 2020

San Francisco, CA, USA

[ICNPR2020.org](http://ICNPR2020.org)

posia and topical sessions. We all were looking forward with great anticipation to the plenary sessions that were organized by each of the individual societies. I hope this concept is incorporated in the future.”

This is the first time in ASP history that an annual meeting has been cancelled for any reason, and it is also the first time a world health crisis has prevented the society from coming together for scientific exchange and social interactions. The first ASP annual meeting was held in 1960 in Boulder, Colorado. The first iteration of a joint meeting with other societies interested in pharmacognosy occurred in 1970 with one other society, the GA. With the addition for the first time of the KSP for the 2020 meeting, the number of international societies participating in the joint meeting rose to a total of seven.

Dr. Roy Okuda, the local organizing chair of ICNPR 2020, is no stranger to spearheading large events for ASP. He has helped with the organization of ASP meetings in Rhode Island, Santa Cruz, Hawaii, and New York. He vividly remembers the concern during the 2009 50<sup>th</sup> Anniversary Annual Meeting in Honolulu, Hawaii after the outbreak of the swine flu (H1N1) pandemic. Attendance was not significantly impacted, but Dr. Okuda ensured there was enough hand sanitizer and elbow greetings to minimize spread of potential pathogens.

Although the news of ICNPR 2020 is disappointing, the Society is looking forward to hosting members and friends and meetings in the future, including the 2021 ASP Annual Meeting scheduled for Grand Rapids, Michigan. The next international gathering, ICNPR 2024, is scheduled to take place in Poland. In the meantime, ASP is hosting a series of Thursday afternoon webinars.

<http://www.pharmacognosy.us/natural-product-sciences-webinar/> ■

**“The cancellation of the ICNPR 2020 is such a disappointment for the Scientific Organizing Committee who worked with great enthusiasm to create an exciting program of symposia and topical sessions.”**

# President Barry O'Keefe Letter to Members



## THE AMERICAN SOCIETY OF PHARMACOGNOSY

*Discovering nature's molecular potential*

[www.pharmacognosy.us](http://www.pharmacognosy.us)

May 1<sup>st</sup>, 2020

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Dear American Society of Pharmacognosy Members and our International Colleagues,

My hope is that this letter again finds you all safe and secure and that the current coronavirus pandemic has not directly affected you or your loved ones.

The American Society of Pharmacognosy (ASP) has been closely monitoring the effects of COVID-19 throughout the world and has also been constantly re-evaluating the wisdom of holding the International Congress on Natural Product Research as scheduled on July 25-30 in San Francisco, California. We have been in direct consultation with all of the participating international Societies [Society for Medicinal Plant and Natural Product Research (GA); Association Francophone pour l'Enseignement et la Recherche en Pharmacognosie (AFERP); Korean Society of Pharmacognosy (KSP); Phytochemical Society of Europe (PSE); Japanese Society of Pharmacognosy (JSP); Italian Society of Phytochemistry and the Science of Medicinal, Food and Fragrant Plants (SIF)] as well as the Hyatt Regency Hotel in San Francisco.

**At this time, due to the present COVID-19 social distancing and international travel restrictions, we are sorry to say that the decision has been made to cancel the 2020 ICNPR meeting in San Francisco.**

Unfortunately, also due to the uncertainty of future public health restrictions and pre-existing scheduled meetings of the participating societies, we are not re-scheduling the ICNPR 2020 for a later date but cancelling the meeting outright. The ASP, GA, AFERP, KSP, JSP, PSE and SIF all re-affirm our commitment to international cooperation and collaborative research in natural products.

**All registrations for the 2020 ICNPR will be fully refunded. All registrants who have made reservations at the Hyatt Regency Hotel in San Francisco may cancel them at no cost through July 20<sup>th</sup>, 2020.**

In an effort to help us all remain socially and scientifically connected, the ASP will be hosting bi-weekly ZOOM seminars in the natural product sciences throughout the Summer. Information on these seminars can be found at: <https://www.pharmacognosy.us/natural-product-sciences-webinar/>.

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# President Barry O'Keefe Letter to Members

continued from page 15



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We hope that these, and other mechanisms for our continued collaboration, will help to further the goals of the ICNPR 2020 until we meet again internationally in 2024.

Please stay safe, physically protected, and socially connected.

With my sincere best wishes,

Barry R. O'Keefe

President, American Society of Pharmacognosy

For all ICNPR 2020 participating societies:

Society for Medicinal Plant and Natural Product Research

Association Francophone pour l'Enseignement et la Recherche en Pharmacognosie

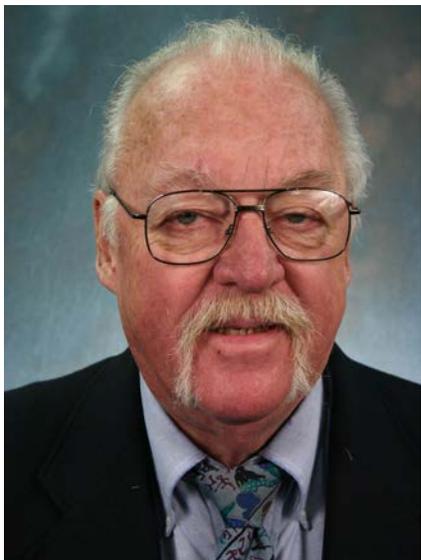
Korean Society of Pharmacognosy

Phytochemical Society of Europe

Japanese Society of Pharmacognosy

Italian Society of Phytochemistry and the Science of Medicinal, Food and Fragrant Plants (SIF)

# In Memoriam: Ralph N. Blomster



Former ASP President Dr. Ralph Norman Blomster passed away January 27, 2020, at age 88, in Ellicott City, Maryland. Originally from Lynn, MA, he received his BS in Pharmacy at the Massachusetts College of Pharmacy (1953), MS in Pharmacognosy from University of Pittsburgh (1958) under ASP founding member Dr. Norman Farnsworth, and PhD from the University of Connecticut (1963) under Dr. Arthur Schwarting, former editor of the *Journal of Natural Products*. He then held faculty positions at the University of Pittsburgh and University of Maryland.

Blomster was very important to the ASP on many levels. He was a founding member in 1959, served as president from 1972-1973, was the second editor of the *ASP Newsletter* from 1969-1982, and served on a wide variety of committees. He worked closely with a number of colleagues from the ASP over the years, and below are remembrances from three of them, Drs. Harry Fong, Marilyn Speedie, and Georgia Purdue.

ASP President Barry O'Keefe states, "I remember Ralph Blomster (the 'Big Swede' in my book) as a larger than life figure. Norm

Farnsworth originally introduced me and, I must say, when they were both together it was best just to sit back, watch and enjoy. Ralph was an outstanding pharmacognosist, an able ASP presidential roaster, and a generous and thoughtful human being. The camaraderie that he and his fellow founding members exhibited set the standard for our Society. As we continue to move into this new and fast-paced century, we need to take time to remember the life lessons provided by our founding members. Ralph Blomster helped build the American Society of Pharmacognosy and his contributions will be remembered."

Blomster is survived by his wife, Marilyn, three children and their spouses, Erik (Shelly), Kirsten Keller (Tom) and Leif (Kerry), six grandchildren, and six great-grandchildren. He is also survived by two brothers, Paul and Melvin.

## PITT STOPS

By Harry H. S. Fong, PhD

I first encountered, rather than *met*, Ralph "Swede" Blomster, an instructor in the Department of Pharmacognosy, School of Pharmacy, University of Pittsburgh (Pitt), in 1958. He came across as a "macho" guy with a booming voice. With the passage of time, I learned that was just the image that he projected. When he was my guest roommate for about two weeks in the summer of 1959, between his transitioning from Pitt to the University of Connecticut to study for his PhD under the late Prof. Arthur Schwarting, I

found him to be just a regular guy with the same vulnerabilities as all of us.

That summer also happened to be the historic time when the ASP was founded, with Swede being a founding member. Naturally, he and Prof. Farnsworth had paper and pen in hand on their return from Chicago and signed me up as a charter member. Does anyone think that I had a choice in the matter? The following summer, they threw me in the back seat of Norm's

*continued on page 18*

**"I remember Ralph Blomster (the 'Big Swede' in my book) as a larger than life figure. Norm Farnsworth originally introduced me and, I must say, when they were both together it was best just to sit back, watch and enjoy."**

## In Memoriam: Ralph N. Blomster

*continued from page 17*

Buick and drove two days and one night, non-stop except for gas and food, to attend the first ASP meeting at the University of Colorado, Boulder. On the return drive, Swede proclaimed, “Fong, since you slept all the way here [being height challenged, I was able to stretch out on the back seat], you will sit in the front passenger seat to keep either of us drivers awake on the way back to Pittsburgh!” So, for the next two nights and one day, they kept me awake by talking, physically poking, and force feeding me with pharmaceuticals!

When Swede left Pittsburgh at the end of that summer, I did not know that our paths would cross again. But fate had it that we were reunited as fellow faculty members at Pitt in January 1965, to form a three-member department of pharmacognosy, which was one of, if not the largest of, its kind in the USA at that time (led by Prof. Farnsworth). One might say that “It was the good old days.” We, Farnsworth-Blomster-Fong, worked as a seamless team of “three amigos” for three years (1965-1968). We all pitched in, whenever and wherever needed, on the search for potential antitumor constituents from several species of *Catharanthus* (other than *C. roseus*), in addition to our own individual projects. We learned from each other as we worked and jabbered away on any subject that came to mind: science, politics, sports, office politics, jokes, and general ribbing. No subjects were taboo, except that as the most junior member, I usually wound up being the butt of the joke or, otherwise, on the short end of the stick.

