

Life sciences in Alberta

State of the Industry 2013



Executive summary

The BioAlberta State of the Industry 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 and productivity of Alberta's life sciences industry.

In the first half of 2013 we have seen some significant gains in the life sciences industry globally with the highest number and value of IPOs in a number of years and a flurry of M&A activity. Despite some company losses and some significant reductions to operations, Alberta's industry has fared well overall. The future for Alberta's life sciences industry remains bright. There are positive signs in the sector with expectations of strong research and development spending, cash on hand remaining steady, and anticipated growth in employment. Several companies had major positive milestones during the year in Alberta including: expanding a plant, US FDA approval, US VC financing, and the sale of a major company which rewarded its shareholders. With strong innovation, a significant number of new companies in the industry, major milestones achieved by some companies and the Alberta government's remaining commitment to diversifying the province's economy, we remain upbeat about the prospects for the life sciences industry.

The future for Alberta's life sciences industry remains bright. There are positive signs in the industry with strong R&D spending, cash on hand remaining steady, and anticipated growth in employment.

Here are some of the highlights of our findings:

- Alberta has a strong diversified life sciences industry with companies across many sub-sectors including: human therapeutics, medical devices, service companies, ag-biotech companies, and companies using biotechnology applications across various verticals.
- Aggregate R&D spending in 2012 reached its highest point (in dollars) since the survey began in 2006, with 60% of respondents planning to increase their spending in 2013.
- Available cash on hand – on average, around 10 months' worth -- has remained steady since BioAlberta's 2009 survey.
- Government-facilitated programs and angel investors were the primary sources of funding for most life sciences companies due to challenging capital markets and venture capital funding. Respondents are counting on these sources in 2013 but are planning to access corporate investors and strategic partnerships for capital funding.
- There has been a continued increase in the proportion of life sciences firms in the medical devices sector. In Alberta, medical devices represent the largest segment of life sciences companies at 38%.



Background and methodology

The intent of this report is to review and communicate the state of the life sciences industry in Alberta. Survey respondents provided feedback on the current status of their company's products, position and growth expectations.

In the spring of 2013, BioAlberta and Deloitte LLP ("Deloitte") surveyed leaders of life sciences companies located in Alberta. Those surveyed represent businesses from small start-ups to large public companies, and include research and development companies, manufacturers, service companies, consultants and distributors of life sciences products.

The life sciences industry includes companies and organizations that:

- use biotechnology or biological processes to develop products that improve health and well-being;
- develop applications to improve the diagnosis, prevention, and treatment of disease;
- create new agricultural alternatives; and
- revolutionize traditional industry sectors such as oil and gas or information technology

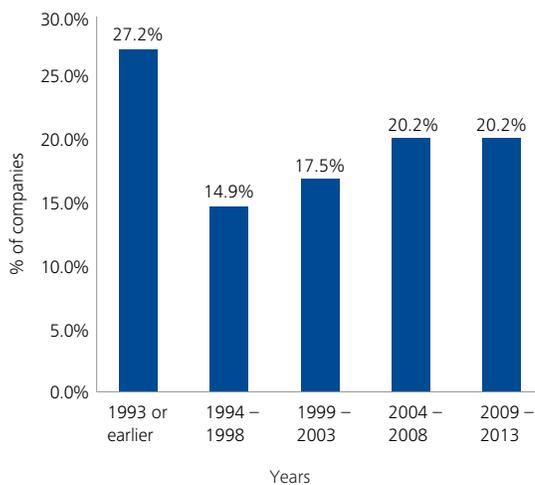
This year's report includes life sciences companies and organizations active in the following sectors:

- agricultural biotechnology
- environmental biotechnology
- health biotechnology and pharmaceuticals
- industrial biotechnology and bioprocessing (also referred to as biofuels, biorefining, clean technology)
- medical technology and devices
- natural health products and nutraceuticals

The intent of this report is to review and communicate the state of the life sciences industry in Alberta. Survey respondents provided feedback on the current status of their company's products, position and growth expectations. The survey was distributed electronically to over 200 life sciences company representatives. To supplement this report, information from other surveys conducted by BioAlberta was used, as well as information available from the public domain. In certain cases, respondents have chosen not to answer all questions. 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 grow. Of the over 200 companies surveyed, partial or complete results were compiled from 114, providing a response rate of over 55%.

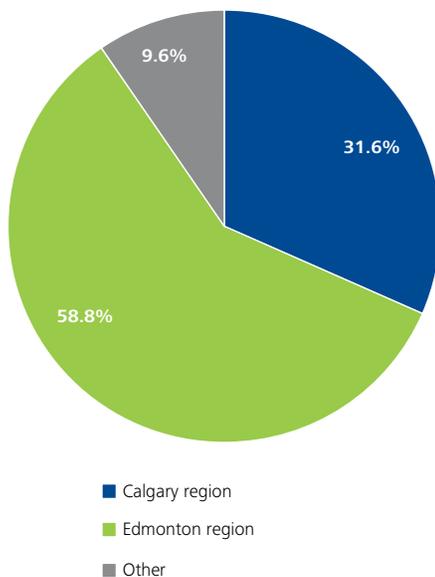
Overview of companies

When was your company established?



Approximately 40% of Alberta life sciences companies were established in 2004 or later. Compared to the approximately 43% in the 2002 to 2011 period, according to the BioAlberta 2011 report, this indicates a decline in new company creation. The number of companies established at least 20 years ago increased to 27.2% from 21.9% in the 2011 report. The data suggest that while the life sciences industry in Alberta continues to grow, there is also some maturing in the industry as well.

