



BECKMAN LASER INSTITUTE

NIH Shared Instrumentation Grant Awarded to Kristen Kelly, M.D.

Associate Professor of Dermatology Kristen Kelly has been notified by the National Institutes of Health (National Center for Research Resources) that her shared instrumentation grant entitled “Multiwavelength diode laser system for PDT” has been funded for 2010-2011.

As the Principal Investigator of the grant, she sought funds for a multi-wavelength photodynamic therapy (PDT) light source to be housed and supported within the Laser Microbeam and Medical Program (LAMMP) facility at the Beckman Laser Institute (BLI). The LAMMP facility is dedicated to defining and understanding broad issues related to the use of light as a diagnostic and therapeutic tool. BLI has been involved in developing, advancing and translating PDT science since the early 1980’s with a very strong foundation in technology development. But now, there is a need for a commercial, user-friendly multi-wavelength PDT light source in order to translate BLI technologies for patient use.

The investigators and research projects at BLI that will benefit from this grant are: Kristen Kelly, M.D., clinical evaluations of PDT for cutaneous vascular lesions; Zhongping Chen, Ph.D., pre-clinical and clinical evaluation of optical coherence tomography (OCT) for evaluation of PDT effects; J. Stuart Nelson, M.D., Ph.D., pre-clinical and clinical evaluations of PDT for hypervascular cutaneous anomalies; Matthew Brenner, M.D., pre-clinical evaluation of OCT to optimize PDT for lung cancer treatment; Bernard Choi, Ph.D., pre-clinical evaluation of PDT for cutaneous vascular lesions; Anand Ganesan, M.D., Ph.D., pre-clinical evaluation of PDT as a mechanism to activate autophagy and stimulate skin melanogenesis; Henry Hirschberg, M.D., and Bruce Tromberg, Ph.D., pre-clinical evaluation of PDT for malignant brain tumors; Petra Wilder-Smith, D.D.S., Ph.D., pre-clinical evaluation using OCT for optimizing PDT treatment of oral premalignant and malignant lesions; Anthony Durkin, Ph.D., and Kristen Kelly, M.D., clinical

goal of the project, entitled “The development of a low-cost, quantitative skin imaging camera,” is to take modulated imaging technology and develop a handheld camera akin to a digital-SLR. In addition to providing more accurate visual color assessment, this effort will transition a technology that provides quantitative biochemical information of the skin into an economical and less cumbersome device for research and development applications.

Honors and Awards

Anthony Durkin, Ph.D., and David Cuccia, Ph.D.

BLI Associate Professor Anthony Durkin and David Cuccia of Modulated Imaging, Inc., are Principal Investigators of a 2-year Phase I SBIR (Small Business Initiated Research) grant from the National Center for Research Resources (NCRR) branch of the National Institutes of Health (NIH). The broad

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SUMMER 2010



Kristen Kelly

evaluation of modulated imaging guided PDT of cutaneous cancers.

Dr. Kelly pointed out that this grant was a “BLI led UC Irvine team effort.” She also credited UCI faculty, Drs. Kenneth Chang (Department of Medicine) and William Armstrong (Department of Otolaryngology), as well as Dr. Thomas Foster of the University of Rochester, NY, who was the speaker for the first annual Allan R. Oseroff Photomedicine Lecture (<http://lammp.bli.uci.edu/video/?id=315>), for providing their support. ■

Jennifer Holtzman, D.D.S., D.P.H.

Jennifer Holtzman, who collaborates with BLI Dental Director Petra Wilder-Smith, received the Best Overall Basic Science award at the 30th Annual Meeting of the American Society for Lasers in Medicine and Surgery. The abstract was entitled “Ability of optical coherence tomography to detect caries beneath commonly used dental sealants.”

(Honors and Awards continued on p. 3)

“Conflict of Interest (COI)”

by **Michael W. Berns, Ph.D.**

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

What is conflict?