On the one-on-one side, Swede helped my wife and me to find housing (on joining the team in 1965) in the same apartment building complex in a Pittsburgh suburb, where he and his family lived. Being neighbors enabled us to carpool to and from work at Pitt. One day, we got into a discussion (argument) on some philosophical-political issue on the way to work,



Blomster with Norman Farnsworth

with him taking one side and I the other. On the way home at the end of that day, we resumed our discussion/argument on the same topic, but by the time we arrived home, it dawned on me that we had reversed sides from our morning positions. I thought, “That was weird.” The next morning, Swede started talking about something else, and we took opposite sides as the day before. That evening, we seamlessly slipped into the opposite side of the same argument, again. This became a ritual every day that we carpoled for the next 18-20 months, when he and his family bought and moved into their own house in another suburb. I missed those weird rides.

A favorite adventure for both Swede and Norm was their botanical exploration trip to the Amazon rainforest in 1966 sponsored by the Amazon Natural Products Co. Being the junior member of the team, I had to “mind the store” at Pitt, while they played “Tarzan 1” and “Tarzan 2.” Of course, they both had their versions of the same event to regale me on their return. Not being there with them, it is a toss-up as to whose story was truer or more believable than the other’s. For that, I defer to Dr. Georgia Persinos Perdue.

*continued on page 19*

**We, Farnsworth-Blomster-Fong, worked as a seamless team of “three amigos” for three years (1965-1968). We all pitched in, whenever and wherever needed, on the search for potential antitumor constituents from several species of *Catharanthus* (other than *C. roseus*), in addition to our own individual projects.**

## In Memoriam: Ralph N. Blomster

continued from page 18

### MARYLAND MEMORIES

By Marilyn Speedie, PhD

Ralph hired me in 1975 and I joined the Department of Pharmacognosy at the University of Maryland School of Pharmacy as an assistant professor where he served as department head. I was 7 months pregnant with my first child at a time when pregnancy was often a reason for employers to discriminate against female employees. He and his family were good friends to me and my family, and he was a good mentor to me.

Ralph was a big man with strong opinions, a loud voice, a tolerance of hot spicy foods such as no one else, a big heart, and a love of pharmacognosy and teaching. He and his wife Marilyn threw renowned parties for the department (later combined with Medicinal Chemistry, with him heading the combined department until 1989) with lots of food, alcohol and fun. My children have fond memories of all the Blomsters as well.

Dr. Georgia Perdue offers a remembrance of their plant expeditions to South America. Swede traveled through the jungles of Peru, Bolivia, and Brazil, talking to traditional folk healers and collecting plant specimens which he used as sources for isolation of active compounds. Eventually he and his students developed an anti-inflammatory compound and a wound-healing agent that were sold in Europe. Much of his research work focused on anticancer compounds isolated from various *Catharanthus* species.

Dean William Kinnard, who came from Pittsburgh, hired Blomster at Maryland in 1968. Ralph was a strong presence in the school as it grew over the years from a class size of about 40 students and 15 professors in 1968 to over 50 faculty and 400+ students overall when he retired in 1996.

Blomster was a friend to many who remember him fondly. He served as the local host for the fifth annual meeting in Pittsburgh and organized an international symposium on *Catharanthus*. Apart from the scientific program, the riverboat ride on the Allegheny is a part of ASP's historical lore. He also was local host in 1975 for the Society of Economic Botany meeting titled "Symposium on Plants and Cancer."

Ralph loved to teach and continued to teach natural products and an herbal elective long past his formal retirement. He said, "I try to get students to open their minds and think globally," and he truly enjoyed

his interactions with them. His enthusiasm and humor hold a strong place in the memories of many generations of University of Maryland School of Pharmacy graduates. He also was a regular on the American Chemical Society's lecture tour, invited back year after year to speak on "Herbalism" and "Plants as a Source of Drugs."

In his spare time in retirement, he carved wooden duck decoys. I am fortunate to have a beautiful one sitting on a bookshelf, and it was almost inconceivable to me that he could do such fine work with such big hands. He said it helped him relax.

The American Society of Pharmacognosy has come a long way since its early days. Yet, despite the ups and downs of the discipline's stature in schools and colleges of pharmacy, the strong personalities and excellent science of its members, of which Swede Blomster was a key component, have helped it survive and thrive. We relish the memories and will hold him in our hearts.

### RAINFOREST REMEMBRANCES

By Georgia Perdue, PhD

I was very saddened to learn of the death of Ralph Blomster, a special friend and colleague. Being a few years older, he graduated from Massachusetts College of Pharmacy when I enrolled as a freshman. When the ASP was in its formative stages, Ralph was helping his very good friend Norman Farnsworth, who had taken the lead in this endeavor.

I saw in Ralph a helpful and very kind man at work. He encouraged me to actively participate in the ASP! As I began my six years of graduate school, Ralph always had good advice and was an encourager as I was breaking uncharted ground.

This held true even after I received my PhD and held the position of Director of the Natural Products Research Laboratory. Ralph became a consultant for the parent company Amazon Natural Drug Company (ANDCO). His great delight was his trip to the headquarters in Iquitos, Peru at the headwaters of the Amazon River. He loved it because he had a chance to ride down the Amazon River!

Ralph, Norman and I had another bond - living in the city of Lynn, Massachusetts. (I lived there for a few years.) (See *ASP Newsletter* vol. 45 (2) 17 ([www.pharmacognosy.us/wp-content/uploads/ASPNL452v7.pdf](http://www.pharmacognosy.us/wp-content/uploads/ASPNL452v7.pdf)) for the complete and interesting story.) ■

**Blomster was a friend to many who remember him fondly.**

# Transition in the ASP Fellows Chair

By Gordon Cragg, DPhil

The election of ASP fellows was initiated in 2006 by the late Dr. Norman R. Farnsworth who was one of the founders of the ASP. The first fellows consisted of previous recipients of the Norman R. Farnsworth Research Achievement Award (formerly known as the ASP Research Achievement Award) who were still in good standing with the Society. Research Achievement awardees now regularly become fellows each year. However, additional candidates may be nominated for election as fellows by the existing fellows, subject to the total number of fellows being limited to no more than 5% of the ASP membership.

Candidates are nominated on the basis of continuing, high level contributions to the field of natural products as well as records of sustained achievement within their subdisciplines, and are not required to be members of the Society. However, if elected and ratified by the executive committee at the annual meeting, they must join the Society within one year of ratification. A list of the names of current fellows is given on the ASP website at [www.pharmacognosy.us/what-is-pharmacognosy/the-asp-fellows/](http://www.pharmacognosy.us/what-is-pharmacognosy/the-asp-fellows/)

The status of ASP fellows differs from other ASP awards and honors in that fellows serve as an advisory body to the ASP in scientific and professional matters of importance to the Society and natural products research, and they are also charged to serve as advocates for



Dr. Gordon Cragg

the ASP and the natural products field. It is anticipated that fellows will serve lifetime terms, and they hold a special closed session to discuss candidates for fellowship as well as other fellows' business at ASP annual meetings.

Since the death of Norman Farnsworth in September 2011, Drs. Bill Gerwick and Jon Clardy have served as chair of the fellows. Late last year I had the honor of being elected by the fellows as chair, and I feel privileged to follow Bill and Jon, who have provided outstanding and inspiring examples of service to our Society and to the natural products community as a whole.

I am an enthusiastic advocate of multidisciplinary, international collaboration. During my 20 years of service at the National Cancer Institute I had the pleasure and privilege of collaborating with many colleagues, both nationally and internationally, as well as with colleagues from many biodiversity-rich countries who collaborated in the study of their resources through the NCI Letter of Collection and Memorandum of Understanding agreements.

I feel excited about the development and the future of our Society and discipline, particularly with the talented younger members taking the lead, and I look forward to the fellows working with all members of the ASP and colleagues worldwide in determining how best we can continue the significant progress which has been made in promoting and advancing our discipline. ■

Dr. Bill Gerwick and Dr. Jon Clardy



**Late last year I had the honor of being elected by the fellows as chair, and I feel privileged to follow Bill and Jon, who have provided outstanding and inspiring examples of service to our Society and to the natural products community as a whole.**

# ASP Fellows Offer Thoughts during the COVID-19 Pandemic

By Gordon Cragg, DPhil

**B**eginning on March 20, the current and two former chairs of the ASP fellows (Drs. Gordon Cragg, Bill Gerwick and Jon Clardy) worked together to draft a message of encouragement and hope to ASP members during these trying times. A draft letter was distributed to the fellows for comments and changes, and on March 29 the **letter** was sent to our ever helpful business manager, Laura Stoll, who sent it to ASP members on March 30 and also posted it on the ASP website ([www.pharmacognosy.us/](http://www.pharmacognosy.us/)).

The letter reassured members that we will overcome this setback, as well as any delays in our individual careers. It also urged members to respond to this event in the most positive way possible, while also acknowledging that many members were already involved in compassionate community volunteer programs aiding the vulnerable and assisting healthcare workers overcome critical shortages of protective gear.

Given that many members are involved in aspects of natural products drug discovery, they were urged to stay up to date with the evolving literature on COVID-19 and to apply their knowledge, insights and creativity to exploring possible solutions in terms highlighting the proven potential of natural products as drug leads. To this end, a **reading list** (summarized below) has been sent to members and posted on the ASP website. Concerning delays in career advancement, members were reminded that *C&EN News* had reported that universities are extending tenure clocks for early-career professors coping with delayed projects, and that teaching assistants and research-funded students are continuing to be paid while teaching or working remotely. In addition, the ASP fellows would be happy to serve as mentors for any academic exchange that can help them overcome difficulties related to the COVID-19 crisis.

As an inspiring example of positive results emanating from physical distancing, members were referred to an article in the *Washington Post* which described how Isaac Newton escaped to his countryside home during the London Plague of 1665, and, during his enforced solitude, developed his theories concerning calculus and optics, and even his early thoughts on gravity.

