

Discover Innovate Solve


The Science of Amazing
Canada's Biotech Ecosystem

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The Global Challenge and Opportunity for Canadian Biotech

The world's population is predicted to grow to almost 10 billion people by 2050. This means drastic global changes in human health, the environment, food security and economic fortunes have already started to impact our day to day lives. Demands for consumer goods, healthcare, energy and western based diets emanating from ever increasing populations in countries such as China and India are impacting economies, human health, the environment, and food and water supply like never before.



The status quo is simply untenable. Society must find ways to both mitigate and adapt to the reality of the pressures challenging our planet and population. We must live, grow, and manufacture, more efficiently and effectively. However, while they are daunting, in meeting these significant health, environmental, economic and social challenges lies an important economic opportunity for those that can deliver solutions. Biotechnology will play a central role in delivering innovative solutions that will help societies and economies both mitigate and adapt.

Few countries are as well positioned as Canada to take advantage of biotechnology's potential. Canada's history of innovation in biotechnology stretches back a century. From the discovery of insulin to the development of an Ebola vaccine, we have contributed to the betterment of life for Canadians and the world. Canadian researchers discovered stem cells and the Cystic Fibrosis gene, developed canola and created a non-browning apple. Our entrepreneurs have built companies that produce clean jet fuel from an agricultural crop, biotherapeutics for the treatment of cancer and a technology that captures carbon dioxide from coal-fired plants.



