ASP News

Spring 2005 (192) Vol. 34, No. 2

Program for 11th ESP Congress

Sept 3-8, 2005

The Casino Grand Cercle in Aix-les-Bain, France, site of the 2005 ESP Meeting (Sept 3-8).

Sunday September 4, Morning

- **Young scientist award lecture**
  NF-kappaB, a key player in PDT-induced inflammatory response
  JY Matroule (BE)
- DNA damage and repair
- ALA-based PDT
- Oxidative stress in plants
- Novel blue light receptors

Sunday September 4, Afternoon

- Photocarcinogenesis
- Molecular and cellular aspects of PDT
- Structure and biogenesis of the photosynthetic apparatus
- Visual pigments and phototransduction (Joint with ASP)

Monday September 5, Morning

- **Photobiology update**
  Signal transduction in keratinocytes under UV-A radiation
  J Krutman (DE)
- Photodermatology (Joint with ESD)
- Photodiagnosis and optical techniques for medical diagnosis
- UV effects in aquatic environments

Monday September 5, Afternoon

- Photoageing
- Photochemistry and photobiology of fullerenes (Joint with EPA)
- Photomovements

Tuesday September 6, Morning

- **Photobiology update**
  Oxidative DNA damage: from electron/hole injection to gel electrophoresis
  NE Geacintov (USA)
- Photoimmunology
- Antimicrobial PDT
- Light-regulation in plants: growth and rhythms

Tuesday September 6, Afternoon

- Photoprotection and sunscreens
- Photochemistry and phototoxicity of drugs
- Plant photobiology in extreme environments

Wednesday September 7, Morning

- **Photobiology update**
  Small molecules play an important role in

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circadian time-keeping
F Nagy (HU)

- Ocular light damage
- Cellular response to solar UV
- Acclimatation, stress and regulation of photosynthesis

Wednesday September 7, Afternoon

- Animal model of photocarcinogenesis
- The environmental impacts of ozone depletion and climate changes
- Spectroscopic studies of fast and ultrafast events in photobiology

Thursday September 8, Morning

- **Photobiology update**
  Photoprotection and photorestoration of cultural heritage
  R Salimbeni (IT)
- Clinical applications of PDT
- Mechanisms of plant UV-response
- Short communications

Social events
Saturday Sept 3, 18.00: Welcome reception
Tuesday Sept 6, 20.00: Banquet, Medal Awards

Congress Venue
Casino Grand Cercle
200 rue du Casino
Aix-les-Bains, France
Phone : +33-4-79 35 16 16

Deadlines
Abstract submission: May 15
Urbach Travel Award: May 15
Early registration: June 15
Hotel booking: June 15

Web Site
www.esp-photobiology.it

Local Chairman
Dr. Jean Cadet
Phone: +33-4-38 78 49 87
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Lac du Bourget, Aix-les-Bains, and Mont Revard.

Urbach Travel Award

The ASP is pleased to announce the establishment of the **Frederick Urbach Memorial Travel Award** to help defray, in part, the costs of travel of ASP Associate Members to the *11th Congress of the European Society for Photobiology* (Sept 3-8, 2005, Aix-les-Bains, France). In order to be considered for this competitive award, Associate Members must:

(1) Submit an abstract to the ESP (www.esp-photobiology.it) by May 15, 2005.
(2) Submit a copy of your abstract and a letter from you justifying how travel to this meeting will further you career goals.
(3) Submit a letter from your mentor supporting your application.

Application materials must be sent to **Stephen E. Ullrich**, Chair of the ASP Mentoring Committee on or before May 15, 2005.

Stephen E. Ullrich
Department of Immunology-902
The University of Texas, MD Anderson Cancer Center
7455 Fannin St, PO Box 301402
Houston, TX 77030-1903
Tel: 713-563-3264
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Candidates for ASP President

Holly L. Gorton
Professor of Biology
St. Mary's College of Maryland
St. Mary's City, MD
ASP Division 3 (Photosynthesis, Bio- and Chemiluminescence) and Division 5 (Environmental Photobiology and UVR Effects)

Education: BA, Biology, Reed College 1976; PhD, Biology, 1981, Stanford University with Winslow Briggs; Postdoctoral Fellow, 1981 Shell Development Company and 1981-1985 University of Connecticut, Department of Biological Sciences with Ruth Satter.

