740,000 Llives saved in Africa by AIDS relief program, study says

By Ruthann Richter

The U.S. President’s Emergency Plan for AIDS Relief, the government’s far-reaching health-care foreign aid program, has contributed to a significant decline in adult death rates from all causes in Africa, according to a new study by School of Medicine researchers.

Between 2004 and 2008, PEPFAR was associated with a reduction in the odds of death of nearly 20 percent in the countries where it operated. The researchers found that more than 740,000 lives were saved during this period in nine countries targeted by the program. “We were surprised and impressed to find these mortality reductions,” said Eran Bendavid, MD, assistant professor of medicine. “While many assume that foreign aid works, most evaluations of aid suggest it does not work or even causes harm. Despite that, we found that PEPFAR is associated with reduced mortality.”

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New type of retinal prosthesis could better restore sight to blind

By Jonathan Rabinovitz

Using tiny solar-panel-like cells surgically placed underneath the retina, scientists at the School of Medicine have devised a system that may someday restore sight to people who have lost vision because of degenerative eye diseases.

This device — a new type of retinal prosthesis — would use a special pair of goggles, equipped with a miniature camera and a pocket PC to process the visual data stream. The resulting images would be displayed on a liquid-crystal microdisplay embedded in the goggles, similar to what’s used in video goggles for gaming.

Unlike the regular video goggles, though, the images would be beamed from the LCD using laser pulses of near-infrared light to a photovoltaic silicon chip — one-third as thin as a strand of hair — implanted beneath the retina.

Electric currents from the photodiodes on the chip would then trigger signals in the retina, which then flow to the brain, enabling a patient to regain vision.

A study, published online May 13 in Nature Photonics, discusses how scientists tested in vitro the photovoltaic stimulation using the prosthetic device’s diode arrays in rat retinas. The study reports that the researchers succeeded in eliciting electric responses, which are widely accepted indicators of visual activity, from retinal cells. The scientists are now testing the system in live rats, taking both physiological and behavioral measurements, and they are hoping to find a sponsor to support tests in humans.

“It works like the solar panels on your roof, converting light into electric current,” said Daniel Palanker, PhD, associate professor of ophthalmology and one of the paper’s senior authors. “But instead of the current flowing to your refrigerator, it flows into your retina.”

Palanker is also a member of the Hansen Experimental Physics Laboratory at Stanford and of the interdisciplinary Stanford research program, Bio-X.

The study’s other senior author is Al-exander She’ar, PhD, of the Santa Cruz Institute of Particle Physics at UC Santa Cruz; its co-first authors are Keith Matheson, PhD, a visiting scholar in Palanker’s lab, and James Loudin, PhD, a post-doctoral scholar. Palanker and Loudin joined conceiving and designing the prosthetic system and the photovoltaic arrays.

There are several other retinal prostheses being developed, and at least two of them are in clinical trials. A device made by the Los Angeles-based company Second Sight was approved in April for use in Europe, and another prosthetic device, a German company called Retina Implant AG, announced earlier this month results from its clinical testing in Europe. Unlike these other devices — which require coils, cables or antennas inside the eye to deliver power and information to the retinal implant — the Stanford device uses near-infrared light to transmit images, thereby avoiding any need for wires and cables, and making the device thin and easily implantable.

“Unfortunately, the current implants are very bulky, and the surgery to place the intraocular wiring for receiving, processing and power is difficult,” Palanker said. “The device developed by his team, he noted, has virtually all of the

Sleepwalking in adults more prevalent than previously thought, study says

By Michelle L. Brandt

What goes bump in the night? In many U.S. households: people.

That’s according to new School of Medicine research, which found that about 3.6 percent of U.S. adults — or upward of 8.4 million — are prone to sleepwalking. The work also showed an association between nocturnal wanderings and certain psychiatric disorders, such as depression and anxiety.

The study, the researchers noted, “underscores the fact that sleepwalking is much more prevalent in adults than previously appreciated.”

Marcie Ohayon, MD, DSc, PhD, professor of psychiatry and behavioral sciences, is the lead author of the paper, which was published in the May 15 issue of Neurology, the medical journal of the American Academy of Neurology.

