MARINUS PHARMACEUTICALS ANNOUNCES POSITIVE GANAXOLONE DATA IN WOMEN WITH POSTPARTUM DEPRESSION

Ganaxolone was safe and well-tolerated
Ganaxolone IV demonstrated fast-acting, robust and durable efficacy
Interim data with ganaxolone oral supports IV to oral administration
Conference call to be held today at 8:30 AM ET

RADNOR, PA, December 10, 2018 (Globe Newswire) -- Marinus Pharmaceuticals, Inc. (Nasdaq:MRNS) ("Marinus" or "Company"), a biopharmaceutical company dedicated to the development of innovative therapeutics to treat epilepsy, depression and other neuropsychiatric disorders, today announced positive results from its Phase 2 clinical trials evaluating ganaxolone intravenous (IV) (the Magnolia Study) and oral (the Amaryllis Study) in women with postpartum depression (PPD). Based on these results, the Company is advancing both studies into the next phase of development to evaluate IV and oral dose regimens.

"We achieved our Magnolia study objective and are pleased with the early onset, magnitude and durability of efficacy seen with ganaxolone IV over a month after treatment and discharge from inpatient care," said Dr. Lorianne Masuoka, Chief Medical Officer of Marinus. "Ganaxolone IV's safety profile including ability to deliver even the highest dose at the start of infusion in these patients makes it an attractive drug candidate for this underserved patient population. The results from this Phase 2 safety and pharmacokinetic dose-optimization study are instrumental to future studies that incorporate our IV and provide insight to further optimize our oral dose regimen."

Magnolia Study Part 1 (Ganaxolone IV Alone) Top-Line Data

- There was a clear dose response relationship seen for three groups of patients receiving ganaxolone IV at median doses of 60, 90 and 140 µg/kg/h.
- The 140 µg/kg/h dose group (n=10) demonstrated the most robust results, with a clinically meaningful 5.6-point reduction in Hamilton Rating Scale for Depression (HAM-D17) compared to placebo at 48 hours that was durable through the last visit, day 34.
- These patients had a mean HAM-D17 reduction of 16.9 (4.2 > placebo) and 15.7 (4.1 > placebo) points from baseline at 60 hours and day 34, respectively.
- 75% of patients were responders, as defined as having a ≥50% reduction from baseline, at day 34 and 67% were responders at 60 hours.
- 50% of patients achieved remission from depression, as determined by a HAM-D17 ≤7, at day 34 and 33% achieved remission at 60 hours.
- Ganaxolone was safe and well-tolerated in all dose groups. Consistent with previous ganaxolone studies, the most common reported adverse events were sedation and dizziness. There were no serious adverse events reported, no discontinuations due to a treatment

related adverse event and, consistent with prior studies, there were no reports of syncope or loss of consciousness.

- The Clinical Global Impression of Improvement (CGI-I) as well as the Edinburgh Postnatal Depression Survey (EPDS) and Spielberger State-Trait Anxiety 6 (STAI-6) showed highly similar trends that were consistent with HAM-D17.
- 58 patients with PPD were randomized on a 1:1 basis to receive one of three ascending fixed IV 60-hour dose regimens of ganaxolone or placebo. No initial up titration was required, and patients were down titrated over the final 12 hours of the 60-hour infusion. A bolus injection of ganaxolone prior to the 60-hour infusion was explored to test the safety and tolerability of a very short, high dose infusion. None of the dose groups were powered to generate statistical significance.
- Patients with a HAM-D17 score of ≥26 were considered for enrollment in the study. HAM-D17 measurements were conducted by a centralized rater and taken at various timepoints spanning from baseline to day 34.

Bassem Maximos, MD, MPH, FACOG, and a Principal Investigator in the Magnolia Study, commented, "The impressive safety profile and antidepressant effect demonstrated in these women marks an important advancement in the development of treatment of PPD. With no cure or approved treatment for the one in seven women suffering from PPD, there is a great need for potential treatment options that are safe, fast-acting and convenient. I look forward to working with Marinus as they continue to develop both the IV and oral formulations of ganaxolone."

Amaryllis Study Update – Oral Ganaxolone

Enrollment is ongoing in the Company's Amaryllis study, a Phase 2 clinical trial to evaluate the safety, tolerability and efficacy of oral ganaxolone in women with PPD. Patients with a HAM-D17 score of ≥20 but <26 are being considered for enrollment in the study. Cohorts of patients enrolled in the initial open label phase of the study receive ascending dose regimens with oral ganaxolone. The efficacy endpoint is change from baseline in the HAM-D17 score.

Patients in the most recent dose cohort who took oral ganaxolone (n=18) for four weeks had a mean HAM-D17 reduction of 13.2 points 28 days from a baseline of 24.7 and a reduction of 15.7 points at day 36. This cohort is on-going and not all patients have reached day 28. As with IV, oral ganaxolone was generally safe and well-tolerated with no serious adverse events reported and no discontinuations due to treatment related adverse events.

