15th International Photodynamic Association World Congress

IPA

22-26 May 2015

Belmond Copacabana Palace Hotel, Rio de Janeiro,
BRAZIL

www.ipa-spie-2015.com
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome</td>
<td>2</td>
</tr>
<tr>
<td>Committees</td>
<td>3</td>
</tr>
<tr>
<td>Events</td>
<td>5</td>
</tr>
<tr>
<td>Rooms Map</td>
<td>6</td>
</tr>
<tr>
<td>Plenary Talks</td>
<td>7</td>
</tr>
<tr>
<td>Exhibitors</td>
<td>11</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>11</td>
</tr>
<tr>
<td>Program</td>
<td>12</td>
</tr>
<tr>
<td>Short Abstracts</td>
<td>27</td>
</tr>
</tbody>
</table>
Welcome

It is a great pleasure to welcome you all to the 15th IPA World Congress. The main motivation for the biannual meeting is to share experiences and to create discussions that shall result in the progress of Photodynamic Therapy and Photodiagnosis. On the site we would like to recommend you to also enjoy the national beauty of the city of Rio de Janeiro.

Please do not hesitate to contact the local people for any necessity you may have.

Let's together have a great moment of friendship and science.

Sincerely,

Prof. Vanderlei S. Bagnato, Ph.D.
Congress President of the IPA 2015

and the local committee members

Prof. Cristina Kurachi
Lilian T. Moriyama, Ph.D.
Natalia M. Inada, Ph.D
Sebastião Pratavieira, Ph.D
IPA 2015 COMMITTEE

President: Vanderlei S. Bagnato (Brasil)

LOCAL COMMITTEE
Vanderlei S. Bagnato, PhD
Cristina Kurachi, PhD
Lilian T. Moriyama, PhD
Natalia M. Inada, PhD
Sebastião Pratavieira, PhD

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Department of Physics and Material Science

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Harry Moseley
Brian W. Pogue
Dominic J. Robinson
Jitsuo Usuda
Brian Wilson
C. Herbert Wolfsen
Board Meeting

12:30 - 13:30 - Sunday, May 24th

Conference Dinner

19:00 - 21:00 - Sunday, May 24th
Barbecue at Churrascaria Palace
(Tickets Limited)

Public Lectures - International Year of Light

19:00 - 20:00 - Monday, May 25th
Brazilian Academy of Science
IPA Rooms

IPA Session 1 - New Photosensitizers and Drug Delivery I - Crystal Room
IPA Session 2 - Dosimetry - Rio de Janeiro Room
IPA Session 3 - Combined Techniques - Rio de Janeiro Room
IPA Session 4 - Clinical PDT I - Crystal Room
IPA Session 5 - New Photosensitizers and Drug Delivery II - Crystal Room
IPA Session 6 - Mechanisms of PDT and PD I - Crystal Room
IPA Session 7 - Clinical PDT II - Palm Room
IPA Session 8 - Mechanisms of PDT and PD II - Crystal Room
IPA Session 9 - Instrumentation - Rio de Janeiro Room
IPA Session 10 - Microbial control - Palm Room
IPA Session 11 - Modern dentistry - Crystal Room
Exhibition - Gallery Room
Plenary talks - Crystal Room
Tutorials - Blue Room
The Future of PDT/PD
Brian C. Wilson (University of Toronto - Canada) and Tayyaba Hasan (Harvard Medical School - USA)
09:20 - 10:00 - Saturday, May 23rd

Photodynamic therapy (PDT) and Diagnosis (PDD, including both diagnostics per se and fluorescence-guided therapeutics) have been a substantial focus for research and development for several decades, so it is timely to ask the questions: why are these techniques not more prominent in routine clinical practice?; why has there not been a “home run” in cancer as there was in PDT for age-related macular degeneration?; what roles might they evolve into?; what scientific, technological, regulatory, clinical, cultural, geographic and commercial challenges must be overcome to establish them as part of the oncologic armamentarium offered to patients? The purpose of this presentation is to stimulate discussion among the developers (physicists, engineers, chemists, materials scientists, biologists) to explore how to integrate their individual contributions into effective and cost-effective complete clinical solutions, between clinical specialists to determine the best indications for these techniques and how to interdigitate them with other established and emerging modalities, and between all players to get PDT and PDD deployed to the maximum possible benefit of patients.

LEF: an innovative light source for PDT in Dermatology
Serge Mordon (French Inst. Health Med. Res. - France)
14:30 - 15:00 - Saturday, May 23rd

Photodynamic Field Control of Malaria Vector, Schistosomiasis and Agricultural Pests
Mahmoud H. Abdel Kader (The German University in Cairo - Egypt)
09:00 - 09:30 - Sunday, May 24th

In this work, we present the successful field implementation of using the photodynamic modality to control vector-borne diseases, such as Malaria, Filaria, Dengue fever and Schistosomiasis, as well as agro-insects which cause considerable damage to agro-economics. Field trials were performed in infested epidemic swamps in Uganda, Ethiopia and Sudan using chlorophyll derivatives as a photosensitizer which was approved by the FDA as food additives. It was added to the infested swamps to be uptaken by the mosquito larvae. The accumulated chlorophyll derivatives inside the larvae body induce, upon sunlight exposure, oxidative stress, which interrupts the life cycle of the parasite and results in organism death. The results revealed 85% to 100% mortality of larva population at different concentrations of chlorophyll derivatives. The formulated photosensitizer used achieved target selectivity where all other biological beneficiary organisms (which were present in the same treated swamps) were not affected. Using the same technique for the snail vector control (intermediate host of Schistosomiasis (Biomphalaria alexandrina), mortality percentage obtained ranges from 80% to 90%. In case of agro-insects, two different types of nano-materials (Graphene-oxide and Silver nanoparticles were conjugated with Magnesium and Copper Chlorophyllin derivatives which are used as photo-insecticide against white-fly, Cotton Worm and fruit-fly. Field results revealed that all nanocomposites achieved high reduction percentages in insects'
Physiology properties as predictors of PDT Response: Where we stand and where we are going

Theresa Busch (University of Pennsylvania)
14:30 - 15:00 - Tuesday, May 24th

Monitoring and modulating tumor physiology provides opportunity to improve therapeutic outcome to many types of treatment, including photodynamic therapy (PDT). PDT is both affected by and contributes to heterogeneities in the physiologic tumor microenvironment. In particular, PDT effect on tumor oxygenation and blood flow during the course of illumination can play a role in therapy effectiveness. Monitoring of PDT-induced changes in tumor physiology can be performed noninvasively during and closely surrounding light delivery. This provides a means for physiologically-guided real time alteration of illumination. For example, real time feedback of PDT effect on tumor blood flow could be used to guide changes in the light fluence rate, potentially allowing for a more favorable tumor physiology during the remainder of treatment. Moreover, vascular response to PDT can be affected by the structural composition of the blood vessels themselves. This opens the door to the possibility of modulating the vascular microenvironment prior to PDT so as to increase the sensitivity of tumor blood vessels to PDT. Cancer therapy has entered the age of personalized medicine; we seek to develop and introduce new treatment paradigms in PDT that enable microenvironmental based personalization of its delivery, thereby individually optimizing response to therapy.

A multicenter registry to evaluate indications and outcomes for PDT in bronchogenic and esophageal cancers

Patrick Ross (The Ohio State University College of Medicine, Columbus, OH- USA)
09:00 - 09:30 - Monday, May 25th

PDT can treat airway and esophageal malignancies effectively with excellent short-term outcomes. PDT can control symptoms from bleeding and obstruction. Although PDT has been applied clinically for many decades and has been FDA approved as a modality for 30 years for these indications, it has had a limited application in lung and esophageal patients. Most series on PDT for lung and esophageal cancers have been single institution experiences. This study was designed to develop a consortium of centers with active PDT programs to evaluate the indications and outcomes for PDT. The study design was initially proposed for 5 centers; the design has expanded to 20 centers. Each center contributed up to 10 years of retrospective data; each center submits prospective data as the patient is enrolled. The initial cohort of centers contributed retrospective data. For these patients, indication, dosimetry, complications, and survival data has been reviewed. The registry includes 827 retrospective cases: 474 lung and 353 esophageal. As each center entered the registry, prospective cases were added. The consortium has accumulated 174 prospective cases: 98 lung and 76 esophageal. The original data points on indication, dosimetry, complications, and mortality have been augmented by the inclusion of additional therapies and quality of life metrics. This multicenter registry will offer a unique opportunity to evaluate PDT as it is used in common clinical scenarios. We will be able to leverage the strength of a large database to stratify patients for the purpose of defining patient populations most likely to benefit from PDT. The initial 1000 patients have demonstrated that the risk of PDT is low; phototoxicity complications are rare. PDT adds value to the multimodality therapy of lung and esophageal cancers across all stages of these diseases.
Use of recombinant calreticulin as adjuvant to photodynamic therapy for cancer treatment

Mladen Korbelik (University of British Columbia - Canada)
14:30 - 15:00 - Monday, May 25th

Surface-exposed calreticulin serves as a powerful mobilizing signal for the immune system alerting of the presence of cellular injury, and is thus considered as one of the most important damage-associated molecular patterns (DAMPs). We have discovered that recombinant calreticulin protein becomes bound to PDT-treated but not untreated tumor cells when added to the medium of these cells. These PDT-treated tumor cells with bound calreticulin strongly attract tumor-associated macrophages (TAMs) to become engaged in their phagocytic removal rendering these TAMs activated and primed for acting as antigen-presenting cells. Cure-rates of mouse SCCVII tumors grown in immunocompetent syngeneic mice were elevated when calreticulin (0.4 mg per mouse) was injected peritumorally immediately after PDT. Such therapeutic gain with adjuvant calreticulin was not obtained when PDT-treated SCCVII tumors were growing in immunodeficient mice. Therapeutic benefit was also obtained with the inclusion of calreticulin into PDT vaccine protocol. In this case, PDT-treated SCCVII cells were exposed for 30 minutes to calreticulin before used for vaccinating SCCVII tumor-bearing mice. These findings reveal that externally added calreticulin can boost antitumor response elicited by PDT and PDT vaccine treatments, and suggest that this protein has a potential for use as potent adjuvant with certain types of cancer therapy.

From combinatorial chemistry to targeting nano-phototherapeutic agents

Yuanpei Li1,3, Cindy Lin2,3, Chong-xian Pan2,3, and Kit S Lam1,2,3 (Department of Biochemistry & Molecular Medicine2, Division of Hematology & Oncology3, University of California Davis Cancer Center3)
09:00 - 09:30 - Tuesday, May 26th

We have previously reported the development of a telodendrimer, comprised of dendritic cholic acids (8) and a linear polyethylene glycol (PEG), that can self-assemble and encapsulate hydrophobic chemotherapeutic drugs to form 25-50nm micellar-based nanoparticles. Using a highly efficient one-bead-one-compound (OBOC) combinatorial technology, we have discovered several peptidic ligands that target cancer cell surface receptors with high affinity and specificity. Such ligands can be easily conjugated to the telodendrimers via click chemistry, such that the ligands are displayed on the surface of the nanoparticles for efficient in vivo tumor targeting and intracellular drug delivery. Recently, we have developed a hybrid telodendrimer comprised of PEG, cholic acid (4) and pyropheophorbide (4). Like our standard telodendrimers, such hybrid telodendrimer can also self-assemble and efficiently encapsulate hydrophobic drugs to form 25-30nm nanoparticles. Such nanoporphyrin has proven to be extremely potent photosensitizer for in vivo phototherapy in both transgenic and xenograft tumor models. In addition to efficiently generate reactive oxygen species when illuminated with light, heat can also generated, thus allowing simultaneous photodynamic and photothermal therapy. In addition, we have discovered that low dose doxorubicin and/or heat shock protein inhibitor can be efficiently loaded into nanoporphyrin and greatly enhance the phototherapeutic effects. Clinical applications of nanoporphyrins include phototherapy of superficial tumors such as oral cancer and bladder cancer, and intraoperative phototherapy. Furthermore, nanoporphyrin can also be loaded with Gd(III) for MRI and Cu-64 for PET, making it a highly versatile theranostic agent.
Photosensitizers tailored to trigger specific mechanisms of programmed cell death can improve Photodynamic Therapy

Maurício Baptista (University of São Paulo)
09:30 - 10:00 - Tuesday, May 26th

In Photodynamic Therapy (PDT) synthetic photosensitizers (PS) and light are used to efficiently induce photosensitized reactions in specific tissues. We aim to increase the efficiency of PS by tailoring them to execute damage in well defined cellular targets and consequently to induce specific mechanisms of programmed cell death. I will show examples in which small damages in mitochondria cause mainly apoptotic cell death, while parallel damages in mitochondria and in lysosome cause mainly autophagic cell death. We will also show how PDT can be used to modulate cell adhesion to substrates. Several PS will be used to prove these concepts including molecular (phenothiazinium salts, porphyrins and chlorins) and nanostructured (silica, metal and biopolymers). We aim to show the development of more robust and target-specific photosensitizers that can be used to improve the efficiency of PDT protocols.

To Be Announced
Stefan Andersson Engels (University of Lund)
14:30 - 15:00 - Tuesday, May 26th
Exhibitors

Acknowledgements

The organizers acknowledge CNPq, CAPES, CEPOF and BNDES for the financial support
Program

15th IPA World Congress
23-26 May 2015 Rio de Janeiro- Brazil

Program

May 22
08:00 - 09:00 Tutorial Registration
09:00 - 10:30 Light-matter interaction for non-physicists
Vanderlei Bagnato and Cristina Kurachi
10:30 - 12:00 Basis of Photochemistry
Katarzyna Matczyszyn
12:00 - 14:00 Lunch
14:00 - 15:30 Basis of Photobiology and Photomedicine
Michael Hamblin
15:30 – 17:00 Optical Spectroscopy and Imaging in Medicine
Bruce J. Tromberg

May 23
08:00 - 09:00 IPA /SPIE Registration
09:00 - 09:20 Opening Ceremony - Vanderlei Bagnato, Tayyaba Hasan, Samy Eljamel
09:20 - 10:00 (Plenary Presentation)
The Future of PDT/PDD
Author(s): B.C. Wilson (U Toronto) and Tayyaba Hasan (Harvard Medical School)
10:00 - 10:10 Sponsor Lecture: Thorlabs
10:10 - 10:30 Break and Exhibition

10:30 - 12:00 IPA Session 1 - New photosensitizers and drug delivery 1 - Session Chairs:
Mauricio Baptista/ Katarzyna Matczyszyn
IPA135: *Palette of polarity-tunable halogenated bacteriochlorins for efficient photodynamic therapy in cellular and animal models (Opening Speaker)*
Author(s): Janusz M. Dąbrowski, Barbara Pucelik, Mariette M. Pereira, Grażyna Stochel, Luis G. Arnaud

IPA136: *Self-assembled, covalently linked, hollow phthalocyanine nanospheres*
Author(s): Pankaj Kumar Chaturvedi, Yong-Wan Kim, Ki Moon Kim, Sei Jun Han, Woong Shick Ahn.

IPA137: *Photodynamic killing of cancer cells by a platinum-based compound, a derivative of Pt(II) dipyridobenzene*

IPA138: *Synthesis of a new bacteriochlorin derivative with long-wavelength absorption: A potential dye for use as a photosensitizer*
Author(s): Francisco F. de Assis, Timothy J. Brocksom, Kleber T. de Oliveira

IPA139: *Nanobody-targeted photodynamic therapy for oncology*
Author(s): Raimond Heukers, Paul M. P. van Bergen en Henegouwen, Sabrina Oliveira

IPA141: *Photophysical properties and photodynamic activity of a novel menthol–zinc phthalocyanine conjugate incorporated in micelles phthalocyanine conjugate incorporated in micelles*
Author(s): Paulina Romero, Nicholas Gobo, Kleber Oliveira, Yassuko Iamamoto, Osvaldo Serra, Sonia Louro

10:30 - 12:00 **IPA Session 2 - Dosimetry - Session Chairs: Lothar Lilge/Stefan Andersson Engels**

IPA038: *Singlet oxygen explicit dosimetry for PDT (Opening Speaker)*
Author(s): Timothy C. Zhu

IPA039: *Dosimetry optimization of intrapleural photodynamic therapy for malignant pleural mesothelioma*
Author(s): Munck C., Mordon S., Scherpereel A, Porte H., Dhalluin X., Betrouni N.

IPA040: *Treatment prediction using 3D photoacoustic monitoring of tumor blood oxygen saturation.*
Author(s): Srivalleesha Mallidi, Kohei Watanabe, Dmitriy Timerman, Tayyaba Hasan

IPA041: *Radiological challenges in planning interstitial PDT*
Author(s): Rowland Illing, Jocelyn Brookes, Dean Barratt, David Hawkes, Colin Hopper

IPA042: *Fast 3D Monte Carlo dose evaluation for interstitial PDT*
Author(s): Jeffrey Cassidy, Vaughn Betz, Lothar Lilge

IPA043: *Photobleaching as an optimization variable for the macroscopic model of singlet oxygen in PDT*
Author(s): Michele M. Kim, Jarod C. Finlay, Timothy C. Zhu

12:00 - 14:00 Lunch

14:00 - 14:30 (Plenary Presentation)

*Light and Life*
14:30 - 15:00 (Plenary Presentation)

**LEF: an innovative light source for PDT in Dermatology**

Author(s): Serge Mordon (French Inst Health Med Res)

15:00 - 17:00 **IPA Session 3** - Combined techniques - Session Chairs: Brian C. Wilson/ Timothy C. Zhu

IPA024: *Increasing the Therapeutic Index of PDT with Hypothermia for Glioma Treatment* (Opening Speaker)

Author(s): Carl Fisher, Warren Foltz, Carolyn Niu, and Lothar Lilge

IPA025: *Chlorine E6-Folic acid-Curcumin Conjugate based Sono-Photodynamic Therapy*

Author(s): Pankaj Kumar Chaturvedi, Yong-Wan Kim, Sei Jun Han, Woong Shick Ahn


Author(s): Henry Hirschberg, Jonathan Gonzales, Steen J Madsen

IPA027: *Oxygen Carrying Microbubbles for Enhanced Sonodynamic Therapy of Hypoxic Tumours.*

Author(s): Conor McEwan, Joshua Owen, Eleanor Stride, Colin Fowley, Heather Nesbitt, David Cochrane, Constantin. C. Coussios, Mark Borden, Nikolitsa Nomikou, Anthony P. McHale and John F. Callan

IPA028: *Enhancing photodynamic therapy treatment efficacy on oral cancer with Nimotuzumab.*

Author(s): Qin Feng Ng, Ramaswamy Bhuvaneswari, Patricia SP Thong, Khee Chee Soo

IPA029: *Radiosensitizing effect of 5-aminolevulinic acid for malignant gliomas in experimental glioma in vivo study.*

Author(s): Junkoh Yamamoto, Takehiro Kitagawa, Tohru Tanaka, Kunihiro Ueta, Daisuke Akiba, Yoshiteru Nakano, Shigeru Nishizawa

IPA030: *Novel Potential Nanostructures for Photodynamic Therapy.*

Author(s): Pablo Garcia, Luis Perez, Eduardo Coronado, Gerardo Argüello

IPA031: *Advantages and Prospects of PDT Targeted Therapy Combining Noninvasive SDT.*

Author(s): Libo Li

15:00 - 17:00 **IPA Session 4** - Clinical PDT I - Session Chairs: Ron Allison/Samy Eljamel

IPA006: *Topical MAL-PDT for cervical intraepithelial neoplasia treatment: a non-surgical option to prevent a cervical cancer* (Opening Speaker)

Author(s): Natalia Mayumi Inada, Welington Lombardi, Natalia Cossetin, Fernanda Carbinatto, Jose Roberto Trujillo, Cristina Kurachi, Vanderlei Salvador Bagnato

IPA011: *A phase II study evaluating the non-inferiority of the device FLEXITHERALIGHT® compared to the conventional photodynamic therapy.*

Author(s): Claire Vicentini, Jean-Baptiste Tylcz, Cyril Maire, Laurent Mortier, Nacim Betrouni, Serge Mordon.
IPA013: Vascular Targeted Photodynamic therapy with WST-11 (TOOKAD®) Soluble in Oncology: Worldwide clinical overview in focal treatment in prostate cancer
Author(s): Paulo Palma, Fawzi Benzaghou, Ramon Rodriguez Lay, Luis Zeggara, Abderrahmène Azzouzi, Arturo Rodríguez Rivera.
IPA014: Clinical experience and outcome of photodynamic therapy in early lung cancer
Author(s): Bo young Lee, Jae Cheol Lee, Hyeong Ryul Kim, Seung Hun Jang, Chang-Min Choi
IPA015: Evaluation of Photodynamic Therapy with Talaporfin Sodium on Relapse Controlling Efficacy at Laser Irradiation Sites In Newly Diagnosed Glioblastoma
Author(s): Takashi Maruyama, Soko Ikuta, Masayuki Nitta, Yoshihiro Muragaki, Hiroshi Iseki
IPA016: Clinical Response of Vulvar Cutaneous Lymphangioma to Photodynamic Therapy: Case Report
Author(s): Belotto, R.A.; Santos, R.E.; Tardivo, J.P.; Berardinelli, I.C.; Filho, R.C.S.; Baptista M.S.; Itri, R.; Chavantes, M.C.; Teixeira, D.F.
IPA001: Photodynamic therapy of chronic skin ulcers in lower limbs
Author(s): Xia Lei, Bo Liu, Jinjin Wu, Zheng Huang
IPA002: New Strategies for Treatment of Onychomycosis
Author(s): Ana Paula da Silva, Fernanda M. Carbinatto, Vanderlei S. Bagnato, Natalia M. Inada
IPA800: Endobronchial Photodynamic Therapy in the Octogenarian
Author(s): Patrick Ross, Patsy Skabla, Priyal Shah, Rabih Bechara, David Berkowitz, Ayesha Bryant, Gregory Loewen, Daniel Nader, Momen Wahidi
IPA500: The Future of Photodynamic Therapy (PDT) in Oncology
Author(s): Stephen G Bown
IPA600: Fluorescence image guided resection of glioblastoma multiforme: a metaanalysis of the literature
Author(s): Samy Eljamel

