

www.deo.ucsf.edu

New UCSF Online Resource Can Benefit Millions

Because the number of people with diabetes is increasing so rapidly, the need for education and medical care far exceeds the number of dedicated diabetes care providers. According to the latest statistics released by the American Diabetes Association (ADA), there are more than 23 million individuals with diabetes and 57 million with pre-diabetes in the United States. Compare that to an estimated 4,000 trained diabetes physicians providing care, and very few individuals with diabetes can expect to see a specialist.

Now, thanks to the UCSF Diabetes Teaching Center, everyone with Internet access can at least educate themselves about the disease. The center has launched Diabetes Education Online (www.deo.ucsf.edu), a complete diabetes self-management education program. This website mirrors the highly successful ADA-accredited teaching program curriculum

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Embryonic Stem Cell Therapies Without the Embryos

Medical research has come a long way since scientists in a Canadian lab discovered that they could prolong a diabetic dog's life by injecting it with ground-up pancreatic tissue. But imagine a world where individuals with diabetes no longer need insulin injections, or to worry about their blood sugar levels.

Scientists at UCSF are edging closer to that enviable goal – the cure. While the daily administration of insulin is effective, the real fix would involve replacing the patient's insulin-producing beta cells that have been destroyed by their body's immune system.

Partial- and full-organ transplants attempt this solution, but run into complications with host immune system rejection. Plus, the number of potential recipients far exceeds the number of available donors.

Scientists have been able to generate new beta cells in culture dishes using embryonic stem cells and tissue-specific adult stem cells. However, they have not yet been able to produce fully matured beta cells that secrete acceptable amounts of insulin. Additionally, harvesting stem cells from embryos is highly problematic.

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Lee Iacocca is supporting new research at UCSF.

“I was very pleased to hear that the Iacocca Foundation chose to support our project. Given this funding, we will be able to expand our research in this exciting area that holds the promise of patient-specific treatments.”

– Matthias Hebrok, PhD



University of California
San Francisco

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Clinical Trials at UCSF

UCSF is one of the premier institutions for clinical trials of emerging therapies in diabetes. Numerous clinical trials in type 1 and 2 diabetes are now underway. For clinical trial opportunities, visit www.diabetes.ucsf.edu/clinical_trials or call 415/353-9084.

Two Pillars Honored at Conference Event

This summer, almost 20,000 diabetes researchers and medical professionals converged on the “City by the Bay” to attend two conferences: the American Diabetes Association’s 68th Annual Scientific Sessions and the Endocrine Society’s ENDO 08. Not only were current faculty and staff well represented at the seminars and workshops, special events were held at both conferences for alumni and friends of the Diabetes Center.

At the ADA gathering, two pillars of the diabetes community were honored with UCSF Lifetime Recognition Awards – Gerold Grodsky, PhD, and Peggy Huang, RN, CDE. Grodsky’s career at UCSF has focused on the metabolism of sugars, fats and protein, and the regulation of insulin synthesis/secretion. Huang co-founded the Diabetes Teaching Center in 1977 and has provided exemplary care to thousands of patients throughout the years.

Special thanks goes to Leadership Council member Chara Schreyer, who hosted both gatherings at the Four Seasons Hotel, and to Will Weinstein and Tony Price for their involvement in these programs.



Gerold Grodsky and Peggy Huang

Congratulations

Diabetes Center Faculty Members Recognized

Clinician/Researcher Awarded Prestigious JDRF Research Award



Michael German

A UCSF faculty member for more than 20 years, Mike German, MD, was awarded the 2008 David Rumbough Award for Scientific Excellence by the Juvenile Diabetes Research Foundation (JDRF). This award was established in 1974 by actress Dina Merrill, in honor of her late son, David. It is the highest honor the JDRF awards and is presented annually to researchers for outstanding achievement and commitment to diabetes research, as well as for their service to the JDRF.

German holds the Justine K. Schreyer Endowed Chair in Diabetes Research and is both the associate director and clinical director of the UCSF Diabetes Center. Understanding the structure and development of pancreatic beta cells is the main focus of German’s work. Moreover, his pioneering research in stem cells has placed him at the forefront of the effort to cure type 1 diabetes.

Also honored by the JDRF were Michael Brownlee, MD, Albert Einstein College of Medicine, and Maïke Sander, MD, UC Irvine. Sander, a UCSF alumna, received the Gerold & Kayla Grodsky Basic Research Scientist Award, which was created four decades ago by the JDRF and UCSF’s very own Gerold Grodsky, PhD.

