



The American Society of Pharmacognosy

The ASP Newsletter: Volume 53, Issue 1

Discovering
Nature's
Molecular
Potential

ASP Responds to Trump Administration Travel Bans

By Dr. Edward J. Kennelly

In early February, ASP President Dr. Cindy Angerhofer posted a statement on the ASP website (www.pharmacognosy.us/statement-from-the-asp-president/) that expressed concerns about the first executive order of US President Donald Trump, signed on January 27, 2017, banning entry of citizens from seven predominately Muslim countries. While that order has been challenged in the federal court system, a new executive order was signed by President Trump on March 6, 2017, restricting immigration and travel from six of the seven countries in the original order unless the travelers already have valid travel documents.

The new executive order appears to be somewhat narrower in scope than the original order. Six nations, Iran, Somalia, Sudan, Yemen, Syria, and Libya are still included, but Iraq has been removed. Green card holders from those six nations are now exempt, as are other people from these countries with valid US visas. A temporary restraining order was issued by US District Judge Derrick Watson on March 15, 2017, preventing this new ban from being enforced.

President Angerhofer wrote to ASP members about the first executive order



Demonstrators protesting the travel ban in Oakland California.

BENJAMIN MORGAN

and referenced a January 31 letter, co-signed by more than 150 other scientific organizations. She stated, "The American Society of Pharmacognosy stands in solidarity with the...scientific organizations who have signed a letter to President Donald Trump urging him to rescind his Executive Order of January 27 restricting immigration and visas. The letter well represents the detrimental impact of this

action on the global scientific community, individual scientists and students from countries that have been singled out, and the very future of scientific leadership by the United States. ASP joins these scientific societies in voicing strong objection to this Executive Order and offering the administration assistance in creating an effective immigration and visa policy that

continued on page 3

IN THIS ISSUE: SPRING 2017

Editor's Corner	2	ODS 2017-2021 Strategic Plan	9	In Memoriam: Dr. Rasoanaivo	15
2017 ASP Meeting: City of Roses!	5	Hot Topics in Pharmacognosy	11	Conference Calendar	16
Khan named director of NCNPR	6	Fellows Offer ASP Members Career Advice	12	Brief News from Washington	17
Field Notes: Adventure in Guizhou Province	7	Meet a New ASP Member	13	UIC Transfers Farnsworth Archives to Lloyd Library	20
		New Members	14		

EDITOR'S CORNER



As I write this column in mid-March, there is still a lot of uncertainty about the new executive order by President Donald Trump regarding immigration and how this may impact ASP colleagues in the six predominately Muslim countries affected. ASP President Cindy Angerhofer posted a response to President Trump's first executive order regarding immigration, and this is the basis for our lead article addressing how these policies may impact ASP. The *ASP Newsletter* reached out to members from these six nations mentioned in the executive order, but only a few responded.

Even more recently, President Trump has sent his proposed budget to Congress, recommending significant cuts to many federal agencies that fund the research conducted by the ASP. The Fogarty International Center at the National Institutes of Health, the funding agency of the International Cooperative Biodiversity Groups (ICBG) that have supported ASP members' interdisciplinary research in drug discovery around the world, has been recommended for elimination. The *Newsletter* will continue to closely monitor these proposed changes and other issues that impact members' research. If your research has been impacted, please let us know (asp.newsletter@lehman.cuny.edu).

On a happier note, we are pleased to recognize the promotion of ASP member Dr. Ikhlas Khan as Director of the National Center for Natural Products Research at the University of Mississippi. Many ASP members know Dr. Khan as a leader in the field of botanical analysis. He has hosted several interim ASP meetings at the University of Mississippi, and the 2014 ASP Meeting as well. He has served on a number of ASP committees and is a critical member of the ASP. We congratulate Dr. Khan on this promotion and wish him continued success as Director.

I hope many ASP members will be able to join us in Portland, Oregon, for the annual meeting from July 29 to August 2, 2017. The organizers have written an update in this *Newsletter* about the scientific program that will include a variety of symposiums, such as *Natural Products from Unique Ecosystems* and *Natural Products Biosynthesis and Synthetic Biology*. There will also be a number of social gatherings, including a visit to the Oregon Museum of Science and Industry.

Abstracts are due on April 30, 2017.

In our regular columns, we accompany ASP member Dr. Chunlin Long into the field to learn about the ethnobotanical research he is doing with ethnic minority groups in the People's Republic of China. Dr. Long and his group report about their recent trip to Guizhou in southern China, a province with 18 ethnic minority groups. In our "From the Archives" column, Ms. Devhra BennettJones details the donation of the Norman R. Farnsworth archives to the Lloyd Library. Professor Farnsworth was a founding member of ASP and served as the society's second president. He was a leading researcher in pharmacognosy, as well as being devoted to bringing modern literature search capabilities to the field through his database NAPRALERT. The Lloyd Library will now house many of the key records of this founding father of the ASP. We were saddened to learn that a friend of the ASP, Dr. Philippe Rasoanaivo, passed away last year. "In Memoriam" allows us to learn more about his life and work. Dr. Georgia Perdue continues to write her "Brief News from Washington" article about issues with regards to federal agencies and natural products research. With the proposed budget cuts, Dr. Perdue may be busier than ever following how this plays out.

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/

NEWSLETTER STAFF

Edward J. Kennelly, Ph.D.
Editor-In-Chief

Amy C. Keller, Ph.D.
Assistant Editor

Nancy Novick
Design & Production

Devhra BennettJones
Gordon Cragg, Ph.D.
Kevin Tidgewell, Ph.D.
ASP Newsletter Committee

The contribution deadlines are:
Spring Issue Feb. 15
Summer Issue May 15
Fall Issue Aug. 15
Winter Issue Nov. 15

Please send information to:
Edward J. Kennelly, Ph.D.
Editor In Chief, ASP Newsletter
Department of Biological Sciences
Lehman College, CUNY
250 Bedford Park Blvd. West
Bronx, NY 10468
718-960-1105

asp.newsletter@lehman.cuny.edu
ISSN 2377-8520 (print)
ISSN 2377-8547 (online)

ASP Responds to Trump Administration Travel Bans

continued from page 1

stays true to American principles as a nation of immigrants.” Dr. Angerhofer told the *ASP Newsletter* that the second ban did not appear to be substantially different from the original in terms of its effect on the scientific community.

In the past decade, ASP has had 8 members from Iran and one from Sudan, according to the Society’s MemberClicks da-

One of the largest concentrations of international pharmacognosy researchers in the US is at the National Center for Natural Products Research (NCNPR) at the University Mississippi School of Pharmacy, University, Mississippi. According to NCNPR Director and ASP member Dr. Ikhlas Khan, “When it comes to natural products and the traditional knowledge accumulated from their use,

“Knowledge has no boundaries and the exchange of thoughts and collaborations are the key for future meaningful developments of the natural products industry in US.”

— Dr. Khan

tabase. There have been two ASP members from Iraq. It is not possible to tell how many ASP members are from one of these six countries but reside somewhere else.

The *ASP Newsletter* made a concerted effort to contact all 10 identifiable members from the six potentially banned nations by e-mail and social media in an attempt to learn how this policy change is impacting pharmacognosy researchers abroad. Only a few responded to the *ASP Newsletter* inquiries, and those that did asked for anonymity.

One Iranian ASP member who resides in the US wrote about the newly issued executive order, “It will have a negative impact on any scientific exchange as it will make it impossible for scientists in Iran to travel to the US, either to take part in a conference or symposium or to do research in an American laboratory as a graduate student or postdoctoral fellow.” This ASP member also worried that the Iranian government may take some reciprocal actions that would make scientific exchange and dialogue almost impossible between the two nations.

Another ASP member based in one of the six banned countries stated how much he appreciated the outreach from the Society, and was heartened to know that ASP President Angerhofer has commented on this situation. This person also felt that the US government may not recognize that many scientists in these six nations feel like victims of their own governments, and some have severe limitations with regards to human rights at home. This ASP member noted that science is a way for him to remain focused in such a challenging political environment, and the inability to attend conferences in the US has a negative impact on his career.

we look to the Far East. These Eastern traditions and knowledge are the genesis of the natural products industry here in the US as well as the Western Hemisphere. Knowledge has no boundaries and the exchange of thoughts and collaborations are the key for future meaningful developments of the natural products industry in US. The proposed travel ban will almost certainly hinder the open exchange of scientists that ultimately will erode the possibility of building strong collaborative, international research efforts. Even though only six countries are currently affected by this ban, it will have broad implications throughout the scientific community. In addition to immediate hurdles, the long-term implications for developing countries as well as the future of young scientists in the area of natural products research are unpredictable.”