Appointments: Assistant to Full Professor, Biology, St. Mary's College of Maryland, St. Mary's City, MD, 1988-present; Assistant Professor, Biology, Trinity College, Hartford, CT, 1985-1988. Visiting appointments: Department of Botany, University of Wyoming, 1995-1996; Research School of Biological Sciences, Australian National University, Canberra, AU 2002-2003.

Research Interests: Plant photobiology including photoprotection, photosynthesis and stomatal regulation, light penetration, and photosensory biology. We have developed instrumentation based on a pulsed measuring beam and lock-in detection that, for the first time, allows monitoring of light-driven chloroplast movements in leaves of higher plants under natural lighting. We assess the effects of these movements on photosynthesis using a combination of techniques including gas exchange, fluorescence, and photoacoustics. Other recent projects include photoprotection in snow algae; we have measured both visible and UVR penetration through snow and through the algal cells, and have made the first *in-situ* measurements of photosynthetic gas exchange on algal cells in the snow. Currently we are investigating the effects of the increasingly diffuse global light environment on light penetration and photosynthesis in leaves of higher plants.

ASP Service: Member since 1992; Councilor 2000-2004; Nominations Committee 2000-2002; Education and Public Affairs Committee 2000-2002; Publications Committee 2001 – 2005 (Chair 2000 – 2002)

Candidate's Statement: The first professional meeting I attended, as a young graduate student, was an ASP meeting at Asilomar in 1979; I was thrilled. I hope ASP meetings continue to convey the excitement of our interdisciplinary field to today's young scientists because I believe our unique strength lies in that interdisciplinarity. The ASP provides a forum for discussion and interchange of ideas among a diverse group of scientists studying organisms from bacteria to plants to people and tackling significant questions at ecological, organismal, and molecular levels. We are from government labs, industry, universities and small colleges; we teach; we do clinical and basic research. My own niche is as a teacher and researcher at a small college of the liberal arts and sciences. Both in my teaching and for the ASP I seek to foster the intellectual enrichment that the interdisciplinary milieu of photobiology provides. The ASP can do this at many levels. We must continue our support of educational initiatives, such as the *Digital Photobiology Compendium*, that spark interest and help students build a solid background. We should continue to encourage discussions at our meetings where cross-fertilization can lead to new ideas and new approaches. Larger ASP issues now include the relationship between ASP and the European Society for Photobiology, and between our two fine journals, *Photochemistry and Photobiology* and *Photochemical and Photobiological Sciences*. ASP has always benefited from members and councilors from the international community. Just as our individual research programs benefit from our appreciation of problems, approaches, and techniques in related photobiological disciplines, our Society benefits from an international perspective and cooperation with other Societies. Such interactions should be designed to improve the scientific and financial vigor of both societies, and they must do so in a way that continues to encourage participation by our students, post-docs, and new investigators.

Stephen E. Ullrich
Professor of Immunology
Dallas/Fort Worth "Living Legends" Professor
The University of Texas, MD Anderson Cancer Center
Houston, TX 77030

Candidate's Statement: Our society is facing some severe challenges. In the past the profits from the journal funded the society, especially the annual meetings. Unfortunately, those days are gone. Electronic publishing and the associated decrease in institutional subscriptions, coupled with "open access" have changed the business model. Under the outstanding leadership of John Simon and the hard work of Council, the journal is breaking even, but it will never be the cash cow it was in the past. We consistently lose money at our annual scientific meetings. We lost money at Seattle, but the interesting fact is that if had another 40 registrants for that meeting, we would have broken even. As president, my goals would be to reverse these trends. We need to collaborate and cooperate with our fellow photobiological societies for our mutual benefit. For example, the attendance at Seattle and the ICP meeting at JeJu, Korea, were both below expectations, because two photobiology meetings were held within weeks of each other. This is why I supported Council's decision to move our meeting to a semi-annual time frame, to avoid this unnecessary conflict. We also petitioned the International Union of Photobiology to move the international meeting to a 5-year cycle, to prevent the international meeting from always conflicting with the ASP meeting in even numbered years. Because so many of our members are also members of the European, Australian, and Asian photobiology societies, continuing these type of collaborative efforts will benefit all.