17:00 - 18:30 Coffee / Poster Session
IPA003: Photodynamic Inactivation of clinical isolates from patients with Upper Respiratory Tract Infection.
IPA004: Photodynamic Therapy with Methylene blue in the treatment of Onychomycosis.
IPA017: PDT against Head and Neck Cancer in Bolivia.
IPA018: Photodynamic therapy for gastric antral vascular ectasias: five cases report
IPA019: Therapy in Superficial Basal Cell Carcinoma: follow-up for 12 months.
IPA021: Treatment of condyloma acuminatum using methyl-aminolaevulinic acid for introduce a medical guideline on health public system.
IPA022: Treatment of recalcitrant dissecting cellulitis of the scalp with ALA-PDT.
IPA032: Examining the Effect of Liposomal Lapatinib in Combination with PDT for the Treatment of Malignant Gliomas.
IPA033: Sonochemical internalization using 5-aminolevulinic acid enhances the cytotoxic effect of bleomycin.
IPA034: Acridine Orange as radiosensitizer to improve cell damage caused by radiotherapy in breast cancer cells line.
IPA035: Synergic effect in combining photodynamic therapy and radiotherapy in Wistar rats skin model.
IPA036: Gold nanorods with attached phthalocyanines for PDT and hyperthermia on melanoma cells.
IPA037: Photodynamic Therapy combined with surgical ablation mechanisms: a microscopic analysis for debulking-PDT protocols.
IPA044: A Qualitative Study of In Vivo Protoporphyrin IX Fluorescence build up during occlusive treatment phase.
IPA045: Determination of light fluence inside a pleural cavity.
IPA046: PDT Dose Dosimeter for Pleural Photodynamic Therapy.
IPA047: Theoretical One-Dimensional Model to Predict PDT Damage for Different Photosensitizers and Light Sources.
IPA056: VECSELs: innovative light sources for PDT.
IPA057: Safe oncolgical PDT using a new “intelligent” laser sources
IPA074: Enhanced endolysosomal lipid peroxidation mediated by intracellular glutathione depletion facilitates Photochemical Internalisation in breast cancer cells.
IPA075: Methylene blue-mediated Photodynamic Therapy, alone or combined with cisplatin, induces cell necrosis and DNA damage.
IPA076: Combination of Photodynamic Therapy and Phototherapy for the Treatment of Photoaged Mice Skin.
IPA077: Evaluation of Photodynamic Effects of Curcumin Against the Dengue Vector - Aedes Aegypti (Diptera:Culicidae)
IPA078: Study of ALA and MAL mixtures in pig skin: PpIX production.
IPA079: Interstitial photodynamic therapy: light fractionation effects on a preclimical model of glioblastoma.
IPA080: Delivery of topical 5-aminolevulinc acid on pig skin when associated with tape stripping procedure.
IPA081: The Effectivity Of Ala-Pdt Using Ipl Evaluated By Image And Histological Analysis Using Porcine Skin Models In Vivo.
IPA082: Analysis using Fluorescence of different photosensitizers in Tumor Model on the Chorioallantoic Membrane to Application of Photodynamic Therapy.
IPA083: Influence of absorption and scattering coefficients on singlet oxygen luminescence during photosensitization in skin-stimulating phantom.

May 24
08:00 - 09:00 IPA /SPIE Registration
09:00 - 09:30 (Plenary Presentation)
Photodynamic Field Control of Malaria Vector, Schistosomiasis and Agricultural Pests
Author(s): Mahmoud H. Abdel Kader
09:30 - 10:00 (Plenary Presentation)
Plasmonic nanosensors and nanoprobes: harnessing the power of photonics for medical diagnostics and therapy

Author(s): Tuan Vo-Dinh, Fitzpatrick Institute for Photonics, Duke Univ. (United States)

10:00 - 10:10 Sponsor Lecture: Hamamatsu
10:10 - 10:30 Break and Exhibition

10:30 - 12:00 IPA Session 5 - New photosensitizers and drug delivery 2 - Session Chairs: Kleber T. Oliveira/Ron Allison

IPA140: Ru(II) Complexes as potent Photosensitizers in Photodynamic Therapy
Author(s): Gilles Gasser

IPA142: Multifunctional Porphyrin-based Polysilsesquioxane Nanoparticles with Improved Loading Capacity and Phototherapeutic Effect
Author(s): Juan L. Vivero-Escoto, Zachary Lyles and Daniel L. Vega

IPA143: Targeted photodynamic therapy with colon cancer-specific peptide conjugated photosensitizer
Author(s): Ju Hee Kim1, Yoon Jin Roh1, In-Wook Kim1, Hyun-A Kim1, Jae Myung Park1, Tayyaba Hasan2, Myung-Gyu Choi1

IPA144: Microfluidic study of targeted imaging and photodynamic therapy
Author(s): Nishanth Venugopal Menon, Sivaramapanicker Sreejith, Yanli Zhao, Yuejun Kang

IPA145: Hypericinates preparation and comparative study of cell viability with hypericin
Author(s): Gislaine Patricia de Andrade, Giselle Cerchiaro, Anderson Orzari Ribeiro

IPA146: Quantum Dot-Sensitiser conjugates for two-photon excited Photodynamic Therapy
Author(s): Colin Fowley, Anthony P. McHale, Bridgeen McCaughan, Aurore Fraix, Salvatore Sortino and John F. Callan

12:00 - 14:00 Lunch (IPA Board Lunch Meeting)

14:00 - 14:30 (Plenary Presentation)

Acoustic radiation force optical coherence elastography

Author(s): Zhongping Chen, Beckman Laser Institute and Medical Clinic (United States)

14:30 - 15:00 (Plenary Presentation)

Physiologic Properties as Predictors of PDT Response: Where We Stand and Where We are Going

Author(s): Theresa Busch
15:00 - 17:00 IPA Session 6 - Mechanisms of PDT and PD I - Session Chairs: Vanderlei S. Bagnato/Tayyaba Hasan

IPA073: Perfusion CT examined as a surrogate dosimetry tool to estimate verteporfin uptake in rabbit orthotopic pancreas cancer (Opening Speaker)
Author(s): Brian W Pogue, Jonathan Elliott, Kimberley S. Samkoe, Jason R. Gunn, Errol Stewart, Timothy Gardner, Ting-Yim Lee, P. Jack Hoopes, Steve Pereira, Tayyaba Hasan

IPA061: A folate-targeted photosensitizer to improve specificity of intraperitoneal photodynamic therapy of ovarian peritoneal metastasis
Author(s): Henri Azaïs, Céline Frochot, Nacim Betrouni, Pierre Collinet, Serge Mordon

IPA065: A combination regimen of 5-fluorouracil with ALA-PDT augments cell death by upregulating p53 in squamous cell carcinoma and actinic keratoses in mice and humans
Author(s): Sanjay Anand, Kishore Rollakanti, Tayyaba Hasan, Edward Maytin

IPA066: Modulating the mechanism of photoinduced cell death by using photosensitizers with different charges
Author(s): Tayana Mazin Tsubone, Waleska Kerllen Martins, Christiane Pavani and Maurício S. Baptista

IPA067: The role of the immune system in the therapeutic outcome of PDT with a fluorinated bacteriochlorin (F2BMet) in clinical trials
Author(s): L. G. Arnaut, L. C. Gomes-da-Silva, L. B. Rocha, J. M. Dabrowski

IPA068: Photodynamic therapy: a novel minimally invasive intervention to relieve left ventricular outflow tract obstruction in hypertrophic cardiomyopathy.
Author(s): Melissa J. Bovis, Robert Bell, Sapna Arjun, Perry Elliott, Alexander J. MacRobert

IPA071: 5-ALA induced protoporphyrin IX fluorescence is a promising marker for identification of primary CNS lymphomas in stereotactic biopsies
Author(s): Mario Mischkulnig, Barbara Kiesel, Matthias Millesi, Stefan Wolfsberger, Engelbert Knosp, Georg Widhalm

IPA084: Three dimensional cell culture used as a model for PDT dosimetry.
IPA085: Monitoring of the PDT by infrared images — a clinic study.
IPA086: Unveiling the molecular mechanisms involved in the cytotoxicity induced by photodynamic therapy in human breast cancer cells.
IPA087: Comparison of the response and mechanisms of MAL-PDT of different squamous carcinoma cell lines.
IPA088: Penetration depth of the 664-nm semiconductor laser light with talaporfin sodium into human brain tissue with glioma.

17:00 - 18:30 Coffee / Poster Session

IPA072: Evaluation of 5-ALA induced protoporphyrin IX fluorescence in intracranial meningiomas
Author(s): Georg Widhalm, Matthias Millesi, Barbara Kiesel, Mario Mischkulnig, Stefan Wolfsberger, Engelbert Knosp
IPA089: Synthesis of chlorin derivatives sterically-prevented from self-aggregation aiming photoinactivation of tumor cells

IPA090: Pharmacokinetics of Chlorin E6 in solid Ehrlich tumor for different administration ways

IPA091: Endobronchial Photodynamic Therapy in the Octogenarian

IPA092: Development of an in vitro dermis equivalent model using collagen-based scaffold

IPA093: Photodynamic proprieties of Hypericin and its aqueous soluble derivative Glucamine-Hypericin

IPA094: Cellular distribution and PDT response of chlorin based photosensitizer in murine melanoma

IPA095: Acute phase injury of vascular endothelial cells under extra-cellular talaporfin sodium existence: in vitro Study.

IPA096: Evaluation of Photodynamic Therapy in Three-dimensional Cell Culture by Magnetic Levitation.

IPA097: Efficacy of photodynamic therapy and EGFR inhibitor, nimotuzumab in the treatment of oral cancer and EGFR mutation cell lines.


IPA105: Curcumin: A New Approach For Eliminating Microorganisms That Cause Onychomycosis.


IPA107: Evaluation of the photodynamic therapy as a potential technique for blood decontamination.

IPA108: Antimicrobial Therapy In Isolated Photodynamic Clinical Acinetobacter Baumannii.

IPA109: Influence of Staphylococcus aureus RecA-LexA system on photoinactivation efficacy.

IPA110: Impact of photodynamic therapy with a chlorine and porphyrin in viability of Leishmania major.

IPA111: Photodegradation of Curcumin in different formulations and concentrations.

IPA112: Antimicrobial photodynamic therapy (aPDT) in the treatment of infected cutaneous wounds in rats.

IPA113: Extracellular hydrolytic enzymes production of susceptible and fluconazole-resistant Candida albicans after Photodynamic Therapy.

IPA114: Effect of Photodynamic Therapy on fluconazole-resistant Candida albicans adhesion ability.

IPA115: Comparison of the efficiency of rose bengal and methylene blue as photosensitizers in photodynamic therapy techniques aiming at Enterococcus faecalis inactivation.

IPA116: Evaluation of the molecular mechanisms of bacterial resistance in Pseudomonas aeruginosa by FTIR microspectroscopy.

IPA117: Effectiveness of Hypericin in decreasing the population of Propionibacterium acnes.

IPA118: Morphological evaluation of Candida albicans after photodynamic therapy.

IPA119: PDT with Blue Light and curcumin for oral disinfection.

IPA759: Evaluation of the rate of infection in macrophages infected with L. braziliensis using photodynamic therapy antiparasitic

19:00 - 21:00 Conference Dinner
May 25

09:00 - 09:30 (Plenary Presentation)

A multicenter registry to evaluate indications and outcomes for PDT in bronchogenic and esophageal cancers

Author(s): Patrick Ross

09:30 - 10:00 (Plenary Presentation)

Polarized light in optical biopsy: enabling technologies towards tissue characterization and imaging

Author(s): Igor Meglminski, Alexander Doronin, Callum Macdonald, Michael Eccles, Univ of Otago (New Zealand)

10:00 - 10:10 Sponsor Lecture: Nano 3D

10:10 - 10:30 Break and Exhibition

10:30 - 12:00 IPA Session 7- Clinical PDT II Session Chairs: Samy Eljamel/Sharmila Anandasabapathy

IPA005: Photodynamic therapy applications in gynecologic oncology: new trends? (Opening Speaker)
Author(s): Henri Azaïs, Nacim Betrouni, Serge Mordon, Pierre Collinet.

IPA007: Improvement of DC vaccine with ALA-PDT induced immunogenic apoptotic cells for skin squamous cell carcinoma
Author(s): Hongwei Wang, Jie J, Xiuli Wang

IPA008: Interventional photodynamic therapy: long-term outcomes in Klatskin tumor patients
Author(s): Olga Sergeeva, Andrei Kukushkin, Vadim Panov, Andrei Reshetnickov, Boris Dolgushin

IPA009: Clinical outcomes of photodynamic therapy in patients with central lung carcinoma in situ
Seung Hun Jang, Ho Young Kim

IPA010: Irradiance measurements during treatment of actinic keratosis of the scalp with conventional photodynamic therapy.
Author(s): Claire Vicentini, Dr Jean-Baptiste Tylcz, Dr Cyril Maire, Pr Laurent Mortier, Dr Nacim Betrouni, Pr Serge Mordon.

IPA012: Evaluation of pain during large area photodynamic therapy in patients with widespread actinic keratosis of upper limbs.
Author(s): Ana Gabriela Salvio, Dora Patricia Ramirez, Elisangela Ramos de Oliveira, Natalia Mayumi Inada, Cristina Kurachi, Vanderlei Salvador Bagnato.

IPA127: A Novel Regimen for Perioral Dermatitis by Photodynamic Therapy?
Author(s): Schreiber Smadar M.D. Ph.D.
12:00 - 14:00 Lunch
14:00 - 14:30 (Plenary Presentation)
*Global endoscopy: opportunities and challenges in endoscopic imaging and early cancer detection*
Author(s): Sharmila Anandasabapathy, Baylor College of Medicine (United States)
14:30 - 15:00 (Plenary Presentation)
*Use of recombinant calreticulin as adjuvant to photodynamic therapy for cancer treatment*
Author(s): Mladen Korbelik

15:00-17:00 **IPA Session 8** - Mechanisms of PDT and PD II - Session Chair: Theresa Busch/Lilian T. Moriyama

IPA058: *Controlled activation of photosensitizers for site-specific PDT (Opening Speaker)*
Author(s): Jordan Atchison, James Davis and John F. Callan

IPA059: *Use of a novel 3D-tumoroid experimental model to assess cytotoxicity mediated by Photochemical Internalisation of saporin in 4T1 breast cancer cells.*
Author(s): Derick Adigbi, Alejandra Martinez De Pinillos Bayona, Josephine Woodhams, Alexander MacRobert, Marilena Loizidou

IPA060: *Macrophage mediated PCI enhanced gene-directed enzyme prodrug therapy.*
Author(s): Henry Hirschberg, Kristian Berg, Young J Kwon, Steen Madsen

IPA070: *Photodynamic therapy combined to optical clearing agents for melanoma treatment*
Author(s): Layla Pires, Clovis Grecco, Sebastiao Pratavieira, Lilian Tan Moriyama, Brian C Wilson, Cristina Kurachi

IPA062: *Conduction block recovery by photosensitization reaction under extracellular talaporfin sodium existence in a cardiomyocyte electrical conduction wire*
Author(s): Mariko Kurotsu, Emiyu Ogawa, Tsunenori Arai

IPA063: *Light fractionation improves the response to BF-200 ALA-PDT in hairless mouse skin*
Author(s): Henriëtte S. de Bruijn, Sander Brooks, Angèlique van der Ploeg-van den Heuvel, Ellen R. M. de Haas, Dominic J. Robinson

IPA064: *Parameter study of myocardial cell damage with photosensitization reaction under extracellular talaporfin sodium existence*
Author(s): E. Ogawa, T. Arai

IPA069: *Modification of Collagen Fiber after PDT in Porcine Skin Models by Two Photons Microscopy Analysis*
Author(s): Priscila Fernanda Campos de Menezes, Michelle Barreto Requena, Ramon Gabriel Teixeira Rosa, Sebastião Pratavieira, Alessandra Keiko Lima Fujita, Cristina Kurachi, André Escobar, Rozana Wendler da Rocha, Andrigo Barboza de Nardi, Vanderlei S. Bagnato
15:00 - 17:00 IPA Session 9 - Instrumentation- Session Chairs: Timothy Zhu/Carolyn Cross

IPA048: The use of MRI imaging in PDT treatment planning and response monitoring (Opening Speaker)
Author(s): Carl Fisher, Warren Foltz, Carolyn Niu, Lothar Lilge

IPA049: Ambulatory Photodynamic Therapy of Skin Cancer
Author(s): I.D.W. Samuel, O. Kulyk, A. McNeill, H Moseley, J Ferguson, S Ibbotson

IPA050: Cerenkov Excited Luminescence Scanned Imaging: High-resolution oxygenation imaging
Author(s): Brian W. Pogue, Rongxiao Zhang, Adam Glaser, David Gladstone, Lesley Jarvis

IPA051: Computerized dosimetry planning for Vascular Targeted Photodynamic therapy with WST-11 for prostate cancer
Author(s): Betrouni N., Boukris S., Gaillac B., Azzouzi A.R., Benzaghou F.

IPA052: Micro-Vascular Effects of Photodynamic Therapy in Tumors Evaluated With Dynamic Contrast-Enhanced MRI
Author(s): Tom Schreurs, Gustav Strijkers, Holger Grüll, Klaas Nicolay

IPA053: Performance characterization of a low-cost spatial frequency domain imaging system for the determination of optical properties in tissue-simulating phantoms and in vivo
Author(s): Arash Darafsheh, Emily A. Kraus, Michele M. Kim, Timothy C. Zhu, Jarod C. Finlay

IPA054: Roadmap toward the Standardization of Photodynamic Therapy for Port Wine Stains
Author(s): Xiaoming Hu, Feng Juan Zhang

IPA055: Direct Imaging of Singlet Oxygen Luminescence in Photodynamic Therapy
Author(s): Buhong Li

17:00 - 18:30 Coffee / Poster Session

IPA120: In-vitro adhesion of Candida albicans to abiotic surface after Curcumin-mediated photoinactivation.

IPA121: Inactivation of microorganisms present in raw and pasteurized milk using Antimicrobial Photodynamic Therapy.

IPA122: The protoporphyrin IX dimethyl ester incorporated soy lecithin for photoinactivation of fluconazole-resistant Candida albicans.


IPA124: Photodynamic Therapy Inhibits The Antimicrobial Effects Of Bacteriophage Therapy In a Invertebrate Model Of Systemic Infection.

IPA125: Dental bleaching efficacy with light application: in vitro study.

IPA132: Effects of photodynamic therapy with red light and different photosensitizers as mouth rinse for oral disinfection.

IPA133: A New Photosensitizer Used During aPDT and Its Effect Over Streptococcus mutans Biofilm.

IPA134: Use of Tissue Natural Fluorescence in Clinical Practice as a Complementary Tool for a Differential Diagnosis of Multiple Oral Pathologies.

