

# LifeLink

A link between donors, volunteers, staff & friends of Stanford Blood Center

Summer 2010



## Survival Story

pages 7-8

Born with a cancerous tumor that mandated partial amputation of his leg, Quinn is bouncing back. According to his mom, he has no idea he has any limitations.



At Stanford Blood Center, we provide hope for the future: **teaching** tomorrow's leaders in transfusion medicine, **researching** to unlock mysteries inherent in blood, and **connecting** donors to patients every day.

If you have any questions about or suggestions for upcoming issues of *LifeLink*, please contact Brooke Wilson at [krannich@stanford.edu](mailto:krannich@stanford.edu), or 650-723-8270.

Special thanks to the following for making our Canteen area more comfortable for donors:  
 Better Bagels, Mountain View  
 Hobee's, Palo Alto  
 JJ&F, Palo Alto  
 Stanford Floral Design, Palo Alto  
 Sunnymount Produce, Mountain View

**contact us:**

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Interested in donating financially to Stanford Blood Center? Check out [bloodcenter.stanford.edu/gift](http://bloodcenter.stanford.edu/gift) or contact Michele Hyndman ([mhyndman@stanford.edu](mailto:mhyndman@stanford.edu); 650-723-8237)

# milestones

## 100 donations



- Marne Coggan
- Cynthia Costell
- Lance Dixon
- Constance Gowen**
- Edward Landefeld**
- Marylyn Maher
- Claudia Newbold
- Christopher Phoenix
- William Rosenberg
- Earle Rother
- John Sekulo**
- Peter Williamson
- Judith Windt
- Thomas Welch



## 200 donations

- Kathie Asaro**
- Gary A. Cooper
- Karen Guse
- Tami Turner



## 300 donations



Joseph Michael

## 500 donations

On February 2, at our Campus location, **Eric Buhr** settled into the chair as he normally would, getting ready to donate platelets. For the 500th time! His first donation was on 8/8/88 at a Stanford blood drive. He moved on to platelets by his 3rd donation. When asked by first time donor **Mitchell Lee** (standing) how he's able to keep up such a steady donation schedule, he answered, "You do it a few times and it gets in your blood!" Here we see the bond formed between first-time and long-time donors Eric and Mitchell!



# calendar

We know you do it to save lives, but here are a few thank-yous we have planned for our donors.

## Promo» Giving is Groovy!

- Fridays, Saturdays, and Mondays in August
- All Centers

It's time to collect your annual tie-dye t-shirt (see photo)! Come in on August 6, 7, 9, 13, 14, 16, 20, 21, 23, 27, 28, or 30 and let the love (and blood!) flow.



get requests for them. Donate during the weeks above and you can get the gear you've been wanting at a huge discount!

## Prize Drawing» A Home Run for Patients

- Monday, August 2, through Saturday, August 7
- All Centers

Step up to the plate and donate! If you come in during the first week of August, you can enter to win a pair of tickets to watch the Giants play! They'll take on the Arizona Diamondbacks at a 7:15 p.m. game on Friday, August 27. Twenty-five lucky winners will get a pair of tickets.

## Promo» Hobee's Buy-One-Get-One Coupons

- Monday, August 9 through Saturday, August 14
- All Centers

This generous restaurant is once again providing our donors with a wonderful value! To thank you for your visit during the dates above, you will be offered a buy-one-entrée get-one-free coupon. If you've been to Hobee's before, you'll understand why this is such a tasty treat!

## Promo» Sports Basement 20% Off Coupons

- Monday, August 16 through Saturday, August 28
- All Centers

The Sports Basement has been a long-time supporter of your efforts to save lives. Their 20% off coupon is a donor favorite, and we always

## Events» "O" Parties!

- Campus Center Thursday, August 12, Noon to 7:30 p.m.
- Hillview Center Thursday, August 19, Noon to 7:30 p.m.
- Mountain View Center Thursday, August 26, Noon to 7:30 p.m.

Our Hillview Center used to have all the fun with summer events. We're spreading the fun to our two other Center locations! Join us on one of the Thursdays above and enjoy food and festivities. You'll also receive the Giving is Groovy tie-dye shirt as our thanks for coming in when we need you most! (Type O blood is especially needed during the summer months but all types are needed—and all are welcome to attend these parties).

