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Lantern Pharma, Inc. (LTRN: NASDAQ)

LTRN: Spotlighting ADCs & Another Orphan

Our approach uses a DCF model and a 15% discount rate for valuation. 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 (2/16/2024)	$4.14
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 and LP-184 and LP-284 which are in preclinical development for multiple biomarker-defined tumors and hematological cancers, respectively. Early-stage work emphasizes ADCs and orphan indications.

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 undergoing Ph2 trials in defined advanced tumors while LP-284 has been cleared for human trials.

SUMMARY DATA

52-Week High	**6.18**
52-Week Low	**2.38**
One-Year Return (%)	**-21.6**
Beta	**1.2**
Average Daily Volume (sh)	**31,941**
Shares Outstanding (mil)	**10.9**
Market Capitalization ($mil)	**45.0**
Short Interest Ratio (days)	**3.0**
Institutional Ownership (%)	**23.6**
Insider Ownership (%)	**17.5**
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 2023 Estimate	**N/A**
P/E using 2024 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)
2022	$0.0 A	$0.0 A	$0.0 A	$0.0 A	$0.0 A
2023	$0.0 A	$0.0 A	$0.0 A	$0.0 E	$0.0 E
2024					$0.0 E
2025					$0.0 E

Earnings per Share

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2022	-$0.38 A	-$0.41 A	-$0.21 A	-$0.31 A	-$1.31 A
2023	-$0.36 A	-$0.44 A	-$0.29 A	-$0.48 E	-$1.57 E
2024					-$1.98 E
2025					-$2.02 E

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What's New?

We update investors on Lantern Pharma, Inc's (NASDAQ: LTRN) recent communications since the third quarter report back in November. The company has been granted yet another orphan designation, this time for LP-284 in high grade B-cell lymphomas. It also added Chief Medical Officer, Dr. Marc Chamberlain, to its Starlight Therapeutics roster and made progress in its antibody drug conjugate (ADC) program in collaboration with Bielefeld University.

New Orphan Drug Designation

Lantern was granted its first orphan drug designation in 2021 for LP-184 in pancreatic cancer. This was followed by the same designation in glioblastoma multiforme (GBM) and Atypical Teratoid Rhabdoid Tumor (ATRT) also for LP-184. Then in January 2023, another orphan designation was granted for LP-284 in Mantle Cell Lymphoma. Lantern's fifth orphan designation was recently awarded in December of last year, the second for LP-284, this time in high grade B-cell lymphomas (HGBL).

The associated press release notes that HGBL is a rare and aggressive form of B-cell non-Hodgkin's lymphoma with no established standard of care. While chemotherapy is used to treat the malignancy, up to a third do not respond and their cancer progresses. For relapsed or refractory patients, survival is usually less than 16 months.[1] The orphan designation for HGBL is the second for LP-284 which provides a broad array of advantages to the candidate to advance it to approval.

The FDA's orphan drug designation provides incentives for sponsors to develop drugs for rare diseases that affect fewer than 200,000 people in the U.S. Key features of the orphan drug designation include seven years of market exclusivity, tax credits, user fee waiver, assistance with clinical trial design and eligibility for grants among other features.

Starlight Adds Chief Medical Officer

A January 2024 press release informed investors that Starlight Therapeutics had appointed Marc Chamberlain, M.D. as Chief Medical Officer to oversee Starlight's clinical operations. His work will guide the development of STAR-001 (Lantern's LP-184) in several indications including GBM, brain metastases, ATRT and pediatric brain cancers.

Dr. Chamberlain's background has been focused on adult and pediatric neurology and neuro-oncology in four NCI-designated cancer centers: Moores Cancer Center at UC San Diego, Norris Cancer Center at USC, Moffit Cancer Center at the University of South Florida and Fred Hutchinson Cancer Center at the University of Washington. He has also served as medical director for Cascadian Therapeutics, Seattle Genetics, SystImmune, Angiochem, and Pionyr Immunotherapeutics. Dr. Chamberlain has published more than 300 neurology-focused papers in peer-reviewed journals.

Advance of ADC Program

Antibody Drug Conjugates (ADCs) have been one of the most in-demand technologies in recent years. There have been at least four major acquisitions[2] of ADC-focused companies since the beginning of 2023. ADCs are drugs designed as a targeted therapy for cancer. They consist of three components: a monoclonal antibody (mAb), a cytotoxic drug and a linker which connects the other two. The mAb is designed to specifically bind to antigens found on the surface of cancer cells. This targets the ADC to the cancer cells and minimizes binding to healthy cells. The cytotoxic drug is a chemotherapeutic agent that can kill cancer cells. The linker connects the two components and breaks down after payload delivery. It is designed to be stable in the bloodstream but release the drug inside the cancer cell after the ADC binds to the antigen on the surface and is internalized. By combining the targeting ability of antibodies with the cancer-killing ability of cytotoxic drugs, ADCs allow chemotherapy to selectively bind to and kill cancer cells while reducing side effects on healthy cells. Several ADCs are FDA approved including Kadcyla, Adcetris, Polivy, Padcev and Enhertu among others.

