

# **Life Sciences in Alberta**

## State of the Industry 2021



# Important Notice

This document summarizes the results of a survey of life sciences companies in Alberta for general information only.

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All monetary values are listed in Canadian dollars, unless otherwise stated.







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# Executive Summary

## Introduction

The BioAlberta State of the Industry (“SOI”) report is a biennial survey of life sciences companies and executives in Alberta. It was developed to review the current status and trends related to the nature, health, economic contribution, innovation, and outlook of Alberta’s life sciences industry. The intent of this report is to stimulate dialogue, provide a current snapshot of the industry and offer directional support for business leaders and government agencies. The long-term objective of the report is to help the life sciences industry in Alberta grow.

## Background and Methodology

This year we received a 57.2% response rate from participants. Due to the global pandemic, survey questions were adjusted to allow for feedback from companies regarding challenges, opportunities, and insights to capture the impact the COVID-19 pandemic has had on the industry.

Please note: While this report represents a snapshot of the Albertan life sciences industry and is intended to promote dialogue, it is not a full statistical representation of the sector and is not backed by scientific analysis or statistical methodologies. Readers are cautioned from extrapolating or interpolating the data presented in this document.

## Impact of COVID-19

In early 2020, the COVID-19 pandemic impacted the global economy, including Alberta’s life sciences industry. As borders closed, companies were limited in their ability to reach international customers and markets they previously relied on to support their growth, though some organizations benefitted from the pandemic and saw significant sales volume from products and services such as ventilators, ventilator manufacturing, disinfectants and sanitizers, and more. Despite success for some, other companies had to find alternate means of financial support such as government subsidies, grants, and funding programs. Additionally, some companies have experienced challenges with retaining and recruiting new talent, monetizing existing products and services, and developing new products and services during the pandemic.





## Overview of Companies

Alberta's life sciences organizations are part of a thriving sector responsible for over \$1.0 billion in revenues and expected to employ approximately 12,400 Albertans in 2021, based on statistics generated from this survey. The majority of life sciences companies are located in Calgary (50.2%) and Edmonton (40.5%), the remainder of companies are scattered throughout Alberta, such as in Red Deer, Lethbridge, and Drayton Valley. The industry comprises a variety of companies, ranging from early-stage start-ups, to emerging growth organizations, some mature companies, as well as a combination of other private and public companies.

## Research and Development Spending

Research and development ("R&D") spending has increased since 2018/19, eclipsing \$240.0 million for the first time since 2017. Additionally, over one-third (35.6%) of companies reported having less than four months of cash available to run their operations. Only 23.6% of organizations indicated financial stability with over 12 months of cash available, less than the 33.0% value indicated in the 2019 SOI report.

## Human Resources

The largest proportion of companies (62.6%) employed fewer than seven people, 13.9% of which employed no staff. This suggests that the industry is currently dominated by small scale start-ups and owner-operated organizations.

Alberta life sciences companies also anticipate an increase in hiring of talent, following a period in which the rapid economic downturn caused by COVID-19 led to demand shortages and fewer jobs, worldwide.

Approximately one-third (32.6%) of staff are hired with undergraduate-level education, and 30.5% and 25.4% of companies indicated that Business Development and Sales roles, respectively, were the most challenging to fill for their organizations.

## Revenue

Despite over one-third (37.2%) of companies indicating no revenue or preferring not to disclose, another one-third of organizations (34.9%) indicated they were at early stages of revenue generation, reporting revenue between \$1 and \$500,000. This may suggest that many companies in the life sciences industry are development-stage startups and small business that are seeking to grow. While 2020 revenue decreased, likely an impact from the global pandemic, anticipated forecasted revenue for 2021 is expected to recover to close to pre-pandemic levels.

## Financing

The year 2020 was a record period for financing due to significant investment in the cannabis sector as well as strong capital funding allocated for healthcare technology and services in the wake of COVID-19. In 2020, most life sciences companies leveraged capital through government facilitated programs, founder equity, and family and friends. The majority of companies intend to pursue additional sources of capital such as angel investors, debt, venture capital funds ("VCs"), institutional investors and divestitures, in addition to government facilitated programs.



## Opportunities and Issues Facing the Industry

The life sciences industry in Alberta is experiencing incredible growth and gaining global recognition for its innovation and R&D efforts, which offers tremendous potential to positively impact Alberta's economy. Many survey respondents indicated that the key opportunities in the industry are increased commercialization and scaling of companies within and outside of Alberta (27.2%) and increased partnership/collaborations within Alberta's ecosystem (26.7%). Respondents also believe that accelerators and access to capital will help spur greater industry growth.

Respondents were also concerned about three very important issues/challenges:

- 1) Access to highly qualified personnel;
- 2) Sustainable funding for research and commercialization; and
- 3) Build a supportive environment for innovation and commercialization.

## Summary

Due to COVID-19, the life sciences industry has experienced a variety of challenges. However, to enable the industry to continue to flourish, sustainable growth, access to capital and funding, creation of jobs, and collaboration within the industry are critical.

Addressing the challenges and capitalizing on the emerging opportunities outlined in the report will help pave the way for Alberta to expand its leadership in this sector and continue to be a key player in Canadian and global markets – establishing Alberta as a global life sciences hub.

Moving forward, as the economy and businesses recover from the pandemic, as the province shifts towards normalcy, and as Alberta's new and growing companies continue to establish themselves, respondents expect R&D spending, employee numbers, revenues, and financing to increase in the coming years.

## Background and Methodology

**The overall purpose of this report is to provide an overview of the life sciences industry in Alberta and to further understand opportunities and challenges that the industry faces.**

In the summer of 2021, Deloitte and BioAlberta developed and distributed a survey to various stakeholders and leaders of life sciences companies in Alberta. These included private companies, public companies, institutions, foundations, and small and medium enterprises.

Since 2020, the COVID-19 pandemic has significantly impacted the global economy and multiple industries, including the life sciences industry. As a result, we have incorporated specific COVID-19 questions in the survey to capture its impact.

This year's report includes life sciences organizations active in the following sectors:

- Medical technology and devices
- Health biotechnology and pharmaceuticals
- Health IT
- Agriculture biotechnology
- Natural health products
- Industrial biotechnology and bioprocessing
- Cannabis
- Hemp
- Plant protein and functional ingredients
- Environmental biotechnology

This year's survey was sent to 416 companies, and data from 238 organizations were used, resulting in a 57.2% response rate. In certain cases, and due to privacy, some companies have chosen not to answer all the questions or may have provided a range in specific responses.

We want to thank our partners in the life sciences ecosystem who helped to circulate this survey and encourage their members to respond.

This report is a representation of the feedback received from participants in an aggregated, non-associable format. Survey results are reviewed, analyzed, and presented in this report for general information only. Caution should be used in extrapolating these results to the entire population of companies in the industry. The results are intended to stimulate dialogue, provide a current snapshot of the industry, and offer directional support for business leaders and government agencies to help the life sciences industry in Alberta.

It is important to note that each year, the number of respondents vary, and as such, some data will show higher or lower than expected values, based on the number of organizations completing the survey. Where possible, the data has been normalized so as to portray a relevant picture of the life sciences landscape in Alberta.



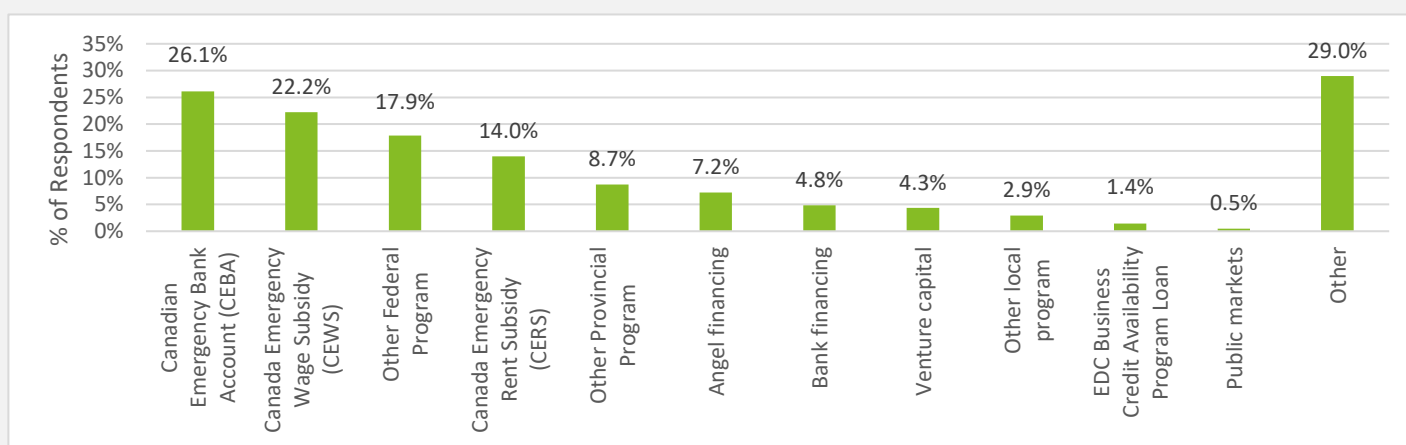
# Impact of COVID-19

In March 2020, the world was impacted by the COVID-19 pandemic. Borders were closed, public markets dropped, and businesses and people suffered. The pandemic affected every industry and geography, with a polarizing effect resulting in some benefiting from the pandemic and others who were negatively affected. The healthcare and life sciences sector was arguably one of the most impacted, having to manage a rapidly spreading health condition through patient treatment, rapid diagnostics, and adapting to increased demand.

Despite many challenges, there were opportunities realized as well. Digital health and activity in the life sciences space was predominately expedited due to COVID-19 as new modes of funding were introduced.

## What new funding sources have you access during COVID-19?

### New Funding Sources during COVID-19



*Note: The chart above adds up to greater than 100%, as some organizations selected multiple funding sources.*

As new funding sources were introduced, such as the Canadian Emergency Bank Account (“CEBA”), Canada Emergency Wage Subsidy (“CEWS”), and Canada Emergency Rent Subsidy (“CERS”) for employers, and Canadian Emergency Relief Benefit (“CERB”) for employees, businesses and individuals were able to access additional government funding that was not previously available. The chart above indicates the percentage (%) of companies that indicated they accessed a new funding source during COVID-19. Led by CEBA (26.1% of respondents indicated they used this), 62.3% of respondents used a new federal funding method (CEBA, CEWS or CERS) during COVID-19.

It is important to note that funding raised via public markets is not shown in this graph, as no respondents indicated this was a funding source as a response to this question. However, other organizations successfully raised capital through public offerings, as shown in Appendix A and B. For example, Aurora Cannabis successfully raised over \$195.9 million in 2020, and another \$159.4 million in 2021, while Sundial Growers raised \$128.2 million of their own in early 2021. Other public offerings to highlight include:

- Alcanna — \$27.6 million, June 2020
- Willow Biosciences — \$25.0 million, February 2021
- Oncolytics — US\$80.0 million, March 2021

- High Tide Inc. — \$20.0 million in each of February and May 2021

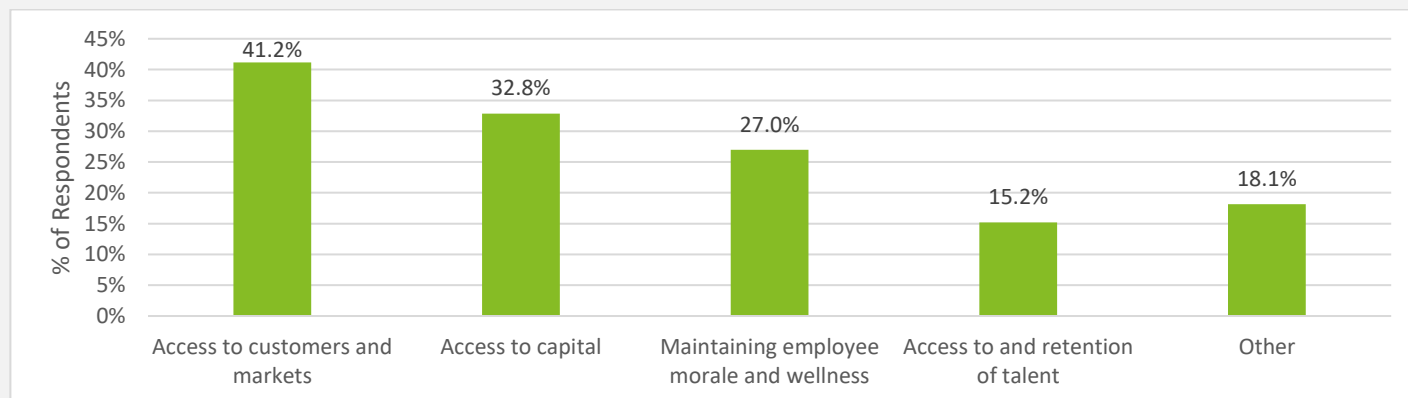
As shown above, survey participants accessed a wide variety of funding sources during COVID-19. Examples of some “Other” responses are described in the table below, which include programs through Alberta Innovates, BioTalent, and Prairies Economic Development Canada (“PrairiesCan”) (formerly Western Economic Diversification (“WD”)).

