NEWS RELEASE

Lantern Pharma to Advance EMA-Cleared Phase 1b/2 Trial of LP-184 (Zirdafulven) in Biomarker-Selected Advanced Bladder Cancer

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- Investigator-initiated European study will evaluate a distinctive dual-biomarker precision-oncology strategy — PTGR1 overexpression combined with tumor-specific Nucleotide Excision Repair — in patients with advanced urothelial cancer who have exhausted standard therapies.
- No FDA approved therapy for Nucleotide Excision Repair Deficient (NERD) tumors exists.
- The company estimates that approximately 20% to 25% of bladder cancer cases progress to a need for therapy in the third line representing 130,000+ patients globally and a potential market opportunity of $3+ billion USD by 2035

DALLAS--(BUSINESS WIRE)-- Lantern Pharma Inc. (NASDAQ: LTRN), a clinical-stage, AI-native biopharma company using its proprietary RADR® artificial intelligence and machine-learning platform to develop precision oncology therapies, today announced that an investigator-initiated Phase 1b/2 clinical trial of its lead drug candidate LP-184 (zirdafulven) in advanced, recurrent bladder cancer has been cleared by the European Medicines Agency (EMA). The study will be conducted at Rigshospitalet in Copenhagen — Denmark's national referral center for urologic cancers — in collaboration with Professor Helle Pappot, MD, DMSc, a leading authority in the treatment of urothelial cancer.

The trial is designed to test a novel, biomarker-guided approach in patients with advanced or metastatic urothelial carcinoma who have progressed on or are ineligible for current standard-of-care regimens. It is among the first studies to prospectively select patients using a dual biomarker strategy — combining overexpression of the

activating enzyme PTGR1 with tumor DNA-damage-repair (DDR) deficiency — to match the mechanisms of LP-184 to the tumors believed most likely to respond.

“This trial reflects exactly the kind of biomarker-guided development that our RADR® platform was built to enable — matching the right molecule to the right patient based on the underlying biology of the tumor. We are proud to collaborate with Professors Rohrberg and Pappot and the world-class team at Rigshospitalet, whose expertise in urothelial cancer makes them an ideal partner. This independent European study can generate an important clinical signal for LP-184 while we continue our plans to advance its broader biomarker-guided program across multiple cancers.”

— Panna Sharma, President and Chief Executive Officer, Lantern Pharma

LP-184 BLADDER CANCER TRIAL DESIGN AT A GLANCE

- Sponsor & design: Investigator-initiated, open-label Phase 1b/2 study
- Study site: **Rigshospitalet**, Copenhagen, Denmark
- Clinical Investigators:
  - ➢ Prof. Kristoffer Staal Rohrberg, MD, PhD - Sponsor & Principal Investigator
  - ➢ Prof. Helle Pappot, MD, DMSc – Coordinating Investigator
- Indication: Advanced / metastatic urothelial carcinoma (bladder cancer)
- Line of therapy: Relapsed / refractory after standard of care (≥ 2nd line; includes patients treated after enfortumab vedotin + pembrolizumab)
- Patient selection: Dual biomarker — PTGR1 overexpression + DNA-damage-repair (NER / HR) deficiency
- Route & schedule: IV, administered on Days 1 and 8 of each 21-day cycle
- Primary endpoint: Objective response rate (ORR) by RECIST 1.1
- Planned enrollment: Up to approximately 39 patients
- Regulatory status: Cleared by the European Medicines Agency (EMA)
- Market & unmet need:
  - ➢ Bladder cancer is a top-ten global cancer (~550,000 new cases per year; ~84,500 in the U.S. in 2026; ~2,000 per year in Denmark, up to 20% metastatic or unresectable at diagnosis). Options after first-line therapy are limited and non-standardized; the global metastatic urothelial carcinoma market is projected to grow from ~$3.7B (2025) to ~$12.8B by 2035.
  - ➢ The development opportunity for LP-184 is initially aimed at the third-line setting — reached by ~25% of patients — representing an estimated ~137,500 eligible patients globally per year, with the majority of the commercial opportunity concentrated in the United States, Europe, and Japan.

Addressing a Growing Unmet Need in Advanced Bladder Cancer

Bladder cancer is among the ten most common cancers worldwide, with approximately 550,000 new cases diagnosed each year — including an estimated 84,500 in the United States in 2026. In Denmark, roughly 2,000 patients are diagnosed with bladder tumors annually, and up to 20% present with metastatic or unresectable disease. Following the adoption of enfortumab vedotin plus pembrolizumab as a first-line standard of care for advanced urothelial cancer, patients who progress have few effective options and generally modest outcomes, with no clearly established standard for later lines of therapy.

The scale of that gap was quantified in the recently published multicenter STATES-Bladder real-world study (Urologic Oncology, 2026), which followed 180 patients with metastatic urothelial cancer treated in routine practice across four centers in France. Despite a median overall survival of 22.4 months, the study documented sharp

attrition across treatment lines: only about one in four patients (25%) reached a third line of therapy, and just 6% reached a fourth — evidence that a large fraction of patients never benefit from later-line options and that mechanistically differentiated therapies are needed in the disease course.

Lantern plans to position LP-184 initially in the third-line setting of advanced, metastatic bladder cancer where there is a high need for novel, mechanistically differentiated, biomarker driven therapy options. With roughly 25% of patients reaching third-line therapy, this represents an estimated addressable population of approximately 137,500 patients globally each year, with the majority of the commercial opportunity concentrated in the United States, Europe, and Japan. This persistent unmet need is further reflected by independent market analysts that value the current metastatic urothelial carcinoma therapy market at roughly $2 billion, with projections approaching $4 billion by 2030.

