THE GLOBE AND MAIL

YM Biosciences in the hunt for holy grail of cancer killers

LEONARD ZEHR
BIOTECHNOLOGY REPORTER
Published Thursday, Jan. 18, 2007 12:00AM EST
Last updated Friday, Mar. 13, 2009 8:56PM EDT

Three years after the Russians left Cuba in 1991, investment banker David Allan and biotech analyst Ezra Lwowski spent a week on the island nation, touring its dozen medical research facilities at the invitation of the executive committee of the country's Council of Ministers.

"We were absolutely astonished at the depth of the science and the commitment to scientific rigour," he recalls, adding that Cuba published its first medical paper in the 17th century around the same time Harvard University was founded.

"But we had to tell them there was zero chance to commercialize any of their scientific discoveries because of the U.S. trade embargo and because their medical achievements weren't known in the Western World."

On the plane home, though, they had a change of heart. Largely for humanitarian reasons, Mr. Allan, who was then head of Yorkton Securities' Knowledge-Based Industries Group, established York Medical Inc. as a "receptor company" to give the best and brightest research in Cuba a chance to become a commercial product.

But getting the Cubans comfortable to ink a commercial contract in 1994 was a daunting challenge. Through contacts at the Heenan Blaikie law firm, Mr. Allan met and convinced former prime minister Pierre Trudeau to join his lobby group. He then leased two planes to fly a Canadian entourage of lawyers

and politicians to Havana for a dinner party hosted by Canadian ambassador Mark Entwistle, where Mr. Trudeau talked turkey with his old pal Cuban President Fidel Castro and sealed a deal for YM.

The receptor business model -- identifying a promising drug, negotiating the rights and testing it in humans -- has made **YM Biosciences Inc.,** as York is now called, Canada's biggest cancer company. Even though YM does no lab research itself, it has two drugs -- one from Cuba -- in the third and final stages of clinical testing, and is advancing an inhaled drug for surgical pain initially and cancer pain ultimately.

Mr. Allan, the company's chairman and chief executive officer, justifies YM's business model. "The U.S. National Institutes of Health spends $30-billion (U.S.) a year funding research at U.S. universities, of which $6-billion is in cancer alone. So how much impact would we have with four scientists toiling in the basement?"

Mississauga-based YM looks at a couple of licensing deals a week, mainly from venture capitalists, looking to exit their cancer startups. But with only 42 employees, Mr. Allan is reluctant to expand unless a new drug deal attracts additional management and YM's stock price rebounds further.

The stock is up 27.5 per cent so far this year and has more than doubled in the past three years. It closed yesterday at $4.22 after the company announced on Monday that it met milestones in the Phase III study of its tesmilifene treatment for metastatic and recurrent breast cancer.

The drug developer said the data safety monitoring board, an independent agency, told the company it met a milestone of 320 events required for the third interim analysis of the Phase III drug trial.

Though hard driving, with a maniacal zeal about YM's drug portfolio, Mr. Allan, 64, is remarkably modest. "We've been incredibly lucky . . . with our drugs and acquisitions."

But it hasn't been an easy road. Three years ago, he lost his wife to cancer. And carrying Cuban baggage ruled out any chance of raising money in the United States in YM's formative years. That forced the company to rely on international financing for its survival and, to appease European money managers, broaden its list of drug candidates beyond Cuba.

One of the Cuban drugs, nimotazumab, is now in a late-stage clinical trial in Europe treating children with advanced brain cancer. YM has also licensed the drug, which has a mechanism of action similar to ImClone Systems Inc.'s Erbitux cancer drug, but with far fewer side-effects, to an international consortium of drug companies for additional testing. And after years of lobbying in Washington, YM recently was cleared to import the Cuban drug into the United States for a brain cancer clinical trial, the first time that's ever been allowed.

But the buzz around YM extends far beyond Cuba.

Tesmilifene, a cancer drug YM picked up from the University of Manitoba in 2000 as part of its diversification, is finishing a second, late-stage clinical trial in 700 patients with breast cancer. If the results match the initial trial with 305 patients, the world's drug giants will come knocking to get a piece of what could be a billion-dollar-a-year drug.

Ironically, YM licensed the drug after giant Bristol-Myers Squibb Co. returned it to the university in 1999. The reason: Rates of tumour shrinkage were the same in patients on the drug plus chemotherapy and those on standard chemotherapy, so Bristol assumed the drug had no effect.

The National Cancer Institute of Canada, however, performed an in-depth analysis of the data and stunned delegates at a medical conference in 2001 by reporting that patients in the drug arm of the study survived on average 50 per cent longer than patients receiving only chemotherapy. The NCIC data became known as the "Holy Shit poster" because it questioned conventional wisdom of measuring success against cancer by the amount tumours shrink, and then hoping patients didn't relapse and die.

So what happened?

"For the past five years, we've been telling people that shrinking a tumour is largely irrelevant and what really counts is killing the few deadly cells that survive chemotherapy and radiation," Mr. Allan said. That's why the disease comes back: Cells become resistant to chemotherapy. Tesmilifene, he reasons, hits these aggressive drug-resistant cells and standard chemotherapy keeps working. "That's the only way you can explain an increase in survival."

