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SPRING 2009

VBF 2008 CONFERENCE AND MARK OF BEAUTY GALA - A HUGE SUCESS

The Vascular Birthmarks Foundation (VBF) hosted its annual conference in New York City on November 14 and 15, 2008. This year, the VBF kicked off the weekend by hosting 285 guests at their first ever fundraising "Mark of Beauty" Gala, sponsored by Gregory and Lisa Fortunoff, that was held at the Hudson Theatre in Times Square on Friday evening. The international conference was held the next day at the Beth Israel - Phillips Ambulatory Care Center at Union Square for 240 individuals. The responses from those who attended the gala and conference were similar. Comments included descriptors such as "fantastic," "phenomenal," and "one of the best galas I have ever attended" to "the most informative conference on vascular birthmarks." The foundation received over 30 letters of gratitude from families who attended the conference and almost as many from individuals who attended the gala.

During the Gala, four awards were given. The first award, the VBF Service Award, was given to Lillian Medina, Practice Manager for Dr. Alejandro Berenstein. The second award given was the VBF Abby Czirr Physician Education Grant presented to VBF Founder, Linda Rozell-Shannon. The third award was the VBF Physician of the Year Award presented to Dr. Roy Geronemus, Director of the Laser and Skin Surgery Center of New York. The VBF Power of One Award was the last award, and it was presented to Dr. Milton Waner, Co-Director of the Vascular Birthmark Institute of New York, Beth Israel



From left to right: Gary Mauer, Stephen Dale, Christine Shannon and Beth Southard.

Medical Center and St. Luke's-Roosevelt Hospital Center.

Entertainment for the Gala began with performances by musicians with birthmarks from VBF. Mia Montenegro began with "In These Clouds" from her CD "Somewhere in Between." Stephen Dale (who has a port wine stain birthmark) and Christine Shannon (who was born with a hemangioma and is the daughter of VBF Founder Linda Rozell-Shannon) followed with "There Can Be Miracles When You Believe" from the animated movie "Prince of Egypt."

The Gala was further enhanced by specially invited performers, Gary Mauer and Beth Southard, former stars of Broadway's "Phantom of the Opera." They brought the house down with their final song, "Phantom of the Opera," especially when they were joined by 17-year-old Stephen Dale and 14-year-

old Christine Shannon.

During the conference, families from as far as the Netherlands and as close as New York City were able to receive valuable and much needed information from an international group of physicians specializing in vascular malformations and related diseases.

Beckman Laser Institute was represented by Medical Director Dr. J. Stuart Nelson, Nurse Director Kerry Millington, Technology Transfer Manager Deborah Birnie, and Director of Development Erin Miller.

The Beckman Laser Institute (BLI) will host the next annual vascular birthmarks conference at BLI and The Island Hotel in Newport Beach on October 9 and 10, 2009. For more information, please visit the Vascular Birthmarks Foundation website www.birthmark.org or contact Erin Miller at (949) 824-4111.

We're Global

by Michael W. Berns, Ph.D.

Arnold and Mabel Beckman Professor
Co-Founder, Beckman Laser Institute

When the doors of the Beckman Laser Institute and Medical Clinic (BLIMC) opened in the summer of 1986, it was comprised of one Professor (me), a few of my graduate students (including Dr. Stuart Nelson, currently our Medical Director and a Professor of Surgery and Biomedical Engineering) and a couple of my postdocs. At that early time, Arnold O. Beckman and I had a vision for the BLIMC that imagined the Institute as a magnet for scientists and students from all over the world. The internet didn't exist, and I still handwrote letters on paper. The term "global" was generally used to refer to something that was "big" rather than "international." But today, "global" means entirely something else, and I would like to devote the rest of this column to discussing the "globalization" of the Beckman Laser Institute (BLI) and how that represents fulfillment of one of the visions of the two BLI Founders.

