

---

**Monday, 4 September, afternoon**

**Congress Centre Ground Floor**

---

15:30  
18.30     **Registration**

---

**Monday, 4 September, afternoon**

**Congress Centre Ground Floor**

---

19:00  
21.30     **Welcome Reception**

- 08:30     **Opening Ceremony – Welcome Address**
- 08:50     **Young Investigator Award Lecture**  
*Chair: Lesley E. Rhodes (Manchester, United Kingdom)*
- KL101 RESOLFT Fluorescence Nanoscopy for gentler and faster live cell imaging**  
          Ilaria Testa (Stockholm, Sweden)
- 09:30     **Molecular and cellular aspects of PDT**  
*Chair: Kristian Berg (Oslo, Norway), Patrycja Nowak-Sliwinska (Lausanne, Switzerland)*
- 09:30     **IL102 Optimized drug combinations to support light therapy**  
          Patrycja Nowak-Sliwinska (Geneva, Switzerland)
- 10:00     **IL103 Anti-angiogenesis treatment is an effective immunotherapy**  
          Arjan W Griffioen<sup>1</sup>, Marieke Dekker<sup>1</sup>, Hinde el Otmani, Judy R van Beijnum<sup>1</sup>, Patrycja Nowak-Sliwinska<sup>2</sup> (<sup>1</sup>Amsterdam, Netherlands; <sup>2</sup>Geneva, Switzerland)
- 10:30     **Coffee break**
- 11:00     **IL104 Photochemical internalization (PCI) as a treatment alternative for otherwise therapy-resistant cancers**  
          Kristian Berg, Anette Weyergang, Cathrine E. Olsen, Pål K. Selbo (Oslo, Norway)
- 11:30     **IL105 The crucial role of iNOS/NO in acquired resistance to cancer photodynamic therapy**  
          Valentina Rapozzi<sup>1</sup>, Francesca D'Este<sup>1</sup>, Emilia Della Pietra<sup>1</sup>, Greta Varchi<sup>2</sup>, Luigi Emilio Xodo<sup>1</sup> (<sup>1</sup>Udine, <sup>2</sup>Bologna, Italy)
- 12:00     **OC106 Death modes after PDT**  
          David Kessel (Detroit, MI, United States)
- 12:15     **OC108 Promoting 5-ALA-PDT efficacy by targeting oncogenic Ras/MEK pathway**  
          Vipin Shankar Chelakkot, Ema Yoshioka, Leena Derwish, Suzette Rutihinda, Maria Licursi, Theerawat Pongnopparat, Karen Mearow, Ann Dorward, Kensuke Hirasawa (St. John's, NL, Canada)
- 12:30     **OC109 Smart dual-functionalized gold nanoclusters with Protoporphyrin IX and Doxorubicin to achieve a synergistic chemo-phototherapeutic effect**  
          Andrea Tabero<sup>1</sup>, Oriol Planas<sup>2</sup>, Ana Lazaro-Carrillo<sup>1</sup>, Santi Nonell<sup>2</sup>, Juan Carlos Stockert<sup>1</sup>, Magdalena Cañete<sup>1</sup>, Angeles Villanueva<sup>1</sup> (<sup>1</sup>Madrid, <sup>2</sup>Barcelona, Spain)
- 13:45     **OC110 Photoinduced generation and reactivity of an ascorbate radical in the presence of hematoporphyrin derivative and TPPS4: EPR and absorption spectroscopy studies**  
          Saulius Bagdonas, Tomas Biekša, Arunas Marsalka (Vilnius, Lithuania)

09:30 **Photobiology and photochemistry in aquatic environments (ESP-ASP\* Joint Symposium)**  
*Chair: Patrick Neale (Edgewater, United States), Ruben Sommaruga (Innsbruck, Austria)*

09:30 **IL111 Photoinduced reactions in sunlit surface waters: Photoreaction pathways and climate change effects**  
*Davide Vione, Marco Minella, Claudio Minero (Torino, Italy)*

10:00 **IL112 UV-resistant actinobacteria from High-Altitude Andean Lakes: Biodiversity and adaptation mechanisms**  
*Virginia Helena Albarracin, Luciano Portero, Federico Zannier, Maria Eugenia Farias (San Miguel de Tucuman, Argentina)*

10:30 **Coffee break**

11:00 **IL113 Quantitative assessment of UV inhibition of marine phytoplankton productivity based on biological weighting functions and satellite remote sensing of ocean color**  
*Patrick Neale<sup>1</sup>, Brian Thomas<sup>2</sup> (<sup>1</sup>Edgewater, MD, <sup>2</sup>Topeka, KS, United States)*

11:30 **IL114 Role of pigments in Zooplankton**  
*Samuel Hylander (Kalmar, Sweden)*

12:00 **OC115 Insights into the ecology of the invisible: Implications of differential tolerance and repair of UV damage in freshwater organisms**  
*Craig Williamson<sup>1</sup>, Gabriella Dee<sup>2</sup>, Mark Olson<sup>3</sup>, Wendy Palen<sup>4</sup>, Aaron Clauser<sup>5</sup>, Kirsten Kessler<sup>2</sup>, Robert Sanders<sup>6</sup>, Wade H. Jeffrey<sup>7</sup>, Erin Overholt<sup>1</sup>, Sandra Connelly<sup>8</sup> (<sup>1</sup>Oxford, OH, <sup>2</sup>Bethlehem, PA, <sup>3</sup>Lancaster, PA, <sup>5</sup>Schuylkill Haven, PA, <sup>6</sup>Philadelphia, PA, <sup>7</sup>Pensacola, FL, <sup>8</sup>Rochester, NY, United States; <sup>4</sup>Burnaby, BC, Canada)*

12:15 **OC116 Bacterial survival under extreme UV radiation: A comparative proteomics study of *Rhodobacter* sp., isolated from high altitude wetlands in Chile**  
*Vilma Pérez<sup>1,2</sup>, Martha Hengst<sup>1,2</sup>, Lenka Kurte<sup>1,2</sup>, Cristina Dorador<sup>1,2</sup>, Wade H. Jeffrey<sup>3</sup>, Ruddy Wattiez<sup>4</sup>, Verónica Molina<sup>5</sup>, Sabine Matallana-Surget<sup>6</sup> (<sup>1</sup>Antofagasta, <sup>2</sup>Santiago, <sup>5</sup>Valparaíso, Chile; <sup>3</sup>Pensacola, FL, United States; <sup>4</sup>Mons, Belgium; <sup>6</sup>Stirling, United Kingdom)*

12:30 **OC117 Variability of UVR Attenuation and Inherent Optical Properties in the Shallow Coral-reef Waters of Malaysia**  
*Victor S Kuwahara<sup>1</sup>, Keiko Mizubayashi<sup>1</sup>, Teruaki Yoshida<sup>2</sup>, M.R.M. Kushairi<sup>3</sup>, A.W.M. Effendy<sup>4</sup>, Tatsuki Toda<sup>1</sup> (<sup>1</sup>Tokyo, Japan; <sup>2</sup>Kota Kinabalu, <sup>3</sup>Selangor, <sup>4</sup>Terengganu, Malaysia)*

12:45 **Brief Summaries of Poster Contributions to the Symposium**

- 09:30 **Topical Photoprotection: 2017 (ESP-ESPD\* Joint Symposium)**  
*Chair: Gillian M. Murphy (Dublin, Ireland), Henry W Lim (Detroit, United States)*
- 09:30 **IL118 Controversies in Sunscreens**  
Elma (Chat) D. Baron (Cleveland, OH, United States)
- 10:00 **IL119 Vitamin D, Skin Type and Photoprotection**  
Henry W Lim (Detroit, MI, United States)
- 10:30 **Coffee break**
- 11:00 **IL120 Beyond the controlled environment of the laboratory: Evaluating the comparative efficacy of high SPF sunscreen in actual use scenarios**  
Joshua D. Williams (Skillman, NJ, United States)
- 11:30 **IL121 What should we tell our patients about how to practice photoprotection?**  
Giovanni Leone (Roma, Italy)
- 12:00 **OC122 Scattering particles increase efficacy of sunscreens**  
Bernd Herzog (Grenzach-Wyhlen, Germany)
- 12:20 **OC123 Targeting mitochondrial iron to protect Friedreich's ataxia skin cells from Ultraviolet A-induced cell death**  
Olivier Reelfs<sup>1</sup>, Vincenzo Abbate<sup>2</sup>, Robert C Hider<sup>2</sup>, Charareh Pourzand<sup>1</sup> (<sup>1</sup>Bath, <sup>2</sup>London, United Kingdom)
- 12:40 **OC124 Evaluation of the influence of sunscreen formulations and SPF on genoprotection in a hair follicle-derived human epidermis model**  
Daniel Bacqueville<sup>1</sup>, Thierry Douki<sup>2</sup>, Laure Duprat<sup>1</sup>, Béatrice Guiraud<sup>1</sup>, Hélène Dromigny<sup>1</sup>, Valérie Perier<sup>1</sup>, Sandrine Bessou-Touya<sup>1</sup>, Hélène Duplan<sup>1</sup> (<sup>1</sup>Toulouse, <sup>2</sup>Grenoble, France)

