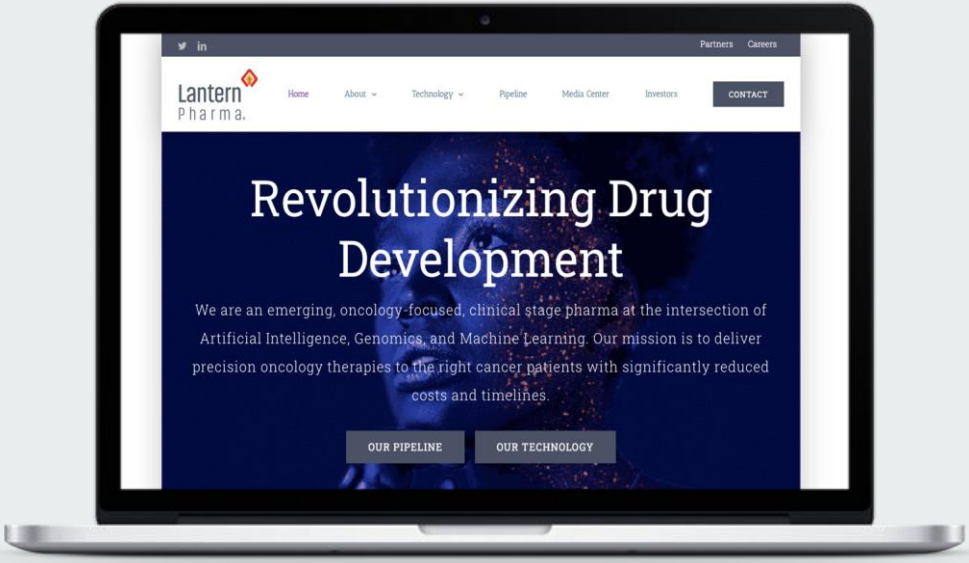
Lantern Pharma®

# First Quarter 2021

## Operating & Financial Results Conference Call




May 3, 2021
4:30 PM Eastern

https://ir.lanternpharma.com/

## 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," "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 we may not be able to successfully initiate, conduct, or conclude clinical testing for or obtain marketing approval for our product candidates; (iii) 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 (iv) those other factors set forth in the Risk Factors section in our Annual Report on Form 10-K for the year ended December 31, 2020, filed with the Securities and Exchange Commission on March 10, 2021. You may access our Annual Report on Form 10-K for the year ended December 31, 2020 under the investor SEC filings tab of our website at www.lanternpharma.com or on the SEC's website at www.sec.gov. Given these risks and uncertainties, we can give no assurances that our forward-looking statements will prove to be accurate, or that any other results or events projected or contemplated by our forward-looking statements will in fact occur, and we caution investors not to place undue reliance on these statements. All forward-looking statements in this presentation represent our judgment as of the date hereof, and, except as otherwise required by law, we disclaim any obligation to update any forward-looking statements to conform the statement to actual results or changes in our expectations.

Lantern Pharma

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## KEY TOPICS

1. Business Overview & Background
   Panna Sharma, CEO
2. Financial Results & Highlights
   David Margrave, CFO
3. Business Updates
   Panna Sharma, CEO
4. Milestones
   Panna Sharma, CEO
5. Q&A Session

# Lantern leverages A.I. to rescue and develop cancer therapies and has the potential to transform the cost, risk and timeline of drug development

Failed or Abandoned Drug Assets & New Drug Development

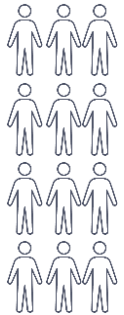
Drugs that have failed clinical trials *or* have been abandoned by pharma and biotech companies in late stage trials

Development of new compounds in drug classes that leverage our AI platform


RADR®

- Big data (genomic, clinical, response) assembled and analyzed
- Patient subgroups identified through machine learning and artificial intelligence
- Mechanisms of action clarified
- Potential combinations identified
- Potential for faster and more efficient path to relaunching in the clinical trial setting