## Event» The Great Outdoors

- Friday, August 27, Noon to 2:00 p.m.
- Saturday, August 28, 11 a.m. to 3:00 p.m.
- Hillview Center

We gathered some wonderful folks together to bring outdoor fun to your donation day! Pick the Friday or Saturday above to participate in the activities brought to you by the Sports Basement, Chain Reaction Bicycles, and the local VA Palo Alto Farmers' Market. There will be demonstrations, food samples, and even a tent-set-up contest!

## an honorable mention»

**Dawn Chuck:** mother, cyclist, and SBC volunteer extraordinaire—is at it again. She's working with our Apheresis and Tele-Recruitment staff as a volunteer phone-caller.

You may remember an article in the last issue of *LifeLink* about a change in eligibility for female platelet donors. We've implemented a new test that detects antibodies common in women who have had multiple pregnancies. We are asking women who test positive for these antibodies to donate whole blood instead of platelets.

That's where Dawn comes in. "Dawn is helping us out by doing follow-up calls to the women we're asking to transition into the whole blood program," said Apheresis Manager **JoAnn Wilson, RN**. "She's a sounding board for them; she can sympathize in a way that our staff sometimes can't." said JoAnn.

Months ago, after a heartfelt conversation with JoAnn, Dawn retired from donating platelets and became a regular whole blood donor. "Dawn's platelet donations were decreasing in efficacy—it's not anything she could control, but her donations just weren't optimal for patients who need a platelet transfusion," said JoAnn, "so I asked her to donate whole blood instead."

After some initial shock, Dawn rebounded into whole blood donorship. "It's difficult to hear the news that you can't keep giving platelets, but I understand the reason. And at the end of the day, I do it to help patients—so if giving whole blood is how I can best help, I'm happy to."

In addition to giving whole blood regularly and helping us on the phones, Dawn has recruited a whopping seven new platelet donors to give in her stead. "I just try to actively recruit anybody I can into donating blood. I practically live in Stanford Blood Center t-shirts and many times I've been asked if I work there! I use that as my lead-in for a brief conversation on the importance of blood donation. I just want people to realize that blood products don't just come from a refrigerator with an endless supply—that it constantly needs replenishing. We never know if someday it might be us or a loved one needing this potentially life-saving product."



**Above: Dawn sits in on an SBC staff meeting to discuss calling blood donors.**



# around SBC

an update on what we—and you—have been up to

## It's as easy as ABC»

We recently held an educational event for some of our Automated Blood Collection (ABC) donors—specifically, donors who give platelets a handful of times per year. Our mission was to convey our gratitude and to share different perspectives relating to the platelet donation process with the goal of increasing donation frequency. Among the speakers at the event were **Ron Preston**, blood recipient; **Evelyn Miller** from Transfusion Services at Stanford Hospital; and **Susan Galel**, MD, Director of Clinical Operations at SBC.

## Speaking up»

**Donne Davis** is a blood donor and member of the Menlo Park Toastmasters where she recently gave her eighth speech about giving blood. On March 10, her husband accompanied her on her 45th blood donation to take photos to illustrate the steps involved in donating blood for the presentation. “I want to tell people it’s really easy to do and takes less than an hour,” she said. “I really like coming here because it’s so easy, fast and the snacks are really good.”

Donne says one of the reasons she keeps coming back is to pick up the small packages of crackers given out at the post-donation canteen. Going to the glove compartment of her car to give her two granddaughters packages of crackers has become a goodbye ritual after she visits them in Sacramento.



**Above:** Donne Davis relaxes in the Canteen after her 45th donation.



**Above:** At an event for platelet donors, **Kevin O'Neill** from SBC's Marketing department presents **Lauren Chuck** with a commendatory letter from our Medical Director, **Ed Engleman**, MD. Lauren's proud mom (and SBC donor and volunteer), **Dawn Chuck**, beams next to her. We're happy to report that Lauren is now a graduate in the field of Nursing, and was snatched up by the Intermediate Cardiac Care Unit at Stanford Hospital! Congrats, Lauren!

## An inspiration to us all»

We're so impressed and honored to have **Caroline "Brownie" Bergh** as a blood donor. At 90 years young, she's going strong as a dedicated donor. She's very humble about it, though. We caught up with Brownie during a recent donation and she said: “I started donating blood sometime during the second World War. I guess you could say it became something of a habit.”

Many thanks to our amazing Canteen volunteer (who is also a milestone donor!) **Jennifer Harris**, for giving Brownie a ride to our Hillview Center to donate.



