Pushing the boundaries

U scientists explore the potential of growing replacement organs—using a patient’s own cells—for people facing heart failure

Like thousands of Americans every year, Jeff Turrittin, now 33, was born with a faulty heart valve. In technical terms, he had aortic valve stenosis. The valve connecting his aorta to the left ventricle of his heart was more narrow than usual, which can obstruct blood flow to the rest of the body. For every pint of blood that passed through his heart, some 20 percent would leak back into it, making his heart work harder and gradually swell. When undetected and untreated, the condition is a leading cause of heart failure.

At age 27, Turrittin underwent a heart valve replacement surgery. He opted for a mechanical implant, requiring him to take a blood thinner as long as he has the device, instead of a pig’s natural valve, which typically doesn’t last as long. Mechanical valves have a life expectancy of about 25 years, so Turrittin expects to undergo the invasive procedure and recovery at least one more time in his life.

Turrittin and his family hold hope in heart replication research at the University of Minnesota’s Lillehei Heart Institute that could make his next heart valve replacement permanent.

“We have a son with an artificial heart valve that is going to wear out,” says Jeff’s mother, Sally Turrittin. “Needless to say, his father, John, and I have a very strong interest in the possibility that continued on page 2

continued on page 2
the next time he has a heart valve surgery, he will get a new valve—with no concern that the valve will need to be replaced any time in the future.”

That could happen if the research of Daniel Garry, M.D., Ph.D., executive director of the U’s Lillehei Heart Institute, and team aimed at replicating human hearts becomes a viable treatment option in the next couple of decades. Today Garry is leading a team of scientists who are trying to make exact replicas of individuals’ hearts using patients’ own cells and growing the new organs in a pig’s body.

“I am a physician-scientist,” says Garry. “I care for persons who have advanced heart failure or who need a heart pump, a device they need because, over time, abnormalities like faulty valves can cause heart failure.”

And the severity of heart failure is the reason physicians need to intervene as early as possible, Garry says. Of the 100,000 Americans per year who need a heart transplant, only 2,000 get them because it’s hard to find hearts from organ donors that are not only healthy but also are a close enough match that they’re not automatically rejected by recipient’s body.

Thus the desire to move forward with research on heart regeneration, an alternative and potentially more predictable—as well as safer—way for people in heart failure to get the new organ they need. Or, in Jeff Turrittin’s case, the new valve he will need.

One part of Garry’s research team takes skin cells from a person and coaxes them into becoming stem cells. Another group nurtures those stem cells into becoming heart tissue that can be used to patch a patient’s heart. And a third is working to create a fully formed human heart from stem cells transplanted in an animal model—in this case, a pig.

This process, Garry says, will not only increase the number of available hearts and valves that will not wear out but also preclude the need for antirejection drugs or even the blood thinners that Jeff Turrittin was placed on after his surgery.

So inspired by the potential of this work, Sally and John Turrittin recently pledged $100,000 to the Lillehei Heart Institute to support it.

“Think of how many people might benefit from this,” says Sally Turrittin. “What Dr. Garry is doing is powerful research.”

Support through a lifetime—and beyond

Your annual gifts to support the Lillehei Heart Institute at the University of Minnesota make a real difference to patients and their families. Did you know that you can continue to make a difference after your lifetime by including the University of Minnesota Foundation in your estate plan? Here are three ways to continue your support:

- Leave a specified dollar amount or a percentage of your estate to the University of Minnesota Foundation through your will or living trust.
- Name the University of Minnesota Foundation as a beneficiary of your retirement plan account or a life insurance policy.
- Arrange a gift that will provide payments to you or others.

For more information, please contact Lisa Meyer of the University of Minnesota Foundation at 612-301-8304 or llmeyer@umn.edu.
A ‘springboard’ into science careers

An act of philanthropy infuses a program that matches high-potential students with top research mentors

It’s a rare opportunity for a small, select group of college and high school students. Through the Lillehei Summer Research Scholars Program, founded in 2009, students work under the tutelage of research mentors at the University of Minnesota’s Lillehei Heart Institute (LHI), a leader in cardiovascular medicine and research.

To date, funding for the program comes entirely from private donors, says Mary Garry, Ph.D., an associate professor of medicine who created and directs the program.

Recently that funding got a big boost when husband and wife Tom Schnettler and Cheryl Appeldorn followed up their earlier donations to the program with a $100,000 gift.

“We were looking for an opportunity to support the work of the LHI,” explains Schnettler, vice chairman of Piper Jaffray Companies, who’s also a member of a U of M philanthropic advisory board. “We’ve been very impressed with the vision of the institute’s summer research program. It’s very ambitious, very comprehensive, and [it] can pay huge dividends to the state.”

Schnettler and Appeldorn, a policy analyst with Conservation Minnesota, became even more impressed when their daughter, Erin, was accepted as one of the first participants in the summer program.

That was in 2010 at the end of her junior year as an undergraduate. After completing a degree in biology, she was appointed a junior research assistant in a U of M heart lab. While there, she was accepted to Yale University’s master’s program in environmental science. She now works in Washington, D.C., for the National Oceanic and Atmospheric Administration.

“The summer program was a nice springboard for Erin and an important experience,” says her father. “But our gift isn’t solely related to that. We think the program demonstrates farsighted thinking and is a huge benefit to the kids. But just as important is the fact that it’s also part of a broad initiative ensuring the continued prominence of the U in the field of cardiovascular medicine.”

Garry is enthusiastic about the support her program is receiving and what that means for the students chosen to take part in it.

“We now are able to plan into the future and make long-term changes, like offering some travel and housing stipends for kids who are a good fit but might not be able to come here on their own dime,” she says.

A red hot good time

Nearly 600 guests attended the fifth annual Red Hot Soirée, a gala fundraiser held April 11 at the Depot in Minneapolis to benefit research at the Lillehei Heart Institute. This year’s event, which raised approximately $700,000, featured a Made in Minnesota theme and highlighted research initiatives intended to discover alternatives to human hearts for transplantation. Since its inception, the event has raised more than $2.5 million to support research for the detection, prevention, and care of cardiovascular disease.

To learn how you can support the Lillehei Summer Research Scholars Program, contact Lisa Meyer at 612-301-8304 or llmeyer@umn.edu.
The Lillehei Heart Institute (LHI) and Intercollegiate Athletics at the University of Minnesota couldn’t be more different in focus, but they share a common benefactor—Robert Eddy, ’74 B.A. The retired telecommunications executive, volunteer Sherburne County Sheriff’s deputy, and former firefighter and EMT has committed a gift of $20 million from his estate to the U, to be divided equally between the two.

Eddy’s support for heart health has deep roots. As an emergency responder and a member of a heart development advisory board, Eddy has firsthand knowledge of the high fatality rates for people who experience sudden cardiac arrest outside of a hospital.

As an emergency responder, Robert Eddy knows firsthand how important it is to improve cardiac arrest survival rates.

In 2013, Eddy gave $2 million to establish the R.K. Eddy Endowed Chair in Cardiovascular Resuscitation to support research on improving cardiac arrest survival rates. His recent bequest to the LHI, however, is unrestricted.

“It can be used wherever the need is greatest,” says Eddy. “The facility, personnel, research, equipment—anything that furthers the goal of curing heart disease.”

And Eddy, who recently made another $6 million gift to U athletics, says athletics mean more than people may realize. “A friend of mine says every major university has a built-in PR department. It’s called athletics,” he says. “It’s how most people identify with a university. If you have a good department, more people want to be part of the action. And that makes them more likely to contribute to the U.”