**Table 1 - Example of “Other” Responses (in alphabetical order)**

AB Jobs Now	Campus Alberta Neuroscience Seed Fund	National Institute of Health (“NIH”), National Science Foundation (“NSF”)
AI Digital Traction	Canada Job Grant	Prairies Economic Development Canada
Alberta Economic Development & Tourism	CanExport	Protein Industries Canada
Alberta Innovates Bridge	Canadian Agricultural Partnership (“CAP”)	Regional Relief and Recovery Fund (“RRRF”)
Alberta Jobs Grant	ECO Canada	SaskAg
Business Development Bank of Canada (“BDC”)	Economic Development and Transportation (“EDT”)/Jobs Economy Innovation (“JEI”)	Small business grants
BioAlberta	Emissions Reduction Alberta (“ERA”)	Technation Career Ready Program
BioTalent	Innovate Calgary	Venture For Canada
BioTalent Boosting Biotech	Life Sciences Innovation Hub (“LSIH”) Fellowship	WD Loan Programs
BioTalent Student Work Placement Program		

## What have been the key business challenges that you have faced due to the global pandemic?

### COVID-19 Business Challenges

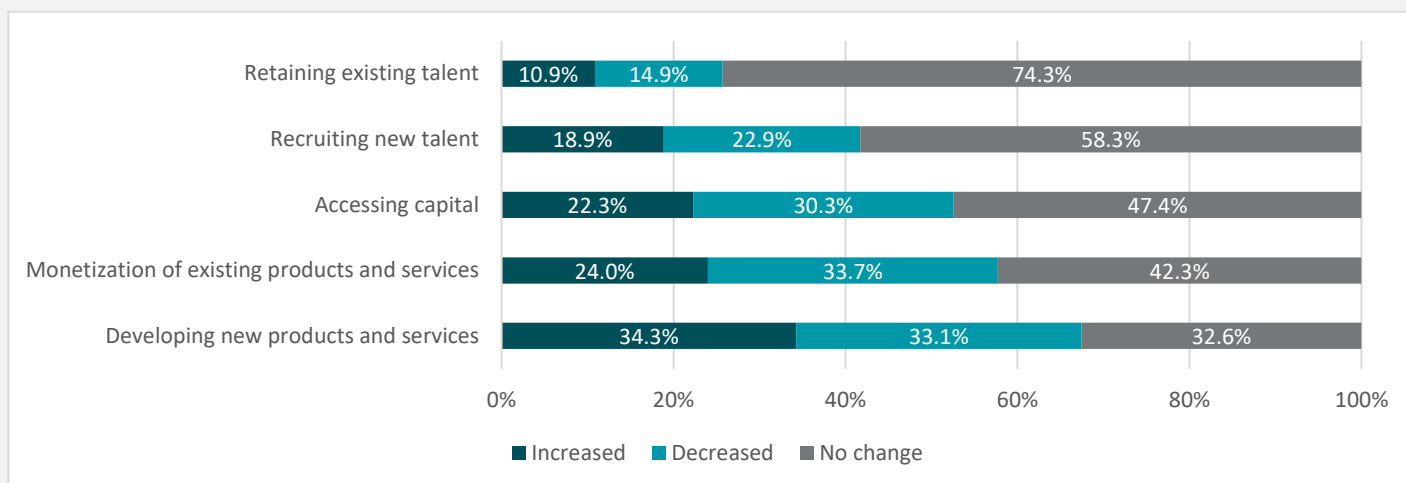


*Note: The chart above adds up to greater than 100%, as some organizations selected multiple challenges from COVID-19.*

As a result of travel restrictions, companies were limited in their access to the international customers and markets they had relied on to support their growth. Similarly, capital investment became harder to come by at the onset. Forty-one percent (41.2%) of organizations stated that the inability to access international markets was amongst the most difficult challenge they faced, while 32.8% stated access to capital was most significant. Though the pandemic is a new obstacle companies must manage, these challenges are not new – access to capital has consistently been a challenge for years, one that has been exacerbated by COVID-19. However, it is important to note that respondents indicate a positive general trend for financing, based on the dollar value and number of deals.

## How has COVID-19 impacted your business?

### Impact of COVID-19



COVID-19 has impacted organizations in a variety of ways. The survey asked respondents to evaluate how five aspects of their business were affected. While a majority of respondents (74.3%) recorded no change in their ability to retain existing talent, 10.9% indicated an increased ability to retain existing talent, and 14.9% reported a reduced ability to retain staff. Fifty-eight percent (58.3%) indicated there was no change in their ability to recruit new talent. In terms of organizations' ability to develop new products and services, a relatively even split was reported, where 34.3% of organizations indicated this ability was increased during the pandemic, 33.1% described a decrease, and 32.6% suggested there was no change. At the time of responding to the survey, respondents generally felt that retention and recruitment of new talent was not significantly impacted, while some companies were concerned about their ability to sell existing products. Other companies pivoted to develop new offerings or changed the way they sold their existing products and services.

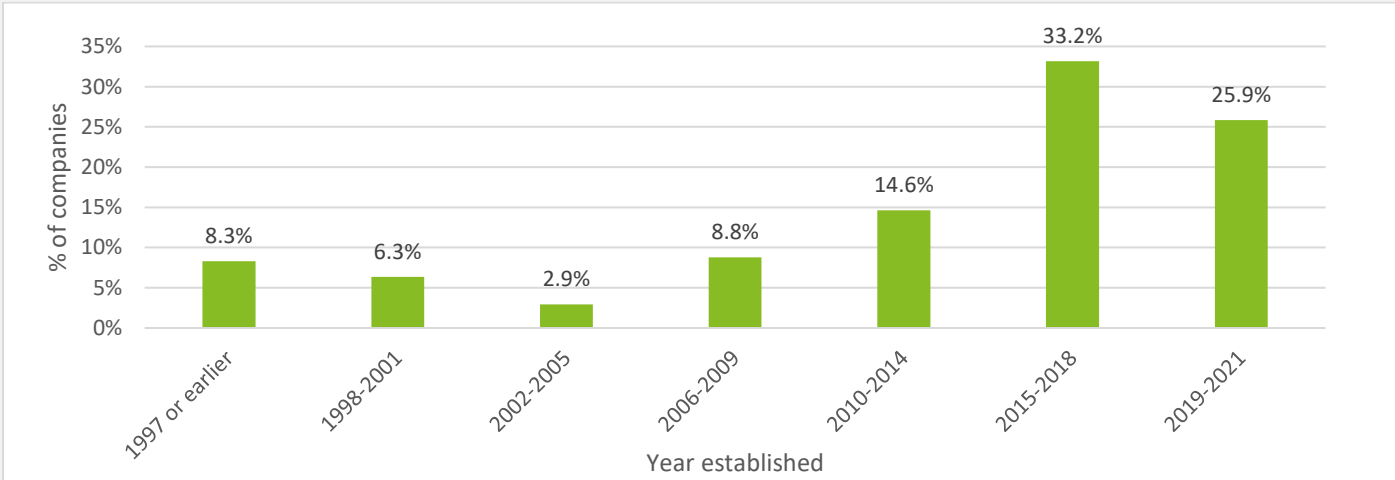




# Overview of Companies

## When was your company established (year)?

Year Established



There is a recurring trend of higher proportion of new companies founded within the last three to five years in Alberta. The expectation is that there will continue to be an increase in new and emerging start-ups due to the province’s conducive innovation environment.

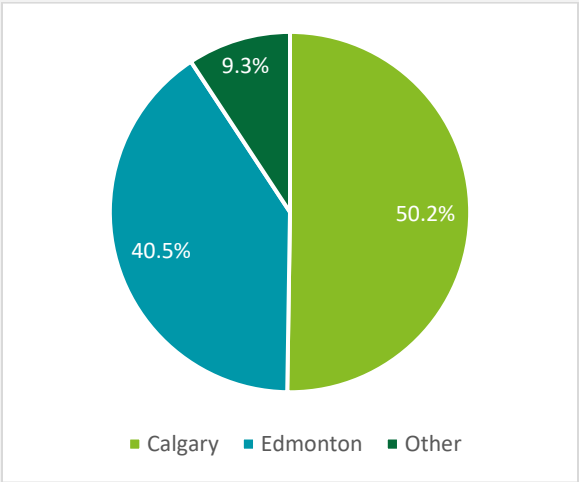
Twenty-six percent (25.9%) of companies in the industry were established over the last two years. The majority of companies (59.1%) were established in the last six years (since 2015), showcasing increased market demand for life sciences companies and solutions. This is mainly due to the growth in start-ups and companies focused in the following sub-sectors: medical technology and devices, health biotechnology and pharma, and health IT.

The other variable for consideration suggests that COVID-19 played a role in the development of companies across Alberta, due to market demand, emerging opportunity for start-ups, and available government funding within the life sciences industry. However, the data (from this report and the 2019 SOI) suggests that Alberta is an enabler for start-ups and new companies. Forty-five percent (45.0%) of 2019 respondents indicated their companies were established between 2015 and 2019.

From the sample of respondents, only 10 cannabis and/or hemp companies responded that were founded within the last six years, although there has been significant growth in the cannabis industry in the last two years, with registered licensed producers (LPs) having increased by over 300% since the 2019 SOI report was published.

Where in Alberta is your company located?

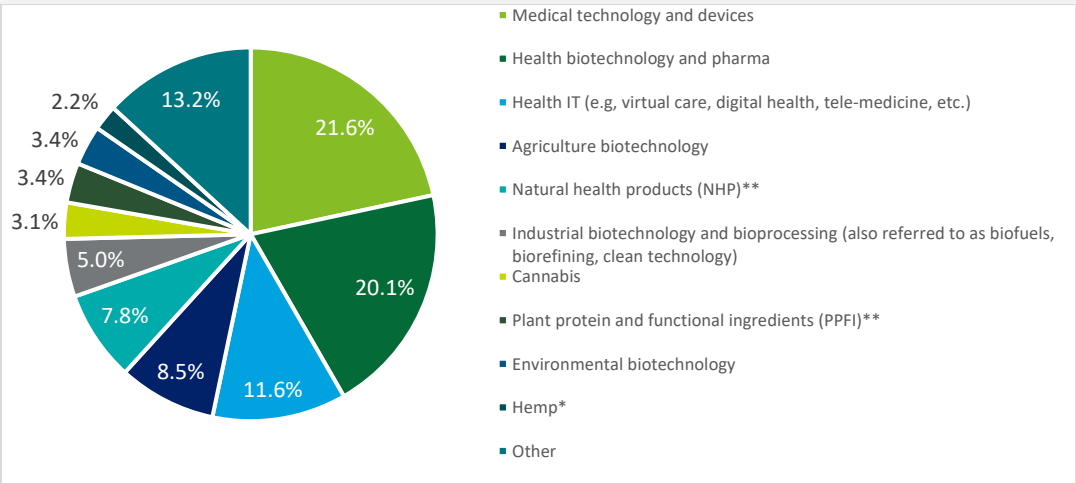
Company Location



Similar to previous BioAlberta SOI reports, the majority of life sciences companies are located in Calgary (50.2%) and Edmonton (40.5%), the remainder of companies are scattered throughout Alberta, such as in Red Deer, Lethbridge, and Drayton Valley. We have seen a significant shift toward companies establishing headquarters in Calgary – increasing by 12.2% from the 2017 results and 16.2% from 2019.

In which sub-sector(s) of the industry would your company be classified?

Sub-Sector Classification



The largest life sciences sub-sector in Alberta is Medical Technology and Devices (which includes diagnostic technologies) (21.6%), followed by Health Biotechnology and Pharma (20.1%), Other (13.2%) and Health IT (11.6%). The data suggests that “Other” includes companies such as venture capital, clinical research organizations, medical and consulting services (e.g. healthcare quality

management, medical laboratory testing, market access, mental health services), academia, finance, health accelerators and incubators, not-for-profit, and education.

The overall ranking has slightly changed from the 2019 BioAlberta SOI report, in that medical technology and devices ranked first with 21.8%, followed by cannabis (18.5%) and health biotechnology and pharma (18.5%). The significant drop in cannabis organizations in 2021 can likely be attributed to factors including greater response volumes, greater consolidation, and the maturation of the industry, as well as a more closely regulated environment relative to 2019.

