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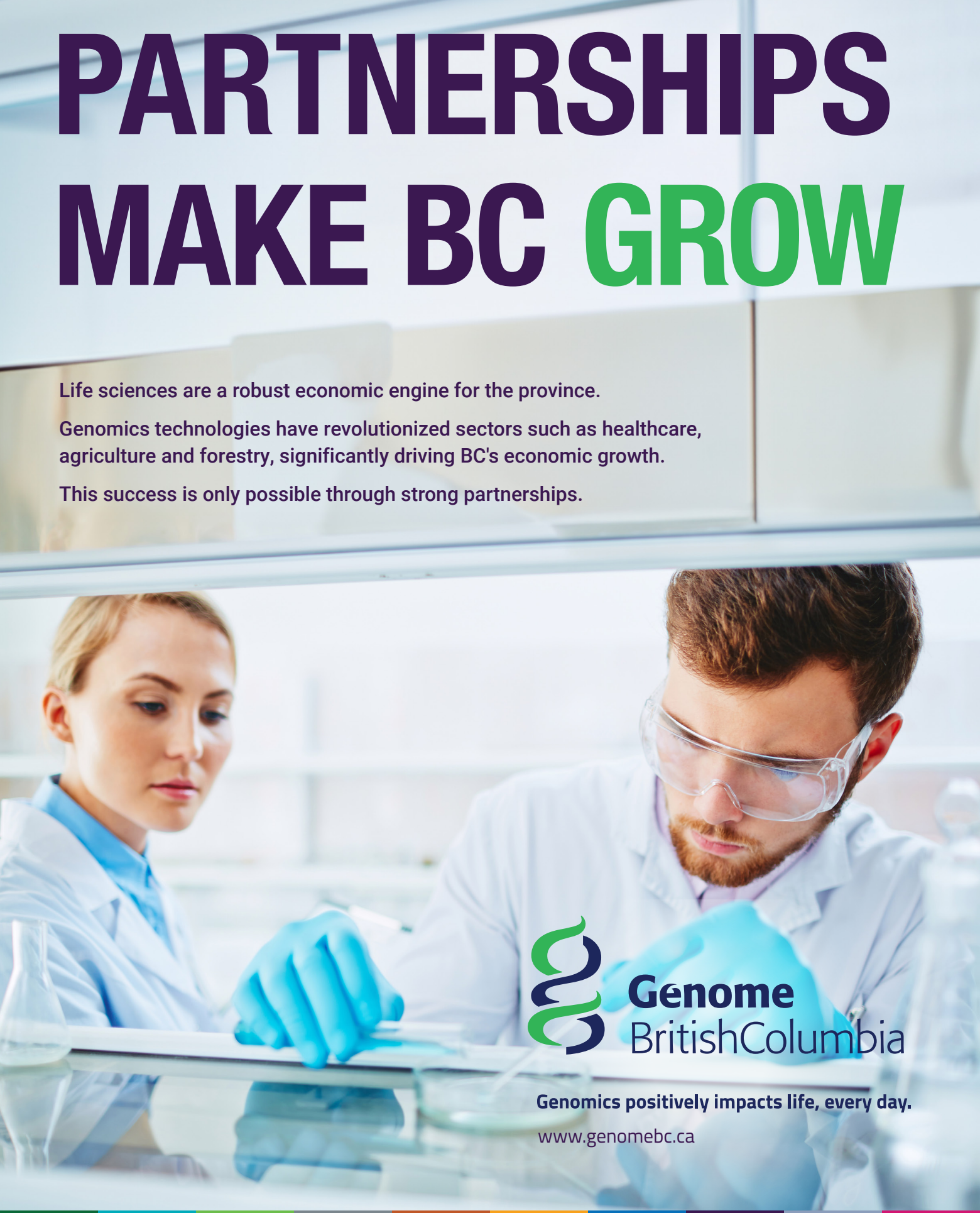

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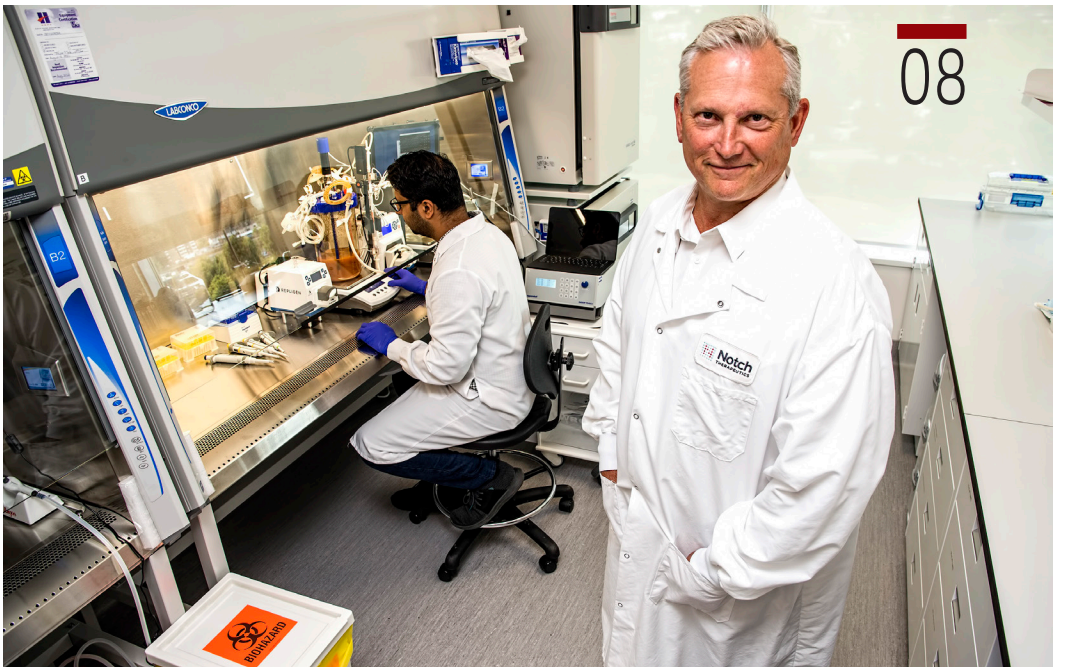

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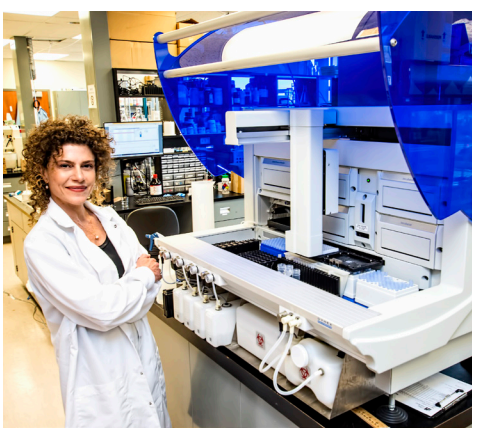

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On the cover from left: E. Russell McAllister, president and CEO of Bold Therapeutics; Dr. Véronique Lecault, COO of AbCellera; Dr. Chris Tam, co-founder and CEO of Integrated Nanotherapeutics; Dr. Sriram Subramaniam, founder and CEO of Gandeeva Therapeutics • CHUNG CHOW

COLLABORATION IS KEY TO KEEPING CANADA'S LIFE SCIENCES SECTOR HEALTHY

BY FRANÇOIS-PHILLIPPE CHAMPAGNE

When the pandemic happened in 2020, Canada was not in an optimal position, largely relying on others to provide the medical supplies and treatments we needed. The pandemic, along with other geopolitical events, has magnified the urgency of building innovation and industrial capabilities as well as resilient supply chains, particularly in life sciences and biomanufacturing. That's why our government has taken the necessary steps to rebuild a strong and reliable biomanufacturing sector.

Nobody wants to repeat the difficult period when Canada was vulnerable and reliant upon other countries to meet its vaccine needs. The next generation of scientific breakthroughs, innovation performance and industrial capabilities with associated supply chains are being established now, for the future. The strength of our life sciences sector will have repercussions on our national security, economic performance and resilience for decades to come. It will also impact the next generation of therapeutics and medicines that will improve the quality of life and health outcomes of Canadians and people around the world. It was no accident that stem cells were discovered in Canada – a clear example of the world-leading capabilities of our ideas and scientific foundations.

Our government aims to continue to develop critical capabilities right here at home, with an emphasis on new technology platforms and medicines to treat and cure a wide range of diseases. It is vital that we continue to make strategic investments in life sciences and biomanufacturing to bolster our economic security, but more importantly, to keep Canadians healthy and safe.

That is where our Biomanufacturing and Life Sciences Strategy comes into play. The Strategy consists of five pillars to support the sector; from training, to research, to testing, to commercialization and production of life-saving vaccines and medicines. Together, these pillars support a strong, competitive domestic life sciences sector with state-of-the-art biomanufacturing capabilities.

As we have just passed the Strategy's two-year anniversary, it is a good time to reflect on the many successes we have had.

Since 2020, we have invested over $2.1 billion in 36 vaccine, therapeutics and biomanufacturing projects focused on increasing domestic production capacity. These include up to $415 million towards building an end-to-end influenza vaccine manufacturing facility in partnership with Sanofi, and an agreement with Moderna to build a state-of-the-art manufacturing facility to deliver made-in-Canada vaccines. When completed, the new facility will be able to produce up to 100 million mRNA vaccine doses annually.

In addition to biomanufacturing, Canada has committed $500 million to a new Bioscience Research Infrastructure Fund and $250 million to the Canada Biomedical Research Fund to support bio-science capital and infrastructure needs of post-secondary institutions and research hospitals. This complements our new $250-million Clinical Trials Fund.

These investments are leading to the upgrading of biocontainment facilities, the launch of five new research hubs across the country, and the creation of a clinical trials consortium and new clinical trials projects, as well as clinical trials training platforms. They will ensure that Canada has the research and development capacity, robust SMEs and talent across the supply chain to support a dynamic and growing biologics ecosystem for years to come.

This funding has benefitted British Columbia as well, with investments in adMare Bioinnovations, Precision NanoSystems, and our recent investment in AbCellera Biotechnologies being key examples of the work we are doing from coast to coast to coast. Collective leadership, across all levels of government, companies, and academic and skills institutions are helping solidify, grow and sustain our competitive advantage in our vibrant life sciences ecosystem.

Canada recognizes the importance of working with like-minded partners around the world to advance our objectives. To that end, we recently announced the signing of a Memorandum of Cooperation between Canada and the United Kingdom outlining each country's commitment to biomanufacturing collaboration to strengthen innovations and industrial capabilities, to better prepare for and respond to future health emergencies.

It is safe to say that Canada's biomanufacturing and life sciences sector has come a long way since 2020, and British Columbia serves as a leading light. That said, the work is far from done. With the province's recently released Life Sciences and Biomanufacturing Strategy we have an excellent shared opportunity to strengthen our ability to respond to emerging health threats as well as to develop – and keep – the talent we need to do so.

The Government of Canada will continue to collaborate with the private sector, the provincial government, and fantastic organizations like Life Sciences BC. Together we can build the biomanufacturing and life sciences sector, and grow the economy and keep Canadians safe and healthy.

The Honourable François-Philippe Champagne is Canada's minister of innovation, science and industry.

POSITIONING B.C. AS A GLOBAL LIFE SCIENCES POWERHOUSE

BY BRENDA BAILEY

As B.C.'s minister of jobs, economic development and innovation, I want to acknowledge and thank all of the talented people who are advancing cutting edge technology and discoveries that are making B.C. a world leader in health care innovations.

Between 2018 and 2021, our province's life sciences sector grew faster than the overall B.C. economy and faster than anywhere else in Canada – generating $6.7 billion in revenue and a 30-per-cent increase in the sector's GDP. That includes job growth in 2020 when global economies slowed during COVID-19. When the pandemic hit in 2020, B.C. innovators excelled at home and around the world: Virtually every COVID-19 vaccine candidate that reached late-stage development used components that were initiated, developed or manufactured by a B.C. company or scientist. The lipid nanoparticle delivery system that enables mRNA to be transported safely into a cell was developed by B.C. scientists; and the first therapeutic authorized to treat COVID-19 was developed using a B.C. biotech company's unique drug discovery platform technology.

Our government is building on the momentum of this rapidly expanding sector by making strategic investments through the new B.C. Life Sciences and Biomanufacturing Strategy, a key action of our StrongerBC Economic Plan.

The strategy is focused on positioning B.C. as a global life sciences powerhouse by: Nurturing new and diverse talent and keeping it in B.C.; developing more low-cost lab and biomanufacturing spaces; expanding clinical trial capacity; and, leveraging research capacity and attracting investments for B.C. to become a leading centre for commercial-scale biopharmaceutical and medical manufacturing. As Canada's west coast capital of opportunity with a strong economic climate, B.C. provides an environment for cutting edge companies to anchor and grow.

We partnered with the federal government and AbCellera Biologics to expand with a $700-million, state-of-the-art, biotechnology campus in Vancouver where antibody therapies for conditions like cancer and immune diseases will be developed, trialed and produced in B.C., and to open the door to more international partnerships.

The Province's new StrongerBC: Future Ready Action Plan will help thousands of people get the skills they need to succeed in the changing economy and help close the skills gap many businesses are facing. To increase the talent pool and develop more skilled workers for our growing life sciences businesses, in partnership with Canada, B.C. has invested $2 million toward a $7.2 million National Biomanufacturing Training Centre that will provide training for up to 700 people annually. To help promising, early-stage companies spend less of their capital on space so they can develop and commercialize their products and grow, B.C. has also provided $12.5 million to create new wet lab and biomanufacturing facilities in Vancouver with adMare BioInnovations and in Victoria with Vancouver Island Life Sciences Association.

There is already so much to be proud of and to celebrate and I look forward to hearing about the next discoveries that will improve and change the lives of British Columbians and people worldwide. Through the StrongerBC Economic Plan, we will continue to fuel innovation, nurture talent, drive growth and transform B.C.'s economy to build a strong and sustainable province that works for everyone.

Brenda Bailey is B.C.'s minister of jobs, economic development and innovation.

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MOMENTUM THROUGH COLLABORATION – B.C.'S LIFE SCIENCES SECTOR SOARS

BY WENDY HURLBURT

It has been a watershed year for British Columbia's life sciences sector, with an unprecedented pace of discovery, company creation, and growth across the ecosystem, propelling it forward. Stakeholders have recognized the need for collective efforts to attract investment, grow and retain local companies, and foster skilled talent to remain globally competitive – and have risen to the challenge.

B.C. boasts Canada's fastest-growing life sciences sector, one of the province's most rapidly expanding industries. In May 2023, the B.C. government, in collaboration with LSBC, released an updated life sciences sector profile report based on data from 2018-2021. Highlights from this report include the following:

- B.C.'s life sciences sector grew faster than the overall B.C. economy;
- B.C. continues to be home to Canada's fastest-growing life sciences sector;
- Over the three years, there has been a 26-per-cent increase in businesses and a 23-per-cent increase in employees, translating to 20,000 individuals in over 2,200 companies; and
- Through 2020-2021, B.C. attracted a record $3.3 billion in capital invested across the ecosystem.

B.C.'s success is driven by the emergence of world-class science from its academic and research institutions and innovative partnerships and investments involving companies, organizations and government.

This year's pivotal moment was the introduction of B.C.'s first-ever Life Sciences and Biomanufacturing Strategy. A co-initiative between B.C.'s Ministry of Jobs, Economic Development, and Innovation and the Ministry of Health, and with consultation from sector leaders, this historic five-pillar plan provides a solid framework to facilitate the path from research to commercialization.

This will position B.C. as "a worldwide life sciences hub by nurturing new talent, developing new lab space, expanding clinical trial capacity, and leveraging research capacity as we support local businesses to grow and create good jobs for British Columbians," according to the strategy.

Government confidence in the sector's ability to provide needed economic diversification and improve patient health has led to several historic provincial and federal investments and announcements in the first half of 2023, which include:

- An investment of $7.2 million in a National Biomanufacturing Training Centre at BCIT;
- An investment of $12.5 million to create new commercial wet lab spaces;
- The establishment of B.C.'s Canadian Immuno-Engineering and Biomanufacturing Hub (CIEBH) led by UBC;
- A $440 million 10-year cancer action plan to better prevent, detect and treat cancers;
- A pioneering $701 million partnership between AbCellera and the governments of Canada and British Columbia to propel the progress of drug development capabilities and infrastructure; and
- A $20 million investment over two years in the Michael Smith Genome Sciences Centre.

Leveraging these exciting initiatives requires skilled professionals. Like other sectors, the life sciences sector faces fierce global competition for talent. LSBC is leading a province-wide labour market intelligence study set for release later this fall. Designed to understand better the jobs and skills B.C. life sciences employers are looking for, the report will include five-year labour demand and supply forecasts, a skills training assessment, gender-based analysis data, and recommendations for sector-led strategies.

B.C.'s life sciences sector has never been stronger. As we look ahead, Life Sciences BC is committed to advancing the sector by working with leaders across industry, research and academia, and government to solidify B.C.'s position as a global life sciences leader.

Wendy Hurlburt is president and CEO of Life Sciences BC.

MEET THE NEXT GENERATION

Drug development has entered a new phase, and B.C. companies are at the forefront of creating promising fourth-generation therapeutics

BY GLEN KORSTROM

BC's life sciences sector is growing faster than other such clusters in the rest of Canada, and it is rapidly becoming a hub for what some are calling the fourth-generation of therapeutics.

