



THE AMERICAN SOCIETY OF PHARMACOGNOSY

The ASP Newsletter Volume 47, Issue 2



We look forward to seeing you at the Paradise Point Resort & Spa



The 52nd ASP Annual Meeting: Paradise Awaits

by Drs. Bill Gerwick, Bill Fenical, Brad Moore, and Alban Pereira Badilla

On behalf of the ASP 2011 Organizing Committee, we look forward to seeing you at the Paradise Point Resort & Spa in San Diego, California, for the 52nd Annual Meeting of the ASP from July 30-August 3, 2011. We have an amazing venue, and an exceptional lineup of plenary and invited speakers, workshops, and much more.

The rate is now \$239 per night for Saturday through Wednesday evenings of the conference week. This is a \$50 per night savings from our originally advertised price! Also, the hotel will offer the membership a rate of \$279 for three days prior to and after

the conference. The scientific sessions will explore cutting edge research by world leaders in various dimensions of the natural products sciences, and are: entitled Plant Natural Product Genetic Engineering, Mechanism of Action of Bioactive Natural Products, Dietary Supplements/Botanicals, Natural Product Chemical Ecology, Microbial Biosynthesis, "Omic" Approaches to Natural Product Discovery, New Frontiers in Marine Natural Products, and Natural Product Synthesis.

We will also offer two workshops on Saturday, July 30. The first *continued on page 3*

IN THIS ISSUE WINTER 2011

FEATURES

The 52 nd ASP Annual Meeting	1
JNP Honors Dr. Koji Nakanishi in Special Issue	4
The 2010 Schwarting and Beal Awards	5
Japan in Recovery	7
Dr. Eisner & Dr. Fales Remembered	11

DEPARTMENTS

Editor's Corner	2
ASP Looks Forward to New York City in 2012	6
Behind The Scenes: Seeram Discovers the Taste of Success in Maple Syrup	8
New ASP Member, Ms. Emma Barnes	10

New Members of ASP	15
Brief News from Washington	12
From the Archives Koji Nakanishi and the Magic of Chemistry	15
Conference Calendar	17

EDITOR'S CORNER



I am writing this on the first day of summer, with rainy and cool weather in New York City; I am already anticipating the 2011 Annual Meeting in San Diego, sure to be filled with great science and abundant sun. The organizers have put together a great program that you can read more about in this issue of the *Newsletter* and at www.asp2011.com.

The organizing committee has an exciting group of scientific sessions, including Plant Natural Product Genetic Engineering, Mechanism of Action of Bioactive Natural Products, Dietary Supplements/Botanicals, Natural Product Chemical Ecology, Microbial Biosynthesis, "Omic" Approaches to Natural Product Discovery, New Frontiers in Marine Natural Products, and Natural Product Synthesis. Also a range of

entertainment options in San Diego beyond the conference are provided in this issue of the *Newsletter*.

My thoughts go out to the more than 50 ASP members from Japan who have felt the impact of the March earthquake and ensuing nuclear disaster. Dr. Yoko Saikawa describes the effects of the quake both for natural products researchers and the fragile ecological environments that house Japan's biodiversity. Our thanks go to Dr. Saikawa for this poignant article.

Our regular columns continue to be an important part of our *Newsletter* coverage. 'From the Archives' looks at Dr. Koji Nakanishi's magical activities. Dr. Georgia Perdue continues to keep ASP members updated about news from Washington, including new initiatives from NIH-NCCAM and the impact of the America Invents Act on United States patents.

'Behind the Scenes in Pharmacognosy' features work done by ASP member Dr. Navindra Seeram on compounds from maple syrup that may be beneficial to human health. You can now feel smarter about using natural maple syrup on your pancakes! I was also pleased to see Dr. Seeram featured prominently in a television advertisement for the University of Rhode Island while watching Comedy Central's 'Colbert Report' several months ago. Congratulations on your sweet success, Dr. Seeram!

This issue, we welcome new ASP Associate Member Ms. Emma Barnes, a doctoral student from Griffith University in Brisbane, Australia, and learn about her passion for research, art, and off-beat movies. We are also saddened to report the deaths of two people known to many ASP members, Drs. Thomas Eisner and Henry (Hank) Fales. Dr. Fales' trip with famed ethnobotanist Dr. Richard Schultes to the Amazon in order to study natural products, with a mass spectrometer strapped onto a boat, sounds like a scene straight from a Hollywood script!

I look forward to our Annual Meeting in San Diego for a chance to catch up with the Society in a wonderful and relaxed location. The *Newsletter* wishes all our members a fun and productive summer season.

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/?page_id=163

NEWSLETTER STAFF

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

Amy C. Keller
Assistant Editor

Nancy Novick
Design & Production

The contribution deadlines are:

Spring Issue Feb. 15
Summer Issue May 18
Fall Issue Aug. 18
Winter Issue Nov. 17

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

The 52nd ASP Annual Meeting

continued from page 1

workshop is entitled 'Methods, Optimal NMR Techniques and Approaches to Structure Elucidation of Natural Products' and will be held from 9 a.m. to 1:30 p.m. This workshop will be instructed by Dr. Mark O'Neil-Johnson from Sequoia Sciences, St. Louis, Missouri, and Dr. Joshua Hicks of Bruker Biospin. Coffee break and lunch are included in this event and the registration fee is \$25.

The second workshop, entitled Cell-Based Bioassays and Pharmacology of Natural Products, will be from 2 pm to 4 pm and instructed by Drs. Babu Tekwani, Shabana Khan, and Narayan D Chaurasiya of the University of Mississippi, University, Mississippi. This workshop will have four modules, (1) general principles of cell-based assays (2) anticancer and cytotoxicity assays, (3) antiparasitic and antiprotozoal assays- malaria, leishmania, and trypanosomes, and (4) neuritogenesis and neuritic outgrowth assays. The registration fee is \$25.

Key Dates:

July 1, 2011 - Last day for online and receipt mail-in registrations. After this date, please plan to register onsite.

July 30, 2011 - Onsite registration opens at Paradise Point Resort & Spa. Late registration fee in effect.

Sight-seeing

San Diego is packed with world-famous fun activities and exciting attractions for the whole family, including Sea World (www.seaworld.com), San Diego Zoo (www.sandiegozoo.com), San Diego Zoo Safari Park (www.szdsafaripark.org), and Legoland California (www.legoland.com).

You may prefer to leisurely stroll and window-shop in downtown San Diego's Seaport Village (www.seaportvillage.com). Enjoy a laid-back day of hanging out in the grass and watching the many passing yachts and ships on picturesque San Diego Bay. You can also stroll through the 16-block historic Gaslamp Quarter (www.gaslamp.org) and view the renovated turn-of-the-century Victorian architecture; this neighborhood houses boutiques, art galleries, specialty shops and more. Balboa Park (www.balboapark.org), right in the heart of downtown, possesses a wide variety of offerings including 15 museums and spectacular gardens. Finally, do not forget to visit Old Town (www.oldtownsandiegoguide.com) and witness the living legacy of San Diego history.

