NEWS RELEASE

Lantern Pharma Reports Fourth Quarter & Fiscal Year 2023 Financial Results and Business Highlights

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- Multiple clinical trials across three AI-guided drug candidates are active with first expected data and readouts for LP-184 in the second half of 2024; with additional next-generation drug development programs approaching IND studies.
- Dosed initial patients in both Phase 1 clinical trials for synthetic lethal drug-candidates, LP-184 and LP-284, each of which are first-in-human molecules with the potential for use across multiple cancer indications.
- Expanded Phase 2 LP-300 **Harmonic™ clinical trial** into 12 sites in the US and advanced towards initial regulatory allowance for trial commencement in Japan, Taiwan and South Korea where approximately 30-35+% of all lung cancer cases occur in never-smokers with NSCLC.
- Advanced **Starlight Therapeutics** with hiring of Chief Medical Officer (CMO) and preparing for potential Phase 1B/2 clinical trial in adult CNS tumors beginning in second half of 2024.
- Demonstrated significant advancement of our cryptophycin focused antibody-drug-conjugate program (cpADC) in multiple solid tumor models, with additional preclinical data to be generated during 2024 in advance of IND studies.
- Exceeded 2023 goal of 60 billion datapoints for oncology drug development AI platform, RADR®, and announced 100 billion datapoint goal for 2024 to include additional advancements in integrating generative AI features into platform functionality.
- Approximately $41.3 million in cash, cash equivalents, and marketable securities as of December 31, 2023.
- The conference call and webcast are scheduled for today, Monday March 18, 2024, at 4:30 p.m. ET / 1:30 p.m.

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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 operational highlights and financial results for the fourth quarter and fiscal year ended December 31, 2023.

"This past quarter and the entire year of 2023 was a period of meaningful and remarkable progress for our programs and our AI platform at Lantern Pharma. Our team demonstrated how combining emerging AI technologies, cancer biology models and experiments, chemical, molecular, and multiomic biomarker data, along with large-scale patient data holds the promise of transforming timelines and costs in drug development for oncology. We are very enthusiastic about 2024 and will be actively focused on meeting and possibly exceeding the milestones ahead of us, which include potential initial data from our LP-184 Phase 1A trial; advancing the new company born from AI – Starlight Therapeutics, which is focused wholly on CNS cancers; and progressing our ADC oncology program," said Panna Sharma, President and CEO of Lantern Pharma.

Sharma continued, "Computational and AI-driven approaches are increasing their value-driving impact on oncology drug development, and our team continues to increase the capabilities and usefulness of our platform while also helping to de-risk and sharpen the focus of our existing clinical drug candidates. Our leadership in the innovative use of AI and machine learning to transform costs and timelines in the development of precision oncology therapies has guided three drug development programs in active clinical trials. We believe this pace of development with our focused team and resources should yield significant future benefits for investors and patients as our industry matures, adopts and accepts a data and AI-centric approach to drug development."

Highlights of AI-Powered Pipeline:

- LP-284 – Launched the first-in-human Phase 1 clinical trial with LP-284 targeting recurrent non-Hodgkin's lymphomas (NHL) and other cancers. **Lantern also announced recently that initial patients had been** dosed in the LP-284 clinical trial.

  LP-284 has shown nanomolar potency across multiple published in vitro and in vivo studies, including mantle cell lymphoma (MCL), double hit lymphoma (DHL), and other advanced NHL cancer subtypes with DNA damage response deficiencies, notably those with compromised functioning of the ataxia-telangiectasia mutated (ATM) gene due to mutations or deletions.

  Nearly all MCL, DHL, and High Grade B-Cell Lymphoma (HGBL) patients relapse from the current standard-of-care agents and there is an urgent and unmet need for novel improved therapeutic options for these

patients. In the US and Europe, MCL, DHL, and HGBLs are diagnosed in 16,000-20,000 patients each year and have an estimated annual market potential of over USD 3+ billion.

- LP-184 – Several cohorts of patients have been dosed in the ongoing Phase 1 clinical trial – a first-in-human Phase 1 basket trial across multiple solid tumor indications that are advanced and refractory to existing standard-of-care therapies. The trial is enrolling patients that have relapsed/refractory advanced solid tumors, such as pancreatic cancer, glioblastoma (GBM), brain metastases (brain mets.), lung cancer, triple-negative breast cancer, and multiple other solid tumor types with DNA damage response deficiencies. Lantern expects to continue Phase 1A enrollment throughout the first half of 2024 across a growing number of US clinical trial sites, including Fox Chase Cancer Center, Johns Hopkins Medicine, and other leading centers, with the potential for an initial readout in Phase 1A during late summer or early fall.

