NEWS RELEASE

Oncotarget Publishes New Data by Lantern Pharma, an AI Company Developing Cancer Therapies, Further Supporting Clinical Advancement of LP-284, a Novel Synthetically Lethal Drug Candidate for Non-Hodgkin's Lymphomas

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- Non-Hodgkin's lymphoma (NHL) is the seventh leading cause of cancer in the US, with 20-40% of patients experiencing relapsed or refractory disease with limited or no therapeutic options.
- Publication highlights in vitro and in vivo results supporting LP-284's development for mantle cell lymphoma (MCL), an aggressive form of B-cell non-Hodgkin's lymphoma (NHL) with immediate patient needs.
- Lantern is anticipating filing the IND application with the FDA and initiating a first-in-human Phase 1 trial for LP-284 in NHL, including MCL, during the second half of 2023.

DALLAS--(BUSINESS WIRE)-- Lantern Pharma Inc. (NASDAQ: LTRN), an artificial intelligence ("AI") company developing targeted and transformative cancer therapies using its proprietary RADR® AI and machine learning ("ML") platform with multiple clinical stage drug programs, today announced the company has published new findings in **Oncotarget** demonstrating drug candidate LP-284's in vitro and in vivo antitumor potency for multiple non-Hodgkin's lymphomas (NHL), including mantle cell lymphoma (MCL) and double-hit lymphoma (DHL). The journal article titled "**LP-284 Targets Non-Hodgkin's Lymphoma and DNA Damage Repair Deficiency**" further supports LP-284's development for NHL and advancement towards a first-in-human Phase 1 trial, which is anticipated for the second half of 2023.

This press release features multimedia. View the full release here:
https://www.businesswire.com/news/home/20230626167658/en/

Lantern publishes new research in Oncotarget demonstrating LP-284's antitumor potential for multiple non-Hodgkin's lymphomas (Graphic: Business Wire)

Non-Hodgkin's lymphomas (NHL) remain one of the leading causes of cancer deaths globally and have an estimated 500,000 new cases globally, with NHL being the leading hematological malignancy in the US. Despite advances for NHL using combination and targeted therapies, nearly 20% to 40% of patients with certain subtypes still relapse after treatment. In aggressive subtypes of NHL, like MCL, nearly all patients relapse from standard-of-care (SOC) therapies.

"Given the efficacy of drug candidate LP-284 in preclinical studies and the mechanism of synthetic lethality where LP-284 seems to prefer blood cancers with deficiencies in the DNA repair pathways, we believe this drug candidate can be a powerful therapeutic option for a wide range of blood cancers with potential both as monotherapy in later stages of treatments and in earlier lines in combination with other agents," stated Panna Sharma, Lantern's CEO and President. "We have developed this molecule from initial ideas to first-in-human clinical testing in a highly efficient and rapid manner by leveraging our AI platform, RADR®. This is unheard of progress in oncology drug development and was achieved in less than 2.5 years and under $2 million USD, and we can readily scale the manufacturing of this molecule to meet global needs for NHL patients," continued Sharma.

"Our new findings in Oncotarget reveal that LP-284's synthetically lethal mechanism of action is driven by the creation of double-strand DNA breaks and can be leveraged for multiple non-Hodgkin's lymphomas that are DNA damage repair deficient," stated Kishor Bhatia, Ph.D., Lantern's Chief Scientific Officer. "We have also demonstrated a critical preclinical finding that LP-284 has potent antitumor activity in MCL tumors that have grown resistant to standard-of-care agents. As nearly all patients with MCL relapse from standard-of-care treatment, they have an urgent and unmet need for potential new drug candidates, such as LP-284," continued Dr. Bhatia.

Key Publication Highlights:

- LP-284's mechanism of action, synthetic lethality, was demonstrated to be caused by LP-284's induction of DNA double-strand breaks. Cells treated with LP-284 had significantly increased double-strand DNA breaks when compared to control-treated cells.
- Nanomolar potency was demonstrated for LP-284 in 15 NHL cell lines, with the lowest IC-50s observed for the 6 MCL and 7 DHL/Triple Hit Lymphoma cell lines, which had average IC-50s of 342 nM and 613 nM respectively.
- LP-284 treatment of 2 mg/kg and 4 mg/kg inhibited tumor growth of mice implanted with MCL xenografts by

63% and 113% respectively. LP-284's tumor growth inhibition was greater than 2X that of the MCL SOC agents bortezomib or ibrutinib.

- In mouse MCL xenograft tumors that had grown resistant to either bortezomib or ibrutinib, subsequent LP-284 treatment at 4 mg/kg led to near-complete tumor regression, whereas control-treated tumors continued to grow uncontrollably.
- LP-284's antitumor potency can be enhanced when combined with the FDA-approved agent spironolactone. Treatment of multiple myeloma cells with LP-284 + spironolactone led to a 2.4 fold decrease in IC-50 when compared to LP-284 treatment alone.