We also need to do a better job of expanding the membership of our society. We must be proactive in finding new members and new areas. For example, one of the hottest new areas in the cancer field is the use of state-of-the art imaging techniques to discover and destroy newly developing tumors. Also, confocal microscopy is increasingly used to determine intracellular events at the molecular level. These techniques rely heavily on photobiology. We need to bring the scientists into the ASP. How? By using our three major strengths, our journal, our scientific meetings and our membership. We need to sponsor special symposia at our meetings and dedicate issues of the journal to review articles on these new emerging technologies. As an educator, I always urged my students and post-docs to go to the ASP meeting. I was confident that they would benefit by presenting a 10-minute platform talk in front of most of the experts in the field and would learn much from the small collegial atmosphere of our meeting. As a scientist, I have always enjoyed the multi-disciplinary nature of our meeting, and I usually learn something new and unexpected at an ASP meeting. We live in interesting times, we face unique challenges, but the value that ASP adds to my scientific life is such that I believe must do all we can to meet the challenges of the future and ensure the financial success of our society.

Candidates for ASP Secretary

W. Howard Cyr

Howard Cyr received his BA in Physics from the University of Vermont, and his MS and PhD in Biophysics from Penn State University, with research on the effects of ionizing radiation on growing vegetative cells and germinating bacterial spores. In 1974, he joined the Commissioned Corps of the US Public Health Service, and has had several different career assignments at the Center for Devices and Radiological Health (and its earlier predecessor, the Bureau of Radiological Health). His early work focused on the area of risk assessment, including the effects of ionizing radiation effects on the embryo and fetus, the barrier effects of latex condoms and gloves for protection against viruses, and the carcinogenic effects from residues of ethylene oxide on sterilized medical devices. His more recent work on sunlamps has led to an Advance Notice of Proposed Rulemaking that calls for possible changes in the FDA sunlamp standard. These changes could affect warning labels and recommended exposure schedules.

Dr. Cyr is presently the Radiation Bioeffects Program Leader in the Division of Science and

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Engineering Laboratories. He is also the Principle Investigator for a Cooperative Research and Development Agreement (CRADA) to investigate possible bioeffects from cell phone emissions. Dr. Cyr is a past-president of the FDA Chapter of Sigma Xi, and coordinator of four FDA-Sigma Xi Scientific Poster Expositions. He is the recipient of 12 PHS awards, including the PHS Meritorious Service Medal (2000), 2 other FDA awards, 2 U.S. Army awards, 2 Sigma Xi Research Society Awards, and the CDRH Community Service Award in 1990, for work as a scientific editor of the Washington HIV Newsletter.

Faith M. Strickland

Faith Strickland received her BS degree from the University of Illinois at Chicago, MS degree in Immunology from the University of Chicago in 1981, and PhD from the University of Texas Medical Branch in Galveston, TX in 1987. She did her postdoctoral work in the Department of Molecular Physiology and Biophysics at Baylor College of Medicine in Houston, studying the structural biochemistry and regulation of G-protein coupled ion channels. In 1991 she joined the faculty in the Immunology Department of the University of Texas MD Anderson Cancer Center to perform research in photoimmunology and photocarcinogenesis with Dr. Margaret Kripke. Dr. Strickland's research has focused on developing agents to prevent the suppressive effects of UV exposure on the immune response in skin and the relationship between photosuppression and growth of skin cancer. She received the New Investigator Award from the ASP in 1999 for her work on the development of novel plant agents that prevent UV-induced immune suppression. In 2003 she joined the Department of Dermatology at the Henry Ford Health System in Detroit. As Senior Staff, she continues her research in photoimmunology and on the role of UV radiation in the induction of melanoma skin cancer. In addition to her appointment at the Henry Ford Hospital, she is an adjunct Associate Professor in the Immunology & Microbiology Department at Wayne State University.