That is not an empty buzz phrase. There really are distinct generations of scientific development.

Industry insiders tend to agree that the initial generation of medicines were small-molecule drugs – chemical-based compounds that could block signals, such as pain. Aspirin, created in the late 1800s, is one example of this kind of drug.

The next wave of drugs, they say, are "biologics," or ones made from human organisms. Insulin, discovered in 1921, is one of those drugs.

Then there is some divergence among those in B.C.'s life sciences sector about whether antibody-based drugs should be in that second generation of medications, or a new third wave of therapeutics.

A consensus does emerge that a new generation of drugs is being developed that is in a different tier from all that has come before.

Executives, such as Aspect Biosystems CEO Tamer Mohamed, say this new evolution in drug-making is a significant evolution and is one where B.C. is excelling.

"At the highest level, there are three pillars [in the history of making therapeutics,]" he says. "Chemistry, then biology and then living systems."

Mohamed's company takes material from stem cells to create human tissue that can be implanted into patients to help their livers or pancreases function properly.

The concept is for surgeons to eventually operate on patients to insert credit-card-sized pieces of liver tissue under skin, or pancreas tissue in abdomens.

"The goal would be not necessarily to rebuild that organ, but to provide a remote functional tissue in another place in the body that's essentially supplementing, or replacing, the missing function of the organ," he tells *BIV*.

His said his goal is to start clinical trials within two years and have an approved drug therapy within the decade.

Mohamed's 80-employee company is on a hiring spree thanks to a capital infusion earlier this year. He says he believes his company will have significantly more than 100 employees by the end of 2023.

Aspect's capital comes from a pact with Denmark's Novo Nordisk, announced in April. The partnership provides

From left: E. Russell McAllister is president and CEO of Bold Therapeutics, a clinical-stage biopharma company founded to develop and commercialize a first-in-class metallotherapeutic for the treatment of advanced cancers. Dr. Véronique Lecault is the chief operating officer of AbCellera, which grew out of the idea that single-cell microfluidics and next-generation technologies could radically change how drugs are discovered. Dr. Chris Tam is co-founder and CEO of Integrated Nanotherapeutics, which is focused on using nanotechnology to uncover and maximize the therapeutic potential of drugs. Their drug delivery platform can deliver any type of drug modality in lipid nanoparticles to disease tissues and cells, according to the company. Dr. Sriram Subramaniam is founder and CEO of Gandeeva Therapeutics, which is harnessing the power of artificial intelligence and cryogenic electron microscopy to create life-changing therapies. The individuals pictured here (and on the cover), and those featured in the article above, are considered by their peers and industry stakeholders to be among the B.C. leaders who are at the forefront of important developments in life sciences and therapeutics • CHUNG CHOW

Aspect with US$75 million up front, and then milestone payments up to US$650 million for each of four products. That means that the company could generate US$2.6 billion from those milestone payments.

Another B.C. life sciences company involved in the cellular-therapy niche is Notch Therapeutics.

Its technology also starts by using stem cells but in the end aims to create off-the-shelf cell therapies that are accessible, less expensive and able to be produced at a large scale, its CEO, David Main, tells *BIV*.

Cell therapies use immune cells as drugs. Those who have cancer have cells that are not effectively fighting off cancer. Healthy people, in contrast, have immune cells able to fight cancer, Main says.

Notch's science aims to create a therapy that can be matched to specific patients, and then provided to the patients via intravenous (IV) bags, much like how blood transfusions are conducted.

"We're administering cells that act like little factories," Main says. "The cells that we administer can release antibodies. They can release other kinds of chemicals, called cytokines. The cell itself becomes the drug, but it's like a little drug factory, and it can do multiple things."

Main says the exciting thing about new cellular therapies is how they are more complex than those in past generations of drugs.

Cures long ago were created to treat diseases that are simple to address, he says. The diseases that remain without cures are more complex and have multiple elements that need to be contemplated, he says.

Being able to administer immune cells that can provide a wide variety of benefits are therefore likely to be successful with the complex diseases, he adds.

His company landed US$85 million in Series A financing in February 2021 that was led by a private equity firm that was not named in press releases.

Given Notch's board of directors, that company is likely Baker Brothers Investments. The funding round also included participation from pre-existing investors such as Allogene Therapeutics, Lumira Ventures and CCRM Enterprises Holdings Ltd. Other investors included Casdin Capital, Samsara BioCapital and Amplitude Ventures.

"That money was designed to last three to four years so we're just now starting to think about the next financing," Main says.

When Main joined Notch in mid-2020, he was its fourth employee. There are now 85 employees but the company is not aiming to recruit any more staff for the time being, he says.

Lipid nanoparticles are 'revolutionizing medicine'

The B.C. life sciences sector's biggest contribution to global science since the start of the pandemic is arguably in the lipid nanoparticle niche.

"Vancouver has led the world in the lipid-nanoparticles space for decades," Farris LLP partner and life sciences lawyer James Hatton tells *BIV*.

"Pieter Cullis' work at the University of British Columbia (UBC) has spun out the companies that have built the global lipid-nanoparticle business, delivered COVID-19 vaccines, and are now designing lipid nanoparticles for the targeted delivery of therapeutics for cancer and other diseases."

Indeed, established researcher and UBC emeritus professor Cullis was honoured with prestigious awards to celebrate his contribution to helping Pfizer and BioNTech create a COVID-19 vaccine that was injected into more than a billion people, perhaps saving millions of lives.

He worked with Germany-based Katalin Kariko and U.S.-based Drew Weissman, and the trio won Canada's Gairdner International Award, Vietnam's VinFuture Grand Prize and Taiwan's Tang Prize.

Combined those awards netted the three nearly US$5 million.

Kariko and Weissman's expertise was in engineering messenger RNA to be the active ingredient in the vaccine, while Cullis' role was to create the system for getting the vaccine's active ingredient into human cells.

Lipid nanoparticles are essentially little bubbles that encase genetic material, cancer drugs, vaccine components or other items, and transport them to specific cells without degrading in the process.

The method is somewhat like a security team transporting an important dignitary through a crowd of rowdy protesters to a key destination.

"What we are doing is essentially delivering nucleic-acid based drugs, RNA and DNA, into the body and getting them into cells where they can actually have a therapeutic effect," Cullis tells *BIV*.

Without being able to transport the essential material into cells, the vaccines would not work, he adds.

Cullis is widely revered in the Canadian life sciences industry, and the 77-year-old has a long history of working in his field.

He co-founded his first company, Lipex Biomembranes, in 1985. Through the years he also co-founded Canadian Liposome Co., Inex Pharmaceuticals and Acuitas Therapeutics.

Acuitas remains active and continues to innovate. Its president and CEO, Thomas Madden, was one of EY's 10 Canadian national winners in its 2023 Entrepreneur of the Year program.

"Lipid nanoparticles are revolutionizing medicine," Cullis says. "The potential is unbelievable."

He predicts that the future of lipid nanoparticles will dwarf the global impact of the COVID-19 vaccines that the technology enabled.

"In addition to a myriad of vaccine applications, the diseases being treated range from cancer to heart disease

Farris LLP partner and life sciences lawyer James Hatton believes Vancouver has led the world in the lipid-nanoparticles space for decades • ROB KRUYT

Aspect Biosystems CEO Tamer Mohamed helped negotiate a partnership with Novo Nordisk that netted his company US$75 million up front, and potentially up to US$2.6 billion in future milestone payments • ROB KRUYT

to many rare diseases," he says.

He then sent *BIV* a table with 20 lipid-nanoparticle therapeutics that are in clinical trials around the world.

Radiopharmaceuticals are another next-generation therapy

The next generation of therapies includes more than just tissue printing, cellular therapies and lipid nanoparticles. It also includes radiopharmaceuticals.

Amplitude venture partner Nancy Harrison knows lipid nanoparticles and radiotherapeutics technologies well.

She invested in technology that used larger lipids in the first decade of this century, back when she ran Ventures West's life sciences practice and her firm helped capitalize Celator Technologies.

She says she thinks of lipids as being somewhat like what happens when someone puts oil in water and shakes up the container. The result is little oil vessels that protect what is inside, she says.

Lipid nanoparticles, such as the ones that Cullis engineered to be able to enter specific cells, are like this, but much smaller than full lipids.

"Radiopharmaceuticals is not like that," says Harrison, who is on the board of directors at the radiopharmaceutical company Abdera Therapeutics.

Radiopharmaceuticals do not encapsulate material the way lipid nanoparticles do, she says.

"You have to have a targeting vector. In our case, at Abdera, that is a portion of an antibody. Then you have to have a linker, and a chelator, to be able to attach it to the radioisotope," says Harrison.

That means that radiopharmaceuticals have a four-piece mechanism that scientists have engineered to deliver radiation in a targeted way.

"It is like it has like a tag on it, which recognizes the tag on a cancer cell," Harrison says. "It docks onto a cancer cell and it deposits its radio pharm."

Amplitude in the spring of 2021 led a financing round worth an undisclosed amount that was in the tens of millions of dollars, she says.

In April 2023, Abdera announced a follow-up US$140 million financing that Amplitude led alongside Versant Ventures.

Alpha-9 Theranostics is another B.C.-based radiopharmaceutical company that is on the cusp of innovation.

Its chair, Simon Pimstone, explains that while Abdera uses an antibody in its treatments, Alpha-9 uses a

Amplitude venture partner Nancy Harrison is on the board of, and is an investor, in Abdera Therapeutics • ROB KRUYT

CEO David Main's Notch Therapeutics landed US$85 million in Series A financing in February 2021 • ROB KRUYT

peptide, or a protein molecule.

"The similarity is in the targeting of tumour cells more selectively," Pimstone said. "The difference is in how the technology delivers to the tumour."

Alpha-9's technology similarly has what the company calls "scaffolds," which are comprised of four components: A binder, a linker a chelator and a radioisotope.

Pimstone estimates that Alpha-9 has about 20 employees and he says that the company is hiring and is likely to have more than 30 staff by the end of the year.

At the end of 2022, Alpha-9 raised US$75 million in a Series B round led by Nextech Invest, with participation from Frazier Life Sciences, Samsara BioCapital and Quark Venture in addition to existing investors Longitude Capital and BVF Partners.

B.C.'s life sciences sector growth outpaces other hubs

The companies pushing the innovation envelope in the fourth generation of drug-making are part of B.C.'s larger life-sciences ecosystem and helping it become stronger.

"We are competing for talent," Life Sciences BC CEO Wendy Hurlburt tells *BIV*. "We are competing for capital."

Recent corporate success is important because the province needs anchor companies and growing life sciences niches to entice people to move to B.C. to work in the industry, she says.

The larger the ecosystem is, the more those people will realize that they have multiple options if they decide to embark on a career in the field in the province, she adds.

A profile of the life sciences sector in the province, which Life Sciences BC released in May, says that between 2018 and 2021, the industry grew faster than the overall B.C. economy.

Many life sciences companies have no employees because they are headed by academic researchers with other day jobs.

Excluding those companies, B.C. had 1,338 life sciences companies in 2021, up 26.5 per cent from 2018 – the fastest growth rate in Canada.

That compares with Ontario's 19.3-per-cent growth rate for life sciences ventures to 3,192 companies in 2021.

Canada's second largest life-sciences hub is Quebec, where there were 1,361 companies in that sector in 2021, up a comparatively small 10.5 per cent from 2018.

"The gap with Quebec is very much diminishing," Hurlburt says.

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KEEPING THE TALENT PIPELINE FLOWING

B.C.'s biotech sector is experiencing a renaissance – and increasing pressure to attract scientists and lab techs

BY NELSON BENNETT

Like any other sector of the economy, life sciences are vulnerable to talent shortages, which could squelch investment and growth.

"We're in the middle of a generational moment in life sciences in British Columbia and, frankly, across Canada, and so any of those pain points that threaten to slow down the growth or diminish the capacity of the industry to seize the moment is a big concern for sure," says Gordon McCauley, CEO of adMare BioInnovations, a non-profit organization that supports the Canadian life sciences sector.

"In my view, it is absolutely threatening growth, and I think you see it in two places. One is at the leadership level – the managerial level. That's a big issue, especially when you're trying to attract global investors to a startup company. They want to know the track record and history of the people running that business. And the other place we see it is really at the front lines, with bench scientists. We just need more front-line science workers."

Fortunately, British Columbia's biotech and pharmaceutical sector appears to be in a pretty good place right now. It is experiencing a renaissance of multibillion-dollar late-stage drug discovery companies and has a critical mass that allows it to attract talent from all over the world, as well as repatriate Canadian scientists lost to a brain drain that began more than a decade ago.

Companies such as Stemcell Technologies, Xenon Pharmaceuticals, AbCellera Biologics and Zyemworks Inc. are anchor companies that help B.C. draw talent from around the world. Last year alone, Stemcell hired 700 new workers, bringing its total headcount to 2,300, with 1,800 of those individuals working in B.C. About 35 per cent of Stemcell's workforce has a PhD.

"We've been growing 20 per cent year-over-year for almost 30 years now," says Helen Sheridan, chief human resources officer for Stemcell Technologies. "We had a slight blip during COVID, but we recovered from that, so we've just been on a sustained long-term growth track, with no end in sight."

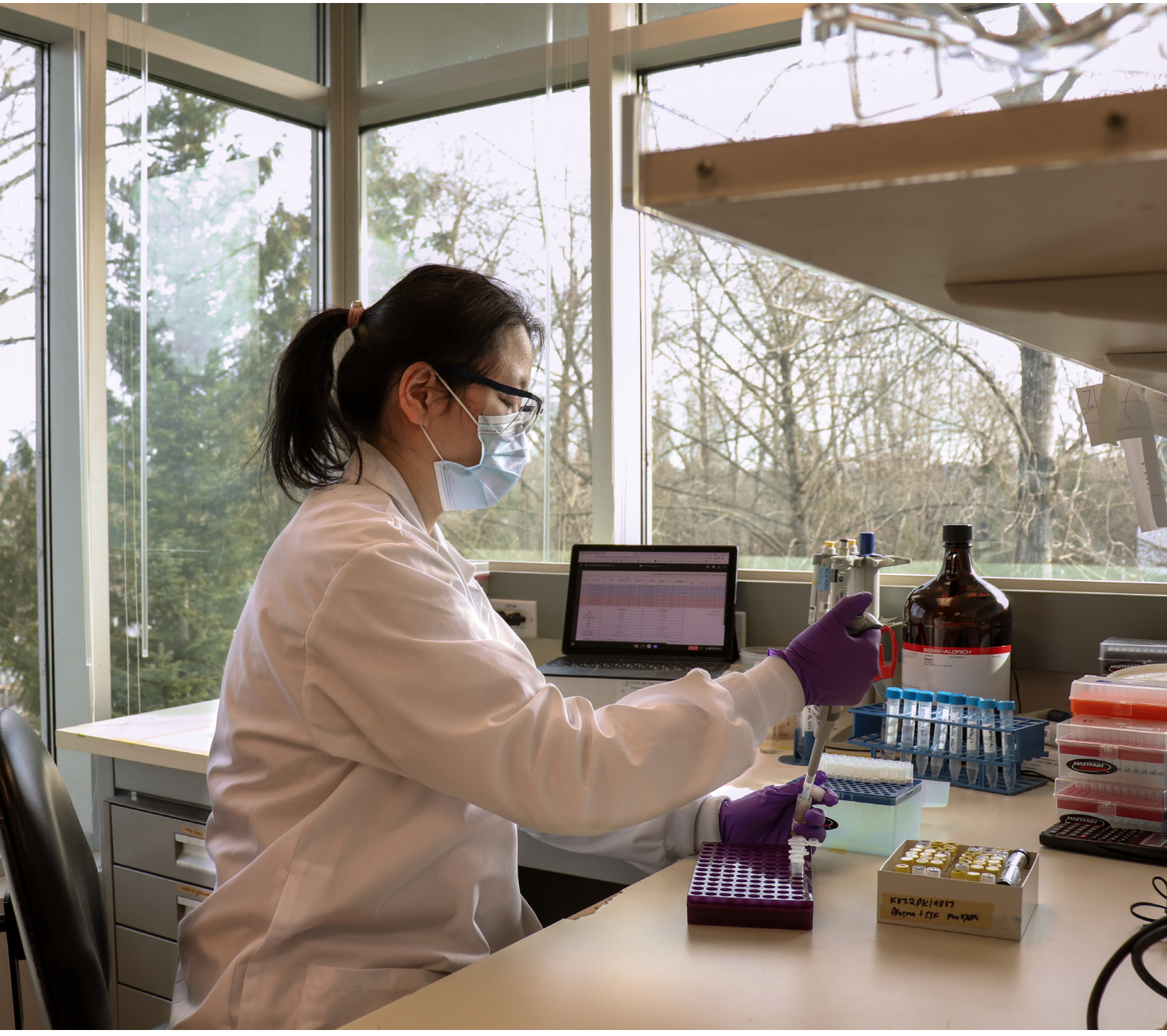
One region that Stemcell has drawn on for talent is Ireland, which, like British Columbia, has a growing biotech industry.

"I think the Stemcells and the AbCellaras of the world, given their growth – Xenon too – they are able to attract people from other places to come here," McCauley says. "That is something the young companies don't have. The good news about that is that, if you asked that question 10 years ago, it was extremely difficult to recruit people to come here. Things are dramatically better today than they were even a few years ago."