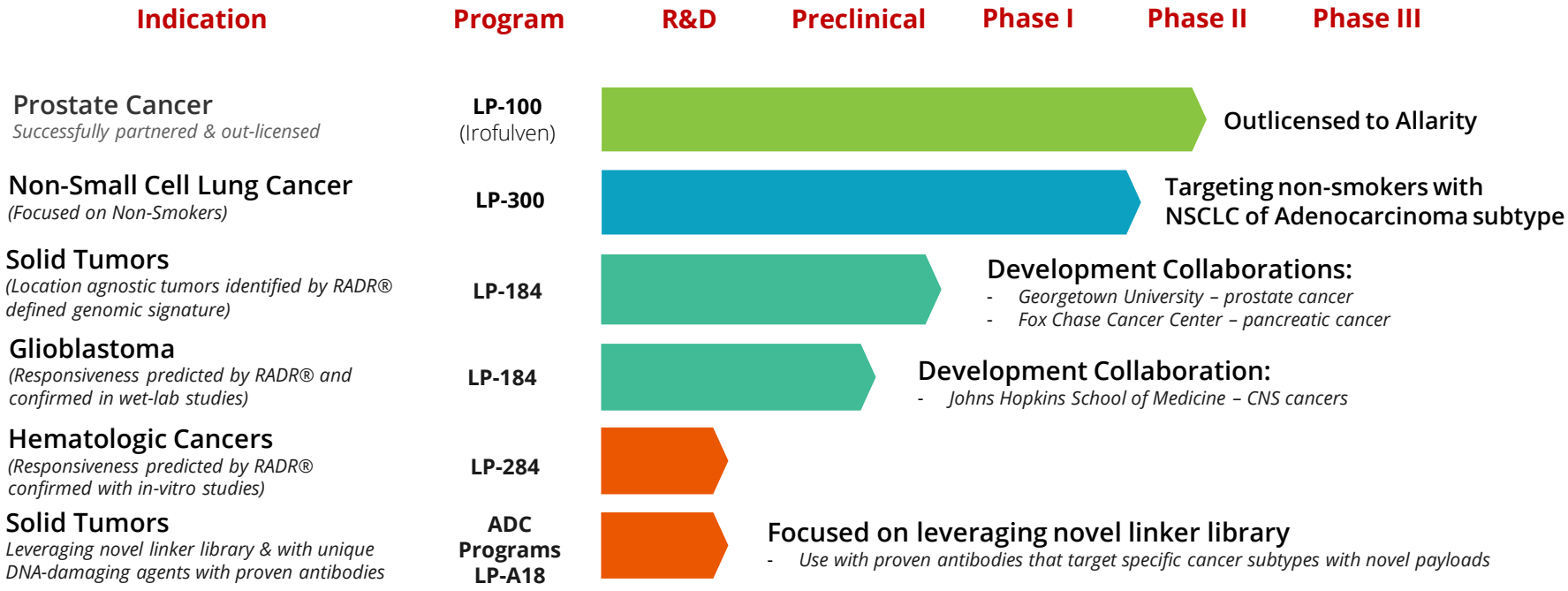
Responders



Non-Responders

- Patient stratification based on A.I. enabled genomic biomarker discovery
- New patient populations for failed or abandoned drugs based on validated biomarker signatures
- Aimed to shorten time to market
- Designed to reduce risk in development
- Potential for orphan or fast track status
- New Chemical Entities designed and filed

# Lantern's Unique and Rapidly Developing Pipeline




**Accelerated Development by Leveraging the RADR® A.I. platform**

Over 70 issued patents and pending applications across 14 patent families

# Key Milestones Attained During 1Q'21

- RADR® A.I. platform surpassed 4.0 billion datapoints
- Strengthened IP portfolio with filing of over 10 patent applications
- Launched R&D collaboration with Actuate Therapeutics leveraging RADR®
- Initiated preclinical development of LP-284 in highly sensitive hematologic cancers
- Published peer-reviewed studies of RADR® in BMC Bioinformatics and LP-184 in Oncotarget
- Submitted updated clinical development plans to FDA for LP-300 Phase 2 trial in non-smokers with NSCLC
- Expanded potential indications for LP-184 to include ATRT pediatric brain tumors & drug resistant lung cancers
- Balance Sheet cash as of 3/31/21 was $81.4 M, strengthened by Jan. '21 follow-on offering