The **reading list** referred to in the ASP fellows' letter was distributed to members and posted on the ASP website by Laura on April 9. As written in the cover email message, "*The ASP Fellows encourage all ASP members to devote their considerable talents to raising the profile of Natural Products to their rightful role in the promotion of human health and well-being, and as a resilient investment in our future.*" The first section

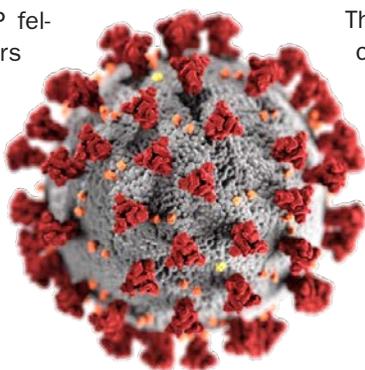
gives articles and information on COVID-19, and members are encouraged to follow the top two links, the first to *C&EN News* which provides "*free coverage of everything we know about the COVID-19 coronavirus,*" and the second to a virtual issue provided by ACS Publications in which they share a "*collection of articles on coronavirus research.*" Both these sites are regularly updated and are a source of the latest papers and commentaries on COVID-19; we thank ACS for this invaluable service to our community. The second section gives links to 21 papers selected by ASP fellows as representing significant advances made in several aspects

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of natural products drug discovery which we hope members will find of interest. Note that PDFs may be requested from authors where only abstracts are provided. Where fellows are coauthors, their names are given in parentheses after the reference.

Information on clinical trials may be found at [clinicaltrials.gov/ct2/home](http://clinicaltrials.gov/ct2/home) and/or [clinicaltrials.gov/ct2/who\\_table](http://clinicaltrials.gov/ct2/who_table). Multiple trials related to COVID-19 can be found at [clinicaltrials.gov/ct2/results?cond=COVID-19](http://clinicaltrials.gov/ct2/results?cond=COVID-19) where links are also given to WHO trials and to CDC information.

The fellows applaud our ASP colleagues for organizing a series of Natural Product Sciences Webinars ([www.pharmacognosy.us/natural-product-sciences-webinar/](http://www.pharmacognosy.us/natural-product-sciences-webinar/)), as well as members of the ASP Diversity Committee for initiating the ASP Ambassadors Program, which is "*a recruitment effort targeted at URM [underrepresented minority] scientists, designed to expand our pipeline of those who engage in natural products research.*" ■



## ASP Names New Treasurer

By Barry O'Keefe, PhD

**D**r. Jimmy Orjala from the University of Illinois at Chicago has been named the new ASP treasurer. Orjala is succeeding Dr. James McAlpine who has served the Society ably since 2013. The ASP is a growing enterprise, that has flourished both scientifically, professionally, and financially in recent years. The job of treasurer is pivotal for the continued success of the Society, especially in these economically challenging times.

Orjala is well prepared for the treasurer position as he has been chair of the ASP Auditing Committee for several years. In that role, he had broad oversight in ensuring that ASP finances were handled appropriately. Orjala will be ably helped by the ASP assistant treasurer, Dr. Nandakumara Sarma from the US Phar-



Dr. Jimmy Orjala

macopeia, who will continue in the office he has held for the past five years. Together with Ms. Laura Stoll, the ASP business manager, Orjala and Sarma will ensure that the ASP remains financially well-managed. As ASP president, I offer my vote of confidence that Dr. Orjala will continue his outstanding record of service to the ASP.

The Society offers its sincere thanks to Dr. McAlpine for his remarkable service to the ASP. Over his time in office McAlpine has overseen several changes to the Society's functions that have resulted in a more efficient and professional organization. McAlpine will continue to make contributions to the ASP as a member of the Constitution and By-laws Committee, a special interest of his. The ASP thanks you, Jim, for a job well done! ■

## Mata Honored with ABC's Farnsworth Award

By Stefan Gafner, PhD

**T**he American Botanical Council (ABC) has presented its 2019 ABC Norman R. Farnsworth Excellence in Botanical Research Award to ASP Fellow Professor Rachel Mata, PhD, who is best known for her work on the chemistry of plant compounds from Mexican medicinal plants, fungi, and lichen. She has also made important contributions to the development of analytical methods for botanical ingredient quality control, some of which have been used for the preparation of monographs of herbal remedies included in the *Mexican Herbal Pharmacopeia*.

For almost half a century, Mata has been at the forefront of research in the fields of ethnobotany and ethnopharmacology, natural products drug discovery, and analytical chemistry. Besides the discovery of many new compounds from traditional medicinal plants (published, among other publications, in a series of papers under the umbrella of "Chemical studies on Mexican plants used in traditional medicine"), she contributed to the discovery of a number of compounds of agrochemical interest, such as limonoids with herbicidal and insecticidal properties. She taught and mentored over 100 graduate, masters, and bachelor students, notably the prominent Mexican natural products researchers Drs. Rogelio Pereda Miranda, Mario



Dr. Rachel Mata

Alberto Figueroa Saldívar, and Andrés Navarrete Castro. She also served as president of the Phytochemical Society of North America in 1997.

Throughout her career, Mata has received numerous awards and recognitions, including the ASP Norman Farnsworth Research Award in 2014. At the national level, Mata has been distinguished with the National University Award (Teaching in Natural Sciences) in 2000, the Martín de la Cruz Prize awarded by the Mexican Ministry of Health in 2002, and the National Chemistry Award Andrés Manuel del Río in 2013, granted by the Mexican Chemical Society. In 2019, the *Journal of Natural Products* published a special edition in her honor.

"I am very pleased and grateful to receive the 2019 American Botanical Council Norman R. Farnsworth Excellence in Botanical Research Award," wrote Prof. Mata in an email. "I accept this award in honor of my mentors, colleagues, and students who over the years have shared their scientific work with me in the area of pharmacognosy. To be recognized by ABC is a true honor because this organization really endorses the rational use of medicinal plants, which has been for many years one of the main goals of my research at the National Autonomous University of Mexico in Mexico City." ■

# Beutler Recognized as AAAS Fellow

By Vanessa Nepomuceno, PhD

The council of the American Association for the Advancement of Science (AAAS) has selected ASP member Dr. John A. Beutler as an AAAS honorary fellow. Dr. Beutler was recognized for his accomplishments in science and technology during the AAAS Annual Meeting in Seattle, Washington.

ASP President Dr. Barry O Keefe noted, “Dr. John Beutler has made major contributions to the science of pharmacognosy throughout his career. His work at the NCI, his editorial efforts for the journal *Pharmaceutical Biology* (among others), his authoritative monographs on medicinal plants, and his early studies on biologically active mushrooms all speak to his being worthy of the designation of Fellow of the American Association for the Advancement of Science.”

Beutler completed his doctoral degree at the Philadelphia College of Pharmacy and Science, now the University of the Sciences. His postdoctoral work was conducted at Northeastern University and the University of Texas Medical School. In 1984, Beutler joined the National Cancer Institute (NCI) and is currently staff scientist II in the Molecular Targets program, supervising high-throughput screening libraries, information technology, and drug development efforts. Beutler’s significant contributions include the englerins for the treatment of kidney cancer and Ewing’s sarcoma and the schweinfurthins for glioblastoma and malignant peripheral nerve sheath tumors.

Beutler commented, “It’s certainly an honor to receive AAAS Fellow status, particularly because it recognizes my interdisciplinary work in the space between cancer biology and natural products chemistry. When I look at the other ASP members who have received the same honor, it makes it even better to join that club.”

ASP Fellow Dr. Gordon Cragg noted, “Among his notable achievements, John has led teams in the discovery of the englerins and schweinfurthins isolated from plants collected in Tanzania and Cameroon, respectively. Both these agents are in advanced preclinical development as potential anticancer agents, and in pursuing their development he has collaborated closely with colleagues from the source countries, in keeping with the terms of the NCI Letter of Collection agreements.



Dr. John A. Beutler with Dr. Steve Chu, AAAS president

PHOTO COURTESY OF AAAS

I applaud John for his commitment to collaboration with the scientific communities in biodiversity-rich countries, thereby advancing the expansion of our discipline and the discovery of novel potential drugs for the benefit of cancer patient populations worldwide.”

The AAAS, a nonprofit organization, is committed to upholding scientific cooperation, integrity and policy. Since 1874, the AAAS has recognized members for their exemplary scientific achievements through the AAAS honorary fellows. AAAS honorary fellows are selected annually. Candidates must be nominated, and selection is based upon their merits in any of the 24 AAAS sections. Becoming an AAAS fellow is a lifetime honor.

Dr. Beutler is an addition to the many other ASP members and ASP fellows who have been given this honor. States President O’Keefe: “The fact that this honor has been bestowed upon a previous president of the American Society of Pharmacognosy speaks to the scientific excellence of the ASP and the recognition of the contributions that pharmacognosy continues to make to the broader research community.”

The ASP bestows its warmest congratulations to Dr. Beutler on such an outstanding achievement! ■

**“Among his notable achievements, John has led teams in the discovery of the englerins and schweinfurthins isolated from plants collected in Tanzania and Cameroon, respectively.”**

# Working in Cannabis

By Daniel Kulakowski, PhD

If you would like to work with one of the most widely used plant medicines in the country and enjoy the opportunity to directly impact patient health and product development, I recommend pursuing a career in the cannabis industry. There are several ways scientists with a pharmacognosy background can get involved in the field.

I am a lab director at an independent testing laboratory (ITL) in Maryland, Steep Hill, Inc. Most states with a medical or adult-use program require third-party product testing for safety and potency. ITLs provide potency and terpene data that eventually gets listed on product labels. This information helps patients and dispensary employees choose and recommend medicines. In many states ITLs also ensure product is free from pesticide, solvents, metals or microbial contamination.

Typical analytical methods involve HPLC-PDA and GC-MS/FID for cannabinoids and terpenes, LC-MS and GC-MS for mycotoxins and pesticides, GC-FID for residual solvents and inductively-coupled plasma (ICP-MS) for heavy metals. While the ICP-MS is a tool not often employed in pharmacognosy labs, it has been fun and interesting to learn sample preparation and analysis for inorganic analytes.

I transitioned from an academic lab environment to a production lab and at first was worried about accreditation to an ISO17025 standard. I had been warned about burdensome documentation and rigid practices that come from working in an accredited lab. This was an initial culture shock, but now that a quality control system is in place the process of implementing new methods, improving old methods or installing new equipment is quite efficient. Better yet, the associated validation and verification steps ensure that method changes and new equipment actually improve or maintain the quality and reliability of data produced in the lab.

