Alane thought her eighth surgery finally fixed the recurring problem of her blocked artery. But her artery recently shut down yet again, and she had to endure her ninth procedure in 11 years because of abnormal healing and excessive scarring.

“Nine surgeries — now is the problem solved?”

“Despite all the new technologies, every day vascular surgeons see patients who have had one or more procedures fail,” says Vascular Cures’ Chief Medical Officer Michael S. Conte, MD. “This has caused a major increase in hospitalizations and a staggering load on our health care system. It takes a huge toll on patients such as Alane and their families. We need to understand why two patients who undergo basically the same stent or bypass procedure may have dramatically different outcomes.”

Vascular Cures is meeting the challenge by creating the first national biobank of vascular tissue through the Vascular Cures Research Network (VCRN). This collaborative team of leading research centers across the U.S. has already identified one important gene variation that may predict vascular healing throughout the entire body.

Vascular Cures is leading the way to improve risk prediction and identify new drug targets for vascular disease, based on the unique biology of individual patients. Dr. Michael Conte of UCSF and Dr. Alec Clowes of the University of Washington, collaborators in the Vascular Cures Research Network (VCRN), discovered a genetic marker that is correlated with the outcomes of bypass surgery in the legs. People with a common variation of the gene called p27 have more than double the chance of a long term successful leg bypass, which the investigators believe is directly related to the impact of p27 on vascular healing.

Procedures to treat blocked arteries may be followed by excessive scarring and re-blockage in certain patients. Approximately half of angioplasty, stent or bypass procedures in the leg will fail within a few years. Patients having heart bypass or angioplasty, or needing dialysis for kidney failure, may face the same problem. These patients often require repeat procedures to keep vessels open because of the way their bodies heal.

What if we could predict or prevent the abnormal healing and scarring that causes these commonly done procedures to fail? A test to see if someone had a particular gene, or a drug that targeted the problems caused by that gene, might prevent a loved one from having to endure years of surgeries.

Continued on page 2
Vascular research has made a major difference in my life. I have had multiple problems—a blocked renal artery that caused me to lose a kidney and PAD (peripheral artery disease) that sometimes makes it hard for me to walk. Your surgeons have helped me to live an active, normal life for decades. I strongly support the important work that you are doing.

Peggy Stiegele

Gene Discovery, continued:
The study that identified the p27 genetic marker included only 204 patient blood samples. We need samples from thousands of patients in the VCRN biobank in order to identify and validate more biomarkers that affect vascular healing.

VCRN will add samples from 2,000 more patients undergoing vascular surgery to the Vascular Cures biobank by 2015. Adding each patient costs about $1,000 in addition to the costs of the consortium and biobank. We need to raise $7 million over 3 years to advance this vital research—our goal for 2012 is $1.5 million.

“The faster we can accomplish our goal through VCRN, the faster we will realize new and better ways to diagnose and treat our patients,” says Dr. Conte, Chief of Vascular and Endovascular Surgery at UCSF and Chief Medical Officer of Vascular Cures.

Personalized medicine means tailoring health care to fit someone’s individual genetic and biological makeup. It has been successful in cancer, where tumor biopsies are used to select the right chemotherapy, drugs are designed for those with specific genes and cancer biomarkers are measured to evaluate recovery. Diagnostic tests are also used to match donors for organ transplants and determine the right dosage of drugs. Vascular Cures is leading the way to develop personalized treatments for vascular disease. The goal of the first major VCRN project is to develop specific tests that will help to predict the type of severe healing responses experienced by Alane before the procedures are done.

Personalized medicine requires analysis of tissue and blood samples from thousands of patients. Since any individual surgeon sees a limited number of patients in a year, it would take decades to accomplish this without a consortium such as the Vascular Cures Research Network. Biobanking was included in TIME Magazine’s list of “10 Ideas Changing the World Right Now.” The Vascular Cures biobank will be a resource for researchers throughout the world for decades to come.

I was only 36 when I experienced the first symptoms of PAD. When I was actively bicycling or walking briskly, my left leg felt incredibly weak. It took numerous tests to discover that this was due to a 6-inch blockage in my femoral artery. Although I underwent bypass surgery and thought it would be fixed for good, scar tissue quickly built up and blocked the artery again. It took 5 surgeries for me to resume my normal life because abnormal scarring kept causing the procedure to fail. Although my dream was to be a sculptor, I had to return to working in a financial role in order to have health insurance. I hope that Vascular Cures can find a way to prevent anyone else from having to endure multiple surgeries.

Mary Lancaster

Vascular Cures
Making a difference in your lives

When I was 5 years old, having a routine physical exam for entering preschool, it was discovered that I had extreme hypertension due to a significantly narrowed aorta and needed immediate surgery. I was completely asymptomatic. This diagnosis could easily have resulted in a debilitating stroke, or possibly death.

I cannot imagine the feeling my parents must have experienced when the doctors told them that my chances of making it through the surgery were about 5%. They were also told that if I lived, my life would be drastically changed. This would prove to be somewhat true. I had seven subsequent surgeries including a bi-lateral kidney auto-transplant, and I have an aortic aneurysm that is still being monitored today under the watchful eyes of Dr. Ron Stoney and Dr. Michael Conte.

45 years later, at age fifty, I and my wife, children and grandchildren are ever grateful to the doctors and staff at UCSF, all of the Wylie Scholars, and Vascular Cures for all of their fabulous work that has given me the life I have today.

