Innovations in health research

Fellowships sparked by donor generosity

Public service versus spring break
Around Cal

1. Illuminating our health
   Detection
   Outreach
   Disease
   Education
   Technology

2. Striking a match: New graduate fellowships sparked by donor generosity

Gallery

18. Bears and bionics: Biotech startup boasts a strong Cal connection

22. Student-run market is a living classroom

Continuum of Giving

24. A helping hand for medical research
   Expanding access to the sciences at Berkeley

Faces of Excellence

26. Life’s biggest investment

Making Connections

27. Mark Twain: Still making waves

32. Bear Perspective
   Students choosing service over play

Cover: Berkeley scientists are designing smart nanoprobes, called nanocorals, to selectively attach to cancer cells, deliver therapeutic drugs, and report back. Story on p. 9. (Image by Benjamin Ross and Liz Wu)

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To view an online version of The Promise of Berkeley, visit promise.berkeley.edu.
**Proposed budget cuts $500 million from UC**

California Gov. Jerry Brown recently proposed a balanced 2011–12 state budget that includes a $500-million reduction in support for the University of California system. The 16.4 percent drop in state general fund support for UC would result in a historic shift in funding: For the first time in UC’s 143-year history, student tuition revenue would surpass what the state contributes to the University’s core operating budget. Read UC President Mark Yudof’s response.

promise.berkeley.edu/budget2011

**Bears go mobile**

The Cal community has a new way to stay connected. Download the free iPhone mobile application or browse the mobile web version of berkeley.edu from any phone. Features include a campus map, directory, events, news, varsity athletics information, and course and event videos, with more in the works.

promise.berkeley.edu/mobile

**Sotomayor presided on campus**

U.S. Supreme Court Associate Justice Sonia Sotomayor presided over the final arguments of Berkeley Law’s honors moot court competition before a crowd of 2,000 in early February. Thomas Frampton ’12 won by a “thin slice” over runner-up Edward Piper ’12.

“When I see performances like the ones you gave today, I have so much hope for our profession,” said Sotomayor.

promise.berkeley.edu/moot

**Cal tops international “green” ranking**

The Green Metric Ranking of World Universities — the University of Indonesia’s look at educational institutions’ commitment to “going green” and developing sustainability initiatives — placed UC Berkeley in the No. 1 spot.

promise.berkeley.edu/green

**Celebrating the Peace Corps**

As the Peace Corps marks its 50th anniversary, Berkeley is celebrating its unique place as the all-time top producer of volunteers and renewing the call to serve.

promise.berkeley.edu/corps

**Tweeting near the top**

Berkeley recently was named the fifth most influential college on Twitter by Klout, a service that measures social influence online. To help beat Stanford, which topped the ranking, sign up for Cal’s Twitter feed at twitter.com/cal. Not on Twitter? Follow Cal through text messaging at promise.berkeley.edu/twitter.

**The Campaign for Berkeley**

July 1, 2005 – June 30, 2013

As of November 30, 2010, the campus raised $1.94 billion toward the $3-billion campaign goal with 34% endowment and 66% non-endowment funding.
Noses like glistening sea anemones, red and lapis inkblots spreading across a brain scan, corrugated nanoprobes parachuting onto cancer cells. The world of health is clinical, yet strangely evocative and mysterious.

Some of the health discoveries at Berkeley come into view through powerful microscopes and state-of-the-art imaging. Others are shaped by human hands — those of our diligent faculty and curious students. But all of the health research on the following pages has emerged from endless days and years of prodding and pondering until slowly their secrets are released, revealing fresh possibilities for longer and happier lives.
though there’s no cure for alzheimer’s disease, neuroscience professor William Jagust is working to find ways to detect the disease early — and possibly speed the development of anti-alzheimer’s drugs. 

Jagust’s lab uses brain imaging to find biomarkers that help detect Alzheimer’s in people with very mild symptoms or no symptoms at all. His team uses a positron emission tomography (PET) scan that determines the levels of beta-amyloid, a protein believed to trigger the progression of the disease, loss of memory, and cognitive failure.

“We’re using these scans to detect this amyloid in people with very mild symptoms and people who are completely normal,” says Jagust, “and then we’re going to see what happens to them over time and if we can use these kinds of amyloid measures to find who might be at risk.”

Jagust believes amyloid buildup is the first thing to “go wrong” in the progression of Alzheimer’s — and that knowledge could prove helpful in understanding the disease and developing medications. “Finding early indicators of Alzheimer’s,” he says, “will identify subjects on whom new drugs should be tested, helping speed the development of those drugs.”

Scanning for Alzheimer’s markers

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Jet lagged? Huh?

Chronic jet lag causes memory and learning problems long after you touch down. Twice a week for four weeks, associate professor of psychology Lance Kriegsfeld and his colleagues subjected hamsters to the equivalent of a New York-to-Paris airplane flight. The critters, which have extremely precise bodily rhythms, had reductions in brain cells and long-lasting trouble learning simple tasks that their peers aced. promise.berkeley.edu/jetlag
Taking a cue from the firefly, chemistry professor Christopher Chang is testing a glowing probe that literally sheds light on hydrogen peroxide in the body — an indicator of cancerous tumors.

