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Algernon Pharmaceuticals Highlights New Animal Study Showing Effectiveness of Psychedelic Drug DMT in Treatment of Stroke

VANCOUVER, British Columbia, May 27, 2021 (GLOBE NEWSWIRE) -- Algernon Pharmaceuticals Inc. (CSE: AGN) (FRANKFURT: AGW) (OTCQB: AGNPF) (the "Company" or "Algernon") is pleased to highlight an independent research study from the University of Szeged in Hungary describing the use of N,N-dimethyltryptamine ("DMT") in improving outcomes in a rat stroke model. A preprint of the study was published on May 20, 2021 in the journal Neuropharmacology.

When a stoke occurs in the brain, which results in oxygen deprivation in the cells, extensive and irreversible damage occurs within 10 minutes. Initially the brain becomes electrically inactive and goes into a type of power saving mode reducing interneuronal communication. Once all of the brain cells' stored energy is depleted, widespread electrochemical changes begin to occur. As the cascade progresses, massive energy loss occurs within the cells leading to a wide-spread effect sometimes called a "brain tsunami" leading to a poisoning of the cells. While this process can be reversed if oxygen is quickly restored, left untreated the cells will ultimately die.

The animal study from the University of Szeged in Hungary showed that DMT reduced the activity of some of the mechanisms and effects that are involved in the damaging biological cascade that occurs after a stroke. In addition, DMT, reduced the volume of dead cells and increased the viability of cells found in the somatosensory cortex, all with statistical significance. One of the study's authors is Dr. Ede Frecska who recently joined Algernon as a consultant to its DMT stroke program.

Algernon recently established a clinical research program for the treatment of stroke focused on DMT. Algernon plans to be the first company globally to pursue DMT for stroke in humans and is planning to begin a clinical trial in Q4 2021.

"This study is further evidence that DMT must be investigated as a possible treatment for stroke," said Christopher J. Moreau, CEO of Algernon Pharmaceuticals. "Algernon would like to thank all of the scientists and researchers that have worked to establish the data identifying DMT, also known as the 'Sprit Molecule', as a potentially effective stroke therapeutic."

Algernon has also filed new provisional patents for new forms of DMT, in addition to formulation, dosage and method of use claims for ischemic stroke. The Company has also filed claims for combination therapy of DMT and Constraint Induced Movement Therapy ("CIMT").

About the study

In the experiment, global forebrain ischemia was initiated surgically, followed by the intravenous infusion of DMT maintained for the duration of the experiment. Subsequently, spreading depolarizations were triggered at the ipsilateral cerebral cortex, then ischemia was further aggravated by partial and brief withdrawal O_2 from the anesthetic gas mixture to induce transient hypoxia. Histological examination was performed after one hour of reperfusion.

Key findings from the study were as follows:

- Compared to vehicle treatment, DMT reduced the amplitude of spreading depolarizations (-16.5 vs. -20.1 mV, DMT vs. vehicle, $p<0.05$) as well as the rate of depolarization (-2.62 vs. -3.48 mV/s, DMT. vs. vehicle, $p<0.05$) and the cumulative duration of SD events (140 vs. 191 seconds, DMT vs. vehicle, $p<0.05$).

- DMT treatment significantly reduced the number of apoptotic cells in the somatosensory cortex (66 vs. 103 CC3+ cells per mm2, DMT vs. vehicle), hippocampus (532 vs. 893 CC3+ cells per mm2, DMT vs. vehicle), and dorsal ganglion (1367 vs. 1649 CC3+ cells per mm2, DMT vs. vehicle) ($p<0.01$).

- Treatment with DMT increased viability of astrocytes in the cortex (3.2 vs. 1.5%, DMT vs. vehicle) and striatum (2.3 vs. 0.9%, DMT vs. vehicle) after ischemia/hypoxia/reperfusion injury ($p<0.05$).

- Continuous slow infusion of DMT had no significant impact on cardiovascular or cerebrovascular function as measured through mean arterial blood pressure, cerebral blood flow, and heart rate.

Evidence in the paper points to DMT's effects in cerebral ischemia arising though Sig-1 receptor agonism, rather than 5-HT receptor antagonism. The latter mechanism is believed to be responsible for the psychedelic effects of DMT.

Importantly, the authors also confirmed that DMT administered intravenous infusion was clearly detectable in blood plasma measured 50 minutes after the initiation of DMT infusion, and in the brain tissue sampled upon the termination of the experimental protocol. Potential endogenous DMT concentration in the vehicle group remained below detection level.

Study Link

About Algernon Pharmaceuticals Inc.

Algernon is a drug re-purposing company that investigates well-tolerated, already approved drugs, including naturally occurring compounds for new disease applications, moving them efficiently and safely into new human trials, developing new formulations and seeking new regulatory approvals in global markets. Algernon specifically investigates compounds that have never been approved in the U.S. or Europe to avoid off label prescription writing.

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