Dining

With hundreds of restaurants and every type of cuisine imaginable, San Diego offers something for individual tastes and all price ranges. From modest takeout establishments to four-star dining rooms, it is possible to find great food at every turn. Below you can find the 10 best rated overall dining experiences in San Diego, according to sandiegorestaurants.com. In addition to restaurants, The Mission and The Broken Yoke come recommended for breakfast seekers. Also, Mission Bay Surfside Sushi is advised for seafood lovers.

NAME	CUISINE	LOCATION
Truluck's	Seafood	La Jolla & UTC (www.trulucks.com)
Bertrand at Mister A's	American	Downtown (www.bertrandatmisteras.com)
Baci Ristorante	Italian	Old Town (www.sandiegobaci.com)
Primavera Ristorante	Italian	Coronado (www.primavera1st.com)
Mille Fleurs California	California	North County Inland (www.millefleurs.com)
The Melting Pot	American	Downtown (www.themeltingpot.com)
Donovan's of La Jolla	Steak	La Jolla & UTC (www.donovanssteakhouse.com)
George's California Modern	California	La Jolla & UTC (www.georgesatthecove.com)
Donovan's of Downtown	Steak	Downtown
Firenze Trattoria	Italian	North County Coastal (www.firenzetrattoria.com)

Other recreation recommendations

Having fun in San Diego does not require a lot of money. Many things to see and do here are absolutely free. You can:

- Head to San Diego's many beaches, all free to the public.
- Visit La Jolla Cove and see the magnificent sunset on the ocean.
- Take a scenic, one-hour drive to Mt. Laguna. Once there, hop out for an invigorating hike and fresh mountain air.
- Step back in time with a stop in Julian, a century-old gold mining town in the Cuyamaca Mountains. Enjoy a slice of home-made apple pie – a Julian specialty!
- Explore the tidepools of Cabrillo National Monument in Point Loma, where you can find flowery anemones, scampering shore crabs, elusive octopus, spongy deadman's fingers, and many other magnificent sea creatures.
- Drive to the top of Mt. Soledad in La Jolla for breathtaking, 360-degree views of San Diego, including the gently curving La Jolla coastline and Mission Bay.

We look forward to seeing you in San Diego for what promises to be an exciting meeting for all!

JNP Honors Nakanishi in March Special Issue

by Dr. Amy Keller

The March 2011 issue of the *Journal of Natural Products* was in honor of ASP member Dr. Koji Nakanishi. This honorary issue contains six contributed reviews, 19 full papers, eight notes, and one communication. ASP member Dr. Michael Tempesta and Dr. Hung-wen Liu added a touching tribute editorial outlining Dr. Nakanishi's life and contribution to the science of natural products.

When asked how he felt about this honor, Dr. Nakanishi told the *Newsletter*, "Needless to describe is my gratitude for being honored with such a special issue. I thank the *Journal*, the Editor-in-Chief Dr. Doug Kinghorn, guest editors Drs. Mike Tempesta and Ben Liu, and the authors of the six reviews, as well as all contributors for their articles. I am grateful to Dr. Nina Berova, who since 1988 has been the central person here in research, and of course to all colleagues in Nagoya, Tokyo, and Sendai in Japan and in New York in the United States for their research ideas, dedicated work, and the results. I appreciate the support of past and present faculty members who have made my academic life most pleasant. I am most grateful to Yasuko who had kept up with my academic as well as private life since 1947. Our research has been very generously supported by national and private agencies in Japan and the United States."

Professor Nakanishi was born on May 11, 1925, in Hong Kong. He earned B.Sc. and Ph.D. degrees in Chemistry in Nagoya, Japan, and did postgraduate work at Harvard.

After receiving his Ph.D., Dr. Nakanishi stayed at Nagoya as an Assistant Professor of Chemistry until 1958, when he moved to Tokyo Kyoiku University in Tokyo, Japan, as a Full Professor. He was recruited to Tohoku University at Sendai, Japan in 1963, and began his career at Columbia University in New York City in 1969. Dr. Nakanishi has mentored over 550 graduate



students and postdoctoral fellows, and published more than 800 papers. He has also authored, co-authored, and edited many useful books, including the Natural Products Chemistry Academic Press series *Comprehensive Natural Products Chemistry* and several other textbooks spanning over 50 years. In addition to being an exceptional scientist, Dr. Nakanishi is also an accomplished magician! (Please see our "From the Archives" article in this issue.)

Upon being asked about his proudest achievement, Dr. Nakanishi mentioned that it was "to have worked with around 700 motivated graduate students, postdocs and visiting scientists, who are now in leading positions in natural products and bioorganic chemistry."

ASP President John Beutler reminisced about Dr. Nakanishi. "I remember my first ASP meeting. It was 1980 in Boston, a joint meeting with the Society of Economic Botany (SEB). I was a first year postdoc and Koji gave a plenary lecture; I think I was running the slide projector for the session, and the thing that stuck with me was his comment that we (the Society) had an enormous opportunity with our chemical and biological tools and knowledge of organisms to explore all sorts of questions in science. His work in vision chemistry is one example – far beyond what the classical idea of pharmacognosy would be. Another area that he worked in became known as chemical ecology, or the usefulness of compounds to the organism that produced them. The first application of the nuclear Overhauser effect to natural products? That was Koji (*Chem Comm* 1201, 1967). What makes Koji and his work so great is that he has never gotten bogged down in disciplinary boundaries or expectations, always testing new techniques. He is one of my main heroes!" ■

Drs. Tempesta and Liu contributed to this article.

The 2010 Arthur E. Schwarting and Jack L. Beal Awards

By Drs. A. Douglas Kinghorn and Amy Keller

The winners of the 2010 Arthur E. Schwarting and Jack L. Beal Awards for best papers in the *Journal of Natural Products* have been announced. The paper entitled, "The Hoiamides, Structurally Intriguing Neurotoxic Lipopeptides from Papua New Guinea Marine Cyanobacteria" by Hyukjae Choi, Alban R. Pereira, Zhengzu Cao, Cynthia F. Shuman, Niclas Engene, Tara Byrum, Teatulohi Matainaho, Thomas F. Murray, Alfonso Mangoni, and William H. Gerwick (*J. Nat. Prod.* 2010, 73, 1411-1421) has been chosen for the Schwarting Award.