A little over a decade ago, B.C.'s nascent biotech and biopharma sector suffered a major crisis. B.C.'s first crop of major biotechs – companies like QLT and Angiotech – fizzled or flamed out and investment in life sciences dried up for several years.

The more-recent success of companies like Zymeworks, AbCellera, Stemcell and Xenon has brought investment – and scientists – flowing back to the sector.

"Historically, a lot of scientists go elsewhere to work," says Brenda Bailey, B.C. minister of jobs, economic development and innovation. "There's been a fairly long-standing brain



Xenon Pharmaceuticals has drugs in late-stage clinical trials, which require a specialized skillset • SUBMITTED

drain of well-trained Canadian scientists going south or to Europe. What's happening with the growth of our biotech sector is that that brain drain is starting to reverse, and we're seeing British Columbians who had to take work elsewhere in the world get to come home."

The federal and provincial governments, universities and organizations like adMare BioInnovations have been working to ensure that B.C. continues to produce and attract the scientific talent it needs to sustain and grow the sector.

At the C-suite level, AdMare BioInnovations runs an academy that provides intensive leadership development training for 25 executives in life sciences from across Canada each year.

"We now have just shy of 100 graduates of that program from across the country, a number of which have been promoted into leadership roles," McCauley says. "When we started that program, we said it was going to be 50 per cent men, and 50 per cent women and broadly reflect the diversity of Canada. In the first couple of years that we started that program, we had to do pro-active work to encourage women to apply. We stopped having to do that a couple of years ago. Last year, in our fifth cohort, we had more women than men."

At the other end, there is a growing need for basic lab technicians for biomanufacturing.

"We have some real deficits in the life sciences industry in skills around manufacturing and production," Sheridan says.

The federal and provincial governments have been trying to address this gap by putting more money into post-secondary training. Notably, the new National Biomanufacturing Training Centre at the British Columbia Institute of Technology (BCIT) will provide the skills training for biomanufacturing.

"That's scaling up right now, and we'll graduate about 700 people a year when it's fully operational," Bailey says. "And that's not enough. We need to do more."

There is a growing need for specialists who have specific skills in taking drugs through later stage clinical trials and commercialization.

"As a maturing sector, we don't have the specialty areas that we'd need," McCauley says. "So, for example, clinical trial design or regulatory management is a specialty that we don't typically have a lot of. So that's quite often something you have to recruit from other places."

That's one of the reason's why Xenon has offices in Boston and other provinces and states – it goes where the talent is.

"Part of that is because of the lack of skilled, late-stage clinical development staff in Canada," says Shelley McCloskey, executive vice-president of human resources for Xenon Pharmaceuticals, which is developing drugs that treat neurological disorders, including epilepsy. The company has two drugs in Phase 3 clinical trials, and four in Phase 2.

"We hire where the talent is."

Xenon employs 250 people across Canada and the U.S., with plans to grow to about 500 as the company moves its drugs into commercial sales. About 175 of Xenons' employees are in Vancouver.

'We hire where the talent is,' says Shelley McCloskey of Xenon Pharmaceuticals • SUBMITTED

It takes a multi-disciplinary team to take a compound through clinical trials and commercialization, McClosky says. Fortunately, there is some local talent with those specialized skills, leftover from B.C.'s last biotech boom in the early 2000s.

"We're probably best positioned in Canada, because we had a history in the early 2000s of those early drug development companies that often did a lot of it themselves," McClosky says.

"By the time you get to Xenon's stage – where you really need the deep capital markets and you need the external drug development expertise – it's a small population in Canada. One of the great advantages for Xenon is that we do have some of those people in British Columbia."

UNLOCKING ECONOMIC GROWTH THROUGH PARTNERSHIP

BY SUZANNE GILL

In today's era of transformative innovations that are reshaping industries and societies, genomics stands at the forefront of modern advancements. Backed by strategic investments, talent and partnerships, genomic research is tackling some of our most significant challenges – from human health to climate change. In this dynamic ecosystem, B.C. has emerged as a world leader in genomics where innovative life sciences companies are providing solutions, societal benefits, well-paying jobs and sustainable economic growth.

This type of innovation and development does not happen in a vacuum. Research and innovation are key to commercialization, and investment in world-class research has endowed B.C. with a competitive advantage. This allows B.C. to attract top talent, enables businesses to produce better products, improves human health and helps us adapt and mitigate the impacts of climate change.

The power of collaborative partnerships

Achieving the ambitious goals laid out in B.C.'s Life Sciences and Biomanufacturing Strategy requires a united effort across multiple sectors. B.C. has a proven record of globally recognized genomics research and now is the time to focus on translating research into practice and accelerating the adoption of innovative solutions.

This will require diverse expertise, resources and investment with partners.

Partnerships have been a critical element of Genome BC's strategy for research excellence for over two decades. We remain focused on driving collaboration and fostering an environment where researchers, entrepreneurs and policymakers can unite around a common purpose. Genomic investments are crucial for pandemic readiness, better cancer outcomes, improved environmental sustainability and securing a safe food supply.

The impact on B.C.'s economy

B.C. boasts Canada's fastest-growing life sciences sector, with over 2,000 active companies employing 20,000 British Columbians and generating $5.4 billion in annual revenue. World-class research and innovation conducted at our post-secondary institutions have been foundational to enabling the growth of this sector and to B.C.'s competitiveness in life sciences.

For instance, a report conducted by MNP LLP reveals the tangible economic benefits generated by Genome BC's activities: By 2026, we will have leveraged over 1,200 partnerships to contribute $4.9 billion to the province's GDP and created over 51,000 jobs, fostering economic growth at various levels.

The role of early investments

One of the key drivers of economic growth in the life sciences sector is investments in local companies that are harnessing genomics to develop innovative solutions. Alongside research and innovation funding, early-stage company investment helped accelerate the growth of some of B.C.'s largest success stories, such as Aspect Biosystems, Precision NanoSystems and AbCellera.

Genome BC's Industry Innovation Program (I^2) exemplifies this approach. By providing risk capital, I^2 provides sustainable support for the commercialization of innovative technologies. To date, over $16.3 million has been invested in 14 companies, which combined have added nearly 100 new jobs since receiving Genome BC funding.

These types of investments have a profound impact on B.C.'s economy. They accelerate the growth of companies, create jobs, and attract top talent and new capital. The multiplier effect of these investments ripples through the province, influencing a wide range of economic sectors and yielding significant returns.

The virtuous cycle of success

Partnerships between researchers, industry and the public sector, guided by forward-thinking public policy like the province's new life sciences strategy, create a virtuous cycle. World-class research leads to innovation, which enables B.C. companies to develop and export cutting-edge products globally and allows them to grow – attracting capital which in turn draws talent to enable world-class research.

This positions B.C. as a global life sciences hub, creates jobs, delivers cutting-edge technologies and services that improve the health and well-being of British Columbians and provides increased tax revenues for all levels of government.

A bright future through collaboration

In a world characterized by interconnectivity and rapid innovation, partnerships are key to unlocking the full potential of groundbreaking technologies generated by genomics.

As the success stories of local companies continue to unfold, and the economic impact of genomic investments continues to grow, the essential nature of partnerships to the success of B.C.'s life sciences strategy becomes increasingly clear. With the support of our dynamic life sciences ecosystem, the province is poised to contribute to a global genomics transformation that will address pressing challenges, drive economic growth and secure a prosperous future for all British Columbians.

Suzanne Gill is president and CEO of Genome British Columbia.

TRIAL AND ERROR

The acute need to build up B.C.'s capacity to conduct early-stage clinical trials

BY CLAIRE WILSON

Clinical trials are a crucial step in the development of much-needed medications, but a lack of local early-stage trials could jeopardize B.C.'s position as a leader in this area of science.

As the B.C. government looks to build the province's life science sector, more attention is being paid to the barriers that prevent the development of local clinical trials, such as challenges in attracting and retaining talent, infrastructure needs and the need for wrap-around services to support this kind of testing.

"The life sciences sector is immensely valuable to B.C. and to the future economy of B.C. So it's critically important in and of itself," says B.C. Minister of Health Adrian Dix. "That access for patients in B.C. to clinical trials is also hugely valuable and so on both of those grounds, it's very important."

Early-phase clinical trial capacity is one of the biggest bottlenecks when it comes to conducting medical testing in the province.

The capacity issue for Phase 1 clinical trials is most starkly seen in Western Canada not having any non-cancer, Phase 1 clinical trial facilities, according to Dix.

"For B.C. companies, that has tended to mean that they conduct these trials in other jurisdictions. That has a number of effects, including the value of intellectual property leaving the province, lack of benefit to B.C. patients from the trials themselves and the real impact for the life sciences economy," he says.

Phase 1 trials are considered the first step in human trials and are done following in-vitro and other modes of testing, says Darryl Knight, vice-president of research and academic affairs with Providence Health Care.

"Traditionally, if a company in B.C., for example, has something with therapeutic potential it would have to go to the U.S., maybe the East Coast, Australia and other places for Phase 1 trials. That makes it really difficult to bring it back into Canada to do any subsequent trials," he says.

The province announced a new B.C. Life Sciences and Biomanufacturing Strategy in April 2023 which aims to secure B.C.'s position as a leading global hub for life sciences and biomanufacturing. Clinical trials are identified as the one of the main pillars in achieving this.

Knight says that Canada and B.C. are seen as a destination for clinical trials. Yet of the approximately 1,300 active clinical trials conducted in B.C. as of September 2022, roughly one per cent were early-phase or Phase 1 trials, according to Knight.

Canada captures roughly four per cent of the global market for clinical trials, with B.C accounting for 25 per cent of them, he says.

"The opportunity that B.C. has if we can get this clinical trial environment right will enable us to compete on the world stage," he said. "A thriving clinical trial sector fosters innovation, encourages researchers and industry to work together and invest in these medical technologies and treatments. So, it's crucial that we grow the clinical trials capacity in the province."

Further compounding the issues around early-phase and Phase 1 trials is a lack of a major pharmaceutical company in Canada, says Murray McCutcheon, senior vice-president of partnering at AbCellera, a Vancouver-based biotechnology company.

"We don't have a company operating at scale to bring new early-stage medicines into the clinics here. What we do have is a lot of early-stage biotechs and small companies that are trying to scale," he says, adding that it is a "chicken-and-egg" problem.

Attracting and retaining talent is another focus when building clinical trial capacity and capability, according to Alison Orth, director of Clinical Trials BC.

The organization is an operating unit of Michael Smith Health Research BC, which has been working alongside the provincial government as a stakeholder in the development of B.C.'s Life Sciences and Biomanufacturing Strategy.

Their goal is to create a "robust, innovative, coordinated and person-centred clinical trials ecosystem improving health and economic outcomes for British Columbians."

"By participating in research, you really are further advancing the integration of research and care and that has been shown to attract prominent clinicians and other health-care providers to the institutions where research is being conducted," she says, adding that research activities can also help prevent workplace burnout in medical professions.

Having access to early-stage trials also encourages the creation of job opportunities in trial construction, implementation, analysis and regulatory affairs, says Knight.

"There are key skills that we do not have well developed in our labour pool at the moment, because we have a sector and industry that has not reached the critical mass of scale," says McCutcheon, who clarified that AbCellera has been able to grow to a 600-person company.

"When I referenced how we you don't have a major pharmaceutical company operating here, we don't have biotech companies that are in many hundreds of thousands of employees that are building out the spectrum of skills that are required."

In addition, there are not enough wrap-around services to support to these early-stage clinical trials in addition to clinical trials in general, according to Knight.

"What may not be immediately obvious is the wet lab capacity," he said. "We need participants of trials provide biospecimens that can be analyzed for biomarkers of disease or biomarkers of response, or other types of analysis.... How do we wrap support structures around the clinical trial and wrap the clinical trial around participant so that they feel

meaningfully engaged and they feel that they're a part of something that's going to be helping them?"

One of the solutions that Orth has been working on alongside Michael Smith Health Research BC is a clinal trial management system (CTMS).

"Health authorities, and researchers affiliated with them, can use the single system to better manage their clinical trials, and that increases their efficiency and effectiveness of running trial," Orth says.

There are 54 "sites" where a clinical trial is being conducted that currently use this system.

Another platform that was supported by Health Research BC and Clinical Trials BC is Reach BC, which aims to help patients in the public identify research opportunities. Researchers can use it help recruit members of the public or patients for their clinical trials.

These sites also work hand-in-hand with awareness events to increase community engagement, Orth says.

Many of these issues were brought to light during the COVID-19 pandemic. It offered a chance for B.C.'s life sciences sector to shine and through that the province was "involved in all aspects of the development of vaccines against COVID-19," Dix says.

While on one hand this offered a chance to demonstrate the province's clinical trial capacity, the flip side is that it also highlighted the issues that are preventing more clinical trials from being conducted locally.

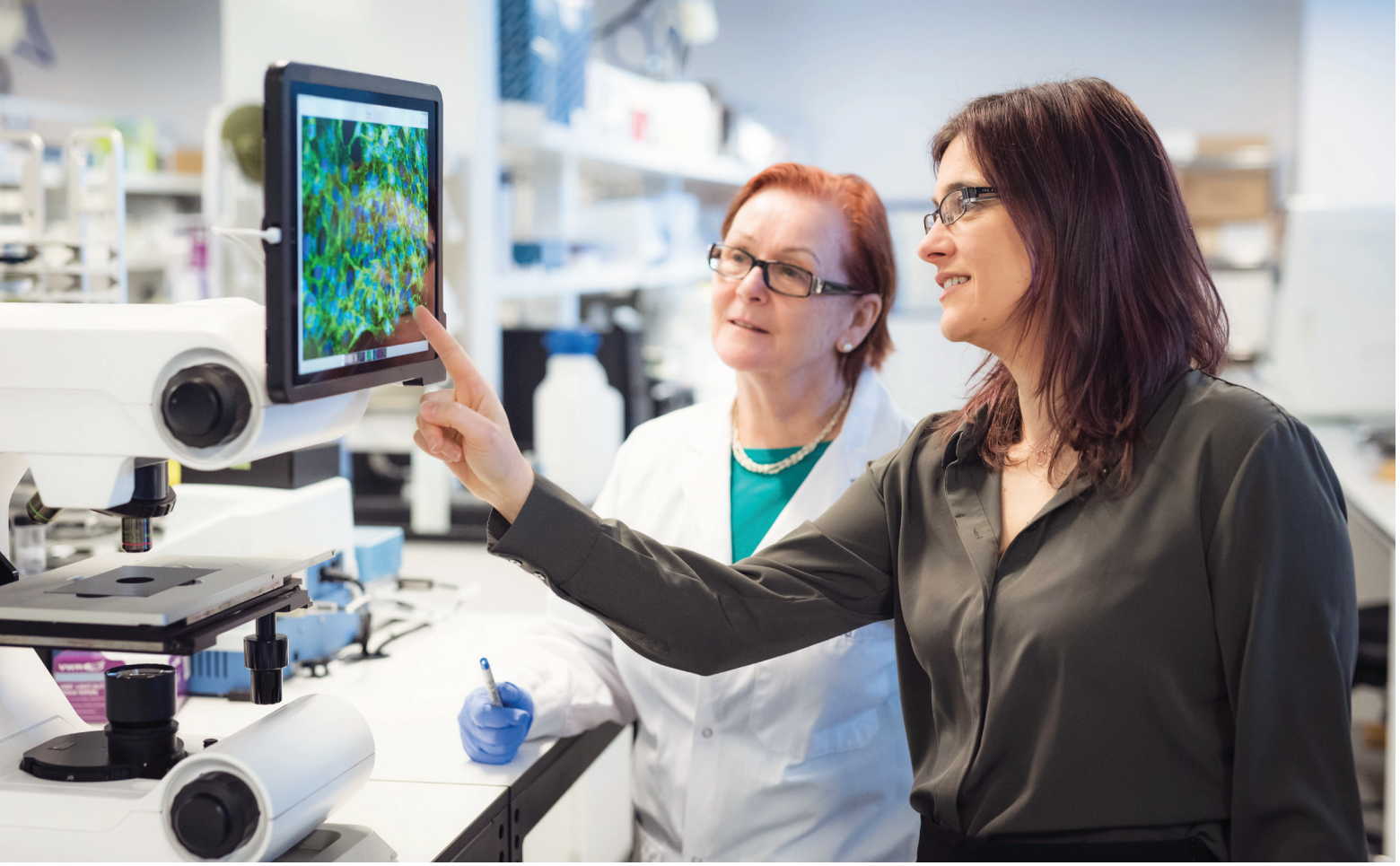
For Orth, the pandemic represented the need to be prepared and to bolster B.C.'s capacity and capability for health research.

"It shone a light on the value of clinical trials in other sectors and communities that hadn't really thought about it and recognize the value that we saw for treatments and prevention of COVID-19," she says.

Dix says that clinical trials have become a central element of the province's life sciences sector strategy.

"What's come out of this period of the pandemic and a period of other issues is a significant breakthrough in public policy on the question and the work of our full sector, which is making immense progress," he says.

Alison Orth, director of Clinical Trials BC, says that the province needs to focus on building clinical trial capacity and capability • ROB KRUYT



adMare BioInnovations partners with universities to co-found new biotech companies

Through its unique co-creation model, adMare BioInnovations helps build companies, ecosystems and talent in the life sciences sector while collaborating with universities and life sciences organizations.