Another ASP member (and Fellow) with extensive experience working with international scientists is Dr. Gordon Cragg, who worked for the National Institutes of Health National Cancer Institute for many years. He commented about the executive order saying, “The United States has benefited from the knowledge and talents of countless immigrants irrespective of their cultures, faiths or countries of origin. The indiscriminate banning of immigrants and refugees from selected countries based on the predominance of particular faiths or cultures reflects very poorly on the moral judgement of the leadership of our country and is an affront to many immigrants of all persuasions!”

The US Code § 1182 - Inadmissible aliens, a 65 year-old provision of the Federal Immigration and Nationalities Act, gives presidents very broad authority. “.....Whenever the President

continued on page 4

“The United States has benefited from the knowledge and talents of countless immigrants irrespective of their cultures, faiths or countries of origin. The indiscriminate banning of immigrants and refugees from selected countries based on the predominance of particular faiths or cultures reflects very poorly on the moral judgement of the leadership of our country and is an affront to many immigrants of all persuasions!”

— Dr. Cragg

ASP Responds to Trump Administration Travel Bans

continued from page 3

finds that the entry of any aliens or of any class of aliens into the United States would be detrimental to the interests of the United States, he may by proclamation, and for such period as he shall deem necessary, suspend the entry of all aliens or any class of aliens as immigrants or

very early due to the problems involved with visitors from certain countries.”

ASP member Dr. David Kroll has written on the subject of how the travel ban could impact scientific research. In his December 8, 2015, *Forbes Magazine* article (reposted on the ASP Facebook page,

researchers. He suggests some specific areas that can effect changes: “... keep appealing to our representatives that the ban’s effect may be detrimental to research progress and international collaboration. I’d also suggest that ASP members who feel compelled to do so

“It’s unlikely that I would have been hired into my first independent, tenure-track faculty position at age 28 without the creativity and work ethic of my Muslim lab mates while at the University of Colorado in the early 1990s.”

— Dr. David Kroll

nonimmigrants, or impose on the entry of aliens any restrictions he may deem to be appropriate...” ASP member and Fellow Dr. David Newman, who worked for the US government for a number of years, told the *Newsletter* that, “since the passage the original legislation 65 years ago, the following Presidents have activated it under EOs.” He then provided an extensive list of examples, from President Jimmy Carter’s ban of visas to Iranian citizens after the US hostage crisis in that country to Present Barack Obama who banned visas to people “who participate in serious human rights and humanitarian law violations and other abuses.”

Dr. Newman noted that over the years he has observed, “...that scientists from a number of countries, particularly from Africa and the Near/Middle East, have had problems obtaining visas to enter the US and other nations, including Australia, in order to attend scientific meetings. When I was at NCI, at times I had to intercede with the US State Department, in order to ‘facilitate the entry of scientists from those areas’ to attend both meetings, and training in specific taxonomic processes in the US, that were being paid for by the US government, so visa problems are common, not unusual. In fact, if my memory serves me correctly, ASP has mentioned in the past that scientists wishing to present at ASP meetings should start their visa process

reaching 38,803 people, and “liked” by 6,300 people as of March 7, 2017) he discussed how important Muslim scientists have been to his research career, writing, “It’s unlikely that I would have been hired into my first independent, tenure-track faculty position at age 28 without the creativity and work ethic of my Muslim lab mates while at the University of Colorado in the early 1990s.” The long-term repercussions of this travel ban on scientists from these six nations and the US alike are likely to be profound.

Dr. Kroll encourages his fellow ASP members to remain engaged in these political issues that can deeply impact

write op-ed articles for their local or regional newspaper. Even for state employees, it’s nonpartisan to write such articles if one appeals to the simple economic impact of the bans ...on one’s locality.” Any ASP member wishing to voice their reaction to the executive order should be mindful of the policies at their place of employment, and the best course of action may be to write as a private citizen using a home address, rather than referencing their employer in any way. Specifically, any government employee has to be careful not to mix what could be considered a political comment with their employer’s address. ■

BENJAMIN MORGAN



2017 ASP Meeting: City of Roses!

By Dr. Kerry McPhail

We encourage all to venture to the Western US, and join the “Natural Product Corps of Discovery” at the 2017 ASP meeting, from July 29 to August 2, 2017, in Portland, Oregon. Here is a closer look at the scientific main program. For detailed, up-to-date information on the pre-meeting workshops, scientific and social programs, conference venue, Portland and travel, please visit the conference website <http://asp2017.org/> and associated social media links!

We are excited to kick off with Sunday morning speakers, Drs. Ikuro Abe, Chaitan Khosla, Christina Smolke, and Huimin Zhao in the *Natural Products Biosynthesis and Synthetic Biology* symposium. On Monday morning we welcome Drs. Prakash Nagarkatti, Luc Pieters, and Amala Soumyanath as we delve into the *Molecular Pharmacology of Natural Products and Complementary Medicine* symposium. In the Tuesday morning symposium, Drs. Bill Baker, Julia Kubanek, Pei-Yuan Qian, and Ryuichi Sakai lead us to explore *Natural Products from Unique Ecosystems*.

Notably, afternoon sessions running in parallel are limited to two, rather than three, and thus contributed and invited oral presentations are scheduled every afternoon. The topics for Sunday



CAN STOCK PHOTO/JKRAFT5

afternoon’s parallel sessions are *Natural Product Biosynthesis/Herbal and Plant Natural Products* before the coffee break, *Synthetic Biology/Synthesis of Natural Products* after the coffee break, and Poster Session I from 5pm to 7pm. Monday afternoon features one parallel session, *Plants and Neurology – Medical Marijuana/Microbial Natural Products*, and an early Poster Session II, in order to accommodate the Monday evening visit to the Oregon Museum of Science and Industry (<http://www.oms.edu/>).

Tuesday afternoon pre-coffee break sessions are *Molecular Pharmacology of Natural Products/Advanced Technologies in Natural Products Research*, followed by *Epigenetic Activity of Natural Products/Natural Products from Unique Sources*.

After the morning Awards Symposium on Wednesday, an early afternoon pair of contributed oral sessions will provide a further opportunity to explore natural products research before the ASP business meeting and evening banquet.

Another general schedule point to note is that the scientific program ends between 5:00 pm and 7:00 pm each day, leaving plenty of daylight (sunset is around 9:00 pm) to take in the local scene. Whatever type of activity you enjoy, the Tourist Information Center at the Travel Portland website presents a calendar of events and a guide to

exploring the 145 square miles of Portland “indoors and outdoors”, <https://www.travelportland.com/article/top-sights-in-portland/>. Whether for an hour or a day, a visit to Powell’s City of Books is not to be missed. Open 9:00 am to 11:00 pm, 365 days a year, this world famous bookstore established in 1971 takes up an entire city block and houses more than 1.5 million books in 3,500 different sections! Similarly, be sure to find time for a cup of tea and the tranquility of beautiful Lan Su Chinese Garden near downtown Portland. Further afield, follow in Lewis and Clark’s footsteps and visit the multitude of waterfalls in the spectacular Columbia River Gorge.

We look forward to hosting you in Portland this summer! ■

CAN STOCK PHOTO/WILLARD



Khan Named Director of NCNPR

By Dr. Amy Keller

On January 1, 2017, ASP member Dr. Ikhlas Khan became the new director of the National Center for Natural Products Research (NCNPR) at the University of Mississippi School of Pharmacy, University, Mississippi. He succeeds ASP member Dr. Larry Walker in this position.

Dr. Khan earned his doctoral degree in Pharmacy at the Institute of Pharmaceutical Biology, Munich, Germany, and started at the School of Pharmacy in 1988 as a postdoctoral research fellow. He has also been a dedicated member of the ASP for many years, including leading the planning of several ASP annual meetings. In 2011, Dr. Khan was awarded the Varro Tyler Prize for Research on Botanicals and served as the NCNPR associate director in 2015. Dr. Khan told the *Newsletter*, "I am grateful for the opportunity to direct natural products research here at the NCNPR. It is a challenging and opportune time for all natural products researchers. My desire is to not only serve the center but the pharmacognosy community as well."

The NCNPR was begun in 1995, with a focus on natural product pharmaceuticals and agrochemicals. The Food and Drug Administration (FDA) has funded the center since 2001; NCNPR has worked on aspects of dietary supplement research, such as analytical method and reference standard development. In 2006, the FDA recognized the NCNPR as a Center of Excellence, and the center hosts the yearly International Conference of the Science of Botanicals. Previous Director Dr. Walker said, "Having worked with Ikhlas for more than 20 years, I know well the many contributions which he has brought to the NCNPR and the University of Mississippi's



Dr. Ikhlas Khan

"Having worked with Ikhlas for more than 20 years, I know well the many contributions which he has brought to the NCNPR and the University of Mississippi's School of Pharmacy in the past. So much of our research program has been shaped by his direction and influence."

worked for NCNPR, while at the same time being open to novel challenges and changes. Dr. Walker continued, "As his publication, funding, service record, and awards testify, he has been an established leader for us. The NCNPR is an exceedingly complex organization, especially in the breadth of the program and the agencies, companies and constituencies we deal with. But Dr. Khan's working relationships with all of these makes him a natural choice to direct the program." ■

pi's School of Pharmacy in the past. So much of our research program has been shaped by his direction and influence."