**Check this out!**  
It's our first BloodMobile.  
We've come a long way!





“ I had a wonderful evening with the fabulous and awesome people that work at Stanford Blood Center. They are an amazing group of people that make wonderful things happen for many patients and donors. I had a chance to meet some donors who are beautiful in and out. They exude amazing and genuine qualities of the meaning of life. I am really fortunate to be a part of this extended family as I have a more concrete connection to this selfless cause. Keep up the great work. You all ROCK! ”

—John Paul Mayor, ABC event attendee, via Facebook



### Documenting philanthropy»

We were really happy to work with **Ethan Ming, Noah Dietz, and Matthew Orton** from Los Altos High on a school project. The guys tackled the assignment: “How can you make the world a better place?” by filming Noah’s first blood donation.

Many thanks to Noah’s mom, **Carey Holubar** for being a great role model and blood donor!



### Give blood, play hockey»

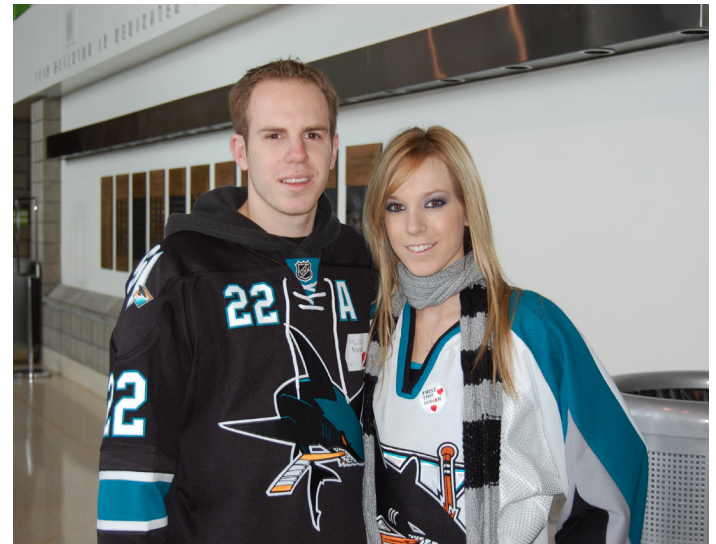
Earlier this year, we held our annual blood drive at the Shark Tank. It was a huge success, bringing in 338 units! Many thanks to those of you who came out, and to our gracious hosts.

Blood recipient (and avid Sharks fan) **Brian Sams** was at the drive and recruited some new blood donors for us, including his sister, **Sammi Sams**. After her donation, Sammi said: “I’m here because someone who donated blood saved my brother’s life and now I’m saving someone else’s life.”

Brian has a spirit of gratitude as well. “I want to put a face on blood donation so donors can see a real life survivor... so they can see what it takes to keep a kid alive,” he said. “I’m here to advocate for blood donation and ensure that they’ll come back for future donations.” We appreciate all of Brian’s help, and are grateful to have been a part of his survival story. The blood he received during his childhood stay at Lucile Packard Children’s Hospital—just like all other transfusions there—came from SBC’s own local blood donors.

Our staff thoroughly enjoy working from the Shark Tank—probably because of the enthusiastic atmosphere the donors and players create. **Mary Jo Jones**, SBC charge nurse at the Sharks Drive, noted: “Everybody really gets so excited! The players are so kind to go around and talk to donors. We really appreciate their effort.” Several Sharks players came out to visit with and thank blood donors after the morning skate. One of those kind players was defenseman **Marc-Edouard Vlasic**, #44. He noticed how much the drive has grown. “It’s a lot more people than the last couple of years. People are giving blood and they want to help out and it’s great,” he said.

We can’t wait until next year’s drive! Go Shaaaarks!



**Above:** Brother and sister duo, Brian and Sammi Sams were at the Sharks Drive this year to thank blood donors; **Right:** defenseman Marc-Edouard Vlasic chats with a donor.





# Making history

by Ruthann Richter

When the federal Food and Drug Administration approved the first therapeutic cancer vaccine April 29, it was sweet news indeed for Ed Engleman, MD, director of the Stanford Blood Center. That kind of therapy was just what Engleman had in mind more than 18 years ago when he conceived the idea of tricking the immune system into fighting cancer.

“One of the core questions of immunology and cancer has been whether this approach can be effective,” said Engleman, a cellular immunologist and professor of pathology. “To me, it breaks open a huge wall in proving an idea that people seriously questioned. So this is really going to be door-opening.”