Boasting a wealth of globally-competitive scientific discovery, adMare believes that Canada has potential to become a life sciences leader with a bright future for researchers and investors. To help the sector reach this goal, adMare offers scientific and commercial expertise, specialized research and development infrastructure, and seed capital to build strong life sciences companies, robust ecosystems and industry-ready talent. It then re-invests back into the industry to support it for the long-term.

With 29 portfolio companies attracting $2.3 billion of risk capital — a combined value of more than $4 billion — and creating more than 1,000 jobs across Canada, adMare is well positioned to help the Canadian life sciences sector reach its global goals. With its vision of Canadian life sciences leading the world, adMare's strives to translate leading academic research into new scalable companies, train the next generation of life sciences talent and help existing companies scale up.

"With our partners, we're building this country's life sciences industry from sea to sea," says Mounia Azzi, adMare's vice-president of corporate development, referring to the company's name, which draws from Canada's national motto, "A mari usque ad mare", meaning from sea to sea in Latin. "Working together is key to be able to bring science to commercialization and, ultimately, to patients."

adMare's CEO Gordon McCauley calls collaboration Canada's "superpower." "Within Canada we've figured out how to work together, to collaborate, to innovate, to lead," says McCauley. "It's that approach, that collaborative spirit, that we each want to bring to the Canadian opportunity in life sciences."

adMare is all about partnerships. In September 2022, it partnered with Genome Canada to translate genomics-enabled precision health tools research into business. The partners committed to joint activities to strengthen the university-to-company innovation pipeline to boost the health-care and pharmaceutical sectors by identifying and supporting commercial projects. adMare's has also partnered with Stem Cell Network, and the University of Toronto's PRiME Next-Generation Precision Medicine and Medicine by Design along with other research and life sciences organizations globally.

For life sciences companies, adMare


MOUNIA AZZI

offers a single-stop destination with the scientific, business, infrastructure and capital resources needed to transform health-related technologies into scalable companies.

"We partner with researchers to translate their discoveries into a biotech company. Our scientists validate the technologies, and our business experts build the commercialization plan to create strong companies," says Mounia Azzi. "We connect life sciences entrepreneurs with experienced, business experts to translate their breakthrough research into a business plan and identify sources for seed or scale-up funding."

An alternative to traditional venture development models, the co-creation model enables life sciences companies to be more efficient and scalable while giving them with a competitive edge, according to Azzi.

"For this model to work, we count on valuable partnerships with universities and other life science organizations to find the most disruptive academic research and to partner with the principal investigators to bring their technologies to the next level," she says.

adMare BioInnovations collaborates with universities in Metro Vancouver and across Canada. It's currently working with Dr. Brad Nelson and his team at the University of British Columbia to launch a new company focused on developing an innovative cancer therapy. adMare also partnered with Dr. Philippe Séguéla at McGill University to create Neurasic Therapeutics and accompany the company through his development.

"By partnering with the researcher, we work hand-in-hand and join our expertise to leverage each other strengths," says Azzi.

Through its network of national and international partners, researchers gain access to world-class, cross-disciplinary scientific and commercial expertise. adMare's state-of-the-art innovation Centres in Vancouver, and Montreal gather about 25 life science companies of all size and stage of development, creating a thriving and favorable ecosystem for their activities. adMare also welcomes companies in its National Tx Accelerator, providing them all the support they need for their growth.

Creating a strong life science ecosystem with various opportunities to connect, network and collaborate is central to adMare's mission and is key for Canada to become a worldwide life science leader.

adMare BIOINNOVATIONS

SCALING B.C.'S LIFE SCIENCES SECTOR

B.C.'s largest life sciences company celebrates a 30-year anniversary

BY DAISY XIONG

Dr. Allen Eaves's commitment has always been deeply rooted in researching better solutions for people's health, especially in the area of cancer. It is why he launched Stemcell Technologies 30 years ago – to have more money to fund his team's research.

But back then, he probably didn't expect it would grow into British Columbia's largest biotechnology company. Stemcell celebrated its 30th anniversary earlier this year.

"My interest is in cancer research and of course, there's never enough money to do all the research that you want to do, so we started selling some of our products that were some of the reagents that we used in our research," Eaves recalls.

"And they were to grow blood-forming stem cells, which were critical to understanding how cells go wrong in leukemia. So we started selling this tissue culture media and started to make some money and we've just kept going."

After being encouraged by other team members, Eaves, who was the co-founder and director of the Terry Fox Laboratory for Hematology and Oncology Research, mortgaged his house and took a government loan, and founded Stemcell in 1993.

Today, the company has around 2,300 employees and is the global standard for growing blood-forming stem cells. It sells more than 2,500 other products including specialized media, growth factor monoclonal antibodies, cell separation reagents, instruments, plastic ware and contract assay services.

Stemcell, as a privately held company, has averaged 20 per cent annual growth since its inception, and has managed to put its profits back into research, facilities and sustainability initiatives, according to Eaves.

"We have a very clear mandate, which is to make products to support cancer and other researchers to do their jobs better.... I don't want to make money, I want to make these really good products," he says.

"These products help people do their research in their labs. We're not going after some big therapeutic cure that's going to cure some disease. We're providing the tools for the infrastructure of the health-care industry."

In addition to a very clear mandate that has guided the company from the beginning, Eaves also attributes his business success to having no investors, because some investors have short attention spans, and may pressure companies to generate results without having the time to set up a "serious company."

"Just be patient. It takes a long time to get a company going," Eaves says, adding that it's important for a company to start with a profitable product at first so it can make profits, and reinvest them to support the growth of the company.

"Stemcell rose from its resources, from its profits – all its profits are put back into the company to grow it. That makes us very successful over the long term, it just takes longer than throwing a whole lot of money at a company for a short period of time, where only one in 10 is successful. I mean, it's highly wasteful.

"We are very careful, risk adverse, we just want to take our time to do everything right. It's all about the quality of our products."

Balancing profits and long-term goals

Stemcell's model, which has proven very successful for the company, is not necessarily applicable to all life sciences ventures. Not every company is able to make profits at an early stage, or invest their profits in the company's growth, says Gordon McCauley, CEO of adMare BioInnovations, a Vancouver-based organization that specializes in raising capital to help build strong life sciences companies.

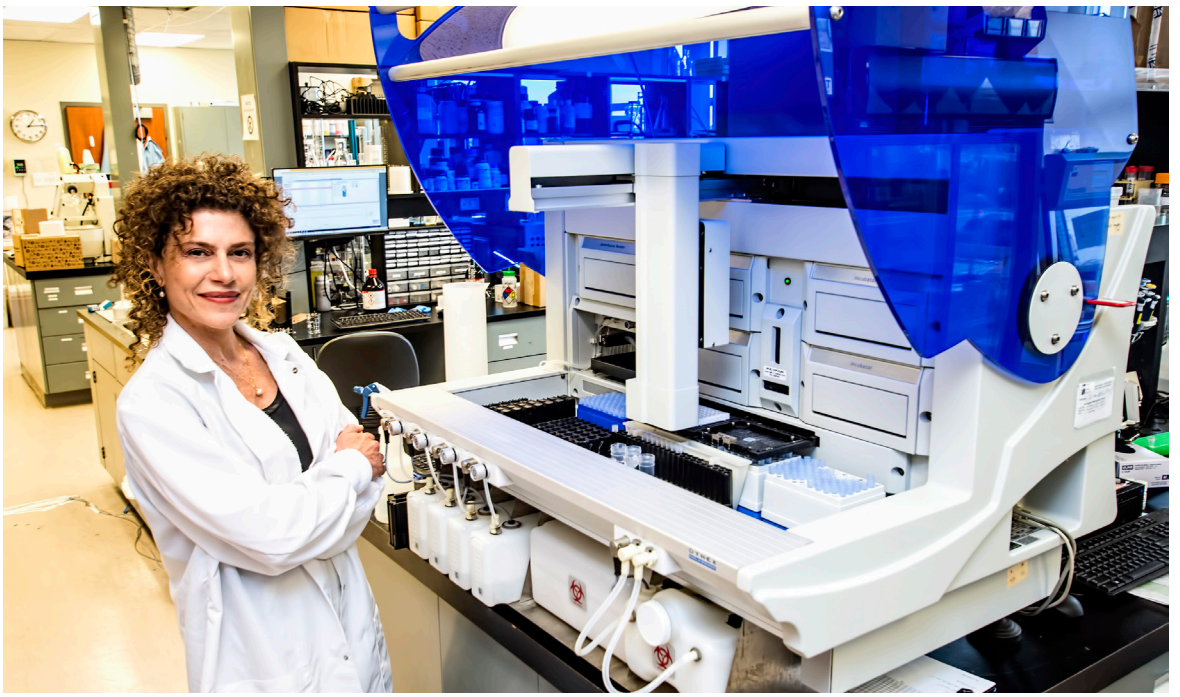
"Allen is a unicorn. He is somebody who has been able to figure out how to grow our business that way, very methodically over the course of 30 years and do that without investment. I'm not sure that translates to the rest of the industry," says McCauley.

"I don't think you can do traditional drug development, which demands something like a billion and a half and two billion [dollars] without reining in external investment."

But he says it is important for businesses to stay focused on their goal and not let external factors get in the way.

"I think the focus is understanding what your purpose is, what your mission is and being focused on it," says McCauley, adding that there are biotech companies that have raised billions of dollars of capital and have been very focused on what they are doing.

"We all have pressures in our lives from external forces all the time. It's understanding what's the internal driver that's causing you to focus and being able to deliver results, so you can say, 'Okay, I understand that, but look at the



Funding, an abundance mindset and learning how to run – and not just start – a company are key to scaling, says Augurex CEO Norma Biln • CHUNG CHOW

results we're generating here. That's why we're going to continue to do that.'"

He adds there are three key factors adMare BioInnovations looks at while deciding whether to invest in a company.

"The first is the willingness of the scientists to be engaged in the commercial activity. Second, if the science is really innovative. Thirdly, is the commercial potential of that science."

Funding and good leadership boost businesses

Government funding can be a boost to a life sciences business, especially if it's made available at the right time, according to Norma Biln, CEO of Augurex Life Sciences Corp., a Vancouver-based biotech company focused on research around the 14-3-3η protein, a novel biomarker involved in the joint damage process.

Earlier this year, the company, along with nine other local firms, received a total of $25.7 million in funding through the Government of Canada's Pacific Economic Development Canada (PacifiCan) initiative to help them commercialize new technology, grow their operations and reach new global markets.

"We're actually in the process of applying to one of the larger grants, also with PacifiCan, and it's a really good source of non-diluted funding for companies as we scale," said Biln.

"And the whole core concept there is that if you're able to fuel the growth of companies, when they're at a very specific point in terms of their growth trajectory, you can really help accelerate that by fueling it with enough capital, with the right plan and the right people."

She added that for companies like Augurex that are going through a transition from the startup and pre-clinical phase to having products in the clinic, and moving from having one product to becoming a multi-product company, funding like this is critical to scaling up and accelerating growth.

However, she points out that although the current support and funding available in B.C. from both the public and private sectors are good at helping companies survive in their very early stages, it is not great at helping them thrive once they pass that stage.

"Because we don't have a lot of venture capital in Canada. If we're going to go to the U.S., we need to really expand our thinking in terms of the size of the funding that we want to get.... We have a very scarcity mindset instead of an abundance mindset."

She said being "innovators" plays an essential role in Augurex's success not only in the technology, but also in how to conduct business, go to market and address unmet needs.

"Whether it's through our promotional material, the social media routes that we use, even with our contract, research organizations, or contract manufacturing organizations that we work with, we're very innovative in terms of shortening the product manufacturing lifecycle and introducing new processes into our approach so that we can expedite anything that we're doing," says Biln.

"One of the really important things is that as CEOs we continue to learn how to run a company, not just how to start a company. We also have to think bigger, to not have a scarcity mindset. That's what differentiates a lot of successful companies in Canada versus the ones that are less successful, but it also is was what differentiates Canada as a whole from the United States' ventures.

"And the truth is, a lot of things die, even though they're well-funded, but if you really have a great technology, and it's properly funded, it's more likely to succeed. So I think that's a really critical thing as far as something bigger for us."

BUILDING A NATIONAL BIOMANUFACTURING TRAINING CENTRE IN BRITISH COLUMBIA

BY LISA CHU

The British Columbia Institute of Technology (BCIT) and Canadian Alliance for Skills and Training in Life Sciences (CASTL) are partnering to create the National Biomanufacturing Training Centre (NBTC), a state-of-the-art training facility located on the grounds of the BCIT Aerospace Technology Campus in Richmond.

Working together, BCIT and CASTL will deliver a suite of training programs to respond to the needs of the life sciences industry and the growing number of biomanufacturing businesses in B.C.

The NBTC will be the first of its kind in British Columbia. The facility will contain leading-edge pilot scale bioprocessing equipment, allowing learners to gain the practical skills that are transferable to operations in a real biomanufacturing setting. By training in an environment that replicates a good manufacturing practice (GMP) facility, students are allowed the time and space to learn without the pressure of disrupting real-life operations which can cost companies valuable time and resources.

Scheduled to open in the spring of 2024, with the first biomanufacturing training program being delivered that summer, CASTL's experienced industry trainers will deliver courses covering a range of topics including contamination control and quality assurance to upstream and downstream bioprocessing. These initial foundational courses in biomanufacturing and bioprocessing will provide a strong platform for learners to gain practical skills that can be immediately applied in the workforce. Phase two of the training, to be initiated in late 2024, will focus on BCIT's agile and flexible learning approach. It will allow for the development and delivery of microcredentials and other short courses to complement CASTL's curriculum and further address the specific needs of industry.

B.C. is a globally relevant leader in several life sciences fields, including antibiodies and vaccine research and development. The recent $7.2 million funding investment from PacifiCan and the Government of B.C. earlier this year builds on the overall commitment to support the diverse talent development and training needs of the industry. For some companies, it may mean basic skill development for new hires in biomanufacturing, and for others, it may be upskilling of current employers. For people working in other industries, this training centre will be an opportunity to reskill for the life sciences industry. No matter the need, BCIT and CASTL will be ready to support.

This National Biomanufacturing Training Centre is a B.C. resource and will bring academia, government and industry partners together to work collaboratively to ensure there is high quality, hands-on biomanufacturing training that is aligned with industry needs to fill current and future roles. This will help strengthen B.C.'s leadership as a global hub for life sciences and biomanufacturing, as well as to help advance Canada's capabilities in developing pharmaceutical products and vaccines.

Lisa Chu is dean for the School of Health Sciences at BCIT. The school offers 34 programs, including biotechnology in the lab, allied health portfolio, diagnostic imaging, bachelor of science in nursing, and many specialty nursing programs, such as emergency and pediatrics.

25th ANNUAL LIFE SCIENCES BC AWARDS

Accelerating B.C.'s Life Sciences sector

Life Sciences BC is proud to announce the winners of the 25th Annual Life Sciences BC Awards presented by Farris, recognizing exceptional individuals, companies and organizations pivotal in propelling British Columbia's thriving life sciences sector forward in the last year. Their groundbreaking discoveries, cutting-edge technologies, health-care advancements, strategic leadership and dedication to community building have profoundly and positively impacted the sector.

Nominees for the LSBC Awards represent B.C.'s broad and diverse life sciences. They are united by a collective mission to improve patients' lives through innovative solutions. Nominated by their peers, the winners are chosen by a committee of sector leaders.

This year's awards include two new categories. The Scientific Entrepreneurship Award honours exceptional scientific entrepreneurs from esteemed research institutions. The Companies to Watch Honour Roll pays tribute to early-stage companies that have excelled among their peers.

The 2023 award winners epitomize the talent that defines B.C.'s life sciences landscape. As Canada's fastest-growing life sciences sector and one of the province's swiftest-growing industries, life sciences in B.C. are experiencing continued growth in number of large companies, employment and valuation in equity investments while delivering on improved health and economic diversification. We invite readers to join us in celebrating this year's outstanding honourees.

2023 Life Sciences BC Award winners	
WELL Health Technologies Corp.	Company of the Year
Xenon Pharmaceuticals Inc.	Company of the Year
Abdera Therapeutics Inc.	Emerging Company of the Year
Government of British Columbia, Ministry of Jobs, Economic Development and Innovation (JEDI)	Strategic Partner of the Year
Noel Hall	Dr. Don Rix Lifetime Achievement Award
Dr. Haig Farris	Milton Wong Community Leadership Award
Dr. Peter Zandstra	Scientific Entrepreneurship Award
Dr. Laura Arbour	Genome BC Scientific Excellence Award
Bold Therapeutics Inc.	Companies to Watch – Recognition Honour Roll
Gandeeva Therapeutics	Companies to Watch – Recognition Honour Roll
ScopeSys	Companies to Watch – Recognition Honour Roll
Sonic Incytes Medical Corp.	Companies to Watch – Recognition Honour Roll

COMPANY OF THE YEAR
WELL HEALTH TECHNOLOGIES CORP.

WELL Health

WELL is a health-care provider-focused digital health-care company. The company's overarching mission is to positively impact health outcomes by leveraging technology to empower health-care providers and their patients globally.

WELL exists to tech-enable health-care practitioners with best-in-class technology and services. We have built the most comprehensive end-to-end health-care system across Canada, including the nation's largest network of clinics supporting primary care, specialized care and diagnostics services. In the U.S., WELL provides omni-channel health-care services and solutions targeting specialized markets such as the gastrointestinal market, women's health, primary care and mental disorders. In addition to providing patient services, WELL develops, integrates and sells its own suite of technology software and solutions to medical clinics and health-care providers. Their Practitioner Enablement Platform includes electronic medical records (EMR), tele-health platforms, practice management, billing, revenue cycle management, digital health apps and data protection solutions.