ASP President Cindy Angerhofer related, "It's such a pleasure to congratulate Ikhlas on becoming the Director of the NCNPR! Through the many years I have known him, he has been a superb mentor to countless students at Ole Miss, and to others through the Khan Kingdom of posters at the annual ASP meeting that almost require their own wing of the poster venue! He has been an ardent supporter of ASP through his organization of annual and interim meetings, not to mention the Oxford ICSCB meeting every year. Ikhlas is an excellent scientist, a genuinely warm human being and maybe above all, a bridge builder. He has successfully brought so many people together from different countries, different disciplines, diverse institutions and divergent viewpoints for the purpose of furthering the science of botanicals. The NCNPR is in exceptional hands!"

Dr. Khan has an extensive research history working on natural product drug discovery, dietary supplement safety, and bioactive compound content. His goals for the center are to keep supporting the strategies and research that has

Pharmacognosy Field Notes: Adventure in Guizhou Province

By Dr. Chunlin Long, Ms. Yuanyuan Ji, and Ms. Hang Shu

In late December 2016, we left the Laboratory of Ethnobotany at Minzu University of China, Beijing, China, for the Guizhou Province to investigate medicinal plants used by local people. With a subtropical climate, Guizhou is famous for its natural beauty, colorful ethnic cultures, and varied ethnomedicines. Among its 18 native nationalities, Miao, Dong, and Buyi, are the largest ethnic groups in the population. Most ethnic people and Han Chinese in Guizhou still depend on herbal medicines to treat ailments and for healthcare. The Miao ethnomedicine is one of the most popular in China.

During this trip, we investigated two genera, *Acorus* (Acoraceae) and *Hypericum* (Clusiaceae), along with some other herbs such as *Polygonum* (Polygonaceae) and *Botrychium* (Ophioglossaceae). Before we left Beijing for Guizhou, we printed some pictures of *Acorus* and *Hypericum*, and brought them with us so that we could show them to the local people. Field surveys were carried out between December 25, 2016 and January 2, 2017 using ethnobotanical methods, including semi-structured interviews, market surveys, and informant interviews. We choose three districts, Qiannan, Qiongnan, and Tongren, as our main investigation sites, where ethnic people including Miao, Dong, and Buyi live in the mountainous areas. We interviewed many local people, recorded their ethnomedicinal knowledge, and collected samples from various villages.

In a village called Shuicheng, Majiang County, Qiongnan District, we met many villagers who were electing the village committee members. They warmly greeted us, and we were able to interview more than ten informants, from 20 to 72 years old. The oldest informant was a gentleman who used to be an herbal medicinal healer. He told us in the local communities they used the plants in genus *Hypericum* to treat burns, indigestion, influenza, trauma, pneumonia, *continued on page 8*



Right top: Interviewing a Miao woman in Leishan County.

D.P. LI

Center: Interviewing in a Gejia village in Huangping County. Gejia is a branch of Miao in Guizhou, with special dress and hat decoration. The man is 91 years old but still works. He collected and prepared medicinal plants for selling. The sticks he is removing are *Mahonia fortunei* stems. With berberine, palmatine, jatrorrhizine, and magnoflorine, *Mahonia* plants have been used as an ethnomedicine for centuries in this area.

CHUNLIN LONG

Bottom: Interviewing in Shuicheng Village, Majiang County. The old gentleman holding pictures possesses a lot of herbal medicinal knowledge.

CHUNLIN LONG

Pharmacognosy Field Notes: Adventure in Guizhou Province

continued from page 3

rheumatism, hemorrhoids, gastroenteritis, ulcers, hysteria, and hepatitis. They collect *Hypericum* roots to make a decoction for the treatment of icterohepatitis. This is said to cure inflammation if taken every day for one week. A female villager told us a decoction of *Hypericum* was good for women's blood.

The villagers were familiar with the distribution of *Hypericum*. They typically collected the plants on hillsides or moist and sunny slopes. The local name for these is *dahuang*, while the herbaceous *Hypericum* is known as *xiaohuang*. According to their knowledge, *dahuang* herbs are better than *xiaohuang*. We were also told that the genus *Acorus* can be used as herbal medicine to treat gastrointestinal disease, unconsciousness, amnesia, fractures, inflammation, and wounds. It is very common to cook meat with *Acorus tatarinowii*, called *shannai* by the local people. It can not only enhance the flavor of the meat, but also provides nourishment.

During our interviews in Shuicheng, we were told of a local healer named Mr. Luo, reputed to be the best healer in their community, with extensive medicinal knowledge and skills. We walked to his house, but he was not at home. Disappointed, we found some medicinal plants he cultivated, such as *Belamcanda chinensis*, *Achyranthes bidentata*, *Hedychium flavum*, and *Euphorbia lathyris*. When we were leaving the village, we were fortunate to meet Mr. Luo coming back from his farmland, and had a wonderful roadside interview. As a local healer, Mr. Luo is very knowledgeable in traditional herbal medicines. The villagers told us they respected Mr. Luo very much because he always goes to mountains to collect medicinal herbs and treat patients for free. He has two daughters living far from their home village, and according to tradition,



Mr. Luo is instructing us on the use of *Hypericum* plants for treating hepatitis.

CHUNLIN LONG

he should pass his ethnomedicinal knowledge to his children. Therefore, no locals will inherit his knowledge and profession. We were worried about the precious traditional knowledge that may be lost.

Often, we found *Acorus calamus* hanging beside the main gate of each villager's house. Villagers told us during the Dragon-Boat Festival (May 5th of the lunar calendar), they hung *Acorus calamus* leaves on the doors as powerful weapons to drive out evil spirits and keep a healthy environment due to the sword-like shape.

We visited more than 50 villages in Sandu, Danzhai, Huangping, Shibing, Zhenyuan, Shiqian, and Jiangkou counties to conduct our field surveys, similar to our work in Shuicheng Village. During the trip, we also visited several local markets. We spoke with the vendors and buyers, and purchased some medicinal plants from the markets.

We spent half a day in a valley to collect *Acorus* samples on New Year's Eve. It is a part of Fanjingshan Mountains, a UNESCO biosphere reserve in eastern Guizhou. Dense forests covered the whole valley, and a stream flowed down from the foggy mountain. The green *Acorus* massively grew along the clean stream, on both rocks and river banks. A student ran towards the *Acorus* and fell down into the cold water, getting completely soaked! We welcomed the New Year in Jiangkou County Town with wine and delicious local dishes.

The last day we left Kaili, the capital of Qiandongnan Miao and Dong Autonomous Prefecture, and took the express train back to Beijing. It was a smooth and productive journey. We thank the local people and our colleagues and friends at Kaili University, Kaili, China, for their unforgettable enthusiasm and assistance. ■

With a subtropical climate, Guizhou is famous for its natural beauty, colorful ethnic cultures, and varied ethnomedicines. Among its 18 native nationalities, Miao, Dong, and Buyi, are the largest ethnic groups in the population. Most ethnic people and Han Chinese in Guizhou still depend on herbal medicines to treat ailments and for healthcare.

ODS 2017-2021 Strategic Plan

By Dr. Joseph M. Betz

The Office of Dietary Supplements (ODS) at the National Institutes of Health (NIH) has released its strategic plan for 2017-2021, *Strengthening Knowledge and Understanding of Dietary Supplements*. The document presents a refreshed set of goals, strategies, and activities that ODS plans for the next 5 years. It also provides a review of ODS activities and accomplishments between 2010 and 2016 and includes examples of ODS collaborative projects and programs and summaries of its extramural investments. The plan was shaped by the thoughtful input, comments, and advice from ODS's stakeholder communities throughout the federal government, academia, the dietary supplement industry, consumer advocacy and education groups, and interested consumers.

The ODS mission is to support, conduct, and coordinate scientific research and provide intellectual leadership for the purpose of strengthening the knowledge and understanding of dietary supplements to foster an enhanced quality of life and health for the US population. Our vision is that researchers, health professionals, government officials, other policymakers, and consumers will have ready access to scientific information of the highest quality on the health effects of dietary supplements.

ODS'S FOUR MAIN GOALS ARE TO:

1. Expand the scientific knowledge base on dietary supplements by stimulating and supporting a full range of biomedical research and by developing and contributing to collaborative initiatives, workshops, meetings, and conferences.
2. Enhance the dietary supplement research workforce through training and career development.
3. Foster development and dissemination of research resources and tools to enhance the quality of dietary supplement research.
4. Translate dietary supplement research findings into useful information for consumers, health professionals, researchers, and policymakers.