Sleepwalking is a disorder of arousal from non-REM sleep. While wandering around at night can be harmless and is often played for laughs — anyone remember the Simpsons episode where Homer began wandering around and doing silly things in his sleep? — sleepwalking can have serious consequences. Episodes can result in injuries to the wanderer or others and lead to impaired psychosocial functioning.

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Surprising genetic diversity found in cells shed by tumors

By Sarah C.P. Williams

The cells that slough off from a cancerous tumor into the bloodstream are a genetically diverse bunch, medical school researchers have found. Some of these cells may have genes turned on that give them the potential to lodge themselves in new places, helping a cancer spread between organs. Others have completely different patterns of gene expression and might be more benign, or less likely to survive in a new tissue. Some cells may even express genes that could predict their response to a specific therapy. Even within one patient, the tumor cells that make it into circulating blood vary drastically.

The finding underscores how multiple types of treatment may be required to cure what appears outwardly as a single type of cancer. And it hints that the current cell-line models of human cancers, which showed patterns that differed from the tumor cells shed from human patients, need to be improved upon.

The results, published online May 7 in PLoS ONE, are the first to look at so-called circulating tumor cells one by one, rather than taking the average of many of the cells. And it’s the first to show the extent of the genetic differences between such cells.

Within a single blood draw from a single patient, we’re seeing heterogeneous populations of circulating tumor cells, said senior study author Stefanie Jeffrey, MD, professor of surgery and chief of surgical oncology research. For over a century, scientists have known that circulating tumor cells, or CTCs, are shed from tumors and move through cancer patients’ bloodstream. Over the past five years, there’s been a growing sense among cancer researchers that these cells — accessible by a quick blood draw — could be the key to tracking tumors non-invasively. But separating CTCs from blood cells is hard; there can be as few as one or two CTCs in every milliliter of blood, mixed among billions of other blood cells.

To make their latest discovery, Jeffrey, along with an interdisciplinary team of engineers, quantitative biologists, genome scientists and clinicians, relied on a technology they developed in 2008. Called the MagSweeper, it’s a device that lets them isolate live CTCs with very high purity from patient blood samples, based on the presence of a particular protein — EpCAM — that’s on the surface of cancer cells but not healthy blood cells.

With the goal of studying CTCs from breast cancer patients, the team first tested whether they could accurately detect the expression levels of 95 different genes in single cells from six different cell-line models of breast cancer — a proof of principle since they already knew the genetics of these tumors. They included four cell lines generally used by breast cancer researchers and pharmaceutical scientists worldwide and three cell lines specifically generated from patients’ primary tumors.

“Most researchers look at just a few genes or proteins at a time in CTCs, usually by adding fluorescent antibodies to their samples consisting of many cells,” said Jeffrey. “We wanted to measure the expression of 95 genes at once and didn’t want to pool our cells together, so that we could detect differences between individual tumor cells.”

So once Jeffrey and her collaborators isolated CTCs using the MagSweeper, they turned to a different kind of technology: real-time PCR microfluidic chips, invented by a Stanford collaborator, Stephen Quake, PhD, professor of bioengineering. They purified genetic material from each CTC and used the high-throughput technology to measure the levels of all 95 genes at once. The results on the cell-line-derived cells were a success; the genes in the CTCs reflected the known properties of the cell-line models. So the team moved on to testing the 95 genes in CTCs from 50 human breast cancer patients — 30 with cancer that had spread to other organs, 20 with only primary breast tumors.

“In the patients, we ended up with a subset of 31 genes that were most dominantly expressed. And by looking at levels of those genes, we could see at least two distinct groups of circulating tumor cells. Depending on which genes they used to divide the CTCs into groups, there were as many as five groups, she said, each with different combinations of genes turned on and off. And if they’d chosen genes other than the 95 they’d picked, they likely would have seen different patterns of grouping. However, because the same individual CTCs tended to group together in multiple different analyses, these cells likely represent different types of spreading cancer cells.