COMPANY OF THE YEAR
XENON PHARMACEUTICALS INC.

XENON

Xenon Pharmaceuticals is a clinical-stage biopharmaceutical company committed to providing a brighter future for patients suffering from neurological disorders. They are advancing a robust pipeline of neurology-focused therapeutics with a focus on commercializing novel treatments for epilepsy. Building upon the positive results and compelling data from the XEN1101 Phase 2b "X-TOLE" study in adult patients with focal epilepsy, the XEN1101 Phase 3 epilepsy program includes studies in adult patients with focal onset seizures and primary generalized tonic-clonic seizures. In addition, XEN1101 is being evaluated as a treatment for major depressive disorder in both a company-sponsored Phase 2 clinical trial, as well as an investigator-led proof-of-concept study.

EMERGING COMPANY OF THE YEAR
ABDERA THERAPEUTICS INC.

Abdera Therapeutics

Abdera Therapeutics Inc. is a precision oncology company leveraging antibody engineering to design and develop next-generation targeted radiation therapeutics for cancer – one of the most cutting-edge and highly promising areas of drug development. The company is built on the Radio Optimized Vector Engineering (ROVEr™) platform, a proprietary modular technology platform optimized for the delivery of radioisotopes to selectively destroy tumor cells while sparing healthy cells. Abdera is using this platform to enable the rapid development of a broad range of safe and efficacious best-in-class therapies with tunable pharmacokinetic properties to address a broad range of novel and clinically validated solid tumor targets. The company, and its technology and team, are purpose-built to attack cancer.

STRATEGIC PARTNER OF THE YEAR
GOVERNMENT OF BRITISH COLUMBIA, MINISTRY OF JOBS, ECONOMIC DEVELOPMENT AND INNOVATION (JEDI)

BRITISH COLUMBIA | Ministry of Jobs, Economic Development and Innovation

The Ministry of Jobs, Economic Development and Innovation (JEDI) manages government programs and services that help support and maintain the strong and diverse economy that British Columbians need for a sustainable, clean, secure and fair economy. It supports the growth of B.C.'s tech sector, champions innovation across the economy, nurtures small businesses, supports economic development throughout the province and promotes B.C. internationally as a preferred place to invest and do business.

In February 2022, the ministry launched the ambitious StrongerBC Economic Plan, a long-term strategy that focuses on clean and inclusive growth for our province. Inclusive growth is centred around supporting people and families, building resilient communities and advancing true, lasting and meaningful reconciliation with Indigenous Peoples. Clean growth is targeted at meeting B.C.'s climate commitment, leading on environmental and social responsibility (ESG) and fostering innovation across the economy. By putting people first, through the actions taken, the province is building a stronger B.C. for everyone.

DR. DON RIX LIFETIME ACHIEVEMENT AWARD
NOEL HALL

Starting his biomedical career as a pharmaceutical sales representative in South London, Noel Hall was lucky to be mentored by creative, intelligent senior executives who instilled the importance of implementing a commercial strategy early in the development process. When he moved with his family to B.C. in 1999, he recognized biotech startups could get greater value for their ideas by commercializing their own technologies and not partnering too early. He started consulting with companies in B.C. on their commercial and business development strategies. It was during his time on the board of the Canadian Genetic Diseases Network that Hall became intrigued by the lack of development of medicines for orphan diseases. Working with two other board members, he conceptualized a new business model to accelerate drug development for rare diseases. Aspreva went on to become one the great success stories of the B.C. biotech scene. It demonstrated that it is possible to retain and recruit great people in B.C., and left Hall passionate about growing a vibrant biotechnology sector with the confidence to commercialize its own technologies. He has founded six B.C. companies, been an early board member and investor to numerous others and a mentor for many more, including in the agricultural biotechnology sector through the Creative Destruction Lab.

MILTON WONG COMMUNITY LEADERSHIP AWARD
DR. HAIG FARRIS

Dr. Haig Farris, a pioneering entrepreneur with an LLM from the University of Pennsylvania and an honorary doctorate from UBC, co-founded the financial consulting firm Brown, Farris & Jefferson and Ventures West Management. Since 1990, as president of Fractal Capital Corp., he has been a driving force behind early-stage financing for tech startups, including D-Wave Systems, Bycast, Zymeworks, Datum Telegraphic and TECH-X Resources.

Dr. Farris shared his entrepreneurial expertise as an adjunct professor at UBC for over a decade. He has chaired numerous advisory committees and boards in science and technology, including Genome BC, TRIUMF Innovations and the BC Technology Industry Association. A celebrated speaker and author, he co-founded Science World BC.

Honoured as an officer of the Order of Canada and inducted into the Business Laureates of B.C. Hall of Fame, Dr. Farris's illustrious career and dedication to innovation and community service have forever shaped Canada's tech landscape.

SCIENTIFIC ENTREPRENEURSHIP AWARD
DR. PETER ZANDSTRA

Dr. Peter Zandstra focuses his work on the progression of regenerative medicine and immunotherapy. His education includes a bachelro of engineering in chemical engineering (McGill University), a PhD in chemical engineering and biotechnology (University of British Columbia) and a post-doctoral fellowship in bioengineering from MIT. Dr. Zandstra's research, which incorporates engineering design principles, computational modelling and stem cell biology, is geared toward understanding cell fate control mechanisms and developing new therapeutic strategies for diseases such as cancer and autoimmunity. His lab has produced 172 publications, garnered nearly 22,000 citations and developed commercially applicable technologies for cell and gene therapies.

Recognized with over 30 awards, including as a member of the Order of Canada, Dr. Zandstra's influence is seen in his students and post-doctoral fellows who have achieved success in various sectors. Beyond his academic contributions, he co-founded the Centre for Commercialization of Regenerative Medicine (CCRM) and Medicine by Design (MbD), and helped establish UBC's School of Biomedical Engineering, demonstrating his commitment to interdisciplinary research and promoting Canadian science and engineering globally.

GENOME BC SCIENTIFIC EXCELLENCE AWARD
DR. LAURA ARBOUR

Dr. Laura Arbour is a professor in the department of medical genetics at the University of British Columbia, and an affiliate professor in the division of medical sciences at the University of Victoria. Trained as both pediatrician and clinical geneticist (McGill University), she has been addressing the genetic determinants of health with Indigenous populations for more than two decades. Through her UBC Community Genetics Research Program, she has focused on rare, single-gene disorders and complex conditions in partnership with First Nations of BC and Inuit of Nunavut. Her clinical practice in Victoria and various outreach sites across B.C. involves rare genetic disease diagnosis with a focus on cardiogenetics. Her partnership in research on Long QT syndrome with a First Nations community of Northern B.C. led to the concept and initiation of the BC Inherited Arrhythmia Program (BCIAP) for all British Columbians with inherited arrhythmias, ongoing since 2013. Currently she is the project lead (with co-leads Dr. Wyeth Wasserman and Dr. Nadine Caron) for the Genome BC/Genome Canada/CIHR funded large-scale applied research project, Silent Genomes, which addresses inequity in genomic diagnosis for Indigenous patients in Canada.

COMPANIES TO WATCH – RECOGNITION HONOUR ROLL

BOLD THERAPEUTICS INC.

Bold Therapeutics is a Vancouver-based clinical-stage biopharmaceutical company that specializes in the development of novel metallotherapeutics. The company's lead asset is BOLD-100, a groundbreaking therapeutic currently undergoing Phase 2 clinical trials for the treatment of advanced gastrointestinal cancers. Interim results, presented at AACR and ASCO, have demonstrated remarkably positive efficacy in colorectal, biliary tract and gastric cancer. Bold Therapeutics remains committed to advancing clinical development in areas with significant unmet medical needs, where existing therapies have proven largely ineffective.

GANDEEVA THERAPEUTICS

Gandeeva Therapeutics is a precision biotechnology company integrating the power of cryogenic electron microscopy and machine learning to develop differentiated therapeutics by targeting and modulating key protein-protein interactions. Gandeeva's structure-guided drug discovery platform encompasses target prediction and validation (SPOTLIGHT), hit identification by screening virtual and fragment libraries (HYPERFOCUS) and lead optimization (CRYO-CADD). Gandeeva has a robust pre-clinical oncology pipeline targeting difficult-to-treat cancers with novel protein interaction modulators such as interfacial glues (iGlues) and allosteric inhibitors. Gandeeva is headquartered in Metro Vancouver.

SCOPESYS

ScopeSys is a commercial-stage developer of disruptive technologies for single-molecule imaging with applications in genomic-medicine drug development. ScopeSys' Convex Lens-induced Confinement (CLiC) technology enables high-throughput measurements with single-molecule resolution. CLiC provides novel analysis capabilities to genomic-medicine for the development of RNA, DNA and nanoparticle-delivered drugs. Unlike existing technologies that rely on ensemble measurements, CLiC allows developers to resolve single-molecule interactions, improving their ability to engineer their active pharmaceutical ingredients and formulations. Applications include optimizing sequences of therapeutics to improve their efficacy, and optimization of mRNA loading at single-particle resolution.

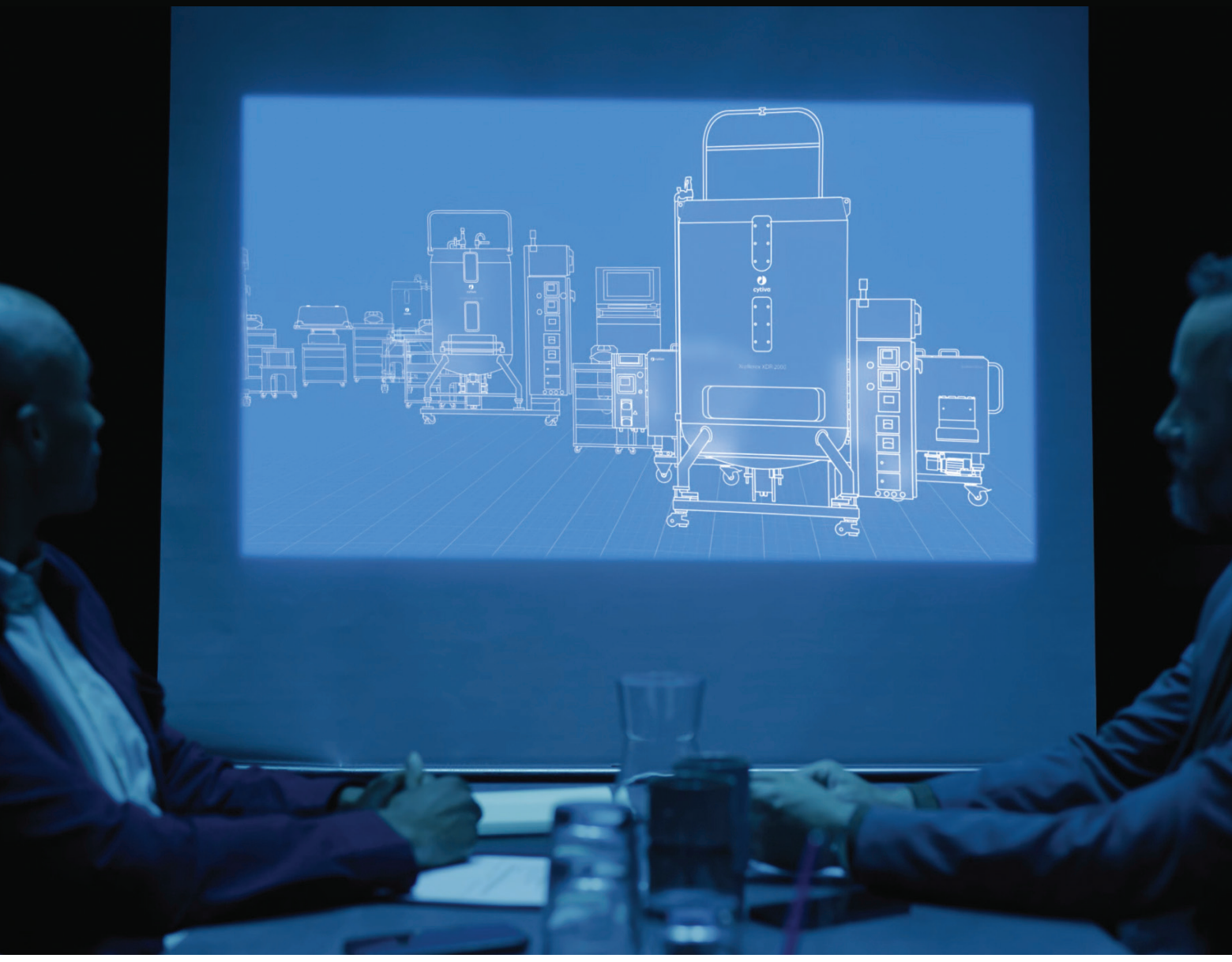
SONIC INCYTES MEDICAL CORP.

Sonic Incytes, founded in 2017 by Dr. Tim Salcudean and Dr. Robert Rohling, is dedicated to revolutionizing patient care through accessible health-tech solutions. Led by entrepreneur Barry Allen, the team comprises skilled medtech commercialization and development professionals. Sonic Incytes is emerging as a leader in liver health assessment, with their FDA-cleared flagship product Velacur, used to aid in the diagnosis and management of chronic liver disease, specifically non-alcoholic fatty liver disease (NAFLD), which affects nearly 30 per cent of the global population.

Headquartered in Vancouver and with strategic operations in the U.S., Sonic Incytes' commercialization efforts have doubled their customer base across 17 states. They've also formed a partnership with Madrigal Pharmaceuticals – a company poised to launch the first drug for the severe form of NAFLD in early 2024 – an event that should significantly increase demand for Velacur.

Committed to innovation, Sonic Incytes is set to positively impact millions worldwide, while rising to the forefront of the health-tech revolution.

cytiva



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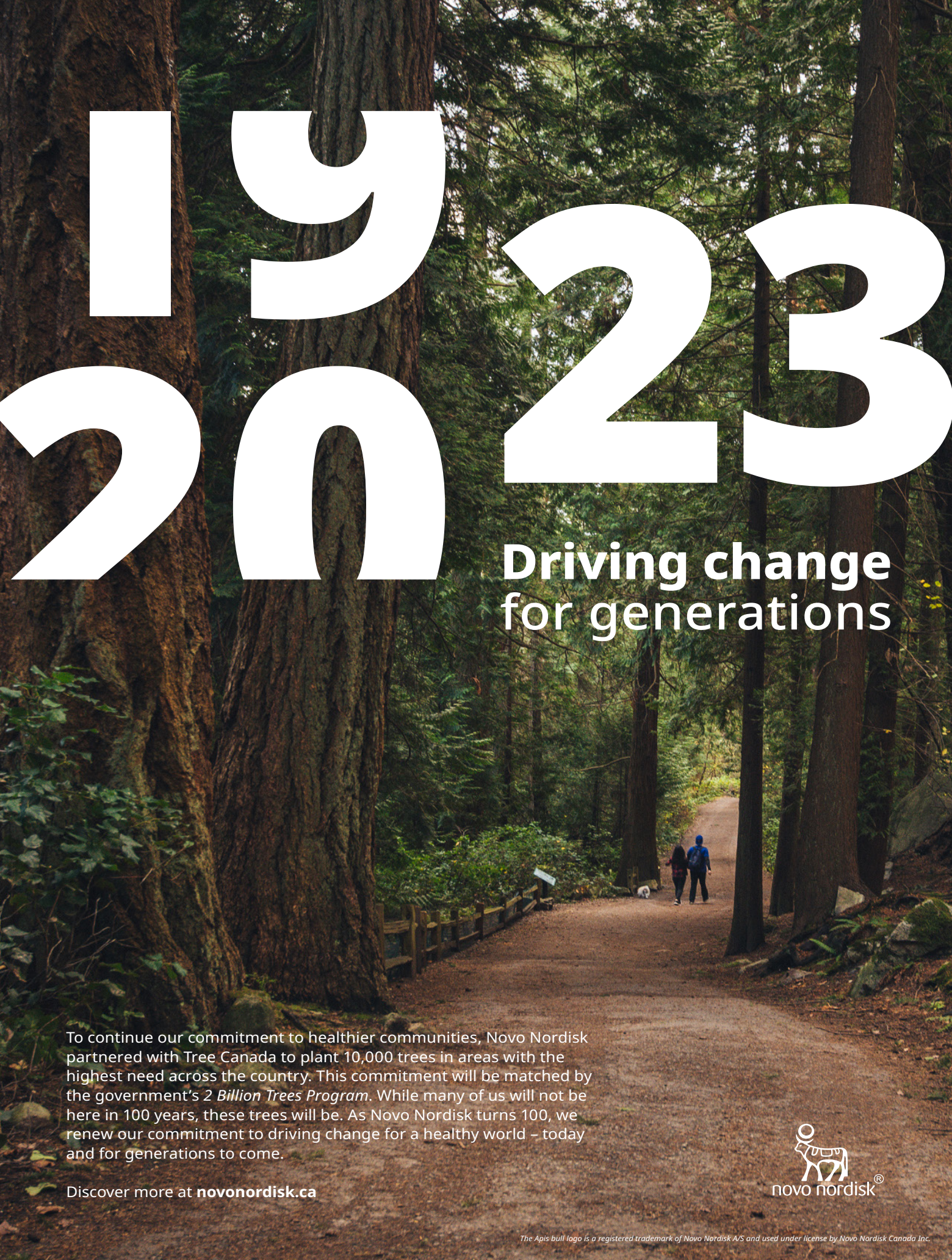
2023
Driving change
for generations
To continue our commitment to healthier communities, Novo Nordisk partnered with Tree Canada to plant 10,000 trees in areas with the highest need across the country. This commitment will be matched by the government's *2 Billion Trees Program*. While many of us will not be here in 100 years, these trees will be. As Novo Nordisk turns 100, we renew our commitment to driving change for a healthy world – today and for generations to come.
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2022

