

CHICAGOANS OF THE YEAR—THE MAGNIFICENT SEVEN
IS THAT ART? BY TED ALLEN

JANUARY 2003

Chicago

WEDDINGS
The White Album

BREAKTHROUGH DOCTORS

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New Immune Systems

RICHARD BURT CHIEF, DIVISION OF IMMUNOTHERAPY

ANN TRAYNOR ASSISTANT PROFESSOR, DIVISION OF IMMUNOTHERAPY

Northwestern University Medical School/ Northwestern Memorial Hospital

ON A BULLETIN BOARD IN THE OFFICE OF RICHARD BURT, PINNED AMONG newspaper clippings and pictures of swollen-faced young women (photographed before treatment) and smiling, slender ones (after), there hangs a handwritten note. "Thank you for everything you have done for Christy," it says. "You have given her a chance of life. You have given a six-year-old boy his mother back. She's planning to take him on a bike ride today!"

Christy suffers from Crohn's disease, an autoimmune disorder that causes inflammation of the small intestine, usually leading to abdominal pain and diarrhea. In most people, the immune system protects the body from disease; in people with Crohn's or other autoimmune diseases, the immune system attacks the body. While on fellowships at Johns Hopkins University and the National Institutes of Health in the late 1980s, Burt began looking for a way to counteract that inexplicable inversion. He theorized that the stem cell transplant technique used to treat patients with malignant diseases such as cancer could be adapted to treat autoimmune diseases. In 1996, he conducted his first procedure, successfully taking on the case of a woman with multiple sclerosis.

The procedure goes like this: Doctors collect adult stem cells from a patient's own bloodstream and freeze them in a lab. After the patient undergoes chemotherapy to destroy the rebel immune system, doctors infuse the stem cells back into the body and, it seems, a healthy new system emerges. Doctors at Northwestern have performed the transplants on about 60 patients with various autoimmune diseases. Thus far, all five Crohn's patients are in clinical remission, though they still seem to have traces of the disease. Transplants in patients with MS have, for the most part, stopped new lesions from forming on the brain. Only two of the 25 lupus patients have relapsed.

Burt's colleague Ann Traynor performs the lupus treatments. When Burt came to Northwestern in 1996, she worked in the hospital's hematology-oncology department, performing stem cell transplants on patients with malignancies—the same transplants that had sparked Burt's idea a decade earlier. A third doctor, Yu Oyama from the University of Pennsylvania, recently joined the team. "A lot of other people regarded the idea with skepticism," says Traynor. "But Dr. Burt and I have always thought there is no limit to what stem cells can be used for."

Burt keeps a low-key attitude toward his apparent successes. "I want to convey optimism and excitement, but I don't want to give false hope," he says. "We have to be humble about what we're doing. Otherwise I think God will humble us."

PERSONAL NOTE: "In the eight years I've been [at Northwestern], I've never taken a vacation," says Burt, 45. Which is not to say he doesn't travel. He recently went hiking with his two sons in Utah and hang-gliding with his wife, Shalina, in Rio de Janeiro—but only after lecturing in both locales. Traynor, 51, has her hands full taking care of her five-year-old daughter and their pets: a dog, a rabbit, a horse, two doves, and eight finches.



Traynor and Burt: New uses for stem cell transplants



Treating Parkinson's

LEO VERHAGEN NEUROLOGICAL SCIENCES

Rush-Presbyterian-St. Luke's Medical Center

ROY A. BAKAY NEUROLOGICAL SURGERY

Chicago Institute of Neurosurgery and Neuroresearch

DOCTORS DON'T KNOW WHAT CAUSES PARKINSON'S disease—a progressive disorder of the central nervous system—but they do know that it is linked to decreased levels of dopamine, a neurotransmitter (or chemical messenger). Now doctors at Rush are experimenting with a new treatment for the disease that involves implanting dopamine-producing cells into the brain.

Leading the effort are the neurologist Leo Verhagen (above, right), who enrolls and evaluates patients, and Roy Bakay, a Chicago native who returned home two years ago after a stint at Emory University in Atlanta. The key to the new treatment is a gelatin microcarrier coated with retinal pigment epithelial cells, which provide an ongoing source of dopamine. (The cells, normally found in the back of the eye, were cultured in a laboratory from a contribution from a single deceased donor; Titan Pharmaceuticals produces the cell-coated microcarrier—called Spheramine—in corporate partnership with Schering AG.) After drilling a small hole in a patient's skull, Bakay, a CINN neurosurgeon based at Rush, uses a needle to inject the cells into the areas of the brain where dopamine is needed.

Six patients with advanced Parkinson's have already undergone the procedure in preliminary trials—which were performed by Bakay at Emory—and they have shown significant improvement in the motor functions commonly affected by the disease. Surgeons at Rush, Emory, and the University of South Florida hope to operate on about 68 patients over the next two years.

PERSONAL NOTE: Verhagen, who grew up in the Netherlands, recoils with mock horror at the prospect of his three sons' enjoying baseball rather than soccer. Bakay likes fly fishing, which he describes as an intellectual pursuit akin to solving a medical puzzle.