Ensysce Biosciences, Inc. (NASDAQ: ENSC)

Ensysce™ biosciences

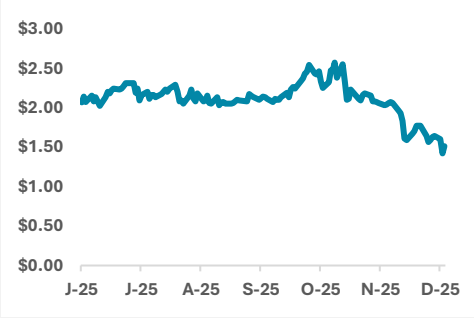
Key Statistics	
52 Week Range	$1.26 - $10.96
Avg. Volume (3 months)	203.53K
Shares Outstanding	3.63M
Market Capitalization	$5.16M
EV/Revenue	NA
Cash Balance*	$1.7M
Analyst Coverage	2

*** Cash balance as of September 2025 (excluding recent financing)**

Revenue (in $ mm)			
Dec - FY	2024A	2025E	2026E
1Q	0.31	1.32	0.00
2Q	0.18	1.37	0.00
3Q	3.42	0.49	0.00
4Q	1.30	0.00	0.00
FY	5.21	3.18	0.00

EPS (in $)			
Dec - FY	2024A	2025E	2026E
1Q	(8.21)	(1.39)	(0.95)
2Q	(3.35)	(0.79)	(0.60)
3Q	1.00	(1.29)	(0.44)
4Q	(2.90)	(1.10)	(0.74)
FY	(11.45)	(4.57)	(2.73)

Stock Price Chart (in $)



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Ensysce Biosciences, Inc. – Advances Late-Stage Pipeline with PF614 Phase 3 Enrollment, Expanded MPAR® Patent Protection Through 2042, and FDA Alignment on Commercial Manufacturing Strategy

Share Price	$1.42	Valuation	$19.00

Investment Highlights

Initiation of PF614 Phase 3 Enrollment Marks a Major Late-Stage Milestone as Ensysce Advances Its Next-Generation Opioid Toward Potential Commercialization: Ensysce Biosciences announced a significant clinical milestone with the enrollment of the first patient in PF614-301, the company's pivotal Phase 3 study evaluating PF614 in moderate to severe post-surgical pain following abdominoplasty. As a next-generation extended-release oxycodone prodrug built on the company's proprietary TAAP™ (Trypsin-Activated Abuse Protection) platform, PF614 is engineered to target delivering strong, consistent analgesia while incorporating a unique enzymatic activation mechanism intended to reduce abuse potential. The Phase 3 trial, a multicenter, randomized, double-blind, placebo- and active-controlled design, will assess PF614's efficacy, safety, and pharmacologic stability under twice-daily dosing, which may offer smoother plasma exposure and improved tolerability relative to traditional opioids. Enrollment has begun at leading clinical research sites, including CenExel JBR (Salt Lake City) and CenExel Atlanta, reflecting strong operational execution as the program progresses. We note that the initiation of Phase 3 enrollment represents a critical inflection point for Ensysce, formally transitioning PF614 into registrational testing and significantly advancing the company's effort to potentially commercialize a safer opioid alternative. Successful execution and Phase 3 outcomes will be pivotal to validating PF614's differentiated profile and unlocking potential value creation as the company moves toward an NDA pathway.

New U.S. Patent Significantly Expands Long-Term Protection for Ensysce's MPAR® Overdose-Prevention Platform, Strengthening Competitive Moat Ahead of Late-Stage Advancement: Ensysce Biosciences announced a notable expansion of its intellectual property portfolio with a new U.S. Patent and Trademark Office Notice of Allowance covering key composition-of-matter and method-of-use claims for the company's MPAR® (Multi-Pill Abuse Resistance) overdose-protection technology. The newly allowed patent, extending exclusivity through 2042, fortifies the core platform supporting PF614-MPAR and broadens protection for enzyme-cleavable prodrug compositions paired with controlled-release nafamostat. MPAR®, which received FDA Breakthrough Therapy designation earlier in 2025, is engineered to automatically limit opioid exposure when doses exceed prescribed levels, while maintaining therapeutic pain relief under normal use. Clinical data from PF614-MPAR have demonstrated this dual effect, validating the platform's potential to materially reduce opioid overdose risk. Beyond opioids, Ensysce is now applying MPAR® to other high-risk drug classes, including amphetamines and methadone, to target safer treatments in pain, ADHD, and opioid use disorder. This patent allowance materially strengthens Ensysce's intellectual property moat, extending long-dated protection around a core technology that could differentiate the company in the evolving landscape of safety-engineered therapeutics. As PF614-MPAR advances toward potential late-stage regulatory interactions, expanded IP coverage enhances both commercial optionality and long-term viability.

Company Description

Ensysce Biosciences, Inc., a clinical-stage pharmaceutical company, engages in developing various prescription drugs for severe pain relief. The company's pipeline of drug candidates is developed on the back of its innovative technology platforms Trypsin Activated Abuse Protection (TAAP™), an abuse-resistant opioid prodrug technology; and Multi-Pill Abuse Resistance (MPAR™).