LSBC member clinical milestones

Date	Company/organization	Clinical milestone
January	Aequus Pharmaceuticals	Aequus extends commercial agreement for specialty product Tacrolimus IR in Canada
January	Algernon Pharmaceuticals	Algernon Pharmaceuticals discloses novel salt patent strategy as part of its psychedelic drug DMT intellectual property
January	Algernon Pharmaceuticals	Algernon Pharmaceuticals announces notice of allowance for Ifenprodil patent application for idiopathic pulmonary fibrosis
January	Bold Therapeutics Inc.	Bold Therapeutics extends South Korea option agreement for BOLD-100, a first-in-class anti-resistance therapeutic
January	ESSA Pharma Inc.	ESSA Pharma announces first patient dosed in a Phase 1/2 clinical trial of EPI-7386 in combination with enzalutamide in patients with metastatic castration-resistant prostate cancer
January	Gandeeva Therapeutics	Gandeeva raises $40 million in Series A funding to develop novel therapies based on precision imaging of protein-drug interactions
January	GSK Canada	GSK announces additional purchase agreements with the Government of Canada for COVID-19 monoclonal antibody therapy, Sotrovimab
January	ICORD	Spinal cord injury research receives $24 million in funding support
January	InMed Pharmaceuticals Inc.	InMed launches Cannabicitran (CBT), expanding its rare cannabinoid portfolio for the health and wellness sector
January	Numinus Wellness Inc.	Numinus identified as a licensed psilocybin supplier by Health Canada
January	Pfizer Canada Inc.	Pfizer receives Health Canada authorization for COVID-19 oral treatment
January	Xenon Pharmaceuticals Inc.	Xenon Pharmaceuticals Announces collaboration with Neurocrine Biosciences achieves $15 million regulatory milestone
February	AbbVie Corporation Canada	AbbVie announces first provincial reimbursements for VENCLEXTA® (venetoclax) in combination with Azacitidine for acute myeloid leukemia (AML) patients
February	AbbVie Corporation Canada	AbbVie and the University of Toronto establish endowed chair in ethnodermatology
February	AbCellera	AbCellera-discovered antibody, Bebtelovimab, receives U.S. FDA Emergency Use Authorization for the treatment of mild-to-moderate COVID-19
February	AbCellera	Lilly to supply up to 600,000 doses of AbCellera-discovered antibody, Bebtelovimab, to the U.S. government in ongoing effort to provide COVID-19 treatments
February	Algernon Pharmaceuticals	Algernon Pharmaceuticals announces completion of enrollment in its Phase 2 study of Ifenprodil for IPF and chronic cough
February	Algernon Pharmaceuticals	Algernon Pharmaceuticals begins manufacturing of Repirinast and launches new chronic kidney disease research program
February	Ondine Biomedical Inc.	Ondine Biomedical treats first patients in nasal photodisinfection U.S. Phase 2 for the prevention of post-operative infections
February	Roche Canada (Hoffmann-La Roche Ltd.)	Roche Canada and the pan-Canadian Pharmaceutical Alliance (pCPA) successfully complete negotiations for EVRYSDI® (risdiplam) for the treatment of adults and children with spinal muscular atrophy (SMA)
February	Roche Canada (Hoffmann-La Roche Ltd.)	Health Canada authorizes TECENTRIQ® (atezolizumab) for Canadians with early non-small cell lung cancer
February	SaNOtize Research and Development Corp	Phase 3 clinical trial confirms SaNOtize's breakthrough treatment is 99 per cent effective against COVID-19; receives regulatory approval in India

Note: This list was compiled by Life Sciences BC and represents a selection of clinical milestones achieved by LSBC member organizations. The digital version of this magazine displays a longer list of milestones than the 2023 print edition of Life Sciences.

2022

LSBC member clinical milestones

Date	Company/organization	Clinical milestone
February	ViroGin Biotech Canada Ltd.	Virogin Biotech receives IND approval from the U.S. FDA for VG161
February	Zymeworks Inc.	Vancouver-based Zymeworks announces closing of $115 million new financing (via public offering)
March	AbbVie Corporation Canada	AbbVie expands immunology portfolio in Canada as Health Canada approves SKYRIZI® (risankizumab) for the treatment of adults with active psoriatic arthritis
March	adMare BioInnovations	Government of Canada invests $92 million in adMare to help translate health research into innovative new therapies in Canada
March	Bausch Health, Canada	New data on cost impact of treating opioid-induced constipation (OIC) with FDA-approved medications, including Salix's RELISTOR® subcutaneous injection (methylnaltrexone bromide), in the emergency department is published in Advances In Therapy
March	Biogen Canada	Health Canada approves Samsung Bioepis and Biogen's BYOOVIZ™ (SB11), LUCENTIS® Biosimilar (Ranibizumab)
March	Boehringer Ingelheim (Canada) Ltd.	Boehringer Ingelheim and the Vector Institute to collaborate on AI
March	Bold Therapeutics Inc.	Bold Therapeutics successfully completes Phase 1b trial and advances into global Phase 2 trial of BOLD-100 in the treatment of advanced GI cancers
March	Fusion Genomics	Fusion Genomics ONETest selected for pilot pandemic surveillance study at Toronto Pearson International Airport
March	Izotropic Corporation	Izotropic establishing engineering and development facility in the U.S.
March	Medtronic Canada ULC	Medtronic continuous glucose monitoring to be reimbursed for eligible people living with Type 1 diabetes in Ontario
March	Medtronic Canada ULC	Medtronic receives Health Canada licence for Pipeline Vantage Embolization Device with Shield Technology
March	NervGen Pharma Corp.	NervGen Pharma receives approval from safety review committee to proceed to second cohort in multiple ascending dose portion of Phase 1 clinical trial of NVG-291
March	Nimbus Synergies	Nimbus Synergies leads $20 million strategic investment in Clarius Mobile Health to accelerate growth
March	Numinus Wellness Inc.	Numinus adds ayahuasca and san pedro to federal license for psychedelic research
March	Numinus Wellness Inc.	Numinus Wellness gets Health Canada approval for ayahuasca
March	Qu Biologics Inc.	Qu Biologics closes US$12 million financing
March	Roche Canada (Hoffmann-La Roche Ltd.)	Alberta Precision Laboratories and Roche Diagnostics join forces to ensure accurate diagnosis and time saving through provincial integration and standardization of lab equipment
March	St. Paul's Foundation	St. Paul's patient world's first to undergo new type of heart-valve surgery
March	Vertex Pharmaceuticals (Canada) Inc.	Health Canada grants marketing authorization for KALYDECO® (ivacaftor) for patients with cystic fibrosis between the ages of four months and 18 years with the R117H mutation in the CFTR gene
April	Algernon Pharmaceuticals	Algernon Pharmaceuticals announces lead chronic kidney disease drug Repirinast reduced fibrosis by 56 per cent in a preclinical NASH study

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2022

LSBC member clinical milestones

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April	Aspect Biosystems	Aspect Biosystems announces partnership with Jdrf to advance development of a bioengineered tissue therapeutic to treat Type 1 diabetes
April	AstraZeneca Canada Inc.	Evusheld™ receives Health Canada approval for pre-exposure prophylaxis (prevention) of COVID-19 in immune-compromised individuals
April	Aurinia Pharmaceuticals Inc.	Aurinia announces year-two commitment to patient navigation grant program to address barriers for individuals living with lupus and lupus nephritis
April	Boehringer Ingelheim (Canada) Ltd.	Research Manitoba, Boehringer Ingelheim Canada and First Nations Health and Social Secretariat of Manitoba announce chronic kidney disease screening program in the manitoba adult First Nations population
April	Boehringer Ingelheim (Canada) Ltd.	JARDIANCE® (empagliflozin) becomes the first and only approved treatment in Canada for adults with chronic heart failure regardless of ejection fraction
April	Boehringer Ingelheim (Canada) Ltd.	New collaboration to improve the detection of Type 2 diabetes in high-risk patients starts in Montreal
April	Chinook Therapeutics Inc.	Chinook Therapeutics announces initiation of Phase 1 healthy volunteer trial of Chk-336, a first-in-class Ldha inhibitor to treat hyperoxalurias
April	EMD Serono Canada	New data analysis shows increase in cancer caregivers in Canada, and the significant impact of COVID-19
April	InMed Pharmaceuticals Inc.	InMed commercializes Cannabidivarin (CBDV), Expanding its rare cannabinoid portfolio for the health and wellness sector
April	InMed Pharmaceuticals Inc.	InMed expands patent portfolio with novel cannabinoid analogs and advances collaboration agreement with leading cannabinoid research expert
April	Janssen Inc.	Ontario strengthens domestic pharmaceutical manufacturing capacity
April	Kardium Inc.	Kardium's Globe® System begins clinical trial at St. Paul's Hospital
April	Merck	Health Canada approves GARDASIL®9 (human papillomavirus 9-valent vaccine, recombinant) for the prevention of oropharyngeal and other head and neck cancers
April	Merck	Health Canada approves KEYTRUDA® (pembrolizumab) for the treatment of adult patients with high-risk early-stage triple-negative breast cancer (TNBC) in combination with chemotherapy as neoadjuvant treatment, and then continued as monotherapy as adjuvant treatment after surgery
April	Ondine Biomedical Inc.	Ondine says study confirms photodisinfection is effective against SARS-CoV-2
April	STEMCELL Technologies Canada inc.	Applied Cells enters into a supply agreement with STEMCELL Technologies on reagent kits for use in a next-generation solution for cell separation
April	STEMCELL Technologies Canada inc.	BC Children's Hospital announces first-of-its kind stem cell research technology
April	UBC - School of Biomedical Engineering	Engineers at UBC get under the skin of ionic skin
April	Vertex Pharmaceuticals (Canada) Inc.	Health Canada grants marketing authorization for TRIKAFTA® (elexacaftor/tezacaftor/ivacaftor and ivacaftor) in children with cystic fibrosis ages six through 11 years with at least one F508del mutation

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LSBC member clinical milestones

Date	Company/organization	Clinical milestone
April	Zymeworks Inc.	Zymeworks reports last patient enrolled in pivotal study of Zanidatamab in treatment of HER2-expressing late-line biliary tract cancer
May	AbCellera	AbCellera and Empirico expand strategic multi-target antibody discovery collaboration
May	Algernon Pharmaceuticals	Algernon Pharmaceuticals announces last patient treated in Phase 2 study of IPF and chronic cough
May	Boehringer Ingelheim (Canada) Ltd.	Boehringer Ingelheim's latest investigational treatment slowed lung function decline in people living with idiopathic pulmonary fibrosis
May	Chinook Therapeutics Inc.	Chinook Therapeutics presents updated data from Bion-1301 Phase 1/2 trial in patients with IGA nephropathy (IGAN) and from Atrasentan pre-clinical mechanism of action studies at the 59th European Renal Association Congress 2022
May	InMed Pharmaceuticals Inc.	InMed to supply rare cannabinoids to Radicle Science's "Radicle Energy Study" to assess the health effects of THCV
May	NervGen Pharma Corp.	NervGen Pharma receives approval to proceed to the final dose cohort in Phase 1 clinical trial of NVG-291
May	Numinus Wellness Inc.	Numinus Wellness receives Health Canada special access program applicant approval to provide psychedelic-assisted therapy treatment
May	STEMCELL Technologies Canada inc.	Collaboration with STEMCELL Technologies on research-use-only system to fuel preclinical research
May	UBC - School of Biomedical Engineering	New UBC Immunotherapeutics Research Excellence Cluster launches
May	Vancouver Coastal Health Research Institute (VCHRI)	B.C. researchers launching clinical trial for first genetically engineered stem cell-based therapy for Type 1 diabetes
May	Willow Biosciences	Willow Biosciences announces expansion of its fermentation manufacturing network and progress on its CBG Gras Determination
May	Zucara Therapeutics Inc.	Zucara Therapeutics secures additional funding from GlycoNet and Mitacs for the development of ZT-01
June	AbbVie Corporation Canada	MAVIRET® (glecaprevir/pibrentasvir) approved by Health Canada for pediatric patients with chronic hepatitis C
June	AbCellera	Lilly to supply an additional 150,000 doses of AbCellera-discovered antibody, Bebtelovimab, to U.S. government in ongoing effort to provide COVID-19 treatment options
June	Alectos Therapeutics	Biogen and Alectos Therapeutics announce license and collaboration agreement for AL01811, a novel GBA2 inhibitor for the potential treatment of Parkinson's disease
June	Algernon Pharmaceuticals	Algernon announces patients requested ongoing supply of Ifenprodil after IPF and chronic cough Phase 2 study ended
June	Evonik Health Care	Evonik invests US$220 million in partnership with the U.S. government to build new lipid production facility for mRNA-based therapies in the U.S.
June	Genome British Columbia	Genome BC launches new $1 million health data program for researchers working with Providence Health Care
June	Genome British Columbia	New Genome BC project uses remote sensing technologies to identify trees resistant to climate extremes
June	GSK Canada	GSK Canada unveils new head office, embracing a hybrid working model centred on individual and collective performance and personal well-being
June	InMed Pharmaceuticals Inc.	InMed launches THCV, expanding its portfolio of rare cannabinoids for the health and wellness sector

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LSBC member clinical milestones

Date	Company/organization	Clinical milestone
June	InMed Pharmaceuticals Inc.	InMed Pharmaceuticals announces $5 million registered direct and private placement offerings priced at-the-market under Nasdaq rules
June	Roche Canada (Hoffmann-La Roche Ltd.)	Health Canada authorizes VABYSMO® (faricimab injection) for the treatment of neovascular (wet) age-related macular degeneration and diabetic macular edema
June	STEMCELL Technologies Canada inc.	STEMCELL Technologies and PBS Biotech Partner to enable robust scale up of human pluripotent stem cell 3D cultures
June	STEMCELL Technologies Canada inc.	STEMCELL Technologies receives ISO 14001 certification of environmental management system
June	UBC - Faculty of Medicine	UBC researchers launch new dementia prevention program as part of national research initiative
June	UBC - Faculty of Medicine - Academy of Translational Medicine	The ATM receives funding from the B.C. Ministry of Advanced Education and Skills Training to develop a new micro-credential in regulatory affairs in the life sciences
June	UBC - School of Biomedical Engineering	Cancer drug shows potential as treatment for muscular dystrophy
June	Willow Biosciences	Willow Biosciences incorporates Inscripta's Onyx® platform to expand strain engineering capabilities and throughput
June	Xenon Pharmaceuticals Inc.	Xenon Pharmaceuticals announces positive outcome of end-of-Phase 2 meeting with the FDA
June	Zucara Therapeutics Inc.	Zucara Therapeutics reports positive results from Phase 1b trial of ZT-01
July	AbbVie Corporation Canada	Health Canada approves AbbVie's RINVOQ® (upadacitinib) for the treatment of adults with active ankylosing spondylitis
July	AbCellera	Versant Ventures collaborates with AbCellera to accelerate drug development for its portfolio of biotech companies
July	Algernon Pharmaceuticals	Algernon Pharmaceuticals hits co-primary endpoint in its Phase 2 study of Ifenprodil for idiopathic pulmonary fibrosis and chronic cough
July	Clairvoyant Therapeutics Inc.	Clairvoyant initiates first site for Phase 2 psilocybin therapy clinical trial for alcohol use disorder
July	Cytiva	Cytiva opens new Vancouver manufacturing site
July	GSK Canada	Regulatory submission for GSK's daprodustat accepted into Health Canada review
July	GSK Canada	GSK welcomes agreement with the Government of Canada for the provision of pandemic and seasonal influenza vaccines
July	InMed Pharmaceuticals Inc.	InMed announces update on Phase 2 clinical trial investigating INM-755 cannabinol cream for epidermolysis bullosa
July	Izotropic Corporation	Izotropic engages clinical research organization in preparation for clinical study
July	Pfizer Canada Inc.	Health Canada approves the use of CIBINQO (abrocitinib) for the treatment of patients 12 and up with moderate-to-severe atopic dermatitis
July	Pfizer Canada Inc.	Pfizer announces PREVNAR 20™ (pneumococcal 20-valent conjugate vaccine) is now available in Canada for the prevention of pneumonia and invasive pneumococcal disease in adults 18 years of age and older
July	Precision NanoSystems Inc.	Precision NanoSystems and replicate bioscience in licensing deal to scale up genomic medicines

