



# Photobiomodulation Session

Friday, April 1, 2011

2011 Annual Conference  
 Pre-Conference Courses: March 30-31, 2011  
 Annual Conference: April 1-3, 2011  
 Gaylord Texan™ Resort and Convention Center  
 Grapevine, TX

**Photobiomodulation - Texas 4-6**

**1:00 pm - 6:15 pm**

**Directors:** *Juanita J. Anders, Ph.D., Michael Hamblin, M.D.*

Disclosures

*Juanita J. Anders* received equipment from Irradia Laser Therapy Systems, Lite Cure, LLC and PhotoThera  
*Michael Hamblin* - No disclosure

Educational Needs

The purpose of this session is to present and discuss the latest findings in pre-clinical (*in vitro* and *in vivo* experiments) and clinical investigations on the critical parameters, mechanism, and effectiveness of light as a therapy for a broad range of clinical applications. Light and its photonic effects and photo-medicine in general have gained recognition as an area of innovative and novel research with significant clinical implications.

Participants

Any scientist, engineer, medical practitioner, individual in industry, as well as other health care professionals involved in biomedical applications of lasers are invited to participate in these sessions.

Background Requirements

Participants should have an understanding of light interaction with biological tissues and basic and clinical research.

Instructional Content and/or Expected Learning Outcomes

This session will provide the latest data on basic science and clinical application of low intensity light in a wide spectrum of applications. The participants will increase their knowledge in this area and hopefully be stimulated to formulate new ideas to identify the mechanisms involved and the critical parameters needed for successful clinical application of light.

"Hot Topics"

- New techniques for delivering laser energy deeper into tissues
- New clinical applications for photobiomodulation including:
  - Treatment of depression
  - Treatment of severe tracheal stenosis
  - Light therapy as a promising treatment for traumatic brain injury, spinal cord injury and peripheral nerve injury
  - Photoactivated antimicrobial collagen for wound care
  - Transcutaneous light treatment for reduction of subcutaneous fat

**PHOTOBIMODULATION: BASIC SCIENCE AND PRE-CLINICAL STUDIES**

INVITED SPEAKER

1:00 pm - 1:34 pm	<p><b>THE EFFECT OF LOW LEVEL LASER THERAPY ON OTOTOXICITY AND NOISE INDUCED HEARING LOSS</b></p> <p><i>Chung-Ku Rhee</i>, Dankook University, College of Medicine, Medical Laser Research Center, Cheonan, Korea</p>
1:35 pm - 1:44 pm	<p>Discussion</p>
1:45 pm - 1:54 pm	<p><b>145 NEW TECHNIQUE FOR DELIVERING LASER ENERGY DEEPER INTO TISSUE</b></p> <p><i>Sean Wang, Qun Li, Kerith Wang</i>, B&amp;W TEK, Inc., Newark, DE</p> <p><i>•Content discusses non-FDA approved device or off-label use</i></p>
1:55 pm - 1:59 pm	<p>Discussion</p>