"Reporting these data from both of our PPD studies is an important milestone for Marinus," commented Christopher M. Cashman, Chief Executive Officer of Marinus. "Based upon these encouraging results, we are now equipped to enroll patients into the next phase of development where we can explore more convenient IV and oral dosing regimens. Ganaxolone's efficacy and clean safety profile provides the opportunity to develop a fast acting, durable and convenient treatment regimen to meet the needs of moms suffering from postpartum depression."

The company is advancing both the Magnolia and Amaryllis studies with data expected in the first half of 2019. The second part of the Magnolia Study will evaluate a short IV infusion followed by oral ganaxolone administration and the Amaryllis study will continue to optimize oral ganaxolone dosing.

Marinus is planning to submit the full data set from the Magnolia study for publication or presentation at a future medical conference.

Conference Call and Webcast Details

Marinus will host a conference call today at 8:30 a.m. ET. Stockholders and other interested parties may participate in the call by dialing 844-277-9448 (domestic) or 336-525-7135 (international) and referencing conference ID number 2197815. The live webcast can be accessed on the investor page of Marinus' website at https://ir.marinuspharma.com/. A replay will be available on Marinus' website approximately two hours after completion of the event and will be archived for up to 30 days.

About PPD

PPD is a mood disorder that affects about 15% of women within the first year following childbirth. Common symptoms include feelings of extreme sadness, hopelessness, suicidal ideation, anxiety and fatigue. PPD is thought to be linked to disorders of the GABA system, possibly mediated by rapid fluctuations in the levels of reproductive hormones and allopregnanolone (allo) after childbirth. Allo has been shown in clinical studies to be effective in treating patients with PPD. PPD can affect a mother's ability to care for her child and may negatively affect a child's cognitive development. There are no approved treatments for PPD, but the most common treatments are psychotherapy and antidepressants.

About Ganaxolone

Ganaxolone, a positive allosteric modulator of $GABA_A$, is being developed in three different dose forms (intravenous, capsule and liquid) intended to maximize therapeutic reach to adult and pediatric patient populations in both acute and chronic care settings. Unlike benzodiazepines, ganaxolone exhibits anti-seizure and anti-anxiety activity via its effects on synaptic and extrasynaptic $GABA_A$ receptors. Ganaxolone has been studied in more than 1,600 subjects, both pediatric and adult, at therapeutically relevant dose levels and treatment regimens for up to four years. In these studies, ganaxolone was generally safe and well-tolerated. The most commonly reported adverse events were somnolence, dizziness and fatigue.

About Marinus Pharmaceuticals

Marinus Pharmaceuticals, Inc. is a biopharmaceutical company dedicated to the development of ganaxolone, which offers a new mechanism of action, demonstrated efficacy and safety, and convenient dosing to improve the lives of patients suffering from epilepsy and neuropsychiatric disorders. Ganaxolone is a positive allosteric modulator of $GABA_A$ that acts on a well-characterized target in the brain known to have anti-seizure, anti-depressant and anti-anxiety effects. Ganaxolone is being developed in three different dose forms (IV, capsule and liquid) intended to maximize therapeutic reach to adult and pediatric patient populations in both acute and chronic care settings. Marinus has initiated the first ever pivotal study in children with CDKL5 deficiency disorder, a rare form of epilepsy, and is currently conducting studies in women with postpartum depression and refractory status epilepticus.

Forward-Looking Statements

To the extent that statements contained in this press release are not descriptions of historical facts regarding Marinus, they are forward-looking statements reflecting the current beliefs and expectations of management made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Words such as “may”, “will”, “expect”, “anticipate”, “estimate”, “intend”, “believe”, “is planning”, and similar expressions (as well as other words or expressions referencing future events, conditions or circumstances) are intended to identify forward-looking statements. Examples of forward-looking statements contained in this press release include, among others, statements regarding our interpretation of preclinical studies, development plans for our product candidate, including the development of dose forms, the clinical trial testing schedule and milestones, the ability to complete enrollment in our clinical trials, interpretation of scientific basis for ganaxolone use, timing for availability and release of data, the safety, potential efficacy and therapeutic potential of our product candidate and our expectation regarding the sufficiency of our working capital. Forward-looking statements in this release involve substantial risks and uncertainties that could cause our clinical development programs, future results, performance or achievements to differ significantly from those expressed or implied by the forward-looking statements. Such risks and uncertainties include, among others, the uncertainties inherent in the conduct of future clinical trials, that results of preclinical studies or earlier clinical trials are not necessarily predictors of future results in later preclinical studies or clinical trials, the timing of the clinical trials, enrollment in clinical trials, availability of data from ongoing clinical trials, expectations for regulatory approvals, the attainment of clinical trial results that will be supportive of regulatory approvals, and other matters, including the development of formulations of ganaxolone, and the availability or potential availability of alternative products or treatments for conditions targeted by the Company that could affect the availability or commercial potential of our drug candidates. Marinus undertakes no obligation to update or revise any forward-looking statements. For a further description of the risks and uncertainties that could cause actual results to differ from those expressed in these forward-looking statements, as well as risks relating to the business of the Company in general, see filings Marinus has made with the Securities and Exchange Commission.

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