Positive Topline Clinical Results Support Streamlined Development Pathway for LPCN 1154, Lipocine's Oral Candidate for Rapid Relief of Depression

- Identified dosing regimen that enables reliance on a single confirmatory pivotal pharmacokinetic (PK) study to establish efficacy for postpartum depression (PPD) and support NDA submission
- LPCN 1154 treatment was well-tolerated with no hypoxia or sedation-related adverse events
- Lipocine plans to initiate the confirmatory pivotal PK study in 2H 2023
- Conference call and webcast today at 8:30am ET

SALT LAKE CITY, May 16, 2023 /PRNewswire/ -- Lipocine Inc. (NASDAQ: LPCN), today announced positive topline results from a pilot clinical PK bridge study of LPCN 1154 (oral brexanolone) with a comparator, IV brexanolone. The pilot study is an important step in Lipocine's ongoing program to develop LPCN 1154 for PPD. Lipocine is a biopharmaceutical company focused on treating Central Nervous System (CNS) disorders by leveraging its proprietary platform to develop differentiated products.

PPD is a major depressive disorder with onset either during pregnancy or within four weeks of delivery, with symptoms persisting up to 12 months after childbirth. LPCN 1154 is targeted to be a differentiated oral option with rapid-onset, robust efficacy, and short treatment duration as a mono or add-on therapy for patients with unresolved depression symptoms.

Study Design and Results

The pilot PK bridge study was an open label, randomized, partial crossover study in healthy postmenopausal women. The primary objective of the study was to compare the PK (AUC_∞ and C_{max}) of two LPCN 1154 oral multi-dose regimens (DR 1: dosing regimen 1 for 3.5 days, DR 2: dosing regimen 2 for 2.5 days) and a continuous IV infusion dosing regimen of brexanolone (per label for 2.5 days, up to 90 µg/kg/hr), to inform the dose selection for the planned confirmatory pivotal PK registration study. The secondary objective was to evaluate the safety and tolerability of multidose regimens of LPCN 1154. The study enrolled a total of twelve participants and was conducted at a single phase 1 unit in the US.

Ratios (%) of geometric mean - LPCN 1154 regimens vs IV brexanolone regimens:

PK Parameter	DR 1 vs IV 60 µg*	DR 1 vs IV 90 µg	DR 2 vs IV 60 µg*	DR 2 vs IV 90 µg
AUC_∞	98 %	77 %	106 %	83 %
C_{max}	114 %	68 %	134 %	79 %

60 µg and 90 µg refer to the maximum dose in the IV regimen (60 µg/kg/hr and 90 µg/kg/hr). *Interpolated from 90 µg/kg/hr IV infusion data

- DR 1 regimen resulted in comparable brexanolone exposure (C_{max} and AUC_∞) to IV brexanolone 60 µg/kg/hr regimen
- DR 2 regimen resulted in exposure levels (C_{max} and AUC_∞) within the two clinically-effective IV brexanolone dosing regimens (60 µg/kg/hr and 90 µg/kg/hr)
- Dosing regimen identified for confirmatory PK study

Consistent with prior experience, LPCN 1154 appeared safe and well-tolerated in this study. All AEs were mild or moderate in severity, and similar across trial arms. No hypoxia, sedation-related, or serious adverse events were observed.

The U.S. Food and Drug Administration (FDA) has agreed with Lipocine's proposal for establishing the efficacy of LPCN 1154 in women with PPD through a clinical PK bridge to the approved IV infusion of brexanolone via anticipated 505(b)(2) NDA filing and streamlined approval pathway. Lipocine plans to initiate a single confirmatory pivotal PK study in the second half of 2023 to establish efficacy, pending FDA feedback.

"The encouraging positive results from this pilot PK bridge study support our development plan for LPCN 1154," said Dr. Mahesh Patel, President and CEO of Lipocine. "The days and weeks after childbirth are critical time periods for the care of both mother and newborn. PPD is a serious condition in need of a highly effective, oral, fast-acting and short treatment duration option. We believe rapid relief matters and, if approved, LPCN 1154 has the potential to be a differentiated preferred treatment for PPD."

Conference Call and Webcast

Lipocine management will host a conference call and webcast with slides beginning at 8:30 a.m. Eastern Time today to discuss the clinical bridge study results and answer questions. To participate via telephone, please dial 1-877-451-6152 or 1-201-389-

0879 (ex-U.S. toll dial-in number) using the conference ID 13738729. Participants can also click the Call me™ link, https://callme.viavid.com/viavid/?callme=true&passcode=13738729&h=true&info=company&r=true&B=6, for instant telephone access to the event. The Call me™ link will be made active 15 minutes prior to scheduled start time. To participate in the webcast a link is available at https://viavid.webcasts.com/starthere.jsp?ei=1614938&tp_key=5a35eadcb6 and also at www.lipocine.com. The webcast will be available for replay for 180 days.

