

# President's report

*It starts here*

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*The following is a glimpse of some recent achievements by the faculty, staff and students of the University of California and the national laboratories managed by the university.*

## IN THE NEWS

**New Berkeley Lab contract ...** The U.S. Department of Energy has awarded a five-year contract to UC to manage and operate *Lawrence Berkeley National Laboratory*. The award was made after the first competition for the laboratory's management and operating contract was held since its inception in 1931. UC has managed the lab since 1943 for the DOE and its predecessors. The value of the contract is an estimated at \$2.3 billion. Berkeley Lab's \$469 million annual budget is funded by the DOE, other government agencies and private industry.

**Prestigious honor ...** Twelve University of California researchers were elected to the National Academy of Sciences in recognition of their achievements in scientific and engineering research. Election to the academy is among the highest honors accorded to a scientist or engineer. The UC researchers were among 72 new members and 18 foreign associates from 14 countries elected at the academy's 142nd annual meeting this year. No other university or college in the nation or world had more than six new members in this latest election. The University of California faculty elected teach at *UC Berkeley, UCLA, UC San Diego* and *UC Santa Barbara*.

**Desert programs approved ...** The Western Association of Schools and Colleges has approved a proposal to have *UC Riverside Palm Desert* offer masters' degree programs in business and fine arts this fall. This is a key step in establishing high quality educational programs at the new desert campus and sets a solid foundation for the development of future programs in a wide array of disciplines designed to address the issues confronting the region, said UCR officials. Geared to new college graduates, would-be entrepreneurs and young executives, the MBA program at UCR Palm Desert will be taught at the Richard J. Heckmann International Center for Entrepreneurial Management by professors from UCR's *Anderson Graduate School of Management* and business executives and entrepreneurs who call the Coachella Valley home.

**New leader at Los Alamos ...** UC President Robert C. Dynes appointed Robert W. Kuckuck, a veteran in national laboratory management, a former National Nuclear Security Administration official and a leading expert in nuclear weapons testing and treaty verification technologies, as interim director of *Los Alamos National Laboratory*. He replaces George Peter Nanos who took a new position with the U.S. Department of Defense. Kuckuck, 66, worked for more than 35 years at *Lawrence Livermore National Laboratory*, which is also managed by UC.

## HEALTH AND NUTRITION

**Biological component ...** A new study by researchers at the *UC Davis M.I.N.D. Institute* and colleagues demonstrate that children with autism have different immune system responses than children who do not have the disorder. This is important evidence that autism, currently defined primarily by distinct behaviors, may potentially be defined by distinct biologic changes as well. The researchers noted that a better understanding of the connection between altered immune response and autism may lead to significant advances in the early detection, prevention and treatment of this complex neurological disorder.

**Alzheimer's finding ...** Physical activity appears to inhibit Alzheimer's-like brain changes in mice, slowing the development of a key feature of the disease, according to a new study by *UC Irvine* researchers and colleagues. The research demonstrated that long-term physical activity enhanced the learning ability of mice and decreased the level of plaque-forming beta-amyloid protein fragments, a hallmark characteristic of Alzheimer's disease, in their brains. Other studies suggest that lifestyle interventions may help to slow the onset and progression of Alzheimer's. Because of these studies, scientists are seeking to find out if and how physically or cognitively stimulating activity might delay the onset and progression of the disease. In the new study, scientists have now shown in an animal model system that one simple behavioral intervention — exercise — could delay, or even prevent, development of Alzheimer's-like pathology by decreasing beta-amyloid levels.

**Genetic link ...** Alterations in a gene involved in the body's immune system dramatically increase the likelihood of developing a blinding disease-related macular degeneration late in life according to new findings by *UC Santa Barbara's Center for the Study of Macular Degeneration* and an international team of scientists. The researchers believe that the new genetic findings will lead to the development of diagnostic and therapeutic treatments.