The diversity, Jeffrey said, means that tumors may contain multiple types of cancer cells that may get into the bloodstream, and a single biopsy from a patient’s tumor doesn’t necessarily reflect all the molecular changes that are driving a cancer forward and helping it spread. Moreover, different cells may require different therapies. One breast cancer patient studied, for example, had some CTCs positive for the marker HER2 and others lacked the marker. When the patient was treated with a drug designed to target HER2-positive cells, the disease relapsed.

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The scale of PEPFAR’s investment was unusual. Bendavid, who is an affiliate at Stanford Health Policy, part of the Freeman Spogli Institute for International Studies. "People working in PEPFAR’s focus are often the first to describe working supply chains, stocked pharmacas and clinics staffed.

Throughout the program was targeted to address HIV, these services could have benefited from AIDS, who is an affiliate at Stanford Health Policy, part of the Freeman Spogli Institute for International Studies. "People working in PEPFAR’s focus are often the first to describe working supply chains, stocked pharmacas and clinics staffed.

The findings go hand-in-hand with another recent paper by Bendavid that questions a popular idea that much relief money to governments for global health work is wasted. [See adjacent story] PEPFAR was begun in 2003 by the Bush administration with a five-year, $15 billion investment in AIDS treatment and prevention in 15 countries. It was reauthorized in 2008 and has expanded its reach to 31 countries.

To measure the program’s impact, Bendavid and his colleagues analyzed health and survival information for more than a million people in 27 African countries, including nine countries where PEPFAR has focused its efforts. The data came from the Demographic and Health Surveys, a USAID-funded project that involves a representative sampling of in-person interviews among women in which they discuss their health and the health of their family members. These surveys form the foundation of many health measurements in developing countries.

The researchers found the odds of death for AIDs patients who were 16 to 20 percent lower in the PEPFAR-targeted countries.

To bolster the results, the scientists did a separate analysis using specific data on PEPFAR programs in Rwanda and Ghana, two of the five countries in the regions of the two countries where PEPFAR’s investments led to widespread increases in the health of the population, providing antiretroviral, with analogues where PEPFAR had fewer services available.

"We observed a similar reduction in mortality among people enrolled in PEPFAR's efforts using a different lens," Bendavid said.

In Tanzania, the odds of death were found to be 17 percent lower and in Rwanda 25 percent lower in the districts with greater support from PEPFAR.

Bendavid concludes that the program’s commitment to building health-care delivery infrastructure, including clinics, pharmacies, labs and testing facilities, has been a key to its success.

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Medical center recognized for outstanding ‘green’ practices

By Sara Wykes

Stanford University Medical Center’s long list of green initiatives has been awarded a special honor by the health-care industry’s nationally-recognized leader in environmentally responsible operations.

Practice Greenhealth named Stanford a Partner for Change with Distinction May 2 while marking its 10th anniversary at its CleanMed12 national conference. Practice Greenhealth’s Environmental Excellence Award designates accomplishments in environmental performance and dedication to high standards of sustainability. The medical center was among 44 health care facilities nationwide to win the award this year.

“Everyone has a responsibility to use resources wisely and prudently,” said Wesley Palmquist, the medical center’s vice president of general services. “On a corporate level, that’s magnified. Where we can exert control over our resource use, we should, putting into practice green health. We take every opportunity we can to reuse, recycle and repurpose.”

Stanford received its first national award two years ago; this year’s award reflects an increased degree of resource savings. “A big part of our program expansion has been through great education and training,” said Jerry Maki, Stanford Hospital & Clinics’ vice president of clinical services. “People do want to be conscious of what is hazardous and what is not. This has really been an employee-led effort.”

The medical center has a long tradition of attention paid to resource conservation. In 2003, for instance, it was one of 17 founding hospital systems nationwide to receive a Making Medicine Mercury-free award from Practice Greenhealth, then known as Hospitals for a Healthy Environment.