  The dosage and safety data obtained in the Phase 1A trial are expected to be used to advance the central nervous system (CNS) indications for a future Phase 1b/2 trial to be sponsored by Lantern's wholly owned subsidiary, **Starlight Therapeutics**. Additionally, AI and preclinical studies are ongoing to further refine drug combination studies supporting the use of LP-184 to improve the durability of response and/or the overall response rates in combination with FDA approved drugs that are widely used in cancer treatment. Globally, the aggregate annual market potential of LP-184's target indications is estimated to be approximately $12+ billion, consisting of $4.5+ billion for CNS cancers and $7.5+ billion for solid tumors.

- LP-300 – Twelve sites for the Phase 2 Harmonic™ trial have been activated in the US, and 3 Asian countries are in various phases of regulatory allowance for clinical trial commencement. This strategy should increase the potential for dosing additional patients in the Phase 2 Harmonic™ trial during 2024, which should help address the patient enrollment challenges Harmonic™ has faced in the US. In these Asian countries, Japan, South Korea and Taiwan, the incidence of never-smokers with NSCLC (non-small cell lung cancer) is double or higher than that of patients in the US. The Harmonic trial is assessing the effect of LP-300 in combination with standard-of-care chemotherapy in never-smoker patients with relapsed NSCLC.

  Globally, never-smokers with NSCLC are a growing population of patients and do not respond well to PD-1/PD-L1-based therapies, leaving them with reduced treatment options. In the US, there are approximately 20,000-40,000 never-smokers with NSCLC diagnosed annually, representing an estimated US annual market potential of $1.5 billion and a global estimated annual market potential of over $2.6 billion. Additional information on the Harmonic™ trial can be found at the **Harmonic™ website** and **clinicaltrials.gov**.

RADR® Platform Growth and Development:

- RADR® continues to advance in size, scope, and capabilities and is also progressing towards becoming a standard for AI-driven drug development in oncology – for both early-stage development and later-stage patient biomarker and combination therapy identification. RADR® has now surpassed 60+ billion oncology-focused datapoints and is projected to reach over 100 billion datapoints by the end of 2024. The scope of RADR®'s data has broadened with a strategic focus on additional classes of compounds, detailed data on chemical and biochemical features and drug-interaction data. Additionally, data from clinical studies such as those being obtained from liquid biopsy, and data from preclinical combination studies that aim to define drug interaction and optimal dosage are being incorporated into the datapoints and data sets powering RADR®.

  Lantern will potentially focus additional data growth efforts of the RADR® platform on: drug sensitivity data, combination treatment outcome data, and biomarker data in rare cancers, and on emerging synthetic lethal targets that are aimed at accelerating the development of new therapies for Lantern and its partners. Additionally, the RADR® platform's generative AI capabilities, focusing on molecular optimization and automated feature extraction to improve understanding and prediction of molecular dynamics, safety, and drug-drug interactions are planned to increase in functionality and scope in the coming quarters.

Starlight Therapeutics:

- In Q1 2023, Lantern formed a wholly-owned subsidiary, **Starlight Therapeutics Inc.** ("Starlight"), for the clinical development of drug candidate LP-184's central nervous system (CNS) and brain cancer indications – including GBM, brain mets., and several rare pediatric CNS cancers. Starlight will refer to the molecule LP-184, as it is developed in CNS indications, as "STAR-001".

  Lantern recently recruited a Starlight Chief Medical Officer who will focus on Starlight's clinical trials, development of personnel to execute on the planned clinical strategy and overall support in corporate development activity. Starlight and Lantern plan on initiating Phase 1B/2 clinical trials during the second half of 2024. The market potential for the currently planned indications for Starlight's synthetically-lethal, cancer-cell DNA damaging agent – STAR-001 – is estimated to be $4.5 billion to $5+ billion USD across both adult and pediatric primary and secondary CNS cancers.

ADC Program:

- Lantern, in collaboration with academic research partners, has advanced the development, synthesis, and preclinical proof-of-concept of a novel, highly potent, cryptophycin-based ADC (cpADC). The cpADC has shown

picomolar potency in a wide range of solid tumors tested in preclinical development and is being further evaluated for clinical potential in six solid tumor indications. In preclinical work, the cpADC produced an 80% cancer cell kill rate which is more than other ADC drug payloads, including in a cancer sub-type, medium HER-2 expression cancers, which is an unmet and critical patient need.

Lantern leveraged RADR®, a proprietary AI platform for oncology drug development, for target selection and molecular payload characterization in ADCs, and a unique, controlled conjugation approach for maximizing drug-to-antibody ratios while controlling for non-specific conjugation. Lantern expects to move towards IND development of the ADC program during 2024 with a focus on select solid tumors that are unresponsive or refractory to current therapies.

