

15th Congress of the European Society for Photobiology  
Liège (Belgium), 2 - 6 September 2013

## **PROGRAMME**

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**Monday, 2 September, afternoon**

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**Palais des Congrès**

15:00  
18.00 **Registration**

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**Monday, 2 September, evening**

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**Liège Aquarium**

18:30  
20.00 **Welcome Reception**

- 08:30     **Opening Ceremony – Welcome Address**
- 08:45     **Young Investigator Award Lecture 1**  
*Chair: Lesley E Rhodes (Manchester, United Kingdom)*
- PL101 Vitamin D and photoprotection: progress to date**  
          Katie Marie Dixon (Sydney, NSW, Australia)
- 09:15     **Molecular, cellular and vascular aspects of PDT**  
*Chair: Patrizia Agostinis (Leuven, Belgium)*
- 09:15     **IL102 Response to RBAC-induced photodamage to HeLa cells: only cell death induction?**  
          Luciana Dini (Lecce, Italy)
- 09:45     **OC103 In vivo PDT with a novel sulfonamide bacteriochlorin: treatment optimization and the role of the immune system**  
          Luis B. Rocha<sup>1</sup>, Janusz Dabrowski<sup>2</sup>, Luis G. Arnaut<sup>1</sup>, Mariette Pereira<sup>1</sup>, Sérgio Simões<sup>1</sup> (<sup>1</sup>Coimbra, Portugal; <sup>2</sup>Kraków, Poland)
- 10:00     **IL104 Pro-Survival Signaling Associated with Stress-Induced Nitric Oxide in Photodynamically Challenged Tumor Cells**  
          Albert W Girotti, Reshma Bhowmick (Milwaukee, WI, United States)
- 10:30     **OC105 5-ALA-PDT induces RIP3-dependent necrosis in glioblastoma.**  
          Isabelle Coupienne, Grégory Fettweis, Jacques Piette (Liège, Belgium)
- 10:45     **Coffee break**
- 11:15     **IL106 Optimizing Vascular Responses to Photodynamic Therapy**  
          Theresa Busch (Philadelphia, PA, United States)
- 11:45     **OC107 Lymphatic-specific photodynamic therapy in the mouse dermis**  
          Witold W Kilarski<sup>1</sup>, Angelika Muchowicz<sup>2</sup>, Malgorzata Wachowska<sup>2</sup>, Ranata Mężyk-Kopeć<sup>3</sup>, Jakub Golab<sup>2</sup>, Melody E Swartz<sup>1</sup>, Patrycja Nowak-Sliwinska<sup>1</sup> (<sup>1</sup>Lausanne, Switzerland; <sup>2</sup>Warsaw, <sup>3</sup>Krakow, Poland)
- 12:00     **OC108 The mechanism of pharmacological restoration of TAp73 tumor suppressor function by protoporphyrin IX**  
          Joanna Zawacka-Pankau (Stockholm, Sweden)
- 12:15     **IL109 Unfolding the role of ER stress in photodynamic therapy**  
          Patrizia Agostinis, Tom Verfaillie, Noemi Rubio Romero, Alex Van Vliet (Leuven, Belgium)

- 09:15     **Chemistry of the interaction between UV radiation and biomolecules**  
*Chair: Thierry Douki (Grenoble, France)*
- 09:15     **IL110   Mechanisms of photo-oxidative damage to cellular antioxidant systems**  
Michael J. Davies (Sydney, Australia)
- 09:45     **IL111   <sup>18</sup>O-Labeled peroxides and singlet molecular oxygen as valuable tools for studying the role of <sup>1</sup>O<sub>2</sub> in biological system**  
Paolo Di Mascio (São Paulo, Brazil)
- 10:15     **IL112   Interaction of UV radiation with DNA: excited states and reactivity**  
Dimitra Markovitsi (Gif-sur-Yvette, France)
- 10:45             **Coffee break**
- 11:15     **IL113   Photosensitized triplet-triplet energy transfer in DNA: formation of cytosine-containing cyclobutane dimers**  
Thierry Douki (Grenoble, France)
- 11:45     **OC114   Relevancy of a double efficacy against glycation and UVA to protect human skin from photoaging**  
Louis Danoux, Florence Henry, Solene Mine, Christine Jeanmaire, Olga Freis, Alain Denis (Essey-lès-Nancy, France)
- 12:00     **OC115   Vitamin-D3 photosynthesis: from action-spectrum to action-matrix**  
Arjan van Dijk, Henk van Kranen, Harry Slaper (Bilthoven, Netherlands)
- 12:15     **OC116   Fibrillin microfibril mass is reduced in photoaged skin**  
Elizabeth C Naylor, Rachel E B Watson, Christopher E M Griffiths, Michael J Sherratt (Manchester, United Kingdom)
- 12:30     **OC117   Oxidation of the human DNA repair protein XRCC3 by environmental factors: implication of intracellular glutathione**  
Pierre-Marie Girard<sup>1</sup>, Dany Graindorge<sup>1</sup>, Pascal Rigolet<sup>1</sup>, Stefania Francesconi<sup>1</sup>, Susan Scanlon<sup>2</sup>, Evelyne Sage<sup>1</sup> (<sup>1</sup>Orsay, France; <sup>2</sup>New Haven, United States)

- 09:15     **Ultrafast photochemistry, photophysics and spectroscopy (ESP-EPA joint symposium)**  
*Chair: Eric Vauthey (Geneva, Switzerland)*
- 09:15     **IL118   Guanine quadruplexes studied by femtosecond fluorescence spectroscopy**  
Pascale Changenet-Barret (Gif sur Yvette, France)
- 09:45     **IL119   Molecular THz probes linked to biopolymers: direct mapping of hydration layer dynamics**  
Nikolaus P. Ernsting, Mohsen Sajadi (Berlin, Germany)
- 10:15     **IL120   Photophysics of fluorescent proteins - dronpa and kaede**  
Stephen Meech (Norwich, United Kingdom)
- 10:45             **Coffee break**
- 11:15     **OC121   Photochemistry of Flavin-Based Blue-Light Receptors Studied by Time-resolved Electron Paramagnetic Resonance**  
Till Biskup<sup>1</sup>, Bernd Paulus<sup>1</sup>, Kenichi Hitomi<sup>2</sup>, Elizabeth D. Getzoff<sup>2</sup>, Erik Schleicher<sup>1</sup>, Stefan Weber<sup>1</sup>  
(<sup>1</sup>Freiburg, Germany; <sup>2</sup>La Jolla, CA, United States)
- 11:30     **IL122   Ultrafast spectroscopy on bimolecular photoinduced electron transfer reactions: new insight into old questions**  
Arnulf Rosspeintner<sup>1</sup>, Marius Koch<sup>1</sup>, François-Alexandre Miannay<sup>1</sup>, Gonzalo Angulo<sup>2</sup>, Bernhard Lang<sup>1</sup>, Eric Vauthey<sup>1</sup> (<sup>1</sup>Geneva, Switzerland; <sup>2</sup>Warsaw, Poland)

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**Tuesday, 3 September, afternoon****Room Reine Élisabeth**

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**14:00 Young Investigator Award Lecture 2***Chair: Santi Nonell (Barcelona, Spain)***PL123 Danger signals and immunogenic cell death in PDT-induced anti-cancer immune responses***Abhishek D. Garg<sup>1</sup>, Aleksandra Dudek<sup>1</sup>, Gabriela B. Ferreira<sup>1</sup>, Tom Verfaillie<sup>1</sup>, Dmitri V. Krysko<sup>2</sup>, Peter Vandenabeele<sup>2</sup>, Chantal Mathieu<sup>1</sup>, Patrizia Agostinis<sup>1</sup> (<sup>1</sup>Leuven, <sup>2</sup>Gent, Belgium)*

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**Tuesday, 3 September, afternoon****Room Reine Élisabeth**

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**14:30 Keynote lecture***Chair: David A. Russell (Norwich, United Kingdom)***KL124 Genetically-encodable fluorescent singlet oxygen photosensitisers***Santi Nonell (Barcelona, Spain)*

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**Tuesday, 3 September, afternoon****Room Mosane 5/6**

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**14:30 Keynote lecture***Chair: Janet F. Bornman (Perth, WA, Australia)***KL125 UV-B photoreceptor signalling***Roman Ulm (Geneva, Switzerland)*

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**Tuesday, 3 September, afternoon****Room Mosane 8/9**

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**14:30 Keynote lecture***Chair: Carlo Musio (Trento, Italy)***KL126 Subcellular control of signaling pathways with nanoparticles and light***Mathieu Coppey (Paris, France)*

- 15:00     **DNA repair and susceptibility genes to skin cancer**  
*Chair: Evelyne Sage (Orsay, France), Antony Richard Young (London, United Kingdom)*
- 15:00     **IL127   Biomarkers of photo-induced damage to DNA: applications to repair studies**  
*Jean Cadet, Thierry Douki (Grenoble, France)*
- 15:30     **IL128   Reaction mechanisms of DNA photolyases with special consideration of new results on repair of the (6-4) photoproduct**  
*Klaus Brettel (Gif-sur-Yvette, France)*
- 16:00             **Coffee break**
- 16:30     **IL129   Unexpected roles of mutagenic translesion synthesis and mismatch repair in responses to ultraviolet light**  
*Anastasia Tsaalbi-Shtylik, Jacob G. Jansen, Frank R. de Gruijl, Niels de Wind (Leiden, Netherlands)*
- 17:00     **IL130   PARylation: A novel player in the repair of UV-damaged DNA**  
*Girish M. Shah, Rashmi G. Shah, Nupur K. Purohit, Mihaela Robu (Québec City, Québec, Canada)*
- 17:30     **IL131   Genes that may be important in skin cancer: comparison of UVB and UVA1 responses in human skin in vivo**  
*Antony Richard Young, Robert Sarkany, Angela Tewari (London, United Kingdom)*
- 18:00     **OC132   The Role of Brm in Non-Melanoma Skin Cancer**  
*Andrew William Farrell (Sydney, NSW, Australia)*
- 18:15     **OC133   Preclinical Corrective Gene Transfer in Xeroderma Pigmentosum Human Skin Stem Cells**  
*Thierry Magnaldo<sup>1</sup>, Emilie Warrick<sup>1</sup>, Françoise Bernerd<sup>2</sup> (<sup>1</sup>Nice, <sup>2</sup>Clichy, France)*
- 18:30     **OC134   Quiescent stem cells targeted in skin carcinogenesis by low level UV exposure**  
*Gerline C van de Glind, Marika J van Kempen, Heggert G Rebel, Cornelis P Tensen, Frank R de Gruijl (Leiden, Netherlands)*

- 15:00     **Photosensitization in PDT: photophysics and photochemistry**  
          *Chair: Benjamin Ehrenberg (Ramat Gan, Israel)*
- 15:00     **IL135 Nano-photosensitizers with enhanced efficiency for two-photon photodynamic therapy**  
          Qing-Hua Xu (Singapore, Singapore)
- 15:30     **IL136 Nanoparticle-photosensitizer dyads for biological photosensitization**  
          Benjamin Ehrenberg, Elina Haimov, Sara Houpt (Ramat Gan, Israel)
- 16:00             **Coffee break**
- 16:30     **IL137 Silencing photosensitizers through nanoencapsulation**  
          Norbert Lange (Geneva, Switzerland)
- 17:00     **IL138 Interactions between photosensitizers and biomembranes**  
          Mariusz Kępczyński (Kraków, Poland)
- 17:30     **OC139 A rationale for the development of heterogeneous singlet oxygen photosensitizers**  
          Yair Ezequiel Litman<sup>1</sup>, Hernán Bernardo Rodríguez<sup>2</sup>, Silvia Elsa Braslavsky<sup>3</sup>, Enrique San Román<sup>1</sup>  
          (<sup>1</sup>Buenos Aires, <sup>2</sup>La Plata, Provincia de Buenos Aires, Argentina; <sup>3</sup>Mülheim an der Ruhr, Germany)
- 17:45     **OC140 Resistance of the membranes to the photodynamic effect: stress-relaxation pathways governed by the physical and chemical parameters**  
          Rachid Kerdous, Aurélien Bour, Stéphanie Bonneau (Paris, France)
- 18:00     **OC141 Porphyrin-triphenylamine hybrids for 2PA-PDT: Synthesis, photophysical properties and biological applications**  
          Guillaume Garcia, Florent Poyer, Fabien Hammerer, Philippe Maillard (Orsay, France)
- 18:15     **OC142 Conjugated porphyrin dimers as concurrent photosensitizers and viscosity probes**  
          Maryam Qurashi (London, United Kingdom)
- 18:30     **OC143 Influence of external bacterial structures in the efficiency of photodynamic inactivation**  
          Marlene Pereira, Amparo Faustino, João Tomé, Graça Neves, Augusto Tomé, JoséCavaleiro, Ângela Cunha, Newton Gomes, Adelaide Almeida (Aveiro, Portugal)