When I think of conflict, I think of Attila the Hun, the Middle East, and the 60's and 70's. But I have become increasingly aware of something called Conflict of Interest, or COI, as it is generally called. The National Institutes of Health (NIH) made headlines a few years ago when it was revealed that some of its high level scientists were receiving money from pharmaceutical companies as consulting fees, honoraria, or gifts, and at the same time, they may have participated in drug trials for these companies or were somehow involved in the evaluation of the drugs and devices for these same companies. A public brouhaha resulted, leading to an NIH investigation and a subsequent moratorium imposed by the NIH Director on consulting by many senior NIH scientists. These restrictions subsequently were relaxed in 2004 (*Scientific American*, November 25, 2004) because of the fear that top NIH scientists would defect to the private sector where they could have vastly greater compensation: a “fear” that has never really been supported with solid data. Not surprisingly, however, COI has become a major and growing concern in the academic sector because of the increasing involvement of faculty with private companies both with respect to the companies funding of the faculty research as well as through actual equity ownership in companies that either the faculty founded or through various capacities as consultants and members of scientific advisory boards – which often provide tens of thousands of shares of stock or stock options to the faculty member.

The question I have been asking myself these days is whether the Founders of the BLI were prescient in their vision of the Beckman Laser

Institute (BLI) as a place where basic research could be translated to practical applications with commercial value, or whether we were setting the stage for a “Pandora’s Box” that, when opened, would erode the principles of ethics and integrity, values that were paramount to the two co-Founders. This conundrum has been on my mind a lot lately and has motivated me to examine COI issues with the for-profit private sector in much greater depth. Of additional interest is the role that the federal government is playing in fueling the fire of COI by providing considerable amounts of funds for Small Business Innovation Research (SBIR) grants to companies defined by the Small Business Administration (SBA) as companies with 500 employees or less. As best can be determined by “mining” the SBA website (http://web.sba.gov/tech-net/public/dsp_search.cfm), the amount of dollars invested by the combined government agencies (NIH, National Science Foundation, Department of Defense, Department of Energy, etc.) reveals that for the five-year period 1995-2000, just for California alone, 686 awards totaling \$1.9 BILLION were awarded to companies with less than two employees (although there may be a glitch on this number in the SBA database). What is further intriguing, although the numbers are not easy to extract from the large database, is that entrepreneurial faculty have founded companies specifically for the purpose of garnering the SBIR money (which can be over \$750K for a phase II grant) as a sub-contract back to their own university labs. In this case, the “company” does not have a significant staff (maybe one or two employees), and the bulk of the work is actually done in the professor’s/Founder’s university labs. When the technology is mature enough, it may then be outsourced for production and, hopefully, successful commercialization. This seems like a very innovative way to

encourage and support new businesses, get new products on the market, and get more money to the university for market-driven research. It is a model that appears to be very supportive of the American free enterprise system. It is also the current model for the two BLI-spinoff companies that occupy space in the BLI Photonics Incubator – for which I am responsible. Therefore, it would be irresponsible of me not to reflect upon the issues of ethics and integrity in the context of COI and the companies that we are nurturing within the BLI.

At UCI, oversight of COI governed by State and Federal rules is the domain of the Conflict of Interest Oversight Committee (COIOC). The COIOC is the body charged with reviewing faculty COI and recommending to the Vice Chancellor for Research whether a conflict is “harmful” and, if so, what mitigation measures should be implemented. This could range anywhere from “no mitigation” to the faculty member being required to divest his/her equity interests and advisory and/or managerial roles in the company. It is also possible that mitigation of the COI might involve (a) establishing an oversight committee, (b) requiring the faculty member to divulge his/her interests in the company to his/her students who may be working on projects pertinent to the company’s interests, or (c) requiring that the faculty member (the company founder) not discuss or analyze the results of the student’s research with the student unless a third, non-involved party is present or only in group meetings with a non-conflicted person present. With these and other possible safeguards, it certainly appears research integrity could be preserved with substantial financial benefits to the university as well and stimulation of the small business sector. (*In future columns, I plan to examine additional issues related to managing COI and commercializing faculty inventions.*) ■