Additional Operational Highlights:

- During the 4th quarter of 2023, Lantern filed 3 new patent applications culminating in 11 new patent applications for the calendar year 2023.
- Lantern was awarded its fifth orphan drug designation by the FDA during the fourth quarter of 2023 relating to LP-284 in High Grade B-Cell Lymphoma (HGBL)
    - HGBL represents a rare and aggressive form of B-cell non-Hodgkin's lymphoma (NHL) with no established standard of care treatment approach. Typically, frontline intervention involves a combination of chemo-immunotherapies such as R-CHOP or DA-R-EPOCH. However, approximately 20-30% of HGBL patients stop responding to these therapeutic agents and continue cancer progression. For those with relapsed or refractory (R/R) disease, the survival prognosis is 8.6 to 16 months.
    - The other 4 FDA granted orphan designations, include 3 for LP-184 in High Grade Gliomas (including GBM), Pancreatic Cancer, and Atypical Teratoid Rhabdoid Tumors (ATRT), and another for LP-284 in Mantle Cell Lymphoma.
- New data and scientific findings will be presented for LP-284 at AACR (American Association for Cancer Research) during the 2024 Annual Meeting in San Diego from April 5 to 10.
    - Presentation Title: Phase 1a/1b clinical trial of LP-284, a highly potent TP53 mutation agnostic DNA damaging agent, in patients with refractory or relapsed lymphomas and solid tumors (NCT06132503)
    - Presenter: Jianli Zhou, PhD (Molecular Biologist, Data Scientist & Member of the RADR®, AI team at Lantern Pharma)

Fourth Quarter & Fiscal Year 2023 Financial Highlights:

- Balance Sheet: Cash, cash equivalents, and marketable securities were approximately $41.3 million as of

December 31, 2023, compared to approximately $55.2 million as of December 31, 2022. The cash burn rate for the 4th quarter and full year of 2023 continues to reflect our capital-efficient, collaborator-centered business model.

- R&D Expenses: Research and development expenses were approximately $3.6 million for the quarter ended December 31, 2023, compared to approximately $2.3 million for the quarter ended December 31, 2022.
- G&A Expenses: General and administrative expenses were approximately $1.3 million for the quarter ended December 31, 2023, compared to approximately $1.6 million for the quarter ended December 31, 2022.
- Net Loss: Net loss was approximately $4.2 million (or $0.39 per share) for the quarter ended December 31, 2023, compared to a net loss of approximately $3.4 million (or $0.31 per share) for the quarter ended December 31, 2022.
- Full Year Net Loss: Net loss per share was $1.47 per share for the fiscal year 2023 compared to $1.31 per share for the fiscal year 2022.
- Share Repurchase: Lantern's total outstanding shares were reduced in 2023 through a repurchase of 145,348 shares of LTRN common stock at a purchase price of $3.44 per share that the company executed in November of 2023.

Earnings Call and Webinar Details:

Lantern will host its 4th quarter & full year 2023 earnings call and webinar today, March 18, 2024, at 4:30 p.m. ET.

- **https://us06web.zoom.us/webinar/register/3317097466094/WN_mwX59UXFQZGhzJ5Ufv8JPA#/registration**
- Related presentation materials will be accessible at: **https://ir.lanternpharma.com**
- A replay of the 4th quarter and year-end 2023 earnings call and webinar will be available at: **https://ir.lanternpharma.com**

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 60 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 that span multiple cancer indications, including both solid tumors and blood cancers 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 - 2.5 million per program.

Our lead development programs include a Phase 2 clinical program and multiple Phase 1 clinical trials. We have also established a wholly-owned subsidiary, Starlight Therapeutics, 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.

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 our research and the research of our collaborators may not be successful, (ii) the risk that promising observations in preclinical studies do not ensure that later studies and development will be successful, (iii) the risk that we may not be successful in licensing potential ADC candidates or in completing potential partnerships and collaborations, (iv) 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, (v) 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 (vi) those other factors set forth in the Risk Factors section in our Annual Report on Form 10-K for the year ended December 31, 2023, filed with the Securities and Exchange Commission on March 18, 2024. You may access our Annual Report on Form 10-K for the year ended December 31, 2023 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 presentation 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.

Lantern Pharma Disclosure Channels to Disseminate Information:

Lantern Pharma's investors and others should note that we announce material information to the public about our company and its technologies, clinical developments, licensing matters and other matters through a variety of means, including Lantern Pharma's website, press releases, SEC filings, digital newsletters, and social media, in order to achieve broad, non-exclusionary distribution of information to the public. We encourage our investors and others to review the information we make public in the locations above as such information could be deemed to be material information. Please note that this list may be updated from time to time.

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