- 09:30 **DNA photolesions - recent advances**  
*Chair: Thierry Douki (Grenoble, France), Laurent Marrot (Aulnay-sous-Bois, France)*
- 09:30 **IL125 Excited states of thymine and their role in DNA lesion formation**  
Wolfgang Zinth, Bert Manuel Pilles, Lizhe Liu, Julia Gontcharov, Corinna Lucia Kufner, Dominik Benjamin Bucher, Thomas Carell, Wolfgang Johannes Schreier (München, Germany)
- 09:55 **IL126 Formation and repair of pyrimidine dimers studied by next generation sequencing**  
Sheera Adar (Jerusalem, Israel)
- 10:20 **OC127 A Song of Light and DNA: From Photochemistry to Molecular Recognition**  
Antonio Monari (Nancy, France)
- 10:30 **Coffee break**
- 11:00 **OC128 DNA Photosensitization Mechanisms: Similarities and Differences between Benzophenone, Ibuprofen and Ketoprofen**  
Marco Marazzi<sup>1</sup>, Daniel Roca-Sanjuan<sup>2</sup>, Leticia Gonzalez<sup>3</sup>, Leif A. Eriksson<sup>4</sup>, Elise Dumont<sup>5</sup>, Stephanie Grandemange<sup>6</sup>, Antonio Monari<sup>1</sup> (<sup>1</sup>Nancy, <sup>2</sup>Lyon, <sup>3</sup>Vandoeuvre-les-Nancy, France; <sup>2</sup>Valencia, Spain; <sup>3</sup>Vienna, Austria; <sup>4</sup>Gothenburg, Sweden)
- 11:15 **IL129 UV-induced mitochondrial DNA damage**  
Mark Birch-Machin (Newcastle upon Tyne, United Kingdom)
- 11:40 **IL130 The circadian clock and biological age influence UV DNA damage responses in skin epidermis**  
Michael G Kemp<sup>1</sup>, Dan F Spandau<sup>2</sup>, Shobhan Gaddameedhi<sup>3</sup>, Jeffrey B Travers<sup>1</sup> (<sup>1</sup>Dayton, OH, <sup>2</sup>Indianapolis, IN, <sup>3</sup>Spokane, WA, United States)
- 12:05 **OC131 Solar simulated light exposure alters metabolism and genotoxicity induced by benzo[a]pyrene in human skin explants**  
Anne M. von Koschembahr<sup>1</sup>, David Béal<sup>1</sup>, Marie-Thérèse Leccia<sup>2</sup>, Anne Maitre<sup>2</sup>, Thierry Douki<sup>1</sup> (<sup>1</sup>Grenoble, <sup>2</sup>La Tronche, France)
- 12:20 **OC132 Photoprotection by constitutive melanin: correlating deoxyribonucleic acid damage *in vivo* and skin cancer incidence**  
Damilola Fajuyigbe<sup>1</sup>, Su M Lwin<sup>1</sup>, Brian L Diffey<sup>2</sup>, Robert PE Sarkany<sup>1</sup>, Antony R Young<sup>1</sup> (<sup>1</sup>London, <sup>2</sup>Newcastle upon Tyne, United Kingdom)
- 12:35 **OC133 UV sensitivity and DNA photolesions in skin of variable constitutive pigmentation**  
Sandra Del Bino-Nokin, Juliette Sok, Françoise Bernerd (Aulnay-sous-Bois, France)
- 12:50 **OC134 Suction blister, a convenient probe for the assessment of DNA protection by sunscreens**  
Thierry Douki<sup>1</sup>, Gwendal Josse<sup>2</sup>, Jimmy Le Digabel<sup>2</sup>, Eleonore Gravier<sup>2</sup> (<sup>1</sup>Grenoble, <sup>2</sup>Toulouse, France)

- 14:30 **Keynote Lecture 2**  
*Chair: Rex M. Tyrrell (Bath, United Kingdom)*
- KL136 From photo-excited states to molecular interventions: Targeting skin photo-oxidative stress**  
Georg T Wondrak (Tucson, AZ, United States)
- 15:00 **Photobiology and industry**  
*Chair: Alberto Diaspro (Genova, Italy), Roberto Pini (Firenze, Italy)*
- 15:00 **IL137 Toxicology: Moving a Compound from the Bench to First in Man**  
Douglas B. Learn (Horsham, PA, United States)
- 15:30 **IL138 Photobiology and Industry: some innovative contributions to patient quality of life**  
Leonardo Masotti (Calenzano (FI), Italy)
- 16:00 **Coffee break**
- 16:30 **IL139 Research at Biofrontera: Enhancing photodynamic therapy of cutaneous neoplasias using a nanoemulsion-based drug delivery system**  
Ben Novak<sup>1</sup>, Thomas Dirschka<sup>2,3</sup>, Colin A. Morton<sup>4</sup>, Uwe Reinhold<sup>5</sup>, Montserrat Foguet<sup>1</sup>, Beate Schmitz<sup>1</sup>, Rolf-Markus Szeimies<sup>6</sup>, Hermann Lübbert<sup>1</sup> (<sup>1</sup>Leverkusen, <sup>2</sup>Wuppertal, <sup>3</sup>Witten, <sup>5</sup>Bonn, <sup>6</sup>Recklinghausen, Germany; <sup>4</sup>Stirling, United Kingdom)
- 17:00 **IL140 Controlled Environment Agriculture (CEA) –Outside-in-innovation and Partnerships as Key Success Factor**  
Timo Bongartz (Munich, Germany)
- 17:30 **Philips Light & Health: Innovations in phototherapy**  
Joerg Liebmann (Aachen, Germany)
- 18:00 **OC141 EPR: a technique to characterize free radicals (ROS and RNS) and to study Oxidative stress. Now made so simple, to become a laboratory tool**  
Manuela Liberi (Milano, Italy)

- 15:00     **Light and vitamin A in retinal disease**  
          *Chair: Rosalie Crouch (Charleston, United States), Yiannis Koutalos (Charleston, United States)*
- 15:00     **IL142 Introduction to session**  
          Rosalie Crouch (Charleston, SC, United States)
- 15:10     **IL143 Processing of vitamin A in human rod and cone photoreceptors**  
          Yiannis Koutalos (Charleston, SC, United States)
- 15:40     **OC144 Phototoxicity of bovine retinal lipid extracts in ARPE-19 cell induced by oxidation**  
          Anna Koscielniak<sup>1</sup>, Tomasz Oles<sup>1</sup>, Andrzej Zadlo<sup>1</sup>, Agnieszka Broniec<sup>1</sup>, Olivier Berdeaux<sup>2</sup>, Stephane Gregoire<sup>2</sup>, Lionel Bretillon<sup>2</sup>, Tadeusz Sarna<sup>1</sup>, Anna Maria Pawlak<sup>1</sup> (<sup>1</sup>Krakow, Poland; <sup>2</sup>Dijon, France)
- 16:00     **Coffee break**
- 16:30     **IL145 Thermal isomerization of chromophore in visual pigment**  
          Yoshinori Shichida (Kyoto, Japan)
- 17:00     **IL146 How arrestin influences retinal flow in rhodopsin**  
          Martha E. Sommer (Berlin, Germany)
- 17:30     **IL147 Role of all-trans-retinal and short-term light adaptation in susceptibility to retinal photodamage**  
          Malgorzata Barbara Rozanowska (Cardiff, United Kingdom)

- 15:00 **UV-B-stimulated plant protection (ESP-UV4Plants\* Joint Symposium)**  
*Chair: Éva Hideg (Pécs, Hungary), Gareth I. Jenkins (Glasgow, United Kingdom)*
- 15:00 **IL148 How do phenolic compounds contribute to the sunlight acclimation of leaves? Potentials and possibilities**  
*Éva Hideg, Kristóf Csepregi, Arnold Rácz, Gyula Czégény, Péter Teszlák, László Körösi, Gábor Jakab (Pécs, Hungary)*
- 15:30 **IL149 Potential importance of secondary plant metabolites induced by UV-B radiation: benefits from plant protection to human health**  
*Monika Schreiner, Susanne Neugart (Grossbeeren, Germany)*
- 16:00 **Coffee break**
- 16:20 **IL150 UV-B stimulated plant protection: what does UVR8 contribute?**  
*Gareth I. Jenkins (Glasgow, United Kingdom)*
- 16:40 **IL151 UV-B as a positive regulator of plant photosynthetic performance**  
*Jason J. Wargent (Palmerston North, New Zealand)*
- 17:10 **OC152 UV-B perceived by UVR8 inhibits plant thermomorphogenesis**  
*Ashutosh Sharma<sup>1</sup>, Scott Hayes<sup>1,2</sup>, Donald P. Fraser<sup>1</sup>, C. Kester Cragg-Barber<sup>1</sup>, Bhavana Sharma<sup>1</sup>, Gareth I. Jenkins<sup>3</sup>, Keara A. Franklin<sup>1</sup> (<sup>1</sup>Bristol, <sup>3</sup>Glasgow, United Kingdom; <sup>2</sup>Utrecht, Netherlands)*
- 17:30 **OC153 Day-night temperature fluctuations modify leaf epidermal flavonoid accumulation to varying extents in *Arabidopsis* through UV-B and blue-light photoreceptors**  
*T. Matthew Robson<sup>1</sup>, Craig Christopher Brelford<sup>1</sup>, Marieke Trasser<sup>2</sup>, Santa Neimane<sup>3</sup>, Twinkle Solanki<sup>1</sup>, John A Loehr<sup>4</sup>, Albert Porcar-Castell<sup>1</sup>, Pedro Jose Aphalo<sup>1</sup>, Luis Orlando Morales<sup>1</sup>, Jakub Nezval<sup>5</sup> (<sup>1</sup>Helsinki, <sup>4</sup>Lammi, Finland; <sup>2</sup>Montpellier, France; <sup>3</sup>Riga, Latvia; <sup>5</sup>Ostrava, Czech Republic)*
- 17:50 **OC154 UV-B radiation as a regulator of photosynthesis in *Arabidopsis thaliana***  
*Rixta Sievers, Jason Wargent (Palmerston North, New Zealand)*
- 18:05 **OC155 Influence of sugars on UV-protection in plants**  
*Piotr Zgłobicki<sup>1</sup>, Joanna Grzyb<sup>2</sup>, Anna Kozłowska<sup>1</sup>, Agnieszka Katarzyna Banaś<sup>1</sup> (<sup>1</sup>Krakow, <sup>2</sup>Warszawa, Poland)*