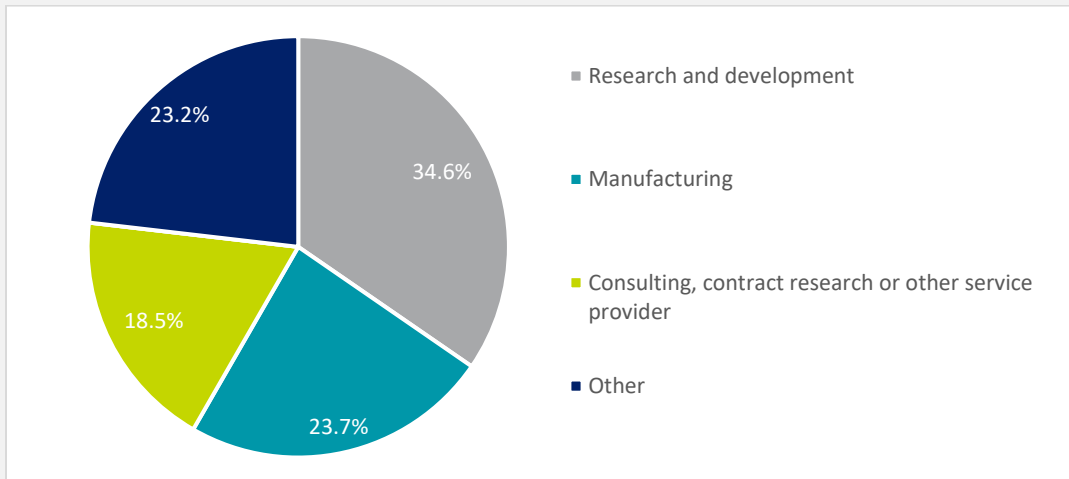
*Notes: Survey respondents were able to self-classify in more than one sub-sector.*

*\* Hemp and Cannabis were grouped together under one Cannabis sub-sector in 2019*

*\*\* NHP and PPFI were grouped together under one Functional Food and Natural Health Products (FFNHP) sub-sector in 2019*

## In which category/categories would your company be classified?

### Company Categorization

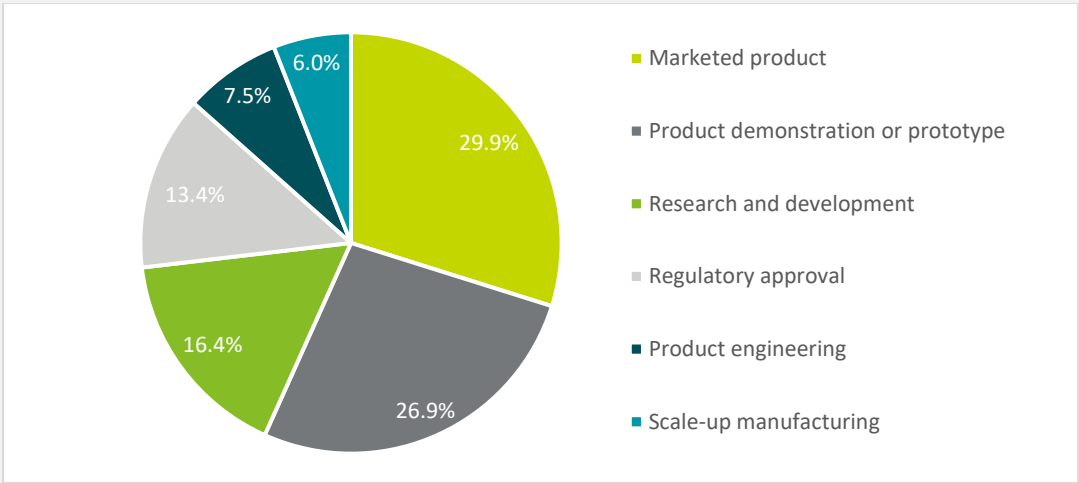


Research and development continues to be the largest category of companies at 34.6%, followed by manufacturing (23.7%), other (23.2%) and consulting, contract research or other service provider (18.5%). There has been a percent-reduction in R&D companies from 2019, down from 43%. Consistent with the results from 2019, consulting, contract research or other service provider-type companies ranked third in this report (15% in 2019).



For your medical technology and devices product, in which phase of development is your lead technology?

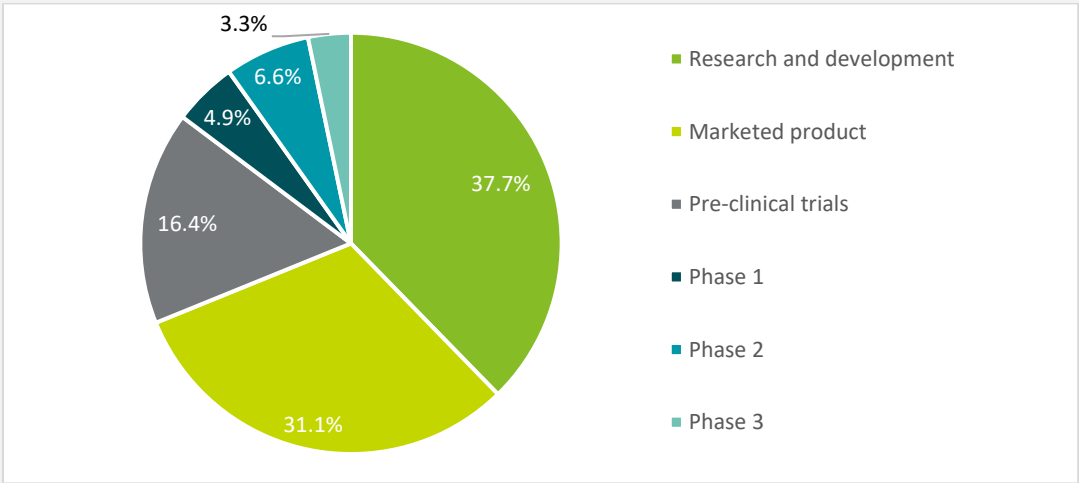
Lead Medical Technology and Devices Product Development Phase



Consistent with the 2019 SOI report, medical technology and devices in the marketed product phase remains fairly consistent at 29.9% of respondents. The second largest product phase is product demonstration or prototype (26.9%), down 4.1% from 2019. Scale-up and manufacturing remains consistent at 6.0% similar to previous years. R&D (16.4%) and regulatory approval (13.4%) have increased since 2019 — by 2.4% and 4.4%, respectively, while product engineering (7.5%) decreased by 1.5%. The data suggests that life sciences companies in Alberta continue to push towards getting their products to market.

For your health biotechnology and pharmaceutical product, in which phase of development is your lead product?

Lead Health Biotechnology and Pharmaceutical Product Development Phase

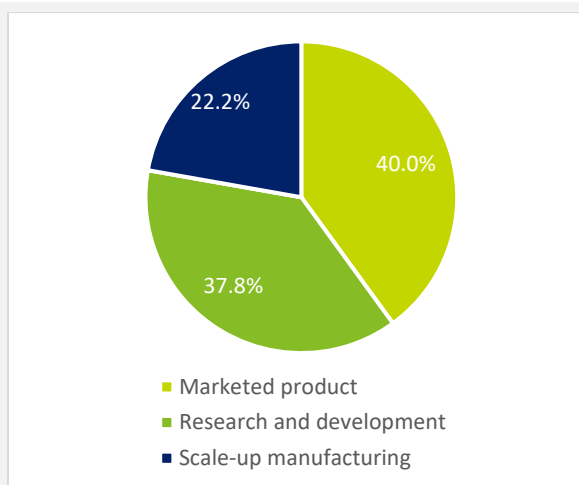


The majority of companies in this industry are primarily focused on two phases, R&D (37.7%) and marketed product (31.1%). The two phases combine for 68.8% of the total reported data, an increase from the 2019 SOI report. Five percent (4.9%) of the companies reported a leading product for Phase 1, down from 2019. A total of 6.6% of companies reported leading product in Phase 2, down from 2019 and finally 3.3% of companies reported their product in Phase 3, down from 2019.

The data suggests that the variability between 2019 and the current report could be due to COVID-19 and the acceleration of getting their products to market at a faster rate. This can be correlated to available funding sources as a result of the pandemic, with 34.3% of respondents indicating COVID-19 has increased their ability to develop new products and services.

### For your agricultural biotechnology, plant protein and functional ingredients, or natural health products, in which phase of development is your lead technology or product?

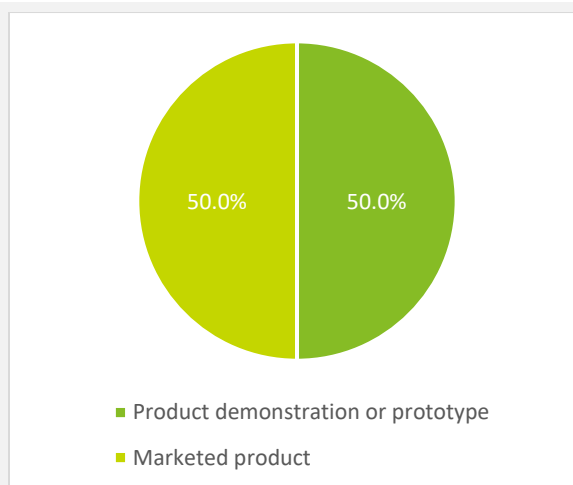
**Lead Agricultural Biotechnology, PPFI, or NHP Product Development Phase**



This sub-sector seems to be well balanced between the R&D, scale-up manufacturing, and marketed product phases of development, with 37.8%, 22.2%, and 40.0%, respectively. Consistent with 2019, R&D remains near 38.0% (up 0.2%), while scale-up manufacturing increased by 3.2%, and marketed product increased by 15.0%. However, this year presents a different view of the regulatory approval phase, no companies reported that their product was in this phase, a variance of nineteen percent 19.0% from the 2019 report.

### For your health IT product, in which phase of development is your lead product?

**Lead Health IT Product Development Phase**

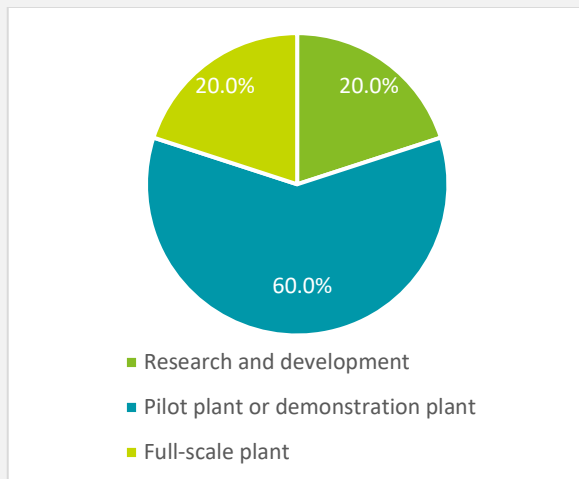


For Health IT products, the two phases, product demonstration or prototype and marketed product are equally split at 50.0% each. This is significantly different from 2019, where product demonstration or prototype represented 20.0% and marketed product represented 80.0%. This shift may be attributed to increasing propensity to pilot / prototype before going to market. Furthermore, with 25.9% of organizations founded in the last two years (spurred by strong investment in healthcare technology), this aligns to a greater volume of experimentation and development compared to previous years.



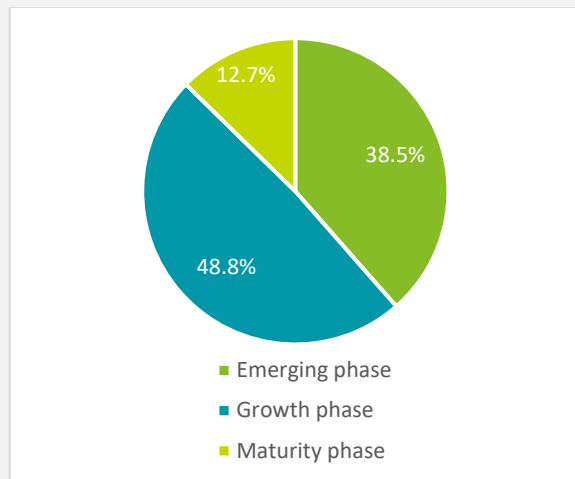
## For your environmental biotech, industrial biotechnology, or bioprocessing technology and/or product, in which phase of development is your lead technology or product?

Lead Environmental Biotech, Industrial Biotech, or Bioprocessing Technology Product Development Phase



## How would you classify your company in its life cycle?

Company Life Cycle Stage



This sub-sector illustrates a different view from 2019 SOI report. This year, 20.0% of companies reported being in the R&D phase, as well as full-scale plant (20.0%). Both phases have decreased since 2019. Pilot plant or demonstration plan (60.0%) increased significantly from 2017 and 2019.



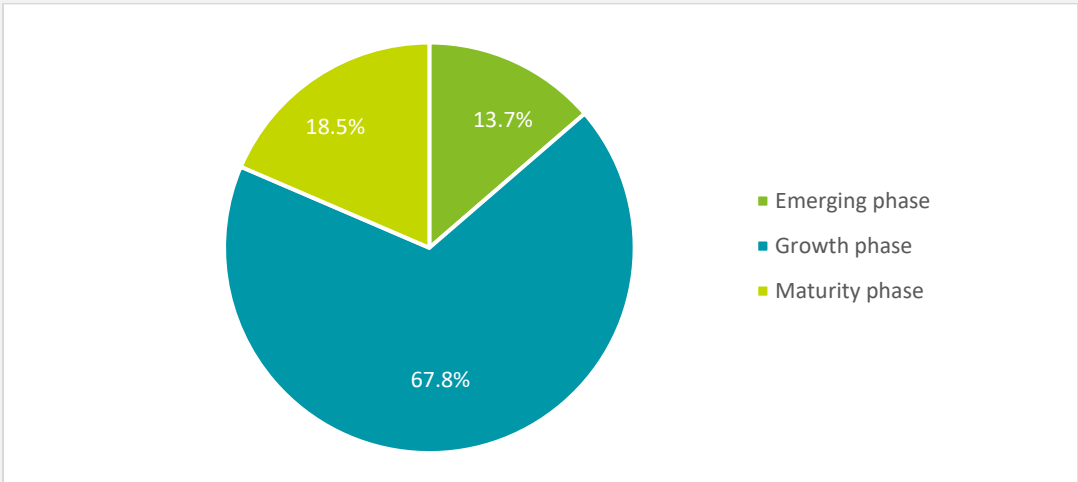
For consistency from the previous SOI reports, the same definitions were leveraged for this report:

- **Emerging phase** is defined as radically new products with frequent changes; high technical uncertainty but broad R&D focus.
- **Growth phase** is defined as gradual increase in process innovation; at least one stable, high volume product design emerges.
- **Maturity Phase** is defined as mostly process innovation aimed at cost reduction; incremental product innovations.