IPA147: Photochemical Internalisation for the local delivery of chemotherapy.
IPA148: Novel biophysical properties of photosensitizer TLD1433 upon binding to transferrin.
IPA149: New formulations nanostructured containing curcumin for optimization in photodynamic therapy.
IPA151: Interaction of zinc phthalocyanine with ionic and non ionic surfactants: uv-vis absorption and fluorescence spectroscopy for application in Photodynamic Therapy.
IPA152: Stimuli-Responsive Protoporphyrin IX Silica-based Nanoparticles to Improve Photodynamic Therapy in Vitro.
IPA154: Photophysical and photochemical proprieties of metal phthalocyanines and naphthalocyanine in polar aprotic solvents.
IPA155: Cancer Cellular Specific Incorporation of 5-Aminolevulinic Acid by Mitochondrial Reactive Oxygen Species.
IPA156: Enhancement of Photodynamic Therapy Effects with Mitochondrial Reactive Oxygen Species.
IPA157: Synthesis and characterization of novel symmetrical and asymmetrical carboxyphthalocyanines with potential application in Photodynamic Therapy.
IPA158: Synthesis and characterization of zinc naphthalocyanine derivative with potential application in Photodynamic Therapy.
IPA159: Toxic and phototoxic effects of a new ruthenium phthalocyanine on human breast cancer cells (MCF-7).
IPA160: Studies and application of new eosin analogs for application in Photodynamic Therapy.
IPA161: Synthesis, photochemical and photophysical properties of optically active 2-butanol zinc phthalocyanines.
IPA162: TiO2 spherical structures with potential application for photodynamic therapy.
IPA163: Combined use of Rare Earth (RE)-Doped Nanostructures and Photosensitizers (PS): Possible Application in Photodynamic Therapy (PDT).
IPA164: Hypocrellin B and Paclitaxel-Encapsulated Hyaluronic Acid-Ceramide Nanoparticles for Lung Cancer Targeted Photodynamic Therapy.
IPA166: Prospective, double-blind, randomized placebo-controlled trial of the efficacy of lidocaine and tetracaine cream 7%/7% for pain control during PDT.
IPA167: What is better for nodular basal cell carcinoma: ALA PDT or MAL PDT?
IPA168: Evaluation of 120 patients treated through MAL 15% Photodynamic Therapy using a new light source device for large area of upper limbs.
IPA171: Photodynamic Therapy for large lesions: better than surgery.
IPA172: Long-term follow-up of nodular basal cell carcinoma after Photodynamic Therapy.
IPA174: Photodynamic therapy for widespread actinic keratosis of the upper limbs: comparison of pain and response using aminolevulinic acid 15% and methyl aminolevulinate 15% through a new light source device.
IPA177: Low LASER Therapy in modulating algogenic substance in rats with Neuropathic pain.
IPA178: Use of Low Level Laser in nociception control and improvement of the peripheral nerve repair process.
IPA179: Phototherapy associated with mechanical stress for body-contouring and cellulite treatment
IPA180: Photoesthetic: New Alternative To Perform Phototherapy Procedure In The Agging And Acne Vulgaris Treatment.
IPA181: Use of low-level laser (light) therapy to improve muscle performance in soccer players.
IPA182: Phototherapy plus concurrent exercise on improvement of metabolic syndrome biomarkers and body composition in obese women.
IPA183: Can Phototherapy associated with an Aerobic exercise on treadmill change the cardiovascular risk in obese women?
IPA184: Laser therapy and biomembrane in treatment of venous ulcer.
IPA186: Effects of low-level laser therapy (LLLT) on muscle gene expression and cardiac autonomic control in rats.
IPA023: A case of successfully treated airway obstruction using Radachlorin® PDT in advanced lung cancer.
IPA189: Ovarian carcinoma detection by spectrofluorimetry using a folate-targeted photosensitizer.

19:00 – 20:00 Public Lectures (Brazilian Academy of Sciences)

May 26
09:00 - 09:30 (Plenary Presentation)
From combinatorial chemistry to targeting nano-phototherapeutic agents
Author(s): Yuanpei Li, Cindy Lin, Chong-xian Pan, and Kit S Lam

09:30 - 10:00 (Plenary Presentation)
Photosensitizers tailored to trigger specific mechanisms of programed cell death can improve Photodynamic Therapy
Author(s): Mauricio Baptista

10:00 - 10:30 Break and Exhibition

10:30 - 12:00 IPA Session 10 - Microbial Control - Session Chairs: Michel Hamblin/
Mahmoud H. Abdel Kader
IPA099: Antimicrobial Sonodynamic Therapy (Opening Speaker)
Author(s): David Costley, Nigel Ternan, Anthony P McHale and John F Callan.
IPA100: A promising in vivo protocol for non-invasive pneumonia treatment
Author(s): Mariana C. Geralde, Ilaiáli S. Leite, Natalia M. Inada, Alexandra I. Medeiros, Ana Carolina G. Salina, Vanderlei S. Bagnato, Cristina Kurachi
IPA101: RsbU-dependent σB activity directly affects photoantimicrobial chemotherapy efficacy in Staphylococcus aureus.
Author(s): Monika Kossakowska-Zwierucho, Joanna Nakonieczna
IPA102: Antimicrobial photodynamic therapy on vulvovaginal candidiasis in mice model
Author(s): Maria E. Santi, Renato A. Prates, Rubia G. Lopes, Aline Sousa, Luis R. Ferreira, Adjaci U. Fernandes, Sandra K. Bussadori, Alessandro M. Deana
IPA103: Cell death of Leishmania amazonensis promastigotes induced by photodynamic therapy
Author(s): Aureliano, Debora Picanço; Lindoso, José Angelo Lauletta; Soares; Sandra Regina Castro; Ribeiro, Martha Simões
IPA104: Total biomass of multispecies-biofilm after Photodynamic Therapy mediated by nanoemulsion-phthalocyanine
Author(s): Ewerton Garcia de Oliveira Mima, Bruna Camila Rosado, Paula Volpato Sanitá, Carlos Eduardo Vergani, Antônio Cláudio Tedesco, Ana Cláudia Pavarina

10:30 - 12:00 IPA Session 11 - Modern Dentistry - Session Chairs: Silvia Nunez/Cristina Kurachi
IPA126: The use of surface-modified upconversion nanoparticles for near-infrared-activated photodynamic therapy of oral cancer (Opening Speaker)
Author(s): Patricia SP Thong, Ramaswamy Bhuvaneswari, Pui-Haan Chang, Kar-Perng Low, Niagara M Idris, Ralph M Bunte, Yong Zhang, Khee-Chee Soo
Flávia Cristina Perillo Rosin, Luciana Corrêa
IPA129: Prevalence, virulence and sensitivity to antimicrobial therapy of strains of Enterococcus faecalis and Enterococcus faecium isolated from endodontic infections.
Author(s): Ana Carolina Chipoletti Santos, Jessica Diane dos Santos, Patrícia Pimentel de Barros, Antonio Olavo Cardoso Jorge, Juliana Campos Junqueira.
IPA130: Analysis of the biofilm formation of Candida albicans after Photodithazine ®-mediated photodynamic therapy in vivo.
Author(s): Juliana Cabrini Carmello, Gabriela Maria Balista Ferreira, Fernanda Alves, Ewerton Garcia de Oliveira Mima, Janaina Habib Jorge, Ana Cláudia Pavarina
IPA131: Clinical and histopathological outcomes of one session of photodynamic therapy with previous CO₂ laser application for actinic cheilitis
Author(s): Karla Bianca F. da C. Fontes, Taiana C. Leite, Ana Maria O. Miranda, Maria Claudia A. Issa, Eliane P. Dias, Cristina Kurachi, Licínio Esmeraldo da Silva, Karin G. S. Cunha

12:00 - 14:00 Lunch

14:00 - 14:30 (Plenary Presentation)
TBA
Author(s): Stefan Andersson Engels (U Lund)

14:30 – 15:00 (Plenary Presentation)
New discoveries in antimicrobial photodynamic inactivation
Author: Michael Hamblin (Harvard Medical School)

15:00 - 17:00 PDT BRAZIL Session Chairs: Ana Gabriela Salvio/Natalia M. Inada
IPA165: Comparison of response according two clinical trials for basal cell carcinoma treatment with MAL-PDT: the beginning of PDT Brazil project. (Opening Speaker).
Author(s): Ana Gabriela Salvio, Natalia Mayumi Inada, Elisangela Ramos de Oliveira, José Dirceu Vollet-Filho, Cristina Kurachi, Vanderlei Salvador Bagnato.
IPA 196: PDT Brazil Project – Cure rate in 148 tumors treated with PDT at Sarandi Center.
Author(s): Marcio Volkweis, Cintia Perin, Deisi Perin, Juliana Dias.
IPA197: The impact of Photodynamic Therapy in the treatment of skin lesions in Maceió-AL and neighboring municipalities.
Author(s): Isadora Barros Souto, Francisco de Assis Martins Gomes Rego Filho, Everson José dos Santos Leite, Maria Tereza de Araujo.
IPA020: Basal Cell Carcinomas and Bowen Disease Treated with Photodynamic Therapy and topic methyl 5-aminolaevulinate in the Skin Cancer Center, BWS Institute, São Paulo, Brazil.
Author(s): Seomara Passos Catalano, Daniel Dziabas and Valcinir Bedin.
IPA190: Photodynamic Therapy and Photodiagnosis of Non-melanoma Skin Cancer - an experience in Presidente Prudente - São Paulo State – Brazil.
Author(s): Armando De Domenico Júnior, Flávia Brasileiro de Medeiros, Aline Morales De Domenico.
IPA176: Diagnosis and Therapy Skin Cancer Treatment Photodynamic in Northeast Region RGS-Brasil.
Author(s): Roberto L. Bigarella, Natalia Inada.
IPA193: The importance of the interaction between facial plastic surgery and the photodynamic therapy.
Author(s): Juarez Missel, Alana Duarte, Rodrigo Dornelles, Filipe Menchen.
Author(s): Paulina Romero, Franklin Cabrera, Sonia Tello, Cristina Kurachi, Patricia Ramirez, Leonel Guamán, Eduardo Avalos, Vanderlei Bagnato.
IPA019: Therapy in Superficial Basal Cell Carcinoma: follow-up for 12 months.
Author(s): Mota, L. I. S.; Brito, M. F. M. & Belo, J. S.

IPA195: Photodynamic Therapy: excellent therapeutic option for basal cell carcinoma.
Author(s): Tania Oliveira Rita Moreno Fernandes, Graziele Aquila de Souza Brandão.

Author(s): Kate C. Blanco, Natalia M. Inada, Ana Paula da Silva, Pedro Russignoli, Dora P. Ramirez, Hilde H. Buzzá, Mirian D. Stringasci, Lilian T. Moriyama, Clovis Grecco, Cristina Kurachi, Vanderlei S. Bagnato.

Beatrix: TBA

IPAXX: Photodynamic therapy experience using brazilian drug and device.
Author(s): Beatrix Zink, Juliana Marques-da-Costa, Vanderlei S. Bagnato and Cristina Kurachi.

17:00 – 17:30 Closing Ceremony - Vanderlei Bagnato, Tayyaba Hasan, Samy Eljamel and Carolyn Cross
**Short Abstracts**

**IPA001 - Photodynamic therapy of chronic skin ulcers in lower limbs**
Xia Lei, Bo Liu, Jinjin Wu, Zheng Huang - Department of Dermatology, Daping Hospital of Third Military Medical University, China; MOE Key Laboratory of OptoElectronic Science and Technology for Medicine, Fujian Normal University, China - zheng_huang@msn.com

ALA/PpIX-mediated photodynamic treatment could reduce the bacterial load of chronic skin ulcers in lower limbs infected with Pseudomonas aeruginosa and other bacterial. Topical PDT also promoted the healing of ulcer surfaces.

**IPA002 - New strategies for treatment of onychomycosis**
Ana Paula da Silva, Fernanda M. Carbinatto, Vanderlei S. Bagnato e Natalia M. Inada - University of Sao Paulo, Sao Carlos Institute of Physics - paulalsir@yahoo.com.br

Onychomycosis is a common disease of the nail plate caused by fungi, yeasts and bacteria and in this study we are presenting the new strategies for treatment with Photodynamic Therapy.

**IPA003 - Photodynamic Inactivation of clinical isolates from patients with Upper Respiratory Tract Infection**
Kate C. Blanco, Natalia M. Inada, Fernanda M. Carbinato, Cristina Kurachi, Vanderlei S. Bagnato - University of São Paulo, São Carlos Institute of Physics, São Carlos-SP, Brazil - blancokate@gmail.com

In order to establish an efficient and less invasive treatment of infections caused by bacteria in the throat was tested different types of the same photosensitizer (PS) and new formulations containing curcumin.

**IPA004 - Photodynamic Therapy with Methylene blue in the treatment of Onychomycosis**
Maria Cecilia da Costa Pinto1, Vanderlei S. Bagnato1 - São Carlos Institute of Physics (IFSC) - University of São Paulo (USP) - Brazil - ceciliapintopereira2009@hotmail.com

PDT with Methylene Blue has the potential to become an important tool in the treatment of onychomycosis.

**IPA005 - Photodynamic therapy applications in gynecologic oncology: new trends?**
Henri Azaïs 1,2, Nacim Betrouni 1, Serge Mordon 1, Pierre Collinet 1,2. - 1- INSERM, U1189 - ONCO-THAI, University of Lille, 59000 Lille, France. 2- Department of Gynecology, University of Lille, 59000 Lille, France - henriazais@gmail.com

Photodynamic therapy hasn’t found a place in current clinical practice in the field of gynecological cancer treatment. There are still indications in which it could bring innovations, like management of ovarian peritoneal metastasis.

**IPA006 - Topical MAL-PDT for cervical intraepithelial neoplasia treatment: a non-surgical option to prevent a cervical cancer**
This work presents a device under approval and successful of topical MAL-PDT of over than 60 patients with CIN 1. Based on these results, a multicenter study is ongoing for CIN 2 treatment.

IPA007 - Improvement of DC vaccine with ALA-PDT induced immunogenic apoptotic cells for skin squamous cell carcinoma
Hongwei Wang, Jie J, Xiuli Wang - Dermatology, Shanghai Skin Disease Hospital, China - xlwang2001@aliyun.com
ALA-PDT treated tumor cells can induce the maturations of DCs. PDT induced apoptotic tumor cells are more capable in potentiating maturation of DCs than PDT treated or freeze/thaw treated necrotic tumor cells.

IPA008 - Interventional photodynamic therapy: long-term outcomes in Klatskin tumor patients
Olga Sergeeva, Andrei Kukushkin, Vadim Panov, Andrei Reshetnickov, Boris Dolgushin-Interventional Radiology Department, N.N.Blokhin Russian Cancer Research Center, Moscow, Russia - 7s_olga@mail.ru
Ninety-three intraductal PDT procedures were performed in 30 Klatskin tumor patients. The median survival was 13.2 months (min-max 2-47 months) and 27.6 months (5-68 months) from the first PDT procedure and from the diagnosis, respectively.

IPA009 - Clinical outcomes of photodynamic therapy in patients with central lung carcinoma in situ
Seung Hun Jang, Ho Young Kim - Division of Pulmonary, Allergy and Critical Care Medicine, Division of Hemato-Oncology of Hallym University Sacred Heart Hospital, South Korea - chestor@hallym.or.kr
Five patients with central lung squamous CIS treated by PDT were analyzed. The rate of complete remission was 100% and median disease free survival of PDT site was 74.0 months. No serious adverse event!

IPA010 - Irradiance measurements during treatment of actinic keratosis of the scalp with conventional photodynamic therapy
Claire Vicentini (a,b), Dr Jean-Baptiste Tylcz (b), Dr Cyril Maire (a), Pr Laurent Mortier (a,b,c), Dr Nacim Betrouni (b,c), Pr Serge Mordon (b,c). - a – Department of Dermatology, Lille University Hospital – CHRU, France. b – INSERM ONCO-THAI U1189, Lille University Hospital – CHRU, France. c – University of Lille, France. -clairevicentini@gmail.com
We measured light dose received by each lesion during treatment of actinic keratosis of the scalp with conventional photodynamic therapy. We found out an inhomogeneous illumination which could explain some treatment failures.
IPA011 - A phase II study evaluating the non-inferiority of the device FLEXITHERALIGHT® compared to the conventional photodynamic therapy
Claire Vicentini (a,b), Dr Jean-Baptiste Tylcz (b), Dr Cyril Maire (a), Pr Laurent Mortier (a,b,c), Dr Nacim Betrouni (b,c), Pr Serge Mordon (b,c). - a – Department of Dermatology, Lille University Hospital – CHRU, France. b – INSERM ONCO-THAI U1189, Lille University Hospital – CHRU, France. c – University of Lille, France - clairevicentini@gmail.com

We present a phase II study evaluating a new textile light emitting device FLEXITHERALIGHT® in treatment of actinic keratosis of the scalp with PDT. This device is effective and less painful than conventional treatment.

IPA012 - Evaluation of pain during large area photodynamic therapy in patients with widespread actinic keratosis of upper limbs.
Ana Gabriela Salvio 1, Dora Patrícia Ramirez 2, Elisangela Ramos de Oliveira1, Natalia Mayumi Inada2, Cristina Kurachi 2, Vanderlei Salvador Bagnato2 - 1 – Skin Deppartment of Amaral Carvalho Hospital, Brazil/ 2 – Institute of Physics-São Carlos (USP/IFSC), São Paulo, Brazil - gasalvio@hotmail.com

Pain during PDT treatment can be a limiting factor, specially when using large área device. This study presents a moderate pain despite using large area devices.

IPA013 - Vascular Targeted Photodynamic therapy with WST-11 (TOOKAD®) Soluble in Oncology: Worldwide clinical overview in focal treatment in prostate cancer
Paulo Palma , Fawzi Benzaghou , Ramon Rodriguez Lay, Luis Zeggara, Abderrahmène Azzouzi , Arturo Rodriguez Rivera - P.Palma, University hospital (UNICAMP) , Campinas , Brazil . F.Benzaghou , Medical department Stebabiotech , Paris , France .R.Rodriguez Lay , University Hospital, Panama city, Panama.L.Zeggara, University Hospital , Lima , Peru .A.R.Azzouzi, University Hospital , Angers, France .A.R.Rodriguez Rivera, University Hospital , Guadalara, Mexico - f.benzaghou@stebabiotech.com

Vascular-Targeted Photodynamic (VTP) therapy using WST11 TOOKAD® Soluble drug is an innovative focal therapy approach for localized prostate cancer. We propose to give a medical overview of the worldwide clinical results.

IPA014 - Clinical experience and outcome of photodynamic therapy in early lung cancer
Bo young Lee1, Jae Cheol Lee2, Hyeong Ryul Kim3, Seung Hun Jang4, Chang-Min Choi1 - 1Department of Pulmonary and Critical Care medicine, Asan medical center, University of Ulsan College of Medicine, Seoul, 2Department of Oncology , Asan medical center, University of Ulsan College of Medicine, Seoul, Division of Thoracic surgery, 3Department of Thoracic and cardiovascular surgery, Asan medical center, University of Ulsan College of Medicine, Seoul, 4Division of Pulmonary, Allergy and Critical Care medicine, Hallym University Sacred Heart Hospital, Hallym University College of Medicine, Anyang, Korea - etboss2@gmail.com

We retrospectively reviewed 24 patients with early lung cancer who underwent PDT . During median follow-up of 23.5 months, median overall survival was 37.2 months and median recurrence-free survival was 21.0 months.
IPA015 - Evaluation Of Photodynamic Therapy With Talaporfin Sodium On Relapse Controlling Efficacy At Laser Irradiation Sites In Newly Diagnosed Glioblastoma
Takashi Maruyama, Soko Ikuta, Masayuki Nitta, Yoshihiro Muragaki, Hiroshi Iseki - Department of Neurosurgery, Tokyo Women's Medical University - tmaruyama@twmu.ac.jp

Improvement of local control by PDT would be expected to result in prolongation of survival and tumor progression. PDT using talaporfin sodium was well tolerable and showed good local control rate and patient prognosis.

IPA016 - Clinical response of vulvar cutaneous lymphangioma to photodynamic therapy: case report
Belotto, R.A.1., Santos, R.E.1., Tardivo, J.P.2, Berardinelli, I.C.1, Filho, R.C.S1; Baptista M.S3., ltri, R.3; Chavantes, M.C.4; Teixeira, D.F.4 1- Pêrola Byington Hospital – Brazil 2- ABC Medical School – Brazil 3- University of São Paulo - Brazil 4- Nove de Julho University - Brazil Contato : rebelotto@terra.com.br - Perola Byington Hospital / University Nove de Julho - rebelotto@terra.com.br

The aim of this study was to evaluate the treatment of vulvar lymphangioma with PDT and after 5 sessions it was observed clinical improvement and the follow up of 6 months no recurrence was observed.

IPA017 - PDT against head and neck cancer in Bolivia
Eduardo Milanesi, Ingrid Serrano - Unirveseis Of Sucre- Bolivia - eduardomilanesimaxilo@hotmail.com

The Bolivia Team of Surgeons, will show a clinical perspective of head and neck Cancer Treatment using techniques with PDT like interstitial, intravenous, intracutaneous and also cutaneous applications to benefit patients with pre-cancer diseases.

IPA018 - Photodynamic therapy for gastric antral vascular ectasias: five cases report
Haixia Qiu*, Yongping Mao#, Ying Gu*, Jing Zeng*, Jiaying Zhang*, Naiyang Huang*, Ying Wang* - *Department of Laser Medicine, Chinese PLA General Hospital, China. # Department of Gastroenterology and Hepatology, Chinese PLA General Hospital, China, - qiuhxref@126.com

This study was conducted to test the potential of photodynamic therapy to deal with gastric antral vascular ectasias which is a rare clinical disease can cause recurrent upper gastrointestinal tract bleeding.

IPA019 - Therapy in Superficial Basal Cell Carcinoma: follow-up for 12 months
Mota, L. I. S.; Brito, M. F. M. & Belo, J. S. - UFPE - UNIVERSIDADE FEDERAL DE PERNAMBUCO- BRAZIL - dermatofatima@hotmail.com

PDT-MAL is a safe and effective therapeutic approach in the treatment of superficial BCC, with maintenance of satisfactory clinical response at 12 months of treatment.
IPA020 - Basal Cell Carcinomas and Bowen Disease Treated with Photodynamic Therapy and topic methyl 5-aminolaevulinate in the Skin Cancer Center, BWS Institute, São Paulo, Brazil
Seomara Passos Catalano, Daniel Dziabas and Valcinir Bedin - Skin Cancer, Surgery and Photodynamic Therapy Department, BWS Institute, São Paulo, Brazil - seocatalano@gmail.com

We intend to show the results and follow-up of the patients with superficial and solid basal cell carcinomas (BCC) and Bowen disease (BD)/Queyrat erythroplasty (QE) treated with Photodynamic Therapy and topic methyl 5-aminolaevulinate.

