UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): May 3, 2022

Lantern Pharma Inc.
(Exact name of registrant as specified in its charter)

Delaware	**001-39318**	**46-3973463**
(State or Other Jurisdiction of Incorporation)	(Commission File Number)	(IRS Employer Identification No.)

1920 McKinney Avenue, 7th Floor Dallas, Texas	**75201**
(Address of Principal Executive Offices)	(Zip Code)

(972) 277-1136
(Registrant's telephone number, including area code)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act: Common Stock

Title of each class	**Trading Symbol**	**Name of each exchange on which registered**
Common Stock, $0.0001 par value	LTRN	The Nasdaq Stock Market

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☒

Item 2.02 Results of Operations and Financial Condition.

On May 3, 2022, Lantern Pharma Inc. (the "Company") will issue a press release announcing its financial results for the first quarter endecMarch 31, 2022. A copy of the press release is furnished as Exhibit 99.1 to this Current Report on Form 8-K and is incorporated herein by reference.

The information in this Item 2.02, including Exhibit 99.1 hereto, shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference in any filings under the Securities Act of 1933, as amended, or the Exchange Act, regardless of any general incorporation language in such filings, unless expressly incorporated by specific reference in such filing.

Item 7.01 Regulation FD Disclosure.

On May 3, 2022, the Company will utilize a presentation to assist with the Company's discussions during a conference call and live webinar hosted by the Company to discuss financial and operating results for the first quarter ended March 31, 2022. A copy of the presentation is furnished as Exhibit 99.2 to this Current Report on Form 8-K and is incorporated herein by reference.

The information in this Item 7.01, including Exhibit 99.2 hereto, shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference in any filings under the Securities Act of 1933, as amended, or the Exchange Act, regardless of any general incorporation language in such filings, unless expressly incorporated by specific reference in such filing.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits.

Exhibit No.	**Exhibit Description**
99.1	Press Release dated May 3, 2022 announcing financial results for quarter ended March 31, 2022.
99.2	Presentation relating to May 3, 2022 conference call and live webinar to discuss financial and operating results for quarter ended March 31, 2022.
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Lantern Pharma Inc.,
A Delaware Corporation

Dated: May 3, 2022

By: */s/ David R. Margrave*
David R. Margrave, Chief Financial Officer

Lantern Pharma Reports First Quarter 2022 Financial Results and Operational Highlights

- RADR®, Lantern's proprietary A.I. and machine learning platform, has now surpassed 20 billion data points, enhancing its precision, insights, and capabilities for oncology drug discovery
- Launch and enrollment of the HARMONIC™ clinical trial expected in Summer of 2022; the Phase 2 trial is for LP-300 in never-smokers with lung cancer
- IND application for LP-184 targeted for submission with the FDA in Q3 2022; enabling a first in-human clinical trial for genomically defined solid tumors
- Announced brain metastases as a new indication being pursued for LP-184 at the American Association of Cancer Research annual meeting
- Advanced preclinical studies are underway in Australia, through Australian subsidiary, Lantern Pharma Australia Pty Ltd., to take advantage of Australia's R&D Tax Incentive program
- $65.2 million of cash, cash equivalents and marketable securities as of March 31, 2022
- $5.3 million in cash was utilized during the three months ended March 31, 2022, of which $2.5 million was for the share repurchase program, with the remainder primarily attributable to core operations
- Conference call scheduled for 4:30 p.m. EST / 1:30 p.m. PST today

DALLAS, May 3, 2022 /PRNewswire/ -- Lantern Pharma Inc. (NASDAQ:LTRN), a clinical stage biopharmaceutical company using its proprietary RADR® artificial intelligence ("A.I.") and machine learning (ML) platform to transform the cost, pace, and timeline of oncology drug discovery and development, today announced financial results and operational highlights for the first quarter ended March 31, 2022.

"Lantern is at a very exciting inflection point as we continue to make significant and meaningful progress in translating key insights generated by our A.I. platform into preclinical and clinical programs," stated Panna Sharma, President and CEO of Lantern Pharma. "Our proprietary RADR® A.I. platform recently surpassed 20 billion data points and is on a solid trajectory to surpass our year-end goal of 25 billion data points. This accelerates our ability to generate new insights to further power our development decisions for our drug candidates, as well as drug candidates from our biopharma collaborators."

"In mid-April, an amendment to the IND application for the planned Phase 2 trial for LP-300, the HARMONIC™ clinical trial, was submitted to the FDA. The Harmonic™ trial is focused on never-smokers with non-small cell lung cancer (NSCLC) and is expected to begin enrolling patients in the second half of this year. Additionally, we remain on track to launch up to two Phase 1 trials for LP-184 in cancers with significant clinical need. We also anticipate reporting data from multiple preclinical programs this year, including programs focused on pediatric cancers and those that exploit the synthetic lethality potential of our compounds." continued Sharma.