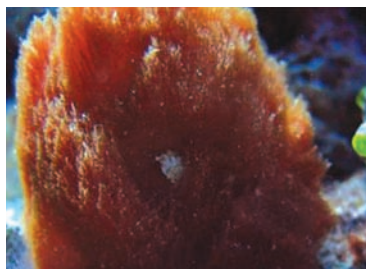
Corresponding author ASP member Dr. Gerwick told the *Newsletter*, "On behalf of my co-authors and myself, we are all very honored by this award. The last few years we have been trying in a very focused way to integrate several different disciplines in our research efforts, and the hoiamide paper is a good example. In this work, we discovered these new and quite complex molecules as a result of a bioassay-guided neuromodulatory screen, and then used a wide range of techniques to work out their complete stereostructures. The neuropharmacologists on the project, Drs. Zhengyu Cao and Thomas F. Murray, then went on to describe some of the molecular pharmacological properties of these metabolites at the voltage gated sodium channel. Through interdisciplinary approaches which included analytical chemistry, spectroscopy, pharmacology, molecular biology, and phylogenetics, we are gaining some interesting perspectives on the fantastic biosynthetic capacities of marine cyanobacteria. To have the flagship journal of the premier society for natural products chemistry in the United States (and world!) evaluate our work in this way is exceptionally gratifying to us all!"

The Beal Award is shared between two papers: "Phantasmidine: An Epibatidine Congener from the Ecuadorian Poison Frog *Epipedobates anthonyi*" by Richard W. Fitch, Thomas F. Spande, H. Martin Garraffo, Herman J.C. Yeh, and John W. Daly (*J. Nat. Prod.* 2010, 73, 331-337) and "4-Formylaminoxyvinylglycine, an Herbicidal Germination-arrest Factor from *Pseudomonas* Rhizosphere Bacteria" by



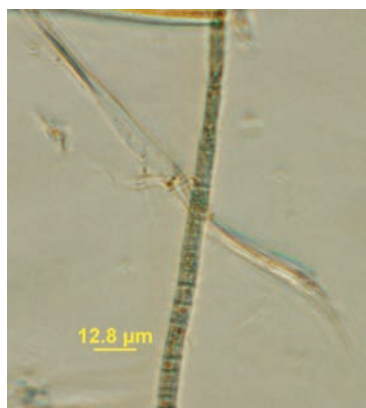
Epipedobates anthonyi.

CHARLES MYERS



A macro-picture of one of the strains producing the hoiamides.

DR. LUKE SIMMONS



A microscopic image one of the strains producing the hoiamides.

NICLAS ENGENE

Kerry L. McPhail, Donald J. Armstrong, Mark D. Azevedo, Gary M. Banowitz, and Dallice I. Mills (*J. Nat. Prod.* 2010, 73, 1853-1857).

ASP member and corresponding author Dr. Fitch related, "My coauthors and I are deeply honored to have received this award.

We are excited about the biological potential of phantasmidine and look forward to upcoming results with synthetic material. Our pleasure is of course tempered by our regret that John Daly is not here to share in the award. However, we think he would be pleased and believe this award reflects the importance of his lifelong devotion to science. As it is with all natural products work, it is the synthesis of expertise in a collaborative team that leads to discoveries like phantasmidine. Herman Yeh did an outstanding job with the near Herculean task of obtaining full 1D and 2D NMR data on the ~12 ug sample of phantasmidine. Martin Garraffo expertly sorted through the MS and IR data with a combination of in-situ derivatization techniques, deuterium exchange, and deduction and was the first to propose the correct structure as well as give the compound its name. Tom Spande was also heavily involved in the MS interpretation as well as aiding me with working out the purification of phantasmidine with a combination of semi-preparative HPLC, correlated with LC-UV-MS.

Dr. Fitch went on to acknowledge the late ASP member Dr. Daly's contributions to the paper. "John of course collected the frogs, but was no figurehead on this paper. John was actively involved in the structure elucidation and pharmacology work right up until his death in 2008. Tom and Martin also deserve credit for carrying on the outstanding work of the laboratory after John's passing, particularly in the face of increasing pressure to close down the program at NIH. I am deeply indebted to them for their collaboration and friendship. I am very fortunate to have had the experience of working with such a talented and dedicated group of scientists. Again, we thank the ASP for this award and look forward to the frog program bearing more fruit in the coming years," he noted.

ASP member and corresponding author Dr. McPhail mentioned to the *Newsletter*, "We are surprised and absolutely delighted to receive this award! In particular for this project, it is most gratifying because working with very small hydrophilic products has been challenging for us."

continued on page 6

The 2010 Arthur E. Schwarting and Jack L. Beal Awards

continued from page 5

In 2001, the Foundation Board of the American Society of Pharmacognosy began a new initiative as a result of the Arthur E. Schwarting and Jack L. Beal Awards for best papers in the *Journal of Natural Products*. In this manner, two former distinguished

editors of the *Journal* are fondly remembered. The Schwarting Award is open to all papers published in the *Journal* within a given year (either in print or electronically). In turn, the Beal Award is awarded to younger investigators, persons within 12 years of receiving their Ph.D. degree or within 10 years of gaining their first professional appointment such as Assistant Professor or an equivalent position in industry or government. A two-tier process was used to determine the winners for papers published in the *Journal* in 2010, with editors and ASP members Drs. Daneel Ferreira, A. Douglas Kinghorn, Richard G. Powell, and Philip J. Proteau having nominated two papers each for the Schwarting



The effect of the compound "GAF" on annual grassy weeds.

Award and one each for the Beal Award. ASP member Dr. Cedric Pearce, who became a new Associate Editor for the *Journal* in mid-2010, provided one selection each for the Schwarting and Beal Awards. ASP President John Beu-

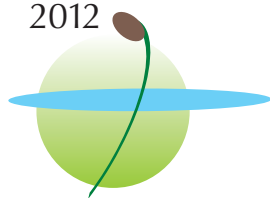
tlter then appointed an ad hoc committee (ASP members Drs. Ben Shen, Chair, Shmuel Carmeli, and Mark Hamann) to make the final selections.

The corresponding authors of these papers will be invited to attend the Banquet at the 52nd Annual Meeting of the American Society of Pharmacognosy, to be held in San Diego, California, July 30-August 3, 2011, to receive a check and a plaque in honor of this achievement. The above-mentioned papers may be accessed freely from the home page of the *Journal of Natural Products* (pubs.acs.org/JNP). Congratulations to Drs. Gerwick, Fitch, and McPhail and their co-authors! ■

ASP Looks Forward to New York City in 2012

by Dr. Guy Carter

ICNPR
International
Congress for
Natural Products
Research
2012



Planning for the 2012 International Congress on Natural Products Research (2012 ICNPR), which will be held in New York City during July 28-August 1, 2012, is well underway. The 2012 ICNPR is the 8th joint meeting sponsored by the ASP and our sister societies from Europe, the Italian Society of Pharmacognosy (SIF), the Society for Medicinal Plant Research (GA), the Phytochemical Society of Europe (PSE) and the Pharmacognosy

Society of French Speaking Persons (AFERP). The Scientific Organizing Committee is building a highly diverse and stimulating program that includes all aspects of natural products research.