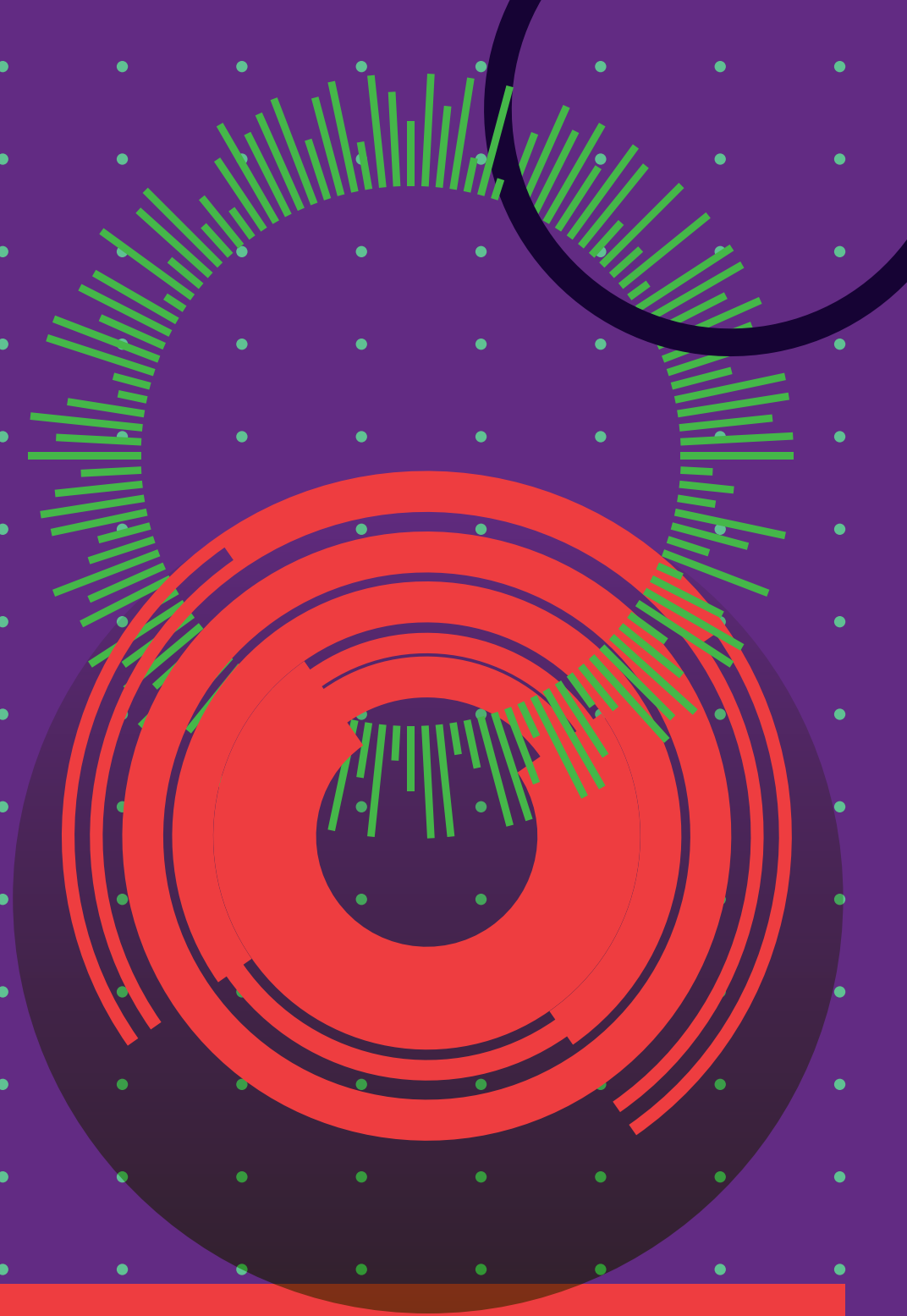
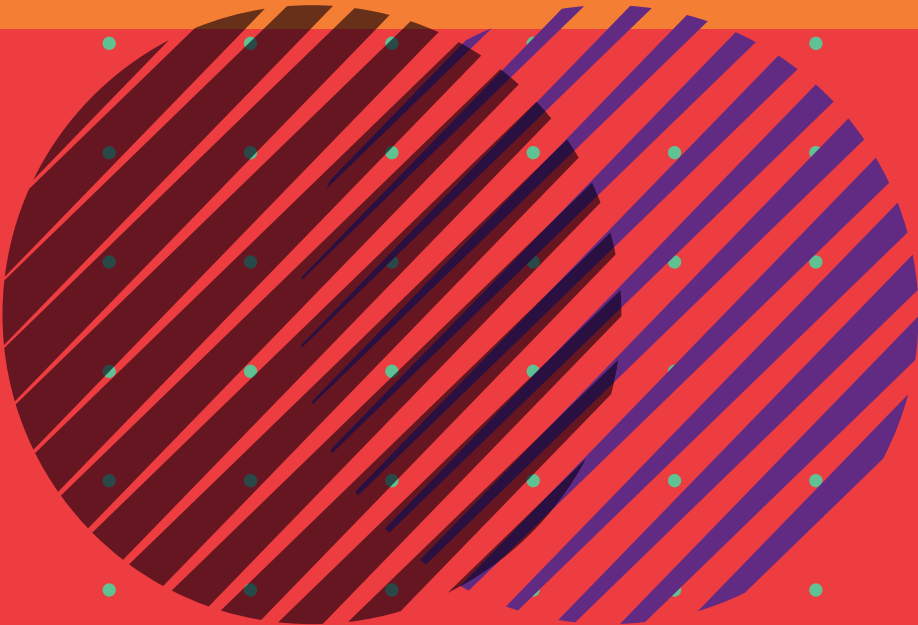
The world sees Canadian biotechnology innovation delivering game-changing solutions to the global marketplace. Recent successes can be found throughout the spectrum of innovation with hundreds of small start-up entrepreneurs striving to bring scientific discovery to the global marketplace.

Importantly, biotechnology is becoming more central to supporting the economic and environmental transformation of Canada's traditional economic cornerstone and job intensive industries, namely: forestry; energy; mining; agriculture; aerospace; manufacturing and resource management. Biotechnology innovation will support these sectors as they transform and compete in the emerging global bio-economy.

