

**Written Submission for the Pre-Budget Consultations in Advance of
the Upcoming Federal Budget**

By:

adMare BioInnovations

CCRM

FACIT

The Ontario Institute for Cancer Research (OICR)

Toronto Innovation Acceleration Partners (TIAP)

August 7, 2020

List of Recommendations:

Recommendation 1: *Continue and grow the valuable investments in academic research as the foundation of Canada's life sciences industry.*

Recommendation 2: *Establish a national policy to drive opportunities to translate discoveries into "made-in-Canada" Innovations developable by Canadian businesses, and accessible to Canadian patients first.*

Recommendation 3: *Reinvest in the translation of research through support of proven, professional, successful, commercially-focused translational organizations. The success metrics for these organizations should focus on creating in Canada companies of scale, and assisting existing companies scale-up.*

Recommendation 4: *Establish specialist life sciences venture capital mechanisms that leverage the activities of the translation centres; and that encourage growth of and collaboration across existing and new VC organizations at all stages of life sciences investing.*

Recommendation 5: *Enhance Canada's leadership position in cell and biologics-based precision medicines by catalyzing the development of manufacturing capacity to allow Canadians to have first access to cost-effective life-saving therapies while serving global markets from Canada; and help keep the innovative companies launched by Canadians in Canada.*

Recommendation 6: *Develop and enhance industry-training programs, effectively linking university and college programs with industry to address real-world needs, and grow local life science entrepreneurship expertise.*



Driving and Sustaining an Effective Life Science Innovation Strategy in Canada

Our organizations, each playing a critical role in commercializing Canadian healthcare products, and building a sustainable life sciences industry in Canada, have come together to underscore the historic impacts of a global pandemic, and the essential role of the life sciences industry in Canada in promoting both human health and economic recovery.

Our organizations have exemplary records translating research into economic impact. Together, we have helped create new companies valued at \$5B+; attracting \$2.5B+ in risk capital, mostly as direct foreign investment; and employing thousands of Canadians. We understand intimately the specific and arduous challenges of creating successful businesses in this critical industry.

We understand the dramatic impacts of the pandemic on human health and our economy. We see the profound potential that exists within the Canadian life sciences ecosystem to respond rapidly to this pandemic, and be the source of a significant and sustainable competitive advantage for Canada.

Within a few weeks of the declaration of the pandemic, our ecosystem responded dramatically: 20 vaccine programs, 30+ therapeutic opportunities, ~20 in biomanufacturing, 40 diagnostic approaches, and another 40 tools or support programs. In our judgement, these programs have potential to be real products, making a real impact on Canadians' health and quality of life.

To respond to these programs, as well as broader needs in the healthcare industry, Government has done an exemplary job of making resources available to ensure that those programs can withstand rigorous diligence and regulatory review, and potentially make it to the market.

Similarly, Government has supported Canadians impacted economically by COVID. The extraordinary economic impacts need not be repeated here. Rather, we encourage the consideration of the dramatic potential of the Canadian life sciences industry to be the focus of a long-term, strategic commitment.

We agree with ISED, and the Health and Biosciences Economic Strategy Table (HBEST) that we can achieve \$26B in exports over the next five years.

Government has recognized the potential of this industry with HBEST, and we applaud its continuation. HBEST set aggressive goals for the expansion of this industry that clearly depend upon this long-term strategic commitment by policy makers.

Such a commitment would reflect the lessons of the pandemic: the importance of domestic supply of knowledge, innovation, and products. More importantly, such a commitment would build on decades of public investments. From the perspective of economic recovery, the most important message is that these investments proved the potential of the life science industry, and its capacity to be one of the industries that leads Canada's economic recovery.

For example, according to HBEST: "The ecosystem consists of some 900 firms. Our 2025 target is to double this number to 1,800, with each creating knowledge-intensive jobs." And, "The sector's historical growth rate of 4% leads us to predict that business as usual will lead to annual exports of approximately \$17B by 2025. However, by rejecting the status quo and taking ambitious steps, we can change our trajectory and double our exports to \$26B by 2025."

Stated simply: an investment in life sciences is an investment in Canadians' health and economic prosperity.

A healthy ecosystem has five sustainable elements on a continuum.

First: Research Leading to Translation

(Ref: Recommendation 1)

Governments for generations have made enormous investments in research. These investments – in notable and respected organizations like CIHR, CFI, and NSERC, as well as in provincial agencies – have paid dividends in knowledge, education, innovation, and economic impact. Additionally, philanthropic organizations such as disease and hospital foundations, partnering with academic centres and institutes, have invested millions into translational research making Canada a global leader in terms of academic contributions. Others will comment on the further quantum of investment needed for this work. We simply observe that the research supported by these organizations is the basic feedstock of any life sciences industry in the world. For context alone, we observe that the United States National Institutes of Health has an annual budget of approximately US\$42B (\$127 investment/person in the US). By contrast, the CIHR budget is slightly more than C\$1B (translating to about only \$27/person in Canada). We therefore encourage the committee to continue and expand Canada's efforts in this area. We note too, that Canadian researchers continually 'punch above their weight' in relative terms on virtually every scale of research output. Stated simply, this is a good investment that must be continued.

