



# The American Society of Pharmacognosy

The ASP Newsletter: Volume 53, Issue 4

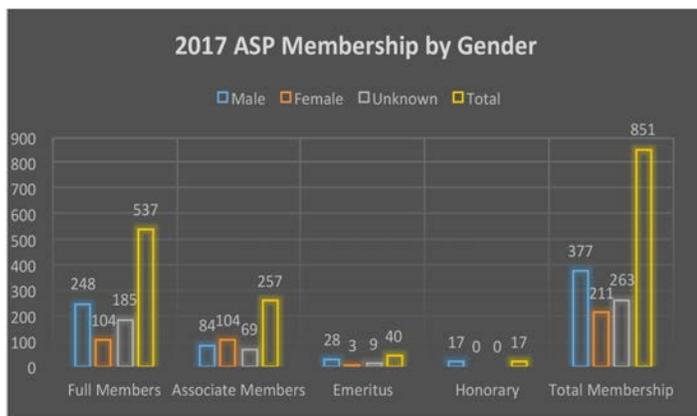
Discovering Nature's Molecular Potential

## Female ASP Members Underrepresented in Newsletter

By Dr. Edward Kennelly

At the 2017 ASP Annual Meeting in Portland, ASP member Dr. Tawnya McKee asked some pointed questions regarding the representation of women at the annual meeting as invited speakers. From her analysis, women were underrepresented at the Portland meeting, as well as others in past years. Sparked by Dr. McKee's comments, ASP Newsletter Editor, Dr. Edward Kennelly, decided to review the male to female coverage in certain recurring articles in the Newsletter.

The ASP Newsletter has several recurring articles that feature members and their research, including "Meet a New ASP Member," "Behind the Scenes in Pharmacognosy," and "Pharmacognosy Field Notes." All of these articles have been running for



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## The (In)convenience of Gender Blindness

By Dr. Brian Murphy

"I don't see gender. I only see the quality of work being done."  
"...it's not really a problem in our society, we're good about that."



These sentiments have permeated discussions about gender balance in conference speaker lineups at the international level. But this dismissiveness often lies in stark contrast to statistical reality, which shows men are heavily favored as invited speakers at conferences. Societies worldwide are under increasing pressure from a revolutionary force of female scientists and a few of their male colleagues to deconstruct both entrenched patriarchal infrastructure and a false virtue of gender blindness. Both have been equally crippling toward advancing career opportunities for women, and have maintained a staggering imbalance of male voices in the basic and medical sciences in the past century.

An investigation into the number of female speakers at ASP meetings reveals a grim reality. Tabulating gender ratios from the past five ASP meetings (the 2016 Joint Natural Products Conference not included), male speakers outnumber female speakers by a significant margin. Males outnumbered their female colleagues by between 2- and 4-fold in regard to plenary slots, with the exception of the 2013 meeting (a meeting that included a special session of all

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## EDITOR'S CORNER



**A**lthough this is a *Newsletter*, never have I felt the impact of world events on how we approach articles for a given issue as much as now. A US federal tax bill has just been signed into law by President Donald Trump, and only as we began our final edits did we have an indication that a proposed tax on graduate student tuition would not be passed, as was proposed in earlier House versions. I found this tax idea to be especially troubling, and since people in Congress were suggesting that graduate students would have the resources to pay taxes, perhaps at 20% or higher rate, on something that has no bearing on a student's take-home pay. Where exactly would students, especially at private universities where tuition can be as high as \$50,000, find additional funds to pay for taxes?

My prediction at the time this graduate student tuition tax was proposed was that it would dissuade younger people from considering obtaining their Ph.D.'s, especially students from lower income families. Many of these same students are the very ones that are underrepresented in sciences, and thus the gap in diversity in the scientific workforce would only grow larger. Thanks to efforts by ASP and other professional organizations, the final tax bill did not have this provision. Just a few issues ago, the *Newsletter* covered the proposed elimination of the Fogarty Center, a unit of NIH that has been instrumental in funding a number of ASP members' international research. The fact that either of these could be considered at all makes me realize we must be vigilant about all proposed changes to government policies that impact ASP members, at all stages of their careers.

At the 2017 ASP Annual Meeting in Portland, I was struck by the words of long-time ASP member, Dr. Tawnya McKee, who questioned the apparent underrepresentation of female invited speakers at that conference, and urged ASP leadership to look seriously into this issue for future meetings. I think no one would have predicted that in just a few months' time, the US would be grappling with the issue of how women are treated at work in such detail, and the start of the #MeToo movement for women who have been sexually harassed.

In light of all of this, the *Newsletter* decided to cover the subject of female members' experiences from a few angles. First, in the cover story, the *Newsletter* is analyzed for its coverage of female members in its regular columns over the past decade. The results are not encouraging. Women have consistently been underrepresented in three different columns. As ASP Editor during this entire time, I was surprised by this analysis, and I will work with the ASP Advisory Committee to consider ways to correct this bias. Dr. Brian Murphy wrote a complementary lead article discussing the gender imbalance in ASP invited speakers over the past decade. He proposes several ways the Society could address this issue in the future.

The latest version of the US travel ban of people from predominately Muslim countries, an issue covered in the Spring 2017 *ASP Newsletter*, took effect recently, and has already been placed on hold by a federal appeals court ruling in late December. While we do not have an article on this topic, we will continue to monitor its impact on ASP members.

This year has brought great academic prominence for ASP members being recognized as distinguished professors. In this issue of the *Newsletter*, we highlight Drs. Guido Pauli and CT Che who were recognized by University of Illinois, Chicago (UIC) College of Pharmacy as distinguished professors, named after two leading figures of ASP, the late Dr. Norman Farnsworth and Dr. Harry Fong. This wonderful achievement follows on the heels of two other ASP members, Drs. Nadja Cech and Nick Oberlies being recognized as distinguished professors at University of North Carolina, Greensboro (UNCG). Congratulations to each of these ASP members.

I hope you have a great new year, and please let us know if you have news to share with other members.

*Dr. Edward J. Kennelly*

## 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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## Female ASP Members Underrepresented in Newsletter

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between 5-10 years, so there is considerable data to draw upon for the coverage of male and female ASP members, and in the case of all three regular columns, male ASP members dominated the coverage.

The current overall membership for ASP is 851, with 211 female members (35.9%), counting only those who have indicated gender. However, for the total membership, 263 members (30.9%) have not indicated gender. Among the 537 full members, of those indicating gender, 104 are female (29.5%). Representation of females significantly increases among more junior members of ASP, with females comprising 104 (55.3%) of the associate members who indicated gender. However, among the two most senior levels of membership, the percent of females drops precipitously, with 3 (9.7 %) female emeritus members, and none (0%) of the honorary members being female. The ASP collects little in the way of further information about the demographics of members, except where they are located and their position. The ASP Membership Committee is considering whether to collect further demographic information about members.

“Meet a New ASP Member” is the *Newsletter’s* longest-running column. Typically the *Newsletter* features 1 new member in each of the quarterly issues. From Volume 42, issue 1 to Volume 52, issue 4, 41 ASP members were interviewed, and 15 of these members were female, or 36.5% which is in line with the overall membership numbers. However, a number of those interviewed tend to be Associate Members since new members tend to be more junior scientists, and in that membership category, women are more than half of this group. With regards to where these new members interviewed worked, 29 were in education, 10 industry and 2 government. The breakdown of where they were from included: 32 from the USA, 1 Nigeria, 1 Northern Ireland, 1 Saudi Arabia, 1 Australia, 1 Portugal, 1 France, 1 Jamaica, 1 Germany, and 1 Brazil.

New members to be interviewed are typically chosen by the columnist who is usually on the ASP Membership Committee. Dr. Dan Kulakowski has taken over the writing of this column in the last few years. When informed about the discrepancy, Dr. Kulakowski agreed to consider this as a factor in his selection of new members to interview. “I will absolutely reach out to more female members first. I have been trying to rotate industry and academic members and I would deliberately reach out of the country about once a year.”

“Behind the Scenes in Pharmacognosy” began in 2011 also, and features an interview with an ASP member who recently published a pharmacognosy peer-reviewed article in the *Journal of Natural Products* or other high-quality journal. These articles can help promote the work of an ASP member by getting information out about the research to a wider community. Of the 34 members featured in this column, a mere 7 were females (20.6%). Thirty of those interviewed were in education, 2 industry and 2 government; 26 were from USA, 2 Germany, 2 Japan, 2 China, 1 Korea and 1 Switzerland.

The person interviewed in this series is normally the corresponding author, who is typically the principle investigator of the laboratory. It is not clear why so few females are featured in

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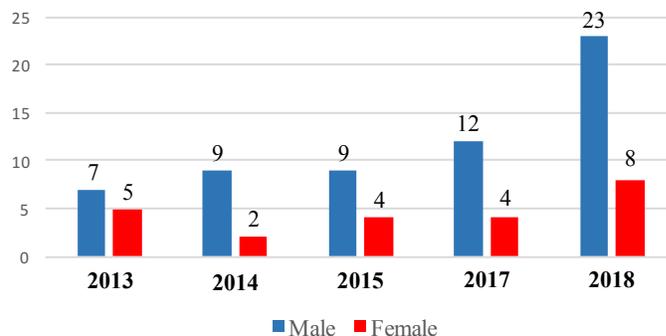
## The (In)convenience of Gender Blindness

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plenary lectures highlighting contributions by women to natural products sciences). This pattern continued when all other oral presentations, such as parallel sessions, were taken into consideration as well.

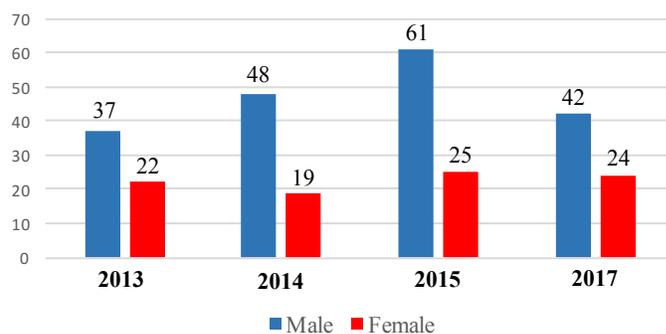
Despite a general welcoming and inclusive attitude that is a hallmark of the ASP, in the absence of concerted action to ensure that women have equal opportunity to present their research at meetings, this status quo of male dominated speaker lineups will likely continue. Men may de-

### ASP Meeting Plenary Speakers, 2013 – 2018



ride this statement and tout their gender blindness. Many suggest that selecting conference speakers (among other things) should be based on quality, not based on gender. However, just as race blindness has been a major enemy in the ongoing battle for civil rights, gender blindness has

### ASP Meeting All Other Speakers, 2013 – 2017



clearly been destructive toward women. The only thing that one remains “blind” to while choosing to not see gender, is ongoing inequality. It is precisely the opposite behavior such as detailed attention to gender, race, and other discriminative markers, that will allow scientists to engage in an honest conversation and corrective action.

