Camarero R01 is also a “Transformative” grant

Julio Camarero is awarded a five-year $1.25 million research grant from the new NIH Transformative Research Program for his research that aims to discover a viable antibody substitute.

According to the NIH, the Transformative Research grants are “intended to support research that has the potential to transform the way we think about and conduct science” and are given to an “elite few with truly bold ideas.” Only 42 scientists nationwide received the award.

Another USC awardee is Richard Roberts, professor of chemistry and chemical engineering. For more on this article, please click here; for more on Camarero go to p.4.

Brinton R01 grant is renewed

Roberta Diaz Brinton's grant project entitled, "Estrogen-Induced Neuroprotective Mitochondrial Mechanism," has been renewed by the National Institute of Aging-NIH for another five years, August 1, 2009 to July 31, 2014 with a total award of $1,662,379.

The project will investigate estrogen regulation of mitochondrial function as healthy mitochondria are key to sustaining neurological function and preventing neuro-degenerative disease. More on p.5; for more on Brinton, please go to p.3, p.4.

Shih-Kinder DVD-ROM project translated to Mandarin

The interactive DVD-ROM entitled, “A Tale of Two MAO Genes: Exploring the Biology and Culture of Aggression,” has been translated to Mandarin by the Chinese Academy of Science and Beijing Public Science Education Department. For a related article please click here; for more on Shih, please go to p.5., p.6.
Department of Pharmacology and Pharmaceutical Sciences

Faculty Roster
Sarah Hamm-Alvarez, Gavin S. Herbert Professor, Associate Dean for Research Affairs and Chair
James Adams, Associate Professor
Ronald Alkana, Professor & Associate Dean for Graduate Affairs and Curricular Development
Marco Bortolato, Research Assistant Professor
Roberta Brinton, Professor & R. Pete Vanderveen Chair in Therapeutic Discovery and Development
Enrique Cadenas, Professor
Julio Camarero, Associate Professor
Timothy Chan, Dean Emeritus & Professor
Kevin Chen, Research Associate Professor
Roger Duncan, Associate Professor
Ian Haworth, Associate Professor
Juliana Hwang, Research Assistant Professor
Andrew MacKay, Assistant Professor
Nouri Neamati, Associate Professor
Curtis Okamoto, Associate Professor and Vice-Chair
Igor Rebrin, Research Assistant Professor
Rebecca Romero, Lecturer
Wei-Chiang Shen, John A. Biles Professor
Jean Shih, University Professor, Boyd & Elsie Welin Professor
Rajinder Sohal, Timothy M. Chan Professor
Bangyan Stiles, Assistant Professor
Clay Wang, Associate Professor
Walter Wolf, Distinguished Professor
Liqin Zhao, Research Assistant Professor

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Statement by the Chair

Dear colleagues,

Our report on our busy and productive summer is a bit late but when you view the many activities highlighted in the newsletter, you will understand why! We hosted many undergraduate, professional and graduate fellows this summer as part of individual and institutional collaborative efforts between partner universities. My thanks go out to all of the faculty who participated in this outreach effort, as well as those who participate each year in the STAR program for high school students, also featured in the newsletter. We again can report success for our PPSI graduate students in competing for prestigious graduate fellowships. Highlighted in this newsletter on p. 1 are Jennifer-Ann Bayan, Bobby Mo, Tino Sanchez and Jia Yao.

One of the most notable grant achievements to recognize was the receipt by Professor Julio Camarero of a “Transformative” RO1 award which resulted from his first NIH grant submission from USC as a faculty member. Many other faculty members were successful with renewal applications as featured throughout the newsletter. Almost all PPSI faculty were actively (one might say, frantically) engaged in grant writing for most of the late spring and summer, as we sought out the many additional opportunities available through the American Reinvestment and Recovery Act, through the National Institutes of Health. My congratulations go out to all who applied for ARRA funds and engaged in this effort; since many award categories were highly competitive, only a handful of the hundreds of submissions that were received were funded in many categories. My heartfelt thanks also go out to our excellent staff who aided us in getting all of these grants out the door while making sure the department ran smoothly at the same time. While individual awards are highlighted in the newsletter, I am proud to report that the department accrued over $2 million in additional funding from these ARRA efforts.

You will note that the two former graduates reporting on their careers post-USC in this newsletter, Chioma Ikonte and Alfredo Sancho, are former students of Professor Walter Wolf. Their success, as well as the success of other Wolf trainees, reflects the devotion and attention that Professor Wolf has provided over the course of his career as an educator and researcher to his students at USC. It is fitting that I then ask you to join me in sincere congratulations to Professor Wolf this fall on the occasion of his 50th year at the University of Southern California. Professor Wolf’s many contributions to the vitality and growth of the university and School of Pharmacy will be celebrated by current and former students, faculty and staff on November 7 at a special banquet hosted by Dean Pete Vanderveen.

For those of you attending the AAPS meeting, we hope to see you at the Moving Targets symposium produced by our AAPS Student Chapter on November 7 at the Radisson Hotel, Midtown, and also at the Department’s reception on November 9 at 5:30 PM at the Westin Bonaventure.

I wish you all a productive and pleasant fall season.

Acknowledgement

A heartfelt “thank you” to SYEDA AHMED, RUTH BALLARD, WADE HARPER, MARTHA HERNANDEZ, KATHI HORGAN, LIZ GONGORA, LINDA JANKINS, CLAUDIA LOPEZ, JOSIE MORALES, KUKLA VERA, LIQIN ZHAO

for all their help in this issue.
PROMOTION AND APPOINTMENT
Sarah Hamm-Alvarez, Curtis Okamoto

Dean Pete Vanderveen recently announced the appointment of Sarah Hamm-Alvarez as the Associate Dean of Research Affairs for the School of Pharmacy effective July 1, 2009. Hamm-Alvarez who is the Gavin S. Herbert professor of pharmaceutical sciences is also the Chair of the Department.