Indeed, for more than 30 years, the medical center’s recycling program has processed paper, beverage containers and cardboard. Both Stanford Hospital and Lucile Packard Children’s Hospital have signed the Healthy Food and Healthy Beverages in Health Care pledge through Healthcare Without Harm. Food waste is now composted in both the adult and children’s hospital cafeterias and kitchens. The hospitals switched from Syrofoam to paper cups for patient use.

Another example of Stanford Hospital’s effort to improve sustainability practices can be found in its operating rooms, which typically generate 20 to 30 percent of a hospital’s total waste. In 2004, the hospital began to convert the containers it uses for the disposal of medical devices and materials that are now recycled from the Stanford Hospital operating rooms.

Sara Wykes is a writer in the communications office at Stanford Hospital & Clinics.
To prevent skin cancer: Vigilant watch plus sunscreen

By Sara Wykes

Kelly Bathgate’s mother was vigilant. She had three daughters, all fair-haired and fair-skinned, and the family spent several years living in Hawaii and the Philippines. “My mom was always putting sunscreen on us,” Bathgate said. “She did everything she could. We were always outside.”

Her mother’s best intentions, however, were not enough. Even with sunscreen, Bathgate would get sunburned, sometimes weekly. By the time she was 24, she was conscious enough of the freckles she’d accumulated on her best friend, also fair-skinned, mentioned she’d started going for annual skin exams, Bathgate began to do the same. A few years later, her dermatologist suggested checking every six months.

Bathgate moved to the Bay Area and fell behind on her checkups. Then a friend arrived for a holiday visit. “What’s that on your face?” he asked. “That’s always been there,” Bathgate replied. “Not like that it hasn’t,” her friend said. It was a spot that her dermatologist had been watching for a couple of years, but in just a few months, it had changed markedly.

Bathgate quickly called a local doctor for an exam, which included the removal of a small portion of the spot. A week later, the call came: the spot on Bathgate’s face was melanoma. At first, Bathgate said, “My reaction was fairly nonchalant. My dad had basal cell skin cancer removed several times. He also has a redhead’s complexion, and I always suspected that I would deal with the same.” But her doctor had different thoughts. “The difference between melanoma and basal cell,” she told Bathgate, “is that melanoma is unpredictable in how it spreads — and it spreads really quickly.”

Peng, MD, clinic director and associate professor of dermatology, who organizes the annual event. Resident dermatologists will be on hand to screen through clouds. And glass. Both types of UV radiation penetrate the skin. UVa radiation also leads to premature aging. UVb radiation is the primary cause of sunburn and skin cancer, although ultra-violet A (UVA) rays also play a role in skin cancer development. UVA radiation also leads to premalignant changes called premalignant changes.

How to protect your skin:
• APPLY SUNSCREEN with an SPF (sun protection factor) of at least 30 daily before going outside.
• USE ENOUGH: Two table spoons for full body coverage and one teaspoon for the face and ears. Reapply at least every two to three hours, especially if you’re sweating or swimming. If your scalp is not covered fully by hair, try a spray-on sunscreen or a sunscreen gel.
• WEAR A HAT that covers your face, ears and the back of your neck.
• COVER AS MUCH OF YOUR SKIN as you can. A tightly woven, light-colored fabric can protect skin better than inadequately applied sunscreen.
• AVOID THE MIDDAY SUN (from 10 a.m. to 4 p.m.), especially in the summer, unless you are on a treadmill or not eat their favorite foods,” she said. “We’re just recommending that people treat sun-screen like brushing their teeth or using deodorant — don’t leave the house without it no matter what the weather is like.”

And using sunscreen works: Recently, Australian researchers released the results of a study in which they followed 1,800 patients for over 10 years and found that those who used sunscreen on their faces, ears and tops of hands once daily reduced their rate of melanoma by 50 percent compared with those who used sunscreen on a discretionary basis.

What sunscreen, sunblock, hats, long sleeves and shade is do prevent those cellular changes that trigger cancer’s abnormal growth. Aasi and her colleagues are part of the Stanford Pigmented Lesion and Melanoma Program, a large team of clinicians and researchers working to advance the understanding of skin cancer. The team’s efforts include research and clinical trials in prevention, early detection and treatment, particularly treatment that combines surgery, chemotherapy and radiation.