I am complicit in this trend. I have been a regular attendee of ASP meetings since 2002, and only recently have I taken an effort to recognize this imbalance and speak out. I present these statistics not to cast judgement, but to rally my fellow male colleagues. Be vocal. It is not sufficient to simply believe in equal opportunity. Belief without action is complicity. I suggest a few action items:

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## Female ASP Members Underrepresented in Newsletter

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**More importantly, it is obvious that many great female scientists have been treated, deliberately or not, unfairly over the years with their contributions either downplayed or completely invalidated; we cannot tolerate this and the ASP should be an organization that treats men and women equally.**

the article. For many years, former ASP Assistant Editor, Dr. Amy Keller, was the primary person responsible for selecting member's research to feature in this series. Dr. Keller explained, "When I chose potential articles, I always picked material from *J. Nat. Prod.* that I found most personally interesting. I'll admit that the science was the bias. If I wanted to read it, or it looked like it propelled the field in interesting ways beyond just compound identification, I considered it. Secondly, I would screen articles to see if last or corresponding authors were ASP members - that's the second bias. Also, there were plenty of articles from the Asian world where there's no way I could tell sex by author name. I certainly never checked the author's sex to make sure we were including women - I probably should have." She followed up in a later email and wondered if part of this is explained by career development issues. "...[are] more men...achieving faculty and PI positions than women? We don't know whether the professional status of ASP members are equal in percentage between sexes..."

"Pharmacognosy Field Notes" is the latest article that has been added as a regular feature of the *ASP Newsletter*. It highlights the field work of ASP members collecting specimens for pharmacognosy research purposes. In the last five years, of the 10 members featured, three have been women (30%). In this case, the ASP member interviewed does not have to be a PI, but can be at any level, as long as the person has gone on an interesting collection trip and is willing to write about it and provide photos to the *Newsletter*. All ten people interviewed were in education, with 9 from the US and 1 from Australia. ASP member Dr. Cassandra Quave has recently agreed to be responsible for this column, and the *Newsletter* will encourage her to ask ASP members at all levels, male and female, to describe their collection trips.

ASP President Cedric Pearce commented on this situation, "The ASP is an organization suitable for, and welcoming to, all those

interested in scientific research into natural products regardless of gender, race, or religion. The natural products estrogen, progesterone and testosterone are closely related structurally but have profoundly different biological activities; as such they should be, and are, of equal interest to the Society. More importantly, it is obvious that many great female scientists have been treated, deliberately or not, unfairly over the years with their contributions either downplayed or completely invalidated; we cannot tolerate this and the ASP should be an organization that treats men and women equally. It's important that we continue to support an inclusive ASP; this inclusivity was written into our Constitution by the founders but is currently being revised by Gil Belofsky and the Constitution and Bylaws committee to be even more explicit in stating our position. Ed is to be commended for his analysis of the past focus of the *Newsletter*, and we all look forward to this continuing to support the interests of everyone in the ASP"

The *ASP Newsletter* has instated some internal controls to try to ensure that there is not an editorial bias when making a selection for these and other articles. All articles are run by the ASP Advisory Board, comprised of Drs. Gordon Cragg, Kevin Tidgewell, and Ms. Devhra BennettJones, for approval. The selection for some articles, like "Meet a New ASP Member," are done by a standing committee of the ASP, in this case the ASP Membership Committee.

As Editor of the *ASP Newsletter*, I aim for equal treatment of all members in our publication, and I am sorry that we have fallen short. The *Newsletter* has communicated these results to ASP President Cedric Pearce and ASP Vice President Susan Mooberry. The *Newsletter* will remain vigilant about this issue, and I encourage ASP members to contact me (Edward.kennelly@lehman.cuny.edu), the *ASP Newsletter* Advisory Board members, or ASP President Cedric Pearce with comments or suggestions about how we can improve our coverage of all ASP members, and especially women in the Society. ■

## The (In)convenience of Gender Blindness

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- Tabulate the male/female speaker ratio for other societies with which you are involved. Start a conversation based on those results.
- If you are invited to speak at a conference, be sure that the organizers have an appropriate gender balance. If not, work with them to offer your slot to a fellow female scientist.
- Stand up. Speak out. Whether at a conference, at lunch, in lab, or on social media, young males need positive role models. Be proud about being proactive.

In collaboration with Dr. Nadine Ziemert (University of Tübingen) and several others, we created a resource for conference organizers who are seeking to invite plenary speakers to natural products meetings. Similar to the [Women in Microbiome](#) Research list, we started

a [Women in Natural Products Research](#) Google Document. The list is curated by the two of us, is currently populated with 76 scientists, and names can be added or removed from the list upon request.

Finally, the struggle for equality does not stop at gender. It is wise for the ASP to join a slowly sobering nation and make efforts to enhance opportunities for underrepresented minorities as well, so that bridges exist from neighborhood to lab, and from lab to podium. Our field will benefit. Decades of research has shown that diverse groups of people are more innovative than homogenous groups; just a few summaries were compiled in the *Harvard Business Review* and *Scientific American*. Our ASP, filled with kind hearts and open minds, has traditionally been relegated to members of the audience and will attend to our all our professional colleagues going forward. ■

# Two ASP Members Honored with Endowed Professorships

By Dr. Edward Kennelly

The University of Illinois College of Pharmacy invested two ASP members as endowed professors on September 13. Dr. Guido Pauli was given the title of the Norman R. Farnsworth Professorship in Pharmacognosy, and Dr. Chun-Tao Che the Harry H.S. Fong Professorship in Pharmacognosy. Both professorships are named after long-time members of the ASP, the late Dr. Farnsworth who was the second President of ASP and Dr. Fong, a former ASP President and current Honorary Member.

ASP President Cedric Pearce stated, "I would like to take this opportunity to congratulate our fellow ASP members and colleagues, Professors Pauli and Che, both of the College of Pharmacy, University of Illinois, Chicago, for this outstanding achievement. The natural products research and contributions to the ASP of both Professor Guido and Professor Che are very familiar to the society, and I'd like to wish them all the best in their future endeavors."

Dr. Pauli joined UIC in 2001 as a Research Professor, and quickly moved up the ranks to full Professor in 2012. He is also the Director of the UIC/NIH Center for Botanical Dietary Supplements, and has received many honors in his career. Dr. Pauli wrote of the recognition, "Norm had an incredible understanding of ethno-based pharmacognosy and encoded his vision into NAPRALERT, a one-of-a-kind gem. Having experienced Norm as a true mentor and colleague, the association of my academic enterprise with his name and the inheritance of his legacy are very special privileges for me."

Dr. Che was a former doctoral student of Dr. Fong at UIC. After graduating, he went on to build a very successful academic career at the Hong Kong University of Science and Technology, and later at the Chinese University of Hong Kong, where he served as Director (Dean) of the School of Chinese Medicine for more than a decade before being recruited back by UIC to serve as the first Norman R. Farnsworth Professor of Pharmacognosy at UIC in 2011. Dr. Che commented, "It is my great honor and privilege to be named the Harry H.S. Fong Professor of Pharmacognosy. I first met Dr. Fong in 1977, when he went to Hong Kong as a WHO consultant to a project I was working on for my Master's Degree



Professors Guido Pauli and Chun-Tao Che at their investiture at the UIC College of Pharmacy"

at the Chinese University of Hong Kong. In the same year I came to UIC for postgraduate study under his guidance. As a former student, I am always proud and grateful for the education and training I received from UIC, and I am thankful for the opportunity to serve my alma mater forty years later as a faculty member.

In these years, Dr. Fong has been my mentor, an inspirer, a colleague, a collaborator

and a very good friend. I am indebted to him for his teaching, advice, inspiration, and support given to me as I move along in my career life. I am very happy to start a new relationship and a more intimate association with him by carrying his name in my academic title. I look forward to serving the University, the College and the Department in this new capacity in the days to come."

Dr. Fong, who worked for decades with Dr. Farnsworth, first at the University of Pittsburgh, then at UIC, was surprised the College of Pharmacy decided to honor him by creating an endowed professorship in his name. He mused, "What did I do to earn this singular honor? Surely, it wasn't for my having been a barefoot boy growing up in war torn (WWII) rural China. I didn't discover nor develop a wonder drug, nor an earth shattering thesis in my career. I didn't even come close to winning a Golden Apple! So, what did I do to be so uniquely honored by UIC? I can't think of a single 'wow' thing! All I did was 'do my job,' whatever it was, to the best of my ability, as my father had taught me: 'Work hard, do more than an honest day's work for an honest day's pay.'"

In addition to the ASP members who were recognized, Dr. Scott Franzblau was the recipient of the Albert Schatz Professorship. Dr. Franzblau works in the area of tuberculosis and has collaborated with Dr. Pauli and others on natural products with anti-TB activity. ASP President Pearce noted, "... longtime supporter of natural products research and collaborator for many of us involved in antibiotic discovery, Dr. Scott Franzblau was named the Schatz professor. This latter promotion has meaning to those of us who are familiar with the work of Professor Albert Schatz in the discovery of streptomycin, the first effective treatment for TB, while he was at Rutgers University in New Jersey." ■

# ASP Foundation: \$25 for the 25<sup>th</sup>

By Dr. John Cardellina

This year marks the 25<sup>th</sup> anniversary of the establishment of the American Society of Pharmacognosy Foundation (ASPF). In that quarter of a century, the Foundation has distributed more than \$1 million in grants and awards. At the same time, the financial holdings of the Foundation have continued to grow and have just reached a total of \$1.5 million. The ASPF Board asks that every ASP member consider donating at least \$25 in celebration of the 25<sup>th</sup> anniversary.

The donors to the ASPF over the past decade consist of a small cadre of members who consistently give quite generously to the ASPF, along with the one time or occasional donor. The ASPF Board is enormously grateful to all donors. However, looking at the lists of awardees year after year, it is striking how many young scientists (and their mentors) have benefited from

alone to grow the treasury quickly enough to be self-funding in a reasonable timeframe. He worked with the ASP Executive Committee, in particular the former treasurer, the late Dr. David Slatkin, to develop a plan to provide more money each year to the Foundation treasury than was needed to fund just the awards/grants package for that year, with the ASP treasurer determining a suitable amount to be transferred. This plan received an enormous boost when the *Journal of Natural Products* became a joint publication of the ASP and the American Chemical Society. While production costs went up, so did sales, and the profits soared. Again, the ASP was very generous to the Foundation, transferring significant amounts of money to the Foundation for a number of years.

Dr. Cassady and the ASPF board then set a goal of \$1 million

## The ASPF Board asks that every ASP member consider donating at least \$25 in celebration of the 25<sup>th</sup> anniversary.

the ASP awards and grants program. The ASPF Board of Directors would like to see a greater percentage of our members involved in supporting the awards and grants. In that vein, we ask that you consider “\$25 for the 25<sup>th</sup>,” not just to help us toward the goal, but also to help “pay it forward” and take “ownership” of the Foundation’s awards/grants effort. If you are able to give more, the ASPF Board would be very grateful indeed. Donations can be made online at [goo.gl/Q82Yjh](http://goo.gl/Q82Yjh).

