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Ensysce Biosciences Announces Positive Interim Data for Breakthrough Therapy PF614-MPAR

~ Positive Phase 1b Data Confirms Overdose Protection for Highest Dosage Form of PF614-MPAR ~

SAN DIEGO, CA / ACCESS Newswire / January 22, 2025 /Ensysce Biosciences, Inc. (NASDAQ:ENSC) ("Ensysce" or the "Company"), a clinical-stage pharmaceutical company developing innovative solutions for severe pain relief while reducing the potential for opioid abuse and overdose, today announced interim data from its second clinical trial to evaluate PF614-MPAR for overdose protection. Clinical study PF614-MPAR-102, 'A Single and Multiple Dose Study to Evaluate the Pharmacokinetics of Oxycodone and PF614 when PF614 Capsule is Co-Administered with Nafamostat as a Combination of Immediate Release Solution and Extended Release Capsule Formulations (PF614-MPAR) in Healthy Subjects,' was designed to evaluate the full dosage range of PF614-MPAR, study potential food effects, and to conduct a multiple ascending dose study with the final PF614-MPAR combination. In 2024, PF614-MPAR received Breakthrough Therapy designation from the U.S. Food and Drug Administration (FDA), and had its development bolstered by a $14 million multi-year award from the National Institute on Drug Abuse (NIDA) to continue studying the PF614-MPAR overdose protection observed in an initial clinical study, PF614-MPAR-101.

The PF614-MPAR-102 study showed that a 100 mg dosage form of PF614-MPAR provides overdose protection when a greater-than-prescribed dose is consumed at one time. Subjects were studied as their own control and received three doses of the overdose-protected PF614-MPAR versus PF614. The subjects receiving the MPAR product had a significantly lower (p=0.0019) total maximum blood concentration of oxycodone (C_{max}) compared to PF614 alone, an indication of overdose protection. As designed, subjects who received a single 100 mg dose of PF614 or PF614 MPAR showed no difference in C_{max} values (p=0.523). Additionally, safety data from the trial showed that there were no unexpected adverse events from either PF614 or PF614-MPAR. The trial will now continue to enroll the final cohorts of Part 1 of the study and then move to Part 2, which is designed to examine potential food effects. Part 3 will then evaluate repeat dosing of PF614 vs. PF614-MPAR over 4.5 days. The aggregation of interim data allows the Company to focus on perfecting a final drug product to move to commercialization.

Dr. Bill Schmidt, Chief Medical Officer of Ensysce, commented, "Clinical data from our initial study demonstrated the unique overdose protection built into PF614-MPAR, which led to the FDA's Breakthrough Therapy designation, a first for an opioid drug product. This second study builds on the initial data and further demonstrates that MPAR is a vital tool to limit unwanted overdoses from prescription medications. Our goal of bringing PF614-MPAR and a

new generation of safer analgesics to the market to alleviate suffering from severe pain is being realized."

Dr. Lynn Kirkpatrick, CEO of Ensysce, added, "We are delighted with the positive early interim data which confirms that MPAR provides overdose protection in the planned dosage range for our PF614-MPAR drug product. We will continue to quickly execute the final stages of this study using the Translational Pharmaceutics® platform of Quotient Sciences in advance of our work with our new commercial manufacturing partner to prepare this very unique product for the market. We look forward to completing this highly important three-part trial and generating additional evidence to conduct productive discussions with the FDA on the path to registration for the first overdose-protected opioid."

About Ensysce Biosciences

Ensysce Biosciences is a clinical stage company using its proprietary technology platforms to develop safer prescription drugs. Leveraging its Trypsin-Activated Abuse Protection (TAAP™) and Multi-Pill Abuse Resistance (MPAR®) platforms, the Company is developing unique, tamper-proof treatment options for pain that minimize the risk of both drug abuse and overdose. Ensysce's products are anticipated to provide safer options to treat patients suffering from severe pain and assist in preventing deaths caused by medication abuse. The platforms are covered by an extensive worldwide intellectual property portfolio for a wide array of prescription drug compositions. For more information, please visit www.ensysce.com.

Forward-Looking Statements

Statements contained in this press release that are not purely historical may be deemed to be forward-looking statements for the purposes of the safe harbor provisions under The Private Securities Litigation Reform Act of 1995 and other federal securities laws. Without limiting the foregoing, the use of words such as "may," "intends," "can," "might," "will," "expect," "plan," "possible," "believe" and other similar expressions are intended to identify forward-looking statements. The product candidates discussed are in clinic and not approved and there can be no assurance that the clinical programs will be successful in demonstrating safety and/or efficacy, that Ensysce will not encounter problems or delays in clinical development, or that any product candidate will ever receive regulatory approval or be successfully commercialized. All forward-looking statements are based on estimates and assumptions by Ensysce's management that, although Ensysce believes to be reasonable, are inherently uncertain. All forward-looking statements are subject to risks and uncertainties that may cause actual results to differ materially from those that Ensysce expected. In addition, Ensysce's business is subject to additional risks and uncertainties, including among others, the initiation and conduct of preclinical studies and clinical trials; the timing and availability of data from preclinical studies and clinical trials; expectations for regulatory submissions and approvals; potential safety concerns related to, or efficacy of, Ensysce's product candidates; the availability or commercial potential of product candidates; the ability of Ensysce to fund its continued operations, including its planned clinical trials; the dilutive effect of stock issuances from our fundraising; and Ensysce's and its partners' ability to perform under their license, collaboration and manufacturing arrangements. These statements are also subject to a number of material risks and uncertainties that are described in Ensysce's most recent quarterly report on Form 10-Q and current reports on

Form 8-K, which are available, free of charge, at the SEC's website at www.sec.gov. Any forward-looking statement speaks only as of the date on which it was made. Ensysce undertakes no obligation to publicly update or revise any forward-looking statement, whether as a result of new information, future events or otherwise, except as required under applicable law.

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