IPA021 - Treatment of condyloma acuminatum using methyl-aminolaevulinic acid for introduce a medical guideline on health public system
Víctor Altamirano, Paulina Romero, Isabel Palacios, Natalia Inada, Bagnato Vanderlei. - Escuela Politécnica Nacional, Departamento de Física y Materiales. Quito-Ecuador. Hospital Carlos Andrade Marín, Servicio de Ginecología. Quito – Ecuador. Universidade de São Paulo- São Carlos. Instituto de Física. São Carlos - São Paulo – Brasil. - victor.altamirano@est.epn.edu.ec

The main objective is constitute a medical protocol using PDT for their efficiency in the treatment of subclinical lesions. PDT also has economic advantages and allows the development of new fields of research.

IPA022 - Treatment of recalcitrant dissecting cellulitis of the scalp with ALA-PDT
Ye Liu MD, Ying Ma MD, Leihong Flora Xiang MD, PhD - Huashan Hospital, Fudan University - flora_xiang@vip.163.com

Refractory dissecting cellulitis of the scalp (DCS) in a forty-one-year-old Chinese female patient was treated with a total of 6-sessions topical ALA-PDT at one week intervals.

IPA023 - A case of successfully treated airway obstruction using Radachlorin® PDT in advanced lung cancer
Bo young Lee1, Jae Cheol Lee2, Hyeong Ryul Kim3, Seung Hun Jang4, Chang-Min Choi1 - 1Department of Pulmonary and Critical Care medicine, Asan medical center, University of Ulsan College of Medicine, Seoul, 2Department of Oncology, Asan medical center, University of Ulsan College of Medicine, Seoul, Division of Thoracic surgery, 3Department of Thoracic and cardiovascular surgery, Asan medical center, University of Ulsan College of Medicine, Seoul, 4Division of Pulmonary, Allergy and Critical Care medicine, Hallym University Sacred Heart Hospital, Hallym University College of Medicine, Anyang, Korea - etboss2@gmail.com

Radachlorin® is a second generation photosensitizer with improved pharmacokinetics. PDT with Radachlorin® is feasible and safe treatment modality for managing central airway obstruction by advanced lung cancer.

IPA024 - Increasing the Therapeutic Index of PDT with Hypothermia for Glioma Treatment
Carl Fisher, Warren Foltz, Carolyn Niu, and Lothar Lilge - Department of Medical Biophysics, University of Toronto, Canada; Department of Radiation Oncology, University Health Network, Canada; Division of Molecular Imaging, Princess Margaret Cancer Centre, Canada - llilge@uhnresearch.ca
Mild hypothermia combined with PDT increases effectiveness of treatment for glioma through increases in PpIX retention and synthesis as well as lowering the damage to normal brain compared to normothermic temperatures.

**IPA025 - Chlorine E6-Folic acid-Curcumin Conjugate based Sono-Photodynamic Therapy**  
Pankaj Kumar Chaturvedi¹, Yong-Wan Kim², Sei Jun Han³, Woong Shick Ahn¹ - ¹Dept. of Ob & Gyn, International St.Mary’s Hospital, Catholic Kwan Dong University, Incheon, South Korea  
²School of Integrated Technology, Yonsei Institute of Convergence Technology, Yonsei University, Incheon, South Korea  
³Dept. of Ob & Gyn, Chosun University, Gwangju, South korea - ahnws4120@yahoo.co.kr

In the present study a novel sono-photosensitizer was developed and its in vitro as well as in vivo efficacies were evaluated. It was demonstrated that the novel sensitizer has enhanced antitumor efficacies.

**IPA026 - Enhanced inhibition of malignant glioma cell growth in vitro. by sonochemical internalization of bleomycin**  
Henry Hirschberg¹, Jonathan Gonzales¹, Steen J Madsen² - Beckman Laser Institute and Medical Clinic, University of California Irvine¹. Dept. of Health Physics and Diagnostic Sciences, University of Nevada, Las Vegas² - hhirschb@uci.edu

Ultrasonic (US) activation of photosensitizers, sonodynamic therapy, an alternative to PDT, can potentially overcoming the limitation of depth of treatment. We have evaluated the effects of US activation of photosensitizers with anti-cancer agents; Sonochemical Internalization.

**IPA027 - Oxygen Carrying Microbubbles for Enhanced Sonodynamic Therapy of Hypoxic Tumours**  
Conor McEwan(1), Joshua Owen(2), Eleanor Stride(2), Colin Fowley(1), Heather Nesbitt(1), David Cochrane(1), Constantin. C. Coussios(2), Mark Borden(3), Nikolitsa Nomikou(4), Anthony P. McHale(1) and John F. Callan(1) - 1. Biomedical Sciences Research Institute, University of Ulster, Coleraine, Northern Ireland, U.K. BT52 1SA. 2. Oxford Institute of Biomedical Engineering, University of Oxford, UK, OX3 7DQ. 3. Department of Mechanical Engineering, University of Colorado, 1111 Engineering Drive, Boulder, CO 80309, USA. 4. Division of Surgery & Interventional Science, Medical School, University College London, London W1W 7EJ, UK - mcewan-c@email.ulster.ac.uk

Oxygen loaded, lipid stabilised microbubbles with Rose Bengal attached to their surface, produced more singlet oxygen and enhanced cytotoxicity in vitro and in vivo upon ultrasound activation compared to SF6 loaded RB functionalised bubbles.

**IPA028 - Enhancing photodynamic therapy treatment efficacy on oral cancer with Nimotuzumab**  
Qin Feng Ng, Ramaswamy Bhuvaneswari, Patricia SP Thong, Khee Chee Soo - National Cancer Centre Singapore - ng.qin.feng@nccs.com.sg
Nimotuzumab potentiates treatment efficacy of photodynamic therapy (PDT) in oral squamous cell carcinoma (OSCC), by increasing cell death and decreasing angiogenesis in xenograft tumor.

IPA029 - Radiosensitizing effect of 5-aminolevulinic acid for malignant gliomas in experimental glioma in vivo study
Junkoh Yamamoto1), Takehiro Kitagawa1), Tohru Tanaka2), Kunihiro Ueta1), Daisuke Akiba1), Yoshiteru Nakano1), Shigeru Nishizawa1) - 1) Department of Neurosurgery, University of Occupational and Environmental Health, Kitakyushu, Japan; 2) SBI Pharmaceuticals CO., Ltd., Tokyo, Japan - yama9218@med.uoeh-u.ac.jp

We assessed whether 5-ALA can act as a radiosensitizer in syngeneic Fischer 344 rats subcutaneously injected with 9L gliosarcoma. We discussed the potency of 5-ALA as a radiosensitizer for cancer therapy.

IPA030 - Novel Potential Nanostructures for Photodynamic Therapy
Pablo Garcia, Luis Perez, Eduardo Coronado, Gerardo Argüello - INFIQC/CONICET - FCQ/UNC - pgarcia@fcq.unc.edu.ar

In this work we present the synthesis of nanoparticles functionalized with tris(5-NH2-phenanthroline) ruthenium (II) complex. This functionalization leads to a controlled formation of dimers with great properties to be consider to PDT.

IPA031 - Advantages and Prospects of PDT Targeted Therapy Combining Noninvasive SDT
Libo Li - TCM-Intergrated Cancer Center, Southern Medical University - 786311178@qq.com

Combination SDT and PDT with immunoadjuvant may be a promising systemic treatment modality, not only for superficial cancers but also for deep-seated tumors and long distance metastasis lesions.

IPA032 - Examining the Effect of Liposomal Lapatinib in Combination with PDT for the Treatment of Malignant Gliomas
Carl Fisher, Carolyn Niu, Warren Foltz, Girgis Obaid, Tayyaba Hasan, Lothar Lilge - Department of Medical Biophysics, University of Toronto, Canada; Department of Radiation Oncology, University Health Network, Canada; Wellman Center for Photomedicine, Massachusetts General Hospital, USA; Division of Molecular Imaging, Princess Margaret Cancer Centre, Canada - llilge@uhnresearch.ca

Liposomal-conjugated lapatinib combined with PDT leads to significant reductions in rCBF and tumour cell death using quantitative MRI and leading to increases in survival post-treatment as well.

IPA033 - Sonochemical internalization using 5-aminolevulinic acid enhances the cytotoxic effect of bleomycin
Tomohiro Osaki1, Yoshihiro Uto2, Masahiro Ishizuka3, Toru Tanaka3, Nobuyasu Yamanaka4, Tsukasa Kurahashi4, Kazuo Azuma1, Yusuke Murahata1, Takeshi Tsuka1, Norihiko Ito1, Tomohiro Imagawa1, Yoshiharu Okamoto1 - 1Department of Veterinary Clinical Medicine,
We examined whether internalization of BLM by ultrasound and 5-aminolevulinic acid (5-ALA) was able to destroy tumors. In vitro and in vivo study, a significant cytotoxic effect of SCI of BLM using 5-ALA was observed.

IPA034 - Acridine Orange as radiosensitizer to improve cell damage caused by radiotherapy in breast cancer cells line
Cintia Teles de Andrade, José Dirceu Vollet-Filho, Layla Pires, Vanderlei Salvador Bagnato, Cristina Kurachi - Biophotonics Lab/ Sao Carlos Institute of Physics, University of Sao Paulo, Brazil - cintyateles@gmail.com

Radiodynamic therapy combines radiosensitizer, X-rays and molecular oxygen to cause cell death. This study evaluated acridine orange efficiency as radiosensitizer in breast cancer cells. Resulting viability was 15% and 50% for MDA-MB-231 and MCF-7, respectively.

IPA035 - Synergic effect in combining photodynamic therapy and radiotherapy in Wistar rats skin model
Cintia Teles de Andrade (a), José Dirceu Vollet-Filho (a), Layla Pires (a), Juliana Fernandes Pavoni (b), Oswaldo Baffa Filho (b), Hermes Murtha Oliveira (c), Luis Fernando Tirapelli (c), Vanderlei Salvador Bagnato (a), Cristina Kurachi(a) - (a) Sao Carlos Institute of Physics, University of Sao Paulo, Brazil; (b) Ribeirao Preto School of Philosophy, Science and Letters, University of Sao Paulo, Brazil; (c) Ribeirao Preto Medical School, University of Sao Paulo, Brazil - cintyateles@gmail.com

Combining radiotherapy and PDT in different protocols to study the synergy between them. The best result was PDT+24h+radiotherapy, respectively. This protocol increase the treated tissue volume while decreasing the ionizing radiation dose delivered per patient.

IPA036 - Gold nanorods with attached phthalocyanines for PDT and hyperthermia on melanoma cells
Lucas Freitas de Freitas (1,2), Florian Anzengruber(2), Ana M. de Guzzi Plepis(1), Michael R. Hamblin(2) - (1) Programa de Pós graduação Interunidades Bioengenharia, Universidade de São Paulo - USP, Brazil | (2) Wellman Center for Photomedicine - Massachusetts General Hospital, Harvard Medical School, United States. - lucasfreitas@usp.br

Some studies indicate that Hyperthermia and PDT together present a synergistic effect. We could observe this effect in vitro using gold nanorods with covalently attached zinc phthalocyanines (both excited with red light) on melanoma cells.

IPA037 - Photodynamic Therapy combined with surgical ablation mechanisms: a microscopic analysis for debulking-PDT protocols
Francisco G. Rego-Filho1, Mariana Torres Carvalho2, Clóvis Grecco2, Cistina Kurachi2, Vanderlei S. Bagnato2, Maria T. de Araujo1 - 1 Instituto de Física, Universidade Federal de Alagoas.
This study analyzes the combination possibility between Photodynamic Therapy and four different surgical cutting tools via real-time fluorescence monitoring, histopathological analysis and confocal fluorescence microscopy.

**IPA038 - Singlet oxygen explicit dosimetry for PDT**

Timothy C. Zhu - Dept of Radiation Oncology, University of Pennsylvania - tzhu@mail.med.upenn.edu

Singlet oxygen explicit dosimetry attempt to determine the reacted singlet oxygen concentration based on real-time measurement of light fluence rate distribution and PS concentration in-vivo during PDT and the resulting in-vivo singlet oxygen threshold dose is similar in magnitude as other in-vivo measurement but is 20 – 25 times smaller than those observed in-vitro.

**IPA039 - Dosimetry optimization of intrapleural photodynamic therapy for malignant pleural mesothelioma**

Munck C., Mordon S., Scherpereel A, Porte H., Dhalluin X., Betrouni N. -INSERM U703. Lille University Hospital. Calmette Hospital - nacim.betrouni@inserm.fr

Successful intrapleural photodynamic therapy for mesothelioma requires the most complete and uniform light delivery. This study describes a smart light system allowing visual control and real time light distribution display.

**IPA040 - Treatment prediction using 3D photoacoustic monitoring of tumor blood oxygen saturation**

Srivalleesha Mallidi 1, Kohei Watanabe 1,2, Dmitriy Timerman 1, Tayyaba Hasan 1 - 1Wellman Center for Photomedicine, Harvard Medical School, Massachusetts General Hospital, Boston, Massachusetts, USA; 2Healthcare Optics Research Laboratory, Canon USA Inc, Cambridge Massacusetts, USA. - Mallidi.Srivalleesha@mgh.harvard.edu

In this study we utilize the changes in tumor blood oxygen saturation to predict treatment response at an early time point and compare the specificity of the technique to tumor volume measurements.

**IPA041 - Radiological challenges in planning interstitial PDT**

Rowland Illing, Jocelyn Brookes, Dean Barratt, David Hawkes, Colin Hopper - Departments of Surgery and Imaging, University College London, UK - rowlandilling@gmail.com

Traditional planning for any type of brachytherapy have been built around radiotherapy planning principles. These are often compromised by routes of access and fibre positioning and ways need to be developed to overcome these obstacles.

**IPA042 - Fast 3D Monte Carlo dose evaluation for interstitial PDT**
Jeffrey Cassidy*, Vaughn Betz*, Lothar Lilge+ - *Electrical & Computer Engineering, University of Toronto, ON, Canada; + Princess Margaret Cancer Centre, Toronto, ON, Canada - jeffrey.cassidy@gmail.com

We present an interstitial PDT fluence dose prediction workflow based on our highly-general tetrahedral Monte Carlo simulator “FullMonte”. From contoured images, we generate dose-volume histograms and 3D fluence visualization for complex geometries.

IPA043 - Photobleaching as an optimization variable for the macroscopic model of singlet oxygen in PDT
Michele M. Kim, Jarod C. Finlay, Timothy C. Zhu - Department of Radiation Oncology, University of Pennsylvania, USA - mickim@sas.upenn.edu

Photobleaching of sensitizer was measured and compared with calculated photobleaching with the macroscopic singlet oxygen model. This was incorporated as an optimization input parameter to fine-tune the fitting algorithm and parameter determination process.

IPA044 - A Qualitative Study of In Vivo Protoporphyrin IX Fluorescence build up during occlusive treatment phase
C. Louise Campbell, Natalia Inada, C. Tom A. Brown, Kenneth Wood, Ronan Valentine, Ana Gabriela Salvio, Harry Moseley, Vanderlei Bagnato - Physics and Astronomy, University of St Andrews, Scotland/Photobiology Unit, Ninewells Hospital, Scotland/ University of Sao Paulo - Sao Carlos Institute of Physics, Brazil - clc57@st-andrews.ac.uk

The PpIX fluorescence was recorded at regular time intervals during the occlusive treatment phase of PDT, to gain more knowledge about the build up of the PpIX in tumour lesions.

IPA045 - Determination of light fluence inside a pleural cavity
Michele M. Kim, Rozhin Penjweini, Timothy C. Zhu - Department of Radiation Oncology, University of Pennsylvania, USA - mickim@sas.upenn.edu

Fluence rates on the surface of spherical cavities illuminated in phantoms with known properties were compared between measurements and MC simulations. Empirical formulas can be used for real-time guidance for uniform light distribution during pleural-PDT.

IPA046 - PDT Dose Dosimeter for Pleural Photodynamic Therapy
Michele M. Kim, Arash Darafsheh, Jarod C. Finlay, Timothy C. Zhu - Department of Radiation Oncology, University of Pennsylvania, USA - mickim@sas.upenn.edu

A PDT dose dosimeter was developed to measure both the light fluence and the photosensitizer concentration at the same time in the same treatment location. Patient data is shown for Photofrin- and HPPH-mediated PDT.

IPA047 - Theoretical One-Dimensional Model to Predict PDT Damage for Different Photosensitizers and Light Sources
Using a simple theoretical approach it is possible to predict the PDT depth because cell death only occurs if the amount of singlet oxygen reaches a minimum value.

IPA048 - New trends in FLIM, PLIM and SLIM for fluorescence guided tumor diagnosis and PDT

A. Rueck, J. Breymayer, D. Bisinger, M. Kessler, S. Kalinina - Core Facility Confocal and Multiphoton Microscopy, University Ulm, Albert- Einstein-Allee 11, 89081 Ulm, Germany - angelika.rueck@uni-ulm.de

Steady state fluorescence diagnosis is standard procedure during PDT.

IPA049 - Ambulatory Photodynamic Therapy of Skin Cancer

I.D.W. Samuel, O. Kulyk, A. McNeill, *H Moseley, *J Ferguson, *S Ibbotson - Organic Semiconductor Centre, SUPA, School of Physics and Astronomy, University of St Andrews, St Andrews, KY16 9SS, UK and *Photobiology Unit, University of Dundee, Ninewells Hospital, Dundee, DD1 9SY, UK - idws@st-and.ac.uk

We demonstrate compact, wearable light sources for ambulatory PDT of skin cancer. In a study of 78 patients with 124 lesions, 91% clearance was obtained at one-year follow up, and the median pain score was 2, compared with 6 for conventional PDT.

IPA050 - Cerenkov Excited Luminescence Scanned Imaging: High resolution oxygenation imaging

Brian W. Pogue, Rongxiao Zhang, Adam Glaser, David Gladstone, Lesley Jarvis - Engineering & Radiation Oncology, Dartmouth College, Hanover NH USA - brian.w.pogue@dartmouth.edu

Cerenkov induced luminescence imaging from ionizing radiation can be used to excite molecular probes such as oxygen sensing porphyrins in vivo, and the beam scanned to allow high resolution molecular imaging.

IPA051 - Computerized dosimetry planning for Vascular Targeted Photodynamic therapy with WST-11 for prostate cancer

Betrouni N., Boukris S., Gaillac B., Azzouzi A.R., Benzaghou F. - Betrouni N., INSERM, U1189, Lille University Hospital Boukris S., Device department Steba biotech, Paris, France Gaillac B., Medical department Steba biotech, Paris, France Azzouzi A.R., University Hospital, Angers, France Benzaghou F., Medical department Steba biotech, Paris, France - nacim.betrouni@inserm.fr

This study describes an image based platform to drive Photodynamic therapies of prostate cancer using WST11 drug. It integrates a laser-tissues interaction model used to optimize the light dose according the target to be targeted.
IPA052 - Micro-Vascular Effects of Photodynamic Therapy in Tumors Evaluated With Dynamic Contrast-Enhanced MRI
Tom Schreurs, Gustav Strijkers, Holger Grüll, Klaas Nicolay - Biomedical Engineering Department, Eindhoven University of Technology, The Netherlands - t.j.l.schreurs@tue.nl

Dynamic contrast-enhanced MRI was used for assessment of vascular effects of PDT in a mouse tumor model. Drastic reductions in tumor perfusion were observed. These measurements might be used for early evaluation of treatment efficacy.

IPA053 - Performance characterization of a low-cost spatial frequency domain imaging system for the determination of optical properties in tissue-simulating phantoms and in vivo
Arash Darafsheh, Emily A. Kraus, Michele M. Kim, Timothy C. Zhu, Jarod C. Finlay - Department of Radiation Oncology, University of Pennsylvania, USA - jarod.finlay@uphs.upenn.edu

We characterize the performance of a low-cost, portable compact SFDI system based on a standard visible-light LED light projector and a CCD camera capable of recovering μs’ and μa within ~10-15% accuracy.

IPA054 - Roadmap toward the Standardization of Photodynamic Therapy for Port Wine Stains
Xiaoming Hu, Feng Juan Zhang - School of Life Science, Beijing Institute of Technology, China - bithxm@bit.edu.cn

An approach toward the standardization of PWS PDT is demonstrated with a digital illumination instrument, which help to understand the relation between the treatment outcome and parameters through large-scale prospective, comparative, and controlled clinical studies.

IPA055 - Direct Imaging of Singlet Oxygen Luminescence in Photodynamic Therapy
Buhong Li - Key Laboratory of OptoElectronic Science and Technology for Medicine of Ministry of Education, Fujian Provincial Key Laboratory for Photonics Technology, Fujian Normal University, Fuzhou 350007, China - bhli@fjnu.edu.cn

A novel configuration of NIR camera and adaptive optics for fast imaging of singlet oxygen luminescence is developed, and the images of singlet oxygen luminescence generated in blood vessels is correlated to vasoconstriction during V-PDT.