- 15:00     **Phototherapy and photophoresis: where lies the future?**  
*Chair: Sally H Ibbotson (Dundee, United Kingdom), Robert Knobler (Vienna, Austria), Peter Wolf (Graz, Austria)*
- 15:00     **IL144    Extracorporeal Photopheresis State of the Art 2013**  
           Robert Knobler (Vienna, Austria)
- 15:30     **IL145    Narrow band UVB phototherapy versus PUVA**  
           Peter Wolf (Graz, Austria)
- 16:00             **Coffee break**
- 16:30     **IL146    Current state of UVA1 phototherapy**  
           Sally H Ibbotson (Dundee, United Kingdom)
- 17:00     **IL147    Novel approaches to phototherapy**  
           Olivier Sylvian Reelfs (Bath, United Kingdom)
- 17:30     **OC148    The Effects of Narrow-Band UVB (311nm) Phototherapy on Epidermal Barrier and Differentiation Markers in Polymorphic Light Eruption**  
           Emma J Pond, Catherine A O'Neill, Lesley E Rhodes, Neil K Gibbs (Manchester, United Kingdom)
- 17:45     **OC149    Novel light-activated caged iron chelators: targeted prodrugs for iron related-disorders**  
           Benjamin Young, Olivier Reelfs, Asma Aroun, Magnus Hoffmann, Seyedali Miri, Charareh Pourzand, Ian Michael Eggleston (Bath, United Kingdom)
- 18:00     **OC150    Blue and red LED light promote wound healing in porcine skin**  
           Peter Dungal, Joachim Hartinger, Georg Feichtinger, Heinz Redl, Rainer Mittermayr (Vienna, Austria)
- 18:15     **OC151    Effects of high frequency red light by Repuls on C2C12 cells**  
           Sidrah Chaudary, Sergiu Dimitrescu, Benedikt Faulhammer, Adelheid Weidinger, Heinz Redl, Peter Dungal (Vienna, Austria)

- 08:30 **Plenary lecture 1**  
*Chair: Evelyne Sage (Orsay, France)*
- PL201 Cyclobutane pyrimidine dimers: where they went and what they did there - the path to skin cancer**  
Douglas E. Brash (New Haven, CT, United States)
- 09:15 **Vitamin D part I: impact of environmental and artificial sources of UVR**  
*Chair: Frank R. de Gruijl (Leiden, Netherlands), Ann R Webb (Manchester, United Kingdom)*
- 09:15 **IL202 Sunlight or sardines: establishing seasonal vitamin D sources and status across UK population groups.**  
Ann R Webb, Richard Kift, Mark Farrar, Jacqueline L Berry, Lesley E Rhodes (Manchester, United Kingdom)
- 09:40 **IL203 Spectral dependency of vitamin D photosynthesis and the influence of sunscreen use**  
Antony Richard Young (London, United Kingdom)
- 10:05 **OC204 Seasonal UV exposure, lifestyle, vitamin D3 and UV skin protection**  
Helmut Franz Piazena, Alexandre Moguilevsky, Hans Meffert, Ralf Uebelhack (Berlin, Germany)
- 10:25 **OC205 Sometimes is less more –open problems on optimized recommendations concerning UV-exposure and vitamin D to the public**  
Peter Manfred Knuschke, Andrea Bauer, Bodo Lehmann, Andrea Pueschel, Henriette Rönsch (Dresden, Germany)
- 10:45 **Coffee break**
- 11:15 **OC206 Three sun-simulated UV-B Radiations lead to persistently higher Vitamin D levels and improved mood in healthy young women**  
Maria Gudrun Biersack, Malgorzata Majer, Helmut Piazena, Tanja Braun, Vera Höhne-Zimmer, Frank Buttgerit, Gerd-R. Burmester, Ralf Uebelhack, Jacqueline Detert (Berlin, Germany)
- 11:35 **OC207 Population-specific recommendations on sunlight exposure could reduce risk of vitamin D deficiency: results of a dose-response study in UK S. Asians**  
Mark D Farrar, Ann R Webb, Richard Kift, Marie T Durkin, Donald Allan, Annie Herbert, Jacqueline L Berry, Lesley E Rhodes (Manchester, United Kingdom)
- 11:55 **IL208 Seasonal Variation in Vitamin D status and Cancer Risk**  
Frank R. de Gruijl, Jan-Nico Bouwes Bavinck (Leiden, Netherlands)
- 12:20 **IL209 Sunlight, Vitamin D and Immunity**  
Prue H Hart, Shelley Gorman, Royce LX Ng, Naomi M Scott (Subiaco, WA, Australia)

- 09:15 **Photosensory biology of opsin-based photoreceptors: from basic research to optogenetic applications**  
*Chair: Carlo Musio (Trento, Italy)*
- 09:15 **IL210 VA opsin and Melanopsin (Opn4): Developments and Updates**  
Stephanie Halford<sup>1</sup>, Steven Hughes<sup>1</sup>, Susana Pires<sup>1</sup>, Irene González-Menéndez<sup>2</sup>, Wayne Davies<sup>1</sup>, Mark Hankins<sup>1</sup>, JoséGarcía-Fernández<sup>2</sup>, Russell Foster<sup>1</sup> (<sup>1</sup>Oxford, United Kingdom; <sup>2</sup>Oviedo, Spain)
- 09:45 **IL211 Control of Gi/o signaling, neuronal activity and behavior by light activated GPCRs**  
Stefan Herlitze (Bochum, Germany)
- 10:15 **IL212 Unusual opsin photopigments as optogenetic tools to control and manipulate cellular and behavioural activities**  
Carlo Musio<sup>1</sup>, Silvia Caponi<sup>1</sup>, Lavinia Liguori<sup>2</sup> (<sup>1</sup>Trento, Italy; <sup>2</sup>Grenoble, France)
- 10:45 **Coffee break**
- 11:15 **IL213 Archaeobacterial halorhodopsin restores vision in the retina**  
Jens Duebel (Paris, France)

- 09:15     **Photosensitised processes: addressing environmental and biomedical problems**  
*Chair: Mark Wainwright (Liverpool, United Kingdom), Giulio Jori (Padova, Italy)*
- 09:15     **IL214   Photosensitisers –Opportunities in Infection Control**  
Mark Wainwright (Liverpool, United Kingdom)
- 09:45     **IL215   Clinical application of antimicrobial photodynamic therapy to chronic disease states**  
Nicolas G. Loebel, Roger Andersen, Merrill A. Biel, Chet Sievert, Carolyn Cross (Bothell, WA, United States)
- 10:15     **IL216   Porphyrin-photosensitised processes for improvement of water quality through microbicidal and larvicidal action**  
Giulio Jori (Padova, Italy)
- 10:45             **Coffee break**
- 11:15     **IL217   Photosensitized water treatment through solar reactors - Activated Ru(II) and C60 derivatives**  
David García-Fresnadillo (Madrid, Spain)
- 11:45     **IL218   Photoinactivation of multidrug-resistant bacteria in hospital wastewaters**  
Maria A. F. Faustino, Joana Almeida, João P. C. Tomé, Augusto C. Tomé, Maria Graça P. M. S. Neves, JoséA. S. Cavaleiro, Ângela Cunha, Adelaide Almeida (Aveiro, Portugal)
- 12:15     **OC219   Antimicrobial properties of photoactivated ZnO nanoparticles**  
Zivile Luksiene (Vilnius, Lithuania)
- 12:25     **OC220   Metallophthalocyanines for antimicrobial photodynamic therapy: An overview of our experience**  
Vanya N. Mantareva<sup>1</sup>, Ivan Angelov<sup>1</sup>, Dieter Wohrle<sup>2</sup>, Ekaterina Borisova<sup>1</sup>, Vesselin Kussovski<sup>1</sup>  
(<sup>1</sup>Sofia, Bulgaria; <sup>2</sup>Bremen, Germany)
- 12:35     **OC221   Fluorescent sensor for bacterial recognition**  
Rehab Amin, Soad Elfeky (Cairo, Egypt)

- 16:00     **Development in applications and protocols for topical PDT**  
          *Chair: Lesley E Rhodes (Manchester, United Kingdom), Colin A. Morton (Stirling, United Kingdom)*
- 16:00     **IL222   Emerging applications for PDT**  
          Colin A. Morton (Stirling, United Kingdom)
- 16:30     **IL223   PDT of skin infections (wounds and burns) in animal models**  
          Michael R Hamblin, Tianhong Dai, Daniela Vecchio, Yunsong Zhang (Boston, MA, United States)
- 17:00     **IL224   Protocol developments in topical PDT: Science and outcomes**  
          Carola Berking (Munich, Germany)
- 17:30             **Break**
- 17:45     **IL225   Physical techniques to enhance uptake of prodrug into skin tumours**  
          Merete Haedersdal (Copenhagen, Denmark)
- 18:15     **OC226   Psychological influence on acute pain during topical PDT for non-melanoma skin cancer**  
          Janet WH Ling, Simon P Kennedy, George Evangelou, Donal G Fortune, Lesley E Rhodes, Helen L Richards (Manchester, United Kingdom)
- 18:30     **OC227   The benefits and limitations of daylight PDT as predicted by Monte Carlo modelling**  
          Catherine Louise Campbell<sup>1</sup>, Kenneth Wood<sup>1</sup>, Ronan Valentine<sup>2</sup>, Tom Brown<sup>1</sup>, Harry Moseley<sup>2</sup> (<sup>1</sup>St Andrews, <sup>2</sup>Dundee, United Kingdom)
- 18:45     **IL228   Accumulating evidence for daylight-mediated PDT in actinic keratosis**  
          Hans Christian Olsen Wulf (Copenhagen, Denmark)

- 16:00 **Melanocytes, melanoma and UV (ESP-ESPCR joint symposium)**  
*Chair: Lionel Larue (Orsay, France), Dorothy Bennett (London, United Kingdom)*
- 16:00 **IL229 Melanocytes, melanoma and ultraviolet radiation: an overview**  
Dorothy Bennett (London, United Kingdom)
- 16:25 **IL230 How does USF1 orchestrate the UV-response**  
Marie-Dominique Galibert (Rennes, France)
- 16:55 **IL231 Induction of beta-catenin in response to UV radiation: cellular and physiological consequences**  
Valerie Petit, Irina Berlin, Juliette Bertrand, Lionel Larue (Orsay, France)
- 17:25 **Break**
- 17:40 **IL232 Interactions between melanin and UV radiation in the genesis of cutaneous melanoma**  
Frances Patricia Noonan (Washington, DC, United States)
- 18:10 **OC233 UV wavelength-dependence studies: use of a high intensity xenon arc coupled with interference filters to produce a large field of irradiance with narrow and broadband output**  
Edward Charles De Fabo (Washington, DC, United States)
- 18:30 **OC234 The effect of MC1R variants and sunscreen on the response of human melanocytes in vivo to ultraviolet radiation and implications for melanoma**  
Elke Hacker, Zachary Boyce, Michael Kimlin, Leesa Wockner, Thomas Pollak, Sam Vaartjes, Nicholas Hayward, David Whiteman (Brisbane, Qld, Australia)
- 18:50 **OC235 Targeting melanoma with vitamin D compounds**  
Katie Marie Dixon, Rebecca S Mason (Sydney, NSW, Australia)