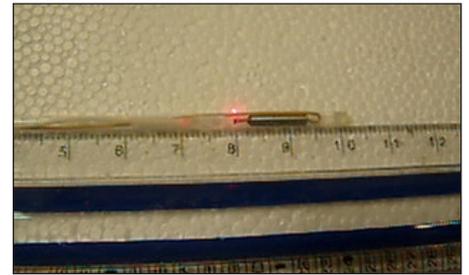
Development of an OCT-guided Surgical Laser for Smoking-related Cancers

Assistant Project Scientist Jun Zhang, Ph.D. (see Honors and Awards), along with co-investigator Matthew Brenner, M.D., were recently awarded a grant, entitled “High resolution imaging and ablation for smoke induced cancer,” from the Tobacco-Related Disease Research Program (TRDRP). Dr. Brenner, a pulmonologist, has been involved for several years in new optical imaging technologies for detecting lung cancer. The grant supports the development of optical coherence tomography (OCT), a high-resolution microscopic technique for imaging tissues using infrared light. Images can be obtained of tumors and other structures both on and for a small distance below the surface of living lung and airway tissue without the need to invade the tissue. OCT systems and computational methods have been pioneered in BLI Professor Zhongping Chen’s lab to store and display the information in three dimensions extremely fast so that OCT images can be seen immediately. Funding from this grant will be used to miniaturize and improve these systems for use in patients.

The research team plans on combining very high speed 3-D OCT imaging techniques with surgical lasers. This will

result in a system that will 1) provide very high definition, high speed, 3-dimensional imaging of lung, airway and other body tissues, 2) be very durable and able to help deliver the laser energy very precisely and accurately, 3) allow physicians to watch the progress of cancer tissue removal as it progresses, and 4) be small enough, and either flexible or rigid, to allow access to many different parts of the body with minimal or non-invasive surgical techniques.

Smoking and exposure to tobacco smoke has been shown to cause or increase the numbers of cases of several types of cancer. The risk of lung and airway cancer, cancer of the mouth, cancer of the voice box, esophagus (food pipe), bladder, and colon cancer are all linked to the use of tobacco products. Smoking causes 9 in 10 cases of lung cancer. Lung cancer has one of the lowest survival rates of all cancers and is the most common cause of cancer death in the United States. All forms of smoking-related cancers combined cause an estimated 450,000 deaths a year in the U.S. One of the most important ways to reduce the rate of death from smoking-related cancers is to recognize the earliest changes that occur to body tissues and organs so that these areas can be



Miniaturized OCT probe for endoscopic imaging measuring 1.5 mm in diameter and 9.4 mm in length.

treated. Advances in techniques that can provide real-time images of airway and lung tumors on and below the surface without the need for surgical removal of the suspicious area to confirm a diagnosis could potentially provide a major advance in the way very early lung cancer is diagnosed and treated. In addition, it would be extremely valuable if suspicious areas identified and confirmed to be cancerous or pre-cancerous by advanced imaging systems could be immediately removed by the use of very fast and effective laser surgery.

This work will have the potential to significantly improve treatments and results for patients with smoking-induced airway malignancy. Development of the OCT-guided surgical laser should then be applicable in the future to detect and treat tobacco-related cancers and pre-malignant lesions developing in many other tobacco-exposed regions including the GI and lower urinary tracts. ■

Honors and Awards *(cont'd from p. 1)*

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

BLI Dental Director Petra Wilder-Smith received the “2010 Chancellor’s Award for Excellence in Fostering Undergraduate Research” at the 17th Annual UCI Undergraduate Research Symposium held on May 15, 2010. The award is in recognition of her outstanding work in mentoring undergraduate students engaged in research. One faculty member from each school received this award.

