Zacks Small-Cap Research

Sponsored – Impartial - Comprehensive

February 1, 2023

John D. Vandermosten, CFA
312-265-9588 / jvandermosten@zacks.com

scr.zacks.com **10 S. Riverside Plaza, Suite 1600, Chicago, IL 60606**

Lantern Pharma, Inc. (LTRN: NASDAQ)

LP-184 & LP-284 in the Spotlight

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 (1/31/2023)	$6.02
Valuation	**$26.00**

OUTLOOK

Lantern Pharma uses AI & data to identify drug responders, uncover mechanism of action & rescue failed drugs. It is developing LP-300 for non- & never smoker NSCLC in the Harmonic trial. Secondary candidates include 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 launched its Ph2 trial for LP-300 in never-smoker NSCLC in late 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	**7.92**
52-Week Low	**4.19**
One-Year Return (%)	**-9.5**
Beta	**0.7**
Average Daily Volume (sh)	**57,303**
Shares Outstanding (mil)	**10.9**
Market Capitalization ($mil)	**65.6**
Short Interest Ratio (days)	**3.2**
Institutional Ownership (%)	**27.3**
Insider Ownership (%)	**23.4**
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 2022 Estimate	**N/A**
P/E using 2023 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)
2021	$0.0 A	$0.0 A	$0.0 A	$0.0 A	$0.0 A
2022	$0.0 A	$0.0 A	$0.0 A	$0.0 E	$0.0 E
2023					$0.0 E
2024					$0.0 E

Earnings per Share

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2021	-$0.24 A	-$0.21 A	-$0.36 A	-$0.31 A	-$1.13 A
2022	-$0.38 A	-$0.41 A	-$0.21 A	-$0.49 E	-$1.50 E
2023					-$1.72 E
2024					-$2.42 E

© Copyright 2023, Zacks Investment Research. All Rights Reserved.

What's New?

Recent Program Updates

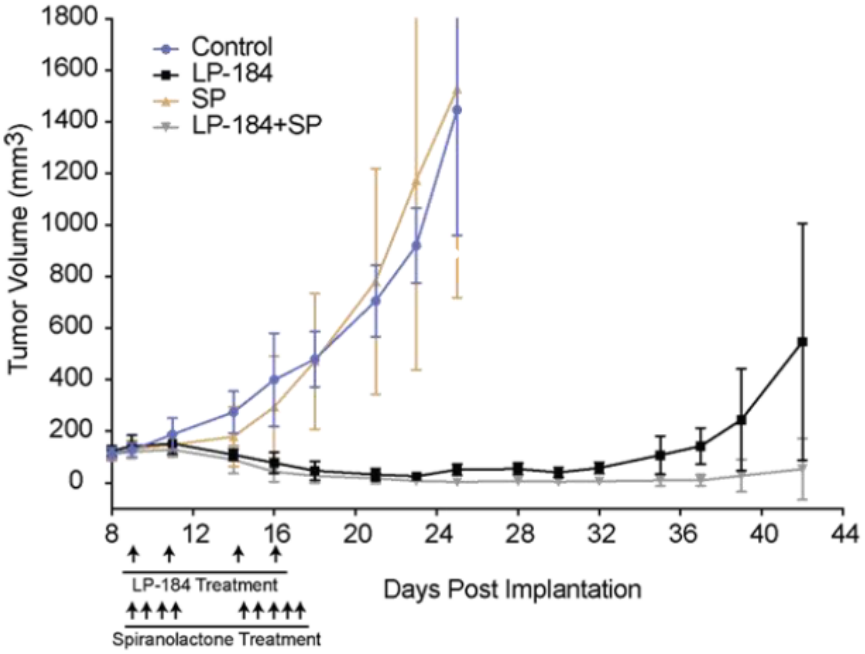
Since Lantern Pharma, Inc. (NASDAQ: LTRN) announced 3Q:22 results in early November, there have been a number of program updates for LP-184 and LP-284. In late November, Lantern announced positive data regarding the anti-tumor potency of LP-184 in glioblastoma (GBM) and a few weeks later highlighted LP-184's results in for triple negative breast cancer (TNBC). The FDA provided pre-IND feedback regarding LP-184 regarding the Phase I trial in multiple solid tumors that is anticipated to begin in 2Q:23. Not to be outdone, LP-284 generated positive new data for Mantle Cell Lymphoma at the American Society of Hematology (ASH) and received FDA orphan drug status in the same indication.