Jim Emett

Thank You to Our Corporate Sponsors
Vascular Cures Names New Director

Experienced medical device executive Laura N. Dietch has joined our Board of Directors. Over her 25 year career Ms. Dietch has been in key management roles at Advanced Cardiovascular Systems (later Guidant), Progressive Angioplasty Systems (acquired by US Surgical) and LuMend (acquired by JNJ). She was VP Global Marketing for Medtronic Vascular, and Acting CEO for Amaranth Medical. Presently, Ms. Dietch provides strategic and operating consulting to early stage technology and leading interventional vascular companies. Ms. Dietch sits on the Medical Devices Committee of Life Science Angels, a prominent Silicon Valley investing group and is past Chair of the Board of Directors of the Silicon Valley Division of the American Heart Association.

Laura N. Dietch

14th Surgeon-Scientist Receives Award: Growing New Blood Vessels to Prevent Amputation

Vascular Cures believes that supporting promising young vascular surgeon-scientists is crucial to driving continued innovation. The prestigious $150,000 Wylie Scholar grant is awarded to an individual who combines his or her clinical practice with academic research and has the potential to become a leader in vascular medicine. Gale Tang, MD of the University of Washington has received Vascular Cures’ 14th Wylie Scholar Award for her research in blood vessel growth. As a vascular surgeon, Dr. Tang sees patients who have major blockages in the arteries of their legs resulting in loss of blood flow. Most amputations in the U.S. are due to tissue death caused by a lack of blood flow. Currently, 1.9 million people in the U.S. live with limb loss. This number is expected to double by 2050, primarily due to the increase in diabetes and vascular disease.

Dr. Tang’s research is focused on creating new vessels to carry the blood that blocked arteries can no longer transport, evaluating the syndecan-1 protein encoded by the SDC1 gene. “By understanding the mechanisms that promote blood vessel growth,” says Dr. Tang, “I hope to develop new non-surgical therapies for people with severe blockages, thereby improving outcomes for hundreds of thousands of patients each year.”

Gale Tang, MD is a great example of the synergy of our programs, made possible by generous donors. Prior to receiving the 2011 Wylie Scholar award, Dr. Tang studied mechanisms of blood vessel growth at LAVR from 2001–2003 and is currently working under the mentorship of Alec Clowes, MD, a leader of the Vascular Cures Research Network.

Nearly half of people who lose a limb to vascular disease will die within 5 years.

We’re on the threshold of being able to develop highly targeted drugs for vascular disease, using biomarkers identified through blood and tissue samples in the Vascular Cures biobank. It would take decades for one institution to collect samples from thousands of patients undergoing vascular surgeries, but this will be done within only a few years by the Vascular Cures Research Network (VCRN). The ongoing achievements of the Wylie Scholar program and the Laboratory for Accelerated Vascular Research (LAVR) will contribute to VCRN’s success. Participating Wylie Scholars will help to identify biomarkers using the Vascular Cures biobank, and the surgeons and scientists at LAVR will work with VCRN to accelerate the development of new treatments for vascular disease.

The Power of a Network— the Vascular Cures Biomarker Project

What Is a Biomarker? It is an indicator of the risk or progression of a disease, such as a specific cell, molecule, gene, enzyme, or hormone. Biomarkers can be measured in blood and tissue, and used for early diagnosis as well as the development of new drugs.

Examples of biomarkers used in diagnosis include cholesterol values, PSA levels to detect prostate cancer and genes to assess the risk of breast cancer.

Bingham-Osborn & Scarborough, LLC
Vascular Disease Can Begin at a Young Age

Many young adults have undetected thickening of the arteries or atherosclerosis, which can lead to heart disease, stroke and death. Doctors at Laval University in Canada studied 168 healthy normal weight volunteers aged 18 to 35 with no known cardiovascular disease or risk factors. Almost half showed signs of atherosclerosis. “The proportion of young, apparently healthy adults who are presumptively ‘the picture of health’ and yet already have atherosclerosis is staggering,” said study author Dr. Eric Larose.

Alarmingly, another study found that obese children, whose average age was 13, have so much plaque buildup that they have the “vascular age” of a 45 year old.

“Atherosclerosis – A Head to Toe Problem

A wound on his foot was the first sign that Bick Ramsay was on the verge of having a heart attack. “The wound wouldn’t heal,” says Bick. “My doctor referred me to several specialists, who discovered that I had blockages in the arteries in both my legs and heart. In fact, they rushed me into surgery because they thought I might have a heart attack.”

Bick has atherosclerosis, the buildup of plaque in the inner lining of arteries that restricts or blocks blood flow. Atherosclerosis causes heart attacks and stroke, and can lead to severe disability, amputation and death.

Many people have heard of atherosclerosis affecting the arteries leading to the heart. In fact, it often affects multiple areas of the body. Atherosclerosis in the leg, known as peripheral artery disease (PAD), narrows or blocks blood flow to the feet and legs. A stroke can result from atherosclerosis in the carotid arteries that supply blood to the brain. It can damage kidneys by blocking the renal arteries, restrict the blood supply to the stomach and arms and even cause erectile dysfunction.

Peggy Stiegele lost a kidney because her right renal artery was blocked due to atherosclerosis. Later, she was diagnosed with PAD. “I had no idea that my kidney failure and the pain in my leg were related,” says Peggy. Few people do.

Patients with PAD are up to 5 times more likely to have a heart attack or stroke. If you are diagnosed with peripheral or coronary artery disease, there’s a good chance that you have more than one problem.

We’re finding out more and more that Alzheimer’s disease and vascular disease aren’t just additive in the brain but act synergistically to cause havoc. So take care of those blood vessels.”

Our gala this year was magical. We celebrated the accomplishments of our dedicated surgeon-scientists who work tirelessly on behalf of patients. The research they do for this disease wouldn’t happen without your support and funding. Thank you for what you do every day for our cause.

We hope you can join us next year on September 8, 2012 at the beautiful Olympic Club – Lakeside. Please save the date!