**Water balance ...** Two infant boys whose bodies were overloaded with excess fluid have led *UC San Francisco* pediatricians to the discovery of a new genetic disease. In the process, they have discovered a rare type of mutation where different substitutions in a single amino acid cause two different, opposite genetic disorders. The new disorder is called Nephrogenic Syndrome of Inappropriate Antidiuresis. This discovery gives better insights into treating these patients and potentially many others, says *Stephen Gitelman*, principal author of the study and a UCSF professor of clinical pediatrics. It sheds new light on the mechanisms that the body uses to maintain fluid homeostasis — the correct balance of fluids needed for health and life.

## DEVELOPMENTS AND DISCOVERIES

**Essential amino acids ...** The biochemical mechanism that enables animals — likely including humans — to recognize when their diet is deficient in an essential amino acid has been identified for the first time by researchers at *UC Davis*. The findings by neurophysiologist *Dorothy Gietzen* and colleagues at UC Davis' *School of Veterinary Medicine* have implications for human health, particularly epilepsy, since some forms of epilepsy are influenced by amino acid deficiencies. That is because amino acids are the chemical units that the body uses to construct proteins for growth and development. This constitutes a basic, well conserved mechanism in the brain of mammals that allows them to respond to nutritional stress and seek out food that will improve their chances for survival, Gietzen said

**Genetic blueprint ...** An international team that includes biologists at *UC San Diego* has determined the complete genetic blueprint of *Dictyostelium discoideum*, a simple social amoeba long used by researchers as a model genetic system, much like fruit flies and laboratory mice, to gain a better understanding of human diseases. It was a seven-year-long genetic sequencing effort that involved 97 scientists from 22 institutions in five countries. The international team's achievement will have an immediate application for biomedical researchers, who can now mine the *Dictyostelium* genome for a host of genes that cause human disease, thus gaining a new and efficient way to study those human diseases with a simple organism in their laboratories.

**Butterflies everywhere ...** Millions of painted lady butterflies that fluttered into California's Central Valley in March could be just the advance guard of one of the largest migrations of the species on record, said *Arthur Shapiro*, a professor and expert on butterflies at *UC Davis*. Painted lady butterflies, known by the scientific name *Vanessa cardui*, spend the winter in the desert. As caterpillars turn into adults in the spring, they migrate north in search of fresh food and breeding grounds, powered by a supply of yellow fat they have built up over the winter.

## THE CUTTING EDGE

**New surgery technique ...** A *UC Irvine* ophthalmologist and his team have invented a new laser-surgery technique to perform cornea-transplant surgery that can replace the use of traditional handheld surgical blades and potentially improve recovery time for patients. The technique was developed by *Roger F. Steinert*, director of cornea, refractive and cataract surgery in *UCI Health Sciences*. Cornea transplants are performed on the "front window" of the eye, using living tissue from donors to replace corneas in which swelling, scars, distortions and degenerations are causing blindness. The work will lead to human application of the high-tech procedure. Clinical trials are expected to begin by this summer at UC Irvine.

**Fashion program ...** Drawn like moths to the flame of fashion, scores of *UC Davis* students arrive each year dreaming of being the next Vera Wang or Giorgio Armani. Although fashion-bound students can find somewhat similar programs at state colleges and private trade schools, UC Davis is the only campus in the UC system that offers several majors in textiles and fashion while providing its students a strong liberal arts background. And this is in the state that boasts the largest fashion production and distribution industry in the nation. By virtue of being a research university, UC Davis takes "fashion study" into a new dimension, says *Susan Kaiser*, chair of textiles and clothing. In the past few years, especially, the emphasis has broadened into research studies that look at fashion economics, social and environmental problems, media issues, and cultural influence.

**Simulating blasts ...** *UC San Diego* structural engineers together with a team of industry and university partners will develop and evaluate blast mitigation technologies to harden buildings and bridges against terrorist bomb attacks through a new \$7.5 million federal contract. More than 40 tests will be performed over the next two years in the new blast simulator laboratory at the UCSD *Jacobs School of Engineering's Englekirk Structural Research Center*. Testing is expected to begin in June, after the simulator has been commissioned. The UCSD blast simulator is the world's first laboratory to simulate the effects of bombs without the use of explosive materials. The project is led by UCSD structural engineering professors *Gil Hegemier* and *Frieder Seible*.

