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Lantern Pharma, Inc. (LTRN - NASDAQ)

2021 Results

Based on our DCF model which uses a 15% discount rate, Lantern Pharma is valued at approximately $26.00 per share. Our model applies a 25% probability of ultimate approval and commercialization for LP-300 in never-smoker NSCLC, for LP-184 in multiple tumors in combination with ADCs and as monotherapy in ATRT. The model includes contributions from the United States, EU and rest of world.

Current Price (3/11/2022)	$6.84
Valuation	**$26.00**

OUTLOOK

Lantern Pharma is a new type of drug development company using AI & data to identify drug responders, uncover mechanism of action & rescue failed drugs. It is developing lead candidate LP-300 for non- & never smoker NSCLC as well as two other candidates. LP-100 for mCRPC which was reacquired from Allarity Therapeutics, and LP-184 and LP-284 which are in preclinical development for multiple biomarker-defined tumors and hematological cancers, respectively.

Lantern uses AI & machine learning to rescue failed and abandoned compounds by predicting response in biomarker-defined subpopulations. RADR is the firm's AI platform which analyzes proprietary, curated data to identify new candidates, mechanisms of action & patients most likely to respond to drug therapy, de-risking clinical trials and saving time and cost.

Lantern is planning to launch a Ph2 trial for LP-300 in never-smoker NSCLC in 2022. We expect it to lead into a Ph3 study that will generate registrational data in 2025, US & EU regulatory submission in 2026 & commercialization in 2027. LP-184 is expected to begin Ph2 trials in defined advanced tumors in 2022.

SUMMARY DATA

52-Week High	**23.50**
52-Week Low	**5.45**
One-Year Return (%)	**-62.6**
Beta	**N/A**
Average Daily Volume (sh)	**73,127**
Shares Outstanding (mil)	**11.2**
Market Capitalization ($mil)	**76.6**
Short Interest Ratio (days)	**3.42**
Institutional Ownership (%)	**30.7**
Insider Ownership (%)	**19.2**
Annual Cash Dividend	**$0.00**
Dividend Yield (%)	**0.00**
5-Yr. Historical Growth Rates	
Sales (%)	**N/A**
Earnings Per Share (%)	**N/A**
Dividend (%)	**N/A**
P/E using TTM EPS	**N/A**
P/E using 2020 Estimate	**N/A**
P/E using 2021 Estimate	**N/A**
Zacks Rank	**N/A**

Risk Level	**Above Average**
Type of Stock	**Small-Growth**
Industry	**Med-Biomed/Gene**

ZACKS ESTIMATES

Revenue

(In millions of US$)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2020	$0.0 A	$0.0 A	$0.0 A	$0.0 A	$0.0 A
2021	$0.0 A	$0.0 A	$0.0 A	$0.0 A	$0.0 A
2022					$0.0 E
2023					$0.0 E

Earnings per Share

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2020	-$0.24 A	-$0.31 A	-$0.27 A	-$0.47 A	-$1.37 A
2021	-$0.24 A	-$0.21 A	-$0.36 A	-$0.31 A	-$1.13 A
2022					-$1.99 E
2023					-$2.39 E

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What's New?

2021 Financial and Operational Results

On March 10, 2022, Lantern Pharma, Inc. (NASDAQ: LTRN) announced 2021 annual financial and operational results, filed its form 10-K with the SEC, and hosted a video webcast to review accomplishments. Lantern informed investors that RADR's dataset had grown to over 18 billion datapoints, preparation for the Phase II trial for LP-300 is taking place, and orphan designation has been granted for multiple indications.

