A $3 million NIMH grant provides support for a new PTSD medication.

PBS research scientist Yvonne Lai is well known to our department for her work at the Gill Center for Biomolecular Science. However, she and her collaborators are making waves in the business world with the growth of their startup company, Anagin Inc., a promising pharmaceutical venture located in Indianapolis.

PTSD is a common neurological disorder, affecting seven to eight percent of the population. However, current treatments come with a disturbing list of side effects and do not target the disorder's underlying neural mechanisms. Tackling this problem has been a long journey for Lai, whose pharmacological research began many years ago. Now, with the help of a new grant, solutions seem closer.

Prior to her arrival at IU, Lai developed a compound that works differently from earlier medications. These earlier medications target the glutamate receptor located at the surface of neurons and block normal as well as pathological glutamate signaling. Rather than blocking glutamate signaling at the receptor, Lai's compound appears to inhibit the downstream pathway. Thus, the compound prevents detrimental changes in the brain's neurons, while also bypassing the severe side effects that arise when all glutamate receptor signaling is blocked.

Soon after her arrival at IU, Lai collaborated with PBS professor Andrea Hohmann to explore the compound's effectiveness in a rodent model of chronic pain. She has since teamed up with IU School of Medicine Associate Dean and Distinguished Professor Anantha Shekhar to test the compound's effectiveness in a rodent model of PTSD.

Given their promising results, Lai and Shekhar founded Anagin, a small startup company that focuses on novel PTSD treatments.

In 2014, Lai and her colleagues were among a select group of scientists to receive an NIH Small Business Innovation Research (SBIR) Grant. With this funding, they tested a large number of alternatives to Lai's original "prototype" compound, and successfully identified a set of compounds that reduced PTSD-like symptoms in rodents without eliciting severe side effects.

Since then, Anagin has continued to grow. Additional scientists and entrepreneurs joined the company, including Jaswant Gidda as the CEO, Jim Schulz as the COO and CFO, and an outstanding Board of Directors, establishing Anagin as an independently-run business.

Now, a second $3 million SBIR grant, funded by the NIMH, places them closer to their goal of developing a new drug to treat PTSD. The team will design improved versions of their compounds that can be taken orally.

Lai and her colleagues at Anagin hope to find a candidate compound that will be ready for testing in human patients. If the compound successfully makes it through clinical trials and into the market, it would be the first drug of its kind to safely target an underlying mechanism of PTSD.

This candidate drug could one day transform the lives of millions of PTSD patients.