Thirty-nine percent (38.5%) of companies reported being in the emerging phase, which is a 12.5% decrease from the 2019 report. The growth phase was the largest phase indicating 48.8% of companies reported to be in this phase, an increase of 13.8%. Lastly, 12.7% of companies reported to be in the maturity phase, which is a 1.3% decrease from 2019. The data suggest that as a majority of respondents emerged within the last six years (59.1% of companies were founded between 2015 and 2021), most nascent companies sit in the emerging phase while semi-matured companies (e.g. established from 2015 to 2018), are moving towards the growth stage.

What phase do you expect your company to be in by 2022?

Forecasted Company Lifecycle Stage



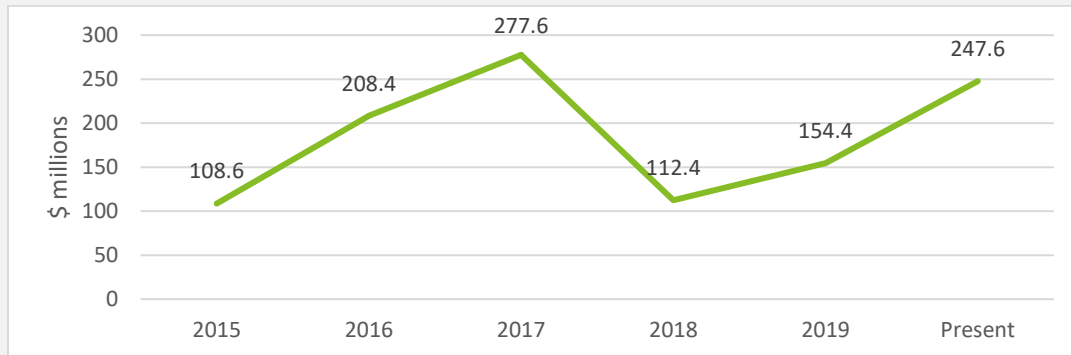
By the end of 2022 and potentially beyond, most companies (67.8%) reported their business will be transitioning to the growth phase, a 24.8% increase from 2019. Fourteen percent (13.7%) of companies will be in the emerging phase, and 18.5% anticipated being in the maturity phase. Interestingly, the emerging phase decreased significantly from 2019 by 27.3% and maturity phase increased by 2.5%. The data suggests that there are a significant number of nascent companies that are currently in the emerging phase or have just shifted into the growth phase. Additionally, companies in the life sciences industry are accelerating their business to market to enable commercialization of their products and services. This also affirms that companies are increasing R&D spending to facilitate growth.



# Research and Development Spending

## How much is your company spending on research and development?

### Total R&D Spending

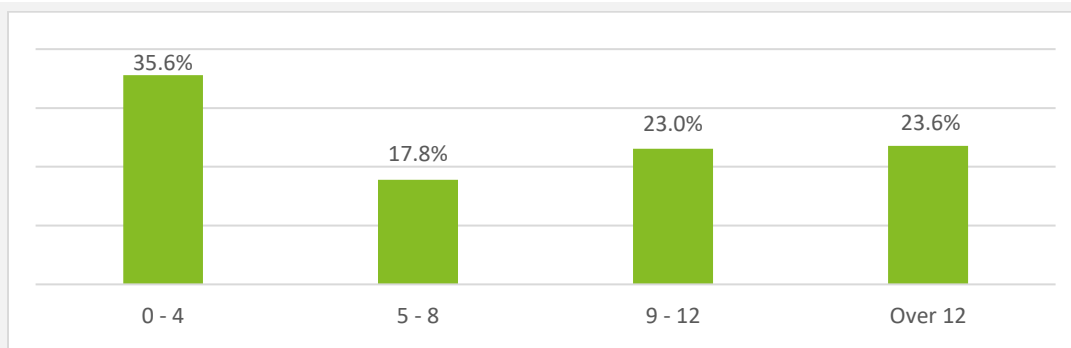


At present, the industry has seen an increase in R&D spending from 2018 based on the data collected from respondents, closer to the level reported in the 2017 State of the Industry report. The 2018 and 2019 values likely can be attributed to lower response rates and undisclosed financial information, compared to this years' higher response rate, and expected influx of investment attributed to the COVID-19 pandemic.

Notably, R&D spending has not surpassed reported levels from 2017. This may be attributed to a larger number of smaller-scale start-ups that have emerged in the last three years. The expectation is with a rise in emerging organizations, the R&D spend will continue to increase in the coming years.

## How many months of cash do you have available?

### Months of Cash Available

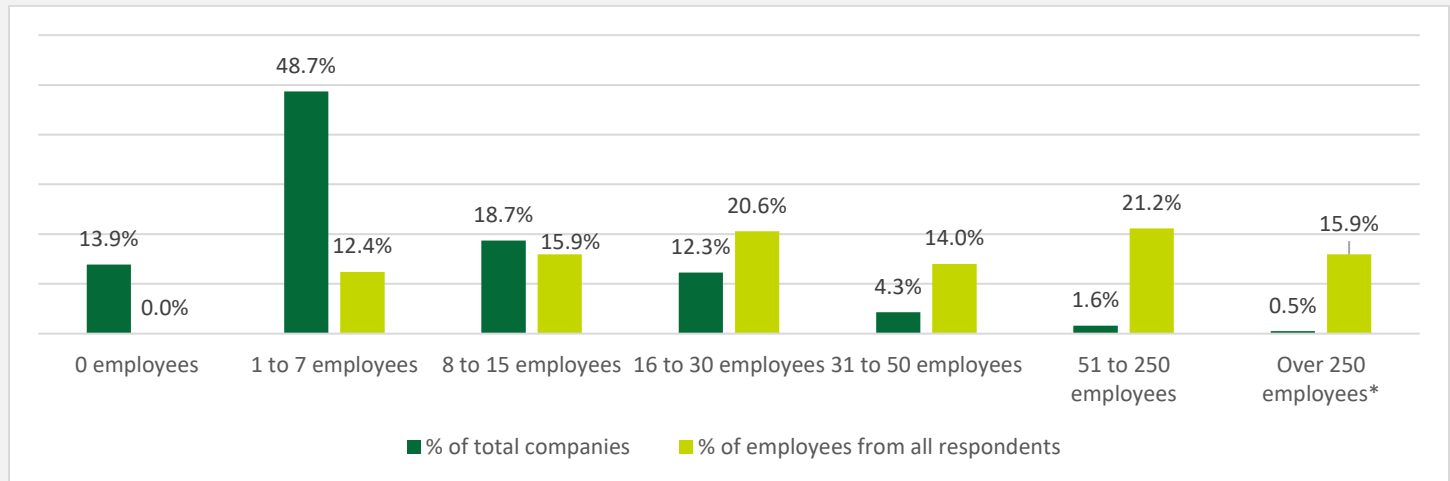


Based on respondent data, over one-third (35.6%) of companies reported having less than four months of cash available on hand to fund their operations, representing a critical time in their organization. Only 23.6% of companies reported financial stability with over 12 months of cash available to support their business. In 2019, 33.0% of companies indicated they maintained over 12 months of cash.

# Human Resources

## How many people did you employ in your company in 2020?

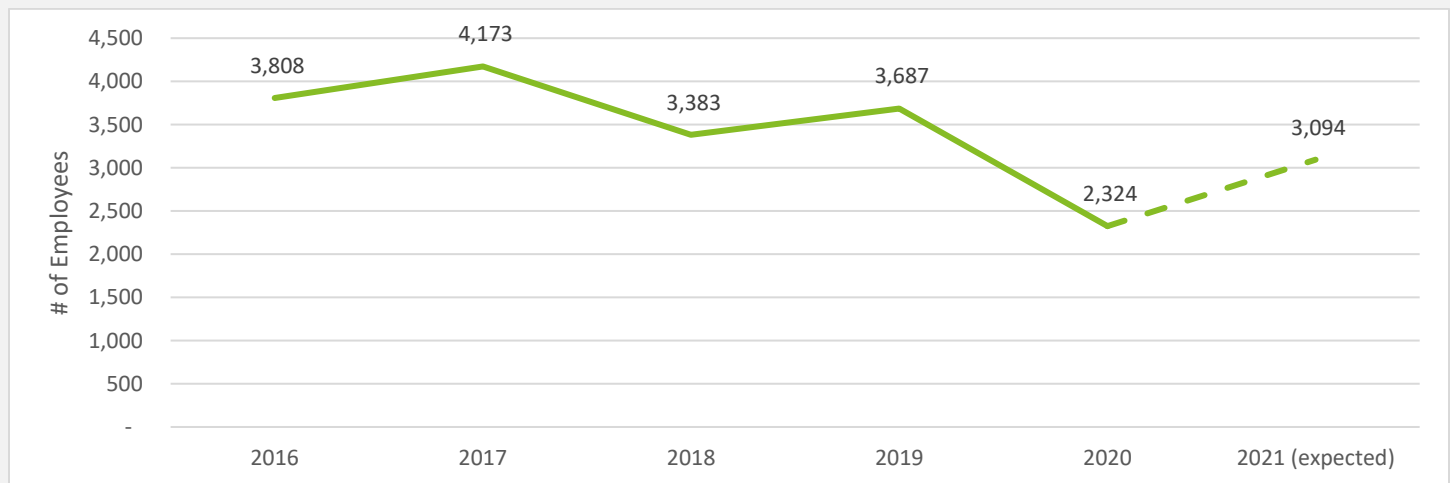
Number of Employees



The largest proportion of companies employed fewer than seven people (62.6%), 13.9% of which employed no staff. This suggests that the industry is currently dominated by small scale start-ups and owner-operated organizations, though a majority of employees (51.1%) work within the small number of companies that employ over 31 staff or more.

## How many people do you expect to have employed at your company in Alberta in 2021?

Forecasted Number of Employees

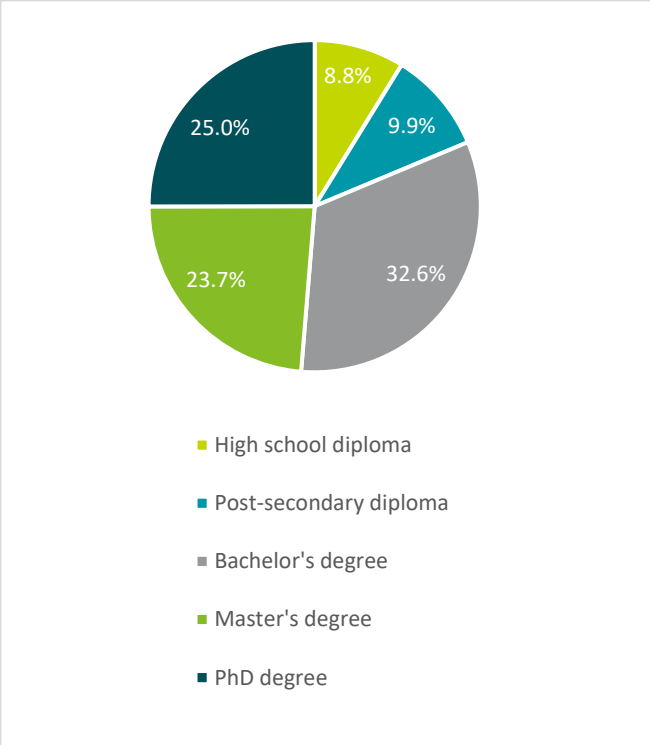


The number of individuals forecasted to be employed by the end of 2021 is expected to increase 33.1% from the reported employment count in 2020. This may be correlated to the impact of COVID-19 on the job market, which resulted in significant

worldwide job cuts, supply shortages and rapid economic downturn. Following the gradual management of the pandemic, economies have begun to recover and as a result, so have the organizations that power them. Assuming a combined induced and indirect economic multiplier of four, the life sciences industry is expected to contribute approximately 12,400 jobs in Alberta in 2021.

What percentage of your employees have a high school diploma, a post-secondary diploma, or some other form of post-secondary education?