IPA056 - VECSELs: innovative light sources for PDT
Emmi Kantola, Tomi Leinonen, Jussi-Pekka Penttinen, Ville-Markus Korpijärvi, Serge Mordon, Mircea Guina - Optoelectronics Research Centre, Tampere University of Technology, Finland - emmi.kantola@tut.fi

Vertical-external-cavity surface-emitting lasers (VECSELs) offer a promising light source for porphyrin and red light assisted photodynamic therapy of small tumors. We report a VECSEL emitting >8 W of output power at the red spectral range.

IPA057 - Safe oncological PDT using a new
Oncological PDT has used the same lasers for 20 years. The laser settings can lead to important dosimetry mistakes leading to treatment errors. A new laser has been designed to avoid such problems.

**IPA058 - Controlled activation of photosensitizers for site-specific PDT**

Jordan Atchison1, James Davis2 and John F. Callan1 - 1.School of Pharmacy and Pharmaceutical Sciences, Ulster University, Coleraine, Northern Ireland 2. School of Engineering, Ulster University, Jordanstown, Northern Ireland - Atchison-J@email.ulster.ac.uk

Differences in pH and enzyme expression between healthy and cancerous tissue has been used to control ROS production in PDT.

**IPA059 - Use of a novel 3D-tumoroid experimental model to assess cytotoxicity mediated by Photochemical Internalisation of saporin in 4T1 breast cancer cells**

Derick Adigbli, Alejandra Martinez De Pinillos Bayona, Josephine Woodhams, Alexander MacRobert, Marilena Loizidou - Division of Surgery & Interventional Sciences, UCL, UK - d.adigbli@ucl.ac.uk

Using a novel compressed collagen scaffold, we were able to demonstrate targeted PCI-enhanced cytotoxicity using a 3D tumoroid breast cancer model. Such emerging experimental models will play an increasing role in translational medicine and therapeutics.

**IPA060 - Macrophage mediated PCI enhanced gene-directed enzyme prodrug therapy**

Henry Hirschberg, Kristian Berg, Young J Kwon, Steen Madsen - Beckman Laser Institute. University of california, Irvine USA - hhirschb@uci.edu

Macrophages, carrying suicide genes, can act as growth inhibiting delivery vehicles to tumors. The use of photochemical internalization, and core/shell NPs as gene carrier could significantly increase the efficacy of gene transfection into the macrophages.

**IPA061 - A folate-targeted photosensitizer to improve specificity of intraperitoneal photodynamic therapy of ovarian peritoneal metastasis**

Henri Azaïs 1,2, Céline Frochot 3, Nacim Betrouni 1, Pierre Collinet 1,2, Serge Mordon 1 - 1. INSERM, U1189 - ONCO-THAI, University of Lille, 59000 Lille, France. 2. Department of Gynecology, University of Lille, 59000 Lille, France. 3. Laboratoire Réactions et Génie des Procédés, UMR 7274 CNRS - University of Lorraine, France - henriazais@gmail.com

New generation photosensitizer targeted by folate is specific for epithelial ovarian cancer (EOC) and may allow the development of efficient and safe intraperitoneal photodynamic therapy to improve microscopic cytoreduction after macroscopic complete surgery for EOC.

**IPA062 - Conduction block recovery by photosensitization reaction under extracellular talaporfin sodium existence in a cardiomyocyte electrical conduction wire**

Mariko Kurotsu, Emiyu Ogawa, Tsunenori Arai - Graduate School of Science and Technology, Keio University, Japan - m.kurotsu@arai.appi.keio.ac.jp
We studied the electrical conduction block recovery by photosensitization reaction under extracellular talaporfin sodium existence in cardiomyocyte wires. We think temporary conduction block might be caused by gap junction closure induced by intracellular Ca2+ increase.

**IPA063 - Light fractionation improves the response to BF-200 ALA-PDT in hairless mouse skin**
Henriëtte S. de Bruijn1, Sander Brooks2, Angèleque van der Ploeg-van den Heuvel1, Ellen R. M. de Haas2, Dominic J. Robinson1 - 1: The Centre for Optical Diagnostics and Therapy, Department of Otolaryngology and Head & Neck Surgery; 2: Department of Dermatology, Erasmus MC, Rotterdam, The Netherlands - h.debruijn@erasmusmc.nl

BF-200 ALA is 10% ALA in a lecithin-based nanoemulsion. Fluorescence kinetics and PDT induced damage is comparable with ALA suggesting that ALA can be replaced by BF-200 ALA in light fractionated PDT for skin lesions.

**IPA064 - Parameter study of myocardial cell damage with photosensitization reaction under extracellular talaporfin sodium existence**
E. Ogawa, T. Arai - School of Fundamental Science and Technology, Graduate School of Science and Technology, Keio University, Japan - e.ogawa@arai.appi.keio.ac.jp

The myocardial cell damage of photosensitization reaction under extracellular talaporfin sodium existence to myocardium for electrical conduction block was studied with various parameters as talaporfin sodium concentration, radiant exposure, irradiance, albumin concentration, and temperature.

**IPA065 - A combination regimen of 5-fluorouracil with ALA-PDT augments cell death by upregulating p53 in squamous cell carcinoma and actinic keratoses in mice and humans**
Sanjay Anand1,2, Kishore Rollakanti1, Tayyaba Hasan3 & Edward Maytin1,2,3 - Departments of 1Biomedical Engineering and 2Dermatology, Cleveland Clinic, Cleveland, OH, USA. 3Wellman Center for Photomedicine, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA - anands@ccf.org

Pretreatment with 5-fluorouracil (5-FU, a chemotherapeutic drug) prior to ALA-PDT enhances PpIX levels and subsequent killing of tumor cells. This enhanced therapeutic response involves preferential upregulation of the tumor suppressor protein, p53.

**IPA066 - Modulating the mechanism of photoinduced cell death by using photosensitizers with different charges**
Tayana Mazin Tsubone, Waleska Kerllen Martins, Christiane Pavani and Maurício S. Baptista - Instituto de Química - Universidade de São Paulo, Brazil - tayanatsubone@usp.br

Knowing that photosensitizer charge may influence photosensitizer location in specific cell organelles and that localization have strong influence in cell death mechanisms, we evaluated cell death mechanism for two photosensitizer: CisDiMPyP positive and TPPS2a negative.
IPA067 - The role of the immune system in the therapeutic outcome of PDT with a fluorinated bacteriochlorin (F2BMet) in clinical trials
L. G. Arnaut, L. C. Gomes-da-Silva, L. B. Rocha, J. M. Dabrowski - Chemistry Department, University of Coimbra, 3004-535 Coimbra, Portugal; Luzitin SA, Ed. Bluepharma, 3045-016 Coimbra, Portugal; Faculty of Chemistry, Jagiellonian University, 30-060 Krakow, Poland - lgarnaut@ci.uc.pt

PDT of mice with subcutaneously implanted tumors using a fluorinated bacteriochlorin (F2BMet) leads to cure rates >85% and long-term tumor immunity. The Th1 arm of the adaptive immune system is involved in the immune response.

IPA068 - Photodynamic therapy: a novel minimally invasive intervention to relieve left ventricular outflow tract obstruction in hypertrophic cardiomyopathy
Dr Melissa J. Bovis*, Dr Robert Bell, Dr Sapna Arjun, Prof Perry Elliott, Prof Alexander J. MacRobert - Division of Surgery and Interventional Science & The Hatter Cardiovascular Institute, University College London, London, U.K. - m.bovis@ucl.ac.uk

Hypertrophic cardiomyopathy is an inherited heart disease giving rise to left ventricular outflow tract obstruction (LVOTO). Photodynamic therapy (PDT) can be used as a minimally invasive technique to relieve this condition by de-bulking cardiac tissue.

IPA069 - Modification of collagen fiber after PDT in porcine skin models by two photons microscopy analysis
Priscila Fernanda Campos de Menezes1, Michelle Barreto Requena1, Ramon Gabriel Teixeira Rosa1, Sebastião Pratavieira1, Alessandra Keiko Lima Fujita1, Cristina Kurachi1, André Escobar2, Rozana Wendler da Rocha 2, Andrigo Barboza de Nardi 2,Vanderlei S. Bagnato1 - 1 Biophotonics Laboratory, Sao Carlos Institute of Physics, University of Sao Paulo (USP), Sao Carlos-SP, Brazil 2 Department of Veterinary Clinic and Surgery, Faculty of Agriculture and Veterinary Sciences, São Paulo State University (UNESP), Jaboricabal-SP, Brazil - pmenezes.lat.ifsc.usp@gmail.com

In this study the modification of collagen fibers was evaluated after PDT procedure using ALA, and M-ALA cream and mixtures from both, in porcine skin models, by two photons microscopy analysis.

IPA070 - Photodynamic therapy combined to optical clearing agents for melanoma treatment
Layla Pires1,2, Clovis Grecco1, Sebastiao Pratavieira1, Lilian Tan Moriyama1, Brian C Wilson2, Cristina Kurachi1 - 1 Sao Carlos Institute of Physics - University of Sao Paulo- Sao Carlos/Brazil 2 Department of Medical Biophysics, University of Toronto, University Health Network - Toronto/Canada - laylabtu@gmail.com

Melanoma is the most aggressive skin cancer type and its pigmentation has made it unsuitable for PDT. This study aims to evaluate the effect of optical clearing agents combined with PDT on melanoma treatment.
IPA071 - 5-ALA induced protoporphyrin IX fluorescence is a promising marker for identification of primary CNS lymphomas in stereotactic biopsies
Mario Mischkulnig, Barbara Kiesel, Matthias Millesi, Stefan Wolfsberger, Engelbert Knosp, Georg Widhalm - Department of Neurosurgery, Medical University Vienna, Austria, European Union - n1042074@students.meduniwien.ac.at

In the present study, we found that 5-ALA induced PpIX fluorescence is capable to identify PCNSL tissue during stereotactic biopsies in order to avoid collection of non-diagnostic tissue samples.

IPA072 - Evaluation of 5-ALA induced protoporphyrin IX fluorescence in intracranial meningiomas
Georg Widhalm, Matthias Millesi, Barbara Kiesel, Mario Mischkulnig, Stefan Wolfsberger, Engelbert Knosp - Department of Neurosurgery, Medical University Vienna, Austria, European Union - georg.widhalm@meduniwien.ac.at

In the present study, we found that the vast majority of intracranial meningiomas can be visualized by 5-ALA induced PpIX fluorescence during tumor resection.

IPA073 - Perfusion CT examined as a surrogate dosimetry tool to estimate verteporfin uptake in rabbit orthotopic pancreas cancer
Brian W Pogue, Jonathan Elliott, Kimberley S. Samkoe, Jason R. Gunn, Errol Stewart, Timothy Gardner, Ting-Yim Lee, P. Jack Hoopes, Steve Pereira, Tayyaba Hasan - Engineering & Surgery, Dartmouth College, Hanover NH USA; Dept of Medical Biophysics, Western University, Canada; Inst. for Liver & Digestive Disease, University College London, UK; Massachusetts General Hospital, Harvard Medical School, Boston MA USA - brian.w.pogue@dartmouth.edu

Uptake of x-ray CT contrast agent in orthotopic rabbit pancreas tumors was compared to uptake of verteporfin, to determine if clinical imaging might be used as a surrogate dosimetry tool.

IPA074 - Enhanced endolysosomal lipid peroxidation mediated by intracellular glutathione depletion facilitates Photochemical Internalisation in breast cancer cells
Derick Adigbli, Hayley Pye, Marilena Loizidou, Alexander MacRobert - Division of Surgery & Interventional Sciences, UCL, UK - d.adigbli@ucl.ac.uk

Lipid peroxidation plays a vital role in mediating photochemical internalisation. Given the importance of reactive oxygen species in generating lipid peroxides we hypothesised that inhibiting reducing agents, such as glutathione, may enhance this effect.

IPA075 - Methylene blue-mediated Photodynamic Therapy, alone or combined with cisplatin, induces cell necrosis and DNA damage
Laura Marise de Freitas1; Thaís Fernanda Moreira1; Rodolfo Bortolozo Serafim2; Juliana Ferreira de Sousa2; Valéria Valente1,2; Christiane Pienna Soares1; Carla Raquel Fontana1 - 1 – School of Pharmaceutical Sciences – UNESP, Araraquara, Sao Paulo; 2 – Ribeirao Preto Medical School – USP, Ribeirao Preto, Sao Paulo - lfmarise@gmail.com
This study intended to evaluate in vitro the effects of PDT mediated by methylene blue alone and associated with cisplatin on cervical cancer cell lines. We observed cell necrosis and no mutagenic potential.

IPA076 - Combination of Photodynamic Therapy and Phototherapy for the Treatment of Photoaged Mice Skin
Carolina de Paula Campos, Ana Elisa Jorge, Camila de Paula D’Almeida, Cristina Kurachi - Group of Optics/São Carlos Institute of Physics, University of São Paulo, Brazil - carolinapancampos@gmail.com

Chronic exposure to ultraviolet radiation induces photoaging. This study aims to combine PDT with phototherapy to treat photoaged skin of hairless mice and assess the outcome by fluorescence lifetime and fluorescence spectroscopy and by histology.

IPA077 - Evaluation of Photodynamic Effects of Curcumin Against the Dengue Vector - Aedes Aegypti (Diptera:Culicidae)
Larissa Marila de Souza (a,b), Sebastião Pratavieira (a), Natalia M. Inada (a), Kleber T. Oliveira (c), Cristina Kurachi (a), Vanderlei S. Bagnato (a) - (a) University of São Paulo, São Carlos Institute of Physics; (b) Biotechnology Graduate Program - Federal University of São Carlos; (c) Department of Chemistry - Federal University of São Carlos; - larissamarila@hotmail.com

Currently, dengue is considered a major public health problem in the world. This study aimed to evaluate the efficacy of curcumin activated by natural and artificial light in larvae of Aedes aegypti.

IPA078 - Study of ALA and MAL mixtures in pig skin: PpIX production
Alessandra Keiko Lima Fujita, Priscila Fernanda Campos de Menezes, Phamilla Gracielli Sousa Rodrigues, Michelle Barreto Requena, Cristina Kurachi, André Escobar, Rozana Wendler da Rocha, Andriigo Barboza de Nardi, Vanderlei S. Bagnato - Universidade de São Paulo-campus São Carlos - alessandra.keiko@gmail.com

The objective of this study is to analyze the effect of the application of the photosensitizing agent and the production of protoporphyrin IX, through the mixture of ALA and M-ALA.

IPA079 - Interstitial photodynamic therapy: light fractionation effects on a preclinical model of glioblastoma
Henri-Arthur Leroy, Maximilien Vermandel, Bertrand Leroux, Serge Mordon, Nicolas Reyns-INSERM U1189 – ONCO-THAI Lille - Department of Neurosurgery / University Hospital-University of Lille, France - m-vermandel@chru-lille.fr

This study aimed to evaluate the efficiency of light fractionation in the context of glioblastoma. Interstitial photodynamic therapy. The effects on a preclinical model of glioblastoma were investigated.

IPA080 - Delivery of topical 5-aminolevulinc acid on pig skin when associated with tape stripping procedure
Phamilla Gracielli Sousa Rodrigues, Fernanda Rossi Paolillo, Michelle Barreto Requena, Rozana Wendler da Rocha, Andre Escobar, Andrizgo Barboza de Nardi, Cristina Kurachi, Vanderlei Salvador Bagnato - Group of Optics/ Sao Carlos Institute of Physics, University of Sao Paulo - phamilla@ymail.com

The aim of this study was to show the differences in homogeneity of the ALA-induced PpIX delivery on pig skin when the treatment is previously combined with tape stripping technique.

IPA081 - The effectivity of ALA-PDT using IPL evaluated by image and histological analysis using porcine skin models in vivo
Michelle Barreto Requena 1, Thereza Fortunato Cury 1, Jose Dirceu Vollet-Filho 1, Clóvis Grecco 1, Cristina Kurachi 1, Andrizgo Barboza de Nardi 2, Andre Escobar 2, Rozana Wendler da Rocha 2, Vanderlei S. Bagnato 1, Priscila Fernanda Campos de Menezes 1 - 1 Sao Carlos Institute of Physics (IFSC) - University of Sao Paulo (USP) - Brazil. 2 Faculdade de Ciencias Agrarias e Veterinarias (FCAV) – Universidade Estadual Paulista (UNESP) - Brazil. - michelle@ursa.ifsc.usp.br

This work has intention to demonstrate the potential of Intense Pulsed Light (IPL) in topical Photodynamic Therapy (PDT) using ALA in porcine skin models and the results proved it.

IPA082 - Analysis using Fluorescence of different photosensitizers in Tumor Model on the Chorioallantoic Membrane to Application of Photodynamic Therapy
Hilde Harb Buzzá, Amanda Cristina Zangirolami, Vanderlei Salvador Bagnato, Cristina Kurachi- Grupo de Óptica, IFSC, USP, Brazil - hilde.buzza@gmail.com

Using fluorescence images of tumor model developed on the chorioallantoic membrane, it have been possible to follow the PpIX production for the ALA and accumulation of Photogem in the tumor region and blood vessels.

IPA083 - Influence of absorption and scattering coefficients on singlet oxygen luminescence during photosensitization in skin-stimulating phantom
Lin Liang, Guangping Yao, Huiyun Lin, Buhong Li - Key Laboratory of OptoElectronic Science and Technology for Medicine of Ministry of Education, Fujian Provincial Key Laboratory for Photonics Technology, Fujian Normal University, Fuzhou 350007, China - bhli@fjnu.edu.cn

The influence of absorption and scattering coefficients on singlet oxygen luminescence during photosensitization in skin-stimulating phantom was quantitatively studied, suggesting that NIR background from control sample or lesion is required to quantify singlet oxygen production.

IPA084 - Three dimensional cell culture used as a model for PDT dosimetry
Luis Gustavo Sabino, Jacob Gage, Cristina Kurachi, Vanderlei Salvador Bagnato, Thomas C. Killian, Glauco R. Souza - Biophotonics Lab., Institute of Physics of Sao Carlos, University of Sao Paulo - gusabino@gmail.com

We have used three dimensional cell cultures of Hep G2, MDA-MB-231, and HPF cell types, obtained by the magnetic levitation method, to evaluate efficacy/efficiency of PDT with Photogem and 630 nm light emitted by LED’s.
IPA085 - Monitoring of the PDT by infrared images – a clinic study
Mirian Denise Stringasci, Lilian Tan Moriyama, Ana Gabriela Salvio, Vanderlei Salvador Bagnato and Cristina Kurachi - São Carlos Physics Institute (IFSC), University of São Paulo (USP) - mirianstringasci@gmail.com

This study aims to analyze the thermal response of tumors during PDT treatment and correlate this response with the treatment outcome as an attempt to predict the PDT efficiency.

IPA086 - Unveiling the molecular mechanisms involved in the cytotoxicity induced by photodynamic therapy in human breast cancer cells
dos Santos, AF; Terra, LF; Wailemann, RAM; Oliveira, TC; Baptista, MS; Labriola, L - Biochemistry Department, Chemistry Institute, University of São Paulo (USP), São Paulo, Brazil - ancelybqi@gmail.com

We analyzed the efficacy of MB-PDT in 2D and 3D dimension cultures of human mammary tumors cells and the cell death pathways. We observed massive cell death with increased autophagy and no signs of apoptosis.

IPA087 - Comparison of the response and mechanisms of MAL-PDT of different squamous carcinoma cell lines
Daniela León 1, Ramón Silva 1, Natalia Inada 2, Cristina Kurachi 2, Aleida Vivallo 1, Priscilla Brebi 1, Juan Carlos Roa 3. - 1 Departamento de Anatomía Patológica, Laboratorio de Patología Molecular BIOREN-CEGIN. Universidad de La Frontera, Chile. 2 Instituto de Física de São Carlos. Universidad de São Paulo. Brasil. 3 Departamento de Patología, Facultad de Medicina, Pontificia Universidad Católica de Chile. Chile. - dleon.garrido@gmail.com

Photodynamic Therapy for non-melanoma skin cancer has a good outcome however, is necessary more experimental models to understand the relationship between tumor cells type and to improve the PDT protocols.

IPA088 - Penetration depth of the 664-nm semiconductor laser light with talaporfin sodium into human brain tissue with glioma
Soko Ikuta1, Yuki Kawase2, Yoshiiro Muragaki1,3, Takashi Maruyama1,3, Masayuki Nitta3, Taiichi Saito3, Hiroshi Ikeki1 - 1 Institute of Advanced Biomedical Engineering & Science, Tokyo Women's Medical University, Japan, 2 Panasonic Healthcare Co., Ltd., Japan, 3 Dep. of Neurosurgery, Tokyo Women's Medical University, Japan - sikuta@twmu.ac.jp

The penetration depth of the 664-nm semiconductor laser light into resected human brain with glioma was evaluated. Eight mm alteration of tissue observed with no difference among irradiation energy density of 27, 50, 100 J/cm2.

