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): August 8, 2024

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 August 8, 2024, Lantern Pharma Inc. (the "Company") will issue a press release announcing its financial results for the second quarter ended June 30, 2024. 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 August 8, 2024, 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 second quarter ended June 30, 2024. 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.

At the conference call and live webinar hosted by the Company on August 8, 2024, the Company will also be presenting information regarding the Harmonic™ Phase 2 clinical trial relating to the Company's product candidate known as LP-300. A copy of information to be presented by the Company relating to LP-300 and the Harmonic™ Phase 2 clinical trial is furnished as Exhibit 99.3 to this Current Report on Form 8-K and is incorporated herein by reference.

The information in this Item 7.01, including Exhibits 99.2 and 99.3 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 August 8, 2024 announcing financial results for quarter ended June 30, 2024.
99.2	Presentation relating to August 8, 2024 conference call and live webinar to discuss financial and operating results for quarter ended June 30, 2024.
99.3	Information relating to LP-300 and the Harmonic™ Phase 2 clinical trial to be presented at the conference call and live webinar hosted by the Company on August 8, 2024.
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).

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: August 8, 2024

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

Exhibit 99.1

Lantern Pharma Reports Second Quarter 2024 Financial Results and Business Updates

- Active clinical trials across **three AI-guided drug candidates** with additional **ADC-based** preclinical molecules in evaluation for development.
- Preliminary patient data and clinical readouts for **Phase 2 LP-300 Harmonic™ Trial** released showing an **86% clinical benefit rate** in the initial 7 patient safety lead-in cohort.
- Issued a Certificate of **Patent by the Japanese Patent Office** directed to Lantern Pharma's drug candidate **LP-284**, including claims covering the new molecular entity.
- Phase 1 clinical trials for both synthetic lethal drug candidates, **LP-184 and LP-284**, continue to advance with **no dose-limiting toxicities** observed in any of the patient cohorts enrolled and **over 40 patients dosed** to-date.
- Achieved significant advancement towards key milestone in the **development of molecular diagnostic** for use with drug candidate **LP-184** in future oncology clinical trials to **improve patient selection** and stratification.
- Launched strategic **drug development collaboration** leveraging our AI platform, **RADR®**, with Oregon Therapeutics to optimize the development of first-in-class drug candidate XCE853 – a potent inhibitor of cancer metabolism.
- Starlight Therapeutics, a wholly owned subsidiary of Lantern Pharma focused on CNS and brain cancers advanced with **initiating site selection and feasibility for a Phase 1B/Phase 2** trial in recurrent GBM with drug candidate, **STAR-001.**
- Launched ***Webinar Wednesdays***, a webinar series that focuses on the areas of artificial intelligence and oncology drug development with leading physicians, scientists and Lantern collaborators.
- Approximately **$33.3 million** in cash, cash equivalents, and marketable securities as of June 30, 2024.
- The conference call and webcast are scheduled for Thursday **August 8, 2024, at 4:30 p.m. ET** / 1:30 p.m. PT.

Thursday, August 8, 2024

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 second quarter 2024, ending June 30, 2024.

"The team at Lantern Pharma is making solid, thoughtful and disciplined progress in our clinical trials and in our collaborative research and AI efforts. This past quarter saw a significant milestone where our clinical trials are getting to the point of having initial patient data that we can share, including our unique Harmonic™ clinical trial for never smokers with lung cancer. We continue to also improve the functionality and abilities of our AI platform, RADR®, to guide the next phase of our therapeutic programs which will be heavily marked by trials with combination regimens, and ADC development." said Panna Sharma, President and CEO of Lantern Pharma.

Highlights of AI-Powered Pipeline:

Ø **LP-300: The Harmonic™ Phase 2 Clinical Trial** – Preliminary results at the completion of the 7-patient lead-in part of the Harmonic™ study demonstrated predictable safety profiles that are consistent with the chemotherapy regimen alone and seemed to demonstrate clinical benefit for 6 out of the 7 patients – an 86% clinical benefit rate (CBR). No patients experienced dose limiting toxicities, and no discontinuations were observed due to treatment related toxicity. Six patients experienced clinical benefit from the combination of LP-300 and chemotherapy while 1 patient experienced progressive disease. The clinical benefit rate is 86% for this group with an objective response rate (ORR) of 43%. Of the 6 patients experiencing clinical benefit – 3 patients showed partial responses with an average tumor size reduction of 51% and 3 patients have stable disease with an average tumor size reduction of 13%. Encouraging preliminary efficacy results were observed regardless of prior tyrosine kinase inhibitor (TKI) treatment(s), demographics, and metastatic disease sites. In the initial set of patients, those having low to intermediate TMB (tumor mutation burden) were found to be responsive to LP-300 + chemotherapy.

The phase 2 Harmonic™ clinical trial sites in the US, and certain sites in Japan are screening for eligible patients and we expect the pace of enrollment to increase in the coming months. This past quarter we also initiated IRB approvals and site initiation visits in Asia. The expansion of the Phase 2 clinical trial in Japan and Taiwan is expected to accelerate the collection of patient and response data that are needed for the next-stage of development of LP-300, a therapeutic for the treatment of relapsed and inoperable primary adenocarcinoma of the lung given in combination with chemotherapy. Additionally, it may also bring a needed therapeutic option for never-smokers with NSCLC in Japan and Taiwan, where one-third or more of all lung cancer diagnoses are made among those who have never smoked. Dr. Yashushi Goto, a physician and researcher focused on lung cancer at the National Cancer Center of Japan, will be leading the phase 2 trial in Japan, where the incidence of non-small cell lung cancer (NSCLC) in never-smokers is double or more than that of the United States. Lantern believes that this improves the positioning for drug-candidate LP-300 to develop collaborative and co-development partnerships with global biopharma companies with a primary focus in serving the Asian markets.

The Harmonic™ trial is assessing the effect of LP-300 in combination with standard-of-care chemotherapy in never-smoker patients with relapsed NSCLC where they have failed TKI therapies. Globally, never-smokers with NSCLC are a growing population of patients and do not respond well to PD-1/PD-L1-based therapies or the available chemotherapy doublets, leaving them with reduced treatment options. In the US it is estimated that the treatment indication of never smokers with NSCLC has an annual market potential of $1.5 billion, and a global estimated annual market potential of over $2.6 billion.

Ø **LP-184 –** Seven cohorts of patients have been enrolled and dosed – in escalating doses – in the ongoing Phase 1A 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. We expect to reach a dosage level in the coming cohort where therapeutic concentrations of the drug should be attainable based on our pharmacokinetic and pharmacodynamic analyses. The trial is actively enrolling patients across multiple US centers that have relapsed/refractory advanced solid tumors, such as pancreatic cancer, glioblastoma (GBM), lung, triple-negative breast cancer, and multiple other solid tumor types with DNA damage response deficiencies. No dose-limiting toxicities have been observed to date in the LP-184 trial, and the Company believes that enrollment should be complete this year and on-track for an initial readout of safety and molecular correlation data by the close of the year. 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, as well as other later phase trials in select tumors that have shown superior responsiveness to LP-184 and meet with genomically guided criteria related to drug-response. Lantern has also made advancements toward a key milestone related to the development of a quantitative PCR-based molecular diagnostic test that may help in identifying patients with the best likelihood of response and benefit from treatment with LP-184.

AI and preclinical studies are also ongoing to further refine drug combination studies supporting the use of LP-184 to improve the durability or overall response rates in combination with FDA approved drugs that are widely used in cancer treatment – especially PARP inhibitors, and immune checkpoint inhibitors. 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-284 –** The third cohort of patients are being dosed, and no dose-limiting toxicities have been observed in the LP-284 Phase 1A clinical trial. We expect to open additional sites in the US throughout the third quarter with the potential to advance to Phase 1B and 2 by the close of 2024 or early 2025. 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 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 $3+ billion.

  We have also begun a review of some notable mechanisms-of-action of LP-284 that may be leveraged in other diseases and conditions. Lantern expects to review those preclinical studies and findings later this quarter.

RADR® Platform Growth and Development:

- RADR® continues to advance in size, scope, and capabilities and is also progressing towards becoming recognized as a standard for AI-driven drug development in oncology – for both early-stage development and later-stage patient biomarker and combination therapy identification. 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. 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. Real-world 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 also leveraged the RADR® platform in developing a drug-development collaboration with Oregon Therapeutics with a focus on accelerating the development and decision path towards a first-in-human launch of the drug-candidate, XCE853 into the clinic. The AI-enabled collaboration with Oregon Therapeutics aims to refine and expand the positioning of XCE853, a novel protein disulfide isomerase (PDI) inhibitor, in new and targeted oncology indications, including for drug-resistant tumors. Lantern Pharma is receiving equal IP co-ownership and drug development rights in newly discovered biomarkers, novel indications, and use for new pharmacological strategies for XCE853.

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 for both small molecule development and increasingly for ADC development, analytics and characterization.