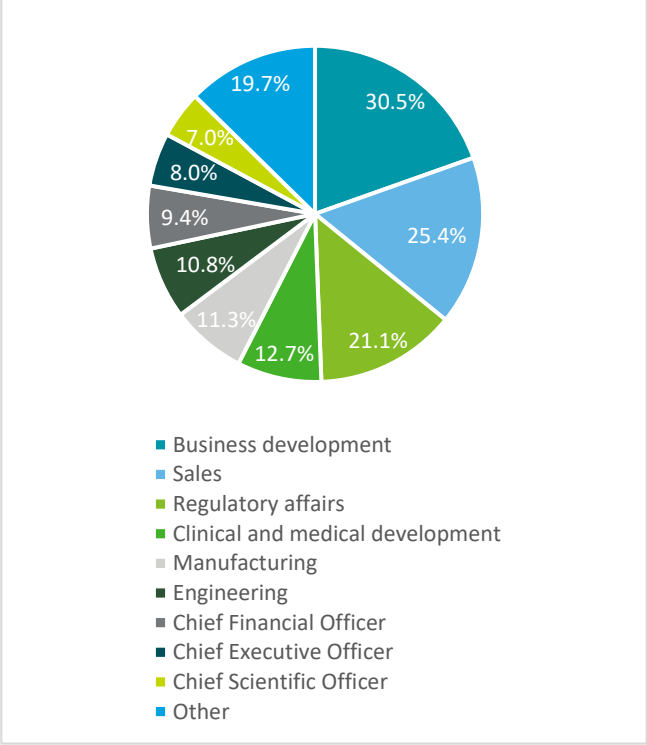
Level of Employee Education



The life sciences industry employs individuals from a wide spectrum of educational backgrounds, with one-third (32.6%) coming from the undergraduate-level, and a quarter of employees each holding a Master’s or PhD (23.7% and 25.0% respectively), the latter of which increased by 21% (up from 4.0%) from 2019. Additionally, employees with only a high-school diploma or a post-secondary diploma significantly decreased from 2019, dropping from 32.0% to 8.8% for the former, and from 24.0% to 9.9% for the latter.

Which of the following executive positions are the most challenging to fill for your company?

Most Challenging Executive Positions to Fill



Thirty-one percent (30.5%) and 25.4% of respondents indicated that Business Development and Sales roles, respectively, were the most challenging to fill for their organizations, which ranked seventh and fourth respectively in 2019. These were followed closely by Regulatory Affairs (21.1%), which was first in 2019, and Clinical and Medical Development roles at 12.7% (sixth in 2019). Chief Officer roles, including CEOs, CFOs, and CSOs were the least challenging to hire for.

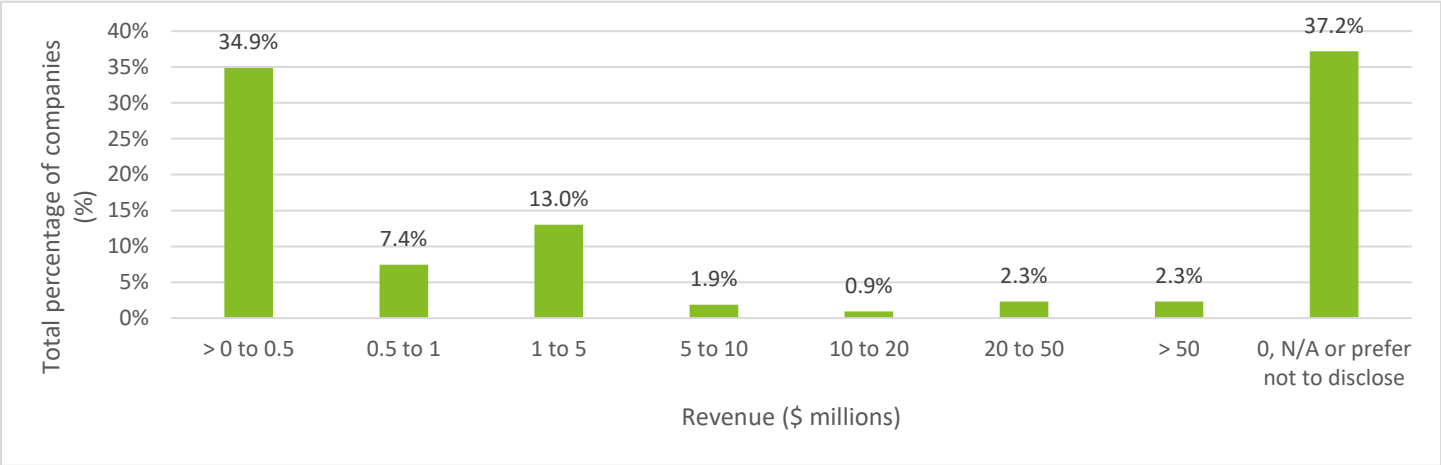
*Note: The chart above adds up to greater than 100%, as some organizations indicated multiple roles were most challenging to fill.*



# Revenue

What is your reported revenue (product, sales, and services) for your fiscal year ending in 2020?

Reported Revenue

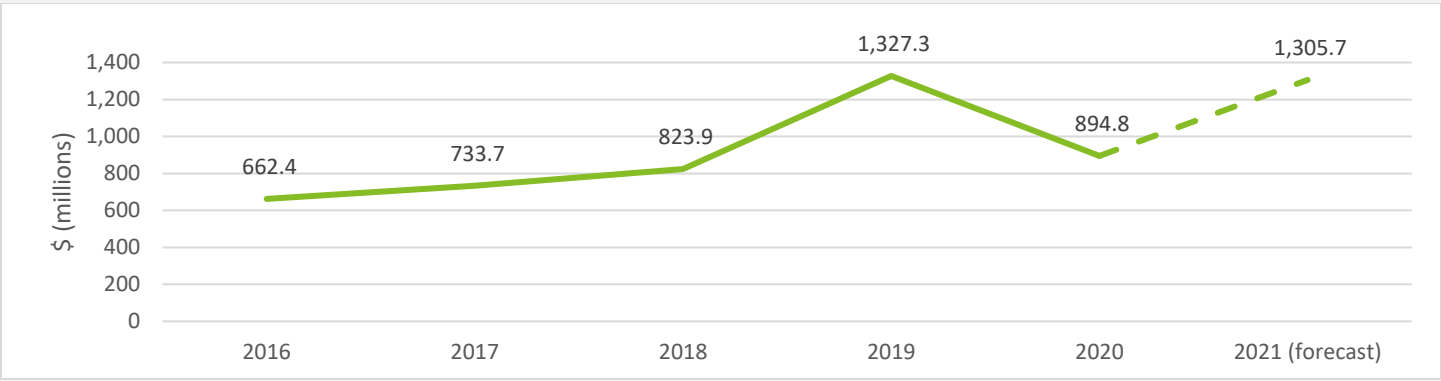


Despite 37.2% of respondents either indicating no revenue or preferring not to disclose, over one-third of organizations indicated they were at early stages of revenue generation, with 34.9% of companies reporting revenue between \$1 and \$500,000. This corroborates the suggestion that many companies in the Alberta life sciences industry are development-stage start-ups and small businesses that are seeking to grow in the foreseeable future.

*Note: The data contained in the above table includes data from over 30 publicly traded companies that did not respond to the survey. The publicly available information gathered from these organizations (which are listed on page 36) was collected from Capital IQ.*

What is your revenue for 2020 and forecast revenue for 2021?

Forecasted Revenue



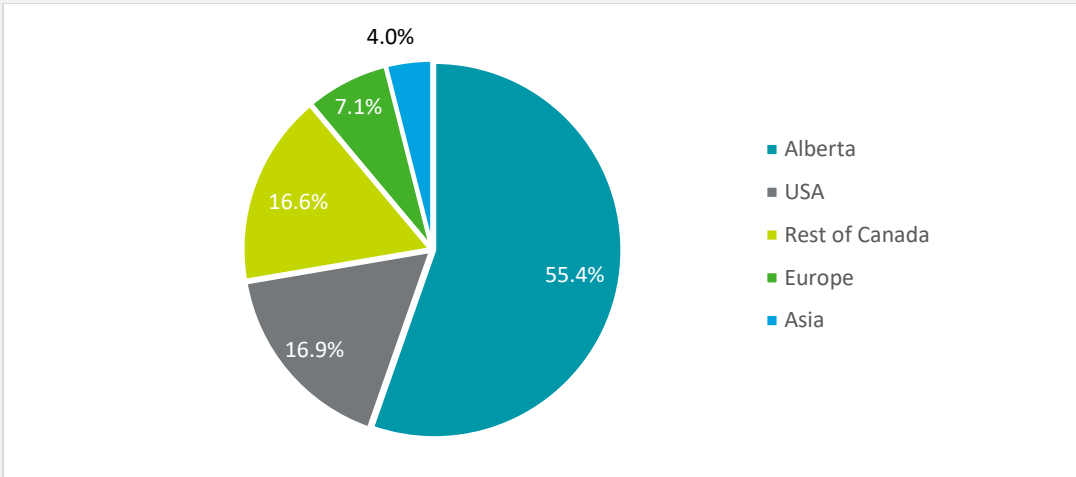
*Note: The data contained in the above chart includes actual and forecasted revenue data from over 30 publicly traded companies that did not respond to the survey. The publicly available information gathered from these organizations (which are listed on page 36) was collected from Capital IQ.*

While 2020 revenue decreased, likely due to COVID-19, respondents forecast 2021 revenues to recover close to pre-pandemic levels. Actual and forecasted revenue figures from publicly traded companies were also accounted for, with public companies accounting for close to 68.8% of reported revenue in 2020 (i.e. survey respondents reported only \$279.6 million in revenue, compared to \$615.2 million from public companies), and contributed 53.9% of projected revenue in 2021 (\$704.1 million out of the \$1.3 billion reported). This suggests that there are a large number of pre-revenue and emerging companies that are continuing to grow and will expect net positive revenue values beginning in 2021.



What percentage of your 2020 fiscal revenue was earned in each of the following regions?

Revenue Earned by Region



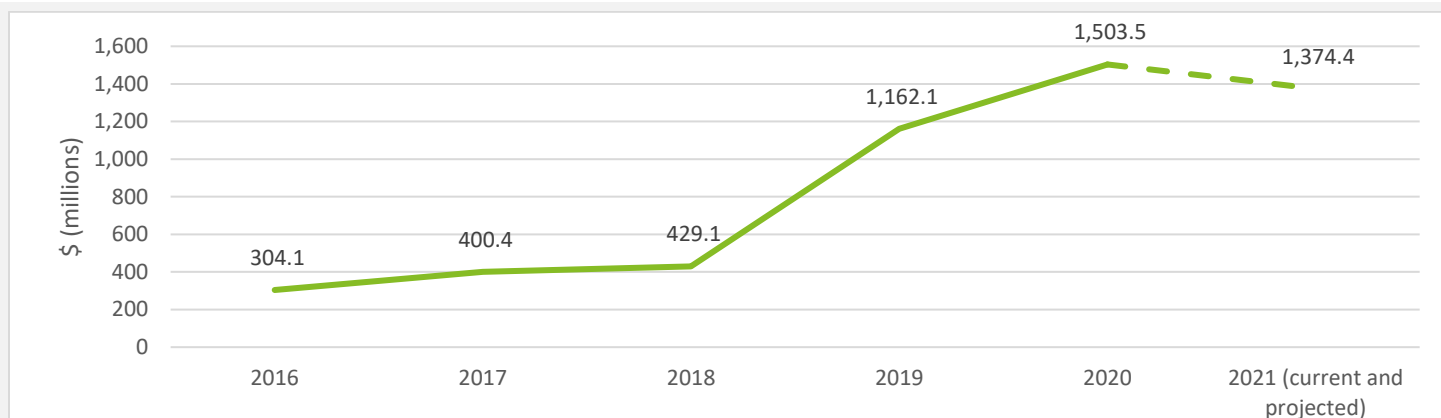
Similar to the 2019 SOI report, a majority of fiscal revenue was earned within Alberta (55.4% in 2020, 50% in 2018), followed by the United States and the rest of Canada with near identical rates (16.9% and 16.6% respectively). This chart reinforces the fact that Alberta-based life sciences organizations maintain strong roots within the province. Contrarily, fiscal revenue earned overseas in Asia decreased by half since 2018, dropping from 8.0% of revenue earned in Asia down to 4.0% this past year. Like other questions in this analysis, COVID-19 has played a consideration in this result, with organizations being forced to focus on domestic, or inter-provincial markets over international markets due to travel restrictions and limited access to new customers and markets.



# Financing

How much capital did you raise in the fiscal year ending 2020 and how much do you expect to raise in 2021?