The new vaccine, known by the trade name Provenge, has been approved by the FDA for use in men with advanced prostate cancer who have failed all other treatments. It was approved after a long and arduous series of clinical trials by the maker, Seattle-based Dendreon, which showed that men on the vaccine lived an average of four months longer than those on placebo.

Dendreon’s newly approved vaccine is built around a rare cell of the immune system, known as the dendritic cell, so called because it has long, fingerlike projections that help it interact with its environment. Engleman began studying these cells when he first joined the faculty at Stanford in 1978. In fact, he said one of the main reasons he agreed to direct the newly formed blood center was because it would give him ready access to these and other white blood cells of the immune system for research purposes.

These white cells are routinely removed when people donate blood, as they might cause harm if given to patients whose immune systems are compromised. So the blood center has a ready source for these cells, which have been the focus of hundreds of valuable research projects over the years. Engleman notes that the blood center, one of the few in the country located in a medical school, was created not only to provide blood products to the hospitals but also to support research and teaching. Without the close relationship between researchers and blood center staff, as well as the generosity of donors, the group’s dendritic cell work would not have been possible, he said.

In the early days of the blood center, Engleman became interested in the dendritic cell because it has the powerful

ability to recognize foreign proteins and then alert T cells, the foot soldiers of the immune system, to respond. But little else was known about the cells at the time; they had been isolated in mice, but not yet in people.

“We thought that if we could find and isolate them in humans, we could better understand their functions and think about how they might be useful,” Engleman said. Two postdoctoral fellows in his lab were able to accomplish that in 1989, publishing their work in the *Journal of Clinical Investigation* in 1990.

Then Engleman began to consider the possibilities: What if scientists could isolate dendritic cells in cancer patients and somehow train the cells to attack the cancer? It was a difficult immunologic question because the immune system typically doesn’t attack cells that it views as “self,” and tumor cells are seen as self. “So most immunologists would have said this is an impossible undertaking,” Engleman said.

His concept was to take the dendritic cells out of their native environment, away from the tumor, by removing them from the patient. Then they could be exposed in the lab to a specific cancer-related protein that would prime them for action. These newly trained cells then could be infused back into the patient, where they would target the cancer.

With that idea in mind, in 1992 he teamed up with Samuel Strober, a faculty colleague at Stanford, to launch Activated Cell Therapy Inc., which would later be renamed Dendreon. Dendreon licensed their technologies from Stanford.

Engleman began testing out his idea on a dendritic cell therapy with Ronald Levy, MD, professor and chief of the division of oncology, who also was working on approaches to vaccinate cancer patients against their own tumors. In 1996, they published a paper in *Nature Medicine* involving four patients with B-cell lymphoma who were infused with a vaccine made of stimulated dendritic cells. All of the

*The immune system typically doesn’t attack cells that it views as “self,” and tumor cells are seen as self. “So most immunologists would have said this is an impossible undertaking,” Engleman said.*



patients had measurable responses, with tumors that receded or, in one case, disappeared altogether. They went on to do trials in a larger number of patients, reporting in 2002 in the journal *Blood* on 35 patients with B-cell lymphoma who were treated with a similar vaccine. Results again looked promising. Engleman and colleagues continued to do work with the dendritic cell vaccines in other cancers, including prostate, colon and lung cancer. In 2001, he and Stanford colleagues reported results of an early-phase trial using immunotherapy in 12 patients with metastatic colon or lung cancer. Two

of the 12 patients showed dramatic tumor regression, one patient had a mixed response, and two saw their disease stabilized. In the remaining patients, the tumor continued to progress.

In 2000, Dendreon moved to Seattle, and both Engleman and Strober discontinued their relationship with the company. Engleman still owns shares of company stock.

Dendreon went on to use the dendritic cell approach with a focus on metastatic prostate cancer, conducting clinical trials in more than 700 men with advanced disease. In the final trial, which was conducted in 512 patients, of those who received the dendritic cell treatment, 31.7 percent were alive at three years, compared to 23 percent of those who received placebo. The treatment was deemed safe,



**Dr. Engleman's work on teaching a patient's dendritic cells how to recognize and fight their cancer is now in use.**

as the primary side effects – chills, fatigue, fever, back pain, nausea, joint ache and headache – were mild. The average life extension for men on the treatment was four months.

