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*Back talk from blood cells; the singing pharmacist; neurons from skin cells*

Photo: Hair follicle stem cells in culture can generate all the cell types in the epidermis
(photo: William Lowry)
Dear Alumni and Friends:

Welcome to the Spring 2012 MCDB Newsletter for alumni and friends of the Department of Molecular, Cell, and Developmental Biology at UCLA. The Department’s research focuses on the basic mechanisms that regulate cell differentiation and function. The central objective of the Department is to advance our disciplines by combining efforts in research and teaching.

Our research goal is to address the most conceptually important issues related to gene regulation and morphogenesis, bring the most innovative approaches to these investigations, and translate the discoveries to address the most pressing of human problems: disease and hunger. Our strategy to achieve this goal is to (a) build a department with broad expertise in gene discovery through mutational screens, chemical genetics, bioinformatics, and in-depth phenotypic analysis in multicellular organisms encompassing Arabidopsis, simple invertebrates, Drosophila, zebrafish, mouse and human stem cells; (b) develop the infrastructure to conduct cross-disciplinary and technologically advanced research; and (c) take a leadership role in the organization of cross-disciplinary research initiatives at UCLA.

The teaching mission of our department is to provide a comprehensive and intensively hands-on experiment-based education to our undergraduates, graduates and postdoctoral fellows, among whom are tomorrow’s leaders in research and medicine. We also place a strong emphasis on educating undergraduate non-science majors so that they will make informed decisions regarding the implementation of scientific discoveries and future funding for scientific research. Our strategy to achieve our teaching goal is to develop didactic courses that emphasize the experimental basis supporting basic concepts, and to involve undergraduates in two types of research experience: large-scale discovery-based programs and in-depth individual research projects.

Our distinguished faculty members are recipients of many honors and awards for internationally recognized research accomplishments. As teachers, we are proud that three members of our faculty have received UCLA’s Distinguished Teaching Award, and two have received the Gold Shield Faculty Prize.

We hope this newsletter will bring you news of the exciting new faculty, new research and new developments. We have a special section on alumni news, so please send us news about yourself and other UCLA MCDB friends or alumni (chair@mcdb.ucla.edu). Updating your contact information is very easy at http://www.uclalumni.net/MCDBUpdate.

Thank you for reading this newsletter. We hope to hear from you!

Utpal Banerjee
Irving & Jean Stone Professor and Chair, Molecular, Cell, and Developmental Biology
Professor, Biological Chemistry
Co-Director, Broad Stem Cell Center
HHMI Professor

FACULTY NEWS AND RESEARCH

Dr. James Lake has been elected to the American Academy of Arts and Sciences. Dr. Lake is a Distinguished Professor of Molecular, Cell, and Developmental Biology and Human Genetics. His research focuses on understanding molecular evolution at its earliest stage. His fundamental evolutionary discoveries, including the new animal phylogeny, for which he received the 2011 Darwin–Wallace Medal, combine a deep understanding of biology with transformative genomic analyses. He is breaking new ground rooting the tree of life, reconstructing the eukaryotic rings of life and providing genomic evidence for ancient prokaryotic endosymbioses (in which a cell lives within another cell).
On November 3, 2011, Dr. Lake delivered the Academic Senate-sponsored 111<sup>th</sup> Faculty Research Lecture, “Using Genomes to Track the Evolution of Life on Earth and Beyond.”

**Insulin, nutrition prevent blood stem cell differentiation in the fruit fly**

From the UCLA Newsroom: UCLA stem cell researchers have shown that insulin and nutrition prevent blood stem cells from differentiating into mature blood cells in Drosophila, the common fruit fly, a finding that has implications for studying inflammatory response and blood development in response to dietary changes in humans.