Each goal is supported by several strategies that will facilitate accomplishment of the goal.

GOAL 1

The strategies for Goal 1 are to a) increase understanding of the health impacts and biological effects of dietary supplements; b) conduct research on patterns of dietary supplement use in the US population; and c) identify knowledge gaps and research needs in these areas.

As an office situated within the NIH Office of the Director, ODS

lacks direct grant-making authority. As a result, much of ODS's activity in Goal 1 is accomplished by co-funding basic biomedical research with other NIH Institutes and Centers (ICs). ODS's 2015 co-fund investments can be seen in Table 1, and the diversified nature of this investment can be seen in Figure 1.

GOAL 2

The strategies used to implement Goal 2 are to a) support scientific training programs and continuing education activities; and b) provide funding to stimulate research training in federal

laboratories. ODS has developed several mechanisms to develop a cadre of researchers skilled in the science of dietary supplements. Using a variety of mechanisms, ODS:

- Funds training and career development awards in NIH intramural laboratories;
- Sponsors the ODS Intramural Scholars awards in conjunction with other NIH ICs;
- Collaborates with other federal agencies to support postdoctoral fellows (e.g., National Institute of Standards and Technology and United States Department of Agriculture);

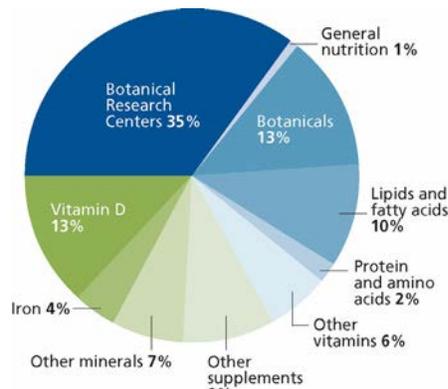


Figure 1:
ODS Co-funded research
investments within NIH.

- Offers short-term training opportunities for students and faculty members at ODS; and,
- Hosts the annual Mary Frances Picciano Dietary Supplement Research Practicum, a 3-day intensive course on issues in dietary supplement research.

The strategies to support Goal 3 are to a) enhance the development of appropriate study methods for dietary supplement research; b) foster the highest quality laboratory analyses for dietary supplement constituents to enhance the quality of dietary supplement products by developing and promoting validated analytical methods and certified reference materials (CRMs) and; c) develop and provide publicly accessible databases for use in clinical, epidemiological, and other population research on dietary supplements.

GOAL 3

Goal 3 is best exemplified by the ODS Analytical Methods and Reference Materials Program (AMRM). The use of accurate, precise, and reliable analytical methods and matching reference materials is required for rigorous assessment of dietary supplement ingredients. The AMRM program provides resources for characterization and verification of product content that enhance the reliability and reproducibility of research using these products, along

continued on page 10

ODS 2017-2021 Strategic Plan

continued from page 9

with enhancement of product quality. AMRM program priorities are identified through open stakeholder meetings and met through collaborative efforts with federal and non-federal institutions. Industry, government, not-for-profit groups, and academic institutions participate in the process of identifying needs and developing standards. Through its contracts and collaborations (NIST and USDA) the AMRM program, ODS:

- Supports the development of dietary supplement matrix CRMs for dietary supplement ingredients with assigned values for concentrations of active and/or marker compounds, pesticides, and toxic metals to assist in the verification of product label claims and in quality control during the manufacturing process;
- Supports the Dietary Supplement Laboratory Quality Assurance Program, in which participants measure concentrations of active and/or marker compounds and nutritional and toxic elements in practice and test materials;
- Conducts workshops to discuss best practices and advances in methodologies for characterizing dietary supplements and to provide guidance on improving laboratory performance;
- Supports the validation of methods used in biomedical research on botanicals and other dietary supplement ingredients; and,
- Disseminates information and data about validated analytical methods and reference materials to stakeholders through its new website that includes a searchable database of analytical methods.

GOAL 4

Strategies in place for Goal 4 are to a) develop and maintain

ODS Co-Funded Investments with NIH ICs (FY 2015)	
	\$ Thousands
National Center for Complementary and Integrative Health	5,765
National Heart, Lung, and Blood Institute	1,638
National Institute of Diabetes and Digestive and Kidney Diseases	1,421
National Cancer Institute	855
National Institute on Alcohol Abuse and Alcoholism	536
National Institute on Aging	462
Fogarty International Center	253
National Institute of Environmental Health Sciences	199
National Institute of Child Health and Human Development	163
National Institute of Allergy and Infectious Diseases	100
National Institute of General Medical Sciences	100
National Institute of Neurological Disorders and Stroke	100
National Eye Institute	91
National Institute of Arthritis and Musculoskeletal and Skin Diseases	85
National Institute of Dental and Craniofacial Research	34

informational resources on dietary supplements for diverse audiences; b) provide leadership on dietary supplement research and educational activities within the federal government; and c) collaborate with stakeholders to inform public health policy and clinical practice related to nutrients and other ingredients in dietary supplements.

ODS has communicated the science of dietary supplements to diverse audiences through its information products, primarily a library of fact sheets on ingredients in these products. Most of these products are available on the ODS website which averages more than 1.5 million visitors each month. The ODS Communications Program provides helpful, up-to-date information on dietary supplements through various channels, including social media platforms and responds to media inquiries and a growing number of questions from the public about dietary supplements.

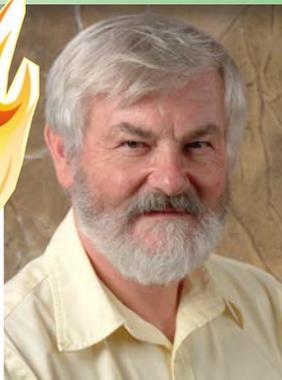
NEW DIRECTIONS

ODS's activities are built upon the successful development of programs since its inception and continue to reflect the mandate set by the Dietary Supplement Health and Education Act (DSHEA) of 1994. However, new knowledge, technologies, and public health concerns take some programs in new directions. Examples of how ODS plans to expand its direction in the next 5 years include:

- In coordinating the creation and dissemination of analytical tools, ODS will expand this effort from measuring nutrient ingredients in dietary supplement products to include the identification and measurement of biomarkers of nutrient exposure and status in blood and other biological specimens in relation to chronic disease risk in individuals and populations.
- ODS will seek to understand the role of the microbiome in mediating the effects of bioactive components of food and dietary supplements.
- ODS will evaluate and help develop tools to more precisely investigate dietary supplement usage patterns, using national and other large health surveys, in specific population cohorts (such as seniors, Native American communities, pregnant women, infants, children, the elderly, and cancer survivors). ODS will also study consumer use of dietary supplements in combination with widely used over-the-counter and prescription medications. In addition, ODS plans to evaluate the cognitive and behavioral factors underlying dietary supplement use such as physical activity.
- ODS will explore additional mechanisms to support postdoctoral research training in collaboration with other NIH ICs and Federal agencies. ■

Table 1: ODS Extramural Research Portfolio by Investment Category, FY 2015 (\$11.8 million total funding).

Hot Topics in Pharmacognosy: The Lazarus Compound

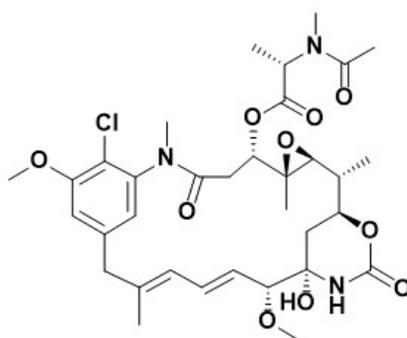


By Dr. David Newman

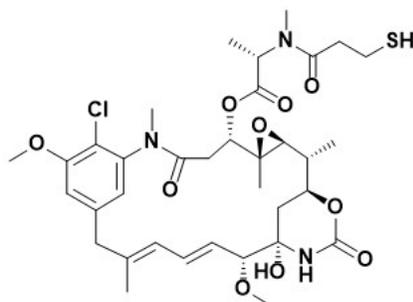
For those of you who thought that I had run out of stories and compounds from single-celled organisms, I will simply say, not yet!

