Investment group Ocean State Angels bets on Brown-based biotech company

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Brown University Prof. Justin Fallon's discovery of a protein that may help treat muscular dystrophy led to the startup Tivorsan Pharmaceuticals; Ocean State Angels' investment will help the company complete clinical studies.

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PROVIDENCE — An investment group born in 2012 out of Rhode Islanders' interest in reinvigorating the state's economy has put its first financial bet on a research company spun out of Brown University.

Seed-stage investment group Ocean State Angels formed to put money into helping commercialize life-sciences research in Rhode Island. "Meds and eds," the nexus of health care and higher education, is viewed nationally as a spur to economic growth — and is a sector in which the state's political and institutional leaders see promise for Rhode Island.

Ocean State Angels just a few weeks ago contributed an undisclosed amount to the current investment round of Tivorsan Pharmaceuticals — a biotech company formed on the basis of 25 years of research by Justin Fallon, a Brown University professor.

Ocean State Angels was formed by Dr. Michael G. Ehrlich, chief of orthopedics at Rhode Island Hospital and chairman of orthopedics at Brown's Warren Alpert Medical School, and his son, Timothy, a partner with the Waltham, Mass.-based law firm Gunderson Dettmer LLP.

The Ehrlichs pulled together a group of about two dozen people and institutions to form the investment group.

As a condition of receiving money from the group, a company must commit to keep its principal place of business in Rhode Island for five years.

“They want to do right by Rhode Island,” Timothy Ehrlich said of the investment group.

Fallon, with the help of research assistants and trainees through the years, has studied how proteins work in the human body. That work has led him to the discovery of a protein that may improve the condition of people afflicted with a form of muscular dystrophy.

As Fallon studied proteins important for making nerve-cell connections, he realized that the work being done in his research lab at Brown could be relevant to muscular dystrophy.

Fallon’s research is at the stage where it can move out of an academic laboratory and into a commercial one in Providence. The money being raised now by Tivorsan will help the company complete its clinical studies.

Fallon is an East Sider who has formed Tivorsan with two cardiologists: Brown graduate Dr. John Nicholson and Dr. Joel B. Braunstein — cofounder of Maryland technology research firm LifeTech Research Inc. Nicholson is company chairman, Braunstein is acting chief executive officer and Fallon is the chief science officer.

“This company has a lot of Brown connections,” Fallon said.

There are multiple patents and pending patent applications underpinning Tivorsan — including those that originated from Brown and that have been exclusively licensed to the company for commercialization.

“Tivorsan was formed around these patents,” Fallon said.

Biglycan is a protein that can help cell membranes stay intact, which they fail to do in people with muscular dystrophy.

It took Fallon several years to arrive at the conclusion that biglycan could help people with a disorder known as Duchenne muscular dystrophy, a genetic disorder characterized by progressive muscle degeneration and weakness. It is one of 20 types of muscular dystrophy.

It is always fatal.

Duchenne is caused by an absence of dystrophin, a protein that helps keep muscle cells intact. Symptoms arrive in early childhood, usually between ages 3 and 5. The disease primarily affects boys, but in rare cases it can affect girls.

As muscles contract, the lack of dystrophin causes cell membranes — the material that separates cells from the outside environment — to tear apart.

“You pull out that protein and the whole thing falls apart,” Fallon explained.

He began to look at whether there was a way to replace dystrophin in the body — another protein that could stand in its place. And, if so, how could you induce that other protein to “fill the breach” in cell membranes?

Utrophin is that protein. Utrophin exists in humans during fetal development, but the protein becomes less important as a child is born, grows and matures.

“What biglycan does is to call utrophin into play,” Fallon said. “It gives the signals necessary to assemble this stand-in [cell] complex.”

The question then becomes: “Could you make this [biglycan protein] into a drug?”

Tests on mice indicate that the answer is yes.

The muscles of mice with the disorder were found to be twice as healthy than before the injection of biglycan into the bloodstream, he said.

Not a cure, Fallon points out, but an improvement.

And when you have a promising biotechnology, you need a sizable enterprise to push it forward through the necessary testing phases and to control quality as you increase production.

“You’re going to need a company to do this,” Fallon said.

That’s where Brown grad John Nicholson entered the picture.

Fallon described Nicholson as a sophisticated investor who can analyze the market potential for health-care products and

organize a startup company.

The two met in Providence about five years ago when Nicholson, of Greenwich, Conn., was on a visit to Providence, said the researcher. Nicholson committed to helping get Tivorsan started and recruited Braunstein to serve as chief executive.

“We want Amgen and right next to it we want Tivorsan,” Fallon said. “But we’ll start off on Eddy Street.”

Tivorsan is a long way from getting its drug therapy to market.

Tivorsan is preparing to submit an application to the U.S. Food and Drug Administration to allow biglycan to be tested in humans.

“When you’re injecting something into the bloodstream, you better damn well make sure what you’re doing,” Fallon said.

Fallon said he expects Tivorsan to be settled in to its new lab by the end of 2013 and for human trials to start within 18 months. After that, it could be another four to six years before Tivorsan could win approval to market its drug, which would most likely be administered to people regularly in a hospital or doctor’s office.

Biopharmaceutical drug development also is an expensive process.

“Compelling biomedical ventures are inherently capital intensive,” said Richard G. Horan, senior managing director of Slater Technology Fund.

Getting Tivorsan just to the point where it can be spun out of an academic lab into a commercial one has taken millions of dollars.

The Slater Fund is a state-supported venture capital fund that backs startup companies committed to basing and building businesses in Rhode Island.

Slater invested $500,000 in Tivorsan.

“What was critical for Slater ... is that the company was committed to establishing a commercial lab here in Rhode Island,” Horan said. “If they said they wanted to move to Cambridge and set up the operation, Slater wouldn’t have been interested.”

The fund helped the Ocean State Angels form and serves as one of the group’s investment guides.

“It fits in like hand in glove,” Horan said of the Angels’ Tivorsan investment. “I think Tivorsan represents a particularly compelling example of what Ocean State seeks to do — an investment in translational research that’s formed the basis for a startup company.”

While small by comparison to the grants awarded to Tivorsan, the Angels’ investment was not made lightly, said Tim Ehrlich.

“I was shaking when I sent the wire transfer,” Ehrlich said.