2:00 pm - 2:09 pm		<p><b>EFFECTIVE POWER AND ENERGY DENSITIES DIFFER WITH WAVELENGTH <i>IN VIVO</i> AND <i>IN VITRO</i></b></p> <p><i>Juanita J. Anders</i>, Uniformed Services University of the Health Sciences, Bethesda, MD</p>
2:10 pm - 2:14 pm		Discussion
2:15 pm - 2:24 pm	147	<p><b>EFFECTS OF VEGF MIMICKING PEPTIDES AND PHOTORADIATION ON WOUND HEALING IN A MURINE PRESSURE ULCER MODEL</b></p> <p><i>Istvan Stadler</i><sup>1</sup>, <i>Raymond Lanza</i><sup>2</sup>, Rochester General Hospital, Rochester, NY</p> <p><sup>1</sup><i>Equipment from Quantum Devices</i> <sup>2</sup><i>Equipment from Quantum Devices; consulting fees from Duetchebank, GLG Councils and Leerink Swan; editor-in-chief of Photomedicine and Laser Surgery; editorial board of General Surgery News, Journal of Laparoendoscopic Surgery, Journal of the Society of Laparoscopic Surgeons, and Lasers in Medical Sciences</i> •Content discusses non-FDA approved device or off-label use</p>
2:25 pm - 2:29 pm		Discussion
2:30 pm - 2:39 pm	148	<p><b>PHOTOACTIVATED ANTIMICROBIAL COLLAGEN REDUCES BIOBURDEN IN A MURINE PRESSURE ULCER MODEL</b></p> <p><i>Raymond Lanza</i><sup>1</sup>, <i>Istvan Stadler</i><sup>2</sup>, <i>Ryan Cunningham</i><sup>3</sup>, <i>Robert Soltz</i><sup>4</sup>, <i>Barbara Soltz</i><sup>3</sup>, Rochester General Hospital, Rochester, NY, Conversion Energy Enterprises, Spring Valley, NY</p> <p><sup>1</sup><i>Equipment and intellectual property rights with Conversion Energy Enterprises; research grant from NIH NIGM Grant #1R43GM087753-01; editor-in-chief of Photomedicine and Laser Surgery; editorial board of General Surgery News, Journal of Laparoendoscopic Surgery, Journal of the Society of Laparoscopic Surgeons, and Lasers in Medical Sciences</i> <sup>2</sup><i>Equipment from Conversion Energy Enterprises; research grant from NIH NIGM Grant #1R43GM087753-01</i> <sup>3</sup><i>Equipment from Conversion Energy Enterprises</i> <sup>4</sup><i>Equipment, stockholder, equity position, intellectual property rights with Conversion Energy Enterprises; research grant from NIH NIGM Grant #1R43GM087753-01</i> •Content discusses non-FDA approved device or off-label use</p>
2:40 pm - 2:44 pm		Discussion
2:45 pm - 3:44 pm		Break - Visit the Exhibits and ePosters
3:45 pm - 4:19 pm	149	<p><b><i>IN VITRO</i> AND <i>IN VIVO</i> STUDIES OF LLLT FOR TRAUMATIC BRAIN INJURY</b></p> <p><i>Michael Hamblin</i><sup>1</sup>, <i>Weijun Xuan</i><sup>1</sup>, <i>Qiuhe Wu</i><sup>1</sup>, <i>Ying-Ying Huang</i><sup>1</sup>, <i>Sulbha K. Sharma</i><sup>1</sup>, <i>Gitika B. Kharkwal</i><sup>1</sup>, Wellman Center for Photomedicine, Massachusetts General Hospital, Harvard Medical School, Boston, MA, MIT Division of Health Sciences and Technology, Cambridge, MA</p> <p><sup>1</sup><i>Equipment and research grant from PhotoThera</i> •Content discusses non-FDA approved device or off-label use</p>
4:20 pm - 4:29 pm		Discussion