# Peer-Reviewed Publications That Further Validate RADR® A.I. Platform and LP-184

www.oncotarget.com Oncotarget, 2021, Vol. 12, (No. 8), pp: 791-806

Research Paper

## The acylfulvene alkylating agent, LP-184, retains nanomolar potency in non-small cell lung cancer carrying otherwise therapy-refractory mutations

**Aditya Kulkarni[1], Joseph Ryan McDermott[1], Umesh Kathad[1], Rama Modali[2], Jean-Philippe Richard[2], Panna Sharma[1] and Kishor Bhatia[1]**

[1]Lantern Pharma, Inc., Dallas, TX 75201, USA

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***Correspondence to**: Aditya Kulkarni, **email**: aditya@lanternpharma.com*

***Keywords**: non-small cell lung cancer; acylfulvene; alkylating agent; PTGR1; LP-184*

***Received**: January 11, 2021* ***Accepted**: March 29, 2021* ***Published**: April 13, 2021*



### ABSTRACT

**More than 40% of non-small cell lung cancer (NSCLC) patients lack actionable targets and require non-targeted chemotherapeutics. Many become refractory to drugs due to underlying resistance-associated mutations. KEAP1 mutant NSCLCs further activate NRF2 and upregulate its client PTGR1. LP-184, a novel alkylating agent belonging to the acylfulvene class is a prodrug dependent upon PTGR1. We hypothesized that NSCLC with KEAP1 mutations would continue to remain sensitive to LP-184. LP-184 demonstrated highly potent anticancer activity both in primary NSCLC cell lines and in those originating from brain metastases of primary lung cancers. LP-184 activity correlated with PTGR1 transcript levels but was independent of mutations in key oncogenes (KRAS and KEAP1) and tumor suppressors (TP53 and STK11). LP-184 was orders of magnitude more potent *in vitro* than cisplatin and**

Kathad *et al. BMC Bioinformatics* (2021) 22:102
https://doi.org/10.1186/s12859-021-04040-8

BMC Bioinformatics

RESEARCH ARTICLE Open Access

## A machine learning-based gene signature of response to the novel alkylating agent LP-184 distinguishes its potential tumor indications

Umesh Kathad[1*], Aditya Kulkarni[1], Joseph Ryan McDermott[1], Jordan Wegner[1], Peter Carr[1], Neha Biyani[1], Rama Modali[2], Jean-Philippe Richard[2], Panna Sharma[1] and Kishor Bhatia[1]

# Summary Results of Operations

| | Three Months Ended March 31, (Unaudited) | |
|---|---|---|
| | **2021** | **2020** |
| Operating expenses: | | |
| General and administrative | 1,173,258 | 340,172 |
| Research and development | 1,279,037 | 137,104 |
| Total operating expenses | 2,452,295 | 477,276 |
| **NET LOSS** | **$ (2,452,295)** | **$ (477,276)** |
| *Net loss per common share, basic and diluted* | $ (0.24) | $ (0.24) |
| *Weighted Avg. Common Shares Outstanding - Basic and Diluted* | 10,074,623 | 2,020,966 |

# Balance Sheet Highlights & Shares Outstanding

| | 3/31/2021 (Unaudited) | 12/31/2020 |
|---|---|---|
| **Cash** | **$ 81,373,725** | **$ 19,229,232** |
| Prepaid Expenses & Other Current Assets | $1,110,770 | $1,007,690 |
| **Total Assets** | **$ 82,504,659** | **$ 20,359,634** |
| **Total Liabilities** | **$ 773,033** | **$ 660,839** |
| **Total Stockholders' Equity** | **$ 81,731,626** | **$ 19,698,795** |

Follow-on offering (1/20/2021):

- 4,928,571 shares at $14.00 per share
- $68,999,994 Gross Proceeds.