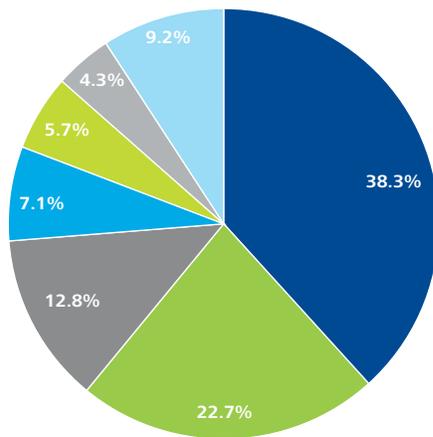
Where in Alberta is your company located?



Consistent with prior State of the Industry reports, most of the Province's life sciences companies (90.4%) are located in Edmonton or Calgary, while the remaining 9.6% are located in areas such as Lethbridge, Red Deer, and Lloydminster.

In the 2007 BioAlberta Survey, only 5.0% of life sciences companies were located outside of Edmonton and Calgary compared to 9.6% today.

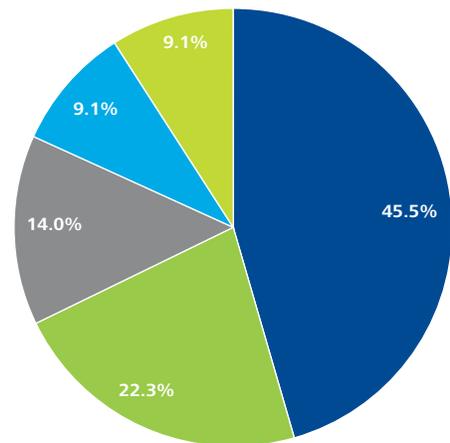
In which sector(s) would your company be classified?



- Medical technology & devices
- Health biotechnology & pharmaceuticals
- Agricultural biotechnology
- Industrial biotechnology & bioprocessing
- Natural health products & nutraceuticals
- Environmental biotechnology
- Other

The two largest sectors in the Alberta life sciences industry are medical technology & devices and health biotechnology & pharmaceuticals, collectively representing 61% of the industry compared to nearly 65% in the 2011 report. Agricultural biotechnology comprises an additional 12.8% of the industry, up from 10.4% in 2011. Nearly 16% of companies are active in more than one sector. "Other" sectors include health IT, nanotechnology, and product design, among others.

In which category or categories would your company be classified?

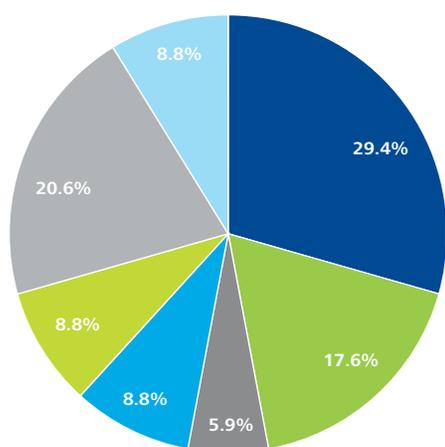


- Research and development
- Manufacturing
- Consulting, contract research or other service provider
- Distributor, wholesale or retail
- Other

Research and development was the most common category chosen (45.5%) with manufacturing the second most common (22.3%). Over 31% of companies classified themselves as being in more than one category.

Medical technology & devices and health biotechnology & pharmaceuticals sectors account for over 60% of the life sciences industry in Alberta.

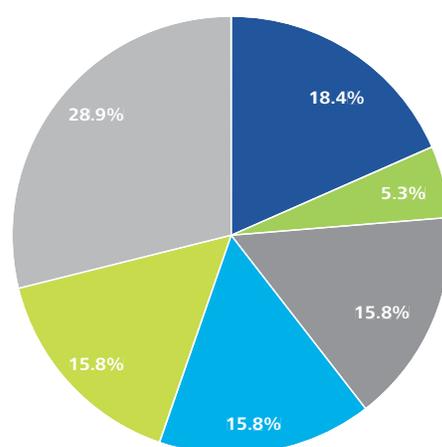
For your health biotechnology and pharmaceutical product, which phase of development is your lead technology or product at currently?



- Research and development
- Pre-clinical trials
- Phase I
- Phase II
- Phase III
- Marketed product
- Other

Of the health biotechnology and pharmaceutical company respondents, 29.4% have their lead product in the research and development phase, while 23.5% are currently in phases I through III of clinical trials, and 20.6% have their lead product in market.

For your medical technology and device product, which phase of development is your lead technology or product at currently?

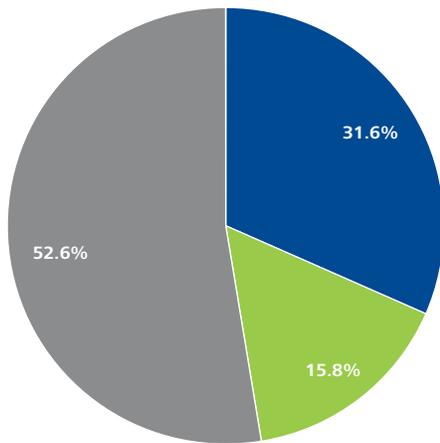


- Research and development
- Product engineering
- Product demonstration or prototype
- Regulatory approval
- Scale-up manufacturing
- Marketed product

Approximately 29% of medical technology and device companies responding to the survey have a product already in market. Over 18% of respondents have a product in research and development, while over 5% have a product in the product engineering phase.