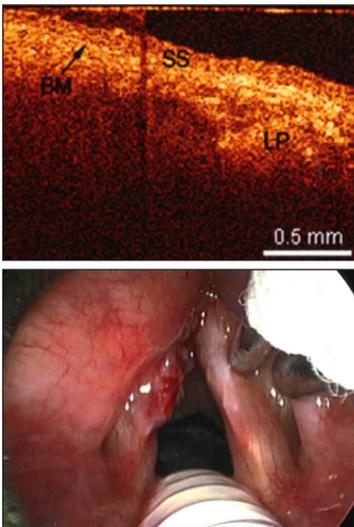
(Honors and Awards continued on p. 7)



Petra Wilder-Smith, winner of the 2010 Chancellor’s Award for Excellence in Fostering Undergraduate Research, with the students she mentored in the 2009-2010 academic year. From left to right: Katherine Wu, Jessica Pharar, Joseph Youssef, Dr. Wilder-Smith, Steven Duong, Diana Vu, Travis Tucker, Holly Aguigam and Michael Hoang.

On the Cover

Photos from the article, “Optical coherence tomography of the larynx using the Niris system” by Marc Rubinstein, M.D., Esther L. Fine, M.D., Ali Sepehr, M.D., William B. Armstrong, M.D., Roger L. Crumley, M.D., M.B.A., Jason H. Kim, M.D., Zhongping Chen, Ph.D., and Brian J. F. Wong, M.D., Ph.D., in *Journal of Otolaryngology-Head & Neck Surgery* 39: 150-156, 2010, were featured on the cover of the journal. Dr. Rubinstein is currently a Research Fellow for the Department of Otolaryngology-Head &



The two photos that were featured on the cover of the April 2010 issue of the *Journal of Otolaryngology-Head & Neck Surgery*: the photo on the top is an optical tomographic image of a healthy normal true vocal cord (BM = basement membrane; LP = lamina propria; SS = stratified squamous epithelium); the photo on the bottom is an endoscopic image showing the OCT probe being placed at the true vocal cord.

Neck Surgery at UCIMC and works in the BLI lab of Professor and Director of the Division of Facial Plastic Surgery in the UCIMC Department of Otolaryngology-Head & Neck Surgery Brian Wong. The article describes the first commercially available optical coherence tomography (OCT) device for use in the head, neck, and upper aerodigestive tract. Easily incorporated into the operating room and requiring minimal set-up and staff to operate, OCT imaging with this device potentially offers an efficient, quick, and reliable imaging modality in guiding surgical

biopsies, intraoperative decision making, and therapeutic options of various laryngeal pathologies and premalignant diseases.

COSMOS

California State Summer School for Math and Science (COSMOS) is a month-long residential program for high school students who have demonstrated exceptional talent in math and science. COSMOS, made possible by the California State Legislature through Assembly Bill 2536, Statutes of 1998, aims to create a community of students who participate in and contribute to an intensive academic experience delivered by distinguished educators and scholars. UC Irvine’s inaugural program was held in 2000, and since that time, nearly 1,500 students have benefited from the high-level instruction and the opportunity to make friends with students who share their own interests and goals. Beckman Laser Institute (BLI) Director Bruce Tromberg took part in this summer’s course by giving a lecture on translational science and technology entitled “Engineering Optical Technologies from Benchtop to Bedside.” After the lecture, Dr. Tromberg and BLI Adjunct Professor William Mantulin took the students on a tour of the BLI and showed them several labs and operating rooms.