In conjunction with this appointment, Curtis Okamoto, associate professor of pharmacology and pharmaceutical sciences, has been appointed the Vice Chair of the Department, to assist in the smooth running of the department and to help maintain strong visibility for PPSI and its activities on the USC campus.

Faculty Mini-Retreat

The faculty mini-retreat held on July 14, 2009 to discuss the graduate program also became the occasion to celebrate jointly the promotions of Drs. Hamm-Alvarez, Okamoto and Clay Wang (to associate professor; reported on the May 2009 newsletter issue).

GRANT AWARDS

- **Ron Alkana** has been awarded a $58,859 supplement to support graduate student, Letisha Wyatt, as a graduate assistant in his lab. The grant will allow Wyatt to contribute to the work of the Alkana and Davies labs in the pursuit of finding new approaches to prevent and treat alcohol-related problems. This award was made by the National Institute of Alcohol Abuse and Alcoholism (NIAAA).

- An ARRA Award (Individual Dissertation Award) grant proposal entitled, “Cross-talk between mesenchymal cells and beta-cells during islet regeneration,” to Jennifer-Ann Bayan has been funded by NIH for the period August 2009 to June 2011 for $72,000. Jennifer-Ann’s mentor is Bangyan Stiles.

- **Roberta Brinton**’s U01 grant proposal entitled, “Development of Allopregnanolone as a Neurogenic Regenerative Therapeutic” was awarded $310,220.

- The project entitled, “Ad5 fiber Entry and Trafficking in Lacrimal Acini” of Sarah Hamm-Alvarez and co-investigator, Andrew Mackay, was given a supplemental award for $408,692. Their study will further the research efforts to find ways to best deliver medications to the eye.

- **Nouri Neamati**: 
  - R21 proposal entitled, “Inhibition of HIV-1 Integrase-LEDGF /P75 Interactions” has been funded for $442,259. This study will enhance his lab’s efforts to inhibit the HIV-integrase protein.
  - Awarded $82,352 to supplement research on methods of inhibiting the HIV-1 integrase protein.

- An F31 (Individual Predoctoral Fellowship) grant proposal entitled, “Design and Discovery of HIV-1 Integrase Inhibitors with a Novel Mechanisms of Action,” of Tino Sanchez has been funded by NIH for the period August 2009 to August 2011 for $42,000. This is the second award Tino received this school year. The first one was a salary-based Dissertation Award by the California HIV/AIDS Research Program, a two year funding of $50K. Tino’s mentor is Nouri Neamati.

- **Clay Wang** is awarded $281,788 grant to continue research on his project entitled, “Mining the Aspergillus Nidulans Secondary Metabolome.”
OTHER FACULTY HIGHLIGHTS

James D. Adams
- Hosted “A day of Chumash wisdom” at the Arroyo Hondo Preserve, Santa Barbara, October 10, 10am - 4pm.
- On the KPFA Radio (Berkeley) morning show on September 22, 2009 talking about Chumash healing.
- Quoted in the LA Times, September 7, 2009, under the column of Marc Siegel, “The Unreal World,” as he examined the veracity of the TV series, The Cleaner, in one of its episode, Cinderella; Dr. Adams was one of the experts analyzing the medical questions on drugs use, its abuse and addiction.
- Featured in the Ventura County Star newspaper in connection with Chumash Healing, July 15, 2009.

Julio Camarero
- Guest Editor for a special issue of Advanced Drug Delivery Reviews, the top rated Drug Delivery review journal with an impact factor >8. The latest issue edited by Julio Camarero is entitled “Optimizing the Future for Biotechnology Therapies, the Key Role of Protein Engineering.” Dr. Camarero developed this issue, which includes his own review and commentary as well as eight other reviews from other top scientists in the field. (click for website)
- Presented the topic on the biosynthesis of cyclotides in bacterial cells for the creation of genetically-encoded libraries to be used in drug discovery, in the Peptide-Chemistry and Biology Session of the 11th International Congress on Amino Acids, Peptides and Proteins, held in Vienna, Austria (August 3-7, 2009). Scientifically speaking, the conference proved of great value to Dr. Camarero as he was able to talk to colleagues and exchange new ideas. “We also had the most beautiful reception I ever experienced at the Vienna City Hall,” he added.
- Talked about the use of cyclotides as molecular scaffolds for the design of new microbial antivirulence agents, during the session on Biotechnological Solutions to Global Security: Antibiotics for Combating Infectious Diseases at the 238th ACS (American Chemical Society) National Meeting that was held in Washington DC on August 16-20, 2009.

Robert Brinton
- Presented with the 2009 North American Menopause Society (NAMS)/ Wyeth Pharmaceuticals SERM Award, at the NAMS 20th Annual meeting in San Diego, September 30-October 3.
- Installed as a member of the Board of Councilors for the Society of Neuroscience.
- Appointed to the Scientific Council for the National Institute of Mental Health.

Enrique Cadenas
- An invited guest to an exclusive dinner at the Piazza Venezia Palace honoring Luc Montagnier, Nobel Prize winner in Medicine or Physiology 2008 for his discovery of human immunodeficiency virus (HIV)-Aids, during the SFRR-E (Society of Free Radical Research-Europe) meeting in Rome, Italy, on August 26-29, 2009. At the meeting, Dr. Cadenas gave a presentation entitled, “Metabolic pathways and oxidative stress on brain again and neurodegeneration.”
- Lectured on the metabolic targets in a model of Alzheimer’s disease: effects of lipoic acid at the 7th Costam/SFRR (Asia/Malaysia) International Workshop on Chemoprevention and Translational Research, 9-12 July 2009, Langkawi, Malaysia.