The ASP Foundation is the philanthropic arm of the ASP; it was formed as an independent entity that would develop and fund various awards and grants for ASP members and their students. While the Foundation manages the development, financing, and administration of the awards, the evaluation of nominations and applications and the selections of awardees is conducted independently of the Foundation by several committees within the ASP itself. This arrangement eliminates any bias or influence in the selection process and maintains the tax status of both organizations.

In the beginning, the ASP treasury annually provided funds to the ASPF to cover the awards and grants for a given year. As the ASP treasury grew from meeting profits, which expanded considerably starting in the late 1980s, additional funds were transferred to ASPF to begin developing a corpus, a body of cash holdings. The intention was that, over time, the Foundation would accumulate, through contributions from ASP and generous donations from members and companies with interests in natural products, sufficient funds to cover award costs. Even then, when the total cost of awards was \$15-21 thousand, a corpus of \$300-400 thousand would be required to support that award range, assuming a yearly return on the invested funds of 5%, without eating away at the corpus.

Dr. John Cassady, the first Chair of the ASPF, realized that the Foundation could not rely on donations from ASP members

for the corpus of the Foundation. The rationale was that this would permit the ASPF to fund up to \$50 thousand in awards and grants per year without eroding the corpus, assuming a 5% annual return on investments. Dr. Cassady proved to be quite prescient in advancing this bold idea, as the number of grants and awards continued to grow, as did the amounts of those awards. For example, travel grants were \$300 in the early 1990s and are now double that, with discussions already ongoing on the board about raising the amount again because of the dramatic rise in meeting costs.

In the past decade the ASPF has continued to enjoy generous infusions of money from the ASP treasury (including a significant share of the profits from the *Journal of Natural Products*). Those transfers, together with the sustained generosity of a small group of contributors from the ASP membership, brought the ASPF close to Dr. Cassady’s target of \$1 million, but it took nearly a decade. At the same time, the number of awards continued to grow, and the ASPF Board set a new target of \$1.5 million, which was just reached this year, largely because of an incredibly generous bequest from the estate of former ASP President Lynn Brady, and his wife, Gerry.

However, this corpus only permits funding \$60-75 thousand in grants/awards in a year, depending on how the stock market is doing. We distributed over \$70 thousand in 2017, leading the ASPF to revise the target corpus to \$2.2 million by 2022. The ASPF has been projecting fundable amounts to the Awards and Funds Committee as 5% of the corpus of the Foundation. This worked quite well during the sustained and rapid run up of the stock market since the 2007-2008 banking debacle. However, a slowing of the bull market, or even a small downturn, looms as a likely scenario in the near future, so, we are switching to a calculation of fundable

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## ASP Member on ESPN

By Dr. Edward Kennelly

In an infrequent occurrence for the ASP, member Dr. Craig Hopp was quoted on the ESPN website regarding the use of kava-kava by NFL athletes as a potentially safer painkiller than opioids.

Dr. Hopp, who is deputy director at the NIH's National Center for Complementary and Integrative Health, explained in the article that while there are studies on kava's use to combat anxiety, "There isn't much direct evidence of it as a pain reliever, but that might be an indirect link." The roots of kava (*Piper methysticum*) are consumed in Polynesian cultures as a ritualistic drink for relaxation, and its kavalactones have been studied extensively for their biological activity.

While the ASP and NFL are seldom mentioned jointly, sports organizations spend considerable time and effort considering pharmacognosy issues in relationship to player health and performance. Other plants like ephedra (*Ephedra sinica*) have been



Dr. Craig Hopp

used for decades for performance enhancement, but the relaxation effects of kava-kava is not the first plant one may consider for athletes and performance enhancement. Dr. Hopp concluded in the article, "...I think kava is a much safer alternative in most circumstances than opioids."

The article "Kava: The NFL's newest and safest painkiller" can be viewed on the ESPN website:

([http://www.espn.com/blog/nflnation/post/\\_/id/256632/kava-the-nfls-newest-and-safest-painkiller](http://www.espn.com/blog/nflnation/post/_/id/256632/kava-the-nfls-newest-and-safest-painkiller)). ■



kava-kava

## ASP Foundation: \$25 for the 25<sup>th</sup>

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amount based on 4% of the corpus as a conservative precaution. Second, the increasing costs of travel and lodging are challenging us to increase the size of our travel awards, as \$600 does not go as far as it did five or more years ago in defraying a student's costs of attending our annual meeting.

The first awards the ASP established were travel awards for students; some of these have been in place for decades. There were only a few of these at the time, but they became formalized with some larger donations from former ASP Presidents the late Dr. Lynn Brady and the late Dr. Jack Beal. A short time later, undergraduate research awards (a stipend for summer laboratory work with an ASP member) and a graduate student research award (selected from nominees as the best/most promising graduate research work for that year) were created by the ASP Executive Committee. Then came the Research Starter Grants for new faculty. All these awards were in place by the early 1990s. The focus of our first grants and awards is clear evidence of the ASP's long and sustained commitment to our younger members, long predating the establishment of the Younger Members Committee.

Another avenue for establishing a grant or award is for a member or group of members to present a proposal to the ASPF.

Perhaps the earliest example was what has become the Matt Suffness Young Investigator Award, to recognize the early career achievements of rising stars in the broad field of natural products. The late Dr. Matt Suffness and his wife Rita provided funds to the ASP upon his early passing to help young scientists, something to which Dr. Suffness was deeply committed during his tenure at the National Cancer Institute. Other successful grant initiatives from our membership include the D. John Faulkner Travel Award, established by his wife Meryl Faulkner, and the Jerry McLaughlin Student Travel Award, developed and fully funded by a large group of his former students and post-docs. More recently, the Waqar H. Bhatti Student Travel Award was established with a bequest from Dr. Bhatti's family. The ASPF board is contemplating different kinds of awards, prompted by a proposal from two of Dr. John Daly's former colleagues, who have established a fund in his name to provide for grants for field work, something critical to natural products work, but increasingly difficult to fund through conventional granting agencies. The ASPF is open to ideas and proposals, but they should be accompanied by a plan for funding the grant or award.

The ASPF Board of Directors thanks you for your support of the ASP, its Foundation and its activities. Please send any suggestions or questions to the ASPF Chair by email ([jhcaredllina@aol.com](mailto:jhcaredllina@aol.com)). ■

**The ASPF Board of Directors thanks you for your support of the ASP,  
its Foundation and its activities.**

# 2018 ASP Annual Meeting: Bourbon and Arches

By Drs. Jurgen Rohr and Joseph Chappell

The ASP Annual Meeting 2018 is coming closer, July 21-25 in Lexington, Kentucky. Plenary speakers from 7 countries have been secured already. More information about the meeting and speakers is available at <http://asp2018.pharmacognosy.us>.

Hotel rooms can be booked at the discounted rate of \$145 per night using the linked website. Abstract submission will begin in early 2018. Applications for various types of financial support to attend the conference are due on February 15 ([www.pharmacognosy.us/grants-and-awards/](http://www.pharmacognosy.us/grants-and-awards/)).

Kentucky is known for excellence in natural product research and fried chicken, of course, but also for the famous thoroughbred horses and spectacular Bourbon whiskey, and maybe a little less known for wild ginseng. Hence, the logo of the 2018 meeting combines the horse, the bourbon barrel and the ginseng plant, following broadly the composition of the ASP logo. The meeting will offer bus tours through the Bluegrass region around Lexington to explore bourbon distilleries and/or horse farms. Meanwhile, ginseng is so rare that the plant was declared endangered, and it is strictly forbidden to harvest its roots in Daniel Boone National Forest.

The meeting organizers want to inspire readers and potential ASP annual meeting visitors also to take advantage of the meeting location to explore some of Kentucky's less known hidden treasures, one of them being natural arches and bridges. Kentucky and Arizona compete for second place as the state with the most natural arches, after Utah. No official count exists, but with far over 100 documented arches and natural bridges it appears that Kentucky is the likely winner. In contrast to Arizona and Utah, whose arches are located in deserts of the Colorado Plateau, all of Kentucky's arches are embedded in dense, lush forests, most of them in Daniel Boone National Forest, which stretches diagonally through Eastern Kentucky from south to northeast. A conglomerate of limestone and sandstone, the water-soluble limestone got washed away with streams of melting glaciers leaving these wonders of nature.



nally through Eastern Kentucky from south to northeast. A conglomerate of limestone and sandstone, the water-soluble limestone got washed away with streams of melting glaciers leaving these wonders of nature.

A large cluster of arches and natural bridges are found in the Red River Gorge and its adjacent Natural Bridge State Park, roughly one hour southeast of Lexington, easily reachable through Interstate 64/Mountain Parkway. Some of these arches (e.g. Sky Bridge, Natural Bridge, Princess Arch, Star-gap Arch, or Gray's Arch) are easily accessible on easy trails, just 1-2 miles from the

trail head. Others can only be reached through tough hikes through wilderness, with no marked trails and some challenging climbs, like Timmon's arch or Red Byrd arch, both in the Clifty Wilderness, the eastern section of the Red River Gorge. Despite GPS and available coordinates, many hikers fail to find Red Byrd arch because it is well hidden in dense rhododendron, some of them realizing later that they were standing on top of it. There are many stories and legends from the Red River Gorge and its arches, including those of unlucky hikers or campers who fell from the arches to their deaths. There is also the story of Rebecca P. Timmons, who spent all her money searching for John Swift's lost silver mine, never found it, went bankrupt, but discovered an interesting double arch. John Swift was a pirate, who most likely used the secluded Red River Gorge area to launder stolen silver by melting it into bullions and claiming them to originate from a rich silver mine. Later, geological surveys showed that the occurrence of silver ore is very unlikely in Eastern Kentucky. Nevertheless, a camp group and a creek in the Red River Gorge are named for John Swift, while the spectacular arch is named for unlucky Rebecca Timmons.

The ASP Organizing Committee looks forward to welcoming you to the 2018 meeting in The Bluegrass State! ■

## Rockbridge, Timmons, Turtle Back arches



# ASP Launches New Website

By Dr. Cedric Pearce

**A** newly designed ASP website was launched in November. The new website is professionally designed, very polished and clean. In particular, it is very user-friendly and captures the activity of the Society and its members in a timely way.

Newly added links to the ASP's social media sites (Facebook, Twitter, LinkedIn and Instagram) are now included in the footer of every page, so members can stay connected to the Society in a number of ways. The new design will provide more capabilities and integration than the previous website. Please use it and convey your thoughts about it to the webmaster as the ASP will continue to refine its content and performance.

