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CWRU, Engine Biosciences sign exclusive option license for university-based technology to treat debilitating neurodegenerative diseases

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Case Western Reserve University and [Engine Biosciences Pte Ltd \(https://www.enginebio.com/\)](https://www.enginebio.com/) have signed an exclusive license option in which the drug discovery company will evaluate university-generated technology to treat debilitating neurodegenerative diseases, such as amyotrophic lateral sclerosis (ALS) and frontotemporal dementia (FTD).

The license option gives Engine Biosciences, based in San Francisco and Singapore, an exclusive time period to determine whether to license and further develop the technology from the lab of Xinglong Wang, associate professor of pathology at [Case Western Reserve School of Medicine \(https://case.edu/medicine/\)](https://case.edu/medicine/), into a new therapy for neurodegenerative diseases like ALS. Developing the technology could strengthen the company's existing neurodegenerative therapy pipeline.

"Engine Biosciences is excited to be working with Professor Wang and Case Western Reserve on their compelling discoveries for treating major neurodegenerative diseases," said Jeffrey Lu, CEO and co-founder of Engine Biosciences. "We look forward to applying our machine learning and functional genomics platform and drug development expertise to the technologies to further the development of new therapeutics to serve unmet patient needs."

The challenge

About 5,000 people in the United States are diagnosed with ALS each year, according to the [ALS Association \(http://www.alsa.org/\)](http://www.alsa.org/). The incidence of ALS is two per 100,000 people, and it is estimated there are more than 20,000 Americans living with ALS at any given time. The life expectancy of a person with ALS averages two to five years from diagnosis.

Scientists estimate that FTD may cause up to 10 percent of all cases of dementia and is the second most-common cause of dementia, after Alzheimer's, in people younger than 65, according to the [National Institute on Aging \(https://www.nia.nih.gov/\)](https://www.nia.nih.gov/). About 60 percent of people with FTD are 45 to 64 years old.

The technology

Many neurodegenerative diseases are caused when proteins accumulate in places they don't belong within nerve cells. These misplaced proteins create debris that can cause the nerve cells to die.

Such nerve-cell death is seen in ALS and FTD in the motor neurons of the brain stem and spinal cord. Currently, there is no effective treatment for either neurodegenerative disease.

Wang's lab has designed an inhibitory peptide, called PM1, that binds to the molecule implicated in nerve-cell death in ALS and FTD. The binding of Wang's peptide to this molecule prevents nerves from dying and symptoms of the neurodegenerative disease to cease in mouse models.

The hope is that PM1 and/or PM1-like inhibitors may be used to treat neurodegenerative diseases in humans. The technology is covered by an existing patent application.

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