- 16:00     **Retinoid and visual pigments**  
          *Chair: Yiannis Koutalos (Charleston, SC, United States)*
- 16:00     **IL236   Molecular evolution and functional diversity of opsins**  
          Yoshinori Shichida (Kyoto, Japan)
- 16:30     **IL237   A novel approach for the study of protein trafficking in photoreceptor cells.**  
          Yoshikazu Imanishi (Cleveland, OH, United States)
- 17:00     **IL238   A2E and Lipofuscin Fluorescence in the Human RPE**  
          Rosalie K. Crouch<sup>1</sup>, Yiannis Koutalos<sup>1</sup>, Anne Hanneken<sup>2</sup>, Kevin L Schey<sup>3</sup>, Zsolt Ablonczy<sup>1</sup>  
          (<sup>1</sup>Charleston, SC, <sup>2</sup>San Diego, CA, <sup>3</sup>Nashville, TN, United States)
- 17:30             **Break**
- 17:45     **IL239   Formation of all-trans retinol in single isolated living human rod photoreceptors**  
          Yiannis Koutalos, Chunhe Chen (Charleston, SC, United States)
- 18:15     **OC240   Cross-Protomer Interaction with the Photoactive Site in Oligomeric Proteorhodopsin Complexes**  
          Hartmut Luecke (Irvine, CA, United States)

- 16:00     **UV radiation and climate change: consequences for healthy food**  
          *Chair: Janet F. Bornman (Perth, WA, Australia)*
- 16:00     **IL241   Complex climate change interactions and UV radiation: risks and opportunities for food security**  
          Janet F. Bornman (Perth, WA, Australia)
- 16:30     **IL242   From ozone depletion to agriculture –understanding the role of UV radiation in sustainable food production**  
          Jason J Wargent<sup>1</sup>, Brian R Jordan<sup>2</sup>, Nigel D Paul<sup>3</sup> (<sup>1</sup>Palmerston North, <sup>2</sup>Lincoln, New Zealand; <sup>3</sup>Lancaster, United Kingdom)
- 17:00     **IL243   Assessment of nutritional bioavailability of carotenoids and other phytochemicals: a key issue in analysing the potential future impact of climate change and UV radiation on food and nutrition security**  
          Nora OBrien (Cork, Ireland)
- 17:30     **Break**
- 17:45     **IL244   Effects of UV-B radiation on plants; from generic stressor to specific regulator**  
          Marcel AK Jansen<sup>1</sup>, Karel Klem<sup>2</sup>, Otmar Urban<sup>2</sup>, T. Matthew Robson<sup>3</sup> (<sup>1</sup>Cork, Ireland; <sup>2</sup>Brno, Czech Republic; <sup>3</sup>Helsinki, Finland)
- 18:15     **OC245   Effect of Solar Visible and UV Radiation on Photosynthesis and Pigmentation in the cyanobacterium *Lyngbya majuscula***  
          Joseph Nana Annan (Winneba, Ghana)



- 18:30     **Vitamin D part II: UV dosimetry and quantitative models**  
          *Chair: Frank R. de Gruijl (Leiden, Netherlands), Ann R Webb (Manchester, United Kingdom)*
- 18:30     **OC246 A modelling approach to determine how much UVB radiation is available across the UK for the cutaneous production of vitamin D**  
          Andreas Kazantzidis<sup>1</sup>, Andrew Smedley<sup>2</sup>, Richard Kift<sup>2</sup>, Mark D Farrar<sup>2</sup>, Jacqueline Berry<sup>2</sup>, Lesley E Rhodes<sup>2</sup>, Ann R Webb<sup>2</sup> (<sup>1</sup>Patras, Greece; <sup>2</sup>Manchester, United Kingdom)
- 18:45     **OC247 Calculations of street level solar irradiances using the Google Street View photographic database: Implementation and potential applications on photobiology studies.**  
          Roberto Carrasco-Hernandez, Andrew R.D. Smedley, Ann R. Webb (Manchester, United Kingdom)
- 19:00     **OC248 Suggestions for standardisation of biologically weighted units for human skin UV exposure**  
          Mario Blumthaler<sup>1</sup>, Richard McKenzie<sup>2</sup>, Ann Ruth Webb<sup>3</sup> (<sup>1</sup>Innsbruck, Austria; <sup>2</sup>Lauder, New Zealand; <sup>3</sup>Manchester, United Kingdom)
- 19:15     **OC249 The Wallow&Swallow-model for vitamin-D status dynamics**  
          Arjan van Dijk, Harry Slaper, Henk van Kranen (Bilthoven, Netherlands)

- 08:30 **Plenary lecture 2**  
*Chair: Norbert Lange (Geneva, Switzerland)*
- PL301 Towards the rational design of fluorescent proteins tailored for super resolution imaging**  
Johan Hofkens, Peter Dedecker, Sam Duwé, Benjamien Moeyaert (Leuven, Belgium)
- 09:15 **New directions in photoprotection (ASP-ESP joint symposium)**  
*Chair: Dominique Moyal (Asnières-sur-Seine, France), Henry W. Lim (Detroit, MI, United States)*
- 09:15 **IL302 Photoimmunosuppression and the role of UVA**  
Gary Halliday, Scott Byrne, Guy Lyons, Diona Damian (Sydney, Australia)
- 09:45 **IL303 Redox-directed interventions targeting solar photodamage: Nrf2 and beyond.**  
Georg Thomas Wondrak (Tucson, AZ, United States)
- 10:15 **IL304 New directions in formulation of sunscreens**  
Dominique Moyal (Asnières-sur-Seine, France)
- 10:45 **Coffee break**
- 11:15 **IL305 Sunscreens and the US FDA**  
Henry W. Lim (Detroit, MI, United States)
- 11:45 **OC306 Transformer Material in Dynamic UV Protection**  
RenéPeter Scheurich, Thomas Rudolph (Darmstadt, Germany)
- 12:00 **OC307 Essential minimum textile and dermal protection for outdoor workers in mid-latitudes –in adaptation of the ICNIRP-safety concept to artificial UVR at workplaces**  
Peter Manfred Knuschke<sup>1</sup>, Marco Janssen<sup>2</sup>, Guenter Ott<sup>2</sup> (<sup>1</sup>Dresden, <sup>2</sup>Dortmund, Germany)
- 12:15 **OC308 Cyclooxygenase inhibitors: agents of photoprotection or photoexacerbation?**  
Suzanne Margaret Pilkington<sup>1</sup>, Shobha Kudva<sup>1</sup>, Alex Kendall<sup>2</sup>, Sharon Murphy<sup>2</sup>, Anna Nicolaou<sup>2</sup>, Lesley Elizabeth Rhodes<sup>1</sup> (<sup>1</sup>Manchester, <sup>2</sup>Bradford, United Kingdom)
- 12:30 **OC309 Sunscreens Have Failed to Prevent Skin Cancer, What Went Wrong?**  
Robert M. Sayre, John C. Dowdy (Cordova, TN, United States)

- 09:15     **Photoreceptors in plants and micro-organisms**  
          *Chair: Francesco Lenci (Pisa, Italy), Pill Soon Song (Jeju, Korea, Republic Of)*
- 09:15     **IL310 Fifty Years of Research in Photomovements**  
          Francesco Lenci (Pisa, Italy)
- 09:45     **IL311 Phytochrome Transgenes for Improving Turf Grass Traits**  
          Mayank Anand Gururani<sup>1</sup>, Markkandan Ganesan<sup>1</sup>, Yun Jeon Han<sup>2</sup>, Hyo Yeon Lee<sup>1</sup>, Jeong Il Kim<sup>2</sup>, Pill Soon Song<sup>1</sup> (<sup>1</sup>Jeju, <sup>2</sup>Gwangju, Korea, Republic Of)
- 10:15     **IL312 Fidelity of Adaptive Phototaxis**  
          Raymond E. Goldstein (Cambridge, United Kingdom)
- 10:45             **Coffee break**
- 11:15     **IL313 Early signalling steps leading to hypocotyl phototropism in *Arabidopsis***  
          Christian Fankhauser, Tobias Preuten, Emilie Demarsy, Tim Hohm, Paolo Schumacher (Lausanne, Switzerland)
- 11:45     **OC314 Photophysical determinants of blepharismine, the photoreceptor pigment of the ciliate *Blepharisma japonicum***  
          Ranieri Bizzarri, Francesco Ghetti, Giovanni Checcucci (Pisa, Italy)
- 12:00     **IL315 Cryptochrome photoreceptor mechanism of activation**  
          M. Ahmad<sup>1</sup>, D. Robles<sup>1</sup>, C. Englehardt<sup>2</sup>, A. Batschauer<sup>3</sup>, R. Bittl<sup>2</sup> (<sup>1</sup>Paris, France; <sup>2</sup>Berlin, <sup>3</sup>Marburg, Germany)

- 09:15     **Imaging and photodiagnosis**  
          *Chair: Norbert Lange (Geneva, Switzerland)*
- 09:15     **IL316 Stimulated Raman Imaging**  
          Herman L Offerhaus, Erik T Garbacik, Andrew L Fussell (Enschede, Netherlands)
- 09:45     **IL317 Porphysome Nanotechnology: Explore New Frontiers of Cancer Imaging**  
          Gang Zheng (Toronto, ON, Canada)
- 10:15     **IL318 In Vivo Rapid Cancer Detection Based on Rationally Designed Activatable Fluorescence Probes**  
          Yasuteru Urano (Tokyo, Japan)
- 10:45             **Coffee break**
- 11:15     **IL319 5-ALA derivatives in biophotonics: Current state of the art and recent progress**  
          Norbert Lange (Geneva, Switzerland)
- 11:45     **OC320 Hyperspectral imaging/reflectance spectroscopy of mouse oral tissue exposed to high intensity blue light**  
          Ellen M Bruzell<sup>1</sup>, Jon E Dahl<sup>1</sup>, Matija Milanic<sup>2</sup>, Lise L Randeberg<sup>2</sup> (<sup>1</sup>Oslo, <sup>2</sup>Trondheim, Norway)
- 11:57     **OC321 Optical spectroscopy of the bladder washout fluid to optimize fluorescence cystoscopy with Hexvix®**  
          Carla Martoccia, Matthieu Zellweger, Gilles Kratzer, Blaise Lovisa, Patrice Jichlinski, Hubert van den Bergh, Georges Wagnières (Lausanne, Switzerland)
- 12:09     **OC322 Fluorescent Gold Nanoclusters for dual X-Ray-Optical imaging**  
          Akvile Slekaite, Reda Kubiliute, Ricardas Rotomskis (Vilnius, Lithuania)
- 12:21     **OC323 Measurement of tissue oxygenation in vivo by time-resolved luminescence spectroscopy of Ru(Phen), a poorly photosensitizing probe**  
          Veronika Huntosova, Sandrine Gay, Patrycja Nowak-Sliwinska, Georges Wagnieres (Lausanne, Switzerland)
- 12:33     **OC324 Theranosomes: Translating Cell-Released Vesicles into Smart Nanovectors**  
          Amanda K. A. Silva, Stéphanie Bonneau, Florence Gazeau, Claire Wilhelm (Paris, France)

