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Algernon Pharmaceuticals Announces Small Cell Lung Cancer Ifenprodil Research Program and Appoints Dr. William North as Lead Consultant

VANCOUVER, British Columbia, Aug. 11, 2021 (GLOBE NEWSWIRE) -- Algernon Pharmaceuticals Inc. (CSE: AGN) (FRANKFURT: AGW) (OTCQB: AGNPF) (the " **Company**" or "**Algernon**") a clinical stage pharmaceutical development company, is pleased to announce that it has initiated an NP-120 ("Ifenprodil") small cell lung cancer ("SCLC") research program and has appointed Dr. William North, professor emeritus at Dartmouth College and cancer research pioneer, as lead consultant. SCLC is a high-grade neuroendocrine carcinoma arising predominantly in current or former smokers and has an exceptionally poor patient prognosis. SCLC accounts for approximately 15% of all lung cancer cases.

In a study published in January 2019, entitled "Small-Cell Lung Cancer Growth Inhibition: Synergism Between NMDA Receptor Blockade and Chemotherapy", Ifenprodil in combination with chemotherapeutic agent topotecan, produced clear additive effects that completely blocked tumor growth.

Key findings from the study:

- Incubation of NCI H82 cells with Ifenprodil *in vitro* significantly reduced key components of the ERK 1/2 growth cascade. The activation of the ERK/MAPK signalling pathway promotes proliferation and has an anti-apoptotic effect. In addition, levels of poly(ADP-ribose) polymerase (PARP), a DNA repair protein were reduced (X0.38), while cell apoptosis was increased (X5.21). NCI H82 has been described as "variant" and is representative of recurrent disease.

- 48 hr incubation with Ifenprodil doses <50μM reduced NCI H82 cell viability significantly ($P<0.01$) with an IC50 produced by doses of >106μM. Additionally, clear additive effects with topotecan were shown, as co-incubation with 4μM topotecan reduced Ifenprodil's IC50 from 106μM to 7.3μM ($P<0.0001$).

- Xenografts from mice receiving a daily dose of Ifenprodil (2.5 mg/kg) over 10 days decreased their size by ~30% and maintained them at a size below that at day 0 until treatment ceased at day 10. Afterwards tumors began to recover and grow but at the same rate as control tumors ($P<0.001$). 2.5 mg/kg is considered a well-tolerated dose and did not impact the health of the animals.

- Xenografts from mice receiving alternate day doses of Ifenprodil over 9 days (2.5 mg/kg) or topotecan (days 0, 2 and 4) showed slowed tumor growth compared to

vehicle-treated controls so that each agent restricted the rise in tumor size to about 2.5-times by day 16, while controls rose to an average of 9.2-times. Tumor doubling times were 4 days for controls, 9 days for topotecan treatment, and 12 days for Ifenprodil treatment.

- Xenografts from mice receiving alternate day doses of Ifenprodil (2.5 mg/kg) plus 3 mg/kg topotecan on days 0, 2 and 4 seemed to arrest all growth over the 16 days of observation, and the tumors of all individual animals behaved in a similar manner with little scatter. From this study, there was clear addition through the topotecan and Ifenprodil combination ($P<0.01$) with marked synergy for smaller tumors ($P=4.7E-4$).

- Xenografts from mice receiving alternate day doses of Ifenprodil (2.5 mg/kg) plus 50 mg/kg cyclophosphamide on days 0, 1 and 2 produced a clear additive effect ($P<0.03$), preventing tumor growth.

Study Link: Small Cell Study

The Company recently announced that it signed an exclusive licensing agreement with Dartmouth College to acquire the rights to a method of use patent for treating neuroendocrine cancers which express functional N-methyl-D-aspartate ("NMDA") receptors.

The Company is planning to submit a pre-IND (Investigational New Drug) meeting request with the U.S. Food and Drug Administration to present all elements of the Company's SCLC cancer clinical program design to receive the agency's guidance and advice. This program will be the second cancer-based initiative the Company has launched, following the recent announcement of the start of its pancreatic cancer research program.

"We are very pleased to be expanding our Ifenprodil cancer research program to include SCLC," said Christopher J. Moreau, CEO of Algernon Pharmaceuticals. "We also welcome Dr. William North to help us lead the investigation of Ifenprodil's potential as a new non-toxic cancer therapy."

About Dr. William North

Dr. North is a Professor Emeritus of Physiology and Neurobiology at the Geisel School of Medicine at Dartmouth College and was a Senior Faculty member of the Norris Cotton Cancer Center. Dr. North was appointed Professor in 1988 and joined the medical school in 1974. From 1979 to 1984 he was recipient of the Research Career Development Award from the NIH. Dr. North has served on several Advisory Councils, including NIH and DOD Study Sections, is a member of the CALGB, the American Association for Cancer Research, the Endocrine Society and AAAS, and is a Fellow of the International Neuropeptide Society.

For over 40 years, Dr. North has been conducting research to elucidate the role of various receptors in common cancers, and his recent work has featured the importance of NMDA receptors to growth and survival of small-cell, breast, pancreatic, ovarian, and prostate tumors and how this discovery can be utilized clinically using NMDA receptor blockade with antagonists and antibodies. Dr. North has published extensively with 232 scientific manuscripts and 17 reviews and book chapters and is an inventor of several U.S. Patents. Dr. North holds a Ph.D. in Biochemistry, and in Physiology, from the University of Queensland, Australia, an MS (equivalent) from Melbourne University, and an honorary MA

degree from Dartmouth College.

About Ifenprodil

Ifenprodil is an N-methyl-D-aspartate (NMDA) receptor antagonist specifically targeting the NMDA-type subunit 2B (GluN2B). Ifenprodil prevents glutamate signalling. The NMDA receptor is found on many tissues including lung cells, T-cells, and neutrophils and certain types of cancer cells.

About Algernon Pharmaceuticals Inc.

Algernon is a drug re-purposing company that investigates safe, already approved drugs, and 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.

CONTACT INFORMATION

Christopher J. Moreau
CEO
Algernon Pharmaceuticals Inc.
604.398.4175 ext 701

info@algernonpharmaceuticals.com
investors@algernonpharmaceuticals.com
www.algernonpharmaceuticals.com

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Source: Algernon Pharmaceuticals