Almost 21% of health biotechnology and pharmaceutical companies and nearly 29% of medical technology & device companies surveyed have a product on the market.

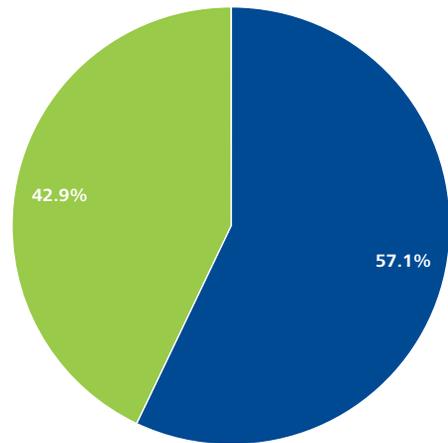
For your agricultural biotechnology, natural health or nutraceutical product, which phase of development is your lead technology or product at currently?



- Research and development
- Scale-up manufacturing
- Marketed product

The majority of respondents (52.6%) have a lead product already in market, while 31.6% were in the research and development phase and the remaining 15.8% were in the scale-up manufacturing phase.

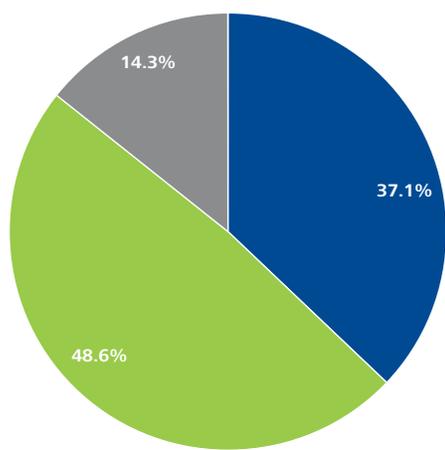
For your industrial biotechnology and bioprocessing product, which phase of development is your lead technology or product at currently?



- Pilot plant or demonstration plant
- Full scale plant

Companies with products in full scale plant phase constituted over 57% of respondents, while the remaining 43% indicated that they were in the pilot plant or demonstration plant phase.

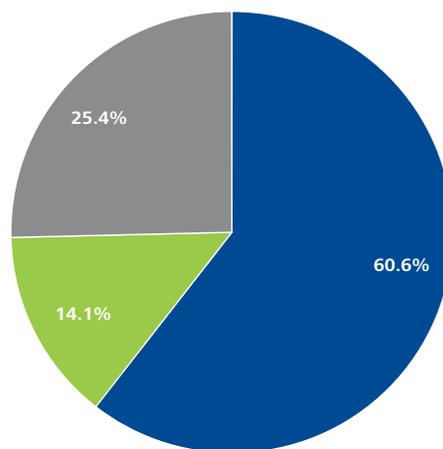
How would you classify your company in its life cycle?



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

In Alberta’s life sciences industry, just over 37% of the respondents are in their growth phase. Of the remaining respondents, 14.3% classified themselves as a mature company and 48.6% as an emerging company, which is a notable increase from 32.6% in 2011.

What phase do you expect your company to be in by 2014?

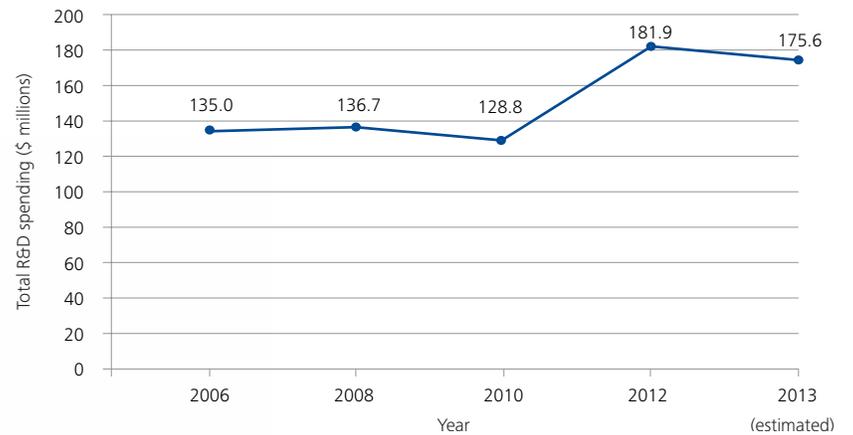


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- Maturity phase (mostly process innovation, aimed at cost reduction; incremental product innovations)

More than 60% of respondent companies expect to be in their growth phase by 2014, while over 14% still expect to be in their emerging phase in 2014.

Research and development spending

How much is your company spending on research and development?



Aggregate R&D spending amongst respondent companies who disclosed their total R&D spending was nearly \$182 million in 2012, the highest amount since the State of the Industry reports began in 2006. While 60.3% of respondents forecast an increase in R&D spending for 2013, the aggregate spending indicated for 2013 is expected to be just over \$175 million.

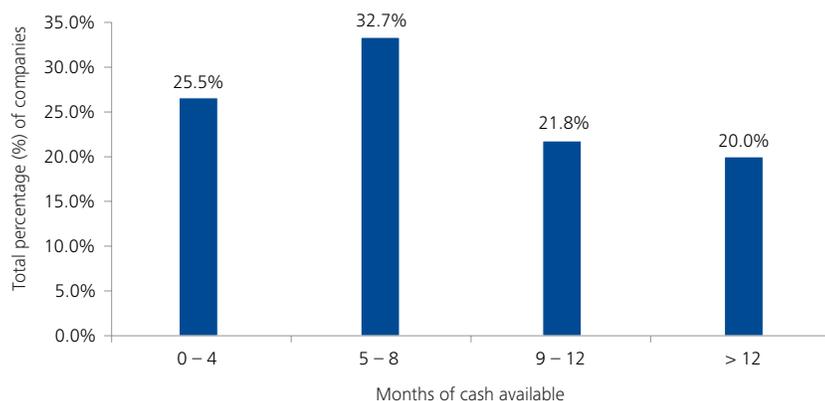


How many months of cash do you have available?