The probe, in development at Chang's lab, contains a bioluminescent pigment found in fireflies. When the pigment reacts with hydrogen peroxide, it creates a glow that can be viewed using a camera or, in the case of lab mice, directly through the skin. Its ability to work in deep tissue makes it a fairly unobtrusive tool for monitoring cancer.

"You can use this probe to follow the progression of both disease and treatment over the course of a long time," Chang says. "It's much more desirable than doing biopsies."

Can acquired epilepsy be prevented? Daniela Kaufer and her colleagues answered that question when they discovered a novel mechanism that explains why traumatic brain injury frequently leads to the development of seizures — and then figured out how to block it.

Kaufer found that following brain trauma, which leads to epileptic seizures 25 to 50 percent of the time, the serum protein albumin is absorbed by non-neuronal brain cells.

“What if the brain didn’t absorb the albumin at all, or what if it absorbed it but a drug blocked the switch that eventually leads to epilepsy?” Kaufer recalls wondering. She tested both theories, finding a drug that blocks the development of epilepsy 85 percent of the time for rats.

“It can take weeks to months to develop epilepsy following trauma, giving us a wonderful opportunity to reach people,” says Kaufer, whose colleagues are simultaneously using brain imaging to identify likely candidates.

The integrative biology assistant professor is pursuing clinical trials, and if the findings hold true for humans, it may lead to a new class of drugs to help prevent epilepsy — before it starts.
School of Public Health professor Joan Bloom is employing a novel method to reach out to groups that don’t traditionally seek preventative health care — the influence of religious tenets. Her study seeks to increase breast cancer screenings among Afghan immigrant women in Fremont’s sizable Afghan community.

The project is among the first of its kind to work with Afghan immigrant women, most of whom have little social contact outside their families. Typically, they don’t speak English or drive a car.

“Because of the patrimonial culture, the husband or the father — a male relative — makes the decisions,” says Bloom. She adds that the women have “no notion of prevention. In their country, they’re treated only if they have a disease.”

Building on an earlier study of Afghan women’s health and religious beliefs, researchers and community members are now collaborating to educate the women about breast health and self-examinations by relating the information to religious beliefs. Importantly, they also are teaching men in the community about their role in keeping their families healthy.
“If communities don’t advocate for themselves, entire populations will be completely left out of funding initiatives and policy priorities. It’s so important to show people that they have a voice and a role in the political process.”

— Nickie Bazell M.P.H. ’08, Asian & Pacific Islander American Health Forum national HIV prevention manager, who provides policy and prevention support for communities and nonprofits

Eye-opening diagnosis

Diabetes is the leading cause of blindness for working-age adults in this country, yet for most, it can easily be avoided through early detection and treatment.

Diabetic blindness can occur in as little as six weeks, so optometry professor Jorge Cuadros O.D. ’80, who also holds a Ph.D. in medical information science, developed software that shaves off critical diagnosis time by empowering primary care doctors to use digital retinal imaging. Called eyePACS, the diagnostic software has screened more than 90,000 patients throughout the country and in Canada, Mexico, and Colombia.

The images are snapped and analyzed by offsite optometrists and ophthalmologists. Results — and consultation — are available within a day, thus eliminating a waiting period, a particular problem for low-income or under-insured patients who frequently wait months for optometry appointments.

“A picture is worth a thousand words, and your explanation of bleeding doesn’t mean much to a patient if they can’t see it,” says Cuadros. “If they actually see their own microvascular damage and see it as a window to the rest of their body, the patient will more likely make the lifestyle and medical changes needed to control diabetes.”

eyepacs.org
UC Berkeley has more Howard Hughes Medical Institute investigators on its faculty than any other public university. The institute, a nonprofit medical research organization, ranks as one of the nation’s largest philanthropies.

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**Cellular scrutiny**

If you amputate the limb of a salamander or slice a portion of a zebrafish’s heart, both will grow back in a matter of months. Not so with humans who lose limbs or suffer heart attacks. “Why do some organisms have a spectacular capacity to re-grown and others not?” asks Iswar Hariharan, a professor of molecular and cell biology who has spent almost 20 years analyzing the fruit fly. Hariharan’s laboratory has developed a way of using mutant fruit flies to study what regulates the capacity of tissues to regenerate. His hope is that the research might eventually suggest ways to prompt the rejuvenation of diseased or injured human tissues.

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The nose **knows**

Its snout may resemble a pink, tassled lampshade, but the star-nosed mole could be the Holy Grail in understanding pain.

Humans have an extensive mix of touch receptors that react to different sensations, whether a skinned knee or brush of a feather; in different ways. But these receptors are sparsely distributed and tricky to isolate.

However, the fleshy appendages circling the mole’s nose, called the star, are packed with 10 times more sensory neurons than the human hand, making it a model system for studying the molecular mechanisms underlying pain.

Working with a colleague at Vanderbilt University, Diana Bautista, assistant professor of cell and developmental biology, is examining the star’s genes and constructing libraries for a particular type of DNA to identify unique molecules.