Highlights for the fourth quarter and to-date include:

- Partnership with Code Ocean to identify drug development collaborations - October 2021
- RADR accumulation of more than 10 billion datapoints - November 2021
- LP-184 presentation at SNO[1] 2021 Annual Meeting - November 2021
- KOL event - November 2021
- Share repurchase program announced - November 2021
- Positive data presented on LP-284 at the 63rd ASH[2] Annual Meeting - December 2021
- Precision oncology collaboration with NCI expanded - January 2022
- Collaboration and research agreement executed with DCRC - January 2022
- LP-184 receives Rare Pediatric Disease and Orphan Drug Designations - January 2022
- Collaboration with Greehey Children's Cancer Research Institute, San Antonio - February 2022

Lantern generated no revenues during the year and incurred operating expense of $12.6 million, producing a net loss of ($12.4) million, or ($1.13) per share.

For the year ending December 31, 2021 and versus the same ending December 31, 2020:

- Research & development expenses totaled $7.6 million, rising 237% from $2.2 million on increases in product candidate manufacturing related expenses, higher expenditures for research studies, expansion in payroll costs and payment of $1,000,000 to Allarity for LP-100, a nonrecurring expense;
- General & administrative expenses were $5.0 million, rising 37% from $3.7 million, due to greater business and corporate development expense, higher corporate insurance expense and increases in legal and patent related costs;
- Net loss was ($12.4) million, or ($1.13) per share, compared to ($5.9) million, or ($1.37) per share.

At the end of 2021, cash and marketable securities on the balance sheet totaled $70.7 million, which management expects to sustain the company into 2025. Cash burn for the year was ($10.6) million, up materially from the ($5.7) million consumed in the prior year. Lantern generated net cash from financing of $63.4 million from issuance of common stock.

Share Repurchase Program
On November 22, 2021, Lantern announced that its board had authorized a share repurchase program to acquire up to $7 million of Lantern's common stock. Lantern may purchase its common stock on the open market, through private transactions or otherwise. The timing, share repurchase amount and price will vary on market conditions as well as corporate and regulatory limitations. As of March 2022, ~430,000 shares have been repurchased at an average $7.18 per share for a total paid of $3.1 million.

Lantern Expands NCI Precision Oncology Collaboration
On January 12, 2022, Lantern announced the expansion of its precision oncology collaboration with the National Cancer Institute (NCI). Lantern first entered into the partnership with the NCI's Developmental Therapeutics Branch (DTB) in October 2019 to identify gene signatures that help predict a potential response of a patient's tumor to a drug therapy. After identifying biomarker correlations for Lantern's LP-184 and LP-284, the second phase of the collaboration will leverage CellMiner and CellMinerCDB data in search of additional -omic response predictors. Da-

[1] Society for Neuro-Oncology
[2] American Society of Hematology

ta from Project Achilles at the Broad Institute will also be included for insight into efficacy under specific genetic and molecular conditions.

Danish Cancer Society Research Center Collaboration
On January 18, 2022, Lantern announced a collaboration and research agreement with The Danish Cancer Society Research Center (DCRC) to support clinical development of LP-100 and LP-184, as well as the development of improved diagnostic methods to identify nucleotide excision repair (NER) deficient tumors, a predictor of LP-100 and LP-184 efficacy. The collaboration will explore the use of expanded mutational signature-based analyses to identify said tumors, and will include a comprehensive analysis of breast, ovarian, prostate, lung, kidney, bladder, stomach, pancreatic and esophageal cancer. Through the collaboration, patients that can benefit from NER deficiency targeting will be identified, which will assist in determining overall market size for the candidates. Dr. Zoltan Szallasi, MD, principal investigator at DCRC, will lead the collaboration research. Dr. Szallasi serves joint appointments as Group Leader of the Translational Cancer Genomics department at DCRC and as Faculty, Computational Health Informatics Program (CHIP) and Assistant Professor of Pediatrics at Boston Children's Hospital affiliated with Harvard Medical School. The collaboration is also expected to add millions of datapoints to Lantern's RADR platform.