Second Quarter 2024 Financial Highlights

- **Balance Sheet:** Cash, cash equivalents, and marketable securities were approximately $33.3 million as of June 30, 2024, compared to approximately $41.3 million as of December 31, 2023. The quarterly cash burn rate continues to reflect our capital-efficient, collaborator-centered business model.

- **R&D Expenses:** Research and development expenses were approximately $3.9 million for the quarter ended June 30, 2024, compared to approximately $3.6 million for the quarter ended June 30, 2023.

- **G&A Expenses:** General and administrative expenses were approximately $1.5 million for the quarter ended June 30, 2024, compared to approximately $1.6 million for the quarter ended June 30, 2023.

- **Net Loss:** Net loss was approximately $4.96 million (or $0.46 per share) for the quarter ended June 30, 2024, compared to a net loss of approximately $4.75 million (or $0.44 per share) for the quarter ended June 30, 2023.

- **Total Share and Warrant Count:** There were no warrant exercises during the three months ended June 30, 2024. Following June 30, 2024, additional warrants were exercised which increased the Company's total shares outstanding and reduced the number of outstanding warrants. As of the date of this press release, the Company has 10,764,725 shares of common stock outstanding, and outstanding warrants to purchase 70,000 shares of common stock.

Additional Operational Highlights:

- A publication was made in the AACR Journals, Cancer Research Communications showcasing the potential for LP-184 to synergize with PARP inhibitors in a wide range of solid tumors that are HRD (homologous repair deficient). The preclinical findings in the paper illustrate the potential of LP-184 to be a pan-HRD cancer therapeutic – which could be the first drug of this type in this class. We believe the data and results support clinical evaluation of LP-184 in a large subset of HRD solid tumors.

- New data and scientific findings conducted in conjunction with Drs. Yong Du and Shiaw-Yih (Phoebus) Lin at MD Anderson were presented at The Immuno-Oncology Summit 2024. The findings showcased what Lantern believes to be the role of LP-184 to be combined with checkpoint inhibitors to provide greater response in TNBC due to synergy and to potentially transform TNBC tumors that are unresponsive (cold) to checkpoint inhibitors to responsive (hot). The poster was titled: *LP-184, a Novel Acylfulvene, Sensitizes Immuno-Refractory Triple Negative Breast Cancers (TNBCs) To Anti-PD1 Therapy by Affecting the Tumor Microenvironment*.

- With a focus on increasing visibility and awareness of the Lantern portfolio and capabilities, the Company launched *Webinar Wednesdays* in April. They are currently planned to be held on the last Wednesday of each month and are designed to showcase industry leaders in AI and drug development, as well as clinicians working in collaboration with Lantern's portfolio of drug-candidates. The next three *Webinar Wednesdays* will include the topics of: 1) LP-300's clinical results to-date, 2) RADR and our industry-leading ability to predict if a molecule or drug-compound will cross the BBB (Blood-Brain-Barrier), and 3) The role of LP-184 in synergizing with checkpoint inhibitors and IO agents.

Earnings Call and Webinar Details:

Lantern will host its 2nd quarter 2024 earnings call and webinar today, August 8th, 2024, at 4:30 p.m. ET. A link to register can be accessed at: Lantern 2nd Quarter 2024 Earnings Call & Webinar Link

- Related presentation materials will be accessible at: https://ir.lanternpharma.com
- A replay of the 2nd quarter 2024 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 billions of 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.

CONTACT:

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ir@lanternpharma.com
(972)277-1136

Please find more information at:

- Website: www.lanternpharma.com
- LinkedIn: https://www.linkedin.com/company/lanternpharma/
- X: @lanternpharma
- Newsletter – The Spark: Sign-up here

FORWARD LOOKING STATEMENT:

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 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 we may not be successful in licensing potential 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 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.

Exhibit 99.2

Second Quarter 2024
Operating & Financial Results Conference Call / Webinar

With additional focus on preliminary patient data and clinical readouts for Phase 2 LP-300 Harmonic™ Trial

August 8th, 2024
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; 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 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 we may not be successful in licensing potential 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.

Contents

Speakers

Dream team

2024 2nd Quarter Highlights

1 of 3

Lantern Pharma

NASDAQ: LTRN

- ✓ Active clinical trials across three AI-guided drug candidates with additional ADC-based preclinical molecules in evaluation for development
- ✓ Preliminary patient data and clinical readouts for Phase 2 LP-300 Harmonic™ Trial released showing an 86% clinical benefit rate in the initial 7 patient safety lead-in cohort
- ✓ Issued a Certificate of Patent by the Japanese Patent Office directed to Lantern Pharma's drug candidate LP-284, including claims covering the new molecular entity

2024 2nd Quarter Highlights

2 of 3

Lantern Pharma

NASDAQ: LTRN

- ✓ Phase 1 clinical trials for both synthetic lethal drug candidates, LP-184 and LP-284, continue to advance with no dose-limiting toxicities observed in any of the patient cohorts enrolled and over 40 patients dosed to-date
- ✓ Achieved significant advancement towards key milestone in the development of molecular diagnostic for use with drug candidate LP-184 in future oncology clinical trials to improve patient selection and stratification
- ✓ Launched strategic drug development collaboration leveraging our AI platform, RADR®, with Oregon Therapeutics to optimize the development of first-in-class drug candidate XCE853 – a potent inhibitor of cancer metabolism

2024 2nd Quarter Highlights

3 of 3

Lantern Pharma

NASDAQ: LTRN

- ✓ Starlight Therapeutics, a wholly owned subsidiary of Lantern Pharma focused on CNS and brain cancers advanced with initiating site selection and feasibility for a Phase 1B/Phase 2 trial in recurrent GBM with drug candidate, STAR-001
- ✓ Launched Webinar Wednesdays, a webinar series that focuses on the areas of artificial intelligence and oncology drug development with leading physicians, scientists and Lantern collaborators
- ✓ Approximately $33.3 million in cash, cash equivalents, and marketable securities as of June 30, 2024

Lantern's diverse & unique AI-driven pipeline of 11 drug programs including RADR® collaborations and Starlight Therapeutics

Lantern Pharma (NASDAQ: LTRN)

Lead Candidate	Indication	Discovery	Preclinical	Phase I	Phase II	Orphan Designation	Rare Pediatric Disease
LP-300	Non-Small Cell Lung Cancer for Never Smokers				harmonic		
LP-184	Recurrent Advanced Solid Tumors (*Pancreatic, TNBC, Bladder, & Other Solid Tumors*)					* for Pancreatic & HGG	
LP-284	Recurrent Non-Hodgkin's Lymphomas (*Mantle cell, Double-hit lymphomas, & HGBL*)					*for Mantle Cell & HGBL	
ADC	Select Solid Tumors						

RADR® Collaborations

Elraglusib *owned by – Actuate Thera.*	Multiple Solid Tumors		Collaboration partner ACTUATE THERAPEUTICS
TTC-352 *owned by- TTC Oncology*	ER+ Breast Cancers		Collaboration partner ttc oncology
XCE853 *owned by – Oregon Thera.*	Protein Disulfide Isomerase (PDI) Inhibitor		Collaboration partner OREGON THERAPEUTICS
ADC	Cryptophycin Conjugate for Solid Tumors		Collaboration partner UNIVERSITÄT BIELEFELD

Starlight's pipeline is focused on multiple CNS indications in both adult and pediatric patients

Starlight Therapeutics

ADULT CNS CANCERS

Lead Candidate	Indication	Discovery	Preclinical	Phase I	Phase II	Orphan Designation	Rare Pediatric Disease
STAR-001	Glioblastoma (GBM)*					●	
	Brain Metastases (TNBC)**						
	Brain Metastases (NSCLC)**						

** Multiple GBM patients have been enrolled in the ongoing phase 1a being conducted by Lantern Pharma*

*** The MTD from the ongoing Phase 1A LP-184 clinical trial is expected to support the later expansion to brain metastases*

PEDIATRIC CNS CANCERS

STAR-001	Atypical Teratoid Rhabdoid Tumors (ATRT)			Pediatric CNS indications will enter clinical trials after the adult trials begin		●	●
	Diffuse Midline Glioma (DMG)						
	High-Grade Hemispheric Glioma						

Financial updates Q2 2024

Solid financial position and capital efficiency fuel continued growth and give Lantern cash runway into at least Q3 2025