- 08:30 **Keynote Lecture 3**  
*Chair: Cristina Flors (Madrid, Spain)*
- KL201 Controlling and manipulating fluorescence dynamics towards nanoscale bioimaging**  
Alberto Diaspro (Genova, Italy)
- 09:00 **Keynote Lecture 4**  
*Chair: Francesca Giuntini (Liverpool, United Kingdom)*
- KL202 Light on an ancestral sensory interface linking cerebrospinal fluid to motor circuits in vertebrates**  
Urs Böhm, Lydia Djenoune, Kevin Fidelin, Andrew Prendergast, Jenna Sternberg, Jeff Hubbard, Steven Knafo, Po-En Tseng, Laura Desban, Pierre-Luc Bardet, Claire Wyart (Paris, France)
- 09:30 **Chemistry and delivery of photosensitisers**  
*Chair: Maria da Graça P.M.S Neves (Aveiro, Portugal), Gang Zheng (Toronto, Canada)*
- 09:30 **IL203 Plasmonic nanostructures as biomedical tools**  
Isabel Pastoriza Santos (Vigo, Spain)
- 10:00 **IL204 Synthetic strategies in the design of photosensitizers for photodynamic therapy**  
Ana T. P. C. Gomes<sup>1</sup>, Nuno M. M. Moura<sup>1</sup>, Kelly Castro<sup>1,2</sup>, Maria do Amparo F. Faustino<sup>1</sup>, Angela Cunha<sup>1</sup>, Adelaide Almeida<sup>1</sup>, Maria da Graça P.M.S. Neves<sup>1</sup> (<sup>1</sup>Aveiro, Portugal; <sup>2</sup>Curitiba, Brazil)
- 10:30 **Coffee break**
- 11:00 **IL205 Biomimetic porphyrin nanomedicine for cancer imaging and therapy**  
Gang Zheng (Toronto, Canada)
- 11:30 **OC206 Light on, light off –Phototherapy in the dark**  
Mathias O. Senge (Dublin, Ireland)
- 11:45 **OC207 Nanoencapsulated bacteriochlorins for photodynamic therapy of resistant cancers**  
Janusz M. Dabrowski<sup>1</sup>, Barbara Pucelik<sup>1</sup>, Luis G. Arnaut<sup>2</sup> (<sup>1</sup>Krakow, Poland; <sup>2</sup>Coimbra, Portugal)
- 12:00 **OC208 AGuIX® theranostic nanoparticles for vascular-targeted interstitial photodynamic therapy of brain tumors**  
Ludovic Colombeau<sup>1</sup>, Eloise Thomas<sup>2</sup>, Noémie Thomas<sup>1</sup>, Muriel Barberi-Heyob<sup>1</sup>, François Lux<sup>2</sup>, Olivier Tillement<sup>2</sup>, Céline Frochet<sup>1</sup>, Régis Vandresse<sup>1</sup>, Samir Acherar<sup>1</sup> (<sup>1</sup>Nancy, <sup>2</sup>Villeurbanne, France)
- 12:15 **OC209 Modulation of porphyrazines photostability: studies in solution and in HaCaT cells for PDT applications**  
Thiago Teixeira Tasso, Paulo Newton Tonolli, Helena Couto Junqueira, Erica de Liandra Salvador, Paula Homem de Mello, Mauricio da Silva Baptista (São Paulo, Brazil)
- 12:30 **OC210 The scintillating possibilities of a PDT assisted radiotherapy**  
Guy Monroe Entract, Ross William Boyle (Hull, United Kingdom)
- 12:45 **OC211 Novel Theranostic Phototherapeutic  $\alpha\beta 6$ -Integrin Targeted PET/MRI Metalloporphyrins**  
Jordon Sandland, Steve J. Archibald, Ross W. Boyle (Hull, United Kingdom)

- 09:30 **Non-visual photoreception and circadian vision: from basic and applied research to human behavior and health**  
*Chair: Joan E. Roberts (New York, United States), Carlo Musio (Trento, Italy)*
- 09:30 **IL212 Non-visual photoreceptors: From basic science to potential optogenetic applications**  
Carlo Musio (Trento, Italy)
- 10:00 **IL213 Extraretinal photoreception and circadian rhythms in non-mammalian vertebrates**  
Cristiano Bertolucci (Ferrara, Italy)
- 10:30 **Coffee break**
- 11:00 **IL214 Responses of the mammalian circadian clock to visual features other than irradiance**  
Robert Lucas (Manchester, United Kingdom)
- 11:30 **IL215 Practical Applications of Circadian Rhythm on Human Health**  
Joan E. Roberts (New York, NY, United States)
- 12:00 **IL216 Effects of ‘blue-regulated’ full spectrum LED lighting in clinician performance and patient safety**  
Octavio Luis Perez (Madrid, Spain; New York, NY, United States)

- 09:30     **Photoimmunology in health and disease**  
*Chair: Scott N. Byrne (Sydney, Australia), Prue H. Hart (Perth, Australia)*
- 09:30     **IL217   Platelet Activating Factor, a Critical Mediator for UV-Induced Immune Suppression Activates Epigenetic Mechanisms**  
*Stephen E Ullrich<sup>1</sup>, Elisabetta Damiani<sup>2</sup>, Nahum Puebla-Osorio<sup>1</sup> (<sup>1</sup>Houston, TX, United States; <sup>2</sup>Ancona, Italy)*
- 10:00     **OC218   Ultraviolet irradiation of the skin alters sphingosine-1-phosphate levels in distant lymph nodes**  
*Benita Tse, Felix Marsh-Wakefield, Gary M. Halliday, Scott Byrne (Sydney, Australia)*
- 10:10     **IL219   UV-activated regulatory B cells in health and disease**  
*Scott Byrne, Lai Fong Kok, Angela Ferguson, Jacqueline Marshall, Gary M. Halliday (Sydney, NSW, Australia)*

**The symposium “Photoimmunology in health and disease” will continue on Thursday, 7 September at 9:30**

- 10:30     **Coffee break**
- 11:00     **Systemic photoprotection**  
*Chair: Gary M. Halliday (Sydney, Australia), Wilhelm Stahl (Duesseldorf, Germany)*
- 11:00     **IL222   Antioxidants in Systemic Photoprotection - Mechanisms and Concepts**  
*Wilhelm Stahl (Duesseldorf, Germany)*
- 11:30     **IL223   Omega-3 polyunsaturated fatty acids and photoprotection: eicosanoids and beyond**  
*Suzanne M. Pilkington (Manchester, United Kingdom)*
- 12:00     **IL224   Systemic photoprotection by nicotinamide**  
*Diona L Damian, Gary M Halliday (Sydney, NSW, Australia)*
- 12:30     **IL225   Photoprotection with food rich in carotenoids: Is prevention of age-related macular degeneration possible?**  
*Volker Böhm (Jena, Germany)*