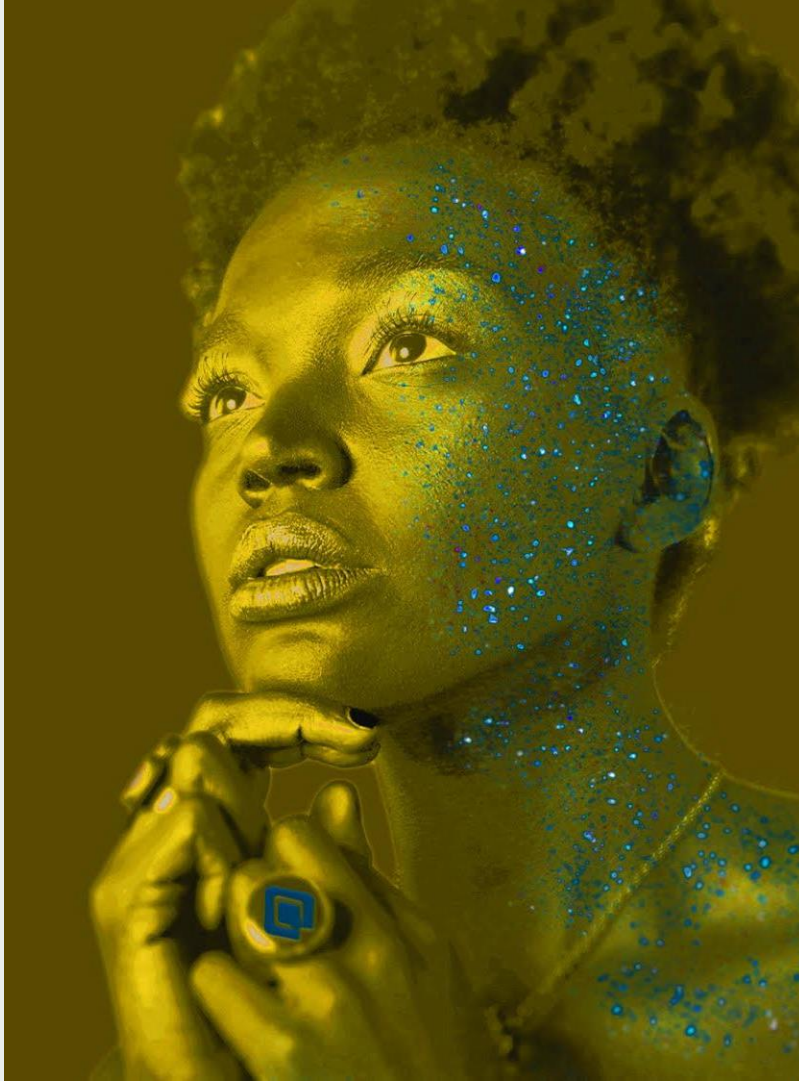
| **LANTERN PHARMA INC. (LTRN) -- Total Share Count** | ***As of March 31, 2021*** |
|---|---|
| Common Shares Outstanding* | 11,181,447 |
| Warrants | 305,294 |
| Options (Employees, Management and Directors) | 823,826 |
| ***Fully Diluted Shares Outstanding*** | **12,310,567** |

# Entering “The Golden Age of A.I.”

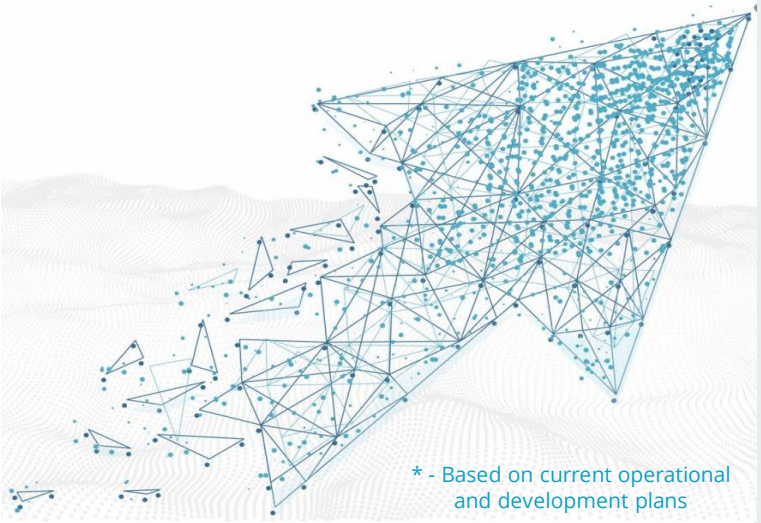
## **10** Mega-Trends Setting The Stage for A.I. Led Transformation in Drug Development & Medicine