Navigation has been made easier by including dropdown menus as well as hover capabilities. Also, the design is responsive, adjusting to fit whatever size device is being used, whether it be a phone, tablet, laptop or desktop.

"The redesign of the website is one of the first projects in the ASP rebranding initiative, which includes plans for greater community outreach and improved

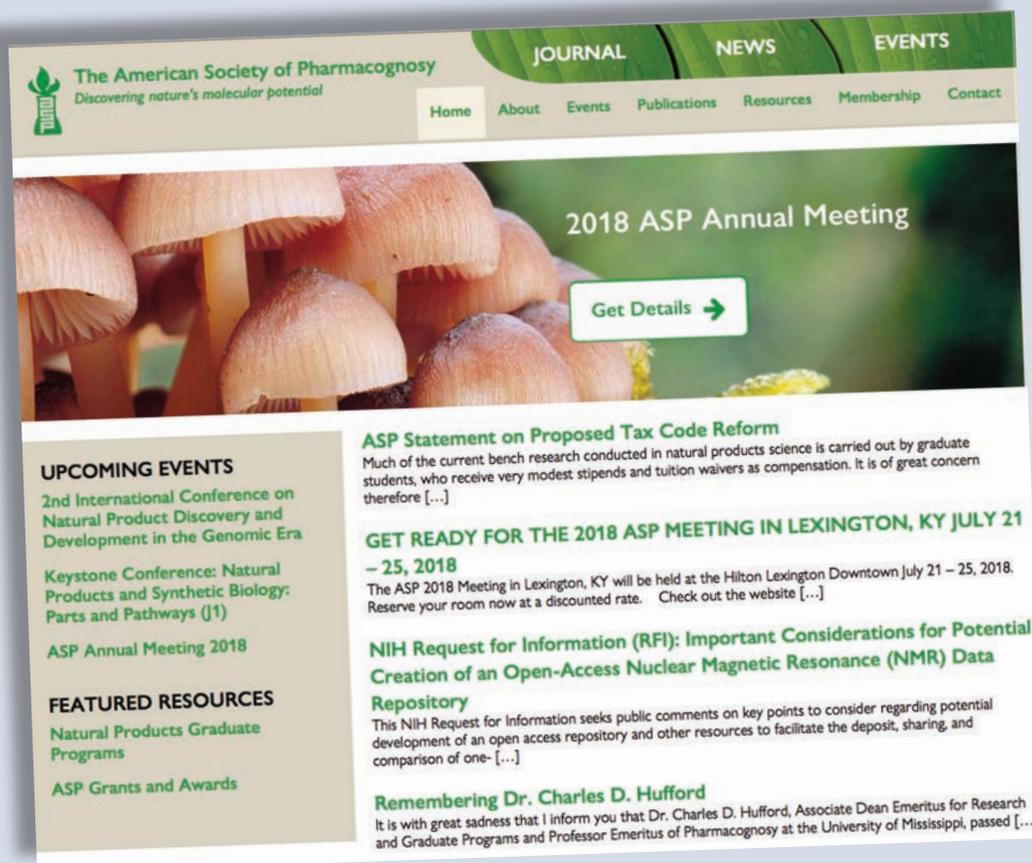
content. The new web design should make it easier for ASP members and those interested in the ASP to engage with the ASP," said Dr. Barry O'Keefe, the Website Redesign Committee chair.

The ASP Website Redesign Committee is currently 12 members strong, but new members are always welcome said Dr. O'Keefe. ASP members with an interest in the committee or in adding content or new capabilities should contact the new ASP webmaster, Mr. Jason Evans (evans.jr3@gmail.com), or Dr. O'Keefe (mdokeefes@verizon.net) to get involved.

Congratulations to all who worked on the ASP website. As ASP President, I would especially like to thank Mr. Peter Grandstaff for developing the new website, and Mr. Evans, Dr. O'Keefe, Dr. Ed Kennelly, and the website committee for their valuable contributions.

There are plans to keep the site updated with the latest developments in natural products research, and I look forward to this being an important part of the ASP's outreach profile. ■

The website can be viewed at [www.pharmacognosy.us](http://www.pharmacognosy.us).



# Graduate Students Threatened with Tuition Taxation

**There is a threat to undermine intellectualism and higher education and we as a community need to protect the next generation of scientists.**

*By Drs. Cedric Pearce and Edward Kennelly*

**T**he ASP Executive Committee issued a statement in opposition to proposed changes to US federal tax codes that would have taxed graduate student tuition waivers as direct income, and potentially increased the tax burden of many ASP associate members significantly without any increase in take-home pay. The full ASP statement can be seen at [www.pharmacognosy.us/asp-statement-on-proposed-tax-code-reform/](http://www.pharmacognosy.us/asp-statement-on-proposed-tax-code-reform/)

Many other scientific and engineering societies issued similar statements, and the American Association for the Advancement of Science credits these actions as an important reason why the measure was removed from the final version passed by Congress, and signed into law by President Donald Trump on December 22.

Much bench research conducted in natural products science is carried out by graduate students, who receive very modest stipends and tuition waivers as compensation. It was of great concern that the initial proposed tax reform bill included a change to this and increased graduate student tax liability to include these tuition waivers as direct income.

Dr. Jackie Winter, who is the Chair of the ASP Younger Members Committee, stated starkly, "There is a threat to undermine intellectualism and higher education and we as a community need to protect the next generation of scientists. If the tuition waiver was taxed as income during my graduate studies, I, for one, would not have been able to pursue a PhD and would have been forced to choose a different career path."

If this had passed, it was estimated that students



would have their tax burden increase manifold, a significant financial burden on a group who already have to deal with limited resources. Students at institutions with higher tuition would have been hit especially hard.

A common memes seen on social media, including the ASP Face-

book page ([www.facebook.com/pharmacognosy.us/](http://www.facebook.com/pharmacognosy.us/)) explained the situation succinctly, "If you are a graduate student with \$50,000 tuition waiver, \$33,000 income, today, you pay taxes on your \$33,000 income. Under the GOP tax plan, you would pay tax on \$83,000." In this scenario, without any additional take-home pay, graduate students could be in a severe financial bind.

This reform also would have eliminated tax deductions for interest paid on student loans and removed the Lifetime Learning Credit, adding additional strains on students.

ASP President Cedric Pearce noted, "If this had passed, this change would have discouraged high-achieving individuals from entering further education. This would have especially affected those students from deprived backgrounds and thus may have had a negative impact on their social mobility."

As importantly, without the interest of highly qualified students in entering the scientific research world, the science and technological status of the United States would be severely hampered and would result in us being much less competitive with countries that have a more progressive approach.

ASP will continue to monitor this and other issues that impact members. ■

**It was of great concern that the initial proposed tax reform bill included a change to this and increased graduate student tax liability to include these tuition waivers as direct income.**

# KSP Conference: Entrepreneurship and Our International Presence

By Dr. Cedric Pearce

**A**s President of the ASP, I was honored to be invited to be the keynote speaker at the 48<sup>th</sup> Annual Meeting of the Korean Society of Pharmacognosy (KSP). The meeting was held on November 23, 2017 at the CHA Bio-complex in Pangyo, Korea.

Pharmacognosy has always been an international science; well-known examples include natural products researchers who have helped understand and develop quinine from South America, penicillin from London, red yeast rice from China, and scientists from everywhere sharing their knowledge and skills. How many of us email a colleague and get a response from the other side of the world - the Antarctic, Antipodes, Asia or Europe - instead of a university in another state?

Those who study biologically active natural products have always traveled the world investigating local medicinal products wherever they have visited. This cataloguing has led to many significant advances in chemistry, botany, pharmacology and medicine. This exploration still goes on.

Attending the KSP's fall meeting, held this year on Thanksgiving Day, was a very interesting experience. I met many very enthusiastic natural products scientists, understood some of the material presented (slides in English) and saw a lot of younger members.

My talk was a plenary lecture with the title, *An Entrepreneur's Approach to Expanding the Microbial Pharmacy: The Discovery and Development of Bioactive Compounds from Filamentous Fungi*. This is a favorite topic that embodies two of my main interests: biologically active microbial products, in this case from fungi, and entrepreneurial efforts to maximize the chances of appropriate medicinal and other leads being developed as products. Entrepreneurship for scientists, and in particular for natural products scientists, has been a subject of much debate and one that ASP member Dr. Nick Oberlies and I have been promoting through a variety of workshops. The most recent was an American Chemical Society symposium at the regional meeting in Charlotte, NC in November, highlighting the efforts of Dr. William McCulloch (development of romidepsin, now approved for T-cell lymphoma), Drs. Mark Hamann from the Medical University of South Carolina, Sherri McFarland from the University of North Carolina in Greensboro, and a young investigator/entrepreneur, Dr. Aaron Colby from Boston University. In addition to this, for a number of years I've also taught a graduate class in entrepreneurship for scientists at UNCG.

For my presentation at the KSP I spoke about the ASP and the *Journal of Natural Products*, as well as our own efforts to establish an independent fungus products research institution, and close collaboration with an NCI-funded P01 program, Discovery of Anticancer Agents of Diverse Natural Origin (together with Drs. A. Douglas Kinghorn, PI, Esperanza Carache-de-Blanco,



ASP President Dr. Cedric Pearce (front row, center) poses with his wife, Ms. Sue Pearce, to his right and past president of the KSP, Dr. Minwon Lee, to his left. To Dr. Lee's left is the Director General of Korean National Institute of Food and Drug Safety Evaluation, Dr. Sunhee Lee, and to her left is keynote speaker Dr. Yukihiro Shoyama from Nagasaki University, Japan. To Ms. Pearce's right is the current KSP president and ASP member, Dr. Eun Kyoung Seo. Dr. Ik-Soo Lee, also an ASP member, is behind Dr. Minwon Lee's left shoulder, while Dr. Dongho Lee is behind Dr. Pearce's right shoulder. Dr. Pearce would also like to thank Dr. Ki Hyun Kim (back row, 5 from left) for taking care of his local arrangements and transportation to the meeting site.

David Lucas, Liva Rakotondraibe, Jimmy Orjala, D. Doel Soejarto, Nicholas Oberlies, Mansukh Wani, Brent Stockwell, Joanna Burdette, Steve Swanson, James Fuchs, Mitchell Phelps, Lihui Xu, Xiaoli Zhang and Young Yongshun Shen). The point I was trying to make is that a small independent organization might survive if it establishes ties with good collaborators with complementary skills, who are prepared to share their resources; this is a theme that works across nations and one that many of us have employed to the advantage of all parties.

It was interesting to meet a number of Korean scientists after my presentation who recognized colleagues from the slides; these included Dr. Wani of RTI, Dr. Norman Farnsworth from UIC, Dr. Kinghorn from OSU and Dr. Oberlies from UNCG.

There were talks and a poster session following the plenary lectures. In the evening after the conference, which lasted one day (the KSP has other conferences throughout the year), my wife Sue and I attended the banquet and enjoyed talking to a number of Korean natural products researchers in a more casual setting. I regret not spending more time talking to the students at the poster session.