In addition to the traditional themes of natural product discovery, isolation, structure determination, synthesis, biosynthesis and pharmacology, we are planning sessions devoted to the promise of biodiversity, ethnobotanical processes for drug discovery, new technologies for natural products research and a case study of natural product drug discovery and development.

We have plans to bring together an outstanding and diverse group of scientists who are at the forefront of their areas of research as well as featuring sessions that highlight the accomplishments of our younger scientists and students.

Some other planned highlights of the scientific program include award presentations by each of the participating Societies, a panel discussion on the future of pharmacognosy, and a symposium in recognition of the publication of the 75th volume of *The Journal of Natural Products*.

Our venue in Manhattan is the Grand Hyatt Hotel adjacent to Grand Central Station. This exciting location is in the heart of Manhattan and offers ready access to many of New York's most famous attractions (www.grandnewyork.hyatt.com). A combined scientific and social function has been planned at the New York Botanical Garden (www.nybg.org) on Sunday evening that will provide participants a unique and personalized tour of the Garden. For further information about the conference please consult our website (www.pharmacognosy.us).

Although it is still a work in progress and much more planning of the scientific program remains, it is already clear that this will be a truly outstanding conference that highlights natural products research. ■

Japan in Recovery

by Dr. Yoko Saikawa

Editor's Note: In an effort to investigate how the recent earthquake and tsunami have affected natural products research in Japan, we turned to ASP member Dr. Taichi Inui's former advisor Dr. Yoko Saikawa. Dr. Saikawa, Assistant Professor at the Department of Applied Chemistry, Faculty of Science and Technology at Keio University in Tokyo, brings us up to date on the state of natural products research recovery in Japan. The Newsletter wishes all our Japanese colleagues, including ASP's 51 members in Japan, a speedy return to normal.

On March 11, 2011, a magnitude 9.0 earthquake hit Tohoku, in the northeast of Japan. Following the earthquake itself, a tsunami hit killing over 23,000 people and destroying many coastal houses, plants, institutes, and nuclear power facilities.

From the viewpoint of natural products chemistry, the earthquake caused such grave damage that the environmental impact will be dramatically altered for some time. We have already lost many plant and marine species due to serious pollution, and it will

likely take several decades to recover them. Marine natural products chemistry has been a very active research field in Japan, an island nation surrounded by ocean, but the damage on organisms near the affected coast is inestimable.

In response to these disasters, ASP President John Beutler told the *Newsletter*, "It is a relief to know that apparently none of the 50-plus current Japanese members of the ASP were in the direct path of the tsunami; however, the devastation wrought by the earthquake and tsunami have certainly had a huge effect on everyone's life in Japan. All ASP members wish our Japanese colleagues well as the country grieves and rebuilds from the tragedy."

The Tohoku area, located in the northwest part of the island Honshu, has frequently experienced moderate tremors, and a 7.2 magnitude earthquake had occurred on March 9, 2011, just two days prior to the 9.0 earthquake.

"When I felt the [March 11th] quake, I thought this was a usual one. But as the quake became bigger, I said to myself that this is unusual. I immediately told students in our lab to switch heaters off and to leave the room. The maximum quake hit us shortly after that," Dr. Naoki Kanoh, Associate Professor, Graduate School of Pharmaceutical Sciences Department of Pharmaceutical Chemistry at Tohoku University related to me.

Professor Kanoh's laboratory focuses on organic synthesis and development of organic reactions for the pharmaceutical research,



Dr. Kanoh's laboratory in Tohoku University after the earthquake.

DR. NAOKI KANOH

and therefore there are many reagents and solvents in the laboratory. Nevertheless, his lab and his department had no injuries. "Thinking back now, the quake on March 9 became a good rehearsal for us. All people could act exactly like an emergency drill and could correctly perform the first response to the quake."

After the quake, it took a month to recover services to the laboratory, especially gas. By June, 2011, Professor Kanoh has completed the repair of almost all equipment

and restarted the research. "The damage of our lab was less than the others; students in other laboratories here are still working at other institutions. But anyway, we all brightly brace ourselves! We would like to announce to the world that Tohoku University is recovering well."

Natural products chemists lament the devastation of ecosystems in Japan brought about by this powerful earthquake. Houses and buildings were reduced to piles of rubble and plant and marine species were devastated. Further, radioisotopes spilled from damaged nuclear plants, gasoline, and oil are also a problem. These pollutants will take long time to remove; it seems to be "spilled milk." I believe patient and positive Japanese chemists can help the long-term healing of Japan's environment through bioremediation and other cutting edge methods.

Even in my university in the Tokyo metropolitan area, about 200 km away from the quake's epicenter, we suffered from aftershocks and blackouts. Over 200 students stayed up all night in the university. Due to concern about the power shortage in coming hot and humid summer in Japan, we are now experiencing brownouts. The researchers and the students in Tohoku University have been encouraged to be positive and energetic, and we continue our work cheerfully, even in inconvenience.

As Dr. Kanoh said, we Japanese are thinking positively and are moving forward in our recovery. We thank the people in the world for their concern and help for Japan. ■

Behind The Scenes: Seeram Discovers the Taste of Success in Maple Syrup

by Dr. Amy Keller

ASP member Dr. Navindra Seeram has received considerable publicity this year on several fronts. His work on medicinally beneficial compounds from maple syrup has been featured in a number of popular press articles, such as ScienceDaily (<http://www.sciencedaily.com/releases/2010/03/100321182924.htm>). A commercial for the University of Rhode Island that features Dr. Seeram, "What's Your Big Idea?," was used in television spots in the Northeast. The Newsletter interviewed Dr. Seeram about his new publication in the Journal of Functional Foods entitled "Quebecol, a novel phenolic compound isolated from Canadian maple syrup." Please read the full article in the Journal of Functional Foods, 2011, 3(2), 125-128, and visit Dr. Seeram's website (www.uri.edu/pharmacy/departments/bps/faculty/seeram.shtml).



MR. J. PETER MORGAN

The maple tree (*Acer* spp.) from which syrup is derived.



How did you become interested in maple syrup and their bioactive phytochemicals?