## Capital Raised



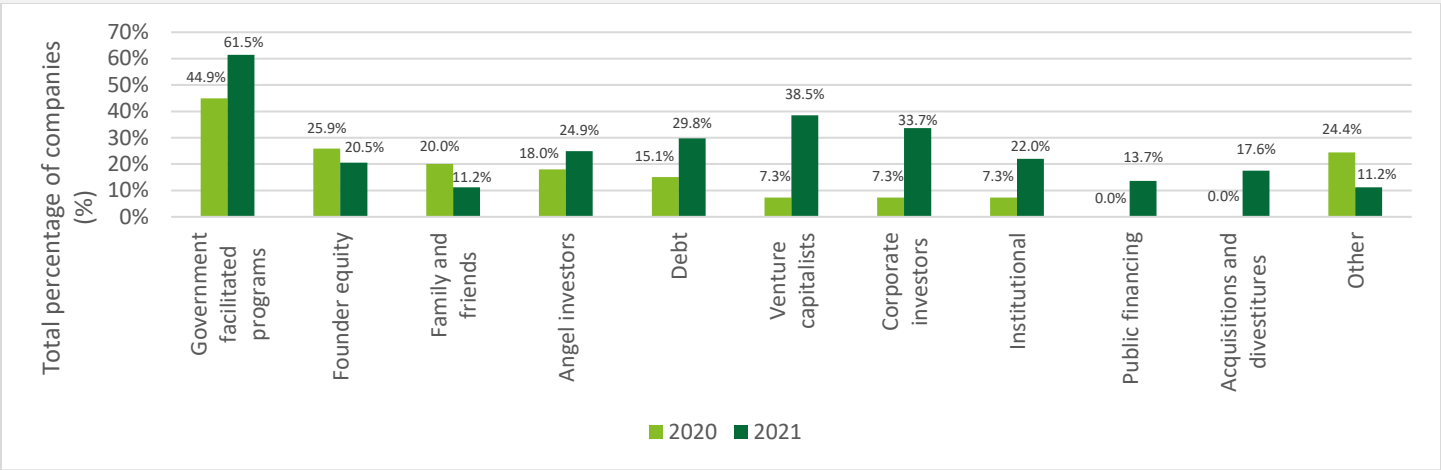
*Note: The data contained in the above chart includes actual and forecasted capital investment data from over 30 publicly traded companies that did not respond to the survey. The publicly available information gathered from these organizations (which are listed on page 36) was collected from Capital IQ.*

Last year (2020) was a record year for financing due to significant investment in the cannabis sector as well as strong capital funding allocated for healthcare technology and services in the wake of COVID-19. However, the results of this question are intriguing in that the current and projected capital expected to be raised in 2021 is forecasted to be less than the total capital raised in 2020. Some respondents indicated that access to capital in general was a prevailing challenge, though it is important to acknowledge the noteworthy capital raised driven by COVID-19. Respondents did, however, cite that COVID-19 has slowed their ability to work quickly, rapidly make decisions, access patients and healthcare facilities, and operate clinical trials, which correlates to an impaired ability to raise capital in the following year (i.e., 2021).



What sources did you use to raise capital in 2020 and which do you intend to pursue in the future?

Capital Raise Sources



Note: Companies had access to more than one source of funding. Therefore, survey respondents were able to select more than one option, which results in the total percentages of companies accessing capital funding sources exceeding 100 percent.

According to survey respondents, government facilitated programs acted as the greatest source of capital by number of transactions in 2020 and is expected to remain the prevailing source in 2021. Growth when raising capital in 2021 will come in the form of organizations continuing to access government programs, as well as by engaging with angel investors (increasing by 6.9% from 2020), venture capitalists (increasing 31.2%), securing corporate investors (increasing 26.4%), and through institutional investors (increasing 14.7%). Meanwhile, more personalized funding sources such as founder equity and family and friends will decrease in 2021.

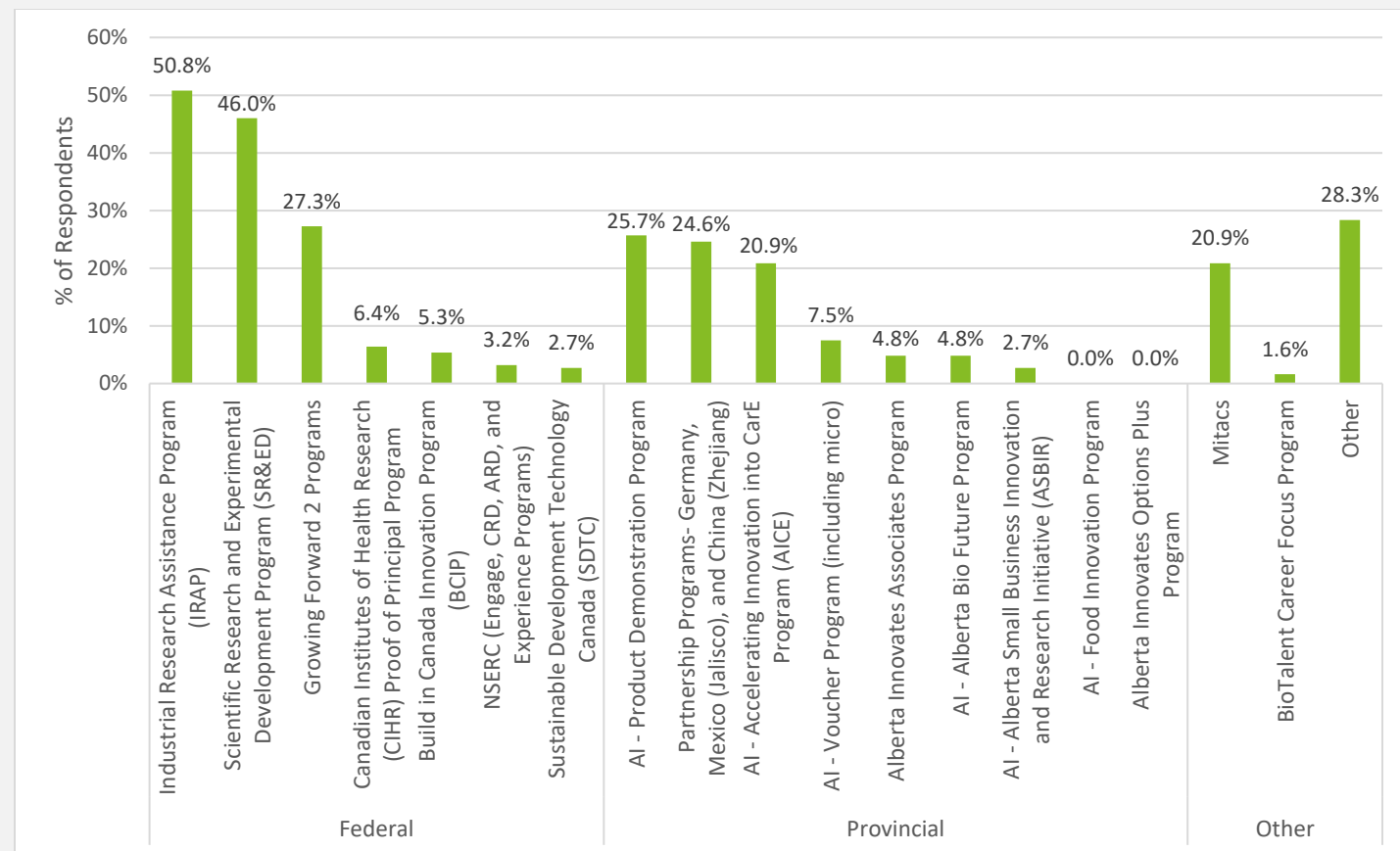
Notably, while the survey results report no companies raising capital from public financing or acquisitions and divestitures (though both projected to increase by 13.7% and 17.6%, respectively in 2021), external data shows that multiple organizations, many of which operated in the Cannabis space, raised capital through public and private placements within the last two years (refer to Appendix A and B for details). The expectation is that these two capital-raising sources will be the largest totals by dollar value in the next 12 to 24 months.





## Which government supported initiatives have you used?

### Government Support Initiatives Used



*Note: Companies had access to more than one source of funding. Therefore, survey respondents were able to select more than one option, which results in the total percentages of companies accessing government funding (federal, provincial, or other) exceeding 100 percent.*

In 2020 and 2021, seven government support initiatives constituted a majority of the total proportion of programs used. They were the Industrial Research Assistance Program (“IRAP”), Scientific Research and Experimental Development (“SR&ED”) Program, Growing Forward 2 Programs, Alberta Innovates – Product Demonstration Program, Partnership Programs - Germany, Mexico (Jalisco), and China (Zhejiang), Alberta Innovates – Accelerating Innovation into CarE Program (“AICE”), and Mitacs. However, compared to 2019, the distribution of government initiatives used was more evenly distributed, as SR&ED and IRAP were used by 88% and 84% respectively in previous years.

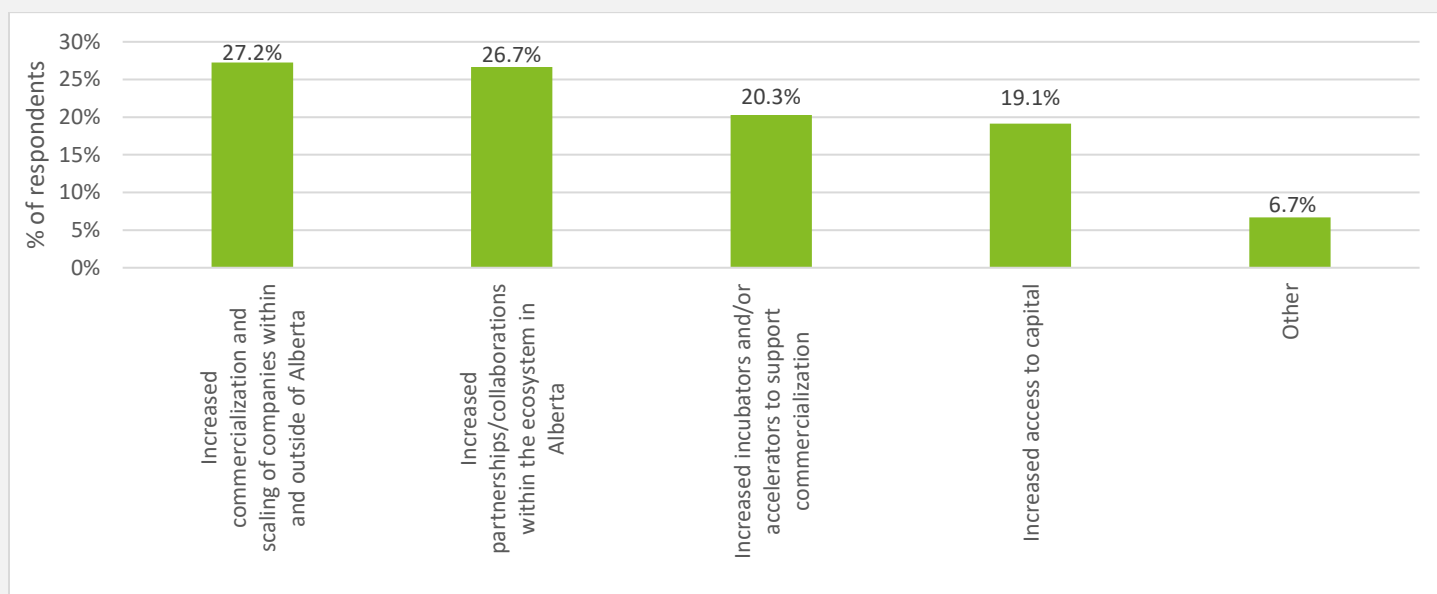
It is important to note that the government initiatives indicated above are separate from the COVID-19-instantiated programs, such as CERB and CEWS. For information on statistics related to these programs, please see the [“Impact of COVID-19”](#) section.

# Opportunities Facing the Industry

The life sciences industry in Alberta has experienced incredible growth and has tremendous economic potential. With many public offerings and private placements through capital raises, advancements in R&D, and 67.8% of companies surveyed indicated they are expecting to be in the growth phase by the end of 2022 – illustrates the resiliency and incredible opportunity for life sciences companies in Alberta.

## What are some of the key opportunities you see in the industry?

### Industry Opportunities



In the coming months, the industry is anticipating opportunities around increased commercialization and scaling of companies both within and outside of Alberta, as well as increased Alberta-centric partnerships and collaborations (both representing 27.2% and 26.7% of respondents' thoughts, respectively). There is also the belief that accelerators and access to capital will help spur greater growth in the life sciences industry. Other key opportunities include:

- Home grown products for pandemics need to be supported
- Support international companies to establish presence in Alberta
- Increase manufacturing capacity in Alberta
- Taking advantage of the cross section of Artificial Intelligence and health

The Alberta life sciences industry has tremendous potential to continue to grow. Respondents are eager to grow their companies by commercializing their products and services and reaching scale. Companies are also committed to Alberta, meaning respondents are invested in continuing to see this sector sustainably grow, create jobs, provide economic value, improve patient outcomes, and create an integrated and thriving ecosystem.

## Issues Facing the Industry

Alberta's life sciences industry continues to grow, receive local, national, and global recognition, and is recognized as a global hub. COVID-19 has accelerated the growth of startups and has transitioned companies from the emerging phase towards the growth phase of development. However, this sustained growth is also met with a variety of challenges.