Greehey Children's Cancer Research Institute Collaboration
On February 15, 2022, Lantern announced that it had entered into a research collaboration with The Greehey Children's Cancer Research Institute (GCCRI) at University of Texas Health Science Center in San Antonio. Lantern's RADR AI platform aided in the identification of additional, rare pediatric cancers, some of which lack effective treatments, but may be amenable to treatment with LP-184 and LP-284. Research will initially focus on LP-184 in pediatric cancer models developed by Dr. Peter Houghton at GCCRI. The models will assist in validating RADR's findings.

Presentations
Lantern presented at both Society for Neuro-Oncology (SNO) Annual Meeting 2021 in mid-November and the 63rd ASH[3] Annual Meeting in mid-December 2021.

At the SNO meeting, *in vivo* and *in vitro* results were presented for LP-184 in glioblastoma multiforme (GBM) expressing elevated PTGR1. Results showed nanomolar potency in multiple cell lines, including those predicted to be sensitive to LP-184 (PTEN mutant), and one GBM cell line with unmethylated MGMT promoter, known to be resistant to standard of care temozolomide (TMZ) chemotherapy. LP-184 was found to be 300-1000 times more potent than TMZ. LP-184 also showed near complete tumor regression and survival benefit in subcutaneous and intracranial GBM xenograft models, respectively. LP-184 was found to have comparable blood-brain barrier permeability to TMZ. The poster presentation can be found here.

The ASH meeting featured positive *in vitro* data for LP-284 in hematologic cancers. The research sought to evaluate the efficacy of LP-284 in the NCI's 60 human tumor cell lines (NCI-60), which have the most extensive cancer pharmacology database in the world.[4] The research also aimed to identify the metabolic activation enzyme of LP-284 *in silico* and the hematologic cancer subtypes that may be amenable to LP-284 treatment. Results showed a distinct anti-tumor profile of LP-284 versus other compounds in Lantern's portfolio and had the broadest anti-hematologic cancer activity. Unlike LP-184 and Irofulven, LP-284 did not show activity correlated with PTGR1 expression. But with activity in low PTGR1 expressing hematologic cancer cell lines, an alternative LP-284 activator was evident. LP-284 exhibited nanomolar potency in mantle cell lymphoma, Burkitt's lymphoma, multiple myeloma, chronic myeloid leukemia, and acute lymphoblastic leukemia. Finally, spironolactone was found to sensitize SUDHL6 (double-hit lymphoma) and RPMI8226 (multiple myeloma) cell lines, reducing LP-284's IC50 by 2.4-fold. The poster presentation can be found here.

LP-184 Receives Rare Pediatric Disease and Orphan Drug Designations in ATRT[5]
On January 24, 2022, Lantern announced that the FDA had granted both Rare Pediatric Disease Designation and Orphan Drug Designation for LP-184 in ATRT. Under the Rare Pediatric Disease program, a sponsor (Lantern) who receives approval for a drug or biologic (LP-184) for a rare pediatric disease[6] may qualify for a priority review voucher that can be redeemed for the marketing application for a different product. While the Rare Pediatric Disease Designation can apply to subsequent products, the Orphan Drug Designation has immediate benefits for LP-184 including tax credits for qualified clinical trials, exemption from user fees, and potential seven years of market

[3] American Society of Hematology
[4] Abaan OD, Polley EC, Davis SR, et al. (2013) The exomes of the NCI-60 panel: a genomic resource for cancer biology and systems pharmacology. Cancer Research.
[5] Atypical Teratoid Rhabdoid Tumor - an aggressive and rapidly growing cancer of the central nervous system
[6] The FDA defines rare pediatric disease as a disease that manifests as serious or life threatening in children age 0-18, and affects fewer than 200,000 persons in the US. Rare Pediatric Disease Priority Review Vouchers (fda.gov)

exclusivity after approval. LP-184 sensitivity in tumors was negatively correlated with SMARCB1 expression. Furthermore, the underlying genetic cause of 90% of pediatric ATRT are changes in SMARCB1 gene. Lantern has partnered with Johns Hopkins School of Medicine to conduct pre-clinical evaluation of LP-184 in ATRT and Glioblastoma multiforme (GBM).