*Satellite Meeting (Jointly organized by UV4Plants\* Association and ESP)*

- Turning photobiology into commercial reality: exploiting UV radiation for sustainable and innovative food**  
09:00 *Chair: Gareth I. Jenkins (Glasgow, United Kingdom), Annamaria Ranieri (Pisa, Italy)*
- 09:00 **Opening & Welcome**  
Annamaria Ranieri and Gareth Jenkins
- 09:20 **IL226 Photo-biotechnology for stress-tolerant and environmentally friendly crop plants based on phytochrome photoreceptors**  
Pill-Soon Song<sup>1</sup>, Hyo-Yeon Lee<sup>1</sup>, Jeong-Il Kim<sup>2</sup>, Ganesan Markkandan<sup>3</sup> (<sup>1</sup>Jeju, <sup>2</sup>Gwangju, Republic of Korea; <sup>3</sup>Kolkata, India)
- 09:40 **IL227 UV-B and grapevine: from plant physiology to the quality of berries and wine**  
Javier Martínez-Abaiagar, Encarnación Núñez-Olivera (Logroño, Spain)
- 10:00 **IL228 Don't put sunscreen on fruits! UV-B radiation as a precious resource for peach quality**  
Marco Santin<sup>1</sup>, Luigi Lucini<sup>2</sup>, Marie-Theres Hauser<sup>3</sup>, Antonella Castagna<sup>1</sup>, Annamaria Ranieri<sup>1</sup> (<sup>1</sup>Pisa, <sup>2</sup>Piacenza, Italy; <sup>3</sup>Wien, Austria)
- 10:20 **IL229 Light quality induced changes in the carotenoid metabolism of pak choi (*Brassica rapa* ssp. *chinensis*)**  
Katja Frede, Monika Schreiner, Susanne Baldermann (Großbeeren, Germany)
- 10:40 **IL230 Andean sunshine: high UVB radiation on local crops**  
Thais Huarancca Reyes<sup>1</sup>, Eric G. Cosio<sup>2</sup>, Norma Salinas<sup>3</sup>, Lorenzo Guglielminetti<sup>1</sup> (<sup>1</sup>Pisa, Italy; <sup>2</sup>Lima, Peru; <sup>3</sup>Oxford, United Kingdom)
- 11:00 **Coffee break**
- 11:30 **IL231 Influence of UVB radiation applied by LEDs on secondary plant metabolites**  
Melanie Wiesner-Reinhold<sup>1</sup>, Susanne Baldermann<sup>2</sup>, Kamil Czajkowski<sup>3</sup>, Thomas Filler<sup>3</sup>, Monika Schreiner<sup>1</sup>, Susanne Neugart<sup>1</sup> (<sup>1</sup>Grossbeeren, <sup>2</sup>Nuthetal, <sup>3</sup>Berlin, Germany)
- 11:50 **IL232 Controlled Environment Agriculture (CEA) –Development and Usage of Tunable LED Grow Lights in collaboration with (Research) Partners**  
Timo Bongartz (Munich, Germany)
- 12:10 **OC233 Valorization of waste cabbage leaves by UV postharvest treatments**  
Giovanni Agati<sup>1</sup>, Barbara Kusznierevicz<sup>2</sup>, Agnieszka Bartoszek<sup>2</sup>, Maria Grzegorzewska<sup>3</sup>, Ryszard Kosson<sup>3</sup>, Artur Kowalski<sup>3</sup>, Randi Seljåsen<sup>4</sup>, Lorenza Tuccio<sup>1</sup>, Ingunn M. Vågen<sup>4</sup>, Stanislaw Kaniszewski<sup>3</sup> (<sup>1</sup>Sesto Fiorentino (FI), Italy; <sup>2</sup>Gdansk, <sup>3</sup>Skierniewice, Poland; <sup>4</sup>Grimstad, Norway)
- 12:25 **OC234 Physiological strategies of *Chenopodium quinoa* Willd. in response to different UVB doses irradiation**  
Lorenzo Guglielminetti<sup>1</sup>, Thais Huarancca Reyes<sup>1</sup>, Andrea Scartazza<sup>2</sup>, Antonella Castagna<sup>1</sup>, Eric Gabriel Cosio<sup>3</sup>, Annamaria Ranieri<sup>1</sup> (<sup>1</sup>Pisa, <sup>2</sup>Monterotondo Scalo (RM), Italy; <sup>3</sup>Lima, Peru)
- 12:40 **OC235 Radiative transfer modelling and on-site measurements of irradiance allow informed manipulation of spectral composition to match specific production objectives**  
Titta Kotilainen<sup>1</sup>, Ricardo Hernández<sup>2</sup>, Otmar Urban<sup>3</sup>, Vladimír Špunda<sup>4</sup>, Anders Lindfors<sup>1</sup>, Phillip Davis<sup>5</sup>, Pedro Jose Aphalo<sup>1</sup>, T. Matthew Robson<sup>1</sup> (<sup>1</sup>Helsinki, Finland; <sup>2</sup>Raleigh, NC, United States; <sup>3</sup>Brno, <sup>4</sup>Ostrava, Czech Republic; <sup>5</sup>Selby, United Kingdom)

---

**Wednesday, 6 September, afternoon**

**Congress Centre First Floor Gallery**

---

13:00 **Poster session**  
15.30

---

**Auditorium**

---

15:30 **Presentation of the ESP Education and Training Committee activities**  
16.00

- 16:00 **Translational and therapeutical aspects of PDT**  
*Chair: Abhishek D. Garg (Leuven, Belgium), Tayyaba Hasan (Boston, United States)*
- 16:00 **IL236 Photodynamic therapy of basal cell carcinoma in patients with Gorlin syndrome: A clinical randomized pilot trial comparing blue versus red light**  
Edward V. Maytin, Urvashi Kaw, Muneeb Ilyas, Judith Mack, Bo Hu (Cleveland, OH, United States)
- 16:30 **IL237 Exploiting cellular behavior to maximize cancer treatment outcomes**  
Tayyaba Hasan (Boston, MA, United States)
- 17:00 **Coffee break**
- 17:30 **OC238 Polyacrylamide nanoparticles: a conjugatable platform for use in the diagnosis and treatment of cancer**  
Steven Yong-Yi Yap, Graeme J Stasiuk, Ross W Boyle (Hull, United Kingdom)
- 17:50 **OC239 Photochemical internalization in bladder cancer – development of an orthotopic *in vivo* model**  
Odrun Arna Gederaas<sup>1</sup>, Anders Johnsson<sup>1</sup>, Kristian Berg<sup>2</sup>, Rojlina Manandhar<sup>1</sup>, Chetana Shrestha<sup>1</sup>, Daniel Skåre<sup>1</sup>, Ingvild Kinn Ekroll<sup>1</sup>, Anders Høgset<sup>2</sup>, Astrid Hjelde<sup>1</sup> (<sup>1</sup>Trondheim, <sup>2</sup>Oslo, Norway)
- 18:10 **IL240 PDT-induced ER stress: from mTOR and deubiquitinase inhibition to tumor vaccination**  
Bastien Doix, Natalia Trempolec, Adan Pinto, Olivier Feron (Brussels, Belgium)
- 18:40 **IL241 Photodynamic therapy: towards next-generation immunotherapy for cancer**  
Abhishek D Garg, Patrizia Agostinis (Leuven, Belgium)
- 19:10 **OC242 New phosphorescent photosensitizers (PS) to follow up PDT response by autofluorescence FLIM and PS PLIM**  
Angelika Rueck<sup>1</sup>, Jasmin Breymayer<sup>1</sup>, Lothar Lilge<sup>2</sup>, Arkady Mandel<sup>2</sup>, Sviatlana Kalinina<sup>1</sup> (<sup>1</sup>Ulm, Germany; <sup>2</sup>Toronto, Canada)

- 16:00 **Frontiers in DNA repair**  
*Chair: Evelyne Sage (Orsay, France), Patrick J. Rochette (Québec, Canada)*
- 16:00 **IL243 Enhancement of UV-induced DNA damage repair in human dermal fibroblasts by a chronic low-dose UVB pre-stimulation**  
Marie-Catherine Drigeard Desgarnier<sup>1</sup>, Roxanne Bérubé<sup>1</sup>, Thierry Douki<sup>2</sup>, Patrick J. Rochette<sup>1</sup>  
(<sup>1</sup>Québec, Canada; <sup>2</sup>Grenoble, France)
- 16:30 **IL244 Filling gaps in translesion DNA synthesis in human cells**  
Carlos Fred Menck (Sao Paulo, SP, Brazil)
- 17:00 **Coffee break**
- 17:30 **IL245 Nucleolar DNA damage, jammed rRNA synthesis and the fate of RNA polymerase I**  
Antonio Conconi (Sherbrooke, QC, Canada)
- 18:00 **IL246 Biological significance of CPD photolyase in rice grown under natural sunlight: UVB sensitivity and gene expression and subcellular localization of CPD photolyase**  
Jun Hidema (Sendai, Japan)
- 18:30 **OC247 Light-driven DNA repair: Lessons from fish**  
Haiyu Zhao<sup>1</sup>, Pietro Negrini<sup>1</sup>, Elena Frigato<sup>2</sup>, Giuseppe Di Mauro<sup>2</sup>, Tilman Lamparter<sup>3</sup>, Daniela Vallone<sup>1</sup>, Cristiano Bertolucci<sup>2</sup>, Nicholas S. Foulkes<sup>1</sup> (<sup>1</sup>Eggenstein, <sup>3</sup>Karlsruhe, Germany; <sup>2</sup>Ferrara, Italy)
- 18:50 **OC248 Dermal components and their impact on UV-induced DNA damage repair efficiency in the epidermis**  
Marie M. Dorr, Patrick J. Rochette (Québec, Canada)

- 16:00     **Dynamic luminescent probes**  
          *Chair: Ranieri Bizzarri (Pisa, Italy), Thomas Gensch (Jülich, Germany)*
- 16:00     **IL249   Optimized Ratiometric Fluorescent Calcium Biosensors**  
          Oliver Griesbeck (Martinsried, Germany)
- 16:30     **IL250   Genetically encoded biosensors for quantitative analysis of live cell chemistry**  
          Marie Erard, Fabienne Mérola, Hélène Pasquier, Oliver Nüsse (Orsay, France)
- 17:00     **Coffee break**
- 17:30     **IL251   Long luminescence-lifetime terbium probes for time-resolved FRET biosensing**  
          Niko Hildebrandt (Orsay, France)
- 18:00     **IL252   Monitoring of pH in living cells and cell organelles by fluorescence lifetime imaging**  
          Thomas Gensch<sup>1</sup>, Sabine Balfanz<sup>1</sup>, Arnd Baumann<sup>1</sup>, Felix Beinlich<sup>1</sup>, Ranieri Bizzarri<sup>2</sup>, Wolfgang Bönigk<sup>3</sup>, Gabriela Bosio<sup>4</sup>, Giorgia Casini<sup>1</sup>, Christoph Fahlke<sup>1</sup>, Arne Franzen<sup>1</sup>, Wolfgang Gärtner<sup>5</sup>, Raul Guzman<sup>1</sup>, Aba Losi<sup>6</sup>, Igor Melnikov<sup>7</sup>, Sarah Rahmati<sup>1</sup> (<sup>1</sup>Jülich, <sup>3</sup>Bonn, <sup>5</sup>Leipzig, Germany; <sup>2</sup>Pisa, <sup>6</sup>Parma, Italy; <sup>4</sup>La Plata, Argentina; <sup>7</sup>Grenoble, France)
- 18:30     **OC253   Characterization of environmental toxicity sensing *Escherichia coli* harboring plasmid with bacterial bioluminescence or fluorescence producing gene**  
          Hajime Karatani (Kyoto, Japan)
- 18:50     **OC254   Illuminating the cutting edge: New generation drug design for fluorescence guided surgery**  
          Miffy Cheng, Ross William Boyle (Hull, United Kingdom)