BLI is now a magnet for international science and scientists. For example, the

three featured Update articles in this newsletter are about the labs of Professors Durkin, Wilder-Smith and Nelson. Just in these three labs, there are researchers from Germany, South Korea, the Netherlands, Switzerland, Taiwan, China, Japan, and Syria. If we look at the BLI as a whole, in addition to the countries mentioned above, currently there are additional researchers from India, Iran, Romania, Ukraine, and Russia. And BLI has on-going visiting professors, such as Lars Svaasand from the Norwegian Institute of Technology, Norway, Yona Tadir from Tel-Aviv University, Israel, and Shuo Tang from University of British Columbia, Canada. All told, BLI's on-going contingent of foreign scientists numbers around 30-40 per year. This represents about 30% of the BLI research staff. Clearly, BLI is a "global" center with scientists and their work extending to many corners of the globe.

Yes, Arnold Beckman and I did envision a world-wide impact by the BLI when we first conceived the idea of the laser institute--but really not on the scale that has evolved over the past 25 years. Our first goal was to "seed" an institute that would become a leading research center in the U.S. At that time, there was no internet. Now, with instant com-

munication via the internet, the world has shrunk, and communicating with someone in Israel, India, or China can be done just by typing an e-mail (also a word that did not exist back in 1984) and clicking "send." So scientists have all become members of the same "fraternity/sorority" in the sense that we can instantly share ideas and plan experiments. In fact, with RoboLase (an internet-based microscope system developed by BLI faculty/scientists Elliot Botvinick and myself), experiments can be performed on BLI microscopes virtually from anywhere in the world (see Founder's Column, BLI newsletter, Summer 2005). So it should be no surprise that the Beckman Laser Institute has so many contacts and visitors from around the world. Unfortunately, we cannot connect with those who have "passed on." If we could, thanks to wireless, I think Arnold Beckman would be the first to e-mail us asking for daily updates on our research. He always would ask me "What have you discovered today?" knowing darn well discoveries don't happen overnight. But he had an enormous appetite for new knowledge, and he had a remarkable ability to grasp the core of what we were saying regardless of its complexity. ■

Newsbriefs

RESEARCH HIGHLIGHTED ONLINE

Research done by Samarendra Mohanty, a postdoctoral researcher in BLI Co-founder Dr. Michael W. Berns' lab, has been noted in an article in New Scientist Health entitled "Broken nerves can be fixed in a flash." The article cites Dr. Mohanty as developing an infrared light source that can be piped into nerves through fibers about 50 micrometers thick, also with the aim of activating nerves remotely. In addition, Dr. Mohanty's work on optical

tweezers and scissors has appeared in *Optics & Photonics News-Optics* (OPN) in a special year-end (2008) issue which highlights the most exciting research to emerge in the preceding 12 months in the fast-paced world of optics. Optics in 2008 offers readers a unique opportunity to access, in a single source, summaries of cutting-edge optics research reported in the peer-reviewed press. The areas covered in 2008 include beam engineering, biophotonics, diffractive structures, lasers, material processing, microscopy, nonlinear optics, optical engineering, optical storage, optical tweezers, plasmonics, quantum optics, remote sensing, scattering, terahertz technology, ultrafast

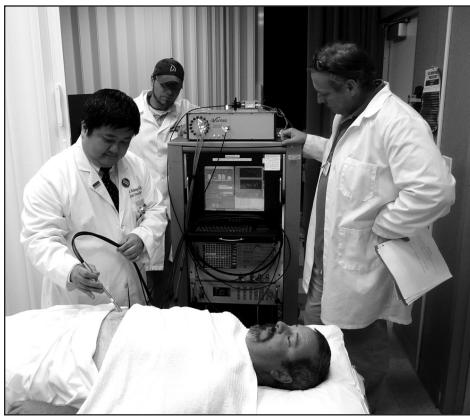
optics and nano-optics.

The research reported in Research Update of this issue (see p. 7) by BLI Scientist, Dr. Wim Verkruyse, "Remote plethysmographic imaging using ambient light," has been selected for re-publication in the most recent issue of the *Virtual Journal for Biomedical Optics* (VJBO), Vol. 4, Issue 2, February 10, 2009. It is an online journal which republishes selected papers from Optical Society of America journals such as *Optics Letters*, *Optics Express* and the *Journal of the Optical Society of America A*.

Measuring Melanoma

Assistant Professor Anthony Durkin, Ph.D., and Associate Professor of Surgery David Hsiang, M.D., are leading a team engaged in developing and evaluating non-invasive optical imaging technologies for characterizing pigmented lesions. Other investigators include Associate Professor of Surgery and Director of the Melanoma Center James Jakowatz, M.D., and Associate Professor of Dermatology Kristen Kelly, M.D. The research was initially funded by a Seed grant from the UCI Cancer Center.

