Malaria Drug May Hold Key to Nontoxic Treatment

TBCF Funding Helps Explore Breakthrough Therapy

Malaria and breast cancer may have more in common than their devastating impact on the lives they touch, according to Dr. Henry Lai, Research Professor in Bioengineering at the University of Washington. Both diseases, believes Lai, may be treated by the same drug.

Almost ten years ago, Lai hypothesized that since both malaria and cancer cells contain high iron content, malaria drugs could help us understand how to treat cancer. With his associate, Dr. Narendra Singh, Lai turned his attention to a drug that has treated over two million malaria cases across the world: artemisinin. As Lai sought funding, securing a $30,000 grant from TBCF, the University of Washington swiftly patented his idea.

Artemisinin is a molecule that has a chemical bonding bridge formed between two oxygen atoms. When the molecule reacts with iron, the bond breaks and the oxygen atoms separate and become free radicals. They then attack cell membranes, breaking the cells apart. Cells with high iron content—like cancer cells and malaria parasites—are quickly disabled.

In early studies, Lai found that a dog with bone cancer that was unable to walk made a complete recovery five days after being given the drug. Lai and Singh's most recent paper, *Selective toxicity of dihydroartemisinin and holotransferrin toward human breast cancer cells*, was published in the October 12 issue of the journal "Life Science."

"This means it may be possible to develop a drug treatment for cancer that may be taken orally," says Lai. "The drug itself is very nontoxic compared with chemotherapy. And at just $2 U.S. dollars a dose, it's relatively cheap."

"The answers to the most complex questions are sometimes in front of us if we know where to look," says Jeanne Rizzo, Executive Director of TBCF. "We are proud to support such important, visionary and positive research. My hope is that we will see a renewed commitment from federal agencies and the private sector to exploring the powerful possibilities of nontoxic therapies like artemisinin."

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SUSPECTS... *Continued from page 1*

diagnosis and some suspect chemicals leave no trace, proving guilt is not a simple matter.

While our brightest minds seek out the truth, I ask for two things on behalf of survivors like myself, those who have lost their lives, and for all of our daughters. First, I ask that our government redouble its efforts to unearth and eliminate the environmental causes of breast cancer.

> ***"If we fail to adopt precautionary measures, where's the incentive for industry to develop alternatives to toxic chemicals?"***

Second, I urge our cities and states to implement protective legislation based on the precautionary principle. What is this principle? It's like holding a toxin in jail on suspicion of murder. Our justice system rightly holds an accused person innocent until proven guilty of a crime. But chemicals deserve no such privilege. The precautionary principle holds that substances should be barred from the public domain based on reasonable evidence of harm to human health. The burden then rests with chemical companies to prove their substances safe.

We must take these steps, and soon. After all, if we fail to adopt precautionary measures, where's the incentive for industry to develop alternatives to toxic chemicals?

I don't want to see breast cancer rates continue to climb until one in four of our daughters is at risk. And I don't want more women to die while we wait for scientists to prove something we already know: The crime is cancer, and chemicals are the prime suspects.

***Nancy Evans**, breast cancer survivor, health science writer and co-producer of the documentary film Rachel's Daughters, is a consultant to The Breast Cancer Fund.*