- 16:00     **Photoreception shapes photosynthesis**  
          *Chair: Roberto Bassi (Verona, Italy), Lucia Guidi (Pisa, Italy)*
- 16:00     **IL255   Improving light-use-efficiency and biomass yield of plants by modulating photoprotective mechanisms**  
          Stefano Cazzaniga, Luca Dall'Osto, Roberto Bassi (Verona, Italy)
- 16:30     **IL256   Diatom phytochromes reveal the existence of far-red light based sensing in the ocean**  
          Angela Falciatore (Paris, France)
- 17:00     **Coffee break**
- 17:30     **IL257   Phototropin-dependent regulation of photosynthesis in green algae**  
          Dimitris Petroutsos (Grenoble, France)
- 18:00     **IL258   UV-B photoreception triggers protection of the photosynthetic apparatus in *Chlamydomonas reinhardtii***  
          Guillaume Allorent<sup>1</sup>, Linnka Lefebvre-Legendre<sup>1</sup>, Richard Chappuis<sup>1</sup>, Marcel Kuntz<sup>2</sup>, Thuy B. Truong<sup>3</sup>, Krishna K. Niyogi<sup>1</sup>, Roman Ulm<sup>1</sup>, Michel Goldschmidt-Clermont<sup>1</sup> (<sup>1</sup>Geneva, Switzerland; <sup>2</sup>Grenoble, France; <sup>3</sup>Berkeley, CA, United States)
- 18:30     **OC259   UV-induced phototransformation and bleaching of protochlorophyllide-forms in the epicotyls of dark grown pea (*Pisum sativum* L.)**  
          Anna Laura Erdei, Bela Boddi (Budapest, Hungary)
- 18:50     **OC260   The “privilege”of being red: a comprehensive picture of the photoprotection mechanisms adopted by anthocyanin-equipped and green-leafed of sweet basil**  
          Marco Landi<sup>1</sup>, Massimiliano Tattini<sup>2</sup>, Federico Sebastiani<sup>2</sup>, Cecilia Brunetti<sup>2</sup>, Alessio Fini<sup>3</sup>, Antonella Gori<sup>2</sup>, Lucia Guidi<sup>1</sup> (<sup>1</sup>Pisa, <sup>2</sup>Firenze, <sup>3</sup>Milano, Italy)

- 08:30 **Keynote Lecture 5**  
*Chair: Francesco Lenci (Pisa, Italy)*
- KL301 SESAME: Science and Intercultural Dialogue in the Middle East**  
Giorgio Paolucci (Allan, Jordan)
- 09:00 **Keynote Lecture 6**  
*Chair: Gareth Jenkins (Glasgow, United Kingdom)*
- KL302 Artificial Photosynthesis: a concert for photons and electrons**  
Sebastiano Campagna (Messina, Italy)
- 09:30 **Experimental and pre-clinical models for PDT**  
*Chair: Pål Kristian Selbo (Oslo, Norway), Catharina Lerche (Copenhagen, Denmark)*
- 09:30 **IL303 Improving peptide-based cancer vaccines with photochemical internalization**  
Pål Kristian Selbo<sup>1</sup>, Monika Håkerud<sup>1</sup>, Anne Grete Nedberg<sup>1</sup>, Victoria Tudor Edwards<sup>1</sup>, Markus Haug<sup>2</sup>, Gaute Brede<sup>1</sup>, Kristian Berg<sup>1</sup>, Øyvind Halaas<sup>2</sup>, Anders Høgset<sup>1</sup> (<sup>1</sup>Oslo, <sup>2</sup>Trondheim, Norway)
- 10:00 **IL304 Modulation of tumor microenvironment and drug pharmacokinetics with photodynamic therapy in mouse tumor models**  
Huang-Chiao Huang, Imran Rizvi, Joyce Liu, Sriram Anbil, Yan Baglo, Tayyaba Hasan (Boston, MA, United States)
- 10:30 **Coffee break**
- 11:00 **IL305 Photochemical internalisation to enhance pancreatic cancer chemotherapy**  
Alexander Ney<sup>1</sup>, Alexander John MacRobert<sup>1</sup>, Stephen Pereira<sup>1</sup>, Patricia Sancho<sup>1</sup>, Pål Kristian Selbo<sup>2</sup>, Pilar Acedo<sup>1</sup> (<sup>1</sup>London, United Kingdom; <sup>2</sup>Oslo, Norway)
- 11:30 **IL306 PDT: Skin penetration and skin cancer prophylaxis in a murine model**  
Christiane Bay, Katrine Togsverd-Bo, Catharina Margrethe Lerche, Merete Haedersdal (Copenhagen, Denmark)
- 12:00 **OC307 Photochemical internalisation in 3D compressed collagen models of breast cancer**  
Layla Mohammad-Hadi, Elnaz Yaghini, Marilena Loizidou, Alexander J MacRobert (London, United Kingdom)
- 12:20 **OC308 Endothelial Colony Forming Cells (ECFCs) loaded with near-infrared sensitive Au nanoparticles: “Trojan horse” to tackle melanoma**  
Anna Laurenzana (Florence, Italy)
- 12:40 **OC309 Expression of pro- and antiapoptotic proteins in penumbra after photothrombotic stroke in the rat brain cortex**  
Anatoly Uzdensky, Svetlana Demyanenko (Rostov-on-Don, Russian Federation)

- 09:30     **Photoimmunology in health and disease**  
*Chair: Scott N. Byrne (Sydney, Australia), Prue H Hart (Perth, Australia)*
- 09:30     **IL220   Epidemiology and photo-immunology: working together to improve health**  
          Robyn Marjorie Lucas (Canberra, ACT, Australia)
- 10:00     **IL221   Report on a UVB phototherapy trial for early multiple sclerosis**  
          Prue H Hart (Perth, WA, Australia)
- 10:30     **Coffee break**
- 11:00     **Drug photosensitivity and carcinogenesis (ESP-EPA\* Joint Symposium)**  
*Chair: Sally H. Ibbotson (Dundee, United Kingdom), Miguel A. Miranda (Valencia, Spain)*
- 11:00     **IL310   Clinical Overview of Drug Photosensitivity and Photocarcinogenesis**  
          Sally H. Ibbotson (Dundee, United Kingdom)
- 11:30     **IL311   Protein Oxidation & Drug-Related Carcinogenesis**  
          Peter Karran (London, United Kingdom)
- 12:00     **IL312   Drug-photosensitized DNA Damage**  
          Miguel A. Miranda (Valencia, Spain)
- 12:30     **IL313   Traces of Polycyclic Aromatic Hydrocarbons from particulate matter aggravate oxidative impact of UVA1 in skin models: towards concept of photo-pollutant stress**  
          Laurent Marrot (Aulnay-sous-Bois, France)
- 13:00     **OC314   A Quantitative Structure-Property Relationship (QSPR) Study of Triplet State Photogeneration and Singlet Oxygen Production by Aromatic Heterocyclic Drug Compounds**  
          Andrey A. Buglak, Alexei I. Kononov (St. Petersburg, Russian Federation)

- 09:30     **Time- and space-resolved photobiology**  
          *Chair: Cristiano Viappiani (Parma, Italy), Cristina Flors (Madrid, Spain)*
- 09:30     **IL315 Correlative super-resolution fluorescence imaging and AFM to study biology and biomaterials at the nanoscale**  
          Cristina Flors (Madrid, Spain)
- 10:00     **IL316 Pump-probe spectroscopy of excited state dynamics in organic systems with high temporal (and spatial) resolution**  
          Dario Polli (Milan, Italy)
- 10:30     **Coffee break**
- 11:00     **IL317 Spatiotemporally resolved photoproduction of ROS in functional microscopy**  
          Cristian Alejandro Strassert (Muenster, Germany)
- 11:30     **IL318 Cellular uptake of photosensitizers at subdiffraction resolution**  
          Cristiano Viappiani<sup>1</sup>, Pietro Delcanale<sup>1</sup>, Stefania Abbruzzetti<sup>1</sup>, Marco Cozzolino<sup>2</sup>, Paolo Bianchini<sup>2</sup>,  
          Alberto Diaspro<sup>2</sup>, Luigi Cavanna<sup>3</sup>, Carmine Giorgio<sup>1</sup>, Massimiliano Tognolini<sup>1</sup> (<sup>1</sup>Parma, <sup>2</sup>Genova,  
          <sup>3</sup>Piacenza, Italy)
- 12:00     **OC319 Femtosecond to microsecond dynamics of dronpa photoconversion**  
          Stephen Roy Meech (Norwich, United Kingdom)