That theory got a shot of credibility in November when researchers in Canada and Italy made headlines with evidence that a small subset of cells -- in this case abnormal stem cells -- are the engine driving colon cancer. Their research, along the same lines as YM's, suggests that some of these cells survive treatment, and then spring back to life with a vengeance.

The U.S. Food and Drug Administration was so intrigued by the original NCIC data that it gave an independent data-monitoring safety board permission to conduct four sequential analyses of patients during a final clinical trial. So, if the drug demonstrates a certain survival benefit at any of the four points, YM will be allowed to immediately file for regulatory approval, without having to finish the trial.

The first two reviews in June and August of 2006 did not take the data over the survival hurdle. Nevertheless, the board recommended the trial continue because there were signs of efficacy and no safety concerns. Many investors, however, were disappointed and YM's stock price suffered. But Mr. Allan contends that in the original Bristol-Myers trial, the statistical difference in survival only became apparent as the study neared an end, not early on. Another review is expected any time.

Success here would represent a breakthrough in cancer treatment by overcoming drug resistance. "It doesn't do it permanently or we'd have a cure," Mr. Allan cautions, but adds that new animal research suggests tesmilifene also works with any standard chemotherapy. That was enough to entice Sanofi-Aventis AG to collaborate with YM in a clinical test combining tesmilifene and its second-generation chemotherapy Taxotere in patients with aggressive breast cancer.

Writing in the journal Medical Hypotheses last year, Dr. Mark Vincent of the London Regional Cancer Centre, who is also a member of YM's scientific advisory board, said tesmilifene, and its mechanism of action, could be among the "most important recent discoveries in oncologic therapeutics."

YM is so confident the drug will succeed that it acquired Eximias Pharmaceutical Corp. last April to be its U.S. base of operations. Specifically, YM targeted Eximias, a shell company, for its management talent to prepare an FDA filing and commercialize tesmilifene.

Cancer research has always been a high risk-high reward venture. "Unless you have crutch-dropper data, it tends to be difficult to get investors' attention," said Raymond James analyst Brian Bapty, who adds that cancer data can often be difficult to interpret.

Not only are the chances against success incredibly high, which in part explains why YM has a market value of only $150-million (Canadian), but competition is fierce. "There are more drugs in clinical development for the treatment of cancer than there are for any other therapeutic area," said Wayne Schnarr, senior vice-president of life sciences for the Equicom Group, an investor relations company.

But the financial rewards can justify the risks. ImClone Systems, for example, has a market value of $2.3-billion (U.S.), thanks almost entirely to sales of its Erbitux cancer drug, which YM hopes to replace one day with its Cuban drug nimotazumab.

***

A cancer portfolio

Cancer research has always been a high-risk, high-reward venture. Here are some Canadian companies and their cancer-fighting drugs.

***

YM Biosciences

Concluding late-stage clinical testing of breast cancer drug tesmilifene. Cuban drug nimotuzumab also in final trials in Europe in children with brain cancer, and mid-stage studies in other cancers with consortium of companies. An inhaled pain drug also being evaluated.

AEterna Zentaris

Cut its teeth developing Neovastat, a drug derived from shark cartilage, which failed against kidney cancer but is still under study for lung cancer. Perifosine (for multiple cancers) and Ozarelix (prostate cancer), both in mid-stage trials, considered two value drivers.

Biomira

Theratope breast cancer vaccine didn't help patients extend survival or delay disease relapse. German partner testing Stimuvax vaccine for lung cancer, with Biomira evaluating the technology in other cancers.

Ambrilia Biopharma

Targeting a tumour-related problem in pituitary gland that causes uncontrolled growth of various organs, with improved version of existing drug. Clinicals to finish in 2007 and distributor already signed. Also evaluating a drug candidate for prostate cancer.

Oncolytics Biotech

Conducting early-and mid-stage clinical studies with a reovirus drug called Reolysin as a way to disrupt a metabolic signalling mechanism that regulates cell division and growth.

Lorus Therapeutics

Flagship Virulizin drug for pancreatic cancer fell short of expectations in a pivotal trial. Continues to test several antisense drugs that block genetic signals responsible for producing cancer-related proteins.

MethylGene

Testing against abnormal enzyme activity that may selectively and genetically regulate how cancer cells stay alive and divide. Has two flagship drugs in clinical development with several drug companies.

BERNARD BENNELL / THE GLOBE AND MAIL

Report Typo/Error
Single page

- 1
- 2
- 3

Follow us on Twitter: @GlobeBusiness *[https://twitter.com/@GlobeBusiness]*

Next story | Learn More

CPPIB acquires stake in Calpine Corp. for $946-million

FRIDAY, AUG. 18, 2017, 6:22AM EDT

How the Mob controls marijuana and why it is impossible to expel them

THURSDAY, AUG. 17, 2017, 10:15PM EDT

Bill Ackman holds out hope for ADP as stock falls further

THURSDAY, AUG. 17, 2017, 4:45PM EDT

Share this selection

- Tweet
- Facebook
- Facebook

Log in

Don’t have an account? Create one here.
We did not find an account associated with the account below:

Create new account Cancel
With your social account
OR with your email and password
Your email address
Your password Show
Keep me logged in

Trouble logging in?