The FDA approval of the vaccine was considered a milestone, with oncologist Leonard Lichtenfeld, MD, deputy chief medical officer for the American Cancer Society noting in his blog that “it reinforces for many the dream that one day we would be able to turn on the body's own defense mechanisms as one more approach to treat (or one day perhaps prevent) certain cancers.” Still, he noted the limitations of the vaccine, which could not be considered a “miracle cure.”

Strober agreed. “Dendreon really is just the beginning of the road,” he said. “It's an important milestone, but

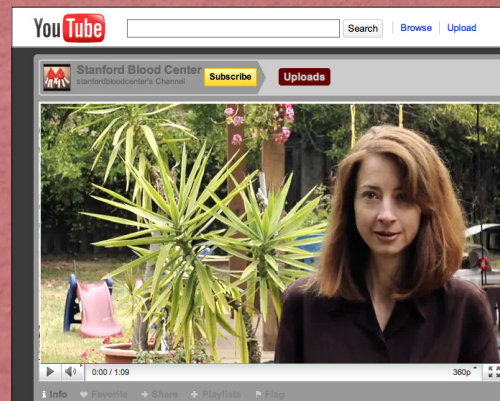
it didn't cure prostate cancer, so there's a lot of work yet to be done.” He and Engleman are now working on another approach to treatment of solid tumors that combines a more potent dendritic cell therapy combined with hematopoietic cell transplantation. Hematopoietic cell transplantation (also known as bone marrow transplantation) is commonly used in leukemia and lymphoma, but not for solid tumors. The two scientists have developed a mouse model using this double-punch therapy for metastatic colon cancer. “We're able to cure large primary tumors in the mouse model,” Strober said. “So our hope is to go from that mouse model to clinical trials in the next year or two and see what works. It's an important extension for the kind of work that Dendreon is doing.”



# Survival story

by Michele Hyndman

*I met Karen in the fall of 2006 through a new mom's group at El Camino Hospital in Mountain View where both of our daughters were born. I was immediately drawn to her sense of humor, honesty and authenticity. We shared the joy, frustration and anxiety of new parenthood as we watched our girls grow from newborns to active toddlers. Then we both discovered that we'd be expecting sons to join our families in 2009. In fact Karen, and her daughter Rebecca, were some of the first people to meet my son, Mason, when they brought us dinner that February. Karen's belly was big that night and we talked about life with two children and everything she still had left to do to prepare for her second child. She still had two months until she was due.*



Check out a microdocumentary about Quinn and his family on our YouTube channel. The video will also be playing in local movie theaters.



[youtube.com/stanfordbloodcenter](https://youtube.com/stanfordbloodcenter)



I will never forget how stunned I was when I got an email from Karen on March 5, 2009 to announce her son's arrival. It started "Quinn Frederick Bossow was born on Tuesday morning. Unfortunately, he is in extremely critical condition at Lucile Packard Children's Hospital." I immediately visited the blog she had created to keep family and friends updated on his condition.

In a routine check up, Karen commented that the baby had not been moving as much as before. An ultrasound showed that he was smaller than he should be at 36 weeks and there was a mass in her uterus. The safest course of action was to induce labor. Quinn was born with a massive cancerous tumor on his leg, which was what they had seen in the ultrasound.

Karen wrote, "A team of neonatologists was waiting for him. He was whisked away to the Neonatal Intensive Care Unit (NICU) where they worked to prevent him from bleeding to death. They told us he would need surgery right away and prepared to transfer him from El Camino Hospital to Stanford. Right now, they have controlled the bleeding in his leg. They can't remove any of the tissue until he is stronger and there is a good chance they will have to amputate much of the leg because the tissue is so fused with his own that

they can't separate it without him bleeding to death."

In that first post, she ended "Also, consider donating blood to your nearest blood bank. Our little boy sure is going through a lot of it, so it makes me appreciate the importance of donating blood."

My heart ached for Karen and her husband, Garth. What they were going through was unimaginable. On March 13, Quinn's left leg was amputated just above the knee. In addition, Quinn had several abnormal electroencephalograms (EEG), a test that measures and records the electrical activity of your brain. Doctors were uncertain if he had brain trauma.

Quinn's recovery is nothing short of miraculous. He was tenacious. After the amputation, Quinn grew stronger. He ate and slept well. On March 27, 2009, Karen and Garth were able to bring Quinn home. Since then, he continued to exceed every expectation. Quinn shows no sign of cancer now but doctors continue to monitor him closely. He learned to roll over and crawl on his own quickly. Quinn is now learning to walk with a prosthetic leg using a push toy. Karen says he has no idea he has any limitations. He is an extremely happy, joyful little boy with fiery red hair. He is a force of nature.

