May 9, 2023

Lantern Pharma Reports First Quarter 2023 Financial Results and Operational Highlights

- Dosed first patient in the Phase 2 Harmonic™ clinical trial; a study for the unique population of non-small lung cancer patients who are never-smokers and who make up 15-20% of all lung cancer cases.
- Submission of the IND application for LP-184 to the US Food and Drug Administration (FDA) is anticipated this week; a first-in-human Phase 1 clinical trial for LP-184, in genomically defined solid tumors, is targeted to launch in mid-2023.
- Completion of IND-enabling studies for LP-284 is anticipated for mid-2023; a first-in-human Phase 1 clinical trial for LP-284, in multiple non-Hodgkin's lymphomas, is targeted to launch in the second half of 2023.
- Received a notice of allowance from the United States Patent and Trademark Office (USPTO) for a composition of matter patent for LP-284.
- Developed industry-leading AI algorithms to predict the blood-brain-barrier permeability of any compound; the algorithms have been fully incorporated into Lantern's AI platform RADR® increasing its functionality.
- Established an additional RADR® collaboration with TTC Oncology to help advance their Phase 2 ready drug candidate TTC-352 in ER+ breast cancer.
- $51.5 million in cash, cash equivalents, and marketable securities as of March 31, 2023.
- Lantern has a cash runway into 2025.
- Conference call scheduled for 4:30 p.m. ET / 1:30 p.m. PT today.

DALLAS--(BUSINESS WIRE)-- Lantern Pharma Inc. (NASDAQ: LTRN), a clinical-stage biopharmaceutical company using its proprietary RADR® artificial intelligence ("AI") and machine learning ("ML") platform to transform the cost, pace, and timeline of oncology drug discovery and development, today announced operational highlights and financial results for the first quarter ended March 31, 2023.

"This quarter we continued to execute our mission of transforming the oncology drug discovery and development process using our industry-leading AI platform RADR®. We are deploying AI at a massive scale - think millions of simultaneous instances of competing and synergistic algorithms - to determine drug and cancer correlations that would be far too complex and time-consuming for any team of humans to fully analyze, let alone replicate. AI is enabling us to understand and predict drug-cancer interactions, create new drug programs, and discover cancer biology insights at a cost and timeline that was unimaginable in the near past, and Lantern Pharma is at the forefront of this transformative approach," stated Panna Sharma Lantern's CEO and President.

"As part of our team's relentless efforts to advance RADR®, we recently developed top-

ranked and highly accurate algorithms to predict any compound's blood-brain-barrier (BBB) permeability, which is one of the major obstacles to developing effective brain cancer drugs. Continued innovations like this will position us for additional high-value biopharma collaborations and will also advance our own AI-powered pipeline of brain and CNS cancer drug candidates," continued Sharma.

"In addition to our pioneering work transforming oncology drug discovery and development with AI, we continue to progress our drug candidates into and through their clinical development. In March, we announced the dosing of the first patient in our Phase 2 Harmonic clinical trial for never-smokers with NSCLC and anticipate enrollment will accelerate as we expand our sites across the US. Our team has been unrelenting in their work to advance both LP-184 and LP-284 into first-in-human clinical trials this year. This week, we anticipate submitting our IND application to the FDA for LP-184's first-in-human trial for advanced solid tumors and brain cancers. On average, we have been able to advance our newly developed drug programs from initial AI insights to first-in-human clinical trials in 2-3 years and at a cost of around $1.0-2.0 million USD per program - both metrics that are completely unheard of in oncology drug discovery," stated Sharma.

Highlights of AI-Powered Pipeline:

- **LP-184** – Anticipate submitting the investigational new drug (IND) application for LP-184 to the US Food and Drug Administration (FDA) this week. Lantern is targeting to launch a Phase 1A basket trial for LP-184 in mid-2023 for multiple recurrent brain cancers and solid tumors with unmet clinical needs. Indications for the trial are anticipated to include advanced high-grade gliomas/glioblastoma (GBM), brain metastases, pancreatic cancer, and other solid tumor types with DNA damage response deficiencies. Globally, the aggregate annual market potential of LP-184's target indications is estimated to be approximately $11.0-13.0 billion, consisting of $5.0-6.0 billion for CNS cancers and $6.0-7.0 billion for solid tumors.
- **LP-300** – Recently dosed the first patient in the Phase 2 Harmonic™ clinical trial that is assessing the effect of LP-300 in combination with standard-of-care chemotherapy in never-smoker patients with relapsed non-small cell lung cancer (NSCLC). Across the five Harmonic™ clinical trial sites in the US, over a dozen additional potential patients have been pre-screened and are being monitored for possible enrollment. Multiple additional trial sites across the US are expected to be activated by mid-2023 to bolster patient recruitment and enrollment. In the US, there are approximately 20,000-40,000 never-smokers with NSCLC diagnosed annually, representing an estimated annual market potential of $1.5-2.0 billion. Additional information on the Harmonic™ trial can be found at the Harmonic™ website and the clinicaltrials.gov website.
- **LP-284** – Completion of the LP-284 IND enabling studies is anticipated for mid-2023. The first-in-human Phase 1 clinical trial launch is targeted for the second half of 2023 for B-cell non-Hodgkin's lymphomas (NHL), where LP-284 has shown nanomolar potency across multiple in vitro and in vivo studies, including mantle cell lymphoma (MCL), double hit lymphoma (DHL), and other NHL cancer subtypes. Nearly all MCL patients relapse from the current MCL 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 and DHL are diagnosed in approximately 9,000 patients each year and have an estimated annual market potential of $1.2 billion.