Editor’s Choice

An article by Steen Madsen, Ph.D., a former BLI postdoctoral fellow and now Associate Professor and Chair, Department of Health Physics, at the



Steen Madsen

University of Nevada, Las Vegas, and BLI Research Professor Henry Hirschberg, M.D., Ph.D., entitled “Site-specific opening of the blood-brain barrier,” has been selected as “Editor’s Choice” in the June 2010 issue of *Journal of Biophotonics*. The blood-brain barrier (BBB) poses a significant

impediment for the delivery of therapeutic drugs into the brain. This is particularly problematic for the treatment of malignant gliomas which are character-



Henry Hirschberg

ized by diffuse infiltration of tumor cells into normal brain where they are protected by a patent BBB. Selective disruption of the BBB, followed by administration of anti-cancer

agents, represents a promising approach for the elimination of infiltrating glioma cells. A summary of the techniques (focused ultrasound, photodynamic therapy and photochemical internalization) for site-specific disruption of the BBB in rodents and rabbits is discussed in this review. Each approach is capable of causing localized and transient opening of the BBB with minimal damage to normal structures as evidenced from contrast enhanced magnetic resonance imaging and histology.

Visitors from TUPLS

Forty students from the Tokyo University of Pharmacy and Life Sciences (TUPLS) were taken on a tour of the Beckman Laser Institute by Postdoctoral Fellows Rolf Saager and Darren Roblyer on August 4, 2010, which was arranged by Michelle Ryan, Manager of Custom Designed International Programs at UCI Extension, with the assistance of BLI Administrative Assistant Junko Cora. Accompanied by TUPLS Professor of Molecular Biology Yuji Takahashi, Professor of Applied Linguistics Motofumi Kai and International Department Coordinator Kotaro Akachi, the students were at UCI for 3 weeks to study English and visit various facilities to learn about research, labs, and clinics in order to become better in their fields of study back in Japan. They were particularly interested in what types of collaborative projects international researchers are conducting.

(TUPLS continued on p. 6)

Deborah Birnie

Moving technologies from bench to bedside is one of the goals of researchers at the Beckman Laser Institute (BLI). As BLI Director Bruce Tromberg explains, the challenge is to expand technology development and early feasibility studies into clinical studies that standardize and validate new technologies and demonstrate clinical efficacy. Deborah Birnie, BLI Technology Transfer Manager, plays an integral part in translating leading-edge research advances into pragmatic devices.

Deborah manages the submission of records of invention for technologies developed at BLI. She coordinates with the Office of Technology Alliances to track the conversion of these disclosures to a provisional patent and then to a full patent application. Working closely with the BLI faculty and Patent and Licensing



Deborah Birnie

Officer for Biomedical Engineering Alvin Viray, she tracks the publications and activities that are related to the inventions. An additional part of her job requires working with the Chair of the Technology Transfer Committee, BLI co-founder Michael W. Berns, to coordinate efforts for leasing space in the Photonic

Incubator as well as managing the Technology Transfer database and tracking its activities.

In between these duties, Deborah assists Development Director Erin Miller with fundraising, annual report submissions, and conferences. Her competence and calm demeanor is appreciated by all with whom she works.

In addition to her duties at BLI, Deborah, with a degree in biology, also teaches part-time in the Life Sciences Department at Golden West College (a community college located in Huntington Beach). Residing in Westminster with her 3-year old Bouvier des Flandres dog, Aggie, Deborah enjoys walking on the beach, camping, reading, gardening, and training Aggie for agility and herding exercises. Most of all, she enjoys cooking gourmet meals with friends and collecting special wines to go with those meals. ■

Selected Recent Publications

“Determination of optical properties of turbid media spanning visible and near-infrared regimes via spatially modulated quantitative spectroscopy” by R. B. Saager, D. J. Cuccia and A. J. Durkin in *Journal of Biomedical Optics* 14: 017012, 2010.

“Preliminary investigation on use of high-resolution optical coherence tomography to monitor injury and repair in the rat sciatic nerve” by C. A. Chlebicki, A. D. Lee, W. Jung, H. Li, L.-H. Liaw, Z. Chen and B. J. Tromberg in *Lasers in Surgery and Medicine* 42: 306-312, 2010.