## Spreading the word»

Stanford Blood Center is utilizing social media to share powerful and compelling stories, like Quinn's, so our donors can see the outcome of their precious gift and so we can encourage others to donate blood for the first time. Your generous blood donations help these patients through unthinkable crises and often give them the strength to fight through or at least the energy to enjoy simple pleasures in their last moments.

We have filmed Karen speaking about Quinn's early struggles and will use it, along with other videos, to advertise to audiences at the local Cinearts Theatre in Palo Alto and Century 16 Theatre in Mountain View. Visit our YouTube page, and follow us on Facebook and Twitter. We often post new videos and information about blood utilization at the hospitals we serve.



« Quinn's dad, Garth, watches over him in the hospital.



» Quinn's mom Karen says he has no idea he has any limitations.



« Garth helps Quinn get ready for a day at the park by putting on his prosthetic.



Quinn and his sister, Becca, were very good sports on the day we filmed.



# Rejecting rejection

by Diane Rogers

The first doctors she consulted told **Rachel Amato** that the odds were vastly against her ever having a successful kidney transplant.

Then the 29-year-old mother of four from Turlock, Calif., traveled to Stanford Hospital & Clinics. “They were really honest with me,” she recalls. “They said, ‘We have seen proof that this new treatment works. We just don’t know how many doses it’s going to take.’”

In August 2008, Amato had her first four-hour infusion of a “desensitization” drug, intravenous immunoglobulin, or IVIG, designed to lower the number of organ-rejecting antibodies in patients who are highly “sensitized.” That means they have weapons-grade antibodies — acquired in blood transfusions, pregnancies or during a previous transplant — that seek out and destroy invading antigens, particularly the human leukocyte antigens, or HLA, on the surface of a foreign organ. These

patients’ immune systems would reject a donor kidney.

Amato had one monthly infusion for four months, and in January 2009 she had a dose of an additional drug, Rituxan, which knocks out many of the immune-system cells that produce antibodies. “Boom! My antibodies dropped,” she says. “I got my transplant two weeks later.”

The desensitization program, as well as improvements in minimally invasive surgery and the promise of an experimental “tolerance induction” protocol, have placed Stanford at the forefront of kidney transplant programs. It was the only one among 240 kidney transplant centers nationwide that exceeded expected results in both patient and graft (transplant kidney) survival at one year and at three years after transplantation, according to the independent Scientific Registry of Transplant Recipients. The registry also shows that Stanford was the top program in one-year transplant

kidney survival rates for four years running, from July 2000 to June 2004.

“It’s not just a fluke,” says Stephan Busque, MD, surgical director of the adult kidney and pancreas transplant program. “Even though we’re treating patients at higher risk, we perform better than expected because we have a very good team and our patients get very attentive, individualized care.” Busque and the other members of the program have been pursuing new tests, treatments and technologies to address the plight of people who, like Amato, need transplants but can’t qualify for them because they are highly sensitized.

The new protocol involves giving these patients a high dose of IVIG. The infusions, which may be repeated over several months, lower the patient’s number of organ-rejecting antibodies.



**Dolly Tyan**, PhD, director of the program’s histocompatibility lab, estimates that 30 percent of the 80,000 people on the national waiting list are HLA sensitized and might benefit from being desensitized. The treatment is available at only a handful of medical centers, including Cedars-Sinai, Johns Hopkins, the Mayo Clinic and the University of Toronto.

Tyan and her colleagues have also developed a new assay system that “allows us to see very specifically what antibodies a person has, and exactly which ones are going to go away.”

In the meantime, Amato is grateful that she had the opportunity to get a kidney. While she still takes medication to ensure against her body rejecting the organ, her life is almost back to normal. “Stanford was my saving grace because they did not give up on me,” she says. *[From Stanford Medicine magazine, Spring 2010.]*

## The road ahead

Q&A with Dolly Tyan, PhD

**Q: What changes do you see coming in the next 5-10 years in HLA?**

**A:** In the near term—new sequencing technology. Sequencing currently requires that two strands of DNA go through a series of up to four tests

before a match can be determined or ruled out. This method is expensive, but very accurate. As this technology improves, this process will allow us to read the entire gene.

