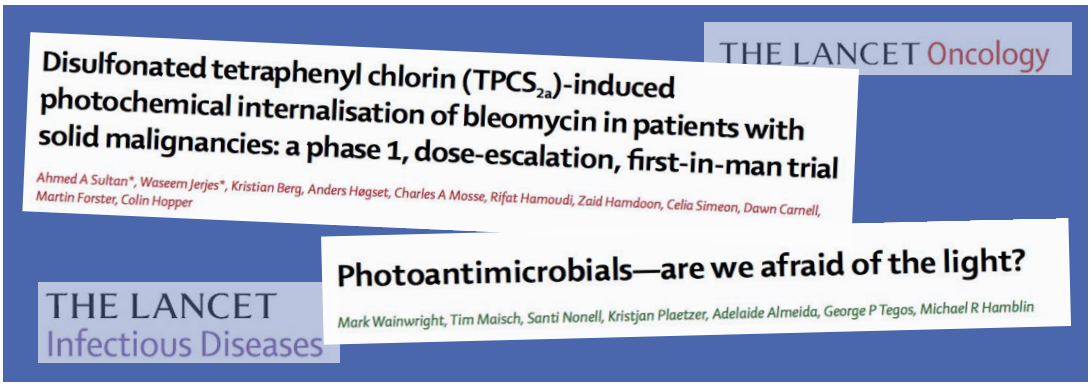
EYE on ESP

Newsletter of the European Society for Photobiology

Winter 2016, Issue 6

In 2016 fellow ESP scientists published their work in prestigious journals from The Lancet family. Congratulations to our colleagues for their excellent work!



There is light on the Lancet

Twice this year articles by ESP members regarding different applications of photodynamic therapy appeared in journals of the prestigious Lancet family. We hope that this success will pave the way to a bright future for photodynamic therapy in the biomedical field.

• Following their pioneering preclinical work on photochemical internalization, a drug delivery approach based on the photodynamically-induced release of therapeutic agents from endosomes, the group of Prof. Kristian Berg (PCI Biotech, Oslo, Norway) in collaboration with the group of Dr. Colin Hopper (University College of London Hospitals, London, UK) published the results of the first in-man trial of photochemical internalisation of bleomycin for the treatment of solid malignancies. The work appeared in The Lancet Oncology in July 2016 (Sultan *et al.*, Lancet Oncol., **2016**, *17*, 1217-1229). Based on the findings obtained from 22 patients, 12 of whom completed the 3-months follow-up period of the study, the authors were able to establish that photochemical internalisation of disulfonated tetraphenyl chlorin (TPCS2a) is safe and tolerable.

• Later in the year, an opinion piece was published in Lancet Infectious Diseases, raising awareness of the advantages of the photodynamic approach applied to antimicrobial chemotherapy (Wainwright *et al.*, Lancet Infect. Dis, *in press*). The paper features a truly global authorship many of whom are ESP members, namely Prof. Mark Wainwright (Liverpool John Moores University, UK), Prof. Tim Maisch (University Medical Center, Regensburg, Germany), Prof. Santi Nonell (Ramon Llull University, Barcelona, Spain), Prof. Kristjan Plaetzer (University of Salzburg, Austria), Prof. Adelaide Almeida (University of Aveiro, Portugal), Prof. George P. Tegos (Harvard Medical School, Boston, USA) and Prof. Michael Hamblin (The Wellman Centre for Photomedicine, Boston, USA). The paper highlights how and why photoantimicrobial chemotherapy (PACT) could be the paradigm shift in the treatment of infectious diseases, necessary to overcome the challenge of resistance to antibiotics. Despite the large body of evidence proving its potential, the PACT approach has been disregarded by mainstream antimicrobial therapy: the authors argue that key worldwide health organisations should not limit themselves to calls for changes in antimicrobial clinical practice, but also invest in the development of PACT as a viable approach to tackle the global challenge of antimicrobial drug resistance.

Inside This Issue

Goodbye to Jan Cornelis van der Leun: *eminence grise* in protection of the ozone layer

Prof Jan van der Leun, a reserved and solemn gentleman scientist dedicated to the cause of protecting the ozone layer, sadly passed away on the 6th of July, 2016.