A Mechanistically Distinct, Synthetic-Lethal Rationale

LP-184 is an acylfulvene-class prodrug that is selectively activated by the enzyme PTGR1 (prostaglandin reductase 1), which is frequently overexpressed in urothelial and other cancers and has been associated with poorer prognosis. Once activated, LP-184 generates DNA damage that tumors depend on nucleotide-excision repair (NER) to fix. In tumors deficient in NER — particularly those with ERCC mutations — this creates a synthetic-lethal vulnerability, which co-occurring homologous-recombination defects may further sensitize. Approximately 10–15% of metastatic urothelial cancers harbor NER alterations, and PTGR1 overexpression is common in this tumor type.

This dual mechanistic strategy — PTGR1 for activation and DDR deficiency for selective killing — is supported by Lantern's preclinical patient-derived xenograft and isogenic model data and is more specific than most genomic- or protein-only selection strategies being pursued after first-line therapy. While many contemporary trials in this space focus on antibody-drug conjugates, FGFR inhibitors, or homologous-recombination-directed agents, the NER-focused acylfulvene approach remains largely unexploited. The company believes these factors further differentiate this program within the precision-oncology landscape for urothelial cancers.

Efficient, Pragmatic & Safety-Led Trial Design With Precision Criteria

The open-label study employs a pragmatic two-part design. The Phase 1b portion uses a dose-optimization (de-escalation) approach that begins near the expected therapeutic range — informed by data from LP-184's completed multi-tumor Phase 1a study (NCT05933265) — rather than escalating from a sub-therapeutic starting dose. Patients treated at that dose then advance directly into the Phase 2 portion, which follows a Simon two-stage design with objective response rate (ORR) by RECIST 1.1 as the primary endpoint. Secondary and exploratory measures include progression-free survival, overall survival, duration of response, patient-reported quality of life, and correlation of PTGR1 and DDR biomarker status with clinical benefit. The study is expected to enroll up to approximately 39

patients.

Part of a Broader Biomarker-Guided Program

LP-184 (zirdafulven) is a key asset in Lantern's pipeline and has received Fast Track and Orphan Drug designations from the U.S. FDA across multiple indications, including triple-negative breast cancer. Beyond bladder cancer, Lantern is advancing LP-184 in additional solid-tumor and central-nervous-system settings, using the RADR® AI platform to guide patient selection and combination strategies. This EMA-cleared, investigator-initiated European trial complements those efforts by providing an additional read on LP-184's activity in a biomarker-selected population.

About LP-184 (Zirdafulven)

LP-184 (zirdafulven) is an investigational small-molecule acylfulvene prodrug that is selectively activated by the enzyme PTGR1 to induce DNA damage repaired predominantly through the nucleotide-excision-repair pathway. This mechanism is designed to preferentially target tumors with high PTGR1 expression and DNA-damage-repair deficiencies. LP-184 is being developed as a biomarker-guided therapy across multiple solid-tumor and central-nervous-system cancers. It is an investigational agent that has not been approved by the EMA, the U.S. FDA, or any other regulatory authority, and its safety and efficacy have not been established.

About Lantern Pharma

Lantern Pharma (NASDAQ: LTRN) is a clinical-stage biopharmaceutical company leveraging its proprietary RADR® artificial intelligence and machine-learning platform to transform the cost, pace, and precision of oncology drug development. By integrating large-scale genomic and biological data with advanced machine learning, RADR® is designed to identify the patients most likely to benefit from Lantern's therapies and to guide biomarker-driven clinical development. The company's pipeline includes LP-184 (zirdafulven), LP-300, and LP-284, along with its central-nervous-system-focused subsidiary, Starlight Therapeutics. For more information, visit **www.lanternpharma.com**.

Selected References

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4. Emergen Research. Metastatic Urothelial Carcinoma Market, 2025–2035. Market size and forecast.

5. Kulkarni A, et al. Conditional dependency of LP-184 on prostaglandin reductase 1 is synthetic lethal in cancers with DNA damage repair deficiencies. Molecular Cancer Therapeutics. 2023;22(10):1182.

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7. Stormoen, D.R., Lehn, S., Mouw, K.W. et al. Assessing expression patterns of PTGR1, a potential biomarker for acylfulven sensitivity in urothelial carcinoma. Sci Rep 14, 27448 (2024). **https://doi.org/10.1038/s41598-024-79334-x**

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; our strategic plans to pursue the clinical development of LP-184 in bladder cancer and other types of cancer; the anticipated initiation, design, timing, conduct, and potential of the planned Phase 1b/2 clinical trial of LP-184 (zirdafulven) in bladder cancer; the anticipated benefits of a dual-biomarker patient-selection strategy; our plans to leverage artificial intelligence, machine learning and genomic data to identify patient populations that would likely benefit from LP-184; estimates regarding patient enrollment, patient populations, potential markets and potential market sizes; estimates and plans regarding the continued development of LP-184 and Lantern's broader pipeline; 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 planned clinical study discussed in this press release will be conducted as an investigator-initiated study with Rigshospitalet in Copenhagen as the Sponsor, and Lantern Pharma will not be the Sponsor of the clinical study, (ii) the risk that observations in preclinical studies and emerging or preliminary observations in clinical studies do not ensure that later observations, studies and development will be consistent or successful, (iii) 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, (iv) the risk that our research and the research of our collaborators may not be successful, (v) the risk that none of our product candidates has received marketing approval from the FDA, the EMA or any other regulatory authority, and we may not be able to successfully initiate, conduct, or conclude clinical testing for or obtain regulatory marketing approval for our product candidates, (vi) risks related to the unpredictable nature of patient enrollment and the inherent uncertainty of drug development, 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, 2025, filed with the Securities and Exchange Commission on March 30, 2026. You may access our Annual Report on Form 10-K for the year ended December 31, 2025 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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