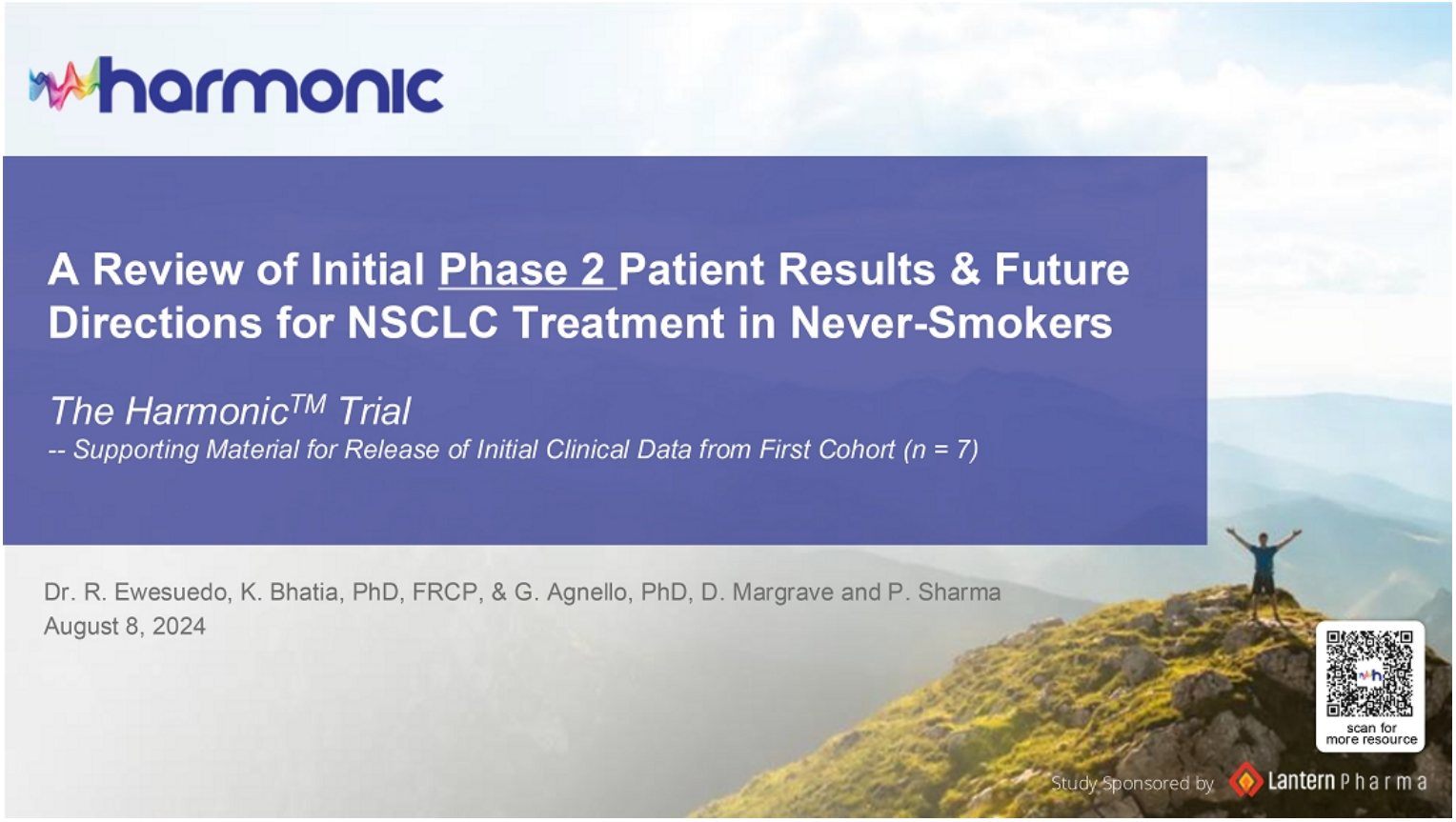
Summary Results of Operations

	Three Months Ended June 30, (unaudited) 2024	2023
Operating expenses:		
General and administrative	$ 1,519,724	$ 1,632,080
Research and development	3,888,737	3,558,217
Total operating expenses	5,408,461	5,190,297
Loss from operations	(5,408,461)	(5,190,297)
Interest + Other income, net	448,955	443,899
NET LOSS	**$** (4,959,506)	**$** (4,746,398)
Net loss per common share, basic and diluted	$ (0.46)	$ (0.44)
Weighted Avg. Common Shares Outstanding - Basic and Diluted	10,758,805	10,857,040

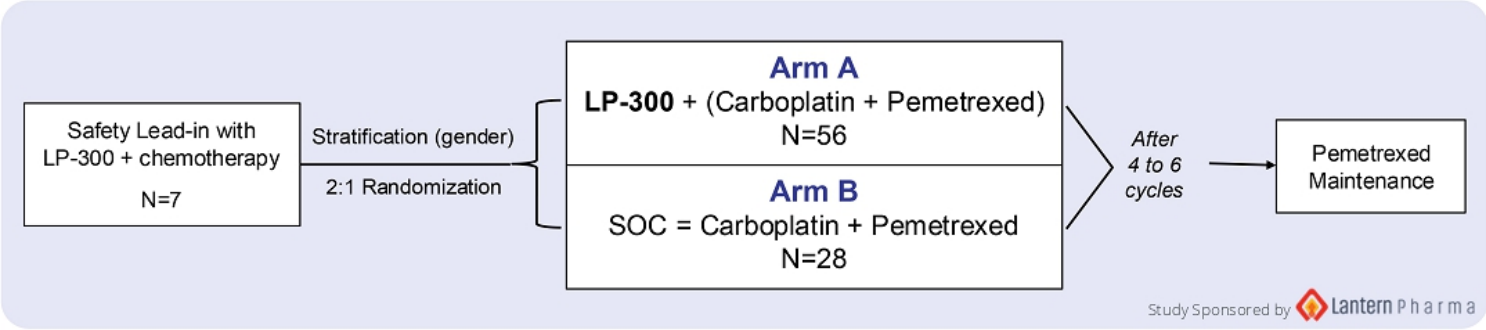
Balance Sheet Highlights & Summary

	06/30/2024 (unaudited)	12/31/2023
Cash, Cash Equivalents & Marketable Securities	33,262,119	41,302,672
Prepaid Expenses & Other Current Assets	2,029,458	2,038,653
Total Assets	35,586,929	43,647,616
Total Liabilities	4,655,492	2,739,682
Total Stockholders' Equity	30,931,437	40,907,934

"We believe our solid financial position will fuel continued growth and evolution of our RADR® AI 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."


harmonic
A Review of Initial Phase 2 Patient Results & Future Directions for NSCLC Treatment in Never-Smokers
The Harmonic™ Trial
-- Supporting Material for Release of Initial Clinical Data from First Cohort (n = 7)
Dr. R. Ewesuedo, K. Bhatia, PhD, FRCP, & G. Agnello, PhD, D. Margrave and P. Sharma
August 8, 2024
scan for more resource
Study Sponsored by
Lantern Pharma

Schema of LP-300 Phase 2 Open Label, Randomized Clinical Study Design



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For More Information Please Visit – https://clinicaltrials.gov/study/NCT05456256

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

United States# – Initial Lead in Cohort (n=7)

- Fairfax, VA
- Fountain Valley, CA
- Dallas, TX
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Harmonic™ Clinical trial iPhone App

Download on the App Store

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 # United States clinical sites for Harmonic will continue to be updated
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No Dose Limiting Toxicities or Serious Adverse Events were observed & Lantern received approval from the DSMB (Data & Safety Monitoring Board) to proceed to next phase of the trial

- Overall, LP-300 in combination with the chemo doublet has been well tolerated with primarily Grade 1 or 2 adverse events (AEs)

Category	Adverse Events	LP-300 + Pemetrexed + Carboplatin (n=7)
Adverse Events	Serious Adverse Events	**0**
	Dose Limiting Toxicities	**0**
Most common related AEs	White blood count decreased	2 (29%)
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harmonic | Initial Cohort / Lead-in Phase – Summary Results & Key Takeaways

KEY PATIENT CHARACTERISTICS

- ✓ Patients who are never smokers with lung cancer and histopathological evidence of stage III or IV primary lung adenocarcinoma
- ✓ Molecular alterations, including EGFR, MET exon 14 skipping, ROS1, BRAF, ALK, and NTRK fusions
- ✓ Relapsed after one or more lines of therapy with tyrosine kinase inhibitors

STUDY ENDPOINTS

- ✓ Primary: Progression-free survival (PFS) and overall survival (OS)
- ✓ Secondary: Objective response rate (ORR), duration of response (DOR), and clinical benefit rate (CBR)

Tumor Response	LP-300+ Carboplatin + Pemetrexed
Partial Response	3/7 (43%)
Stable Disease	3/7 (43%)
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Clinical Benefit Rate (CBR)	**6/7 (86%)**
Objective Response Rate (ORR)	**3/7 (43%)**