Maple syrup, a natural sweetener, is the largest consumed plant natural product that is obtained entirely from the sap of trees. During the intensive heating process required to transform tree sap into syrup, a complex 'cocktail' of native phytochemicals (originally present in the xylem sap) and derived compounds (formed through chemical reactions during processing) ultimately ends up in maple syrup. Given our laboratory's interest in identifying bioactive phytochemicals in medicinal foods, we collaborated with the Federation of Maple Syrup Producers from Quebec, Canada, leaders of the world's commercial produc-

URI Bioactive Botanical Research Laboratory members. Back row (L to R): Professor Genevieve Henry (Visiting Professor), Dr. Liya Li (Postdoc), Professor Navindra Seeram (Principal Investigator), Dr. Tao Yuan (Postdoc), Dr. Antonio Gonzalez-Sarrias (Postdoc). The graduate students are: middle row (L to R) Hang Ma, Chunpeng Wan, and Raed Omar, bottom row (L to R) Pragati Nahar, and Dinorah Jean-Gilles.

tion of maple syrup, to isolate and identify its chemical constituents.

Who in your laboratory carried out the research?

Although assisted by students, the majority of the maple syrup research was conducted by postdoctoral fellow, Dr. Liya Li, who obtained her PhD in Pharmacognosy from Peking University, Beijing, China in 2006. She joined my lab, the URI Bioactive Botanical Research Laboratory (BBRL), in the summer of 2008. Dr. Li is an ener-

getic and fantastic natural products chemist who in her capacity as the BBRL Lab Manager also serves as a great training resource for junior postdocs as well as graduate and undergraduate students.

Could you provide a brief explanation of the work and results in your own words? In what way are the data in your paper new?

Our extraction and isolation scheme started with 20 L of maple syrup obtained from Quebec, Canada, and it should be

continued on page 9

Behind The Scenes: Seeram Discovers the Taste of Success in Maple Syrup

continued from page 8
appreciated that this volume of maple syrup was obtained from a large amount of sap (40 L of sap is needed to form 1 L of syrup). Along with 53 natural plant compounds, including four new compounds, we obtained a small quantity of a process-derived compound, 2,3,3-tri-(3-methoxy-4-hydroxyphenyl)-1-propanol, which was assigned the common name of quebecol in honor of the province of Quebec in Canada. Quebecol has a new chemical structure and while the mechanisms of its formation remains elusive, we believe that it was formed during the processing and/or extraction of the maple syrup. We speculate that quebecol may have interesting biological properties given that it bears structural similarities to tamoxifen, the

breast cancer chemotherapeutic drug. We also suspect that there are other, yet to be identified, process-derived compounds in maple syrup. Thus, the finding of quebecol opens up the possibility of the presence of other bioactive compounds in maple syrup.

What impact does this research have on natural product science?

This research underscores the exciting opportunity for the identification of new chemical entities and potential drug molecules not only native to plants, but also from their derived products such as compounds formed in situ during processing and extraction of plant foods. This work highlights the importance of botanical research and has attracted significant public

interest given that consumers now have heightened interest in their selection of 'functional' foods with health benefits that extend beyond basic nutrition.

What is a favorite nonscientific activity of your lab?

We enjoy getting together outside of the lab for our summer barbeque and pool party and our annual Christmas festivities.

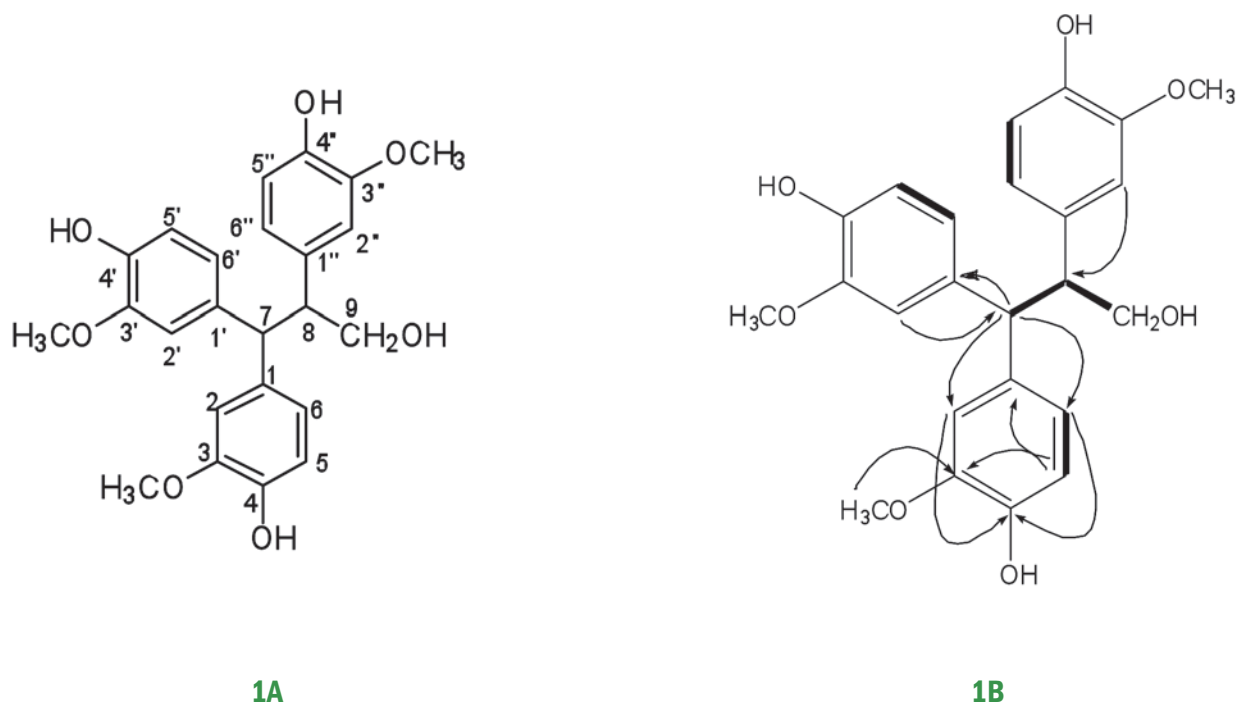
What is your lab's motto?

"Plants Rule!"

What is your greatest extravagance in the lab?

We spare no costs to provide lab members with whatever resources, instruments, and supplies that they need.

Structure of quebecol (1A) and its key COSY (thick lines) and selected key HMBC (arrows) correlations (1B).



New ASP Member, Ms. Emma Barnes

by Dr. Amy Keller

ASP is pleased to welcome several new members to the Society this year. One of our newest Associate members for summer is Ms. Emma Barnes. She is a PhD student at Eskitis Institute for Cell and Molecular Therapies at Griffith University, Brisbane, Australia. We are grateful to her for giving us the opportunity to get more acquainted with her.

How did you hear about the ASP?

My Ph.D. supervisor, Dr. Rohan Davis, suggested that I attend the ASP 2011 Annual Meeting in order to present my research to an international audience; upon learning more about the society I decided to join.

