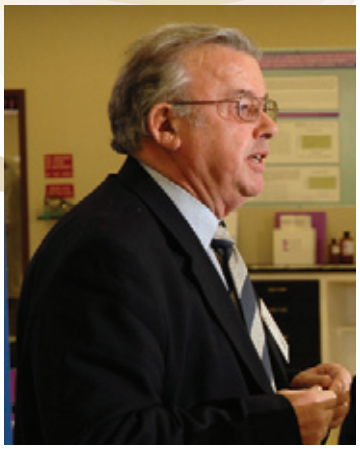
From Collaboration to Commercialization

PRINCE EDWARD ISLAND
BioAlliance

"PEI's bioscience cluster is helping to take the province in new directions, growing businesses and sustaining communities. We are turning the solid support we're seeing from government into long term benefits for the Island and the region. And we're taking business and research collaborations to new levels of commercialization success."

Rory Francis, Executive Director, Prince Edward Island BioAlliance Inc.

Leadership and Common Vision



Dr. Regis Duffy, founder of Diagnostic Chemicals, says: "Holding a common vision and working beyond self-interest has been our strength. It's allowed us to establish a reputation across Canada and internationally as a bioscience cluster that's creating new knowledge and new economic opportunity."

The Prince Edward Island Bioscience Cluster is the location of choice for companies engaged in the research, development and commercialization of bioactives-based human, animal, and fish health and nutrition products.

Our partners in business, research, academia and government share a common drive for discovery, innovation and commercialization.

The Island's bioscience cluster is one of the best collaborative working models in Canadian bioscience -- discovering and developing exciting competitive niches for bioactive compounds.

"Our traditional industries and our new industries are not two separate worlds," says PEI Premier Robert Ghiz. "Our bioscience sector is creating innovative, competitive value chains extending from the fields, forests and sea to highly sophisticated food and health products."

Bioscience-based products currently being produced on PEI by our commercial partners include the world's first commercial DNA vaccine (from Novartis) and a yeast extract from Stirling Products North America Ltd. that is being added to animal feed to boost immunity, reduce antibiotic use in the food we eat and improve vaccine efficiency. By integrating the private and public sectors with some of the best research talent around, we're providing the engine to drive new products to the marketplace, such as pharmaceutical ingredients, nutraceuticals and non-pharmaceutical health products for humans and animals.

"Prince Edward Island's Bioscience Cluster continues to build momentum and recognition as a location of choice for companies wishing to engage in research, development, and commercialization. Much of our success emanates from science and research expertise residing within our public and private sector partners, who share a common vision and a commitment to collaborate in order that our cluster can play a leading role in Canada's bioscience community."

Brian McMillan, President, Holland College

The PEI Bioscience Cluster employs 750 full and part-time people -- more than half in 25 private companies, the rest in a dozen academic, research and government organizations. Revenues now exceed $63 Million, of which 90% is in export sales. R&D has grown by more than 600% at the University of Prince Edward Island in five years and the number of bioscience companies has increased by 50% in just three years.

Scientific and Technical Excellence

The Regis and Joan Duffy Research Centre at the University of Prince Edward Island is named in honour of the BioAlliance's first chairman and his wife. Select researchers from Agriculture and Agri-Food Canada (AAFC), the NRC-INH and UPEI collaborate on health-related research projects in this state-of-the-art bioscience and health research centre.

Photo by John Sylvester

Dr. David J. Speare, Professor of Fish Pathology, Atlantic Veterinary College.

Research excellence, product innovation, commercialization and business development -- PEI's bioscience cluster, largely based in and around the capital city, Charlottetown, is anchored by centres of world class scientific and technical excellence.

"The University of Prince Edward Island plays a leadership role," says UPEI President Wade MacLauchlan, "through a rich array of collaborations within and beyond the University. This ability to work together truly distinguishes the PEI bioscience sector. In addition to our exceptional research platforms and outstanding researchers and students, we have introduced a new MBA program with a specialized stream in Biotechnology Management. Everyone knows that an astute combination of science and business is an essential ingredient for a successful community of innovation."

The Atlantic Veterinary College – with 14 Centres of Expertise including the Atlantic Centre for Comparative Biomedical Research, the Centre for Aquatic Health Science, and the AVC Lobster Science Centre is nearing completion of a $45 million expansion. Included in this is a Specific Pathogen Free (SPF) holding facility, and a $3 million research space built to the specifications of a Level 3 containment facility.

Also located at UPEI in the Regis and Joan Duffy Research Centre is the National Research Council Institute for Nutrisciences and Health (NRC-INH), where federal scientists work in open concept labs designed to maximize interaction and collaboration with fellow researchers from Agriculture and Agri-Food Canada, UPEI and partner companies located in the in-house incubator facility. The Research Centre focuses on the role of bioactives in preventing or slowing progress of neurological diseases and disorders, metabolic conditions and infection, and in promoting a healthy immune system.