JDRF Scholar Awards Presented

The Juvenile Diabetes Research Foundation has recognized key members of UCSF’s research team every year since the launch of its prestigious Scholar Awards in 2006. Jeffrey Bluestone, PhD, was recently awarded a 2008 Scholar Award, following in the footsteps of Michael German, MD, who received this recognition in 2007, and Matthias Hebrok, PhD, who was presented one of the inaugural awards. According to the JDRF, each of these awards provides sustained support for individual scientists of extraordinary talent and creativity who pursue pioneering research toward finding a cure for type 1 diabetes and its complications.

Translational Research Grant Awarded



Mark Anderson

UCSF Diabetes Center faculty member Mark Anderson, MD, PhD, was one of only 13 physicians awarded the Clinical Scientist Award in Translational Research by the Burroughs Wellcome Fund. This program supports established physician-scientists dedicated to translational “bench to bedside” research. Not only do these grants help to strengthen the connection between basic science in the lab and patient care in the clinic, they contribute to the mentoring and training of the next generation of physician-scientists skilled in translational research. Besides seeing adult patients with diabetes in the UCSF Adult Clinic, Anderson continues to be a rising star in the field of human autoimmunity and immune tolerance.

Long, Winding Road to UCSF

While Saleh Adi sat in Syria waiting and hoping for a visa that would allow him to come to the United States and work, he made use of his down time by watching television shows like *CHiPs* and working on his American accent. Fitting he should end up living in California.

He had already been denied a visa in Dubai where he was working as a general practitioner, so he moved back to Syria, his place of birth, to try again. His determination and patience finally paid off, and in 1988 he came to San Francisco at the invitation of an old medical school friend to conduct research at the VA Medical Center.

He was fortunate enough to stay in San Francisco when he was granted a pediatric residency at California Pacific Medical Center (CPMC) in 1991. This was followed by a fellowship in the newly launched pediatric diabetes program at UCSF under Stephen Gitelman, MD.

In 2001 he decided to give the East Coast a try, moving to Baltimore with his wife, whom he had met while working at the VA, to take a faculty position at Johns Hopkins Medical Institutions. This proved short-lived. "I had grown very accustomed to living in Northern California, and I thought the whole country was like this," he laughs. "It's a different culture out here ... I'm not sure I could live anywhere else now," he says with a smile.

Adi returned to CPMC two years later to open a pediatric endocrine and pediatric diabetes program. By 2007, Gitelman and Jeffrey Bluestone, PhD, were ready to add another staff member with a passion for pediatric diabetes to the growing program at UCSF. Adi was more than happy to fill the role.

Adi had numerous reasons for leaving a good position at CPMC. Aside from the teaching opportunities that awaited him, he admired the



Saleh Adi

world-class program and faculty at UCSF and knew that joining them would keep him at the forefront of science in the field of pediatric diabetes. "I don't know where we're going to be in five years," he says, referring to diabetes care, "but it's going to be very different from where we are today. Exciting things are going to happen, and a lot of it is going to come out of UCSF. I want to be a part of it."

"I don't know where we're going to be in five years, but it's going to be very different from where we are today. Exciting things are going to happen, and a lot of it is going to come out of UCSF." – Saleh Adi

"Kids in the Lab" Day

To help welcome the patients of new pediatric endocrinologist Saleh Adi to the Diabetes Center at UCSF, clinicians and researchers hosted "Kids in the Lab" day. While children with diabetes and their siblings were introduced to basic scientific research to help open up their curious minds, their parents learned about the latest in type 1 diabetes research. The UCSF Diabetes Center strives to provide patient families with as much education and support as possible and hopes to offer similar programs in the coming year.



Bringing Light From Out of the Dark Days of Diabetes

Until the discovery of insulin, most children diagnosed with diabetes weren't expected to live more than a few years. Without the regulatory presence of this hormone in their system, something as simple as a piece of cake could send a child's blood sugar to fatal levels.

Dorothy Frank knew what it was like to walk this diabetic tightrope between life and death on a daily basis. She was diagnosed with type 1 diabetes in 1929 at the age of 19, eight short years after the first major breakthrough in diabetes treatment. Had she been born a few years earlier, she might not have lived long enough to meet her husband, Major General James Frank, and help change the face of the fight against diabetes.

