July 20, 2021

Lantern Pharma Announces Significant Positive Preclinical Data in Pancreatic Cancer With Drug Candidate LP-184

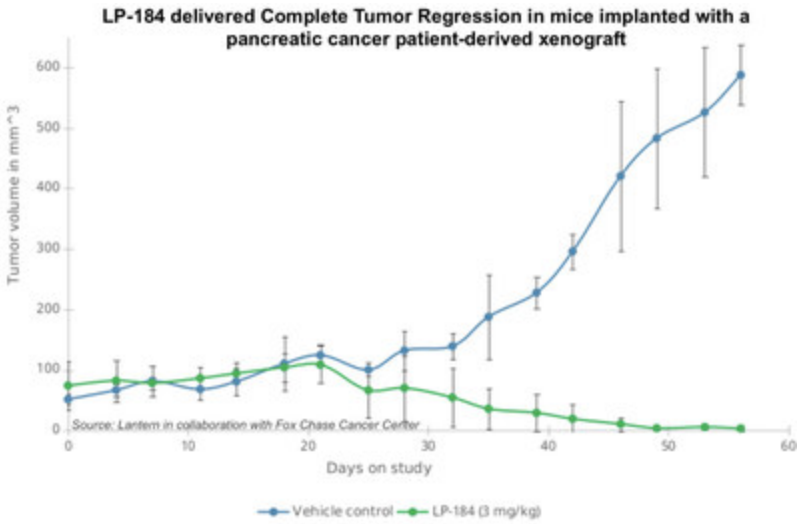
- LP-184 is a next-generation DNA-damaging agent being developed for pancreatic cancer in a collaboration with Fox Chase Cancer Center

- LP-184 has demonstrated significant potency across a wide range of studies, in-vitro, ex-vivo and in-vivo, and is being positioned for areas of high unmet need in genetically targeted pancreatic cancers

- Pancreatic tumors with DNA-damage repair deficiencies were significantly more sensitive, by 2x, to LP-184

- Lantern's A.I. based identification of the key gene in the drug mechanism-of-action for LP-184 was validated by leveraging gene-editing (CRISPR) technology to validate PTGR1 as a fundamental driver of tumor sensitivity and cancer cell death

DALLAS, July 20, 2021 /PRNewswire/ -- Lantern Pharma (NASDAQ: LTRN), a clinical stage biopharmaceutical company using its proprietary RADR® artificial intelligence ("A.I.") platform to transform the cost, pace, and timeline of oncology drug discovery and development, announced today positive new data from its ongoing pancreatic cancer collaboration with the Pancreatic Cancer Institute at Fox Chase Cancer Center. Preclinical data demonstrated that the drug candidate, LP-184, demonstrated significant and rapid pancreatic tumor shrinkage, by over 90%, in *in-vivo* mouse models in 8 weeks. In comparison, the tumors in the untreated mice grew by over eleven-fold in volume during the same 8 week period.



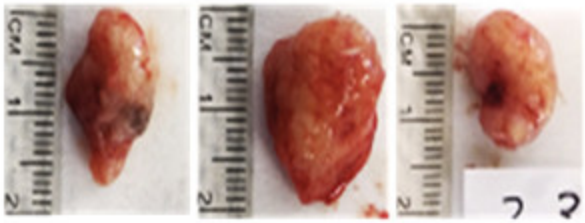
Additional positive data on the efficacy and potency of LP-184 was gathered from 6 pancreatic cancer cell lines, and an additional 5 patient-derived xenograft (PDX) *ex-vivo* tumor models. Significant reduction of cancer cells and cancer cell growth was observed across all pancreatic cancer cell lines and PDX models that were tested in the study with IC50 values being in the nanomolar range (45-270 nM). These data and observations are being prepared for peer-reviewed publications, manuscripts and scientific conferences. Data from this study will be used to power future insights and analysis provided by Lantern's A.I. platform, RADR® , in addition to further enhancing the signature of response for LP-184 in pancreatic cancers. Lantern believes this to be a significant positive advancement for LP-184 in targeted pancreatic cancers and plans to advance the collaboration with Fox Chase Cancer Center into the next phase.

CRISPR knockout data confirmed the importance of PTGR1 in LP-184 cytotoxicity in pancreatic cancer, and validates the RADR-generated hypothesis that PTGR1 plays the leading role in orchestrating responsiveness of tumors to LP-184. The research conducted at Fox Chase Cancer Center leveraged CRISPR editing to silence the gene PTGR1 in pancreatic cancer cells — this resulted in virtually no-response by the pancreatic cancer cells to the drug. Those pancreatic cancer cells with PTGR1 expression (untouched by gene-editing) had heightened response to LP-184 causing cell death and IC50 values in the sub-100nM range. Lantern believes that using a defined genetic signature for patient selection can enhance the likelihood of clinical trial success and focus future clinical trials on those patients that will benefit most from the therapy.

The research has been conducted in collaboration with Dr. Igor Astsaturov, an established, NCI funded, physician scientist and co-leader of the Marvin & Conchetta Greenberg Pancreatic Cancer Institute at Fox Chase Cancer Center. Results demonstrated that LP-184 significantly and rapidly shrunk pancreatic cancer xenografts in mice, and after treatment with once weekly dosing at 3 mg/kg for 8 weeks, no tumors were present in 1 of 4 treated mice and in 3 of 4 mice the average size of remaining tumors was approximately 7% of the original tumor and 146-fold smaller than the untreated tumors.