“Identifying touch genes that are uniquely tied to inflammatory pain or diseases that cause hypersensitivity will give us insight into what makes humans so sensitive,” says Bautista. She hopes her work will lead to new pain therapies.
Chemotherapy takes a tremendous toll on healthy cells. To more specifically target cancerous ones, bioengineering professor Luke P. Lee is leading the creation of smart nanoprobes — dubbed nanocorals — that are one one-thousandth the width of a human hair.

“They can find a diseased cell, treat it, and tell us in real time at the sub-cellular level whether the treatment is working” says Lee, who is optimistic the nanoprobes will become useful diagnostic and treatment tools. Their innovation combines different materials: roughened gold for bio-sensing on one side and smooth polymer for drug delivery on the other.

“Like natural corals, the highly roughened nanocoral surface is designed to capture molecules near the probes and report their presence back to researchers,” says Benjamin Ross, a Ph.D. student and co-leader of the study. “The type of molecules present — or absent — at the cell’s surface can provide telltale signs of how new drugs are being delivered into cells, as well as effectiveness of gene therapy.”

promise.berkeley.edu/nanocorals

A magic molecule?

Discovering a new bacterial molecule — especially one that is essential to life — is a big deal, even to a leading researcher like Daniel Portnoy. The molecule cyclic-di-AMP, secreted by bacteria, gives scientists a new inroad to understanding how pathogens act and how bodies respond — potentially leading to new vaccines and therapeutics with global health implications.

“We think this is the magic molecule we have been searching for,” said Portnoy, professor of molecular and cell biology and public health and associate director of the Center for Emerging and Neglected Diseases, who made the find with postdoc biochemist Joshua Woodward.

Portnoy says his collaborative research team, funded with a $5-million National Institutes of Health grant, is cracking the mystery of how molecules, like cyclic-di-AMP, might provoke a body’s immune system to attack cancer cells or combat bacteria that cause tuberculosis and other diseases.
Top wellness tips

For 26 years, the Wellness Letter has been providing readers with a day-to-day approach to a long, healthful life. Here’s some of its recent practical advice:

- **Take good care of your teeth** — it may help protect your heart. People with poor oral hygiene are at higher risk for heart disease than those who brush twice a day.
- **Refresh your brain by walking in nature.** Just 5 to 20 minutes of “green exercise” can improve memory, increase physical and mental energy, and enhance a sense of well-being.
- **Consider taking vitamin D.** Besides its crucial role in keeping bones strong, vitamin D supplements may reduce the risk of chronic diseases. A sensible amount is 800 to 1,000 IU a day.
- **You don’t have to lift heavy weights to gain muscle.** Lighter weights may be even more effective — provided you lift them to fatigue.
- **Another reason to keep your blood pressure under control:** Uncontrolled hypertension over the years increases the risk of dementia.

Visit wellnessletter.com, subscribe by calling 800.829.9170, or sign up for free email alerts at BerkeleyWellnessAlerts.com.

Advocating for undergraduate research

Tonia Hsieh ’99 helped unlock the secret of how geckos stick to things — with results published in Nature when she was just an undergraduate.

Last fall, Hsieh, now a biology professor at Temple University, sat alongside her Berkeley mentor, Professor Robert Full, to brief the U.S. House of Representatives’ Science, Technology, Engineering and Mathematics Education Caucus.

“I was mesmerized by the fact that the gecko foot appeared to be so over-designed,” says Hsieh, describing how research hooked her: “If we don’t grab imaginations by the time people are undergrads, we aren’t going to.”

With more than 40 undergraduate research programs available, Berkeley undergrads can follow in her footsteps — or imprint their own.
“The media world is changing a huge amount every day, as is the world of public health. We can give students tools and skills to help them navigate this new marketplace.”

— David Tuller, coordinator of a concurrent degree program in journalism and public health launching this fall — the only one of its kind at a leading university.

Though Kristin Richmond and Kirsten Tobey completed their Berkeley M.B.As in 2006, they still bring lunch to school. Actually, they have brought more than 40,000 lunches to school! In 2006, the two co-founded Revolution Foods, a company that provides healthy school meals and nutrition education for kids in low-income areas.

Dishing up home-style fare such as spaghetti marinara, brown rice, and fresh fruit earned Revolution Foods the $25,000 grand prize at the international 2007 Global Social Venture Competition. This spring, the duo — whose enterprise now serves more than 100 education programs in California, Colorado, and Washington, D.C. — is being recognized by the Cal Alumni Association for excellence in achievement by young alumni.

“Our guiding principles and the ways in which we conduct business are something we solidified in the Berkeley M.B.A. program,” says Tobey. When they met at Berkeley, both she and Richmond had worked on school food service programs and were interested in starting a school lunch venture.

Once a month, Revolution Foods serves something that kids may not have tried. “There is a glimmer in a kid’s eye when he realizes, ‘Hey I like brown rice!’ that shows us he is getting engaged with food,” says Richmond. For both Richmond and Tobey, that glimmer is the spark of a revolution.
Rick Henrikson will soon visit South Africa with a small device and big ideas. The bioengineering Ph.D. student is developing a hand-held tool that can detect tuberculosis DNA sequences and mutations associated with drug resistance, and South Africa’s high TB rates — and remote, poor areas — make it ideal for testing the device.