Operational Highlights:

RADR® Platform Growth and Development

- Surpassed 20 billion data points for RADR® A.I. platform and we expect to reach our goal of over 25 billion data points by year end.
- RADR® utilizes over 150 different algorithms that have yielded insights for our drug programs. These algorithms are focused on critical questions in oncology drug discovery and development.
- Filed a patent application covering claims for the development of ensemble and deep learning methods and algorithms, including automated algorithm development within RADR®.
- Future RADR® growth will focus on additional functionality and modules that aid in the discovery and development of compounds that can leverage synthetic lethality, and in the prediction of potential combination regimens across multiple drug classes, including those that have not previously been utilized in cancer.

Lantern's Portfolio of Targeted Therapies

Lantern Pharma is currently developing four drug candidates and an Antibody-Drug Conjugate (ADC) program across nine disclosed tumor targets, and several undisclosed targets. Lantern's portfolio currently includes:

- **LP-300** - is preparing to enter a Phase 2 clinical trial, the HARMONIC™ clinical trial, in the Summer of 2022. The HARMONIC™ trial will be a 90 patient, two-arm, randomized, open label clinical trial focused on never-smoker patients with relapsed primary adenocarcinoma of the lung, a type of NSCLC. An amendment to the IND, including a finalized clinical study protocol, was submitted to the FDA in mid-April and the first patients are anticipated to be enrolled in the Summer of 2022. The HARMONIC™ trial is anticipated to include 15-20 sites in the US, of which multiple are currently being contracted for enrollment.
- **LP-100** - is in a Phase 2 trial in Denmark for patients with metastatic castration resistant prostate cancer (mCRPC) that meet a certain genomic signature that correlates to enhanced sensitivity to LP-100. In the initial cohort of patients, nine patients experienced a median overall survival of 12.5 months. We are evaluating possibilities for further enrollment in the current Phase 2 trial as well as other potential clinical development opportunities that we believe can further de-risk the program while increasing the potential for patient benefit that exceeds the current standards of care.

  Based on existing data demonstrating synergy between LP-100 and PARP inhibitors, we are currently investigating the potential of combination therapy for these two agents.

- **LP-184** - is in preparation for potentially multiple Phase 1 clinical trial launches for genomically defined pancreatic and bladder cancers as well as CNS cancers including glioblastoma multiforme (GBM), atypical teratoid rhabdoid tumors (ATRT), and brain metastases (brain mets).

  The IND enabling studies for LP-184 are in progress and are anticipated to be completed by Q3 2022. Based on current timeline projections, the Company is targeting to file the LP-184 IND submission with the FDA in Q3 and should be in a position to initiate in-human Phase 1 clinical testing before the end of 2022.

  Lantern announced data supporting the efficacy of LP-184 in brain mets in a poster at the American Association for Cancer Research (AACR) 2022 annual meeting. The poster highlighted the in vitro anti-tumor activity of LP-184 in brain mets cell models from lung, skin, and breast cancers. In the US, brain mets occur in around 10-30% of all cancer cases and are diagnosed in well over 100,000 patients each year.

  There is an urgent and unmet clinical need for new therapies for brain mets due to a current lack of novel agents that can cross the blood brain barrier (BBB). LP-184's favorable BBB permeability, paired with its observed preclinical efficacy in certain CNS cancers, underscore its potential to become a vital treatment option for patients relapsed from current standard of care treatment or for use in combination with other agents.

- **LP-284** - is in preclinical development and has demonstrated potency at low nanomolar levels in hematological cancer cell lines, including lymphoma, multiple myeloma, and leukemia. LP-284's indications in hematological cancers are distinct from the indications targeted by LP-184 and were generated with the assistance of RADR® insights.

- **Antibody Drug Conjugate (ADC) Program** - we have selected and ranked multiple targeting antibodies of interest with potential to be linked to selected cytotoxic payloads. We are in late-stage candidate selection of various cytotoxic compounds and targeted classes of agents to be used as ADC payloads.

Establishment of Australian Subsidiary

- In September 2021, Lantern created an Australian subsidiary, Lantern Pharma Australia Pty Ltd. The subsidiary was created to enable Lantern to take advantage of Australia's R&D Tax Incentive program, which provides tax offsets for eligible R&D expenditures.

- This program will provide the opportunity for Lantern to conduct upcoming preclinical and clinical trials with increased financial flexibility and capital efficiency. Lantern has already initiated preclinical and IND enabling studies under the subsidiary in Australia.

- Lantern may conduct first in-human phase 1 clinical trials in Australia due to its historical capability for cost-effectiveness, accelerated timelines, and timely regulatory approval. We believe that this aligns with the Company's focus to develop oncology therapies with reduced time and cost.

