In 2005, Providence Cancer Center spun off a biotechnology startup to develop and commercialize several promising cancer vaccines and to take advantage of federal grant money available for innovative science and technology research.

Today, UbiVac is charging ahead with several vaccines based on the principle that the best way to fight cancer might be to energize the body’s own immune system.

“The future of immunotherapy is getting patients’ immune systems turned on and boosting it so they can conquer the cancer,” said UbiVac CEO Bernard Fox, who co-founded the company with his Providence colleague Hong-Ming Hu.

Fox and Hu still work at Providence Cancer Center, Fox as chief of Providence’s Laboratory of Molecular and Tumor Immunology, and Hu as chief of the Laboratory of Cancer Immunobiology. The name UbiVac is derived from a combination of “ubiquitin,” or pathway in the cells, and “vaccine.”

Immunotherapy is a hot area. The journal Science named immunotherapy the Breakthrough of the Year for 2013, calling it an “entirely different way of treating cancer” and adding that “clinical trials have cemented its potential in patients and swayed even the skeptics.”

UbiVac is demonstrating that promise. One of its vaccines has delivered strong results in phase one trials with lung cancer patients. Trials involving breast cancer patients will start soon. That’s helped keep UbiVac, an academic public-private partnership with no pharmaceutical sponsor, financially stable and on track for an exit that could lead to commercialization of its products.

Partnerships and an IPO

Providence doesn’t have an ownership stake but will get a chunk of whatever licensing comes out
of UbiVac, which leases space at the Cancer Center on Northeast Glisan Street. UbiVac has received $5.5 million from the National Cancer Institute over the last eight years, as well as grants from the Department of Defense and American Cancer Society.

UbiVac runs the clinical trials, while Providence Cancer Center provides both patients and clinical expertise.

“We’ve been thrilled with their success and remain collaborators,” said Dr. Walter Urba, director of cancer research at the Providence Cancer Center.

UbiVac currently has enough in the bank to fund itself for another year and a half. Fox is looking for opportunities to either partner with a large pharmaceutical company for its next phase, license its technology or do an IPO.

“For us, it’s about finding someone with the right drug to combine it with,” Fox said. “The whole thing is combinations, combinations, combinations — but intelligent combinations.”

A critical combination would be with a drug that puts the brakes back on the immune system after it’s done its job attacking the tumor, to avoid an autoimmune response. Fox said getting it right could increase the rate of those who are cancer-free from 30 percent by current therapies for lung cancer, the deadliest kind, to 90 percent or better.

“We think we can cure some people now with cancer with the current immunotherapy, but the numbers are small,” Fox said. “If you want to get the technology to the most patients, you have to commercialize it.”

Getting clinical

UbiVac’s clinical trial for its lung cancer drug is being conducted in Portland, at the Mayo Clinic and at Louisiana State University. The breast cancer trial is about to start and another one for head and neck cancer will begin late this year or early next.

The vaccine is intended as a preventive measure in those patients with a high risk of cancer returning, those who have already had tumors surgically removed, or those who have gone through radiation.

“They’ve got impressive data around their models, and they’re getting clinical data. I think it is promising,” said Michael Nishimura, associate director of the Oncology Institute at Loyola University Medical Center in Maywood, Ill.

Nishimura said a lot of work has been done targeting individual proteins, but what makes UbiVac’s vaccine different is that it is derived from whole cells.

“This is a different kind of vaccine than a lot of people have worked with,” he said. “They do have an unusual niche and approach.”

UbiVac is also testing a nanoparticle-based vaccine developed by Providence and Portland State University that in animals has proven 1,000 times more effective than standard vaccines at activating cancer-killing cells, and is working on a therapy using technology licensed from Oregon Health & Science University that can stimulate the immune system to destroy cancer.
Fox said UbiVac will continue to license technology that can boost its immunotherapy research and may share its results in a worldwide database to help boost immunotherapy’s profile, “so people can see things with different algorithms and change the way we treat patients,” Fox said. “If it works, it will be the first time that the immune component will be recognized as playing an important role.”

**Closer look**

Company: UbiVac

Headquarters: Portland

Founders: [Bernard Fox](mailto:Bernard.Fox@ubiVac.com), Hong-Ming Hu

Established: Spun out of Providence Cancer Center in 2005

Funding: $5.5M from the National Cancer Institute, plus other grants

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