Why did you join ASP?

I am interested in learning about and meeting researchers from all around the world who are working in the field of natural products. As I am looking at finishing my PhD and starting a post-doc, hopefully overseas, within the next few years, I thought joining ASP would be a good means of doing this.

What would you like to achieve through your membership?

I am very interested in natural products drug discovery and I am hoping that my membership will allow me to meet people from all around the world who share this interest, and also provide me with a way to keep on learning about this field from more experienced researchers.

What other scientific societies do you belong to?

I am also a member of the Royal Australian Chemical Institute.

What do you like doing in your spare time?

I enjoy both seeing other people's artwork and spending time drawing and painting myself. People often think of scientists as being quite logical but I believe we are a creative bunch. I enjoy being in the outdoors, whether it be going on a hike or settling down in a nice park for a picnic.

What are you currently reading?

I am reading a lot of journal papers on Australian plants and books on Aboriginal traditional medicines in order to get the literature review for my thesis up to scratch. Also, the 'Science of Cooking' by Peter Barham.

What is your favorite movie?

My favorite movies are *Shaun of the Dead*, *Howl's Moving Castle*, *Daywatch*, *Lucky Miles*, and many more.



DR. TANJA GRKOVIC

Ms. Emma Barnes analyzing natural products purified from Australian plant extracts by NMR. Ms. Barnes is currently searching for new natural products and potential natural product scaffolds for the generation of screening libraries.

Chemical Ecologist Eisner Remembered

By Ms. Rachel Stern, courtesy of The Ithaca Journal

Dr. Thomas Eisner, a world-renowned authority on animal behavior, chemical ecology and evolution, and the Jacob Gould Schurman Professor Emeritus of Chemical Ecology at Cornell University, died from complications of Parkinson's disease Friday, the university announced. He was 81.

Dr. Eisner was born in Berlin June 25, 1929, according to Cornell. Dr. Eisner's Jewish father, Hans Eisner, moved the family to Barcelona in 1933, then to Uruguay. Dr. Eisner recalled being surrounded in South America by an astounding number of astonishingly beautiful bugs, his interests nurtured by his father, a pharmaceutical chemist who made perfumes as a hobby, and his mother Margarete Heil Eisner, an artist.

In 1947, the family moved to the United States, and Dr. Eisner enrolled at Champlain College in Plattsburgh, New York, transferring to Harvard, where he earned bachelor's and doctorate degrees in biology. He joined the Cornell faculty in 1957, first in the Department of Entomology and in 1964, he joined the newly established Department of Neurobiology and Behavior, which he helped found. He also served as director of the Cornell Institute for Research in Chemical Ecology.

Dr. Eisner co-authored some 500 scientific articles and in nine books chronicled his studies of insects. His book, "For Love of Insects," won the Best Science Book in the 2004 Independent Publisher Book Awards.

Throughout his career, Dr. Eisner discovered numerous phenomena, such as better understanding the web-making process of spiders, to the explosive spray of the bombardier beetle and how it wards off predators, to why some male butterflies secrete certain substances. He explored how chemicals in nature interacted and advocated for preserving biodiversity and species in part because of the potential usefulness of those chemicals.

Dr. Eisner was also an advocate of biodiversity and chemical prospecting, the search for natural substances useful in medicine and agriculture. He brokered a partnership between the pharmaceutical company Merck & Co. and Costa Rica to help preserve biodiversity in the Central American country Costa Rica.

In the 1996 interview, Dr. Eisner recalled how, while a graduate student, he popped a bombardier beetle into his mouth to fully experience the creature's defenses, which included a mix of chemicals it can inject into prey and predators capable of reaching the boiling point of water. He denied he made his graduate students do the same.

Dr. Eisner was living at Kendal at Ithaca at the time of his death and is survived by his wife of 58 years, Maria, and three daughters, Yvonne, Vivian, and Christina. Dr. Eisner's family will announce a celebration of his life and suggested contributions to the Finger Lakes Land Trust, 202 E. Court St., Ithaca, New York, 14850. ■

Natural Products Community Remembers Fales

by Dr. Amy Keller

On October 28, 2010, Dr. Henry (Hank) M. Fales passed away. Dr. Fales was a natural product chemist and mass spectrometry expert at the National Institutes of Health (NIH). He was instrumental in introducing mass spectrometry as a technique for natural products research and started a mass spectra reference library that is now the world-renowned NIST/EPA/NIH Mass Spectral Library.

Dr. Fales was born in New York City in 1927, and after serving in the Navy Air Corp during World War II earned a PhD in Chemistry at Rutgers University in 1952. A year later, he joined the NIH and became Chief of the Laboratory of Chemistry of what is now known as the Nation Heart, Lung, and Blood Institute. Under his direction, the Laboratory of Chemistry utilized NMR, X-ray crystallography, and mass spectrometry to study structural chemistry.

Interestingly, Dr. Fales was part of an Amazonian expedition with famed ethnobotanist Dr. Richard S. Schultes, an honorary

member of ASP since 1984, in 1976. Their mission was to study natural products in part by using a mass spectrometer on their boat. Although electrical and technical mishaps temporarily prevented the instrument from functioning, such as power outages and bee stings, Dr. Fales and the team were ultimately successful in getting it running.

Dr. Fales' publication record was enormous, with over 140 publications to his name including two in *Lloydia*. He is credited with training many scientists, but had a special talent for collaborations, especially in applying mass spectrometry. Dr. Fales is described as being a selfless teacher and collaborator, who took special interest in helping others' careers and experiments. There is no doubt that his scientific and collegial contributions at NIH and elsewhere positively affected the natural products community. ■

Drs. Sanford P. Markey and John Beutler contributed to this article.

Brief News From Washington



By Dr. Georgia Perdue

➤ The Senate approved the **America Invents Act** (S.23) formerly known as the Patent Reform Act. The hope is the bill will quickly reduce the number of patents awaiting approval. Three main sponsors

of the legislation included Senators Patrick Leahy (D-VT), Charles Grassley (R-IA) and Jon Kyl (R-AZ). Some in industry see this as a setback for generic drug makers as the legislation calls for **patents to be issued on a first to invent basis** rather than first to file basis. The House is expected to vote on the legislation soon. Representative Donald Manzullo (R-IL) wrote in an op-ed column recently, "The Constitution... mandates that inventors have exclusive right to their discoveries. It is one of the main tenets of our nation...[leading to the American dream]." He stated on the House floor that he opposes the bill because "it would harm small inventors and send United States jobs overseas."

➤ Senator Mary Landrieu (D-LA) introduced the **SBIR/STTR Reauthorization Act of 2011 (S.493)**. It amends the current bill for these programs to extend funding, revise provisions concerning award levels, qualifications for program participation, and collaboration and partnerships, among other things.