Finally, recognizing the importance of our many international interactions and with the goals of strengthening these and facilitating new connections, especially between our members at an earlier stage in their careers, I have invited Dr. Nam-Cheol Kim to be the Chairperson for the new International Relationships committee together with committee members Dr. Veronika Butterweck from the University of Applied Sciences Northwestern Switzerland, Dr. Vanderlan Bolzani from Sao Paulo, Brazil and Dr. Mario Figueroa from Universidad Nacional Autónoma de Mexico. The ASP has many international members, and I sincerely hope that the Society as a whole continues to maintain these strong relationships across the world. ■



## Hot Topics in Pharmacognosy: Musings on Some “Recent Discoveries and Advances” in the Area of Antibiotics



By Dr. David Newman

A major problem in the area of medicine at this moment in time (and for that matter, for the last 7 plus years) is the almost complete lack of “novel” antibiotics entering the market anywhere in the world. In fact, since 2011, there have been only the following drugs approved by the FDA and/or its equivalent in other countries, or have entered Phase III clinical trials. Note that I only mention a compound one time, irrespective of where it was first approved. In the last issue of ASP News I discussed the vancomycin / glycopeptide antibiotics at length, demonstrating their provenance in each case, and I will simply mention them here, not in any further detail as that column is available on the ASP website.

### NEW STRUCTURES BASED ON “OLD” $\beta$ -LACTAM NUCLEI:

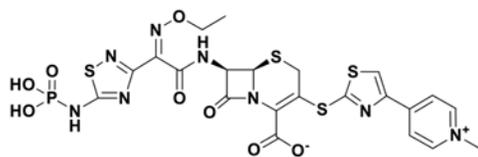
In this area there were two “novel” cephalosporins approved since 2011. The first was ceftaroline fosamil acetate (**1**) from Allergan, approved in the US in 2011, and the second was ceftobiprole medocartil (**2**) from the Novartis spinoff Basilea in Germany in 2014, though the approval was via a somewhat tortuous path over the years. Then in 2015, two cephalosporin /  $\beta$ -lactamase inhibitor combinations were approved, both in the USA. The combination of ceftolozane / tazobactam (**3,4**) from Merck, approved by the FDA in 2015, used a cephalosporin that

was originally an Astellas compound that ended up at Cubist, and then was taken over by Merck, with the older  $\beta$ -lactamase inhibitor tazobactam, which was first approved as a combination with piperacillin by the FDA following a submission by Lederle in the middle 1980s. In contrast, the approval by the FDA, also in 2015, of the ceftazidime / avibactam combination (**5,6**) from Allergan, used the novel non- $\beta$ -lactam-based inhibitor avibactam with the much older ceftazidime (originally launched in Italy in 1984).

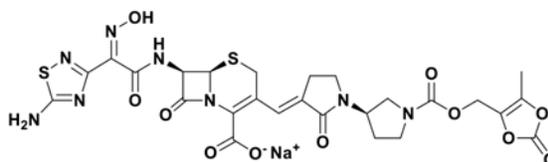
Then very recently, the combination of the old carbapenem/meropenem (**7**) which was launched in 1994 was “coupled” with the novel boron-based  $\beta$ -lactamase inhibitor, vaborbactam (**8**) and the combination was approved by the FDA in August of 2017, with the Medicines Company launching the combination in the USA in early November for the treatment of complicated urinary tract infections.

Not to be “out done” in the reutilization of older agents, Merck have the triple combination of imipenem (**9**), which was originally launched in 1985, in conjunction with the dehydropeptidase inhibitor cilastatin (**10**) now formulated with the  $\beta$ -lactamase inhibitor relebactam (**11**), which is a piperidine derivative of avibactam mentioned above.

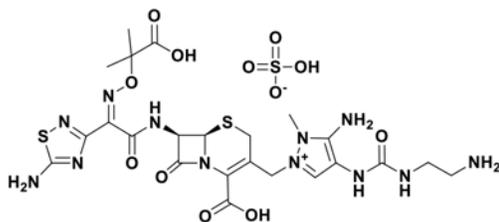
As an example, however, of a potential single compound, currently cefiderocol (**12**) is in Phase III with an NDA filed by Shoinogi in 2017 for activity against Gram negative pathogens.



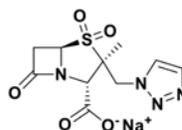
1. Ceftaroline fosamil acetate



2. Ceftobiprole medocartil



3. Ceftolozane



4. Tazobactam

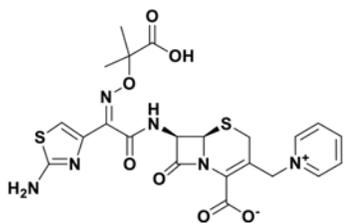
Structures 1 to 4, above

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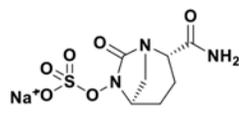
# Hot Topics in Pharmacognosy: Musings on Some “Recent Discoveries and Advances” in the Area of Antibiotics

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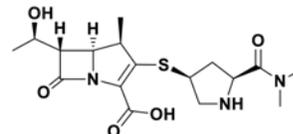
Structures 5 to 12, below



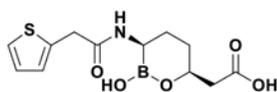
5. Ceftazidime



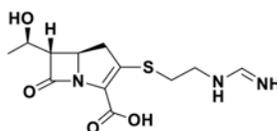
6. Avibactam



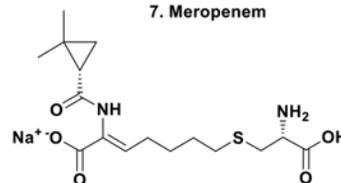
7. Meropenem



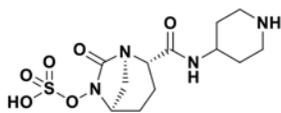
8. Vaborbactam



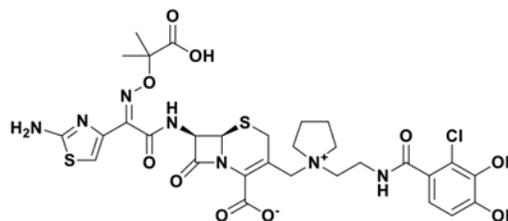
9. Imipenem



10. Cilastatin



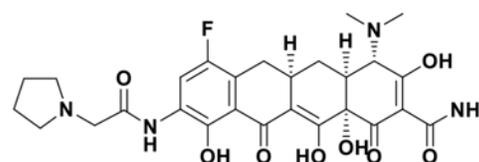
11. Relebactam



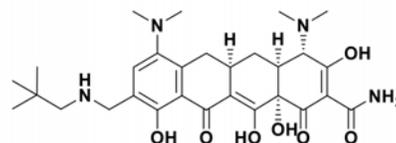
12. Cefiderocol

## MODIFICATION OF THE BASE TETRACYCLINE STRUCTURE:

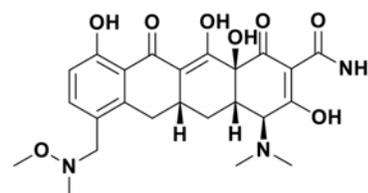
In the tetracycline arena, again modification of old structures is the rule, as tetracycline itself was initially approved in 1952. Eravacycline (**13**) is in Phase III with an MAA filed with the EMEA in August of 2017; and two variations, omadacycline (**14**) and sarecycline hydrochloride (**15**), are currently listed as being in Phase III, with both scheduled to be submitted to the FDA and the EMEA in the near future.



13. Eravacycline



14. Omadacycline



15. Sarecycline hydrochloride

## VANCOMYCINS AND SIMILAR GLCOPEPTIDES:

As mentioned in my last column, the stories behind the two vancomycin-related drugs, dalvabancin and oritavancin, which were approved in this time frame, and also on the hybrid cefila-vancin where a cephalosporin is linked to a slightly modified vancomycin and is in Phase III trials in Russia, were given in detail in my last column, which is available on the ASP website.

In addition to these, ramoplanin, a complex of the A2 variant, also containing small amounts of 5 other variants from the fermentation of an *Actinoplanes* species, ATCC 33076, is in Phase III for *C. difficile* infections. Their structures are too complex to show here, but it should be noted that the mixture has a very chequered development history due to different companies and related bankruptcy proceedings.

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## Hot Topics in Pharmacognosy: Musings on Some “Recent Discoveries and Advances”

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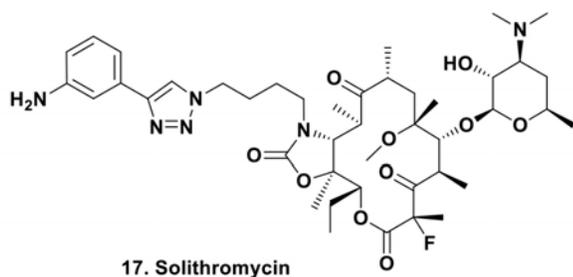
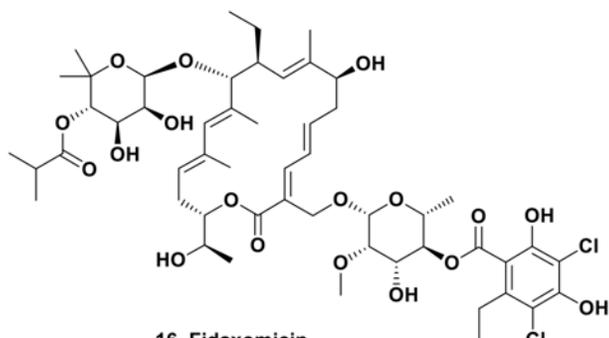
### MACROLIDE-BASED ANTIBIOTICS:

The sole “direct from microbe” antibiotic, fidaxomicin (**16**) (aka tiacumicin B) isolated from a *Dactylosporangium aurantiacum* subsp. *hamdenensis* (AB 718C-41 NRRL 18085) fermentation. Following its isolation/purification it was found to be identical to lipiarmycin A3 isolated from *Actinoplanes deccanensis* (ATCC 21983). As fidaxomicin, it was approved in the USA in 2011 for the treatment of *C. difficile* and is currently in Phase III trials for pediatric patients. This was an unusual action on the part of the FDA as the compound has a very narrow spectrum of activity, but is active against a microbe that causes major concerns.

Following on from the earlier examples of modification of old antibiotic structures, solithromycin (**17**) is a fluoroketolide derived from erythromycin that binds to three sites on the bacterial ribosome. It is currently undergoing assessment by the company Cemptra in order to respond to the FDA’s Complete Response Letter (late 2016) which requires more safety assessment studies in patients at the Phase III level.