4:30 pm - 4:39 pm	150	<p><b>PULSE LIGHT IRRADIATION IMPROVES BEHAVIORAL OUTCOME IN A RAT MODEL OF CHRONIC MILD STRESS</b></p> <p><i>Xingjia Wu, Stephanie Alberico, Helina Moges, Ruchir Sehra, Luis DeTaboada, Juanita Anders<sup>1</sup></i>, Uniformed Services University of the Health Sciences, Bethesda, MD, PhotoThera, Inc., Carlsbad, CA</p> <p><sup>1</sup>Equipment from Photothera •Content discusses non-FDA approved device or off-label use</p>
4:40 pm - 4:44 pm		Discussion
4:45 pm - 4:54 pm	151	<p><b>980nm LASER IRRADIATION IMPROVED FUNCTIONAL RECOVERY AFTER PERONEAL NERVE INJURY IN RABBITS</b></p> <p><i>Helina Moges, Xingjia Wu, Brian Pryor, Jason Smith, Juanita Anders<sup>1</sup></i>, Uniformed Services University of the Health Sciences, Bethesda, MD, LiteCure, Newark, NJ</p> <p><sup>1</sup>Equipment from LiteCure •Content discusses non-FDA approved device or off-label use</p>
4:55 pm - 4:59 pm		Discussion
5:00 pm - 5:09 pm	152	<p><b>COMBINED OCT AND MULTI-PHOTON LUMINESCENCE MICROSCOPY FOR MACROPHAGE DETECTION IN ATHEROSCLEROTIC PLAQUES USING PLASMONIC GOLD NANOROSE</b></p> <p><i>Tianyi Wang♦, S.M. Shams Kazmi, Jordan Dwelle, Veronika Sapozhnikova, Jake Mancuso, Brian Willsey, Keith Johnston, Marc Feldman, Andrew Dunn, Thomas Milner</i>, University of Texas at Austin, Austin, TX, University of Texas Health Science Center at San Antonio, San Antonio, TX</p> <p>•Content discusses non-FDA approved device or off-label use</p>
5:10 pm - 5:14 pm		Discussion
<b><u>LATE-BREAKING ABSTRACT</u></b>		
5:15 pm - 5:24 pm		<p><b>810nm LOW LEVEL LASER THERAPY PENETRATION: THE EFFECTS OF DIFFERENT BEAM PROFILES IN REACHING DEEP ANATOMICAL TARGETS</b></p> <p><i>James Carroll<sup>1</sup></i>, THOR Photomedicine, Chesham, Bucks, United Kingdom</p> <p><sup>1</sup>Equipment, travel expenses, salary, stockholder, equity position and intellectual property rights with THOR Photomedicine •Content discusses non-FDA approved device or off-label use</p>
5:25 pm - 5:29 pm		Discussion

#### LATE-BREAKING ABSTRACT

5:30 pm - 5:39 pm

#### PRELIMINARY ASSESSMENT OF MULTIPLE PHOTOACTIVATED ANTIMICROBIAL COLLAGEN TREATMENTS ON BIOBURDEN IN INFECTED MURINE PRESSURE ULCERS

*Istvan Stadler<sup>1</sup>, Raymond Lanzafame<sup>2</sup>, Aaron Muhlbauer, Jacob Griggs, Robert Soltz<sup>3</sup>, Barbara Soltz<sup>3</sup>, Rochester General Hospital, Rochester, NY, Conversion Energy Enterprises, Spring Valley, NY*

<sup>1</sup>*Equipment from Conversion Energy Enterprises, Carestream Health, PathoLase; research grant from NIH NIGM Grant #1R43GM087753-01*

<sup>2</sup>*Equipment from Conversion Energy Enterprises, Carestream Health, PathoLase; research grant from NIH NIGM Grant #1R43GM087753-01; intellectual property rights with conversion Energy*

<sup>3</sup>*Equipment, stockholder, equity position, and intellectual property rights with Conversion Energy Enterprises; research grant NIH NIGM Grant #1R43GM087753-01*

*•Content discusses non-FDA approved device or off-label use*

5:40 pm - 5:44 pm

Discussion

5:45 pm - 5:54 pm

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#### THE EFFECTS OF RED LIGHT ON HIGH GLUCOSE INDUCED DYSFUNCTIONAL MYOBLASTS AND THEIR MECHANISM

*Fang-Hui Li, En-Xiu Wei, Yan-Ying Liu, Timon Cheng-Yi Liu, Laboratory of Laser Sports Medicine, South China Normal University, Guangzhou, China*

*•Content discusses non-FDA approved device or off-label use*

5:55 pm - 5:59 pm

Discussion

6:00 pm - 6:09 pm

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#### SIRTUIN1-MEDIATED PHOTOPROMOTION ON TNF-ALPHA INHIBITED EXPRESSION OF CIRCADIAN CLOCK GENES IN CULTURED NIH3T3 FIBROBLASTS

*De-Feng Wu, Ling Zhu, Timon Cheng-Yi Liu, Laboratory of Laser Sports Medicine, South China Normal University, Guangzhou, China*

*•Content discusses non-FDA approved device or off-label use*

6:10 pm - 6:15 pm

Discussion

◆Recipient of U.S. Air Force Office of Scientific Research travel grant.