NEWS RELEASE

Lantern Pharma Announces Peer-Reviewed Publication of Phase 1a LP-184 Data in Recurrent Glioblastoma, Supporting a Phase 1b/2a Combination Trial with Spironolactone

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Publication in Cancer Research Communications establishes the recommended dose for expansion and a clinically translatable dosing strategy for the planned Phase 1b/2a trial (NCT07431216)

- LP-184 was generally well tolerated in 16 heavily pretreated patients with recurrent glioblastoma (GBM) enrolled in a 63-patient Phase 1a study in advanced solid tumors, which established the recommended dose for expansion (RDE)
- In orthotopic GBM patient-derived xenograft models, three daily doses of spironolactone reduced tumor levels of the DNA repair protein ERCC3 by approximately 80% and approximately doubled LP-184-induced tumor cell death
- Pharmacokinetic modeling based on clinical data from Phase 1a patients projects that LP-184 at the RDE, combined with spironolactone, will reach intratumoral concentrations approximately 2- to 3-fold above those needed to kill GBM cells

DALLAS--(BUSINESS WIRE)-- Lantern Pharma Inc. (NASDAQ: LTRN), a clinical-stage AI-driven precision oncology company, and its wholly owned subsidiary **Starlight Therapeutics** today announced the publication of Phase 1a clinical data for LP-184 (zirdafulven) in patients with recurrent GBM. LP-184 is being developed as STAR-001 for

central nervous system (CNS) cancers. The paper appears in the October 2026 issue of **Cancer Research Communications**, a peer-reviewed journal of the American Association for Cancer Research. The work was led by investigators at Johns Hopkins University School of Medicine, the Sidney Kimmel Comprehensive Cancer Center and the Hugo W. Moser Research Institute at Kennedy Krieger, together with Lantern scientists.

The study shows that LP-184 is generally well tolerated in patients with recurrent GBM and defines the path forward. Plasma levels at the RDE reached projected effective systemic exposures. However, only about 20% of systemic drug is expected to reach brain tumors, so single-agent concentrations of LP-184 in the brain tumor are not projected to remain at therapeutic levels for a sustained period. Spironolactone is an FDA-approved, brain-penetrant drug used primarily to treat hypertension and as a diuretic. It also triggers degradation of ERCC3, a key protein in the DNA repair pathway GBM cells use to survive DNA-damaging agents like LP-184. In preclinical models, spironolactone lowers the concentration of LP-184 needed to kill GBM cells 3- to 6-fold. Together, these findings provide the dosing basis for the planned Phase 1b/2a trial in GBM at first recurrence.

Key Findings from the Phase 1a GBM Cohort

- Patient population: All 16 patients had IDH wild-type, WHO grade 4 GBM previously treated with surgery, radiation and temozolomide (TMZ), with a median of two prior lines of therapy. Of the 14 with known status, 8 (57%) had an unmethylated MGMT promoter, a common driver of TMZ resistance.
- Safety and tolerability: The safety profile in patients with GBM was consistent with the broader solid tumor population, and no adverse events occurred only in patients with GBM. Nausea was grade 1 to 2 in all affected patients, and severe thrombocytopenia and transaminitis were infrequent. The two grade 3 to 4 liver enzyme elevations both occurred at the highest dose level tested, above the RDE.
- Recommended dose for expansion: The RDE is 0.39 mg/kg, given intravenously on days 1 and 8 of each 21-day cycle. It was established based on the totality of safety and pharmacokinetic data.
- PTGR1 biomarker: Lantern developed an RT-qPCR assay to measure PTGR1, the enzyme that activates LP-184 inside tumor cells, and defined an expression threshold associated with LP-184 sensitivity. Six of eight (75%) available pretreatment tumor samples exceeded that threshold, consistent with published reports of PTGR1 overexpression in more than 70% of GBM.
- Clinical observations: Consistent with the projected limited brain exposure of LP-184 as a single agent, no objective radiographic responses were observed. One patient with MGMT-methylated GBM at first recurrence received LP-184 for six months. That patient has remained clinically and radiographically stable for more than 22 months after enrollment, including more than 17 months off treatment, without further therapy.

Rationale for the LP-184 Plus Spironolactone Combination

Treatment failure in GBM is driven by two problems: too little drug reaching the tumor, and DNA repair that lets

tumor cells survive the drug that does. The combination is designed to address both.

1. A mechanism that bypasses MGMT. LP-184 alkylates DNA at a different site than TMZ or lomustine. The resulting lesions are not repaired by MGMT, the main cause of TMZ resistance. They are instead resolved primarily through transcription-coupled nucleotide excision repair (TC-NER).
2. Spironolactone shuts down that repair pathway. Spironolactone, a widely used FDA-approved medicine that crosses the blood-brain barrier, triggers degradation of ERCC3 (XPB), a core TC-NER protein. Across multiple patient-derived GBM cell models, spironolactone lowers the concentration of LP-184 needed to kill tumor cells 3- to 6-fold.
3. A defined dosing schedule. In orthotopic GBM xenografts, tumor ERCC3 reached its lowest level 8 hours after a dose of spironolactone. Three daily doses reduced tumor ERCC3 by approximately 80%, compared with 49% to 57% after one or two doses. Spironolactone did not reduce ERCC3 in the liver, suggesting the effect is concentrated in tumor tissue.
4. Greater tumor cell killing. Giving LP-184 8 hours after the third daily dose of spironolactone approximately doubled tumor cell death, measured by cleaved caspase-3, compared with LP-184 alone.
5. A bridge from patient pharmacokinetics to tumor exposure. Pharmacokinetic modeling used plasma data from 11 patients treated at the RDE. It projects that adding spironolactone will bring intratumoral LP-184 to approximately 2- to 3-fold above the concentration needed to kill GBM cells.
   The combination was identified with support from Lantern's RADR® AI platform. RADR also points to DNA damage repair deficiencies and EGFR alterations, both common in GBM, as predictors of LP-184 sensitivity.