About LPCN 1154

LPCN 1154 is an oral formulation of brexanolone in development targeted for rapid relief of postpartum depression (PPD). Brexanolone is a bioidentical to naturally occurring neuroactive steroid, allopregnanolone, a positive allosteric modulator of y-aminobutyric acid (GABA) receptor. LPCN 1154 is expected to have characteristics that could be particularly appealing to patients with severe PPD, acutely elevated suicide risk, and in whom rapid improvement is a priority while presenting no significant risk of adverse reactions to breastfed infants from exposure to brexanolone.

About Postpartum Depression and Unmet Needs

PPD is a major depressive disorder with onset either during pregnancy or within four weeks of delivery, with symptoms persisting up to 12 months after childbirth. Hormonal changes leading to GABA dysfunction are common in depression and pregnancy. Symptoms of PPD include hallmarks of major depression, including, but not limited to, sadness, depressed mood, loss of interest, change in appetite, insomnia, sleeping too much, fatigue, difficulty thinking/concentrating, excessive crying, fear of harming the baby/oneself, and/or thoughts of death or suicide. Approximately 500,000 women are affected by PPD annually in the United States. Traditional antidepressants, not approved for PPD, have slow onset of action, side effects such as sexual dysfunction and weight gain, and do not demonstrate adequate remission post-acute treatment. The current approved standard of care is continuous infusion of intravenous brexanolone which requires inpatient administration with significant limitations.

About Lipocine

Lipocine is a biopharmaceutical company leveraging its proprietary technology platform to augment therapeutics through effective oral delivery to develop products for CNS disorders. Lipocine has candidates in development as well as candidates for which we are exploring partnering. Our candidates represent enablement of patient friendly oral delivery options for favorable benefit to risk profile which target large addressable markets with significant unmet medical needs.

Lipocine clinical development candidates include: LPCN 1154, oral brexanolone, for the potential treatment of postpartum depression, LPCN 2101 for the potential treatment of epilepsy and LPCN 1148, an oral prodrug of bioidentical testosterone targeted for the management of symptoms associated with liver cirrhosis. Lipocine is exploring partnering opportunities for LPCN 1107, our candidate for prevention of preterm birth, LPCN 1148, for the management of cirrhosis, LPCN 1144, our candidate for treatment of non-cirrhotic NASH, and LPCN 1111, a once-a-day therapy candidate for testosterone replacement therapy (TRT). TLANDO, a novel oral prodrug of testosterone containing testosterone undecanoate developed by Lipocine, is approved by the FDA for conditions associated with a deficiency of endogenous testosterone, also known as hypogonadism, in adult males. For more information, please visit www.lipocine.com.

Forward-Looking Statements

This release contains "forward-looking statements" that are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995 and include statements that are not historical facts regarding our product development efforts, the anticipated uses and benefits of LPCN 1154, the timing of a confirmatory pivotal PK study relating to LPCN 1154, the timing of any submission of an NDA filing relating to LPCN 1154, our ability to utilize the streamlined approval pathway under 505(b)(2), our strategic plans for developing products to treat CNS disorders, our ability to monetize non-core product candidates, including through entering into partnering arrangements, the application of our proprietary platform in developing new treatments for CNS disorders, our product candidates and related clinical trials, the achievement of milestones within and completion of clinical trials, the timing and completion of regulatory reviews, outcomes of clinical trials of our product candidates, and the potential uses and benefits of our product candidates. Investors are cautioned that all such forward-looking statements involve risks and uncertainties, including, without limitation, the risks that we may not be successful in developing product candidates to treat CNS disorders, including LPCN 1154, we may not have sufficient capital to complete the development processes for our product candidates, we may not be able to enter into partnerships or other strategic relationships to monetize our non-core assets, the FDA will not approve any of our products, risks related to our products, expected product benefits not being realized, clinical and regulatory expectations and plans not being realized, new regulatory developments and requirements, risks related to the FDA approval process including the receipt of regulatory approvals and our ability to utilize a streamlined approval pathway for LPCN 1154, the results and timing of clinical trials, patient acceptance of Lipocine's products, the manufacturing and commercialization of Lipocine's products, and other risks detailed in Lipocine's filings with the SEC, including, without limitation, its Form 10-K and other reports on Forms 8-K and 10-Q, all of which can be obtained on the SEC website at www.sec.gov. Lipocine assumes no obligation to update or revise publicly any forward-looking statements contained in this release, except as required by law.

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