Keeping blood stem cells, or progenitor cells, from differentiating into blood cells is important as blood stem cells are needed to create the blood supply for the adult fruit fly. The study found that the blood stem cells are receiving systemic signals from insulin and nutritional factors, in this case essential amino acids, that helped them to maintain their “stemness,” said study senior author Utpal Banerjee, the Irving and Jean Stone Professor and chairman of molecular, cell and developmental biology in the UCLA Division of Life Sciences and a researcher with the Eli and Edythe Broad Center of Regenerative Medicine at UCLA.

“We expect that this study will promote further investigation of possible direct signal sensing mechanisms by mammalian blood stem cells,” Banerjee said. “Such studies will probably yield insights into chronic inflammation and the myeloid cell accumulation seen in patients with type II diabetes and other metabolic disorders.” The study appeared March 11 in the peer-reviewed journal Nature Cell Biology.

**'Back talk' from blood cells to their progenitors is critical to balancing blood supply**

From the UCLA Newsroom: When it comes to the body’s blood supply, maintaining the right balance is crucial. UCLA stem cell scientists have now discovered that in the common fruit fly, this balancing act requires a complex "conversation" involving more parties than originally thought. In a new study, they show that two-way signaling from two different sets of cells is necessary for blood-supply balance, both to ensure that enough blood cells are produced to respond to injury and infection and that blood progenitor cells remain available for future needs. In one of these signaling conversations, the stem cell-like blood progenitor cells, which contribute to the cells of the blood in the fruit fly Drosophila, receive signals from other cells that live in a nearby safe zone, known as a "niche." These signals keep the progenitors in a stem cell-like state so that, when needed, they can begin differentiating into blood cells.

And in a startling discovery, the scientists found that the progenitor cells also receive critical signals back from the daughter blood cells they create, telling the progenitors when enough cells have been made and it’s time to stop differentiating. The discovery of this "back talk" from the daughter blood cells was published Dec. 23 in the peer-reviewed journal Cell.

"The cells in the niche provide a safe environment to support blood progenitor cells," said co-senior author Dr. Julian A. Martinez-Agosto, an assistant professor of human genetics and pediatrics and a researcher with the Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research at UCLA. "When the blood progenitor cells receive signals from the niche cells, it creates an environment for those cells to maintain their potential and not differentiate." Previous studies have shown that when niche cells are removed, blood progenitor cells differentiate unchecked. Ultimately, the fruit fly runs out of progenitor
Martinez-Agosto and co-senior author Utpal Banerjee, a Broad Center researcher and the Irving and Jean Stone Professor and Chairman of Molecular, Cell and Developmental Biology in the UCLA Division of Life Sciences, identified the additional signals coming from the daughter blood cells — a surprising discovery, Banerjee said. Martinez-Agosto and Banerjee noted in the four-year study that once the progenitors cells had begun differentiating and the blood cells they were creating became mature, the progenitors became very quiescent and did not multiply. They theorized that there must be a signal coming from the daughter cells telling the progenitors to stop multiplying and differentiating.

Older may not mean better when it comes to human embryonic stem cell lines

From the UCLA Newsroom: Older, established human embryonic stem cell lines, including those approved for federal research funding under former President George W. Bush, differ from newly derived human embryonic stem cell lines, according to a study by UCLA stem cell researchers. The finding, by scientists with the Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research at UCLA, highlights the importance of continuing to derive new stem cell lines so that researchers can better understand the ability of these cells to make every cell in the human body, said the study’s senior author, Amander Clark, an assistant professor of Molecular, Cell and Developmental Biology in the UCLA Division of Life Sciences.

"It is critical to find out the characteristics that result in the highest-quality pluripotent stem cell lines that we can make," Clark said. "It is possible that we have not set the bar high enough yet for embryonic stem cells or induced pluripotent stem cells. We now know that established lines are different from newly derived lines, and now we have to find out how important that is.” The study was published Nov. 30 in the early online edition of the peer-reviewed journal Human Molecular Genetics.

The study looked at the first six new human embryonic stem cell lines Clark’s research team developed at UCLA, from 2009 to 2011. These lines have since been accepted by the National Institute of Health’s embryonic stem cell registry, which was established by an executive order of President Obama in March 2009. Acceptance into the registry allows the UCLA lines to be used in federally funded research projects.

