CANCER Prevention
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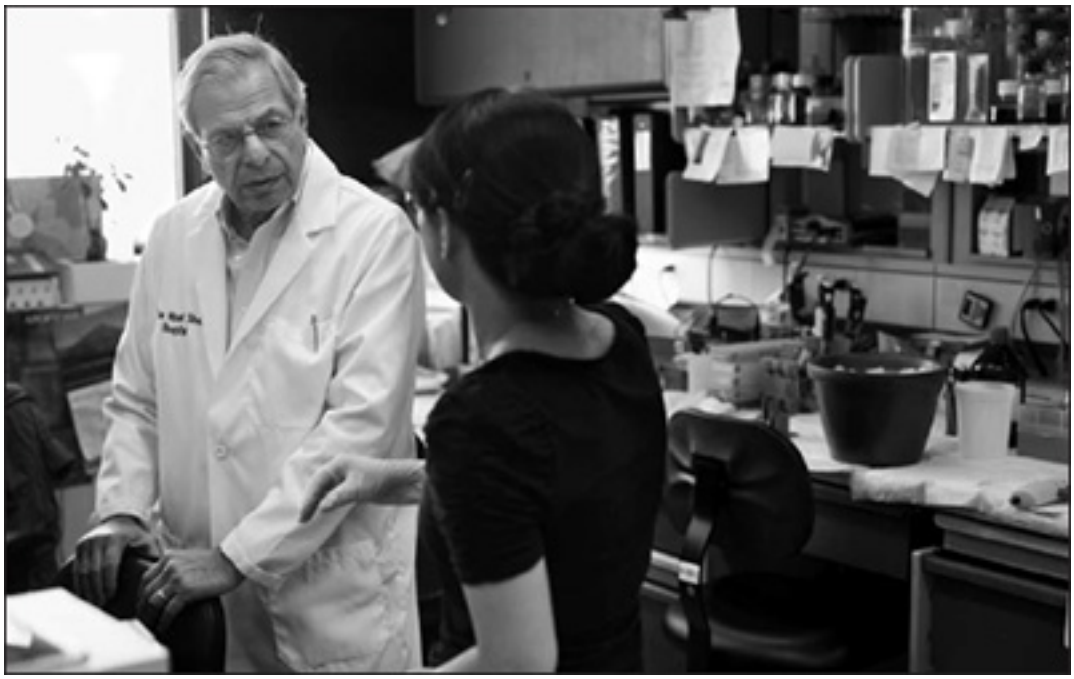
SAMUEL WAXMAN CANCER RESEARCH FOUNDATION: ON A QUEST TO REVERSE CANCER

In the late 1960s, Dr. Samuel Waxman observed an “accident” in the lab that changed the course of his research - and his life - and would become the basis for the Foundation that would bear his name a decade later.

A young physician/researcher at Mount Sinai Medical Center in New York City, Dr. Waxman saw leukemia cells transformed into functioning red blood cells after unplanned exposure to a chemical preservative, DMSO.

Seeing this type of chemically-induced change in a cell, Dr. Waxman began to think that if vitamins could reverse disorders like anemia, perhaps certain “chemicals” or agents could reverse cancers like leukemia.



Samuel Waxman, MD (photo: Daniel Wilcox Frazier)

“This, for me, was the beginning of differentiation therapy, the idea that it was possible to reverse the abnormal growth and function of a cancer cell,” explains Dr. Waxman. A type of therapy also known as “reprogramming cancer cells,” it takes cancerous cells and alters them so that they function more like normal, healthy cells.

The idea that you could reverse the behavior of a cancer cell was radically different from the standard cancer treatment of the 1970s, which focused on using toxic chemicals and radiation to kill cancer cells. Dr. Waxman saw differentiation therapy as a sound and promising approach to cancer treatment that could one day bring about a cure.

He collaborated with scientists in China, and they demonstrated that this approach worked. Using a form of trans retinoic acid (available in China) and arsenic trioxide, they were able to successfully treat patients with a form of leukemia known as acute promyelocytic leukemia (APL). The differentiation therapy they developed is now the standard treatment for this disease, with a 95% cure rate.

A Foundation Gets Its Start

While this research was going on, Dr. Waxman was presented with an unusual opportunity. “I met the grateful uncle of a patient,” says Dr. Waxman. “He wanted to know how I got funding for my research—and was shocked to learn that hospitals are unable to fund research. If I didn’t get outside grants, I didn’t get money, and the work had to stop. He asked me if I had ever thought of creating a Foundation. Of course, I hadn’t.”

The uncle arranged a meeting—and the next thing Dr. Waxman knew, they were writing him a check and naming a foundation after him. And in 1976, the Samuel Waxman Cancer Research Foundation got its start. Of course, Dr. Waxman knew exactly the type of research his Foundation would focus on—reprogramming cancer cells, with collaboration between scientists playing a huge role.

Over the last three decades, SWCRF funded scientists have applied the principles of differentiation therapy to many types of cancers, including breast, liver, lung, colon and melanoma, among others. These treatments get the job done, but are less toxic, since targeted therapies minimally interfere with healthy cells. Researchers work to bring these therapies to clinical trials and to patients.

World-Renowned Science

Each year, NCI-designated cancer centers around the country nominate one candidate to apply for a SWCRF grant. Widely known throughout the scientific community, the SWCRF is recognized for its distinct peer-reviewed science and for an annual meeting in which researchers come together to discuss their findings in an open forum. This year, for instance, the Foundation is funding three new scientists from NYU, UCSF and Harvard and 22 ongoing collaborations involving scientists from institutions such as Johns Hopkins, Memorial Sloan-Kettering, Geisel School of Medicine at Dartmouth, UCLA and the Salk Institute, and from China, England and Israel.

A Spirit of Collaboration

Researchers take on an individual grant with the understanding that after the first year they will be asked to collaborate with other researchers in related fields. That is how biologists end up working with pharmacologists or oncologists.

“I don’t think science works well without ongoing collaboration,” says Dr. Waxman. “Each lab has its own particular strength or expertise. Put two or more labs together—and we all benefit. That’s the way the Foundation works. I believe this helps us to move science to clinical importance rapidly.”

While one collaborative team is looking at ways to prevent metastasis in breast cancer, another is investigating the relationship between diet, metabolism and colon cancer. Several others are investigating new treatments for adult and pediatric leukemia, brain cancer and liver cancer, among others.

Throughout the tightknit community of scientists, information is shared—and the common denominators of all cancers discussed. “Working together, we hope to change this disease as it’s known today,” says Dr. Waxman.

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