Henrikson founded Berkeley’s Point-of-Care Diagnostics Idea Lab, where students discuss ideas for inexpensive “lab on a chip” devices. Other innovations include a sample-preparation device for use in developing nations and a tool that scans the fluid in tears for disease biomarkers.

“For point-of-care diagnostics is not just for global health — it includes rural medicine and emergency healthcare,” notes Henrikson. “Our motivation is to improve care in resource-poor settings.”

Quicker MRIs... more insight?

In the journal PLoS ONE, a Berkeley physicist and colleagues from the University of Minnesota and Oxford University described improvements that allow full three-dimensional brain scans in less than half a second, instead of the typical 2 to 3 seconds.

“It was unbelievable how fast we were going,” says David Feinberg, an adjunct professor in Berkeley’s Helen Wills Neuroscience Institute. “It was like stepping out of a prop plane into a jet plane.”

For neuroscience, fast scans are critical for capturing the dynamic activity in the brain — and could lead to insights about diseases that involve mis-wiring in the brain.

“We suspect several neurologic and psychiatric disorders, such as autism and schizophrenia, could be brain connectivity disorders,” Feinberg says. “but we don’t know what normal connectivity is.”

Leveraging the “lab on a chip”

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Li Ka Shing Center Rises Up

Perched on the western edge of campus, the Li Ka Shing Center for Biomedical and Health Sciences is slated to be completed in the fall and ready for prime time by January 2012. The five-story, state-of-the-art complex — to house 30 faculty teams researching cancer, stem cells, infectious diseases, and neuro-developmental and degenerative diseases — will feature highly specialized laboratories built for collaboration and the Henry H. Wheeler, Jr. Brain Imaging Center.

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Arsenic may be thought of as just another murder weapon in an Agatha Christie novel, but in real life it has caused the largest mass poisoning in human history. An estimated 40 to 70 million rural Bangladeshis drink water that is contaminated with naturally occurring arsenic. More than 40,000 cases of painful lesions and cancers, among many insidious illnesses, have been diagnosed, and many more people will likely suffer.

Electrochemical arsenic remediation, supported by the Blum Center for Developing Economies, offers a promising new clean-up technology that’s affordable and effective. Susan Addy, a postdoctoral fellow in civil and environmental engineering, says the process is deceptively simple.

“We add pieces of iron to the water and run a small amount of electricity through the iron to make it rust,” she says. “The arsenic grabs onto the rust, leaving large particles that can be filtered out.”

Addy and a Yale colleague, Susan Miller (shown above), recently returned from a field trial in West Bengal, India, where they successfully remediated about 370 gallons of water, a small step in the right direction. Their goal is to create locally owned kiosks where clean water is sold cheaply.

“We know there are several ways to solve this problem, so let’s try them,” says Addy, adding that the project’s value will be increased by education and community buy-in.
Decades before any fourth grader could define “global warming,” John Swift ’76, a bright undergraduate in the College of Natural Resources, was aware of the threat and charting a career to help save the planet.

Now Swift is an organic farmer with a 600-acre ranch near San Luis Obispo, and he is bringing his dedication to the environment back to Berkeley with a $250,000 fellowship gift for graduate students enrolled in a new master’s program in sustainable development. The gift was augmented by an innovative matching program offered by the Graduate Division and by the MacArthur Foundation’s support for the new Master’s of Development Practice.

“It’s matched on two sides,” says Swift of his fellowship gift. “That’s always a nice thing for a donor.”

The Graduate Fellowships Matching Program was launched in 2008 after
Graduate Division Dean Andrew Szeri committed to allocating ongoing, annual amounts of $1 million in matching funds. Donors to schools and colleges across the University — from journalism to biological science — seized the opportunity and have created 31 new fellowships to date.

Swift, who is involved in global environmental work with indigenous communities from British Columbia to Papua New Guinea, says he sees a vital need for donors to fill some gaps. "It's important for students' education and the well-being of the good international development work being accomplished," he says.

**Remembering a pioneer**

Paul Lin ’64, M.S. ’66 wanted to ensure the modest fellowship already named for his father — renowned structural engineer Tung-Yen “T.Y.” Lin — was

Human rights. Agriculture. Climate change. Infectious diseases. Bridging these and other areas, Berkeley students in a new interdisciplinary Master’s of Development Practice program, beginning in fall 2012, will be immersed in professional studies and then dispatched around the developing world to serve and to learn. Meant to educate a new generation of sustainable development “generalists” who can cross disciplines, the grant from the John D. and Catherine T. MacArthur Foundation is helping to launch the program at Berkeley and at universities around the world.

Faculty say fellowship support from donors such as John Swift ’76 is critical to the program, especially given the expenses related to international work.
memorable and not just a small part of a student’s financial aid package. As a director of the T.Y. Lin Foundation, he encouraged the board to take advantage of the Graduate Division match to make the foundation’s most significant contribution to date — $383,000 for the T.Y. Lin fellowship and $100,000 for a prize in architecture and engineering.

