UNDER THE INFLUENCE

A GLOBE AND MAIL SERIES

A scientist's sacrilege: making money

UBC biochemist Steve Pelech turned his lab work to riches, but as **ANNE McILROY** reports from Vancouver, not everyone approves.

It was like selling used cars in the church parking lot. When University of British Columbia biochemist Steve Pelech began to earn royalties from a discovery he made in his lab, his colleagues made him feel that turning a profit in academia was sacrilege.

"Some people looked at me like I was a scientific prostitute," he recalls.

It was the late eighties, lean years for Canadian researchers dependent on a shrinking pool of government funds. Grant applications were often a fruitless exercise for young scientists still establishing their reputations. But Dr. Pelech had come up with a research tool other laboratories wanted.

To help in his experiments on the molecular causes of cancer and diabetes, he developed his own biological probes to detect cell communication proteins known as kinases.

At first, he gave the probes away to any lab that asked, but then he started selling them. By the early nineties, he was making $250,000 a year, enough to finance his own research. But some of his colleagues didn't like his mail-order business and didn't want to share a lab with him.

So he moved out and formed his own company, quickly becoming a biochemist more comfortable in a suit than a lab coat, a rarity 10 years ago, but far more common on today's increasingly corporate campuses.

More and more researchers are combining publicly funded academic work with the drive to profit from their discoveries or do contract work for large pharmaceutical companies.

It's a trend that worries critics, who fear Canada's best brains are too busy developing products to do the curiosity-driven research that will lead to breakthroughs 10 years from now.

But back then, Dr. Pelech was looking for a way to do the research that intrigued him.

In 1992, he started Kinetek Pharmaceuticals Inc. The firm -- which today stands to earn him millions if it goes public -- moved from selling probes to developing and testing drugs for cancer, diabetes and other illnesses. An accommodating dean allowed him to move his academic lab to the space he had leased for his new venture, which meant he didn't have to leave the security of his university job.

A CEO-scientist was born, and today Dr. Pelech, 43, straddles two very different worlds. His days are spent with both investors and students, explaining the intricate workings of kinases. He oversees 14 employees in sleek new offices built specially for start-up companies and he directs graduate students at his university lab around the corner.

Most nights he works until midnight, using his computer in his home office after his two children are in bed. For the moment, he makes $150,000 a year most of it paid by taxpayers in the form of his university salary.

His juggling act no longer draws disapproving stares from colleagues. The academic culture has changed in the almost 10 years he has been both a professor and a businessman, especially at the University of British Columbia, where 99 spinoff companies have been formed since the mid-eighties, with private-sector investments that total $1.3-billion. The university usually gets a share of future profits, and now has an equity portfolio worth an estimated $14.8-million.

UBC is in the vanguard of a national trend, as universities across the country push researchers from many disciplines to commercialize their discoveries.

The stigma that once came from pursuing profit seems to be fading. Older researchers whose lifetime work was entirely financed by money from the federal granting agencies are retiring.

Baby boomers, accustomed to scrambling for funding, seem to be more open to the free-market approach, says Angus Livingstone, with the university-industry liaison office. At the same time, federal and provincial governments offer significant financial incentives to private-sector companies and researchers who teamed up together. The result is an unprecedented flow of private capital onto university campuses.

What does it mean for the nature and the quality of research at some of Canada's most respected institutions?

The Canadian Institutes for Health Research, the granting agency that oversees the distribution of federal money to Canadian health researchers, argues there is a problem with CEO-scientists. In the past three years, it has refused a handful of grants to scientists on the grounds that they had a conflict of interest. All of them were scientists like Dr. Pelech, who had established companies to profit from their own work.

"We think there is a conflict. We think that if the investigator stands to gain personally from the success of the research project then consciously or unconsciously the investigator might be selective in their choice of data to be used in analysis. They would be more inclined to say that one looks like a good result, or that one doesn't, so we'll throw it out," says Mark Bisby, director of programs at CIHR.

He says this kind of research is not worthy of public funding.

"It is supposed to be an objective search for the truth, and where that objectivity is compromised one has to worry about the validity of the results."

Dr. Pelech disagrees. He says there is a bias at the granting council against scientists who are also entrepreneurs, and that researchers like him are denied funds because the peer-review panels who make these decisions are trying to spread the money around. If they know someone like him has corporate financing, he says, they'll give the grant to someone who doesn't.

The truth is what matters, he says, and no worthy scientist would risk his reputation by publishing results that were deliberately inaccurate or incomplete.

"Your reputation is everything."

That may be true, but Harvard University, for one, is not taking the risk. One of the most prestigious post-secondary institutions on the continent, Harvard also has the strictest conflict-of-interest rules in North America. Academics at Harvard cannot own more than $20,000 in a company for which they do research, and the stock must have been bought well before the research relationship began.

In Canada, UBC and many other major universities have gone in the opposite direction, with policies that encourage the commercial activities Harvard believes compromise the integrity of its researchers and the institutions for which they work. Mr. Livingstone argues it is in part because of economic need. "Those kinds of things can go with a brand name like Harvard and a place like Boston," he said. "But in the nether regions of Canada and B.C., where you have a resource-based economy slowly going down the tubes, those standards won't work."

UBC is working on updating its conflict-of-interest rules, but seems far more focused on helping researchers develop business plans.