There is currently a lack of standard ana-



Dr. Daniel Kulakowski in his analytical laboratory at Steep Hill, Maryland

lytical methods for cannabis which increases the validation burden for internally-developed methods. Standard methods are beginning to be developed by ACS and AOCS, but a challenge to their development has been the lack of a standardized cannabis product that can be tested and compared in labs across the country.

Cannabis is currently still a schedule I drug and cannot be transferred across state lines, even between two states such as Maryland and Pennsylvania which both have legal medical programs and a shared border. Despite this regulation, certified reference standards for THC and other cannabinoids are commercially available but must be kept below the DEA limit of 0.3% (w/w).

Cannabis testing regulations also differ among states. The specific pesticide, heavy metal and residual solvent panels a lab is required to test for, as well as the action limits

for each analyte, are set by regulators in each state's program. Specific state requirements influence the type of equipment that can be used for testing. For example, a 1000 ppb action limit for certain pesticides may be easily achievable using GCMS, but 100 ppb limit will require a LCMS.

Quick turnaround times, immediate implementation of new state regulations and reproducibility among lab staff are all challenges of working in an ITL. This fast pace, combined with the opportunity for optimization and building efficiencies, keep the job interesting.

In addition to employment with an ITL, chemists can find work with growers and processors or regulatory bodies. Growers and processors need scientists who can understand and optimize cannabis extraction (often propane, butane, ethanol or supercritical CO<sub>2</sub>) or conduct in-house R&D projects, such as formulating new products, optimizing harvest time or drying conditions, or conducting

*continued on page 25*



**There is currently a lack of standard analytical methods for cannabis which increases the validation burden for internally-developed methods.**

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### State cannabis commissions, the regulatory bodies in charge of implementing and enforcing cannabis programs, need individuals with a chemistry background to understand, translate and implement policies that make sense for patients, growers and processors.

stability studies. Cannabinoids and terpenes are often the focus of internal R&D projects, but testing of soil, inputs or plants for heavy metals, mycotoxins, pesticides and other contaminants may also be desired to ensure product safety.

State cannabis commissions, the regulatory bodies in charge of implementing and enforcing cannabis programs, need individuals with a chemistry background to understand, translate and implement policies that make sense for patients, growers and processors.

The relatively small size of labs and cultivation and processing companies can place chemists one step away from patients. If my lab fails a product due to contamination, a patient will not have access to a potentially compromising product. If a pharmacognosist working at an extraction facility formulates a new tablet, it has the potential to be in a patient's hands in weeks. The opportunity to impact patient health so directly brings with it

a strong sense of responsibility and excitement.

In the short-term future I believe more pharmacognosists across the industry will push the cannabis field forward. New cannabinoid and terpene extraction techniques will be necessary to continue to produce unique, differentiated products. Flash chromatography and liquid-liquid chromatography have a lot of potential but are not frequently used. Formulating cannabis with other herbs could also be a benefit to medical patients.

There will also be more opportunities for academic cannabis research. Even this past spring the NIH put out four RFPs for cannabinoid- and terpene-based research. Academic cannabis programs in the US are starting to take off, such as the UCLA Cannabis Research Initiative, the Institute of Cannabis Research at Colorado State University-Pueblo and the Master of Science Program in Medical Cannabis Science and Therapeutics at the University of Maryland School of Pharmacy. ■

### This fast pace, combined with the opportunity for optimization and building efficiencies, keep the job interesting.

## Call for Applicants: AOAC INTERNATIONAL Student Award

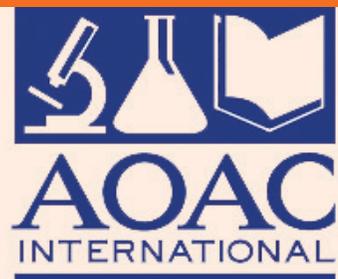
By Joseph Betz, PhD

**T**he AOAC INTERNATIONAL *Inés Cereijo Technical Division on Reference Materials Student Award* is offered annually to both undergraduate and graduate students on an international basis. The application deadline is June 1 of the award year. The 134<sup>th</sup> AOAC INTERNATIONAL Annual Meeting and Exposition will be held at the Swan & Dolphin Hotel, Orlando, Florida, September 11-17, 2020.

The Technical Division on Reference Materials (TDRM) is a highly active group within AOAC INTERNATIONAL. Initiatives focus on improving the quality of analytical measurements through the correct use of reference materials in methods validation, method transfer, or routine quality control. The group provides symposia at AOAC annual meetings on current issues and areas of interest relating to the use of reference materials.

An award in the amount of \$500 will be presented to the student whose final report scores the highest through the TDRM evaluation process. Award recipient(s) who confirm by August 1 of the award year that they will attend the AOAC INTERNATIONAL Annual Meeting will receive a \$250 travel grant, paid meeting registration fee, and pre-paid hotel accommodations at an amount not to exceed \$500 and for no longer than four nights. Recipient(s) will also receive a one-year AOAC INTERNATIONAL Student Membership and one-year of membership in the Technical Division on Reference Materials.

Information about TDRM and the TDRM Student Award are available at [www.aoc.org/membership/tdrm/](http://www.aoc.org/membership/tdrm/). ■



# Hot Topics in Pharmacognosy: So You Thought that Compounds that Were Kinase Inhibitors Were Only Useful as Antitumor Agents?



By David Newman, DPhil

In the last few months there have been some papers published, predominately in the ASAP sections in ACS journals or in equivalent “spaces” in other journals, that have shown how by repurposing and/or using the initial scaffold as the lead structure, that some clever medicinal chemistry has led to structures that have antimicrobial or antiparasitic potential.

I will show four examples, all from papers that have appeared in the last few months, involving compounds that are either approved drugs, in a clinical trial (the status/phase and disease will be identified in the title of each compound as they are discussed), or used some clever biochemistry.

## **SORAFENIB (NEXAVAR®): initially approved for renal cancer in 2006.**

This drug was the first one that Gordon Cragg and I could identify as the product of *de novo* combinatorial chemistry, and even today, only two others (one of which might be debatable) fall into that category. In a paper in *Nature Chemistry*,<sup>1</sup> Le et al. reported how they were able to modify sorafenib (**1**) to produce the structure currently known as PK150 (**2**), where the right-hand side of sorafenib has been replaced by a five-membered dioxo ring, with a required difluoro substitution between the oxygen atoms in place of the pendant substituted pyridine in sorafenib. This compound (**2**) was more potent against *S. aureus* NCTC 8325 (MIC, 180 ng.mL<sup>-1</sup>) compared with vancomycin (MIC 1.4 µg.mL<sup>-1</sup>) and linezolid (MIC 1.0 µg mL<sup>-1</sup>). There was also significant activity against various MRSA strains, and unlike sorafenib, it was also active against vancomycin-resistant *Enterococci* (MIC, 1.0 µg.mL<sup>-1</sup>) and some mycobacteria, including *M. tuberculosis* (MIC, 0.93 µg.mL<sup>-1</sup>). There was also indication of *in vivo* activity in murine models with-

out obvious kidney toxicity (sorafenib is a renal cancer treatment). However, it was inactive against all Gram-negative bacteria tested.

Thus, a simple modification of sorafenib gave a compound that was 10-fold more active than the starting agent, had significant activity against resistant Gram-positive organisms, for which the target, SpsB (bacterial signal protease B) is the same as that of the arylomycins, compounds that are under early development in the pharmaceutical industry.<sup>2,3</sup> In contrast, however, PK150 activates the secretion of this enzyme, whereas the arylomycins inhibit the same target SpsB. It should also be pointed out that exhaustive studies did not demonstrate any kinase target in the bacterial cells.

## **HALICIN: c-Jun N-terminal kinase inhibitor SU3327.**

This compound was identified from a “deep-learning” algorithm, aka “artificial intelligence” by a group at MIT, who renamed the compound as “halicin” (**3**). Using this approach on the Drug Repurposing Hub, the c-Jun N-terminal kinase inhibitor SU3327,<sup>4,5</sup> which is structurally quite divergent from conventional antibiotics, was found to be a potent inhibitor of the growth of *E. coli*. Later experiments showed that halicin possessed growth inhibitory properties against a wide spectrum of pathogens through selective reduction of the bacterial transmembrane DpH potential. Among the bacteria inhibited were *Clostridium difficile* and pan-resistant *Acinetobacter baumannii* infections in murine models. It should be noted that the World Health Organization designated *A. baumannii* one of the highest priority pathogens for which new antibiotics are urgently required.<sup>6,7</sup>

Finally, in order to demonstrate the “power” of their AI approach, the authors reported that in addition to halicin, by use of a distinct set of 23 empirically tested predictions from >107 million molecules currently in the ZINC15 database, they discovered eight additional antibacterial compounds that were also structurally distant from known antibiotics, and two of these molecules (**4,5**) displayed potent broad-spectrum activity and overcame an array of antibiotic-resistance determinants in *E. coli*.

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## Hot Topics in Pharmacogenosy: So You Thought that Compounds that Were Kinase Inhibitors Were Only Useful as Antitumor Agents?

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### **NK-11, AN INHIBITOR OF BACTERIAL NAD-KINASE (NADK): from substrate structures via fragments to candidate(s).**

**A**lthough the bacterial kinase NADK has been known for a significant period of time<sup>9</sup> until this report, there had been no reports of any significant activities against this particular target. Of interest in this paper was that the normal substrate of the kinase, NAD, had a millimolar affinity, though in regular kinases the ATP concentration in the cell is usually at these levels. However, a mimic of NAD is the symmetrical di-adenosine diphosphate (with a pyrophosphate linker that holds the two adenosines in what are called the “A” and “N” pockets). In addition, the ribose moiety is only weakly bound in the target site (from X-ray structure fitting studies), and since adenine also has some affinity, the investigators concentrated on the use of adenine derivatives in order to identify novel linkers that could substitute for the normal substrate.

