Lantern Pharma

Second Quarter 2021

Operating & Financial Results Conference Call

July 29, 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.

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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
   Panna Sharma, CEO

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®

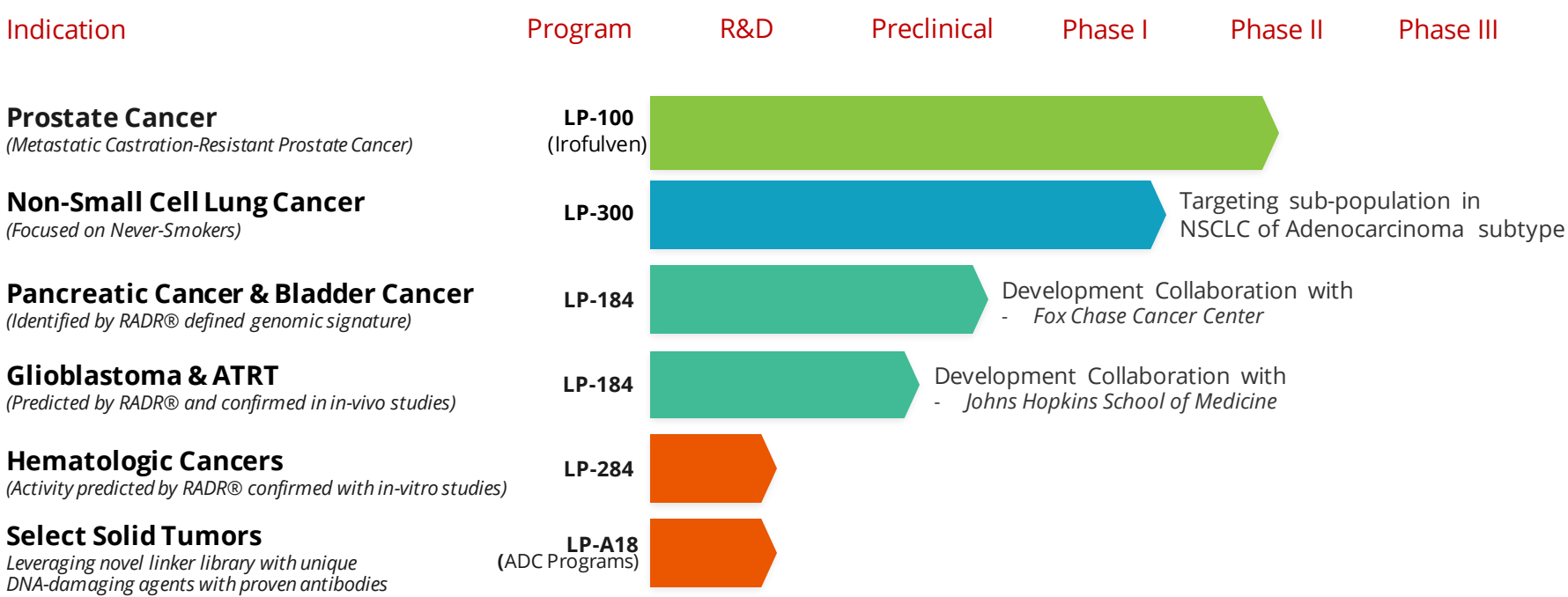
- Big data (genomic, clinical, response) assembled and analyzed
- Patient subgroups identified through machine learning and artificial intelligence
- Mechanisms of action clarified
- Potential combinations identified
- Potential for faster and more efficient path to relaunching in the clinical trial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



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

Over 80+ issued patents and pending applications across 14 patent families

Highlights & Key Milestones Attained During 2Q'21

- Announced positive preclinical data in pancreatic cancer from in-vivo animal models where tumor shrinkage was observed as being an average of 93% over 8 weeks
- Initiated development of LP-184 in DNA damage repair deficient tumors, including bladder where nearly 40% of cancers have DNA repair gene mutations
- Progressed on validating specific blood cancers in lymphoma that are highly sensitive to LP-284
- Progressed clinical trial site selection and final manufacturing for LP-300 Phase 2 trial
- Filed 11 new patent applications, including 2 for the RADR A.I. Platform
- Furthered development of RADR data-lake with additional focus on blood cancers and DNA damage repair gene mutated cancers