The three issues that were top of mind for respondents (as shown in the graph below) are:

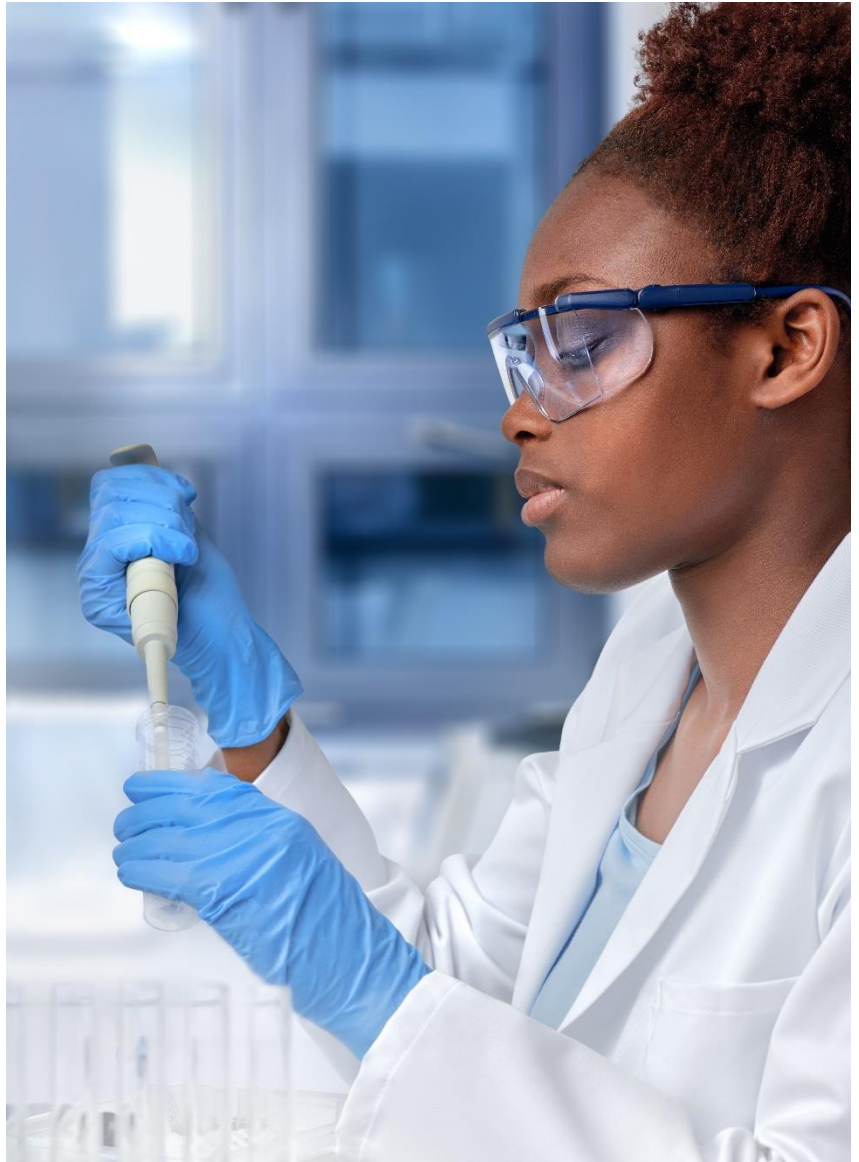
1. Access to highly qualified personnel
2. Sustainable funding for research and commercialization
3. Build a supportive environment for innovation and commercialization

These issues provide a very different view of the industry from the 2019 report. In 2019, the three major issues were:

1. Continuing an Investor Tax Credit Program
2. Improving investment climate through globally competitive mechanisms such as matching funding models and enhanced venture capital environment
3. Enhancing established funding programs

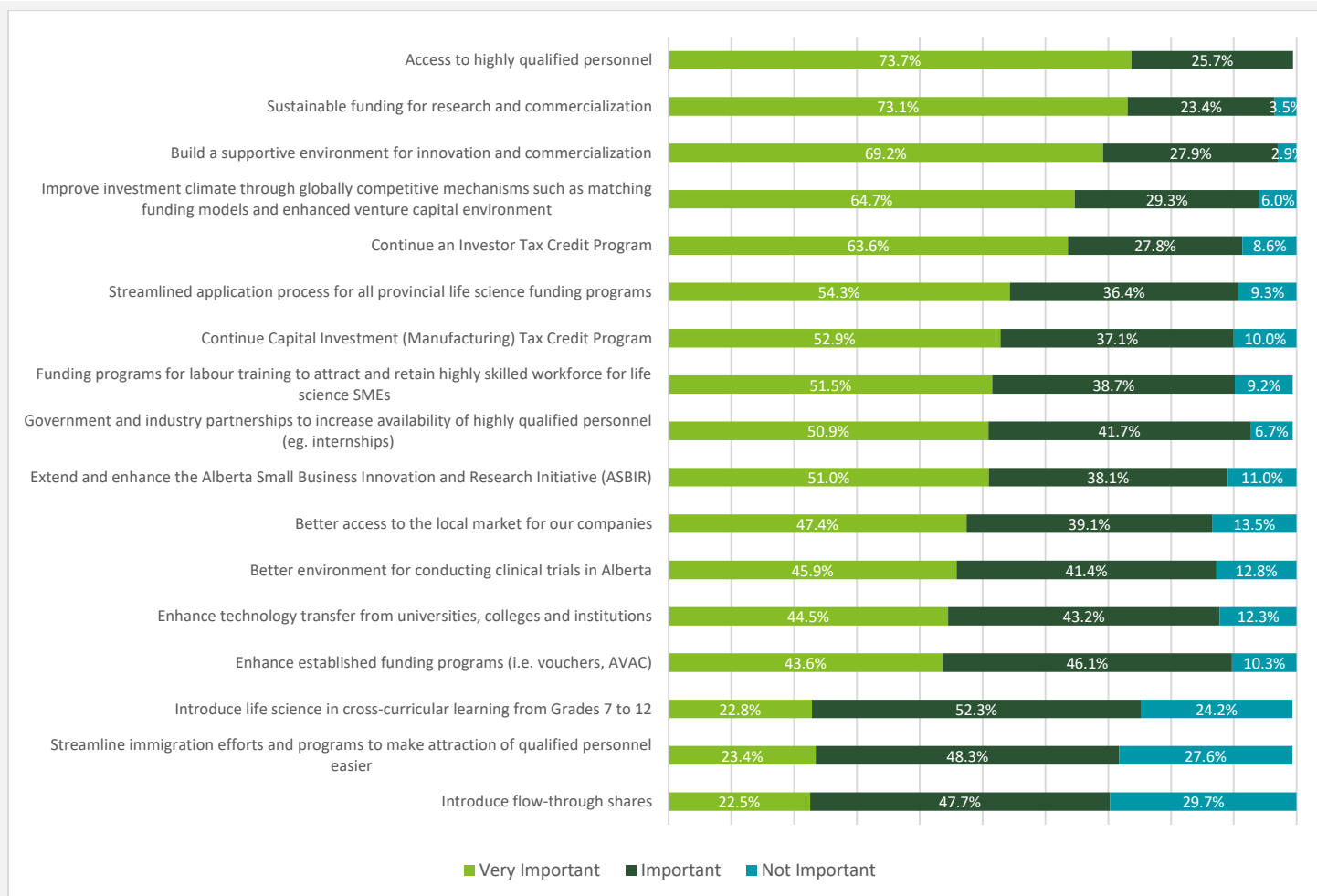
The data suggests that life sciences companies want a strong industry culture in Alberta where innovation, emerging technologies, and research are supported and championed to enable commercialization. Companies need access to top qualified talent to support their business, address market demand, and enable their business to grow and scale.

Due to COVID-19, the life sciences industry has experienced a variety of challenges. However, to continue to flourish the industry requires sustainable growth, access to capital and funding, creation of jobs and collaboration within the industry. This will enable Alberta to be a key player in the Canadian and global markets.



Please rate the following issues as 'Very important,' 'Important,' 'Not Important' or 'Not Applicable' to your company.

## Industry Needs



Note: Respondents had the option of responding "Not Applicable" to the above question. The results were statistically insignificant and were excluded from the above chart. The cumulative sum of some individual bars may be slightly less than 100%.

# Industry Participation

BioAlberta and Deloitte would like to thank all of the survey participants who agreed to be acknowledged in this report:

48Hour Discovery Inc.	Applied Quantum Materials Inc.
7 Summits Snacks	AqM Water Ltd.
8 Bit Cortex	Associated Health systems Inc.
A4 Systems Corporation	Aurora Vaccines Inc.
AazeinTx	Axotech Labs
ABAzyme Bioscience	BioComposites Group Inc.
AbbVie Canada	BiohubX
ABD Naturals	BioImmuno Designs, Inc.
ACCUMOL Inc.	BioLargo Water
Adaptive Engineering Inc.	BIOMME
Adonis Medical Technologies Ltd.	BioNeutra North America
AeroFodder Supply Co	BioRefinex Canada Inc.
AF Mushrooms	Bio-Stream Diagnostics Inc.
AirTerra Inc.	Blue Sky Analytical Labs
Alberta Research Chemicals Inc.	Brightsquid Secure Communications Corp
Alberta Rhodiola Rosea Growers Org. (NGC)	Campus Alberta Neuroscience
Allos Bioscience Ltd.	Canada Diabetes Solution Centre, Inc.
AltaGreen Products Inc.	Canadian Center for Hydrodynamics, University of Lethbridge
Amino Labs North	Canadian Greenfield Technologies Corp.
Amira Medical Technologies Inc.	Canadian Sport Institute Calgary - Sport Product Testing
Ammolite BioModels	CanBiocin Inc.
Andau Medical Inc.	Canvita Canada Ltd.
Angeltear Solutions Inc.	CBS BioPlatforms
AnthoBio Inc.	Ceapro Inc.
Applied Pharmaceutical Innovation	Centogene AG

ChemRoutes Corporation	Innovate Calgary
Cherry Health	Institute of Health Economics
Circle Cardiovascular Imaging Inc.	IRSI
Circle Neurovascular Imaging	Kairos Cognitive Care
Click&Push Accessibility Inc.	Karma Medical Products
Clinisys EMR Inc.	KMT Hepatech Inc.
Cohesic Inc.	Knowde Group Inc.
Creative Protein Solutions	Korte Consulting
Critcare Dx	Lenica Research Group
Critical Care Dx Ltd.	Liminality Innovations Inc.
Datafinity Health Inc. (now known as Lumii Inc.)	Lowen's Natural Skincare
Deep Surface AI	Luft Botanicals
Discovery DNA Inc.	Luxidea, Inc.
DrugBank	LyfeMD Inc.
EC Labs	MagnetTx Oncology Solutions
elsius biomedical	McCarthy Consultant Services, Inc.
Enigeered Antigens Inc.	Medxtractor Corp
Entos Pharmaceuticals	Medlior Health Outcomes Research Ltd.
Equiprobe	Meros Polymers Inc.
Exergy Solutions	Metabolomic Technologies Inc.
Fedora Pharmaceuticals Inc.	MindLab Interactive AI Inc
Fluid Biotech Inc.	MitogenDx
FREDsense Technologies Corp.	mmHg Inc.
Future Fields	Muscle Check Sport and Arthritis
G2V Optics	My Normative Inc.
Gaia Protein	My Viva Inc.
Gilead Alberta ULC	MycoRize Ltd.
Grow the Energy Circle Ltd. c/o Perry Family Farm	Naiad Lab Inc.
HealthQ mobile app	NANOSPEED DIAGNOSTICS INC.
HelpWear Inc.	Nanostics Inc.
Hermay Labs Corporation	NanoTess Inc.
Illucidx Inc.	Nanton Nutraceuticals



Natural Fibre Technologies	SenseSi Technology Inc.
Neogen Canada Inc.	ShareSmart
Neuraura	Sinoveda Canada Inc.
Neurocage Systems Ltd.	SMALP Network
Northern RNA Inc.	Smart Biomedical
Nova Medical Testing Inc.	SmileSonica Inc.
Novo Nordisk Canada Inc.	Soilgenic Nutrients Inc.
NovusTX Devices	Splitrock Management
OKAKI Health Intelligence Inc.	ST Innovations
OKR Financial	STRATEGIC TIMELINES INC.
Orpyx Medical Technologies Inc.	SunHealthRx Inc.
Outbreaker Solutions	Surface Medical Inc.
Outdoor Council of Canada	SustainAgro
Pacylex Pharmaceuticals, Inc.	SVChemBioTech Inc.
PanTHERA CryoSolutions Inc.	Syantra Inc.
PBG BioPharma Inc.	Symbiotic EnviroTek Inc.
Permolex	TC Scientific Inc.
Planet Biotechnologies Inc.	Technology North Corporation
Pure Life carbon Inc.	Tenby Medical
Purposemed Inc. / GoFreddie.com	TerraVerdae Bioworks Inc.
Qualisure Diagnostics Inc.	Tevosol
Raft Brew Labs Inc.	The Metabolomics Innovation Centre
Raft Rehabilitation	The Uncomplicated Family
Rane Pharmaceutical Inc.	Thin Air Labs
Resverlogix	Think Tank Innovations Ltd.
RJH Biosciences Inc.	Token Naturals
Rocky Mountain Shrimp	Tricca Technologies Inc.
Rose Scientific	TRIO
Royal Elk Products Ltd.	True Angle
Ruth Products Corp.	TrustBIX Inc.
Salu Design Group Inc. (o/a Health Gauge)	TSGI Corporation
Savvy Knowledge Corporation	University of Alberta Agri-Food Discovery Place

University of Alberta Health Hub & Accelerator	VitalXR Ltd.
VaxAlta, Inc.	Wave View Imaging Inc.
Venn Consulting, Inc.	Wyvern Pharmaceuticals Inc.
Vibratus Inc.	Zephyr

#### Companies with publicly available information

Asia Green Biotechnology Corp.	Inovio Pharmaceuticals, Inc.
Aurinia Pharmaceuticals Inc.	Maple Leaf Green World Inc.
Aurora Cannabis Inc.	Marvel Biosciences Corp.
Bionovate Technologies Corp.	Medical Services International Inc.
CanadaBis Capital Inc.	Nanalysis Scientific Corp.
CannaPharmaRX, Inc.	Oncolytics Biotech Inc.
Cielo Waste Solutions Corp.	Quest PharmaTech Inc.
Decibel Cannabis Company Inc.	Radiant Technologies Inc.
Discover Wellness Solutions Inc.	Resverlogix Corp.
EXMceuticals Inc.	SugarBud Craft Growers Corp.
Forza Innovations Inc.	Sundial Growers Inc.
Hemostemix Inc.	VentriPoint Diagnostics Ltd.
High Tide Inc.	Vibe Growth Corporation
Imaging Dynamics Company Ltd.	Willow Biosciences Inc.
INDVR Brands Inc.	XORTX Therapeutics Inc.
InnoCan Pharma Corporation	Zenith Capital Corp.
Innovotech Inc.	