Sarah Hamm-Alvarez
- Attended a collaborative research meeting at the University of California, Berkeley, School of Optometry on July 16-19, 2009.
- Attended the GCMB Retreat, July 31, 2009.
- Attended the Governing Board Meeting and Planning Session of the Tear Film & Ocular Surface Society (TFOS) in Florence, Italy on September 2-8, 2009, to plan for the 2010 TFOS Annual Meeting.

Igor Rebrin
- Visited the Department of Biological Sciences, Dedman College, Southern Methodist University, Dallas, Texas and Department of Pharmacology & Neuroscience, University of North Texas Health Science Center, Fort Worth, Texas last May 2009 and gave two invited seminars on the topic of recently discovered novel posttranslational modification of proteins – “Tryptophan Nitration in Mitochondrial Enzyme Succinyl-CoA-Ketoacid CoA Transferase (SCOT) During Aging and Effects of Caloric Restriction”.

(more Faculty Highlight in p.5)
Annual Faculty Dinner

The annual faculty dinner was held at The Langham Huntington Hotel & Spa in Pasadena on Friday, June 12, 2009. This is an annual mixer for faculty and their significant others to mingle and discuss the past year and future events in a party atmosphere. A great event to unwind!

Pat Levitt, Provost’s Professor of Medicine and Pharmacy

Pat Levitt is a Provost’s Professor of Medicine and Pharmacy. An eminent neuroscientist, he directs the Zilkha Neurogenetic Institute at the Keck School of Medicine. He oversees Zilkha’s efforts to understand the genetic and environmental basis for brain diseases, including autism, while fostering collaborations among the Keck School, School of Pharmacy, and the Center for Genomic Psychiatry. For more on Levitt click here.

OTHER FACULTY HIGHLIGHTS (from p.4)

Curtis Okamoto
- Chaired the symposium at the International Union of Physiological Scientists last July 27-August 1, in Kyoto, Japan.

Jean C. Shih
- Funding of R01 grant entitled, “Two Types of Monoamine Oxidase”, has been fully restored to 100%. The total award for five years, covering the period from December 29, 2008 to November 30, 2013, is $2,030,563.

Rajindar Sohal
- Featured on CBS News (Canada) discussing his studies on caloric restriction, July 16. For more on this coverage, click here.

Walter Wolf
- Walter Wolf, PhD, awarded grant from the James H. Zumberge Research and Innovation Fund for activities related to project entitled "Development of Health Information Technology".
- Participated in a study section for the National Cancer Institute reviewing science-oncology center proposals, June 29-30.

Brinton (from p. 1)

The demographic group predicted to benefit most from the study are postmenopausal women who account for 68% of all victims of Alzheimer's disease. Results of these investigations will advance knowledge of estrogen action in brain mitochondria and its impact on development of neurodegenerative pathology. These findings could provide biomarkers of mitochondrial function and elucidate strategies to intervene at the earliest stages of dysregulation to prevent mitochondrial dysfunction and development of Alzheimer’s disease in the major victims of the disease, postmenopausal women. For more on Brinton’s research click here.
Jason Wu represented mentor in SCBA Symposium

Boyang “Jason” Wu represented his faculty mentor, Jean C. Shih, during the 2009 SCBA (Society of Chinese Bioscientists of America) International Symposium held at the Academia Sinica, Taipei, Taiwan on June 15-18, 2009. Dr. Shih was indisposed and could not attend the meeting. Jason accepted the 2009 SCBA Lifetime Achievement award for Dr. Shih, and on her behalf also gave a 10-minute short presentation to introduce the DVD entitled “A Tale of Two Genes: Exploring the Biology and Culture of Aggression and Anxiety,” an interactive DVD based on Dr. Shih’s over thirty years of pioneering research on a crucial pair of brain enzymes, monoamine oxidase (MAO) A and B. Both MAO A and B genes influence our behavior and moods through the regulation of neurotransmitter levels in the brain.

The DVD is co-produced with Professor Marsha Kinder from the School of Cinema Arts.

The Mandarin version of the DVD was displayed at the meeting and 300 copies were given out to the attendees of 1500+.

Robert Mo, AFPE awardee

Robert “Bobby” Mo is another graduate student of the department who has recently been awarded a 2009-2010 American Foundation for Pharmaceutical Education (AFPE) Pre-doctoral Fellowship. The other two first time recipients are Letisha Wyatt and James Sanchez.

Bobby is currently a Ph.D. candidate in Wei-Chiang Shen’s laboratory. The title of his research project is “Design of siRNA Polyplex for Enhanced Cellular Uptake.” His work focuses on the improvement of cytoplasmic delivery of a novel siRNA polyplex grafted with either cell-penetrating peptides or lipids as transport moieties.

Bobby graduated from Columbia University with a B.S. in Biomedical Engineering. He joined the Graduate Program in the Department of Pharmaceutical Sciences in Fall 2006 as a recipient of a two-year Dean’s Fellowship. Besides study and research, Bobby is also very active among the graduate student community. He has served as President of the Pharmacy Graduate Alliance (PGA) since Fall 2007 and Treasurer of the USC Student Chapter of the American Association of Pharmaceutical Scientists (AAPS) since Fall 2006. He has also represented the School of Pharmacy as a senator in the USC Graduate and Professional Student Senate (GPSS), and was awarded Senator of the Month in March 2008 and Outstanding Senator for 2008-2009.