New Scotobiology Group

A new group has formed under the banner of "Scotobiology", the biology of darkness. Their formation follows an international symposium, "Ecology of the Night", that was held in Muskoka, Ontario during September 2003. This meeting was a gathering of scientists (lighting experts, medical practitioners, astronomers, and others) and citizens who share a common interest in preserving dark night skies. Symposium presentations dealt with the importance of periodic darkness for the normal development and function of plants and animals. The symposium featured a presentation by ASP member **Joan Roberts** (Fordham University).

The participants agreed that there should be future scientific gatherings on the subject of scotobiology and that they should support a scientific establishment that could provide data to help in their fight against light pollution and promote practical solutions to light pollution. For more information, visit the group's web site: www.ecologyofttthenight.org and the *IGBP Global Change Newsletter*, vol 58 (June, 2004), available from www.igbp.kva.se. Please address comments and suggestions to **Peter Goering**, goeringp@sympatico.ca.

PAE

Opportunities to Comment on NEON

Planning for the NSF-funded National Ecological Observatory Network (NEON) is on a fast track. The NEON web site (www.neoninc.org) describes this project as "the first national ecological measurement and observation system designed both to answer regional-to-continental scale scientific questions and to have the interdisciplinary participation necessary to achieve credible ecological forecasting and prediction." A distinguished body of scientists, engineers, and educators has been selected to serve on the committees that will shape the blueprint for NEON's implementation. Members of the biological community will have a number of opportunities to review and comment on draft materials as the NEON Design Consortium produces documents early in 2005.

In September 2004, AIBS finalized a cooperative

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agreement with the National Science Foundation to develop a detailed NEON planning document by June 2006. The NEON Design Consortium - with more than 150 committee and subcommittee members - formally begins its work with meetings in January, March, and June of 2005. The committee reports will identify which continental-scale science questions NEON will address, what kinds of sensor technology and cyberinfrastructure will be required, and how to realize NEON's potential for educating new generations of scientists.

The eight Subcommittees of the Science and Human Dimensions Committee will focus on invasive species, land use, biodiversity, biogeochemical cycles, climate change, infectious disease, hydrology, and emerging issues. Additional subcommittees will develop NEON's approaches to research infrastructure, IT and communication, and sensors and sensor networks. Education subcommittees will address NEON opportunities for K-12, the graduate and postdoctoral level, and informal education.

Members of the bioscience community can find the latest news about NEON at www.neoninc.org, including a full roster of NEON's Design Consortium members. Draft documents will be posted online for peer review shortly after each of the three meetings scheduled in 2005: January 4-6, March 15-17, and June 7-9.

Dan Johnson
Public Information Representative
NEON Project Office

New Resolution on FELs

Free-Electron Lasers (FELs) can produce very intense light beams at an adjustable wavelength. FELs are expected to become increasingly important for researchers in photomedicine and environmental photobiology.

At the recent ASP winter council meeting (Feb 13, 2005), the Council adopted the following resolution:

The Council of the ASP recognizes the potential impact of high performance Free-Electron Lasers (FELs) in fields of interest to our members, particularly photomedicine and environmental photobiology. Achieving these opportunities will require appropriate support facilities. The ASP Council therefore strongly encourages the development of facilities to support biological and medical research at existing and/or new FELs.

Further information about FELs is available from a web site at the University of California, Santa Barbara: sbfel3.ucsb.edu/www/vl_fel.html.