Following the interactions of suitable subunits “in crystallo,” the authors discovered NK11 (**6**) screening against the active site(s) of *Listeria monocytogenes*’ NADK1 crystal structure mainly by the use of soaking techniques followed by determination of any occupancy of the active site by X-ray crystallography. This compound contained a propargyl linker and was subsequently tested against recombinant NADKs from *L. monocytogenes* and *S. aureus*, measuring IC<sub>50</sub> values by the formation of reduced NADP in a coupled enzyme reaction. If the linkage was flexible, then little to no activity was found, but the less flexible linkers as in NK11 gave micromolar activity. When tested against NK11 *in vitro* growth experiments, the NK11 treated cells gave significant reductions in both growth and in NADPH/NADH levels ( $p < 0.0001$ ), and NK11 had no detectable toxicity in normal fetal lung fibroblasts (three day assay), nor was there any weight loss or organ abnormalities in mice treated with NK11 and tested 7 days after injection with NK11.

In order to determine if the growth reductions seen were solely due to NADK inhibition, the investigators

used a sophisticated series of knockout processes involving Cripsr9, leading to a series of *S. aureus* strains that lacked various components of the NADK pathway. Growth inhibition was seen in all three test organisms (wild-type, control and knock-down strains), with the NADK knockout plus NK11 showing the highest level of growth inhibition. Thus, as mentioned in the conclusions, “Together, these results indicate that NK11 inhibits growth of *S. aureus* by targeting NADK and presumably other mechanisms.”

### **LAPATINIB TO ANTIPARASITIC CANDIDATE: Lapatinib (7) was approved in 2007 by the FDA for treatment of breast and lung cancer as a dual-action kinase (*her2neu* and EGFR).**

**A** very interesting recent paper in *ACS Med. Chem. Lett.* by Buskes et al. (part of a special issue of *Women in Medicinal Chemistry*)<sup>10</sup> reported on the “re-repurposing” of a compound series that was originally designed to be drug candidates derived from lapatinib against the trypanosome *Trypanosoma brucei brucei*. Using what the authors called “a parasite-hopping approach,” they were successful in producing an active antischistosomal from the most active antitrypanosomal agent NEU-1953 (**8**). Included in the paper are extensive examples of how, by altering the pharmacological parameters of this compound, they came up with a potent antischistosomal lead compound (**9**) plus three other candidate compounds mainly modified at the second nitrogen atom of the cycloheptane if the lead one encounters problems on the way to “drug status.”

This paper should be thoroughly read as it demonstrates the interplay of pharmacological parameters in terms of choice(s) of molecule(s), and how by what might appear to be relatively simple modifications to a core structure, the problems of solubility, as an oral drug is an absolute requirement for treatment, in order to make the best choice at an early stage, but also to have back-up compounds in reserve, a point that some investigators in academe tend to forget but is always built-in at pharmaceutical companies. ■

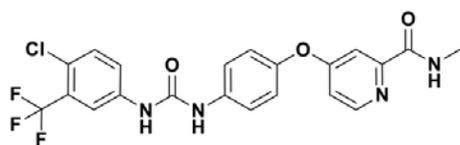
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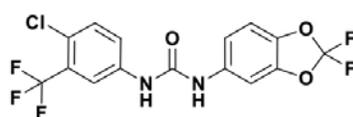
# Hot Topics in Pharmacognosy: So You Thought that Compounds that Were Kinase Inhibitors Were Only Useful as Antitumor Agents?

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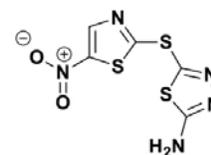
## Structures



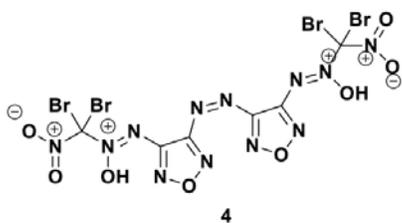
1. Sorafenib (Nexavar)



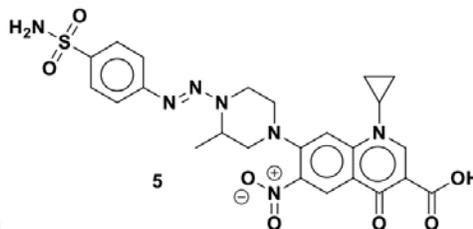
2 PK150



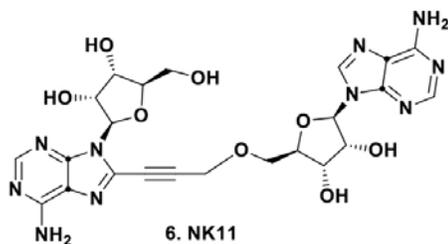
3. Halicin



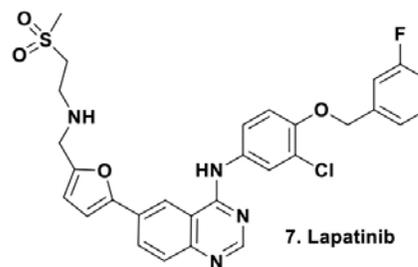
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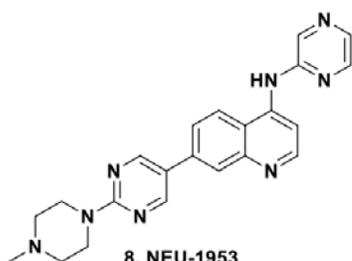
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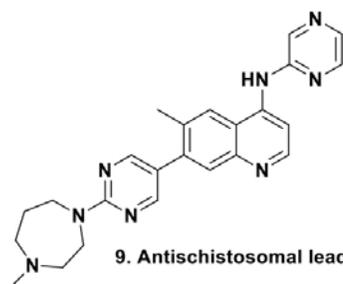
6. NK11



7. Lapatinib



8. NEU-1953



9. Antischistosomal lead

continued on page 29

## Hot Topics in Pharmacognosy: So You Thought that Compounds that Were Kinase Inhibitors Were Only Useful as Antitumor Agents?

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### LITERATURE CITED

- <sup>1</sup> Le, P., Kunold, E., Maccsics, R., Rox, K., Jennings, M. C., Ugur, I., Reinecke, M., Chaves-Moreno, D., Hackl, M. W., Fetzer, C., Mandl, F. A. M., Lehmann, J., Korotkov, V. S., Hacker, S. M., Kuster, B., Antes, I., Pieper, D. H., Rohde, M., Wuest, W. M., Medina, E. and Sieber, S. A. Repurposing human kinase inhibitors to create an antibiotic active against drug-resistant *Staphylococcus aureus*, persists and biofilms. *Nat. Chem.* **2020**, *12*, 145-158.
- <sup>2</sup> Lim, N.-K., Linghu, X., Wong, N., Zhang, H., Sowell, C. G. and Gosselin, F. Macrolactamisation approaches to arylomycin antibiotics core. *Org. Lett.* **2019**, *21*, 147–151.
- <sup>3</sup> Walsh, S. I., Peters, D. S., Smith, P. A., Craney, A., Dix, M. M., Cravatt, B. F. and Romesberg, F. E. Inhibition of protein secretion in *Escherichia coli* and sub-MIC effects of arylomycin antibiotics. *Antimicrob. Agents Chemother.* **2019**, *63*, e01253-18.
- <sup>4</sup> De, S. K., Stebbins, J. L., Chen, L. H., Riel-Mehan, M., Machleidt, T., Dahl, R., Yuan, H., Emdadi, A., Barile, E., Chen, V., Murphy, R. and Pellecchia, M. Design, synthesis, and structure-activity relationship of substrate competitive, selective, and *in vivo* active triazole and thiaziazole inhibitors of the c-Jun N-terminal kinase. *J. Med. Chem.* **2009**, *52*, 1943–1952.
- <sup>5</sup> Jang, S., Yu, L. R., Abdelmegeed, M. A., Gao, Y., Banerjee, A. and Song, B. J. Critical role of c-jun N-terminal protein kinase in promoting mitochondrial dysfunction and acute liver injury. *Redox Biol.* **2015**, *6*, 552–564.
- <sup>6</sup> Perez, F., Hujer, A. M., Hujer, K. M., Decker, B. K., Rather, P. N. and Bonomo, R. A. Global challenge of multidrug-resistant *Acinetobacter baumannii*. *Antimicrob. Agents Chemother.* **2007**, *51*, 3471–3484.
- <sup>7</sup> Lee, C. R., Lee, J. H., Park, M., Park, K. S., Bae, I. K., Kim, Y. B., Cha, C. J., Jeong, B. C. and Lee, S. H. Biology of *Acinetobacter baumannii*: pathogenesis, antibiotic resistance mechanisms, and prospective treatment options. *Front. Cell. Infect. Microbiol.* **2017**, *7*, 55.
- <sup>8</sup> Gelin, M., Paoletti, J., Nahori, M.-A., Huteau, V., Leseigneur, C., Jouvion, G., Dugué, L., Clément, D., Pons, J.-L., Assairi, L., Pochet, S., Labesse, G. and Dussurget, D. From substrate to fragments to inhibitor active *in vivo* against *Staphylococcus aureus*. *ACS Infect. Dis.* **2020**, doi 10.1021/acsinfecdis.9b00368.
- <sup>9</sup> Gerdes, S. Y., Scholle, M. D., D'Souza, M., Bernal, A., Baev, M. V., Farrell, M., Kurnasov, O. V., Daugherty, M. D., Mseeh, F., Polanuyer, B. M., Campbell, J. W., Anantha, S., Shatalin, K. Y., Chowdhury, S. A. K., Fonstein, M. Y. and Osterman, A. L. From genetic footprinting to antimicrobial drug targets: Examples in cofactor biosynthetic pathways. *J. Bacteriol.* **2002**, *184*, 4555-4572.
- <sup>10</sup> Buskes, M. J., Clements, M., Bachovchin, K. A., Jalani, H. B., Leonard, A., Bag, S., Klug, D. M., Singh, B., Campbell, R. F., Sciotti, R. J., El-Sakkary, N., Conor R., Caff, C. R., Pollastri, M. P. and Ferrins, L. Structure-bioactivity relationships of lapatinib derived analogs against *Schistosoma mansoni*. *ACS Med. Chem. Lett.* **2020**, *11*, 258-265 Doi. 10.1021/acsmchemlett.9b00455.

