NEWS RELEASE

Lantern Pharma's predictBBB.ai Evolves Into a Real-Time Large Quantitative Model (LQM) for Precision Molecular Intelligence — Comprehensive Small Molecule Characterization & Development Analytics Available as a Web Service to Drug Developers Globally

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- 360-Degree Small-Molecule Developability Profiling from a Single SMILES String in Seconds by characterizing and calculating 99 critical molecular features
- Capabilities are Fully Integrated into withZeta.ai® for Rare Cancer Drug Development
- Seeking Early Collaborations with Pharma Partners to Integrate Molecular Intelligence into Discovery Workflows

DALLAS--(BUSINESS WIRE)-- Lantern Pharma Inc. (NASDAQ: LTRN), a clinical-stage biotechnology company advancing precision oncology through its proprietary RADR® AI platform, today announced the expansion of predictBBB.ai into a Large Quantitative Model (LQM) — a real-time quantitative intelligence engine now accessible to any researcher or drug development team, anywhere in the world, through a single browser interface.

For the first time, pharmaceutical scientists and medicinal chemists can access a unified, benchmark-validated LQM — not as a batch software installation, not as a siloed cheminformatics tool — but as an on-demand molecular intelligence engine delivered as a web service. By submitting a single SMILES string, users receive a comprehensive,

360-degree developability profile of any small molecule in seconds: a capability that previously required hours of computation across multiple platforms and specialized bioinformatics personnel to integrate — removing the computational barriers that have historically limited rigorous molecular characterization to large, well-resourced pharmaceutical organizations, and making that same analytical power available to biotech innovators, academic drug hunters, and rare disease programs worldwide.

What Is a Large Quantitative Model — and Why Does It Matter?

Unlike Large Language Models trained on patterns in text, a Large Quantitative Model is trained on the quantitative language of science itself. The predictBBB™ LQM was built on thousands of characterized drug candidates and small molecules, with their physicochemical properties (thousands of properties or features for each molecule) encoded as vector representations and molecular fingerprints. This architecture enables simultaneous, high-dimensional property prediction at computational speeds orders of magnitude faster than conventional cheminformatics workflows — while preserving the scientific rigor of chemistry-grounded modeling.

The result is a system that does not approximate molecular behavior from literature patterns. It calculates it, in real time, from the underlying quantitative structure of matter — capable of screening tens of thousands of molecules per day through a single, unified web interface. No installation. No data integration overhead. No specialized infrastructure required.

Benchmark-Validated Performance — and a Continued Commitment to Improvement

Lantern's BBB permeability algorithms were contributed to the Therapeutic Data Commons (TDC) leaderboard — one of the most rigorous open benchmarking platforms in computational drug discovery — where five of Lantern's algorithms rank among the top 12 by accuracy and predictive performance. Since that contribution, Lantern has continued to refine and improve the underlying models, with performance advances beyond what is currently reflected on the public leaderboard. The TDC ranking represents a validated baseline — the current state of the platform exceeds it.

A Unified Molecular Intelligence Panel — Delivered in Seconds

The predictBBB™ LQM expands far beyond its origins as a blood-brain barrier permeability predictor. By submitting a single SMILES string through the web interface, researchers receive an exhaustive molecular profile across four integrated dimensions:

- Physicochemical Overview: Instant calculation of lipophilicity (logP), polar surface area (TPSA), molecular weight, and ionization state — the properties that determine whether a molecule can reach its target, survive

in circulation, and penetrate the right biological membranes.

- Comprehensive Drug-Likeness: An integrated scoring panel combining Lipinski's Rule of Five with four additional developability assessments — flagging bioavailability liabilities, metabolic vulnerabilities, and toxicity risk before a molecule ever reaches the lab.
- Structural Architecture: Real-time calculation of 25 molecular descriptors covering electronic distribution and functional group composition — enabling chemists to identify which parts of a molecule will be metabolically degraded and to engineer those weaknesses out at the design stage.
- Topological Mapping: Quantification of molecular shape, size, and branching complexity to support Structure-Activity Relationship (SAR) modeling — ensuring a candidate's three-dimensional architecture is optimized to fit its intended protein target.

Beyond the BBB: A Universal Engine for All of Small-Molecule Drug Discovery

The name predictBBB.ai reflects where this platform was born — but not the boundaries of what it can do.

While CNS drug development demands exceptionally tight physicochemical control for blood-brain barrier penetration, the underlying calculations are the fundamental parameters of all small-molecule drug design. For non-CNS programs, the platform's utility is arguably broader: the acceptable physicochemical envelope for peripheral targets is wider, and the ability to predict oral bioavailability, P-glycoprotein efflux, intestinal absorption, and hepatic metabolic clearance in real time is equally critical across oncology, cardiovascular medicine, and rare disease indications.

The platform's transporter models — including P-glycoprotein (P-gp) and breast cancer resistance protein (BCRP) predictions — carry particular strategic value in oncology, where tumor overexpression of efflux pumps is a well-established driver of chemotherapeutic resistance. Identifying substrate liability at the molecular design stage, before physical synthesis, is a material competitive advantage that the predictBBB™ web service now makes accessible without infrastructure barriers.