Dorothy did live, however, to the ripe old age of 93, and because of her wealth of experience, wanted to help ease the burden of others going through the same thing.

Desiring to develop more specialists and improve patient education, the Franks began funding the diabetes effort at UCSF in 1979, which led to

the Dorothy L. Frank Fellowship in Diabetes. Consequently most of the prominent diabetes clinicians in the Bay Area probably had their training funded by Dorothy Frank, says Martha Nolte Kennedy, MD, medical director of the Diabetes Teaching Center at UCSF and herself a Frank fellow in 1981.

James Frank was on the board of the UCSF Diabetes Teaching Center throughout the '90s – a time when funding for patient education came almost entirely through philanthropy. "Everyone involved was generous with their time. James Frank was generous with his time and his money," recalls Kennedy. During this period, the Franks also started the Dorothy Frank Diabetes Endowed Fund for the Diabetes Teaching Center.

Dorothy Frank passed away in 2004 and James in March of this year. Through their estate, the Franks left UCSF \$672,000 to bolster the teaching center endowed fund, and \$373,000 to endow their fellowship fund.

"Our parents were continual donors to causes investigating advances and



Dorothy and James Frank

new treatment in diabetic medicine and care," says daughter Barbara Harrison. Her sibling, Darol Nance, continues, "My sister and I are very proud of our parents' generosity to the UCSF Diabetes Teaching Center – a very worthy cause."

Adds Kennedy, "These gifts will further expand our community outreach – including the development of our website – and support the training of dedicated diabetes medical professionals. We're forever grateful for all that the Franks have done for us and for the fight against diabetes."

THE UCSF DIABETES TEACHING CENTER offers 2-day and 3½-day self-care classes and insulin pump workshops. Individual appointments are also available. The center also offers an online resource to help individuals with diabetes control their blood sugar levels and manage the disease (*see story beginning on front page*). www.dtc.ucsf.edu

Certified Diabetes Educators Gloria Yee (below left and far right) and Marlene Bedrich (middle)



Diabetes Education Online

Diabetes Teaching Center at the University of California, San Francisco

TYPE 1 DIABETES

TYPE 2 DIABETES

How do you live a healthy life with diabetes?

Whether you are newly diagnosed or simply in need of more information about diabetes, this website – created by UCSF's Diabetes Teaching Center – can help. Diabetes management is a lifestyle, and while we understand it is not a lifestyle that you would have chosen, it is one that you can master to stay healthy.



I have Type 1 Diabetes

- Learn more about understanding & treating Type 1 Diabetes

I have Type 2 Diabetes

- Learn more about understanding & treating Type 2 Diabetes
- I'm not sure which type of Diabetes I have

for Healthcare Providers

- Find materials and resources for Type 1 patients
- Find materials and resources for Type 2 patients

www.deo.ucsf.edu

New UCSF Diabetes Resource

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created by UCSF clinicians and presented to thousands of patients over the past 30 years.

Not only does the website offer a complete, separate curriculum for type 1 and type 2 patients, it provides a sub-curriculum for type 2 patients based on treatment (oral medication management versus insulin management) and information for health care providers. For the newly diagnosed, this website can help individuals understand diabetes and facilitate the necessary lifestyle changes to manage their care. For those already living with diabetes, this program provides training in the latest advances in self-care and problem-solving skills.

Diabetes Education Online is unique from other diabetes education websites in that it focuses on the equation *understanding = improved management*. Through the years, UCSF clinicians have recognized that it is just as important to explain why a patient should do something as it is to explain what a patient should do. Each section provides detailed explanations and includes scientific background information, self-management instruction and optional self-quizzes to assess knowledge gained. In addition, a comprehensive library provides printable handouts of key tables, charts and illustrations, plus access to educational videos.

The website is designed to provide information that is specific to an individual's needs. Even though it provides concepts and ideas for self-managing health, it is important that a person work with his or her health care provider to create a personal plan of care.

Martha Nolte Kennedy, MD, medical director of the Diabetes Teaching Center, and her staff hope the website will be a valuable resource for the patients at UCSF, as well as provide diabetes education and self-management skills to the growing numbers worldwide who have limited access to diabetes specialists.

The center deeply appreciates the following Bay Area individuals and foundations who underwrote this project: *The Joseph Drown Foundation, Robert and Michelle Friend, The Koret Foundation, The Bernard Osher Foundation, Elana Weinstein and Will Weinstein*. Their visionary support will help make a difference in the lives of individuals living with diabetes and in the lives of their loved ones.