# APPENDIX



## APPENDIX A: TRANSACTION SUMMARY

### Major Transactions over \$1 Million

As indicated in the table below of transactions valued at \$1 million or greater, there was close to \$890 million in both public and private capital raises in 2020 and 2021, led in part by two public offerings by Aurora Cannabis (total value of offerings was \$355.3 million). Correspondingly, 64.2% of listed number of transactions and capital raises stemmed from the cannabis industry, totaling 89.4% (\$792.9 million).

**Table 2 - Major 2020 / 2021 Capital Raises<sup>1</sup>**

**Total Capital Raised: \$887,130,000 + US\$80,000,000**

Date	Target Company	Deal Type	Deal Size
11/10/2020	Aurora Cannabis Inc. (TSX:ACB)	Public Offering	\$ 195,940,000
01/21/2021	Aurora Cannabis Inc. (TSX:ACB)	Public Offering	\$ 159,350,000
01/29/2021	Sundial Growers Inc. (NasdaqCM:SNDL)	Public Offering	\$ 128,170,000
03/05/2021	Oncolytics Biotech® Inc. (NASDAQ: ONCY) (TSX: ONC)	Private Placement <sup>2</sup>	US\$ 80,000,000
01/18/2021	Alcanna Cannabis Stores Finance Ltd.	Private Placement	\$ 40,000,000
06/03/2020	Alcanna Inc. (TSX:CLIQ)	Public Offering	\$ 27,600,000
08/14/2020	Sundial Growers Inc. (NasdaqCM:SNDL)	Public Offering	\$ 26,430,000
02/11/2021	Willow Biosciences Inc. (TSX:WLLW)	Public Offering	\$ 25,000,000
06/05/2020	Sundial Growers Inc. (NasdaqCM:SNDL)	Private Placement	\$ 24,090,000
05/18/2021	High Tide Inc. (TSXV:HITI)	Public Offering	\$ 20,160,000
02/01/2021	High Tide Inc. (TSXV:HITI)	Public Offering	\$ 20,000,000
01/13/2021	Kent Imaging Inc.	Private Placement	\$ 19,080,000
02/02/2021	Canadian Rockies Hemp Corp.	Private Placement	\$ 18,000,000
03/06/2020	OncoQuest Inc.	Private Placement	\$ 13,430,000
06/05/2020	Orpyx Medical Technologies Inc.	Private Placement	\$ 10,290,000
02/17/2021	Inner Spirit Holdings Ltd.	Public Offering	\$ 10,000,000
10/20/2020	Willow Biosciences Inc. (TSX:WLLW)	Public Offering	\$ 10,000,000
01/07/2020	High Tide Inc. (TSXV:HITI)	Private Placement	\$ 10,000,000
04/08/2020	Dynaleo Inc.	Private Placement	\$ 9,800,000
04/08/2021	Dynaleo Inc.	Private Placement	\$ 9,700,000
05/28/2021	Pacylex Pharmaceuticals, Inc.	Private Placement	\$ 8,660,000

<sup>1</sup> Capital IQ. (2021). Alberta Life Sciences Transaction Data. Retrieved on August 5, 2021.

<sup>2</sup> Oncolytics. (2021). Oncolytics Biotech® Establishes New At-The-Market Facility. Retrieved on September 29, 2021 from <https://www.oncolyticsbiotech.com/press-releases/detail/530/oncolytics-biotech-establishes-new-at-the-market-facility>

Date	Target Company	Deal Type	Deal Size
12/03/2020	GABY Inc. (CNSX:GABY)	Private Placement	\$ 8,650,000
11/10/2020	MagicMed Industries Inc.	Private Placement	\$ 8,090,000
06/16/2020	Zenith Capital Corp. (OTCPK:ZHCL.F)	Private Placement	\$ 6,590,000
11/03/2020	Marvel Biosciences Corp. (TSXV:MRVL)	Private Placement	\$ 5,280,000
03/04/2020	Pacylex Pharmaceuticals, Inc.	Private Placement	\$ 5,230,000
05/11/2020	InnoCan Pharma Corporation (CNSX:INNO)	Public Offering	\$ 5,120,000
05/20/2020	Radiant Technologies Inc. (TSXV:RTI)	Public Offering	\$ 5,000,000
08/10/2020	CannaPharmaRX, Inc. (OTCPK:CPMD)	Private Placement	\$ 4,010,000
03/09/2021	SugarBud Craft Growers Corp. (TSXV:SUGR)	Public Offering	\$ 4,000,000
04/28/2020	SugarBud Craft Growers Corp. (TSXV:SUGR)	Public Offering	\$ 4,000,000
07/23/2020	Providence Therapeutics	Private Placement <sup>3</sup>	\$ 3,500,000
10/09/2020	Radiant Technologies Inc. (TSXV:RTI)	Private Placement	\$ 3,000,000
12/18/2020	Hemostemix Inc. (TSXV:HEM)	Private Placement	\$ 2,750,000
11/12/2020	Discover Wellness Solutions Inc. (CNSX:WLNS)	Private Placement	\$ 2,730,000
08/14/2020	Resverlogix Corp. (TSX:RVX)	Private Placement	\$ 2,680,000
12/01/2020	PanTHERA CryoSolutions Inc.	Private Placement	\$ 2,580,000
12/08/2020	Canadian Glycomics Network	Private Placement	\$ 2,560,000
12/07/2020	FluroTech Ltd. (TSXV:TEST)	Private Placement	\$ 2,530,000
03/10/2021	Blackhawk Growth Corp. (CNSX:BLR)	Private Placement	\$ 2,500,000
12/31/2020	InnoCan Pharma Corporation (CNSX:INNO)	Private Placement	\$ 2,370,000
02/25/2021	Future Fields Cellular Agriculture and Research LTD.	Private Placement	\$ 2,200,000
02/17/2021	MedXtractor Corp. (CNSX:MXT)	Private Placement	\$ 1,810,000
07/20/2020	MagicMed Industries Inc.	Private Placement	\$ 1,640,000
10/29/2020	Willow Biosciences Inc. (TSX:WLLW)	Private Placement	\$ 1,530,000
04/13/2021	Voyageur Pharmaceuticals Ltd. (TSXV:VM)	Private Placement	\$ 1,520,000
02/12/2021	TruTrace Technologies Inc. (CNSX:TTT)	Private Placement	\$ 1,500,000
04/20/2020	Hemostemix Inc. (TSXV:HEM)	Private Placement	\$ 1,290,000
11/27/2020	Hemostemix Inc. (TSXV:HEM)	Private Placement	\$ 1,270,000
04/20/2020	CanadaBis Capital Inc. (TSXV:CANB)	Private Placement	\$ 1,240,000

<sup>3</sup> Crunchbase. (2021). Providence Therapeutics. Retrieved on September 29, 2021 from [https://www.crunchbase.com/organization/providence-therapeutics/company\\_financials](https://www.crunchbase.com/organization/providence-therapeutics/company_financials)

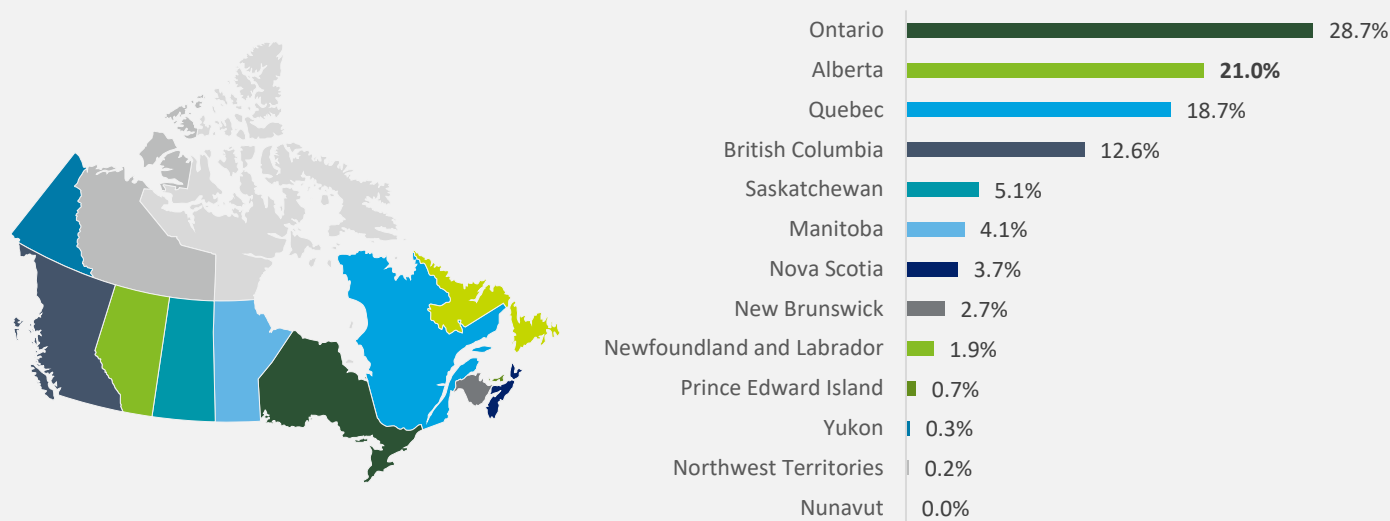


Date	Target Company	Deal Type	Deal Size
02/07/2020	Fluid Biotech Inc.	Private Placement	\$ 1,130,000
01/10/2020	Inner Spirit Holdings Ltd.	Private Placement	\$ 1,090,000
07/22/2020	EXMceuticals Inc. (CNSX:EXM)	Private Placement	\$ 1,040,000
06/09/2021	Camarico Investment Group Ltd. (CNSX:CIG)	Private Placement	\$ 1,000,000

## APPENDIX B: CANNABIS CONTRIBUTIONS IN SALES IN ALBERTA

Since the Cannabis Act was ratified on October 17, 2018, legalizing cannabis for recreational use, significant industry investment, enterprise proliferation, and activity have occurred in Canada. According to Statistics Canada,<sup>4</sup> based on the most recent information on the cumulative retail trade sales by province and territory, Alberta ranks second in total sales at 21.0%, ranked behind only Ontario (28.7%). To date, this milestone regulatory event has generated over \$1.2 billion in revenue for the province from cannabis sales (from October 2018 to August 2021).

### Retail Trade Sales by Province and Territory



Furthermore, there has been significant growth in the cannabis industry in the last two years as well, with registered licensed producers (“LPs”) having increased by over 300% since the 2019 SOI report was published.

### Major 2020/2021 Cannabis Mergers

Four major mergers / acquisitions, valued at over \$300 million total, highlighted the cannabis industry in 2020 and 2021.

**Table 3 - Cannabis Mergers<sup>5</sup>**

Date	Target Company	Deal Type	Deal Size	Buyers / Investors
05/05/2021	Inner Spirit Holdings Ltd.	Merger/Acquisition	\$141,230,000	Sundial Growers Inc. (NasdaqCM:SNDL)
01/18/2021	YSS Corp.	Merger/Acquisition	\$78,730,000	Nova Cannabis Inc. (TSX:NOVC)
12/23/2020	Premium 5 Ltd.	Merger/Acquisition	\$42,500,000	Heritage Cannabis Holdings Corp. (CNSX:CANN)
05/13/2020	My Pain Sensei	Merger/Acquisition	\$42,230,000	Next Health Inc

<sup>4</sup> Statistics Canada. (2021). Retail trade sales by province and territory (x 1,000) – Cannabis stores. Retrieved on September 7, 2021 from <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=2010000801&pickMembers%5B0%5D=2.30&pickMembers%5B1%5D=3.1&cubeTimeFrame.startMonth=10&cubeTimeFrame.startYear=2018&cubeTimeFrame.endMonth=08&cubeTimeFrame.endYear=2021&referencePeriods=20181001%2C20210801>

<sup>5</sup> Capital IQ. (2021). Alberta Transaction Data. Retrieved on August 5, 2021.

# Need More Information?

## BioAlberta

BioAlberta is a member-driven association that represents and promotes the province's vibrant and diverse life sciences industry. Through our many partnerships and collaborations, we are dedicated to promoting Alberta's life science sectors, locally, nationally, and internationally. BioAlberta enables success for its members by providing a wide range of networking and educational events, and by effectively delivering policy options to governments. BioAlberta activities are focused in key strategic areas: advocacy; promotion, marketing, and networking; industry development.

### Contact:

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## About Deloitte's Life Sciences Practice

Deloitte professionals have experience working with life sciences companies across the country and globally to assess their strategic options; assist in forming, establishing and maintaining partnerships and alliances; develop commercialization strategic; enhance revenues; improve operating efficiencies; optimize asset utilization; strengthen management teams; provide due diligence and valuation support as part of a transaction; implement tax efficient structures; streamline the complexities related to industry auditing and accounting; mitigate enterprise risk; and provide negotiation and advisory assistance.

For more information about how Deloitte can help your organization, contact the life sciences leadership team:

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