

Accelerating Toronto's Academic Innovation through LAB150

Results and Experiences to Date

Like many industries, the life sciences sector fundamentally depends on productive innovation to create value for its customers – the patients and the healthcare system. In recent years, however, R&D productivity has been declining industry-wide for reasons as diverse as the decreasing success rates in development, a tougher regulatory environment, and increasing pressure from payers and providers, which in turn has led to increased generic-drug competition.

Such downward pressures on the large pharmaceutical companies, which historically have been at the forefront of ground-breaking but financially risky drug development, have resulted in reduced internal research efforts. As an alternative, large pharma has turned to academic institutions and biotechnology companies as a source of external innovation to fill research development pipelines. In fact, as reported by Atlas Ventures in their 2018 year in review, over 60 per cent of drugs approved by the FDA in the last few years have been sourced through external innovation and partnerships.

Over the years, there have been numerous attempts to improve life science productivity from various sources, including government programming, creative public-private partnerships and pharmaceutical consortia, to name a few. With these challenges in mind, MaRS Innovation (MI) and Evotec engaged in discussions on how to shape a partnership, one that would meaningfully advance translation of scientific research in Canada to generate economic outcome. We were determined that any new model had to address some major issues: make up for the diminishing enterprise R&D funding; find a better way to further life science discoveries to a market-ready state where they would be attractive investment targets for venture capitalists; and establish an ability to shore up and nurture nascent technologies that could make a real difference in addressing the many significant unmet medical needs. These and other facets of the commercialization landscape were taken into consideration as the new partnership developed and which, in 2017, culminated in LAB150.

LAB150 - A platform for creation and growth of life sciences companies in Canada

LAB150, named to commemorate Canada's 150th anniversary, is the first North American program under Evotec's BRIDGE model, designed to enhance and de-risk life science academic projects towards company creation and growth. In the case of LAB150, we leverage the strong foundational science emerging from Canada's largest innovation cluster, which comprises the University of Toronto, nine affiliated teaching hospitals as well as York and Ryerson Universities.

The initial collaboration was centered on a fibrosis project at Unity Health Toronto (formerly St. Michael's Hospital) and Lunenfeld Tanenbaum Research Institute (Mt. Sinai Hospital). Based on this work, MI and Evotec, together with the academic institutions, founded Ontario-based Fibrococ



Therapeutics, and in early 2019 Fibrocor struck its first partnership and collaboration agreement with the Dutch biotechnology company Galapagos to co-develop fibrosis compounds.

Since its launch 18 months ago, the LAB150 team has closely examined over 60 projects and selected five of those for further evaluation and development through the program. With the current pipeline of projects, LAB150 is a source of qualified opportunities and will contribute to the economic growth of Canada by securing venture capital for homegrown ventures and attracting global talent to lead these new ventures.

LAB150 - A Capital Efficient Drug Discovery Engine.

The value for academic researchers in LAB150 is efficient access to an industrial-scale drug discovery pipeline and the associated skills of our experts. With our lean capital structure and a focus on speed while maintaining quality, we are able to engage in these early-stage projects and de-risk them in a timely fashion. To date, LAB150 has been well received within the MI Membership. Equally as valuable as the financial investment is the evaluative feedback on submitted projects provided by the experienced drug developers at Evotec, which include therapeutic area leads (such as oncology, immunology and inflammation) and technical experts (such as medicinal chemists and high throughput screening leads).

Dr. Mark Reed, Staff Scientist at the Krembil Research Institute, University Health Network, and one of the first “clients” of LAB150 offers his views on the program as follows:

"Completing an application to the LAB150 program was seamless, and the due diligence process with MaRS innovation and Evotec was an iterative and scientifically constructive process. Based on the disease, target and objectives, Evotec were able to bring in the appropriate internal expertise to best evaluate and build a transnational project plan to achieve mutually agreed upon goals. Throughout our project we have had constant interactions with the Evotec scientists who bring expertise in the field of chemical biology and target identification to the project. These interactions are very collegial, constructive and bring additional resources to the project".

Once a project is selected by the MI and Evotec joint steering committee, it proceeds as a peer-to-peer scientific collaboration between the academic researchers and Evotec experts. The project teams execute on research plans to validate biological hypotheses, identify and optimize molecules, and conduct in vitro and in vivo studies to create value. Once LAB150 projects are completed (after 9-18 months on average), the objective is to create local life science companies – for example, one of the first LAB150 projects is already negotiating follow-on financing.



Reflecting on this development is Dr. Ionannis Prassas, a Scientist from the Lunenfeld Institute:

“The LAB150 program has been critical to translate our intimate understanding of Kallikrein biology into a therapeutic approach that now enables us to speak with investors. The industrial drug discovery expertise that the Evotec team brought to our project is not available in the academic setting and complimented our capabilities towards moving our science closer to patients.”

In addition to facilitating replication of promising research results, LAB150 makes it possible for approved projects to reach each new value inflection point faster. This can be achieved in the context of diligent expert team feedback. Ultimately, we believe this “testing before investing” strategy will result in the formation of more sustainable start-ups. The outcome is improved for all involved – academic researchers, venture investors, and our potential pharmaceutical and biotechnology partners.

LAB150 – And the Future

The overarching objective for LAB150 is to establish a strong tool to combat the downward spiral of lower levels of R&D spending and the paucity of risk-averse early-stage seed money by taking promising breakthroughs across the proverbial valley of death. With this new paradigm we are constantly incorporating novel scientific insights (e.g. precision medicine, big data / artificial intelligence) to target devastating and debilitating diseases. Focusing on early stage academic innovation and providing the platform to translate this into successful, Canadian-invented medicines is a huge and untapped opportunity.

Based on the tremendous progress made in a relatively short period of time, LAB150 is poised to become *the* driver of significant change in and value to the Canadian life science ecosystem of early-stage discovery and commercialization.