Scientific Collaborations Updates

- In early 2022, Lantern entered a collaboration with The Greehey Children's Cancer Research Institute (GCCRI) at University of Texas Health Science Center-San Antonio to expand Lantern's drug portfolio research into several additional pediatric cancers with unmet clinical needs.

- The studies from this collaboration have been initiated beginning with LP-184 treatment of nine in vitro models of pediatric cancers. The preliminary results have been promising and will be completed in Q2 2022.

- Lantern is evaluating additional collaborations with leading academic cancer institutions and researchers for LP-284.

First Quarter 2022 Financial Overview

- **Balance Sheet**: Cash, cash equivalents, and marketable securities were $65.2 million as of March 31, 2022, compared to $70.7 million as of December 31, 2021. The quarterly cash burn continues to reflect our capital-efficient, collaborator-centered business model. $5.3 million in cash was utilized during the three months ended March 31, 2022, of which $2.5 million was for the share repurchase program, with the remainder primarily attributable to core operations.

- **R&D Expenses**: Research and development expenses were $2.7 million for the quarter ended March 31, 2022 compared to $1.3 million for the quarter ended March 31, 2021. The increase in R&D expense was primarily attributable to increases in manufacturing related expenses for product candidates, research studies, and an escrow payment released to Allarity under the Allarity Asset Purchase Agreement, which payment was a nonrecurring expense.

- **G&A Expenses**: General and administrative expenses were $1.4 million for the quarter ended March 31, 2022 compared to $1.2 million for the quarter ended March 31, 2021, respectively.

- **Net Loss**: Net loss was $4.1 million (or $0.38 per share) for the quarter ended March 31, 2022, compared to a net loss of $2.5 million (or $0.24 per share) for the quarter ended March 31, 2021.

Additional Financial Highlights

- In March 2022, Lantern's Board of Directors authorized an extension of the existing share repurchase program to acquire up to $7 million of the Company's common stock. Under the share repurchase program, through March 31, 2022 the Company has purchased a total of 475,157 shares of its common stock at a total cost of approximately $3.4 million, including fees. The Company is authorized to additionally purchase up to a total of $3.6 million of the Company's common stock through July 31, 2022, pursuant to the repurchase program.

Nomination of New Board Member for Election and Annual Meeting of Stockholders

- Lantern recently announced that Dr. Maria Maccecchini, Ph.D. was nominated for election to our Board of Directors. She is the current CEO, President, and a Director of Annovis Bio Inc., a biopharma company focused on developing therapies for neurodegenerative diseases. If elected, Dr. Maccecchini will bring decades of experience in progressing drug candidates through late-stage clinical trials. Dr. Maccecchini will be presented alongside a slate of five existing Directors at Lantern's upcoming Annual Meeting of Stockholders to be held on June 8, 2022. Additionally, Leslie W. Kreis, Jr., a member of Lantern Pharma's Board of Directors since 2019, has advised Lantern's Board of his determination not to stand for reelection as a Director at Lantern's Annual Meeting.

- The Annual Meeting of Stockholders will be held on June 8, 2022 at 11:00 am EST/ 8:00 am PST, which will be held via webcast. Register for the Annual Meeting here.

2022 Outlook:

"During the year we expect to bring multiple assets into focused clinical trials where there is demonstrated clinical need, while remaining focused on capital efficiency. Additionally, our A.I. platform, RADR ®, will continue to grow significantly across all measures - data, analytical rigor, generation of new publishable insights, and new functionality. As data and A.I. continue to drive changes in the cost, speed and efficiency of drug discovery and development, our team at Lantern will remain at the forefront of transforming oncology therapeutic development."

Earnings Call and Webinar Details

Lantern will host its first quarter fiscal year 2022 earnings call and webinar today, Tuesday, May 3 at 4:30 p.m. ET.

- https://us06web.zoom.us/webinar/register/3516500329459/WN_fOeTQP8mRru_FxXFWsR69w
- Related presentation materials will be accessible at: https://ir.lanternpharma.com

Replay Details

- A replay of the Q1 2022 earnings call and webinar will be available at https://ir.lanternpharma.com

Lantern's Investor Relations Contact:

Nicole Leber
Investor Relations Associate
ir@lanternpharma.com

About Lantern Pharma

Lantern Pharma (NASDAQ: LTRN) is a clinical-stage oncology-focused biopharmaceutical company leveraging its proprietary RADR® A.I. and machine learning platform to discover biomarker signatures that identify patients most likely to respond to its pipeline of genomically targeted therapeutics. Lantern is currently developing four drug candidates and an ADC program across nine disclosed tumor targets, including two phase 2 programs. By targeting drugs to patients whose genomic profile identifies them as having the highest probability of benefiting from the drug, Lantern's approach represents the potential to deliver best-in-class outcomes.