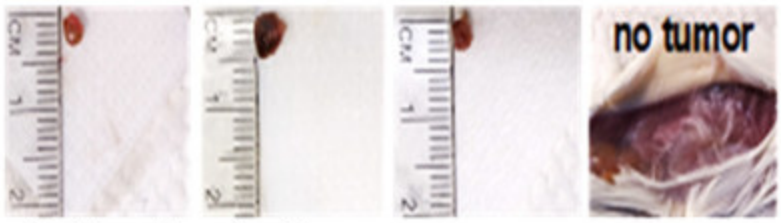
LP-184 demonstrated significant tumor shrinkage (146x) in *in-vivo* mice PDX models

Tumors from untreated control mice at the end of 8 wk. period



Avg. Tumor Volume = 587 mm³

Tumors from LP-184 (3 mg/kg) treated mice at the end of 8 wk. period



Avg. Tumor Volume 4 mm³

Source: Lantern in collaboration with Fox Chase Cancer Center

Additional research was conducted with Dr. Astsaturov to further confirm the increased sensitivity to LP-184 in tumors that had damage to DNA repair pathways. It was observed that pancreatic tumors that harbored genetic alternations in the following DNA repair pathways — NER (nucleotide excision repair) and HR (homologous recombination) — had 2-fold increased sensitivity to LP-184. This observed data has implications in increasing the potential number of pancreatic cancer patients that can benefit from LP-184, and also in confirming prior Lantern research focused on aiming this drug-candidate at other cancers that have DNA repair pathway mutations. These could be mutations or deficiencies in genes such as: BRCA1, BRCA2, ATM, ATR, ERCC2, ERCC3, ERCC4, ERCC5, ERCC6, FANCD2, RAD51 and PALB2.

"These data mechanistically validate LP-184's potential as a synthetic lethal agent in many HRD (homologous recombination deficient) and NERD (nucleotide excision repair deficient) cancers." stated Dr. Astsaturov. "As a result, these data may be highly supportive of a future role for LP-184 in a genetically-defined subset of pancreatic cancer."

Pancreatic cancer is an orphan disease and has a five-year survival rate of7.9%. This means that only approximately 8 in 100 people will have survived for five years and beyond. The 10-year survival rate of the disease is 1%, meaning only approximately 1 in 100 people survive 10 years and beyond. Pancreatic cancer has among the lowest 5-year survival rate of any of the 22 common cancers. GLOBOCAN estimates that for pancreatic cancer there are approximately 490,000 thousand new cases of pancreatic cancer globally, with over 62,000 occurring in North America annually. Targeting a specific subset of pancreatic cancer patients that are genetically defined has the potential to increase beneficial therapeutic options for patients and may ultimately improve survival for those with this cancer.

"We are highly encouraged by the results of this preclinical research and look forward to reporting the full results at future scientific conferences and in publications," noted Dr. Kishor

Bhatia, Lantern's Chief Scientific Officer. "The study observed the significant and targeted anti-tumor effects of LP-184, even in pancreatic cancers that were resistant to standard-of-care drugs. Moreover, we also validated through the elegant work done with Dr. Astsaturov's lab, by use of CRISPR-editing, that PTGR1 does directly link to the anti-tumor activity of LP-184. We expect that we will be able to exploit this biomarker mechanism in various tumors beyond pancreatic in the future."

Lantern believes that LP-184 acts by damaging DNA selectively in tumors that express high levels of the enzyme PTGR1 – which occurs in several solid tumors. Analysis with Lantern's data platform, RADR®, indicated that 35-40% of pancreatic cancer transcriptomes in clinical databases have elevated PTGR1 expression. Lantern has also begun discussions on the design of first-in-human clinical studies for LP-184 in collaboration with Dr. Igor Astsaturov and other key opinion leaders in the pancreatic cancer treatment landscape. Lantern plans on initiating IND (Investigational New Drug) application enabling animal studies later this year, and Phase 1 human trials following the filing of a future IND application.

Contacts:

Investor Relations
Panna Sharma, CEO
IR@lanternpharma.com
628-777-3339

Public Relations
Nicholas Koulermos, Vice President
lantern@5wpr.com
646-843-1812

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

Forward-looking Statements
This press release contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. These forward-looking statements include, among other things, statements relating to: future events or our future financial performance; the potential advantages of our RADR® platform in identifying drug candidates and patient populations that are likely to respond to a drug candidate; our strategic plans to advance the development of our drug candidates and antibody drug conjugate (ADC) development program; estimates regarding the development timing for our drug candidates and ADC development program; our research and development efforts of our internal drug discovery programs and the utilization of our RADR® platform to streamline the drug development

process; our intention to leverage artificial intelligence, machine learning and genomic data to streamline and transform the pace, risk and cost of oncology drug discovery and development and to identify patient populations that would likely respond to a drug candidate; estimates regarding potential markets and potential market sizes; sales estimates for our drug candidates and our plans to discover and develop drug candidates and to maximize their commercial potential by advancing such drug candidates ourselves or in collaboration with others. Any statements that are not statements of historical fact (including, without limitation, statements that use words such as "anticipate," "believe," "contemplate," "could," "estimate," "expect," "intend," "seek," "may," "might," "plan," "potential," "predict," "project," "target," "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 our research and the research of our collaborators in the area of pancreatic cancer may not be successful; (iii) the risk that none of our product candidates has received FDA marketing approval, and we may not be able to successfully initiate, conduct, or conclude clinical testing for or obtain marketing approval for our product candidates; (iv) the risk that no drug product based on our proprietary RADR A.I. platform has received FDA marketing approval or otherwise been incorporated into a commercial product, and (v) those other factors set forth in the Risk Factors section in our Annual Report on Form 10-K for the year ended December 31, 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 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.

View original content to download multimedia: https://www.prnewswire.com/news-releases/lantern-pharma-announces-significant-positive-preclinical-data-in-pancreatic-cancer-with-drug-candidate-lp-184-301337294.html

SOURCE Lantern Pharma