“Frequent optical imaging during breast cancer neoadjuvant chemotherapy reveals dynamic tumor physiology in an individual patient” by A. E. Cerussi, V. W. Tanamai, R. S. Mehta, D. Hsiang, J. Butler and B. J. Tromberg in *Academic Radiology* 17: 1031-1039, 2010.

“Multimodal CARS microscopy determination of the impact of diet on macrophage infiltration and lipid accumulation on plaque formation in ApoE-deficient mice” by R. S. Lim, A. Kratzer, N. P. Barry, S. Miyazaki-Anza, M. Miyazaki, W. W. Mantulin, M. Levi, E. O. Potma and B. J. Tromberg in *Journal of Lipid Research* 51: 1729-1737, 2010.

“Long-term blood vessel removal with combined laser and topical rapamycin antiangiogenic therapy: implications for effective port wine stain treatment” by W. Jia, V. Sun, N. Tran, B. Choi, S. W. Liu, M. C. Mihm, Jr., T. L. Phung and J. S. Nelson in *Lasers in Surgery and Medicine* 42: 105-112, 2010.

“Optical methods in vascular biology and medicine” by B. Choi, T. L. Ringold and J. Kim in *Journal of Biomedical Optics* 15: 011001, 2010.

“Near-infrared imaging of the sinuses: preliminary evaluation of a new technology for diagnosing maxillary sinusitis” by U. Mahmood, A. Cerussi, R. Dehdari, Q. Nguyen, T. Kelley, B. Tromberg and B. Wong in *Journal of Biomedical Optics* 14: 036011, 2010.

“Lookup-table method for imaging optical properties with structured illumination beyond the diffusion theory regime” by T. A. Erickson, A. Mazhar, D. Cuccia, A. J. Durkin and J. W. Tunnell in *Journal of Biomedical Optics* 15: 036013, 2010.

“Geometric convergence of second generation adaptive Monte Carlo algorithms for general transport problems based on correlated sampling” by R. Kong and J. Spanier in *International Journal of Pure and Applied Mathematics* 59: 435-455, 2010.

Developing a Prototype for Expanding Biomedical Technology

Through the support of a National Institutes of Health (NIH) Small Business Innovation Research grant (SBIR), “Modulated imaging: a wide-field optical imaging platform for clinical research,” Modulated Imaging Inc. (MI Inc.) has spent the last year developing a robust, clinically friendly version of the modulated imaging instrument originally invented and built at the Beckman Laser Institute (BLI). Funding for the SBIR is provided by the National Center for Research Resources (NCRR), under a program that is designed specifically to stimulate the dissemination and commercialization of biomedical technologies developed in academic labs. Dr. David Cuccia (Chief Technology Officer of Modulated Imaging Inc.) and BLI Associate Professor Anthony Durkin are both Principal Investigators on the award.

They have developed a user-friendly modulated imaging platform capable of quantitative imaging of localized events at depths of several millimeters in thick tissues. This platform enables quantitative insight into disease progression and therapeutic response in areas such as wound healing, dermatology, skin cancer and reconstructive surgery. The new prototype features all board level components, LED-based illumination, and



Anthony Durkin (left) and David Cuccia, who is holding a prototype of the modulated imaging instrument.

optimized optics housed in a robust aluminum framing. Compared to previous embodiments of the instrument, the new prototype is significantly smaller as well as sturdier, making it more easily deployable for studies at a number of clinical locations. To assist with clinical measurements, the prototype simultaneously captures a color photograph that is co-registered with the acquired measurement image. To realize the goal of making a truly turn-key system, Dr. Cuccia is developing robust, user-friendly controller software to acquire and process targeted tissue data. In the second year of the grant, the prototype’s performance will be evaluated in the clinical setting under the supervision of Dr. Durkin. Instrument development through this grant is already increasing access to the

technology both here at BLI as well as with collaborators at other institutions. Subcomponents of the designed system have found their way to Boston, MA, where they have been incorporated into an instrument built in a collaboration among MI Inc., BLI, and Beth Israel Deaconess Medical Center, a teaching hospital of Harvard Medical School. More recently, four instruments based on the prototype design have been fabricated for researchers at BLI and Dartmouth University.