LP-184 Progress

SNO Poster for GBM

In late November, Lantern highlighted positive data around the anti-tumor potency of LP-184 in glioblastoma (GBM) at the Society for Neuro-Oncology Annual Meeting held in Tampa Bay, Florida. Positive preclinical data was presented for the use of LP-184 either alone or in combination with spironolactone for use against GBM. LP-184 preferentially damages DNA in cancer cells that harbor mutations in DNA damage repair (DDR) genes and that overexpress the enzyme PTGR1. The associated poster exhibited the *in vitro/in vivo* efficacy of LP-184 towards GBM as a single agent or in combination with spironolactone. This may provide an alternative to the standard of care agent temozolomide, which is ineffective in most patients.

Exhibit I – Tumor Volume for LP-184 + Spironolactone vs. Control[1]



The presentation concluded that LP-184 is effective against temozolomide-resistant preclinical GBM models and is similarly effective independent of methylation status.[2] Common GBM tumor characteristics enhance the effectiveness of LP-184 in patients with intrinsic or spironolactone-induced nucleotide excision repair (NER) deficient tumors. Next steps for this program are to test LP-184 in combination with spironolactone in an intracranial xenograft

[1] Source: Lantern Poster Preclinical efficacy of LP-184, a tumor site activated synthetically lethal therapeutic, in glioblastoma. November 2022.
[2] Methylation refers to the attachment of methyl groups to DNA. Methylation typically occurs on cytosine residues in the DNA molecule and can change the expression of genes by affecting the way that the genetic information is interpreted. Methylation is an epigenetic modification, meaning that it can alter gene expression without changing the underlying DNA sequence. MGMT (O6-methylguanine-DNA methyltransferase) is a DNA repair gene that is commonly methylated in glioblastomas. Methylation of the MGMT promoter is associated with the inactivation of the MGMT gene, which leads to chemotherapy resistance with alkylating agents, such as temozolomide. A methylated MGMT gene means that the gene is turned off, and the tumor is resistant to certain chemotherapy drugs. An unmethylated MGMT gene, on the other hand, means that the gene is turned on, and the tumor is sensitive to those drugs. The methylation status of the MGMT gene is therefore an important predictor of response to therapy in glioblastoma patients.

model of GBM to assess survival, tumor response and pharmacokinetics. Additional investigational new drug (IND) enabling work is also planned.

SABCS Poster in TNBC
Lantern presented at the San Antonio Breast Cancer Symposium in December exhibiting LP-184's anti-tumor efficacy for triple negative breast cancer (TNBC) in comparison with standard of care agents. Many breast cancers lack the receptors for estrogen, progesterone or HER2 and drugs designed for these targets are ineffective. TNBC is a particularly deadly type of breast cancer with median survival of metastatic patients at less than one year.

The poster presented highlights LP-184's *in vitro* and *in vivo* anti-tumor potency across several breast cancer models, including those resistant to poly ADP-ribose polymerase (PARP) inhibitor Olaparib. Summary conclusions from the poster include:

- LP-184 demonstrates nanomolar potency in a panel of breast cancer cell lines;
- LP-184 dosed at 4 mg/kg was well tolerated in all TNBC PDX tumor models;
- Monotherapy LP-184 demonstrated high antitumor efficacy with complete tumor regression observed;
- LP-184 may be broadly efficacious in multiple other solid tumors with homologous repair and/or NER pathway defects, such as pancreatic, prostate, ovarian and bladder cancers.

Pre-IND Feedback for LP-184
In mid-January, Lantern announced the receipt of feedback from the FDA regarding its anticipated LP-184 investigational new drug (IND) submission. In 4Q:22, Lantern requested the pre-IND meeting with the agency to ensure that the IND submission would address all of the FDA's concerns. The submission is expected in the near term, and if there are no outstanding questions, clearance could arrive in time for a trial to start in 2Q:23. The related study will look at a variety of solid tumors including those related to pancreatic cancer, solid tumors with DNA damage repair deficiency and malignant gliomas, including glioblastoma.

LP-284 Progress

LP-284 Presentation at ASH
In mid-December, new data from Lantern's development work for LP-284 was presented at the American Society of Hematology (ASH) 2022 Annual meeting in New Orleans, Louisiana. The associated poster is entitled "Development of a Potent DNA Damaging Agent LP-284 for Treatment of Mantle Cell Lymphoma." Results in the poster demonstrated significantly greater tumor growth inhibition (TGI) in mice implanted with mantle cell lymphoma (MCL) cell derived xenograft tumors, when compared to treatment with the standard-of-care agents Ibrutinib or Bortezomib.