## PLANETS AND ENVIRONMENT

**Genetic fingerprints ...** Groundbreaking research led by the U.S. Department of Energy *Joint Genome Institute* demonstrates for the first time that the signatures of the genes alone in terrestrial and aquatic samples can accurately diagnose the health of the sampled environments. The study positions large-scale genome sequencing to accelerate advances in environmental sciences akin to the contributions DNA sequencing has made to biomedical sciences. Dubbed environmental genomic tags, the indicators capture a DNA profile of a particular ecological niche and reflect the presence and levels of nutrients, pollutants and other environmental features. *UC* manages the Joint Genome Institute.

**Water policy and a Pulitzer ...** *UC Davis* geography student Sarah Null launched a bombshell into California water politics with her master's thesis on the feasibility of draining Hetch Hetchy Reservoir with minimal harm to downstream cities and farms. That detonation launched an avalanche of public debate led by Tom Philp, a *Sacramento Bee* editorial writer who had for years reported on environmental and water-policy issues. With Null's thesis as a starting point, Philp last year wrote a series of columns and editorials that argued for undamming and restoring the once-spectacular Hetch Hetchy Valley. In April, that series won Philp and *The Bee* journalism's highest honor – the Pulitzer Prize – for editorial writing. And when Philp's colleagues toasted him with sparkling cider in the *Bee*'s newsroom, Null and her faculty adviser, Jay Lund, were there, invited by Philp to join the celebration.

## INSIGHTS INTO SOCIETY

**Healthier eating ...** When schools kick high-sugar sodas and high-fat chips off their campuses, food service department revenues tend to increase, according to a new *UC Berkeley* report. The findings, from the *Center for Weight and Health*, provide encouraging news to school officials concerned about the budgetary hit they might take if they eliminate junk food from school grounds. The results show that when kids have less access to high fat, high sugar snack foods and beverages, they will switch to healthier meals, says report co-author Patricia Crawford. This trend can benefit the students' health as well as the school food service department's bottom line, she added.

**Ratings murky ...** A new study led by researchers at the *UCLA School of Public Health* shows that parents and filmgoers who use the Motion Picture Association of America ratings system to gauge movie content receive little meaningful guidance related to violent content. The study finds that while the total average number of violent acts for each rating category increased from PG (14 acts) to PG-13 (20) to R (32), the MPAA ratings fail to predict the frequency of violence in individual films. For example, PG films contained anywhere from a single act of violence to 97 acts of violence; the range for R films was remarkably similar, ranging from one to 110 acts. In addition, the three ratings categories fail to distinguish the amount of violent content for films listing violence as a primary reason for the rating and containing the highest level of explicit violence.

**Equality elusive ...** Over the past decade, African Americans have become more visible on the cultural landscape of the United States: Jazz trumpet virtuoso Wynton Marsalis is the artistic director of Jazz at Lincoln Center; African Americans are widely seen on network television; and African Americans represent the nation at the highest levels of power. In the new book *Cultural Moves: African Americans and the Politics of Representation*, Herman Gray, a professor of sociology and chair of the department at *UC Santa Cruz*, explores the impact of such inroads on U.S. culture, examining these achievements in relation to persistent gaps in the struggle for greater social justice and equality.

## LOOKING TO THE FUTURE

**Online charter schools ...** Building on the success of its online college-prep programs, the University of California is gearing up to establish a UC Online Academy with three online charter schools slated to open in the fall of 2006. Based at UC Santa Cruz, UC College Prep Online received a three-year \$550,000 grant from the California Department of Education to develop online schools in Imperial, Mendocino, and Butte counties. The academy will provide access for independent learners and special needs students to a high-quality college preparation curriculum. Potential beneficiaries might include students in foster care or migrant families that move around, teen mothers, students in the court system, students engaged in competitive athletics or performing arts, and those who are hospitalized.