IPA089 - Synthesis of chlorin derivatives sterically-prevented from self-aggregation aiming photoinativation of tumor cells
Irwin A. Patiño, Kleber T. de Oliveira and Janice R. Perussi - Instituto de Química de São Carlos, Universidade de São Paulo, São Carlos-SP, Brazil - alexpali84@gmail.com
Synthesis and characterization of two chlorin derivatives sterically-prevented from self-aggregation resulted in lipophilic photosensitizers with low photodegradation, high singlet oxygen quantum yield and phototoxicity against tumoral Hep-2 cells after irradiation at 660 nm.

IPA090 - Pharmacokinetics of Chlorin E6 in solid Ehrlich tumor for different administration ways
Lilian Tan Moriyma, Clovis Grecco and Cristina Kurachi- Instituto de Física de São Carlos, Universidade de São Paulo, Brazil - lili@ursa.ifsc.usp.br

The performed in vivo study aimed to evaluate through fluorescence spectroscopy the best photosensitizer administration way in solid Ehrlich tumor, when Chlorine E6 was used as sensitizer and injected intravenously, intraperitoneally and intratumorally.

IPA 091 - Endobronchial Photodynamic Therapy in the Octogenarian
Patrick Ross, Patsy Skabla, Priyal Shah, Rabih Bechara, David Berkowitz, Ayesha Bryant, Gregory Loewen, Daniel Nader, Momen Wahidi

Endobronchial PDT with porfimer sodium is associated with minimal toxicity in the octogenarian. PDT should be considered as a single modality treatment where appropriate and as an adjunct when symptom management is necessary in the elderly patient.

IPA092 - Development of an in vitro dermis equivalent model using collagen-based scaffold
Anna Cecília B. Oliveira *, Thayz F. L. Morais *, Ana Maria G. Plepis *, Priscila F. C. Menezes **, Janice R. Perussi *-** Departamento de Química e Física Molecular/Instituto de Química de São Carlos, Universidade de São Paulo, Brazil ** Departamento de Física e Ciências dos Materiais/ Instituto de Física de São Carlos, Universidade de São Paulo, Brazil - janice@iqsc.usp.br

A 3D microenvironment was simulated using a collagen-based scaffold to cultivate cells. This model can be useful in the Photodynamic Therapy and Phototherapy studies predicting the human behavior in a more adequate way.

IPA093 - Photodynamic properties of Hypericin and its aqueous soluble derivative Glucamine-Hypericin
Joyce L. S. Gonçalves, Claudia Bernal, Anderson O. Ribeiro, Janice R. Perussi and Hidetake Imasato.-Universidade de São Paulo, Instituto de Química de São Carlos, São Carlos-SP, Brazil. Universidade Federal do ABC, Centro de Ciências Naturais e Humanas, Santo André-SP, Brazil. -hidetake@iqsc.usp.br

The Hypericin and its soluble derivative Glucamine-Hypericin were evaluated using chemical trapping and immortalized cell lines. Although the derivate showed higher solubility and photodynamic activity, HY-G is as powerful as HY to inactivate cells.

IPA094 - Cellular distribution and PDT response of chlorin based photosensitizer in murine melanoma
Ono, B. A., Pratavieira, S., Kurachi, C. - Optics and Photonics Research Center (CEPOF)/São Carlos Institute of Physics,University of São Paulo, Brazil - bruno.ono@usp.br
The cellular PDT mechanisms of a chlorin based photosensitizer were investigated in murine melanoma cells, monitoring the time dependence of its distribution, and induced changes after PDT.

**IPA095 - Acute phase injury of vascular endothelial cells under extra-cellular talaporfip sodium existence: in vitro Study**

Risa Hamada, Ryota Matsuzaki, Hiromi Takenoya, Mariko Kurotsu, Emiuy Ogawa, Tsunenori Arai - School of Fundamental Science and Technology, Keio University, Japan

r.hamada@arai.appi.keio.ac.jp

Acute vascular endothelial cell injuries by photosensitization reactions under extra-cellular talaporfip sodium existence binding with thick or thin albumin concentration were studied. The results suggest the cells might be preserved under these reactions in vivo.

**IPA096 - Evaluation of Photodynamic Therapy in Three-dimensional Cell Culture by Magnetic Levitation.**

Larissa Satiko Alcântara Sekimoto, Luis Gustavo Sabino, Layla Pires, Cristina Kurachi - Physics and Materials Science Department/ São Carlos Institute of Physics, University of São Paulo, Brazil - larissa.sekimoto@usp.br

This study aims to evaluate photodynamic therapy (PDT) in melanoma tumor model using magnetic levitation methods. Experimental results indicated that Photodithazine is best suited for melanoma PDT due to its homogeneous distribution in the culture.

**IPA097 - Efficacy of photodynamic therapy and EGFR inhibitor, nimotuzumab in the treatment of oral cancer and EGFR mutation cell lines**

Ramaswamy Bhuvaneswari, Ng Qin Feng, Patricia SP Thong, Soo Khee Chee - National Cancer Centre Singapore, 11 Hospital Drive, Singapore 169610 - dmsram@nccs.com.sg

Photodynamic therapy (PDT) in combination with EGFR inhibitor nimotuzumab, significantly reduced the proliferation, migration and invasion of oral cancer cell lines compared to PDT alone or nimotuzumab alone.

**IPA098 - Investigation of Effects of Self-Lighting Nanoparticle Photodynamic Therapy on The Treatment of Terminal Stage Cancers: An Animal Study**

Necla Kenar1,2, Lun Ma3, Byung Koo Lee2, Hyun Soo Lim2,4,5, Wei Chen3 - 1Department of Physics, Science and Literature Faculty, Kocaeli University, Turkey; 2Department of Biomedical Engineering, School of Medicine, Chungnam National University, Korea; 3Department of Physics and The SAVANT Center, The University of Texas at Arlington, Arlington, Texas, USA. 4Department of Electric-Electronic Engineering, Technology Faculty, Sakarya University, Sakarya, Turkey; 5Sakarya Teknokent, Sakarya, Turkey - necla@kocaeli.edu.tr

We investigated the effects of self-lighting photodynamic therapy(SLNPPDT) on the liver cancer mouse model using Cu-complex nanoparticles and 99mTc radioisotope of short half-life has weak energy (140 keV).
IPA099 - Antimicrobial Sonodynamic Therapy
David Costley, Nigel Ternan, Anthony P McHale and John F Callan - School of Pharmacy & Pharmaceutical Science, Ulster University, Coleraine, N. Ireland - costley@email.ulster.ac.uk

Antimicrobial Sonodynamic Therapy (aSDT) is a novel treatment technique that employs ultrasound to excite sensitisers producing Reactive Oxygen Species. This study demonstrates aSDT effectiveness at completely eradicating of Gram positive and negative bacteria in vitro.

IPA100 - A promising in vivo protocol for non-invasive pneumonia treatment
Mariana C. Geralde, Ilaiáli S. Leite, Natalia M. Inada, Alexandra I. Medeiros, Ana Carolina G. Salina, Vanderlei S. Bagnato, Cristina Kurachi - São Carlos Institute of Physics, University of São Paulo, Brazil - mcgeralde@outlook.com

Photodynamic inactivation (PDI) for pulmonary decontamination has the potential for treatment or creating better conditions for the action of antibiotics. This study proposes the PDI using extracorporeal illumination for a non-invasive treatment for pneumonia.

IPA101 - RsbU-dependent σB activity directly affects photoantimicrobial chemotherapy efficacy in Staphylococcus aureus
Monika Kossakowska-Zwierucho, Joanna Nakonieczna - Department of Biotechnology, Intercollegiate Faculty of Biotechnology University of Gdansk and Medical University of Gdansk, Poland - joanna.nakonieczna@biotech.ug.edu.pl

σB factor regulates cell response to stress, including oxidative conditions. Deleterious changes in RsbU, a positive regulator of σB factor, significantly affect PACT outcome in Staphylococcus aureus, pointing to its crucial role in the process.

IPA102 - Antimicrobial photodynamic therapy on vulvovaginal candidiasis in mice model
Maria E. Santi, Renato A. Prates, Rubia G. Lopes, Aline Sousa, Luis R. Ferreira, Adjaci U. Fernandes, Sandra K. Bussadori, Alessandro M. Deana - Nove de Julho University - UNINOVE, pratesra@uninove.br

This study investigated antimicrobial effects of photodynamic therapy on vulvovaginal candidiasis induced in mice. We tested aPDT using two photosensitizers. Microbial quantification showed 1Log10 reduction.

IPA103 - Cell death of Leishmania amazonensis promastigotes induced by photodynamic therapy
Aureliano, Debora Picanço (a, b) ; Lindoso, José Angelo Lauletra (b);Soares; Sandra Regina Castro (b); Ribeiro, Martha Simões(a) - (a) Centro de Lasers e Aplicações/ IPEN/CNEN/SP, Brazil; (b) Laboratorio de Soroepidemiologia e Imunologia (LIM – 38)/ Instituto de Medicina Tropical/ USP/ SP, Brazil; dpicanso@usp.br

The goal of the study was investigate mechanisms of cell death in L. amazonensis promastigotes after PDT by flow cytometry. The results showed that PDT using MB induces apoptosis in L.amazonensis.
IPA104 - Total biomass of multispecies-biofilm after Photodynamic Therapy mediated by nanoemulsion-phthalocyanine

Ewerton Garcia de Oliveira Mima, Bruna Camila Rosado, Paula Volpato Sanitá, Carlos Eduardo Vergani, Antônio Cláudio Tedesco, Ana Cláudia Pavarina - Araraquara Dental School, UNESP - Univ Estadual Paulista; Photobiology & Photomedicine Research Group, Nanobiotechnology & Tissue Engineering Center, São Paulo University- ewerton_mima@hotmail.com

PDT mediated by aluminum-chloride-phthalocyanine in cationic nanoeulsion at 31.8mM and 660nm-LED light (39.3J/cm2) did not reduce the total biomass of multispecies-biofilm of Streptococcus mutans, Candida albicans and Candida glabrata.

IPA105 - Curcumin: a new approach for eliminating microorganisms that cause onychomycosis.

Ana Paula da Silva, Marciana Uliana, Sebastião Pratavieira e Kleber T. De Oliveira, Vanderlei S. Bagnato e Natalia M. Inada - University of Sao Paulo, Sao Carlos Institute of Physics - paulalsir@yahoo.com.br

This study aimed to eliminate different microorganisms which cause onychomycosis through photodynamic inactivation using curcumin as a photosensitizer comparing four different types and two brands of curcums through photophysical and in vitro studies.

IPA106 - Near-infrared Antimicrobial PDT for S. pneumoniae and its Effects on Macrophage RAW 264.7 cells

Ilaiali Souza Leite (1), Mariana Carreira Geralde (1,2), Ana Carolina Guerta Salina (3), Alexandra Ivo de Medeiros (3), Vanderlei Salvador Bagnato (1), Natalia Mayumi Inada (1).

(1) Optics Group, Sao Carlos Institute of Physics (IFSC), University of Sao Paulo (USP), Brazil / (2) Federal University of Sao Carlos, Brazil / (3) Immunology Laboratory, Pharmaceutical Sciences Department, Sao Paulo State University, Brazil. - ilaiali.leite@gmail.com

In this study is demonstrated a significant Streptococcus pneumonia inactivation with indocyanine green as photosensitizer and near-infrared light sources, with low cytotoxic effects on macrophage RAW 264.7 cells.

IPA107 - Evaluation of the photodynamic therapy as a potential technique for blood decontamination

Thaila Quatrini Corrêa (a,b), Natalia Mayumi Inada (a), Cristina Kurachi (a,b), Vanderlei Salvador Bagnato (a,b) - a) University of Sào Paulo, Sào Carlos Institute of Physics; (b) Biotechnology Graduate Program - Federal University of Sào Carlos - thatrin@gmail.com

In this study, it was evaluated the isolated effects of Photogem® and 630nm light in blood cells, and the effectiveness of the photodynamic therapy against Staphylococcus aureus, one of the causative microorganisms of sepsis.

IPA108 - Antimicrobial therapy in isolated photodynamic clinical Acinetobacter baumannii
In the search for antimicrobial exceeding microbial resistance, arises Photodynamic Therapy. In 18 clinical isolates of Acinetobacter baumannii, there was a 76% reduction in colony forming units after photodynamic irradiation.

IPA109 - Influence of Staphylococcus aureus RecA-LexA system on photoinactivation efficacy
Mariusz Grinholc, Aleksandra Rodziewicz, Ewelina Budzynska, Katarzyna Forys - Laboratory of Molecular Diagnostics at Department of Biotechnology; Intercollegiate Faculty of Biotechnology UG&MUG - mariusz.grinholc@biotech.ug.edu.pl

Combination of photodynamic inactivation and recA expression inhibiting factors (e.g. novobiocin) result in increased PDI efficacy and potentially can become an effective therapy of S. aureus superficial infections.

IPA110 - Impact of photodynamic therapy with a chlorine and porphyrin in viability of Leishmania major
1Juliana Guerra Pinto, 1Josane Mittmann, 1Marco Antônio de Oliveira, 1Leandro José Raniero, 2Cristina Kurachi e 1Juliana Ferreira-Strixino - 1 Instituto de Pesquisa e Desenvolvimento, Universidade do Vale do Paraíba, São José dos Campos, SP - Brazil. 2 Instituto de Física de São Carlos, Universidade de São Paulo, São Carlos, SP - Brazil - juferreira@univap.br

Photodynamic therapy is an alternative treatment to cutaneous leishmaniasis. Was evaluated mitochondrial activity and viability of promastigotes. Mitochondrial activity was observed with both PS, Trypan blue showing that chlorine was more effective than porphyrin.

IPA111 - Photodegradation of Curcumin in different formulations and concentrations
Carolina Santezi, Clóvis Grecco, Vanderlei Salvador Bagnato, Marlus Chorilli, Giovana Calixto, Lívia Nordi Dovigo - Social Dentistry Department / School of Dentistry, Univ. Estadual Paulista - UNESP - Araraquara, Brazil - carolina_santezi@hotmail.com

Curcumin is a photosensitizer with great potential for photodynamic inactivation of oral biofilms. In order to indicate this therapy for clinical use with safety, the investigation of biocompatible vehicles is required.

IPA112 - Antimicrobial photodynamic therapy (aPDT) in the treatment of infected cutaneous wounds in rats
Fernanda Rossi Paolillo, Phamilla Gracielli Sousa Rodrigues, Adalberto Vieira Corazza, Cristina Kurachi, Vanderlei Salvador Bagnato - Optics Group from Physics Institute of São Carlos (IFSC), University of São Paulo (USP), Brazil - fer.nanda.rp@hotmail.com

Recent technological advances may promote the treatment and closure rapid of wounds as well as a functional and aesthetically satisfactory scar. In this context, antimicrobial photodynamic therapy (aPDT) is an alternative therapeutic approach.
IPA113 - Extracellular hydrolytic enzymes production of susceptible and fluconazole-resistant Candida albicans after Photodynamic Therapy
Fernanda Alves, Juliana Cabrini Carmello, Ewerton Garcia de Oliveira Mima, Janaina Habib Jorge, Vanderlei Salvador Bagnato, Ana Cláudia Pavarina - Department of Dental Materials and Prosthodontics, Araraquara Dental School, Univ Estadual Paulista - UNESP, Brazil - fernandaa.odonto@gmail.com

This study verified that Photodynamic Therapy mediated by Photodithazine® reduced the phospholipase C production of susceptible Candida albicans and the secreted aspartyl proteinase activity of fluconazole-resistant C. albicans.

IPA114 - Effect of Photodynamic Therapy on fluconazole-resistant Candida albicans adhesion ability
Beatriz Helena Dias Panariello, Fernanda Alves, Janaina Habib Jorge, Ewerton Garcia de Oliveira Mima, Ana Cláudia Pavarina - Department of Dental Materials and Prosthodontics, Araraquara Dental School (UNESP) – Universidade Estadual Paulista - Brazil - biapanariello@hotmail.com

This study evaluated the effect of Photodynamic Therapy (PDT) mediated by Photodithazine® (PDZ) on fluconazole-resistant Candida albicans (Car) adhesion ability. The results revealed that PDZ-mediated PDT reduced the cell viability and adhesion ability of Car.

IPA115 - Comparison of the efficiency of rose bengal and methylene blue as photosensitizers in photodynamic therapy techniques aiming at Enterococcus faecalis inactivation
Catia Cilene Nass Sebrão, Arandi Ginane Bezerra Junior, Paulo Henrique Condeixa de França, Leslie Ecker Ferreira, Vania Portela Ditzel Westphalen - School of Health and Life Sciences, Catholic University of Paraná, Brazil - catia@odontovitalis.com.br

This in vitro study compared the efficiency of photodynamic therapy (PDT) with different photosensitizers (PS): rose Bengal (RB) and methylene blue (MB), to reduce Enterococcus faecalis. We conclude that RB was more effective than AM.

IPA116 - Evaluation of the molecular mechanisms of bacterial resistance in Pseudomonas aeruginosa by FTIR microspectroscopy
Icaro Matioli Barbosa, Paula M. Rodrigues, Rogério Philippov e Airton A. Martin - Instituto de Pesquisa e Desenvolvimento, Universidade do Vale do Paraíba, Brasil - icarobiomedico@gmail.com

To understand the different stages of adaptation Pseudomonas aeruginosa based on molecular and biochemical changes modulated by its genome by FTIR microspectroscopy can contribute to the search of new technologies for development of antimicrobial.

IPA117 - Effectiveness of Hypericin in decreasing the population of Propionibacterium acnes
Larissa S.A; Janice R. Perussi - Departamento de Interunidades em Bioengenharia EESC, FMRP e IQSC e Departamento de Química, Universidade de São Paulo - USP - harhasouza@gmail.com
The acne is caused by an infectious manifestation of Propionibacterium acnes, which can be treated by photodynamic therapy. The Hipericin leads to a significant reduction in the population of P. acnes.

**IPA118 - Morphological evaluation of Candida albicans after photodynamic therapy**

Alessandra Baptista; Silvia Cristina Núñez; Caetano P. Sabino; Walter Miyakawa; Martha S. Ribeiro - Centro de Lasers e Aplicações, IPEN-CNEN/SP, Brazil - dralebaptista@gmail.com

This study aimed to evaluate the Candida albicans morphology in different growth phases through scanning electron and atomic force microscopies following antimicrobial photodynamic therapy (aPDT). We concluded that slime presence is an obstacle for aPDT.

**IPA119 - PDT with Blue Light and curcumin for oral disinfection**

Diego Portes Vieira Leite, Ricardo S. Navarro, Cristina F. Ortolani, Hérica Ricci, Fernanda Rossi Paolillo, Vanderlei Salvador Bagnato. - Physics Institute of São Carlos- University of São Paulo (IFSC-USP), Brazil. Biomedical Engineering Institute, UNICASTELO, São José dos Campos, Brazil UNIP, São Paulo, Brazil - ricardosnavarro@gmail.com

The aim of this clinical study was to evaluate the effects of the PDT on the oral disinfection. The PDT with new blue-LED and curcumin showed effective microbial reduction of salivary until 2h after treatment.

**IPA120 - In-vitro adhesion of Candida albicans to abiotic surface after Curcumin-mediated photoinactivation**

Paula Tamião Arantes *, Carolina Santzei Neto, Sarah Raquel de Annunzio, Vanderlei Salvador Bagnato, Lívia Nordi Dovigo - Department of Social Dentistry, Araraquara Dental School, UNESP- Univ Estadual Paulista, Brazil - dra.paula.odonto@hotmail.com

This study evaluated the capability of Ca to adhere to abiotic surface after Curcumin-mediated Photodynamic Inactivation (PI). Results showed a decrease in adhesion capability that was probably promoted by CUR alone and not by PI.

**IPA121 - Inactivation of microorganisms present in raw and pasteurized milk using Antimicrobial Photodynamic Therapy**

¹Cristiano Braga de Oliveira, ¹Francisco G. Rego-Filho, ²Maria Cristina Delgado da Silva, ¹Maria Tereza de Araujo - ¹Instituto de Física (IF), Universidade Federal de Alagoas, Brazil. ²Faculdade de Nutrição (FANUT), Universidade Federal de Alagoas, Brazil. - cristiano_braga@hotmail.com

Disinfection of foods by means of Antimicrobial Photodynamic Therapy (aPDT) is shown as a strong alternative for the control of resistant pathogens, using this technique will inactivate microorganisms in raw and pasteurized milk.

**IPA122 - The protoporphyrin IX dimethyl ester incorporated soy lecithin for photoinactivation of fluconazole-resistant Candida albicans**

Diego Portes; Adjaci Uchoa Fernandes; Carla Raquel Fontana; Tatiana Maria Starck Fogaça de Aguiar Coletti; Manoel Garcia; João Pedro Martins - Universidade Camilo Castelo Branco (Unicastelo) - dpvleite@yahoo.com.br
Photodynamic inactivation mediated photosensitizers generally as curcumin is effective against Candida species. Studies have shown that the use of new photosensitizers, such as protoporphyrin IX are equally or more efficacious than curcumin.