In the study, Clark examined X-chromosome inactivation, a process by which normal female cells shut off one of their two X chromosomes during embryonic development. The mechanism of X-chromosome inactivation is a large physical marker that is easy to visualize in individual cells. Clark wanted to compare this specific molecular signature in the established embryonic stem cell lines with what occurs when new embryonic stem cell lines are derived from human blastocysts.

The older, established lines examined in the study came from a group of stem cell lines derived prior to 2001. Scientists have known for many years that the majority of these established stem cell lines had already undergone X-chromosome inactivation, Clark said, and her work confirmed this. However, Clark found that with the progression of time, the molecular signature in these lines no longer reflected the normal process of X-chromosome inactivation.

Normally, the X chromosome is inactivated by non-coding RNA and a special form of chromatin in female cells. In abnormal states — like those found in the older, established human embryonic stem cells — the X
chromosome is inactive, but this process is not regulated by the non-coding RNA, and the chromatin is different. "The classic signature is gone, so something else is regulating X-chromosome inactivation in the established cell lines," Clark said. "It will be important not only to find out what that is, but also to discover what else is changing in the nucleus that we cannot see, regardless of whether the cell line is male or female."

**Scientists use animal-free reagents to create clinical-grade neurons from skin cells**

From the UCLA Newsroom: Using a specially designed facility, UCLA stem cell scientists have taken human skin cells, reprogrammed them into cells with the same unlimited property as embryonic stem cells, and then differentiated them into neurons while completely avoiding the use of animal-based reagents and feeder conditions throughout the process.

Generally, stem cells are grown using mouse "feeder" cells, which help the stem cells flourish and grow. But such animal-based products can lead to unwanted variations and contamination, and the cells must be thoroughly tested before they can be deemed safe for use in humans.

The UCLA study represents the first time scientists have derived induced pluripotent stem (iPS) cells with the potential for clinical use and differentiated them into neurons in animal origin-free conditions using commercially available reagents to facilitate broad application, said Saravanan Karumbayaram, the first author of the study and an associate researcher with the Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research at UCLA. The Broad Center researchers also developed a set of standard operating procedures for the process so that other scientists can benefit from the derivation and differentiation techniques. The process was performed under good manufacturing practices (GMP) protocols, which are tightly controlled and regulated, so the cells created meet all the standards required for use in humans.

"Developments in stem cell research show that pluripotent stem cells ultimately will be translated into therapies, so we are working to develop the methods and systems needed to make the cells safe for human use," Karumbayaram said. The study was published Dec. 7 in the early online edition of the inaugural issue of the peer-reviewed journal Stem Cells Translational Medicine, a new journal that seeks to bridge stem cell research and clinical trials. Because the cells were grown in a special facility designed to culture animal-free cells, the testing and examination required to make clinical-grade cells should be much simpler, said William Lowry, senior author of the study and an assistant professor of Molecular, Cell and Developmental Biology in the UCLA Division of Life Sciences.

To date, at least 15 animal-free iPS cell lines have been created at the Broad Stem Cell Research Center. "It's critical to note that we are nowhere near ready to use these cells in the clinic," Lowry said. "We are working to develop methods to make sure these cells are genetically stable and will be as safe as possible for human use. The main goal of this project was to generate a platform that will one day allow translation of stem cells to the clinic."

**UCLA scientists ID cell, signaling pathway that regulate blood stem cells in placenta**

From the UCLA Newsroom: UCLA stem-cell researchers have identified a certain type of cell and a signaling pathway in the placental niche that play a key role in stopping blood stem cells from differentiating into mature blood cells in the placenta. Preventing this premature differentiation is critical to ensuring a proper blood supply for an individual's lifetime.
The placental niche is considered a stem cell "safe zone," which supports the creation and expansion of blood stem cells without promoting their differentiation into mature cells. This allows for the establishment of a pool of precursor cells that will later provide blood cells for fetal and post-natal life, said the study’s senior author, Dr. Hanna Mikkola, an associate professor of Molecular, Cell and Developmental Biology at UCLA and a researcher at UCLA's Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research.