Stem Cell Therapies

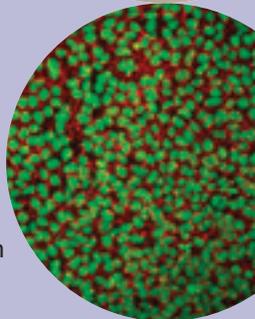
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In recent breakthroughs, researchers have developed a process for reprogramming fully grown adult cells back into something akin to embryonic stem cells, called induced pluripotent stem cells, or iPS cells. Building on that technology, Matthias Hebrok, PhD, aims to take these iPS cells and coax them into mature, insulin-secreting pancreatic beta cells. The hope is to one day replace a patient's damaged beta cells with fully functional new ones, generated from cells from their own body, thus avoiding the potential for transplant rejection and circumventing the murky waters of embryonic stem cell harvesting.

The Iacocca Family Foundation has awarded a \$200,000 grant to support a postdoctoral fellow working on iPS cells in Hebrok's laboratory. The foundation, which was started by Lee Iacocca in 1984 after losing his wife, Mary K. Iacocca, to complications from type 1 diabetes, has invested more than \$23 million in the search for a cure.

"I was very pleased to hear that the Iacocca Foundation chose to support our project," says Hebrok. "Given this funding, we will be able to expand our research in this exciting area that holds the promise of patient-specific treatments."

Dana Ball, executive director of the Iacocca Foundation, concludes, "Dr. Hebrok, this project and UCSF were a natural choice for Iacocca funding. We feel that exploring non-embryonic stem cell research is not only important, but crucial for replacement therapy. And we feel that this project has the potential to expand therapy options not only for the treatment of type 1 diabetes, but for many other diseases as well."



Science Spotlight: Weight Gain May Not be Based Just on What You Eat

Kaveh Ashrafi, PhD, and his colleagues, including Supriya Srinivasan, PhD, generated headlines recently by challenging the theory that weight gain is mostly a consequence of eating and physical activity.

By working with the worm model *C. elegans*, they found that the brain chemical serotonin influences two separate pathways – one for feeding and one for fat-burning. Even though the pathways operate in a complementary way, they are not dependent on one another. In other words, the nervous system's control of appetite and feeding is different than the nervous system's control of fat metabolism and fat deposition. If these two pathways are also found in

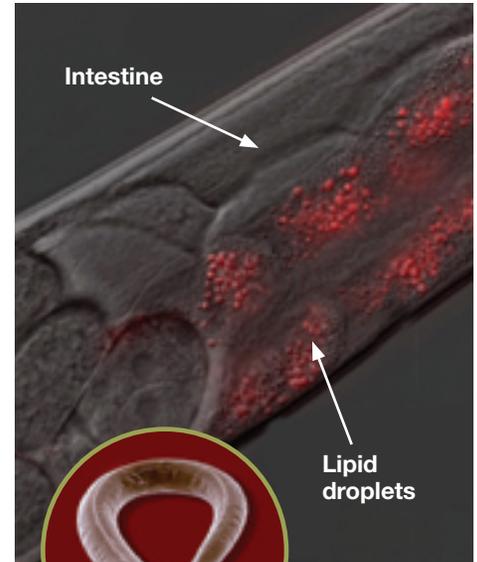


Kaveh Ashrafi

humans – which is highly likely, as both species have similar genetics – new drugs can be developed to tackle each channel, helping to ensure successful weight loss.

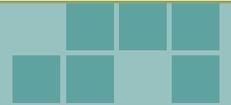
Says Ashrafi, “Healthy eating habits and physical activity certainly affect weight and have tremendous health benefits. However, fat regulation is critically dependent on whether or not the nervous system directs incoming nutrients to be stored as fats.”

Ashrafi is the Jack and DeLoris Lange Assistant Professor of Systems Physiology at UCSF and a 2004 Searle Scholar. Trained at Harvard, he has become a recognized expert in the area of fat regulation, an important factor in obesity and type 2 diabetes.



Study of fat burning in the transparent bodies of the *C. elegans* worm may shed new light on human fat metabolism.

NEWS from the Diabetes Center at UCSF



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For more information on any of these stories or to support the UCSF Diabetes Center, contact Kevin McAteer at 415/476-3627 or kmcateer@support.ucsf.edu.

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