The goal is to quantitatively characterize changes in skin that accompany dysplastic transformation using diffuse optical spectroscopy (DOS). The Durkin lab has developed a new approach to DOS that enables quantitative determination of optical properties and chromophore concentrations which can functionally interrogate the upper 1-2 mm of *in vivo* tissue. Using both a superficial diffusing probe developed by Dr. Durkin's group and the Modulated



Dr. David Hsiang (left), Dr. Rolf Saager (center) and Dr. Tony Durkin (right) examine a patient using a superficial diffusing probe.

Imaging system invented at BLI (of which Dr. Durkin is a co-inventor), preliminary results indicate that this approach is very sensitive to superficial differences in melanin concentration between individuals. The group is testing the capabilities of this probe in a clinical setting by performing *in vivo* measurements on patients with benign pigmented lesions and on those with cutaneous malignant melanoma. While the broad, long-term goal of the group's work is to investigate the potential for this technology to facilitate the management and early detection of malignant

melanoma, the primary objective of these initial investigations is to optically characterize benign and malignant melanocytic lesions. Thus far, 19 subjects have been referred to BLI for measurements from the Melanoma Center under this protocol.

Three abstracts have resulted from the study and were presented at SPIE Photonics West 2009 in San Jose, CA, on January 24-29, 2009, one of the premier international biophotonic technology conferences.

"Measurement of Melanocytic Cutaneous Lesions with the Modulated Imaging System" by Frederick Ayers, Scott Bogdanoff, David Hsiang, Kristen M. Kelly, James Jakowatz and Anthony J. Durkin.

"Diffuse Optical Spectroscopy of Melanoma-Simulating Silicone Phantoms" by Alexander M. Grant, Kelly Sry, Frederick Ayers, Rolf Saager, David Hsiang, Kristen M. Kelly, James Jakowatz and Anthony J. Durkin.

"Diffuse Optical Spectroscopy of Cutaneous Melanocytic Lesions" by Kelly Sry, Alexander M. Grant, Frederick Ayers, Rolf Saager, David Hsiang, Kristen M. Kelly, James Jakowatz and Anthony J. Durkin. ▀

Arrivals and Departures

ARRIVALS:

Seth Goodman, B.S., is a Staff Research Associate in Dr. Matthew Brenner's lab. He is working on projects testing newly developed cyanide antidote drugs and looking at their ability to be administered by intramuscular or inhaled routes for potential treatment of cyanide poisoning resulting from fires, industrial accidents, or other causes of cyanide exposure. Seth received his B.S. in Biological Sciences from Brigham Young University.

DEPARTURES:

Veneranda Garces-Chavez, a postdoctoral scholar, left BLI and is working at Centro de Investigacion Cientifica y de Educacion Superior de Ensenada (CICESE), Applied Physics, Optics Department in Ensenada, Mexico.

Yongseok Chae, who worked at BLI as a postdoctoral scholar, has left BLI to pursue other opportunities.

Ryan McCaughey, a postdoctoral scholar, left BLI to work for the International Foundation for Science, Health and the Environment (IFSHE), a

non-profit research organization in Panorama City. His research includes production of medically useful isotopes, effect of radiation on brain cells and the design of safer cell phone antennae and the application of high temperature plasmas to the destruction of toxic materials including greenhouse gases.

Zhongping Jian, a postdoctoral scholar in the LAMMP program, has left BLI to pursue a career in industry.

Chang Seok Kim, a visiting specialist working with Dr. Stuart Nelson, has left BLI to return to South Korea.

First Annual Allan R. Oseroff Photomedicine Lecture

The speaker for the first annual Allan R. Oseroff Photomedicine Lecture was Thomas H. Foster, Ph.D., Professor of the Departments of Radiology, Physics, and Optics, University of Rochester, New York. The lecture was presented on February 26, 2009, at the Beckman Laser Institute and Medical Clinic Library. This video clip can be viewed at <http://lammp.bli.uci.edu/video/?id=315>.