Summary Results of Operations

	Three Months Ended June 30, (Unaudited)		Six Months Ended June 30, (Unaudited)	
	2021	**2020**	**2021**	**2020**
Operating expenses:				
General and administrative	1,314,201	676,399	2,487,459	1,016,571
Research and development	1,164,892	157,023	2,443,929	294,127
Total operating expenses	2,479,093	833,422	4,931,388	1,310,698
Loss from operations	**(2,479,093)**	**(833,422)**	**(4,931,388)**	**(1,310,698)**
Interest income	47,889	-	47,889	-
Other income, net	114,723	-	114,723	-
NET LOSS	**$ (2,316,481)**	**$ (833,422)**	**$ (4,768,776)**	**$ (1,310,698)**
Net loss per common share, basic and diluted	$ (0.21)	$ (0.31)	$ (0.45)	$ (0.55)
Weighted Avg. Common Shares Outstanding - Basic and Diluted	11,181,504	2,719,198	10,631,121	2,370,082

Balance Sheet Highlights & Summary

	6/30/2021	12/31/2020
Cash and Marketable Securities	**$ 79,588,657**	**$ 19,229,232**
Prepaid Expenses & Other Current Assets	$ 2,542,426	$ 1,007,690
Total Assets	**$ 82,432,073**	**$ 20,359,634**
Total Liabilities	**$ 2,818,809**	**$ 660,839**
Total Stockholders' Equity	**$ 79,613,264**	**$ 19,698,795**

Shares Outstanding

June 30, 2021

LANTERN PHARMA INC. (LTRN)	
Common Shares Outstanding	11,184,039
Warrants	302,036
Options (Employees, Management and Directors)	823,826
Fully Diluted Shares Outstanding	**12,309,901**

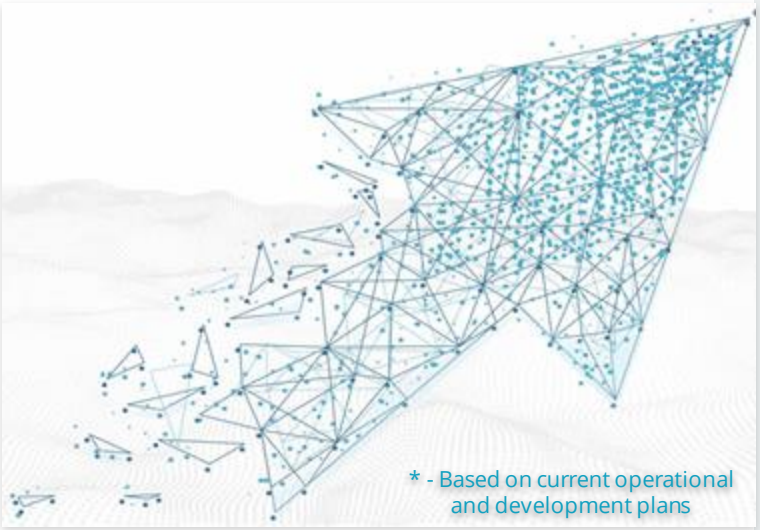
Entering “The Golden Age of A.I. in Medicine”

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.

