CRAIN'S DETROIT BUSINESS

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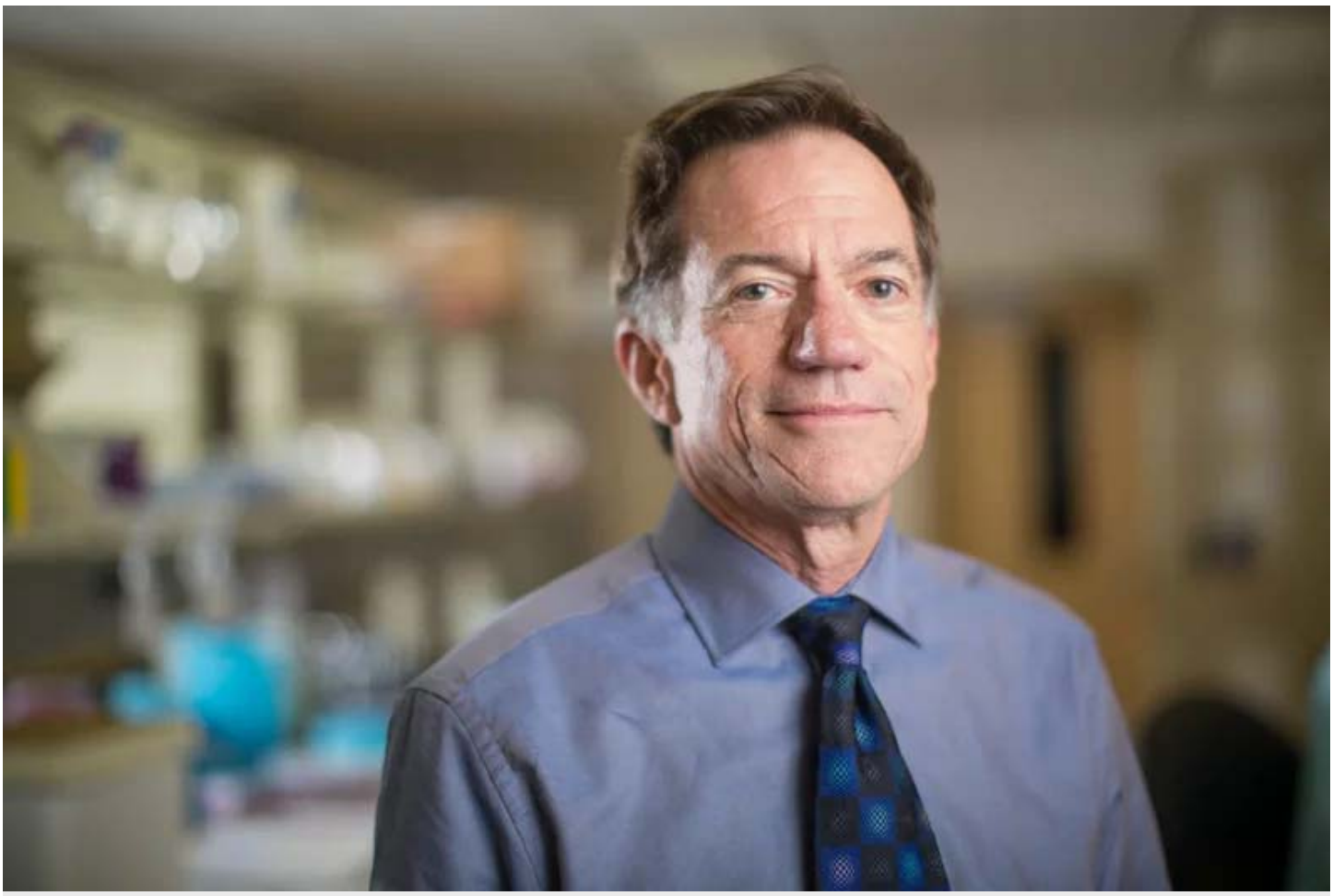
Grand Rapids-based Tetra Discovery Partners strikes deal to test Alzheimer's, Fragile X treatment

TOM HENDERSON

- *Tetra signed licensing deal with Shionogi & Co. Ltd. to fund FDA Phase 2 trials for a compound that could treat Fragile X, Alzheimer's*
- *If trials are successful, company expects to hold an IPO in 2020*
- *Tetra's CEO Mark Gurney helped discover beta-secretase, an enzyme that is in part responsible for the protein deposits in the brain that cause Alzheimer's*



Adam Bird

Mark Gurney, CEO of Tetra Discovery Partners

Tetra Discovery Partners Inc., a small

pharmaceutical company in Grand Rapids with a handful of employees, ended 2018 with the kind of news most early stage companies don't even dare to dream about. In December, it signed a licensing deal with Shionogi & Co. Ltd., a Japanese drug company, which provided $5 million in an upfront licensing agreement, an equity investment of $35 million and, if Tetra hits its development milestones, another $120 million, plus royalties.