- Large-scale, relevant and readily available data-sets
- Methods, technologies and algorithms that are massively scalable
- Computing, storage and transmission continue exponential advances
- Rapid rise of global talent and collaboration networks
- Tremendous increase in quality of biological data and methods
- Rise of sequencing as a highly available, on-demand, low-cost service
- Consumers willing to share personal data in near-time
- Industries that have an increasing impetus to transform
- New generation of investors demanding novel value creation
- Executives and entrepreneurs rewarded for rapid change

**Lantern is at the forefront of this model of A.I. driven transformation in the area of personalized oncology drug development to drive value for cancer patients and our investors.**



RADR® Precision Medicine Platform




| 10 Million > | 125 Million > | 1 Billion > | 8 Billion* > | 15 Billion* > |
|---|---|---|---|---|
| 2018 | 2019 | 2020 | 2021 | 2022 |

**Curated Data Sources Include:**

- *Historical Trials*
- *Proprietary Internal Studies*
- *Studies & Collaborations w/ Partners*
- *Active Clinical Trials*
- *Trials in adjacent drug classes and tumors*
- *Proprietary Sequencing Campaigns*
- *Proprietary Drug Sensitivity Studies*
- *Open Sources from Publications and Research*
- *Clinical Outcome & Lab Data From Select Groups*

## The RADR® Platform Enables…

Scientific Value +

- Rapid identification of potential compounds to rescue and develop
- Improved and more nuanced understanding of responder groups, and non-responder groups based on biological networks
- Feedback for potential mechanisms to be exploited in target-based development activity

- More rapid entry into clinical trials and patient subgroups
- Robust companion diagnostics that can be used to accelerate trials and commercial traction
- Potential for improved patient outcomes with drastically reduced costs and economic burden

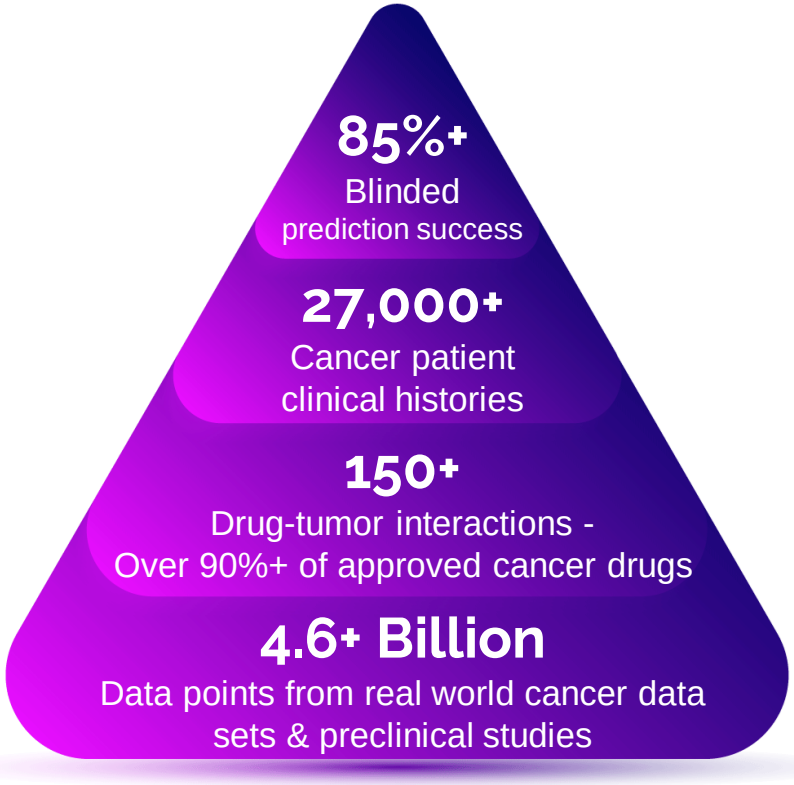
Patient Value +

Precision Medicine Platform

RADR® rapidly identifies genetic & biomarker signatures for precision oncology drug development, clinical response prediction and CDx (companion diagnostic) enablement.