### AMINOGLYCOSIDES “RESUSCITATED”:

As far as I can determine, the last aminoglycoside-related molecule to reach Phase III or above status was referred to in my last column, where the semisynthetic variation on everninomicin (everninimicin; Ziracin<sup>®</sup>) was killed by the then Schering-Plough in 2000. Plazomicin (**18**), a semisynthetic modification of sisomicin, is a member of a very old class of antibiotics, the aminoglycosides. The compound was given the “Qualified Infectious Disease Product Designation” by the FDA in January, 2015 and is now preregistered in the USA, with the NDA being filed in late October 2017.



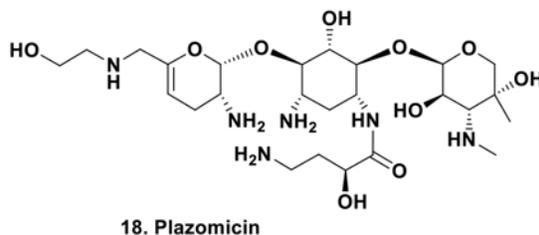
### CURRENT “EVENTS” AND THE FUTURE:

In order to attempt to overcome this death of antibiotics, researchers in various parts of the US and Europe have been looking at new methods of inducing microbes to grow / produce potential antibiotics, searching for mechanisms that have not been fully investigated and looking into the potential of the human microbiome as sources of novel agents.

The story of the discovery of texiobactin (**19**) by the Lewis group in 2015<sup>1</sup>, focused attention on methods of growing the “as yet uncultured microbes” using state of the art “baiting techniques” that lead to the discovery of a novel peptidic agent from a new Gram-negative bacterium. The compound acts via the Lipid I and II pathways (also part of the glycopeptide target), but the producer avoids “death” by exporting the antibiotic through the inner membrane and avoiding the target pathways. Modification(s) of potential target(s) in the producing organism is / are a well-known and described mechanism for avoiding “suicide by secondary metabolite.”

In addition to this significant discovery, very recently an international group (Italy, Germany and the USA)<sup>2</sup> reported the structure and activity of pseudouridmycin (**20**), a nucleoside-analogue. The molecule was identified using classical phenotypic screens against *S. aureus* ATCC 6538, using a library of 3000 actinobacterial and fungal extracts, and then cross-screening “actives,” looking for selective inhibition of bacterial RNA polymerase, where only five antibiotics are known to “act,” including *in vivo* assays in mice infected with *S. pyogenes*. Four of the known agents against this target are rifamycins and the fifth is the recently approved fidaxomicin.

Finally, the report by Donia and coworkers<sup>3</sup> on the identification of the human microbiome-derived peptidic antibiotic lactocillin (**21**), produced by the vaginal microbe *Lactobacillus gasseri* (strain JV-V03), and from this study, the thiopeptide biosynthetic gene clusters (BGC), now number over a dozen and are widespread amongst the human sites comprising the human microbiome.



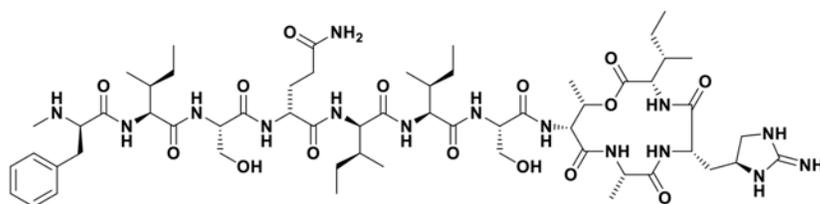
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## Hot Topics in Pharmacognosy: Musings on Some “Recent Discoveries and Advances”

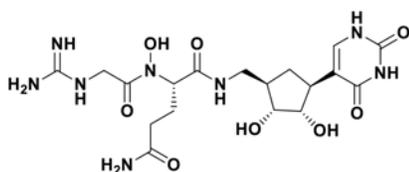
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Thus “searching for antibiotics” via “phenotypic screening” followed by specific assays for the desired “target,” or by using modern techniques for “baiting,” is still alive and well, and when coupled to the major advances in genomic analyses, bodes well for future discoveries but only if initial “isolated target-biased”

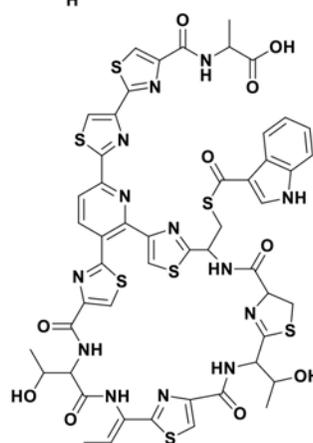
screens coupled to “combi-chem libraries” are not used. The results from such a screen can be seen in the “mea culpa” review article by GSK scientists.<sup>4</sup> Readers should also consult the short review on the CARB-X funding for preclinical antibiotic discovery.<sup>5</sup> ■



19.. Texiobactin



20. Pseudouridimycin



21. Lactocillin

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# Meet a New ASP Member

Florian Eidam is our featured new member in this winter issue of the Newsletter. Mr. Eidam is a registered pharmacist at West-erbach Apotheke, as well as a PhD student at Goethe University, both in Frankfurt am Main, Germany. As a pharmacist with a pharmacognosy background, Florian is well suited to evaluate remedies for his patients. He also shares his love of beekeeping with us. We are grateful for a chance to officially welcome Mr. Eidam.

By Dr. Dan Kulakowski

## How did you hear about the ASP?

To help you get an idea of why I signed up for the ASP, I have to step back to the first days of my natural science research. I was educated for four years at Goethe University in Frankfurt am Main, Germany. In contrast to the US pharmacy system, the focus is on pharmaceutical chemistry and analytics instead of clinical pharmacy. After finishing university, you are authorized to face another exam to become a Registered Pharmacist. To qualify for this, one year of practical pharmaceutical work is needed. The research group of Dr. Guido Pauli at the University of Illinois at Chicago (UIC) came to my attention, and I applied for an internship in the Department of Medicinal Chemistry and Pharmacognosy to conduct this practical work. At UIC I experienced an excellent opportunity to improve my scientific skills in terms of pharmacognosy. After returning to Germany and passing my last exam, I began working in a local pharmacy where I still work until this day.

During my internship at the University of Illinois-Chicago (UIC), I became aware and curious about the work of the society for the first time.

## Why did you join ASP?

It was a long-headed wish, after the visit at UIC, to join the ASP sooner or later. My current PhD program brought me closer to the field of pharmacognosy again; this was a good point to sign on as a new member of ASP.

In my opinion, one should not only focus on national societies but also think globally to expand your natural scientific network. One of our professors once said that every student who is pursuing a job in science should be a member of at least one scientific society. Looking back, he definitely was right. Societies help to provide us with state of the art knowledge, give us a platform to discuss new findings as well as problems during your own research. Societies also help us to connect with other researchers in the same field to broaden your horizon or give you another point of view on certain topics of interest.

**In my opinion, one should not only focus on national societies but also think globally to expand your natural scientific network.**



Florian Eidam

## Do you belong to any other scientific societies?

German Pharmaceutical Society (DPhG); German Society for the History of Pharmacy (DGGP); British Society for the History of Pharmacy (BSHP); Hermann-Schelenz-Institute

## What are your current research interests in pharmacognosy?

My PhD program relates to history in pharmacy, ethnobotany and ethnopharmacology. I am searching descriptions of medicinal plants in historical documents and herbariums to compare their reported traditional use with modern uses. Based on this information, I evaluate the state of knowledge concerning the specific species and their potential for further screening.

## What inspires you in your work?

Faced with a massive overload of phytotherapeutics and dietary supplements on the European market, it is a tough fight for pharmacists to sort out the evidence based, well established products from the mostly overpriced pseudo-placebos or even harmful “quack” medicines. To be ready for this task, you must be up to date in terms of pharmacognosy research.

## What is your favorite organism (to study or for general interest)?

According to my hobby, beekeeping, it is the western honey bee (*Apis mellifera*, L.) and its natural products honey, propolis, wax.

## What do you like doing in your spare time?

Besides working on my PhD there is currently not much spare time. The little remaining time I dedicate to my partner Katrin, my two cats and my bees. From time to time I manage to play one of my guitars or go hiking and take some photographs of mother nature.

## What are you currently reading?

For research purposes I read the travel accounts of Eduard Rüppell, a Frankfurt based physician who travelled to parts of Africa. The book was written between the years 1838 and 1840. His mission was of an ethnobotanical nature, to explore plants of the continent which could provide new remedies for Europe. ■

# New Members of ASP 2017



ASP would like to welcome 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 2 domestic full members, 1 international full member, and 5 associate members. We look forward to meeting you and learning more about you and your work.

## ACTIVE MEMBERS

**Dr. Syamsudin Abdillah**  
University of Pancasila  
South Jakarta, Indonesia

**Mr. Steven Thomas**  
Michigan State University  
East Lansing, MI

**Dr. Ethan Van Arnam**  
Keck Science Department of Claremont  
McKenna, Pitz  
Claremont, CA

## ASSOCIATE MEMBERS

**Ms. Stephanie La Blanche**  
Liverpool John Moore's University  
Liverpool, UK

**Mr. Florian Eidam**  
Goethe University Frankfurt  
Frankfurt am Main, Germany

**Mr. Daniel Maennle**  
University of Tuebingen  
Tuebingen, Germany

**Mr. Jacob Onsare**  
Kisii University  
Kisii, Kenya

**Mr. Jason Williams**  
Cal State University, Dominguez Hills  
Anaheim, CA



## Welcome to ASP!

# 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).

**Keystone Conference  
Natural Products and Synthetic Biology:  
Parts and Pathways**

**January 21-24, 2018**

**Olympic Valley, California**

[www.keystonesymposia.org/  
index.cfm?e=web.Meeting.  
Program&meetingid=1536](http://www.keystonesymposia.org/index.cfm?e=web.Meeting.Program&meetingid=1536)

**Joint Conference of the  
Society of Ethnobiology and Society  
for Economic Botany**

**June 3-7, 2018**

**Memorial Union on the UW-Madison campus  
Madison, Wisconsin**

[ethnobiology.org/conference/upcoming](http://ethnobiology.org/conference/upcoming)

**Gordon Research Conference in  
Marine Natural Products**

**March 4-9, 2018**

**Four Points Sheraton/Holiday Inn Express  
Ventura, California**

[www.grc.org/programs.aspx?id=11555](http://www.grc.org/programs.aspx?id=11555)

**Phytopharm 2018**

**June 25-27, 2018**

**ZHAW Life Sciences and Facility Management  
Wädenswil, Switzerland**

[www.zhaw.ch/en/about-us/news/events/  
events/event/detail/1731-20180625-  
phytopharm-2018/](http://www.zhaw.ch/en/about-us/news/events/events/event/detail/1731-20180625-phytopharm-2018/)

**18<sup>th</sup> International Conference on  
the Science of Botanicals (ICSB)**

**April 9-12, 2018**

**Oxford Conference Center  
Oxford, Mississippi**

[www.oxfordicsb.org/index.php](http://www.oxfordicsb.org/index.php)