The topic was "Photodynamic Therapy in 2009—Working on a Vision." Photodynamic therapy (PDT) has had a complex 30-year history. There have been significant successes including numerous regulatory agency approvals in the United States and around the world. PDT was for a time the standard care for a form of macular degeneration, and it is today the only ablative therapy approved by the U.S. FDA for the treatment of Barrett's esophagus with high-grade dysplasia. Advances in image guided, minimally invasive interventions



Dr. Thomas Foster (left) presents the first annual Allan R. Oseroff Photomedicine Lecture.

have opened up new opportunities to deliver PDT to solid tumors virtually anywhere in the body. Despite these advances, it must be acknowledged that PDT continues to struggle for more widespread clinical acceptance as a contributor in the ever-expanding repertoire of cancer therapies. Commercialization

has been agonizingly slow to develop. Nevertheless, the fact that PDT offers high efficacy while carrying so little toxicity for the patient creates significant opportunities for novel clinical trials and for exploring new combination therapies. The urgency of well chosen translational studies has never been greater.

Allan R. Oseroff: 1943 - 2008



Allan R. Oseroff

Allan R. Oseroff, Ph.D., M.D., joined the faculty of Roswell Park Cancer Institute from Tufts New England Medical Center in 1989. Holding

both a doctorate in applied physics from Harvard as well as a medical degree from Yale, Dr. Oseroff had a unique understanding of both medical theory and practice. He was the consummate translational researcher, making scientific advances in the laboratory to improve care at the bedside. He was a pioneer in the photodynamic therapy treatment for skin cancer, playing a key role in obtaining FDA approval. He was also a leader in setting the national standards for non-melanoma skin cancer, participating in the National Comprehensive Cancer Network Guidelines Panel for skin cancer. He authored or co-authored over 200 publications and held over 20 major research grants, including the highly coveted nano-

technology grant from the National Cancer Institute. Dr. Oseroff passed away on October 16, 2008. He was universally known as a compassionate physician, gentle mentor, and caring colleague. We established an annual Photomedicine Lectureship in recognition of Dr. Oseroff's outstanding contributions to the BLI through his participation on the LAMMP external scientific Advisory Board for more than 10 years. The Oseroff Lecture is supported by the Chao Family Comprehensive Cancer Center, the Department of Dermatology, and the Laser Microbeam and Medical Program (LAMMP) of the Beckman Laser Institute (BLI), all affiliated with the University of California, Irvine.

Research on Two Fronts: Oral Cancer and Dental Decay

Dental Director Petra Wilder-Smith, D.D.S., Ph.D., has been working on a successful pilot study on hamsters on the use of a very common stain, toluidine blue (TBO), for the photodetection and destruction of oral cancer which is being funded by Zila Pharmaceuticals located in Phoenix, AZ. The long term goal is the development of a photodynamic approach to the early detection, diagnosis and eradication of oral dysplasia and malignancy. Optical techniques for non-invasive early detection, mapping and eradication of oral premalignant lesions and oral squa-



Dr. Petra Wilder-Smith

mous cell carcinoma offer many advantages and may benefit patients greatly. The specific aim of this study was to evaluate (1) photodynamic diagnosis and (2) photodynamic therapy in the hamster cheek pouch carcinogenesis model at specific grades of pathology using TBO and laser light at 633 nm. The study revealed that both diagnosis and treatment were very effective in early lesions. Various stages of this work were presented at three prestigious meetings: American Society of Clinical Oncology (ASCO), Academy of Head and Neck Surgery (AHNS), and International Association for Dental Research (IADR). In addition, undergraduate student Jessica Pharar won a travel grant to present her work at the 2008 annual meeting of the American

Society for Laser Medicine and Surgery (ASLMS). Jessica's abstract was entitled "Photoeradication of oral neoplasia using toluidine blue."