- 09:15 **PDT oral communications 1**  
*Chair: Jacques Piette (Liège, Belgium)*
- 09:15 **OC325 Improvement of the selectivity of Photodynamic Therapy (PDT): the «Photodynamic Molecular Beacons».**  
Aurélie Stallivieri<sup>1</sup>, Marc Verhille<sup>1</sup>, Hamanou Benachour<sup>2</sup>, Philippe Arnoux<sup>1</sup>, Muriel Barberi-Heyob<sup>2</sup>, Xavier Allonas<sup>3</sup>, Francis Baros<sup>1</sup>, Jérôme Devy<sup>4</sup>, Régis Vanderesse<sup>1</sup>, Céline Frochot<sup>1</sup> (<sup>1</sup>Nancy, <sup>2</sup>Vandœuvre-lès-Nancy, <sup>3</sup>Mulhouse, <sup>4</sup>Reims, France)
- 09:27 **OC326 Homology Modeling of Human  $\gamma$ -Butyric Acid Transporters and the Binding of Pro-drugs 5-Aminolevulinic Acid and Methyl Aminolevulinic Acid used in Photodynamic Therapy**  
Yan Baglo<sup>1</sup>, Mari Gabrielsen<sup>2</sup>, Ingebrigt Sylte<sup>2</sup>, Odrun Arna Gederaas<sup>1</sup> (<sup>1</sup>Trondheim, <sup>2</sup>Tromsø, Norway)
- 09:39 **OC327 Singlet oxygen photosensitization by the genetically-encoded tag miniSOG**  
 Rubén Ruiz-González<sup>1</sup>, Aitziber L. Cortajarena<sup>2</sup>, Sara H. Mejias<sup>2</sup>, Montserrat Agut<sup>1</sup>, Santi Nonell<sup>1</sup>, Cristina Flors<sup>2</sup> (<sup>1</sup>Barcelona, <sup>2</sup>Madrid, Spain)
- 09:51 **OC328 Phthalocyanine-Peptide Conjugates: Receptor-Targeting Bifunctional Agents for Imaging and Photodynamic Therapy**  
Johan e. van Lier, Elena Ranyuk, Nicole Cauchon, Brigitte Guerin (Sherbrooke, QC, Canada)
- 10:03 **OC329 Biocompatible nanoparticles doped with arylcyanoporphyrazine chromophors: design, *in vitro* and *in vivo* behavior**  
Irina V. Balalaeva<sup>1</sup>, Natalia Yu. Shilyagina<sup>1</sup>, Larisa G. Klapshina<sup>1</sup>, Svetlana A. Lermontova<sup>1</sup>, Alexander V. Yakimansky<sup>2</sup>, Marina V. Shirmanova<sup>1</sup>, Elena V. Zagaynova<sup>1</sup> (<sup>1</sup>Nizhny Novgorod, <sup>2</sup>Saint Petersburg, Russian Federation)
- 10:15 **OC330 A Fluorinated Bacteriochlorin as a Photostable Photodynamic Therapy Agent: From Synthesis to *In Vivo* Studies**  
Janusz M. Dabrowski<sup>1</sup>, Mariette M. Pereira<sup>2</sup>, Luis B. Rocha<sup>2</sup>, Martyna Krzykawska-Serda<sup>1</sup>, Krystyna Urbańska<sup>1</sup>, Grażyna Stochel<sup>1</sup>, Luis G. Arnaut<sup>2</sup> (<sup>1</sup>Kraków, Poland; <sup>2</sup>Coimbra, Portugal)
- 10:27 **OC331 Photochemical internalization of cancer stem cell-targeting therapeutics**  
Pål Kristian Selbo, Monica Bostad, Marius Strømbo Eng, Jagdip Kaur, Anders Høgset, Kristian Berg (Oslo, Norway)
- 10:39 **Coffee break**
- 11:15 **OC332 *In vitro* photophysical and photobiological properties of Ce6-based dendrimer nanoparticles**  
Estelle Bastien<sup>1</sup>, Raphael Schneider<sup>1</sup>, Lina Bezdetsnaya<sup>1</sup>, Beate Röder<sup>2</sup>, Steffen Hackbarth<sup>2</sup>, Annegret Preuß<sup>2</sup>, Jordane Jasniewski<sup>1</sup>, Vadzim Reshetov<sup>1</sup>, Henri-Pierre Lassalle<sup>1</sup> (<sup>1</sup>Nancy, France; <sup>2</sup>Berlin, Germany)
- 11:27 **OC333 Effect of salts on merocyanine 540 aggregation and inactivation of *Staphylococcus aureus* and *Pseudomonas aeruginosa* photosensitized by this dye**  
Tatiana Shmigol, Elena Sysolyatina, Elena Nagurskaya, Svetlana Ermolaeva, Natalia Vlasova, Alexander Potapenko (Moscow, Russian Federation)
- 11:39 **OC334 Massive apoptosis without cell detachment induced by a synergistic-PDT treatment**  
Pilar Acedo, Ángeles Villanueva, Magdalena Cañete, Juan Carlos Stockert (Madrid, Spain)
- 11:51 **OC335 Photodynamic therapy with conventional and PEGylated liposomal formulations of temoporfin: comparison of treatment efficacy and distribution characteristics *in vivo***  
Vadzim Reshetov<sup>1</sup>, Henri-Pierre Lassalle<sup>2</sup>, Aurélie François<sup>2</sup>, Dominique Dumas<sup>2</sup>, Sebastien Hupont<sup>2</sup>, Susanna Gräfe<sup>3</sup>, Vasco Filipe<sup>4</sup>, Wim Jiskoot<sup>4</sup>, François Guillemin<sup>2</sup>, Vladimir Zorin<sup>1</sup>, Lina Bezdetsnaya<sup>2</sup> (<sup>1</sup>Minsk, Belarus; <sup>2</sup>Nancy, France; <sup>3</sup>Jena, Germany; <sup>4</sup>Leiden, Netherlands)

- 12:03 **OC336 Synthesis and characterization of photosensitizers-conjugated magnetic nanoparticles - Potential anticancer agents for application in Photodynamic Therapy.**  
Vincent Sol, Jean-pierre Mbakidi, Tan-sothea Ouk, Robert Granet, Pierre Krausz (Limoges, France)
- 12:15 **OC337 Monomeric pheophorbide(a)-containing poly(ethyleneglycol-b- $\epsilon$ -caprolactone) micelles for photodynamic therapy: mechanisms of cellular internalisation**  
Rachid Kerdous, Laure Gibot, Anne-Françoise Mingotaud, Patricia Vicendi, Stéphanie Bonneau (Paris, France)
- 12:27 **OC338 Impact of photodynamic stress on intracellular trafficking and viscosity**  
Kelly Aubertin, Stéphanie Bonneau, Amanda K.A. Andriola, François Gallet, Claire Wilhelm (Paris, France)

- 14:00     **Photochemistry and photophysics of nanoparticles**  
*Chair: David A. Russell (Norwich, United Kingdom)*
- 14:00     **IL339   Metallic Nanoparticles for use in Biomedical Analysis**  
Duncan Graham (Glasgow, United Kingdom)
- 14:30     **IL340   Photodynamic therapy-based combinations made more effective with multi-inhibitor nanoconstructs**  
Tayyaba Hasan (Boston, MA, United States)
- 15:00     **OC341   Nanosensors and nanoprobes for localised intracellular pH measurements within acidic organelles of mammalian cells**  
Maria J. Marin<sup>1</sup>, Francisco Galindo<sup>2</sup>, Paul Thomas<sup>1</sup>, Tom Willeman<sup>1</sup>, David A. Russell<sup>1</sup> (<sup>1</sup>Norwich, United Kingdom; <sup>2</sup>Castellon de la Plana, Spain)
- 15:10     **OC342   Polyaniline- Based Nano-Material as an Optical Sensor**  
Wessam Saleh Omara<sup>1</sup>, Shaker Ebrahim<sup>2</sup>, Wegdan Ramadan<sup>2</sup>, Moataz Soliman<sup>2</sup>, Rehab Amin<sup>1</sup> (<sup>1</sup>Cairo, <sup>2</sup>Alexandria, Egypt)
- 15:20     **OC343   Influence of Particles on the Performance of Sunscreens**  
Bernd Herzog (Grenzach-Wyhlen, Germany)
- 15:30             **Coffee break**
- 16:00     **IL344   NIR-light triggered delivery of macromolecules into the cytosol**  
Susana Carregal-Romero, Markus Ochs, Joanna Rejman, Wolfgang J. Parak (Marburg, Germany)
- 16:30     **IL345   Upconverting Fluorescent Nanoparticles: Property and Biological Applications**  
Muthu Kumara Gnanasammandhan, Yong Zhang (Singapore, Singapore)
- 17:00     **IL346   Glyco-functionalised gold nanoparticles for the selective detection of influenza virus and targeted photodynamic cancer therapy**  
David A. Russell (Norwich, United Kingdom)

- 14:00     **Powering the future with solar energy**  
          *Chair: Massimo Trotta (Bari, Italy), Nicola Armaroli (Bologna, Italy)*
- 14:00     **IL347 Powering human civilization in the 21st century: unfolding trends**  
          Nicola Armaroli (Bologna, Italy)
- 14:30     **IL348 Designing Molecules and Understanding Key Electronic Processes in Organic Photovoltaics**  
          Jerome Cornil (Mons, Belgium)
- 15:00     **IL349 Application of photosynthesis to environmental and energy production problems**  
          Massimo Trotta (Bari, Italy)
- 15:30             **Coffee break**
- 16:00     **IL350 Prospects for Algal Bioenergy**  
          Alison Gail Smith (Cambridge, United Kingdom)
- 16:30     **OC351 Reconstitution of a fully active photosynthetic reaction center in organic scaffoldings for supramolecular biological-organic hybrid devices**  
          Rocco Roberto Tangorra<sup>1</sup>, Francesco Milano<sup>1</sup>, Alessandra Operamolla<sup>1</sup>, John Henrard<sup>2</sup>, Roberto Comaparelli<sup>1</sup>, Francesca Italiano<sup>1</sup>, Omar Hassan Omar<sup>1</sup>, Gianluca Maria Farinola<sup>1</sup>, Angela Agostiano<sup>1</sup>, Massimo Trotta<sup>1</sup> (<sup>1</sup>Bari, Italy; <sup>2</sup>Namur, Belgium)
- 16:45     **OC352 Development of new dyes for TiO<sub>2</sub> solar cells based on porphyrinic macrocycles**  
          Maria Graça PMS Neves, Ana M. V. M. Pereira, Ana F. R. Cerqueira, Victorina N. Lufilakio, Maria A. F. Faustino, JoséA. S. Cavaleiro, António F. da Cunha, Mário J. C. Lima (Aveiro, Portugal)



- 14:00     **Light, circadian rhythm and human applications**  
          *Chair: Joan E. Roberts (New York, United States)*
- 14:00     **IL353   Appropriate Lighting for Maximal Human Health**  
          Joan E. Roberts (New York, United States)
- 14:30     **IL354   Circadian Lighting, Sleep and Daytime Functioning**  
          Eus JW Van Someren (Amsterdam, Netherlands)
- 15:00     **IL355   Increased Use of Daylight: Promoted by Building Codes and Standards, Supported by Care Providers**  
          Eunice Noell-Waggoner, Robert Dupuy (Portland, OR, United States)
- 15:30             **Coffee break**
- 16:00     **IL356   Device for Measuring Melatonin-Suppressive Irradiances of Natural and Artificial Light Sources**  
          Dieter Kockott<sup>1</sup>, Helmut Piazena<sup>2</sup> (<sup>1</sup>Hanau, <sup>2</sup>Berlin, Germany)
- 16:30     **OC357   About the interaction of man light colour and space and the lighting design process**  
          Monica Birgitta Säter (Gothenburg, Sweden)
- 16:45     **OC358   Melatonin suppression by white light sources and blue light risk**  
          Helmut Franz Piazena, Leonora Franke, Ralf Uebelhack, Stephan Voelker (Berlin, Germany)