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2022

LSBC member clinical milestones

Date	Company/organization	Clinical milestone
July	Qu Biologics Inc.	Qu Biologics to receive additional funding to launch clinical trial for the restoration of innate immune function in the elderly following Health Canada go-ahead
July	SFU - Beedie School of Business	SFU Beedie founded invention to innovation program developing scientist innovators for major international collaboration on spinal cord research
July	SFU - Faculty of Science	SFU researchers develop new chemical biological tools to monitor Parkinson's disease
July	Takeda Canada Inc.	Health Canada approves HyQvia®, a new treatment for Canadians with immune deficiencies
July	Vertex Pharmaceuticals (Canada) Inc.	Vertex announces letter of intent with the pan-Canadian Pharmaceutical Alliance for public reimbursement of TRIKAFTA® (elexacaftor/tezacaftor/ivacaftor and ivacaftor) in children with cystic fibrosis ages six and older
August	AbCellera	AbCellera and Atlas Venture collaborate to empower the development of impactful medicines for patients
August	Acuitas Therpeutics	Arbor Biotechnologies enters into agreement with Acuitas Therapeutics for lipid nanoparticle delivery system for use in rare liver diseases
August	AstraZeneca Canada Inc.	Lynparza receives Health Canada approval as adjuvant treatment for patients with germline BRCA-mutated HER2-negative high-risk early breast cancer
August	BC Cancer	First national cannabis trial for cancer symptoms being re-opened
August	Evonik Health Care	Evonik and Shell reduce heavy duty transport CO_2e emissions with bio-LNG
August	Eyam Vaccines and Immunotherapeutics	Eyam Vaccines and Immunotherapeutics embarks on new licensing agreement for creating innovative vaccine technologies
August	GlycoNet	GlycoNet integrated services awarded $10.68 million investment from the Canadian Foundation for Innovation's Major Science Initiative Fund
August	Ondine Biomedical Inc.	Ondine Biomedical completes patient recruitment for U.S. Phase 2 nasal photodisinfection trial
August	The GelMA Company (Now OkaSciences)	The GelMA Company wins $510,000 contract with the Government of Canada
August	UBC - Faculty of Pharmaceutical Sciences	UBC team developing oral insulin tablet sees breakthrough results
August	UBC Life Sciences Institute	Receptor FIBCD1 newly identified in neuro-developmental disorders
September	AbbVie Corporation Canada	XEN® 63 Gel Implant available now for patients with primary open angle glaucoma where previous medical treatments have failed
September	AbCellera	AbCellera breaks ground on Phase 2 of global headquarters in Vancouver
September	adMare BioInnovations	New partnership between Genome Canada and adMare BioInnovations to drive commercialization of genomics solutions in health care
September	Algernon Pharmaceuticals	Algernon Pharmaceuticals receives approval for groundbreaking Phase 1 DMT human stroke study
September	Aurinia Pharmaceuticals Inc.	Aurinia announces European Commission approval of LUPKYNIS® (voclosporin) for the treatment of lupus nephritis
September	Boehringer Ingelheim (Canada) Ltd.	Sunnybrook collaborates with Boehringer Ingelheim Canada to enhance care for complex cardiovascular patients

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2022

LSBC member clinical milestones

Date	Company/organization	Clinical milestone
September	Eupraxia Pharmaceuticals Inc.	Eupraxia Pharmaceuticals announces expansion of intellectual property for EP-104IAR
September	Merck	Health Canada approves KEYTRUDA® (pembrolizumab) as adjuvant treatment for adults and children with Stage IIB or IIC melanoma following complete resection
September	Michael Smith Health Research BC	Health Research BC funds 71 scholars and research trainees
September	Pfizer Canada Inc.	COMIRNATY, Pfizer-BioNTech COVID-19 vaccine, receives Health Canada authorization for children six months to under five years of age
September	Precision NanoSystems Inc.	Precision NanoSystems and Replicate Bioscience in licensing deal to scale up genomic medicines
September	Qu Biologics Inc.	Qu Biologics to launch Phase 2B clinical trial to assess reduction of postoperative immune suppression and disease progression in patients with Late-Stage Colorectal Cancer
September	Roche Canada (Hoffmann-La Roche Ltd.)	VABYSMO® (faricimab injection) receives positive CADTH recommendation for the treatment of neovascular (wet) age-related macular degeneration (nAMD) in adults
September	Takeda Canada Inc.	Takeda Canada partners with the Canadian Institutes of Health Research to advance research in rare diseases and Health Canada approves Takeda's LIVTENCITY™
September	ViroGin Biotech Canada Ltd.	Virogin Biotech and MD Anderson announce strategic collaboration to accelerate oncolytic virus research and development for treating advanced cancers
September	Zucara Therapeutics Inc.	Zucara Therapeutics positive proof of concept data secures continued funding ahead of planned Phase 2 clinical trial of ZT-01
September	Zymeworks Inc.	Zymeworks reports preliminary Phase 1 trial results for Zanidatamab Zovodotin (ZW49) at European Society for Medical Oncology Annual Congress
October	adMare BioInnovations	adMare BioInnovations and Medicine by Design partner to support translation priorities in the Toronto Life Sciences Ecosystem
October	Algernon Pharmaceuticals	Algernon Pharmaceuticals enters into a clinical trial agreement with Yale University for a DMT Phase 2 depression study
October	Alpha-9 Theranostics	Eckert & Ziegler and Alpha-9 sign Actinium-225 (Ac-225) reservation agreement
October	AstraZeneca Canada Inc.	Evusheld™ receives Health Canada approval for treatment of Covid-19
October	BioBoost Synbio Consulting Inc	Bioboost Synbio Secures key patent in the United States
October	Canadian Alliance for Skills & Training in Life Sciences (CASTL)	The Canadian Alliance for Skills and Training in Life Sciences officially opens Charlottetown biomanufacturing training facility
October	Derm-Biome Pharmaceuticals Inc.	Derm-Biome Pharmaceuticals reports positive preclinical data in melanoma and squamous cell carcinoma, initiates a program aimed at advancing topical therapies for skin cancer to the clinic
October	Eupraxia Pharmaceuticals Inc.	Eupraxia Pharmaceuticals initiates Phase 2 study in eosinophilic esophagitis
October	Lumira Ventures	Lumira ventures participates in the closing of PIC Therapeutics $35 million Series A financing to develop treatments for drug-resistant breast cancer
October	Merck	Health Canada approves KEYTRUDA® (pembrolizumab) as monotherapy for the adjuvant treatment of adults with renal cell carcinoma at intermediate-high or high risk of recurrence following nephrectomy or following nephrectomy and resection of metastatic lesions

Note: This list was compiled by Life Sciences BC and represents a selection of clinical milestones achieved by LSBC member organizations. The digital version of this magazine displays a longer list of milestones than the 2023 print edition of Life Sciences.

2022

LSBC member clinical milestones

Date	Company/organization	Clinical milestone
October	Lumira Ventures	Lumira ventures participates in the closing of PIC Therapeutics $35 million Series A financing to develop treatments for drug-resistant breast cancer
October	Merck	Health Canada approves KEYTRUDA® (pembrolizumab) as monotherapy for the adjuvant treatment of adults with renal cell carcinoma at intermediate-high or high risk of recurrence following nephrectomy or following nephrectomy and resection of metastatic lesions
October	NervGen Pharma Corp.	NervGen Pharma awarded up to US$1.5 million Department of Defense funding to evaluate NervGen's NVG-291-R for peripheral nerve injury
October	Novartis Pharmaceuticals Canada Inc.	Gene Therapy Luxturna® now reimbursed in Quebec for people with previously untreatable inherited vision loss
October	Pfizer Canada Inc.	Pfizer and BioNTech's Omicron BA.4/BA.5-adapted bivalent COVID-19 vaccine booster receives Health Canada authorization for individuals 12 years of age and older
October	Qu Biologics Inc.	Qu Biologics to receive additional funding to support innovative new treatment to restore innate immune function in the elderly
October	Roche Canada (Hoffmann-La Roche Ltd.)	TECENTRIQ® (atezolizumab) receives CADTH reimbursement recommendations for the adjuvant treatment of early-stage non-small lung cell cancer and the treatment of extensive stage small cell lung cancer
October	Takeda Canada Inc.	Takeda releases report on the importance of defining rare disease in canada
October	UBC - Faculty of Medicine	UBC Faculty of Medicine researchers receive federal support to advance mRNA vaccine technologies
October	Zymeworks Inc.	Jazz Pharmaceuticals and Zymeworks announce exclusive license agreement to develop and commercialize Zanidatamab, a HER2-targeted bispecific antibody
November	AbbVie Corporation Canada	Health Canada approves UBRELVY® (ubrogepant tablet)
November	AbCellera	AbCellera's first program with Regeneron in multi-target collaboration advances in preclinical development and presents new data on further development and characterization of T-Cell Engager platform at SITC 2022
October	UBC - Faculty of Medicine	UBC Faculty of Medicine researchers receive federal support to advance mRNA vaccine technologies
November	Bausch Health, Canada	Bausch Health Canada announces Arazlo (tazarotene) was added to the Quebec public drug plan for treatment of acne vulgaris
November	Boehringer Ingelheim (Canada) Ltd.	EMPA-KIDNEY trial showed significant benefit of JARDIANCE® (empagliflozin) in reducing kidney disease progression or cardiovascular death by 28 per cent versus placebo in people living with chronic kidney disease
November	Chinook Therapeutics Inc.	Chinook Therapeutics presents updated data from BION-1301 Phase 1/2 trial in patients with IGA nephropathy and CHK-336 preclinical efficacy data at the American Society of Nephrology Kidney Week 2022
November	Clairvoyant Therapeutics Inc.	First patient dosed in clairvoyant's Phase 2 clinical trial exploring psilocybin as a treatment for alcohol use disorder
November	GSK Canada	GSK Canada submits respiratory syncytial virus vaccine candidate for regulatory review
November	InMed Pharmaceuticals Inc.	InMed Pharmaceuticals advances neurodegenerative disease program with Natural Sciences and Engineering Research Council of Canada alliance grant funding
November	Kardium Inc.	Successful first-in-human clinical study of Kardium's next generation globe pulsed field system
November	NervGen Pharma Corp.	NervGen Pharma announces composition of matter patent for NVG-291 granted by the U.S. Patent and Trade Office

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2022

LSBC member clinical milestones

Date	Company/organization	Clinical milestone
November	PharmAla Biotech	PharmAla submits pre-IND dossier for novel MDMA analog to FDA
November	Response Biomedical Corp.	Response Biomedical's RAMP COVID-19 antigen test gets Health Canada approval
November	Roche Canada (Hoffmann-La Roche Ltd.)	VABYSMO® (faricimab injection) receives positive CADTH recommendation for the treatment of Diabetic Macular Edema in adults and Health Canada authorizes POLIVY®
November	Sernova Corp	Sernova announces first two patients implanted with Cell Pouch in the second cohort of its U.S. Phase 1/2 clinical trial for Type 1 diabetes
November	Sonic Incytes Medical Corp.	Sonic Incytes announces clinical trial data comparing Velacur and FibroScan
November	Takeda Canada Inc.	The Canadian Inflammatory Bowel Disease Research Consortium awards first $1 million pioneer grant from Takeda Canada
November	ViroGin Biotech Canada Ltd.	Virogin Biotech announces dosing the first U.S. patient in a Phase 1 study of VG201 for patients with advanced solid tumors
November	WAT Medical Enterprise Ltd.	WAT Medical entrusted by Geely Auto to develop neuromodulation technologies to improve travel experiences
December	AbCellera	AbCellera and Rallybio announce strategic alliance to discover, develop and commercialize novel antibody-based therapeutics for rare diseases, and AbCellera and AbbVie partner to advance new antibody therapies
December	Alpha-9 Theranostics	Alpha-9 Theranostics announces oversubscribed $75 million Series B financing to advance portfolio of radiopharmaceuticals for cancer
December	Canary Medical Inc	Canary Medical announces introduction of groundbreaking orthopedic analytic platform
December	Eupraxia Pharmaceuticals Inc.	Eupraxia Pharmaceuticals completes patient enrollment for its Phase 2 trial in knee osteoarthritis
December	Evonik Health Care	Evonik launches plant-based squalene to boost vaccine efficacy
December	AbCellera	AbCellera and Rallybio announce strategic alliance to discover, develop and commercialize novel antibody-based therapeutics for rare diseases, and AbCellera and AbbVie partner to advance new antibody therapies
December	Alpha-9 Theranostics	Alpha-9 Theranostics announces oversubscribed $75 million Series B financing to advance portfolio of radiopharmaceuticals for cancer
December	Canary Medical Inc	Canary Medical announces introduction of groundbreaking orthopedic analytic platform
December	Eupraxia Pharmaceuticals Inc.	Eupraxia Pharmaceuticals completes patient enrollment for its Phase 2 trial in knee osteoarthritis
December	Numinus Wellness Inc.	Numinus submits clinical trial application to Health Canada for experiential psilocybin-assisted therapy training research
December	Ondine Biomedical Inc.	Ondine reports full results from Phase 2 nasal photodisinfection trial
December	Qu Biologics Inc.	Qu Biologics and Karolinska Institute initiate important new collaboration to validate molecular mechanisms of Qu Biologics' first-in-class immunotherapy platform
December	UBC - Faculty of Medicine	Donation to UBC Medicine is world's largest known gift for MS research and UBC scientists identify broadly-effective, infection-halting compound
December	Zymeworks Inc.	New clinical data for Zanidatamab in HER2+/HR+ metastatic breast cancer presented at 2022 SABCS and Jazz Pharmaceuticals and Zymeworks announce Jazz has confirmed opt-in and advances partnership for Zanidatamab

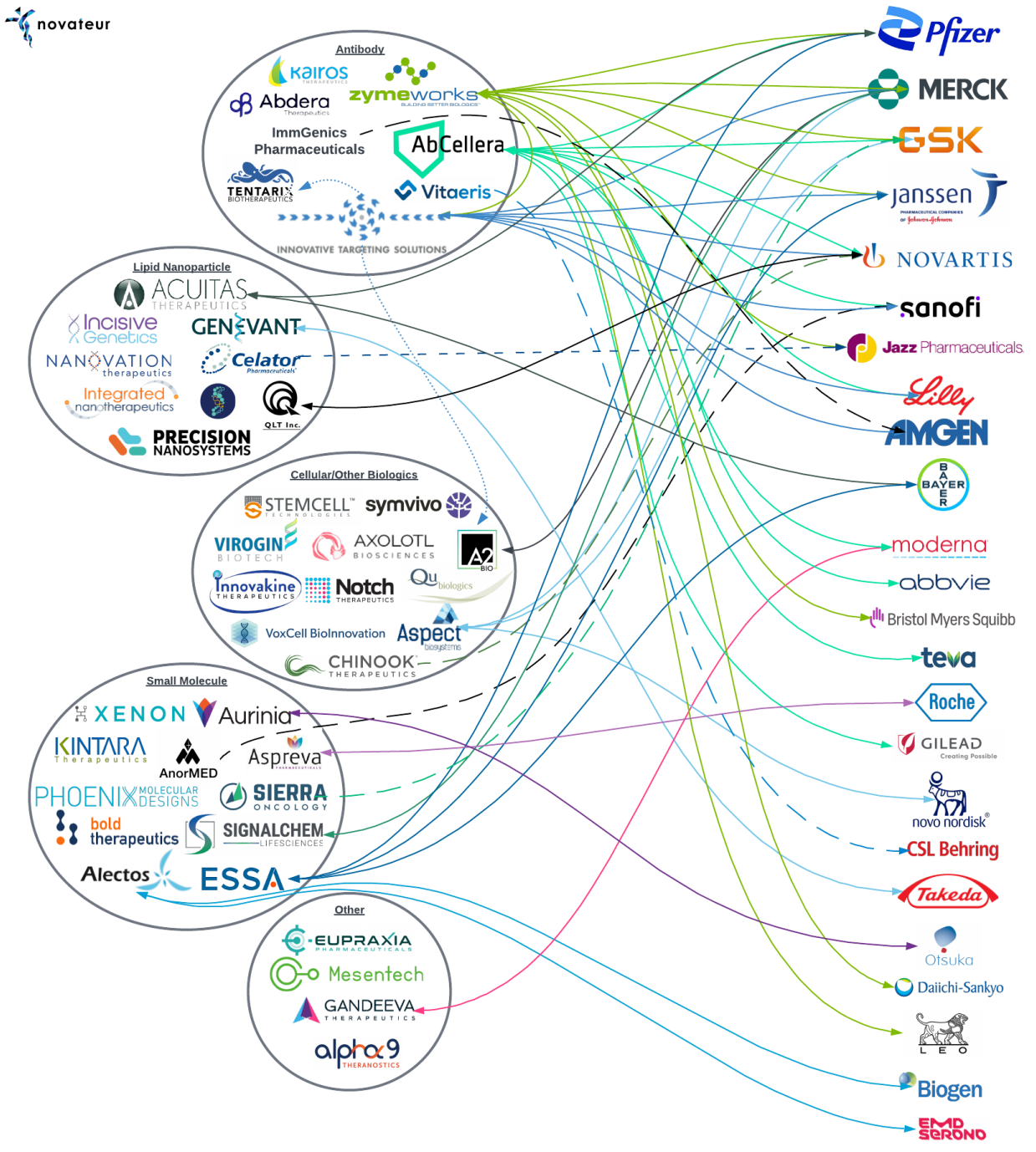
Note: This list was compiled by Life Sciences BC and represents a selection of clinical milestones achieved by LSBC member organizations. The digital version of this magazine displays a longer list of milestones than the 2023 print edition of Life Sciences.

