ASX Release

Breakthrough Research Demonstrates Significant Uptake of CBD Into the Brain

18 June 2021

- **Researchers from Curtin University and funded by Zelira have developed oral capsules containing cannabidiol (CBD) that penetrated the brain faster in mice models of neurological disease.**
- **The researchers developed tiny oral capsules that improved delivery of CBD into the brain by up to 40-times.**
- **Data has been published in *PLOS ONE*, a leading peer reviewed journal.**
- **Technology utilised, protected by Zelira owned patent, supports development of CBD-based treatments for a range of neurological disorders including Alzheimer's disease, multiple sclerosis, and traumatic brain injuries.**
- **Continues Zelira's expansion of its intellectual property portfolio and reputation for focusing on scientific and clinically validated formulations.**
- **Currently exploring potential for human studies as the next step**

Zelira Therapeutics Ltd (**ASX:ZLD, OTCQB:ZLDAF**), a global biopharmaceutical company developing and marketing cannabinoid-based medicines, is pleased to announce that a Zelira-funded team of researchers at Curtin University (Australia) have developed a new technology that improves delivery of cannabidiol (CBD) based drugs into the brains of mice by up to 40-times. This technology has potential for cannabinoid-based therapies to treat neurological disorders such as Alzheimer's disease, multiple sclerosis, and traumatic brain injury.

Published in the leading peer reviewed open access scientific journal PLOS ONE, the Curtin University research team created tiny capsules containing cannabinoids which, when taken orally, were absorbed by the body faster and penetrated the brain quicker in mice models with neurological diseases, than when delivered in liquid form.

Lead researcher, Associate Professor Ryu Takechi from the Curtin Health Innovation Research Institute (CHIRI) and the School of Population Health, said there has been a growing interest in the use of CBD to treat various neurological diseases, but there were limitations due to its poor absorption and sensitivity to light and stomach acid when consumed orally.

"*With this new capsulated form, we were able to improve the brain delivery of CBD remarkably by 40 times in animal models and we were also able to protect the drug from oxidation and degradation by light, which helps extend product shelf-life*."

"*CBD is found in medicinal cannabis and is a popular natural remedy for people living with neurological and metabolic diseases. In an effort to address the issue of limitations in absorption of cannabidiol, we aimed to design and test a new drug delivery method*," Associate Professor Takechi said.

Associate Professor Takechi said "*the findings may be helpful in supporting the clinical use of medicinal cannabis in the treatment of neurological disorders*."

Dr Oludare Odumosu, Zelira's CEO said "We are delighted with the outcome of our collaboration with Dr. Takechi and his research team at Curtin University. The new encapsulation technology significantly improves the efficiency with which cannabinoid-based drugs can be delivered into the brain and presents a game changing platform to improve the effectiveness of cannabinoid therapies for neurological disorders while reducing cost and enhancing safety. This development further affirms Zelira's commitment to innovation and leadership in cannabinoid medicine development. Associate Professor Takechi and his team are currently using the encapsulation technology to assess the efficacy of CBD to protect from and prevent cognitive decline in a mouse model of diabetes. Results will be reported later in 2021."

This research was a collaborative effort involving researchers from CHIRI, the Curtin Medical School and the School of Population Health at Curtin University, the University of Newcastle and the University of Otago.

The full paper titled, "*Sodium alginate microencapsulation improves the short-term oral bioavailability of cannabidiol when administered with deoxycholic acid*," can be found online **here**[1].

This announcement has been approved and authorised for release by the board of Zelira Therapeutics Limited.

Oludare Odumosu
Managing Director
USA

- ENDS -

[1] https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0243858

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About Zelira Therapeutics (www.zeliratx.com)

Zelira Therapeutics Ltd (**ASX:ZLD, OTCQB:ZLDAF**) is a leading global therapeutic medical cannabis company with access to the world's largest and fastest growing cannabis markets. Zelira owns a portfolio of proprietary revenue generating products and a pipeline of candidates undergoing clinical development that are positioned to enter global markets. The Company is focused on developing branded cannabinoid-based medicines for the treatment of a variety of medical conditions in its Rx business, including insomnia, autism and chronic non-cancer pain.

The Company has two proprietary formulations under the HOPE™ brand that are generating revenues in Australia, Pennsylvania and have been licensed in Louisiana and Washington D.C. with other states in the US expected to follow. Zelira is also generating revenue in Australia from its proprietary and patented Zenivol™ - a leading cannabinoid-based medicine for treatment of chronic insomnia. Zenivol™ has successfully completed the first Phase 1b clinical trial for chronic insomnia where it was found to be a safe and effective treatment. In 2020, Zelira partnered with SprinJene®Natural to develop and commercialise natural and organic oral care products under the SprinjeneCBD brand, as part of Zelira's OTC business. The SprinjeneCBD toothpaste product is the first of several scientifically formulated, hemp-derived, oral care products containing cannabinoids and based on the proprietry and patented technology of Blackseed oil and Zinc.

The Company conducts its work in partnership with world-leading researchers and organizations including Curtin University in Perth, Western Australia; the Telethon Kids Institute in Perth; the University of Western Australia, in Perth; St. Vincent's Hospital in Melbourne, Australia; and the Children's Hospital of Philadelphia (CHOP) in the United States.

About Curtin University (curtin.edu.au)

Curtin University is Western Australia's largest university, with more than 56,000 students. Of these, about 26 per cent are international students, with half of these studying at the University's offshore campuses. The University's main campus is in Perth. Curtin also has a major regional campus in Kalgoorlie, and a campus in Midland, in addition to four global campuses in Malaysia, Singapore, Dubai and Mauritius.

Curtin is ranked in the top one per cent of universities worldwide, with the University placed 9th in Australia according to the Academic Ranking of World Universities (ARWU) 2020.

The University has built a reputation around innovation and an entrepreneurial spirit, being at the forefront of many high-profile research projects in astronomy, biosciences, economics, mining and information technology. It is also recognised globally for its strong connections with industry, and for its commitment to preparing students for the jobs of the future.