All patient data as of July 25, 2024

Patient Highlights from Initial Cohort

- 7 patients enrolled from different geographies
- Sites included were in CA, VA, TX
- 3 Female and 4 Male
- Average age of 62
- Median prior lines of therapy: 2 (1 to 4)
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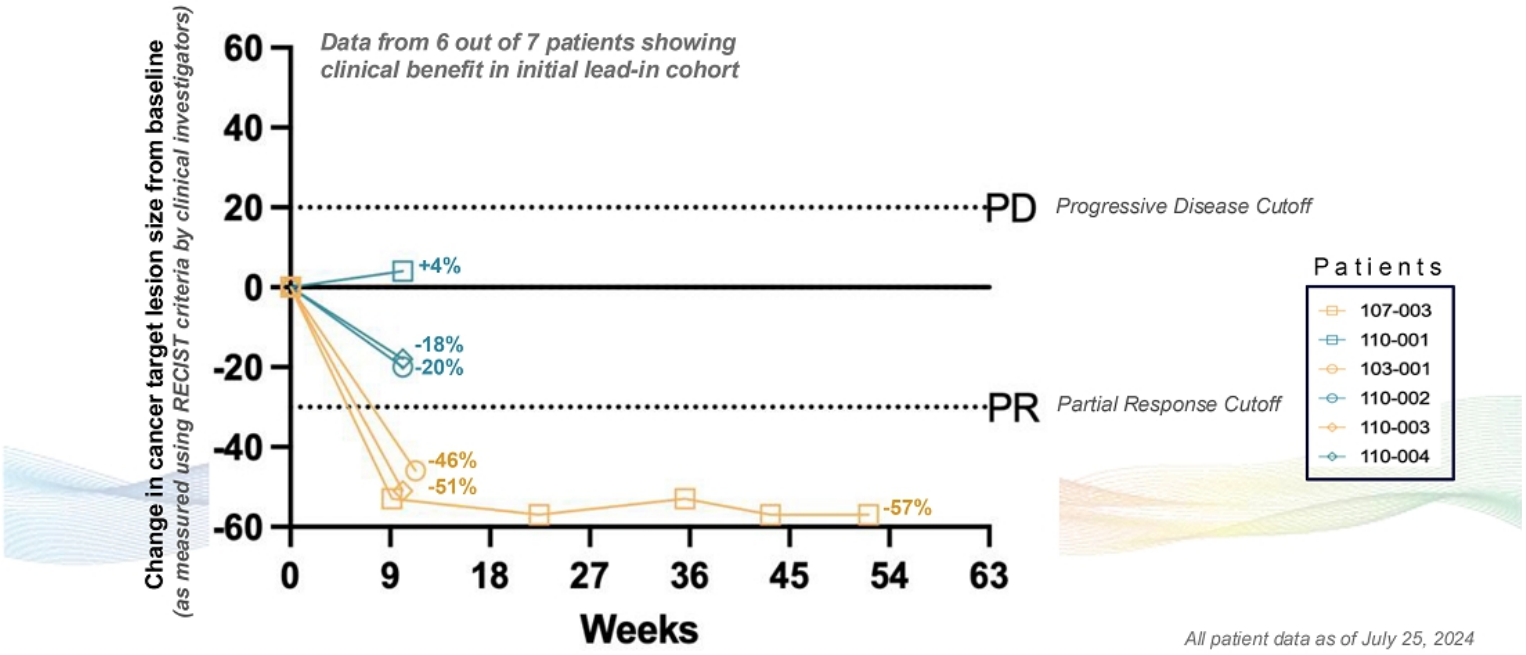
Harmonic™ Clinical Trial – Percent change in cancer lesion size over time



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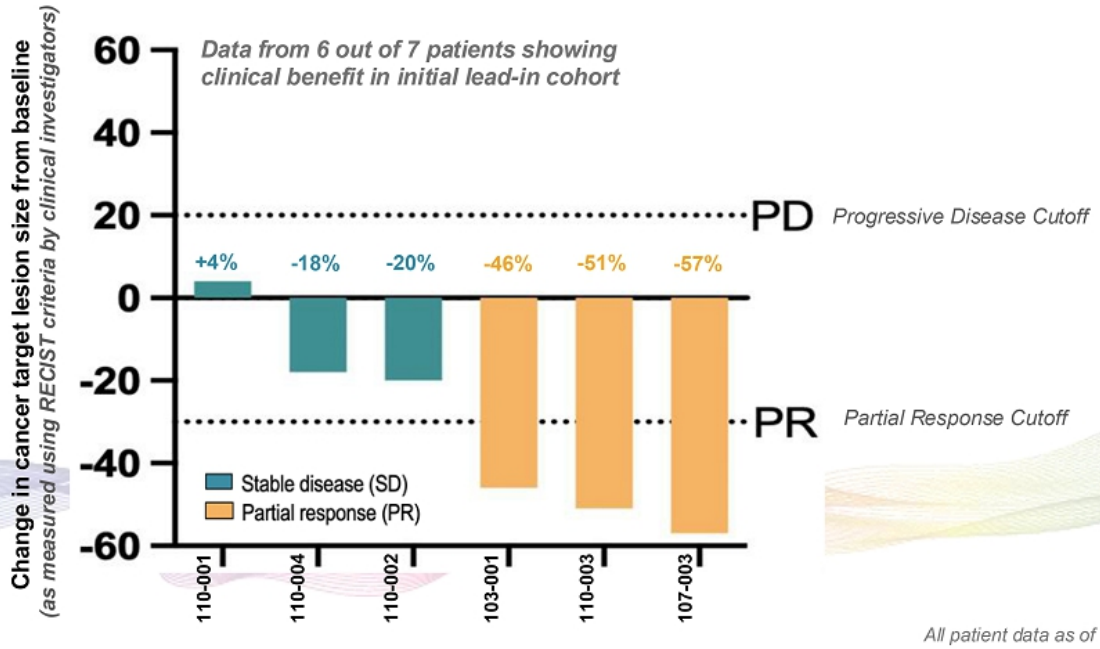
Harmonic™ Clinical Trial – Percent change in cancer lesion size by patient



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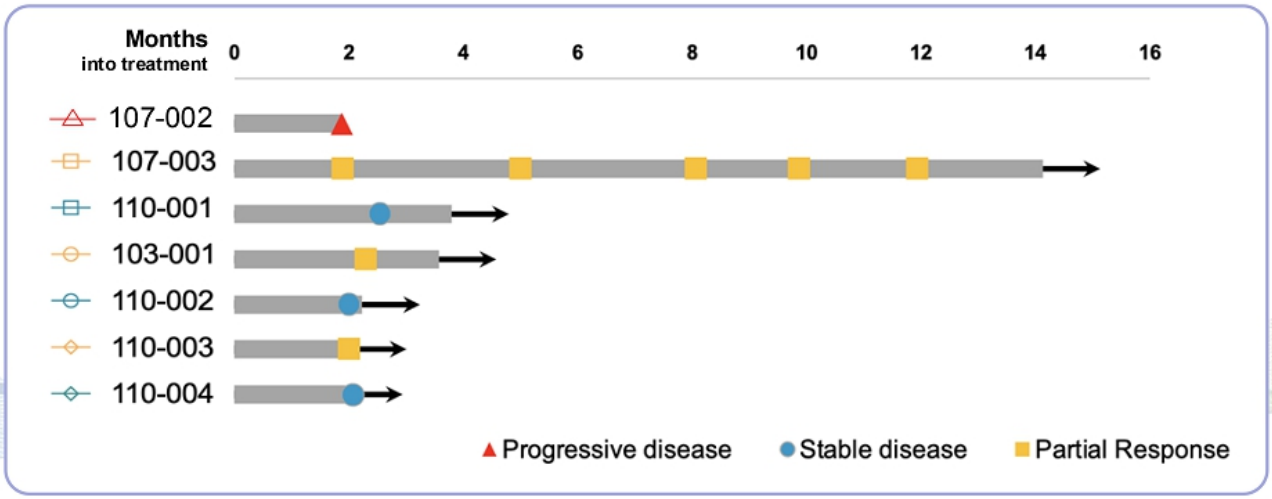