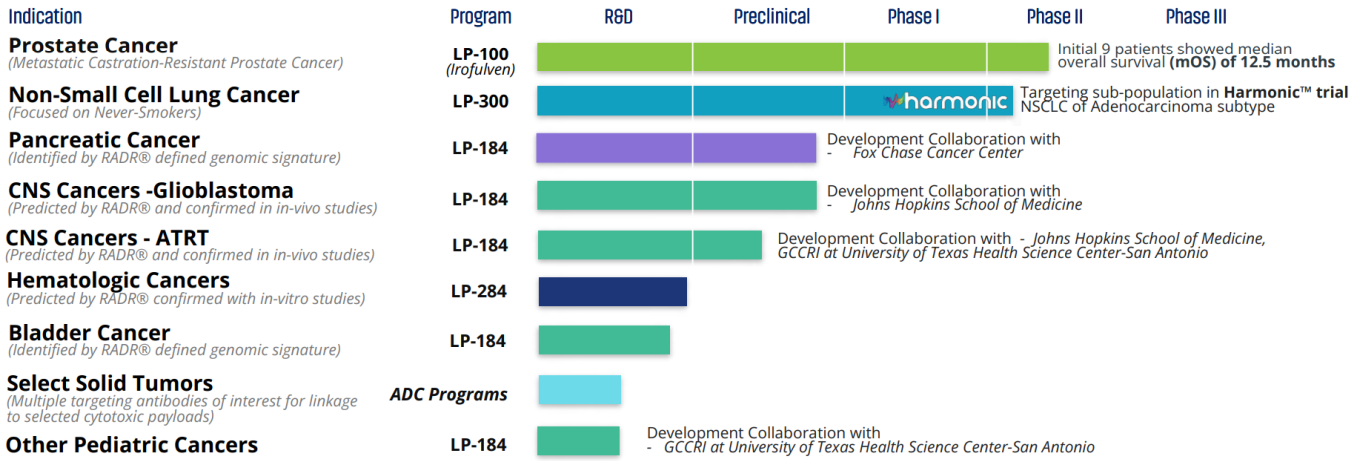
Phase II Clinical Trial For LP-300

After a delay on multiple fronts resulting from the pandemic, Lantern now prepares to launch its Phase II trial for LP-300 in never-smoker non-small cell lung cancer (NSCLC) patients. Lung cancer is the leading cause of death among cancer patients in the US, and one in six lung cancer deaths will occur in never-smokers. Previous clinical results[7] showed that the sub-population of never smokers, and especially female never smokers, benefited from a 125% increase in 2-year survival receiving LP-300 + cisplatin + paclitaxel compared to the doublet chemotherapy.

Problems related to equipment, materials and staffing at the drug manufacturer led to a delay in delivering product to clinical sites for LP-300, causing 3-4 months delay. Logistics relating to the identification, staffing and briefing of clinical sites were also delayed. Management informed that the hurdles have largely been addressed; LP-300 has been synthesized and is currently undergoing stability testing. Partner Deep Lens was added to enable faster recruitment of suitable patients in the never-smoker NSCLC study. The partner's technology will search through thousands of medical records to match the most appropriate patients with the objectives of the trial.

The trial, which has now received the moniker Harmonic, will target enrollment at 20 sites and is expected to enroll from 4 to 5 patients at each site helping achieve the 90-patient target. The subjects will be randomized into two arms 2:1, receiving LP-300 (18.4 g/m^2) + cisplatin + paclitaxel vs cisplatin + paclitaxel, respectively. Subjects will comprise never smoker patients with relapsed advanced primary adenocarcinoma of the lung. The trial will require approximately two years to generate the needed data. Primary objectives will be to evaluate overall- and progression-free survival.