“With full tuition and room and board, whoever gets this fellowship — one of the top students — will remember my dad’s name and what he contributed to the field and to the University,” says Lin, a retired electrical engineer.

Lin was 10 years old when he watched his dad use a manual typewriter to tap out a book about pre-stressed concrete that would help alter the direction of modern design in the second half of the 20th century.

T.Y. Lin — who became an acclaimed UC Berkeley professor — was considered one of the greatest structural engineers of his time. His elegant structural designs include San Francisco’s Moscone Center. He and his wife donated their El Cerrito home to Cal in 1988 to endow a faculty chair in engineering. He died in 2003 at age 91.

Paul Lin, a striking doppelganger to his father, says his dad would have approved of the significant contribution. “You can only take so much with you. That was my dad’s attitude,” says Lin affectionately. “He loved his job, his teaching, and mostly his students — and this is for them.”

Walking in his footsteps

Margaret Steyer ’75 says her dad, optometrist Joseph Singer ’38, would have been profoundly humbled if he knew of the fellowship recently established in his name. He was a modest man, the youngest of five, who planned to make his way in the trades during the Great Depression.

Instead, his brother-in-law Bill Brown, an Oakland jeweler, sent him to UC Berkeley. It was a privilege but also a challenge as Singer would take a street car from his home in San Francisco’s Fillmore District,
board a ferry across the Bay, and ride a second street car to Cal each day. Although he was sometimes daunted by the rigors of academic study, says Steyer, he passed his optometry board exams with top scores.

“I feel fortunate to be able to give back and to do this because my dad was fortunate,” says Steyer, who also donated some of her father’s now-antique optometry equipment after he died in 2008.

“He was all about giving back and serving his community. He watched his patients grow up and their children have children along the way.”

The Joseph Singer Fellowship supports optometry students who plan to hang a shingle in private practice — just as Singer did for more than five decades in San Jose. Steyer says she’s so pleased to support students who need a little help — students she knows will be walking in the footsteps of her dad.

Danielle Wong, a fourth-year optometry student who is on rotation in New Jersey, says support from the Joseph Singer Graduate Fellowship and other fellowships has been essential. “Every little bit makes a difference for us optometry students — especially because we don’t have time to hold a job on the side,” she says. “The average student leaves here with more than $100,000 in debt.”

Wong says she decided to become an optometrist after volunteering to help examine eyes during a month-long service trip in Ghana. Recently engaged to be married, she hopes to carry the torch of optometrists like Singer by opening her own practice in the Los Angeles area.
Film 50, an undergraduate course for all majors, is exploring the connection between cinema and fairy tales. Shown here is Jean Cocteau’s classic Beauty and the Beast (France, 1946), an enchanting, sensuous tale about Belle (Josette Day), who, in order to save her father, agrees to live with the hideous Beast (Jean Marais) and slowly falls in love with him. Film 50, which runs through April 27 at the PFA Theater, is open to the public as space permits. bampfa.berkeley.edu.
“The stuff we’re doing is so cutting-edge, it would be impossible without what I learned in my studies and my relationships at UC Berkeley,” says Tim Swift Ph.D. ’11, an engineer who has worked on eLEGs for three years. “There’s nobody in the world with the years of experience that our research lab has in working with exoskeletons.”

Walking seems so simple

The work to develop eLEGs has encompassed a wide-ranging team including engineers, a physical therapist, an orthotist, and approximately 20 test patients with varying degrees of immobility.

For Swift, the greatest challenge has come in understanding how spinal-cord injuries affect patients differently. “The same spinal cord injury can have vastly different effects on people,” he says. “Walking seems so simple, and yet since people are so different, it’s a new experience for us as each person tests the device.”

Similar challenges are presented to Katie Strausser Ph.D. ’11, another engineer from the Kazerooni lab who works on the eLEGs interface, which lets users tell...
eLEGs what movement they want to make. Interested in robotics, Strausser was drawn to Berkeley Bionics when she realized that she could apply her area of study to a field with a decidedly human element.

“If the person wants to take a step, I’m trying to come up with a method that’s easy to use for everyone, that can be learned quickly and still get all the functionality we want, and to be safe,” she says.

PRAISE AND EMOTION

As eLEGs’ paraplegic testers stand up and walk, the media is sitting up and taking notice. Following eLEGs’ debut, Time magazine named it one of the 50 best inventions of 2010, and CNN and Wired magazine offered similar accolades.

Kazerooni has helped his students keep all of the good press in perspective. “He’s fairly established in his career, and he’s overjoyed that we’ve got the recognition we’ve had,” says Swift. “He’s also joked that we’ll have a hard time topping this.”

As the headlines continue, so does work on eLEGs. Clinical trials will start later this year at several rehabilitation clinics, with plans to market eLEGs commercially by early 2012. Until then, Berkeley Bionics will continue to fine-tune the product with its testers — and team members are savoring each step on eLEGs’ path to market.

“Watching (the testers) walk for the first time in years is incredibly emotional,” says Strausser. “There’s not a dry eye in the office.”