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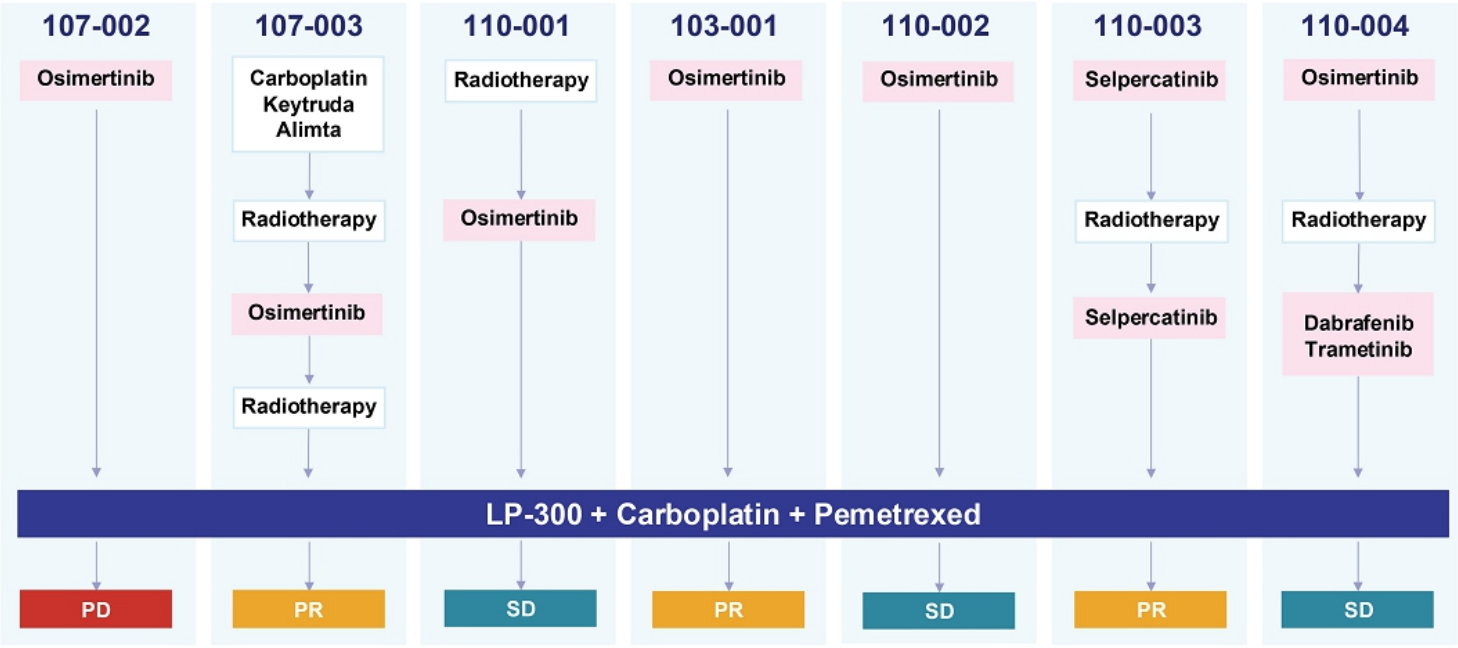
harmonic | Patient Demographics And Tumor Response Evaluation

SUBJECT	Known mutations / biomarkers of interest	Overall Response	Target lesion (TL) response	Non-Target lesion response	New lesions	TL1	TL2	TL3	TL4	TL5	Time of Scan
107-002	✓ **EGFR** ✓ MSI high not detected	PD	NA (Clinical Progression)								9 wks
107-003	✓ **EGFR** L858R, ✓ MSI Stable ✓ **TMB 3.4/Mb (Low)**	PR	-53%	NE	No	-8% (lung)	-100% (adrenal)	NA	NA	NA	9 wks
		PR	-57%	NE	No	-17%	-100%	NA	NA	NA	52 wks
110-001	✓ **EGFR** L858R ✓ **MSI high not detected**	SD	+4%		No	+4% (paraspin)	NA	NA	NA	NA	9 wks
103-001	✓ **EGFR** (GOF) ✓ **TMB 7.9/Mb (intermediate)** ✓ PD-L1 (IHC) 30% TPS	PR	-46%	NE	No	-32% (lung)	-56%* (lymph node)	-63%* (lymph node)	NA	NA	9 wks
110-002	✓ **EGFR** (GOF) ✓ MSI stable ✓ **TMB 6.3/Mb (intermediate)**	SD	-20%		No	-8% (lymph node)	-40% (lymph node)	NA	NA	NA	9 wks
110-003	✓ TLE1-**RET** rearrangement ✓ 30-40% PD-L1 ✓ **TMB 4.3/Mb (low)**	PR	-51%	PR	No	-28% (pleura)	-56% (pleura)	-79% (lung)	-56% (liver)	NA	9 wks
110-004	✓ BRCA2, **EGFR**, BRAF ✓ 0% PD-L1	SD	-18%		No	-40% (panc.)	+23% (lung)	NA	NA	NA	9 wks

PR: Partial Response, SD: Stable Disease, PD: Progressive Disease, TL: Target Lesion

* Lymph nodes that reduced in size to < 10mm (normal)

Initial Cohort for Phase 2 – Prior cancer treatments / history & response



All patient data as of July 25, 2024

TKI PR: Partial Response, SD: Stable Disease, PD: Progressive Disease

Initial Observations From Phase 2 Safety Lead-In Cohort

- **7** patients enrolled, dosed and evaluated in lead-in phase of study, which is completed
- **6 out of 7** patients have had clinical benefit
- **3** are partial responses with an average tumor size reduction of **~51%**
- **3** are stable disease and have resulted in **~13%** tumor size reduction
- We have an overall clinical benefit rate of **86**% and an ORR of **43**% from this initial cohort
- **0** DLTs and **0** SAEs in excess of SOC (standard-of-care) chemotherapy doublet have been observed

1. *This preliminary benchmark is showing a trend of improved outcomes over current standard of care therapies post TKI failure for NSCLC patients (if these initial observations carry over to the broader study).*
2. *We are considering applying for FDA Breakthrough Therapy designation if the clinical data trends remain as we advance enrollment.*
3. *A key ongoing consideration is measuring for durability of response that is being observed in the patients with clinical benefit.*
4. *We have also observed that responses among patients have been correlated with TMB (tumor mutation burden) levels that are measured as either low or intermediate and not high TMB. High TMB is usually associated with response to immunotherapies and checkpoint inhibitors.*
5. *The percentage of never-smokers with NSCLC is growing and there is a significant need for new treatments for this patient population.*

Never Smokers Do Not Respond Well to Immunotherapy

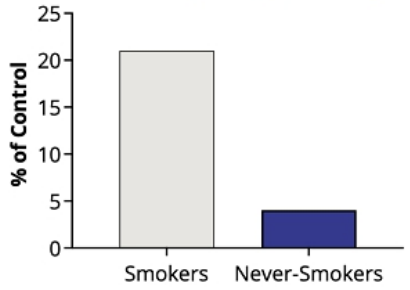
- Relative to smokers with NSCLC, never smokers are **less likely to have high expression of PD-L1**, a key biomarker for immunotherapies; they are therefore much less likely to be eligible for or respond to such therapy.

- Meta-analysis of 1,981 NSCLC patients spanning three Phase III trials: "…PD-1 inhibitors were more efficacious in smoking NSCLC patients compared with chemotherapy. **No better survival of nonsmoking patients was observed in the treatment of PD-1 inhibitors than chemotherapy**." (Li et. al. 2018)

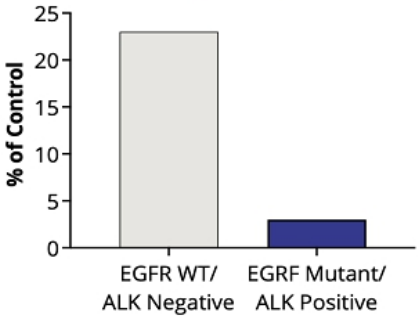
- Retrospective analysis of 58 NSCLC patients treated with immune checkpoint inhibitors: Low overall response rates to **PD-1/PD-L1 inhibitors in never smokers and those harboring common never smoker mutations (EGFR, ALK).** (Gainor et. al. 2018)

Li et. al., (2018), *Onco Targets Ther.*, 11: 3691 - 3696
Gainor et al., (2016), *Clinical Cancer Research*, *22*(18): 4585–4593

PD-1 Inhibitor Response by Smoking Status



PD-1 Inhibitor Response by Mutation Status

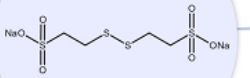


Key Highlights of LP-300

LP-300 is being investigated in a Phase 2 clinical trial, Harmonic™ in never smokers with NSCLC

…modulates receptor tyrosine kinases, DNA damage repair enzymes, and cellular redox processes

LP-300



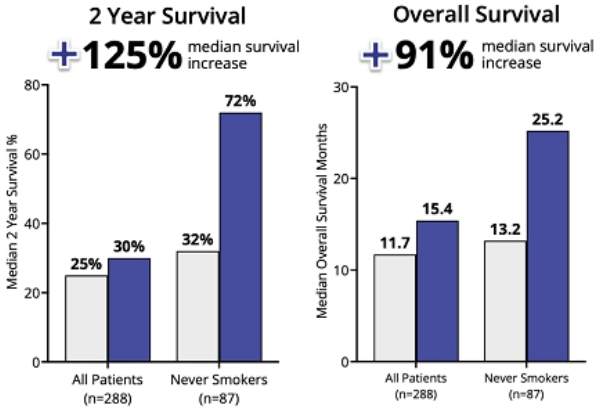
…possesses chemo-sensitizing properties and can reset cancer cell sensitivity

Never smokers with lung adenocarcinoma have a higher rate of TKI driver mutations in EGFR and ALK

…dosed in 5 Phase 1 and 5 Phase 2 and 3 trials and was well tolerated in over 1,000 people

…showed statistical survival increase in never smoker NSCLC patients in retrospective subgroup analysis

LP-300 + Chemo doublet showed increased survival rates over chemo doublet alone in never smoking patient subgroups with NSCLC



Survival rates of never smoking patients with NSCLC receiving **Chemo** or **LP-300 + Chemo** as a retrospective subgroup analysis

Appendix: Comparative & Benchmarking Data For NSCLC Patients Treated With Chemo Doublet

(Pemetrexed and Carboplatin Treatment)