Bobby was inducted into the Honor Societies of Rho Chi (Pharmacy) and Phi Kappa Phi (USC) in Spring 2009.

Jia Yao is Krown Fellow, 2009-2010

Jia Yao, a Ph.D. student in the lab of Roberta Diaz Brinton is the recipient of the Charles and Charlotte Krown Fellowship this year. The talk he presented earning him this award is entitled, “Mitochondrial Function and Alzheimer’s Disease. What’s gender got to do with it?”

The Krown Fellowship recognizes the senior graduate student whose excellence in academic and research achievement ranks foremost among the graduate students in the School of Pharmacy. The award consists of a $10,000 prize that provides a discretionary fund to the winner as well as partial stipend support.

In addition, Jason presented a poster at the meeting

entitled “Monoamine Oxidase A, a Novel Neural Target Gene for SRY (sex-determining region on the Y chromosome),” a study in collaboration with Dr. Chris Lau from the University of California, San Francisco.
Best TA/RA Awards for PPSI grad students

Shown with their certificates as among the best of the Teaching and Research Assistants at the School of Pharmacy are (L-R): Shili Xu, Divya Pathania, Kavya Ramkumar (all from the lab of Nouri Neamati), James Sanchez (Clay Wang Lab), and Lilian Chiang (Sarah Hamm-Alvarez Lab).

Welcome Reception

Curtis Okamoto, facing the students, is intently talking to the new graduate students while Roger Duncan, far left, is looking and listening.

Welcome

TO OUR INCOMING GRADUATE STUDENTS

Yu-Sheng Chen  Daniel Diaz
Asma El-Magboub  Chunjun Guo
Qizhi Hu  Ting Liu
Dimple Modi  Siti Mohd Janib
Ara Moses  Caner Nazli
Martha Pastuszka  Ling Ren
Chelsea Robertson  Mihir Shah
Ruchi Shah  Nidhi Sharda
Li Yang  Megan Yardley
Where are they now?

**ALFREDO R. SANCHO**

I came to the University of Southern California (USC) in late 1993 after submitting my name for a winter session internship for Los Angeles Unified School District (LAUSD) teachers to improve their science skills and knowledge in the various labs at USC School of Pharmacy. At the time, I was working as a bilingual science inner city school teacher at Bravo Medical Magnet school, just a couple blocks from USC School of Pharmacy. Luckily for me, Dr. Walter Wolf needed someone with cell and tissue biology background to work on his cancer drug delivery multidisciplinary team. I brought to his team the cell and tissue biology knowledge based on my work experience in addition to a Masters degree in Biology (Human Parasitology) and a Biology Bachelors degree, both from California State University, Dominguez Hills. Up to that date, I had never heard of pharmacokinetics (PK), pharmacodynamics (PD) or non-compartmental/compartmental modeling of drugs, much less of PK-imaging. I successfully completed the winter internship supporting Dr. Wolf’s team. As with all his students, this brief but intense internship, led to a lifelong relationship with Dr. Wolf, first as student-professor, followed by mentee-mentor, then as collaborators, and finally as friends.

I applied and was admitted to the Doctoral program at USC under the mentorship of Dr. Wolf and guidance from Dr. David Z. D’Argenio, Dr. Mambir Singh, and others. The support from the USC School of Pharmacy staff, most notably Ms. Elena Camarena and Ms. Nora Nora Ibarra, was remarkable and allowed me to focus on my coursework and research. Most importantly, the tolerance for long nights of research and encouragement for finding new approaches around road blocks from my wife, Doris A. Elenes-Sancho, was critical for me successfully completing the doctoral program and having a successful career. I graduated from the program in early 1998. During my doctoral program, I continued to work part-time as a bilingual science and ESL teacher as well as a special procedures x-ray technologist. I also received several awards, including the USC Graduate (next page please)

**CHIOMA IKONTE**

I graduated in 2001 with a PhD in Pharmaceutical Sciences under the supervision of Professor Walter Wolf at the Department of Pharmaceutical Sciences at USC. My research work involved an understanding of the mechanism of transport of 5-Fluorouracil (5-FU) into the tumor cells and finding ways to optimize its uptake and retention in tumor cells. More specifically, my research started with in vivo and ex vivo work to understand the uptake, distribution and metabolism of 5-FU into various tissues in whole animal models using $^{19}$F NMR spectroscopy and progressed with investigating the mechanism of transport of 5-FU in vitro using cell culture. Earlier on in Prof. Wolf’s lab, it had been identified through a clinical research program at the St. Vincent Hospital, Los Angeles that uptake and trapping of 5-FU in tumor cells was essential for its efficacy in destroying these cells. As a result of this finding, my work investigated the mechanism of transport of 5-FU in cell culture using Walker 256 tumor cells. At the cell culture level, I was able to manipulate the extracellular environment of the tumor to identify the transporters responsible for its uptake as well as identify the inhibitors and modulators of 5-FU transport into the tumor cells. My time at USC was one of the most exciting and challenging aspects of my life. The various aspects of the research from the in-vivo, ex-vivo and in-vitro studies, provided me tremendous knowledge about 5-FU and allowed me to contribute to a better understanding of the drug and its use in the clinics to optimize its efficacy in treating solid tumors. The opportunity to write several grants for scholarship applications, poster presentations at scientific meetings and manuscripts prepared me for the challenges of the work environment. I cannot forget to mention that juggling family life while pursuing (next page please)
SANCHO (continued)

School Merit Fellowship (1995, 1996), USC GPSS grants (1995, 1996), USC School of Pharmacy Fellowship (1996, 1997, and 1998), the American Association of Cancer Research (AACR) Scholar in Cancer Research Award (1997), and a three year National Institute of Health (NIH) Pre-Doctoral Fellowship grant (1996-1998). As part of the multidisciplinary team, I was author or co-author on several peer reviewed articles, abstracts, symposiums, and posters. My time at USC was one of my most rewarding times.

