Publication: The Providence Journal; Date: Jan 24, 2016; Section: Business; Page: B1

INNOVATION

Capital for science

Yow-Pin Lim shows off a new column which is used for the extraction of proteins for laboratory experimentation at ProThera Biologics, a 10-year-old company in Providence's Jewelry District. Lim grew the company from scientific research at Lifespan and Rhode Island Hospital laboratories with federal and other grant money. THE PROVIDENCE JOURNAL/SANDOR BODO

Cancer researcher's path leads to biomedical startup in Providence

By Kate Bramson
Journal Staff Writer

PROVIDENCE — Yow-Pin Lim knew by the time he was 10 he wanted to become a doctor, having endured the family trauma of his father's early death and childhood illnesses that made him familiar with doctors as he grew up in Indonesia.

Lim's mother encouraged him to follow an older brother's path to higher education in Germany, where he earned his medical doctorate from the Free University in Berlin in 1986.

But something was missing. Working in a research laboratory, Lim says, "I fell in love with biochemistry .... It's the building block of life, the study of living things."

He chose research as his focus. As a doctor, he might help one patient at a time, but as a laboratory researcher, if he could discover something significant, he could help "maybe many, many patients at once."

Lim's circuitous path to Rhode Island began when a research oncologist from the Ocean State, Dr. Douglas C. Hixson, visited the German laboratory where Lim worked. Hixson expressed interest in Lim's research and eventually won grant money to support bringing him to Rhode Island in 1990 to work in the laboratory together here.

Their research centers on a natural protein found in the human body — the Inter-Alpha Inhibitor Protein — that helps fight inflammation.

SEE CAPITAL, B5

Date: Jan 24, 2016; Section: Business; Page: B5

Yow-Pin Lim and company president Denice Spero of ProThera Biologics. The company has raised more than $7 million in grants and funding for its research on a natural protein that helps fight inflammation. PHOTOS BY THE PROVIDENCE JOURNAL/SANDOR BODO

CAPITAL

From Page B1

Lim was comfortable in his role as a cancer researcher.

But when he needed money to help fund his work, the state-backed Slater Technology Fund and Richard G. Horan, a managing director at Slater, offered advice about how he could become eligible for federal grant money: Create a company.

That idea hadn't been on Lim's radar: "Because, I felt, I'm just a scientist."

Horan helped Lim and his mentor, Hixson, find a lawyer to help navigate issues such as intellectual property rights and how technology might transfer from a hospital setting into a commercial entity. Lim knew nothing of those issues, but Horan reinforced for the scientists that more research money could follow.

In 2001, Lim and Hixson co-founded a small life-sciences company, ProThera Biologics. Then they won a $100,000 research grant for work they'd conduct in Lifespan and Rhode Island Hospital laboratories.

"Fast forward," Horan said. "He was off to the races."

ProThera Biologics has since raised more than $7 million in federal research grants from the National Institutes of Health, state grants from the Rhode Island Science and Technology Advisory Council and equity investment from Slater. Located in Providence's Jewelry District, the company employs seven people.

Lab technician Joe Qiu performs sample analysis in the lab at ProThera Biologics.

Through animal research and collaboration with other researchers in Rhode Island, ProThera Biologics has discovered that when a patient's level of Inter-Alpha Inhibitor Protein drops precipitously, the chances of death increase dramatically. The protein is produced in the liver, but production shuts down when a patient suffers a severe infection such as sepsis, has a stroke, or develops acute lung disease or neuro-inflammation of the brain from a brain injury.

As the protein level drops, systemic inflammation sets in, and the body attacks itself. The kidney, the liver, the heart and other organs shut down.

Lim has spent his career studying this protein and improving ways to extract it from human plasma, test a patient's IAIP levels and study what happens when it is infused back into a patient's system. He has discovered promising results: A patient's survival rate improves dramatically as that protein is replaced in the body. IAIP helps the body fight inflammation, Lim explains.

So far, the work has been limited to animal research.

But ProThera is moving toward an elusive goal for scientific startups hoping their research will yield successful treatment for life-threatening conditions: Clinical trials. That would mean testing its research at hospitals, to see whether the protein may help treat patients with systemic inflammation.

Last spring, the company hired a new president and chief business officer, Denice M. Spero, to help reach that next stage.

And in November, ProThera entered into a strategic partnership with a publicly traded Canadian company, ProMetic Life Sciences, Inc., which has the capacity, equipment and manufacturing capabilities to help ProThera begin clinical trials.

Lim, Spero and Horan, who is chairman of the board at ProThera, say the company is 18 to 24 months away from launching clinical trials.

Lim's work, Horan says, holds great promise. If it holds the answer to treating sepsis, which quickly overtakes a patient and may lead to swift death, Lim's dreams about his research helping many people could become reality.

But it's unlikely the company's first clinical trials will evaluate the protein's response to sepsis, Horan says: "Sepsis is like the therapeutic equivalent of climbing Mount Everest."

It can be the road to ruin, he says — like fighting a tsunami, Spero adds. "Many companies have gone down that road and failed."

And so, as ProThera Biologics prepares for clinical trials, the team is working to determine what to test the therapy on first — perhaps stroke patients, lung disease, brain injury.

What is clear to Horan is that this company — the "scientific pioneer" in its research field — is precisely the kind of work Rhode Island needs.

— kbramson@providencejournal.com
(401) 277-7470
On Twitter: @JournalKate

Biomedical innovation in R.I.

Total jobs: 31,548 in 2013
Emerging companies: More than 30 startups in biopharmaceuticals and medical devices in recent years
Industry concentration: 31-percent higher concentration of health and life-sciences jobs than the nation
Employment growth in industry: Flat since 2009 in Rhode Island; growing at 4.5 percent nationally
Source: "Rhode Island Innovates: A Competitive Strategy for the Ocean State," report released last week by the Brookings Institution's Metropolitan Policy Program and completed with Battelle Technology Partnership Practice, Monitor Deloitte and TEConomy Partners, LLC.