The Strength of Canada's Biotechnology Ecosystem

As a result of its history of scientific discovery and innovation, Canada is home to a strong network of biotech hubs in every region of the country. At the centre of those hubs are world class universities, hospitals and research institutions. These combine with a national network of incubators and accelerators, and hundreds of small start-up companies helping to draw biotechnology research into the development of innovative products.

Canada has a diverse biotech ecosystem with clusters in every province, in which small -and medium- sized biotech companies work with universities, research institutes and hospitals, regulatory authorities and multinationals to bring their innovations to market. Correspondingly the biotech ecosystem is well-positioned to be a major contributor to solutions for the challenges in agriculture, energy production, environmental remediation, industry and healthcare.



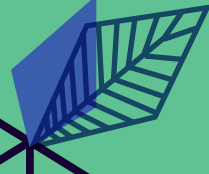
In just a few short years several early stage Canadian health biotech companies have grown rapidly and moved closer to becoming commercial reality. This group includes Aquinox Pharmaceuticals, Innovative Targeting Solutions, Xenon, Zymeworks, Northern Biologics, Clementia and Engene. All have moved from being theoretical concepts to companies on the brink of commercial reality who employ hundreds of highly educated individuals.

Establishing a Vibrant and Competitive Ecosystem for Economic Growth

Not surprisingly, the growth and success of these companies has led to the emergence of more ideas and leaders in Canada. However, moving from great idea to global commercial success is highly dependent on the companies' ability to attract partners, investors and talent to drive their innovation forward. Canada must do all that it can to be as competitive as possible to support companies in meeting their efforts to commercialize innovation.

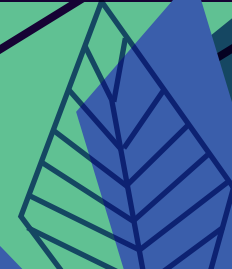
Other nations clearly understand the value of a domestic biotech industry to their global economic competitiveness. Canada is competing with these other jurisdictions to attract investors and talent to the sector. Ultimately, if Canada is unable to attract investors and people then the innovations discovered here will go to where the investment and people are. We will ultimately get the innovation back in its finished form but will have lost out on the economic benefits that are associated with commercialization. In this context, Canada must remain globally competitive with other jurisdictions in order to attract investors, pharma partners and talent.

Importantly, in the health space, the pharma industry model for transforming innovation has evolved significantly over the past decade. Whereas, for many years discovery, research, development and manufacturing were all done in-house, the new pharmaceutical model is one of collaboration and partnership which brings the large multinational companies together with smaller companies, research institutions and technology incubators. Indeed, successful early stage Canadian biotech companies Aquinox, Xenon, Zymeworks, Northern Biologics and dozens of others, have all benefited from established partnerships and/or investments from multinational pharma or biotechnology companies. In addition, the recently launched JLABS@Toronto represents a new form of economic cooperation which will support the development of more companies and entrepreneurs.



“ In few other countries would it have been possible to turn an idea like ours – nonbrowning Arctic® apple varieties that can reduce waste and boost consumption – into a reality. Canada's support for innovation and commitment to an evidence-based regulatory system are instrumental for small companies like ours to succeed. In an ever-evolving industry, support for sound biotech regulations and educational programs will be essential to assure Canadian innovation continues to thrive. ”

— Neal Carter, President, Okanagan Specialty Fruits Inc.