Suan Swetter, MD, who directs the program, recently received the 2012 Humanitarian Award from the Melanoma Research Foundation. One of her most recently published papers documented the importance of both self and physician skin examina- tions for older men, who are more likely to de- velop and die of melanoma. Last year, the program expanded to include a special skin cancer clinic for transplant recipients whose immunosuppressive medication puts at higher risk for squamous cell cancers. That clinic will be broadened this fall to provide dermatology care for patients who have been treated for any sort of cancer; treatment side ef- fects include a higher degree of vulnerability to skin cancer.

Skin cancer screening to be offered June 2 in Redwood City

Free skin cancer screenings will be provided from 8 a.m. to noon June 2 in the dermatology clinic at the Stanford Medicine Outpatient Center in Redwood City. Roughly a dozen faculty, full-time and resident dermatologists will be on hand to screen for squamous cell carcinoma, basal cell carcinoma and melanoma, the most dangerous type of skin cancer.

“Skin cancers can be life-threatening, yet they’re one of the most preventable cancers,” said David Peng, MD, clinic director and associate professor of dermatology, who organizes the annual event. “Unfortunately, signs of melanoma are missed a lot, of dermatology, who organizes the annual event. Resident dermatologists will be on hand to screen through clouds. And glass. Both types of UV radiation penetrate the skin. UVa radiation also leads to premature aging. UVb radiation is the primary cause of sunburn and skin cancer, although ultra-violet A (UVA) rays also play a role in skin cancer development. UVA radiation also leads to premalignant changes called premalignant changes.

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The Pigmented Lesion and Melanoma Program works with the Stanford Divi-
Retina

continued from page 1

hardware incorporated externally into the goggles. “The surgeon needs only to connect the patient’s electrodes to the cables in the goggles. “When we first found out about the cancer, it was very scary for us,” said Avelo, a native of Guatemala. “We needed to have a lot explained. Having an interpreter gives me more confidence and makes me more comfortable.”

Avelo is one of the thousands of people who benefit from the interpreter services each year at Lucile Packard Children’s Hospital and Stanford Hospital. “I think he ever gets skin checks. I should make a big deal of it,” and he said, “You really need to tell people about this because we’re out in the sun and should know what to do.”

She told another friend who said, “Oh, my husband is a redhead and I don’t think he ever gets skin checks. I should tell him to do that.” Barathie said, “Yeah, you should!”

“I think my generation is probably a little bit more relaxed about skin cancer. ‘I’ll be worse if I put SPF 45 or 50 instead of 15 or 25, and I’m definitely putting it on every single time I leave my house — not just on my face, but on all exposed skin. And I’ve got a spray sunscreen to make sure I reach all the parts that are hard to reach. I’m more conscientious.”

She has begun to talk about her skin cancer. “A friend saw the scar on my face a few weeks after the surgery and asked, ‘What happened? You didn’t tell me.’ I said, ‘I can’t believe you didn’t tell me.’ He said, ‘Well, I think he felt better about his condition.’

He added, “You really need to tell people about this because we’re out in the sun and should know what to do.”

Barathie said, “Yeah, you should!”
The Keith and Jan Harribut Professorship was established with a gift from Keith and Jan Harribut of Palmilla Estates, Calif. The donor asked that the chair holder be an endowment faculty member in the field of urologic disorder research, and the board of trustees passed away in 2007. Jan, who received her master's of education here, remains engaged in her support of both the Hoover Institution and the medical center.

Sakamoto, MD, PhD, professor of pediatrics, has been appointed the Shelagh Galligan Professor. She conducts research on the molecular regulation and development of blood cells. Her research focus is to understand how aberrations in blood formation lead to adult diseases, including leukemia, bone marrow failure and myeloproliferative disease. She is also the director of the Center for Cancer and Childhood Blood Diseases at Packard Children’s Hospital.

