PROCEEDINGS OF SPIE

SPIDigitalLibrary.org/conference-proceedings-of-spie

Front Matter: Volume 9695

, "Front Matter: Volume 9695," Proc. SPIE 9695, Mechanisms of
Photobiomodulation Therapy XI, 969501 (22 June 2016); doi:
10.1117/12.2231315

SPIE.

Event: SPIE BiOS, 2016, San Francisco, California, United States

PROGRESS IN BIOMEDICAL OPTICS AND IMAGING
Vol. 17 No. 7

Mechanisms of Photobiomodulation Therapy XI

**Michael R. Hamblin
James D. Carroll
Praveen Arany**
Editors

**13–14 February 2016
San Francisco, California, United States**

Sponsored and Published by
SPIE

Volume 9695

Proceedings of SPIE, 1605-7422, V. 9695

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

Mechanisms of Photobiomodulation Therapy XI, edited by Michael R. Hamblin, James D. Carroll, Praveen Arany,
Proc. of SPIE Vol. 9695, 969501 · © 2016 SPIE · CCC code: 1605-7422/16/\$18 · doi: 10.1117/12.2231315

Proc. of SPIE Vol. 9695 969501-1

The papers in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. Additional papers and presentation recordings may be available online in the SPIE Digital Library at SPIEDigitalLibrary.org.

The papers reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from this book:

Author(s), "Title of Paper," in *Mechanisms of Photobiomodulation Therapy XI*, edited by Michael R. Hamblin, James D. Carroll, Praveen Arany, Proceedings of SPIE Vol. 9695 (SPIE, Bellingham, WA, 2016) Six-digit Article CID Number.

ISSN: 1605-7422

ISSN: 2410-9045 (electronic)

ISBN: 9781628419290

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA

Telephone +1 360 676 3290 (Pacific Time) • Fax +1 360 647 1445

SPIE.org

Copyright © 2016, Society of Photo-Optical Instrumentation Engineers.

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of copying fees. The Transactional Reporting Service base fee for this volume is \$18.00 per article (or portion thereof), which should be paid directly to the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923. Payment may also be made electronically through CCC Online at copyright.com. Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher. The CCC fee code is 1605-7422/16/\$18.00.

Printed in the United States of America.

Publication of record for individual papers is online in the SPIE Digital Library.

SPIDigitalLibrary.org

Paper Numbering: Proceedings of SPIE follow an e-First publication model, with papers published first online and then in print. Papers are published as they are submitted and meet publication criteria. A unique citation identifier (CID) number is assigned to each article at the time of the first publication. Utilization of CIDs allows articles to be fully citable as soon as they are published online, and connects the same identifier to all online, print, and electronic versions of the publication. SPIE uses a six-digit CID article numbering system in which:

- The first four digits correspond to the SPIE volume number.
- The last two digits indicate publication order within the volume using a Base 36 numbering system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B ... 0Z, followed by 10-1Z, 20-2Z, etc.

The CID Number appears on each page of the manuscript. The complete citation is used on the first page, and an abbreviated version on subsequent pages.

Contents

v	Authors
vii	Conference Committee

SESSION 1 PRESENT STATUS AND FUTURE DIRECTION WITH PBM THERAPY

9695 03	Blue light inhibits proliferation of melanoma cells [9695-2]
9695 05	Effect of interstitial low level laser stimulation in skin density [9695-4]
9695 06	Biochemical changes on the repair of surgical bone defects grafted with biphasic synthetic micro-granular HA + β-tricalcium phosphate induced by laser and LED phototherapies assessed by Raman spectroscopy [9695-5]

SESSION 2 CLINICAL TRANSLATIONAL RESEARCH WITH PBM THERAPY

9695 08	Photobiomodulation of distinct lineages of human dermal fibroblasts: a rational approach towards the selection of effective light parameters for skin rejuvenation and wound healing [9695-7]
9695 09	Effects of low-level laser exposure on calcium channels and intracellular release in cultured astrocytes (Invited Paper) [9695-8]
9695 0A	<i>In vitro</i> measurements of oxygen consumption rates in hTERT-RPE cells exposed to low levels of red light [9695-9]

SESSION 3 CLINICAL APPLICATIONS OF PBM THERAPY

9695 0D	Effect of interstitial low level laser therapy on tibial defect [9695-12]
---------	--

SESSION 4 PBM SYNERGISTIC THERAPIES

9695 0H	Low-power laser irradiation did not stimulate breast cancer cells following ionizing radiation [9695-18]
9695 0J	Biochemical responses of isolated lung CSCs after application of low intensity laser irradiation [9695-28]

