



Michigan-based Biotech Develops Promising New Drug to Treat Alzheimer's

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Mark Gurney spent the first part of his career in academia and industry studying the underlying mechanisms of how learning and memory both operate and malfunction. But something was missing: "I wanted to be actively involved in drug discovery and development and actually benefit a patient."

So in 2010 he founded Tetra Therapeutics, a Michigan-based biotechnology company focused on developing treatments for neurological disorders like Alzheimer's disease and Fragile X syndrome, a genetic disorder characterized by mild-to-moderate intellectual disability. But because the U.S. was emerging from a recession, startup money was difficult to secure. "I began writing SBIR [Small Business Innovation Research] grants and that was how I initially funded Tetra," says Gurney. The Michigan Economic Development Corporation matched the SBIR funding, which helped pay commercialization costs not covered by the grants.

Using SBIR grants from the NIH, Tetra discovered a compound that helps strengthen brain processes. Early research indicated their drug could help nerve cells forge connections that are underdeveloped in people with Fragile X syndrome, as well as help maintain connections in those with Alzheimer's disease. Gurney says their drug does not suffer from the side effects plaguing drugs that target similar areas of the brain, like nausea and diarrhea.

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To date, Tetra has received more than \$11 million in SBIR and STTR funding from the National Institute on Aging, the National Institute of Mental Health, and the National Institute of Neurological Disorders and Stroke. The grants supported early research and development for finding and testing the compound, and even funded initial Phase 1 clinical trials to evaluate safety and tolerability. Tetra has now completed Phase 2 clinical trials of the drug, both as a treatment for Fragile X syndrome and in patients diagnosed with early Alzheimer's disease. Results from the latter study have shown evidence for slowing disease progression. Gurney says Phase 3 clinical trials for treating both Alzheimer's disease and Fragile X syndrome could start as early as 2021.

(continued on back)



Tetra Therapeutics

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State-District

MI - 3

Technology

Drug

Primary Institute

Aging (**NIA**)

Secondary Institute

Mental Health (**NIMH**)
Neurological Disorders and
Stroke (**NINDS**)

Project Details from NIH RePORTER Tetra Therapeutics

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Largely due to the company's promising results in early Alzheimer's disease, Tetra formed a strategic alliance in March 2020 with Shionogi & Co., a pharmaceutical company, to develop and commercialize Tetra's Alzheimer's disease treatment. Subsequently, Shionogi acquired Tetra, which became a wholly owned subsidiary valued at up to \$500 million.

Tetra has also committed resources to developing a second drug to treat people with major depressive disorder. Support for the NIH's Commercialization Accelerator Program aided Tetra in determining the market potential for a new drug to treat depression.

"I owe a lot to the SBIR program," says Gurney. "I view it as one of the most viable sources of high risk capital above and beyond what one can access through venture."

