



NEWS RELEASE

## Oregon Therapeutics & Lantern Pharma Launch Strategic AI Collaboration to Optimize Development of First-In-Class Drug Candidate XCE853 – A Potent Inhibitor of Cancer Metabolism

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- XCE853 is Oregon Therapeutic's first-in-class, and potentially best-in-class PDI inhibitor, exhibiting potent preclinical efficacy across multiple solid and hematological cancers, and is ready to advance to Investigational New Drug (IND)-enabling development.
- The AI-enabled collaboration aims to refine and expand the positioning of XCE853, a novel protein disulfide isomerase (PDI) inhibitor, in new and targeted oncology indications, including for drug-resistant tumors.
- The collaboration is leveraging RADR®'s AI-based capabilities, including 200+ machine learning (ML) algorithms and foundational models for oncology drug development to uncover biomarkers and molecular correlates of efficacy and define potential combination regimens to sharpen XCE853's drug development strategy.
- Lantern Pharma is receiving equal IP co-ownership and drug development rights in newly discovered biomarkers, novel indications, and use for new pharmacological strategies for XCE853.

PARIS & DALLAS--(BUSINESS WIRE)-- **Lantern Pharma Inc.** (NASDAQ: LTRN), a leading artificial intelligence (AI) oncology drug discovery and development company, today announced a strategic AI-driven collaboration with French biotechnology company, **Oregon Therapeutics** to optimize the development of its first-in-class **protein disulfide isomerase (PDI)**<sup>(1)</sup> inhibitor drug candidate XCE853 in novel and targeted cancer indications. Lantern will

be leveraging its proprietary RADR<sup>®</sup> AI platform to uncover biomarkers and efficacy-associated signatures of XCE853 across solid tumors that can aid in precision development. Collaborative efforts are expected to identify biomarker signatures that can be used to stratify tumors most responsive to XCE853 and guide potential future clinical development and patient selection. Oregon Therapeutics is developing XCE853 in various cancer indications, including drug-resistant ovarian and pancreatic cancer, certain hematological cancers and several pediatric cancers including CNS cancers.

PDIs are promising targets for cancer therapy raising clinical interest recently<sup>2</sup> notably for their potential in cancers of poor prognosis like breast cancer<sup>3</sup> or ovarian cancer. Up-regulated expression of PDIs was found to be associated with worse clinical outcome in numerous cancers such as hepatocellular carcinoma<sup>(4)</sup>, as well as breast and ovarian cancers<sup>(5)</sup>. PDIs are protein chaperones and are central to maintaining cancer cell metabolism, additionally PDI inhibitors can cause cancer cell death through the accumulation of impaired proteins and dysregulated cellular stress responses. A combination of these effects is known as **proteotoxicity**, a unique and promising therapeutic strategy that may be especially effective in targeting cancers that are resistant to therapy.

In the US, nearly **612,000 people**<sup>(6)</sup> are projected to die from cancer in 2024 and, resistance to anticancer drugs will be implicated in **90% of those deaths**<sup>(7)</sup>. To date, no PDI inhibitor has reached the clinic due to the complexities related to selecting and mapping the molecules that will most accurately target the right PDI enzymes. There are more than 20 PDI enzymes, with each playing a slightly different and often biologically redundant role. Oregon Therapeutic's lead drug-candidate XCE853 is known to target PDIs of specific interest for cancer. Lantern Pharma and Oregon Therapeutics believe that computational tools, including foundational models, machine learning and large-scale molecular analysis can offer an ideal and streamlined pathway for breaking through these data and decision complexities – making RADR<sup>®</sup> the perfect platform for better informing the role XCE853 can play in effective cancer treatment. <sup>(8, 9)</sup>