➤ In late April, the **National Center for Complementary and Alternative Medicine (NCCAM) launched a web site** "designed to give Health Care Providers easy access to evidence based information on CAM." Information on the site includes the safety and efficacy of natural products such as dietary supplements, herbs, and probiotics. According to NCCAM, "Americans spend \$34 billion on CAM products and practices." (see <http://nccam.nih.gov/health/providers/>)

➤ NCCAM reports that a survey by AARP shows that **many people over 50 who use CAM do not discuss this use with their health care providers**. CAM use in this demographic is very widespread.

➤ On April 13, FDA Commissioner, Dr. Margaret Hamburg appeared before the House Energy and Commerce Subcommittee on Oversight and Investigations chaired by Congressman Fred Upton (R-MI). The primary focus was imported foods and medicines. Dr. Hamburg noted that when President Roosevelt established the FDA in 1938, the percentage of products imported was minimal; today, products are imported from more than 150 countries. She also noted that the "threat from intentional adulteration is real." **FDA is developing a global strategy and action plan** that will allow for more effective oversight and safety of all products that affect United States consumers and the future. Dr. Hamburg

also touched on the problem of drug counterfeiting which has increased over the last several years. All these issues will be addressed in the new global strategy action plan.

➤ A book entitled, "**The Immortal Life of Henrietta Lacks**," by Rebecca Skloot, will be of interest to all involved in cancer research. It is the story of a woman's cancer cells, harvested anonymously and known only as the cell line **HeLa**, used for over 50 years in cancer and other biomedical research.

➤ The NIH Center for Scientific Review (CSR) has a new Advisory Council. **The CSR Advisory Council (CSRAC)** replaced the **NIH Peer Review Advisory Committee**. CSRAC will meet in open session twice a year. One of its members is former ASP President **Dr. Alice Clark, University of Mississippi**.

➤ NIH has established a new 12-member working group to examine the **future of the United States biomedical research workforce**. The group will get input from students, postdoctoral fellows, investigators, scientific societies and grantee institutions and present its findings to the Advisory Committee to the Director (ACD). Group chairman, Dr. Shirley Tilghman, President of Princeton University, told the ACD on June 10 that this study is "more urgent due to the budgetary situation."

➤ At the June ACD meeting Dr. Francis Collins exhibited the angst permeating NIH regarding the budgetary cuts. "These are historically difficult times," he noted, but "we dodged the bullet" [on the proposed cuts from the GOP for this year]. He said that going forward, grants will be funded at a lower level. "We are in the process of making our case for the FY 2012 budget... because we are an engine for growth," meaning all lobbyists from professional societies and other related fields are being marshaled into action; he believes this helped with the outcome of the FY 2011 budget. Dr. Collins hopes the advocates, which "must not let up", along with he and his team, will be able to "educate members of Congress" as NIH has "lost its [Congressional] champions." The National Center for Advancing Translational Sciences (NCATS) was also major topic. ACD members called it "an amazing project", "terrific," "exciting project," "a broker in getting compounds, and big Pharma together. Leadership in Pharma is seeking new avenues ..." One member pointed out that a place for **medicinal chemistry** should be found within NCATS. Stay tuned!

➤ NCCAM Director, Dr. Josephine Briggs, announced at her June Advisory Council meeting the appointment of four new council members, one of whom is **Dr. David G.I. Kingston**, Professor of Bioorganic and Natural Products at Virginia Polytechnic Institute and State University in Blacksburg, Virginia. He also is a Research Associate of the Missouri Botanical Garden in St. Louis, Missouri.

➤ **The National Library of Medicine is celebrating its 175th An-**

continued on page 13

continued from page 12

niversary this year. Many events have been planned (see www.nlm.nih.gov)

➤ **A comprehensive collection of thousands of approved drugs has been created by the National Institutes of Health's Chemical Genomics Center, (NCGS) which researchers will screen for possible use against rare and neglected diseases.** "This is a critical step to explore the full potential of these drugs for new applications," said NIH Director Francis Collins. "The ultimate goal is to collect more than 7,500 compounds that have already been tested in man. NCGS will collaborate with the disease foundations, industry, and academic investigators to screen the drug collection.

➤ The **paylines for the rest of FY 2011 for the National Institute of Allergy and Infectious Diseases (NIAID) grants are: 14th percentile for R01 (for new investigators), and 10th percentile for other R01 investigators.**

➤ Everyone seems to be writing a **strategic plan**: FDA has a five year strategic plan on its website; the National Institute of General Medical Sciences has issued its first strategic plan for research and training (www.publications.nigms.nih.gov/trainingstrategicplan/)

➤ The NCI-Frederick **Natural Products Branch** headed by Dr. David Newman has been highlighted in the NCI Cancer Bulletin (www.cancer.gov.ncicancerbulletin/041911)

➤ Dr. Harold Varmus, National Cancer Institute Director, sent an e-mail to NCI staff outlining his priorities in view of budget decreases for the rest of FY 2011. He wants to ensure that as many **Research Project Grants (RPGs) as possible will be funded especially for new investigators.** He hopes to fund 1100 of them. He noted that the RPG funds have been reduced because of the money needed to fund the building of the new Shady Grove facility. Grantees will

most likely not get inflationary adjustments to their grants. "... this will be a difficult year for NCI," said Dr. Varmus, who in the NCI Bypass Budget advocated a 15% increase in NCI's budget for 2012 !

➤ **Dr. William Sellers**, Vice President and head of global health oncology for Novartis Institutes of Biomedical Research is one of the **new members** appointed by the President to the **National Cancer Advisory Board**. His area is small-molecule and antibody-based drug discovery.

➤ The good news announced on **World Malaria Day** by Dr. Anthony Fauci, NIAID Director, is that there has been a **decrease of 225 million deaths worldwide since 2000**. WHO reports that Morocco and Turkmenistan are close to eliminating the disease.

➤ While no one knows the outcome of the FY 2012 budget, \$17 billion is a figure out there for FDA, down from \$19 billion in FY 2011.