Precision Medicine Platform



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

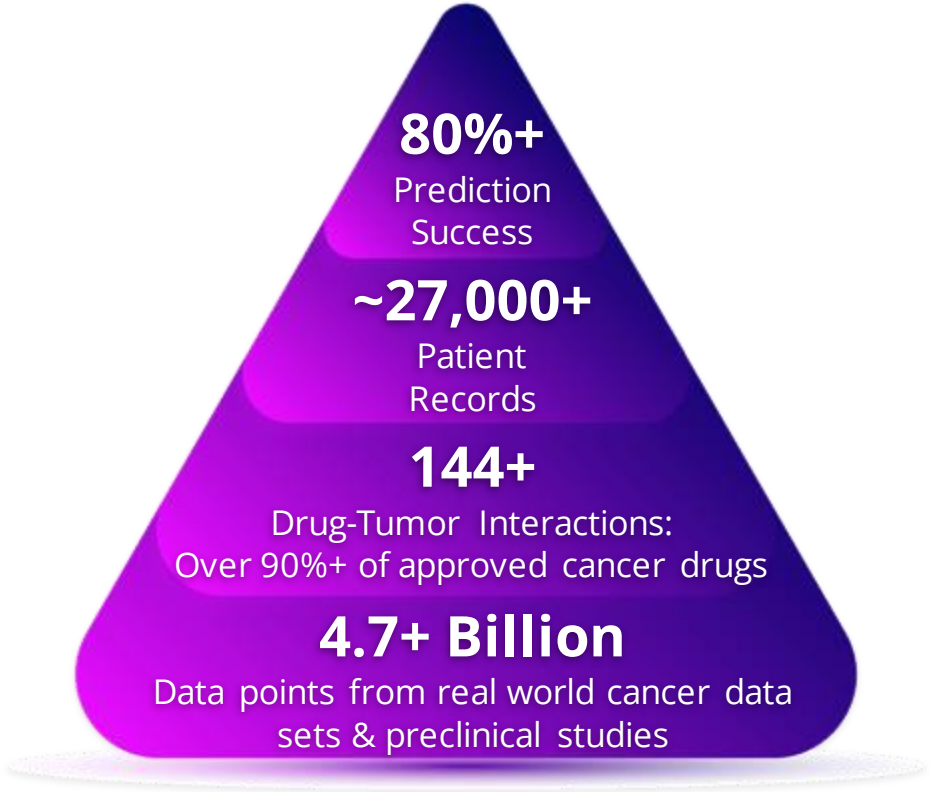
Patient Value +

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

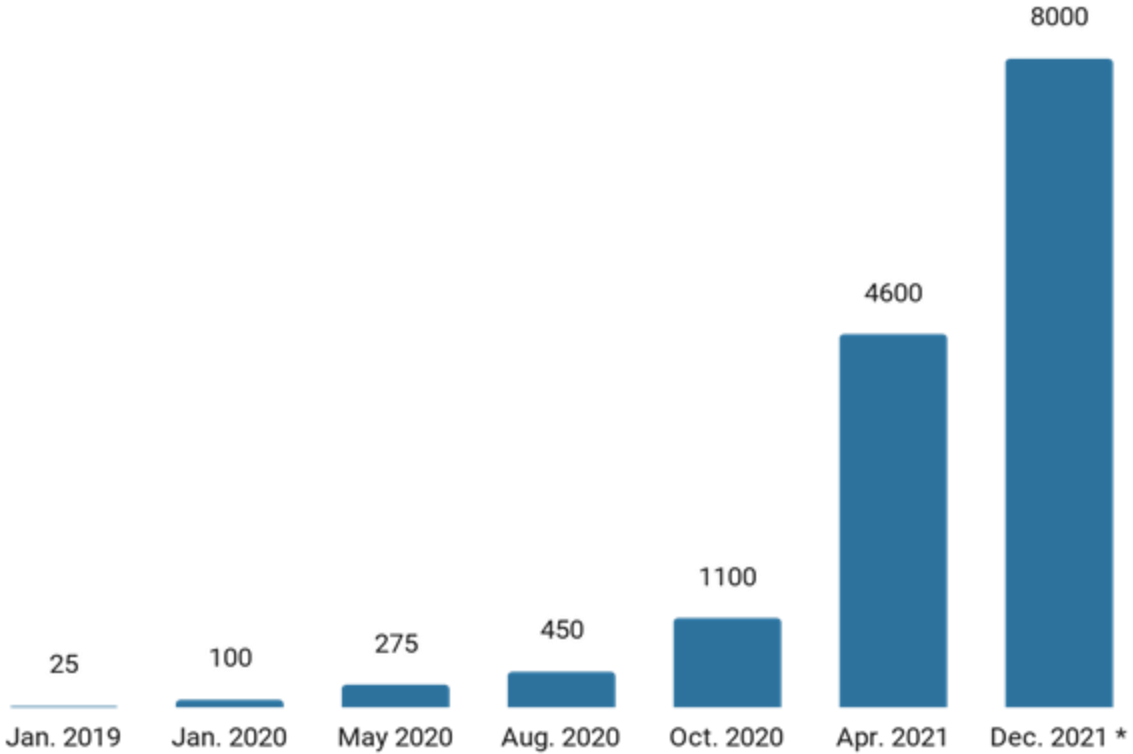


RADR® Platform Continues to Grow in Volume and Functionality

Growth in Data Drives Growth in Capabilities:
16.7x Growth Over Last 12 Months (July 2020 to July 2021)