# Meet a New ASP Member

*Dr. Holly Showalter is our featured new member in this issue of the Newsletter. She is an Aspiring Professional Experience (APEX) Instructor in the Waukee Community School District in Waukee, Iowa. She initially taught AP Chemistry there and then became a founding member of Waukee APEX in 2014. Waukee APEX is a progressive teaching model where 11<sup>th</sup> and 12<sup>th</sup> grade students in high school get exposure to business partners and academic real-world projects in research along with learning professional skills such as presentation, communication, and problem solving. APEX is a high school elective that also counts for college credit at the local community college. We are grateful for the opportunity to welcome her back to ASP as a full member.*

By James Fuchs, PhD

## What is your scientific and educational background?

I did my undergraduate work at Bowling Green State University and obtained a BS in chemistry and minor in biology. Believe it or not, I am a trained pharmacognosist! I performed my graduate PhD work under Dr. Jerry McLaughlin (retired) at Purdue University and worked alongside Drs. Nick Oberlies and Craig Hopp, who are also both current ASP members. I worked on the isolation of both Annonaceous acetogenins and natural products from *Monarda fistulosa*. Before teaching, I worked about 13 years in the dietary supplement industry as a research scientist for Metagenics, Inc. and Kemin Industries. After getting laid off in 2009, I made my way into high school teaching as a career “pivot.” This career pivot allowed me to be home more with my kids, who were both under four years old at the time.

## What drew you to science education, and how does your background in pharmacognosy/graduate research help you in your work?

I did not have a lot of women science teachers growing up but did have a lot of great male teachers. I went into teaching because I wanted to inspire the next generation of both male



Dr. Holly Showalter

and female scientists. I bring in my pharmacognosy background and former industry background whenever possible with stories of both success and failure with experiments and professional situations like collaboration. Students in high school have no idea that scientists in industry work very closely with an interdisciplinary team of marketing, sales, quality control and operations. We do a disservice in our US model of having middle school and high school students complete science experiments in an hour or so and then have most of the experiments “work.” In my research

class, most experiments do not work the first time because we are working on things that have not been done before for clients, and also we are all learning at the same time! As Dr. McLaughlin used to say, “If 10% of your experiments work the first time, you will have a Nobel Prize.” I try to teach patience and proper questioning with research.

## How did you first hear about the ASP?

My first ASP meeting was in Halifax, Nova Scotia in 1994 as a second-year graduate student at Purdue. Dr. McLaughlin loaded up three vans full of graduate students and postdocs, and we made the journey from Indiana to Nova Scotia. I stopped going to ASP in the mid 2000s but just came back to the 2019 meeting in Madison under a travel grant to present a poster on my college-level APEX research class.

## Why did you decide to rejoin ASP at this point?

I rejoined ASP in 2019 because I am slowly starting to incorporate more natural products research into my lab course. Nick Oberlies also contacted me to come to the meeting and helped me to get the travel grant to help with expenses. High school teachers really

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**I went into teaching because I wanted to inspire the next generation of both male and female scientists.**

## Meet a New ASP Member

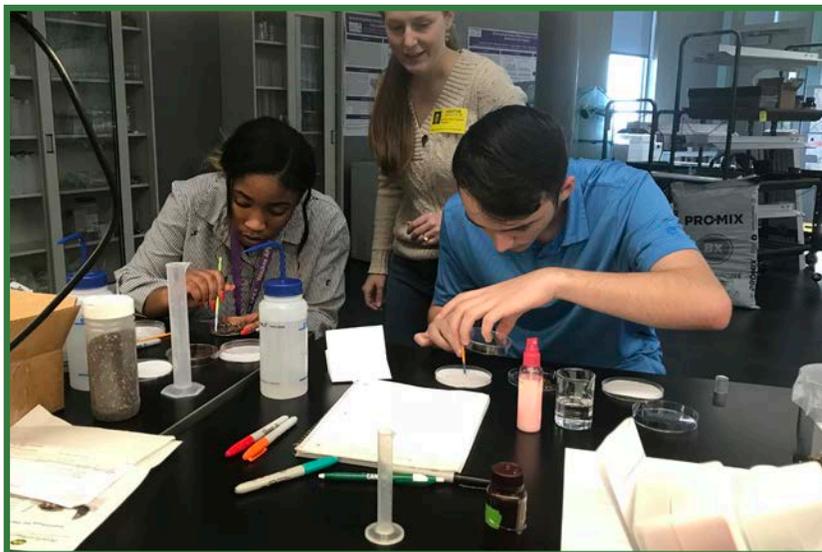
### I rejoined ASP in 2019 because I am slowly starting to incorporate more natural products research into my lab course.

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do not have a budget to travel, and this helped immensely. I am looking to collaborate with others that may have projects that we can help with. I currently cannot do isolation work in my lab due to lack of equipment, but we are taking natural products and applying them to cell culture. We are a biosafety level 2 lab. Hopefully down the road I can be set up more for isolation work. I did buy a tub full of glass chromatography columns at a company "garage sale" for \$20, which was awesome. There were about 30 of them in the bin. Next, I am on the lookout for a rotary evaporator with chiller.

#### How would you describe your experience at the recent ASP meeting in Madison?

Attending this meeting helped me to connect with lots of old friends across the country. I also got to network with some members I never met before. I met both Drs. Skylar Carlson (University of the Pacific) and Carolyn Fisher (Sandia National Labs). We are slowly putting a research project together with my research intern student on a soil metabolomics chemistry study. Presenting a poster brought me right back to the mid 1990s when I was a graduate student. I was also introduced to the Tiny Earth antibiotic discovery project out of the Wisconsin Institute of Discovery and attended teacher training there in January. I would have never heard about it if it was not for the ASP meeting. I wrote a grant to help fund this project fully and to get started teaching antibiotic discovery from soil samples next fall in Waukee, Iowa!



Dr. Emily Fuerst of Kemin Industries collaborating on a project with Dr. Showalter's students, Mia Paye and Gavin DeBord. PHOTO COURTESY OF DR. HOLLY SHOWALTER

#### Is there a way that individual members or the society as a whole can specifically help you and your students or, more generally, contribute to the broad educational process in our country or across the globe?

Normally we are focused on education at the collegiate/graduate level or even professional development, but this is really something that we need to know more about. I am open to speaking to anyone who might want to collaborate on projects with my lab. This can be with graduate students, undergraduate students, or post docs that have a passion for teaching the next generation. So many high school students have no idea that natural products chemistry is a career path. Projects do not have to be huge. They can be a small piece of a large project that you collaborate on with

us. The program in Waukee is very well known. Tim Cook from Apple made a visit which led to him telling Ivanka Trump about it. She in turn came for a visit in March 2018 with our Iowa governor, Kim Reynolds. Our teaching model is to promote workforce development for the state of Iowa and beyond.

#### How can members learn more about what you do and potentially get involved?

Check out my poster from the Madison meeting or take a look at our research course video. They can also contact me via my LinkedIn page

([www.linkedin.com/in/hollyshowalter/](http://www.linkedin.com/in/hollyshowalter/))

#### [Research Course Video](#)

**I am open to speaking to anyone who might want to collaborate on projects with my lab.**

# New Members of ASP Spring 2020

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 nine full members and nine associate members. We look forward to meeting you and learning more about you and your work.



## FULL MEMBERS

### **Dr. Niyati Acharya**

Nirma University Institute of Pharmacy  
Ahmedabad, Gujarat, India  
Head, Department of Pharmacognosy

### **Mr. Kelly Glynn**

Amway Corporation  
Ada, Michigan  
Senior Research Scientist

### **Prof. Tobias Gulder**

Technical University of Dresden  
Dresden, Saxony, Germany  
Professor of Technical Biochemistry

### **Ms. Haniyeh Koochak**

Washington State University  
Pullman, Washington  
Postdoctoral Research Associate

### **Dr. Shaun McKinnie**

University of California, Santa Cruz  
Santa Cruz, California  
Assistant Professor

### **Dr. Osama Mohamed**

University of Michigan  
Ann Arbor, Michigan  
Postdoctoral Research Fellow

### **Dr. Berenice Ovalle-Magallanes**

National Autonomous University of Mexico  
Mexico City, Mexico  
Associate Professor

### **Prof. Mylene Uy**

MSU - Iligan Institute of Technology  
Iligan City, Philippines  
Professor of Chemistry

### **Dr. Grace Gar-Lee Yue**

Institute of Chinese Medicine CUHK  
Shatin, N.T., Hong Kong  
Scientific Officer

## ASSOCIATE MEMBERS

### **Mr. Daniel Back**

Oregon State University  
Corvallis, Oregon  
Graduate Student

### **Mr. Trey Brasher**

Stockton University  
Galloway, New Jersey  
Graduate Student

### **Ms. Alison Domzalski**

CUNY Graduate Center, Hunter College  
New York, New York  
Doctoral Student

### **Ms. Lobna Elsadek**

University of Florida  
Gainesville, Florida  
Graduate Student

### **Mr. Andri Frediansyah**

University of Tuebingen  
Tuebingen, Germany  
PhD Student

### **Ms. Rebecca Mains**

University of Washington  
Seattle, Washington  
Project Manager, Research

### **Mr. Timothy O'Donnell**

University of Hawaii, Manoa  
Honolulu, Hawaii  
Graduate Student

### **Mr. Md Afjalus Siraj**

University of Hawaii at Hilo  
Hilo, Hawaii  
Graduate Student

### **Ms. Stambouli Belkis**

Istanbul University  
Istanbul, Turkey  
PhD Student



# 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](http://www.pharmacognosy.us). If you have a conference or event you would like mentioned, please send us relevant information, including any graphics or appropriate fliers, at [asp.newsletter@lehman.cuny.edu](mailto:asp.newsletter@lehman.cuny.edu).