Cash availability and burn are critical measures for companies. While responses ranged from nil to 36 months of cash, the survey respondents had an average of 10.1 months of cash on hand and a median of 6.0 months of cash. This is largely unchanged from the result in 2011 report, where companies reported an average of 9.8 months of cash available and a median of 6.0 months of cash.

Months of cash on hand



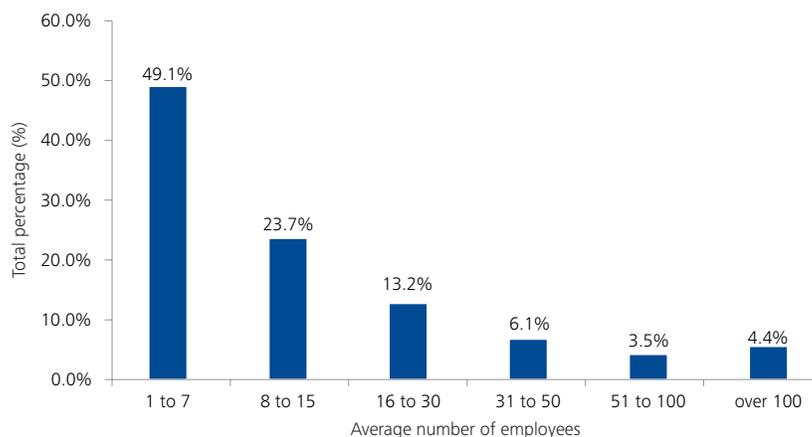
Companies with more than 12 months cash on hand comprised 20% of survey responses, an increase from 15.5% in the 2011 report. Companies with less than four months cash on hand also increased, to 25.5% in this survey compared to 24.1% in the 2011 survey.

In 2013, the portion of companies with less than four months of cash increased to 25.5% compared to 24.1% in the 2011 report.

Human resources

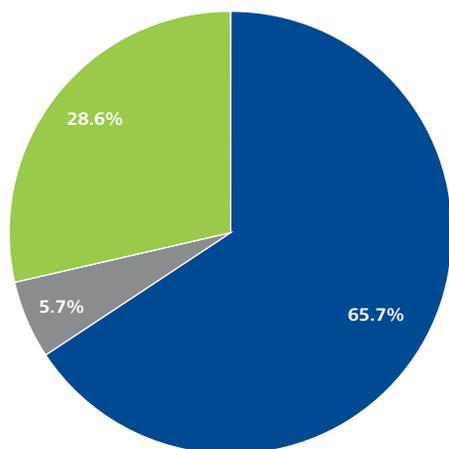
The life sciences industry contributed approximately 14,100 jobs in Alberta in 2012.

In 2012, what was the average number of people employed at your company in Alberta?

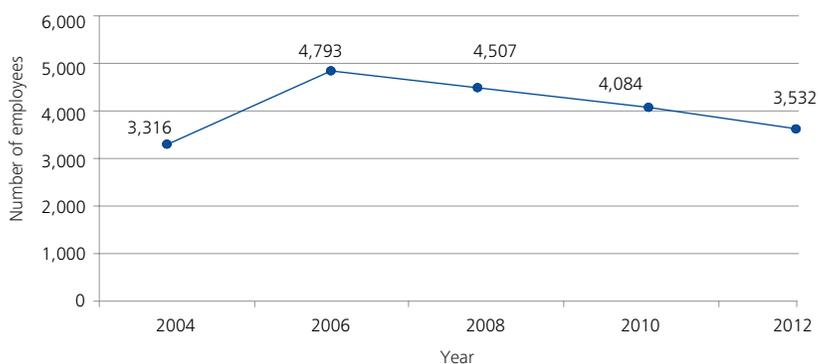


The life sciences industry is mostly comprised of small companies with nearly half of respondents employing seven (7) or fewer employees and 86% having thirty (30) or fewer employees. Just 3.5% of companies have between 51 and 100 employees and 4.4% have more than 100 employees.

How many people did you employ in your company in 2012 and what are your expectations for 2013?

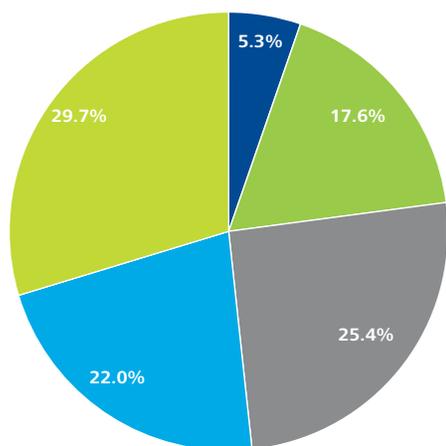


- Increased employment
- Decrease employment
- No change



Based on the survey response, the number of jobs in the life sciences industry decreased from 4,100 in 2010 to just over 3,500 in 2012. However, of the companies that indicated their expectations for employment in 2013, nearly 66% anticipated an increase in the number of employees, while less than 6% expect a decrease. Almost 29% expect no change to their number of employees. Consistent with past years, and assuming an indirect employment multiplier of 4.0, the life sciences industry contributed approximately 14,100 jobs in Alberta in 2012.