In 1972, Dr. S. Morris Kupchan and coworkers reported the discovery of maytansine (**1**) from a bioactivity-driven study of an extract from the Ethiopian shrub, *Maytenus serrata*.¹ The compound was exquisitely potent (ED₅₀ against KB cells of around 50 ng/ml) and was subsequently shown to be a tubulin interactive agent binding at the vincristine site.¹ However, confusion reigned as to the source, as similar materials were found from bryophytes (mosses) and from actinomycetes (*Actinosynnema pretiosum*). Even then, there was a question as to whether or not the compound was a plant secondary metabolite, the product of interplay between plant and microbe, or completely microbial. The interplay of microbes in the production of this compound has been one of the fundamental research programs of the Spiteller group in Germany, predominately the work of Dr. Souvik Kusari within that group, and there is now no doubt that in the majority of cases (sources), maytansine is produced by a consortium of bacteria in the rhizosphere of the “producing plant.” There is one very intriguing report from Dr. Kusari where the starter unit (AHBA or 3-amino-5-hydroxybenzoic acid) was produced both in microbes and in the plant in one particular case in Cameroon. The current state of knowledge in this area was covered by me in late 2016,² and this paper should be consulted for further information as to the source(s).

Maytansine from the plant source entered clinical trials under the auspices of the National Cancer Institute (NCI) in 1975. Following evaluation in over 30 tumor types using both maytansine as a single agent or in combination with other cytotoxins in 800 plus agents, only approximately 20 patients demonstrated even a partial response in these Phase I and



1. Maytansine



2. DM-1

Phase II trials, thus the Investigational New Drug Application (INDA) was closed by NCI in the middle 1980s.³

However, and this is where the title comes from, it was recognized because of its exquisite potency. If maytansine or a close relative (see the 2004 review by Cassady et al¹ for the multiple structures related to this compound) could be linked to a suitable monoclonal antibody (MAb), then it, or a close relative, may well gain another lease on life. A small US biotech company, ImmunoGen, Inc., based in Cambridge, Massachusetts, developed two variations on maytansine, DM-1 (**2**) and DM-4 (**3**), where the warhead could be linked to a suitable MAb for delivery. ImmunoGen, after some false starts, succeeded in proving the point by combining their DM-1 variant with the Roche/Genentech antibody directed to the *Her2* locus. This had gone into clinical use as Herceptin® for the treatment of *Her-2-neu* positive patients. This combination was known by the brand name Kadcyła® and was approved by the Food and Drug Administration (FDA) for the treatment of

metastatic breast cancer in early 2013 following the submission of a Biologics License Application (BLA) the previous year. There is an interesting further aspect to this story as patients who followed treatment with just Herceptin® itself, frequently became refractory, but the *Her-2-neu* receptor on the surface of the breast tumor still recognized the antibody; the warhead then entered the tumor, thus aiding patients who thought that they could not be treated further.

By subsequently altering the monoclonal antibody, thus addressing different cell targets, ImmunoGen and its partners have significantly expanded their “franchise” on the use of

continued on page 12

Fellows Offer ASP Members Career Advice

By Dr. Amy Keller

The ASP Fellows would like to announce that they are available for confidential career advice for ASP members. Fellows, as stated on the ASP website, "...are chosen because of their continuing, high level contributions in the field of natural products and records of sustained achieve-



ment within their sub-disciplines." Fellows are uniquely poised to help ASP members in career transition at all levels and stand ready to serve the society in this capacity. Please field further inquiries to Dr. Jon Clardy at: jon_clardy@hms.harvard.edu.

Hot Topics in Pharmacognosy: The Lazarus Compound

continued from page 11

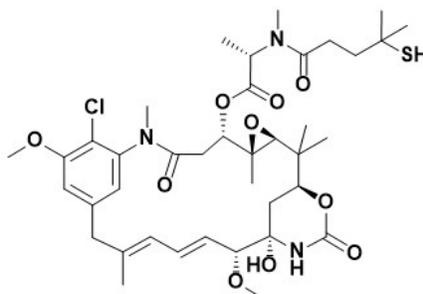
DM-1 and DM-4 linked combinations. Currently, the following maytansinoids are in clinical trials.

DM-1 linked:

- IMGN-289 is a conjugate consisting of a humanized monoclonal antibody targeting EGFR (J2898A) and DM-1 in Phase I trials against non-small cell lung cancer.
- IMGN-529 is a conjugate consisting of a CD37-binding, humanized IgG1 antibody K7153A linked to DM-1 in Phase II trials against lymphomas.
- Lorvotuzumab mertansine is a conjugate consisting of humanized monoclonal antibody targeting to CD56 (huN-901) conjugated to DM-1 in Phase II trials for Merkel cells and other hematologic cancers.

DM-4 linked:

- Coltuximab ravtansine is a conjugate of DM-4 and the humanized anti-CD19 monoclonal antibody huB4 currently in Phase II trials against lymphoma.
- Anetumab ravtansine (BAY-94-9343) is a conjugate of a



3. DM-4

human anti-mesothelin IgG1 antibody and DM-4, though not with Immunogen, in Phase II trials for solid cancers including mesothelioma.

- Mirvetuximab soravtansine is a conjugate of the FOLR1-binding monoclonal antibody M9346A attached to DM-4 via a cleavable linker and is in Phase III trials against ovarian and fallopian tube cancers.

4-AP linked:

- CD22-4AP-Maytansine is currently a pre-clinical agent, devised by using a modification that permits the generation of a formylglycine residue at a specific site or sites on the MAb, thus controlling the number of linked "warhead molecules". This agent is in advanced preclinical status with Catalent Biologics and Tri-phase Accelerator Corporation. It will be interesting to follow this agent against hematological cancers.

From these examples, one may safely state that maytansine or very close relatives have been resurrected as excellent antibody drug conjugates and, together with the examples from dolastatin-based derivatives, are opening up new areas for old but very potent natural product based compounds. ■

LITERATURE CITED

- ¹ Cassady, J. M., Chan, K. K. Floss, H. G. and Leistner, E. Recent developments in the maytansinoid antitumor agents. *Chem. Pharm. Bull.*, 2004, **52**, 1-26.
- ² Newman, D. J., Predominately uncultured microbes as sources of bioactive agents. *Front. Microbiol.* 2016, **7**, 1832. {doi: 10.3389/fmicb.2016.01832}
- ³ Annual Report to the FDA by DCT, NCI, on Maytansine, NSC153858, IND 11857, February 1984.

Meet a New ASP Member

Dr. Jian-Min Yue, our featured new member, is Professor of Medicinal Chemistry, Department of Natural Products at the Shanghai Institute of Materia Medica (SIMM), Chinese Academy of Sciences (CAS). He is also the head of Department of Natural Products and Deputy Director of the National Compound Library, which has a collection of about two million compounds. We are especially proud to share that Dr. Yue has recently been awarded the prestigious Wu Jieping-Paul Janssen Medical & Pharmaceutical Award. He shares his thoughts on science, as well as a passion for flowers and table tennis. We are grateful for a chance to officially welcome Dr. Yue.

By Dr. Dan Kulakowski

You have recently been honored with the Wu Jieping-Paul Janssen Medical & Pharmaceutical Award. Can you explain the award and its history?

This award was initiated in 1994 by the Ministry of Health of China in honor of Dr. Wu Jieping, a famous medical scientist in China, and Xian Janssen Pharmaceutical Ltd.-Johnson & Johnson's founder, Dr. Paul Janssen. The Wu-Jan Award is one of China's most established, multi-category professional awards. Each year, 10 awardees (eight from medical and two from medicinal chemistry fields) are honored for their innovative work to improve the health and quality of life of the Chinese people.

What has been the key to your successful career?

I have an interest in the work, conduct hard work, and have a solid background in organic chemistry.

How did you hear about the ASP?

I heard about it from *Journal of Natural Products*.

Why did you join ASP?

I was impressed by the quality of pharmacognosy research published by ASP members in *J. Nat. Prod.*, as well as by the work of Dr. Kinghorn and other editors. It will be very nice to meet these people in the ASP meetings to share research progress and perspectives on natural products research.

What would you like to achieve through your membership?

I would like to explore opportunities for collaborative partnerships in academia and have face-to-face discussions with ASP members about natural products research.

Do you belong to any other scientific societies?

I am a member of the Chinese Chemical Society and Chinese Pharmaceutical Society.

What are your current research interests in pharmacognosy?

My research actively involves in the isolation, structure deter-



Dr. Jian-Min Yue at Xishuangbanna tropical garden.

DR. YOU-KAI XU

mination, and synthetic optimization of natural products for drug discovery. I am interested in finding bioactive/novel structural components from traditional Chinese medicinal plants against different targets, including infectious diseases, cancer, and neurodegenerative disorders.

What is your scientific background?

I received my BS in Chemistry in 1984 from Lanzhou University, Lanzhou, China, where I also completed my PhD training in Organic Chemistry in 1990. After a mainland postdoctoral training position from 1991-1993 at Kunming Institute of Botany (KIB), Chinese Academy of Sciences (CAS), Kunming, China, followed by a postdoctoral position abroad from 1993-1994 at the University of Bristol, Bristol, United Kingdom, I returned to KIB as an Associate Professor (1994-1996). In 1996, I moved to the Joint Laboratory of Unilever Research and Shanghai

Institute of Organic Chemistry, (CAS), Shanghai, China, as a Senior Research Scientist and Project Leader (1996-1999) in Natural Products Chemistry. After three years, I moved to SIMM and resumed my career in academia.