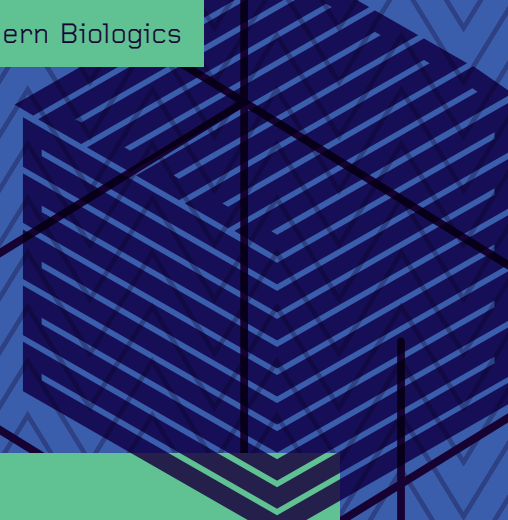
“ As founding Director of BIOTECCanada and leader of WinRho development, first approved in 1980, I have witnessed and participated in the incredible growth of the biotech industry with challenges and successes in the last fifty years. I believe that the biotech industry can and will play a most important role in Canada's future economic growth with a clear vision and focus on the B.E.S.T. (Business, Entrepreneurship, Science and Tenacity or perseverance) model. ”

— Albert (Bert) D. Friesen PhD CEO, Medicure



“ At Northern Biologics, we're very proud to headquarter our global biotechnology company in Toronto. We're within walking distance of several top tier academic and clinical research institutes, and enjoy tremendous access to cutting edge science, dedicated clinicians, and a very large patient population. We've also had great success in recruiting US and European R&D leadership talent to Toronto to complement the existing talent pool of highly trained bench scientists. ”

— Stefan Larson PhD CEO, Northern Biologics



“ The biggest challenge we had at QLT was bringing an awful lot of well-tutored in the pharmaceutical and biotech industry experts as senior scientists into Canada who were able to train up intelligent, educated locals. There is now a pool of those with manufacturing; drug development and clinical expertise who came out of QLT, and have offered their knowledge to benefit other biotech companies in Vancouver. There is a great model there. ”

— Julia Levy, Founder QLT



Access to Capital and Talent

Canada is in an enviable position globally. Home to a strong biotech ecosystem including a highly skilled workforce, hundreds of early stage companies, supportive university and health care systems, leading science and scientists, Canada is well-positioned to attract more investment, companies and people. Community and entrepreneurial spirit along with recent successes in the venture capital and public markets, have proven Canadian companies can attract hundreds of millions of dollars of investment. But attracting global investors and talent will always be a challenge as other countries aggressively pursue the same investors and talent for their domestic industry.

Capital investment is attracted by the caliber of scientific discovery, the people leading the development of that discovery, and by the conditions for how well treated the investment is offered. Other countries are developing their biotechnology sectors. While industry plays a lead role in attracting investment, government policy establishes the hosting conditions that attract capital.

While Canada's biotechnology sector has grown somewhat organically, governments play a key role in supporting the sector's ability to attract companies, talent and investment. In this regard, Canada has been very competitive by providing:

- Fast, reliable and predictable regulatory system that relies on science-based decision making, up-to-date understanding of complex science and anticipation of new technologies.
- Stable government with sound fiscal conditions.
- Competitive corporate tax rate and fair tax policy, including programs such as SR&ED.
- Intellectual property protections.
- Supportive commercial environment with such programs as IRAP and the Venture Capital Catalyst Initiative.
- Strong provincial government economic development programs to grow SME companies.

Creating Globally Competitive Canadian Biotech Companies



The development of a federal Innovation Agenda is now underway with life sciences/health biotech identified as a priority area. In developing the Agenda the government has signaled its recognition of the economic opportunity biotech innovation represents both on its own and in enhancing the competitiveness of other Canadian economic sectors.

Without a doubt, Canada has the foundation to become a top-tier biotech economy and move from creating and exporting our innovations to building globally competitive biotech enterprises right here.

To capitalize on the country's strengths and drive innovation forward, it is imperative that the role played by all elements of the ecosystem are recognized and supported. To achieve success, all parts of the ecosystem must be healthy and functioning for the transformation of ideas to move from lab bench to commercial reality.

If done well, Canada can capitalize on the enormous global economic opportunity and in so doing will become home to globally competitive biotech companies which will attract more talent and investment.



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