Please find more information at:
Website: www.lanternpharma.com
LinkedIn: https://www.linkedin.com/company/lanternpharma/
Twitter: @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; 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 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," "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® A.I. 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, 2021, filed with the Securities and Exchange Commission on March 10, 2022. You may access our Annual Report on Form 10-K for the year ended December 31, 2021 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.

First Quarter 2022
Operating & Financial Results Conference Call / Webinar

May 3rd, 2022
4:30 PM Eastern Time

Lantern Pharma

NASDAQ :LTRN

Forward-Looking Statements

This presentation 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; 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 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," "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 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® A.I. 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, 2021, filed with the Securities and Exchange Commission on March 10, 2022. You may access our Annual Report on Form 10-K for the year ended December 31, 2021 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.

Contents

Speakers

Panna Sharma

Chief Executive Officer,
President and Director

Dr. Kishor Bhatia

Chief Scientific Officer

David Margrave

Chief Financial Officer

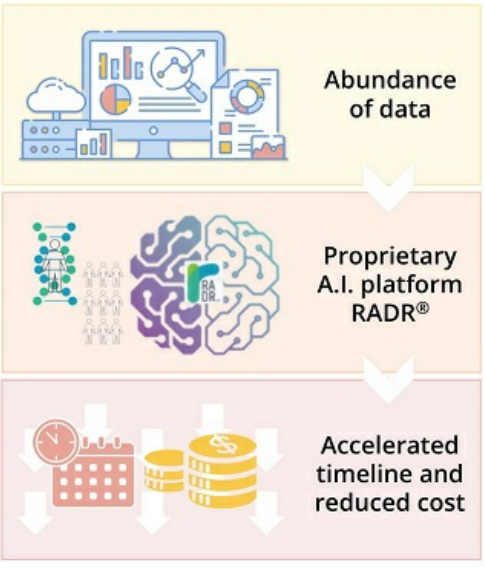
Host

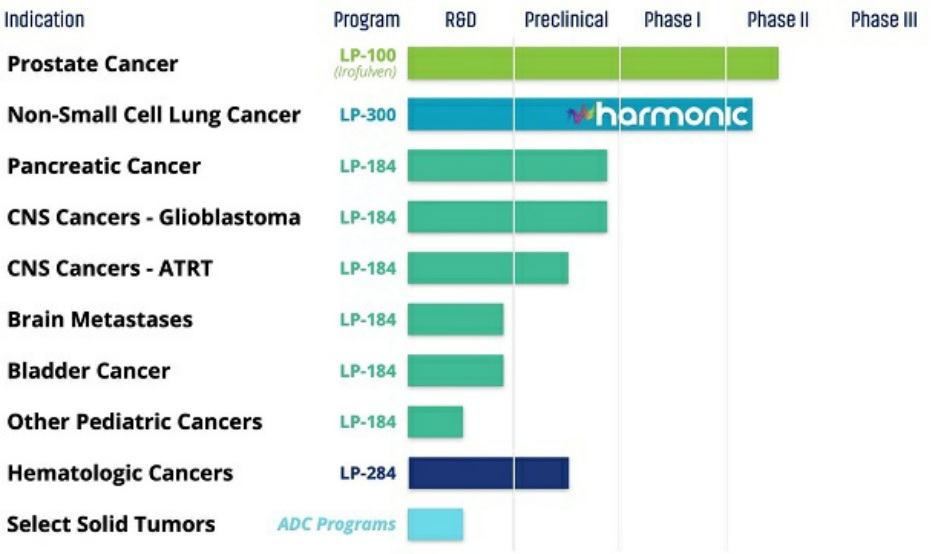
Nicole Leber

Investor Relations

Lantern Pharma

Leveraging A.I. to reduce oncology drug development costs and improve the likelihood of success





First Quarter 2022 Highlights

Harmonic™ Trial
- Submitted IND amendment including a finalized clinical study protocol to the FDA in mid-April for Phase 2 trial
- 1st patient anticipated in Summer 2022

LP-184
- IND enabling studies progressing
- IND submission targeted in Q3 2022

Brain Metastases
- Presented poster and findings at AACR
- Pursuing new indication for LP-184 in a market with significant unmet clinical need

Synthetic Lethality
- Evidence of a synthetic lethal relationship between LP-184 and NERD and HRD tumors

Australia Operation
- Actively conducting multiple studies in Australia under Lantern Australian subsidiary
- Takes advantage of R&D tax incentive program

RADR® Expansion
- RADR® has surpassed 20 billion datapoints
- Pursuing additional biopharma collaborations