What inspires you to do research?

Currently 70% of our current medications derive from natural products. For example, artemisinin and Taxol® are from plants. This inspired me to explore secondary metabolites from medicinal plants with novel structures and strong bioactivity, which can then be further developed as drugs.

What do you like doing in your spare time?

I like to play table tennis with my friends in my spare time. Sometimes, I like to take a walk alone, thinking about my work.

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

I love tropical and subtropical plants. I used to go on field trips to tropical areas, like Hainan Island and Xishuangbanna in Yunnan Province, where the different colors and shape of flowers attracted me. The plants growing in these areas normally have novel metabolites with strong bioactivities. ■

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 8 domestic full members, 2 international members, and 11 associate members. We look forward to meeting you and learning more about you and your work.

ACTIVE MEMBERS

Dr. Dr. Stephen Chamberland
Orem, Utah

Dr. Kan He
Torrance, California

Dr. Amit Jha
Lexington, Kentucky

Dr. Bailey Miller
Salt Lake City, Utah

Dr. Mitzi Nagarkatti
Columbia, South Carolina

Raha Orfali
Riyadh, Saudi Arabia

Vanessa Phelan
Aurora, Colorado

Dr. Charlotte Simmler
Chicago, Illinois

Dr. Guojun Wang
Fort Pierce, Florida

Dr. Hiroshi Yamashita
Sapporo, Japan

ASSOCIATE MEMBERS

Barbara Adaikpoh
University, Mississippi

Daniel Foil
Greensboro, North Carolina

Ms. Vedanjali Gogineni
Oxford, Mississippi

Ms. Sylvia Kunakom
Chicago, Illinois

Mr. Mohamed Mohyeldin
Monroe, Louisiana

Ms. Yilin Qiao
Tianjin, China

Ms. Mariam Salib
La Jolla, California

Mr. Fabien Schultz
Potsdam, Germany

Ms. Corena Shaffer
San Antonio, Texas

Mr. Timothy Westlake
Ithaca, New York

Mr. Mario Wibowo
Nathan, Queensland, Australia



Welcome to ASP!

In Memoriam: Dr. Rasoanaivo

By Dr. H.R. Liva Rakotondraibe

It is with great sadness that we acknowledge the sudden passing of Dr. Philippe Rasoanaivo, a leading Madagascar phytochemist, on July 13, 2016, at the age of 69, due to a heart attack. At the time of his death, he was Professor at the University of Antananarivo and Research Director of the Institut Malgache de Recherches Appliquées (IMRA), both in Antananarivo, Madagascar, and had served previously as a World Health Organization Expert in Traditional Medicine. Dr. Rasoanaivo was also a member of the American Chemical Society, the Academy of Sciences for the Developing World (TWAS), the African Academy of Science, and a Visiting Professor at several universities including the Università degli Studi di Roma “La Sapienza” in Rome, Italy, and the Muséum National d’Histoire Naturelle in Paris, France. In 1989-1990, he was a Fulbright Scholar with the late Dr. Norman R. Farnsworth at the Program for Collaborative Research in the Pharmaceutical Sciences, University of Illinois at Chicago (UIC), Chicago, Illinois.

ASP President Angerhofer related, “In too short a time, Dr. Rasoanaivo lived a full life and made an expansive contribution to the field of Pharmacognosy. Our scientific community mourns his loss.”

Dr. Rasoanaivo was well known for his work on endemic Madagascar medicinal and aromatic plants and played a major role in developing natural products research in his home country. He won the Sixth Sven Brohult award of The International Foundation of Sciences in 2000, the 2010 Entrepreneurship Award for Innovation in Science and Technology in developing countries from The World Academy of Sciences,



Dr. Philippe Rasoanaivo

www.ifs.se

and the 2015 Olusegun Obasanjo Prize administered by the African Academy of Science. Dr. Rasoanaivo had been appointed “Grand Officier de l’Ordre National Malagasy” during his lifetime.

While at UIC, Dr. Rasoanaivo worked directly under the supervision of Dr. A. Douglas Kinghorn. Dr. Kinghorn commented, “It was a very great shock to learn of the passing of Philippe Rasoanaivo. While at UIC, he was a very lively colleague, and he produced a very nice collaborative publication on the isolation and characterization of a new pregnane ester triglycoside, folotsoside A, isolated from the Madagascar plant, *Folotsia sarcostemmoides* (Rasoanaivo et al., *J. Nat. Prod.* **1991**, *54*, 1672-1676). On returning to his home country, Philippe kindly provided extracts

from Madagascar plants for screening in the UIC NCI-funded National Cooperative Drug Discovery Groups (NCDDG) project. From one of these, the roots of *Erythroxylum pervillei*, several tropane alkaloid esters showed promising multidrug-resistance inhibitory activities, especially the parent compound, pervilleine A. Philippe then very kindly assisted with a large-scale recollection of this species leading to further testing of this compound.”

Dr. Gordon M. Cragg, former Chief, Natural Products Branch, National Cancer Institute, Frederick, Maryland, added, “I was deeply saddened to hear of the untimely passing of Dr. Philippe Rasoanaivo. I had the pleasure and privilege of interacting with him at several international conferences, and particularly remember his superb organizational skills and welcoming hospitality when I participated as an invited speaker at the 11th Symposium of the Natural Product Network for Eastern and Central Africa in Antananarivo in 2005. His collaboration in the recollection of *Erythroxylum pervillei* to permit the advanced study by Dr. Kinghorn and his NCDDG group of the promising anticancer agent, pervilleine A, also stand out as an invaluable contribution to the NCI RAID (Rapid Access to Intervention Development) Program. He will be sorely missed by many as a friend and valued colleague.”

For his wife and five children, this great loss must be unendurable. We extend to them our deepest condolences. Dr. Rasoanaivo was indeed one of the greatest natural product researchers my home country of Madagascar has ever produced. ■

Dr. Rasoanaivo was well known for his work on endemic Madagascar medicinal and aromatic plants and played a major role in developing natural products research in his home country.

Conference Calendar

The *Newsletter* is pleased to announce the following upcoming conferences and meetings. The events portrayed here reflect what listings and notices the *Newsletter* has specifically received. For a more extensive calendar, please visit the ASP website at www.pharmacognosy.us. If you have a conference or event you would like mentioned, please send us relevant information, including any graphics or appropriate fliers, at asp.newsletter@lehman.cuny.edu.

**Society of Economic Botany
58th Annual Conference**

June 4-9, 2017

Polytechnic Institute of Braganca

Braganca, Portugal

us2.campaign-archive1.com/?u=7b5241ec2a609d26192947333&id=121610b3bf

Gordon Research Seminar:

Natural Products & Bioactive Compounds

July 29-30, 2017

Proctor Academy

Andover, New Hampshire

www.grc.org/programs.aspx?id=17477

**2nd International Conference and Exhibition
on Marine Drugs & Natural Products**

June 15-17, 2017

London, United Kingdom

<http://naturalproducts.pharmaceuticalconferences.com/scientific-program>

ASP Annual Meeting

July 29-August 2, 2017

Hilton Portland & Executive Tower

Portland, Oregon

asp2017.org/

**19th International Conference on
Natural Products**

June 28-29, 2017

Holiday Inn London-Wembley

London, United Kingdom

waset.org/conference/2017/06/london/ICNP

**254th American Chemical Society
National Meeting**

August 20-24, 2017

Washington D.C.