Exhibit I – Lantern Pipeline[8]



Milestones

- LP-100 (mCRPC)
  - Responsibility for trial transferred to Lantern – July 2021
- LP-300 (non-smoker NSCLC)
  - Collaboration with Deep Lens to accelerate recruitment – 3Q:21
  - Launch of 90 patient Phase II – 1H:22
- LP-184 (pancreatic cancer)
  - Granted orphan designation – August 2021
  - Host KOL event – November 18, 2021
  - Develop and submit IND – 2022

[7] DMS32212R, BioNumerik Pharmaceuticals
[8] Source: Lantern Pharma 4Q:21 Earnings Presentation

- Phase I trial – mid-2022

- LP-184 (GBM)
  - Preclinical results from collaborative research program – November 2021
  - Launch Phase I/II study – 2022
- LP-184 (ADCs)
  - Preclinical studies launched – 2022
  - Preclinical data available – 2022
  - IND development – 2022
- LP-284 (mantle cell lymphoma)
  - Data presentation at American Society of Hematology (ASH) conference – December 2021

Summary

On March 10th, Lantern reported 2021 financial and operational results. Key events included the milestone of over 18 billion data points, the anticipated start of the LP-300 trial in 2022, multiple orphan designation grants and new patent applications. At the end of 2021, cash and marketable securities on the balance sheet totaled $70.7 million, providing support for the company's initiatives into 2025. Cash burn for the year was ($10.6) million, up materially from the ($5.7) million consumed in the prior year.

Other highlights include LP-184 presentation at SNO 2021 Annual Meeting, a virtual KOL webinar, the announcement of a share repurchase program, presentation on LP-284 at 63rd ASH Annual Meeting, expansion of collaboration with NCI, and establishment of a collaboration and multiple research agreements.

Management anticipates 2022 to be a year of continued growth and progress with six programs in the pipeline and a large war chest of cash to fund preclinical and clinical work for years to come. We anticipate the start of the Phase II LP-300 study in NSCLC among non-smokers in 2022, and look forward to IND-enabling studies of LP-184 in multiple solid tumors and multiple potential trials for the candidate. Lantern also is considering continuing LP-100's Phase II trial in mCRPC.

We adjust our price target to $26.00 per share to reflect our updated estimate for the start of the LP-300 Phase II trial in non-smoker NSCLC. For added detail on Lantern's proprietary AI development platform, RADR, and for background on indications and Lantern's clinical candidates, please refer to further discussion in our initiation.

