Technology Partnerships Canada

Agency of Industry Canada

Partenariat technologique Canada

Un organisme d'Industrie Canada

Biotechnology: Innovation for Life

Environmental
Agricultural
Medical

Innovation

Canada

More detailed information about TPC
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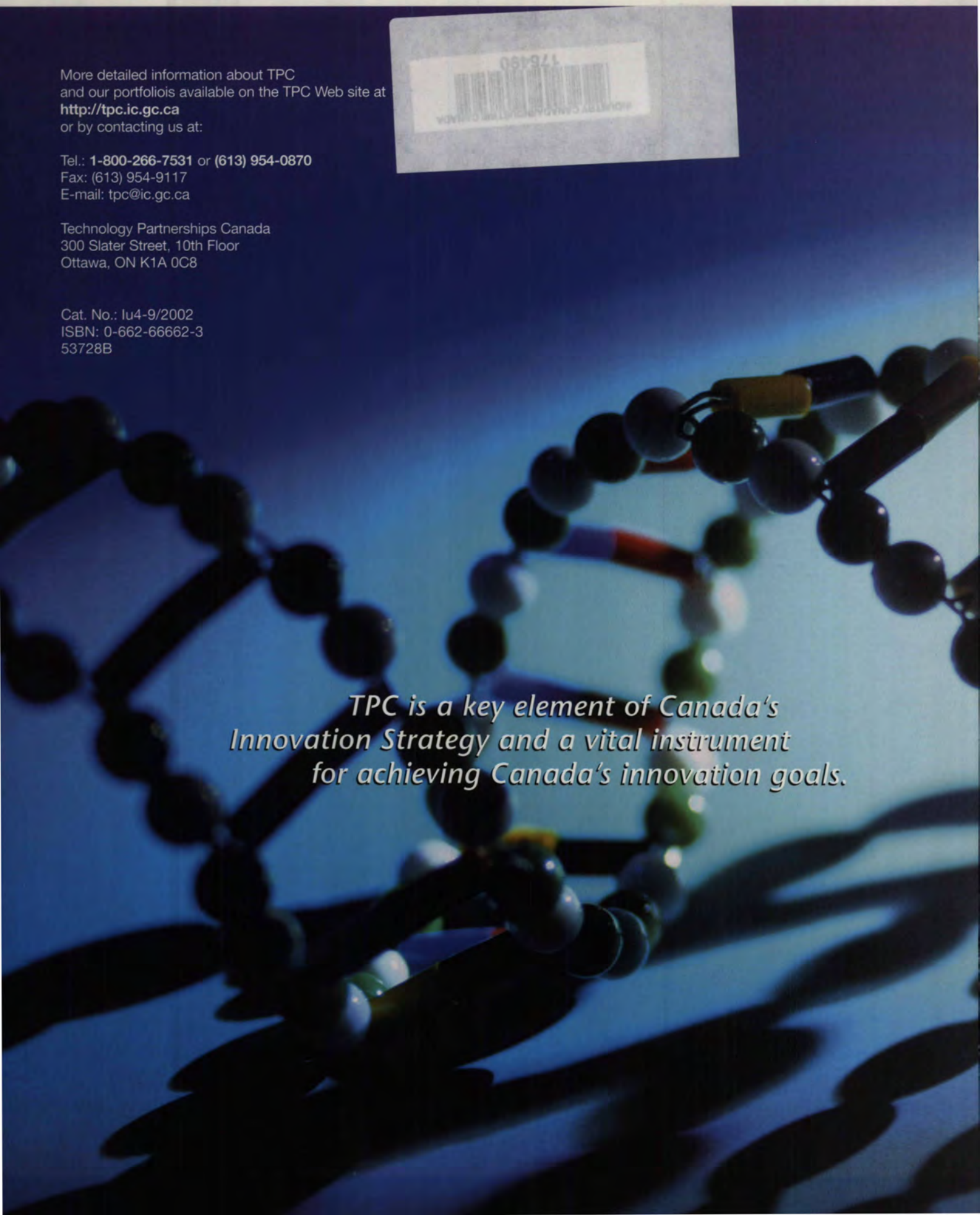


Biotechnology - Innovation for Life

Supporting innovation that turns ideas and knowledge into new products, new services and new ways of doing things is what Technology Partnerships Canada (TPC) is all about. That's because investing in innovation means investing in Canada's future.