- 14:00 **PDT oral communications 2**  
*Chair: Norbert Lange (Geneva, Switzerland)*
- 14:00 **OC359 GRP78-targeting subtilase cytotoxin sensitizes cancer cells to photodynamic therapy**  
Malgorzata Firczuk (Warsaw, Poland)
- 14:12 **OC360 Photodynamic therapy with genetically encoded photosensitizers –is it possible?**  
Marina V. Shirmanova<sup>1</sup>, Ekaterina O. Serebrovskaya<sup>2</sup>, Sergey A. Lukyanov<sup>2</sup>, Ludmila B. Snopova<sup>1</sup>, Maria M. Kuznetzova<sup>1</sup>, Diana V. Uzhakova<sup>1</sup>, Vlad A. Kamensky<sup>1</sup>, Irina N. Druzhkova<sup>1</sup>, Elena V. Zagaynova<sup>1</sup> (<sup>1</sup>Nizhny Novgorod, <sup>2</sup>Moscow, Russian Federation)
- 14:24 **OC361 Cellular density implication on three human retinoblastoma lines for PDT treatment outcome.**  
Florent Poyer, Carole Danièle Thomas, Guillaume Garcia, Philippe Maillard, Mihaela Lupu, Joël Mispelter (Orsay, France)
- 14:36 **OC362 Significant alterations in blood perfusion and oxygen saturation occur during clinical PpIX-PDT**  
Alison Curnow (Truro, United Kingdom)
- 14:48 **OC363 Tryptophan Modulates the Efficacy of a Potent Photoactivated Platinum Anticancer Complex.**  
Sukirti Kalra<sup>1</sup>, Jennifer S Butler<sup>2</sup>, Julie A Woods<sup>1</sup>, Nicola J Farrer<sup>2</sup>, Peter J Sadler<sup>2</sup> (<sup>1</sup>Dundee, <sup>2</sup>Coventry, United Kingdom)
- 15:00 **OC364 The effect of 5-ALA-mediated Photodynamic Therapy on NUCKS, c-src and C9orf10 (OSSA) induction in vitro.**  
Piotr Ziolkowski<sup>1</sup>, Katarzyna Hotowy<sup>1</sup>, Marta Woźniak<sup>1</sup>, Kamila Duś<sup>1</sup>, Elżbieta Czapińska<sup>1</sup>, Beata Osiecka<sup>1</sup>, Jacek Wiśniewski<sup>2</sup>, Andrzej Gamian<sup>1</sup>, Grzegorz Terlecki<sup>1</sup> (<sup>1</sup>Wroclaw, Poland; <sup>2</sup>Martinsried, Germany)
- 15:12 **OC365 Interaction of polycationic phthalocyanine photosensitizers with bioluminescent bacterial cells investigated by zeta potential measurements**  
Marina Strakhovskaya, Valentina Nikitina, Natalia Belenikina, Emma Ivanova, Andrei Rubin (Moscow, Russian Federation)
- 15:24 **Coffee break**
- 15:54 **OC366 Improvement of photodynamic therapy for cancer with tyrosine kinase inhibitors. Implications for scheduling of anti-angiogenic drugs**  
Andrea Weiss<sup>1</sup>, Judy R van Beijnum<sup>2</sup>, Debora Bonvin<sup>1</sup>, Hubert van den Bergh<sup>1</sup>, Arjan W Griffioen<sup>2</sup>, Patrycja Nowak-Sliwinska<sup>1</sup> (<sup>1</sup>Lausanne, Switzerland; <sup>2</sup>Amsterdam, Netherlands)
- 16:06 **OC367 ALA-PDT-induced epigenetic changes in mouse cerebral cortex**  
Anatoly Uzdensky, Svetlana Demyanenko, Svetlana Sharifulina (Rostov-on-Don, Russian Federation)
- 16:18 **OC368 Repeated low-dose Pba/PDT treatments stimulate cell growth of prostate cancer cells.**  
Valentina Rapozzi<sup>1</sup>, Emilia Della Pietra<sup>1</sup>, Daniela Cesselli<sup>1</sup>, Benjamin Bonavida<sup>2</sup>, Luigi Emilio Xodo<sup>1</sup> (<sup>1</sup>Udine, Italy; <sup>2</sup>Los Angeles, United States)
- 16:30 **OC369 p38 MAPK-regulated induction of the autophagic adaptors p62 and NBR1 following PDT promotes autophagic clearance of ubiquitin-aggregates and reduces ROS levels by supporting Nrf2-antioxidant signaling**  
Julien Verrax<sup>1</sup>, Noemi Rubio Romero<sup>1</sup>, Michael Dewaele<sup>1</sup>, Tom Verfaillie<sup>1</sup>, Jacques Piette<sup>2</sup>, Patrizia Agostinis<sup>1</sup> (<sup>1</sup>Leuven, <sup>2</sup>Liège, Belgium)
- 16:42 **OC370 The Characterisation of In Vivo Protoporphyrin IX Fluorescence and Photobleaching in Non-Melanoma Skin Cancers**  
Ronan Martin Valentine<sup>1</sup>, Catherine Louise Campbell<sup>2</sup>, Sally Helen Ibbotson<sup>1</sup>, Kenny Wood<sup>2</sup>, Tom Brown<sup>2</sup>, Harry Moseley<sup>1</sup> (<sup>1</sup>Dundee, <sup>2</sup>St Andrews, United Kingdom)

- 16:54 **OC371 Singlet oxygen luminescence enables to monitor oxygen consumption in biological systems consisting of fatty acids**  
Anita Gollmer, Johannes Regensburger, Tim Maisch, Wolfgang Bäuml (Regensburg, Germany)
- 17:06 **OC372 The potential of light-activated indocyanine green to enhance the cytotoxicity of low-dose CDDP chemotherapy in cancer cell lines in vitro**  
Kamola Kasimova<sup>1</sup>, Brian Wilson<sup>1</sup>, Ting Luo<sup>2</sup>, Qing Bin Lu<sup>2</sup> (<sup>1</sup>Toronto, ON, <sup>2</sup>Waterloo, ON, Canada)
- 17:18 **OC373 Amphiphilic meso(sulfonate ester fluoroaryl) tetrapyrroles as possible theranostic agents: photochemical and biological studies**  
Agnieszka Laura Adamowicz<sup>1</sup>, Janusz M Dąbrowski<sup>1</sup>, Ana V Simoes<sup>2</sup>, Mario J.F. Calvete<sup>2</sup>, Mariette M Pereira<sup>2</sup>, Luis G Arnaut<sup>2</sup>, Grażyna Stochel<sup>1</sup> (<sup>1</sup>Kraków, Poland; <sup>2</sup>Coimbra, Portugal)

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**Thursday, 5 September, afternoon**

**Room Reine Élisabeth**

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17:30 **ESP General Assembly**

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**Thursday, 5 September, evening**

**Palais des Congrès**

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20:00 **Conference Gala Dinner and Medal Award Ceremony**

- 08:30 **Plenary lecture 3**  
*Chair: Jacques Piette (Liège, Belgium)*
- PL401 Photochemical internalization (PCI) in cancer therapy: from bench to bedside medicine with a novel drug delivery technology**  
Kristian Berg<sup>1</sup>, Anette Weyergang<sup>1</sup>, Colin Hopper<sup>2</sup>, Michael Rosenblum<sup>3</sup>, Anders Høgset<sup>1</sup>, Pål Kristian Selbo<sup>1</sup> (<sup>1</sup>Oslo, Norway; <sup>2</sup>London, United Kingdom; <sup>3</sup>Houston, TX, United States)
- 09:15 **Photoinduced responses in skin cells and their impact in photoprotection**  
*Chair: Marjan Garmyn (Leuven, Belgium)*
- 09:15 **IL402 The Role of the Arylhydrocarbon Receptor (AhR) in UVB-induced signaling responses in human skin cells**  
Jean Krutmann (Düsseldorf, Germany)
- 09:45 **IL403 UVA as an oxidative stress: the disruption of redox, iron and heme homeostasis**  
Rex Tyrrell (Bath, United Kingdom)
- 10:15 **IL404 Photoprotective and therapeutic effects of the flavonoid Luteolin in human keratinocytes**  
Marjan Garmyn, Kathleen Barrette, Sofie Van kelst, Lien Verschooten (Leuven, Belgium)
- 10:45 **Coffee break**
- 11:15 **IL405 UV induced melanogenesis: cellular and molecular aspects**  
Jo LW Lambert (Gent, Belgium)
- 11:45 **OC406 The role of NADPH oxidase in UVA-induced ROS generation in human skin cells**  
Jin Zhang, Rex Michael Tyrrell (Bath, United Kingdom)
- 12:00 **OC407 UVA-induced optical skin changes**  
Mantas Grigalavicius<sup>1</sup>, Asta Juzeniene<sup>1</sup>, Børge Hamre<sup>2</sup>, Jakob Stamnes<sup>2</sup>, Vladimir Iani<sup>1</sup>, Johan Moan<sup>1</sup> (<sup>1</sup>Oslo, <sup>2</sup>Bergen, Norway)
- 12:15 **OC408 Evidence that lower epidermal layers of human skin have an inherent resistance to UVB-induced cyclobutane pyrimidine dimer formation**  
Katherine Rankine, Neil K. Gibbs (Manchester, United Kingdom)
- 12:30 **OC409 Consequences of age and UVB radiation on pro-inflammatory cytokines and matrix metalloproteinases secretion by normal human epidermis keratinocytes.**  
Isabelle Krolkiewicz-Renimel, Olivier Jeannoton, Robin Kurfurst, Sylvianne Schnebert (Saint-Jean-de-Braye, France)

- 09:15     **High resolution fluorescence imaging**  
          *Chair: Ranieri Bizzarri (Pisa, Italy)*
- 09:15     **IL410 Mapping viscosity in cells using molecular rotors**  
          Marina Kuimova (London, United Kingdom)
- 09:45     **IL411 The role of theory in designing optical biosensors based on unusual photophysical properties**  
          Giuseppe Brancato (Pisa, Italy)
- 10:15     **OC412 Multispectral FLIM to observe cell metabolism for tumour diagnosis**  
          Angelika Rueck, Carmen Hauser, Simone Mosch, Sviatlana Kalinina (Ulm, Germany)
- 10:30     **OC413 Recording Transient Fluorescence-Lifetime Effects by Line-Scanning**  
          Vladislav I Shcheslavskiy, Wolfgang Becker (Berlin, Germany)
- 10:45     **Coffee break**
- 11:15     **IL414 Imaging dielectric constant and local order in living cells by multifunctional fluorophores**  
          Giovanni Signore<sup>1</sup>, Gerardo Abbandonato<sup>1</sup>, Barbara Storti<sup>1</sup>, Antonella Battisti<sup>1</sup>, Martin Stoeckl<sup>2</sup>, Vinod Subramanian<sup>3</sup>, Ranieri Bizzarri<sup>1</sup> (<sup>1</sup>Pisa, Italy; <sup>2</sup>Konstanz, Germany; <sup>3</sup>Enschede, Netherlands)
- 11:30     **IL415 STED-FCS fluorescence microscopy**  
          Christian Eggeling (Oxford, United Kingdom)
- 12:00     **IL416 SW 2PE-STED superresolution nanoscopy**  
          Paolo Bianchini, Alberto Diaspro (Genoa, Italy)
- 12:15     **OC417 Fluorescent Proteins Photobleaching**  
          Dustin Pearson, Anita Ludwar, Belinda Heyne (Calgary, AB, Canada)
- 12:30     **OC418 Developing multivalent sulphonylurea probes for beta cell imaging**  
          Andrej Babic<sup>1</sup>, Smaragda Lamprianou<sup>1</sup>, Heiner Glombik<sup>2</sup>, Hans-Paul Juretschke<sup>2</sup>, Paolo Meda<sup>1</sup>, Norbert Lange<sup>1</sup> (<sup>1</sup>Geneva, Switzerland; <sup>2</sup>Frankfurt, Germany)
- 12:45     **OC419 Bacterial fluorescent proteins as probes for reactive oxygen species in living cells**  
          Karatani Hajime<sup>1</sup>, Namikawa Yuki<sup>1</sup>, Mori Naomi<sup>1</sup>, Yamashita Tomoya<sup>1</sup>, Nishikawa Yukihiro<sup>1</sup>, Oyama Hiroshi<sup>2</sup>, Taketani Shigeru<sup>1</sup> (<sup>1</sup>Sakyo-ku, Kyoto, <sup>2</sup>Neyagawa, Osaka, Japan)

- 09:15     **Photoimmunology: UV and PDT effects**  
*Chair: Jakub Golab (Warsaw, Poland), Vivienne E Reeve (Sydney, NSW, Australia)*
- 09:15     **IL420   UV irradiation of skin alters dendritic cell progenitors in the bone marrow**  
Prue H Hart, Royce LX Ng, Naomi M Scott, Mary Norval (Subiaco, WA, Australia)
- 09:45     **IL421   PDT-mediated damage to lymphatic vessels –mechanisms and outcomes**  
Jakub Golab<sup>1</sup>, Witold Kilariski<sup>2</sup>, Angelika Muchowicz<sup>1</sup>, Malgorzata Wachowska<sup>1</sup>, Renata Mezyk-Kopec<sup>3</sup>, Patrycja Nowak-Sliwinska<sup>2</sup>, Melody A. Swartz<sup>2</sup> (<sup>1</sup>Warsaw, <sup>3</sup>Krakow, Poland; <sup>2</sup>Lausanne, Switzerland)
- 10:15     **IL422   UV induced changes in the central nervous system and associated lymphoid tissues is associated with protection from autoimmune disease**  
Scott Byrne, Felix Marsh-Wakefield, LaiFong Kok, Sarah Leighton, Gary Halliday (Sydney, NSW, Australia)
- 10:45             **Coffee break**
- 11:15     **OC424   Immune suppression following exposure to UV-radiation is associated with increases in mast cell densities in primary and secondary lymphoid tissues**  
Lai Fong Kok, Gary Halliday, Scott Byrne (Sydney, NSW, Australia)
- 11:30     **OC425   Protection against UV-induced immunosuppression and carcinogenesis by the flavone luteolin**  
Christopher T Quinn, Vivienne E Reeve (Sydney, NSW, Australia)