Dr. Wilder-Smith is also doing the primary research for Lantis Laser Inc., a new dental company based in Florida, to help validate and refine their imaging approach for the early detection of all dental pathologies but focusing initially on dental demineralization (pre-decay) and decay, especially in children, under sealants and around braces. Dr. Wilder-Smith's lab is doing FDA approval data for Lantis as well. A paper regarding this research, entitled "Optical coherence tomography-based detection of dental decay," has been accepted by the Journal of the American Dental Association for publication. ■

Honors and Awards

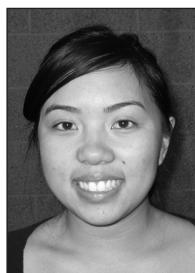
Amanda Lim



Abiomedical Engineering-Premedical Undergraduate Student Amanda Lim was named Researcher of the Month for January 2009 by the Undergraduate Research Opportunities Program (UROP). Amanda works in the BLI lab of Professor and Vice-Chairman of UCIMC Department of Otolaryngology-Head and Neck Surgery Brian Wong, M.D., which does research on the development of innovative cartilage reshaping techniques that are less invasive and less destructive to tissue integrity than current surgical procedures. She has been studying the changes in mechanical properties of the tissue resulting from application of one of these new tech-

niques, electroforming cartilage tissue through the use of electricity. Amanda's future plans include a career in medicine which will be "guided by the same principle as research: applying knowledge to improve the lives of others. By participating in the development of a new surgical procedure, I have witnessed the thorough screening of research data and methods for potential sources of concern that must be addressed before clinical application."

Jaclyn Barrera



Jaclyn Barrera

Jaclyn Barrera, an undergraduate student working in the lab of Dental Director Petra Wilder-Smith, won a student travel award from the American Society for Laser Medicine

and Surgery (ASLMS) to attend the 2008 annual meeting to present her abstract entitled "An optical approach to the temporomandibular joint disorder."

Henry Hirschberg, M.D., Ph.D.

Dr. Hirschberg, BLI Faculty Researcher and Professor Emeritus of Neurosurgery, University Hospital, Oslo, Norway, along with two other colleagues, Dr. Steen Madsen, Department of Health Physics, University of Nevada, Las Vegas, and Dr. H. Michael Gach, Research Imaging Facility, Nevada Cancer Institute, Las Vegas, has been awarded a grant from the Inter-institutional Biomedical Research Activities Fund, Nevada (IBRAF). The IBRAF grants are meant to support new projects in order to obtain preliminary data for a larger grant later on. Of 40 proposals submitted to IBRAF, only 5 were funded. The grant, entitled "Macrophage-mediated

(Honors continued on p. 8)

Initiative and Perseverance: Priceless

When one thinks of Mexico, visions of Puerto Vallarta and cruise ships might come to mind, but UCI undergraduate students Andrew and Diana Vu, brother and sister, had a different experience. They traveled to Mexico every month for 20 months, and it was not a vacation.

In Spring of 2006, Andrew was appointed the 2006-2007 Dental Chairman for the Flying Samaritan at UCI which is a student run organization that helps organize and provides free medical and dental care once a month to the rural community of El Testerazo, located in Baja California, Mexico, which lacks basic healthcare facilities to meet the needs of the population. While initially feeling honored and excited by the appointment, Andrew quickly realized that it was going to be very difficult to gain support from local dentists and the community. While his hopes for helping the people of El Testerazo were diminishing, he decided to take matters into his own hands and raise the money needed to improve the dental clinic.

Responding to an August 2006 e-mail

tember, he finished the proposal to study the effects of improving oral hygiene in an underserved community by providing patients with a comprehensive monthly educational program on maintaining proper oral hygiene and the social and economic implications associated with oral hygiene. At each monthly visit, various indices of oral health would be measured for each patient: oral hygiene, gingivitis, decay, missing teeth and fillings. At the end of each visit, all patients would receive a month supply of toothpaste, floss, toothbrush and mouthwash.

Before he could submit the proposal, Andrew faced another hurdle. He needed to find a dental faculty member at UCI to sponsor the project. For the next two weeks, he frantically asked administrators, counselors, and faculty members if they knew of any such person. One name kept coming up: BLI Dental Director Petra Wilder-Smith. After contacting her, she quickly agreed to sponsor the project and introduced Andrew

to Dr. Jae Ho Baek, a Visiting Assistant Researcher from South Korea at BLI. Eventually, Dr. Baek worked very closely with Andrew and the dental committee Andrew had formed and mentored them throughout the entire project. Over the next month, Drs. Wilder-Smith and Baek trained Andrew and the dental committee on how to record the dental indices. In January 2007, Andrew received his first

grant from UROP for the project. Once he received funding, he asked Diana if she wanted to help with the study. Because the study intrigued her and she would be able to work independently, she agreed. Over time, he was awarded three successive UROP fellowships which helped fund the study as well as becom-



Diana Vu signs up participants.

ing a 2007 Interdisciplinary Summer Undergraduate Research Experience Fellow.