➤ In the annual ritual of appropriations hearings held each spring, NIH Director Francis Collins, accompanied by a few of the major institute directors, testified before the Senate Appropriations Subcommittee on Labor, Health and Human Services, and Education and Related Agencies. Dr. Collins placed great emphasis on the new National Center for Advancing Translational Sciences (NCATS). **Senator Richard Shelby, ranking member, asked for more details about NCATS.** As expected, Senators Barbara Mikulski (D-MD) and Tom Harkin (D-IA), committee chairman, heaped great praise on NIH. [Senator Harkin was the prime mover behind the formation of NCCAM; Senator Mikulski, in a recent outburst on the Senate floor, said that if the NIH budget is cut, cancer scientists would have to put their vials down and we would lose new cancer drugs]. The house will not hold hearings. ■

From the Archives: Nakanishi and the Magic of Chemistry

by Ms. Anna Heran, Lloyd Library and Museum Archivist

ASP member Dr. Koji Nakanishi, organic chemist, and senior faculty member at Columbia University, is well known to ASP members and the world of organic chemistry. The first time he made an appearance in the *ASP Newsletter* was in volume 18, 1980-81, when he was listed as one of the plenary lecturers for the 1981 joint meeting of ASP and the Society for Economic Botany. His paper was entitled, "New Techniques in the Separation and Identification of Natural Products." This is just one of over 750 papers that Dr. Nakanishi has delivered in his lifetime. At the Lloyd, there are over a dozen books in the catalog in which he is listed as author, editor, or contributor, including his autobiography entitled "A Wandering Natural Products Chemist" from 1991.

Dr. Nakanishi has a hobby that has become about as famous as his professional work in organic chemistry; he is a magician! Many of you have seen him perform some of his magic, including his secret card trick, at conferences, lectures, and more. He recounts his magic experiences in his autobiography and admits to having performed at the Vatican. He informed our *Newsletter* editor recently that he even performed for the Japanese Emperor. Especially interesting is the quote by Dr. Nakanishi on the Columbia website: "I can explain the principle behind a good science experiment in 15 seconds; the same with magic."

This is the International Year of Chemistry, and in honor of that I have been busily rounding up ancient



DR. EDWARD KENNELLY

Dr. Nakanishi performing a magical trick at the 50th Annual Meeting in Honolulu in 2009

and not so ancient texts from the Lloyd Library's book collection on alchemy in preparation of an online exhibit later in the summer on that subject. There is a lot of magic, sleight of hand, and other secrets related to the practice of alchemy. Chemistry, many argue, is the outgrowth of alchemy, and certainly much of the experimental laboratory procedures, apparatus, and more, are the results of alchemical practice and experimentation.

What strikes me, however, is that the magic of alchemy and the magic of chemistry are not so far removed from one another. Dr. Nakanishi's comment points that out. Organic chemists and pharmacognosists are specifically working toward the creation of some "magic elixir" that will cure any number of ailments we have yet to conquer. So the next time you have the chance to see Dr. Nakanishi perform his magic, remember that he does something similar in the lab. ■

New Members of ASP 2011

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 17 domestic full members, seven international full members, and 12 associate members. We look forward to meeting you and learning more about you and your work.

ACTIVE MEMBERS

Dr. Valerie S. Bernan
New City, New York

Mr. Ronald Chaves
San Jose, Costa Rica

Mr. Tyler N. Graf
Greensboro, North Carolina

Dr. Paul G. Grothaus
Frederick, Maryland

Joshua Hicks
Billerica Massachusetts

Dr. Chambers Connor Hughes
La Jolla, California

Dr. Tasneem Islam
Schaumburg, Illinois

Dr. Melanie A. Jordan
Glendale, Arizona

Victoria K. Knight-Connoni
Lexington, Massachusetts

Dr. Slavko Komarnytsky
Kannapolis, North Carolina

Dr. Randy J. Koslo
Parsippany, New Jersey

Dr. Min Sang Lee
Rockville, California

Dr. Denasis Mondal
New Orleans, Louisiana

Dr. Elin Soffia Olafsdottir
Reykjavik, Iceland

Dr. George Polson
Alpharetta, Georgia

Omid Rajabi Kaboudchesmeh
Neka, Iran

Mr. Arnaldo R. Rivera
Davis, California

Dr. Veronica Rodriguez-Lopez
Cuernavaca, Mexico

Dr. Deborah M. Roll
Nanuet, New York

Dr. Manar M. Salem
Columbus, Ohio

Dr. Feng Wei
Beijing, China

David Williamson
Cambridge, Massachusetts

Dr. Hasan Soliman Yusufoglu
Alkharj, Saudi Arabia

Dr. Zhong-Mei Zou
Beijing, China



ASSOCIATE MEMBERS

Mrs. Chinwendum Stephenie
Alaribe
Ikeja, Nigeria

Ms. Emma C. Barnes
Greenslopes, Australia

Mr. Paul M. D'Agostino
Bradbury, Australia

Rocky Graziose
Huntington, New York

Jordan Gunn
Chicago, Illinois

Mr. Ashish Kumar Jena
Chandigarh, India

Mr. Donggyu Kim
Seoul, South Korea

Mr. Brian Leon
Santa Cruz, California

Ms. Melinda Louise Micallef
St. Clair, Australia

Hunter Rooks
Murfreesboro, Tennessee

Dr. Liangqian Wei
Wollongong, Australia

Feifei Zhang
Atlanta, Georgia

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.phcog.org. 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.

Economic Botany 2011

St. Louis, Missouri
July 9-13, 2011
www.econbot.org

Plant Natural Products from Biodiversity to Bioindustry

Alexandria, Egypt
December 8-11, 2011
www.bionats.org

52nd ASP Annual Meeting

Paradise Point Resort, San Diego, California
July 30-August 3, 2011
www.pharmacognosy.us

The International Chemical Congress Pacific Basin Societies

(Pacifichem 2011)
Kohala Coast, Hawai'i
December 10-14, 2011
www.pacifichem.org

The 7th European Conference on Marine Natural Products

Stromstad, Swedish West Coast
August 14-18, 2011
www.fkog.uu.se/7ecmnp/

International Congress on Natural Products Research 2012

New York, New York
July 28-August 1, 2012
www.pharmacognosy.us

59th International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA)

Antalya, Turkey
September 4-9, 2011
www.ga201.org

The Consummate Botanist: Special Symposium Honoring the Scholarly Works of Walter H. Lewis, Ph.D., D.Sc.

Washington University, Steinberg Auditorium
St. Louis, Missouri
July 8, 2011
RSVP to Judy Musick: jmusick@biology2.wustl.edu



David J. Slatkin, 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. Arnold R. Brossi, National Institutes of Health · Dr. David P. Carew, University of Iowa
Dr. John M. Cassady, Oregon State University · Dr. Geoffrey A. Cordell, Natural Products, Inc.
Dr. Gordon C. Cragg, National Institutes of Health · Dr. Norman R. Farnsworth, University of Illinois at Chicago
Dr. Harry H.S. Fong, University of Illinois at Chicago · A. Douglas Kinghorn, Ohio State University
Dr. James E. Robbers, Purdue University · Yuzuru Shimizu, University of Rhode Island
Dr. David J. Slatkin, Chicago State University · 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:

David J. Slatkin, Ph.D, Treasurer, The American Society of Pharmacognosy,
3149 Dundee Road, #260, Northbrook, Illinois 60062. Email: asphcog@aol.com