Thank you, Dr. Starzl

March 11, 1926–March 4, 2017

By Chuck Staresinic
Thomas E. Starzl performed the world’s first successful liver transplant in 1967. It’s impossible to overstate the difficulty of accomplishing this. Half the blood in the body can flow through the liver in a single minute, and these procedures went on for many hours and through innumerable units of blood. If the patient survived the risky operation, she ran the risk that her immune system would reject the organ. A significant portion of the medical establishment thought that even attempting liver transplantation was wrong and that those suffering from liver disease deserved to die with more dignity.

Yet the seven children (all of Starzl’s first liver transplantation patients in 1967 were children) were dying when they came to the O.R. And because of Starzl’s bold attempts, in 1968, three were still alive. The other four had lived two to six months, long enough to offer hope for thousands in need. And since 1988, nearly 149,000 people in the United States alone have had liver transplants. The procedure typically adds years, and more often decades, to a patient’s life.

Had it not been for Starzl, organ transplantation simply would not be what it is today. Starzl, who died on March 4, was a giant in the field of medicine. He remains an iconic Pittsburgher, akin to Rachel Carson, Fred Rogers, and Roberto Clemente—individuals known for their uncommon combination of skill, determination, courage, and humanity.

Starzl, an MD/PhD and Distinguished University Professor of Surgery, possessed extraordinary qualities required to overcome the obstacles to liver transplantation. First, he had rare surgical skills. (“The best I’ve ever seen,” said longtime colleague Andreas Tzakis. “Where others took two or three moves to get from A to B, Starzl would make a simple acrobatic maneuver that only he could perform.”) Second, he devised a way to combine the experimental drug cyclosporine with steroids to better control suppression of the immune system. (This is just one of Starzl’s many innovations and discoveries in immunosuppression and enabling a body’s immune system to accept a donated organ, also known as achieving “tolerance.”) And, he had relentless drive—necessary because success in this endeavor required enduring more failure than most people could stomach.

Starzl’s professional accomplishments are celebrated worldwide. On what would have been his 91st birthday this March, several of those who knew and loved him best shared poignant tales that also captured his personal qualities at a “Homegoing Celebration” at Heinz Memorial Chapel on the University of Pittsburgh campus. Joy Starzl, his wife of 35 years, spoke of her husband’s private struggles as he worked very publicly to make liver transplantation a reality.

“I heard all those stories when he came home,” she said. “When he was angry, when he failed or didn’t fail, and how he felt. He shared them with me, and he cried when it was difficult for him. I was there for him, and I’m so grateful I was there for him.”

John Fung, founding director of the University of Chicago Transplantation Institute, said that he and others who trained under Starzl were in awe of his genius, tenacity, and humanity. “No one accomplished more, contributed more, or sacrificed more for his profession than Tom,” said Fung.

Hollis Hurd spoke as a patient who benefited from Starzl’s career-long investigation of the immunology of organ transplantation and the quest for its holy grail—the induction of tolerance. Before his kidney transplant in 2006, Hurd volunteered to undergo a novel pretreatment designed to spare him the problems associated with lifelong, high-dose immunosuppression. When Hurd asked questions about it, Starzl would grow animated, draw pictures of organ systems on the exam table paper; he once gave Hurd a reading list of scientific papers. “It was just sensational,” Hurd recalled. “I was dealing with a real human being who had wonderful
Despite worldwide pessimism regarding the ability to transplant genetically different (allogenic) human kidneys, Thomas E. Starzl did so at the University of Colorado in 1962 and 1963. His method successfully combined azathioprine and corticosteroids to quell the immune response; that approach invigorated clinical attempts throughout the world.

Starzl’s early work helped pave the way to allow donated organs to be viable after being transported long distances.

Starzl performed the world’s first liver transplant in 1963 and the first successful liver transplant in 1967, both while at the University of Colorado.

Starzl joined the University of Pittsburgh in 1981 as professor of surgery and led the team of surgeons who performed Pittsburgh’s first liver transplant. Thirty liver transplants were performed that year, launching the liver transplant program—the only one in the nation at the time.

Starzl also introduced antilymphocyte globulin and cyclosporine to prevent organ rejection. It was this development in 1980 that advanced transplantation from an experimental procedure to an accepted form of treatment for patients with end-stage liver, kidney, and heart disease. The advance also allowed surgeons to explore the feasibility of transplanting other organs, such as the pancreas and lung.

Human islet transplantation (to cure diabetes) was accomplished successfully for the first time by Starzl’s team at Pitt.

FK506 greatly improved patient and graft survival rates for liver and other organ transplants and made intestinal transplantation possible. Five years later, FK506 was approved for clinical use by the U.S. Food and Drug Administration.

A major focus of Starzl’s later research was transplant tolerance and chimerism (the coexistence of cells from both the donor and recipient). This work offered significant contributions to the understanding of transplant immunology, particularly with respect to how and why organs are accepted.

Starzl was the recipient of more than 200 honors, including the Lasker-DeBakey Clinical Medical Research Award, the Presidential National Medal of Science, and 26 honorary doctorates from universities around the world.

He authored or coauthored more than 2,200 scientific articles, four books, and 300 book chapters. From 1985 to 1999, Starzl averaged one paper every 3.5 days.

In 1999, the Institute for Scientific Information identified him as the most cited scientist in the field of clinical medicine. His citation frequency exceeded 2,000 per year for the period 1989-2007, with a peak of 4,224 citations in the year 1996. That’s one citation every 30 minutes.

The book, 1,000 Years, 1,000 People: Ranking the Men and Women Who Shaped the Millennium, placed Starzl 213th on its list of those having the greatest influence on the world in the past millennium.

Sources: The Official Dr. Thomas E. Starzl Web site and the University of Pittsburgh.

To learn more about this giant of medicine, read our two-part series: www.pittmed. health.pitt.edu/story/only-starzl-dared
Starzl, c. 1990.