Mikkola and her team found that PDGF-B signaling in specialized cells in the placenta called trophoblasts — which facilitate embryo implantation and exchanges of nutrients between the mother and fetus — is vital to maintaining the unique micro-environment needed for the blood precursor cells. When PDGF-B signaling is halted, these blood precursors differentiate too early, creating red blood cells in the placenta, Mikkola said. The study, done in mouse models, appears March 1 in the peer-reviewed journal Developmental Cell.

"We had previously discovered that the placenta provides a home for a large supply of blood stem cells that are maintained in an undifferentiated state," Mikkola said. "We now found that by switching off one signaling pathway, the blood precursors in the placenta start to differentiate into red blood cells. We learned that the trophoblasts act as powerful signaling centers that govern the niche safe zone." The study found that PDGF-B signaling in the trophoblasts suppresses production of erythropoietin (EPO), a cytokine, or cell-signaling protein molecule, that controls the differentiation of blood stem cells into red blood cells.

**UNDERGRADUATE NEWS**

**Vivian Chen**, a participant in the UC LEADS program, received a poster presentation award at the 2011 National Conference of SACNAS. Vivian conducts research in Dr. Utpal Banerjee’s laboratory.

Two more of our many outstanding undergraduates:

**Shivani Thaker** is a fourth year undergraduate majoring in Molecular, Cell, and Developmental Biology and minoring in Biomedical Research, and is a member of the Undergraduate Research Scholars Program. She has been working in the laboratory of Dr. Utpal Banerjee with her post-doctoral mentor Dr. Kevin Jones since her second year at UCLA. Currently, Shivani is studying the effect of activating various oncogenes on cell metabolism using Drosophila as a model organism. Last year, she received a Dean’s Prize for her research at UCLA’s Science Poster Day. After graduation, Shivani plans to pursue a career as a physician-scientist and will be entering an MD/PhD program this year.
Catherine Yao is a fourth year undergraduate majoring in Molecular, Cell, and Developmental Biology and minoring in Biomedical Research, and is a Howard Hughes Undergraduate Research Scholar. She has been conducting research in the lab of Dr. Hanna Mikkola (at left in the photo with Catherine) since winter of her second year. Catherine is currently investigating the function of novel surface proteins in the maintenance of hematopoietic stem cell properties. After graduation, Catherine plans to pursue a joint MD/PhD program.

(The UCLA Minor in Biomedical Research was officially launched in Spring 2007, and was designed to make laboratory research a core part of the scientific curriculum as early as the first year of college. Independent research is complemented by coursework that develops important skills such as critical thinking, analysis of research literature and data presentation. In addition, an ethics and social science component trains students to recognize the political, social and philosophical issues facing science today. The UCLA Minor in Biomedical Research was made possible by generous support from the Howard Hughes Medical Institute.)

GRADUATE STUDENT NEWS

Marisabel Oliveros is a third-year graduate student in the Clark lab. Marisabel was born in Cali, Colombia. She graduated from California State University, Northridge with a B.A. in biology in 2008. While she studied at that institution, she worked in the laboratory of Michael Summers characterizing genes involved in akinete differentiation in the cyanobacterium *Nostoc punctiforme*. Following her graduation, she worked in the laboratory of Peter Bradley at UCLA studying one of the proteins that make up the moving junction of the parasite *Toxoplasma gondii*. In the Clark lab, Marisabel studies the niche that will support the maturation of PGCs derived in vitro.

IN MEMORIAM

Cathy Coyle-Thompson ’94 PhD (Banerjee) passed away on January 24, 2012. The following obituary is from the Los Angeles Times on February 5, 2012.