- 09:30     **Light harvesting dynamics**  
          *Chair: Alexander V Ruban (London, United Kingdom), Diana Kirilovsky (Gif-sur-Yvette, France)*
- 09:30     **IL320   Dynamics of the photosynthetic light harvesting antennae**  
          Alexander V Ruban (London, United Kingdom)
- 10:00     **IL321   Light harvesting dynamics: *in vitro*, *in vivo*, *in silico***  
          Roberta Croce (Amsterdam, Netherlands)
- 10:30     **Coffee break**
- 11:00     **IL322   Photoprotection in cyanobacteria: the orange carotenoid protein and the OCP related proteins**  
          Diana Kirilovsky (Gif-sur-Yvette, France)
- 11:30     **IL323   Light-harvesting strategies of photosynthetic microorganisms: different ways to collect and utilize sunlight**  
          Tomas Polivka (Ceske Budejovice, Czech Republic)
- 12:00     **OC324   Time-resolved FTIR studies on light harvesting systems: insight on photoprotection mechanisms *in vitro* and *in vivo***  
          Alberto Mezzetti<sup>1</sup>, Maxime Alexandre<sup>2</sup>, Diana Kirilovsky<sup>3</sup>, Claudia Buchel<sup>4</sup>, Bruno Robert<sup>3</sup> (<sup>1</sup>Paris, <sup>3</sup>Gif-sur-Yvette, France; <sup>2</sup>Amsterdam, Netherlands; <sup>4</sup>Frankfurt, Germany)
- 12:20     **OC325   Quantum Chemical investigation of Natural Light Harvesting complexes**  
          Sandro Jurinovich, Lorenzo Cupellini, Benedetta Mennucci (Pisa, Italy)
- 12:40     **OC326   Carotenoid-binding S-layer proteins as an evolutionary template to understand photoprotection evolution**  
          Domenica Farci<sup>1</sup>, Chavdar Slavov<sup>2</sup>, Dario Piano<sup>1</sup> (<sup>1</sup>Cagliari, Italy; <sup>2</sup>Frankfurt am Main, Germany)

- 14:00 **Benefit (vitamin D synthesis) versus hazard (skin cancer) of sunlight exposure**  
*Chair: Lesley E. Rhodes (Manchester, United Kingdom), Antony R. Young (London, United Kingdom)*
- 14:00 **IL327 The good and the bad of sunlight: the pendulum swings**  
**(Lecture in dedication to Jan Cornelis van der Leun)**  
Harry Slaper (Bilthoven, Netherlands)
- 14:30 **IL328 Risks and benefits of holiday UVR exposure in adults and children**  
Antony Richard Young (London, United Kingdom)
- 15:00 **IL329 Concurrent health risks and benefits of low level sunlight exposure in different skin types**  
Lesley E. Rhodes<sup>1</sup>, Barbara Shih<sup>1</sup>, Sarah J. Felton<sup>1</sup>, Mark D. Farrar<sup>1</sup>, Ann R. Webb<sup>1</sup>, Marcus S. Cooke<sup>2</sup>, Frank R. de Gruijl<sup>3</sup> (<sup>1</sup>Manchester, United Kingdom; <sup>2</sup>Miami, FL, United States; <sup>3</sup>Leiden, Netherlands)
- 15:30 **Coffee break**
- 16:00 **IL330 How much sunlight exposure is required to safely provide adequate vitamin D?**  
Ann R. Webb<sup>1</sup>, Andreas Kazantzidis<sup>2</sup>, Mark Farrar<sup>1</sup>, Richard Kift<sup>1</sup>, Kevin Cashman<sup>1</sup>, Lesley E. Rhodes<sup>1</sup>  
(<sup>1</sup>Manchester, United Kingdom; <sup>2</sup>Patras, Greece)
- 16:30 **OC331 Can we balance individual UV exposure (vitamin D induction versus erythema exposure) by using a smartphone? Thoughts on the current technology**  
Joanna Turner, Damien Igoe, Alfio V Parisi, Nathan Downs, Abdurazaq Amar (Toowoomba, Australia)
- 16:50 **OC332 Current sun-exposure patterns provide inadequate vitamin D in adolescents with seasonal deficiency negatively impacting on bone health**  
Mark Farrar, Zulf Mughal, Judith Adams, Jack Wilkinson, Jacqueline Berry, Lisa Edwards, Richard Kift, Elizabeth Marjanovic, Andy Vail, Ann Webb, Lesley E. Rhodes (Manchester, United Kingdom)
- 17:10 **OC333 The influence of behaviour concerning solar UV or sun bed UV or supplementation on the season depending vitamin D status**  
Peter Manfred Knuschke (Dresden, Germany)

- 14:00 **Experimental photoprotection - from cellular to animal studies**  
*Chair: Vivienne E. Reeve (Sydney, Australia), Rex M. Tyrrell (Bath, United Kingdom)*
- 14:00 **IL334 Endogenous antioxidant photoprotection: cGMP and PDEs in the skin**  
Munif Allanson, Sondur Jayappa Arun, Vivienne E. Reeve (Sydney, NSW, Australia)
- 14:30 **IL335 A multifaceted approach for protecting the skin against UV radiation-mediated damage and photocarcinogenesis: The case of sulforaphane**  
Elena V Knatko<sup>1</sup>, Andrea L Benedict<sup>2</sup>, Maureen Higgins<sup>1</sup>, Sally H Ibbotson<sup>1</sup>, Albena T Dinkova-Kostova<sup>1</sup> (<sup>1</sup>Dundee, United Kingdom; <sup>2</sup>Baltimore, MD, United States)
- 15:00 **IL336 UVA irradiation releases antioxidants for photoprotection**  
Miao Jiao Zhong<sup>1</sup>, Muhammad Farrukh Nisar<sup>1</sup>, Shi Da Chen<sup>1</sup>, Rex M Tyrrell<sup>2</sup>, Julia Li Zhong<sup>1</sup>  
(<sup>1</sup>Chongqing, China; <sup>2</sup>Bath, United Kingdom)
- 15:30 **Coffee break**
- 15:50 **IL337 Do we need antioxidants in topical sunscreens?**  
Rex M. Tyrrell (Bath, United Kingdom)
- 16:20 **OC338 Light-Activated Caged Iron Chelators (CICs) for Skin Photoprotection**  
Annabel Hampshire, Olivier Reelfs, Charareh Pourzand, Ian Eggleston (Bath, United Kingdom)
- 16:35 **OC339 Wavelengths in the UV/visible radiation boundary region (385–405 nm) damage skin cells**  
Karl P Lawrence<sup>1</sup>, Robert PE Sarkany<sup>1</sup>, Thierry Douki<sup>2</sup>, Stephanie Acker<sup>3</sup>, Bernd Herzog<sup>3</sup>, Antony R Young<sup>1</sup> (<sup>1</sup>London, United Kingdom; <sup>2</sup>Grenoble, France; <sup>3</sup>Grenzach-Wyhlen, Germany)
- 16:50 **OC340 Calcium-sensing receptor (CaSR) modifier protects against acute UVB-induced DNA damage in human primary keratinocytes and in mice**  
Chen Yang, Mark Rybchyn, Arthur Conigrave, Rebecca Mason (Sydney, Australia)
- 17:05 **OC341 Photoprotection by an “overirradiation” product metabolite: 24-hydroxy-lumisterol3**  
Warusavithana Gunawardena Manori De Silva<sup>1</sup>, Bianca Y. McCarthy<sup>1</sup>, Jeremy Han<sup>1</sup>, Robert C. Tuckey<sup>2</sup>, Gary M. Halliday<sup>1</sup>, Katie Dixon<sup>1</sup>, Mark S. Rybchyn<sup>1</sup>, Rebecca S. Mason<sup>1</sup> (<sup>1</sup>Sydney, <sup>2</sup>Crawley, Australia)
- 17:20 **OC342 A novel link between tumour suppressor PTEN and vitamin D in photoprotection and melanoma**  
Katie Marie Dixon, Artur Shariev (Sydney, NSW, Australia)