PROJECTED FINANCIALS

Lantern Pharma, Inc. - Income Statement

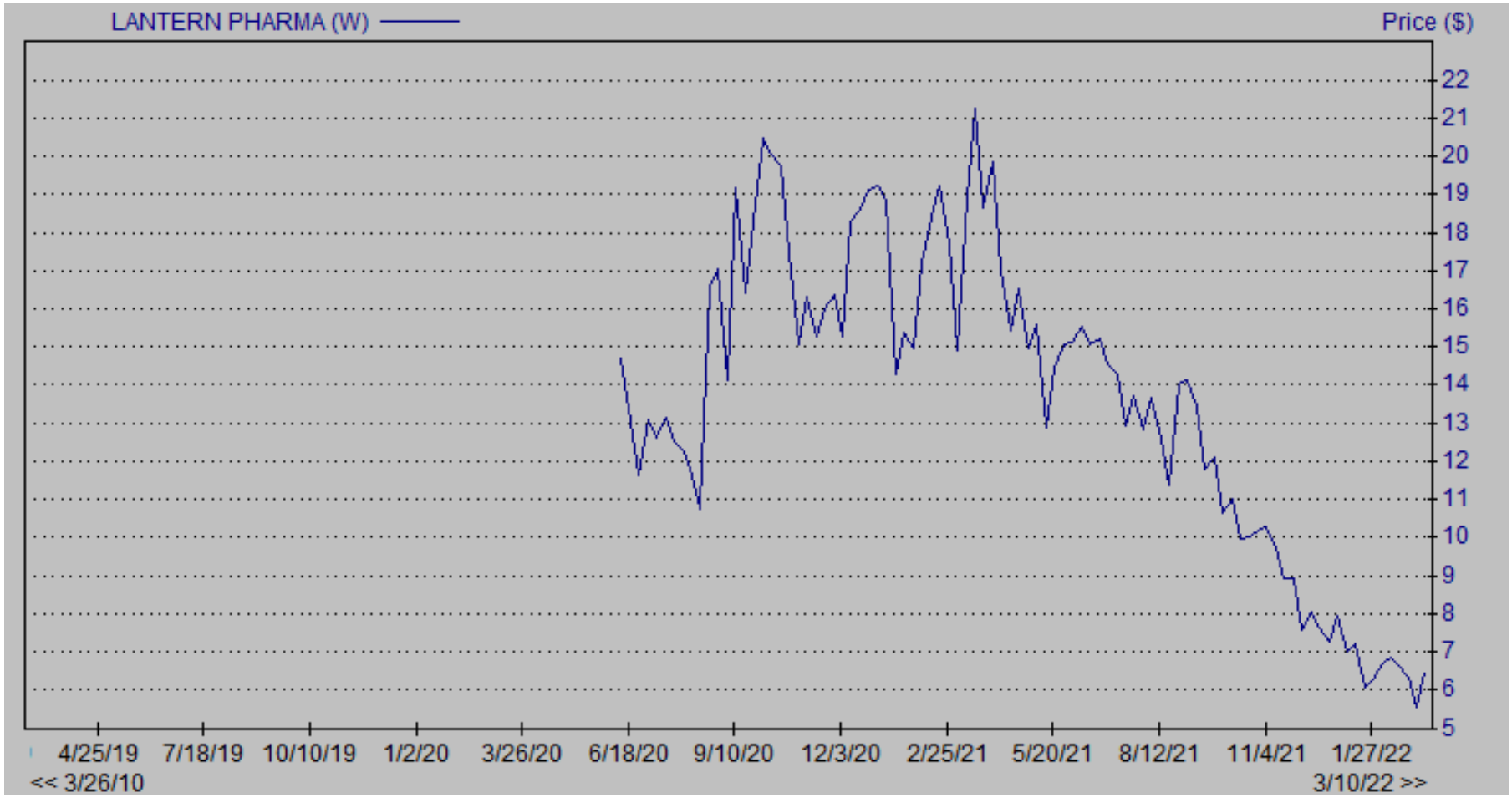
Lantern Pharma Inc.	2020 A	Q1 A	Q2 A	Q3 A	Q4 A	2021 A	2022 E	2023 E
Total Revenues ($US)	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
General & Administrative	$3,665	$1,173	$1,314	$1,184	$1,349	$5,021	$6,050	$6,201
Research & Development	$2,243	$1,279	$1,165	$2,964	$2,162	$7,571	$15,668	$21,152
Income from operations	($5,908)	($2,452)	($2,479)	($4,149)	($3,511)	($12,592)	($21,718)	($27,353)
Pre-Tax Income	($5,908)	($2,452)	($2,316)	($4,072)	($3,523)	($12,363)	($21,581)	($27,273)
Provision for Income Tax	$0	$0	$0	$0	$0	$0	$0	$0
Tax Rate	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Net Income	**($5,908)**	**($2,452)**	**($2,316)**	**($4,072)**	**($3,523)**	**($12,363)**	**($21,581)**	**($27,273)**
Reported EPS	**($1.37)**	**($0.24)**	**($0.21)**	**($0.36)**	**($0.32)**	**($1.13)**	**($1.99)**	**($2.39)**
Basic Shares Outstanding	4,305	10,075	11,182	11,186	11,136	10,905	10,818	11,400

Source: Company Filing // Zacks Investment Research, Inc. Estimates

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HISTORICAL STOCK PRICE

Lantern Pharma, Inc. – Share Price Chart[9]



[9] Source: Zacks Research System

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