The 21st century is an exciting time for Canada. We have the fundamentals to build a world-leading, innovative economy that offers jobs, growth and a higher quality of life for all Canadians. But an innovative economy is a high-risk — and highly competitive — business. It's driven by knowledge. This requires research and development. It demands investment in new technologies. And it requires a business environment that encourages smart risk taking and entrepreneurship. The Government of Canada, through the recent launch of Canada's Innovation Strategy, is ensuring that industry has an investment partner to share the risks and provide the patient capital needed for great ideas to mature in the marketplace.

TPC is a key element of Canada's Innovation Strategy and a vital instrument for achieving Canada's innovation goals. By making strategic research and development investments in private-sector led innovation, TPC is helping some of Canada's most dynamic companies, their partners and subcontractors accelerate the pace of innovation and advance the R&D of leading-edge technologies. These technologies help build expertise within Canada and create high-quality jobs. They will change the way Canadians live, work and learn. And will create opportunity for our children.

Biotechnology - Improving The Lives of Canadians

Biotechnology, with its potential applications in a wide variety of industries, is an important focus of Canada's Innovation Strategy.

TPC — Who We Are, What We Do

TPC is a technology investment fund established to contribute to the achievement of Canada's objectives of increasing economic growth, creating jobs and wealth, and supporting sustainable development.

We invest strategically in research, development and innovation in order to encourage private-sector investment, thereby maintaining and growing the technology base and technological capabilities of Canadian industry.

Knowledge-driven, innovative and cutting edge, biotechnology development embodies the characteristics needed to address some of our most pressing social issues. Biotechnology

applications are being used to develop more effective and more benign medical alternatives to treat cancer, Alzheimer's and other serious diseases; reduce soaring health-care costs; provide nutritious food to a hungry world; develop cleaner, more efficient and more eco-friendly technologies to help reduce greenhouse gases and the consumption of resources; and increase sustainable development.

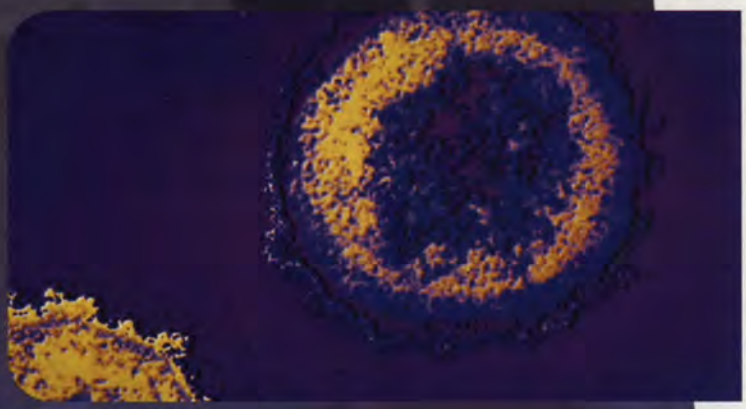
Biotechnology development is also an important contributor to Canada's economy. With the second highest number of biotechnology companies in the world, Canada is excelling in this high-growth sector in direct competition with much larger economies, creating thousands of highly skilled jobs in every part of the country and tens of billions of dollars in wealth for Canadians.

TPC Biotechnology Investments

TPC strategically invests in R&D and innovation in promising Canadian biotechnology applications, ranging from health care to agriculture, energy and aquaculture.

Medical Biotechnology

TPC's goal in investing in the development of medical biotechnology is to help unlock biotechnology's potential to achieve dramatic improvements in human health and quality of life. New therapies and vaccines developed through critical medical biotechnology R&D have the potential to impact Canada's health-care system, providing substantial savings in costs and resources over the long-term with, among other things, fewer, less invasive treatments; reduced hospital stays and fewer work days lost.

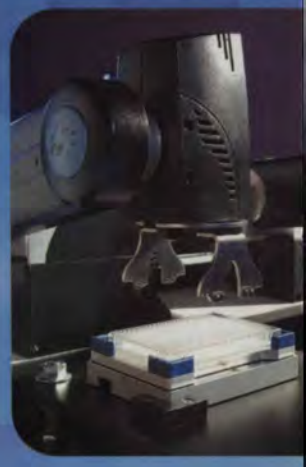


TPC's conditionally repayable investments are enabling cutting-edge biopharmaceutical companies to further their technologies, pursue significant medical breakthroughs, and strengthen R&D capacity by forming alliances with universities, institutes, and other small and medium-sized enterprises, including contract research organizations.