We continue to invest in the platform's functionality, scale, and volume of data.

## RADR® Platform Key Features & Architecture



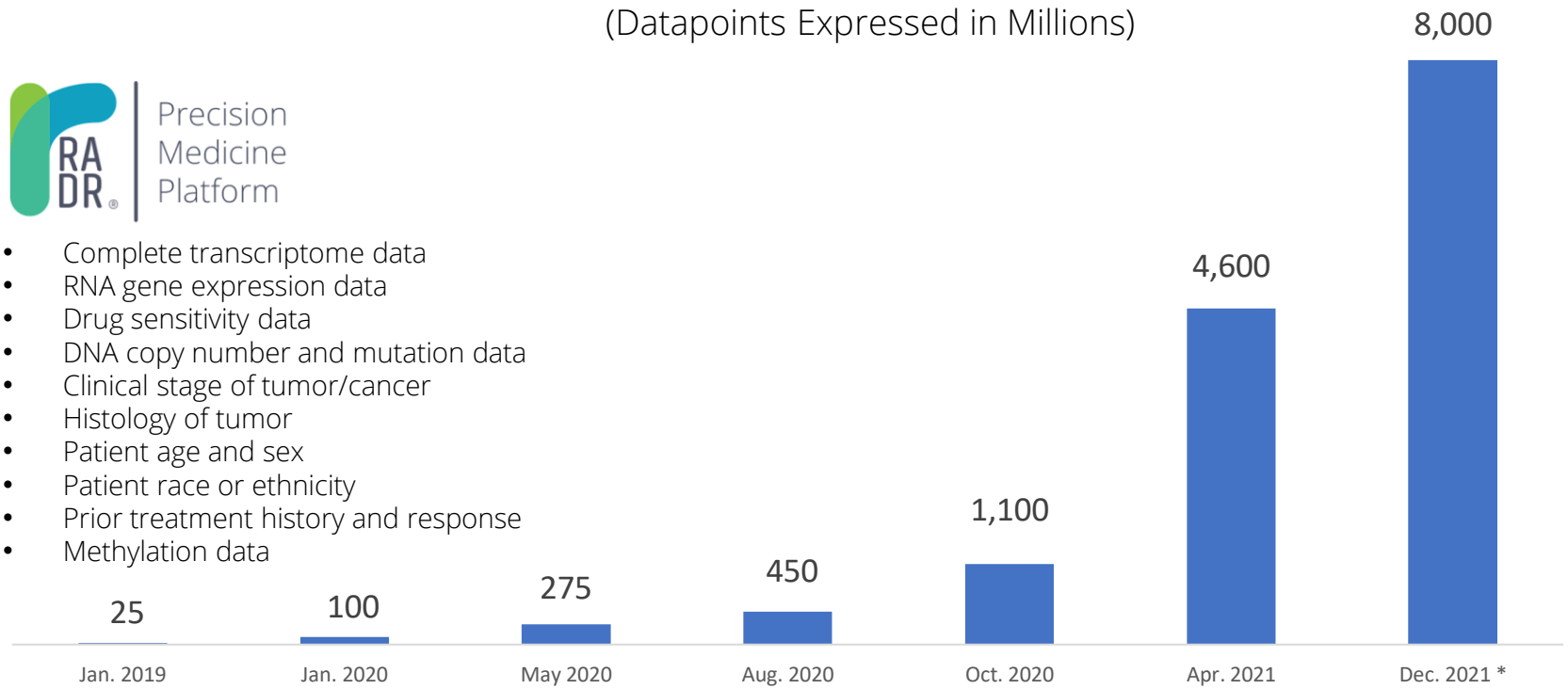

RADR® Platform Continues to Grow in Volume and Functionality

# Growth in Data Drives Growth in Capabilities

## 16.7x growth Over Last 12 Months (May 2020 to May 2021)

Precision Medicine Platform

- Complete transcriptome data
- RNA gene expression data
- Drug sensitivity data
- DNA copy number and mutation data
- Clinical stage of tumor/cancer
- Histology of tumor
- Patient age and sex
- Patient race or ethnicity
- Prior treatment history and response
- Methylation data