Historical Response Data For Pemetrexed + Carboplatin in NSCLC Patients post TKI treatment

STUDY ID (Sponsor)	median ORR (%) (**Carboplatin + Pemetrexed**)	median DOR (months) (**Carboplatin + Pemetrexed**)	median PFS (months) (**Carboplatin + Pemetrexed**)	Hazard Ratio (HR for PFS) (**Carboplatin + Pemetrexed**)
MARIPOSA-2 Study *+ bispecific Ab +/- TKI (amivantamab/lazertinib)* *-- Janssen (J&J)*	36	5.6	4.2	0.48 (0.53, for patients with no history of smoking)
KEYNOTE-789 Study (+/- Pembro) -- Merck	27.1	5.6	5.5	0.8 (95% CI: 0.65-0.97)
CheckMate -722 Study (+/- Nivolumab)	26.7	5.6	5.4 4.4 – In patients w/ PD-L1<50%	0.75 (95% CI: 0.54-0.97) 0.88
HERTHENA-Lung +/- ADC (patritumab deruxtecan)	29.8	6.4	5.5	NA

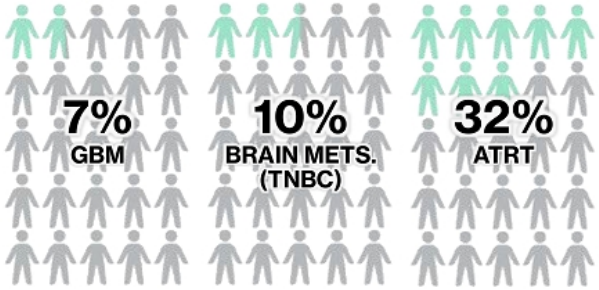
ORR = objective response rate; DOR = duration of response; PFS = progression free survival; HR = hazard ratio; CI = confidence interval

Born from billions of datapoints & AI, Starlight has blockbuster potential to provide new treatment options for 500,000+ patients

There are over **120 types of central nervous system (CNS) and brain cancers** and a majority have **no effective treatment options**

- No effective single-agent therapies have been approved for adult glioblastoma (GBM) in over 18 years
- Effective therapies are needed to improve outcomes for brain metastases patients
- There are no approved therapies for atypical teratoid rhabdoid tumors (ATRT)

5 Year Survival Rates of CNS And Brain Cancers Remain Low Despite Advances in Cancer Therapies



- **500,000+ Potential CNS Patients** Globally*
- **Multiple Clinical-stage** CNS Cancer Indications
- STAR-001 has been Granted **FDA Orphan Drug Designation for GBM & ATRT and Rare Pediatric Disease Designation for ATRT**
- **World Class Collaborators** from Johns Hopkins, UT Health San Antonio, and Children's Brain Tumor Network
- **4** US Patents & Patent Applications and **10+** Foreign Pending Patent Applications

*Estimated Annual Global Numbers

Lantern pharma 2024 webinar series – *Webinar Wednesdays* – featuring world-class collaborators and researchers

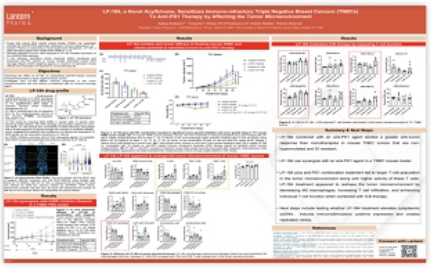
Future Webinar Wednesdays

AUG 28th **Harmonic Phase 2 Clinical Trial for Never Smokers with NSCLC** – Preliminary patient data and clinical readouts

SEP 25th **Power of AI in Drug Development** – Predicting Blood Brain Barrier Permeability with RADR

OCT 30th **LP-184 in Synergy with Immune Checkpoint Inhibitors**

Publications highlighting the clinical value of RADR® insights & de-risking the development of Lantern's drug candidates



https://bit.ly/3v115QT

POSTER | IMMUNO-ONCOLOGY SUMMIT 2024

LP-184, a Novel Acylfulvene, Sensitizes Immuno-Refractory Triple Negative Breast Cancers (TNBCs) To Anti-PD1 Therapy by Affecting the Tumor Microenvironment

August 2024

Immuno-Oncology SUMMIT 2024
AUGUST 7-9, 2024 | PHILADELPHIA, PA • VIRTUAL

https://bit.ly/4aa6vr5

PUBLICATION | CANCER RESEARCH COMMUNICATIONS

LP-184, a novel acylfulvene molecule, exhibits anticancer activity against diverse solid tumors with homologous recombination deficiency

May 2024

AACR American Association for Cancer Research

2024 Objectives

A Breakthrough Year for Lantern

TOP TEN

- Complete Phase 1a clinical trial for LP-184; commence Phase 1b and investigator led trial(s)
- Accelerate enrollment in first-in-human clinical trial for LP-284 in NHL + other cancers
- Commence enrollment of **The Harmonic™ Trial** in targeted sites in Asia
- Progress Starlight Therapeutics towards Phase 1 / 2 adult & pediatric clinical trials
- Expand RADR® AI platform to 100+ billion datapoints and develop additional collaborations
- Further ADC preclinical and IND development to support future Phase 1 launch and/or partnership
- Explore licensing and partnership opportunities with biopharma companies
- Develop combination programs for LP-184, LP-284, and LP-300 with existing approved drugs
- Grow and mature efficient internal clinical operations capabilities
- Continue disciplined fiscal management

Lantern Pharma

NASDAQ: LTRN

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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; 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 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 we may not be successful in licensing potential 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.

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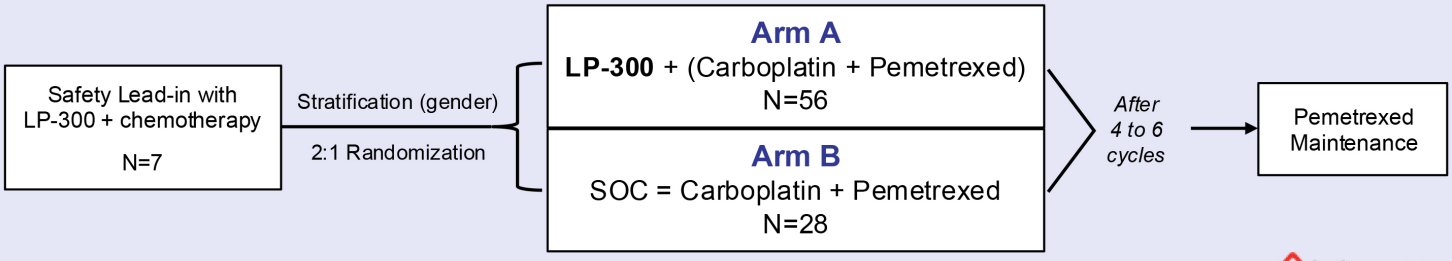

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15-20% of NSCLC new cases are in never smokers

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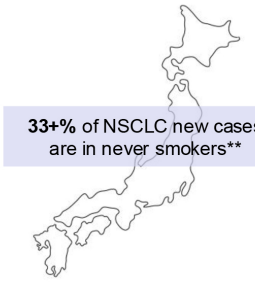

33+% of NSCLC new cases are in never smokers**

50%** of NSCLC new cases are in never smokers**

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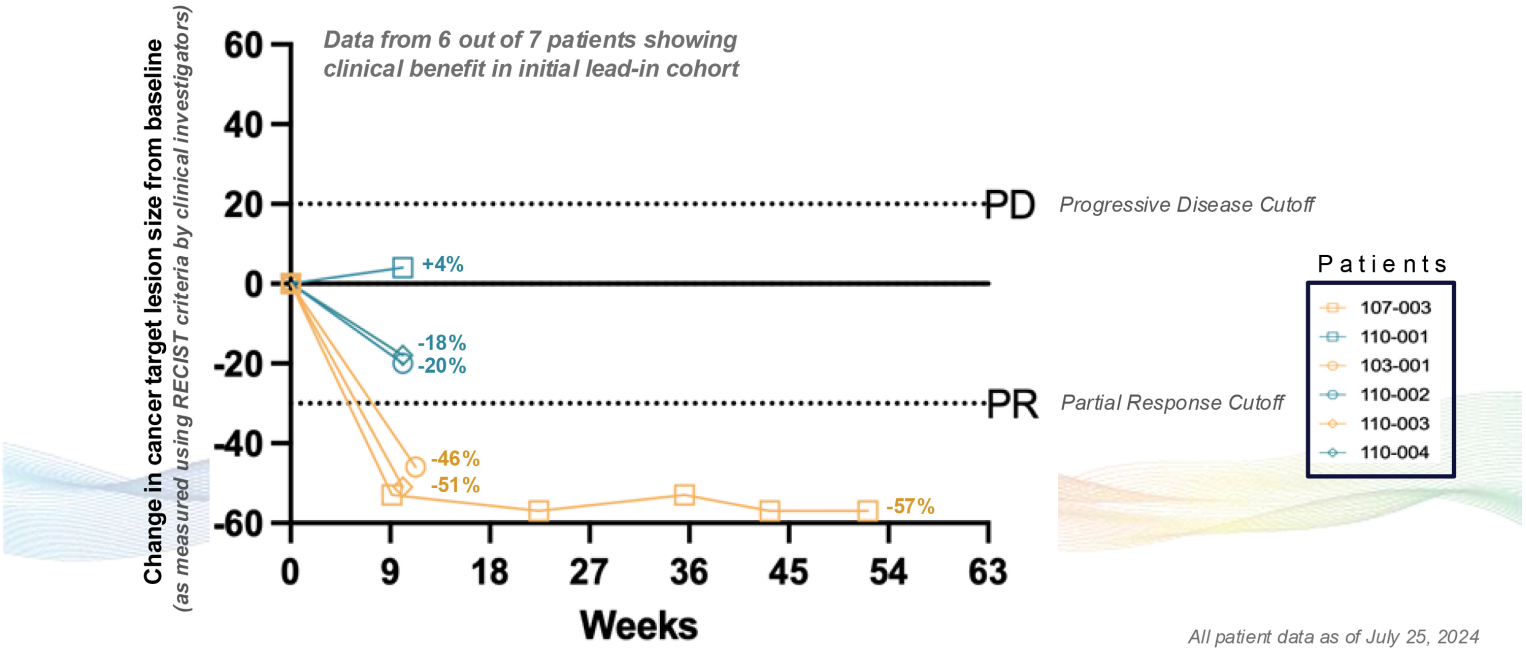