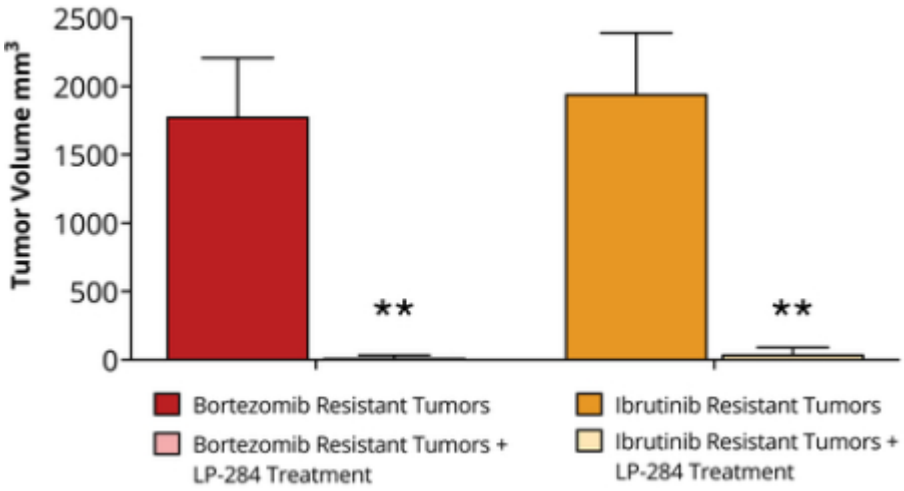
Exhibit II – Tumor Growth Inhibition Comparison[3]

Agent (Dose; Administration)	LP-284 (4 mg/kg; i.v.)	LP-284 (2 mg/kg; i.v.)	Bortezomib (1 mg/kg; i.p.)	Ibrutinib (50 mg/kg; p.o.)
TGI (%)	113%	63%	22%	8%

In mouse tumors that had grown resistant to Bortezomib or Ibrutinib, subsequent administration of LP-284 resulted in substantial regression of the standard of care treated lesion. This effect is shown in the following exhibit.

[3] Source: Lantern Press Release, December 15, 2022.

Exhibit III – Tumor Response to LP-284 in Standard of Care Resistant Tumors[4]



LP-284 treatment of MCL cell lines significantly down-regulated key cancer promoting genes and pathways. These new *in vitro* and *in vivo* preclinical data for LP-284 strongly support its anti-tumor activity in MCL over current standard of care agents.

Key conclusions from the poster are that LP-284:

- Significantly delays tumor progression and prolongs survival of the mouse models compared with Ibrutinib and Bortezomib;
- Shrinks and delays the progression of MCL xenograft tumors;
- Induces DNA damage.

Data shared in this presentation will support the preparation of an IND to pursue indications in MCL and double hit lymphoma. IND-enabling studies are expected to be complete in 1Q:23 and validation of LP-284 as a novel agent targeting oncogene addiction is ongoing.

Orphan Drug Designation for LP-284 in MCL
Starting off the year with positive news, Lantern's first press release for 2023 announced the FDA's grant of orphan drug status to LP-284 in mantle cell lymphoma (MCL). According to the National Organization for Rare Disorders (NORD), MCL is a type of non-Hodgkin's lymphoma that affects every one out of 200,000 individuals or about 1700 persons. Lantern plans to file a related IND for LP-284 in B-cell non-Hodgkin's lymphomas, including MCL by mid-2023.

Orphan drug designation grants several benefits to awardees including tax credits for qualified clinical trials, exemption from user fees and seven years of exclusivity after approval. In the United States, the status may be given to products that address diseases affecting fewer than 200,000 persons. Similar benefits are available in other regions outside the United States, and ten years of exclusivity is offered in the European Union. These incentives may be available if Lantern seeks and is granted orphan designations in these areas. This is the fourth orphan designation granted to Lantern with others for indications in malignant gliomas, atypical teratoid rhabdoid tumors and pancreatic cancer.