## ASP Natural Product Sciences Webinar

### Bimonthly Zoom Seminars

Thursdays 4 PM EDT / 1 PM PDT

[www.pharmacognosy.us/natural-product-sciences-webinar/](http://www.pharmacognosy.us/natural-product-sciences-webinar/)

## 20<sup>th</sup> International Congress of the International Society for Ethnopharmacology

November 24-26, 2020

Thessaloniki, Greece

[www.ethnopharmacology2020.org](http://www.ethnopharmacology2020.org)

## 6<sup>th</sup> Current Drug Development (CDD) International Conference 2020

July 1-3, 2020

Phuket, Thailand

[cdd2020.pharmacy.psu.ac.th/](http://cdd2020.pharmacy.psu.ac.th/)

## 14<sup>th</sup> International Coral Reef Symposium

July 18-23, 2021

Bremen, Germany

[www.icrs2020.de](http://www.icrs2020.de)

## ICNPR 2020: A Global Perspective on Natural Products Research

**CANCELED**

~~July 25-30, 2020~~

~~San Francisco, CA~~

~~[www.icnpr2020.org](http://www.icnpr2020.org)~~

## Gordon Research Conference: The Function of Natural Products at the Interface of Chemistry and Biology

August 1-6, 2021

Andover, NH

[www.grc.org/natural-products-and-bioactive-compounds-conference/2020/](http://www.grc.org/natural-products-and-bioactive-compounds-conference/2020/)

## 4<sup>th</sup> Annual Institute of Cannabis Research (ICR) Conference

August 11-13, 2020

Pueblo, Colorado

[www.csupueblo.edu/institute-of-cannabis-research/2020-conference/index.html](http://www.csupueblo.edu/institute-of-cannabis-research/2020-conference/index.html)





## Brief News from Washington

By Georgia Perdue, PhD

### Research Integrity in Peril?

- At the December 13 meeting of the Advisory Committee to the NIH Director (ACD), Dr. Collins commented on **“a very important topic and a bit sobering.... I never imagined two to three years ago... research integrity would be on our agenda. But it is a reality.”** (see Fall 2019 ASP Newsletter). The newly formed **ACD Working Group for Foreign Influences on Research Integrity** is made up of the President of Stony Brook University; President and CEO of Vanderbilt University Medical Center; President of The Ohio State University; Vice President for Research, MIT; Presidents of Washington University, University of Maryland and Wayne State University, whose president is co-chair of the above working group.
  - NIH’s Dr. Michael Lauer, deputy director for NIH Extramural Research, gave a brief update at the ACD meeting on what is going on with continued foreign influences. **All of what follows “has been getting worse over the last six months. NIH has seen more than other institutions.”**
    - We routinely collaborate productively with investigators in foreign countries...We must rely on productive research collaborations with foreign entities
    - Individuals violating laws/policies represent a small proportion of scientists working in and with US institutions. A greater concern is failure to disclose foreign resources, foreign employment arrangements, foreign grant support..., all foreign conflict of interest patents and peer review violations
  - American institutions unaware the same grant is funded by NIH and a foreign country in many cases
  - American institutions unaware people have full-time jobs in America and foreign countries
  - Failure to disclose significant foreign patents.
- Recommendations include: a broad awareness campaign; coordinating with FBI, DOD, NSF and State Dept.;** working with NSF to make it easier for people to inform them of their support.
- Worth reading: A report from the **Senate Permanent Subcommittee on Investigations** hearing on November 19, **Securing the U.S. Research Enterprise from China’s Talent Recruitment Plans.** **“We urge researchers to err on the side of transparency.”** See Penn State website: [www.research.psu.edu/international\\_affiliation](http://www.research.psu.edu/international_affiliation).
  - **The Office of Science and Technology Policy (OSTP)** published a “summary of a November 5 meeting including transparency and integrity in research.” A must read.
  - And as if all of the above is not enough, there is the widely published news of the Harvard University professor,

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**I never imagined two to three years ago... research integrity would be on our agenda.**

**All of what follows “has been getting worse over the last six months. NIH has seen more than other institutions.”**

**At the December 3 joint National Cancer Advisory Board and Board of Scientific Advisors meeting, Dr. Sharpless proudly reported that from April-October 2019 seven new drugs for cancer were discovered, adding, “progress in cancer exceeds all else at FDA.”**

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Charles Lieber, head of the chemistry and biology department, who was arrested by the FBI for stealing research data and passing it on to Chinese University scientists. Further sad details are worth reading.

- Dr. Lauer's final thoughts: **“We are dealing with a new type of threat to NIH; we are implementing the ACD recommendations; extensive institutional outreach has yielded results; we are working closely with other agencies and stakeholders and we must NOT create a climate that is unwelcoming to foreign scientists.”**

**IN OTHER NEWS**

- At the **Annual NCI Director's Award Ceremony** in December, Dr. Ned Sharpless noted, **“the best thing about NCI is the people. I said it about FDA and it is true: all dedicated people. This is the best job ever.”** He revealed his father died of melanoma.
- **At the December 3 joint National Cancer Advisory Board and Board of Scientific Advisors meeting, Dr. Sharpless proudly reported that from April-October 2019 seven new drugs for cancer were discovered, adding, “progress in cancer exceeds all else at FDA.”** “The engine producing new cancer therapies and diagnostics is doing very well, [because] the basic translational engine is doing well.” **At the same meeting Dr. Douglas Lowy discussed NCI's 2020 budget.** A very salient point: “About 57% of the 2020 budget is for funding traditional RO1s. NCI's success rate for grants is lower than NIH as a whole because of the diversity of RPGs including SBIR/STTRs. Another driver is the increase in unique first-time applicants.
- For the third consecutive year **FDA received a budget increase** for 2020 of **\$5.8 billion.**
- **FDA approved Ervebo, the first vaccine developed**

**by Merck to prevent the deadly Ebola virus (Zaire ebolavirus).** Stay tuned.

- **Dr. Janet Woodcock, FDA's CDER Director, noted that the 49 novel drug approvals in 2019 show “a strong year.”**
- In November Tokyo-based **Takeda Pharmaceutical Co. announced great progress in its development of a vaccine against dengue, the mosquito-borne virus. The World Health Organization lists dengue among 10 global threats.** The announcement was made at the annual meeting of the American Society of Tropical Medicine and Hygiene, held in November 2019 at National Harbor, MD. Clinical trials are expected to take about four years. Takeda plans to release efficacy results of the vaccine the first half of this year. Stay tuned.
- On January 27 at the Advisory Council meeting of the National Institute of Allergy and Infectious Diseases (NIAID), Director Dr. Anthony Fauci noted:
  - **2020 is the “fifth consecutive year NIH has received a significant budget increase” totaling \$6,440,442. “This has not happened in more than a decade.”**
  - **NIAID anticipates beginning Phase I clinical trials within nine months on a vaccine for coronavirus!**
  - **NIAID is collaborating with Moderna, a Massachusetts-based biotech company, to design an mRNA candidate vaccine.**
  - Quoting from *Science* magazine, October 25, 2019: **“Hope for Ebola Patients at Last.” “...scientists finally identified two drugs that dramatically reduced death rates... Simply conducting the trial was a notable achievement,”** said Fauci.

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**Takeda Pharmaceutical Co. announced great progress in its development of a vaccine against dengue, the mosquito-borne virus.**

**The World Health Organization lists dengue among 10 global threats.**

### NIAID anticipates beginning Phase I clinical trials within nine months on a vaccine for coronavirus!

### NIAID is collaborating with Moderna, a Massachusetts-based biotech company, to design an mRNA candidate vaccine.

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- Last year **Massachusetts was especially hard hit with an outbreak of encephalitis.**
- A very heartening headline in the December 13 *Washington Times*: **Women make up majority of US medical students for first time.** In my era at Massachusetts College of Pharmacy, there were only 8-10 women enrolled in each graduating class! Several male classmates also graduated from Harvard medical or dental schools after graduating from MCP because they were well prepared.
- **Growing hemp is making a bit of a comeback in the South,** but its lifespan is still a concern. There is little or no interest in growing cannabis.
- **It seems there are a lot of cannabidiol products available. The only approved one is Epidiolex, an oral solution for epilepsy disorders.** Last December FDA's Principal Deputy Commissioner Amy Abernethy said **FDA "will clarify its regulatory approach to cannabidiol products."** [*Medscape News*]
- **The use of cannabis is still illegal in the United Kingdom!**
- It seems 30% of 18-25-year-olds use cannabis for depression. [*Reuters Health*]
- Scientists at Rush University Medical Center, Chicago, reported that **diets high in vegetables, fruit and tea help lower the risk of developing Alzheimer's disease. Kale, spinach, beans, apples, olive oil, tomato sauce all have high amounts of flavanols.** [*Neurology online, January 29*]
- **Eighty-eight-year-old former FDA Commissioner Frank E. Young, MD, PhD died November 24 of lymphoma.** He was dean of the University of Rochester's medical and dental school; he also was a bold pioneer in genetic cloning and FDA commissioner during the difficult years of 1984-88 when the AIDS problem was in its infancy. Commissioner Young survived scathing criticisms from both NCI's Board of Scientific Advisors and NCI Director Dr. Vincent DeVita who pressured him to approve drugs NCI considered effective. During this time, while publisher of the newsletter *Washington Insight*, I asked Dr. Young in an interview if he would capitulate to NCI's pressure. "No, never." After his tenure at FDA he became assistant secretary at HHS. Following this robust career, Young received a degree in theology. Of all his accomplishments, I believe he most treasured being an assistant pastor at Fourth Presbyterian Church, Bethesda, MD, where his late wife Leanne, my dear friend, and I attended.
- Recently an article came to my attention dealing with an **"interesting" tree, *Catha edulis* growing in Kenya's hills. Its red and green leaves contain the alkaloid cathinone, a short-lived stimulant known as khat or qat.** Native to the Horn of Africa and the Arabian peninsula, **the sale of the leaves for the "high" it produces has created an extremely lucrative business!**
- **A side story re: the Kenyan Shimba Hills where the plant *Maytenus buchananii* grew in abundance. Collecting the required 40,000 lbs. of stems to extract the anticancer active ingredient maytansine was an extraordinary feat! The late Dr. Robert E. Perdue, Jr., a botanist with USDA, headed this entire endeavor and even found the only wood chipper in all of Kenya.** This exceptional accomplishment of collecting the stems, hit front pages of newspapers worldwide! One headline read: **Kenya to Provide 40,000 lbs. Harvest for Cancer Research.**  
"Dr. Perdue collected many plants for the NCI in the 1960s, 70s and early 80s for testing in the NCI drug discovery program. The discovery of maytansine would not have occurred without his exceptional skill and persistence," noted ASP Fellow Dr. Gordon Cragg. However, the plant collector did not live long enough to learn the following facts: simple derivatives of maytansine, emtansine and mertansine were conjugated to antibodies to form two antibody drug conjugates (ADCs), emtansine and, when conjugated to the antibody trastuzumab, gave the ADC trastuzumab emtansine (also known as Kadcyra), which was approved by the FDA for the treatment of HER2-positive breast cancer. A similar maytansine-based ADC, lorvotuzumab mertansine, was granted orphan drug status by the FDA for the treatment of Merkel cell carcinoma, an aggressive, rare form of skin cancer.  
As a thank you to the Kenyan government for the plant, Eli Lilly donated several large boxes of vincristine and vinblastine which were taken by the Perdues on a plane to Kenya and donated to the Nairobi hospital. "The donation of the vincristine and vinblastine to the Nairobi hospital was significant, for at that time they were the drugs that had effectively turned childhood leukemia from a killer disease to one that was effectively treated, saving many children's lives," stated Cragg. ■