**IPA123 - Application of Photodynamic Therapy in reduction in vitro of pathogenic fungus Sporothrix schenckii**

Gunther MP Guirado, Ricardo S Navarro, Rodnei Rossoni, Juliana C Junqueira, Luciano S Feitosa  
- Biomedical Engineering Institute, UNICASTELO, São José dos Campos, Brazil  
School of Dentistry, University Estadual Paulista- UNESP São José dos Campos, Brazil  
ricardosnavarro@gmail.com

The aim of this in vitro study was to evaluate the susceptibility of S. schenckii to effects of photodynamic therapy (PDT) in inactivation of this fungus.

**IPA124 - Photodynamic Therapy Inhibits The Antimicrobial Effects Of Bacteriophage Therapy In a Invertebrate Model Of Systemic Infection**

1Sabino, C.P., 2Neves, P.R., 2,3Lincopan, N., 1Ribeiro, M.S. - 1Center for Lasers and Applications, IPEN-CNEN/SP, São Paulo, Brazil, 2Department of Microbiology, Institute of Biomedical Sciences, Universidade de São Paulo, São Paulo, Brazil 3Department of Clinical Analysis, School of Pharmacy, Universidade de São Paulo, São Paulo, Brazil  
caetanosabino@gmail.com

In vitro bactericidal activity was achieved by both therapies and in vivo effectiveness of bacteriophage therapy was also confirmed. However, PDT did not diverged from sham control and furthermore inhibited the bacteriophage action.

**IPA125 - Dental bleaching efficacy with light application: in vitro study**

Vitor Hugo Panhóca, Bruno Pereira de Oliveira, Vanderlei Salvador Bagnato - Instituto de Física de São Carlos - USP - vhpanhoca@msn.com

Dental bleaching is a procedure made in dental office and involve the use of oxidizing agent with light or no. Based on our results, we conclude that the light only can produce dental bleaching.

**IPA126 - The use of surface-modified upconversion nanoparticles for near-infrared-activated photodynamic therapy of oral cancer**

Patricia SP Thong, Ramaswamy Bhuvaneswari, Pui-Haan Chang, Kar-Perng Low, Niagara M Idris, Ralph M Bunte, Yong Zhang, Khee-Chee Soo - 1. Division of Medical Sciences, National Cancer Centre Singapore, Singapore; 2. Department of Biomedical Engineering, National University of Singapore, Singapore; 3. Office of Research, Duke-NUS Graduate Medical School, Singapore - nmstsp@nccs.com.sg

Photodynamic therapy (PDT) of cancer is promising but limited by the penetration depth of the activating light in the visible range. We demonstrate the use of near-infrared-activated upconversion nanoparticles for deep penetrating PDT of cancer.
IPA127 - A Novel Regimen for Perioral Dermatitis by Photodynamic Therapy?
Schreiber Smadar M.D. Ph.D. - Photodynamic Clinic, Assaf Harofeh Medical Center, Israel - drsmandar@gmail.com

Some perioral dermatitis patients confront a prolonged disease and are not relieved by the acknowledged medications. This is a 3 case series of perioral dermatitis that was not cured by medications and was cleared by a single PDT treatment.

IPA128 - Resistance to PDT by oral cancer cells: analysis of autophagy and apoptosis inhibition
Flávia Cristina Perillo Rosin, Luciana Corrêa - General Pathology Department/ School of Dentistry, University of São Paulo, Brazil - flarosin@usp.br

PDT has been used in Oral Cancer (OC); there is no information about resistance to PDT in OC. The aim of this study was to verify bcl-2 and mTOR expression in OC cells after PDT.

IPA129 - Prevalence, virulence and sensitivity to antimicrobial therapy of strains of Enterococcus faecalis and Enterococcus faecium isolated from endodontic infections
Ana Carolina Chipoletti Santos, Jessica Diane dos Santos, Patrícia Pimentel de Barros, Antonio Olavo Cardoso Jorge, Juliana Campos Junqueira - Biopatologia Bucal/Instituto de Ciência e Tecnologia, UNESP - Univ Estadual Paulista, São José dos Campos- SP, Brasil - anacarolinachipoletti@hotmail.com

Enterococcus faecium became one of the most feared microorganisms in hospital infections, with this study to isolate and identify E. faecalis and E. faecium in root canals with endodontic infections and compare these strains in sensitivity to conventional antibiotics and photodynamic therapy

IPA130 - Analysis of the biofilm formation of Candida albicans after Photodithazine®-mediated photodynamic therapy in vivo
Juliana Cabrini Carmello, Gabriela Maria Balista Ferreira, Fernanda Alves, Ewerton Garcia de Oliveira Mima, Janaina Habib Jorge, Ana Cláudia Pavarina - Department of Dental Materials and Prosthodontics, Araraquara Dental School, Univ Estadual Paulista - UNESP, Brazil. - cabrini.juliana@gmail.com

This study verified that consecutive applications of Photodynamic Therapy reduced the capacity of biofilm formation of C. albicans collected from the tongues of mice with oral candidosis.

IPA131 - Clinical and histopathological outcomes of one session of photodynamic therapy with previous CO2 laser application for actinic cheilitis
Karla Bianca F. da C. Fontes1, Taiana C. Leite1, Ana Maria O. Miranda1, Maria Claudia A. Issa1, Eliane P. Dias1, Cristina Kurachi2, Licínio Esmeraldo da Silva1, Karin G. S. Cunha 1 - 1 Fluminense Federal University – UFF – Niterói – Rio de Janeiro – Brazil. 2 São Carlos Institute of Physics, University of São Paulo Federal – IFSC – USP – São Paulo – Brazil. - karlabiancafontes@gmail.com
Patients with Actinic Cheilitis were treated with Photodynamic therapy through one session of 20% methyl-aminolevulinate cream and red LED light source with previous fractioned ablative CO2 laser application and showed clinical and histopathological improvement.

**IPA132 - Effects of photodynamic therapy with red light and different photosensitizers as mouth rinse for oral desinfection**

Lizarelli, R. F. Z.; Parmesano, T. N.; Bagnato, V. S. - Laboratório de Biofotônica, Instituto de Física de São Carlos - USP - lizarelli@hotmail.com

We evaluated effects of rinsing with photosensible solutions on saliva pathogens. A randomized clinical trial was performed with eighty patients. Porfirin and Clorine, preceded by hydrogen peroxide, irradiated by red LED showed were the best.

**IPA133 - A New Photosensitizer Used During aPDT and Its Effect Over Streptococcus mutans Biofilm**

Alessandra Nara de Souza Rastelli, 1Emanuelle Teixeira Carrera, 2YingYing Huang, 2Brijesh Bhayana, 3Vanderlei Salvador Bagnato, 2Michael R. Hamblin - 1Department of Restorative Dentistry, Araraquara School of Dentistry, Univ. Estadual Paulista – UNESP, Araraquara, Sao Paulo, Brazil. 2Wellman Center for Photomedicine, Massachusetts General Hospital, Harvard Medical School, University of Harvard, Boston, USA. 3Department of Physics and Materials Science, Physics Institute of Sao Carlos-IFSC, University of Sao Paulo – USP, Sao Carlos, Sao Paulo, Brazil- alrastelli@foar.unesp.br

Streptococcus mutans is the main etiological agent for dental caries. Antimicrobial PDT using ETNBS over Streptococcus mutans biofilm was effective in reducing S. mutans counts and may be an useful approach to treat infections deases.

**IPA134 - Use of Tissue Natural Fluorescence in Clinical Practice as a Complementary Tool for a Differential Diagnosis of Multiple Oral Pathologies**

Sérgio Araújo Andrade, Sebastião Pratavieira, Vanderlei Salvador Bagnato - São Carlos Institute of Physics, University of São Paulo - drenforce@hotmail.com

We report the use of widefield optical fluorescence imaging in the differential diagnosis of multiple oral pathologies such as pyogenic granuloma, oral cancer, Mucoceles , candidiasis , actinic cheilitis and other oral diseases.

**IPA135 - Palette of polarity-tunable halogenated bacteriochlorins for efficient photodynamic therapy in cellular and animal models**

Janusz M. Dąbrowski, Barbara Pucelik, Mariette M. Pereira, Grażyna Stochel, Luis G. Arnaut - Faculty of Chemistry, Jagiellonian University, Krakow, Poland; Chemistry Department, University of Coimbra, Portugal; Luzitin SA, Coimbra, Portugal - j dabrows@chemia.uj.edu.pl

The spectroscopic, physicochemical properties and biological activity of structurally related but with various polarity (hydrophilic, amphiphilic or hydrophobic) bacteriochlorins in the context of their application as novel therapeutic agents for PDT have been studied.

**IPA136 - Self-assembled, covalently linked, hollow phthalocyanine nanospheres**
We demonstrated a rational design and synthesis of covalently linked ZnPc nanospheres to address the hydrophobicity of Pcs in aqueous media. Synthesized Pc nanosphere had higher phototoxicity and SOG capabilities than monomer.

IPA137 - Photodynamic killing of cancer cells by a platinum-based compound, a derivative of Pt(II) dipyridobenzene
Rachel E. Doherty, Igor V. Sazanovich, Luke K. McKenzie, Alexander S. Stasheuski, Rachel Coyle, Elizabeth Baggaley, Sarah Bottomley, Julia A. Weinstein, Helen E. Bryant - Academic Unit of Molecular Oncology, Department of Oncology, University of Sheffield - lkmckenzie1@sheffield.ac.uk

A novel platinum-based compound is presented as a potential photosensitizer for use in the photodynamic therapy of cancer showing significant photo-activated cell death in a number of cancer cell lines.

IPA138 - Synthesis of a new bacteriochlorin derivative with long-wavelength absorption: A potential dye for use as a photosensitizer
Francisco F. de Assis, Timothy J. Brocksom, Kleber T. de Oliveira - Department of Chemistry, Federal University of São Carlos, Brazil. - kleber.oliveira@ufscar.br

We have prepared a new bacteriochlorin derivative, designed to present absorbance bands at long-wavelengths (ca 800 nm) to be studied as photosensitizers in PDT.

IPA139 - Nanobody-targeted photodynamic therapy for oncology
Raimond Heukers, Paul M. P. van Bergen en Henegouwen, Sabrina Oliveira - Molecular Oncology, Division of Cell Biology, Department of Biology, Faculty of Science, Utrecht University, The Netherlands - s.oliveira@uu.nl

To improve tumor selectivity in PDT, we have employed nanobodies for targeting of a traceable photosensitizer. These nanobody-photosensitizer conjugates are specific and potent PDT agents. Initial results from in vivo studies are encouraging.

IPA140 - Ru(II) Complexes as potent Photosensitizers in Photodynamic Therapy
Gilles Gasser - University of Zurich - gilles.gasser@chem.uzh.ch

The currently approved photosensitizers in PDT suffer from several drawbacks (e.g. tedious synthesis and purification as well as prolonged light sensitivity). Our group is currently assessing the use of Ru(II) complexes as potential alternative photosensitizers.
IPA141 - Photophysical properties and photodynamic activity of a novel menthol–zinc phthalocyanine conjugate incorporated in micelles phthalocyanine conjugate incorporated in micelles
Paulina Romero, Nicholas Gobo, Kleber Oliveira, Yassuko Iamamoto, Osvaldo Serra, Sonia Louro - Departamento de Materiales, Escuela Politécnica Nacional, Quito, Ecuador Departamento de Física, Pontificia Universidad Católica do Rio de Janeiro, Rio de Janeiro, Brazil Departamento de Química, Universidade Federal de São Carlos, São Carlos, SP, Brazil Departamento de Química, Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto, Universidade de São Paulo, Brazil - maria.romerom@epn.edu.ec

The menthol–zinc phthalocyanine was incorporated in 12 surfactantes. The results demonstrated the ZnMintPc is suitable for PDT applications and suggest the use of Pluronic® F-127 for drug delivery systems for this photosensitizer.

IPA142 - Multifunctional Porphyrin-based Polysilsesquioxane Nanoparticles with Improved Loading Capacity and Phototherapeutic Effect
Juan L. Vivero-Escoto,1,2* Zachary Lyles,1,2 and Daniel L. Vega 1,2 - 1Department of Chemistry, University of North Carolina at Charlotte, Charlotte, NC 28223, USA, 2The Center for Biomedical Engineering and Science, University of North Carolina at Charlotte, Charlotte, NC 28223, USA - jviveroe@uncc.edu

Polysilsesquioxane nanoparticles (PSQ-NPs) are a promising platform for developing photosensitizer nanocarriers with improved loading capacity and phototherapeutic effect. In this work, PSQ-NPs with a high payload of photosensitizers were synthesized, characterized, and applied in vitro.

IPA143 - Targeted photodynamic therapy with colon cancer-specific peptide conjugated photosensitizer
Ju Hee Kim1, Yoon Jin Roh1, In-Wook Kim1, Hyun-A Kim1, Jae Myung Park1, Tayyaba Hasan2, Myung-Gyu Choi1 - 1Catholic-Harvard Wellman Photomedicine Center, Division of Gastroenterology, The Catholic University of Korea, Seoul, Korea, 2Wellman Center for Photomedicine, Department of Dermatology, Massachusetts General Hospital, Harvard School, Boston, USA - choim@catholic.ac.kr

Targeted PDT using peptide probe may be a promising candidate drug in the development of a useful colon cancer diagnosis and treatment.

IPA144 - Microfluidic study of targeted imaging and photodynamic therapy
Nishanth Venugopal Menon, Sivaramapanicker Sreejith, Yanli Zhao, Yuejun Kang -(1) School of Chemical and Biomedical Engineering, Nanyang Technological University, Singapore; (2) Division of Chemistry and Biological Chemistry, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore - nishanth3@e.ntu.edu.sg

Photosensitizer within a micelle conjugated with folate receptor was synthesized and its targeted imaging capability was investigated using a microfluidic device. A folate receptor targeted photodynamic therapy was demonstrated using near infra-red light illumination.

IPA145 - Hypericinates preparation and comparative study of cell viability with hypericin
Hypericinates are promising compounds for use in photodynamic therapy because of their greater photodynamic activity in an aqueous medium. This study aimed to obtain some hypericinates and to compare their photosensitizing ability to hypericin.

IPA146 - Quantum Dot-Sensitiser conjugates for two-photon excited Photodynamic Therapy
Colin Fowley, Anthony P. McHale, Bridgeen McCaughan, Aurore Fraix, Salvatore Sortino and John F. Callan - School of Pharmacy, Ulster University, Northern Ireland - c.fowley@ulster.ac.uk

Carbon Quantum Dots (CQDs) enable the FRET mediated activation of both conventional photosensitisers and nitric oxide radical releasing compounds upon two-photon excitation wavelength of 800nm.

IPA147 - Photochemical Internalisation for the local delivery of chemotherapy
Alejandra Martinez de Pinillos, Alexander J. MacRobert - Division of Surgery&Interventional Sciences, University College London, UK - a.martinezdepinillos.12@ucl.ac.uk

Photochemical Internalisation (PCI) enables the cytosolic delivery of the protein toxin saporin for in vitro treatment of prostate cancer. PCI induces greater than five-fold higher cytotoxicity than photodynamic therapy alone.

IPA148 - Novel biophysical properties of photosensitizer TLD1433 upon binding to transferrin
Savo Lazic, Pavel Kaspler, Yaxal Arenas, Sarah Forward, Arkady Mandel, and Lothar Lilge - Theralase Inc and Department of Medical Biophysics / University of Toronto / Canada - lothar.d.lilge@gmail.com

We show that our novel photosensitizer TLD1433 displays novel physical and biological properties when bound to transferrin leading to increased PDT efficacy.

IPA149 - New formulations nanostructured containing curcumin for optimization in photodynamic therapy
Isabella Suzuki, Natalia Inada, Valéria Marangooni, Ana Paula da Silva, Thaila Corrêa, Valtencir Zucolotto, Cristina Kurachi, Vanderlei Bagnato - University of São Paulo - São Carlos Institute of Physics - isalsuzuki@gmail.com

The aim of this study was develop PLGA nanoparticles containing curcumin encapsulated for effective delivery, improving water solubility and high efficacy as photosensitizer. Those were tested in vitro in bacteria and fungus.

IPA150 - Synthesis and biological response of chlorophyll derivatives for use in photodynamic therapy studies
Marciana P. Uliana, Ana Paula da Silva, Sebastião Pratavieira, Kleber T. de Oliveira, Vanderlei S. Bagnato, Cristina Kurachi - Instituto de Física da USP (IFSC), Universidade de São Paulo, Brasil - marcianaquimica@yahoo.com.br
Chlorophyll derivatives were synthesized and evaluated against the fungus Trichophyton mentagrophytes using photodynamic therapy and was observed good results at concentrations 50 and 100 μM.

IPA151 - Interaction of zinc phthalocyanine with ionic and non ionic surfactants: uv-vis absorption and fluorescence spectroscopy for application in Photodynamic Therapy
Paulina Romero, Sonia Louro - Departamento de Materiales, Escuela Politécnica Nacional, Quito, Ecuador Departamento de Física, Pontificia Universidade Católica do Rio de Janeiro, Rio de Janeiro, Brazil - maria.romerom@epn.edu.ec

Micelles of different surfactants containing ZnPc were prepared. Aggregation lifetimes in soluble media for CTAB and HPS was more than twelve hours. The surfactants CTAB and HPS were efficient for monomeric delivery of ZnPc.

IPA152 - Stimuli-Responsive Protoporphyrin IX Silica-based Nanoparticles to Improve Photodynamic Therapy in Vitro
Juan L. Vivero-Escoto,1,2* and Daniel L. Vega 1,2 - 1Department of Chemistry, University of North Carolina at Charlotte, Charlotte, NC 28223, USA, 2The Center for Biomedical Engineering and Science, University of North Carolina at Charlotte, Charlotte, NC 28223, USA - jviveroe@uncc.edu

In this study we report the synthesis, characterization and application of a stimuli-responsive silica nanoparticle platform chemically functionalized with Protoporphyrin IX. We demonstrated that by developing redox-responsive silica nanoparticles the PDT efficacy can be enhanced.

IPA153 - New alternatives to improve the transdermal application of ala, m-ALA in photodynamic therapy using needle-free injection
Phamilla Gracielli Sousa Rodrigues1, Priscila Fernanda Campos de Menezes1, Michelle Barreto Requena1, Cristina Kurachi1, André Escobar2, Rozana Wendler da Rocha 2, Andrigo Barboza de Nardi 2, Vanderlei S. Bagnato1 - 1 São Carlos Institute of Physics (IFSC) - University of São Paulo (USP) - Brazil. 2 Faculdade de Ciências Agrárias e Veterinárias (FCAV) – Universidade Estadual Paulista (UNESP) - Brazil - pmenezes.lat.ifsc.usp@gmail.com

Topical application shows several advantages of a local application and not systemic. Here, we propose to perform PDT using a commercial Needle Free Injection Systems - SAFE INJECT®.

IPA154 - Photophysical and photochemical proprieties of metal phthalocyanines and naphthalocyanine in polar aprotic solvents
Anderson Orzari Ribeiro, Hueder Paulo Moisés de Oliveira, Charles Biral Silva - Centro de Ciências Naturais e Humanas/Universidade federal do ABC, Brazil - charles.biral@ufabc.edu.br

Phthalocyanines are macromolecules with extensive conjugated π system. The comprehension of the solvent effect on their photophysical properties is important to understand to potential application, mostly when these properties are important, such as, photodynamic therapy.
IPA155 - Cancer Cellular Specific Incorporation of 5-Aminolevulinic Acid by Mitochondrial Reactive Oxygen Species

Hirofumi Matsui1, Hiromu Ito1, Masato Tamura1, Tsuyoshi Kaneko1, Hiroko P Indo2, and Hideyuki J Majima2
1. Faculty of Medicine, University of Tsukuba, Japan
2. Graduate School of Medical and Dental Sciences, Kagoshima University, Japan
hirobeau@yahoo.co.jp

The expression of a membrane protein PEPT1 which transports 5-aminolevulinic acid (ALA), was regulated by mitochondrial reactive oxygen species (mitROS). Since higher mitROS concentration induced PEPT1 expression, ALA was actively incorporated in cancer cells.

IPA156 - Enhancement of Photodynamic Therapy Effects with Mitochondrial Reactive Oxygen Species

Hiromu Ito1, Hirofumi Matsui1, Masato Tamura1, Tsuyoshi Kaneko1, Ichinosuke Hyodo1, Hiroko P Indo2, and Hideyuki J Majima2
1. Faculty of Medicine, University of Tsukuba, Japan
2. Graduate School of Medical and Dental Sciences, Kagoshima University, Japan
toi.homer@gmail.com

Reactive oxygen species derived from mitochondria accelerated the expression of HCP1 protein which is a membrane transporter of porphyrins. Cancer specific porphyrin uptake and photodynamic therapy effect was related to their expression.

IPA157 - Synthesis and characterization of novel symmetrical and asymmetrical carboxyphthalocyanines with potential application in Photodynamic Therapy

Francisco B. do Nascimento, Anderson O. Ribeiro - Centro de Ciências Naturais e Humanas, Universidade Federal do ABC, Brazil
francisco.comunic@gmail.com

Water-soluble phthalocyanines are interesting compounds to be used in various fields of science. In this work, novel symmetrical and asymmetrical carboxyphthalocyanines were synthesized and their properties studied to evaluate them as potential photosensitizers in PDT[1,2].