Harmonic Trial to Start

In July 2022, Lantern announced the start of the Harmonic trial that will evaluate LP-300 in never smokers with non-small cell lung cancer (NSCLC). 90 subjects are expected to enroll in the Phase II study at 15 – 20 sites around the United States with enrollment expected to last from 12 to 16 months. It will target never smokers with lung adenocarcinoma who have relapsed after treatment with tyrosine kinase inhibitors (TKIs). The study will consist of two stages, the safety lead-in stage and the randomization stage. Patients on LP-300 + pemetrexed and carboplatin will be measured against patients on pemetrexed and carboplatin only in a 2:1 ratio. Primary endpoints are progression free survival (PFS) and overall survival (OS). Secondary endpoints include objective response rate (ORR), duration of objective response (DOR) and clinical benefit rate (CBR). The trial will also collect liquid biop-

[4] Source: Lantern Press Release, December 15, 2022.

sies and acquire genomic and transcriptomic data from patients. As of the 3Q report, Lantern has activated its first two clinical trial sites in Illinois and Ohio and is actively screening up to a dozen subjects.

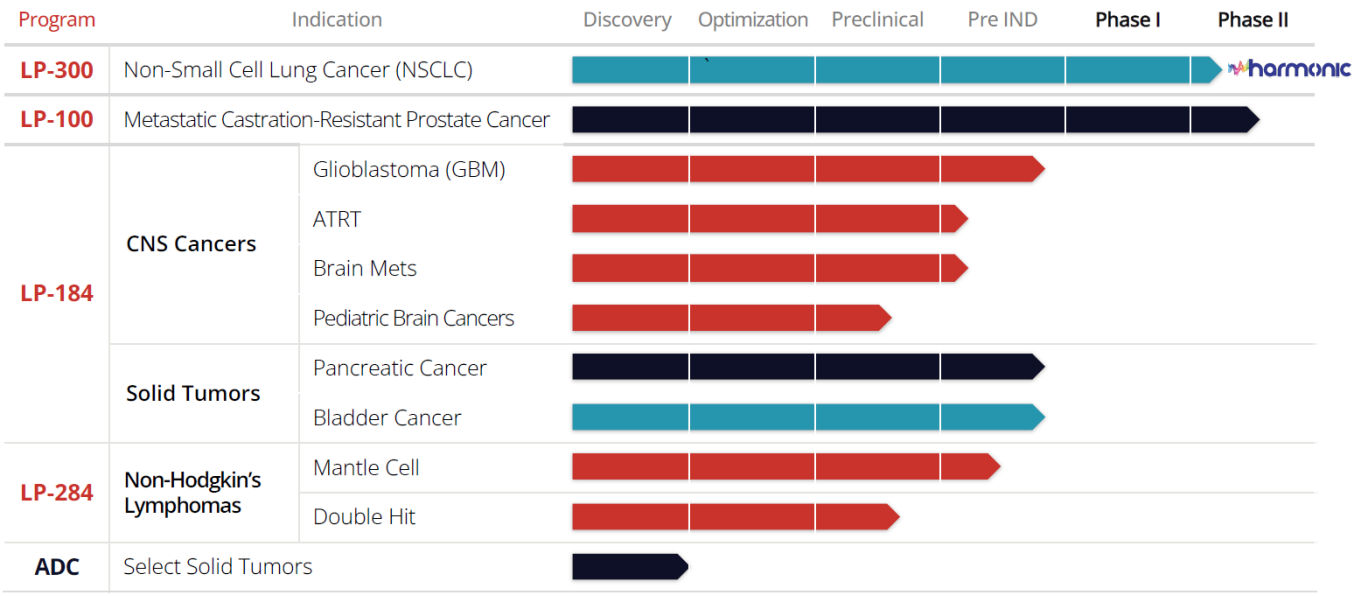
Exhibit IV – Harmonic Trial[5]



Milestones

- KOL webinar: treatment of pediatric cancer – September 22, 2022
- LP-100
  - Assess in conjunction with PARPi
- LP-300 Harmonic trial (non-smoker NSCLC)
  - Enrollment of first patient – 4Q:22
  - Interim Results – 4Q:23
- LP-184
  - Multiple tumor types (solid and CNS)
  - Develop and submit IND – 1Q:23
  - Phase I trial – 2023
- LP-284 (hematologic cancers)
  - Submission of IND – 1Q:23
  - Launch of Phase I trial – 2Q:23
- RADR Platform Day – 1Q:23

Exhibit V – Lantern Pipeline[6]



[5] Source: Lantern Pharma 3Q:22 Earnings Call Presentation
[6] Source: Lantern Pharma November 2022 Corporate Presentation

Summary

Since the report of third quarter results, Lantern has provided updates to its LP-184 and LP-284 programs presenting several posters at scientific conferences held around the United States. LP-184 appeared at SNO and SABCS highlighting the compound's performance in GBM and TNBC respectively. LP-284 appeared at ASH, where it demonstrated tumor growth inhibition in MCL. The candidate was also awarded orphan drug designation in MCL by the FDA. Although there has not been an update on the Harmonic trial since November, based on its trajectory we infer that the program has continued to add clinical trial sites and screen subjects. We maintain our price target of $26.00 per share to reflect the portfolio of assets moving forward, with LP-300 in non-smoker NSCLC driving the majority of the value.