Frank R. de Gruijl remembers his mentor

Jan Cornelis van der Leun was born on June 14 1928 in the harbour town of Rotterdam in the Netherlands. After the war, Jan graduated in experimental physics in Utrecht. In 1953 he started an internship at the department of Dermatology of the Academic Hospital of Utrecht, where he was initially hidden in a specially built small room in the company of a few UV lamps. At that time, Jan analysed physical aspects of UV-induced erythema and other skin effects, which earned him a PhD with a thesis entitled "Ultraviolet Erythema; a study on diffusion processes in human skin". In 1966 Jan left for the US with his wife Jannie Florence Goedhart and their 4 children to join the group of Professor Farrington Daniels Jr. at Cornell University Medical College (New York) as an assistant professor. He returned to Utrecht in 1967 where he remained for the rest of his career. His early work on skin photobiology published in German in "Strahlentherapie" formed the basis for his work, as later he discovered that the skin of patients reacting pathologically to UV radiation could be rendered insensitive ('hardened') by a series of gradually increasing UV exposures. In close collaboration with Philips, his group introduced the narrowband TL01 lamp to optimize phototherapy of psoriasis. He took over as head of Photodermatology in1972 and in 1980 he was appointed as a professor in "Physics of the Skin". On his retirement in 1993, a symposium entitled "The Dark Side of Sunlight" with many of his international colleague-friends was held in recognition of his work.

In the early 70s, the prospect of wide-scale supersonic commercial air travel through the stratosphere raised the spectre of a vanishing ozone layer, allowing hazardous short wavelength UV radiation to reach the Earth's surface, and although this particular threat to the ozone layer never became reality, the one from chlorofluorocarbons (CFCs) did. In 1971 Jan was invited by Prof Daniels to join a panel of experts on the "biological impacts of increased intensities of solar UV radiation" at the US Academy of Sciences: Jan's unique background in both meteorology and skin photobiology made him "cut out for the job". This environmental cause struck a chord in Jan: he got actively involved and his

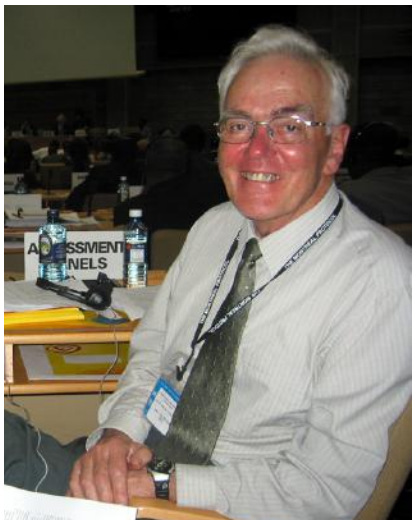
contribution led to the publication of the CIAP monographs in the US in 1975. He became an international authority in political circles and remained dedicated to the cause of protecting the ozone layer long after his retirement.

His work on experimental UV carcinogenesis elucidated the dose- and wavelength-dependence of UV carcinogenesis in hairless mice, and allowed extrapolation for risk assessment in humans. This allowed the first estimates of the impact of ozone depletion on skin cancer, which became an important element to influence policies and international agreements on measures to protect the ozone layer. Ironically, although Jan contributed to successful international action in curbing the threat to the ozone layer, the substantial increases in skin cancer were mainly due to human behaviour.

Long before the Montreal Protocol on protection of the ozone layer (effective from the 1st of January 1989), Jan was promi-

nently contributing to international meetings on the subject. In 1978 the Dutch governmental delegation to the meeting in Munich on the threat of CFCs was pleasantly surprised to find a fellow countryman in the panel of experts, which launched Jan as an expert in his home country. Jan chaired the effects section of UNEP's Coordinating Committee on the Ozone Layer from 1982 to 1988, before becoming a founding co-chair of the Environmental Effects Assessment Panel (EEAP) established under the Montreal Protocol. He had to relinquish the co-chair of his beloved EEAP in 2010 because of his age and health but remained an honorary member. Jan also participated in and chaired many national and international committees (e.g. WHO & IARC) on UV health effects. He was a member of the Dutch Health Council and adviser of the Dutch Cancer Society in its campaigns on moderating sun exposure. Jan was always well balanced in his judgements and from the outset in campaigning against excessive sun exposure he pointed out that low-level UV exposure is beneficial in producing vitamin D.

Jan received numerous awards. UNEP honoured him in 1995 with its Global Ozone Award and in 1997 the Global 500 Roll of Honour for Environmental Achievement. The Finsen Medal was awarded to him in 1996 in Vienna for his research on skin photobiology and his effort in protecting the ozone layer. In 2003 he received from the European Society for Photobiology the Medal for long, dedicated and outstanding scientific contribution within the field of photobiology. In 2004 Queen Beatrix knighted him in the Order of the Dutch Lion for applying his research to the benefit of the environment. In 2005 he received the Vienna Convention award, and in 2009 the Arnold Rikli award for his work on "Climate change and skin cancer". To his students Jan was a very reserved and solemn gentleman scientist who was dedicated to his research and left them much freedom in carrying out their projects, inviting them to bring in their



own ideas. His quiet and self-confident demeanour instilled his working methods on his students, including an ever-expanding archive of papers and reports bursting from filing cabinets and spreading in piles stacked on and under tables and chairs – but Jan always found his way in this "sedimentary" archive.