THE CAL CONNECTION

Six current and former Berkeley students are perfecting the eLEGs technology:

Kurt Amundson M.S. ’05, Ph.D. ’07
Dylan Fairbanks ’99, M.S. ’00
Reuben Sandler ’97, M.S. ’99
Katie Strausser Ph.D. ’11
Tim Swift Ph.D. ’11
Adam Zoss M.S. ’03, Ph.D. ’06
When a major fast-food chain, Panda Express, tried to open on campus in 2009, students rallied to protest its nutritional value and business ethics. Not only did they prevent the deal from going through, their vision for a healthier alternative was realized last fall when the Berkeley Student Food Collective, a 600-square-foot market, opened just steps from Sproul Plaza.

Operating as a collective, in which members donate free labor on a weekly basis, the store sells fresh fruits and vegetables grown within 150 miles, organic milk, cage-free eggs, and dozens of staples that the campus and surrounding community can purchase. Eventually the collective hopes to include sandwiches, soups, and other prepared offerings.

Aside from the healthy goods, several elements add to the collective’s primary mission to educate customers about their food choices, including a vivid mural showing farm-to-table scenes; definitions painted on the wall for common words that are often misunderstood, such as “sustainability” and “food system”; illustrations by month of what’s being harvested at that time; and checklists attached to each item that delineate whether it’s local, fair trade, or vegan, among other categories.

“We define ‘real food’ as that which is locally grown, fair,
“We want this to be a living classroom,” says operations manager Alex Stone ’09, the store’s only paid employee.

Members of the collective are also hosting films, lectures, and other events, as well as teaching a Cal course this spring on social, economic, and environmental issues surrounding food and agriculture. The course includes a service component in which Berkeley students will teach local fifth graders about nutrition.

“We want to use the medium of food to integrate larger concepts into your daily sandwich,” says volunteer Yassi Eskandari ’11.

Operating a small business has proven to be an education in itself. The students had to learn how to incorporate as a nonprofit and raise capital. In fact, they received $91,000 — the largest grant given to date — from the campus’s Green Initiative Fund, which is dedicated to reducing Berkeley’s environmental impact.

The collective also cracked the red tape of the University and city of Berkeley, readied the space, and developed a philosophy modeled after the Real Food Challenge, a national organization devoted to bringing local, healthful foods to campuses nationwide.

“We define ‘real food’ as that which is locally grown, fair, ecologically sound, and humane,” says Stone. “The challenge aims for campuses to offer 20 percent real food by 2020. We’ve only been open a few months, and we’re at 100 percent.”

— Alex Stone ’09
Andy Grove Ph.D. ’63 made his mark on Silicon Valley — and the computing world — by blending innovation with speedy product development. Now the Berkeley alumnus and former Intel Corp. chief executive hopes to do the same for medicine, pledging $1.5 million for a new master’s-level program to accelerate the translation of cutting-edge medical research into better patient care.

The program, offered jointly by Berkeley and UC San Francisco, could help speed the delivery of new therapies for pre-term labor, pediatric cancer, and a variety of other medical issues.

“What we learned from decades of rapid development of information technology is that the key is relentless focus on ‘better, faster, cheaper’ — in everything,” says Grove, who earned his Ph.D. in chemical engineering. “The best results are achieved through the cooperative efforts of different disciplines, all aimed at the same objective.”

Grove outlined his idea for the translational medicine program in November 2009 at a conference at UCSF, and the program’s components fell into place soon after: The program began last semester with roughly a dozen students and is being offered through the master’s program in the two schools’ joint engineering graduate group.

Grove’s desire to speed up the development of medicine stems in part from personal experience: he battled prostate cancer in the 1990s and currently suffers from Parkinson’s disease.

Matthew Tirrell, chair of Berkeley’s bioengineering department and co-director of the program, is confident that the new venture is a good fit for both campuses and the students and faculty involved.

“The problem that actually bothered me is that there are dozens of ways of dealing with cancer in mice or neurological diseases in mice, and none made it across the chasm [to market],” Grove told the Wall Street Journal.
Philanthropists **Mitch Kapor** and **Freada Kapor Klein '74** frequently help underrepresented students make their mark at Berkeley and other universities. Now, as board members of the Mitchell Kapor Foundation, the couple aims to strengthen Cal's pipeline of students of color in the sciences, thanks to a $250,000-per-year, five-year gift to launch the Berkeley Science Network (BSN).

The gift, made to the College of Letters & Science, follows similar efforts by Mr. Kapor and Dr. Kapor Klein including the IDEAL Scholars Fund, which covers tuition for as many as 60 L&S minority students at any given time, and the Level Playing Field Institute, which promotes innovative approaches to fairness in higher education among its other work.

“We deeply believe in creating opportunities for the best and brightest who come from neighborhoods, communities, and populations that are often overlooked and untapped,” says Dr. Kapor Klein, who also serves as a UC Berkeley Foundation trustee. “Meritocracy is a myth — students don’t succeed just based on their hard work and intelligence alone; people succeed because they are provided with the resources and access to make a difference.”

Statistics bear out the need for such support: Underrepresented minorities accounted for fewer than 10 percent of bachelor’s degrees awarded nationally in science, technology, engineering, and mathematics, according to the most recent (2007) figures from the National Science Foundation.