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**Friday, 6 September, afternoon****Room Reine Élisabeth**

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14:00

**Keynote lecture***Chair: Cécile Moucheron (Bruxelles, Belgium)***KL426 Strategies for targeting cancer stem-like cells with photodynamic therapy**

Janet Morgan (Buffalo, NY, United States)

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**Friday, 6 September, afternoon****Room Mosane 5/6**

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14:00

**Keynote lecture***Chair: Miguel A Miranda (Valencia, Spain)***KL427 Engagement of sphingolipids in light-tissue interaction**

Mladen Korbelik (Vancouver, BC, Canada)

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**Friday, 6 September, afternoon****Room Mosane 8/9**

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14:00

**Keynote lecture***Chair: Rex Tyrrell (Bath, United Kingdom)***KL428 Novel twist in alpha-MSH-mediated protection against UV irradiation of the skin**

Markus Böhm (Münster, Germany)



- 14:30 **Drug delivery and nanotechnology in PDT**  
*Chair: Kristian Berg (Oslo, Norway)*
- 14:30 **IL429 Multifunctional nanoparticles for PDT treatment and MRI detection of brain tumors**  
Céline Frochot<sup>1</sup>, Régis Vanderesse<sup>1</sup>, Thierry Bastogne<sup>1</sup>, Olivier Tillement<sup>2</sup>, François Lux<sup>2</sup>, Muriel Barberi-Heyob<sup>1</sup> (<sup>1</sup>Nancy, <sup>2</sup>Lyon, France)
- 15:00 **IL430 Photochemical internalization of VEGF121/rGel; A strategy for optimizing tumor-vasculature targeting**  
Anette Weyergang<sup>1</sup>, Lawrence Cheung<sup>2</sup>, Michael Rosenblum<sup>2</sup>, Khalid Mohamedali<sup>2</sup>, Johannes Waltenberger<sup>3</sup>, Kristian Berg<sup>1</sup> (<sup>1</sup>Oslo, Norway; <sup>2</sup>Houston, TX, United States; <sup>3</sup>Münster, Germany)
- 15:30 **Coffee break**
- 16:00 **IL431 New developments in functionalized fullerenes for PDT: buckyballs, guns and bullets.**  
Michael R Hamblin, Min Wang, Long Y Chiang, Rui Yin, Felipe F Sperandio (Boston, MA, United States)
- 16:30 **IL432 Photodynamic drug delivery in cancer and other diseases**  
Yabo Wang, Thorsten Krueger, Elodie Debefve, Hubert van den Bergh (Lausanne, Switzerland)
- 17:00 **OC433 Photoactivated sunitinib causes endothelial and vascular damage**  
Patrycja Nowak-Sliwinska<sup>1</sup>, Andrea Weiss<sup>1</sup>, Judy R van Beijnum<sup>2</sup>, Grzegorz Szewczyk<sup>3</sup>, Tadeusz Sarna<sup>3</sup>, Hubert van den Bergh<sup>1</sup>, Arjan W Griffioen<sup>2</sup> (<sup>1</sup>Lausanne, Switzerland; <sup>2</sup>Amsterdam, Netherlands; <sup>3</sup>Krakow, Poland)
- 17:15 **OC434 Dual responsive nanoparticles coupled with phthalocyanine Pc 4 enhance photodynamic therapy by signaling from lysosomes to mitochondria**  
Anna-Liisa Nieminen<sup>1</sup>, Huacheng He<sup>2</sup>, Alexander Cattran<sup>1</sup>, Peisheng Xu<sup>2</sup> (<sup>1</sup>Charleston, SC, <sup>2</sup>Columbia, SC, United States)
- 17:30 **OC435 On the metabolism of 5 aminolevulinic acid derivatives**  
Andrej Babic, Nicolas Fotinos, Victorija Herceg, Marino Campo, Norbert Lange (Geneva, Switzerland)
- 17:45 **OC436 Carbon dots for photodynamic therapy**  
Petras Juzenas<sup>1</sup>, Andrius Kleinauskas<sup>1</sup>, Sushant Sahu<sup>2</sup>, Pengju George Luo<sup>2</sup>, Ya-Ping Sun<sup>2</sup> (<sup>1</sup>Oslo, Norway; <sup>2</sup>Clemson, SC, United States)
- 18:00 **OC437 Photosensitizer-conjugated quantum dots for photodynamic therapy**  
Ricardas Rotomskis, Jurga Valanciunaite, Artiom Skripka, Simona Steponkiene, Gedinimas Spogis, Gediminas Dauderys, Vitalijus Karabanovas, Saulius Bagdonas, Vilius Poderys (Vilnius, Lithuania)
- 18:15 **OC438 Anticancer activity on glioma cancer cell line (F-98) by using the PCI technique in combination with Bleomycin and Temozolomide**  
Anette Hauge<sup>1</sup>, Pål Ellingsen<sup>1</sup>, Mari Nesbakken<sup>1</sup>, Mikael Lindgren<sup>1</sup>, Rojlina Manandhar<sup>1</sup>, Tora Bardal<sup>1</sup>, Anders Høgset<sup>2</sup>, Odrun Arna Gederaas<sup>1</sup> (<sup>1</sup>Trondheim, <sup>2</sup>Oslo, Norway)

- 14:30     **Progress in the photosensitivity disorders (ESP-ESPD joint symposium)**  
          *Chair: John LM Hawk (London, United Kingdom)*
- 14:30     **IL439   The immune photodermatoses updated**  
          Rik Roelandts (Leuven, Belgium)
- 15:00     **IL440   New aspects of the porphyrias**  
          Gillian Mary Murphy (Dublin, Ireland)
- 15:30             **Coffee break**
- 16:00     **IL441   Xeroderma Pigmentosum and related conditions**  
          Robert Sarkany (London, United Kingdom)
- 16:30     **IL442   Drug and Chemical Photoallergy –New Drugs with Severe Effects**  
          Margarida Gonçalo (Coimbra, Portugal)
- 17:00     **IL443   Ultraviolet Exposure at Home and Work in Patients with Photodermatoses**  
          Harry Moseley (Dundee, United Kingdom)

- 14:30 **Photoreactivity of drugs (ESP-Photostability Group joint symposium)**  
*Chair: Miguel A Miranda (Valencia, Spain)*
- 14:30 **IL444 Photophysical properties and formulation of curcuminoids**  
Hanne Hjørth Tønnesen (Oslo, Norway)
- 15:00 **IL445 Photochemistry and photochemical degradation of pharmaceuticals in aqueous solutions under UV-C and V-UV irradiation**  
Esther Oliveros, Marion Martignac, Marie-Thérèse Maurette, Florence Benoit-Marquié (Toulouse, France)
- 15:30 **Coffee break**
- 16:00 **IL446 Photostability of illicit drugs in different matrices**  
Giorgia Miolo (Padova, Italy)
- 16:30 **IL447 Photodehalogenation of drugs: chemical mechanisms and biological implications**  
Virginie Lhiaubet, Miguel Angel Miranda (Valencia, Spain)
- 17:00 **OC448 Photogenotoxicity induced by reactive chlorpromazine metabolites**  
Inmaculada Andreu, Fabrizio Palumbo, Daniel Hernández, María Dolores Coloma, JoséVicente Castell, Miguel Angel Miranda (Valencia, Spain)
- 17:15 **OC449 Degradation of ibuprofen and paracetamol drugs in ultrapure and river water with sunlight and a singlet oxygen photosensitizing material**  
David García-Fresnadillo, Antonio José Sánchez-Arroyo, Eduardo Díez-Mato, Fernando Carlos Cortezón-Tamarit, María Dolores Marazuela-Lamata (Madrid, Spain)
- 17:30 **OC450 Photaddition of a ruthenium complex(II) on tryptophan. Determination of the photoadducts structure**  
Virginie Rahal, Jean Christophe Garrigues, Jean Pierre Souchard, Patricia Vicendo (Toulouse, France)
- 17:45 **OC451 Photodegradation of vitamin B12 in solutions and in humans**  
Asta Juzeniene, Zivile Nizauskaite (Oslo, Norway)

- P001 Role of RIP3 in PDT-induced glioblastoma cell death**  
Grégory Fettweis, Isabelle Coupienne, Marianne Fillet, Jacques Piette (Liège, Belgium)
- P002 Peptidic Scaffolds for Targeted Delivery of Protease-Sensitive Photosensitizer Prodrugs in Photodynamic Therapy**  
Nawal Sekkat, Andrej Babic, Norbert Lange (Geneva, Switzerland)
- P003 Can combination of targeted photodynamic therapy with “omics” analysis be the first step to personalized photodynamic therapy?**  
Andrzej Marcin Bugaj (Poznań, Poland)
- P004 Effect of spacer length between phthalocyanine and silica gel support upon heterogeneous sensitizer photobactericidal activity**  
Nina Kuznetsova, Olga Yuzhakova, Marina Strakhovskaya, Ludmila Slivka, Oleg Kaliya, Evgeny Lukyanets (Moscow, Russian Federation)
- P005 Cationic antimicrobial peptides as carriers of photosensitizers for photodynamic therapy of tumours**  
Francesca Moret, Cristina Verona, Marina Gobbo, Lucia Celotti, Elena Reddi (Padova, Italy)
- P006 Photodynamic inactivation of bacterial and yeast biofilms with a tetracationic porphyrin**  
Sandra Beirão, Sara Fernandes, João P. C. Tomé, Maria G. P. M. S. Neves, Augusto C. Tomé, Adelaide Almeida, Ângela Cunha, Maria A. F. Faustino (Aveiro, Portugal)
- P007 Development of anti-cancer vaccines by in vitro PDT modulation of cell death: apoptosis, necrosis & autophagy**  
Lígia Catarina Gomes-da-Silva, Luís Borges Rocha, Luís Guilherme Arnaut, Mariette Maria Pereira (Coimbra, Portugal)
- P008 Penetration through the placental barrier and embryotoxicity of semiconductor nanoparticles**  
Vytautas Kulvietis, Violeta Zalgeviene, Danute Bulotiene, Ricardas Rotomskis (Vilnius, Lithuania)
- P009 Photodynamic inactivation of bioluminescent E. coli by immobilized chlorin derivatives**  
Mariana Mesquita, José C. J. M. D. S. Menezes, Maria G. P. M. S. Neves, José A. S. Cavaleiro, A. Cunha, A. Almeida, Maria A. F. Faustino (Aveiro, Portugal)
- P010 Resistance of Oesophageal Carcinoma Cells to Porphyrin-Based Photodynamic Killing can be Overcome by ABCG2 Inhibitors.**  
Gemma A Barron, Harry Moseley, Julie A Woods (Dundee, United Kingdom)
- P011 Ex tempore prepared supersaturated solutions of curcumin intended for aPDT**  
Milica Vukicevic, Anne Bee Hegge, Hanne Hjorth Tønnesen (Oslo, Norway)
- P012 The study of antitumor activity of thioredoxin inhibitors and photodynamic therapy**  
Angelika Muchowicz, Szymon Klossowski, Ryszard Ostaszewski, Jakub Golab (Warsaw, Poland)
- P013 Photosensitized generation of singlet oxygen in silicone polymer substrates doped with methylene blue for antimicrobial applications.**  
Melissa Jayne Bovis, Josephine Helen Woodhams, Sacha Noimark, Annapaula Correia, Mike Wilson, Ivan P Parkin, Alexander James MacRobert (London, United Kingdom)
- P014 The antinecrotic and proapoptotic effect of NO on photosensitized neurons and glial cells**  
Vera Kovaleva, Elena Berezhnaya, Mikhail Rudkovskii, Anatoly Uzdensky (Rostov-on-Don, Russian Federation)
- P015 The protection effect of GDNF on photosensitized neurons and glial cells**  
Maxim Komandirov, Grigory Fedorenko, Anatoly Uzdensky (Rostov-on-Don, Russian Federation)

