

PR Newswire

## Immunotherapy Offers New Options for Cancer Treatment

<p>Press Release</p>

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Contributed by Cancer Research Institute

NEW YORK, June 2, 2013 /PRNewswire/ -- At six years old Emily Whitehead was only two weeks from a bone marrow transplant when her leukemia came back for a second time.

Emily, who goes by Emma, had been fighting acute lymphoblastic leukemia since she was five years old. With her second relapse, she and her parents were out of options -- until she was offered a place as the first child in a Phase 1 immunotherapy trial.

Her parents, Tom and Kari Whitehead, of Philipsburg, Pa., said they didn't know much about immunotherapy before Emma started the trial, but the treatment felt right. "We had lots of concerns but it was our one glimmer of hope," Tom Whitehead said.

Six weeks after she was injected with a modified form of her own T cells, Emma went home cancer-free.

Now others are testing immunotherapy on different forms of cancer, in hopes that it can provide a long-lasting way of treating cancer with few side effects.

### Where It Started

Cancers don't operate the way most diseases do. Instead of invading from outside, they arise from mutations in the body's own cells, making it difficult for the immune system to recognize cancer as foreign. This problem means traditional treatments damage healthy cells using radiation, surgery or chemotherapy.

Now cancer research is looking more at new treatments that are less damaging and invasive. That has led to a renewed interest in immunotherapy, and the declaration of June as Cancer Immunotherapy Awareness Month. June 7 became "Wear White for a Cure Day," sponsored by New York-based Cancer Research Institute (CRI) and 1-800-FLOWERS.COM. As a nonprofit, CRI is committed to advancing scientific efforts to develop immune-system-based strategies to prevent, diagnose, treat and cure all cancers.

"We've seen a significant rise in cancer immunotherapy interest, research and treatments in the last decade," said Jill O'Donnell-Tormey, CEO and director of scientific affairs for CRI. "We've been researching immunotherapy for 60 years, and it's exciting to see more people recognizing the promise it shows for many cancers."

Researchers are now developing treatments that harness the immune system. Emma's treatment used an inactive form of HIV to modify her own T cells to help them recognize and kill cancerous cells.

"Think of it like altering the gene sequence of these T cells so that they become trained assassins working for an individual's immune system," said Dr. Carl June, professor of pathology and laboratory medicine at the University of Pennsylvania, speaking to CRI in 2012.

Another drug spurs growth of the immune cell called the T cell, which then attacks melanoma.

### Metastasized to Nothing

That was the case for New York City resident Mary Elizabeth Williams, a senior writer for Salon.com. After her diagnosis of malignant melanoma, Williams had surgery to remove the cancer. But about a year later, her cancer had metastasized, spread into her lungs and back, and the diagnosis of Stage 4 melanoma was grim.

With few options, Williams was offered a place in a clinical immunotherapy trial, run by Dr. Jedd Wolchok, a medical oncologist at Memorial Sloan-Kettering Cancer Center in New York City, and a member of CRI's scientific leadership.

"A 30 percent success rate is considered a home run in cancer," Williams said. "It changes your whole mindset when you realize how differently doctors and researchers view success. ... I wouldn't go on a birth control with a 30 percent success rate!"

But Williams took the chance. A few weeks after beginning treatment, Williams' tumors had shrunk dramatically. Three months later, she was cancer-free. The results of Sloan-Kettering's trial were announced June 2, and about 40 percent of participants saw reduction in tumors with 10 percent experiencing complete remissions using the immunotherapy drugs.

Emma's improvement was equally striking. She was cancer-free three weeks after the T cell injections. While her modified T cells will not last forever, they will continue to work long after her treatment. "It felt like there'd been an elephant sitting on my chest and I couldn't breathe. And it stood

up," Tom Whitehead said of his relief at Emma's one-year cancer-free mark in May.

## Looking Forward

The future is promising for cancer immunotherapy, Dr. June said in a 2012 interview with the Cancer Research Institute. His team is working on mesothelioma, and pancreatic, ovarian, prostate and breast cancers, and other researchers are looking into a brain cancer and other cancers.

"It's been a very exciting time to see the change from the skepticism that we've all had to go through in the past, to now where there are immunotherapies being FDA-approved because they can activate cancer-specific T cells. I think we've come to the tipping point now where there is acceptance that immunotherapy can provide a long-lasting effect and has a lot of promise," Dr. June said.

Part of realizing that promise is funding research, O'Donnell-Tormey said. At most research institutions globally, she said Cancer Research Institute is funding or has funded research into cancer immunotherapy to spur new research and treatments that will be better for patients.

For Williams, one of the most amazing things about immunotherapy is the feeling of empowerment.

"The physical and the psychological are so deeply entwined," she said. "...The way you look affects the way you feel and affects the way people treat you and interact with you. And to look still relatively like myself, to be relatively like myself, not have dramatic weight loss, not lose my hair, not have nausea, made a huge difference."

While Williams said she didn't go into the trial thinking about advancing cancer research, later knowing her results will help other people adds to the feeling of empowerment.

"Normally when people say you got cancer for a reason, you want to punch them in the face," Williams said, laughing. But being a part of cancer immunotherapy research has helped her feel like she is leaving a legacy from her melanoma diagnosis.

"I think that's something awesome about immunology," she said. "...It's certainly, when you stop and think about it, much more powerful and exciting and participatory than a doctor coming in and cutting something out of you or a medicine coming in and poisoning out the cancer."

Williams said cancer research has been stuck for a long time, and seeing new advances that empower patients is important. For all the talk of a cure, she said there's not enough research going into drugs that will treat cancer in a durable way.

Now, more than 15 months clear of cancer, Williams is hoping the tide in cancer treatment is changing.

**SOURCE** Cancer Research Institute

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CONTACT: Brian M. Brewer, 212-688-7515 x242, [bbrewer@cancerresearch.org](mailto:bbrewer@cancerresearch.org)

Web Site: <http://www.cancerresearch.org>

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