After gaining sponsorship and funding, there were still more challenges. They came from the El Testerazo community. Initially, it was difficult to get people to volunteer their time. Once people realized Andrew was just trying to help as well as giving out free dental hygiene products, more volunteered. However, a new problem developed. It was difficult to get the same people to come every month so that proper data could be collected for the study. The people would come with their family and friends and not come again for three months because they had enough dental hygiene products to last a long time. So Andrew and Dr. Baek devised a plan to ensure people would return regularly. After consulting their budget, they offered a small financial incentive with the dental products and soon crowds of people were interested in participating in the study.

Now they had the participants, but a new obstacle was time and manpower. There was not enough time to see everyone who wanted to participate, and it was difficult to get other undergraduate students to commit fully to an 18-month study, especially one located in Mexico. While there were some volunteers committed to the project intermittently, it was often just Andrew and Diana working for hours non-stop, trying to see 30 or more participants each month.



Andrew Vu (center) assesses a dental patient.

from the Undergraduate Research Opportunities Program (UROP) offering students grants to fund independent research projects, he decided to apply for a grant to combine his technical knowledge gained as a Bio 199 research student with his public health experience from five visits to El Testerazo. By mid-Sep-

(*Initiative continued on p. 7*)

Wearing Your Heart on Your Face

You've heard the saying "Wear one's heart on one's sleeve" to describe someone who expresses emotions openly. Perhaps this maxim can some day be applied to a person's face. In a paper recently published in *Optics Express* entitled "Remote plethysmographic imaging using ambient light" (*Optics Express* 16: 21434-21445, 2008), BLI Scientist Wim Verkruyse, Ph.D., who works in the lab of BLI Associate Director J. Stuart Nelson, M.D., Ph.D., has demonstrated that an individual's heart rate can be measured on the human face from a distance using normal ambient light as the source and a simple digital, consumer level photo camera in movie mode. Analysis shows that reflectance in someone's face changes measurably with every heartbeat. Simply put, we blush slightly with every heartbeat.

Plethysmography (plethysmos = increase in Greek) measures volume changes and is often used to detect the cardiovascular pulse wave traveling through the body (as in pulse oxymetry). Possible future applications of ambient light photo-plethysmography may be sought in security (inconspicuous stress level detection) and combat triage (remote vital sign detection). With Professor of Pulmonary and Critical Medicine Matthew Brenner, M.D., Dr. Verkruyse is attempting to set up a study at the United States Army Institute of Surgical Research, Fort Sam Houston, TX, to find out if measurable signals are still present in hypovolemic subjects (e.g., wounded soldiers).

Medical applications at BLI are currently still investigative but preliminary results have been very intriguing. While

in normal facial skin, the heart 'wave' arrives simultaneously in all sites (the forehead and cheek seem to have the strongest signals), it has been found that in a couple of cases of port wine stain (PWS), the heart 'wave' is 'out of phase' with the waves in adjacent normal skin. In collaboration with Visiting Researcher Dr. Lars Svaasand and Dr. Nelson, Dr. Verkruyse is trying to establish why the wave arrives sometimes earlier and sometimes later in the PWS vessels. Possibly this can reveal something regarding vessel compliance (elasticity) or vessel diameter which can further characterize the vascular skin lesion and improve laser therapeutic outcome.

A copy of the paper can be accessed at: <http://www.opticsinfobase.org/oe/abstract.cfm?URI=oe-16-26-21434>. ■

Initiative (cont'd from p. 6)

The study was completed in June 2008, and there are plans for a future publication using the collected data. Andrew also graduated in June 2008 with a B.S. degree in Biological Sciences. He has been accepted to at least two dental schools but hasn't yet made a definite decision. Diana is a third year undergraduate student also majoring in Biological Sciences who joined Dr. Wilder-Smith's lab as a 199 research student in Fall 2008. She eventually plans to attend dental school, but she would like to first do more volunteering abroad. Andrew and Diana admit that this study was the most difficult thing they have done as undergraduates, but their reward was the satisfaction of being able to help people in need and personally experience their heartfelt gratitude accompanied by big smiles of clean white teeth.