James Brooks

Kathleen Sakamoto

Helen Bronte-Stewart mentorship was established in 1998 by John and Helen (Peggy) Cahill to support a faculty member involved in research on Parkinson’s disease.
Pathology professor Heinz Furtmayr dies at 70 on trek in Nepal

By Emily Hite

Heinz Furtmayr, MD, an emeritus professor of pathology at the School of Medicine, died of a heart attack on May 12 while on a trek in the Dolpo region of Nepal two days before his 71st birthday.

"Heinz made important contributions to our understanding of the genetic and biochemical basis of diseases of the connective tissue," said Stephen Galli, MD, the Mary Hewitt Lovelace, MD Professor in the School of Medicine and chair of the Department of Pathology. "He also investigated the molecular and cellular biology of cell movement."

Furtmayr's early work examined the basic chemical and biological properties of cell membranes and interstitial tissues and their relationship to medical problems. He later extended his work to Marfan syndrome and other microfibril-problems, which more recently included the organization of the body's basement membranes of red blood cells and the role of the membrane cytoskeleton in cell movement.

"Heinz was a pilot (as is his wife, Francke), and the two of them traveled all over the world. He climbed many mountains and survived accidents and trouble-shoot their work. "When we needed a new tool to answer a scientific question, he would find the way to bring it to the lab," Amieva added. "He would modify a gel electrophoresis system, or set up an ultrapycnometer."

Francke recalled that her husband's straightforward approach to teaching and talking about medicine compelled some students, though it also could be a bit frightening. While those around him referred to him as a sad man, Furtmayr was direct. "He called death 'death,'" Francke said, noting his strong interest in teaching on the autopsy service.

Furtmayr's adventurous spirit extended beyond the laboratory. He climbed Mount Kilimanjaro twice, often being caught in avalanches. Furtmayr was a pilot (as is his wife, Francke), and the two of them traveled all over the world to scuba dive, hike, or engage with other cultures. They went on safari in Africa, learned Spanish in Central and South America and watched penguins in Antarctica. Furtmayr also ventured on his own, taking overnight trips through Europe and Asia and climbing Mount Kilimanjaro twice.

Amieva recounted how Furtmayr had flown the two of them to Mexico, where they camped in Mayan ruins unreachable by road. Last year, they spent 10 days diving three times a day among sharks and poisonous sea snakes. Furtmayr taught Amieva's daughters (Furtmayr taught their godchildren) to ride an electric scooter, and he also built them a tree house. "He was a great cook, gardener and handyman -- he could fix anything, in the lab, the house and the neighborhood," Francke said.

Furtmayr was born in Linz, Austria, in 1941, and grew up in the nearby vil-

lages. He attended medical school at the University of Vienna Medical School, graduating in 1969. He was then the ASa's president. 1. His research interest centers on the improvement of clinical immunosup-

prescription in kidney transplant patients, with the goal of achieving freedom from drugs now required to prevent rejection of donated organs. He also evaluates new immunosuppressive agents and partici-

dates in phase-1 to phase-3 studies. Of note, he is currently investigating new immunosuppressive drugs and par-

to a cadaver as having passed away. Furtmayr was direct. "He

eral colleagues and students as passionate and committed," he added. "He was never afraid of the unknown," said Man-

el Amieva, MD, PhD, associate profes-

or of pediatrics (infectious diseases) and of microbiology and immunology, who studied with Furtmayr for his PhD. "He helped me build a microscope sys-

in Vienna and his medical residency for research. He completed his clinical education, and nearly all of them at -

furlay's appointment at Stanford

A new protocol, using detailed disease data, is expected to be available in early 2023. For more information about the IMPACT-MoDS protocol, please visit linktv.org/mo-ds.

Robert Tibshirani

PHILIPPÉ MOURRAIN, PhD, has been appointed associate professor (research) of psychiatry and behavioral sciences as of May 1. His research focuses on neu-

robiology and genetics of sleep and as-

sociated behaviors. His work is used as a model to investigate the functions of sleep and the neural circuits underpin-

LyNNE HUFFMAN, MD, has been ap-

pointed associate professor (teaching) of pediatrics as of May 1. Her research interests include endovascular treatment of aortic aneu-

ymes, carotid angioplasty/ stenting, endovascular lower extremity procedures, thoracic outlet syndrome, vascular disorders in high-performance athletes and surgical education.