At the time of my graduation, I completed several interviews, including that for a couple of faculty positions, post-doctoral positions in industry, and with the Food and Drug Administration (FDA). I opted to pursue the FDA route for it sounded the most interesting and challenging of the offers. Retrospectively, I made the right decision. During my tenure at the FDA, from early 1998 through late 2006, I worked mainly in the Office of Clinical Pharmacology and Biopharmaceutics (OCPB). During most of my tenure, each of the disciplines (Pharmacology, Toxicology, Chemistry, etc) was co-located in the various clinical divisions. This allowed me to move between clinical divisions and accumulate a wealth of scientific knowledge and regulatory experience. This is reflected in the 500 or so reviews completed during this time, which included INDs, NDAs, BLAs, ANDAs, 510Ks, etc. During this same time I was given the opportunity to work on many special projects. I co-authored four Guidance Documents for Industry and two Code of Federal Regulations (CFR) modifications; represented and defended the FDA’s scientific and regulatory opinion in four Advisory Committee meetings; and, lead a multidisciplinary team under the agency’s Office of International Affairs. This last activity was by far the most challenging yet learning experience at the FDA. As the lead person, I learned to negotiate or establish and nurture relationships with people in international organizations thousands of miles away. This was a FDA pilot project in collaboration with World Health Organization (WHO), Pan American Health Organization (PAHO), and U.S. Pharmacopoeia (USP). The purpose of this project (Pan American Network Drug Regulatory Harmonization or PANDRH) was to harmonize the regulatory efforts in the Americas, by not only establishing agreements, but by exchanging experiences and ideas between all sister regulatory agencies in the continent. The team generated and/or translated bilingual scientific and regulatory material (including PK, PD, BA/BE, GMP’s, GLP’s, and GCP’s) and an intense workshop schedule with each of the sub-regions of the Americas. The project was a success (continued to p. 10)

IKONTE (continued)

a doctoral degree was quite a challenge. Having a 22 month old son when I started my doctoral program and having 3 more kids while in the program is something I can’t even imagine now. The support of my advisor, my dissertation committee and the entire faculty at USC is gratefully appreciated. The USC career development office at the main campus was invaluable in preparing me for job applications and interviews as I approached the end of my studies.

I currently work as a Senior Scientist in the New Technology group of the Research & Development department at Herbalife International of America in Torrance, California. At Herbalife, I lead projects and other efforts that lead to the identification and development of new products and technologies with valuable scientific and commercial potential for my company. Herbalife is a dietary supplement company focused on the development of novel, innovative health supplements that are tested and substantiated for the indications targeted to preserve health and promote optimal living. In addition to leading the development of new products at Herbalife, I am developing an in-house bio-assay laboratory that would be involved in the development of different biochemical methods for screening potential raw materials through various biochemical mechanisms. This would allow a better characterization of the raw materials, understand the mechanism of action and any potential synergy between ingredients to guide the development of products and also enhance the success of a clinical study.

My career started in April, 2001 as a Research Scientist in Formulation Development at Nutrilite, A Division of Amway, in Buena Park, CA right after graduation from USC. While at Nutrilite, I was involved in the design and formulation development of new products with functional applications. My work at Nutrilite, though different from my study at USC, exposed me to the power of plant materials as an adjunct to preserving health and also fulfilled one of my strongest quests in life, which is to understand why certain plants have medicinal effects and the primary compound (s) in the plants driving the efficacy. I worked on the development of several immediate and controlled release formulations in various functional applications. As I progressed in my career at Nutrilite, I became an Expert Speaker for the company in presenting the scientific data and substantiation on products being launched across several countries. From 2006 – 2008, I served as an Expert on the Botanical Safety Committee of the Alliance of South East Asian Nations (ASEAN), an alliance designed to harmonize (continued to p. 15)
Lixia Zhao’s MD graduation and wedding

Lixia Zhao was a graduate student in the lab of Roberta D. Brinton, finishing her studies in 2003. Lixia then went on to UCLA and became the youngest faculty member at UCLA School of Medicine. Then she moved on to obtain an M.D. degree from Harvard Medical School, graduating on June 4, 2009. Two days later she married the man of her dream, Steve Ellis, in Long Island, NY, on June 6, 2009. She is currently a resident physician at Beth Israel Deaconess Medical Center in Boston.

SANCHO (from p. 9)

by all standards, to the point that WHO decided to use it as a template for a similar project in the sub-Saharan region of Africa.

From late 2006 through late 2008, I was a Senior Regulatory Affairs Scientist serving as the Chief of Regulatory Affairs Branch under the Division of Regulated Activities and Compliance (DRAC), U.S. Army Medical Material Development Agency (USAMMDA), U.S. Army Medical Research and Material Command (USAMRMC), Office of the Surgeon General Department of the Army (OTSG-DA). I worked closely with the Sponsor’s Representative to ensure that all DoD biomedical material (drugs, biologics, and/or devices) developed or in development under USAMRMC was done within the regulatory parameters and best practices of industry (such as strategic product development planning or from cradle-to-grave). My proudest accomplishment was that I was asked to bring into this organization a fresh perspective on why regulatory compliance (i.e., clear definition of roles and responsibilities as well as clear expectations of accountability and professionalism) is in the best interest of all parties involved in biomedical product development. It ensures not only that the subjects enrolled in the clinical trials are safe and that the products are safe and efficacious, but also that these products reach the military service members quickly in the field where they are needed urgently. As a Certified Lean Six Sigma Project Sponsor, I had the opportunity to apply a DMAIC (Define-Measure-Analyze-Improve-Control) standard improvement model to improve the quality and speed of regulatory and biomedical product development processes. I monitored and evaluated staff productivity using prospectively assigned matrix measures of knowledge and performance. Incorporated best practices of pharmaceutical industry into DoD biomedical regulatory activities