BSN will provide participating students with mentoring, networking opportunities, and chances to take part in research and professional-development activities. The students, in turn, will offer support to low-income high-school students in the Summer Math and Science Honors (SMASH) Academy, another initiative launched by the Kapors’ leadership at the Level Playing Field Institute.

The network will “open the window on the world of scientific discovery, opportunity, and careers to people from groups that have been historically underrepresented,” says L&S Executive Dean **Mark Richards**, adding that BSN will focus on mathematics, physical science, and computer science — areas of study in which African Americans, Latinos, Native Americans, and Pacific Islanders are particularly few and far between.●
Murray, father of Sam '08 and Ben '12, was diagnosed with an aggressive brain cancer in 2008 and given 12 to 16 months to live. Not only did he outlive that prognosis, he co-wrote an investing primer, *The Investment Answer*, with his friend and financial advisor Daniel Goldie M.B.A. '97 that served as his last wish to help all investors protect their financial future.

“Most people are hardworking and honest, yet don’t have basic questions answered on how to manage their money,” Murray said in a December interview. *The Investment Answer* cuts through the mumbo jumbo and succinctly discusses the fundamentals, such as whether or not you should handle your own money, sorting through the heap of allocation options, and rebalancing your portfolio. The book, initially self-published because of the time constraints of Murray’s illness, is being reprinted in hardcover.

Murray’s inspirational leadership was also felt at Berkeley, where he and his wife, Randi, volunteered for the Cal Parents Board, of which he was vice chair. Concerned about the state’s diminishing support, they invited other parents to contribute to Cal and played a pivotal role in merging two different parent volunteer groups into one high-impact board.

“We really embraced Berkeley’s social mission to act as a conduit to mainstream society for talented students from all backgrounds,” said Murray. “It prepares students better than many other schools.”

Whether he was advocating for Berkeley or for every American investor, Murray made the most of the hand he was dealt. In a final act of generosity, he included the Cal Parents Fund among the beneficiaries of gifts made in memoriam.
The much anticipated first volume of the autobiography of legendary American author and humorist Mark Twain created a buzz before it even hit stores last October — 100 years after he died. Published due to the herculean efforts of editors at the Mark Twain Project at Berkeley’s Bancroft Library, the 756-page tome is the first of three installments of the only complete, authoritative, and uncensored autobiography by the author, whose real name was Samuel Langhorne Clemens. Writer of legendary books such as *The Adventures of Tom Sawyer* and *Huckleberry Finn*, he directed that this autobiographical material remain unpublished for a century after his passing.

In the book, Twain shares his unfiltered, often controversial opinions and rants about people, religion, war, politics and just about anything else that crossed his mind. The 100-year delay guaranteed that those he criticized or ridiculed would not feel the sting of his words, nor would his or their sons, daughters, and grandchildren.

“He (Twain) gets to say exactly what he wanted, how he wanted,” says Robert Hirst, general editor of the Mark Twain Papers, who cautioned that the book isn’t chronological. “It is a storyteller’s autobiography. He didn’t give us a cradle-to-grave narrative.”

Hirst says the crew of editors who combed through the mountain of autobiography typescripts, dictations, and notes found that Twain’s “memory of the facts isn’t perfect, but it’s pretty damn good.”

Even on a campus that’s home to Nobel- and Pulitzer Prize-winning authors, the autobiography created an unprecedented media blitz. It quickly hit bestseller lists — necessitating numerous additional press runs — and inspired a steady stream of feature stories and reviews of what Hirst says is “Mark Twain’s last major literary work.”

Mark Twain: still making waves

*Autobiography published a century after his death*
Advisors and friends of the Goldman School of Public Policy gathered at a recent dinner featuring Professor Robert Reich.

1. Amy Slater, Steve Silberstein ’64, M.L.S. ’77, Bob Epstein ’74, Ph.D. ’80, Carina Ryan, and Garret Gruener M.A. ’77.

2. Professor Robert Reich and Candy Friesen ’50.

3. At a Benjamin Ide Wheeler Society event, Bill Callender ’52 posed with a “plug” hat dating back to the Class of 1913. Callender has donated the hat to the Cal Spirit Case in Alumni House.

4. Professor and former Chancellor Michael Heyman (second from right) at the ribbon-cutting ceremony of Boalt Hall’s new Heyman Terrace, with Roy Eisenhardt LL.B. ’65, Dean Christopher Edley Jr., former Vice Chancellor Roderic Park, Elizabeth Heyman, Cathy Park, and Betsy Eisenhardt C.Mult ’67, J.D. ’76.

Upcoming Events

This spring, enjoy new installments of UC Berkeley’s traveling lecture series, which brings the University’s distinguished faculty to the extended Cal family for provocative lectures in an informal setting.

Register at discovercal.berkeley.edu.

The Story Behind the Autobiography of Mark Twain

Monday, March 28 Orange County
Tuesday, March 29 Lafayette

Inspiring Discussions on K–12 Public Education

Tuesday, March 29 Los Angeles
Wednesday, March 30 Peninsula/Silicon Valley
5. College of Letters & Science Executive Dean Mark Richards and Shri Kapil Sibal, India’s Honorable Human Resource Minister, share stories during a formal dinner with the Indian delegation and Indo-U.S. community leaders at the International House.