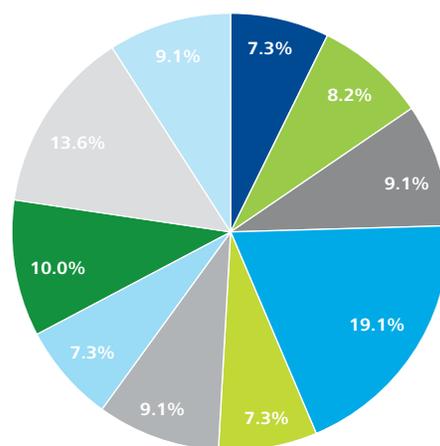
What percentage of your employees have a post-secondary degree?



- High school diploma
- Post-secondary diploma
- Bachelors degree
- Masters degree
- PhD degree

Respondents indicated that just over 77% of their employees have a doctorate, masters, or bachelors degree, which is an increase from 68.5% in 2011. The portion of employees with post-secondary diplomas remained unchanged at 17.6%. Post-secondary diplomas include, but are not limited to, technical diplomas and other certifications.

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



- Chief executive officer
- Chief scientific officer
- Chief financial officer
- Business development
- Clinical & medical development
- Engineering
- Manufacturing
- Regulatory affairs
- Sales
- Other

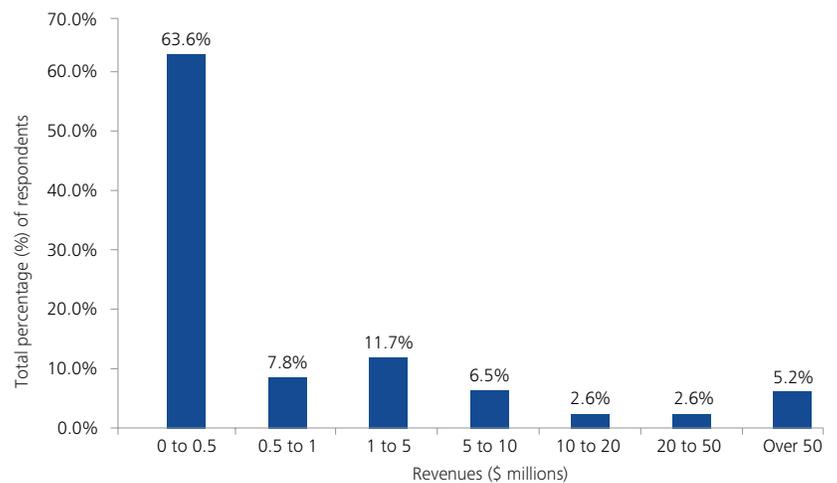
Business development and sales remain the two most difficult positions to fill for life sciences companies, though sales has improved (13.6% compared to 15.2% in 2011) while business development has become more challenging (19.1% compared to 15.2%). Filling the CEO position has improved (7.3% in this survey compared to 14.3% in the 2011 survey). Filling engineering positions has also improved (to 9.1% from 11.6% in 2011). However, filling regulatory affairs positions has become more difficult (10% compared to 8.9% in 2011).

Over three-quarters (77%) of employees in the life sciences industry hold post-secondary degrees.

Revenue

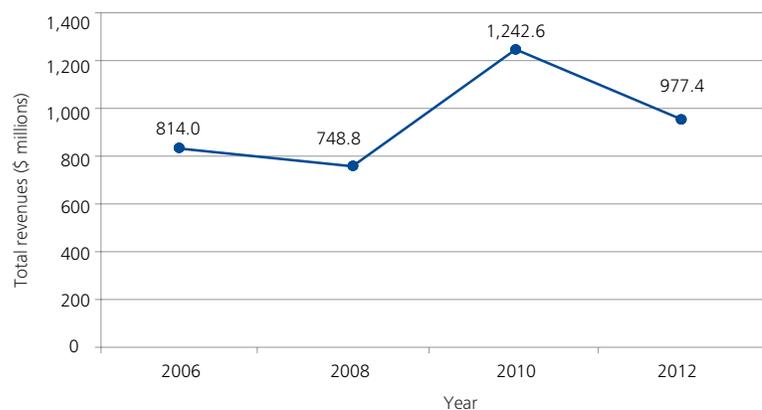
Revenues declined between 2010 and 2012, which is most likely attributable to an increased proportion of respondents with less than \$0.5 million in revenues (63.6% vs. 44.4%) and a decreased proportion of respondents with revenues above \$5 million (16.9% vs. 24.7%).

What is your reported revenue (product, sales and services) for your fiscal year ending in 2012?



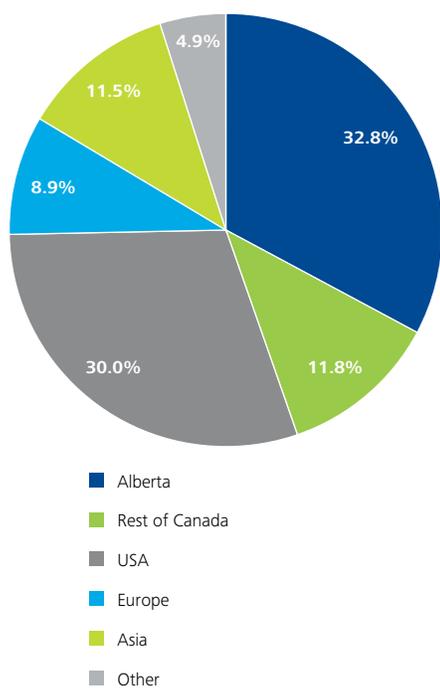
The total revenue for respondent companies was an estimated \$977.4 million for fiscal 2012. Nearly 83% of surveyed companies had annual revenues of \$5 million or less, an increase from over 75% in the 2010 fiscal year.