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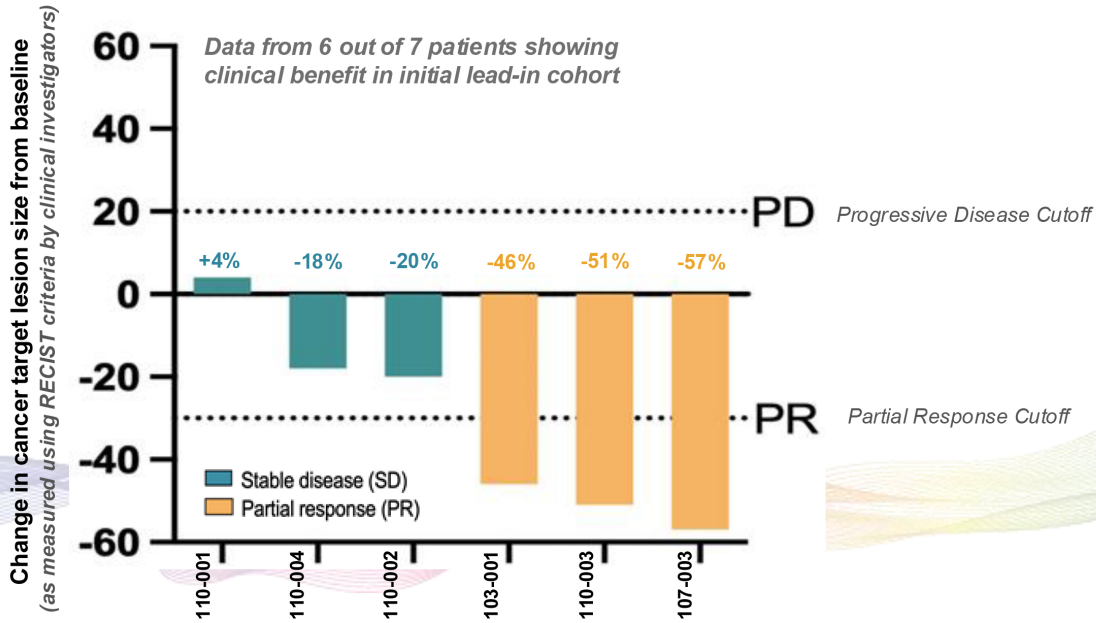

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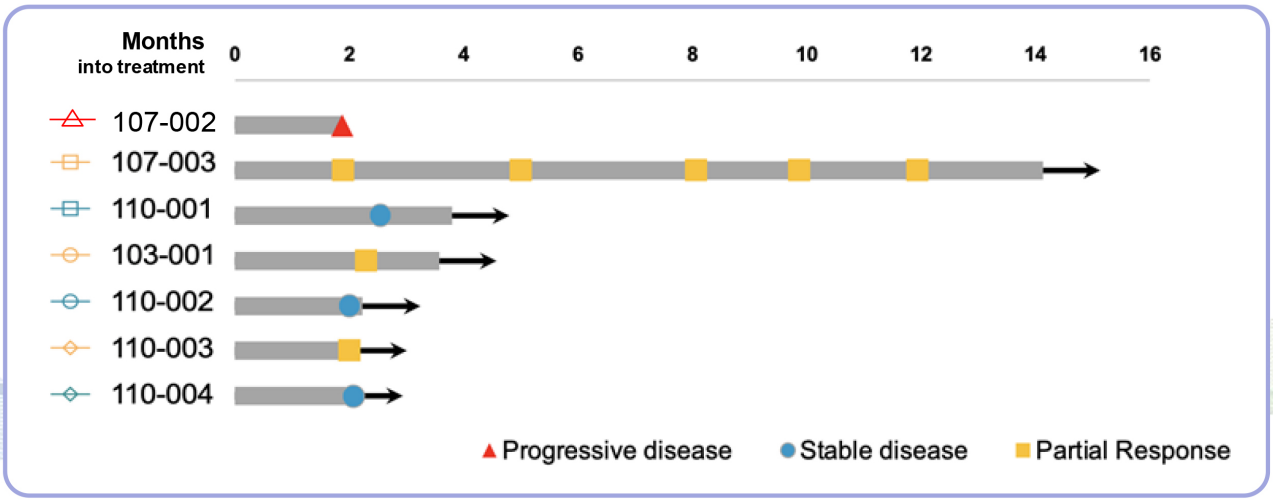
Harmonic™ Clinical Trial – Initial patient cohort response over time

Initial patient responses in the Harmonic™ trial include an 86% disease control rate in the cohort of lead-in patients and a 43% objective response rate (ORR) including one patient maintaining a 50+% reduction in tumor size over 14 months



All patient data as of July 25, 2024

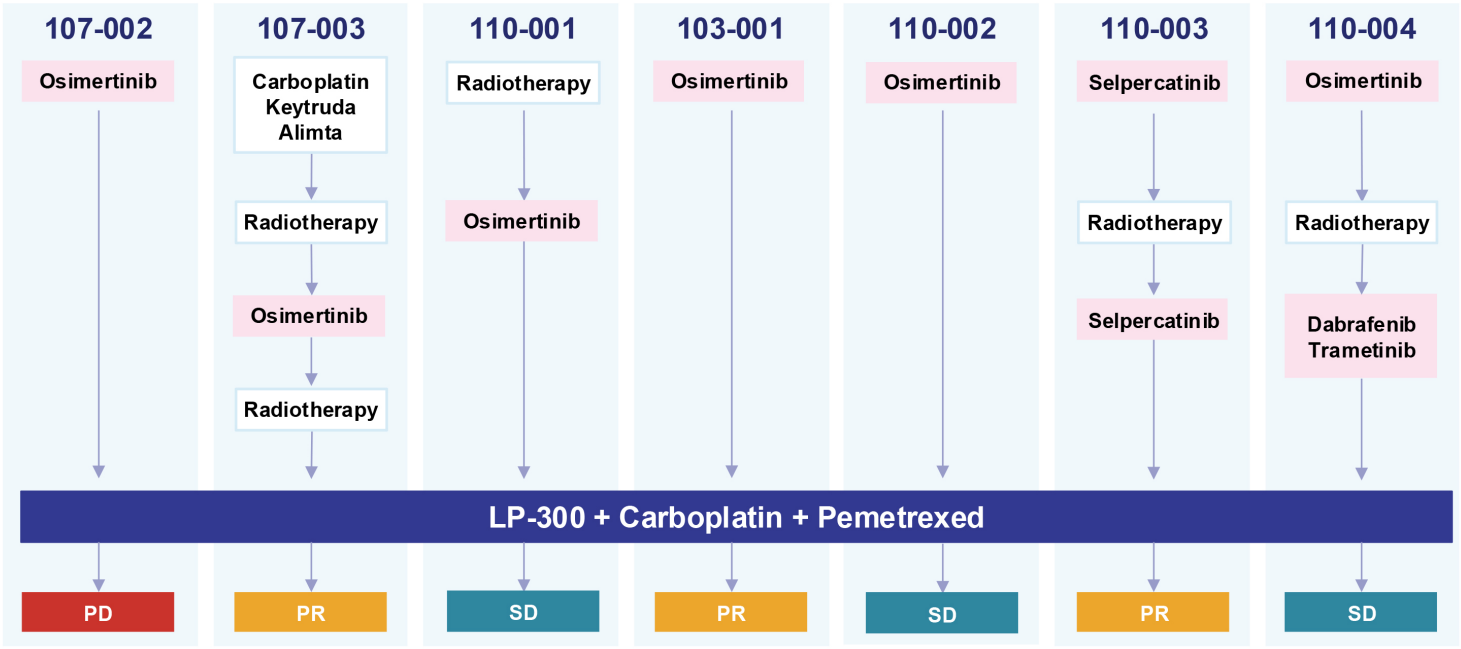
Patient Demographics And Tumor Response Evaluation