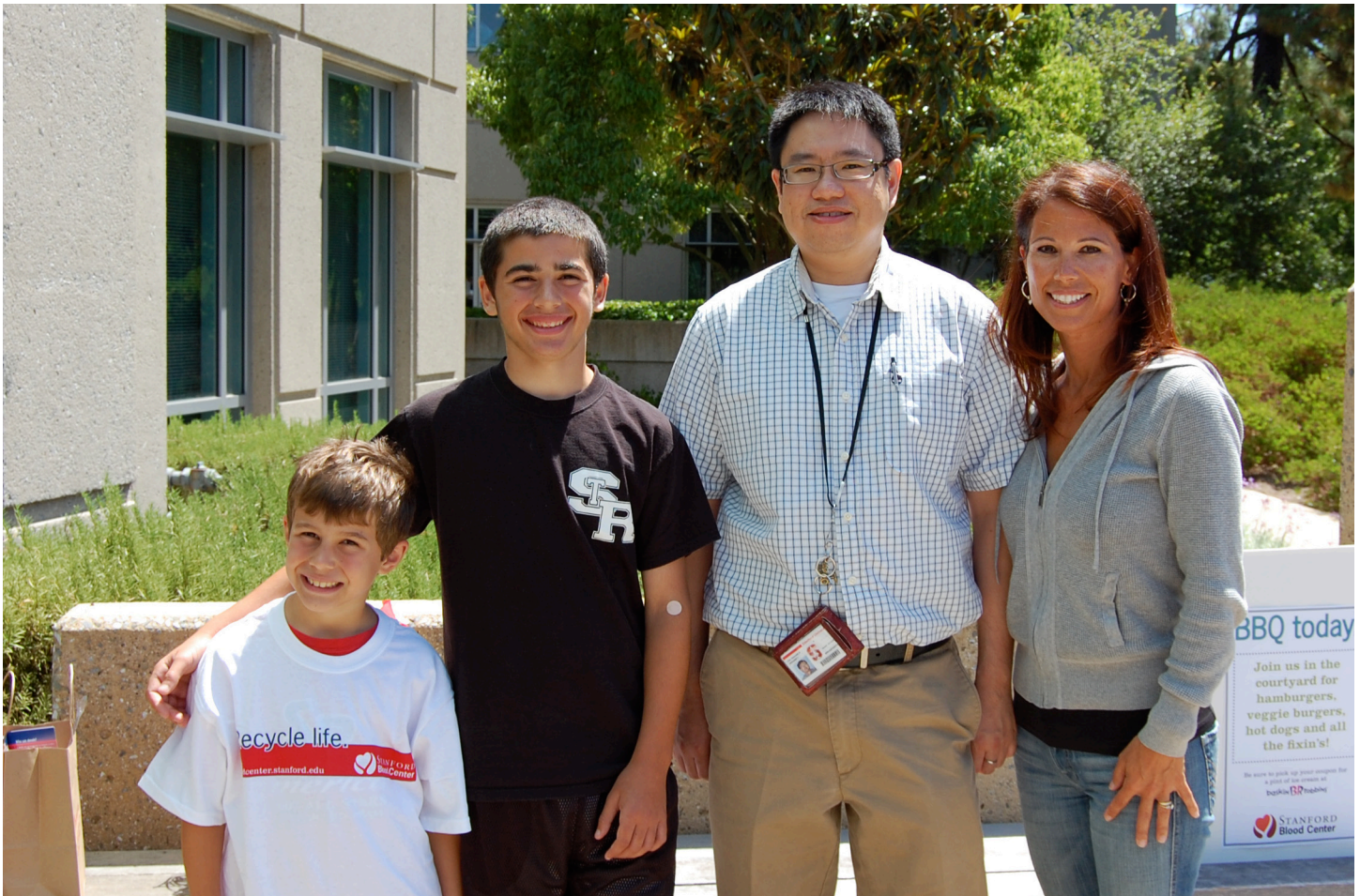
We’ve also developed a new assay (mentioned in the article above) called C1q that detects antibodies that have previously been undetectable. This test uses small plastic beads that are coated with a single antigen. When

exposed to a patient’s antibodies, the antigen-coated bead’s reaction—or absence of reaction—indicates whether the organ in question will cause a reaction.

Many times, people talk about HLA in terms of finding a match, but in truth, it’s not about making matches, it’s about avoiding rejection.

**Q: What do these changes mean?**





From left to right: younger brother Brendan Murphy, heart transplant and blood transfusion patient Kevin Murphy, Stanford Blood Center HLA lab specialist Kenneth Yim, and happy mom, Diana Murphy.