**Summer lab program ...** Middle and high school students will have the opportunity to tour state-of-the-art labs, meet professors, work side-by-side with college students and participate in daily hands-on nanotechnology projects as part of a summer program sponsored by *UC Riverside's Bourns College of Engineering*. The middle school program is for students currently enrolled in seventh and eighth grade and the high school program is for ninth graders through graduating seniors. The students will learn about nanoelectronics, nanomedicine, nano robots, and super computers, among other things. The program draws on the basic sciences to teach them about engineering and its applications for nanotechnology. It is designed to bring the concepts and practice of nanoscience alive for students who have an interest in pursuing science and technology careers.

## KUDOS

**Architecture accolade ...** Thom Mayne, a professor in *UCLA's department of architecture and urban design* and a principal in the architectural firm Morphosis, has been named the 2005 Pritzker Architecture Prize Laureate. Considered the Nobel Prize of architecture, the international award was established by the Pritzker family through their Hyatt Foundation and is awarded annually to a living architect whose built work "demonstrates a combination of those qualities of talent, vision and commitment which has produced consistent and significant contributions to humanity and the built environment through the art of architecture." Mayne is the first American to win the award since 1991.

**Innovative professor ...** Thomas C. Bruice, a professor of chemistry and biochemistry at *UC Santa Barbara*, will receive a medal and a \$15,000 prize from the National Academy of Sciences. This national honor in chemical sciences – which many consider to be the highest in the country for the field of chemistry – is awarded annually for innovative research that contributes to better understanding of the natural sciences and to the benefit of humanity. The award cites Bruice, 79, for his leading role in the development of bioorganic chemistry, and especially for deep and lasting contributions to the understanding of enzyme mechanisms.

**Patent leader, again ...** For the 11th consecutive year, the *University of California* is the leader among the nation's universities in developing new patents, according to a recent report from the U.S. Patent and Trademark Office. The report presents a preliminary list of the U.S. universities receiving the most patents for invention (i.e., utility patents) during 2004. Last year, UC recorded a total of 424 patents. UC research and work force development has been crucial in California's economic growth and global competitiveness. More than 300 R&D-intensive firms in California have been founded by UC scientists and engineers.

## INVESTING IN EDUCATION

**Largest single gift ...** *UC Irvine's Graduate School of Management* has received a \$30 million gift from philanthropist and entrepreneur Paul Merage, the largest single gift ever received by the campus. It will support the creation of endowed chairs that will facilitate the school's ongoing recruitment of top faculty; provide fellowships to support the recruitment and retention of top graduate students from around the country; and initiate research centered around business growth. In recognition of the gift, the Graduate School of Management will be renamed The Paul Merage School of Business. Merage was the principal founder of Chef America, which he sold to Nestle in 2002 to focus on his philanthropic interests.

**Long-term support ...** A *UC Berkeley* alumnus and longtime supporter of the campus, Col. Charles T. Travers, has committed \$12 million to endow the *department of political science*, which has been named in his honor and that of his late wife, Louise. Travers, 94, graduated from Berkeley with a bachelor's degree in political science in 1932, and he met his future wife in a political science class. The \$12 million endowment to the department – the largest endowed gift from an individual in Berkeley history – will help fund undergraduate scholarships, create graduate student fellowships, and support the recruitment and retention of faculty. An ardent fan of the football team who has attended more than 80 Cal-Stanford Big Games, Travers also donated \$4 million to support the Cal football program.

**Global studies ...** *UC Santa Barbara* is establishing a novel graduate program and center in global and international studies that will focus on the academic preparation of professionals to work in the global non-profit sector as well as in international government and multinational business. Kinko's founder Paul Orfalea and the Orfalea Family Foundation of Santa Barbara are providing critical seed money for the new effort in the form of a major financial pledge. UCSB will have one of the first graduate programs and centers in international studies in the nation to focus on issues of globalization, says Orfalea, who is a distinguished visiting professor in UCSB's *Global and International Studies Program*.



Robert C. Dynes  
President, University of California

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