Further advances in this technology that will result in a compact, handheld device are now funded by a new grant, “The development of a low-cost, quantitative skin imaging camera,” awarded to Drs. Cuccia and Durkin by NCRR (see Honors and Awards). ■

TUPLS *(cont'd from p. 4)*

TUPLS is a private university that offers graduate and undergraduate programs. The School of Pharmacy, established in 1880, is the oldest pharmaceutical institution in Japan. The School of Life Sciences was established in 1994 with the goal of educating students to become researchers and technicians in the fields of Life Sciences and Biotechnology. ■



Students and faculty from the Tokyo University of Pharmacy and Life Sciences at the BLI entrance with Michelle Ryan and Drs. Rolf Saager and Darren Roblyer.

Arrivals and Departures

ARRIVALS

Alexis Furze, M.D., has joined Dr. Brian Wong as his Facial Plastic Surgery Fellow. Dr. Furze will also be collaborating with Medical Director J. Stuart Nelson.

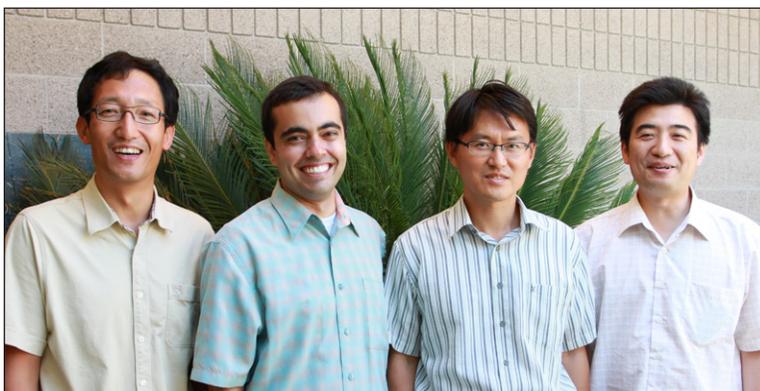
James Homan, B.S., a recent graduate of the UCI Department of Developmental and Cell Biology, has joined Dr. Bernard Choi's group as a Junior Specialist.

Dongjo Hwang, M.D., Ph.D., a Visiting Researcher from Doori ENT Network of Korea and the Laser Institute at Dankook University, will be working with Dr. Brian Wong focusing on cartilage reshaping.

Jae Myoung Lee, Ph.D., a Visiting Researcher from the Department of Electronics, Korea Polytechnic University, is working with Dr. Zhongping Chen on optical coherence tomography (OCT).

Seyed Ata Sharif, M.D., will be working as a postdoctoral scholar in the labs of Drs. Bernard Choi and Anthony Durkin. He has a degree in Medicine from Kerman University of Medical and Health Sciences, Kerman, Iran.

Victor Sun, B.S., a recent graduate of the UCI Department of Biomedical Engineering, has been hired as a Junior Specialist and will work with Drs. J. Stuart Nelson and Wangcun Jia.



From left to right are Dongjo Hwang, Seyed Ata Sharif, Jae Myoung Lee and Wenbin Tan.

Wenbin Tan, M.D., Ph.D., a post-doctoral fellow from the Department of Neurobiology and Neurophysiology at UCLA, will be working in Medical Director J. Stuart Nelson's lab on modulation of biological response of blood vessels to laser irradiation.

James Yeh, B.S., a recent graduate of the UCI Department of Neurobiology, has joined the lab of Dr. Bernard Choi as a Junior Specialist.

Seung Kuk Baek, M.D., Ph.D., who worked with Drs. Brian Wong and Henry Hirschberg, has returned to Korea University College of Medicine, Seoul, Korea.