What were your revenues for 2012?



Respondents indicated that revenues declined by 21% from 2010 to 2012. Companies whose revenues were above \$0.5 million were 36.4% of respondents, a decline compared to 55.6% in the 2010. Companies whose revenues were less than \$0.5 million in 2012 were over 63% of respondents, an increase from over 44% in 2010.

Of your 2012 fiscal revenue, what percentage was earned in each of the following regions?



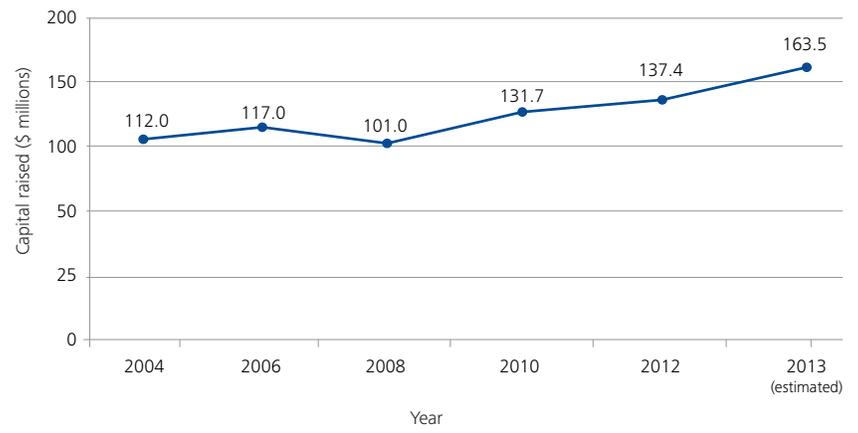
The majority of aggregate revenues reported (74.6%) were earned in Canada and the United States. The largest share was earned in Alberta (32.8%), a decline from 45.6% in the 2011 report. However, the United States market share has increased from 22.6% in 2010 to 30% in 2012. Also of note is that share of revenues from Asia were 11.5% of the total in 2012, compared to 5.2% in 2010.



Financing

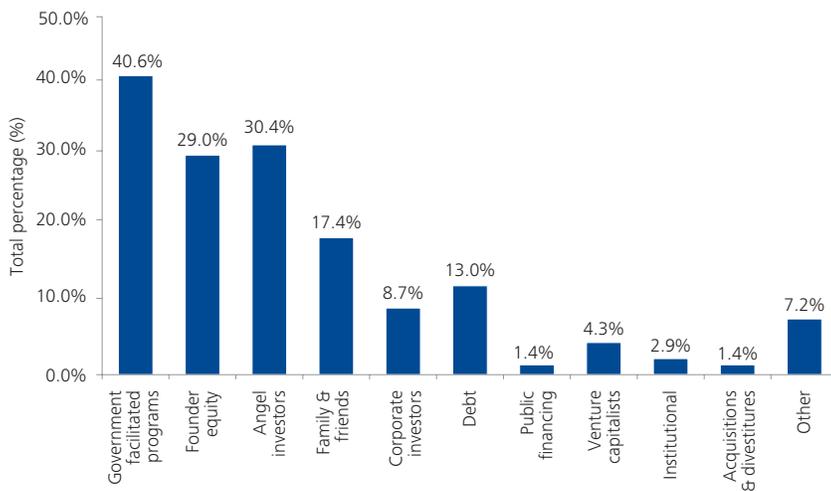
Alberta's life sciences industry respondents raised \$137.4 million of capital in 2012, as compared to \$131.7 million in 2010, an increase of 4.3%.

How much capital did you raise in 2012 and how much are you expecting to raise in 2013?



Respondents raised \$137.4 million of capital in 2012, as compared to \$131.7 million in 2010, an increase of 4.3%. Companies appear to be optimistic about their ability to raise capital in 2013, with anticipated aggregate capital raised reaching \$163.5 million, a 19% increase over 2012.

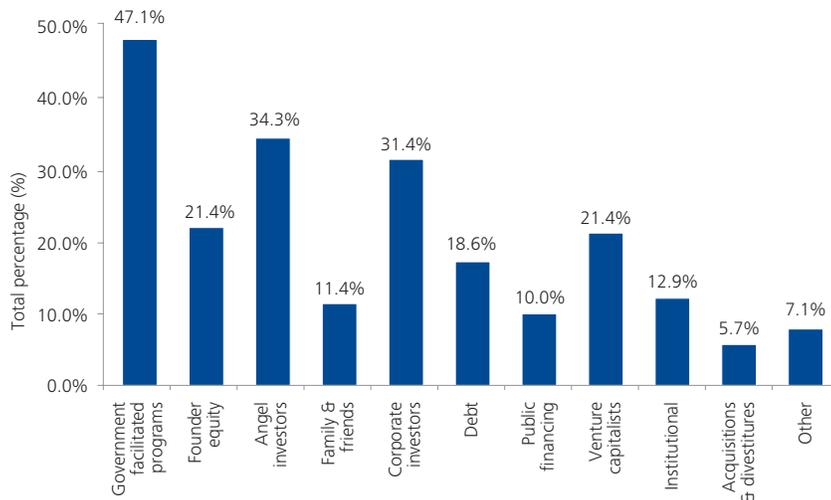
For the capital raised in 2012, which sources did you use to raise the funds?



