NEWS RELEASE

Lantern Pharma Unveils Groundbreaking AI-Powered Module to Predict Activity and Efficacy of Combination Regimens in Clinical Cancer Treatment

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- The AI module, trained on 221 clinical trials, will be incorporated as part of Lantern's AI platform, RADR®, and will initially focus on tailored combinations of DNA damaging agents and DNA repair inhibitors
- Addresses $50+ billion combination cancer therapy market projected to grow 8.5% annually through 2030
- Over 60% of cancer patients received DNA damaging agents or DNA repair inhibitors as part of their clinical treatment and unique AI-powered module will focus on predicting the efficacy, safety and biomarker signatures associated with those potential treatments
- Platform successfully guided FDA-cleared Phase 1B/2 trial design for LP-184 + olaparib in triple-negative breast cancer

DALLAS--(BUSINESS WIRE)-- Lantern Pharma Inc. (NASDAQ: LTRN), a pioneering artificial intelligence (AI) company transforming oncology drug discovery and development, today announced the launch of an innovative AI-powered module within its proprietary RADR® platform, designed to predict the activity and efficacy of combination regimens involving DNA-damaging agents (DDAs) and DNA damage response inhibitors (DDRis) in clinical cancer treatment. With the global market for combination cancer therapies projected to exceed $50 billion by 2030, growing at a CAGR of 8.5%, this module represents a significant advancement in precision oncology, enabling faster, more cost-effective development of tailored therapeutic regimens. Leveraging this AI-driven framework, Lantern Pharma has successfully architected and **achieved FDA clearance for a Phase 1B/2 clinical trial in triple-negative breast cancer (TNBC)**, focusing on a novel DDA-DDRi combination regimen with promising preclinical

efficacy.

In a peer-reviewed study published in Frontiers in Oncology, **Clinical outcomes of DNA-damaging agents and DNA damage response inhibitors combinations in cancer: a data-driven review**, Lantern Pharma researchers systematically analyzed 221 DDA-DDRi combination-arm clinical trials, involving 22 DDAs and 46 DDRis, to develop this module. The study categorized DDAs into eight subclasses (e.g., alkylating agents, interstrand cross-linkers) and DDRis into 14 subclasses (e.g., PARP, ATR, WEE1 inhibitors). From these, 89 trials with interpretable outcomes were scored for clinical effectiveness, safety, and biomarker-driven responses, providing a robust dataset to train the AI module.[1]

Transforming Cancer Combination Therapy Development

The new AI module represents a paradigm shift in precision oncology, leveraging machine learning to predict which drug combinations will be most effective for specific patient populations while minimizing toxicity risks. This data-driven approach has already demonstrated its value by successfully guiding the design of **Lantern's FDA-cleared Phase 1B/2 clinical trial combining LP-184 with olaparib in triple-negative breast cancer** (TNBC).

"This AI-powered module is a transformative step in our mission to deliver personalized cancer treatments," said Panna Sharma, CEO & President of Lantern Pharma. "By leveraging our RADR® platform to analyze complex multi-omics and clinical trial data, we identified optimal DDA-DDRi combinations that guided the development of our TNBC trial. We believe this approach could reduce combination therapy development timelines and costs by one-third compared to traditional methods."

The module integrates genomic, transcriptomic, and clinical data to predict synergistic drug interactions, optimize therapeutic outcomes, and identify biomarker-defined patient subpopulations likely to respond to specific combinations. This data-driven approach directly informed the design of Lantern's FDA-cleared Phase 1B/2 trial in TNBC for LP-184 and olaparib, with potential to improve response rates and reduce toxicity.

Key insights from the study powering the AI module include:

- Non-PARP Inhibitor Promise: Non-PARP DDRi combinations, particularly WEE1 inhibitors like adavosertib with platinum agents, showed an 80% positive outcome rate in interstrand cross-linker trials, with strong efficacy in TP53-mutated cancers, directly informing future trial design.
- Biomarker-Driven Success: Biomarkers such as TP53 mutations and HRD signatures were critical predictors of response, enabling patient stratification to maximize efficacy.
- Toxicity Mitigation: The use of novel formulations like liposomal doxorubicin in combination regimens reduced cardiotoxicity, providing a safer backbone for combination strategies.

- Emerging Trends: The analysis emphasizes the patterns in treatment effectiveness, safety, and emerging trends across various cancer types and discusses the potential of biomarkers to guide treatment selection and improve patient outcomes.

The module's multi-agentic framework integrates specialized AI agents for data aggregation, drug classification, predictive modeling, biomarker identification, and optimization, creating a dynamic system that is planned to evolve along with new data. The system's continuous learning capability ensures adaptability, enabling Lantern to refine regimens and accelerate future trials across diverse cancer indications. The company is exploring licensing and commercialization opportunities to expand the application of this technology, further revolutionizing combination therapy development.

About Lantern Pharma

Lantern Pharma (NASDAQ: LTRN) is an AI-driven biotechnology company focused on accelerating and optimizing the discovery, development, and commercialization of cancer therapies. Its RADR® platform leverages artificial intelligence and machine learning to uncover novel therapeutic opportunities, accelerate drug development, and improve patient outcomes.

Please find more information at:

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

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 internal drug discovery 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 candidate; estimates regarding patient populations, potential markets and potential market sizes; sales estimates for our drug

candidates and our plans to discover and develop drug candidates and to maximize their commercial potential by advancing such drug 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 risk that we may not be able to secure sufficient future funding when needed and as required to advance and support our existing and planned clinical trials and operations, (ii) the risk that observations in preclinical studies and early or preliminary observations in clinical studies do not ensure that later observations, studies and development will be consistent or successful, (iii) the risk that our research and the research of our collaborators may not be successful, (iv) the risk that we may not be successful in licensing potential candidates or in completing potential partnerships and collaborations, (v) 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, (vi) 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 (vii) those other factors set forth in the Risk Factors section in our Annual Report on Form 10-K for the year ended December 31, 2024, filed with the Securities and Exchange Commission on March 27, 2025. You may access our Annual Report on Form 10-K for the year ended December 31, 2024 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.

[1] Fontenot R, Biyani N, Bhatia K, Ewesuedo R, Chamberlain M and Sharma P (2025) Clinical outcomes of DNA-damaging agents and DNA damage response inhibitors combinations in cancer: a data-driven review. Front. Oncol. 15:1577468. doi: 10.3389/fonc.2025.1577468

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