Lantern has been developing its own ADC program for some time in collaboration with partner Universitat Bielefeld in Germany. Its work is in the preclinical stage, but the program recently received a boost with its development of a

[1] Laude, M.C., *et al*. First-line treatment of double-hit and triple-hit lymphomas: Survival and tolerance data from a retrospective multicenter French study. December 2020. (p.15/40)
[2] This includes Pfizer for Seagen ($43B), AbbVie for Immunogen ($10B), Lonza for Synaffix & J&J for Ambrx ($2B).

new class of highly specific ADC which carries a cryptophycin[3] drug payload. In a recent press release, Lantern shared with investors its work on the development, synthesis and preclinical proof-of-concept for its cryptophycin-based ADC. RADR has been a part of the process to select targets, characterize molecular payload and conjugate payloads to improve ADC performance. Next steps for the program are preparation for investigational new drug (IND) development this year centered on solid tumors unresponsive or refractory to current therapies.

Lantern's approach uses cysteine-engineered antibodies which provides for more uniform and homogenous ADCs that can precisely control the drug to antibody ratio. The drug payload for its ADC is cryptophycin which offers several features that can improve its performance. These include improving the anti-tumor potency of the ADC molecule and overcoming drug resistance. In preclinical work, the cryptophycin ADC produced an 80% cancer cell kill rate which is in excess of other ADC drug payloads.

Exhibit I – Lantern Pipeline[4]



Milestones

- LP-284 trial launched – 4Q:23
- Further disclosure on cryptophycin-based ADC – January 2024
- Expansion of trial sites for Harmonic throughout the US – 1H:24
- Initial readout for Harmonic – 2H:24
- ADC program IND development – 2024
- Begin combination studies for LP-184 and LP-284 - 2024
- Initial readout for LP-184 - 2024
- Initial readout for LP-284 - 2024

Summary

We are communicating a few recent events for Lantern and getting ready for full year 2023 results which came out in mid-March last year. The company brings its orphan designation count to five, adding HGBL to its stable of rare diseases recognized by the FDA. Starlight gains a CMO with the addition of Marc Chamberlain, M.D. who will oversee Starlight's clinical operations. Development work is also moving forward with identification of the toxic payload used in Lantern's ADCs. We expect to see IND development on this program later in 2024. Harmonic remains underway and we expect to hear updates from management when full-year results are announced in about a month. We maintain our price target of $26.00 per share.

[3] Cryptophycins are a class of cytotoxic cyclic depsipeptides that have anti-cancer properties. Cryptophycins have a similar mechanism of action to other microtubule-disrupting agents like paclitaxel. They bind to tubulin and inhibit microtubule formation, thus interrupting mitosis and cell division.
[4] Source: Lantern Pharma January 2024 Corporate Presentation

PROJECTED FINANCIALS

Lantern Pharma, Inc. - Income Statement

Lantern Pharma Inc.	2022 A	Q1 A	Q2 A	Q3 A	Q4 E	2023 E	2024 E	2025 E
Total Revenues ($US)	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
General & Administrative	$5,830	$1,733	$1,632	$1,314	$1,614	$6,293	$6,500	$6,581
Research & Development	$8,603	$2,553	$3,558	$2,210	$3,855	$12,176	$18,100	$18,643
Income from operations	($14,433)	($4,286)	($5,190)	($3,524)	($5,469)	($18,469)	($24,600)	($25,224)
Pre-Tax Income	($14,260)	($3,868)	($4,746)	($3,161)	($5,269)	($17,045)	($24,100)	($25,214)
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	**($14,260)**	**($3,868)**	**($4,746)**	**($3,161)**	**($5,269)**	**($17,045)**	**($24,100)**	**($25,214)**
Reported EPS	**($1.31)**	**($0.36)**	**($0.44)**	**($0.29)**	**($0.48)**	**($1.57)**	**($1.98)**	**($2.02)**
Basic Shares Outstanding	10,851	10,857	10,857	10,857	10,900	10,868	12,200	12,500

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

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HISTORICAL STOCK PRICE

Lantern Pharma, Inc. – Share Price Chart[5]



[5] Source: Zacks Research System

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