Government-facilitated programs, angel investors, and corporate investors are the top sources of capital that respondents intend to access.

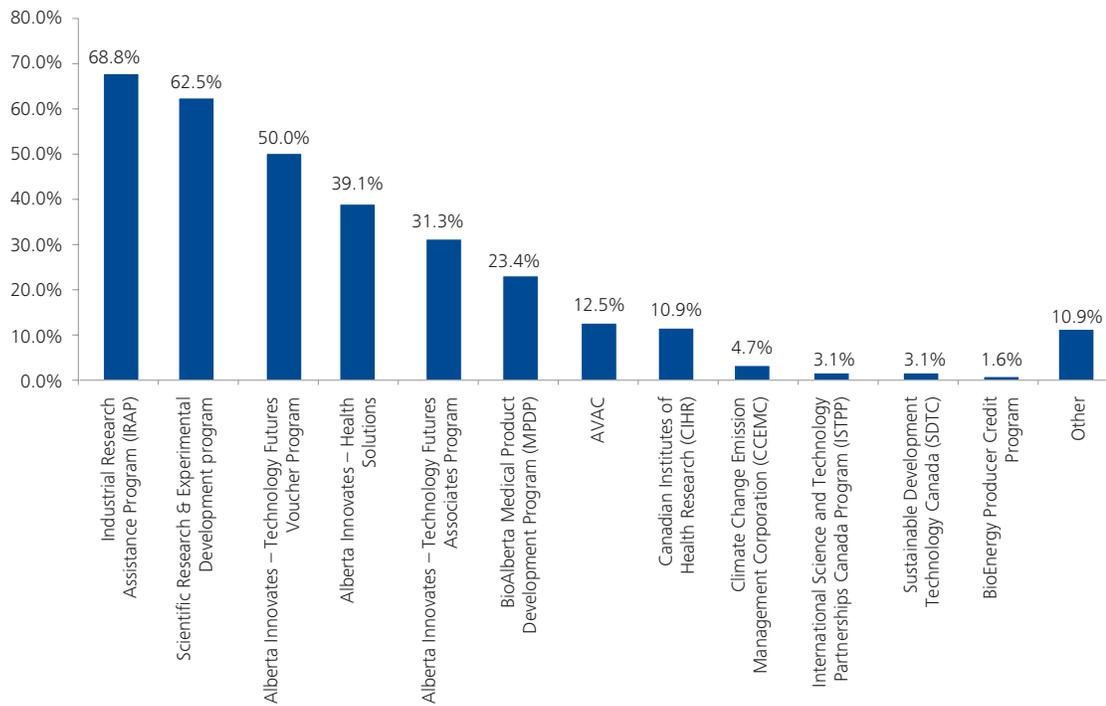
Amongst respondents who raised capital in 2012, the most common sources of capital were government-facilitated programs, followed by angel investors and founder equity. Percentages are not intended to equal 100% as respondents accessed multiple sources of funding.

Going forward, which sources do you intend to pursue to raise capital?



Government-facilitated programs, angel investors, and corporate investors are the top sources that respondents intend to access to raise capital. Percentages are not intended to equal 100% as respondents anticipate accessing multiple sources of funding.

Which government-supported initiatives have you used?



A large portion of respondents used the Industrial Research Assistance Program, or IRAP, (68.8%) and the Scientific Research & Experimental Development program, or SR&ED, (62.5%). It is important to note that these government-supported initiatives have varying degrees of accessibility, application requirements and available funding. Percentages are not intended to equal 100% as respondents accessed multiple government-supported initiatives.

Issues facing the industry

Globally, the life sciences industry offers tremendous economic potential. In Alberta, the industry delivers economic diversification; it attracts and retains highly educated people; and it promotes intellectual property development in the province. Albertans benefit when the rate of technological development and commercialization can compete with other global jurisdictions. The life sciences industry is already making a substantial contribution to the province's research and development capability, intellectual capital and high technology economy. As the capacity for commercialization of life sciences products and services grows in Alberta, the industry will move closer to achieving its full potential. There has been an intentional effort to increase the effectiveness of industry and the healthcare system working together. Examples of this include Alberta Health's "Health Technology Assessment and Innovation" process and the ongoing efforts by Alberta

Health Services to make it easier for companies to do clinical trials in Alberta. The innovation system is positioned to assist industry along its path to growth and, with its targeted policies and activities, contribute to accelerated development and success. The following are key areas of importance to companies that can boost their growth.