For further information regarding the project, Diana Vu can be contacted at dianav@uci.edu. ■

Recent Publications

"Single-fiber optical tweezers and scissors enabled in-depth multi-functional micromanipulation of cells" by S. K. Mohanty, K. S. Mohanty and M. W. Berns in *Optics and Photonics News* 19: 42, 2008.

"Revisiting optical clearing with dimethyl sulfoxide (DMSO)" by A. K. Bui, R. A. McClure, J. Chang, C. Stoianovici, J. Hirshburg, A. T. Yeh and B. Choi in *Lasers in Surgery and Medicine* 41: 142-148, 2009.

"Remittance at a single wavelength of 390 nm to quantify epidermal melanin concentration" by W. Verkruyse, L. O. Svaasand, W. Franco and J. S. Nelson in *Journal of Biomedical Optics* 14: 014009-1-4, 2009.

"Image correlation spectroscopy of multiphoton images correlates with collagen mechanical properties" by C. B. Raub, J.

Unruh, V. Suresh, T. Krasieva, T. Lindmo, E. Gratton, B. J. Tromberg and S. C. George in *Biophysical Journal* 94: 2361-2373, 2008.

"Assessing the future of diffuse optical imaging technologies for breast cancer management" by B. J. Tromberg, B. W. Pogue, K. D. Paulsen, A. G. Yodh, D. A. Boas and A. E. Cerussi in *Medical Physics* 35: 2443-2451, 2008.

"Efficient, automated Monte Carlo methods for radiation transport" by R. Kong, M. Ambrose and J. Spanier in *Journal of Computational Physics* 227: 9463-9476, 2008.

"Spectral filtering for improved pulsed photothermal temperature profiling in agar tissue phantoms" by M. Milanic, B. Majaron and J. S. Nelson in *Journal of Biomedical Optics* 13: 064002-1-9, 2008.

HONORS AND AWARDS

(cont'd from p. 5)

delivery of nanoparticles for photothermal ablation of malignant gliomas," proposes a novel photothermal-based therapeutic approach to prolonging survival of patients with malignant brain tumors (gliomas).

Jae G. Kim, Ph.D.



Dr. Jae G. Kim

BLI Postdoctoral Fellow Jae G. Kim received a travel award from the National Institutes of Health (NIH) Countermeasures Against Chemical Threats (CounterACT)

meeting which was held at Washington, DC, on April 14-16, 2009. Dr. Kim has been working in the lab of Matthew Brenner, M.D., Professor of Pulmonary Medicine and Critical Care. Dr. Brenner received a 3 year grant from

CounterACT in 2008 (see BLI newsletter, Fall/Winter 2008) and also attended the meeting to present his work. This is the third annual meeting of all funded CounterACT investigators. Attendance to the meeting was limited, and travel awards were available to junior investigators, postdocs and graduate students to pay all travel costs to the meeting.

Petra Wilder-Smith, D.D.S., Ph.D.

Dental Director Petra Wilder-Smith has been funded as a sub-contractor on an R25 training grant with UCLA entitled "Recruitment, Mentoring and Empowering the Next Generation of Academic Dentists." The goal of the grant is to introduce Biomedical Engineering students to the field of dentistry as a career choice and to enhance collaborations to bridge the gap between clinical need and technology. Dr. Wilder-Smith was also named to help develop guidelines for the Prevent Cancer Foundation (CRPF) for their

online website regarding oral cancer. The guidelines are posted on the foundation's website under oral cancer: preventcancer.org.

Michael DeCoro



Michael DeCoro

Michael DeCoro, an undergraduate student working in the lab of Dental Director Petra Wilder-Smith, won a student travel award from the American Society

for Laser Medicine and Surgery (ASLMS) to attend the 2009 annual meeting in April and present his abstract entitled "Spectroscopy for the early diagnosis of oral cancer." The abstract was also judged as Best Student/Resident paper submitted in the Dental/Oral and Maxillofacial Surgery section.



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