“Coyle-Thompson, Dr. Catherine Ann: September 08, 1959 - January 24, 2012

“Passionate, generous, intelligent, creative, enlightening, ardent, and loving; intrinsic qualities that come to mind in reflection of a pronounced life; a life that no longer will take part in experiences it rightfully deserves. Those that shared her passion for living will forever cherish the vivacity and zeal with which her endeavors were pursued. Anyone's challenge confronted on a personal level; no other way considered. Injustice never tolerated, negotiated, or bowed down to. Joyfulness, exhilaration, and advancement
embraced throughout her journey. Life was so much more than simply a destination. Cut short, but more than accomplished with evidence of distinct existence and pointed impact as a Biology Professor, Lecturer, and Researcher of 30 years; her life will continue to imprint and inspire beyond her years. Oppenheimer Research, California State University Northridge, Los Angeles Mission College, students, friends, and family will struggle to fill the hole left by her tragic passing. Our persistence to live in manners that would impress and delight her will foster happiness and better morality amongst us all. While mourning is natural and expected, she would wish that we weep briefly and continue with delightful celebration of life. Catherine Ann Coyle-Thompson, my beloved mother, leaves behind five children: Christopher (25), Nicole (18), Matthew (16), Michael (13), and Andrew (9), in addition to numerous friends, family, and students; all of which experienced her dedicated and vibrant spirit. A celebration of life will take place with services at Our Lady of Lourdes in Northridge, California at noon on Friday, February 10th, 2012. Reception will be held at the Northridge Center, University Student Union on the CSUN campus immediately following. In lieu of flowers, we ask that donations be made for her children in care of Christopher Thompson. Mom, I will always love you. - Christopher Thompson.”

ALUMNI NEWS

Sometimes our alumni find us, and sometimes we find them. We’ll ask you for permission if we find news on the web that we’d like to include. If you’d like to let us (and others) know what you are doing, please email us at chair@mcdb.ucla.edu.

2010s

Hannah Al-Sodani ’11 is a graduate student in biological sciences at UC San Diego.

Shalini Krishnasamy ’11 is a medical student at UCLA.

Katheriya Patanumpuntong ’10, at left, is a Research Associate, Cell Biology - Quality Assurance Team, Research and Development Department at One Lambda, Inc., a biotechnology research company in the Los Angeles area. She writes, “I always like reconnecting with alumni and would like to express my utmost gratitude to the MCDB department for the most prestigious education and the best professors and mentors that laid the foundation for my career in biotechnology and the sciences.”

Georgeann S. Sack (formerly O’Brien) ’11 PhD (Sagasti) is a postdoctoral fellow in Marla Feller’s lab at UC Berkeley. She is investigating the role of glial cells in the development and function of retinal circuits.

2000s

Mauricio Abril ’04 is a concept artist at Disney Interactive Studios, currently also teaching entertainment classes at the LA Academy of Figurative Art. He received a Bachelor’s of Science in Entertainment Design from the Art Center College of Design in Pasadena, in addition to his degree from UCLA. He writes, “Even though life has taken me away from the research career I originally thought I wanted. I’m still a scientist at heart and I have nothing but fond memories and a great education from my MCDB experiences at UCLA.”
Ramya Babu ’08, at right, graduated with a double major in Economics and Molecular, Cell, and Developmental Biology. She is a Senior Associate at Triage Consulting Group, a healthcare consulting firm based on San Francisco, that serves various hospitals and healthcare systems across the United States. She has worked for clients in Northern California, Orange County, Los Angeles, Seattle, and Ohio. Ramya serves as the firm’s expert on children’s facilities topics and leads efforts on internal audit trainings. She is an avid fan of the outdoors, enjoys ethnic cuisines, and loves traveling to different parts of the world.

Jesse Biebesheimer ’00 received an MD from UC San Francisco, where he completed an ophthalmology residency. He is presently in practice at the Kaiser Permanente Eye Clinic in Downey, California.

Natalie Charlton ’06 will be graduating from medical school at USC on May 12, 2012, and will be starting an internal medicine residency at California Pacific Medical Center in San Francisco.