- 14:00 **Biotechnological applications of photosynthesis**  
*Chair: Massimo Trotta (Bari, Italy), Giuseppina Rea (Monterotondo (RM), Italy)*
- 14:00 **IL343 Wiring genetically engineered *Chlamydomonas* cells for electrochemical biosensors**  
Maya Dimova Lambreva<sup>1</sup>, Amina Antonacci<sup>1</sup>, Ivan Husu<sup>1</sup>, Violeta Peeva<sup>2</sup>, Simona Carmen Litescu<sup>3</sup>, Veranika Zobnina<sup>4</sup>, Ivo Bertalan<sup>5</sup>, Gianni Pezzotti<sup>4</sup>, Katia Buonasera<sup>1</sup>, Viviana Scognamiglio<sup>1</sup>, Fabio Polticelli<sup>4</sup>, Udo Johannngmeier<sup>5</sup>, Maria Teresa Giardi<sup>1</sup>, Giuseppina Rea<sup>1</sup> (<sup>1</sup>Monterotondo (RM), <sup>4</sup>Roma, Italy; <sup>2</sup>Sofia, Bulgaria; <sup>3</sup>Bucharest, Romania; <sup>5</sup>Halle, Germany)
- 14:20 **IL344 Prolongation of hydrogen photoproduction by Mg-deprived *Chlamydomonas reinhardtii* cells**  
Taras K Antal, Alena A Volgusheva, Martina Jokel (Moscow, Russian Federation)
- 14:45 **IL345 Biological photovoltaic building blocks for solar energy harvesting**  
Raoul Frese (Amsterdam, Netherlands)
- 15:10 **IL346 Photosynthetic Proteins in Devices – The Hurdle of Charge Recombination**  
Nicolas Plumeré (Bochum, Germany)
- 15:35 **Coffee break**
- 16:00 **IL347 Building on photosynthetic complexity by simple tools**  
Massimo Trotta<sup>1</sup>, Simona la Gatta<sup>1</sup>, Massimo Dell'Edera<sup>1</sup>, Roberta Ragni<sup>1</sup>, Angela Agostiano<sup>1</sup>, Gianluca Maria Farinola<sup>1</sup>, Emiliano Altamura<sup>1</sup>, Fabio Mavelli<sup>1</sup>, Rocco Roberto Tangorra<sup>1</sup>, Pasquale Stano<sup>2</sup> (<sup>1</sup>Bari, <sup>2</sup>Lecce, Italy)
- 16:20 **OC348 On the interaction of carbon nanotubes and microalgae**  
Taras K. Antal<sup>1</sup>, Alena A. Volgusheva<sup>1</sup>, Silvia Orlanducci<sup>2,3</sup>, Gianluca Fulgenzi<sup>4</sup>, Andrea Margonelli<sup>3</sup>, Teresa Lavecchia<sup>3</sup>, Giuseppina Rea<sup>3</sup>, Maya D. Lambreva<sup>3</sup> (<sup>1</sup>Moscow, Russian Federation; <sup>2</sup>Roma, <sup>3</sup>Monterotondo (RM), <sup>4</sup>Ancona, Italy)
- 16:35 **OC349 Photosynthetic reaction centers in deep eutectic solvents: functional characterization**  
Francesco Milano<sup>1</sup>, Livia Giotta<sup>2</sup>, Maria Rachele Guascito<sup>2</sup>, Angela Agostiano<sup>1</sup>, Stefania Sblendorio<sup>1</sup>, Filippo Perna<sup>1</sup>, Luciana Cicco<sup>1</sup>, Ludovico Valli<sup>2</sup>, Massimo Trotta<sup>1</sup>, Vito Capriati<sup>1</sup> (<sup>1</sup>Bari, <sup>2</sup>Lecce, Italy)
- 16:50 **OC350 Developing 3D photobioelectrodes: The efficient electrical connection of photosystem I to transparent conducting oxides by means of heme containing redox proteins**  
Kai Ralf Stieger<sup>1</sup>, Dmitri Ciornii<sup>1</sup>, Adrian Kölsch<sup>2</sup>, Mahdi Hejazi<sup>2</sup>, Heiko Lokstein<sup>3</sup>, Sven Christian Feifel<sup>1</sup>, Elizabeth Lojou<sup>4</sup>, Athina Zouni<sup>2</sup>, Fred Lisdat<sup>1</sup> (<sup>1</sup>Wildau, <sup>2</sup>Berlin, Germany; <sup>3</sup>Prague, Czech Republic; <sup>4</sup>Marseille, France)
- 17:05 **OC351 Functional incorporation of bacterial photosynthetic reaction centers in polydopamine nanospheres**  
Marco Lo Presti<sup>1</sup>, Francesco Milano<sup>1</sup>, Livia Giotta<sup>2</sup>, Maria Rachele Guascito<sup>2</sup>, Roberto Comparelli<sup>1</sup>, Elisabetta Fanizza<sup>1</sup>, Angela Agostiano<sup>1</sup>, Massimo Trotta<sup>1</sup>, Steven Vertueux<sup>3</sup>, Gianluca Farinola<sup>1</sup> (<sup>1</sup>Bari, <sup>2</sup>Lecce, Italy; <sup>3</sup>Nantes, France)
- 17:20 **OC352 Simulation of binding mechanism of plastocyanin and cytochrome f proteins**  
Ilya Kovalenko, Vladimir Fedorov, Sergey Khrushev (Moscow, Russian Federation)
- 17:35 **OC353 Bio-Hybrid Supramolecular Complexes for Artificial Photosynthesis**  
Simona la Gatta, Francesco Milano, Roberta Ragni, Angela Agostiano, Gianluca M. Farinola, Massimo Trotta (Bari, Italy)



---

**Thursday, 7 September, afternoon**

---

**Auditorium**

17:40  
18:40 **ESP General assembly**

---

**Thursday, 7 September, Evening**

---

**Grand Hotel Duomo, Via Santa Maria 94, Pisa**

19:20  
**Gala dinner**  
**Medal award ceremony**

- 08:30 **Keynote Lecture 7**  
*Chair: Evelyne Sage (Orsay, France)*
- KL401 DNA Photolyases and Beyond**  
Thomas Carell (Munich, Germany)
- 09:00 **Keynote Lecture 8**  
*Chair: Kristian Berg (Oslo, Norway)*
- KL402 Light for Crime Investigation**  
Giorgia Miolo (Padova, Italy)
- 09:30 **Environmental antimicrobial PDT**  
*Chair: Adelaide Almeida (Aveiro, Portugal), Kristjan Plaetzer (Salzburg, Austria)*
- 09:30 **IL403 New approaches to antimicrobial photodynamic therapy**  
Santi Nonell (Barcelona, Spain)
- 09:55 **IL404 An effective and potentially safe blood disinfection protocol using tetrapyrrolic photosensitizers**  
Lúcia Marciel, Luis Teles, Beatriz Moreira, Mário Pacheco, Leandro Lourenço, Graça Neves, João Tomé, Amparo Faustino, Adelaide Almeida (Aveiro, Portugal)
- 10:15 **OC405 Photosensitiser functionalised electrospun nanofibre to inactivate antibiotic resistant bacteria in waste water**  
Kaniz Fatema Chowdhury, Stephen Russell, Natalia Sergeeva, Paul Millner (Leeds, United Kingdom)
- 10:30 **Coffee break**
- 11:00 **IL406 Fighting human and fish parasites using photodynamic effects with chlorophyll derivatives**  
Donat Häder (Möhrendorf, Germany)
- 11:25 **IL407 Photodynamic Decontamination: natural substances and light to improve food safety**  
Michael Glück, Barbara Schamberger, Peter Eckl, Kristjan Plaetzer (Salzburg, Austria)
- 11:45 **OC408 An insight on photodynamic approach versus copper formulations in the control of *Pseudomonas syringae* pv. *actinidiae* in kiwi plants**  
Diana Martins<sup>1</sup>, Vânia Jesus<sup>1</sup>, Maria Graça P.M.S. Neves<sup>1</sup>, Luís Reis<sup>2</sup>, Esther Barreal<sup>3</sup>, Pedro P. Gallego<sup>3</sup>, Adelaide Almeida<sup>1</sup>, Maria Amparo Ferreira Faustino<sup>1</sup> (<sup>1</sup>Aveiro, <sup>2</sup>Santa Maria da Feira, Portugal; <sup>3</sup>Vigo, Spain)
- 12:00 **OC409 The antimicrobial potential of zinc octakis(cholinyl)phthalocyanine**  
Marina Strakhovskaya<sup>1</sup>, Ekaterina Kholina<sup>1</sup>, Ilya Kovalenko<sup>1</sup>, Olga Yuzhakova<sup>1</sup>, Denis Korneev<sup>2</sup>, Vladimir Zhukhovitsky<sup>1</sup> (<sup>1</sup>Moscow, <sup>2</sup>Kol'tsovo, Novosibirsk Region, Russian Federation)
- 12:15 **OC410 Increasing tolerance to antimicrobial photodynamic treatment with New Methylene Blue in the plant-pathogenic fungus *Colletotrichum abscissum***  
Marcelo Ferreira da Cruz<sup>1</sup>, Júlia Cunha Gonzales<sup>1</sup>, Guilherme Thomaz Pereira Brancini<sup>1</sup>, Fernando Grine Martins<sup>1</sup>, Mark Wainwright<sup>2</sup>, Gilberto Úbida Leite Braga<sup>1</sup> (<sup>1</sup>Ribeirão Preto, São Paulo, Brazil; <sup>2</sup>Liverpool, United Kingdom)
- 12:30 **OC411 Towards prevention of infectious diseases: antimicrobial properties of photoactivated ZnO nanostructures and their application**  
Zivile Luksiene<sup>1</sup>, Laura Kaziukonyte<sup>1</sup>, Irina Buchovec<sup>1</sup>, Kristina Aponiene<sup>1</sup>, Tomas Serevicius<sup>1</sup>, Saulius Jursenas<sup>1</sup>, Neringa Rasiukeviciute<sup>2</sup>, Norbertas Uselis<sup>2</sup> (<sup>1</sup>Vilnius, <sup>2</sup>Babtai, Lithuania)
- 12:45 **OC412 Antimicrobial Photodynamic Inactivation of *Pseudomonad* strains**  
Thayse Marques Passos, Mary Pryce, Brid Quilty (Dublin, Ireland)

- 09:30 **From irradiance to dose**  
*Chair: Giovanni Romano (Firenze, Italy), Stefan Andersson-Engels (Cork, Ireland)*
- 09:30 **IL413 Dose and clinical outcome in PDT**  
*Herbert Stepp, Adrian Rühm (Munich, Germany)*
- 10:00 **IL414 Dose control in interstitial PDT of prostate cancer: clinical experiences**  
*Johannes Swartling<sup>1</sup>, Stefan Andersson-Engels<sup>2</sup>, Katarina Svanberg<sup>1</sup> (<sup>1</sup>Lund, Sweden; <sup>2</sup>Cork, Ireland)*
- 10:30 **Coffee break**
- 11:00 **IL415 From the ionizing radiation field to the absorbed dose and its determination**  
*Alan Nahum (Henley-on-Thames, United Kingdom)*
- 11:30 **IL416 Controlling and Quantifying the Dose of Photo-Produced Singlet Oxygen in Single Cell Experiments**  
*Peter R Ogilby (Aarhus, Denmark)*
- 12:00 **OC417 A simple model for estimating weighted exposure to optical radiation**  
*Bjørn Johnsen<sup>1</sup>, Atle Brun<sup>2</sup>, Lill Tove Norvang Nilsen<sup>1</sup>, Børge Hamre<sup>2</sup>, Terje Christensen<sup>1</sup> (<sup>1</sup>Østerås, <sup>2</sup>Bergen, Norway)*
- 12:15 **OC418 Irradiance profile measurement: the possible role of radiochromic films**  
*Giovanni Romano, Lorenzo Zavagna, Alessio Gnerucci, Tommaso Mello, Paola Faraoni, Franco Fusi (Firenze, Italy)*
- 12:30 **OC419 UV-dose estimate from a measurement campaign of personal UV-exposure**  
*Peter den Outer<sup>1</sup>, Anneke van der Reijden<sup>1</sup>, Kirsty Pourshahidi<sup>2</sup>, Harry Slaper<sup>1</sup> (<sup>1</sup>Bilthoven, Netherlands; <sup>2</sup>Coleraine, United Kingdom)*
- 12:45 **OC420 Surface UV radiation products from the AURORA H2020 project**  
*Ugo Cortesi<sup>1</sup>, Emilio Simeone<sup>2</sup>, Andrea Masini<sup>2</sup>, Antti Arola<sup>3</sup>, Jukka Kujanpää<sup>3</sup> (<sup>1</sup>Sesto Fiorentino (FI), <sup>2</sup>Livorno, Italy; <sup>3</sup>Helsinki, Finland)*
- 13:00 **OC421 Can you build your own equipment with open-source electronics, and if so, should you?**  
*Sebastian Michael Strauch (Erlangen, Germany)*

