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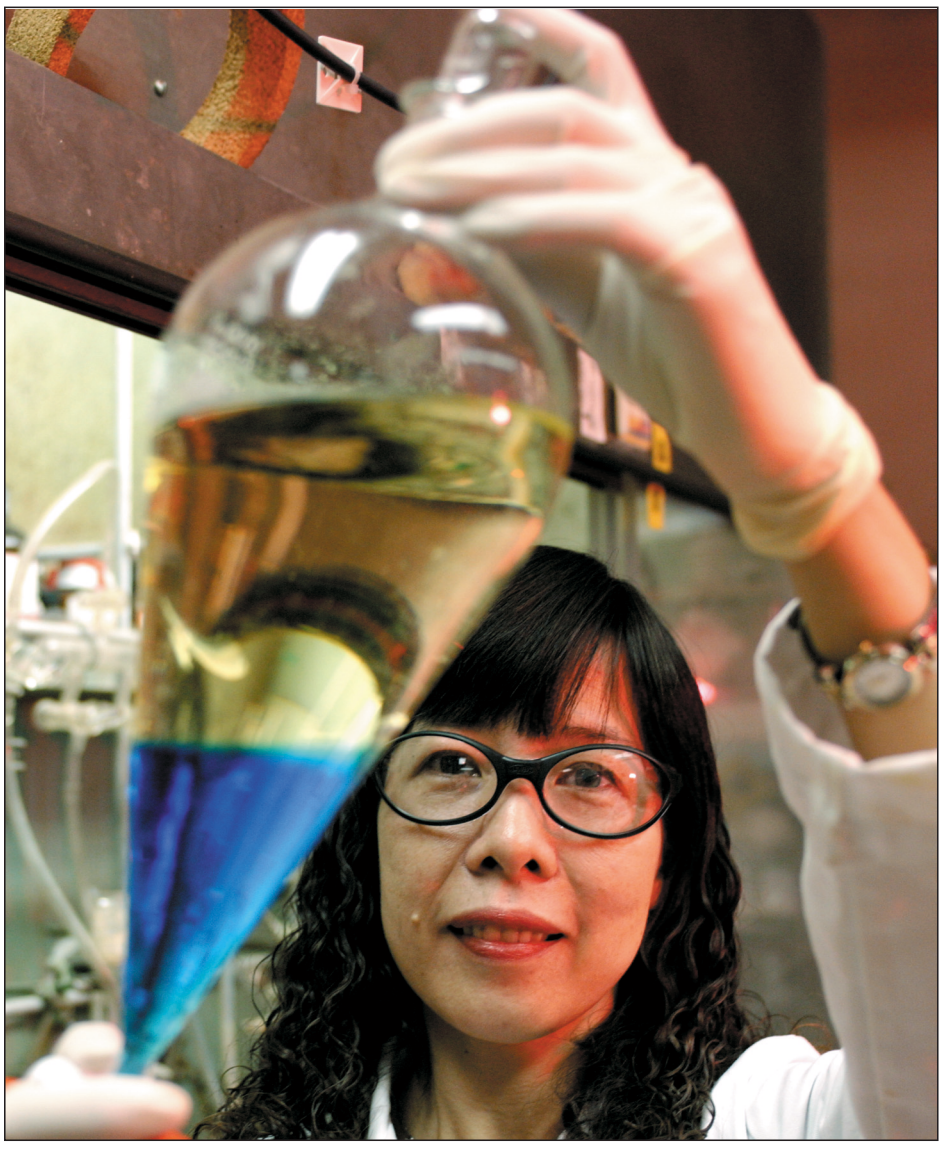
Pill to stall cancer?



DENNIS G. HENDRICKS

POTENTIAL INHIBITOR: Senior SRI organic chemist Ling Jong is developing a concentrated breast cancer prevention compound derived from broccoli, cabbage and similar cruciferous vegetables.

BY TROY MAY
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Eat your veggies, and stay healthy. Our doctors and moms have been repeating the drill for decades now. But what about those of us who don't like eating vegetables, or can't get enough of the right stuff?

Researchers at SRI International in Menlo Park hope to help the cruciferously challenged get even better protection than the broccoli-munching masses by popping a pill a day.

