

BIOTECHNOLOGY

A JOINT VENTURE WITH SIRONA BIOCHEM

Rich source of innovation

Biotech community makes Canada a key player on the world stage

Each year, BIOTEC-Canada hosts a two-week conference to introduce large companies and investors to the biotech community, and every year it's a sellout, says Andrew Casey, president and chief executive officer.

BIOTECCanada is an Ottawa-based association that represents about 250 member companies that fall into three categories: health, industrial and agricultural.

"The investor turnout is a good omen as to what's going on in Canada for the industry," he says. In fact investors currently rank Canada as third in the world as a strategic place for investment in biotech. (The United States and Germany are first and second).

"They see Canada as a rich marketplace. Some [international] venture capital firms are even setting up shop here."

Canada's strength in this industry has been a long-standing one. "Our history in biotech is pretty significant," Casey explains. "A lot of biotech solutions to crops were developed here, such as canola oil. A lot of vaccines were also started here."

He attributes that to a strong post-secondary education system, a highly educated workforce and relative economic strength. "Industries such as forestry, mining, oil and gas and fishing don't have to look far to find resources to compete in the new bio-economy."

One thriving biotech company is Sirona Biochem Corp. in Vancouver. Sirona's team has developed a complex carbohydrate chemistry for addressing unmet medical needs in a variety of areas, from diabetes and cancer to anti-inflammatory diseases.

"Carbohydrate chemistry offers tantalizing possibilities for therapies and diagnostic tools to fight everything from cancer, to antibiotic-resistant bacteria, to arthritis," says Dr.



Sirona Biochem Corp. chief financial officer Christopher Hopton, left, chairman/founder Dr. Howard Verrico, and Neil Belenkie, chief executive officer.

Howard Verrico, Sirona Biochem chairman and founder. "It could play a role in developing clinically efficient vaccines to fight cancers and other diseases."

Sirona's technique has also found a place in the booming anti-aging and cosmetic markets – a crossover that is enabling the company to drive revenue streams earlier in the production cycle. To date it has established a foothold through partnerships with North American, Asian and European entities, including a major pharmaceuticals, medical centres and cosmeceutical companies.

"The opportunities for this type of ingredient are enormous," says Neil Belenkie, Sirona Biochem's CEO. "Dia-

betes is the fourth largest pharmaceutical market in the world, accounting for \$471-billion in treatments in 2012 in the U.S. alone. Skin-lightening formulations to reverse sun damage is a \$432-million dollar market and growing at 18% annually. And the global

Belenkie explains it's often the nature of biotech research. He likens it to an Intel chip. "Every computer has one. You can put your own screen, keyboard and software around it, but that chip is the backbone for everything. What we create is something that you can

ate the first chemical entity for drug or ingredient discovery."

The advantage of gaining an early foothold on the cosmetics side is that it takes approximately 12 months to complete research and testing of ingredients. Pharmaceutical research into a new drug can take years and millions of dollars before becoming commercial viable. "Cosmetics can yield near term commercial success with strong royalty streams," Belenkie notes.

Paul Drohan, president and CEO of LifeSciences BC, a Vancouver-based industry association, says today's environment is an interesting one for the biotech industry in Canada and globally. "It's a really unique time. We're starting to see capital coming back, and

some unique agreements being signed with international organizations. Sirona, for one, has established a foothold in China, as well as Europe where government is very supportive of the life sciences industry."

Given the changes taking place in the world today, the opportunities for the industry are enormous, Casey says. "In the next 20 years the world population will reach nine billion. That will put enormous pressure on the planet and our health. How will we feed them? How will we reduce CO2 emissions? How can we improve health? These are all things that play an important part in moving the biotech industry forward."

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market for anti-aging products is \$300-billion a year, and forecasted to continue double-digit growth in the foreseeable future."

When asked about the multi-pronged approach,

build a cocktail of ingredients around to create a product."

"People don't realize that all drugs going through different approval trials have to come from somewhere," adds Dr. Verrico. "Some lab has to cre-

Cousteaus explore biotech frontiers

The Cousteau family is legendary in its commitment to preserving the world's ocean ecosystem. Today Jacques Cousteau's son Jean-Michel and grandson Fabien continue his legacy by spearheading a number of non-profit ventures dedicated to protecting the oceans.