callforpapers.acs.org/dc2017





Brief News from Washington

By Dr. Georgia Perdue

- With much ballyhoo and bipartisan support, the two-year delayed **21st Century Cures Act passed Congress on December 7, 2016**. President Obama signed the bill on December 13, 2016. **The main architect of the bill was Representative Fred Upton (R-MI). The \$6.3 billion approved bill will dump \$4.8 billion into the National Institutes of Health (NIH), including \$1.8 billion for the Cancer Moonshot initiative at the National Cancer Institute (NCI). Also, funds within NIH will go to the Precision Medicine initiative, the “Brain Research” initiative, and regenerative medicine. The new bill also provides \$500 million to the Food and Drug Administration (FDA).** The bill had the support of several societies including the American Society of Clinical Oncology. The purpose of the bill has been, and is, to speed up both the development and approval of new drugs by FDA. [As I noted before, I hope NIH makes the best use of all this money and curbs the waste previously experienced in its War on Cancer effort].
- **At the December 8, 2016, joint meeting of the National Cancer Advisory Board (NCAB)/Board of Scientific Advisors (BSA), NCI Acting Director Dr. Douglas Lowy noted that “... NCI will benefit with the 21st Century Cures funding [and it] “will not impede other research we want to fund.” Dr. Lowy also said both the Senate and the House Appropriations Committee chairmen “want to give sustained increases to NIH ...not [just] one year wonders.”**
- Also at the NCAB/BSA December meeting, Dr. Dinah Singer noted, in reference to the Cancer Moonshot effort, **“we will engage the outside community, engage in public/private partnerships, e.g., universities, pharmaceutical companies etc.... Drugs from companies are coming along.”**
- After some FDA negative press, two former FDA Commissioners Drs. Mark McClellan and Andrew von Eschenbach, defended FDA's increased funding for approvals, saying FDA would continue to use high standards and processes and efficacy in their drug approval process.
- **Under the terms of the Cancer Moonshot bill, FDA complied with the “directive” to have an Oncology Center of Excellence which it launched the end of January, with Dr. Richard Pazdur as its director.** Its purpose is to review cancer related drugs, biologics and devices. **The center was also a requirement in the 21st Century Cures Act.**
- There was what some would consider negative press in the *Wall Street Journal* after the 21st Century Cures bill passed. The title alone speaks volumes: *Don't Thank Big Government for Medical Breakthroughs*, written by Dr. Tom Stossel, Professor Emeritus, Harvard University, and author of a book dealing with medical innovation. A couple worthy highlights: **Noting that NIH has lagged in funding for several years, he wrote, “... the extra \$4 billion... will have little effect on [NIH's] financial gap.”**
- At the December 8, 2016, NIH's Advisory Committee to the Director (ACD) meeting, **NIH Director Francis Collins noted that recommendations from the Precision Initiative Committee include having over one million participants in the “implementation phase” using sources such as health centers. Its launch is expected this spring.** At this same meeting **Dr. Collins said that for the Cancer Moonshot effort, NCI is “writing up RFAs for research totaling \$300 million.”**
- Also discussed at the ACD meeting was the age-old topic of **“losing new investigators,”** and how they spend over 40% of their time writing grant proposals. **“[M]id-investigators” are being pushed out. In 2007, the percent of new investigators “went way up as more new investigators were “brought into the fold.” “We are working with an unstable system which is hurting early and mid-career investigators,” added Dr. Collins. NIH is now focusing on both investigators and grants and funding more new investigators.**
- On January 11, 2017, NCI launched the new *NCI Formulary*, which will provide quicker access to approved and investigational agents to investigators at NCI-designated Cancer Centers for use “in preclinical studies and ... clinical trials.” The Formulary is a “public-private partnership between NCI, some NIH institutes, and pharmaceutical and the biotechnology companies.” The hope is that this effort will “expedite the start of clinical trials ...”
- **FDA Commissioner Dr. Robert Califf stepped down on January 20, 2017.** He is returning to Duke University. **Dr. Collins**

continued on page 18

continued from page 17

On February 10, 2017, President Trump had a meeting with heads of pharmaceutical companies. It was reported that the meeting covered topics such as the industry as a whole, the “high” prices of its drugs and the FDA. The President wants to get rid of a significant number of regulations. To that end, he ordered government agencies to eliminate at least two for each one proposed.

- has expressed a desire to remain in his position at NIH and President Trump asked Dr. Collins “to stay on for now,”** said National Institute of Allergy and Infectious Diseases (NIAID) Director Dr. Anthony Fauci at his January 30, 2017, Advisory Council meeting. Stay tuned.
- On February 21, 2017, NIAID issued a statement that a **vaccine, PfSPZ, developed by Sanaria Inc., Rockville, Maryland, protected a small number of healthy US adults from infection with a malaria strain different from that contained in the vaccine.** The vaccine “contains weakened *P. falciparum* sporozoites that do not cause infection but ...[can] generate a protective immune response against live malaria infection.” The vaccine had been tested in the NIH Clinical Center earlier in healthy US adults and “found to be safe, well tolerated and protective for more than a year....”
 - Compared to 2015 with 45 FDA approved drugs, 2016 saw only 22 new drug approvals!
 - **On February 10, 2017, President Trump had a meeting with heads of pharmaceutical companies. It was reported that the meeting covered topics such as the industry as a whole, the “high” prices of its drugs and the FDA. The President wants to get rid of a significant number of regulations. To that end, he ordered government agencies to eliminate at least two for each one proposed.**
 - Over a year ago at the NIH clinical center, two vials of medicine were found to contain a fungus. Naturally, trials were halted and the NIH director came under heavy fire. Dr. Collins ordered a review which found no patients had been harmed. But, the story does not end there. **On December 9, 2017, Dr. Collins announced that retired Major General James Gilman, an MD (cardiologist), would take the reins in January 2017 as executive officer of the beleaguered clinical center.** It is expected that Dr. Gilman will put the clinical center back on track and even improve it.
 - **The President’s hiring freeze for the Federal government has many in a tizzy. However, that is nothing new. Washington is used to new administrations ordering such freezes.** Time will tell.
 - Dr. Fauci noted at his January Advisory Council meeting that Senator Thad Cochran (R-MS) has taken the helm of the Appropriations Committee after Senator Barbara Mikulski (D-MD) retired. The similar House committee is now chaired by Representative Rodney Frelinghuysen (R-NJ). **He considers these chairmen as NIH friendly.** Dr. Fauci also mentioned that competing initiatives have been cut back 10%; the estimated success rate is 20-22%.
 - **On a completely different and lighter note: Mr. Yo-Yo Ma, the world renowned cellist, visited NIH in early December 2016. Dr. Collins, a highly respected guitar player, and Dr. Fauci were involved in the visit.**
 - As for **antibiotic resistance**, NIAID research is focusing on manipulating microbial communities, e.g., with live biotherapeutics and bacteriophages. NIAID’s antivirulence strategies include antitoxins.
 - **“Medicinal Mushrooms” are in the news. Evidently, active ingredient psilocybin, a hallucinogen isolated from certain mushrooms, is helping cancer patients with “mood and anxiety.”** An NCI statement noted that “[more 100 species of] medicinal mushrooms have been used for hundreds of years... in Asian countries” to treat infections... and [in recent years to treat] pulmonary diseases and cancer. **Five species of interest: *Ganoderma lucidum*, *Trametes versicolor* (also known as *Coriolus versicolor*), *Lentinus edodes* and *Grifola frondosa*.** For more details, see *Journal of Psychopharmacology*, December 1. Please access the original article at: <http://journals.sagepub.com/doi/full/10.1177/0269881116675754>.
 - Late last year, **Senator Jeff Flake (R-AZ) reported in his “2017 Wastebook” that 25 agencies have “boondoggles ... in all shapes and sizes in 25 different agencies.”** NSF’s funding for a study using fish on a treadmill and other similar fish research were quoted by the Senator. He is hoping for some budget tightening!
 - On February 17, 2017, NCI sent out an “Update....” re: **Cancer Moonshot. NCI has identified additional Funding Opportunity Announcements (FOAs) within its “funding portfolio” in line with the Moonshot goals.** Last December, NCI had already singled out FOAs in Moonshot’s infancy. [For more details, see NCI’s website: <https://www.cancer.gov/grants-training/grants/funding-opportunities>.]
 - NCI sent out a notice through its Physician Data Query (PDQ®) Health Professional Version on February 21, 2017, that **mistletoe was in the news again as a cancer treatment. The plant, *Viscum album*, is commonly used in some European countries. “Mistletoe is one of the most widely studied CAM therapies for cancer.” This plant, and preferably the active ingredient, needs to be studied, as with all other plants, in well-designed clinical trials. ■**

UIC Transfers Farnsworth Archives to Lloyd Library

By Ms. Devhra BennettJones

The University of Chicago (UIC) officially transferred the late Professor Norman R. Farnsworth's archives to the Lloyd Library on January 25, 2017. This multi-year endeavor demonstrated the veneration in which Dr. Farnsworth's scientific acumen and integrity is held by his colleagues at UIC. This effort engaged Dr. Farnsworth's widow, Mrs. Priscilla Farnsworth, and Drs. Guido Pauli, James Graham, Harry Fong, Jerry Bauman, Mr. Dale Rush, and Mr. Christopher Shoemaker.

The archives of Dr. Farnsworth (1930-2011) chronicle the iconic career of an exceptional pharmacognosist. He was the third of four children born to Mr. Lee and Ms. Zelma Farnsworth of Lynn, Massachusetts. There he grew up and married his cherished wife of 58 years, Priscilla Marston Farnsworth. He was an awarded Army veteran of the Korean conflict, where he served from November 1950-July 1951. After returning to the US, under the direction of Dr. Heber Youngken, Dr. Farnsworth earned Baccalaureate and Master's degrees at Massachusetts College of Pharmacy and Health Sciences (now the Massachusetts College of Pharmacy and Health Sciences University), Boston, Massachusetts. He earned a PhD from the University of Pittsburgh, Pittsburgh, Pennsylvania, in 1959, where he helped establish their Pharmacognosy PhD program. In 1970, Dr. Farnsworth became head of the Department of Pharmacognosy and Pharmacology in the College of Pharmacy at UIC.