Combined, these new in vitro and in vivo results for LP-284 strongly support its anti-tumor activity for NHLs, including advanced MCL tumors that have grown resistant to SOC agents. Based on the potential of LP-284 for MCL, Lantern was granted an FDA Orphan Drug Designation for LP-284 in MCL.

The full journal article can be found on Lantern's **website** or at the **Oncotarget website**. Oncotarget is primarily an oncology-focused, peer-reviewed, open-access journal which aims to maximize research impact through insightful peer-review; eliminate borders between specialties by linking different fields of oncology, cancer research and biomedical sciences; and foster application of basic and clinical science.

About Lantern Pharma:

Lantern Pharma (NASDAQ: LTRN) is an AI company transforming the cost, pace, and timeline of oncology drug discovery and development. Our proprietary AI and machine learning (ML) platform, RADR®, leverages over 25 billion oncology-focused data points and a library of 200+ advanced ML algorithms to help solve billion-dollar, real-world problems in oncology drug development. By harnessing the power of AI and with input from world-class scientific advisors and collaborators, we have accelerated the development of our growing pipeline of therapies including eleven cancer indications and an antibody-drug conjugate (ADC) program. On average, our newly developed drug programs have been advanced from initial AI insights to first-in-human clinical trials in 2-3 years and at approximately $1.0-2.0 million per program.

Our lead development programs include two Phase 2 clinical programs and multiple upcoming Phase 1 clinical trials anticipated for 2023. We have also established a wholly-owned subsidiary, Starlight Therapeutics Inc., to focus exclusively on the clinical execution of our promising therapies for CNS and brain cancers, many of which have no effective treatment options. Our AI-driven pipeline of innovative product candidates is estimated to have a combined annual market potential of over $15 billion USD and have the potential to provide life-changing therapies to hundreds of thousands of cancer patients across the world.

Forward Looking Statements:

This press release contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. These forward-looking statements include, among other things, statements relating to: future events or our future financial performance; the potential advantages of our RADR® platform in identifying drug candidates and patient populations that are likely to respond to a drug candidate; our strategic plans to advance the development of our drug candidates and antibody drug conjugate (ADC) development program; estimates regarding the development timing for our drug candidates and ADC development program; expectations and estimates regarding clinical trial timing and patient enrollment; our research and development efforts of our drug discovery and ADC programs and the utilization of our RADR® platform to streamline the drug development process; our intention to leverage artificial intelligence, machine learning and genomic data to streamline and transform the pace, risk and cost of oncology drug discovery and development and to identify patient populations that would likely respond to a drug or ADC candidate; estimates regarding patient populations, potential markets and potential market sizes; sales estimates for our drug and ADC candidates and our plans to discover and develop drug and ADC candidates and to maximize their commercial potential by advancing such candidates ourselves or in collaboration with others. Any statements that are not statements of historical fact (including, without limitation, statements that use words such as "anticipate," "believe," "contemplate," "could," "estimate," "expect," "intend," "seek," "may," "might," "plan," "potential," "predict," "project," "target," "model," "objective," "aim," "upcoming," "should," "will," "would," or the negative of these words or other similar expressions) should be considered forward-looking statements. There are a number of important factors that could cause our actual results to differ materially from those indicated by the forward-looking statements, such as (i) the impact of the COVID-19 pandemic, (ii) the risk that our research and the research of our collaborators may not be successful, (iii) the risk that none of our product candidates has received FDA marketing approval, and we may not be able to successfully initiate, conduct, or conclude clinical testing for or obtain marketing approval for our product candidates, (iv) the risk that no drug product based on our proprietary RADR® AI platform has received FDA marketing approval or otherwise been incorporated into a commercial product, and (v) those other factors set forth in the Risk Factors section in our Annual Report on Form 10-K for the year ended December 31, 2022, filed with the Securities and Exchange Commission on March 20, 2023. You may access our Annual Report on Form 10-K for the year ended December 31, 2022 under the investor SEC filings tab of our website at **www.lanternpharma.com** or on the SEC's website at **www.sec.gov**. Given these risks and uncertainties, we can give no assurances that our forward-looking statements will prove to be accurate, or that any other results or events projected or contemplated by our forward-looking statements will in fact occur, and we caution investors not to place undue reliance on these statements. All forward-looking statements in this press release represent our judgment as of the date hereof, and, except as otherwise required by law, we disclaim any obligation to update any forward-looking statements to conform the statement to actual results or changes in our expectations.

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Nicole Leber
Investor Relations Associate
ir@lanternpharma.com

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Website: **www.lanternpharma.com**
LinkedIn: **https://www.linkedin.com/company/lanternpharma/**
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