This positions predictBBB.ai as a universal early-stage decision platform — applicable from CNS programs to kinase inhibitors in oncology to novel chemical entities for rare disease indications — and as the first web-native molecular intelligence service of its class grounded in independently benchmarked, quantitative model performance.

> "predictBBB.ai began as a CNS permeability predictor — what it has evolved into is a quantitative intelligence engine that speaks the universal language of medicinal chemistry, now accessible to any drug developer in the world as a web service. Five of our core algorithms rank among the top 12 on the Therapeutic Data Commons leaderboard — that is a measurable scientific standard, not a marketing claim — and our team has continued

to advance the platform well beyond that baseline. The earliest decisions in a program are the most consequential ones, and we are inviting partners to integrate this capability and work with us to redefine what rational drug design looks like at scale. Developing and making available ground-breaking computational and AI tools for drug development has the potential to introduce new therapies and cures for patients at a velocity that is needed in medicine."

— Panna Sharma, Chief Executive Officer, Lantern Pharma Inc.

Strategic Integration with withZeta.ai

The predictBBB LQM is fully integrated into Lantern's withZeta.ai® multi-agentic AI co-scientist platform, where it directly addresses a persistent challenge in rare oncology: the absence of large historical datasets makes rational, fail-fast molecular design not a preference but a necessity. Within withZeta.ai, the platform enables Lantern and its partners to architect candidates optimized simultaneously for target potency and pharmacokinetic viability — compressing analytical workflows that previously required days of iterative computation into seconds, and embedding that intelligence directly into the broader co-scientist ecosystem.

Part of a Growing Portfolio of Commercially Leverageable AI Assets

The expanded predictBBB LQM represents the latest addition to Lantern Pharma's growing portfolio of proprietary AI technologies developed for drug discovery — a portfolio that includes the RADR® genomic intelligence platform and the withZeta.ai® multi-agentic co-scientist ecosystem. Consistent with Lantern's strategy of building AI assets with both internal pipeline and external commercial value, the Company intends to leverage and monetize these capabilities through partnerships, licensing arrangements, and direct platform access — creating potential revenue streams that complement its clinical development programs.

Collaboration Opportunities and a Subscription-Based Roadmap

Lantern Pharma is actively inviting pharmaceutical companies and biotech innovators to explore early integration of the predictBBB™ LQM web service into their existing discovery workflows. The platform is particularly well-suited for organizations with active small-molecule programs in oncology, CNS, or rare disease seeking to compress hit-to-lead and lead optimization cycle times, reduce dependence on fragmented computational infrastructure, and implement a rigorous, benchmark-validated developability screen at the earliest stages of candidate selection. API-level access for enterprise integration into partner computational pipelines is in active development. Interested organizations are invited to contact Lantern's business development team to initiate a conversation.

This release marks an early milestone in a broader product roadmap for predictBBB.ai. Additional molecular

intelligence features and predictive models are planned for integration in the coming months, with the platform expected to launch as part of a subscription-based service for scientists and drug developers globally. Lantern intends for this service to be accessible to the full spectrum of the drug development community — from individual medicinal chemists and academic researchers to enterprise pharmaceutical teams — establishing predictBBB.ai as an ongoing, commercially scalable AI platform asset.

About predictBBB.ai

predictBBB.ai is an AI-powered molecular developability web service developed by Lantern Pharma — the first platform of its class to deliver real-time, unified physicochemical and structural characterization of small molecules through a browser-accessible interface, without specialized infrastructure requirements. Capable of processing tens of thousands of compounds per day, the platform's core algorithms are independently benchmarked on the Therapeutic Data Commons (TDC) leaderboard, with five algorithms ranking among the top 12 for BBB permeability prediction by accuracy and performance. Additional features and predictive models are planned for integration in the coming months as part of a broader subscription-based service launch. predictBBB.ai is fully integrated within the withZeta.ai® multi-agentic co-scientist ecosystem.

About Lantern Pharma Inc.

Lantern Pharma Inc. (NASDAQ: LTRN) is a clinical-stage biotechnology company using its proprietary RADR® AI platform and withZeta.ai® multi-agentic AI co-scientist to transform the speed, cost, and precision of oncology drug development. Lantern's pipeline includes LP-184, LP-284, LP-300 (HARMONIC trial), and STAR-001, developed through its wholly owned CNS subsidiary, Starlight Therapeutics. For more information, visit **www.lanternpharma.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 our future financial performance; the potential advantages of our RADR® platform and withZeta.ai platform in identifying drug candidates, accelerating drug development, and generating revenue through software licensing and subscription models; our strategic plans to advance the development of our drug candidates and antibody drug conjugate (ADC) development program; the planned commercialization of our AI platforms including withZeta.ai and the expected market opportunity for AI co-scientist platforms; 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, (vii) the risk that our AI platform commercialization efforts, including withZeta.ai, may not generate the anticipated revenue or achieve the expected market adoption, and (viii) 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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