Indira Samarasekera, the vice-president of research at UBC, says the changes at the university over the past 15 years reflect Canada's transition to a knowledge-based economy. The new economy depends on new ideas, skilled people and knowledge that can be translated into benefits for society.

What's important is that the fundamental principles of university research are maintained, she argues. Researchers must continue to pursue the truth. If the truth creates profits and new jobs, then so much the better.

Dr. Pelech believes taxpayers deserve a return on their investment in university research.

"Some scientists argue they should be able to do whatever they want, spend their whole career studying the lifestyle and secretions of some exotic organism. I'm not trying to belittle that kind of research, there may be something that comes out of it. But that is not how life is.

"Canadian taxpayers are looking for cures for cancer. Canadians who are giving money to charities, they aren't interested in basic research, they want something that is going to help them."

Dr. Pelech argues that the new, more commercial approach to research works as long as everybody wins. The public gets access to new drugs and a healthier economy. The cash-strapped universities earn income. The researcher gets rich or makes a name for himself.

"I don't regret anything I've done," Dr. Pelech says. "I just wish I had more time."

Third in a series of four articles about the growing ties between drug companies and the medical community.

The series

Monday: Research at any price?
Yesterday: Doctors' dilemma
Today: The CEO scientist
Tomorrow: Charitable allies.

A code to follow

Some examples of Harvard's rules

1. A faculty member can't do clinical research on a technology owned by company that he or she or a family member holds stock in or has any other financial interest. Unless the stock is worth less than $20,000, and isn't directly linked to the research being performed. *(UBC, U of T and other major medical schools don't have policies on this yet)*

2. 2. Getting research support from a company that the faculty member owns stock in. Again, with the $20,000 limit. *(No similar policies at major Canadian medical schools)*

3. 3. Researchers may not be able to apply for federal grants if they own more than 5 per cent of a company. This may be allowed after disclosure, review, and approval with oversight by the university or affiliated hospital with advice from a standing committee of the faculty of medicine. *(Nothing similar at Canadian universities)*

4. 4. A faculty member should not derive a major portion of his research budget from a single corporate sponsor, although this kind of arrangement may be permitted if it is periodically reviewed and approved by the Dean. *(Most Canadian universities have no policy like this)*

5. 5. A full-time faculty member should not assume an executive position in a for-profit business engaged in commercial or research activities of a biomedical nature. This may be permitted after disclosure, review, and approval by the university or affiliated hospital. *(Most Canadian universities have no policy like this.)*

Research into cell's key proteins could prove life-saving

BY ANNE McILROY, VANCOUVER

Steve Pelech's vanity licence plates read K-I-N-A-S-E, baffling drivers who aren't on their way home from a biochemistry lab.

Kinases are regulatory proteins, key components for the internal communication system in all of the cells of the body. One day, kinases may be as familiar as words like genes or chemotherapy are today.

Dr. Pelech, a biochemist at the University of British Columbia medical school, describes them as the government of the cell, regulating both the day-to-day business and crisis situations.

Scientists believe malfunctioning kinases may be linked to more than 400 diseases, including cancer and diabetes, neurological disorders, heart disease and stroke.

Here's one example. Tumours begin when renegade cells in the body begin out-of-control reproduction. In a normal cell, kinases would send the order to commit suicide, which would lead to the death of a few cells, but save the body from life-threatening cancer. But in cancer cells, the message doesn't get through. If Dr. Pelech could find why that happens, and a way to get the kinases to do what they are supposed to do, he could find a way to halt the growth of some tumours.

The first company he founded, Kinotek Pharmaceuticals Inc., is now in clinical trials with a drug for adult-onset diabetes that focuses on a malfunctioning kinase. In healthy people, insulin attaches itself to a kinase on the outside of a cell, and sends the message to bring sugar inside.

In some people with diabetes, that message doesn't come through loud and clear. The new drug is intended to fix that, to amplify the signal so sugar doesn't build up in the blood stream and cause health problems.

Dr. Pelech believes you can learn crucial and potentially life-saving lessons by studying which kinases are at work in both diseased and healthy cells.

His second company, Kinexus Bioinformatics Corp., has developed a database that so far covers 75 of the 2,000 kinases in the human body. Eventually, he is hoping to build a much bigger kinase database that will lead to more accurate diagnoses, the discovery of new drugs and the ability to predict which drugs will work best for an individual patient.

Hot topics

Three key areas of research for today and the future.

The human genome

Scientists have now sequenced all of the human genetic code, and say the genome encompasses 60,000 genes, maybe more. The genes contain the blueprints for proteins in our body.

The proteome

Each cell contains all of our genes. But not all the proteins they describe are made in each cell. The cells of our hair, skin, liver and kidney are all different, because they contain only the proteins needed for that particular cell to function. The prteins of each cell are know collectively as the proteome. The genome is very static, but the proteome is very dynamic. It changes constantly, depending on what enviromnemnt the cell is in, whether it is dividing, or whether it has been told to commit suicide.

The kinome

These are a subgroup of about 2,000 regulatory proteins that control all the action in a cell. They are called kinases, and act like the government of the cell. They are linked to cancer, diabetes, heart disease and many other illnesses. Pharmaceutical companies are targeting kinases in their search for new drugs.