2022

Non-government investments in British Columbia's life sciences sector

Date	Company/organization	Investors/underwriters	Amount (CAD)
2022-01-26	Zymeworks Inc.	Jefferies, EvercoreISI, Stifel, Nicolaus, Wells Fargo, Raymond James	$149,500,000
2022-01-31	Gandeeva Therapeutics Inc.	LuxCapital, LeapsbyBayer, ObviousVentures, AmgenVentures, Amplitude Ventures, Air Street Capital	$52,000,000
2022-02-08	Clearmind Medicine Inc.	Medigus Ltd.	$1,249,244
2022-02-10	BioVaxys Technology Corp.		$315,851
2022-02-17	Bioasis Technologies Inc.	Undisclosed investors	$260,260
2022-02-28	BioVaxys Technology Corp.		$310,301
2022-03-15	Clarius Mobile Health	NimbusSynergies, EDC, NicolaWeath, PenderWealth, BMOCapital	$20,000,000
2022-03-15	Nova Mentis Life Science Corp.	undisclosed investors	$1,161,293
2022-03-21	Qu Biologics Inc.	Integro Capital	$15,600,000
2022-04-12	Kintara Therapeutics Inc.	Institutional investors, Alliance Global Partners (A.G.P.)	$11,180,000
2022-04-20	Eupraxia Pharmaceuticals Inc.	RaymondJames, BMOCapitalMarkets, CanaccordGenuityGroupCorp.	$14,700,000
2022-05-09	Totalflow Medical	Northview Life Sciences	$5,330,000
2022-05-24	Chinook Therapeutics Inc.	SVBSecurities, CantorFitzgerald, WilliamBlair, WedbushPacGrow	$156,975,000
2022-06-06	InMed Pharmaceuticals Inc.	Institutional investor, H.C. Wainwright	$4,560,608
2022-06-06	InMed Pharmaceuticals Inc.	Institutional investor, H.C. Wainwright	$1,949,999
2022-06-22	Xenon Pharmaceuticals Inc.	Jefferies, J.P. Morgan, SVB Securities, Stifel, Nicolaus	$373,750,020
2022-06-27	Algernon Pharmaceuticals Inc.	Research Capital Corp.	$900,775
2022-08-04	BioVaxys Technology Corp.		$156,450
2022-08-18	Algernon Pharmaceuticals Inc.		$1,091,602
2022-08-24	SanotizeResearchandDevelopmentCorp.	Horizons Ventures, OurCrowd, ABC International Holdings Ltd.	$31,200,000
2022-09-13	InMed Pharmaceuticals Inc.	Institutional investors, H.C. Wainwright	$3,555,676
2022-09-19	BioVaxys Technology Corp.		$76,163
2022-11-10	BioVaxys Technology Corp.		$300,348
2022-11-14	Clearmind Medicine Inc.	Aegis Capital	$9,750,007
2022-11-18	InMed Pharmaceuticals Inc.	Institutional investors, H.C. Wainwright	$4,523,408
2022-12-07	BetterLife Pharma Inc.	Negev Capital, undisclosed investors	$616,200
2022-12-14	Alpha-9 Theranostics Inc.	NextechInvest, FrazierLifeSciences, SamsaraBioCapital, QuarkVenture, Longitude Capital, BVF Partners	$97,500,000

Note: This list has been compiled by Life Sciences BC and Novateur Ventures Inc.



B.C.'s thriving biotechnology therapeutics sector

This graphic represents publicly disclosed, active partnerships between B.C.-based therapeutics companies and large, global pharmaceuticals. Companies on the left are grouped based on the technologies, types of medicines and molecules they are developing. The total deal value of these partnerships exceeds US$13 billion, with the average deal size at approximately US$250 million, based on disclosed deal data. Solid lines indicate parterships and dotted lines signify mergers and acquisitions.

Source: Novateur Ventures Inc. (June 2023)

Biggest life sciences companies in B.C.

RANKED BY | Number of R&D employees in 2022

Rank '23	Company	Top local executive(s)	Areas of research	Ownership	Year founded	No. staff globally '22/'21	No. B.C. staff '22/'21	No. R&D staff '22/'21
1	**AbCellera** 2215 Yukon St, Vancouver V5Y 0A1 P: 604-559-9005 F: NA **abcellera.com**	**Carl Hansen**, CEO and president	AbCellera searches, decodes, and analyzes natural immune systems to find antibodies that its partners can develop into drugs to prevent and treat disease	Public	2012	495 386	418 337	**305**[1] 226
2	**STEMCELL Technologies Inc** 1618 Station St, Vancouver V6A 1B6 P: 604-877-0713 F: 800-567-2899 **stemcell.com**	**Allen Eaves**, president and CEO	Provides cell culture media, cell separation tools and accessory reagents for cell biology research, including stem cell biology, regenerative medicine, immunology and cancer research	Privately held	1993	1,867 1,520	1,411 1,146	**290** 213
3	**Kardium Inc** 8518 Glenlyon Pky Suite 155, Burnaby V5J 0B6 P: 604-248-8891 F: 604-304-3478 **kardium.com**	**Doug Goertzen**, president and COO, **Kevin Chaplin**, CEO	Cardiovascular	Privately held	2007	242 190	236 185	**250** 200
4	**Zymeworks Inc** 114 4th Ave E Suite 800, Vancouver V5T 1G4 P: 604-678-1388 F: 604-737-7077 **zymeworks.com**	**Kenneth Galbraith**, chair, president and CEO, **Neil Klompas**, president and COO[2], **Chris Astle**, senior vice-president and CFO	Antibody and protein therapeutics development with a primary focus in oncology	NYSE:ZYME	2003	NA 462	171 251	**123**[3] 123
5	**Xenon Pharmaceuticals Inc** 3650 Gilmore Way Suite 200, Burnaby V5G 4W8 P: 604-484-3300 F: 604-484-3450 **xenon-pharma.com**	**Ian Mortimer**, president and CEO	Epilepsy, major depressive disorder	Public	1996	213 153	153 123	**107** 90
6	**Amgen British Columbia Inc** 7990 Enterprise St, Burnaby V5A 1V7 P: 604-415-1800 F: 604-676-8349 **amgen.ca**	NA	Antibody therapeutics for the treatment of cancer, inflammation and infectious diseases	Nasdaq:AMGN	1980	24,000 24,000	110 110	**95** 95
7	**StarFish Medical** 455 Boleskine Rd, Victoria V8Z 1E7 P: 250-388-3537 F: 250-483-1975 **starfishmedical.com**	**Scott Phillips**, CEO	A medical device design, development and contract manufacturing company that helps medtech innovators create breakthrough products that improve health and save lives	Privately held	1994	205 152	139 120	**86** NA
8	**Chinook Therapeutics Inc** 887 Great Northern Way Suite 210, Vancouver V5T 4T5 P: NA F: NA **chinooktx.com**	**Eric Dobmeier**, president and CEO	A clinical-stage biotechnology company developing precision medicines for kidney diseases	Public	2019	269 NA	39 NA	**44** NA
9	**SignalChem Biotech Inc** 13120 Vanier Pl Suite 110, Richmond V6V 2J2 P: 604-232-4600 F: 604-232-4601 **signalchem.com**	**Jun Yan**, founder, president and CEO, **Zaihui Zhang**, chief scientific officer	Development of innovative cell signalling products	Privately held	2004	101 78	77 58	**39** 29
10	**Aspect Biosystems** 1781 75th Ave W, Vancouver V6P 6P2 P: 604-263-0502 F: NA **aspectbiosystems.com**	**Tamer Mohamed**, president, founder and CEO	Developing bioprinted tissue therapeutics to transform how we treat disease	Privately held	2013	NA 59	70 56	**38**[3] 38
11	**Acuitas Therapeutics, Inc** 6190 Agronomy Rd Suite 405, Vancouver V6T 1Z3 P: 604-227-3904 F: NA **acuitastx.com**	**Thomas Madden**, president and CEO	Specializes in developing lipid nanoparticle delivery systems for nucleic acid therapeutics. Global leader in the field of lipid nanotechnology	Privately held	2009	47 NA	50 37	**37** NA
12	**Artron BioResearch Inc** 3938 North Fraser Way, Burnaby V5J 5H6 P: 604-415-9757 F: 604-415-9795 **artronbio.com**	**Nilgun Demir**, vice-president	Antigen, antibody and uncut sheet manufacturer	Privately held	2002	NA NA	123 100[4]	**30** 20
12	**Verathon Medical Canada ULC** 2227 Douglas Rd, Burnaby V5C 5A9 P: 604-439-3009 F: 604-439-3039 **verathon.com**	NA	Designs, engineers and manufactures respiratory and surgical devices	Privately held	1984	650[1] NA	NA 60	**30**[1] 30[1]
14	**Gene Bio Medical** 6388 No 3 Rd Suite 540, Richmond V6Y 2B3 P: 604-370-0166 F: NA **genebiomedical.com**	**Jessica Hu**, CEO	NA	Private	2021	132 NA	96 12	**29** NA
15	**Burrard Pharmaceuticals** 2240 Chippendale Rd, West Vancouver V7S 3J5 P: 778-279-3901 F: NA **burrardpharma.com**	**Kayhan Moayeri**, CEO	Drug development, manufacturing and formulation	Privately held	2005	NA NA	NA NA	**25**[1] 25[1]
16	**Renaissance BioScience Corp** 2389 Heath Sciences Mall Suite 410, Vancouver V6T 1Z3 P: 604-822-6499 F: NA **renaissancebioscience.com**	**John Husnik**, CSO and office of the CEO, **Maurice Boucher**, executive chair, **Davona Walton**, CFO	Yeast bioengineering company that develops innovative solutions to challenges in multiple industries such as food and beverage, agriculture, human health, aquaculture, and specialty chemicals	Private	2013	31 NA	28 26	**23** 18
17	**ABM - Applied Biological Materials Inc** 3671 Viking Way Unit 1, Richmond V6V 2J5 P: 604-247-2416 F: 604-247-2414 **abmgood.com**	**Peter Li**, CEO, **Ryan Saranchuk**, COO	Products span everything from CRISPR gene editing tools and viral vectors/viruses to the world's largest collection of unique cell lines and the most advanced polymerase chain reaction and next-generation sequencing technologies and services	Privately held	2004	125 124	60 62	**18** 18
18	**Response Biomedical Corp** 1781 75th Ave W, Vancouver V6P 6P2 P: 604-456-6010 F: 604-456-6066 **responsebio.com**	**Barbara Kinnaird**, CEO	Rapid immunoassay diagnostics for clinical cardiovascular applications, environmental infectious disease testing and bio-threat identification	Privately held	1991	101 NA	101 65	**17** 15
19	**Integrated Nanotherapeutics Inc** 4475 Wayburne Dr Suite 205, Burnaby V5G 4X4 P: 604-416-5175 F: NA **integratedntx.com**	**Chris Tam**, co-founder and CEO	Multi-cargo lipid nanoparticles for human diseases	Privately held	NA	NA NA	12 NA	**14** NA
20	**Alectos Therapeutics** 8999 Nelson Way, Burnaby V5A 4B5 P: 604-628-7129 F: 604-628-0137 **alectos.com**	**Ernest McEachern**, president and CEO	Neuroscience	Privately held	2007	NA NA	13 12	**12** 11

Sources: Interviews with representatives of the above firms and *BIV* research. NA Not available NR Not ranked **1 -** *BIV* estimate **2 -** Until June 30, 2023 **3 -** 2021 figure **4 -** 2020 figure

Business in Vancouver makes every attempt to publish accurate information in the List, but accuracy cannot be guaranteed. Researched by Anna Liczmanska, *lists@biv.com*.

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LIFE SCIENCES BC: CATALYZING

Life Sciences BC (LSBC) is a not-for-profit society that unites British Columbia's vibrant and diverse life sciences community. Committed to advancing the sector through an array of local, national and international initiatives, LSBC fosters collaboration and nurtures economic development through leadership, investment facilitation, partnership building and advocacy.

LSBC in 2022-23

- 250+ members in biotech, medtech, digital health, AI, research and academia, professional services and more
- 100+ annual job opportunities through job board postings
- Hosted 20+ events with 120+ speakers and 2,300+ attendees
- 17,000+ social media followers
- 110,000+ annual website visitors
- 4,000+ weekly e-newsletter subscribers
- Represented the B.C. sector at numerous regional, national and international conferences and events

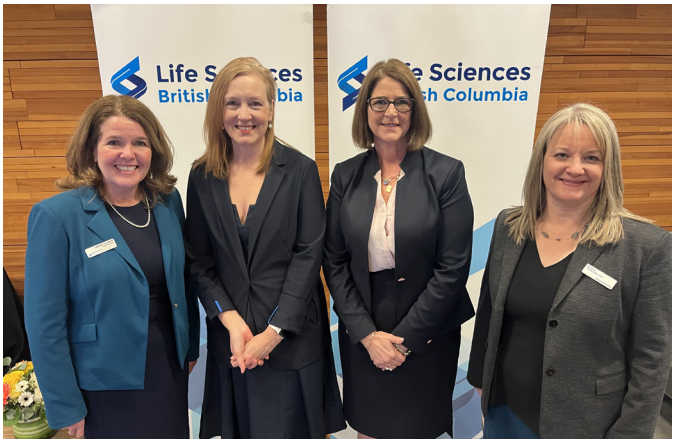
Wendy Hurlburt, Life Sciences BC president and CEO at B.C.'s Life Sciences and Biomanufacturing Strategy announcement.

From left: Jonathan Wilkinson, Canada's minister of natural resources; Wendy Hurlburt of Life Sciences BC; François-Philippe Champagne, Canada's minister of innovation, science and industry; Brenda Bailey, B.C.'s minister of jobs, economic development and innovation, Gordon McCauley of adMare BioInnovations; Ali Ardakani of Novateur Ventures and Life Sciences BC board chair; and B.C. Premier David Eby at a joint provincial, federal and AbCellera announcement.

B.C. JEDI Minister Brenda Bailey (left) with LSBC board chair Ali Ardakani of Novateur Ventures and LSBC president and CEO Wendy Hurlburt.

Wendy Hurlburt, Dr. Pieter Cullis, Ravi Kahlon (current minister of housing and former JEDI minister) at the 2022 LSBC Awards.

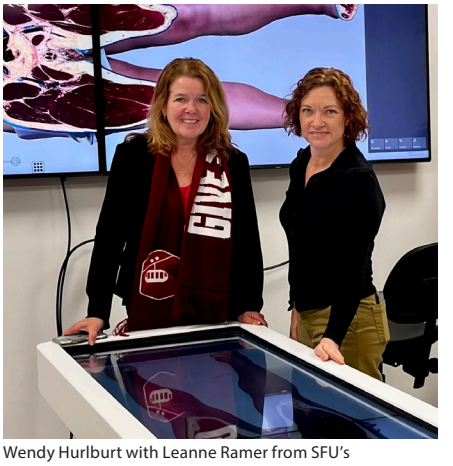
GROWTH AND INNOVATION



Wendy Hurlburt, Minister Brenda Bailey, Invest Vancouver chair and City of North Vancouver Mayor Linda Buchanan, and Invest Vancouver president Jacquie Griffiths at this year's Life Sciences BC Access to Innovation event.

From left: Sidney Reid and Paul-Xavier Etter of the Canadian Alliance for Skills & Training in Life Sciences with Gordon McCauley of adMare and LSBC's Wendy Hurlburt at the National Biomanufacturing Training Centre announcement.

The 2022 award winners at Life Sciences BC's 24th Annual Awards event.



Wendy Hurlburt with Leanne Ramer from SFU's department of biomedical physiology and kinesiology at an anatomage table with a 3D anatomy and virtual dissection platform.

Participants at a Career Connect Day event.

LSBC's Wendy Hurlburt with Dr. Martine Rothblatt.

Life Sciences BC's memberships and partnerships team led by Ryan Butt.

A MEMBERSHIP MESSAGE FROM LIFE SCIENCES BC

Life Sciences BC takes immense pride in our dynamic and diverse membership that drives British Columbia's thriving life sciences sector. Our community comprises leading organizations, institutions, investors and companies at the forefront of commercializing cutting-edge research, development and innovation. Together, we drive advancements in health care, significantly contributing to the local and global scientific landscape while diversifying and growing B.C.'s economy through green technologies and skills.

At the heart of our success lies world-class academic institutions that foster groundbreaking studies in molecular genetics, genomics, bioengineering, personalized medicine, RNA vaccines and treatments, lipid nanoparticles, health data, artificial intelligence, microbial research and more. Drawing top-tier talent, these institutions lay the foundation for the excellence that defines our sector.

Complementing B.C.'s academic excellence are numerous research institutes deeply committed to understanding disease mechanisms and developing innovative treatments. This collaborative environment fuels breakthrough discoveries and expedites the translation of scientific findings into practical applications.

Central to our member ecosystem is a diverse and robust private sector featuring biotech companies, pharmaceutical firms, digital health innovators, medical device manufacturers, scientific suppliers, contract manufacturing organizations, contract research organizations and professional services that support them. Each contributes unique expertise to the broader industry, generating job opportunities and driving the development of cutting-edge therapies and technologies with global impact.

Collaborations with government agencies further augment the strength of B.C.'s life sciences ecosystem. Through funding, regulatory guidance and industry partnerships, these agencies catalyze innovation, ensure safety and address health-care challenges. Their support positions B.C. as a global life sciences leader.

From groundbreaking research to the commercialization of innovative technologies, we celebrate our members, their incredible work and their collective impact on shaping the future of healthcare. Together, we advance towards a healthier and more prosperous tomorrow.

To see Life Sciences BC's membership directory, visit lifesciencesbc.ca/membership.

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