- AgHelp connects migrant farm workers with jobs, health care and social services
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- CertifID LLC stops real estate scams in their tracks
- Envoy brings small manufacturers' wares to retailers across country
- Economic development nonprofit The Right Place helps businesses, and Grand Rapids, grow
- Grand Angels' third investment fund could top out at $25 million

Company founder, chairman and CEO Mark Gurney said the influx of capital will fund the completion of two U.S. Food and Drug Administration Phase 2 trials of a compound with the working name of BPN14770, which is something called a phosphodiesterase-4D allosteric inhibitor.

The Phase 2 tests will evaluate its efficacy in treating Fragile X Syndrome and Alzheimer's disease. Gurney said the drug could also treat other conditions marked by cognitive and memory deficits, including other dementias, learning and developmental disabilities, traumatic brain injuries, depression and schizophrenia.

The 30-patient Fragile X trial has begun, with the 255-patient trial on early stage Alzheimer's patients to begin in April, at about 20 sites yet to be determined. "We have no agreements signed, yet, but we plan to have a Grand Rapids site," said Gurney. "The trial will be divided between private and academic clinical sites."

He said most Alzheimer's drug trials have been on patients with moderate and severe symptoms. "We think our drug will have greater benefit earlier in the disease, on patients who are one to three years after diagnosis."

The drug has received orphan status for Fragile X by the FDA, which is given to drugs with small populations of potential patients, making a profit

difficult if not impossible without such assistance as tax credits. It is estimated there are 30,000 people in the U.S. with Fragile X, a genetic condition that causes a range of development problems and mild to moderate intellectual disabilities.

Gurney said that if those two trials are successful, he expects the company to hold an initial public offering in the fall of 2020.

"It's reasonable to assume that an IPO round for a large indicator like Alzheimer's would be $150 million," he said.

In addition to the capital, an important aspect of the deal for Tetra, said Gurney, is that it gives Shionogi the licensing rights for Japan, Korea and Taiwan, leaving Tetra with rights in other critical markets, including the Americas and Europe.

Also critical is that Shionogi researchers have already had success with drug formulations concerning the same biochemical pathway modulated by BPN14770, including Cymbalta and Intuniv.

Last, Shionogi has particular expertise in evaluating the best delivery mechanism for individual drugs, such as by capsule, tablet or in powder sprinkled on food.

A board of brand names

Tetra boasts a powerhouse board of directors.

Joining Tetra's board after the December deal was Ryuichi Kiyama, a senior vice president at Shionogi who previously was president and CEO at Ezose Science Inc., a New Jersey-based biotech.

Other board members include Douglas Morton, a former vice president of Pfizer Inc., who has 43 U.S. patents and is on the advisory boards of Cleveland Clinic Innovations, the Hopen Lifescience Venture Fund, and the Southwest Michigan First Life Science Fund; Lance Stewart, the senior director of strategy at the University of Washington's Institute for Protein Design; and Joseph Collard, co-founder CEO of Delray Beach, Fla.-based Epigenetix, a drug development company whose targets include brain cancer.

Serving on the company's scientific advisory board is Edward Scolnick, the

former president of Merck Research Laboratories and currently chief scientist at the Stanley Center for Psychiatric Research at the Broad Institute at the Massachusetts Institute of Technology; and Catherine Strader, who has had executive positions at Merck and Schering-Plough and has guided more than 50 compounds through drug discovery.

Tetra, which was founded in 2011, previously raised $25 million from a variety of grants from the National Institutes of Health; a Series A round of equity funding of $7 million in 2016; and a follow-on round of funding of $1.5 million last year.

In both in 2013 and in 2014, Tetra raised $1 million in loans that were converted to equity during the 2016 A round. The Grand Rapids-based Grand Angels, the state's most active angel-investor group, participated in both of those debt rounds and has now invested a total of $2.75 million in the company.