Jan's life was celebrated with a sense of fulfilment at his funeral on July 13, 2016, in his home town Bunnik and his children and grandchildren spoke endearingly and thankfully of their time with him.

Dr Frank R. de Gruijl was Jan's first PhD student on experimental UV carcinogenesis and skin cancer risk modelling.
The complete obituary is available on the ESP website

Ethel Moustacchi

The ESP executive committee is extremely sad to announce that Ethel Moustacchi passed away on December 13th 2016 after a very short illness. Ethel was the CNRS Research Director Emeritus at the Institut Curie and was still active in French scientific life. Ethel worked all her career at the Curie institute, deciphering DNA repair pathways in yeast and mammalian cells, and in the DNA repair syndrome Fanconi anemia. In the early days her laboratory was working on psoralen derivatives combined with UVA and their genotoxic effects, together with the Padova group. As an active photobiologist as well as radiobiologist she participated in the first ESP congresses. Her discoveries are internationally recognized. She gave a great impulse to research in the fields of radiobiology and photobiology in France. Ethel was also a humanist, with a considerable knowledge and interest in social science and art. She had always defended basic research but was also concerned about the role of research and science in the civil society. She was a « Grande Dame » and we already miss her.

The Giulio Jori Fellowship starts in 2017

The ESP is glad to announce the opening of the first round of applications for the Giulio Jori Fellowship

The Giulio Jori Research Scholarship is officially starting in 2017. The Research Scholarship is provided by an endowment set up in honour of Giulio Jori, the leading light in the founding of the European Society for Photobiology and a pioneer in the initiation of many of its activities.

This scheme has been established in order to promote a research career in photobiology for young scientists of high potential, particularly from less privileged countries, and to foster collaborations between research laboratories.

The fellowship will be advertised annually and will provide up to 6000 Euros to cover travel and living expenses associated with visiting a research laboratory in another country for a period of up to 3 months.

Applications for the scholarship are welcomed from now to the CLOSING DATE of 28 FEBRUARY 2017.

The guidelines for applying are available on the ESP website.

Figures from Brixen

On the 20th of June 2016 a cohort of 44 students gathered in Brixen (Italy) to attend the 8th edition of the School of Photobiology. The students, mostly PhD students but also post-docs, came from 20 countries: Kate Dixon from Australia travelled the longest distance to reach Brixen, with her husband and her baby. As for the previous editions, a poster session was arranged to allow students to present and discuss the results of their research. Diana Yuzhakova from Lobachevsky State University (Russia) and Giulia Zampini, from the University of Perugia (Italy) were the proud winner of the poster prize. Giorgia Miolo did a fantastic job as local organizer, and this played a huge role in making the School an excellent experience for the students. The next edition of the School is planned for 2018. See you there!

European Society for Photobiology
ESP PHOTOBIOLOGY SCHOOL
20-25 June, 2016
Brixen/Bressanone, Italy

Scott Byrne (MEPSA president) and Rex Tyrrell (ESP president) at the MEPSA dinner

A report from the Meeting of the Molecular and Experimental Pathology Society of Australasia, Melbourne, October 2016

The Molecular & Experimental Pathology Society of Australasia (MEPSA) includes Photobiological Sciences as a major component. Their meeting this year (http://awtrs-mepsa2016.com/) was held jointly with the Australasian Wound and Tissue Repair Society at the imposing Melbourne Convention and Exhibition Centre. I was privileged to be invited as a plenary speaker in my capacity as the President of ESP. The meeting was excellently organized by the current president of MEPSA, Scott Byrne, a former ESP Young Investigator Award winner, ably assisted by Katie Dixon (another former ESP YIA winner), Terry Piva, Shelley Gorman, and Wayne Reilly. The scientific content of the meeting was excellent with the first plenary session on Monday afternoon including talks by Richard Weller from the UK on his groundbreaking work with the role of nitric oxide in UV effects and Prue Hart (an associate editor of PPS) on her latest findings concerning UV immunomodulation in mice. This was followed by two excellent days of science ranging from increasing evidence from Gary Haliday's group on cancer protection by nicotinamide to the latest information on the sually) transmissible facial cancers of the Tasmanian devil presented by Greg Wood.