**American Society of Pharmacognosy Annual  
Meeting**

**July 21-25, 2018**

**Lexington, Kentucky**

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

**15<sup>th</sup> Annual NHP Conference and Tradeshow**

**May 14-18, 2018**

**Delta Guelph Conference Center  
Guelph, Ontario, Canada**

[www.nhprs.ca/annual-conference/](http://www.nhprs.ca/annual-conference/)





## Brief News from Washington

By Dr. Georgia Perdue

- **President Trump nominated Alex Azar as Secretary of Health and Human Services (HHS). Mr. Azar was, among other things, President of the pharmaceutical company Lilly USA (Eli Lilly).** The President noted, “Azar will be a star for better health and lower drug prices.” **Mr. Azar, who lives in Indianapolis, was General Counsel for HHS during President George Bush’s first term. From 2005-07 he was Deputy Secretary of HHS. A graduate of Dartmouth College, A.B. degree, summa cum laude; Yale Law School. He also clerked for Chief Justice Antonin Scalia.**
- **On October 12 the National Institutes of Health (NIH) launched the “Partnership for Accelerating Cancer Therapies” (PACT). This five-year \$215 million public-private effort is in concert with 11 world-wide pharmaceutical companies and is part of the Cancer Moonshot. The initial efforts will be focused on “identifying, developing and validating robust biomarkers – standardized biomarkers of disease and treatment response.”** “This new public-private partnership is a significant step forward in the battle against cancer and a real boost to the potential of immunotherapy,” said Eric Hargan, Acting Health and Human Services Secretary. NIH Director Dr. Francis Collins noted, “We are excited for this partnership which will strengthen efforts already underway across HHS.” **The partnership will be managed by the Foundation for the National Institutes of Health. FDA will have an advisory role.** “We have seen dramatic responses from immunotherapy, often eradicating cancer completely in some patients, [w]e need to bring that kind of success [to this effort] and we need to do it quickly. A systematic approach like PACT will help us achieve success faster.” **The companies involved signed an agreement that PACT is only about information sharing. Each will contribute \$1 million per year for five years. They include: AbbeVie, Amgen, Boehringer Ingelheim Pharma GmbH & Co., Bristol-Myers Squibb, Celgene Corporation, Genentech, Gilead Sciences, GlaxoSmithKline, Janssen Pharmaceutical Companies of Johnson & Johnson, Novartis Institutes for Biomedical Research and Pfizer. The Pharmaceutical Research and Manufacturers Association has provided support. NIH will provide \$160 million over five years.**
- **The National Cancer Institute (NCI) has a new Director! On October 17 Dr. Norman E. “Ned” Sharpless, M.D., was sworn in saying, “I am honored and humbled to assume this role at NCI ....”** The position had been vacant for two years after Dr. Harold Varmus stepped down. **There is no question Dr. Douglas Lowy did a yeoman’s job as Acting Director. He will stay on as Deputy Director.** Dr. Sharpless served as director of the NCI- Designated Lineberger Comprehensive Cancer Center at the University of North Carolina School of Medicine, Chapel Hill. He also was the Wellcome Distinguished Professor in cancer research. His specialty is hematologic cancers.
- Recently the National Institute on Alcohol Abuse and Alcoholism conducted **a study on more than 9600 men showing that vegetarians had greater rates of mild to moderate depression. One possible answer is a deficiency of iron. Lower levels of vitamin B12, found in red meat, also contribute to risk of depression.**
- According to the National Institute of Allergy and Infectious Diseases, a **“large randomized placebo-controlled clinical trial in Liberia,”** showed **“two candidate Ebola vaccines pose no major safety concerns. It can illicit immune responses by one month after the initial vaccination that lasts for one year.”** **Most importantly, “the trial demonstrates that well-designed, ethically sound clinical research can be conducted during an epidemic.”** [see *New England Journal of Medicine*, October 12].
- A very direct headline says it all: **“Homeopathic**  
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### **Remedies Deserve No Respect, EU Scientists Say.**

The European Academies Science Advisory Council is quoted: **“The health benefit claims for homeopathic medicines are ‘implausible’...the products should not be recognized officially as medicines....”** The same council noted, “... the remedies should be held to the same standards as labeling and advertising as ordinary drugs.” [see *FDANEWS Drug Daily Bulletin* 10/10/17].

- **The FDA has called out Homeocare Laboratories based in New York, for its drug-like claims for two products: one for high blood pressure and one for “dysfunctional digestive system.”** The company is accused of violating manufacturing standards and other standards required by FDA.
- Alternative medicine got slapped by the National Cancer Institute (NCI). Its September 27 press release headline read: **Forgoing Conventional Cancer Treatments for Alternative Medicine Increases Risk of Death.** A large study conducted by Dr. Skyler Johnson, Yale School of Medicine, noted, “There’s an increased risk of death with choosing alternative medicines and that’s something patients should consider when making their treatment decisions.” [see study results, August 10, *Journal of the National Cancer Institute*].
- According to the National Cancer Institute’s PDQ, turkey tail, *Trametes versicolor* L., “a woody bracket polypore fungus...growing on dead logs worldwide....” has been used in Chinese traditional medicine to treat pulmonary diseases. Turkey tail “refers to its concentric rings of brown and tan which resemble a tail of feathers of a turkey.” In Japan “a purified hot water extract prepared from cultivated fungal mycelium...” has been an adjuvant treatment for cancer (immunomodulatory effect). And then there is Polysaccharide-K (PSK), krestin, derived from the above named mushroom *T. versicolor* used in Japan “as an adjunctive cancer treatment in thousands of patients since the mid-1970s.... Few adverse [reactions] have been reported....” [For greater details about PSK and its use for other cancers see [cancer.gov/about-cancer/treatment/cam/hp/mushrooms-pdq](http://cancer.gov/about-cancer/treatment/cam/hp/mushrooms-pdq)].
- In September, **FDA Commissioner Scott Gottlieb noted in a speech** at a Regulatory Conference that **FDA is working to improve clinical trials using new tools and focusing more on the patient’s profile.** [Stay Tuned].
- The excitement appears great as **shown in three press releases from the National Institute of Allergy and Infectious Diseases sent out in late September and early October. Two headlines: Disease Resistance Successfully Spread from Modified to Wild Mosquitoes and the other Monoclonal Antibodies against Zika Show**

### **Promise in Monkey Study.**

In essence, researchers “genetically modified Anopheles mosquitoes which spread the malaria-causing parasite Plasmodium.” The researchers caged equal numbers of wild and GMA mosquitoes monitoring their breeding over 10 generations. One interesting result was the GM males preferred the “wild females”; wild males preferred GM females!!! Researchers believe since monoclonal antibodies are safe this “cocktail might be used for uninfected pregnant women....”

- Some scientists are looking into the use of aminohydantoin as a “novel class of antimalarials.” [Stay tuned].
- Artemisinin keeps on giving. On November 7, **FDA announced it had granted orphan status to the drug Artemisone, a synthetic artemisinin which has been developed by Artemis Therapeutics. The drug is used to treat malaria.** Interestingly, WHO reported earlier this year of the growing resistance to the original drug artemisinin.
- The drug, Mylotarg, which Pfizer Inc. had taken off the market in 2010 due to “safety concerns,” is returning. It is used in treating acute myeloid leukemia. The original compound, Calicheamicin has a most interesting history as written in the newsletter *Washington Insight (WI)* in 1988 and 1992. Calicheamicin is in the class of antitumor antibiotics – enediyne which include esperamicin and dynemicin. Produced by fermentation of *Micromonospora echinospora ssp. calichensis*, the bacterium [was] isolated from Texas caliche soil. Discovered by Lederle’s Dr. Donald Borders, then Head of Microbial Chemistry, Infectious Disease Section, the biochemical induction assay screening program. In marine models it was 1000 times more potent than andriamycin in P388 and B16 melanoma. In 1992 the total synthesis was almost completed. [It was considered an exciting compound]. Dr. Borders told *WI*, “Lederle is still very excited [about] this compound.”
- **A most unusual story reveals the depths and far reaches of pharmacy. In World War I there were nine African American heroes, members of the 369th Infantry Regiment (New York). One of them was Henry Davis Primas, Sr. of Charleroi, PA, who received an individual Croix de Guerre for bravery. Another of his accomplishments was that he had received a pharmacy degree from the University of Pittsburgh in 1917, the year he enlisted.** Archivist Barbara Lewis Burger discovered this information at the National Archives while seeking to identify members in a photograph. [For more details see *Washington Post* Nov. 12, 2017]. ■

# From the Archives Part III: Pettit's "Incredible Journey into the People's Republic of China"<sup>1</sup>

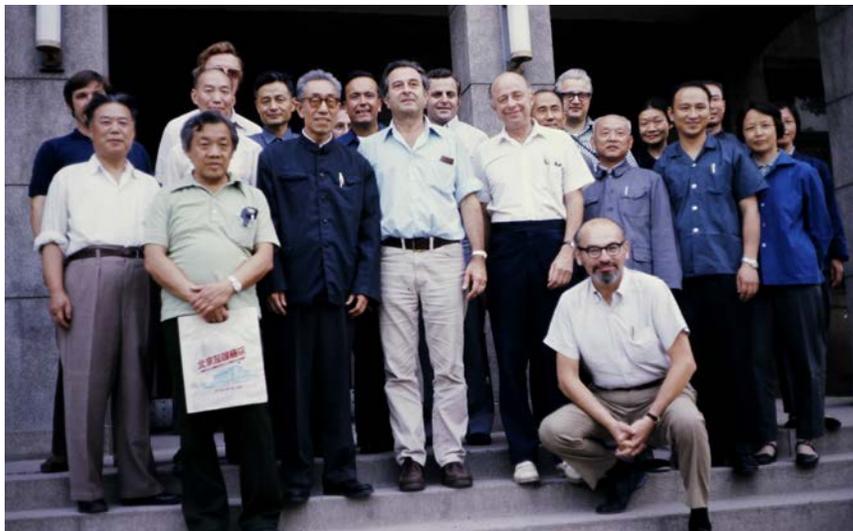
By Ms. Devhra BennettJones

The year 1974 marked the second anniversary of the Shanghai Communique, issued jointly by the People's Republic of China and the Nixon Administration, pledging that both countries would work towards "normalization" of relations. Nixon's diplomatic agenda supported scientific exchanges between the two nations as a method to build cooperation and dialogue.<sup>2</sup> Venerated ASP members Drs. Norman R. Farnsworth, S. Morris Kupchan, Thomas H. Maren, George R. Pettit, and Michael A. Schwartz served as scientific ambassadors in the 1974 National Academy of Sciences Delegation to China.<sup>3</sup> These esteemed chemists toured China for 27 days exploring universities and teaching hospitals, meeting with practitioners of Traditional Chinese Medicine and western-oriented medicine, and investigating realms of the pharmaceutical industry that supported medical practices in China. The following excerpt is the third installment from Dr. Pettit's vividly candid expedition journal.<sup>4</sup>

## SHANGHAI INSTITUTE OF ORGANIC CHEMISTRY, THURSDAY, JUNE 20<sup>5</sup>

At 2:30 we left for this institute, arrived some 15 minutes later, and were greeted by the responsible member of the Revolutionary Committee, Dr. Wang Yu, and several senior members of his staff.<sup>6</sup> In a conference room containing an approximate 4 ft. square bust of Chairman Mao, Dr. Wang introduced us to the institute while tea was served.<sup>7</sup> The institute was founded as part of the Shanghai Academy of Science in 1950.<sup>8</sup> Prior to that time there was no organic institute in China. Also, at that time, apparently there were only about 20 experienced organic chemists in all of China. The institute began with 4 members and now numbers 1,100 staff of whom several hundred are organic chemists. At the beginning, emphasis was placed on antibiotic and polymer chemistry. With the great leap forward in 1958, they initiated programs in natural products chemistry, organometallic chemistry and organofluorine chemistry.<sup>9</sup> In 1965, with the advent of the cultural revolution, theoretical chemistry was de-emphasized and the institute was put under the direction of a three-in-one group; that is, a worker, as scientific member and a cadre. This group placed emphasis on practical production, natural products extracts, fluorine chemistry and biochemistry.