- P016 Susceptibility of non-enveloped DNA- and RNA-type viruses to photodynamic inactivation**  
Liliana Costa, João P. C. Tomé, Maria G. P. M. S. Neves, Augusto C. Tomé, JoséA. S. Cavaleiro, Ângela Cunha, Adelaide Almeida, Maria A. F. Faustino (Aveiro, Portugal)
- P017 Blood flow and tumor hypoxia following Foscan PDT treatment in a murine model.**  
Henri-Pierre Lassalle, Aurélie Reinhard, François Plénat, Sophie Marchal, François Guillemain, Lina Bezdetnaya (Nancy, France)
- P018 Optical oxygen sensing in collagen scaffold with porphyrin-based polyacrylamide nanosensors.**  
Francesca Giuntini<sup>1</sup>, Veeren Chauhan<sup>2</sup>, Jonathan W. Aylott<sup>2</sup>, Geri A. Rosser<sup>3</sup>, Alexander J. MacRobert<sup>4</sup>, Robert A. Brown<sup>4</sup>, Ross W. Boyle<sup>5</sup> (<sup>1</sup>Liverpool, <sup>2</sup>Nottingham, <sup>3</sup>Durham, <sup>4</sup>London, <sup>5</sup>Hull, United Kingdom)
- P019 Transdermal drug delivery of ALA and Metil-ALA mixtures using human and porcine skin models evaluated by fluorescence spectroscopy and widefield fluorescence imaging**  
Priscila Fernanda Campos de Menezes, Alessandra Keiko Lima Fujita, Michelle Barreto Requena, Cristina Kurachi, Andriago Barboza de Nardi, Andre Escobar, Vanderlei S. Bagnato (São Carlos, Brazil)
- P020 Cationic galactoporphyrin photosensitisers against UV-B resistant bacteria: oxidation of lipids and proteins by 1O2**  
Maria C. Gomes, Sandrina Silva, Maria A. F. Faustino, Maria G. P. M. S. Neves, Adelaide Almeida, JoséA. S. Cavaleiro, João P. C. Tomé, Angela Cunha (Aveiro, Portugal)
- P021 Bacterial nucleic acid as cellular target of photodynamic inactivation by cationic porphyrins**  
Sónia Coimbra, Maria Bartolomeu, Amparo Faustino, João Tomé, Graça Neves, Augusto Tomé, Ângela Cunha, Newton Gomes, Adelaide Almeida (Aveiro, Portugal)
- P022 Photoinactivation of Propionibacterium acnes with Hypericin**  
Janice Rodrigues Perussi, Ana Paula Mazini Calabrese, Hidetake Imasato (São Carlos, Brazil)
- P023 Nucleic acid changes during photodynamic inactivation of bacteria by cationic porphyrins**  
Eliana Alves, Maria A. F. Faustino, João P. C. Tomé, Maria G. P. M. S. Neves, Augusto C. Tomé, JoséA. S. Cavaleiro, Ângela Cunha, Newton C. M. Gomes, Adelaide Almeida (Aveiro, Portugal)
- P024 Comparison of Hypericin-PDT with ALA-PDT in U937 and the effect of Hypericin-PDT on U937 cells and HL-60 cells using LED lamps**  
Nobue Nakajima, Norimichi Kawashima (Yokohama, Japan)
- P025 Optimization of a multifunctional nanoparticles for applications in photodynamic therapy**  
Aymeric Seve<sup>1</sup>, Hamanou Bénachour<sup>2</sup>, Régis Vanderesse<sup>1</sup>, Philippe Arnoux<sup>1</sup>, Francis Baros<sup>1</sup>, Francois Lux<sup>3</sup>, Olivier Tillement<sup>3</sup>, Muriel Barberi-Heyob<sup>2</sup>, Céline Frochot<sup>1</sup> (<sup>1</sup>Nancy, <sup>2</sup>Vandoeuvre, <sup>3</sup>Lyon, France)
- P026 Overview of Photodynamic Therapy for Polypoidal Choroidal Vasculopathy**  
Patrycja Nowak-Sliwinska<sup>1</sup>, Hubert van den Bergh<sup>1</sup>, Adrian HL Koh<sup>2</sup> (<sup>1</sup>Lausanne, Switzerland; <sup>2</sup>Singapore, Singapore)
- P027 Hypericin-apomyoglobin nanoconstructs for photodynamic therapy applications**  
Beatriz Rodriguez, Santi Nonell (Barcelona, Spain)
- P028 Effect of photodynamic therapy (PDT) on immune regulation**  
Eleonora Reginato<sup>1</sup>, Jörg Lindenmann<sup>1</sup>, Nina Schweintzger<sup>1</sup>, Pablo Augusto Vieyra Garcia<sup>1</sup>, Nitesh Shirsath<sup>1</sup>, Cord Langner<sup>1</sup>, Freyja Smolle-Jüttner<sup>1</sup>, Pawel Mroz<sup>2</sup>, Michael Hamblin<sup>3</sup>, Peter Wolf<sup>1</sup> (<sup>1</sup>Graz, Austria; <sup>2</sup>Chicago, <sup>3</sup>Boston, United States)
- P029 Multiple effects of Sildenafil (Viagra®) on photodynamic treatment of human embtronic kidney (HEK) cells**  
Janet Morgan, Yusheng Dong, David Bellnier (Buffalo, NY, United States)
- P030 5-aza-dC potentiates antitumor effect of PDT in mouse models through the induction of specific immune response**  
Malgorzata Wachowska, Jakub Golab (Warsaw, Poland)

- P031 Preclinical Phototoxicity Assays: Internal Validation using Known Human Phototoxins**  
Mary E Dougherty, Douglas B Learn (Horsham, PA, United States)
- P032 Novel macrocyclic fluorescent rotors exhibiting PDT sensitiser properties**  
Larisa Klapshina<sup>1</sup>, Marina Kuimova<sup>2</sup>, Irina Balalaeva<sup>1</sup>, Yakimansky Alexander<sup>3</sup>, Maria Angeles Izquierdo<sup>2</sup>, Svetlana Lermontova<sup>1</sup>, Natalia Shilyagina<sup>1</sup>, Ilya Grigoryev<sup>1</sup> (<sup>1</sup>Nizhny Novgorod, <sup>3</sup>St.Petersburg, Russian Federation; <sup>2</sup>London, United Kingdom)
- P033 Photodynamic oxidation of Staphylococcus warneri membrane phospholipids: new insights based on lipidomics**  
Eliana Alves, Tânia Melo, Cláudia Simões, Maria A. F. Faustino, João P. C. Tomé, JoséA. S. Cavaleiro, Â. Cunha, Newton C. M. Gomes, Pedro Domingues, M. Rosário M. Domingues, Adelaide Almeida, Maria Graça PMS Neves (Aveiro, Portugal)
- P034 Molecular targeting and dual strategies for photosensitising phthalocyanines. Design and synthetic considerations**  
Fabienne Dumoulin, Vefa Ahsen (Gebze, Kocaeli, Turkey)
- P035 Evaluation of the interplay among the charge of porphyrinic photosensitizers, lipid oxidation and photoinactivation effectiveness in Escherichia coli**  
Diana Lopes, Liliana Rosa, Maria A. F. Faustino, João P. C. Tomé, Augusto C. Tomé, JoséA. S. Cavaleiro, Ângela Cunha, Pedro Domingues, M. Rosário M. Domingues, Adelaide Almeida, M. Graça P. M. S. Neves (Aveiro, Portugal)
- P036 Hypericin-aPDT Treatment of Experimental Periodontitis In Vivo.**  
Livia Rodrigues Perussi Valverde<sup>1</sup>, Rafael Scaf de Molon<sup>1</sup>, Guilherme JoséPimentel Lopes de Oliveira<sup>1</sup>, Anderson Orzari Ribeiro<sup>2</sup>, Janice Rodrigues Perussi<sup>3</sup>, Rosemary Adriana Chierici Marcantonio<sup>1</sup> (<sup>1</sup>Araraquara, <sup>2</sup>Santo André, <sup>3</sup>São Carlos, Brazil)
- P037 Photolon(R) - from pilot experiments to routine clinical practice**  
Tatsiana Trukhachova<sup>1</sup>, Siarhei Shliakhtsin<sup>1</sup>, Yuri Istomin<sup>1</sup>, Mikhail Kaplan<sup>2</sup>, Aleksandr Fedulov<sup>1</sup>, Liudmila Marchanka<sup>1</sup> (<sup>1</sup>Minsk, Belarus; <sup>2</sup>Obninsk, Russian Federation)
- P038 Synthetic strategies for chalcone-porphyrin conjugates**  
Derya Topkaya Taşkıran<sup>1</sup>, Sinem Tuncel<sup>2</sup>, Emel Önal<sup>2</sup>, Khalil Bennis<sup>3</sup>, Catherine Hirel<sup>2</sup>, Vefa Ahsen<sup>2</sup>, Sylvie Ducki<sup>3</sup>, Fabienne Dumoulin<sup>2</sup> (<sup>1</sup>Izmir, <sup>2</sup>Gebze, Kocaeli, Turkey; <sup>3</sup>Clermont-Ferrand, France)
- P039 H. pylori inactivation and virulence gene damage using a Ru(II) sensitiser supported on glass microparticles for photodynamic therapy**  
Miryam Calvino-Fernández<sup>1</sup>, Selma Benito-Martínez<sup>1</sup>, Xavier Calvet<sup>2</sup>, Adrian Gerald McNicholl<sup>3</sup>, Trinidad Parra-Cid<sup>3</sup>, Javier P. Gisbert<sup>3</sup>, David García-Fresnadillo<sup>3</sup> (<sup>1</sup>Guadalajara, <sup>2</sup>Barcelona, <sup>3</sup>Madrid, Spain)
- P040 Pheophorbide-a delivery by copolymer micelles for photodynamic Therapy :uptake, subcellular localisation and phototoxic activity.**  
Rachid Kerdous<sup>1</sup>, Laure Gibot<sup>2</sup>, Jean Pierre Souchard<sup>2</sup>, Jerome Ehrhart<sup>2</sup>, Anne-Françoise Mingotaud<sup>2</sup>, Marie Pierre Rols<sup>2</sup>, Stéphanie Bonneau<sup>2</sup>, Patricia Vicendo<sup>2</sup> (<sup>1</sup>Paris, <sup>2</sup>Toulouse, France)
- P041 Cytotoxic effects of Pc 4 Photodynamic Therapy on T. rubrum**  
Elma Baron, Minh Lam, Matthew Dimaano, Pranab Mukherjee, Mahmoud Ghannoum (Cleveland, United States)
- P042 Induction of beta-catenin signaling in response to UVB irradiation in melanocytes**  
Valerie Petit, Irina Berlin, Juliette Bertrand, Lionel Larue (Orsay, France)
- P043 Singlet oxygen production of vitamins under UV radiation**  
Johannes Regensburger, Alena Knak, Anita Gollmer, Tim Maisch, Wolfgang Baeumler (Regensburg, Germany)
- P044 Cyclized products of thermal decomposition of human eye UV filters: could they be potential photo-initiators of oxidative stress?**  
Peter Sergeevich Sherin<sup>1</sup>, Ekaterina Anatolevna Zelentsova<sup>1</sup>, Vadin Vladimirovich Yanshole<sup>1</sup>, Olga Aleksandrovna Snytnikova<sup>1</sup>, Eric Vauthey<sup>2</sup>, Yuri Pavlovich Tsentlovich<sup>1</sup> (<sup>1</sup>Novosibirsk, Russian Federation; <sup>2</sup>Geneva, Switzerland)