PROJECTED FINANCIALS

Lantern Pharma, Inc. - Income Statement

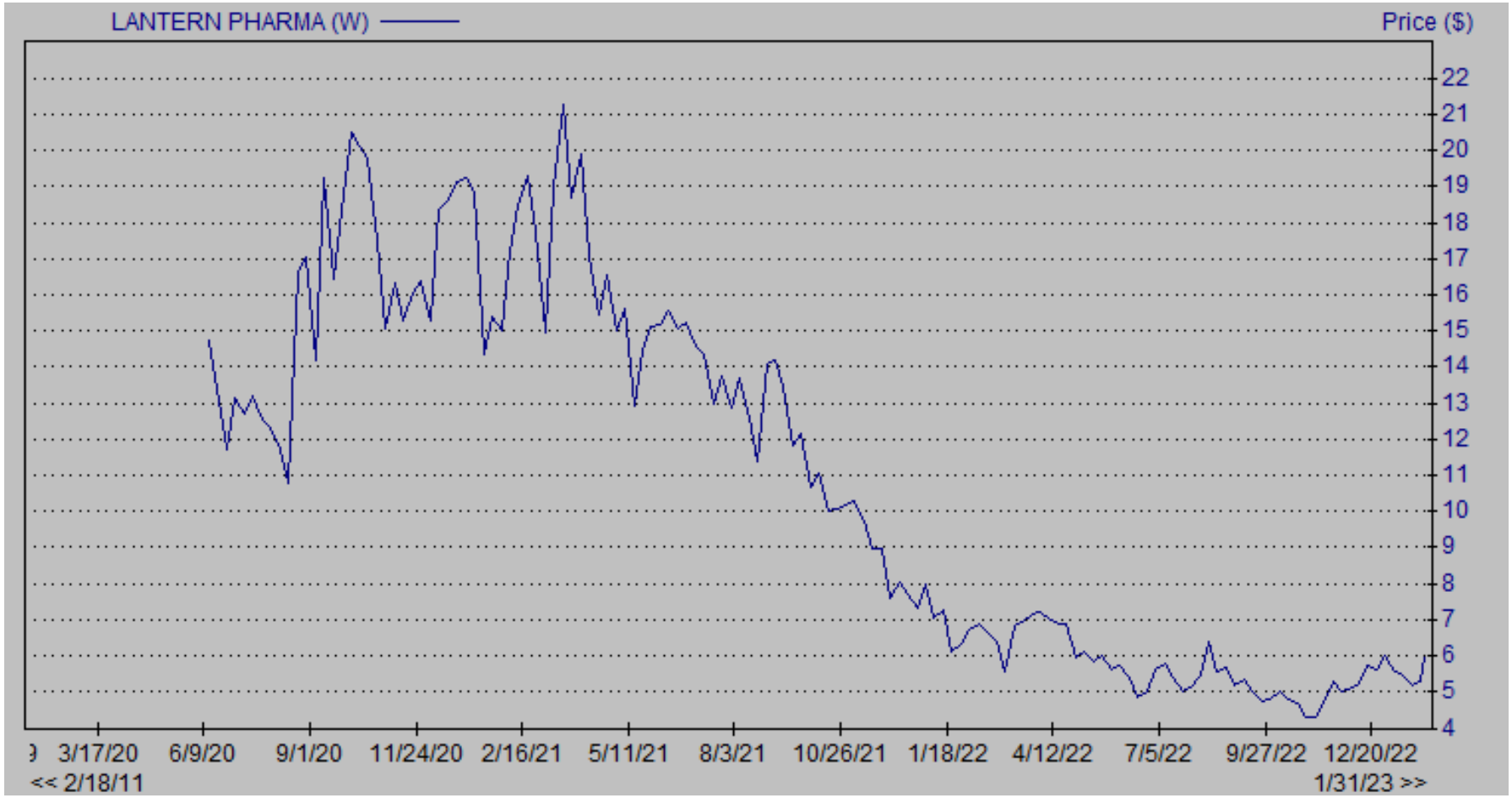
Lantern Pharma Inc.	2021 A	Q1 A	Q2 A	Q3 A	Q4 E	2022 E	2023 E	2024 E
Total Revenues ($US)	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
YOY Growth								
General & Administrative	$5,021	$1,406	$1,406	$1,443	$1,532	$5,787	$5,932	$6,500
Research & Development	$7,571	$2,660	$2,989	$702	$3,850	$10,201	$13,772	$23,100
Income from operations	($12,592)	($4,066)	($4,395)	($2,145)	($5,382)	($15,988)	($19,704)	($29,600)
Operating Margin								
Interest Income	$68	$22	$55	$52	$12	$142	$80	$50
Other Income	$161	($78)	($153)	($172)	$0	($402)	$0	$0
Pre-Tax Income	($12,363)	($4,122)	($4,492)	($2,265)	($5,370)	($16,249)	($19,624)	($29,550)
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	**($12,363)**	**($4,122)**	**($4,492)**	**($2,265)**	**($5,370)**	**($16,249)**	**($19,624)**	**($29,550)**
Net Margin	*# DIV/0!*	*# DIV/0!*	*# DIV/0!*	*# DIV/0!*	*# DIV/0!*	*# DIV/0!*	*# DIV/0!*	*# DIV/0!*
Reported EPS	**($1.13)**	**($0.38)**	**($0.41)**	**($0.21)**	**($0.49)**	**($1.50)**	**($1.72)**	**($2.42)**
YOY Growth	*-17%*	*55.7%*	*100.2%*	*-42.6%*	*56%*	*32%*	*15%*	*41%*
Basic Shares Outstanding	10,905	10,876	10,831	10,839	10,855	10,850	11,400	12,200