Briefly, from late 2008 through early 2009, I worked at the Drug Enforcement Administration (DEA) as a Senior Scientific Advisor in the Office of Diversion Control. Here I provided recommendations and guidance, after considering and evaluating relevant scientific and drug abuse data, in support of DEA policy, regulatory, legislative, drug scheduling, and other agency domestic and international activities. My tenure in this position came to an end when the U.S. Public Health Service Corps offered me a direct commission.

All along, since early 1992, I have served in the U.S. Army, Reserve and Active duty. I served proudly and without a blemish; first as an enlisted and a non-commissioned officer (sergeant), x-ray technologist (91P); then as a Medical Service Corps (MSC) officer, Preventive Medicine (72D) and a Pharmacologist (71B). During this time, I had the privilege to be part of the Army’s restructuring process while successfully performing my duties and additional duties as assigned in one of the last (continued to p. 11)
SANCHO (from p. 10)

General Field Hospital, the 349th in Los Angeles and in the first Consequence Management (CMU) Army unit in Aberdeen Proving Grounds under the 20th Support Command (CBRNE). I also served in other units including U.S. Army Medical Research Institute for Infectious Diseases (USAMRIID) in Fort Detrick and the 794th Medical Detachment under the 804th Medical Brigade in Fort Devens. My highest rank in the U.S. Army was that of Major (O4). I had the good fortune to travel the world with the Army: implementing vector (ticks and mosquitoes) surveillance programs in Korea and US and supporting various MEDRETEs (Medical Readiness Training Exercises, a form of goodwill/humanitarian medical missions) in South America. By accepting the U.S. PHS direct commission in early 2009, I have been able to combine all my Army, Civil Service, and teaching experience.

Since early 2009, I have worked in the Defense Centers of Excellence (DCoE) for Psychological Health (PH) and Traumatic Brain Injury (TBI) located in the Washington DC area. An interpretation of the DCoE’s mission is to coordinate, guide, and serve as a hub of knowledge and information for all PH and TBI research that affects not only our military service members, but also civilians. The specifics of DCoE mission and its history can be found online. At DCoE I have been the lead regulatory person for the Center (Chief of Quality Assurance and Regulatory Compliance), including ensuring that DCoE meets all its regulatory responsibilities as the sponsor of a Phase III multicenter Hyperbaric Oxygen Chamber clinical trial (HBO2) for TBI and standing up the Center’s Human Research Protection Program (HRPP) so to maintain compliance with human research rules and regulations.

On the personal side, I was extremely lucky during one of the many business trips to Latin America to unexpectedly reconnect, after 20 years, with my mother and her branch of the family. This reconnection included gaining the love and support of a baby sister and a great brother as well as an extensive family. This has the added benefit that they live throughout Europe and Latin America, thus giving me the excuse to visit and stay with them while enjoying the local food and culture. I currently have two female west highland terriers, Lulu and Betty, both from the local westie rescue but with extreme opposite personalities. This keeps my off-work hours full of entertainment and laughter. For more intense recreation, I try to scuba dive and travel as often as I can, for I find it amazing to learn about the culture, religion, history, milieu, and cuisine of other people.

Bottom line, no matter how well you plan your career, you never know what life serves you and how that leads you to new roads. I would have never predicted that I would have a successful career in drug development and 12 years of regulatory experience. My goals upon high school graduation in 1981 were that I would be a marine biologist, writing short stories in Spanish, and capturing the world on 35mm and 60mm B&W film. Well, I am still working on two of the three goals.
Lorcan O’Carroll is a fourth year student of Pharmacy at Trinity College Dublin. In high school, he was the recipient of the 2006 Senior Student of the Year (Newbridge College). As a student, Lorcan excels in his studies, fittingly awarded scholarships and bursaries. He was also involved in extra curricular activities, having been in a number of student organizations such as the European Youth Parliamentary, Dublin University’s Rifle Club and International Student’s Society. He has worked in community pharmacies and as a research assistant in Trinity College.

At Dr. MacKay’s Lab during the summer, Lorcan studied the synthesis of lipid conjugated short-chain elastin-like peptides for the production liposomes.

Phanarin ‘Nui’ Janjaemjaroon and Pattrha ‘Pim’ Jinchaiyapat are both fourth year B.S. students of applied chemistry at the Chulalongkorn University in Bangkok. Their senior project involved extracting pure anti-cancer compounds from stemona, a Thai herb. Their mentor, Professor Nongnui Muangsin, saw that it would be a good opportunity for them to be in Dr. Nouri Neamati’s lab for the summer as exchange students. At the Dr. Neamati’s lab they pursued the same project and went on further by testing the activity of the said compounds.

Both Nui and Pim are well-rounded scholars. Nui was once selected as a “Smart Girl” at school, won a bronze medal in piano-fourhands competition, first place in a running competition, chosen as a drum major for Chula’s traditional football and participated in building of a library at Rajburi.

Pim was once selected as “Best Student” and received a certificate for an “Outstanding Performance, Student”. She has served as president of a student council, was in a cheerleading team and member of a Thai Classical Music band. Pim is also interested in fashion and has performed in a fashion show.