- P045 The effect of UVA radiation on the topical application of benzo[c]phenanthridine alkaloid sanguinarine**  
Jitka Vostálová, Pavel Kosina, Lucie Novotná, Bohumil Zálešák, Jitka Ulrichová (Olomouc, Czech Republic)
- P046 Oxidative stress and metabolism detoxication equipment in normal human melanocyte**  
Laurence Denat, Christophe Jones, Philippe Perez, Jean-Philippe Belaidi, Laurent Marrot (Paris, France)
- P047 Prevalence of actinic keratoses among dermatologic outpatients in Austria**  
Johanna Eder, Knut Prillinger, Franz Trautinger (St. Poelten, Austria)
- P048 The contribution of Solar and sunbed exposure to skin cancer risk. It all adds up!**  
Patrick Tierney<sup>1</sup>, Frank de Gruijl<sup>2</sup>, Sally Ibbotson<sup>1</sup>, Harry Moseley<sup>1</sup> (<sup>1</sup>Dundee, United Kingdom; <sup>2</sup>Leiden, Netherlands)
- P049 The effect of sunlight on the Vitamin D pathway**  
Elke Hacker, Leesa Wockner, Thomas Pollak, Nicholas Hayward, David Whiteman, Michael Kimlin (Brisbane, Qld, Australia)
- P050 Photochemical and microbial alterations of DOM spectroscopic properties in the estuarine system Ria de Aveiro**  
Luísa Santos, Newton C. Marcial Gomes, Eduarda B. H. Santos, João Miguel Dias, Ângela Cunha, Adelaide Almeida (Aveiro, Portugal)
- P051 Paracrine activation of Matrix Metalloproteinase (MMP)-2 and MMP-9 by skin cells exposed to UVB radiation**  
Andréa Costa Fruet, Franciele Knebel, Silvy Stuchi Maria-Engler, Silvia Berlanga de Moraes Barros (São Paulo, Brazil)
- P052 Comparison of different methods for the assessment of skin aging parameters –an exploratory study in a group of 83 female patients**  
Markus Grabenhofer, Alois Schmalwieser, Harald Maier (Vienna, Austria)
- P053 Aqueous extracts of cryophilic microalgae antagonize UVA induced disruption of gap junctional intercellular communication**  
Anna-Sophia Bothe<sup>1</sup>, Felix Jorde<sup>2</sup>, Thomas Leya<sup>2</sup>, Rüdiger Greinert<sup>3</sup>, Beate Volkmer<sup>3</sup>, Dieter Pollet<sup>1</sup> (<sup>1</sup>Darmstadt, <sup>2</sup>Potsdam-Golm, <sup>3</sup>Buxtehude, Germany)
- P054 Analyses of UV induced DNA mutations and repair**  
Katja Matt, Katharina Burger, Daniel Gebhard, Jörg Bergemann (Sigmaringen, Germany)
- P055 Visualization of vitamin D photosynthesis using Provitamin-D-doped nematic LC**  
Irina P. Terenetskaya, P.S. Kapinos, T.M. Orlova (Kiev, Ukraine)
- P056 Intercomparison of increase in serum 25-hydroxyvitamin-D3 in humans with previtamin D3 synthesis in vitro after sunbed exposures**  
Tetiana Orlova<sup>1</sup>, Irina P. Terenetskaya<sup>1</sup>, Asta Juzeniene<sup>2</sup>, Johan Moan<sup>2</sup>, Zoya Lagunova<sup>2</sup>, Lage Aksnes<sup>3</sup> (<sup>1</sup>Kiev, Ukraine; <sup>2</sup>Oslo, <sup>3</sup>Bergen, Norway)
- P057 A computational model for previtamin D3 production in skin**  
Merve Meinhardt-Wollweber, Ronald Krebs (Hannover, Germany)
- P058 Study of Tetrahydrobiopterin Photochemistry: in Vitro and in Silico**  
Andrey Andreyevich Buglak, Taisiya Alexandrovna Telegina, Tamara Alexandrovna Lyudnikova, Yuliya Leonardovna Vechtomoova, Mikhail Sergeyevich Kritsky (Moscow, Russian Federation)
- P059 Peptide-targeted photosensitisers via efficient 'click' conjugations in solution**  
Ruggero Dondi<sup>1</sup>, Elnaz Yaghini<sup>2</sup>, Marilena Loizidou<sup>2</sup>, Sandy MacRobert<sup>2</sup>, Ian Michael Eggleston<sup>1</sup> (<sup>1</sup>Bath, <sup>2</sup>London, United Kingdom)
- P060 Photoinduced spectral changes of MES-capped gold nanoparticles**  
Marija Matulionyte, Raminta Marcinyte, Ricardas Rotomskis (Vilnius, Lithuania)

- P061 Photocleavage of Phosphodiester bonds in DNA or RNA by copper complexes**  
Mohammed Oudeh Ismael (Ramallah, Palestinian Territory, Occupied)
- P062 Influence of polyethyleneglycol side chains on oxygen and drug permeability of PLGA nanoparticles**  
Ester Boix, Santi Nonell, Maria Lluisa Sagristà, Margarita Mora (Barcelona, Spain)
- P063 Synthesis, Photochemistry, and Photocytotoxicity of Iodinated Chlorins**  
Toru Oba<sup>1</sup>, Satoru Yasuda<sup>1</sup>, Kyoko Fujiwara<sup>2</sup>, Hiroaki Horiuchi<sup>3</sup>, Satoshi Ito<sup>1</sup>, Yoshinao Shinozaki<sup>4</sup>, Joe Otsuki<sup>4</sup>, Hiroki Nagase<sup>5</sup> (<sup>1</sup>Utsunomiya, Tochigi, <sup>2</sup>Itabashi, Tokyo, <sup>3</sup>Kiryu, Gunma, <sup>4</sup>Chiyoda-ku, Tokyo, <sup>5</sup>Chiba, Chiba, Japan)
- P064 Biosynthesis of metals nanoparticles from plants**  
Shimaa M. Alexeree (Giza, Egypt)
- P065 Synthesis and photophysical studies of new chlorin e6 trimethyl ester derivatives**  
JoséC. J. M. D. S. Menezes<sup>1</sup>, Maria A. F. Faustino<sup>1</sup>, Kleber T. Oliveira<sup>2</sup>, Artur M. S. Silva<sup>1</sup>, Vitor F. Ferreira<sup>3</sup>, Maria Graça P. M. S. Neves<sup>1</sup>, Beate Roeder<sup>4</sup>, JoséA. S. Cavaleiro<sup>1</sup> (<sup>1</sup>Aveiro, Portugal; <sup>2</sup>São Carlos SP, <sup>3</sup>Niterói, Rio de Janeiro, Brazil; <sup>4</sup>Berlin, Germany)
- P066 Metal nanoclusters for biological applications**  
Oriol Planas, Santi Nonell (Barcelona, Spain)
- P067 Design of nanoparticles for amplifying singlet oxygen production**  
Sara Mooi, Belinda Heyne (Calgary, Alberta, Canada)
- P068 <sup>18</sup>O-Labeled singlet molecular oxygen reaction with 1,N2-etheno-2'-deoxyguanosine**  
Marisa H.G. Medeiros<sup>1</sup>, Glaucia R. Martinez<sup>2</sup>, Paolo Di Mascio<sup>1</sup> (<sup>1</sup>São Paulo, <sup>2</sup>Curitiba, Brazil)
- P069 The Bunsen-Roscoe reciprocity law is not fulfilled in apoptosis of lymphocytes induced by psoralen photooxidation products**  
Alla Kyagova, Pyatnitskiy Iliya, Malakhov Michail, Alexander Potapenko (Moscow, Russian Federation)
- P070 Aggregation of psoralen photolysis products monitored by the resonance light scattering: hypothesis of mechanochemical mechanism of hemolysis**  
Alexander Potapenko, Evgenii Nevezhin, Natalya Vlasova, Iliya Pyatnitskiy, Alla Kyagova, Michail Malakhov (Moscow, Russian Federation)
- P071 Furan-naphthoxazole dyads for singlet oxygen detection**  
Rubén Ruiz (Barcelona, Spain)
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Gediminas Spogis, Vilius Poderys, Ricardas Rotomskis (Vilnius, Lithuania)
- P073 Biosynthesis of luminescent quantum dots in the cancer cells**  
Justinas Jonusas, Vitalijus Karabanovas, Ricardas Rotomskis (Vilnius, Lithuania)
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Vitalijus Karabanovas, Ieva Mikalauskaite, Aldona Beganskiene, Aivaras Kareiva, Ricardas Rotomskis (Vilnius, Lithuania)
- P075 Synthesis and study of polyazaaromatic ruthenium (II) complexes containing 1,4,5,8-tetraazaphenanthrene and 2,2'-bipyrazine ligands for biomedical applications**  
Sofia Kajouj, Lionel Marcélis, Cécile Moucheron (Bruxelles, Belgium)
- P076 Tropolone Derivatives as Useful Biomarkers: Large Fluorescence Enhancement Upon Binding to Biological Targets**  
Francisco Bosca, Rosa Tormos (Valencia, Spain)
- P077 Peroxidation of lipids photoinduce by chemically modified nanoparticles in cells and liposomes**  
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- P078 Hybrid systems based on zinc phthalocyanines and quantum dots**  
E. G. Maksimov<sup>1</sup>, F-J. Schmitt<sup>2</sup>, M. G. Strakhovskaya<sup>1</sup>, D. A. Gvozdev<sup>1</sup>, T. Friedrich<sup>2</sup>, V. Z. Paschenko<sup>1</sup>, A. B. Rubin<sup>1</sup> (<sup>1</sup>Moscow, Russian Federation; <sup>2</sup>Berlin, Germany)
- P079 Paving the way towards a new photo-induced gene silencing strategy: Anti-sense Ruthenium conjugates and "Seppuku" process**  
Lionel Marcélis, Cécile Moucheron, Andrée Kirsch-De Mesmaeker (Bruxelles, Belgium)
- P080 Designing New Bipyrazine Based Ru(II) Complexes for Photo-Therapeutical Applications**  
Kevin Garnir, Lionel Marcélis, Andrée Kirsch-De Mesmaeker, Cécile Moucheron (Brussels, Belgium)
- P081 Singlet oxygen-sensitized delayed fluorescence of common water-soluble photosensitizers**  
Marek Scholz<sup>1</sup>, Roman Dědic<sup>1</sup>, Thomas Breitenbach<sup>2</sup>, Jan Hála<sup>1</sup> (<sup>1</sup>Prague, Czech Republic; <sup>2</sup>Aarhus, Denmark)
- P082 Label free multiphoton imaging of human pulmonary tissues through microstructured fiber or multicore image-guide**  
G. Ducourthial<sup>1</sup>, C. Lefort<sup>1</sup>, D.A. Peyrot<sup>2</sup>, T. Mansuryan<sup>1</sup>, S.G. Kruglik<sup>2</sup>, Christine Vever-Bizet<sup>2</sup>, L. Thiberville<sup>3</sup>, F. Lacombe<sup>2</sup>, G. Bourg-Heckly<sup>2</sup>, F. Louradour<sup>1</sup> (<sup>1</sup>Limoges, <sup>2</sup>Paris, <sup>3</sup>Rouen, France)
- P083 Demetalation properties of chlorophyll c isolated from the diatom Chaetoceros gracilis**  
Kana Sadaoka<sup>1</sup>, Sunao Shoji<sup>2</sup>, Yusuke Tsukatani<sup>2</sup>, Taichi Yoshitomi<sup>2</sup>, Hitoshi Tamiaki<sup>2</sup>, Yoshitaka Saga<sup>1</sup> (<sup>1</sup>Higashi-Osaka, Osaka, <sup>2</sup>Kusatsu, Shiga, Japan)
- P084 Aluminium phthalocyanine nanoparticles for fluorescence diagnostics**  
Jasmin Breymayer<sup>1</sup>, Angelika Rück<sup>1</sup>, Victor B. Loschenov<sup>2</sup>, Rudolf Steiner<sup>1</sup> (<sup>1</sup>Ulm, Germany; <sup>2</sup>Moscow, Russian Federation)
- P085 FLIM for the characterization of sensitized tissues in rheumatoid arthritis model**  
Romualdas Rudys, Jurga Papečkienė, Saulius Bagdonas, GailutėKirdaitė, Ričardas Rotomskis (Vilnius, Lithuania)
- P086 Fluorescein dodecyl ester as protonophore providing submicromolar-range uncoupling of oxidative phosphorylation in mitochondria**  
Elena A. Kotova, Maria M. Shchepinova, Stepan S. Denisov, Lyudmila S. Khailova, Dmitry A. Knorre, Galina A. Korshunova, Fedor F. Severin, Yuri N. Antonenko (Moscow, Russian Federation)
- P087 Time-resolved fluorescence spectroscopy of protoporphyrin IX and water soluble porphyrins in model biological systems and in sensitized tissues**  
Saulius Bagdonas, Romualdas Rudys, Ricardas Rotomskis (Vilnius, Lithuania)