Nearby are the province's Food Technology Centre, the PEI Health Research Institute, the Atlantic Canada Network on Bioactive Compounds, and Agriculture and Agri-Food Canada's Research Centre. A few minutes away, in the heart of downtown Charlottetown, Holland College's new Centre for Labour Force Innovation provides specialized training through its two-year Bioscience Technology Program. A new $4 million Food Product Development Lab at Holland College's Culinary Institute of Canada will play a leading role in supporting greater value-added food production in the region by blending the facilities' international culinary expertise with the wealth of scientific research resident in partner institutions and private sector companies throughout the province to create marketable food products.

PEI's BioVectra Inc., with three facilities in Charlottetown, has a proven track record in producing raw materials and active ingredients for the world's pharmaceutical and biopharmaceutical industry leaders, as well as collaborating with international customers to improve development outcomes. BioVectra estimates that their products serve into well over 30 commercial drug processes on the global market today. The capability to build such an expert commercialization partner organization in Prince Edward Island speaks to our community's ability to serve the full spectrum of need along the drug discovery development cycle.

A team of researchers at UPEI's Atlantic Veterinary College has developed the world's first vaccine against microsporidial disease in salmon. Lead researcher David Speare and colleagues spent a decade developing the novel spore-based vaccine: "It's a breakthrough on a disease for which there are no other effective treatments."

Atlantic Veterinary College

"Our small size … is an asset. It allows us to flexibly adapt to the challenges we face – and permits our society to respond as a single community to changes taking place regionally, nationally and around the world.

Island Prosperity – A Focus for Change

Supportive Business Environment

The PEI government, in April 2008, released a five-year economic strategy: Island Prosperity – A Focus for Change. Under it, PEI will invest $200 million in four key economic sectors, one of those being bioscience. The intention is to boost annual bioscience sales to $300 million, increase fulltime equivalent employment to 2,000, and ensure the province is recognized as a national centre of excellence for natural bioactive-based health and nutrition product development.

As part of the province's investment in innovation it has developed several new initiatives. A Pilot Fund program will provide seed money for year-long high-risk, commercialization-focused projects. A Discovery and Development Fund will support research projects that sit upstream of traditional pre-commercial funding, and a Prototype Fund creates a new partnership between the province and the National Research Council - Industrial Research Assistance Program to allow innovation companies to be more competitive.

There is, as well, a range of tax incentives to prospective corporate citizens, including a Bioscience Tax Incentive offering a ten-year tax holiday to bioscience companies and a Specialized Labour Tax Credit on personal income tax of individuals with specialized expertise or skills.

"Our strategy recognizes the need to foster and build upon our partnerships," says Prince Edward Island Premier Robert Ghiz. "This government recognizes and celebrates the central role entrepreneurs play in developing our economy."

Another high-impact public sector fund is the federal Atlantic Canada Opportunities Agency's Atlantic Innovation Fund (AIF) which provides money for innovative and technologically-sound R&D projects in Atlantic Canada and seed capital to commercialize new products, processes and services. Since 2003, ACOA has invested $72 million through AIF in PEI bioscience-related projects valued at over $130 million.

Prince Edward Island Premier Robert Ghiz (far right) tours a BioVectra Inc. lab in Charlottetown, PEI.

"In Atlantic Canada, we have the talent, the expertise, the ideas and the drive to become a world-class centre for research and development. And it is programs like the Government of Canada's Atlantic Innovation Fund that are helping us to take advantage of those assets.", says the Honourable Peter MacKay, Minister of National Defence and Minister of the Atlantic Canada Opportunities Agency.

As a collaborative cluster, we can provide ready access to all of the key players quickly. It's like having a bureaucracy of one. Where other jurisdictions often throw red tape at start-ups, PEI provides system navigation that avoids costly delays in achieving your business milestones.

"In the past, governments have simply relied on tax measures and financial incentives to induce growth . . . we now recognize that factors, such as quality of life, the environment, education for children, health care systems, security and culture all play an instrumental role in attracting the highly skilled individuals that are the source of research excellence and business innovation."