SRI's scientists believe that within two years they will start clinical trials of a concentrated breast cancer prevention compound derived from broccoli, cabbage and similar cruciferous vegetables. The substance is a derivative of I3C, or indole-3-carbinol, the chemical that gives such vegetables their nasty odor. So far, researchers have determined that I3C interacts with stomach acids to help the body produce cancer-fighting molecules.

If human studies go as well as animal studies have, the new medication could be available within seven to 10 years. So far, scientists believe it can reduce a woman's risk of suffering recurring breast cancer, or even her chances of developing breast cancer in the first place, says Ling Jong, senior organic chemist in SRI's medicinal chemistry division. If researchers can figure out at what level the substance becomes toxic, they might be able to concentrate it sufficiently to use it as a more natural form of chemotherapy, too.

Animal models have shown that the drug stops the growth of breast tumors, says Ms. Jong, who so far has received $2.5 million for the studies. It also is expected to help prevent ovarian cancer and prostate cancer which, like breast cancer, are hormonally based cancers. Ms. Jong believes the substance also can help fight a number of other cancers by interfering with the protein that helps cancer cells multiply.

SRI, a not-for-profit research group, plans to start a 28-day study in October to measure the drug's toxicity. Within two years, it should be in human trials.

"Prevention is the best way of dealing with any disease, and this is particularly true of cancer, with all of its complexities and its often devastating course," Ms. Jong wrote in a grant application.

Deriving new compounds from naturally-occurring ones seems a logical next step. "This seems really promising," says Ms. Jong. Several cancer prevention drugs and compounds are being studied, but not all are derived from foods. "People feel confident about the safety of food," she says.

SRI received its initial funding for the project from the California Breast Cancer Research Institute in 1998. Once Ms. Jong showed some progress with the drug last year, the National Cancer Institute started to fund the research and plans to back the project through Phase II clinical trials, she says. At that point, private funding will be needed.

"This is one drug we believe will be successful, and NCI has put it in rapid development," says Jon Mirsalis, acting vice president of SRI's bioscience division. "This could be worth a lot of money for us."

Even if all goes well, finding private funding could be a chore, but it can be done, experts say.

"I'm a passionate missionary on preventive care," says Steve Burrill, CEO of Burrill & Co., a San Francisco-based merchant bank that invests in the life sciences industry. The private venture capital market, he says, has been more interested in funding clinical research for treatments, rather than for disease prevention. But Burrill has funded research in nutraceuticals — vitamins, herbs and other natural products that are used to treat or prevent disease.

"People don't belive there is a lot of private capital for this, but I think we'll get there," says Mr. Burrill.

There have been few advances in cancer treatment in recent years and mortality rates have remained constant, say experts. Cancer is the second leading cuse of death in the United States, killing more than 1,500 people each day. Some 563,700 people are expected to die from cancer this year, compared to 564,800 in 1998, according to the American Cancer Society — a difference of only 1,100 people over six years despite billions of research dollars pouring into the field.

That's why there is greater emphasis on research that develops substances to reduce cancer rates.

Unlike some of the universities doing similar research, SRI already has experience developing medications for the commercial market, notes Izet Kapetanovic, program director of the chemoprevention agent development research group at NCI.

Although it is a preventive treatment taken in the form of a pill, SRI's drug is not a so-called "cancer vaccine." Those drugs, being studied at a variety of research centers, are injected into women with advanced breast cancer to see whether there is any impact on existing tumors. Dr. Michael Liebman, chief research officer at Windber Research Institute in Pennyslvania, hopes soon to begin testing a vaccine developed at Walter Reed Army Hospital to prevent recurring cancer or, better yet, prevent a woman's developing cancer at all.

There are more than 20 types of breast cancer, and each woman responds differently to treatment, in part depending on age and overall health. "So, what's the target?" says Dr. Liebman. "That's what we have to figure out."

There already is a drug, tamoxifen, approved for use in preventing recurring breast cancer. But it can have severe side effects, including triggering early menopause or causing uterine cancer, says Dr. Lee S. Rosen, president and founder of Premiere Oncology in Santa Monica, California. Safer cancer prevention drugs may be the answer to making a difference in this deadly disease, he says.

"This is neither a field in its infancy, nor has it been fully developed," he says.

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