Jean-Michel has spent more than four decades communicating his love and concern for Earth's "water planet." In 1999 he founded Ocean Futures Society, a non-profit marine conservation and education organization to serve as a "voice for the ocean."

One of Fabien Cousteau's many initiatives is Plant A Fish, which he founded to empower and educate local communities to re-plant aquatic species of

plants and animals in environmentally stressed areas.

Today the family is also forging relationships with biotech companies whose technologies could ultimately reduce stress on ocean resources.

"For centuries, humans have been searching the rainforests and exploring uncharted lands in search of medicinal plants to cure ailments and improve our lives," says Jean-Michel Cousteau. "Much has been discovered. But, the ocean is 70% of our planet and we've explored less than 5% of it. Within the ocean, there are undersea "rainforests" of plant and animal life. We know discoveries are already being made that can alleviate pain, provide cures for some diseases and improve the overall quality of human life."

At the same time, climate

change, ocean acidification, depletion of fish stocks, pollution, deep-sea trawling and many other human-imposed factors are changing this vast natural resource, he adds. "We must preserve the ocean, our future medicine chest, before we lose critical solutions to many health issues."

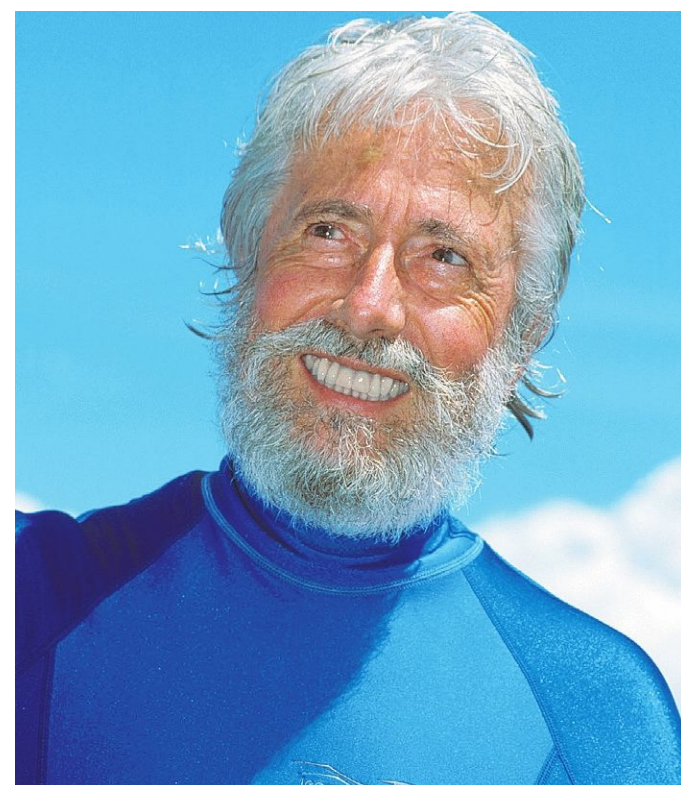
One particular technology that has captured their interest is the work done by Sirona Biochem in Vancouver. The relationship evolved through Sirona's collaboration with Explore Green, a worldwide resource of leading names dedicated to the environment and exploration, including the Cousteaus.

The achievement of note was when Sirona successfully synthesized a glycoprotein found in Antarctic fish that

acts as a natural antifreeze, which has widespread potential for use in cosmeceuticals and pharmaceuticals, without reducing marine species. If successful, the compound being developed from this ingredient will become the first Cousteau-accredited one in the world.

"The ocean holds secrets yet to be discovered. We must utilize it wisely, learning what it can teach us without taking from it," Jean-Michel Cousteau says. "Sirona has set itself apart in its ability to synthesize valuable technologies discovered in our oceans. We are proud to work with Sirona in our shared goal of learning from the oceans without depleting their natural resources for human applications."

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Jean-Michel Cousteau carries on the legacy of father Jacques.

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ENHANCING HEALTH.



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