Share Repurchases
- Announced extension of existing share repurchasing program

Pediatric Cancer
- Initiated work with Greehey Children's Cancer Institute at UT Health San Antonio
- Early preclinical efficacy seen in initial studies

Harmonic™ Clinical Trial – Phase 2 Trial for LP-300

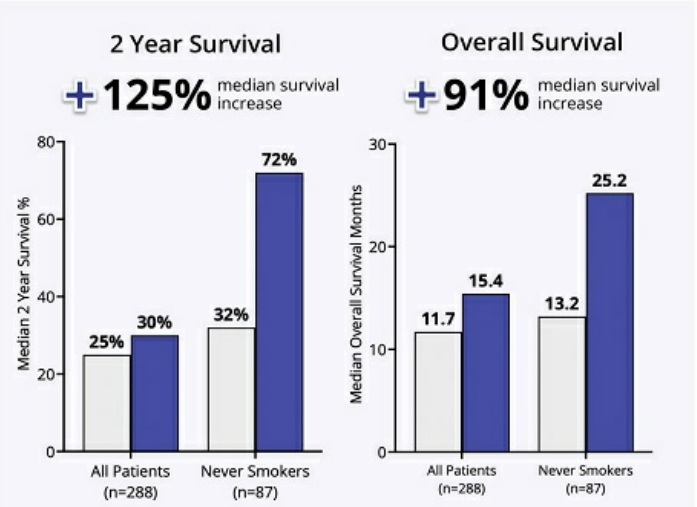
harmonic

Total expected patients **90** Patients

Total expected sites **15-20** Sites

Estimated first patient enrollment **Summer 2022**

- Harmonic™ clinical trial is a Phase 2, multi-center study to evaluate Lantern's investigational drug LP-300
- 90 patient, two-arm, open label, randomized trial
- randomization in a 2:1 allocation ratio to one of two arms
- Trial is focused on **never smoker** patients with relapsed primary adenocarcinoma of the lung, a type of NSCLC (Non-Small Cell Lung Cancer)



In a subset of Never Smoker patients from a larger NSCLC trial, patients who received LP-300 with chemotherapy showed **increased overall and 2-year patient survival by 91% and 125%**, respectively.

LP-184 IND enabling studies

Completed

Study Type	Method	Results
Dog non-GLP tox study	NOAEL 0.3mg/kg for repeat weekly dosing (days 1, 8 and 15)	At NOAEL in dogs LP-184 PK parameters measured on dosing days 1 and 15 showed ○ t1/2 = 40-50 min ○ Cmax = 800 nM ○ Tmax = 5 min ○ At 0.3mg/kg some hematotoxicity observed in form of decreased counts of blood lymphocytes
Analytical Method Development	Completed LC-MS method development for rat/ dog plasma, and matrix/ storage/ pH/ freeze-thaw stability; precision & accuracy	Standard curve: 1 - 200 ng/mL; QC levels: 1, 3, 75, 180, 200 ng/mL

Ongoing

Study Type	Method	Expected completion
Analytical Method Validation	30-day stability protocols	June 2022
Dog GLP 3	weekly doses (0.2, 0.4 and 0.6mg/kg)	Early June 2022

Expected

Targeted for Q3 — Targeted for Q4

SEND report format to FDA → **CMC data for FDA** → **IND filling** → **Phase 1 LP-184 trial**

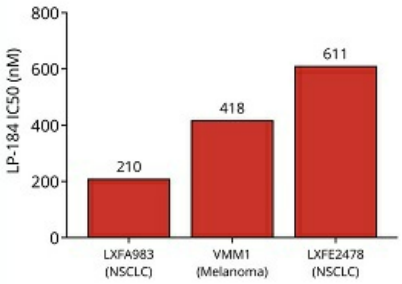
In vitro efficacy of our drug candidate LP-184 in brain metastases (mets.),

LP-184 is 6X more potent than early generation EGFR TKIs in brain metastasis models from primary lung cancer

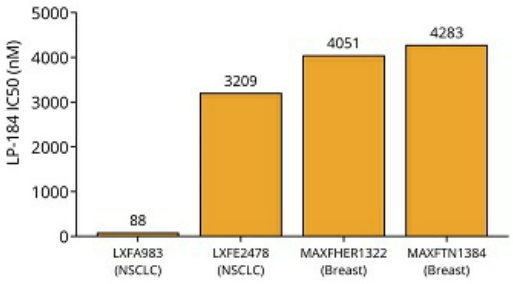
Unmet Clinical Need in Brain Metastases

- Brain metastases in the U.S. occur in **10-30% of all cancer cases** and are diagnosed in over **100,000 patients** each year.
- There is an **urgent and unmet clinical need** for novel therapies for brain mets due to a current lack of novel agents that can cross the blood brain barrier (BBB).