PAE

New Online Discussion

The ASP Council would appreciate your input on several items that will be voted on in early May. We have set up a Discussion Board on the ASP web site entitled: “Membership Response Requested for Upcoming Changes in 2005”. To gain access to this discussion:

(1) Go to ASP Home Page: www.photobiology.org

(2) Click on the “Business Office” link in the left column

(3) Enter your User ID and Password. (User ID is your ASP membership number, which is on your ASP membership ID card. Password is your last name, all in lowercase, unless you have personally changed this.)

(4) This will bring you into the ASP Membership Business Site.

(5) Click on Discussion Board in the left column.

(6) Click on the title under Current Discussion

You will then see the topics and questions that are up for discussion. To add your comments, just click on the reply button and enter your comments in the text box, then submit.

If you need assistance with obtaining your membership ID, please feel free to contact me at lhardwick@allenpress.com or call 785-843-1235 and request Customer Service.

We appreciate your comments in regards to your society.

Linda Hardwick
ASP Secretariat

Research by ASP members

Melanopsin Signal Cascade

Melanopsin is a light-absorbing pigment that occurs in retinal ganglion cells and is involved in the entrainment of mammalian circadian rhythms. In a forthcoming issue of *Proceedings of the National Academy of Sciences*, ASP member **Ignacio Provencio** (Uniformed Sevices University) and colleagues report on their studies of melanopsin signaling using cultured Xenopus dermal melanophores. They show that light excitation of melanopsin in these mammalian cells initiates a phosphoinosotide signaling pathway that is similar to that found in the photoreceptor cells of invertebrate eyes.

Evolution of Dinoflagellate Luciferase

An enzyme with multiple catalytic sites represents an evolutionary elaboration of an enzyme with a single catalytic site. One example is the luciferase of dinoflagellates, which has three homologous catalytic domains. This enzyme catalyzes bioluminescence in the presence of luciferin and oxygen and is regulated by a circadian clock. In a recent issue of *Proceedings of the National Academy of Sciences* (vol 101, pp 16555-60), ASP member **Woody Hastings** (Harvard University) and colleagues present their study of the catalytic sites of the luciferase from seven dinoflagellate species. Their study elucidates the relationships and evolutionary significance of the different catalytic domains.

Review of the Phototropins

The phototropins are blue light-absorbing pigments that regulate phototropism in higher plants. In the forthcoming issue of P*hotochemistry and Photobiology* (vol 81, pp 73-80), **R. Brandon Celaya** and ASP member **Emmanuel Liscum** (University of Missouri) review recent studies of the phototropins. Their review includes detailed discussion of phototropin photochemistry and of the alterations in chromophore and peptide structure that follow light absorption. They also discuss the roles of phototropins in controlling stomatal opening and chloroplast movements.

(*reprinted with modification from the ASP web site*)

The Science of Phototherapy

When **Len Grossweiner** passed away in 2001, he was almost finished writing a new book about phototherapy. His wife, **Bess**, and his former student, **Linda Jones**, saw the project through. Springer has just published the book. *The Science of Phototherapy: An Introduction*
is directed to clinicians and basic researchers who are interested in current and emerging implementations of phototherapy. It can serve as an introductory reference and a textbook for advanced undergraduate and graduate courses in medical physics and biomedical engineering. The emphasis is on the science underlying the various phototherapy procedures, which encompasses aspects of classical and molecular photophysics, biological photochemistry, photobiology and biophotonics. Topics that do not usually appear in other general sources include the theory and applications of tissue optics, Monte Carlo simulation, light dosimetry, and analytical modeling of laser surgery. A number of illustrative problems with answers are provided to exemplify the more quantitative aspects of each topic.

ASP Homepage

Usage Statistics

Visits to the ASP homepage, www.photobiology.org, are being monitored by bravenet.com. A "page view" (or "hit") is recorded every time there is a visit to the homepage. A "unique visit" is recorded every time a visitor has not viewed the homepage in the previous 24 hours. Visits by the webmaster (PAE) were excluded from all statistics. Further details are available at www.pol-us.net/ASP_Home/stats.html.