Risk and Reward Sharing

While TPC's investment decisions are based on due diligence, we recognize the uncertainty and risk associated with leading-edge technologies. We carefully watch as projects progress, sharing financial risks with our partners. And when projects succeed, we also share in the returns, reinvesting them in the fund to support new projects. TPC investments are helping companies grow and hire new people and, in turn, bringing benefits to Canada.

TPC Biotechnology Investments



TPC Biotechnology Quick Facts

To March 31, 2002:

- TPC approved about $263 million in conditionally repayable investments for 18 Canadian biotechnology R&D projects;
- these investments are expected to leverage $1.5 billion in additional private-sector investment commitments;
- these investments are anticipated to create or maintain 5,500 high quality jobs , if all projects are successful.

Cancer Treatments

TPC investments are helping researchers and scientists across the country accelerate the development of effective vaccines and non-invasive therapies to treat some of the most devastating forms of cancer, including lung, breast, melanoma, colorectal, bladder, prostate, ovarian and pancreatic. TPC's funding supports development of non-invasive therapeutic vaccines by **Aventis Pasteur**, immunomodulatory therapy by **Bioniche Life Sciences**, antisense approaches by **INEX Pharmaceuticals** and **MethylGene**, and a photodynamic bone marrow therapy by **Celmed BioSciences**, a subsidiary of **Theratechnologies**.

Treatments for Other Diseases

TPC investments are supporting the advancement of new approaches that could lead to effective treatments for primarily age-related illnesses like Alzheimer's disease by **Neurochem** and macular degeneration by **Aeterna Laboratories**. With the aging of Canada's population — people born at the beginning of the baby boom will turn 65 by 2011, and the entire baby boom generation will be at least that old by 2031— virtually all disease will become more prevalent and problematic, and the need for effective treatments is expected to increase substantially.

TPC investments are also helping create a range of innovative vaccines by **Shire BioChem** that promise safer, more effective prevention, and the reduction of associated costs, of pneumonia, meningitis and invasive, potentially fatal, infections caused by Group B streptococcus — among the priorities of the World Health Organization and Health Canada.

TPC funding is also supporting the development of a promising new drug by **NPS Allelix** for the treatment of intestinal disease and related disorders, and advancing the R&D by **Intellivax International** of inhalable versions of vaccines for flu and shigella — a form of dysentery that is a major problem for military personnel in the field. Vaccines delivered orally or nasally, instead of by injection, can be administered by patients themselves or by less-trained health-care workers, potentially lowering vaccine costs and increasing more widespread vaccination of the general public.

TPC Biotechnology Investments

Biotechnology advancements in agricultural applications promise significant benefits to Canadians.

Agricultural Biotechnology

Biotechnology is producing higher crop yields per hectare, resulting in less environmental impact, more sustainable agriculture, and reduced costs to farmers to grow crops. Biotechnology is also creating opportunities for the agriculture industry to expand beyond its traditional markets.

TPC investments are furthering the development of technologies to improve Canadian public health and animal health. TPC is supporting the development of vaccines by **Bioniche Life Sciences** to immunize cattle against E-coli, reducing the potential transmission to humans in food or water. TPC is also helping advance **Bioniche's** development of mycobacterial cell wall extracts for veterinary use. These extracts promote the growth of neo-natal and young calves and have the potential to reduce or eliminate antibiotic use.

TPC funding is also accelerating the development of molecular farming methods by **SemBioSys Genetics** to facilitate production of high value proteins in plants, resulting in more effective protein isolation and purification, and providing a potential new source of these proteins to the pharmaceutical and personal care products industries.

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TPC Biotechnology Investments

TPC investments in environmental biotechnology applications are resulting in innovations that will reduce greenhouse gases and lead to improvements in Canada's environment.

Environmental Biotechnology

TPC funding is advancing the development of clean, alternative fuels like **Iogen Corporation's** enzyme system for producing ethanol from biomass such as farm waste products, including straw and oat hulls, at reduced cost.

TPC investment is also advancing the development of an enhanced multi-stage anaerobic digestion system, being developed by **Eastern Power**, that uses microbes to break down municipal solid waste. If successful, this technology is expected to reduce the number and size of landfill sites needed for municipal waste, provide sustainable energy and result in a significant reduction in the greenhouse gases generated by landfills.