Social aspects of the meeting were also excellent with a lively reception, an early career researcher networking evening and a generous sit-down dinner for meeting participants at the Ludlow Bar and Dining Room on the South bank of the Yarra river.

An important highlight of the meeting was the most welcome presence of a substantial number of young investigators, nearly all of whom gave either poster presentations or talks. The level was truly excellent and it was a pleasure to participate in the selection of poster and oral presentation awards (co-ordinated by Katie Dixon). The choice of winners was a hard task with such abundant talent. Award winners were Clara Choi (Centenary Institute, Univ of Sydney) and Benita Tse (Cellular Photoimmunology Group, Univ of Sydney) who received the Kumar awards for the best student presentation. Terence McGonigle won the McPhee award for best poster and Angela Ferguson took the Muller award for the best postdoctoral fellow presentation. MEPSA can be truly proud of its key role in supporting young photobiologists and ensuring the future of photobiology in this region. We hope to see many of these early career researchers at the next ESP meeting in Pisa and remind them that many partial travel awards will be available and these will be advertised on the ESP website early next year.

Three of the younger photobiologists at the MEPSA meeting. From left to right Elizabeth Grenik, Helen McGuire and Clara Choi

Rex Tyrrell
President of the European Society for Photobiology

A little bird told us....

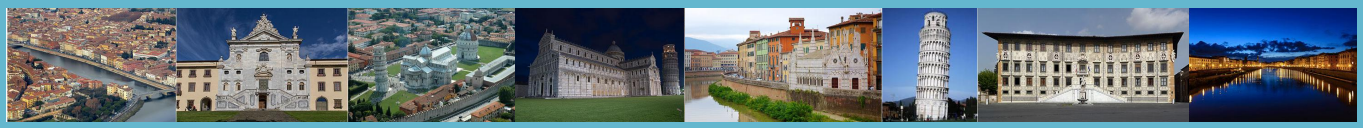
The Twitter account of the European Society for Photobiology went live on the 1st of December 2016.
You may now follow our activities, recent news, photobiology-related publications and events @EurSocPhotobiol
#ESP #PPS #EurSocPhotobiol #Photobiology #EyeOnESP #ESP2017Pisa

The XVII Congress in Pisa

Preparations are being made for the XVII ESP Congress, to take place in Pisa from the 4th to the 8th of September 2017. The list of the keynote speakers is now complete, and we are glad to announce the following exciting talks:

John L. Spudich (Houston, TX, US): Microbial rhodopsins and optogenetics
Thomas Carell (Munchen, DE): The dynamics of DNA photo-damage and enzymatic photo-repair
Georg T. Wondrak (Tucson, AZ, US): From photo-excited states to molecular interventions: targeting skin photo-oxidative stress
Alberto Diaspro (Genova, IT): Controlling and manipulating fluorescence dynamics towards nanoscale bioimaging
Giorgia Miolo (Padova, IT): Methodologies based on light as helpful tools in crime investigation
Giorgio Paolucci (Allan, JO): SESAME: Science and intercultural dialogue in the Middle East
Claire Wyart (Paris, FR): Light on a sensory interface relaying information from cerebrospinal fluid to motor circuit
Sebastiano Campagna (Messina, IT): Artificial photosynthesis: a concert for photons and electrons

The full list of symposia is available on the ESP website, at pisa2017.photobiology.eu



Dates for the diary

XXI International School on Pure and Applied Biophysics, Venice, Italy, 9th-13th January 2017
2017 ASP Presidential Evening Symposia: Photo-excited States: From Tissue Damage to Photomedicine, April 2017, San Diego, US
13th International Conference on Tetrapyrrole Photoreceptors of Photosynthetic Organisms, 9th-13th July 2017, Chicago, US
17th Congress of the European Society for Photobiology, Pisa, Italy, 4th-8th September 2015

On behalf of the executive committee, I hope you have had an excellent and happy holiday season with friends and family. I wish to sincerely thank the executive committee of ESP and other ESP colleagues for all the support this year and all the work that you have put in to keep the society thriving. We have seen a successful year with an excellent photobiology school enjoyed by all participants, the launch of a new book series, the continued success of our journal, a programme for the September 2017 Pisa meeting in a very advanced state as well as the continuation of our newsletters and the recent launch of our official twitter site which is gathering followers by the minute. I wish you all great happiness and success in 2017 and look forward to seeing you in Pisa.

Rex Tyrrell President, European Society for Photobiology