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Navigating the regulatory complexity of

REGENERATIVE MEDICINE IN CANADA

Regenerative medicine and the advanced therapies being developed in this field have the potential to bring about an entirely novel therapeutic approach to the treatment of human disease. A small number of products have already been approved by regulators around the world, and many more are in development to treat a variety of diseases. This includes many diseases that have not been well served by current therapeutic approaches, such as intractable cancers and rare genetic disorders.

The number of potential targets, and therefore potential market size, increases year on year; the global regenerative medicine market was valued at $36 billion US in 2016 and is anticipated to grow to $49.14 billion US by 20211.

Canada holds a significant place in this industry, with the discovery of multipotent stem cells by Dr. James Till and Dr. Ernest McCulloch in Toronto in 19612. Since that time, Canada has nurtured foundational science and development efforts in this field, including providing research grants and funding for accelerator organizations, and enabling a flexible regulatory environment for these and other innovative therapies. However, this is still an emerging field with new technologies and approaches that are not always supported by the regulations currently governing health care. The following highlights how industry, physicians and Canada's regulator have worked to overcome the challenges posed by being at the forefront of innovation.

Regulatory flexibility and other reasons to choose Canada

While many other jurisdictions have started to incorporate specific regulations and guidance to manage advanced therapies (such as the Advanced Therapy Medical Product guidance in the EU3 and the U.S. FDA's Regenerative Medicine Policy Framework4), Canada has yet to implement something similar for cell or gene therapies. These products are therefore regulated under the existing regulatory frameworks developed for pharmaceutical and biologic medicinal products, devices and human material for transplant. In the absence of Canada-specific guidance in this field, manufacturers and developers often use existing guidance available in other International Council for Harmonisation of Technical Requirements for Human Use (ICH) member countries to guide development of their products.

Despite this absence of specific guidance, gaining approval for a clinical trial of a regenerative medicine therapy in Canada can be less complex than in other ICH jurisdictions.

Health Canada encourages developers and manufacturers to discuss issues and concerns early in development. Engagement with Health Canada is offered at no cost and can be readily accessed by all stakeholders, including those based outside of Canada, thus allowing developers to gain early insight into the regulator's expectations of their development program.

Additional guidance is made available to academic researchers and developers who may have less familiarity with the regulatory process and many organizations, including the Centre for Commercialization of Medicine (CCRM), provide consulting services to assist in this process.

Health Canada uses its discretion when reviewing applications for market authorization and clinical trials and, as a result, the utilization of foreign guidelines to guide

development has thus far not posed any significant regulatory challenges. However, it is recognized that this approach is not sustainable and increases ambiguity for industry; an effort is therefore underway to accelerate the development of an appropriate regulatory framework for advanced therapies.

Commitment to transparency and collaboration

The Government of Canada has committed to implementing a transparency and openness framework and action plan, which includes taking steps to ensure stakeholders are informed and engaged on relevant areas of policy, as well as enabling and enforcing appropriate changes to regulations as needed.

For example, a regulatory modernization exercise is currently underway for which one of the target areas is health and bioscience. Significant effort has been made to solicit input from stakeholders including issuing an open call for feedback via the Treasury Board of Canada, arranging in-person workshops with interested stakeholders, and setting up a series of smaller workshops and one-to-one meetings with groups across the country.

Aligned to this approach, Health Canada welcomes input from anyone interested in proposed regulations, policies and guidance, which are provided for public consultation. International developers and manufacturers may also submit responses to these consultations and this can be an opportunity for those stakeholders to gain familiarity in the Canadian ecosystem in advance of entering the market.

Health Canada also works collaboratively with manufacturers and developers by holding regular bilateral meetings with industry stakeholders including biotechnology- and cell therapy-specific working groups. These broad engagements enable discussion of regulatory topics that transcend individual products or companies and are valuable opportunities for interaction for all parties.

A path forward

Health Canada is a full member of ICH, and thus data generated in Canadian clinical trials are applicable and acceptable across all other ICH jurisdictions. With excellent health care and research facilities and a population largely centred in a small number of urban hubs, Canada can be an attractive location to run clinical development programs, including early phase regenerative medicine studies. In addition, early phase manufacturing of these products can be less burdensome as no separate facility licensing is required to manufacture products for clinical trial use, thus reducing complexity in the early stages of development5.

As the regenerative medicine industry continues to grow and gain value globally and locally, Canada hopes to nurture it through a collaborative approach. While there remains challenges and gaps in the regulation of regenerative medicine therapies in Canada at this time, the Canadian regenerative medicine ecosystem, including industry and the regulator, has worked to find a path forward in the interim and continues to work closely to put in place appropriate regulatory frameworks for the future.

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