POSTER SESSION

- 9695 OL **Assessment of the influence of Laser phototherapy on the bone repair process of complete fractures in tibiae of rabbits stabilized with semi-rigid internal fixation treated with or without MTA graft: a histological study** [9695-17]
- 9695 ON **A new visual analog scale to measure distinctive well-being effects of LED photobiomodulation** [9695-20]
- 9695 OO **Photodynamic antimicrobial chemotherapy (PACT) against oral microorganisms with the use of blue LED associated to curcumin** [9695-21]
- 9695 OP **Effect of Low-Level Laser therapy on the fungal proliferation of *Candida albicans*** [9695-22]
- 9695 OR **PDT in non-surgical treatment of periodontitis in kidney transplanted patients: a split-mouth, randomized clinical trial** [9695-24]
- 9695 OS **PDT in periodontal disease of HAART resistance patients** [9695-25]
- 9695 OT **Assessment of the effects of laser photobiomodulation on peri-implant bone repair through energy dispersive x-ray fluorescence: A study of dogs** [9695-26]

Authors

Numbers in the index correspond to the last two digits of the six-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first four digits reflect the volume number. Base 36 numbering is employed for the last two digits and indicates the order of articles within the volume. Numbers start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B...0Z, followed by 10-1Z, 20-2Z, etc.

Abrahamse, Heidi, 0J	Radfar, Edalat, 05, 0D
Araújo, Natália Costa, 0P, 0T	Ribeiro, M. S., 0H
Arpino, Fabiola, 03	Sachs, Frederick, 09
Bagnato, Vanderlei S., 0O	Salgado, Daniela, 0S
Barolet, Daniel, 0N	Sampaio, Fernando José Pires, 0O
Becker, Anja, 03	Santos, Camila C., 0S
Botchkareva, Natalia V., 08	Santos, Nicole R. S., 0L
Cabral, F. V., 0H	Santos-Neto, Alexandrino Pereira dos, 0P, 0T
Camargo, C. F. M., 0H	Shucard, David Wm., 09
Caputo, Bruno V., 0S	Silva, Aline C. P., 0L
Carneiro, Vanda Sanderana Macêdo, 0P, 0T	Silva, Anna Paula L. T., 0L
Casarin, Renato, 0S	Silva, C. R., 0H
Castellanos, Cherry C., 0A	Silveira, Landulfo, Jr., 06
Costa, Claudio, 0S	Simon-Keller, Katja, 03
Crous, Anine, 0J	Soares, Luiz Guilherme Pinheiro, 06, 0L
de Oliveira, Susana C. P. S., 0O	Sticht, Carsten, 03
Distler, Elisabeth, 03	Tobin, Desmond J., 08
dos Santos, Jean N., 0L	Uzunbajakava, Natallia E., 08
Gerbi, Marleny Elizabeth Martinez, 0P, 0T	van Abeelen, Frank A., 03
Giovani, Elcio Magdalena, 0R, 0S	Wigle, Jeffrey C., 0A
Gretz, Norbert, 03	Yu, Sungkon, 05, 0D
Guerra, L. A. P., 0T	
Ha, Myungjin, 05, 0D	
Hua, Susan, 09	
Hwang, Dong Hyun, 05, 0D	
Jang, Seulki, 05, 0D	
Jung, Byungjo, 05, 0D	
Kim, Hansung, 05, 0D	
Klapczynski, Anna, 03	
Kuch, Natalia, 03	
Lee, Han A., 05	
Lee, Sangyeob, 05, 0D	
Maneshi, Mohammed Mehdi, 09	
Mang, Thomas S., 09	
Marinho, Kelly Cristine Tarquinio, 0R	
Marques, Aparecida Maria Cordeiro, 06	
Menezes, Rebeca Ferraz de, 0P, 0T	
Michel, François, 0N	
Mignon, Charles, 08	
Monteiro, Juliana S. C., 0O	
Moolenaar, Mitchel, 08	
Moreno, Lara Marques, 0P, 0T	
Neves, Bruno Luiz R. C., 0L	
Noro-Filho, Gilberto A., 0S	
Oversluizen, Gerrit, 03	
Park, Jihoon, 05, 0D	
Pinheiro, Antônio Luiz Barbosa, 06, 0L, 0O	
Pires-Santos, Gustavo M., 0O	
Raafs, Bianca, 08	

Conference Committee

Symposium Chairs

James G. Fujimoto, Massachusetts Institute of Technology
(United States)

R. Rox Anderson, Wellman Center for Photomedicine, Massachusetts
General Hospital (United States) and Harvard School of Medicine
(United States)

Program Track Chair

Brian Jet-Fei Wong, Beckman Laser Institute and Medical Clinic
(United States)

Conference Chairs

Michael R. Hamblin, Wellman Center for Photomedicine
(United States)

James D. Carroll, THOR Photomedicine Ltd. (United Kingdom)

Praveen Arany, University at Buffalo (United States)

Conference Program Committee

Heidi Abrahamse, University of Johannesburg (South Africa)

Tomas Hode, Immunophotonics, Inc. (United States)

Clark E. Tedford, LumiThera (United States)

Session Chairs

- 1 Present Status and Future Direction With PBM Therapy
Michael R. Hamblin, Wellman Center for Photomedicine
(United States)
- 2 Clinical Translational Research with PBM Therapy
Praveen Arany, University at Buffalo (United States)
- 3 Clinical Applications of PBM Therapy
James D. Carroll, THOR Photomedicine Ltd. (United Kingdom)
- 4 PBM Synergistic Therapies
Wei Chen, University of Central Oklahoma (United States)