Precision Medicine Platform

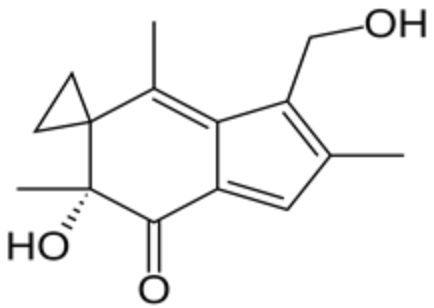
- Complete transcriptome data
- RNA gene expression data
- Drug sensitivity data
- DNA copy number & mutation data
- Clinical stage of tumor/cancer
- Histology of tumor
- Patient age and sex
- Patient race or ethnicity
- Prior treatment history and response
- Methylation data



* Expected amount of data based on development plan and pipeline

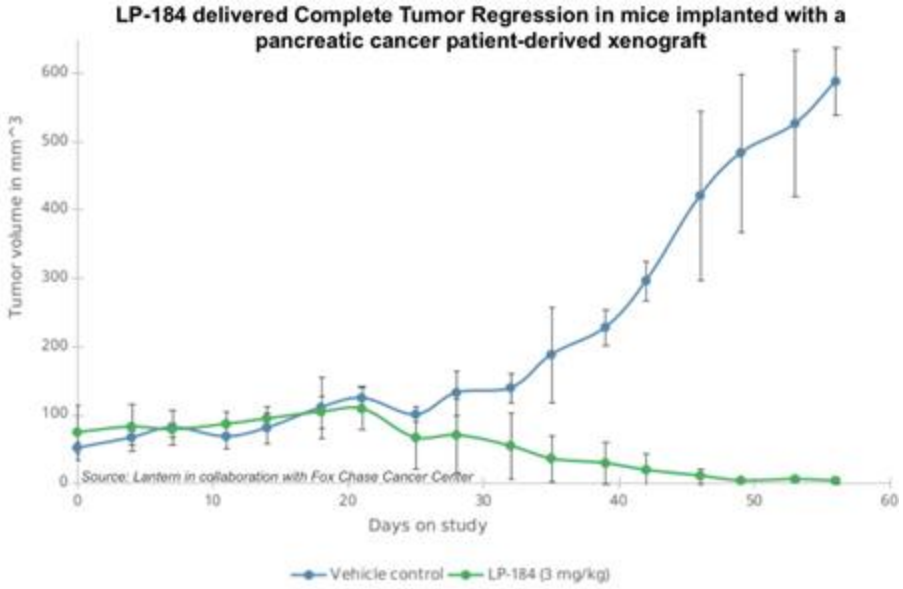
Reacquired Rights to LP-100 (Irofulven) & Phase 2 Clinical Trial in Metastatic Prostate Cancer + Global Development & Commercialization of Irofulven (LP-100) from Allarity Therapeutics A/S

- LP-100, Irofulven, is in an existing phase 2 clinical trial for patients with mCRPC (metastatic, castration-resistant prostate cancer) in Denmark
- 9 patients (out of a target enrollment of 27) have been treated based on meeting criteria established by Allarity's DRP (Drug Response Predictor) companion diagnostic technology
- Median overall survival (mOS) for the initial group of 9 patients was 12.5 months, which is an improvement over other similar fourth-line treatment regimens for mCRPC
- Annually, over $200 million USD is spent in the US and nearly $700 million globally, for treatment of late-stage metastatic prostate cancer
- Agreement terms include a payment of US $1.0 million upfront and an additional US $1.0 million over 24 months based on meeting development milestones, along with payments that can total to an additional $16 million based on regulatory filings and commercialization