East Coast alumni gathered at a reception held at the University Club of New York. The event was hosted by Douglas Ph.D. ’93 and Allison ’93 Greenig.

6. Jeff Davis ’89, Winston Wu ’00, and Pari Olver ’01 chat at the reception.

7. Transamerica Professor of Business Strategy Carl Shapiro and Graduate Dean Andrew Szeri speak with Douglas Greenig (center).

8. Judge Thelton Henderson J.D. ’62 of the U.S. District Court, Northern District; Judge William Fletcher of the U.S. Court of Appeals, Ninth Circuit; and Judge Charles Breyer J.D. ’66 of the U.S. District Court presided over Berkeley Law’s 2010 state bar admissions ceremony.

9. Victoria and Barry Fong ’66 join Professor Jasper Rine at a reception for On The Same Page, a program offered by the College of Letters & Science. In the program, students explored personalized medicine and technology to predict, diagnose, and treat human disease.
Faculty, alumni, and distinguished guests gathered for the Library’s celebration of the publication of the Autobiography of Mark Twain, Vol. 1. The event feted the work of the Library’s Mark Twain Papers and Project, which has produced the landmark edition.

10. Author Maxine Hong Kingston ’62, C. Sing ’65.

11. Actress Rita Moreno.

12. Library board member Michael Chabon, Professor Robert Hass and Bob Haas ’64 (co-chairs of the Campaign for the University Library).

13. Carolyn Sheaff ’58 with Roger ’58, J.D. ’64 and Jeane Samuelsen.

14. At the 2010 Citation award Dinner, the Boalt Hall Alumni Association honored Edward Halbach, Jr. with the Faculty Lifetime Achievement Award, Nan Joesten J.D. ’97 with the Young Alumni Award, and Irving Tragen J.D. ’45 with the Citation Award.

Upcoming Events

Cal Day
Saturday, April 16
9 a.m., UC Berkeley campus

Cal Day, the campus’s annual open house and preview day, offers visitors of all ages an inside look at the world’s leading public university. Admission is free to all — including youngsters eager to see a giant T. rex, families who want to explore campus museums, and prospective students looking for information on academic programs.

calday.berkeley.edu
Co-chairs of the Cal Parents Board Christina Janssen and Richard Steiny ’79 led the Cal Parents Board meeting in October. Eighty members strong, the board serves as peer fundraisers, ambassadors, and informal campus advisers.

Pam Samuelson (right), director of the Berkeley Center for Law and Technology, and Chancellor Robert Birgeneau talk with U.S. Supreme Court Justice Sonia Sotomayor at a dinner celebrating Berkeley Law’s annual McBaine Moot Court Competition. Justice Sotomayor presided over the competition, which took place at Zellerbach Hall and drew more than 2,000 spectators.

UC Berkeley Foundation Chair Katherine Lau ’88 and James Lau ’81 join Van Carey (left) and Eli Yablonovitch (right) to celebrate the professors’ appointment to two chairs funded by the Laus and matched by the Hewlett Challenge.

The Center for Nonprofit and Public Leadership at the Haas School of Business hosted Mike Milken ’68 (right) for its Schwab Charitable Philanthropy Speaker Series. Pictured with Milken are Schwab Charitable president Kimberly Wright-Violiach, Dean Rich Lyons ’82, and center director Nora Silver.
Instead of hitting the beach or slopes, 120 Berkeley undergraduates will spend spring break providing community service. Alternative Breaks, part of the Cal Corps Public Service Center, is offering 10 trips in four states in which students work with people directly affected by homelessness, immigration, health disparities, and other social issues. Each trip is bolstered by a semester-long course on its respective issue and taking action locally. Here are insights from some of this year’s student leaders.

promise.berkeley.edu/breaks
There is a sort of magnetism that draws me back to Alternative Breaks. It is about collectively addressing an issue as novices, entering a community as academics, and learning what it is to work within and outside of that realm. It is humbling. It is enriching. It is challenging. But above all, it is enjoyable.

— Nicole Pay, Alternative Breaks training and sustainability director

In order to be a true student, one must constantly situate oneself in a social, political, economic, and cultural context and actively engage in the dynamic relationship between theory and practice. … I feel passionately about the Alternative Breaks program because it encourages students to step beyond their textbooks and emerge as thoughtful, pragmatic global citizens.

— Rachel Fryke, leader for Immigration and Arizona (Phoenix and Tucson, AZ)

I have learned a lot about the humanity of homelessness. At first I was defeated by the fact that I couldn’t give them a house, but in the end I realized that I could give them a home. Beyond material needs, we all need the human connection.

— Rica Garcia, leader for Immigration into Homelessness (San Francisco and Sacramento, CA)

I want to share the story of Hurricane Katrina with some justice and instill hope. … Alternative Breaks encourages you to think about the people and area you are serving. It encourages a sense of solidarity … You have to know what that community wants — not just do something for them without their thoughts, well-being, and needs in mind.

— Rebecca Fisher-McGinty, leader for Rebuilding the Gulf Coast (New Orleans, LA)