As early as the 1960s, he demonstrated his pivotal role in developing the field of pharmacognosy. Farnsworth was a founding member of the ASP and was among the first scientist delegations to the People's Republic of China. Dr. Farnsworth held leading positions in the World Health Organization and on numerous national committees and panels. At UIC, he was the founding director of the Program for Collaborative Research in the Pharmaceutical Sciences (PCRPS). From his base at UIC, Dr. Farnsworth mentored the academic development of over 130 graduate students, and scores of post-doctoral associates. In the 1970s, he made an indelible mark with the establishment of NAPRALERT, the world's original computerized bibliographic database about clinical trials of natural products.¹ In addition to his professional



The Farnsworth Archives.

excellence, Farnsworth was well-known for his sense of humor, kindness, Marsh Wheeling cigars, and outspoken opinions.

Drs. Pauli and Graham described the significance of the Farnsworth archives:

The Norman R. Farnsworth materials donated to Lloyd Library present an exceptional glimpse into the life and times of our esteemed colleague and co-conspirator in Pharmacognosy, Norman R. Farnsworth. The collection contains more than five decades worth of personal correspondence, research reports, professional papers and a cornucopia of unique items pertinent to Norm's long career in Pharmacognosy.

The lion's share of the collection reflects his singular devotion to documenting and indexing the natural products literature, with a large volume of material including items from several key early bibliographic references in Natural Product investigations, the Lynn Index and Pharmacognosy Titles, as well as of his Magnum Opus, the NAPRALERT database. These documents span a time that saw both a technological revolution and an expo-

continued on page 20

In the 1970s, he made an indelible mark with the establishment of NAPRALERT, the world's original computerized bibliographic database about clinical trials of natural products. In addition to his professional excellence, Farnsworth was well-known for his sense of humor, kindness, Marsh Wheeling cigars, and outspoken opinions.

The Lloyd Library: Official Archives of the American Society of Pharmacognosy

continued from page 19

nential expansion of research publications, and the material objects in the collection reflect this transition- from file cabinets full of index cards to the “virtual” stage of science, where data and information are becoming instantaneously accessible. Norm’s vision, dating back to a pre-internet world- and his careful collection and computerization of data from nearly 200,000 natural product literature citations made during his career- is an invaluable resource for the present day, and beyond. NAPRALERT provides us with a means to rapidly evaluate and contextualize the ever-increasing information -both scientific and popular- on natural products.

The NRF materials present insight into Norm’s professional relationships and personal accomplishments, and the impact of one Pharmacognosist’s work- “for the good of the order.” Having the Lloyd Library curate these is a great step forward. These archives will thus be available to historians of all stripes, but they also serve to move Norm’s legacy forward in a meaningful way here at the University of Illinois at Chicago College of Pharmacy. We are honored to continue Norm’s work, especially in enhancing and improving NAPRALERT (www.napralert.org) as a key resource for bioactive natural products researchers, the ASP community, and colleagues worldwide.

We owe a debt of gratitude to the Lloyd Library, as well as to the Department of Medicinal Chemistry and Pharmacognosy and the Office of the Dean at the College of

Pharmacy, UIC, and especially to Priscilla Farnsworth and the Farnsworth family for their cooperation and support.²

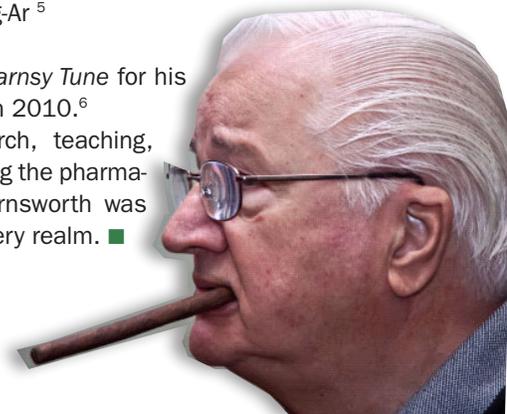
Dr. Farnsworth’s UIC colleagues demonstrated their admiration for him on multiple occasions. At his 70th, 75th, and 80th birthday parties they roasted Dr. Farnsworth with satire honoring his career and wit.³ In 2000, a group of graduate students expressed their esteem for him as a scientist and an individual through an adaptation of the Village People’s *Y.M.C.A.*⁴

Young man, born in Nineteen-Thirty
I said, young man, today you turn Seven-Ty
I said, young man | you should be feeling’ free...
Grand Old Man of Pharma-Cognosy

Young man, are you listening to us?
I said, young man | we have all heard you cuss
We know | You Never Are Far...
When We Smell Your Cig-Ar⁵

Dr. Graham wrote *The Farnsy Tune* for his 80th birthday celebration in 2010.⁶

Whether it was research, teaching, writing, editing, or compiling the pharmacognosy literature, Dr. Farnsworth was an iconoclast leader in every realm. ■



**Whether it was research, teaching, writing, editing,
or compiling the pharmacognosy literature,
Dr. Farnsworth was an iconoclast leader in every realm.**

¹ Lynn, Eldin V. *The Lynn Index: a bibliography of phytochemistry. Volumes 1-5.* Boston: Massachusetts College of Pharmacy, 1957. Farnsworth, Norman R. *The Lynn Index: a bibliography phytochemistry. Volumes 6-8.* Boston: Massachusetts College of Pharmacy, 1969-1974.

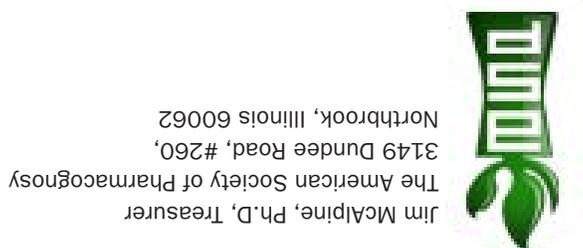
² Graham, James and Guido F. Pauli. “The Significance of NRF materials”, January 31, 2017.

³ Numerous individuals facilitated the birthday celebrations. Among the supporters were Christina Encina, Daniel Fabricant, Priscilla Farnsworth, Harry Fong, James Graham, Gwen Haney, Elizabeth Hoffman, Gail Mahady, Diane Mims, Guido Pauli, John Pezzuto, Jacinto Regalado, Jr., Jacqueline Richardson, Elizabeth Ryan, and Stacey Whitehill.

⁴ Excerpt of adaptation of the Village People, 1978 YMCA music video, <https://www.youtube.com/watch?v=QINoUyrPOBI>, October 13, 2016.

⁵ American Society of Pharmacognosy Collection, Box 1, Folder 8, March 24, 2000, Lloyd Library & Museum, Cincinnati, Ohio.

⁶ Graham, James. *The Farnsy Tune*, <https://www.youtube.com/watch?v=LbPCAeiLFO0>, May 14, 2011.



Jim McAlpine, Ph.D, Treasurer
The American Society of Pharmacognosy
3149 Dundee Road, #260,
Northbrook, Illinois 60062

ASP Membership

Full Membership

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

Current membership dues and Journal of Natural Products subscription rates can be found at www.pharmacognosy.us.

Associate Membership

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

Current membership dues and Journal of Natural Products subscription rates can be found at www.pharmacognosy.us.

Emeritus Membership

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

Current membership dues and Journal of Natural Products subscription rates can be found at www.pharmacognosy.us.

Honorary Membership

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

Present Honorary Members are:

Dr. John H. Cardellina · Dr. David P. Carew, University of Iowa · Dr. John M. Cassady, Oregon State University
Dr. Geoffrey A. Cordell, University of Illinois at Chicago
Dr. Gordon C. Cragg, National Institutes of Health · Dr. Harry H.S. Fong, University of Illinois at Chicago
Dr. William Keller, Nature's Sunshine Products, Inc. · Dr. A. Douglas Kinghorn, Ohio State University
Dr. Robert J. Krueger, Ferris State University · Dr. Roy Okuda, San Jose State University
Dr. James E. Robbers, Purdue University · Dr. Yuzuru Shimizu, University of Rhode Island
Dr. E. John Staba, University of Minnesota · Dr. Otto Sticher, Swiss Federal Institute of Technology
Dr. Hildebert Wagner, University of Munich · Dr. Mansukh Wani, Research Triangle Institute

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

Jim McAlpine, PhD, Treasurer, The American Society of Pharmacognosy,
3149 Dundee Road, #260, Northbrook, Illinois 60062. Email: jim4asp@gmail.com