“To date, our first-in-class metabolic inhibitor, XCE853, has exhibited robust preclinical efficacy in both in vitro and in vivo models across multiple cancer types,” said Marc-Henry PITY, MD, CEO of Oregon Therapeutics. “Lantern’s RADR<sup>®</sup> AI platform will leverage the in vitro and in vivo data to potentially advance XCE853 development in a highly targeted manner and will help inform disease indications and biomarker signatures that can aid in the design of future clinical trials and in the pursuit of combination therapies with other approved cancer drugs. Our team is looking forward to efficiently selecting among the landscape of ideal development options and efficiently de-risking future clinical development decisions.” Oregon Therapeutics has previously performed preclinical studies indicating that in addition to ovarian and pancreatic cancer, XCE853 may also be particularly active in renal, prostate, lung, breast, and head and neck cancers, and leukemia based on preclinical cell-line studies. Oregon project leader, **Sandrine Courtès PhD**, who has been developing the collaboration with

Lantern Pharma, stated: "PDIs Inhibitors have a great potential, since this molecular target is highly expressed in several cancer types, supports tumor growth and is associated with clinical outcomes."

The collaboration focuses on the integration and interrogation of molecular, genetic and transcriptomic data pertaining to XCE853. This analysis will be powered by RADR<sup>®</sup> and its growing library of over 60 billion data points from many diverse types of biological measurements and oncology experiments, as well as more than 200 ML algorithms focused on problems that are central to real-world cancer drug development. The initial objectives of the collaboration are to:

- 1) uncover biomarkers and efficacy-associated gene signatures to guide in the eventual stratification and selection of patients for future clinical trials,
- 2) identify tumor-based response and resistance mechanisms to XCE853 and strategies to overcome treatment resistance, and
- 3) expand the use of XCE853 in additional therapeutic cancer indications for XCE853.

"Drug development teams have found significant data and modeling challenges in regard to tackling the complexities associated with PDI inhibitors given the challenges with creating meaningful models, and accumulating and deciphering the data," said Panna Sharma, CEO and President of Lantern Pharma. "Our AI platform, RADR<sup>®</sup>, can increase the confidence, insights, and comfort levels in developing data-driven development paths by modeling highly complex scenarios at a scale that only has become possible recently. It's an ideal approach for Oregon Therapeutics, which has executed a series of highly targeted in vivo and in vitro experiments and is poised to make incredibly important and patient-centric decisions about the clinical future of the molecule. That's where RADR<sup>®</sup> can play a highly essential and market defining role."

Under the terms of the collaboration, Lantern Pharma is receiving equal IP co-ownership and drug development rights in newly discovered biomarkers, novel indications, and/or new pharmacological use strategies for XCE853 and related analogues. Oregon Therapeutics is entitled to financial benefits resulting from the out licensing of the background IP to Lantern Pharma. Lantern Pharma and Oregon Therapeutics are both entitled to additional financial benefits resulting from the out licensing of any collaboration IP to a third party. No further financial details regarding the collaboration were disclosed.

References

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## About RADR®

RADR® is Lantern Pharma's proprietary integrated AI platform for large-scale biomarker and drug-tumor interaction data analytics that leverages machine learning. It is used to provide mechanistic insights about drug-tumor interactions, predict the potential response of cancer types and subtypes to existing drugs and drug candidates, and uncover patient groups that may respond to potential therapies being developed by Lantern Pharma and its collaborators.

RADR® uses an ensemble-based approach to apply its library of algorithms to statistical, correlative, and inferential problems in drug-tumor interactions. This allows the platform to rapidly analyze large amounts of complex data and predict how both patients and tumors will respond to therapeutic combinations. RADR® also evolves as new datasets are added, which improves and sharpens the insights generated from the algorithms.

RADR's highly scalable machine-learning methods are designed to guide drug development and yield new biological insights, while also having the potential to increase response rates and improve outcomes in clinical trials. The robustness and growing number of datasets powering RADR® is anticipated to continue to improve machine-learning results, accelerate automation of other features and aid oncology drug development for Lantern and its partners with an ultimate focus on benefitting cancer patients.

## 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 60 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 therapies that span multiple cancer indications, including both solid tumors and blood cancers and an antibody-drug conjugate (ADC) program. On average, our newly developed drug 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.

Lantern's 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.