Counter Dates: Nov 16, 2003 – Feb 18, 2005 (95 days)

Total page views: 2080 (avg of 21.9 per day)

- Avg of 27.2 on each weekday
- Avg of 8.74 on each weekend day

Total unique visits: 1503 (avg of 15.8 per day)

- Avg of 19.6 on each weekday
- Avg of 6.30 on each weekend day

PAE

Upcoming Events

March 13-18, May 22-27, July 24-29, 2005
Protein Purification: Isolation, Analysis, and Characterization of GFP
Cook College, Rutgers University
New Brunswick, NJ
Contact: William W. Ward
Tel: 732-932-9562 ext 216 or 2120
E-mail: crebb@rci.rutgers.edu
Web site: www.rci.rutgers.edu/~meton/protein.html

March 14-18, 2005
Photociencias 2005
3rd Symposium & School on Photobiology, Photochemistry and Photophysics
Havana, Cuba
Tel: (53) (7) 8705707, 8707666
E-mail: fotocien@fisica.uh.cu

April 11-13
Photonics Research and Applications
Hilton San Diego Resort
San Diego, CA
Optical Society of America
Tel: (800) 723-4632
E-mail: custserv@osa.org
Web site: www.osa.org

May 22-7, 2005
Conference on Lasers and Electro-Optics (CLEO)
Quantum Electronics and Laser Science Conference (QELS)
Baltimore Convention Center
Baltimore, MD
E-mail: custserv@osa.org
Tel: 202-416-1907
Web site: www.cleoconference.org/

June 12-16, 2005
European Conference on Biomedical Optics
Neue Messe
Munich, Germany
Web site: www.osa.org/meetings/topicals/ecbo/

June 18-25, 2005
Graduate summer school: Bio-Photonics '05
The Island of Ven
Backafallsbyn, Sweden
Web site: www.biop.dk/biophotonics05/School/School.asp

June 22-25, 2005
10th World Congress of Photodynamic Medicine
International Photodynamic Association (IPA)
Arabella Sheraton Grand Hotel
Munich, Germany.
Web site: www.ipa2005.com

July 2-6, 2005
16th International Symposium on the Photochemistry and Photophysics of Coordination Compounds (ISPPCC)
Asilomar Conference Center
Pacific Grove, CA
Contact: Patrick Hoggard
E-mail: phoggard@scu.edu

July 3-8, 2005
Gordon Conference on Photosynthesis
Bryant College
Smithfield, RI
Web site: www.grc.uri.edu/programs/2005/photosyn.htm

July 8-11, 2005
Summer Meeting of the Society of Free Radical Research (Europe)
De Vere Belfry Hotel
Leicester, England, UK
Contact: Joseph Lunec, Chief Organizer
E-mail: jl20@leicester.ac.uk
Web site: www.sfrr-europe.org/

July 10-15, 2005
Gordon Conference on Photochemistry
Bryant College
Smithfield, RI
Web site: www.grc.uri.edu/programs/2005/photochm.htm

July 16-20, 2005
Plant Biology 2005
ASPB's Annual Meeting
Washington State Convention & Trade Center
Seattle, Washington
Web site: www.aspb.org/meetings/pb-2005/index.cfm

July 17-22, 2005
14th International Symposium on Carotenoids
Edinburgh International Conference Centre
Edinburgh, Scotland, UK
Web site: www.carotenoidsociety.org

July 24-29, 2005
12th International Conference on Photochemistry
Cairns, Australia
Contact: ICP 2005 Conference Secretariat
Phone: +61 3 9682 0244
Fax: +61 3 9682 0288
E-mail: icp2005@icms.com.au

August 27 - September 1, 2005
2005 IUPB and EBSA Joint Meeting
Montpellier, France
Web site: www.iupab.org/

September 3-8, 2005
11th European Society for Photobiology Congress
Aix-les-Bains, France
Web site: www.esp-photobiology.it

October 31 - November 3, 2005
24th International Congress on Applications of Lasers and Electro-Optics
Hyatt Regency, Miami
Miami, FL
Web site: www.icaleo.org

July, 2006
33rd ASP Meeting
Puerto Rico