Christopher ("Kit") Curtis, Senior Administrative Analyst, has moved to Georgia where his wife has taken a post-doctoral position in the Department of Cellular Biology at the University of Georgia.

Jessica Pharar, who did undergraduate research with Dental Director Petra Wilder-Smith, is attending dental school at the University of Nevada, Las Vegas.

Timothy Quang, a Biomedical Engineer in Professor Bruce Tromberg's lab, is attending graduate school in Biomedical Engineering at Rice University, Houston, Texas.

DEPARTURES

Chehabi Fellow **Amr Alyafi, M.D.**, who worked in the lab of Dr. Anthony Durkin, is now a physician resident at the Department of Internal Medicine, Akron General Medical Center, Akron, Ohio.

Honors and Awards *(cont'd from p. 3)*

Wangcun Jia, Ph.D.

BLI Assistant Research Professor Wangcun Jia received the Dr. Horace Furumoto Innovations Professional Development Award at the 30th Annual Meeting of the American Society for Lasers in Medicine and Surgery. The purpose of this award is to foster future technology innovators and leaders and to inspire their continued professional development through financial assistance.

Jae G. Kim, Ph.D.

BLI Postdoctoral Fellow Jae G. Kim received a Junior Investigator Travel Award to attend the National Institutes of Health (NIH) Countermeasures Against Chemical Threats (CounterACT) meeting held at San Francisco, CA, on June 21-24, 2010. Dr. Kim presented a poster entitled "Respiratory challenges to detect cyanide toxicity extent in a sublethal rabbit model." Dr. Kim's work was done in the lab of Matthew Brenner, M.D.,

Professor of Pulmonary and Critical Care.

Darren Roblyer, Ph.D.

Darren Roblyer, a Postdoctoral Fellow in BLI Director Bruce Tromberg's lab, has received a 3-year Postdoctoral Fellowship

(Honors and Awards continued on p. 8)

BLI Newsletter Staff

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Honors and Awards *(cont'd from p. 7)*

Award from the Department of Defense Congressionally Directed Medical Research Programs, Breast Cancer Research Program, for "Predicting pathological response within the first week of neoadjuvant chemotherapy using functional parameters measured with Diffuse Optical Spectroscopic Imaging (DOSI)."

Brian J.F. Wong, M.D.



Brian J.F. Wong

Professor and Director of the Division of Plastic Surgery in the UCIMC Department of Otolaryngology-Head and Neck Surgery Brian

Wong was awarded an R01 grant from the National Institutes of Health (NIH) for "Diagnosis of subglottic stenosis and edema in neonates using OCT."

Jun Zhang, Ph.D.



Jun Zhang

Assistant Project Scientist Jun Zhang has been awarded a 3-year New Investigator Award from the Tobacco-Related Disease Research Program (TRDRP) for "High resolution imaging and ablation for smoke induced cancer." BLI Professor and Chief of Pulmonary and Critical Care Medicine (UCIMC) Matthew Brenner, M.D., is co-investigator on the grant. Dr. Zhang also works in Professor of Biomedical Engineering Zhongping Chen's lab.

Diana Vu

Diana Vu, an undergraduate student in Biological Sciences, was a recipient of a "2010 Chancellor's Award for Excellence in Undergraduate Research" at the 17th Annual UCI Undergraduate Research

Symposium held on May 15, 2010. Diana, who works in the lab of Dr. Petra Wilder-Smith, received her award for "Spectral characterization of dental demineralization and decay."

Charles Stoianovici



Charles Stoianovici

A paper entitled "Assessment of pulp vitality using laser speckle imaging" submitted to the 30th annual meeting of the American Society for Laser Medicine and Surgery by Charles Stoianovici, an undergraduate student in the Department of Chemistry, was selected as the Best Student/Resident paper in the Dentistry/Oral and Maxillofacial Surgery section. Charles' research is under the joint supervision of BLI Dental Director Petra Wilder-Smith and Assistant Professor of Biomedical Engineering Bernard Choi.