SUBJECT	Known mutations / biomarkers of interest	Overall Response	Target lesion (TL) response	Non-Target lesion response	New lesions	TL1	TL2	TL3	TL4	TL5	Time of Scan
107-002	✓ **EGFR** ✓ MSI high not detected	PD	**NA (Clinical Progression)**								9 wks
107-003	✓ **EGFR** L858R, ✓ MSI Stable ✓ **TMB 3.4/Mb (Low)**	PR	-53%	NE	No	-8% (lung)	-100% (adrenal)	NA	NA	NA	9 wks
		PR	-57%	NE	No	-17%	-100%	NA	NA	NA	52 wks
110-001	✓ **EGFR** L858R ✓ **MSI high not detected**	SD	+4%		No	+4% (paraspin)	NA	NA	NA	NA	9 wks
103-001	✓ **EGFR** (GOF) ✓ **TMB 7.9/Mb (intermediate)** ✓ PD-L1 (IHC) 30% TPS	PR	-46%	NE	No	-32% (lung)	-56%* (lymph node)	-63%* (lymph node)	NA	NA	9 wks
110-002	✓ **EGFR** (GOF) ✓ MSI stable ✓ **TMB 6.3/Mb (intermediate)**	SD	-20%		No	-8% (lymph node)	-40% (lymph node)	NA	NA	NA	9 wks
110-003	✓ TLE1-**RET** rearrangement ✓ 30-40% PD-L1 ✓ **TMB 4.3/Mb (low)**	PR	-51%	PR	No	-28% (pleura)	-56% (pleura)	-79% (lung)	-56% (liver)	NA	9 wks
110-004	✓ BRCA2, **EGFR**, BRAF ✓ 0% PD-L1	SD	-18%		No	-40% (panc.)	+23% (lung)	NA	NA	NA	9 wks

PR: Partial Response, SD: Stable Disease, PD: Progressive Disease, TL: Target Lesion

* Lymph nodes that reduced in size to < 10mm (normal)

Initial Cohort for Phase 2 – Prior cancer treatments / history & response



All patient data as of July 25, 2024

TKI PR: Partial Response, SD: Stable Disease, PD: Progressive Disease

Initial Observations From Phase 2 Safety Lead-In Cohort

- **7** patients enrolled, dosed and evaluated in lead-in phase of study, which is completed
- **6 out of 7** patients have had clinical benefit
- **3** are partial responses with an average tumor size reduction of **~51%**
- **3** are stable disease and have resulted in **~13%** tumor size reduction
- We have an overall clinical benefit rate of **86**% and an ORR of **43**% from this initial cohort
- **0** DLTs and **0** SAEs in excess of SOC (standard-of-care) chemotherapy doublet have been observed

1. *This preliminary benchmark is showing a trend of improved outcomes over current standard of care therapies post TKI failure for NSCLC patients (if these initial observations carry over to the broader study).*
2. *We are considering applying for FDA Breakthrough Therapy designation if the clinical data trends remain as we advance enrollment.*
3. *A key ongoing consideration is measuring for durability of response that is being observed in the patients with clinical benefit.*
4. *We have also observed that responses among patients have been correlated with TMB (tumor mutation burden) levels that are measured as either low or intermediate and not high TMB. High TMB is usually associated with response to immunotherapies and checkpoint inhibitors.*
5. *The percentage of never-smokers with NSCLC is growing and there is a significant need for new treatments for this patient population.*

Never Smokers Do Not Respond Well to Immunotherapy

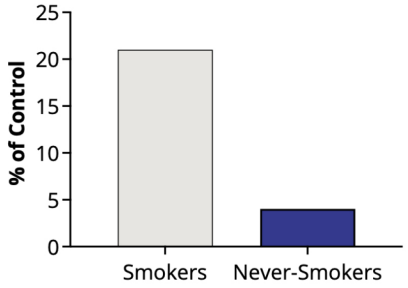
- Relative to smokers with NSCLC, never smokers are **less likely to have high expression of PD-L1**, a key biomarker for immunotherapies; they are therefore much less likely to be eligible for or respond to such therapy.

- Meta-analysis of 1,981 NSCLC patients spanning three Phase III trials: "…PD-1 inhibitors were more efficacious in smoking NSCLC patients compared with chemotherapy. **No better survival of nonsmoking patients was observed in the treatment of PD-1 inhibitors than chemotherapy**." (Li et. al. 2018)

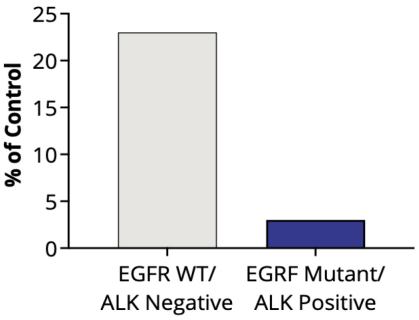
- Retrospective analysis of 58 NSCLC patients treated with immune checkpoint inhibitors: Low overall response rates to **PD-1/PD-L1 inhibitors in never smokers and those harboring common never smoker mutations (EGFR, ALK).** (Gainor et. al. 2018)

Li et. al., (2018), *Onco Targets Ther.*, 11: 3691 - 3696
Gainor et al., (2016), *Clinical Cancer Research*, *22*(18): 4585–4593

PD-1 Inhibitor Response by Smoking Status



PD-1 Inhibitor Response by Mutation Status

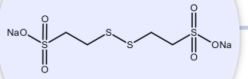


Key Highlights of LP-300

LP-300 is being investigated in a Phase 2 clinical trial, Harmonic™ in never smokers with NSCLC

…modulates receptor tyrosine kinases, DNA damage repair enzymes, and cellular redox processes

LP-300



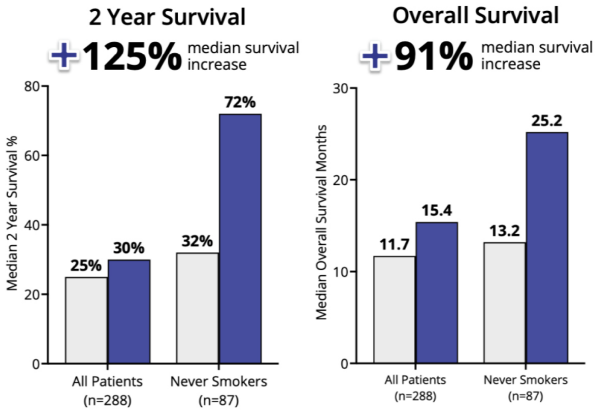
…possesses chemo-sensitizing properties and can reset cancer cell sensitivity

Never smokers with lung adenocarcinoma have a higher rate of TKI driver mutations in EGFR and ALK

…dosed in 5 Phase 1 and 5 Phase 2 and 3 trials and was well tolerated in over 1,000 people

…showed statistical survival increase in never smoker NSCLC patients in retrospective subgroup analysis

LP-300 + Chemo doublet showed increased survival rates over chemo doublet alone in never smoking patient subgroups with NSCLC



Survival rates of never smoking patients with NSCLC receiving **Chemo** or **LP-300 + Chemo** as a retrospective subgroup analysis

Appendix: Comparative & Benchmarking Data For NSCLC Patients Treated With Chemo Doublet

(Pemetrexed and Carboplatin Treatment)

Historical Response Data For Pemetrexed + Carboplatin Arms in NSCLC Patients post TKI treatment

STUDY ID (Sponsor)	median ORR (%) (**Carboplatin + Pemetrexed**)	median DOR (months) (**Carboplatin + Pemetrexed**)	median PFS (months) (**Carboplatin + Pemetrexed**)	Hazard Ratio (HR for PFS) (**Carboplatin + Pemetrexed**)
MARIPOSA-2 Study *+ bispecific Ab +/- TKI (amivantamab/lazertinib)* *-- Janssen (J&J)*	36	5.6	4.2	0.48 (0.53, for patients with no history of smoking)
KEYNOTE-789 Study (+/- Pembro) -- Merck	27.1	5.6	5.5	0.8 (95% CI: 0.65-0.97)
CheckMate -722 Study (+/- Nivolumab)	26.7	5.6	5.4 4.4 – In patients w/ PD-L1<50%	0.75 (95% CI: 0.54-0.97) 0.88
HERTHENA-Lung +/- ADC (patritumab deruxtecan)	29.8	6.4	5.5	NA

ORR = objective response rate; DOR = duration of response; PFS = progression free survival; HR = hazard ratio; CI = confidence interval

All data is only for the chemo doublet arm of the named trials listed above, which is the current standard of care for this group of patients post TKI failure.