Jose Coria ’07, at left, is a master’s student in computer and network security at the Naval Postgraduate School in Monterey, California. He writes, “I am here at the Naval Postgraduate School as a Scholarship for Service recipient, funded by the National Science Foundation. Prior to this, I worked in the biotech industry in Santa Barbara, among other things.”

Charisa Cottonham ’03, at right, received a PhD in Biomedical Sciences from the University of Massachusetts Medical School. She is now a Postdoctoral Scholar at the UC San Francisco School of Medicine, where she studies the role of MAPK signaling in myelopoiesis as a means to increase our understanding of leukemia biology.

Imelda De Vera ’03, at left, writes “I completed my DO at Michigan State University College of Osteopathic Medicine in June of 2010. While I was there, I was president of Sigma Sigma Phi, the National Honors Society for osteopathic medical students. I am currently in my Anesthesiology residency at Henry Ford Hospital in Detroit, Michigan. I’m not really sure what the future holds for me, but I do plan on coming back to the greater Los Angeles area and would love come back to UCLA - I do miss Westwood dearly!”

Matthew Emanuel ’05 completed his MD at Vanderbilt University School of Medicine, and is currently an ophthalmology resident at the Emory Eye Center in Atlanta, Georgia.
Nima Gharavi ’01, ’06 PhD (Cellular and Molecular Pathology) ’08 MD, at right, is currently in a residency in Dermatology at UCLA. In July 2012, he will be starting a one-year Procedural Dermatology fellowship in Mohs surgery, cosmetics and lasers, also at UCLA.

Hongwei Guo ’01 PhD (C. Lin), at left, is a Professor in the School of Life Sciences at Beijing University.

Hong Gu Kang ’00 PhD (K. Singh and C. Lin) is an Assistant Professor of Biology at Texas State University, San Marcos, Texas.

Dominique Lisiero ’05 is a PhD student in Molecular Pharmacology at UCLA.

Marjan Rashedi ’03 received a DMD from Boston University and is a pediatric dentist at Children’s Primary Dental Care Group in the San Diego area.

Allison Schwartz ’09, at right, is in the doctoral program in Plant and Microbial Biology at UC Berkeley, and was recently selected to receive a National Science Foundation pre-doctoral fellowship. She writes, “I’ve decided to join a lab which researches the plant immune system and how agricultural crops respond to disease.”

Kayvan Zainabadi received his PhD in biology from MIT in 2009, where he worked on the molecular biology of aging and evaluating novel therapeutic strategies for osteoporosis. While at MIT, Kayvan also became deeply involved in social justice and humanitarian causes - he served as president of MIT’s Amnesty International Chapter for two years and helped coordinate fundraising campaigns which raised $10,000 for Darfur relief charities. He also co-founded an anti-genocide student group, MIT-STAND, and spearheaded a campaign resulting in MIT’s unprecedented move to divest from companies associated with the genocide in Darfur, Sudan. For his work, Kayvan received back-to-back MIT Student Leader Awards for Philanthropy in 2007 and 2008, as well as the MIT Stewart Award for Contributions to Student Life. His work has been featured in national news outlets including the Boston Globe, The Christian Science Monitor, and Xconomy. Kayvan is also an entrepreneur and advisory board member of the 5013(c) organization Project Rishi. He is currently a Visiting Scientist at the Indian Institute of Science, helping develop and teach curriculum to the first batch of undergraduate students to enter the Institute. In addition to teaching, Kayvan is researching non-invasive diagnostic tests for the early detection of cervical cancer - a major health problem in the developing world. His current interests lie in global health, specifically leveraging biomedical research to improve the lives of the rural poor. He hopes to be a Fogarty Fellow for the upcoming year.