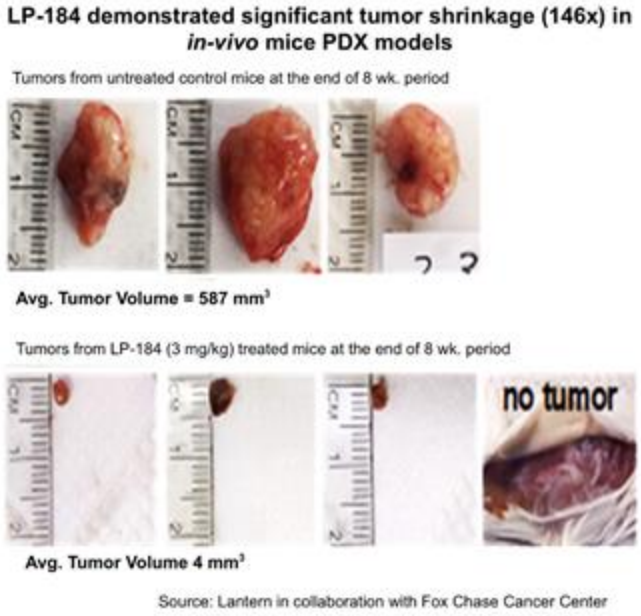
Positive Preclinical Data in Pancreatic Cancer with drug candidate LP-184

LP-184 is a next generation DNA-damaging agent for pancreatic cancer in a research collaboration with Fox Chase Cancer Center



Tumor growth inhibition of 109% was observed with LP-184 treatment relative to control.

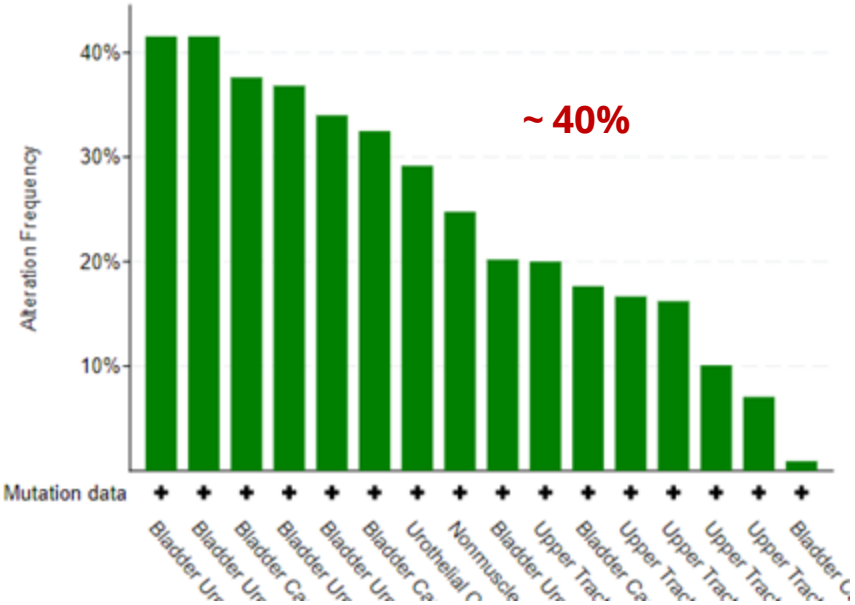
LP-184 Delivered Complete Tumor Regression



Preclinical data demonstrated that LP-184 had significant & rapid pancreatic tumor shrinkage, by over 90%, in *in-vivo* mouse models in 8 weeks.

Expanding LP-184 in additional genomically-targeted indications – Large scale data mining suggests occurrence of NER pathway mutations in a significant proportion of *Bladder Cancers*

Urothelial bladder cancers
& NER pathway mutations



Estimated Annual Cases
573,278- Global
83,730 - USA
@40% = 33,492 cases in USA

Key Value Building Objectives

Foundational Year
Advance Platform
Prepare Trial Launches
Prioritize Additional Compounds

2021

- **LP-300** - Initiate clinical trial site selection for NSCLC Phase 2 clinical trial aimed at never smokers
- **LP-184** – Share data and details from GBM & ATRT research programs with Johns Hopkins
- LP-284 – Share initial indication details and results from validation studies
- **LP-100** – Provide details from initial nine enrolled patients and future potential expansion
- New collaborations with leading institutions
- RADR® A.I. platform to over 8 billion datapoints
- IND-Enabling studies for LP184 in solid tumors
- ADC – Share design and targets for initial ADC program

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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