The debt rounds also included investments by New Jersey-based Johnson & Johnson; Ann Arbor Spark; Detroit-based Invest Michigan; the Biosciences Research & Commercialization Center at Western Michigan University; Grand Rapids-based 42 North Partners LLC, the family investment office of Mike Jandernoa, the former Perrigo CEO; and the Muskegon Angels.

"It's really exciting to take Tetra's drug discovery to this next step," said Tim Parker, the Angels' president, referring to the collaboration with Shionogi. "It's been a long haul. Seeing an international pharmaceutical company invest is a huge validation. The company's leadership is great, and it attacks a problem no one has been able to solve."

"Tetra's leadership team has had a vision and a plan from the beginnings of the company and has executed that plan continuously and flawlessly," said Charlie Moret, president of Invest Michigan. "The Shionogi investment is validation of the company's progress and promising future prospects. Mark Gurney should be ranked as one of Michigan's most effective startup executives in life sciences."

"I've known Mark Gurney for years, and consider him one of the smartest and most innovative CEOs I've ever met," said Tim Streit, co-founder and managing partner of the Grand Rapids-based venture-capital firm of Grand

Ventures. "We don't invest in bio, but if we were ever going to break our rule, that would be the company."

"The coolest thing about Tetra is the work has been done here in Grand Rapids, which is not known for pharma," said Carl Erickson, a member of the Grand Angels and founder and CEO of Atomic Object LLC, a Grand Rapids-based software development firm. "And he's done it with a lightweight approach, with a handful of employees. He's competing with huge companies and he's beating them with good science."

Gurney didn't get any funding from Start Garden, the startup accelerator in Grand Rapids founded by Rick DeVos, or from Wakestream, the venture-capital arm of the DeVos family office, which doesn't invest in pharma startups, but he said mentoring from Mike Moran at Start Garden was very helpful early on as he prepared to meet with potential funders.

"He helped me with my pitch deck. I knew pharma, but I didn't know business. I show him five slides in five minutes, and he'd say, 'I don't understand anything you're saying,'" recounted Gurney. By the time he could break the complex science down to layman's terms, he was ready to pitch for cash.

Gurney has a small office on the third floor of the Grand Rapids Techhub, an accelerator in downtown Grand Rapids, next to Streit's office. Most of his 11 employees work in labs at the Homer Stryker MD School of Medicine Innovation Center in Western Michigan University's Business Technology and Research Park in Kalamazoo.

Tetra has two small labs there now and will add a third soon, after it hires another four chemists. The company also uses local contract research organizations.

Well known in the industry

Gurney is well known in the pharma industry.

He was an associate professor at Northwestern University's Feinberg School of Medicine from 1989–1995 and while there got an MBA from the university's Kellogg School of Management; from 1995-2000 he was director of genomics research at Pharmacia; from 2000-2010, before returning to Grand Rapids to found Tetra, he was senior vice president at

deCODE Genetics Inc., a pharmaceutical company in Reykjavík, Iceland; and since 2016 has been on an advisory board of the A. Alfred Taubman Medical Research Institute at the University of Michigan.

He has authored 117 peer-reviewed papers that have been cited over 18,000 times and holds 36 patents.

While at Pharmacia, Gurney and his team discovered beta-secretase, an enzyme that is at least in part responsible for the protein deposits in the brain that cause Alzheimer's.

Tetra's drug inhibits beta-secretase, and FDA tests will prove or disprove Gurney's hypothesis that it will affect amyloid formation and prevent or slow the progression of Alzheimer's disease.

Gurney was the lead inventor on more than 20 patents based on that discovery. Tetra has two U.S. patents and patents in Japan, China, Korea and Taiwan, with others applied for, said Gurney.

Gurney said he regularly attended biotech and pharmaceutical conferences, including the annual prestigious BIO International Convention.

"We talked to potential customers early and often," said Gurney. "We were trying to meet all the large pharmas."

The venture-capital arm of Johnson & Johnson was an early investor, and some of its executives advised the company on a path to commercialization.

In 2017, at the BIO convention in San Diego, Gurney had his first meeting with Shionogi executives, one of a dozen or so meetings he had at that convention with pharma companies, and Shionogi continued to follow Tetra's progress through Phase 1 trials.

Last May, Tetra was honored as one of 50 state companies to watch at the annual Michigan Celebrates Small Business event in Lansing, a program sponsored in part by the Michigan Economic Development Corp., the Edward Lowe Foundation and the Small Business Association of Michigan.

Inline Play

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