A wealth-generating sector and a creator of prosperity for Quebec
Highlights of the life sciences and health technologies sector (LSHT)

A critical sector for Greater Montréal and Quebec

Impact of LSHT in Quebec (2014)

- 1.1% of total employment
- 1.4% of total remuneration
- 1.6% of total GDP

R&D as a % of revenue (2014)

- 12% of Life sciences
- 8% of IT
- 4% of Automobiles
- 4% of Aero/Defence
- 1% of Energy

A cluster that generates wealth

a $5.6 million contribution

Source: Montréal InVivo and Statistics Canada, 2015

A decisive number of jobs comparable to the aerospace sector

56,000 jobs in the value chain

$70,000 average salary

A high concentration of companies in Quebec

609 companies (2014)

Montréal’s relative advantages

- Internationally recognized hospitals and university hospital centres
- Talent pool
- World-class research centres
- Business environment

Source: Montréal InVivo, 2016
Clinical development
Approval of new products and technologies
Financing
Commercialization
Health care providers

The LSHT sector worldwide

5% to 9% annual growth according to the sector (2014 to 2018)

US $1,950 billion in revenue worldwide (2014)

This phenomenal growth is explained by 3 main factors

Increase in demographic aging and chronic diseases
Expansion of emerging markets
Poorer health among the population

Simplified LSHT value chain

Big data: 25% annual growth worldwide
Companies now have access to an incredible volume of data. Big data is a process of exploiting data that involves collecting, analyzing and implementing value-generating solutions.

$213 million in grants from the Canada First Research Excellence Fund in 2016 to Montréal institutions, including the Institute for Data Valorization (IVADO), will have a major impact on R&D and the sector.

LSHT: one of the primary sectors using big data
Big data is a definitive breakthrough in the advance of the discovery of drugs and personalized medicine.
Quebec’s big data ecosystem is highly dynamic and built on several pillars.

- Two Montréal clusters: life sciences and information technology
- An active scientific community
- A public health care plan that offers access to a critical mass of data


Source: SECOR-KPMG for Montréal InVivo, 2015

Source: Montréal InVivo, 2016
Four LSHT subsectors of activity

Pharmaceuticals
Montréal is one of the few cities where a drug can go through every stage of development: research, production, commercialization and preclinical and clinical trials.

Health care technologies
• The most active in business and job creation
• Montréal is the ideal place for activities in this sector, because it is a centre for the ICT, LSHT and engineering sectors

Manufacturing/contract research organizations (CRO)
• Key link in the LSHT innovation chain
• Sales of $500 million
• 73% growth in jobs forecast by 2019 – value added per direct job of 75%

Biotechnology
• $468 million annual contribution to GDP
• $155 million in provincial and federal tax and parafiscal revenue annually
• $3.5 million in added value per biotechnology company

Genomics
The cornerstone of modern biotechnology
Genomics has a role to play across sectors and in every part of the innovation chain. This leading-edge technology is the source of a great deal of transformation, including LSHT business models. Genomics is one of the backbones of personalized medicine.

Genomics has many applications, which are promising not only for LSHT, but also for key sectors such as agri-food, forestry and sustainable development.

Génomé Québec
With $850 million in activities to date, Génomé Québec is the largest organization that finances the development of genomics in Quebec. Montréal is one of the Canadian leaders in this area.

Sources: BioQuébec, 2016; Montréal InVivo, 2016
Ranking the LSHT sector

Quebec among the top 15 centres in North America

**Costs**

1st place for low operating costs for LSHT businesses:
- competitive incentives
- competitive corporate tax rates
- competitive real estate costs

**Innovation**

1st place in Canada for:
- the number of patents
- public research funding
- total R&D spending as a percentage of GDP

**Economy**

4th place for its ability to attract major direct foreign investment

6th place for the number of LSHT businesses and institutions

**Talent**

6th place for number of LSHT Ph.D. graduates

7th place for concentration of jobs

Source: Montréal InVivo, 2016
Quebec has the potential to become one of the top 5 centres through:

• its know-how in R&D
• its competitiveness on costs, taxation and government incentives
• its ability to attract foreign investment
• the strength and diversity of its ecosystem

3 promising drivers to become one of the top 5 LSHT centres in North America

A targeted, ambitious government strategy for integrating players

A strong venture capital industry to finance innovative businesses

A health care system that promotes integration and innovation, particularly for locally developed technologies

To improve its performance, Quebec needs:

Source: Montréal InVivo, 2016
Portraits of LSHT leaders

The LSHT sector is characterized by vitality and multiplicity. Since the beginning of the 2000s, industry players have adopted new business models. Companies rationalized and decentralized their R&D activities. The ecosystem moved toward strong niches where scientific and industrial partnerships are on the rise. The rapid emergence of health care technologies, personalized medicine and genomics are also sources of innovation for industries.