Youngeun Kwon is an assistant professor at the Department of Medical Biotechnology in Dongguk University, Seoul, Korea. Youngeun’s research collaboration with Dr. Camarero dates back to 2004-2007 at the Lawrence Livermore National Laboratory in northern California, when she was a postdoctoral research fellow and he was her mentor. Youngeun is following up on their research project entitled, “Photo-modulation of protein trans-splicing" using a Ssp DnaE split-intein.” Youngeun graduated summa cum laude for her B.S. chemistry degree at the Korea University, where she also had her master’s degree in organic chemistry. She finished her Ph.D. under Prof. Milan Mrksich at the University of Chicago, Illinois.

Julio Camarero Lab: L-R, **Insafr Saffar**, Getachew Woldemariam, Luis Berrade, Dr. Camarero, Jérôme Ternat and Youngeun Kwon.

**Sanghee Park** is from Seoul, South Korea but has been educated in Dublin, Ireland. He went to Blackrock College for his secondary schooling (an academic excellence awardee), and now he is in The University of Dublin for his BS in pharmacy degree (3rd year, an elected scholar to the Trinity College). Sanghee is a trained soldier of the Republic of Korea Army from 2006-2008, a must for medically fit men in Korea in their 20s and 30s. During this military training, Sanghee was recognized as well; among others are his two Colonel Awards, one for squad leadership, and another one for being a #1 pharmaceutical technician-soldier.

He was in Dr. Julio Camarero’s lab for the months of August and September working on the biosynthesis of a FLIP integrated MCoTI inside living bacterials using an intein-mediated cyclisation approach developed by Dr. Camarero.

**Insafr Saffar** was born in Tunis, Tunisia and had studied for a year in the University of Carthage Institute of High Commercial Studies before going to France to be a pharmacy student at the Université d’Auvergne Clermont-Ferrand in 2004; she is now in her 4th year. This summer in Julio Camarero’s laboratory, Insafr explored new biological activities using cyclotides. Insafr speaks four languages – fluent in Arabic and French, conversational in Italian and English for which she is preparing to take the TOEIC, a test of English for international communication. She’s into gymnastics, aerobics and modern jazz dancing, and is an enthusiast for paintings, literature, cinema and music.

**Jérôme Ternat** Jérôme Ternat is a fourth year pharmaceutical student at the Université d’Auvergne Clermont-Ferrand in France. In a competitive exam for placement in the Pharmacy program, Jérôme ranked 14th out of 238. His work experiences are all geared to be proficient at his chosen career, from its commercial side to the better understanding of dispensing medicines (e.g., antibiotics) to studying clinical trials on patients (e.g., diabetes types 1 and 2 patients). Here for the summer in Julio Camarero’s laboratory, he explored new biological activities using cyclotides. Jérôme swims and plays tennis for his sport activities.

Julio Camarero Lab: L-R, **Insafr Saffar**, Getachew Woldemariam, Luis Berrade, Dr. Camarero, Jérôme Ternat and Youngeun Kwon.
Undergraduate Summer Research Fellows

Shadi Doroudgar is on her third year of pursuing a Pharm.D. degree at the School of Pharmacy. She is an involved student, who is also in the pharmacy honor society, Rho Chi. She is affiliated with most of the pharmacy associations like APSA (American Pharmacy Student Alliance), SLA (Student Industry Association), Skull and Mortar Honorary Service Fraternity, CPhA (California Pharmacist Association), CSHP (California Society of Health System Pharmacists), APHa (American Pharmacists Association), ASHP (American Society of Health System Pharmacists), etc. Her work experiences not only reflect pharmacy internships and externships, but also show a predilection for laboratory research; her USRF time at the Nouri Neamati Lab being her latest one. At this lab, Shadi is studying design and discovery of novel small-molecule drugs for the treatment of breast cancer.

Justin Pegueros is a USC Trustee Scholar at the College of Letters, Arts and Sciences majoring in biochemistry, minor in theater. He aspires to be a medical doctor and would like to be able to do research also. In 2006, he was part of a medical mission to Esteli, Nicaragua called “Operation Rainbow”, an experience that he said “taught me a lot about patient care and about the importance of everyone’s roles in and out of the operating room.” Aside from interpreting Spanish, maintaining the stockroom, and assisting the doctors, Justin worked and played with the children in the waiting room in that mission.

Justin is in a research project at the Neamati Lab entitled, “The Discovery of Novel HIV-1 Integrase Inhibitor Compounds,” and his role is to help test compounds on their efficiency to inhibit integrase.

Justin is not all work and no play. He has been a competitive soccer player since age 12. In retrospect, playing soccer taught him “…much about the dynamics of a team and how one is to be managed.” More to Justin – he dances! Bhangra (Indian dance), salsa, hip-hop; he is in the USC hip-hop group, Break Through. Although, it’s more recreational, he finds himself in a competition and actually winning, two times so far.

Tamara Palagashvili is a Level II Pharm.D. student at the USC School of Pharmacy. Prior to enrolling at USC, she attended Francisco Bravo Medical Magnet High School, where she “quickly realized her passion for science.” Tamara then went on to receive a Bachelors of Science degree in Psychobiology from UCLA. During her undergraduate studies, she also co-authored an article that appeared in the UCLA Undergraduate Psychology Journal. (Olshanky M, Palagashvili T, Young S: Expressing Opinions: Differences in Private and Public Situations. UCLA Undergraduate Psychology Journal 4(1):7-12, S2007).

Since 2000, Tamara has been a long-time volunteer of Project Angel Food. Tamara’s role involves preparing meals for people with serious illnesses (e.g., HIV/AIDS, cancer, diabetes, Parkinson’s disease, etc.) and for low-income people throughout Los Angeles County. In addition, she also participates in fundraisers to help raise money and awareness for Project Angel Food.

