NEWS RELEASE

Lantern Pharma's LP-184 Shows Promising In Vivo Activity in Atypical Teratoid Rhabdoid Tumors (ATRT) at SNO Pediatric Conference, Further Validating Rare Pediatric Disease Designation and Pathway to Clinical Trials

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- Independent research from Johns Hopkins validates Lantern's data used to secure the FDA Rare Pediatric Disease Designation for LP-184 in ATRT and supports planned pediatric clinical trial

DALLAS--(BUSINESS WIRE)-- Lantern Pharma Inc. (NASDAQ: LTRN), a clinical-stage biopharmaceutical company leveraging advanced AI and machine learning to transform the cost, pace, and timeline of oncology drug development, today announced promising preclinical data for LP-184 in atypical teratoid rhabdoid tumors (ATRT), a rare and aggressive pediatric brain cancer. The results were presented by **Dr. Eric Raabe** of Johns Hopkins University School of Medicine at the Society for Neuro-Oncology's 8th Biennial Pediatric Neuro-Oncology Conference held May 15-17, 2025, in San Diego, California.

The data further validates the research that supported Lantern Pharma's Rare Pediatric Disease Designation from the FDA for LP-184 in ATRT and strengthens the scientific foundation for the company's planned pediatric clinical trial expected to begin in late 2025 or early 2026.

The data demonstrated that LP-184, a next-generation acylfulvene clinical-stage drug candidate, significantly

extended survival in mouse models of ATRT. In the CHLA06 model, median survival increased from 20 days in the control group to 89 days in the LP-184 treatment group, representing a 345% improvement ($p<0.0001$). In the BT37 model, median survival increased from 68 days to 98 days ($p=0.0422$).

"The preclinical data presented by Dr. Raabe and his team at Johns Hopkins provides powerful confirmation of LP-184's potential to address the significant unmet need in pediatric ATRT," said Panna Sharma, CEO and President of Lantern Pharma. "The substantial increase in survival time and the favorable tolerability profile observed in these models underscore the promise of LP-184 as a novel therapeutic option to evaluate clinically for this devastating pediatric cancer. This independent validation further supports our Rare Pediatric Disease Designation and reinforces our path toward initiating our planned pediatric clinical trial."

Key highlights from the presentation include:

- LP-184 demonstrated potent anti-tumor activity across multiple ATRT cell lines representing different molecular subtypes (MYC, TYR, and SHH), with IC50 values ranging from 17.5 nM to 161 nM
- Treatment with LP-184 significantly decreased cancer cell proliferation and increased apoptosis (programmed cell death) in ATRT cells
- LP-184 showed strong blood-brain barrier penetrance, with reported**Cmax** of 730 nM in brain tissue
- No apparent toxicity was observed in the mouse models, with stable weight maintained throughout the treatment period
- Treatment with LP-184 resulted in statistically significant survival benefits in two different orthotopic xenograft ATRT models

ATRT is characterized by the deletion or inactivation of the SMARCB1 gene, an epigenetic regulator. LP-184's mechanism of action may be particularly effective against tumors with epigenetic dysregulation, potentially explaining the strong preclinical anti-tumor activity observed in this tumor type.

"Current treatment options for ATRT are limited to surgery, intensive chemotherapy, and radiation, with poor outcomes and significant treatment-related toxicity," said Dr. Marc Chamberlain, Chief Medical Officer of Starlight Therapeutics and Lantern Executive Director of Clinical Development. "The single-agent activity of LP-184 in these models suggests it could potentially transform the treatment landscape for children with these brain tumors."

The company highlighted that the pediatric Phase I trial for LP-184 in brain tumors is targeted to open in winter 2025 or early 2026, following completion of the ongoing Phase I trial in adult solid tumors (NCT05933265) and obtaining future funding and approvals from the pediatric consortium.

About Atypical Teratoid Rhabdoid Tumor (ATRT)

ATRT is a rare, fast-growing tumor of the brain and spinal cord that typically occurs in children aged three years and younger, though it can occur in older children and adults. These tumors are characterized by the loss of function of the SMARCB1 gene. ATRTs account for approximately 1-2% of all pediatric brain tumors but represent a disproportionately high percentage of brain tumors in infants. Current treatment involves a combination of surgery, intensive chemotherapy, and, in some cases, radiation therapy. Despite aggressive treatment, the prognosis remains poor, with a median survival of approximately 17 months, highlighting the urgent need for more effective therapies.

About LP-184

LP-184 is a next-generation acylfulvene drug candidate, a synthetic small molecule belonging to a class of naturally-derived anti-cancer agents. LP-184 works by preferentially damaging DNA in cancer cells that overexpress specific biomarkers or that harbor mutations in DNA damage repair pathways. LP-184 is the product of years of research, including insights from RADR®, Lantern's proprietary AI platform that leverages over 200 billion oncology-focused data points.

LP-184 is a prodrug that is converted to its bioactive form inside the cancer cell by PTGR1 (prostaglandin reductase 1), an enzyme that is overexpressed in certain cancers. Once activated, LP-184 creates cytotoxic metabolites that form adducts with DNA, leading to irreparable DNA damage and ultimately tumor cell death.

LP-184 has shown nanomolar preclinical potency across multiple cancer types, including several that are resistant to standard therapies, and has demonstrated particularly promising preclinical activity in CNS and brain cancers. The drug has received Orphan Drug Designation from the FDA for the treatment of malignant gliomas and pancreatic cancer, as well as Rare Pediatric Disease Designation for ATRT.

About Lantern Pharma

Lantern Pharma (NASDAQ: LTRN) is an AI company transforming the cost, pace, and timeline of oncology drug discovery and development. Our proprietary AI and machine learning (ML) platform, RADR®, leverages over 200 billion oncology-focused data points and a library of 200+ advanced ML algorithms to help solve billion-dollar, real-world problems in oncology drug development. By harnessing the power of AI and with input from world-class scientific advisors and collaborators, we have accelerated the development of our growing pipeline of product candidates that span multiple cancer indications, including both solid tumors and blood cancers and an antibody-drug conjugate (ADC) program. On average, our newly developed programs have been advanced from initial AI insights to first-in-human clinical trials in 2–3 years and at approximately $1.0 – $2.5 million per program.

Our lead development programs include a Phase 2 clinical program and multiple Phase 1 clinical trials. We have

also established a wholly-owned subsidiary, Starlight Therapeutics, to focus exclusively on the clinical execution of our promising therapies for CNS and brain cancers, many of which have no effective treatment options. Our AI-driven pipeline of innovative product candidates is estimated to have a combined annual market potential of over $15 billion USD and have the potential to provide life-changing therapies to hundreds of thousands of cancer patients across the world.

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; expectations and estimates regarding clinical trial timing and patient enrollment; 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 patient populations, 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," "model," "objective," "aim," "upcoming," "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 risk that we may not be able to secure sufficient future funding when needed and as required to advance and support our existing and planned clinical trials and operations, (ii) the risk that observations in preclinical studies and early or preliminary observations in clinical studies do not ensure that later observations, studies and development will be consistent or successful, (iii) the risk that our research and the research of our collaborators may not be successful, (iv) the risk that we may not be successful in licensing potential candidates or in completing potential partnerships and collaborations, (v) 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, (vi) the risk that no drug product based on our proprietary RADR® AI platform has received FDA marketing approval or otherwise been incorporated into a

commercial product, and (vii) those other factors set forth in the Risk Factors section in our Annual Report on Form 10-K for the year ended December 31, 2024, filed with the Securities and Exchange Commission on March 27, 2025. You may access our Annual Report on Form 10-K for the year ended December 31, 2024 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.

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