INNOVATION SPOTLIGHT

Funding breakthrough therapies

Autoimmune diseases now affect one in 10 people globally, making them one of the world's most pressing health challenges.

Calgary-based biotech Parvus Therapeutics Inc. is developing precision nanomedicines to treat autoimmune conditions such as inflammatory bowel disease (IBD) without suppressing the entire immune system.

Easly Advances are helping the company bring future SR&ED funding forward, strengthening cash flow as it advances multiple clinical programs.

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A new way to treat autoimmunity

The challenge of autoimmunity

Autoimmune disorders include around 100 different diseases in which a person's immune system malfunctions and mistakenly attacks itself. This includes well-known conditions such as type 1 diabetes, celiac disease, multiple sclerosis and rheumatoid arthritis, as well as rarer liver diseases such as primary biliary cholangitis and autoimmune hepatitis.

These diseases affect more women than men and represent a significant burden on healthcare systems worldwide.

Existing treatments work by suppressing a patient's immune system, making the patient more susceptible to cancer and secondary infections, as well as causing side effects such as fatigue, achiness, and brain fog.

Parvus CEO Peter Strumph says that's the problem his company is trying to solve. *"Our technology works on the affected organ without impairing normal immune function to create a very precise and targeted therapeutic effect."*

A new way of treating autoimmune disorders

Peter says the Parvus pMHC nanomedicines are designed to retrain, rather than suppress, the immune system by reprogramming T cells into disease-regulating Treg cells that may halt, and potentially even reverse, autoimmune disease.

The company is working on a suite of treatments for conditions affecting different organs, with each drug only targeting a specific part of the body. Currently Parvus has two drug candidates in clinical development and more at earlier stages of research.

From university spinout to clinical-stage biotech company

Parvus spun out of the University of Calgary in 2013 to commercialize Professor Pere Santamaria's discovery of a new class of pMHC nanomedicine drugs.

Originally bootstrapped by friends and colleagues, Parvus gained international attention after publishing its breakthrough research in *Nature* in 2016. Soon after, Parvus reached collaboration agreements with several large pharmaceutical companies.

Today, Parvus has two products in human clinical trials: PVT201, which is being developed to treat autoimmune liver diseases and organ transplant rejection; and PVT401, which is being developed to treat ulcerative colitis and Crohn's disease.

Driven by personal experience

Dr. Santamaria's own experience of living with the rare autoimmune disease myasthenia gravis drew him to study immunology at university. And Peter Strumph says the potential to cure a suite of diseases with devastating impact is what drives his team.

"It's a totally new paradigm in immunology and medicine: we could change medicine in our field, so it's really exciting."

"We've all had relatives who've had these autoimmune diseases and the treatments are brutal. So, we will all do anything we can do to get them into the clinic to test their efficacy."

"At Parvus, we keep the patient in mind. We have the opportunity to change the way autoimmune disease is treated with a therapy that may relieve disease symptoms and progression and does not increase the risk of cancer and infection".

Accelerating innovation

The cash flow challenge

Like many clinical-stage biotech companies, Parvus has to fund research, manufacturing, clinical studies, and payroll long before it generates revenue.

"We are a pre-revenue company and it will be years before we actually sell a product, but we still have to make payroll, make products, conduct bench research, and clinical studies," says Peter Strumph. *"These activities cost a lot of money."*

To date Parvus has spent around $150 million on drug development, combining capital from a wide range of sources, including equity, pharmaceutical partnerships and grants.

"To complicate our planning, capital inflows and the research and manufacturing costs do not occur on a regular schedule. So our cash flow is bumpy."

He says inconsistent cash flow means the company has to prioritize projects.

"We have more great ideas than money. Sometimes cash flow considerations lead us to delay research, manufacturing, or a clinical study."

> ***"With Easly Advances we know the capital is there when we want to use it. SR&ED credits become a piggy bank that you can dip into when you need it."***

- **Parvus CEO Peter Strumph**

Turning SR&ED into momentum

Peter says Easly Advances help Parvus smooth cash flow by bringing forward the benefit of its SR&ED credits.

"We spend money on our research and development and then it takes more than a year to get some of that money back from the CRA. But now, by working with Easly, when we spend the money, we get the money back straight away."

And the recent changes in the Federal Budget to increase the SR&ED expenditure limit from $3 million to $6 million mean Parvus now has access to a much larger pool of funding they can access early.

"It's a very big deal to be able to access that kind of money early. It allows us to accelerate our research and development programs and ultimately get medicines to patients earlier."

Peter says as well as getting life-changing treatments into patients sooner, decreasing time to market has a huge impact for a small company.

Predictable capital when it matters

Peter says knowing Easly is there gives Parvus confidence to keep its research moving whenever cash flow tightens.

"Easly has been a great team to work with. The diligence process was fast and efficient. If we see a cash crunch somewhere in our future, we know we can call Easly and, within about a month, access the SR&ED credits we'd otherwise be waiting much longer to receive."