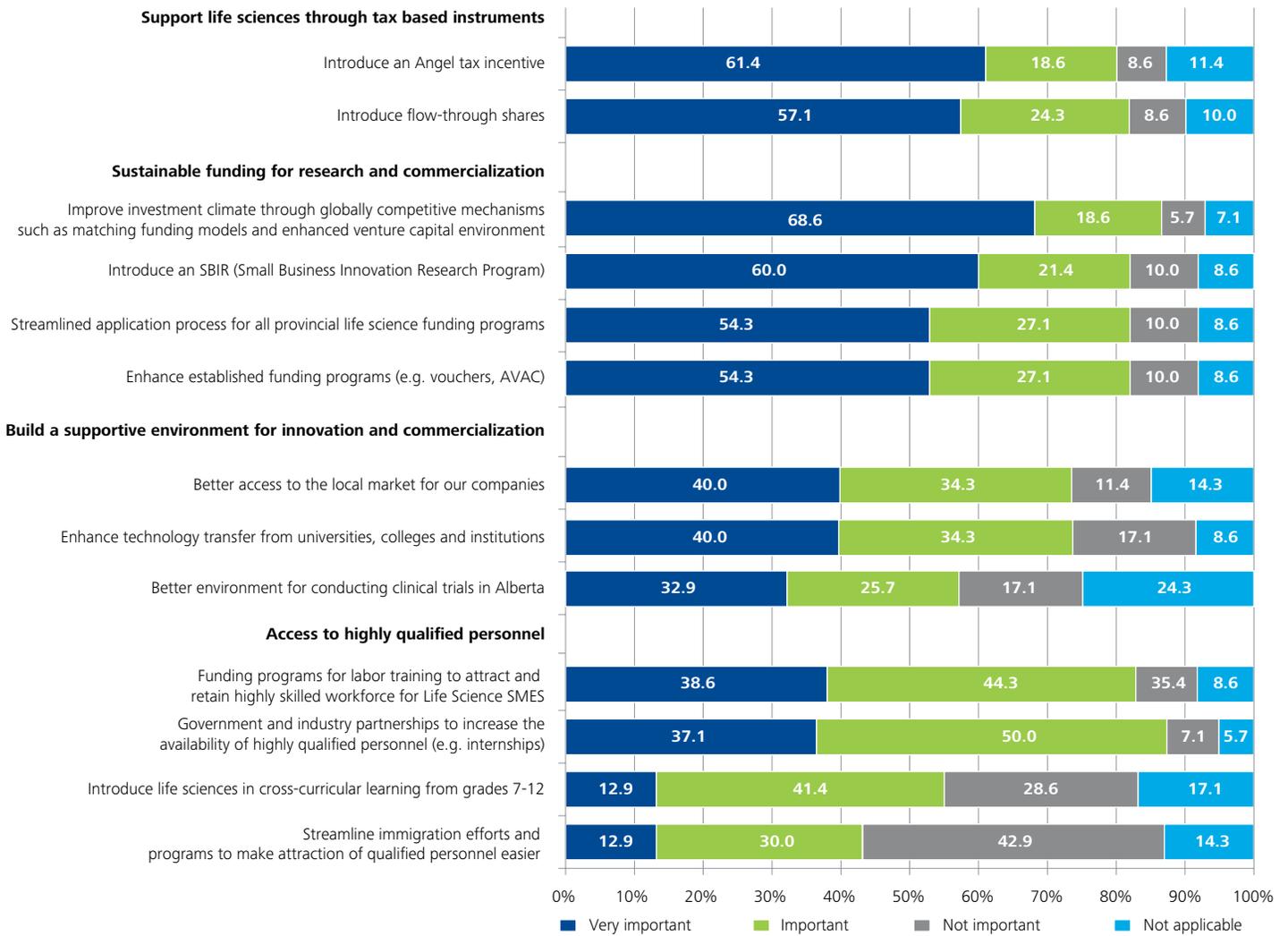
The top 3 most important issues for the industry are:

1. Improving the investment climate and funding opportunities
2. Continuing to improve tax based incentives for companies, including Angel tax incentives and flow-through shares
3. Adding sustainable funding sources, such as a Small Business Innovation Research (SBIR) program

Improving the investment climate and funding opportunities, continuing to improve tax based incentives for companies (including Angel tax incentives and flow-through shares), and adding sustainable funding sources (such as a Small Business Innovation Research program) are the top three initiatives that would assist companies to expedite their growth.



What issues is your company facing as part of Alberta's life sciences industry?



Industry participation

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

Accumol Inc.
Afinix Life Science Inc.
Akshaya Bio Inc.
Alzheimer's Innovation Institute Inc.
Aquila Diagnostic Systems
ATI-Composites Canada Inc.
Best Environmental Technologies Inc.
BioNeutra North America Inc.
BioRefinex Canada Inc.
CanBiocin Inc.
Ceapro Inc.
ChemRoutes Corporation
Chenomx Inc.
Circle Cardiovascular Imaging Inc.
ClearView Biostructures Inc
DynalifeDx
Enerkem
Epsilon Chemicals Ltd
Gilead Alberta ULC
GrowSafe Systems Ltd.
IGY Inc.
IMBiotechnologies Ltd
Innovative Trauma Care Inc.
Innovotech Inc.
KMT Hepatech Inc.
Kyoto Fuels Corporation
Matter International Design Corp
Meros Polymers Inc.
Metabolic Modulators Research Ltd.
Metabolistics Inc.
Metabolomic Technologies Inc.
Micralyne Inc.
NAEJA Pharmaceutical Inc.
Orpyx Medical Technologies Inc.
Parvus Therapeutics Inc.
PBR Laboratories Inc.
Prev Biotech
Quest PharmaTech Inc.
Radiant Technologies Inc.
SinoVeda Canada Inc.
SolAeroMed Inc.
SynInnova Laboratories Inc.
Taiga BioActives Inc.
TC Scientific Inc.
The Litebook Company Ltd.
VibeDx Diagnostic
Zephyr Sleep Technologies Inc.
Zymetrix

Need more information?

BioAlberta

BioAlberta has been the central voice and organizing hub for the life sciences industry in Alberta since 1999. It is a private, not-for-profit industry association with more than 140 members. The association's activities are focused on advocacy, promotion and networking, and industry development. In its advocacy efforts on the national stage, BioAlberta joins forces with other life sciences organizations such as its counterparts in other provinces and BIOTECCanada.

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