Estimated **$9 Billion** US Market Potential



2D Brain Metastases Cell Lines (Primary Tumor Type)



3D Brain Metastases Cell Lines (Primary Tumor Type)

- LP-184 has activity in the **primary and secondary cancers AND crosses the BBB.**
- Efficacy of LP-184 may extend beyond primary brain cancers to **other solid tumors that have metastasized to the brain** as evidenced by in vitro efficacy in brain mets. cell lines.
- LP-184 demonstrated anti-tumor activity in brain metastases cell models **from lung, skin, and breast cancers.**
- Data supports continued development of LP-184 in these **CNS cancer indications**

Lantern established an Australian subsidiary

Established Australia subsidiary to take advantage of Australia's Research & Development Tax Incentive

Lantern Pharma Australia Pty Ltd, a Lantern subsidiary, was established in Australia in September 2021

Subsidiary will allow:

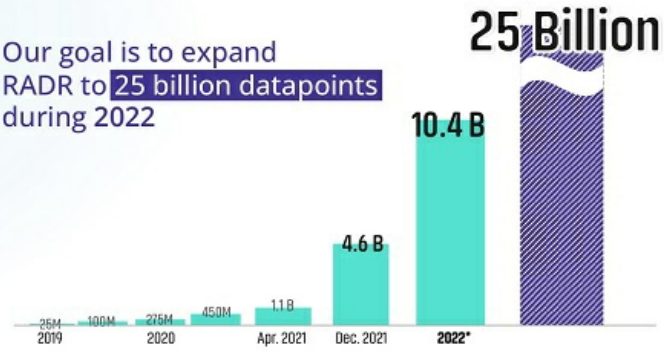
- Lantern to take advantage of Australia's R&D Tax Incentive program, which provides tax offsets for eligible R&D expenditures
- Lantern to conduct preclinical and IND enabling studies, many of which are already underway
- Increases financial flexibility and improves capital efficiency for ongoing R&D activity

RADR® Surpassed 20 Billion Datapoints

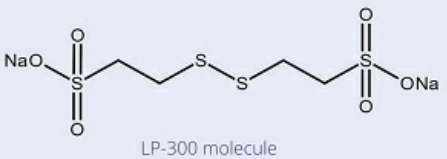
Future Goals For A.I. Platform

1. Focus on automation of data acquisition
2. Improve data user interface to other analytical tools and containers
3. Improve tagging of metadata
4. Enter into additional value-based biopharma collaborations

Our goal is to expand RADR to **25 billion datapoints** during 2022



LP-300 Mechanism of action



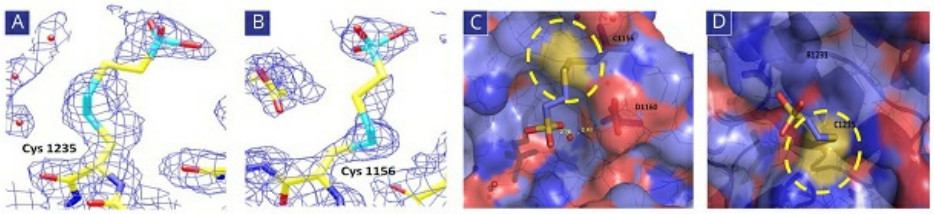
LP-300 molecule

LP-300

- LP-300 in previous clinical trials has been well tolerated in around **1,000 people**.
- In a subset of Never Smoker patients from a larger NSCLC trial, patients who received LP-300 with chemotherapy showed increased overall and 2-year patient survival by 91% and 125%, respectively.

Protein Degradation

LP-300 can degrade NSCLC proteins such as EGFR, ALK and ROS via cysteine modification



Electron density maps showing LP-300-derived adducts on ALK

Panel A: LP-300 adduct at Cys 1235
Panel B: LP-300 adduct at Cys 1156
Panel C: Molecular surface of ALK with the LP-300-derived adduct at Cys 1156 (***yellow highlight***)
Panel D: Binding site of the LP-300-derived adduct at Cys 1235 (***yellow highlight***)

Target Modulation

LP-300 modulates targets within key signaling pathways in NSCLC

LP-300 modulates :

- Receptor Tyrosine Kinases involved in proliferation/ survival signaling pathways (**EGFR, ALK, ROS1**)
- Enzymes critical for DNA synthesis and repair (**ERCC1, RNR1, RNR2**)
- Enzymes and proteins important in regulating cellular redox status (**TRX, PRX, GRX, PDI**)