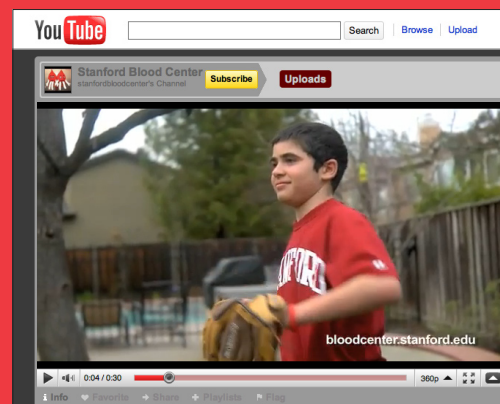
## Chance meeting»

In February 2009, **Kevin Murphy**, then 12-years-old, received a heart transplant. Since then, the Murphys have become advocates of blood and organ donation, even going so far as to host a blood drive at their home earlier this year.

When touring Hillview last week, the Murphy family happened to run into **Ken Yim** in the histo lab. Yim, coincidentally, is the person who tested Kevin's heart for compatibility. Kevin's mother, **Diana**, was so excited to meet him that she gave Ken a big hug.

—*Deanna Bolio*

**A:** New technology presents us with the opportunity to explore other kinds of genetic markers. In the past, it's been as though we're looking at the genome from 20,000 feet; now we're getting closer to sea level. From this vantage point, we're able to establish an immune system profile of a particular patient, and provide their clinician with information about their propensity for disease or infection.



Check out a microdocumentary about Kevin and his heart transplant on our YouTube channel. The video will also be playing in local movie theaters.



[youtube.com/stanfordbloodcenter](https://youtube.com/stanfordbloodcenter)



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 Palo Alto, CA 94304-1204



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## Hillview

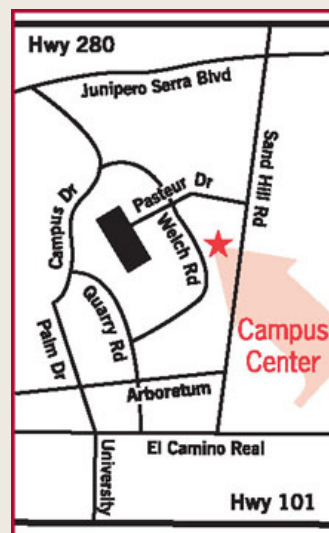
Donor Center  
 3373 Hillview Avenue  
 Palo Alto, CA 94304



**Monday** 7:30 am to 3:00 pm  
**Tuesday** 7:30 am to 3:00 pm  
**Wednesday** Noon to 7:30 pm  
**Thursday** Noon to 7:30 pm  
**Friday** 7:30 am to 3:00 pm  
**Saturday** 7:30 am to 3:00 pm  
**Sunday** Closed

## Campus

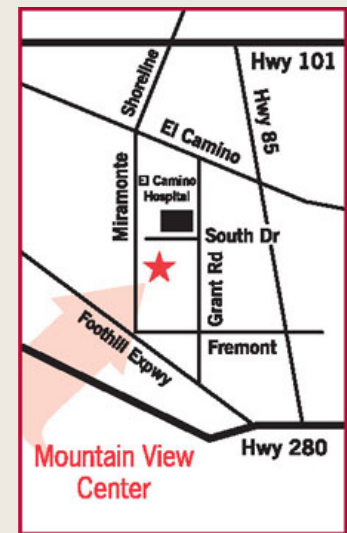
Donor Center  
 780 Welch Road, Suite 100  
 Palo Alto, CA 94304



**Monday** Noon to 7:30 pm  
**Tuesday** Noon to 7:30 pm  
**Wednesday** 7:30 am to 3:00 pm  
**Thursday** Noon to 7:30 pm  
**Friday** 7:30 am to 3:00 pm  
**Saturday** 7:30 am to 3:00 pm  
**Sunday** Closed

## Mountain View

Donor Center  
 515 South Drive, Suite 20  
 Mountain View, CA 94040



**Monday** Noon to 7:30 pm  
**Tuesday** 7:30 am to 3:00 pm  
**Wednesday** Noon to 7:30 pm  
**Thursday** Noon to 7:30 pm  
**Friday** 7:30 am to 3:00 pm  
**Saturday** 7:30 am to 3:00 pm  
**Sunday** Closed