* Expected amount of data based on development plan and pipeline

# Updated Clinical Development Plans Submitted to FDA for LP-300 Phase 2 Trial For Non-smokers With NSCLC

| | |
|---|---|
| **Investigational Product** | LP-300 in combination with chemo doublet - carboplatin and pemetrexed. |
| **Development Phase** | Phase II |
| **Indication** | Relapsed Advanced Primary Adenocarcinoma of the Lung in Never Smoker (Chemo-Naive) Patients After Treatment with Tyrosine Kinase Inhibitors or PD-1 / PDL-1 Inhibitors as monotherapy. |
| **Study Rationale** | This study is being conducted in an attempt to determine clinical advantages for this drug combination in the study-defined patient population. |
| **Objectives** | **Primary Objective:**<br>The primary objective of this study is to determine progression-free survival and objective tumor responses in the study-defined patient population when co-administered LP-300 combination chemotherapy (carboplatin and pemetrexed) versus carboplatin and pemetrexed alone.<br><br>**Secondary Objectives:**<br>Secondary objectives of this study include the determination of overall survival, measurement of circulating tumor DNA (ctDNA), and the correlation of response with genomic characteristics of tumor (through whole genome and RNA sequencing). |
| **Study Design & Population** | Multicenter, open label, Phase II; approximately 80 patients to be enrolled. Patients who are never-smokers with lung adenocarcinoma after prior treatment with and relapse from tyrosine kinase inhibitors or PD-1 / PDL-1 inhibitors will be eligible for enrollment. The trial will proceed in two stages. In a run-in stage, three patients will be enrolled and treated with the triplet of carboplatin, LP-300, and pemetrexed. The second stage of the trial will consist of randomizing patients to one of two arms: carboplatin and pemetrexed versus carboplatin, LP-300, and pemetrexed. |

# Equity-Based Collaboration with Actuate Therapeutics that Leverages RADR®

*Actuate Therapeutics, Inc. is a private clinical stage biopharmaceutical company focused on the development of compounds for use in the treatment of cancer, and inflammatory diseases leading to fibrosis.*

*Ft. Worth, TX & Chicago, IL*

- Develop predictive model of sensitivity and a potential signature of biomarkers to identify response patients for 9-ING-41.
- 9-ING-41 is a widely researched GSK-3β inhibitor. There are multiple active oncology clinical trials in Phase I - II as monotherapy and in drug combinations.
- Lantern will be receiving equity in Actuate as part of the collaboration.

# Key Value Building Objectives

**Foundational Year**
Advance Platform
Prepare Trial Launches
Prioritize Additional Compounds

## 2021

- Planned launch of Ph. 2 clinical trial for LP-300 in NSCLC (non-smokers) in 3Q'21
- Update on LP-100 Ph. 2 EU trial in mCRPC
- Grow RADR® A.I. platform to over 8 billion datapoints
- Identify antibody target and tumor for ADC program
- Results from preclinical work w/ LP-184 in pancreatic, prostate, GBM, ATRT and other tumors
- Launch initial ADC indications in pre-clinical
- Showcase RADR® A.I. platform and drug portfolio during "Lantern Investor Day"



**Multiple Streams of Value Creation**
Launch Multiple Precision Trials
Leverage Platform for Pharma Partners
Secure Additional Compounds

## 2022

- Launch Ph. 1 ADC program in solid tumors
- Launch Ph. 1 clinical trial for LP-184 in solid tumors
- Launch Ph. 1/2 clinical trial for LP-184 in GBM
- Progress LP-184 in ATRT towards Ph. 1/2 clinical trial
- Explore potential combinations for LP-184 & LP-300 with other existing approved drugs (inc. I-O agents)
- Strategically grow RADR® A.I. platform to 15 billion datapoints
- Licensing and partnership opportunities

# Q & A

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