LP-184 IND enabling studies

Completed

Study Type	Method	Results
Dog non-GLP tox study	NOAEL 0.3mg/kg for repeat weekly dosing (days 1, 8 and 15)	At NOAEL in dogs LP-184 PK parameters measured on dosing days 1 and 15 showed ○ t1/2 = 40-50 min ○ Cmax = 800 nM ○ Tmax = 5 min ○ At 0.3mg/kg some hematotoxicity observed in form of decreased counts of blood lymphocytes
Analytical Method Development	Completed LC-MS method development for rat/ dog plasma, and matrix/ storage/ pH/ freeze-thaw stability; precision & accuracy	Standard curve: 1 - 200 ng/mL; QC levels: 1, 3, 75, 180, 200 ng/mL

Ongoing

Study Type	Method	Expected completion
Analytical Method Validation	30-day stability protocols	June 2022
Dog GLP 3	weekly doses (0.2, 0.4 and 0.6mg/kg)	Early June 2022

Expected

Targeted for Q3 | Targeted for Q4

SEND report format to FDA → **CMC data for FDA** → **IND filling** → **Phase 1 LP-184 trial**

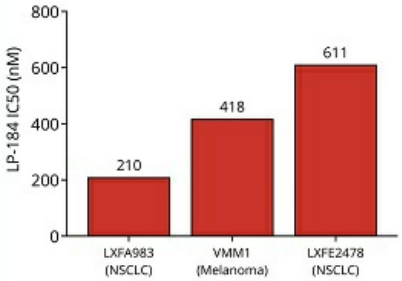
In vitro efficacy of our drug candidate LP-184 in brain metastases (mets.),

LP-184 is 6X more potent than early generation EGFR TKIs in brain metastasis models from primary lung cancer

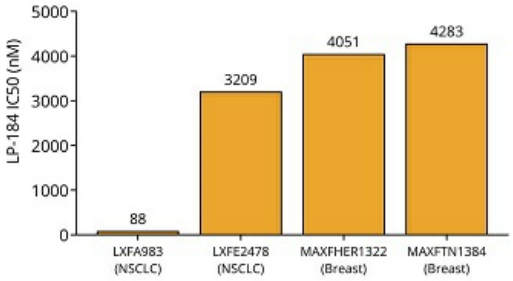
Unmet Clinical Need in Brain Metastases

- Brain metastases in the U.S. occur in **10-30% of all cancer cases** and are diagnosed in over **100,000 patients** each year.
- There is an **urgent and unmet clinical need** for novel therapies for brain mets due to a current lack of novel agents that can cross the blood brain barrier (BBB).

Estimated **$9 Billion** US Market Potential



2D Brain Metastases Cell Lines (Primary Tumor Type)

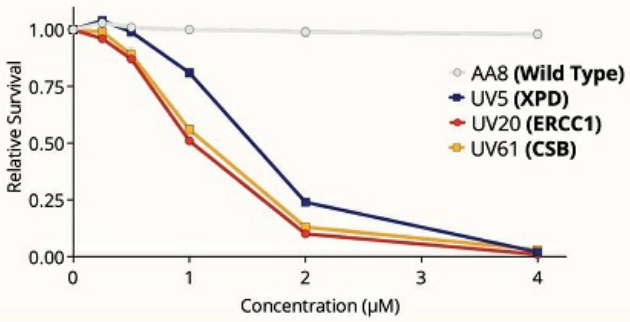


3D Brain Metastases Cell Lines (Primary Tumor Type)

- LP-184 has activity in the **primary and secondary cancers AND crosses the BBB.**
- Efficacy of LP-184 may extend beyond primary brain cancers to **other solid tumors that have metastasized to the brain** as evidenced by in vitro efficacy in brain mets. cell lines.
- LP-184 demonstrated anti-tumor activity in brain metastases cell models **from lung, skin, and breast cancers.**
- Data supports continued development of LP-184 in these **CNS cancer indications**

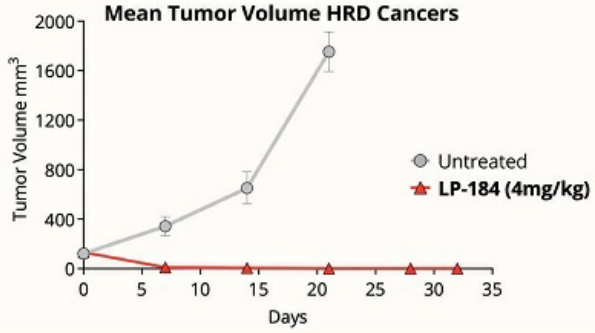
LP-184 shows exquisite sensitivity in NERD as well as HRD cancers

LP-184 in NERD cancers



- **NERD** tumors are nucleotide excision repair deficient tumors whose phenotype is a result of mutations in genes responsible for excision DNA repair- these include but not limited to- **ERCC1, ERCC3, ERCC4, ERCC5, ERCC6, RAD50, ATR, ATM, MRE, CSB, XPD** etc.
- Mutant cell lines deficient in the Nucleotide Excision Repair (NER) pathway were **more sensitive to LP-184** than the parent cell line

