Match Maker

By Stephen Fraser

Matt Hoffman paid it forward by donating life-giving cells to a cancer patient.

Matt Hoffman didn't recognize the voice with the Texas accent when he answered the phone last December. But the caller had something important to tell Hoffman. "I want to thank you for saving my life," the man said.

Courtesy of Rowan University
Matt Hoffman, wearing his Rowan University football uniform.

A year earlier, Hoffman had answered a request to donate blood cells. Those cells represented the last hope for the Texas man in his battle with cancer. Now the man had joyous news to share: He was cancer-free.

Perfect Match

In 2008, Hoffman had joined the Be The Match Registry, which is run by the National Marrow Donor Program (NMDP) in Minneapolis. The NMDP helps patients with life-threatening diseases of the blood and the immune system. It supplies those patients with *stem cells* donated by people from around the world. Stem cells are immature cells that have the ability to mature into different kinds of adult cells.

Hoffman, now 21, heard about the Be The Match program from his football team's coach during his sophomore year at Rowan University in Glassboro, N.J. He filled out a form detailing his health history. When the form was approved, Hoffman was given a *cheek swab*—cells were gently scraped from the inside of his cheek. The cells were then sent to a lab for a DNA analysis. The information from the analysis was entered into the Be The Match database, which contains the records of millions of participants.

Last September, Hoffman was notified that his tissue type was a close match with that of Warren Sallach, 59, a road maintenance worker from Brenham, Texas. Sallach had *lymphoma,* a form of cancer that affects part of the immune system called the *lymphatic system.* The lymphatic system is a network of channels throughout the body that fight infection. In people who have lymphoma, the system's cells become abnormal and form tumors.

Source Material

The stem cells used to treat diseases of the blood and the immune system typically come from two sources, says Sue Paprocki of Be The Match. In 24 percent of cases, the source is *bone marrow.* Bone marrow is spongy tissue at the center of bones that produces new blood cells, including immune cells. A needle is inserted into the donor's pelvic bone, and the marrow is extracted with a syringe. The donor's body replaces the depleted bone marrow within weeks.

In the other 76 percent of cases, the stem cells are extracted from the donor's blood. That's the type of donation that Hoffman made.

Before the procedure, Hoffman underwent a physical exam to make sure he was completely healthy. Five days prior to donation day, he was given a drug to stimulate the formation of blood cells. He had to stop playing football because the medication temporarily enlarged his *spleen,* an oval organ located near the stomach that forms part of the lymphatic system and makes cells that combat infections. Playing football could have ruptured the enlarged organ.

On donation day Hoffman received a final shot of the medication. Then a needle was inserted into his arm, and his blood was slowly removed and circulated through a machine that filtered out the stem cells. The blood was then returned to Hoffman's body through a needle in his other arm. The procedure lasted six hours. "It's only painful like any needle injected would be," says Hoffman. Afterward, he felt slightly lightheaded and a bit tired.

Hoffman's stem cells were immediately packed in a cooler and flown to a San Antonio hospital. There Sallach had recently completed chemotherapy and radiation treatment to eliminate the abnormal lymph cells in his body.

Hoffman's stem cells were injected into Sallach, where they migrated inside his bones and became new bone marrow. The bone marrow started making healthy infection-fighting cells.

Award Ceremony

Hoffman's phone conversation with Sallach in December, though slightly awkward at first, grew more relaxed when the talk turned to football. Sallach was impressed not just by Hoffman's generosity but also by the young man's willingness to forgo his football team's important final game of the season. "It renewed my faith in the youth of America," says Sallach.

Courtesy of Rowan University
At a football awards banquet held in December, Hoffman met Warren Sallach, the man whose cancer was cured by Hoffman's donated stem cells. With Sallach are his wife, Becky, and their son Travis.

Shortly after the phone conversation, the two men met face-to-face at an awards banquet in Salem, Va.Hoffman had invited Sallach and his wife, Becky, and their son Travis, 9, to sit with him. Hoffman was there as a nominee for the Gagliardi Trophy for Division III football. He had already been selected defensive player of the year by the New Jersey Athletic Conference. In the end, Hoffman didn't win the Gagliardi award, but meeting Sallach was prize enough.

The two men are just one pair of thousands of "cell mates" that the NMDP has matched up. Roughly 10,000 people have serious diseases that could benefit from bone marrow or blood stem cell transplants each year. The need for donations is constant. "It's a good way to pay it forward—helping to save a life," says Paprocki.

Drainage System

Surrounding every human cell is a fluid that the bloodstream constantly feeds with oxygen and nutrients. The amount and quality of that fluid is regulated by a network of vessels, the *lymphatic system,* that threads its way through the body. Excess fluid drains into the lymphatic system and flows to dozens of *lymph nodes*—knots of tissue that filter out viruses, bacteria, and poisons. The filtration process is carried out by a thicket of fibers and by certain white blood cells, such as *lymphocytes* and *phagocytes.*