At Dr. Shih’s laboratory, Tamara is working on “The role of MAO B in brain inflammation and adult neurogenesis in specific brain regions” under the supervision of her mentor, Dr. Chen.

Jiehye Sarah Park is a junior biomedical engineering student of the Viterbi School of Engineering who is on the Dean’s List. Sarah’s scholastic standing, extracurricular activities and volunteering go way back to her high school days in Crescenta Valley High School (CVHS). An AP (advanced placement) honor student, she is a member of the National Honors Society and the California Scholarship Federation. Evidently a self starter, she founded the Graphic Arts and Photoshop Club at CVHS. She plays the flute and French horn, talents she used to entertain residents of Verdugo Health Center, where she also read books aloud to them as a volunteer resident assistant. She was in a team that taught health related issues to 3rd graders under the Health for Life program; a role model who cared for pre-k children under the Joint-Education Project (JEP). She is also an experienced nurses’ assistant who volunteered at the Glendale Memorial Hospital.

At USC, she is presently the chair of social affairs of the Associated Students of Biomedical Engineering (ASBME) and is busy herself in research aside from her usual biomedical engineering load. She was recently awarded the Undergraduate Summer Research Fellowship in Dr. Andrew MacKay’s laboratory and is working on a project regarding the development of nanoparticulate drug carriers through the use of elastin-like proteins (ELP). Another laboratory she did research work with, from March to December 2008, is Dr. Amy Lee’s at the Norris Cancer Center.
**STAR Program**

Directed by Roberta Diaz Brinton, the USC Science Technology and Research (STAR) Program is a collaborative science education venture between the USC, the National Science Foundation, Biomimetic MicroElectronic Systems, Engineering Research Center at USC, Francisco Bravo Medical Magnet High School, El Sereno Middle School and Murchison Elementary School impacting over 2000 students each year. *(For more of the STAR program, please click here).*

**Welcome to the new and returning STAR students in PPSI**

**Robert Brinton Lab:** Esosa Agbonwaneten, Maricela Hernandez, Samina Hussain, Tiffany Lam, Julian Lemus, Yureli Lopez, Hyun (Hannah) Park, Charisse Wong, Angie Yi

**Nouri Neamati Lab:** Shangida Ahsan, Luis Arechiga

**Biomed PREP Program-CSU students**

The Biomed PREP is a California State University, Los Angeles based program for recent graduates who need to work for a year or two in a research laboratory setting before going on to graduate school.

**Danielle Barrios** graduated *summa cum laude* at California State University, Los Angeles on June 2008. She has observably been readying herself for the long haul to become a medical doctor and at the same time a Ph.D. graduate at the University of California, San Diego. She established herself as a consistent scholar and deservedly reaped awards and honors. She volunteered in hospitals and did undergraduate research works at Cal State LA, which culminated in an honor’s thesis entitled “The Development of Tetraphenylcyclopentadienyl Group VB Transition Metal Complexes as Homogeneous Lewis Acid Catalysts.” She received a Biomed PREP fellowship and worked in the lab of Dr. Nouri Neamati from October 2008 to July 2009 where her project goal was to identify novel inhibitors of HIV-1 integrase.

**Adrian Esqueda** completed his bachelor-of-science degree, major in microbiology, at the California State University Los Angeles in March 2008 and was a recipient of this institution’s premier undergraduate research training program called, MARC-U*STAR. His honors thesis work is entitled, “Cloning of Bacterial Essential Genes and Purification of Encoded Products of Acinetobacter baumannii.” His mentor was Dr. Howard Xu. This will be Adrian’s second year in the lab of Nouri Neamati where he is currently testing new compounds for activity against HIV-1 integrase and human APEI (Apurinic Endonuclease). His research work at this lab has also included transforming bacterial cells and developing alternate protocol for purification of protein using a protocol designed for a different fusion protein. He aspires to enroll in USC’s Pharmaceutical Sciences Ph.D. program in the near future.

**Tino Sanchez** (L), student mentor at the Neamati Lab, is shown with STAR students (front L-R) Luis Arechiga, Shangida Ahsan, Faizan Memon, and Med-COR student, Alan Gutierrez (back).

**Dr. Neamati with Justin Pegueros, undergraduate research fellow.**
IKONTE (cont’d from p. 9)

the regulatory guidelines for dietary supplements in all the member countries. These assignments provided me opportunities to travel and visit several countries but more importantly, provided me opportunities to work with the Regulatory personnel in the various countries in setting guidelines to govern the development, safety, substantiation, sell and importation of health supplements in these countries.

In October, 2008, I joined Herbalife International of America where I currently work.

One of the highlights of my experience at USC was the family nature of the department. Everyone worked as a great team and there was tremendous support from everyone. These learning and skills have been very invaluable in my career. The ability to work effectively in cross-functional teams has been instrumental to my successful career. My husband and children are all doing very well. Thank you so much for everything! Thank you, Professor Wolf, for all your help and support. I learnt and continue to learn a lot from you. Congratulations on your 50th anniversary at USC. I love you all!
James Adams

Ronald Alkana

Roberta Díaz-Brinton

Enrique Cadenas

Julio Camarero

Sarah Hamm-Alvarez

Ian Haworth

Andrew MacKay

Nouri Neamati

Curtis Okamoto
Okamoto CT. Duodenal epithelial cells provide a stimulus package for the recovery from an acid load. J Physiol. 2009 Jul 15;587(Pt 14):3409. PMID: 19602628

Wei-Chiang Shen

Jean C. Shih

Rajindar Sohal

Bangyan Stiles