STEPHAN BUSQUE, MD, has been pro-

moted to professor of surgery as of April 1. His clinical interests include endovascular treatment of peripheral vascular disease.

KIHO CHANG, MD, has been promoted to professor of psychiatry and behavioral sciences as of April 1. As director of the Pediatric and Adolescent Behavioral Health Program, he conducts research into various fac-

of bipolar disorder. He is currently participating in clinical trials involving pharma-

dromal bipolar disorder in children who might be treated to prevent the de-


genetics and pediatrics and his wife of 25

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Heinz Furtmayr

Jeffrey Norton, MD, the Robert L. and Mary Ellenburg Professor in Surgery, received the 2012 Flame-Karl Award at the American Surgical Association's annual meeting. The award recognizes a surgeon who has made a seminal contri-

bution in basic laboratory research that has application to clinical surgery. The awards commit-

tee cited Norton's work in "shedding light on the under-

standing of tumor and cytokine interactions and in the im-

munotherapy of cancer, and noting that his translational studies have fundamentally altered the surgical therapy of a number of malignancies. The Flame-Karl Award was established in 1996 by Samuel Wells Jr., MD, who was then the ASa's president.

HILLARY LIN, a medical student, has been selected as one of the 2012-13 Bay Area Schweitzer Fellows. This year's 15 local graduate-student fellows join ap-

proximately 230 from across the coun-

try in carrying out service projects that address the social determinants of health in underserved communities. For her project, Lin will assist in developing and implementing a smartphone-based medical record program to help patients at the medical school's Pacific Free Clinic in order for them to keep track of autoimmune point counts, prescriptions, tests and other medical services. The Albert Schwe-

ziffer Foundation is a national nonprofit organization with its headquarters located in Bos-

ton and hosted by Beth Israel Deaconess Medical Center.

RONALD WARE, PhD, has been ap-

pointed assistant professor of neurosurg-

istry. His lab investigates how receptors on a cell connect and communicate, focusing on the outside of the inside of a cell, a step that is funda-

mental to virtually all physiological functions. R. Christopher Garcia, PhD, professor of molecular structural biology. His lab in-

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Christopher Garcia

Robert Tibshirani

Lynne Huffman

Jason Lee

XiNAN WANG

Karl Deisseroth

Deisseroth, Garcia, Tibshirani named to National Academy of Sciences

Three School of Medicine faculty members have been named as new mem-

bers of the National Academy of Sciences. The academy is an honorific society that recognizes distinguished and continuing achieve-

ments in original research.

They were joined by three other Stanford University faculty inducted into the academy this year. The NAS has 2,152 active members and 430 foreign associates. The three medical school faculty are:

KARL DEISEROTHO, MD, PhD, associate professor of bioengineering and of psychiatry and behavioral sci-

ences, is a leading molecular neurobiologist and a leader in the development of optogenetics [see story, p. 7]. HIs lab uses a technique that allows scientists to control and study the activity of genes, and even to tease apart the complex circuits that compose the brain so that the circuits can be studied one by one.

CHRISTOPHER GARCIA, PhD, professor of molecular structural biology. His lab investi-

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RONALD WARE, PhD, has been appointed assistant professor of neurosurgery as of May 1. His research studies the dynamic memory circuits controlling mitochondrial dynamics and function in cells, and the ways in which subtle disturbance these processes can contribute to neurodegenerative disorders. PHILIPPÉ MOURRAIN, PhD, has been appointed associate professor (research) of psychiatry and behavioral sciences as of May 1. His research focuses on neurobiology and genetics of sleep and associated behaviors. His work is used as a model to investigate the functions of sleep and the neural circuits underpinning these behaviors. He is currently participating in clinical trials involving pharmacologic and genetic studies of the disorder in adults and children, and is particularly interested in understanding the role of the 5-HT6 receptor in children who might be treated to prevent the development of the disorder. He is the co-director of the Pediatric Mood Disorders Clinic and the director of research initiatives for the Children's Depression Institute.