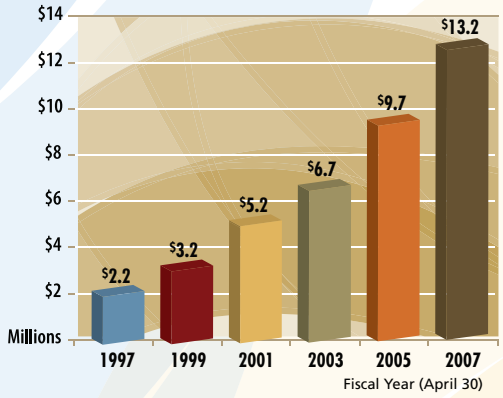
Dr. Michael Mayne, Deputy Minister, Innovation and Advanced Learning

The PEI Bioscience Cluster

Our Research Partners

- Agriculture and Agri-Food Canada Crops and Livestock Centre
- Atlantic Centre for Bioactives Valuation
- Atlantic Swine Research Partnership
- Canadian Food Inspection Agency
- Holland College
- National Research Council Institute for Nutrisciences and Health
- Prince Edward Island Food Technology Centre
- Prince Edward Island Health Research Institute
- The Atlantic Veterinary College at the University of Prince Edward Island
- University of Prince Edward Island

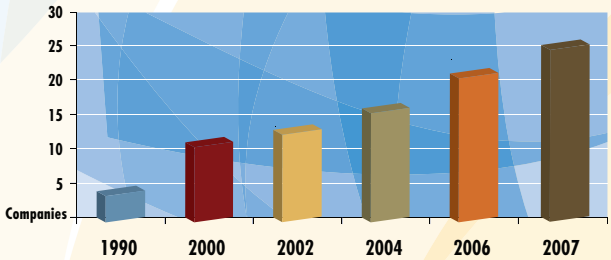
Research at UPEI
External Grants & Contracts



Our Government Partners

- Atlantic Canada Opportunities Agency (ACOA)
- Foreign Affairs and International Trade Canada (DFAIT)
- Industry Canada
- National Research Council – Industrial Research Assistance Program
- Prince Edward Island Department of Innovation and Advanced Learning

PEI Bioscience Company Growth



Our Companies

Ark Biomedical Canada Corp. – Manufactures microwave plasma defrosters for Fresh Frozen Plasma (FFP)

Aqua Bounty Canada Inc. – Provides technology to reduce commercially-farmed salmon and trout harvest times by half; conducts R & D on anti-infectives and therapeutics for shrimp and finfish and develops strategies to improve shrimp genetics.

Aquience – Develops and manufactures nutritional and therapeutic food, beverages and supplements for companion animals.

Atlantic AgriTech Inc. – Provides contract research services for agriculture, commercial, home garden and forest sectors throughout North America.

AtlantisBioactives Corporation. – Extracts and purifies active pharmaceutical, biopharmaceutical, natural and semi-synthetic taxanes from locally-grown ground hemlock used in the chemotherapeutic treatment of breast and ovarian cancers.

BioExx – Provides bio-extraction technologies for the production of pharmaceuticals and nutraceuticals derived from natural biomass.

BioMolecular Pharma Inc. – Designs novel candidate pharmacologic agents for a wide range of disorders.

BioVectra Inc. – Development partners and contract manufacturers for major pharmaceutical company products.

Chemaphor – Develops carotenoid compounds, commonly known as beta-carotene and lycopene, which have oxidation benefits for non-pharmaceutical use and cancer treatment applications.

ChitoXanSys Ltd. – Develops systems for environment remediation.

ELS Pharmaceuticals – Researches & develops - natural products

Elanco Animal Health –Researches & develops products to improve the health of animals.

First Venture Technologies – Develops and commercializes advanced urea-degrading yeast products

Fortius Canada Inc. – Contract manufacturers for pharmaceutical and nutraceutical products.

Genzyme Diagnostics PEI, Inc. – Manufactures and develops diagnostic reagents and point of care rapid tests.

Institute of Human Health Research – Site management organization that supports Prince Edward Island clinical research sites in the timely delivery of quality data to the Biopharmaceutical industry.

Maritime Pulse Drying Inc. – Provides contract drying of high-value bioactives and nutraceutical/functional food ingredients.

Nautilus Biosciences Canada Inc. – Develops production methods and new drug leads derived from marine organisms.

Neurodyn Inc. – Produces products for early detection and treatment of neurological diseases.

Novartis Animal Health Canada – Researches, develops and manufactures vaccines for the aquaculture industry.

Phycobiologics - Researches, develops and produces bioactive compounds and hydrogen utilizing its micro algae platform technology.

Phytocultures Ltd. – Transfers and adapts plant tissue culture technology, phytokit systems, and in vitro plant propagation.

Stirling Products North America Inc. – Natural bioactive extracts for immune health. Productivity solutions for agriculture, aquaculture and pet food industries.

Tube-Fab - Fluid delivery systems for industrial, medical & commercial industries.

Viro Technologies Inc. – Vaccines for finfish. Provides virology technology services, and conducts molecular virology R & D.

For more information contact:

Prince Edward Island BioAlliance
National Bank Tower, 134 Kent Street, Suite 405, Charlottetown, PEI C1A 8R8
Tel. (902) 367-4400 Fax. (902) 367-4404

info@peibioalliance.com www.peibioalliance.com