

# CONVERGENCE: THE SEED OF SUCCESS.

YORK  
REGIONAL  
BIOTECHNOLOGY  
CLUSTER  
CONSORTIUM  
ONTARIO CANADA



Harnessing the power of convergence, the **York Regional Biotechnology Cluster Consortium (YRBCC)** is creating an environment of innovation and collaboration for the growth of biotechnology. By synergizing the strengths of its partners, the Consortium is delivering real-world solutions to real-world challenges. Established in 2002, YRBCC is engaged in innovative, interdisciplinary, collaborative research and development in the biotechnological and biomedical fields. This comprehensive and convergent approach will result in the creation of new technologies, discoveries, patents and spin-off companies, strengthen the region's small and mid-sized enterprises (SMEs) and multi-national enterprises (MNEs) and further harness YRBCC's existing assets.

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## CORRIDOR OF CHANGE

In the heart of one of the most diversified innovation corridors in the world, YRBCC is the brainchild of York University, the Regional Municipality of York, the National Research Council and the Town of Markham.

Based in Ontario, Canada, YRBCC's sphere of activity is not limited by geopolitical boundaries. With the third largest regional concentration of biotech firms in North America, Ontario is also the sixth largest in terms of revenues earned. Additionally, it is host to more than half of Canada's medical devices and pharmaceutical industry. In fact, Canada has the distinction of being the world leader in biotechnology firms per capita. Given the country's and province's impressive biotechnological presence, YRBCC is naturally positioned to play a pivotal role globally in the future of this industry.

## ENGINEERED TO EXCEL

The YRBCC consists of top-notch research and academic institutions, SMEs and MNEs, not-for-profit industry associations, hospitals and all levels of government. Guided by the idea of convergence, it leverages its biotechnological strengths by encouraging collaboration amongst all stakeholder groups:

- Convergence between the key commercial sectors of Biopharmaceuticals, Information/Communication Technologies (ICT) and Medical & Assistive Technologies
- Convergence of the R&D activities in post-secondary institutions, hospitals and industry
- Convergence in the use of shared infrastructure and networking systems

This in turn facilitates the commercialization of new discoveries, supports R&D and creates new economic opportunities. Concentrating on the three niche sectors – Biopharma, ICT and Medical and Assistive Technologies, which are inherently strong in the region due to a significant presence of companies like Aventis Pasteur, Apotex Research Inc., IBM Canada, MDS Sciex, Phillips Medical Systems, YRBCC is geared to foster growth in the biotech sector.

## THE BUILDING BLOCKS

**BIOPHARMACEUTICALS:** Several major Canadian biopharmaceutical successes are based in the region. One of the major success stories is that of the Cancer Vaccine Program, initiated by Aventis Pasteur. A member of YRBCC, Aventis Pasteur aligned with global cancer researchers in hospitals and universities to conduct experiments and extensive research to develop therapeutic cancer vaccines for melanoma and colorectal cancer.

The reason for the success of biopharmaceuticals like Aventis Pasteur, Apotex Research Inc., Novapharm, Dimethaid etc., is that they have cultivated their research strengths through collaborative studies with both local and international bodies. In fact biopharmaceutical R&D within the York cluster totaled approximately CN\$240 million.

**INFORMATION / COMMUNICATION TECHNOLOGIES (ICT):** Convergence between life sciences and computer technology is a growing area of innovation for YRBCC and is facilitated by the presence of a strong information technologies sector.

With Markham branded as the high-tech capital of Canada, there are over 850 high-tech firms, including IBM, ATI Technologies, Phillips, Motorola and Lucent Technologies in the York region.

Biotech companies require cutting-edge computer technology to acquire, analyze, and store vast amounts of data. IBM Canada provides an access point to IBM Life Sciences' global capabilities in bioinformatics research. It also partnered with MDS Sciex to integrate MDS Sciex's worldwide information processing system. In fact, IBM Life Sciences is also a strategic partner with local teaching hospitals in the creation of a scalable National Digital Mammography Archive. With such a large number of ICT related firms, YRBCC has a significant advantage of capacity for convergence.

**MEDICAL & ASSISTIVE DEVICES:** There are well over 100 medical and assistive devices companies that help YRBCC achieve the objective of convergence. Headquartered in the region, MDS Sciex, the world leader in R&D and the manufacturer of mass spectrometry and scientific instruments, is presently pioneering work in mass spectrometry linked to liquid chromatography. The company has also played a critical role in the development of the Centre for Research in Mass Spectrometry at York University. Other notable companies in this field are Novadaq Technologies Inc., which develops products based on a licensed technology from Johns Hopkins University to locate and test abnormal blood vessels in the eyes; CardioMed Supplies Inc. researches, manufactures

and distributes medical technology used in open-heart surgery, dialysis, oncology and critical care.

Given YRBCC's proclivity for collaborative partnerships, companies and institutions in its fold greatly benefit from such shared ventures. In medical imaging for instance, Sunnybrook & Women's College Health Sciences Centre collaborated with Phillips Medical System to develop ultrasound technology.

## PATH OF PROGRESS

An hour's drive from the US border and situated at the centre of the Greater Toronto Area, the diversity of the region's economic framework, the accessibility of land, superior telecommunications and transportation infrastructure and an attractive cost structure, gives YRBCC a competitive edge. Sharpening this edge are world-class research institutions like York University, Seneca College, Georgian College and Sunnybrook & Women's College Health Sciences Centre, who provide a fertile research environment and an ample supply of highly qualified people. With its location at the centre of Ontario's biocorridor, YRBCC is geared to become an internationally recognized powerhouse in a converged biotech world.

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