Please find more information at:

- Website: [www.lanternpharma.com](http://www.lanternpharma.com)
- LinkedIn: <https://www.linkedin.com/company/lanternpharma/>
- X: [@lanternpharma](https://twitter.com/lanternpharma)

## About XCE853

XCE853 is Oregon Therapeutic's proprietary late preclinical stage drug candidate developed for multiple drug resistant cancers. XCE853 is a synthetic small molecule displaying an excellent docking and inhibition activity on the main human PDIs playing a key role in cancer. XCE853 displays cytotoxic activity at the nanomolar range on a large panel of cancer cells (80+ models) and is most interestingly, even more potent on a panel of multiple drug resistant models. XCE853 showed promising ex vivo activity on patients' sample. XCE853 displayed excellent oral

bioavailability in mice and was able to completely and irreversibly block the growth of several human cancers in vivo xenograft models. Preliminary toxicity package in rats and mice displayed an acceptable safety profile. This extensive preclinical package with transcriptomic and mechanism of action data will be augmented by insights powered by Lantern's AI platform, RADR<sup>®</sup>, to position the XCE853 drug-candidate for an optimized clinical development path focused on patient needs.

## About OREGON THERAPEUTICS

Oregon Therapeutics is a French preclinical biotech developing PDI inhibitors issued from groundbreaking drug discovery programs. Oregon has developed XCE853 up to regulatory preclinical stage entry and demonstrated XCE853's disruptive potential as "first in class" and "best in class" candidate in oncology. Oregon Therapeutics' first objective is to bring XCE853 into Clinical Phase for the treatment of cancers in collaboration with Lantern Pharma. Based on the scientific rationale to exploit metabolic vulnerability of some cancers, the two priority indications are ovarian cancer and advanced pancreatic cancer. Potential additional indications include liver, prostate, head and neck and several orphan cancers.

Please find more information at:

- Website: [www.oregon-therapeutics.com](http://www.oregon-therapeutics.com)
- Contact: CEO, Marc-Henry PITTY, PhD MD: [oregontherapeutics@gmail.com](mailto:oregontherapeutics@gmail.com)

## 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 Lantern's future financial performance; the potential advantages of Lantern's RADR<sup>®</sup> platform in identifying drug candidates and patient populations that are likely to respond to a drug candidate; Lantern's strategic plans to advance the development of its drug candidates and antibody drug conjugate (ADC) development program; estimates regarding the development timing for Lantern's drug candidates and ADC development program; expectations and estimates regarding clinical trial timing and patient enrollment; the research and development efforts of Lantern's internal drug discovery programs and the utilization of the RADR<sup>®</sup> platform to streamline the drug development process; Lantern's 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 Lantern's drug candidates and its plans to discover and develop drug candidates and to maximize their commercial potential by advancing such drug candidates itself 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 Lantern's actual results to differ materially from those indicated by the forward-looking statements, such as (i) the risk that Lantern's research and the research of our collaborators may not be successful, (ii) the risk that promising observations in preclinical studies do not ensure that later studies and development will be successful, (iii) the risk that Lantern's may not be successful in licensing potential candidates or in completing potential partnerships and collaborations, (iv) the risk that none of Lantern's product candidates has received FDA marketing approval, and Lantern may not be able to successfully initiate, conduct, or conclude clinical testing for or obtain marketing approval for its product candidates, (v) the risk that no drug product based on Lantern's proprietary RADR<sup>®</sup> AI platform has received FDA marketing approval or otherwise been incorporated into a commercial product, and (vi) those other factors set forth in the Risk Factors section in Lantern's Annual Report on Form 10-K for the year ended December 31, 2023, filed with the Securities and Exchange Commission on March 18, 2024. You may access Lantern's Annual Report on Form 10-K for the year ended December 31, 2023 under the investor SEC filings tab of our website at [www.lanternpharma.com](http://www.lanternpharma.com) or on the SEC's website at [www.sec.gov](http://www.sec.gov). Given these risks and uncertainties, Lantern can give no assurances that the forward-looking statements contained in this press release will prove to be accurate, or that any other results or events projected or contemplated by the forward-looking statements contained in this press release will in fact occur, and Lantern cautions investors not to place undue reliance on these statements. All of Lantern's forward-looking statements in this press-release represent Lantern's judgment as of the date hereof, and, except as otherwise required by law, Lantern disclaims any obligation to update any forward-looking statements to conform the statement to actual results or changes in its expectations.

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