IPA158 - Synthesis and characterization of zinc naphthalocyanine derivative with potential application in Photodynamic Therapy

Thalita Ferreira Menegassi de Souza, Anderson Orzari Ribeiro - Centro de Ciências Naturais e Humanas, Universidade Federal do ABC, Brazil
thalita.souza@ufabc.edu.br

The synthesis and characterization of zinc naphthalocyanine derivative are reported. The Q-bands and fluorescence emission are bathochromically shifted compared to phthalocyanine. Furthermore, all compounds produce singlet oxygen and showed substantial aggregation tendency in DMSO:water solution.

IPA159 - Toxic and phototoxic effects of a new ruthenium phthalocyanine on human breast cancer cells (MCF-7)

Thaiza Ferreira Menegassi de Souza, Anderson Orzari Ribeiro, Giselle Cerchiaro - Centro de Ciências Naturais e Humanas, Universidade Federal do ABC, Brazil
thaiza.menegassi@ufabc.edu.br
This work presents cell viability assays of a new ruthenium phthalocyanine on human breast cancer cells to evaluate the efficacy of the compound as a photosensitizer for Photodynamic Therapy.

IPA160 - Studies and application of new eosin analogs for application in Photodynamic Therapy
Kleber Tellini de Andrade*, Anderson Orzari Ribeiro - Centro de Ciências Naturais e Humanas, Universidade Federal do ABC - kleber.tellini@gmail.com
The eosinas can be used in photodynamic therapy because they absorb in the region near 500 nm and have a low cost of production. Thus analogs studied showing good results for this purpose.

IPA161 - Synthesis, photochemical and photophysical properties of optically active 2-butanol zinc phthalocyanines
Aline Alves Ramos , Anderson Orzari Ribeiro - Centro de Ciências Naturais e Humanas, Universidade Federal do ABC - aline.ramos@ufabc.edu.br
Optically active phthalocyanines have attracted much attention due to potential for obtaining different biological properties. The synthesis and characterization of phthalocyanines modified with chiral secondary alcohols were discussed.

IPA162 - TiO2 spherical structures with potential application for photodynamic therapy
Carine S. S. Ribeiro, Alessandra Zenatti, Anderson O. Ribeiro - Federal University of a ABC, Brazil - carine_ssr@yahoo.com.br
TiO2 spherical structures has good performances that attract significant attention nowadays. Hence, the TiO2 spherical structures has been used in many areas and applications, including photocatalysts, gas sensor, dye sensitized solar cells and photodynamic therapy.

IPA163 - Combined use of Rare Earth (RE)-Doped Nanostructures and Photosensitizers (PS): Possible Application in Photodynamic Therapy (PDT)
Waléria Ribeiro Lopes, Upendra Kumar Kagola, Francisco G. Rego-Filho, Maria Tereza de Araujo - Photonics and Complex Fluids Group (GFFC), Instituto de Física (IF), Universidade Federal de Alagoas (UFAL), Brazil. - waleria_shalom@yahoo.com.br
In this study we investigated the combined use of rare earth-codoped nanostructures and photosensitizers as possible application in photodynamic therapy. The upconversion energy process was employed as an excitation mechanism of photosensitizers.

IPA164 - Hypocrellin B and Paclitaxel-Encapsulated Hyaluronic Acid-Ceramide Nanoparticles for Lung Cancer Targeted Photodynamic Therapy
Ji-Eun Chang,1 Eunjue Yi,1 Mi Kyung Bae,1 Hong-Tae Kim,2 Ki-Hong Kim,2 Jong-Ki Kim,2 and Sanghoon Jheon1 - 1Department of Thoracic and Cardiovascular Surgery, Seoul National University Bundang Hospital, Republic of Korea 2School of Medicine, Catholic University of Daegu, Republic of Korea - iris0515@hanmail.net
To increase the therapeutic efficacy of photodynamic therapy (PDT) in treating lung cancer, we developed both photosensitizers and anticancer drugs encapsulated hyaluronic acid-ceramide nanoparticles.

IPA165 - Comparison of response according two clinical trials for basal cell carcinoma treatment with MAL-PDT: the beginning of PDT Brazil project
Ana Gabriela Salvio 1, Natalia Mayumi Inada2, Elisangela Ramos de Oliveira1, José Dirceu Vollet-Filho 2, Cristina Kurachi 2, Vanderlei Salvador Bagnato 2. - 1 – Skin Department of Amaral Carvalho Hospital, Brazil / 2 – Institute of Physics-São Carlos (USP/IFSC), São Paulo, Brazil - gasalvio@hotmail.com

The aim of this study was compare two different clinical studies to achieve the best for BCC treatment. The better response was with 150 J/cm2 delivered energy with 88% of complete response.

IPA166 - Prospective, double-blind, randomized placebo-controlled trial of the efficacy of lidocaine and tetracaine cream 7%/7% for pain control during PDT
Ana Gabriela Salvio 1, Pedro E Russignoli 2, Natalia Mayumi Inada2, Elisangela Ramos de Oliveira1, Cristina Kurachi 2, Vanderlei Salvador Bagnato2. - 1 – Skin Department of Amaral Carvalho Hospital, Brazil/ 2 – Institute of Physics-São Carlos (USP/IFSC), São Paulo, Brazil - gasalvio@hotmail.com

One of the major disadvantages of topical PDT is the pain during the illumination. A prospective, double blind, randomized placebo-controlled trial is ongoing testing a FDA-approved topical anesthetic cream.

IPA167 - What is better for nodular basal cell carcinoma: ALA PDT or MAL PDT?
Ana Gabriela Salvio 1, Natalia Mayumi Inada2, Cristina Kurachi 2, Elisangela Ramos de Oliveira1, Vanderlei Salvador Bagnato2. - 1 – Skin Department of Amaral Carvalho Hospital, Brazil/ 2 – São Carlos Institute of Physics University of Sao Paulo, Brazil - gasalvio@hotmail.com

Many studies in literature try to define the best photosensitizer used in photodynamic therapy. It was compared in this study the rate of cure using ALA and MAL PDT for nodular basal cell carcinoma.

IPA168 - Evaluation of 120 patients treated through MAL 15% Photodynamic Therapy using a new light source device for large area of upper limbs
Ana Gabriela Salvio 1, Elisangela Ramos de Oliveira1, Natalia Mayumi Inada2, Cristina Kurachi 2, Vanderlei Salvador Bagnato2. - 1 – Skin Department of Amaral Carvalho Hospital, Brazil/2 – São Carlos Institute of Physics University of Sao Paulo, Brazil - gasalvio@hotmail.com

In this study it was developed a new light source device for PDT treatment in both upper limbs at same time allowing the treatment of the cancerization field.

IPA169 - Photodynamic Therapy for disseminated actinic porokeratosis a case report of a successful treatment
No ideal treatment is available for disseminated actinic porokeratosis. A number of benign skin conditions have been treated successfully with topical PDT, but there are few reports in the literature of its efficacy this dermatosis.

IPA170 - “Photodynamic Therapy Brazil” Project: a new approach for basal cell carcinoma treatment
Kate C. Blanco, Natalia M. Inada, Ana Paula da Silva, Pedro Russignoli, Dora P. Ramirez, Hilde H. Buzzá, Mirian D. Stringasci, Lilian T. Moriyama, Clovis Grecco, Cristina Kurachi, Vanderlei S. Bagnato - São Carlos Institute of Physics, University of Sao Paulo, Brazil - blanckate@gmail.com

We are presenting the results of nearly a thousand basal cell carcinoma during four years of an ongoing Brazilian program using a Brazilian device and medication for topical MAL-PDT.

IPA171 - Photodynamic Therapy for large lesions: better than surgery
Ana Gabriela Salvio 1, Elisangela Ramos de Oliveira1, Dora Patricia Ramirez 2, Natalia Mayumi Inada2, Cristina Kurachi 2, Vanderlei Salvador Bagnato2 - 1 – Skin Department of Amaral Carvalho Hospital, Brazil/ 2 – São Carlos Institute of Physics University of Sao Paulo, Brazil - gasalvio@hotmail.com

This clinical trial shows a successful MAL-PDT as a non surgical treatment option in patients with large lesions, that if treated with surgery would need a skin graft or a flap.

IPA172 - Long-term follow-up of nodular basal cell carcinoma after Photodynamic Therapy
Ana Gabriela Salvio 1, Elisangela Ramos de Oliveira1, Dora Patricia Ramirez 2, Natalia Mayumi Inada2, Cristina Kurachi 2, Vanderlei Salvador Bagnato2 - 1 – Skin Department of Amaral Carvalho Hospital, Brazil/ 2 – São Carlos Institute of Physics University of Sao Paulo, Brazil - gasalvio@hotmail.com

There is a lack of studies about long-term follow up of nodular basal cell carcinoma after PDT treatment. This study demonstrates a disease free follow up of 93.7% in 53 months.

IPA173 - Reduction in surgical procedures in patients with Gorlin syndrome when management associated with Topical Photodynamic therapy: report of two cases
Ana Gabriela Salvio 1, Dora Patricia Ramirez 2, Elisangela Ramos de Oliveira1, Natalia Mayumi Inada2, Cristina Kurachi 2, Vanderlei Salvador Bagnato2 - 1 – Skin Department of Amaral Carvalho Hospital, Brazil/ 2 – São Carlos Institute of Physics University of Sao Paulo, Brazil - gasalvio@hotmail.com

The use of PDT may lead to a reduction in surgical procedures in Gorlin Syndrome.
IPA174 - Photodynamic therapy for widespread actinic keratosis of the upper limbs: comparison of pain and response using aminolevulinic acid 15% and methyl aminolevulinate 15% through a new light source device
Elisangela Ramos de Oliveira1, Natalia Mayumi Inada2, Dora Patricia Ramirez2, Vanderlei Salvador Bagnato2, Ana Gabriela Salvio 1 - 1 – Skin Department of Amaral Carvalho Hospital, Brazil/ 2 – São Carlos Institute of Physics University of Sao Paulo, Brazil - gasalvio@hotmail.com
This study compared the pain and the efficacy of PDT treatment between M-ALA and ALA.

IPA175 - Photodynamic Therapy based M-ALA for non melanoma skin cancer. Ecuador experiences
Instituto de Física. São Carlos - São Paulo – Brasil - gary.guaman@est.epn.edu.ec
The photodynamic therapy experience in 65 patients with different kind of skin cancer show an effective response on superficial and nodular CBC, now is a great option to skin cancer treatment in some Ecuador Hospitals.

IPA176 - Diagnosis and therapy skin cancer treatment photodynamic in northeast region
Roberto L. Bigarella, Natalia Inada - Universidade De Caxias Do Sul, Brasil - bigarela@terra.com.br
The aim of this clinical study is to prove the efficacy and safety of PDT performed with national technology in the healing of skin cancer in a population with skin type and genetic characteristics of high risk.

IPA177 - Low LASER Therapy in modulating algogenic substance in rats with Neuropathic pain
Oliveira M.E, Santos F.M., Martins D.O., Chacur M. - Universidade de São Paulo - maraevany@hotmail.com
Evaluate the effect of low level laser (LLL) in animals with chronic constriction sciatic nerve (CCI), using behavioral tests and western blot, to better understand the mechanism of the action of LASER in this model to lead us a new strategies of treatment for this kind of pain.

IPA178 - Use of Low Level Laser in nociception control and improvement of the peripheral nerve repair process
Daniel Oliveira Martins, Fabio Martinez dos Santos, Mara Evany Oliveira, Luiz R. G. Britto, José Benedito Dias Lemos and Marucia Chacur - Department of Anatomy, Institute of Biomedical Science - ICB III, University of São Paulo - martinsd@usp.br
We used an experimental Inferior Alveolar Nerve injury in rats to which we associated Low Level Therapy to assess behavioral nociceptive effects and how LLT stimulates nerve repair in experimental animals.
IPA179 - Phototherapy associated with mechanical stress for body-contouring and cellulite treatment
Fernanda Rossi Paolillo, Cecilia do Amparo Manoel, Larissa Aparecida Biason Lopes, Vanderlei Salvador Bagnato - Optics Group from Physics Institute of São Carlos (IFSC), University of São Paulo (USP), Brazil - fer.nanda rp@hotmail.com

Phototherapy associated with mechanical stress (physical exercise or negative pressure) improve metabolic activity which is an important factor for body aesthetics. Prototypes and clinical study were developed.

IPA180 - Photoesthetic: new alternative to perform phototherapy procedure in the agging and acne vulgaris treatment
Maria Cecilia da Costa Pinto1, Marcela Sene Fiorese1, Priscila Fernanda Campos de Menezes1, Vanderlei S. Bagnato1 - 1São Carlos Institute of Physics (IFSC) - University of São Paulo (USP) - Brazil - ceciliapintopereira2009@hotmail.com

Photobiomodulation can be useful in the PhotoEsthetic procedures. The application of lights in different wavelengths optimizes the Skin Rejuvenation Procedures.

IPA181 - Use of low-level laser (light) therapy to improve muscle performance in soccer players
Thiago Maldonado, Cleber Ferraresi, Fernanda Rossi Paolillo, Nivaldo Antonio Parizotto, Vanderlei Salvador Bagnato - Optics Group from Physics Institute of Sao Carlos (IFSC), University of Sao Paulo (USP), Brazil - th_maldonado@hotmail.com

Physical exercises have been associated with light therapy to increase muscle performance in experimental and clinical trials. This clinical study used a LED array prototype to increase muscle power in soccer players during 6 weeks.

IPA182 - Phototherapy plus concurrent exercise on improvement of metabolic syndrome biomarkers and body composition in obese women
Marcela Sene Fiorese 2, Fernanda Oliveira Duarte1, Antonio Eduardo de Aquino Junior1, Lian Tock3, Deborah Cristina Landi Masquio4, Raquel Munhoz Campos da Silveira 4, Ana Raimunda Damas03, Nivaldo Antonio Parizotto1, Vanderlei Salvador Bagnato2 - 1Universidade Federal de São Carlos-Departamento de Fisioterapia-Programa de pós Graduação de Biotecnologia; 2Universidade de São Paulo-Instituto de Física de São Carlos-Grupo de Óptica; 3Weight Science-São Paulo; 4Universidade Federal de São Paulo-Departamento de Psicobiologia - m_sene2004@yahoo.com.br

The association of new technologies with traditional therapies for treatment of obesity can be an important strategy for success of interventions, improving the quality of life and health of the obese patients.

IPA183 - Can Phototherapy associated with an Aerobic exercise on treadmill change the cardiovascular risk in obese women?
The combination of new technologies with traditional therapies can be an important strategy for the success of interventions, through the reduction of cardiovascular risk factors and improving the quality of life of obese patients.

IPA184 - Laser therapy and biomembrane in treatment of venous ulcer
Maciel, V.H; Ramirez, D.P.; Bagnato, V.H. - Grupo de Óptica/Instituto de Física, Universidade de São Paulo, Brasil - vitoria@if.sc.usp.br

This study makes use of two tools (laser therapy and biomembrane) with the goal of treating venous ulcers difficult to treat by bioestimulation tissue.

IPA185 - New Clinical Application of Light: Synergic Effects of Laser and Ultrasound in the Rehabilitation of People with Hands Osteoarthritis
Alessandra Rossi Paolillo, Fernanda Rossi Paolillo, Jéssica Patrícia João, Herbert Alexandre João, Vanderlei Salvador Bagnato - Department of Occupational Therapy, Federal University of São Carlos (UFSCar), Brazil and Optics Group from Physics Institute of São Carlos (IFSC), University of São Paulo (USP), Brazil - arpaolillo@gmail.com

Women with hands osteoarthritis, aged 60 to 80 years, were randomly assigned to Placebo and Laser plus Ultrasound groups. Laser plus Ultrasound show promising results for rehabilitation due to reduced pain and increased functionality.

IPA186 - Effects of low-level laser therapy (LLLT) on muscle gene expression and cardiac autonomic control in rats
Fernanda Rossi Paolillo, Daniela Bassi Dutra, Vanderlei Salvador Bagnato, Nivaldo Antonio Parizotto, Audrey Borghi-Silva - Physics Institute of São Carlos (IFSC), University of São Paulo (USP), Brazil - fer.nanda.rp@hotmail.com

Biophysics and biochemistry effects of phototherapy lead to higher production of ATP, gene modulation and tissue regeneration associated with anti-inflammatory effects. It may promote local and systemic effects, including enhanced cardiac and muscle function.

IPA187 - Photodynamic Field Control of Malaria Vector, Schistosomiasis and Agricultural Pests
Mahmoud H. Abdel Kader - Professor of Photochemistry, Cairo University, Egypt and President, German University in Cairo,Egypt - mahmoud.abdelkader@guc.edu.eg

In this work, we present the successful field implementation of using the photodynamic modality to control vector-borne diseases, such as Malaria, Filaria, Dengue fever and Schistosomiasis, as well as agro-insects which cause considerable damage to agro-economics.
IPA188 - Physiologic Properties as Predictors of PDT Response: Where We Stand and Where We are Going
Theresa Busch - Department of Radiation Oncology, University of Pennsylvania, Philadelphia, PA, USA - buschtm@mail.med.upenn.edu

Photodynamic therapy (PDT) is both affected by and contributes to heterogeneities in the physiologic tumor microenvironment during the period of light delivery. Monitoring and modulating tumor physiology provides opportunity to personalize PDT delivery for optimization of outcomes.

IPA189 - Ovarian carcinoma detection by spectrofluorimetry using a folate-targeted photosensitizer
Soraya Khodja Bach 1,2, Jean-Baptiste Tylcz 1, Henri Azaïs 1,2, Pierre Collinet 1,2, Serge Mordon 1, Nacim Betrouni 1 - 1. INSERM, U1189 - ONCO-THAI, University of Lille, 59000 Lille, France. 2. Department of Gynecology, University of Lille, 59000 Lille, France. - soraya.khodjabach@gmail.com

Tumor fluorescence detection may improve prognosis in ovarian peritoneal carcinomatosis. After injection of folate-targeted photosensitizer in a rat model, we analysed tissue fluorescence by spectrofluorimetry. A statistical difference between carcinomatosis lesions and healthy peritoneum (p=0.03).

IPA190 - Photodynamic Therapy and Photodiagnosis of Non-melanoma Skin Cancer - an experience in Presidente Prudente - São Paulo State - Brazil
Armando De Domenico Júnior, MD; Flávia Brasileiro de Medeiros, MD; Aline Morales De Domenico, DDS - Departamento de Dermatologia da Universidade do Oeste Paulista; Clínica de Cirurgia Plástica e Odontológica de Domênico S/S Ltda., Presidente Prudente, São Paulo, Brazil - armando.domenico@hotmail.com

Study realized at a public institution within 2 years, in 40 patients with small nodular BCC lesions, single or multiple, with a cure rate of about 75% after 6 months of treatment.

IPA191 - Photosensitizers tailored to trigger specific mechanisms of programed cell death can improve Photodynamic Therapy
Maurício S. Baptista-Department of Biochemistry, Instituto de Química, Universidade de São Paulo, Brazil. - baptista@iq.usp.br

Photosensitizers tailored to trigger specific mechanisms of programed cell death can improve Photodynamic Therapy

IPA192 - The Future of Photodynamic Therapy (PDT) in Oncology
Stephen G Bown - National Medical Laser Centre, University College London - s.bown@ucl.ac.uk

On 17th July 2014 a meeting was held in London, hosted by the two largest UK funders of Cancer Research (CRUK, NCRN) to review PDT in the context of other cancer treatments.
<table>
<thead>
<tr>
<th>Date/Time</th>
<th>May 22th (Friday)</th>
<th>May 23th (Saturday)</th>
<th>May 24th (Sunday)</th>
<th>May 25th (Monday)</th>
<th>May 26th (Tuesday)</th>
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<td>08:30</td>
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<tr>
<td>09:00</td>
<td>Tutorials</td>
<td>Opening Ceremony/ Plenary</td>
<td>Plenary - Mahmoud H. Abdel Kader</td>
<td>Plenary - Patrick Ross</td>
<td>Plenary - Kit S. Lam</td>
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<td>09:30</td>
<td>Tutorials</td>
<td>B.C. Wilson, Tayyaba Hasan</td>
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<td>Break and Exhibition</td>
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<td>10:30</td>
<td>IPA Session 1 - New Photosensitizers and Drug Delivery I</td>
<td>IPA Session 2 – Dosimetry</td>
<td>IPA Session 5 – New Photosensitizers and Drug Delivery II</td>
<td>IPA Session 7 – Clinical PDT II</td>
<td>IPA Session 10 - Microbial Control</td>
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<td>IPA Session 3 - Combined techniques</td>
<td>IPA Session 4 - Clinical PDT I</td>
<td>IPA Session 6 - Mechanisms of PDT and PD I</td>
<td>IPA Session 8 Mechanisms of PDT and PD II</td>
<td>IPA Session 9 – Instrumentation</td>
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<td>Plenary - Theresa Busch</td>
<td>Plenary - Mladen Korbeklik</td>
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<td>IPA Session 6 - Mechanisms of PDT and PD I</td>
<td>IPA Session 8 Mechanisms of PDT and PD II</td>
<td>IPA Session 9 – Instrumentation</td>
<td>Brazilian Skin Cancer Program (PDT Brazil) Meeting</td>
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*May 24th - IPA Board Lunch Meeting