Formation of Starlight Therapeutics:

- Lantern recently 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 glioblastoma (GBM), brain metastases (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".
- The clinical development of STAR-001 in CNS cancers beyond the Phase 1A trial will be conducted exclusively by Starlight. Following the launch of Starlight, Lantern will continue to advance LP-184's preclinical and clinical development for non-CNS indications (including pancreatic cancer and other solid tumors) and will also provide RADR® AI-driven bioinformatic and computational biology support to Starlight.

RADR® Platform Growth and Development:

- Developed top-ranked AI algorithms to predict any compound's blood-brain barrier (BBB) permeability. The AI algorithms, which have been fully integrated into RADR®, have 89-92% accuracy, have been optimized to rapidly generate predictions in approximately one minute, and are highly scalable to screen thousands of compounds simultaneously. The BBB prevents an estimated 98% of drugs from entering the brain and is a major limitation to developing drugs for brain and CNS cancers. Lantern's AI-driven approach offers a rapid and highly-accurate alternative for predicting a drug's BBB permeability compared to conventional wet lab approaches.
- Breakthrough RADR® advancements were presented at the AACR annual meetingin collaboration with Actuate Therapeutics. The AACR poster presented data demonstrating that RADR® algorithms had an 88% accuracy in predicting responders and non-responders in Actuate Therapeutics' Phase 1 clinical trial for their drug candidate, elraglusib. These patient response predictions are anticipated to be leveraged for patient selection in Actuate's upcoming late-stage clinical trials for elraglusib.
- Lantern recently established a new RADR® and AI-driven collaboration with TTC Oncology to enhance the development of TTC's Phase 2 ready drug candidate TTC-352. TTC-352 is a novel, first- and best-in-class selective human estrogen receptor (ER) partial agonist (ShERPA) for the treatment of patients with metastatic ER+ breast cancer. The initial aims of the collaboration will be to identify biomarker or gene signatures to power potential patient selection for an upcoming TTC-352 Phase 2 clinical trial and to discover additional treatment indications for TTC-352. Under the terms of the collaboration, Lantern is receiving an exclusive right to license TTC-352, including any collaboration intellectual property (IP), during an exclusive option period.

Other Operational Highlights

- Lantern received a notice of allowance from the United States Patent and Trademark Office (USPTO) for the composition of matter patent, no. 17/192,838, covering the molecule LP-284, including claims covering the new molecular entity. Lantern expects the resulting LP-284 patent will be Orange Book-listable with an anticipated expiration of early 2039.
- At the 2023 AACR annual meeting, Lantern scientists presented new preclinical data highlighting how LP-184's unique synthetic lethality mechanism of action is being

leveraged as a single agent as well as in combination with the PARP inhibitor (PARPi), Olaparib, for the potential treatment of multiple cancer types that are deficient in DNA damage response (DDR). The poster also highlighted additional results demonstrating that as a single agent, LP-184 has significantly higher potency than Olaparib across multiple preclinical cancer models deficient in DDR including pancreatic, prostate, and non-small cell lung cancer models.

First Quarter 2023 Financial Overview:

- **Balance Sheet**: Cash, cash equivalents, and marketable securities were approximately $51.5 million as of March 31, 2023, compared to approximately $55.2 million as of December 31, 2022. The quarterly cash burn rate continues to reflect our capital-efficient, collaborator-centered business model.
- **R&D Expenses**: Research and development expenses were approximately $2.6 million for the quarter ended March 31, 2023, compared to approximately $2.7 million for the quarter ended March 31, 2022. Research and development expenses for the quarter ended March 31, 2022 included a non-recurring escrow release payment of approximately $459,000.
- **G&A Expenses**: General and administrative expenses were approximately $1.7 million for the quarter ended March 31, 2023, compared to approximately $1.4 million for the quarter ended March 31, 2022.
- **Net Loss**: Net loss was approximately $3.9 million (or $0.36 per share) for the quarter ended March 31, 2023, compared to a net loss of approximately $4.1 million (or $0.38 per share) for the quarter ended March 31, 2022.

Earnings Call and Webinar Details:
Lantern will host its first quarter 2023 earnings call and webinar today, Tuesday, May 9, 2023 at 4:30 p.m. ET.

- https://us06web.zoom.us/webinar/register/2016825185534/WN_jlzd9TfkQMmU5eUH_gY
- Related presentation materials will be accessible at: https://ir.lanternpharma.com
- A replay of the first quarter earnings call and webinar will be available at https://ir.lanternpharma.com.

About Lantern Pharma:
Lantern Pharma 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.

Please find more information at:
Website: www.lanternpharma.com
LinkedIn: https://www.linkedin.com/company/lanternpharma/
Twitter: @lanternpharma
Lantern Pharma Newsletter – The Spark: Sign-up here

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 and ADC 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 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 atwww.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.

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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