1990s

Susan Barker ’90 PhD (Goldberg), at left below, is an Associate Professor in the School of Plant Biology, Faculty of Natural and Agricultural Sciences, at the University of Western Australia in Perth. She writes, “Three children, a 500 student Biology class taught Feb to June, and an AU$2M R&D grant, are keeping me more than fully occupied. Doesn’t sound so glamorous however, so you could add instead that I am very
keen to field questions about sabbatical leave, student exchange programs, and collaborations, and that we have the best urban beaches in the world here (see photos from http://www.birdseyeviewphotography.com.au/perth_beaches.shtml, note the lack of people!), and all that publicity about sharks is only really an issue if you swim along a reef in a wet suit at dawn or dusk.

Gerald Ko ’98, at right, earned a PharmD from USC, and works with the Los Angeles County Department of Mental Health. He writes, “I started posting videos of myself singing on YouTube a few years ago, and was surprised to find a fanbase. It has been an amazing experience and it has afforded me the chance to travel and perform at places I never thought possible! My YouTube channel is at www.youtube.com/singindork888.”

Jeronimo (Jay) Ribaya ’98, ’06 PhD (Laski) is an Assistant Professor of Biology at Rio Hondo College in Whittier, California.

1980s

Joseph M. (Mike) Cleary ’80 PhD (Ray) is the Director of the National Bioenergy Center, Department of Energy National Renewable Energy Lab.

Andrew Scheinman ’89 PhD (Lake), JD, is a patent attorney in Rochester, NY, where he maintains his own boutique firm working with small companies to commercialize their products, as well as with local university students and other entrepreneurs to further their innovations by patenting, commercialization and fundraising. In his spare time Andrew exhibits his photographs and laments the general absence of good surfing.

UCLA ALUMNI LIFETIME EMAIL FORWARDING

Whether you are emailing friends, colleagues or future employers, you can show your Bruin pride by establishing and using your @ucla.edu email forwarding address. You’ll never need to send out another I’ve changed my email address message again. Register for Lifetime Email Forwarding today at https://www.uclalumni.net/NewsLinks/lifetime.cfm.

BRUINWORKS

BruinWorks is the online, interactive network exclusively for UCLA alumni. This dynamic site allows alumni to connect professionally and personally. BruinWorks is a UCLA graduate’s most valuable resource. BruinWorks enables you to:

• Search for jobs, résumés and alumni businesses
• Network socially and professionally in one place
• Access the only comprehensive alumni directory available
• Explore an all-inclusive listing of UCLA events worldwide
• Connect your Bruin experience to other online networks
• Find reliable content from university resources
Please visit [www.bruinworks.com](http://www.bruinworks.com) and click on "LOG IN" in the top right corner. If you don't have an account, you can click on "SIGN UP." If you do have an account, you can log-in with your e-mail address and password.

**GIVING TO THE DEPARTMENT**

If you are interested in giving to the UCLA Department of Molecular, Cell, and Developmental Biology, please visit [www.mcdb.ucla.edu/giving.php](http://www.mcdb.ucla.edu/giving.php). Your donation, regardless of amount, has a powerful impact and is greatly appreciated. Alumni interested in making a gift to the Department by endowing a scholarship, supporting faculty research, or making a planned gift or other gift, Siana-Lea Gildar, Associate Director of Development, Life Sciences, at 310-206-0666 or slgildard@support.ucla.edu.

Alumni and friends who are, or wish to become, Chancellor's Associates may now direct their annual gifts to the UCLA Department of Molecular, Cell, and Developmental Biology and retain all the benefits that have traditionally been given to Chancellor's Associates. For information, visit [http://www.uclafund.ucla.edu/gtg/donorrecognition.aspx](http://www.uclafund.ucla.edu/gtg/donorrecognition.aspx). (These gifts may also be made through the MCDB Giving site.)

Membership in the UCLA Alumni Association has many benefits (discounts, networking, career services, news and information, and just plain fun). [Find out more!](http://www.uclafund.ucla.edu/gtg/donorrecognition.aspx)

UCLA Alumni Association  
James West Alumni Center  
Los Angeles, CA 90095-1397  
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