ALBERTA INNOVATES

Accelerating Innovations into CarE – Validate Program (AICE-Validate)

Preclinical Study in an Established Model of Alzheimer's Disease

PROJECT FAST FACTS

RECIPIENT: Marvel Biosciences Corp.
AWARD: $300,000
AWARD DATE: January 1, 2025
PROJECT DURATION: 12 months

THE PROBLEM

Alzheimer's disease (AD) is a devastating and widespread form of dementia. It affects 1 in 10 Canadians over the age of 65 and nearly 50,000 Albertans. The disease gradually erodes memory and thinking, and alters behavior, ultimately robbing individuals of their independence and ability to perform daily tasks. This mental decline places a heavy emotional and physical burden on caregivers, the community, and patients themselves.

Current therapies fall short, unable to effectively treat both cognitive symptoms and the underlying disease pathology. As a result, patients face a significant reduction in quality of life, with an average loss of 4-12 years of life expectancy and 5.6 fewer quality-adjusted life years. With a growing aging population, the need for therapies that can slow or halt disease progression and improve quality of life is more urgent than ever.

THE SOLUTION

Marvel Biosciences' novel chemical compound is a novel fluorinated derivative of the off-patent drug Istradefylline, which is the only approved adenosine A2a receptor antagonist for Parkinson's Disease (PD). The development of said compound is based on evidence that Istradefylline may have therapeutic potential beyond PD, particularly in treating Alzheimer's Disease (AD). The established safety and efficacy of Istradefylline in treating a central nervous system disorder provided a strong foundation for redeveloping it for AD, leading to the creation of Marvel's novel compound. The innovation involves fluorination at key positions in the Istradefylline molecule, improving its stability and pharmacokinetic profile, which makes it a more effective candidate for treating AD.

Marvel has successfully completed both current good manufacturing practice synthesis and a 4-week toxicology testing, positioning the compound ready to enter Phase 1 clinical trials. Marvel believes the compound could have both (1) AD modifying activity, and (2) a benefit on behavioural associated changes in AD patients.

PROJECT OBJECTIVES

(1) Evaluate the effect of the novel compound on cognitive function in a chronic preclinical model of AD Disease.

(2) Identify potential biomarkers associated with Alzheimer's pathology and of drug activity in plasma and brain tissue.

(3) Examine pathological changes in the AD model that occur with the compound.

The goal is to develop a treatment that not only addresses cognitive symptoms such as depression, anxiety, and social withdrawal but also combats the neurological changes driving the disease.

ABOUT THE AICE-VALIDATE PROGRAM

AICE-Validate is an opportunity for Alberta's health-tech innovators to accelerate commercialization of digital and data-enabled health technologies through the early validation phase. If you'd like to learn more, please check out AICE Validate on the Alberta Innovates website.

Learn how

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