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

© Copyright 2023, Zacks Investment Research. All Rights Reserved.

HISTORICAL STOCK PRICE

Lantern Pharma, Inc. – Share Price Chart[7]



[7] Source: Zacks Research System

DISCLOSURES

The following disclosures relate to relationships between Zacks Small-Cap Research ("Zacks SCR"), a division of Zacks Investment Research ("ZIR"), and the issuers covered by the Zacks SCR Analysts in the Small-Cap Universe.

ANALYST DISCLOSURES

I, John Vandermosten, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the recommendations or views expressed in this research report. I believe the information used for the creation of this report has been obtained from sources I considered to be reliable, but I can neither guarantee nor represent the completeness or accuracy of the information herewith. Such information and the opinions expressed are subject to change without notice.

INVESTMENT BANKING AND FEES FOR SERVICES

Zacks SCR does not provide investment banking services nor has it received compensation for investment banking services from the issuers of the securities covered in this report or article.
Zacks SCR has received compensation from the issuer directly, from an investment manager or from an investor relations consulting firm engaged by the issuer for providing non-investment banking services to this issuer and expects to receive additional compensation for such non-investment banking services provided to this issuer. The non-investment banking services provided to the issuer includes the preparation of this report, investor relations services, investment software, financial database analysis, organization of non-deal road shows, and attendance fees for conferences sponsored or co-sponsored by Zacks SCR. The fees for these services vary on a per-client basis and are subject to the number and types of services contracted. Fees typically range between ten thousand and fifty thousand dollars per annum. Details of fees paid by this issuer are available upon request.

POLICY DISCLOSURES

This report provides an objective valuation of the issuer today and expected valuations of the issuer at various future dates based on applying standard investment valuation methodologies to the revenue and EPS forecasts made by the SCR Analyst of the issuer's business.
SCR Analysts are restricted from holding or trading securities in the issuers that they cover. ZIR and Zacks SCR do not make a market in any security followed by SCR nor do they act as dealers in these securities. Each Zacks SCR Analyst has full discretion over the valuation of the issuer included in this report based on his or her own due diligence. SCR Analysts are paid based on the number of companies they cover. SCR Analyst compensation is not, was not, nor will be, directly or indirectly, related to the specific valuations or views expressed in any report or article.

ADDITIONAL INFORMATION

Additional information is available upon request. Zacks SCR reports and articles are based on data obtained from sources that it believes to be reliable, but are not guaranteed to be accurate nor do they purport to be complete. Because of individual financial or investment objectives and/or financial circumstances, this report or article should not be construed as advice designed to meet the particular investment needs of any investor. Investing involves risk. Any opinions expressed by Zacks SCR Analysts are subject to change without notice. Reports or articles or tweets are not to be construed as an offer or solicitation of an offer to buy or sell the securities herein mentioned.

© Copyright 2023, Zacks Investment Research. All Rights Reserved.