Greater Montréal is an incubator for talent, where a critical mass of entrepreneurs, researchers and investors come together to develop the medical treatments and technologies of tomorrow.

Here are five businesses that have made their mark in the industry and that illustrate these changes to the business culture.

An innovative SME making the shift to personalized medicine

**CAPRION**

**MARTIN LEBLANC**  
President and CEO

Caprion, which opened its doors in Montréal in 2000, is a leader in the discovery of proteomic biomarkers. Its leading-edge technology platform improves the accuracy of screening tests, diagnoses and drug responses.

“Drugs on the market work for less than 40% of patients. In the case of cancer, that number plummets to 25%. Personalized medicine, supported by advances in genetics, is transforming our sector. Caprion harnesses that potential, because our innovative approach makes it possible to determine which population the drug will have the desired effect for.”

“Caprion has garnered attention for its niche technology that is adapted to the needs of our clients, mainly pharma, for whom research with biomarkers is an expanding practice. Our annual growth of 25% to 30% since 2010 attests to this.”

Tips for SMEs that want to innovate

**Competition** is fierce in our sector: an SME that wants to take the plunge has to leverage innovation that addresses market needs

60% of our team has a master’s degree or a doctorate: build a highly skilled team to maximize your ability to innovate
Kinova develops and produces robotic platforms. Its unique technology for robotic arms improves mobility and quality of life for patients who have lost the use of their arms. “Our goal is to advance human abilities through robotics. We produce for the medical and the industrial sectors, and we have Google, Amazon and NASA as clients and partners.”

In 2016, Kinova was ranked 16th in the PROFIT 500 thanks to 4,389% growth over five years. “Ninety-five percent of our sales are from exports. Europe is a major market for assistance robots, particularly the Netherlands, because insurers reimburse for them. We are working to have them recognized by Canadian insurers, to benefit patients and the public health care system, which will see significant gains in the long term.”

Founded in 2005, COREALIS Pharma operates in formulation development and clinical supplies manufacturing of solid oral dosage forms. “The 2000s brought changes to the business environment. Pharmaceutical companies cut back on internal R&D, preferring to acquire drugs at later stages of development. Our CRO is part of that trend, supporting biotechnology companies that take risks at the early stages, passing the torch to pharma that buy the drugs and pursue clinical studies.”

You need a solid business strategy and your clients’ trust to succeed. Human capital is what drives our activities, and we prefer sustained but controlled growth so that we can train new employees properly. We don’t have external investors; that way we decide how we grow.”

“Think bigger, broader and longer term: SMEs need to focus their efforts to showcase our know-how internationally.”

“Take risks: don’t be afraid of challenges and failures, because they are what generate progress.”

“Protect your corporate culture and don’t let overly rapid growth swamp your employees.”

“The industry will hear about your failures faster than your successes, so it is important to have the strictest standards.”

“‘You need to find your niche and build a strong network.’”
An international pharmaceutical company that supports innovation in the Montréal ecosystem

SERVIER CANADA
FRÉDÉRIC FASANO
President and CEO

Servier is the leading independent French pharmaceutical group worldwide. Its Canadian subsidiary, located in Greater Montréal since 1978, coordinates research into and the commercialization of innovative drugs. “Servier is a private company held by an international research foundation. Our business model is distinctive, because we invest 25% of our revenues in R&D - one of the highest rates in the world.”

Quebec’s leading attractiveness factor is the quality of its R&D teams. We develop our products in 140 countries, and Canada stands out for its advanced research at every stage of development. The second advantage is our ecosystem, which is based on a chain of value-creating members.”

Possible solutions for partnerships and financing in the industry

“Partnering and working in synergy to create solid financial leverage to bring as many innovative projects as possible to maturity.”

“Joining forces to take projects further and maximize their economic benefits”

The NEOMED Institute
PHILIPPE WALKER
Ph.D., Chief Scientific Officer

The result of a private-public partnership, NEOMED is a bridge between basic research and new drug commercialization.

“Our sector involves risk and requires massive investment, so profitability depends on the length of patents. Developing a drug costs an estimated billion-plus US dollars and involves 15 years of work.”

NEOMED helps projects transition between stages of research, clinical development and medical application. We are the link between academia and industry. We support R&D up to a stage where projects are attractive for biopharmaceutical companies, which then take them to the next stages.”

“Ultimately, NEOMED promotes innovation with the goal of keeping expertise, value creation and companies in Quebec.”

An incubator that offers partnerships and financing capacity

Possible solutions for increasing Quebec’s attractiveness

Streamline ethical and contractual procedures around clinical studies conducted in Quebec
Provide better coordination between Quebec university hospitals to increase recruitment potential, speed of execution and the quality of data from clinical protocols
Step up promotion research centres internationally
This initiative was organized also in association with BioQuébec, Génome Québec, Montréal InVivo, MEDEC, Innovative Medicines Canada and Montréal International.

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Watch for upcoming activities: www.ccmm.ca | #CCMM