# From the Archives: Preserving Pharmacognosy History

By Devhra BennettJones, CA

**T**he Lloyd Library & Museum (LLM) is the official history repository for the American Society of Pharmacognosy (ASP). The Library's holdings include the ASP's corporate archives and donations from individual members, such as esteemed pharmacognosists Drs. Ara DerMarderosian, Norman Farnsworth, George Hocking, John Staba and Varro "Tip" Tyler. When members donate archival collections, they ensure that ASP history and heritage is made available to researchers for years to come.

In the quest to preserve ASP history and memories, the Lloyd Library and ASP Archives Committee collaboratively developed donation guidelines with a goal to help ASP members identify and designate noteworthy and unique records in advance of donation. Scientists can schedule donations throughout their careers rather than waiting for retirement.

The guidelines were also developed with Library space constraints in mind as well as the costs associated with processing, storing and providing access to materials. To provide space for historically significant ASP member collections, the committee has limited the donation size to a maximum of 15 linear feet. (90% of individual ASP collections currently held by the Lloyd Library are 10 linear feet or less.)

Unique archival records take many forms. Ideally, do-

dated records have been stored in a cool, dry, temperature-stable environment to minimize the presence of mold, insects and other contaminants that may pose a risk to Library employees and other collections when introduced to the repository. The Library may conduct an environmental assessment of materials and preview items prior to acceptance. The Lloyd requires an inventory for all donations under consideration and may also accept partial collections.

Donors are encouraged to submit those parts of their paper collections for consideration that have a unique and historic value. Numerous types of materials are valuable to historians of science and researchers seeking data about scientific studies. The following guidelines represent the types of materials accepted from individual donors.

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## LLM strongly considers the following items for accession:

- Awards and certificates (unframed)
- Brochures and fliers
- Correspondence
- Diaries
- Family History/Genealogical information
- Grant applications (final document), funding notification, and evaluation
- Legal documents especially related to pharmacognosy, expert testimony, lawsuits
- Memoirs/reminiscences
- Minutes/reports that are not duplicated in ASP or other organization files
- Photographs (with subjects and locations identified, ideally approx. date provided)
- Research notes (selected)
- Scrapbooks/photo albums
- Speeches/lectures (final draft only)
- Subject files (selected)
- Unpublished articles/essays



## LLM does not accession the following items:

- Contaminated materials with mold or other hazardous agents
- Drafts of published works, unless there are unpublished sections or significant revisions
- Electronic media, including but not limited to CD ROMs, DVDs, flash drives, portable hard drives, websites
- Films; videos; audio tapes
- Photocopies
- Published articles/books/essays including those written by donor
- Published minutes/reports/ speeches/lectures



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While books and periodicals are not accepted as part of the archives, the Lloyd Library will consider them as a separate donation. An inventory of these donations is required, and, if accepted, the works will be cataloged and added to the Lloyd Library's research collection. The donor will be reflected in the Library catalog record. Note also, that while the Lloyd Library does not currently accept electronic media, it is developing a plan and storage medium for born-digital materials.

### **STEPS TO DONATING COLLECTIONS TO THE LLOYD LIBRARY**

Collection donations to the Library follow several distinct steps. The donor begins by selecting materials that are considered the most historically significant and contacts the LLM at 513-721-3707 or [www.lloydlibrary.org/contact/](http://www.lloydlibrary.org/contact/), providing a description, approximate size of the archival materials, and the date range. A member of the Library will set an appointment to discuss the potential donation and the inventory requirements. Upon receipt of the collection inventory, the Lloyd Library Acquisitions Committee will meet to evaluate the proposed donation. In some cases, the LLM may preview the collection prior to acceptance. The committee may also consult with members of the ASP Archives and Executive Committee.

In order to maximize the limit of 15 linear feet, the Library encourages the removal of hanging folders from boxes, leaving interior folders intact. The donor will inform the LLM about any access restrictions for the documents. Confidential and classified material or correspondence from another party are subject to legal and copyright regulations. The donor may be asked to produce release forms for such documents that pertain to living individuals. The Lloyd may also refuse to accept or close access to materials in question, per the advice of their legal counsel. Information on donating to the LLM can be found at the following website: [lloydlibrary.org/donate-books-manuscripts-and-artifacts/](http://lloydlibrary.org/donate-books-manuscripts-and-artifacts/).

### **WANT TO CONTRIBUTE TO PRESERVING ASP HISTORY AND ACCESSIBILITY BY RESEARCHERS?**

In the age of internet information and bibliographic databases such as NAPRALERT, ASP donors may wonder, how is ASP history preserved? The path from the accession of a collection to its accessibility by researchers is a series of steps to gain intellectual control of the materials which includes accession, conservation, preservation, arrangement, gleaning, boxing, labeling, and the final phase of composing a descriptive finding aid about the records, the creator and provenance.

In addition to seeking archival materials, the Lloyd Library accepts monetary donations to expedite the extensive and time-consuming processing work. These funds are used to hire contractors and purchase conservation supplies, advancing collection processing priority and speed. A gift of \$2,000 provides half the cost of processing the average ASP member's collection. All financial gifts can be designated.

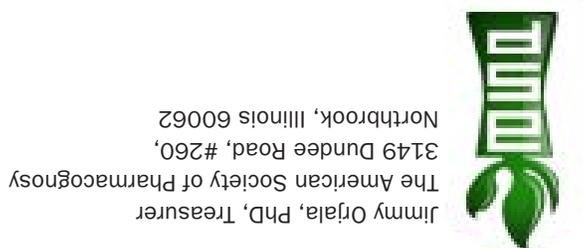
"Donating both important historical documents and financial support to the Lloyd Library and Museum is one of the most lasting contributions an American Society of Pharmacognosy member can make," stated ASP President Barry O'Keefe "To have an institution like the LLM to house important scientific documents from eminent members of the ASP is a rare and beneficial relationship for the ASP. I encourage our members to consider how they can contribute to this relationship to the betterment of both the American Society of Pharmacognosy and the Lloyd Library and Museum."

Whether donating to preserve the collections of ASP members that are already in the collection and being processed, such as the Norman Farnsworth Archives, or assigning priority to incoming collections, consider making a donation to help support pharmacognosy history by visiting [www.lloydlibrary.org/support/](http://www.lloydlibrary.org/support/) or contacting the

**Lloyd Library at 513-721-3707**

or

[www.lloydlibrary.org/contact/](http://www.lloydlibrary.org/contact/)



## ASP Membership

### Full Membership

Full membership is open to any scientist interested in the study of natural products.

Current membership dues and *Journal of Natural Products* subscription rates can be found at [www.pharmacognosy.us](http://www.pharmacognosy.us).

### Associate Membership

Associate membership is open to students of pharmacognosy and allied fields only. These members are not accorded voting privileges.

Current membership dues and *Journal of Natural Products* subscription rates can be found at [www.pharmacognosy.us](http://www.pharmacognosy.us).

### Emeritus Membership

Emeritus membership is open to retired members of the Society who maintained membership in the Society for at least five years.

Current membership dues and *Journal of Natural Products* subscription rates can be found at [www.pharmacognosy.us](http://www.pharmacognosy.us).

### Honorary Membership

Honorary members are selected by the Executive Committee of the American Society of Pharmacognosy on the basis of meritorious service to pharmacognosy.

### Present Honorary Members are:

Dr. John H. Cardellina • Dr. David P. Carew, University of Iowa • Dr. John M. Cassidy, Oregon State University  
Dr. Geoffrey A. Cordell, University of Illinois at Chicago • Dr. Gordon C. Cragg, National Institutes of Health  
Dr. Harry H.S. Fong, University of Illinois at Chicago • Dr. William Keller, Nature's Sunshine Products, Inc.  
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Dr. James E. Robbers, Purdue University • Dr. E. John Staba, University of Minnesota  
Dr. Otto Sticher, Swiss Federal Institute of Technology • Dr. Barbara Timmermann, University of Kansas  
Dr. Hildebert Wagner, University of Munich

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

**Jimmy Orjala, PhD, Treasurer, The American Society of Pharmacognosy,**  
3149 Dundee Road, #260, Northbrook, Illinois 60062. Email: [asphcog@gmail.com](mailto:asphcog@gmail.com)