"Glioblastoma is especially difficult to treat because a therapy must both reach the brain at effective levels and overcome the tumor's ability to repair the damage," said Reginald Ewesuedo, M.D., MBA, Vice President of Clinical Development at Lantern Pharma. "This study shows LP-184 is well tolerated in patients with recurrent GBM and points directly to how we can improve its activity in the tumor. By removing a key DNA repair protein with spironolactone, we aim to make the LP-184 that reaches the tumor considerably more effective."

"Limited brain exposure is why many drugs fail in glioblastoma, and this paper is direct about that challenge and specific about the answer," said Panna Sharma, President and CEO of Lantern Pharma. "Rather than push the dose higher, we used patient pharmacokinetic data, insights from our RADR® AI platform and our collaborators' models at Johns Hopkins to design a combination that makes the drug reaching the tumor work harder. We now have a defined dose and schedule to carry into the planned Phase 1b/2a study with our CNS-focused subsidiary, Starlight Therapeutics."

Next Steps

The planned Phase 1b/2a study (**NCT07431216**) is sponsored by Starlight Therapeutics under an FDA-cleared

Investigational New Drug application. It is designed to evaluate the safety, pharmacokinetics and objective response of LP-184 (STAR-001) plus spironolactone in patients with supratentorial GBM at first recurrence after standard TMZ-based therapy. The completed Phase 1a study is registered as **NCT05933265**.

Lantern Pharma funded the clinical trial and preclinical studies.

About the Publication

Schreck KC, Lal B, Zhou J, Lopez-Bertoni H, Holdhoff M, Ewesuedo R, Bhatia K, Chamberlain M, Laterra J. "Phase Ia Evaluation of LP-184 in Recurrent Glioblastoma: Safety, Pharmacokinetics, and Translational Optimization of CNS Exposure." Cancer Research Communications. 2026;6(10):2519–2528. DOI: **10.1158/2767-9764.CRC-26-0518**.

About LP-184 (STAR-001)

LP-184 (zirdafulven) is a novel small molecule acylfulvene prodrug designed to damage DNA selectively in tumor cells. It is activated by PTGR1, an enzyme overexpressed in many solid tumors, including GBM. It is especially active in tumors with deficiencies in DNA damage repair. The DNA lesions LP-184 creates are independent of MGMT status. LP-184 has received FDA Fast Track Designation for GBM and triple-negative breast cancer (TNBC). It has also received FDA Orphan Drug Designations, including for malignant gliomas and atypical teratoid rhabdoid tumors (ATRT). LP-184 is being developed as STAR-001 for CNS cancers through Starlight Therapeutics.

About Starlight Therapeutics

Starlight Therapeutics is a wholly owned subsidiary of Lantern Pharma Inc. focused on the clinical development of new treatments for adult and pediatric CNS cancers. Its lead candidate, STAR-001, was advanced using Lantern's RADR® AI platform. Starlight works closely with brain cancer researchers at Johns Hopkins and UT San Antonio's Greehey Children's Cancer Research Institute.

About Lantern Pharma

Lantern Pharma Inc. (NASDAQ: LTRN) is a clinical-stage, AI-driven precision oncology company developing targeted therapies for high-need cancer indications. The Company's proprietary RADR® AI platform integrates multi-omic biomarker data with clinical outcomes to identify patient subgroups most likely to respond to specific therapies, enabling more efficient clinical development and biomarker-driven trial design. Lantern's pipeline includes LP-300 (HARMONIC™ trial in never-smoker NSCLC), LP-184, and LP-284, with additional preclinical programs identified through RADR®.

For more information, visit:

Website: **www.lanternpharma.com**

LinkedIn: **https://www.linkedin.com/company/lanternpharma/**

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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, drug combinations and patient populations that are likely to respond to a drug candidate; the potential safety, efficacy and therapeutic benefit of LP-184 (STAR-001), alone or in combination with spironolactone; projections from pharmacokinetic modeling and preclinical studies regarding intratumoral drug exposure; estimates and plans regarding our subsidiary Starlight Therapeutics Inc. and the planned Phase 1b/2a clinical trial of STAR-001 in combination with spironolactone; our strategic plans to advance the development of our drug candidates; expectations and estimates regarding clinical trial design, timing and patient enrollment; estimates regarding patient populations, potential markets and potential market sizes; 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 development programs and operations, (ii) the risk that observations in preclinical studies, pharmacokinetic modeling 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 the planned Phase 1b/2a trial may not be initiated, enroll or be completed on the anticipated timeline or at all, (v) the risk that no drug product based on our proprietary AI platforms has received FDA marketing approval or otherwise been incorporated into a commercial product, (vi) the risk that ongoing partnership and collaboration discussions may not result in definitive agreements on acceptable terms or at all, (vii) market and other conditions, and (viii)

technical, scientific, regulatory, financial, competitive, and operational risks and those other risk factors set forth in the Risk Factors section in our Annual Report on Form 10-K for the year ended December 31, 2025, filed with the Securities and Exchange Commission on March 30, 2026, and in our subsequent Quarterly Reports on Form 10-Q.

You may access our Annual Report on Form 10-K and our Quarterly Reports on Form 10-Q 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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Source: Lantern Pharma Inc.