- 09:30 **New light technologies in cutaneous photodiagnosis and treatment**  
*Chair: Franz Trautinger (St. Poelten, Austria), Giovanni Pellacani (Modena, Italy)*
- 09:30 **IL422 The concept of field cancerisation – clinical implications for photodiagnosis and therapy**  
Franz Trautinger (St. Poelten, Austria)
- 10:00 **IL423 New imaging techniques reveal a different sun-damage landscape**  
Nathalie De Carvalho, Alice Casari (Modena, Italy)
- 10:30 **Coffee break**
- 11:00 **IL424 The role of confocal microscopy and optical coherence tomography in the diagnosis of skin cancer**  
Giovanni Pellacani, Francesca Farnetani (Modena, Italy)
- 11:30 **IL425 Light sources for photodynamic therapy**  
Piergiacomo Calzavara-Pinton, Marina Venturini (Brescia, Italy)
- 12:00 **IL426 Phototherapy for vitiligo: what's new?**  
Giovanni Leone, Andrea Paro Vidolin (Roma, Italy)
- 12:30 **OC427 Randomized clinical trial on the efficacy and safety of UV-free blue light for treating localized mild Psoriasis vulgaris compared to the Vitamin D analogue Daivonex**  
Laura Krings, Joerg Liebmann, Matthias Born, Verena von Felbert (Aachen, Germany)
- 12:45 **OC428 Lessons learned from computer models on blue light therapy for psoriasis vulgaris**  
Zandra Félix Garza<sup>1</sup>, Joerg Liebmann<sup>2</sup>, Matthias Born<sup>2</sup>, Peter Hilbers<sup>1</sup>, Natal van Riel<sup>1</sup> (<sup>1</sup>Eindhoven, Netherlands; <sup>2</sup>Aachen, Germany)

- 09:30     **Cryptochromes and novel photoreceptors for UV-visible light**  
          *Chair: Margaret Ahmad (Paris, France), Giovanni Giuliano (Roma, Italy)*
- 09:30     **IL429 Electromagnetic Fields Stimulate Cryptochrome Photoreceptors to Modulate Intracellular Reactive Oxygen Species in Humans**  
          Margaret Ahmad (Paris, France)
- 10:00     **IL430 Photoreceptor function probed by EPR *in vitro* and in cell**  
          Robert Bittl (Berlin, Germany)
- 10:30     **Coffee break**
- 11:00     **IL431 A tale of mammalian cryptochromes**  
          Ines Chaves (Rotterdam, Netherlands)
- 11:30     **IL432 A light-dependent magnetoreception mechanism insensitive to light intensity and polarization**  
          Peter Hore (Oxford, United Kingdom)
- 12:00     **IL433 Multiple roles of cryptochromes in controlling Solanaceae physiology and development**  
          Elio Fantini<sup>1</sup>, Gaetano Perrotta<sup>1</sup>, Maria Sulli<sup>2</sup>, Abdelhafid Bendahmane<sup>3</sup>, Lei Zhang<sup>4</sup>, José Jiménez-Gómez<sup>5</sup>, Paolo Facella<sup>1</sup>, Giovanni Giuliano<sup>2</sup> (<sup>1</sup>Rotondella (MT), <sup>2</sup>Roma, Italy; <sup>3</sup>Evry, <sup>5</sup>Versailles, France; <sup>4</sup>Köln, Germany)
- 12:30     **OC434 Cryptochrome 1a, the Probable Receptor Molecules for the Magnetic Compass in birds and mammals**  
          Christine Niessner (Frankfurt, Germany)

- 14:30     **Photofunctional proteins**  
          *Chair: Santi Nonell (Barcelona, Spain), Andreas Möglich (Bayreuth, Germany)*
- 14:30     **IL435 Intermolecular photochemistry in fluorescent proteins**  
          Konstantin A. Lukyanov, Alexey M. Bogdanov, Alexander S. Mishin (Moscow, Russian Federation)
- 15:00     **IL436 Signal Transduction in Photoreceptor Histidine Kinases**  
          Andreas Möglich (Bayreuth, Germany)
- 15:30     **IL437 Insights on singlet oxygen generation by flavin-binding proteins**  
          Ruben Ruiz, Santi Nonell (Barcelona, Spain)
- 16:00     **Coffee break**
- 16:30     **IL438 Mammalian and plant optogenetics for the control of cellular processes**  
          Matias Zurbriggen (Düsseldorf, Germany)
- 17:00     **OC439 Take a Leap in Optogenetic Control of Spatiotemporal Cardiac Dynamics**  
          Claudia Richter, Jan Christoph, Stefan Luther (Goettingen, Germany)

- 14:30 **New horizons in antimicrobial PDT**  
*Chair: Tim Maisch (Regensburg, Germany), Michael R. Hamblin (Boston, United States)*
- 14:30 **IL440 Designing Future Photoantimicrobials**  
Mark Wainwright (Liverpool, United Kingdom)
- 15:00 **IL441 Self-disinfecting photodynamic surfaces**  
Tim Maisch (Regensburg, Germany)
- 15:30 **IL442 Developing a strategy leading to an effective fight against the phenomenon of microbial strain-dependent response to photodynamic inactivation**  
Mariusz Stanislaw Grinholc (Gdansk, Poland)
- 16:00 **Coffee break**
- 16:30 **IL443 Potentiation of antimicrobial photoinactivation by potassium iodide**  
Michael R Hamblin (Boston, MA, United States)
- 17:00 **OC444 The enhancement of fulleropyrrolidine-based photoinactivation of *Staphylococcus aureus* with antimicrobial peptides**  
Joanna Nakonieczna (Gdansk, Poland)
- 17:15 **OC445 Pharmaceutical formulation as a measure to improve microbial phototoxicity**  
Ellen M. Bruzell, Kristine O. Wikene, Håkon Valen Rukke, Hanne Hjorth Tønnesen (Oslo, Norway)
- 17:30 **OC446 *In vitro* photokilling of *Helicobacter pylori* by using a LED-based device**  
Paola Morici<sup>1</sup>, Antonella Battisti<sup>1</sup>, Giovanni Checcucci<sup>1</sup>, Francesco Ghetti<sup>1</sup>, Giuseppe Tortora<sup>2</sup>, Arianna Menciassi<sup>2</sup>, Antonella Sgarbossa<sup>1</sup> (<sup>1</sup>Pisa, <sup>2</sup>Pontedera (PI), Italy)
- 17:45 **OC447 Spectroscopic characterization and compositional analysis of *Helicobacter pylori* endogenous porphyrins**  
Antonella Battisti, Paola Morici, Giovanni Signore, Francesco Ghetti, Antonella Sgarbossa (Pisa, Italy)

- 14:30     **UV, melanocytes and melanoma**  
          *Chair: Lionel Larue (Orsay, France), Markus Böhm (Münster, Germany)*
- 14:30     **IL448   cAMP-independent non-pigmentary actions of variant melanocortin 1 receptor: activation of protective responses to oxidative DNA damage**  
          María Castejón, Cecilia Herraiz, Celia Jiménez-Cervantes, Jose Carlos García-Borrón (Murcia, Spain)
- 15:00     **IL449   Actinic Lentigo: a UV-induced hyperpigmentation revealing an altered melanocyte microenvironment**  
          Emilie Warrick, Christine Duval, Stéphanie Nouveau, Philippe Bastien, Virginie Piffaut, Françoise Bernerd (Aulnay-sous-Bois, France)
- 15:30     **IL450   UVB represses melanocytes cell migration through  $\beta$ -catenin**  
          Juliette Bertrand, Valerie Petit, Evelyne Sage, Lionel Larue (Orsay, France)
- 16:00     **Coffee break**
- 16:30     **OC451   Melanopsin mediates UVA-induced immediate pigment darkening in murine melanocytes and melanoma cells: Unrevealing the photosensitive system of the skin**  
          Leonardo Vinícius Monteiro de Assis, Maria Nathalia Moraes, Keila Karoline Magalhães-Marques, Ana Maria de Lauro Castrucci (São Paulo, Brazil)
- 16:50     **OC452   A novel role for vitamin D in the inhibition of melanoma metastasis**  
          Artur Shariev, Rebecca Mason, Katie Marie Dixon (Sydney, NSW, Australia)
- 17:10     **IL453   Role of Nrf2 in melanocyte cytoprotection, pigmentation and cellular transformation**  
          Markus Böhm (Münster, Germany)
- 17:40     **OC454   Trends in melanoma are dominated by behaviour and behaviour can be changed**  
          Arjan van Dijk, Harry Slaper (Bilthoven, Netherlands)