Sunday, August 02, 2009

Blacksburg's Intrexon: Branching out in biotech

Intrexon, a growing biotechnology company, is developing an experimental treatment for melanoma in humans.

By Jeff Sturgeon
381-1661

BLACKSBURG -- Five years ago, a small biotechnology company relocated to Southwest Virginia from Ohio.

Intrexon Corp., then called Genomatix, had five employees.

Now, after a period focused primarily on research and development, the private company is reporting a wave of hiring, expansion and scientific progress. The company has received clearance to test an experimental treatment for melanoma in human beings.

"This is a young company that's emerging out," said Robert Beech, vice president of business development at Intrexon.

Started as a contract manufacturer of genetic materials, Intrexon now strives to develop products. Its says its modular DNA control systems can improve medical therapeutics, human protein production, industrial enzymes and agro-biotechnology.

Intrexon has received outside investments of $66.5 million, including $10 million in June. Its revenue, from licensing activities, is "on the margin," Beech said.

Beech said that Intrexon plans to open an office in the Maryland biotech corridor to support clinical development activities and one in San Francisco related to a push into human protein production.

He said the firm intends to fill 50 new jobs by the end of the year, mostly outside Blacksburg. Beech declined to give the current employment, saying some secrecy helps preserve the company's competitive edge. (It's been as high as 140 between Blacksburg and an office in Pennsylvania, according to past company statements, but the company has also confirmed a number of dismissals.)

Many in the health care and patient communities want the kind of therapy Intrexon is trying to create.

The target of Intrexon's experimental therapy, melanoma, is a serious form of skin cancer that doctors find difficult to effectively treat in its advanced stages with surgery chemotherapy, radiation or immune system stimulation, said Dr. Fred Lupton, a Greensboro, N.C., dermatologist.

Melanoma causes an average of 8,650 deaths annually in the United States and 68,720 new cases are diagnosed each year, according to the National Cancer Institute.

"If we can cut it out early and get rid of it when it's still on the skin or in the skin, we can have a great chance of success," Lupton said.

Untreated, the abnormal cells may spread to adjacent skin or migrate through the lymphatic system or bloodstream to even distant tissue or organs. When that happens, survival is difficult, Lupton said.

"We're just kind of beating our heads against the wall on this disease," Lupton said.

On May 11, Intrexon announced that its therapeutics division had administered an experimental therapy for melanoma to the first of up to 16 patients in a clinical trial.

The University of Pittsburgh Cancer Institute recruited or is recruiting advanced melanoma patients to be injected with their own cells reprogrammed in a way that company officials believe will stimulate the immune system to fight the cancer. Intrexon spent four years developing the experimental therapy.

In an interview, Beech couched his description of the therapy in terms of possibilities, not certainties. As he knows, nothing is a sure thing, at least until after the Food and Drug Administration gives approval to provide a drug or therapy to the public. (And even then, FDA-approved drugs have been pulled from markets.)

"It is our belief," Beech said, that the therapy can train the immune system to attack and kill solid tumor cancers.

The intent, he said, is not only to treat tumors effectively but to combat cancer at a lower cost than some other therapies that produce serious side effects requiring separate, additional treatment.

Intrexon "has a great mission," Beech said. "If it is as successful as we think it can be, it will have very significant positive socioeconomic consequences."

Getting started

Five years ago, the company left Cincinnati, where it was founded in 1998, and relocated to Southwest Virginia at the urging of the Virginia Tech Corporate Research Center and Carilion Biomedical Institute.

Creating jobs and investment in Southwest Virginia was a major objective for the courtship, which was followed by construction of a laboratory for the company in the Warehouse Row business center in downtown Roanoke. Carilion, the Virginia Tech Foundation and individual investors put $850,000 in the company in return for ownership shares. Company executives invested $75,000.

Intrexon later established its headquarters and laboratories for DNA vector production and cell testing at the corporate research center. An acquired company is located near Valley Forge, Pa.

Cory Donovan, who directs the NewVa Corridor Technology Council, said Intrexon stands out in the high-tech business world locally for several things.

It is relatively large as council members and research center tenants go and is one of a small number of NewVa region firms to receive investments from Third Security LLC, a Radford venture capital firm.

Sunil Chada, Intrexon's senior vice president of clinical research and development, said in a news release the firm is "very encouraged" by recent events.

Rob Patzig, chief investment officer at Third Security, said the melanoma therapy is "on track to significantly enhance the safety and efficacy of cancer treatments while also maintaining centralized production and distribution efficiencies."

Dr. John Kirkwood, the physician leading the study, could not be reached for comment.

Dr. Martin Weinstock, a Brown University professor of dermatology who directs a skin cancer committee at the American Cancer Society, said Kirkwood has a national reputation for his melanoma research.

"He's obviously doing this because he thinks this could work," Weinstock said.

For now, researchers are determining only the treatment's safety and tolerability -- to see that it doesn't harm patients or make them sicker. Results are due early next year.

Next, the company would be in a position to test it against cancer.

Planning future endeavors

Looking ahead, there is some evidence the company could go the way of another home-grown biotech corporation, Radford-based New River Pharmaceuticals, which is no longer in business locally.

New River Pharmaceuticals -- led by Third Security CEO R.J. Kirk -- won FDA approval for a stimulant for attention-deficit hyperactivity disorder in partnership with drugmaker Shire plc of England.

In 2007, Shire bought shareholder-owned New River Pharmaceuticals for $2.6 billion. Local operations closed down. Some of the money is still circulating in the local business community.

Beech said that, given what he called the mature state of the company's DNA technology, Intrexon is ready to form a partnership or partnerships. For one, partners bring needed cash. Typically, as a life sciences technology moves toward commercialization, spending rises from tens of millions of dollars to hundreds of millions of dollars, Beech said.

"For these types of endeavors, what one would typically see next are partnering arrangements, which is certainly a key focus area for me right now," said Beech, whose title recently changed from chief executive officer to head of business development.

Kirk is Intrexon's CEO.

Connecting with a partner means getting out and telling the company's story. In that vein, Beech said he was encouraged that Intrexon was invited to describe its latest developments at the J.P. Morgan Annual Healthcare Conference, held in January in San Francisco.

The experimental melanoma therapy is not the company's only shot a commercial success and a sustained revenue stream, however. Company executives strategically chose to develop it now because of its potential to impact human health and earn large financial returns to sustain the company, Beech said.

But the company's DNA control systems, which reprogram cells with DNA that has been engineered outside the body, are building blocks for a host of opportunities elsewhere in health care and in industry and agriculture, he said.

The power of gene manipulation is summed up in this explanation on the site of the Union of Concerned Scientists: "Genes are the chemical blueprints that determine an organism's traits. Moving genes from one organism to another transfers those traits."

Beech compares the still-untapped potential of DNA manipulation to the present-day benefits of the microchip. Such firms as Hewlett Packard, Honeywell International, Lockheed Martin, Oracle Corp. and

Microsoft adapted integrated circuit technology for commercial use and revolutionized the electronics industry, he noted.

Intrexon, Beech said, has a platform to tap the power of genetic engineering and commercialize its high-impact potential.

"The way to think of Intrexon right now -- you know, we're DNA.com -- we're sitting here at the dawn of this era," Beech said.

Copyright © 2009