

**You** defeat cancer with your own full-throttle cells.

## Given 3 to 6 months to live

**At the age of 27, Jennifer Stewart of Fort Worth, TX, was diagnosed with melanoma of the eye. The cancer was removed, and there was no further spread—or so she and her doctors thought. Eight years later, the melanoma had returned and spread.**

“My husband felt a lump on my side, under my skin. I have breast implants, so at first I was just afraid that the silicone was leaking, but the melanoma had returned. It had spread through my lungs and all over my body. I had about 30 tumors in my fatty tissue and 20 in my lungs. The prognosis wasn’t good.

“I was blessed with finding Dr. Patrick Hwu at MD Anderson Cancer Center. He offered me the choice of two trials—one had already been approved by the FDA, and the other was a new investigational drug. I chose the experimental one: immunotherapy. Dr. Hwu said that if I were his daughter, that was the treatment he’d put me on.

# self

BY ROXANNE NELSON  
PHOTOGRAPHS BY KATHERINE WOLKOFF

“It was a 2-year trial, but my therapy stopped in March after a year and a half because the melanoma was gone. I have to go back for scans every 3 months, and even though I’m ecstatic, there’s probably not going to be a moment for a long time that I won’t be thinking about the melanoma returning. I’m waiting until I have two or three more scans before even thinking about going back to work. I also decided to go back to school and get a business degree. As a little bonus, I think the drug really ramped up my immune system. I used to get severe sinus infections several times a year and bronchitis at least annually, but I haven’t been nearly as sick since I started the clinical trial. That’s a really cool side effect.”

NEURON ICON ILLUSTRATION BY VIVIAN ZIEREISEN OF THENOUNPROJECT.COM



STEWART'S CANCER WAS CLEARED WITH A BREAKTHROUGH TREATMENT CALLED IMMUNOTHERAPY. TURN THE PAGE FOR MORE.

# defense

Three people facing imminent death. Here, in their own words, are

One breakthrough cancer therapy. the incredible stories of a new era.

This game-changing treatment, called immunotherapy, allows patients to fight cancer with their very own, very powerful immune systems.

# The Discovery

In 1891, a young New York surgeon named William Coley realized that cancer patients who developed bacterial or viral infections survived their cancers more frequently.

**His bold theory:** An infection, whether an inflamed cut or a bad cold, seemed to switch the immune system into high gear, spurring it to attack everything in sight—including malignant tumors.

**But could science replicate the effect in a drug?** Nope. Not for more than a century, anyway.

**The shift begins.** Finally, in recent years, clinical trials have revealed the truth—Coley was right all along. When we manipulate the on/off switches of our immune system's fiercest fighters, these T cells, as they're called, seek and destroy metastatic cancer.

**How well can it work?** For some people, dramatically. A variety of T-cell-tweaking regimens—administered through IV drug infusions—are garnering promising results targeting melanoma, leukemia, and kidney, breast, and colon cancers.

**This is a big deal.** Yep, says Yale oncologist Scott Gettinger: "There is no doubt that this is going to change the way we treat cancer."

So how do they actually fire up those T cells? Learn the details at [prevention.com/immunotherapy](http://prevention.com/immunotherapy).



DNA ICON ILLUSTRATION BY EMA DIMITROVA OF THENOUNPROJECT.COM

CELL ICON ILLUSTRATION BY ILSUR APTUKOV OF THENOUNPROJECT.COM



several rounds, but it didn't work. I finally entered a clinical trial with a new experimental immunotherapy drug. I had a terrific response to it. The tumors stopped growing and shrank, and I had almost no side effects. It was nothing like the chemo.

"I like to say that I am cautiously optimistic. The last several years have been wonderful. I celebrated my 40th wedding anniversary, witnessed one daughter's wedding and the other's engagement, and was here for the birth of my grandsons. This has also helped give my family peace of mind. I always took care of them, and then the shoe was suddenly on the other foot, and they had to take care of me. But now they can concentrate on their own lives again. I don't know what's ahead for me, but this new treatment has given me some very happy years."

## Diagnosed with stage 4 lung cancer

With disease that had spread to her liver, adrenal glands, and heart, 55-year-old Maureen O'Grady of Milford, CT, was told she had 12 to 18 months to live. Seven years later, she shares her story.

"My first doctor told me there was nothing he could do to treat me. After I picked myself up off the floor, I found another doctor. He told me my cancer wasn't curable, but it was treatable. The chemotherapy was brutal, and I had

## Told to consider hospice

Five years ago, David Healey of Blaine, MN, was diagnosed with metastatic kidney cancer. It had spread to his lungs and liver. He was 44.

"I'm a mechanic, and after hauling a toolbox home one day for some remodeling on our house, I thought I had strained my back. The pain became really severe, so my wife took me to urgent care. At first they thought I had kidney stones, but then they did a CT scan. I was totally in shock about the diagnosis.

"My doctors didn't mess around. After my kidney was removed, they offered me the option of participating in a clinical trial of an immunotherapy drug. I took them up on it right away—they



said it was my best shot at survival. My kids were in middle school. I wanted to live to see them graduate from high school.

"Five years later, I'm doing well. The liver lesions are totally gone, leaving a few small ones on my lungs. I'm considered stable, but without doing a biopsy, it's hard to tell if the tumors left are still active or just dead tissue. The goal is to keep them small and continuing to shrink so I can lead a normal life. I'm looking forward to living long enough to meet my grandchildren.

"I've reacted to the drug better than they expected me to. I'm going to stay on the trial as long as I have to. I hope that in the process, I'm helping future cancer patients, too."

**You**

also get help from an avatar.

## This fruit fly has your tumor.

That is, the bug's been bred to have the same genes as your cancer—so that scientists can test thousands of different drugs on it. Without putting you through the hazards of trial and error, your doctors will home in on a new treatment combination designed to have the most powerful impact on your very specific disease. This is the big idea at the Center for Personalized Cancer Therapeutics at Mount Sinai in New York City, where biologist Ross Cagan and his team have

created winged stand-ins for more than 20 human patients. So far, the sequencing process still takes too long to be a viable option for patients in a hurry to fight their disease. "We're not proven yet, so we don't want people to skip regular treatment," Cagan says. "But if standard cancer therapies fail and eventually they need our help, we'll be ready for them."

BACTERIA ICON ILLUSTRATION BY MAURIZIO FUSILLO OF THENOUNPROJECT.COM

PHOTOGRAPH BY PETER ROSA; PROP STYLING BY GERRI WILLIAMS; HAIR AND MAKEUP BY SUSAN DENOGHI

BURST: 70%

That's the proportion of disease-causing genes fruit flies have in common with humans (hence their popularity as a genetic research tool).

For more on the future of cancer treatment, go to [prevention.com/cancer-treatment-2050](http://prevention.com/cancer-treatment-2050).

This bug  
has a  
tumor so  
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