Second: Translation Leading to Innovation

(Ref: Recommendations 2 & 3)

Once a discovery is made, it needs to be translated into a potential product using rigorous commercial approaches. Far too often, Canadian innovations have been sold early to foreign organizations where their full economic potential was realized. Surely now, in the midst of a pandemic that shows the existential value of this industry, we can decide to make it a national priority to end this short-selling of Canadians' innovations, translate our discoveries into commercialization here at home, and build more commercial and manufacturing capacity nationally.

Successive governments have invested in programs such as the Networks of Centres of Excellence and the Centres of Excellence for the Commercialization of Research. This area has undergone refinement in recent years, and several strong organizations of globally-relevant scale have emerged. This process exists symbiotically with basic research. One cannot expect successful translation of research into sustainable economic activity without investment in specialist organizations with the expertise to advance innovations commercially. Our organizations have proven their considerable value based on exemplary track records of success.

These organizations should be encouraged to actively collaborate with venture capital, and start-up organizations (e.g. Creative Destruction Lab). These interactions will ensure a focus on creating companies of scale, and helping existing companies scale-up. That Canada ranks second in the world in creating companies (www.startupranking.com/countries) is a sign of positive intent but weak execution. We propose that funding be concentrated on scale objectives.

Third: Venture Capital in Canada

(Ref: Recommendation 4)

It is axiomatic that investment is the lifeblood of new economic activity. Governments in Canada have done well encouraging the expansion of venture capital through both the VICI and VCAP programs. These programs have generated returns that speak to the catalytic value of public policy. It is important to note however, that such programs have had limited focus on life sciences.

Even so, in Q12020, Canadian life sciences firms accounted for 21% of all venture capital investing (\$174M over 19 deals – second to ICT). In 2019, Canadian life sciences venture investing experienced a banner year, with over \$1.05B invested, up from an average of \$680M over the three years prior (*Canadian Venture Capital Association*).

Nonetheless, the life sciences industry suffers an ironic market failure. On one hand, according to BDC, the 10-year internal rate of return for Canadian life sciences funds has dramatically outperformed both non-life sciences funds, and all funds. On the other hand, Canadian investors have too often been tepid in their support to domestic life sciences venture capital. Our firms are subscale in dollars, and too few in numbers versus global colleagues, yet share the same ambitions. Given the role that venture capital plays in every successful biotech market in the world, Canada must adopt measures to encourage the emergence of new funds, and the growth of existing ones.

Supporting the former cannot be emphasized enough, as many of these Canadian seed funds have performed dramatically well even with limited resources. Their savviness could be enhanced with increased capital. A collaborative approach across Canada in building these funds is also needed to facilitate synergy, and develop the best assets.

In achieving this end, attention must be paid to the unique needs at four stages of venture capital investing: seed, series A/B, public market entry, and sustainable anchors. Most notably, seed and series A venture mechanisms have been lacking in Canada relative to other life sciences jurisdictions. Different models and priorities must be established for each stage.

Fourth: Manufacturing in Canada

(Ref: Recommendation 5)

Throughout the pandemic, there has been much discussion about the need to onshore the manufacturing of many products, and in particular essential medicines. While this approach appears rational for emergency purposes, we observe that there are emerging areas of medical innovation where Canada has globally-relevant advantages and the opportunity to establish specialist manufacturing to serve a global market. Although emergency measures dictate that we secure and buy much needed pharmaceuticals and vaccines for the COVID-19 pandemic from foreign sources, there should be a focused strategy to develop, market here at home, and export “made-in-Canada” drugs and vaccines.

In particular, the emergent areas of cell therapies – an innovation essentially discovered in Canada and in which Canada has a global leadership position – is an excellent example of this manufacturing opportunity. The same holds true for other precision medicines such as antibodies and other biologics-based therapies where Canada has a global leadership position. Given these strengths and this leadership, these should be areas of self-evident focus for Canadian manufacturing.

Fifth: Talent Development & Recruitment in Canada

(Ref: Recommendation 6)

Government has taken several initiatives to encourage the development and recruitment of talent. These initiatives, from accelerated visa approvals to specialized training programs, continue to add to the capacity and expertise of Canada’s life sciences talent pool. This industry requires specialist talent, some of which can be recruited internationally, ultimately most of which can be developed here. Furthermore, we must actively foster gender balance and diversity in our industry, especially at the leadership level.

A ‘whole-of-industry’ approach will most effectively advance the talent pool. Asking industry players to participate actively in talent development by way of internships, co-op placements, and formal training programs, will ensure that the right kind of programs are developed with real-world industry needs and experience. In addition, there are opportunities to develop public-private partnerships supporting opportunities for young scientists to join start-up life science companies, and to be mentored by Canadian entrepreneurs.

Conclusion

We respect the broad demands on both public policy and the treasury in these extraordinary times. We support and appreciate the efforts of policy makers to alleviate the impacts of the pandemic on Canadians' health and economic well-being.

At the same time, there exists in Canada a life sciences industry poised to be a globally dominant player. All of the relevant parts for this industry exist in Canada today. Public policy has played a significant role in building this foundation. Over the last generation, during the emergence of the modern industry, Canadian innovators have developed products for the global market. Over the course of the pandemic, the industry responded quickly, with agility and focus. Now is the time to adopt these recommendations and see Canadian life sciences leading the world.