In answer to this reviewer's inquiries, it now seems that about one-third of the institute's technical staff is concerned with vari-



ous aspects of natural products chemistry. Of these, 30 chemists have been assigned to nucleotide chemistry, 17 to polypeptide chemistry and others seemed concerned with steroid development (oral contraceptives), synthesis of protein sources and fluorine polymer chemistry (for example, polytetrafluorethylene). The senior staff are quite capable of directing work in these areas.

All photos in this article were provided by Dr. George Robert Pettit during his 1974 tour of the People's Republic of China. Dr. Pettit could not provide any details about these photos, but most were apparently taken at the various scientific institutions he and the other American delegates visited during their 27 day visit.

## From the Archives Part III: Pettit's "Incredible Journey into the People's Republic of China"

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For example, the director, Dr. Wang, was a student of the Nobel prize-winning steroid chemist, Heinrich Wieland<sup>10</sup> and completed his formal training with 1 year of postdoctoral work with Dodds in England. Now at about 70 years of age he still seems very capable.

Among the institute's senior members (who all seem to be in their 50's) is Dr. Liu C.T. who has directed natural products work but is now working on liquid crystals. He did postdoctoral work with Professor V. Boekelheide when at the University of Rochester.<sup>11</sup> The steroid group is headed by Dr. Chou Wai-shan who was a member of the insect hormone delegation to the US last year. The organofluorine group is headed by a Harvard trained organic chemist and friend of Dr. Kupchan.

Of the perhaps 120 laboratories in the main building of this large institute, which with manufacturing units seemed to encompass perhaps two city blocks, we were shown four laboratories. The first was concerned with converting the C<sub>12</sub>-C<sub>18</sub> paraffin fractions (0.5% aromatic compounds) from the Chinese petroleum field (discovered in 1960) to a source of animal protein using the yeast *Candida lipolytica*. The conversion of such paraffin oil to yeast protein amounts to 70-80%. Gas oil (diesel) gives a toxic yeast, but the fraction extracted with alcohol is suitable for feeding animals. At present they are interested in circumventing the aromatic compounds which probably produce some serious toxicological problems, for example, of the carcinogenic type. A manuscript based on this problem has recently been prepared by Drs. Wang and Fang F.

In the next laboratory Dr. Liu described some of his earlier structure work with the veratrum alkaloids and a synthesis of racemic menthol. All of the studies viewed that afternoon were completed prior to 1965, and some embarrassment was detected on the part of these sophisticated chemists in having to present rather old and already published work. In Dr. Chou's

steroid laboratory we heard a brief description of their conversation of diosgenin and 3 $\alpha$ ,7 $\alpha$ -cholic acid (hyodesoxycholic acid) to cortisol, Prednisone, dexamethasone, triamcinolone, 16-methylene-prednisone acetate, 6-methylcortisol acetate, megestrol acetate, mestranol, and morethisterone. Obviously, they have been assigned the task of making these useful drugs available for Chinese medical use.

Next, we heard a brief description of the isolation of 6,7-dihydroxy-comurin from a plant, its production and now wide-spread use clinically for dysentery. The compound is known trivially as esqualin and occurs with the 6-glucoside in ash bark. The young chemist (perhaps 35 years old) describing this work had been part of the original group which succeeded in the first total synthesis (1965) of insulin. The Organic Institute group prepared the insulin A-chain, while the B-chain was prepared in the adjacent Biochemical Institute.<sup>12</sup> A group at the University of Peking also participated in the A-chain synthesis. Most probably the A and B chains were combined in the Biochemical Institute. This writer directed several questions at trying to determine what the peptide group was now doing and also the nucleotide group, but specific answers were not forthcoming.

In conclusion, it would seem that this most expert group of organic chemists was diverted in 1965 to development work. Secondly, they are now involved in some exploratory work which they cannot talk about. Thirdly, their nucleotide group (which may be larger in number than any other in the world) may be directing efforts at a newsworthy breakthrough in the life sciences, such as a new gene synthesis or the synthesis of, for example, the first replicating virus. Fourthly, a sense of fear was detected among the English speaking senior people in carrying on personal conversations with us. However, their warmth, friendliness and excitement in having us visit was clearly apparent. The vir-

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## From the Archives Part III: Pettit's "Incredible Journey into the People's Republic of China"

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tual lack of political statements in the formal discussions was also apparent.

At about 7 p.m. we met with our hosts from the Shanghai Medical Association for a most pleasant and friendly banquet which ended about 9 p.m. This reviewer sat between Drs. Bai and Tang at a table with Drs. Meinwald, Wakeman and two secretaries from the Medical Association. Many warm toasts were exchanged with the Chinese sweet red Mokai, the 70% white wine, beer and orange carbonated drink. Dinner consisted of fish from the Shanghai River, rice, chopped chicken and various unknown vegetable and soup recipes.

### MEDICINAL PLANT BOTANICAL GARDEN, KWANGCHOW (CANTON) MONDAY, JUNE 24<sup>13</sup>

We left by car at 8:30 for an approximate 25 minute ride to the garden, which is located some 10 miles outside Kwangchow. The leading member, Mr. Cho, explained that they raise 400 to 500 commonly used medicinal plants. None are grown for production but rather as specimens. The garden has 120 workers and about 1,000 hectares of land.

This writer kept asking about plants used for cancer treatment and was shown the following: *Scutellaria barbata* Don. (stomach cancer), *Isotoma longiflora* Presl. (cancer in general and snake-bite), *Tylophora ovata* (Lindl.) Hook and Steud (nasopharynx CA, the roots are used), *Begonia grassiostriis irmisch*, (for cancer and jaundice) and *Livistona chinense* (seeds used for cancer). These plants are apparently in use by the rural people, and medical usefulness is still unknown.

We also saw *Artemisia vulgaris* L., which is used for moxabustin, and *Alocasia odora* (Roxb. C. Koch) used for pneumonia and TB. The risome of the latter is used as the leaves are very toxic.

The rain began again as we reached a small grove of leech nut trees being raised for the smaller nut and larger fruit. Our hosts picked a great quantity and we returned to the beautifully designed pavilion on the edge (and into) a small and nicely landscaped lake.

As the tropical rain gently fell we discussed the various plants and ate leech nuts. At about 11:30 we returned to our guest house for lunch (served with an excellent homemade chocolate ice cream).

At 3:00 we were transported to the Kwanchow Traditional Medical School.<sup>14</sup> The leading member gave his "brief account" complete with large doses of politics. He noted that before liberation it was against the law for Chinese traditional doctors to practice. While this school was established in 1956, it grew slowly and had trained a total of 1,100 students (and 130 Western trained doctors) by 1965, and this was attributed to "revisionist elements in China." Now they enroll about 200 students and 200+ Western trained doctors per year. With the advent of the cultural revolution, the curriculum was reduced to 3 years and Chairman Mao's "revolutionary line" has been followed with due criticism of Lin and Confucius.<sup>15</sup> The school presently teaches use of 600 traditional medicines and 150 Western drugs.

Only the museum specimens and one small laboratory were seen. In answer to questions from this writer about the animal collections, the following was ascertained. To their knowledge no animal materials are being used in traditional medical treatment of cancer. The salamander *Grecko grecko* sp. (water extract of the tail) is used for asthma, the squid *Sepia* sp. for peptic ulcer and menstrual problems, an abalone (water extract) to stop bleeding, *Bufo* g. (the Ch'an Su toad) for cardiac effects and sore throats, a centipede (whole animal for anti-inflammatory effects) and the cobra *Naja* sp. (water extract of the whole snake) for rheumatism.

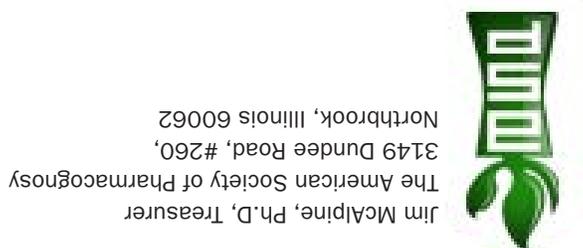
That evening, we saw one act from the White Haired Girl ballet (warlord conspiring with the Japanese who kills a peasant and steals his daughter), 2 male singers, about 15 female dancers, a Canton type string group and opera with a symphony orchestra. ■

(Read the final excerpt of Dr. George R. Pettit's *A View of Medicine, Cancer Treatment and Drug Development in The People's Republic of China, June 1-27, 1974* in the Spring 2018 issue of the *ASP Newsletter*—*From the Archives.*)

## From the Archives Part III: Pettit's "Incredible Journey into the People's Republic of China" *continued from page 23*

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- 13 Today the researchers at the South China Botanical Garden study plant systematics and floristics, plant anatomy, tropical and subtropical forest ecosystems, physiology of chilling resistance, photosynthesis postharvest physiology of tropical and subtropical fruits, seed physiology and regulatory metabolisms, plant tissue culture and cell biotechnology, exploitation of aromatic and medicinal plants, introduction and acclimatization of tropical and subtropical plants, theory and new techniques of plant breeding, and preservation of plant germplasm resources. 2017. {<http://flora.huh.harvard.edu/china/mss/ibsc.htm>}
- 14 Today the Guangzhou University of Chinese Medicine (established in 1956) is one of the four oldest Chinese Medicine institutes of higher education in China and a principal Chinese Medicine university supervised by the State Administration of Traditional Chinese Medicine of the People's Republic of China and People's Government of Guangdong Province. 2017. {<http://school.cucas.edu.cn/Guangzhou-University-of-Chinese-Medicine-118/>}
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