LP-184 in HRD cancers



- **HRD** are Homologus recombination deficient tumors and carry mutations in genes such as **BRCA1, BRCA2, PALB2, BRIP1, FANCA**, etc.
- LP-184 treatment resulted in complete tumor regression in a PDX model of TNBC that is HR deficient and resistant to PARP inhibitors and doxorubicin/ cyclophosphamide

Financial Update Q1 2022

Summary Results of Operations

	Three Months Ended March 31, (unaudited) 2022	2021
Operating expenses:		
General and administrative	1,406,160	1,173,258
Research and development	2,660,237	1,279,037
Total operating expenses	4,066,397	2,452,295
Loss from operations	**(4,066,397)**	**(2,452,295)**
Interest + Other income, net	(55,377)	-
NET LOSS	**$ (4,121,774)**	**$ (2,452,295)**
Net loss per common share, basic and diluted	$ (0.38)	$ (0.24)
Weighted Avg. Common Shares Outstanding - Basic and Diluted	10,875,777	10,074,623

Balance Sheet Highlights & Summary

	(unaudited) 3/31/2022	12/31/2021
Cash and Marketable Securities	**$ 65,216,479**	**$ 70,725,447**
Prepaid Expenses & Other Current Assets	$ 2,446,679	$ 1,990,953
Total Assets	**$ 68,402,517**	**$ 73,950,477**
Total Liabilities	**$ 3,087,145**	**$ 2,379,057**
Total Stockholders' Equity	**$ 65,315,372**	**$ 71,571,420**

> *We believe our **solid financial position** will fuel continued growth and evolution of our RADR® A.I. platform, accelerate the development of our portfolio of targeted oncology drug candidates and allow us to introduce additional targeted product and collaboration opportunities in **a capital efficient manner.***

LTRN Share Information

March 31, 2022

LANTERN PHARMA INC. (LTRN)	
Common Shares Outstanding	10,830,947
Warrants	177,998
Options (Employees, Management and Directors)	890,826
Fully Diluted Shares Outstanding	**11,899,771**

Date	Shares Repurchased	Average Price	Total Paid including Commission
FY 2021	121,490	$7.71	$939,666
Three months ended March 31, 2022	353,667	$6.86	$2,482,286
Total	**475,157**	**$7.08**	**$3,421,952**

Up to $7 Million is authorized for repurchase under Lantern's repurchase program, of which approximately $3.6 Million remains available for future purchases.

Maria Maccecchini, Ph.D. was nominated for election to Lantern's Board of Directors

New Director Nominee

Maria L. Maccecchini, Ph.D.
Founder, President, Chief Executive Officer, and director of Annovis Bio (NYSE: ANVS)

Dr. Maccecchini will be presented alongside a slate of five existing Directors at Lantern's upcoming **Annual Meeting** to be held on **June 8, 2022.**

Upcoming Events

MAY

- 9 — 9th Drug Discovery Strategic Summit — 9th Drug Discovery Strategic Summit, Speaker: Kishor Bhatia
- 13 — SIC2022 STRATEGIC INVESTMENT CONFERENCE — Strategic Investment Conference, Speaker: Panna Sharma
- 18 — med.ventures — MedVentures Conference 2022, Speaker: Panna Sharma
- 19 — hubXchange — Augmented intelligence in drug discovery Xchange east coast, Speaker: Panna Sharma
- 23 — Bioinformatics Strategy Meeting East Coast USA 2022 — Bioinformatics Strategy Meeting East Coast USA 2022, Speaker: Panna Sharma

JUNE

- 7 — LD MICRO COVERING THE UNDISCOVERED — LD Micro Invitational, Speaker: Panna Sharma

JULY

- 11 — World Orphan Drug Congress USA 2022 — World Orphan Drug Congress USA 2022, Speaker: Panna Sharma

Key Corporate Objectives and Milestones

2022 Objectives and Milestones

- Launch of **The Harmonic™ Trial** - Ph. 2 clinical trial for LP-300 in NSCLC
- Advance LP-100 clinical development
- Launch Ph. 1 clinical trial for LP-184 in genomically defined solid tumors
- Design Ph. 2 clinical trial for LP-184 in GBM
- Progress LP-184 in ATRT towards Ph. 1/2 clinical trial
- Advance pediatric cancer drug development program
- Advance ADC preclinical studies to support future Phase 1 launch
- Explore potential combinations for LP-100, LP-184, LP-284 & LP-300 with other existing approved drugs
- Strategically grow RADR® A.I. platform to 25 billion datapoints
- Explore licensing and partnership opportunities

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