FDA Alignment on PF614 Manufacturing Strategy Provides Clear Pathway to Commercial-Scale Production and De-Risks CMC Requirements Ahead of Phase 3 Progress: Ensysce Biosciences reported an important regulatory milestone with the FDA issuing written confirmation agreeing to all elements of the company's proposed Chemistry, Manufacturing, and Controls (CMC) strategy for PF614, its next-generation TAAP™-enabled oxycodone prodrug. The FDA's concurrence on Ensysce's selection of regulatory starting materials and drug-substance specifications establishes a streamlined and predictable path toward commercial manufacturing, an essential requirement as PF614 advances through its pivotal Phase 3 program. The decision enables Ensysce and its commercial manufacturing partner, Purisys, LLC (a Noramco subsidiary), to proceed confidently with scale-up activities in preparation for potential NDA submission. This regulatory clarity significantly de-risks a critical component of PF614's development, particularly given the operational and compliance scrutiny typically associated with opioid manufacturing. FDA alignment on CMC strategy is a meaningful de-risking event, reducing regulatory uncertainty, accelerating readiness for targeted commercial production, and strengthening the chance of a successful approval. For a late-stage opioid candidate differentiated by built-in abuse-deterrent technology, this milestone enhances Ensysce's positioning as it approaches key clinical and regulatory inflection points.

$4 Million Preferred Equity Financing Strengthens Ensysce's Capital Position and Provides Up to $20 Million to Advance PF614 Toward Late-Stage Milestones: Ensysce Biosciences announced the closing of a $4 million convertible preferred stock financing, with the potential to access an additional $16 million over the next 24 months, materially enhancing the company's financial flexibility as it advances multiple late-stage programs. The structure, featuring a fixed conversion price of $2.50 per share, alternative conversion mechanics tied to market pricing, and 50% warrant coverage on each tranche, is an encouraging development that signals strong investor support for the company's long-term strategy. Proceeds from the financing will support the pivotal Phase 3 development of PF614, Ensysce's lead TAAP™-enabled analgesic candidate, as well as general corporate initiatives related to its broader platform of abuse and overdose-resistant pain therapeutics. With PF614 progressing toward anticipated Phase 3 readouts within 18–24 months and the MPAR® program funded through multi-year federal grants, the financing provides critical runway through key value-creating clinical milestones. We note that the capital raise meaningfully strengthens Ensysce's balance sheet during a pivotal period of late-stage execution. Access to up to $20 million in total financing significantly reduces near-term funding risk and supports uninterrupted progress across programs that represent differentiated, safety-driven solutions in the opioid therapeutics market.

Company Overview

Based in La Jolla, California, Ensysce Biosciences, Inc. (NASDAQ: ENSC) is a clinical-stage pharmaceutical company developing innovative solutions for severe pain while minimizing the risk of both drug abuse and overdose. The company is dedicated to improving prescription drug safety and performance by applying sophisticated chemistry, combined with anti-abuse and anti-overdose technologies, to change the way drugs are activated during delivery to prevent the possibility of both abuse and overdose. Ensysce's products are primarily based on its two core technology platforms - Trypsin Activated Abuse Protection (TAAP™), an abuse-resistant opioid prodrug technology, and Multi-Pill Abuse Resistance (MPAR™) platform, an overdose protection opioid prodrug technology - which can be applied to prescription drugs with a wide variety of pharmaceutical applications, driving internal growth and external partnering opportunities.

Ensysce Biosciences is a clinical-stage pharmaceutical company developing innovative solutions for severe pain while minimizing the risk of both drug abuse and overdose through its proprietary TAAP™ and MPAR™ technology platforms

Ensysce currently holds over 100 patents in 25 countries across North America, Europe, and Asia, ensuring the opportunity to address abuse globally. Leveraging its proprietary TAAP™ and MPAR™ platforms, which are well-protected by a suite of patents generated from over $100 million of research support, the company is expanding its pipeline with a primary focus on opioid pain products, including PF614, a TAAP abuse-deterrent oxycodone prodrug candidate that is in Phase II clinical trial for the treatment of acute or chronic pain and has been granted Fast Track designation by the FDA with 505(b)(2) regulatory development path; and PF614-MPAR, a combination product of PF614 and trypsin inhibitor nafamostat that is in Phase I clinical trial for overdose protection against excessive ingestion. In addition to these two lead product candidates, the company has other drugs in development for respiratory diseases and ADHD: an oral and inhalation drug product of nafamostat for use against coronaviral infections and other pulmonary diseases, such as cystic fibrosis; as well as PF8001 and PF8026, extended and immediate-release prodrugs of amphetamine for ADHD medication abuse.

Exhibit 1: Ensysce Product Pipeline. Source: Ensysce Investor Presentation

TAAP™ & MPAR™: Smart, Unique and Extensible Platforms Improving Drug Performance and Safety

Focusing on chemistry and innovation, the company has developed two novel molecular drug delivery platforms that aim to reduce the abuse of prescription drugs and inhibit overdose occurrences. The technology carries with it a wide variety of pharmaceutical applications, thus offering disruptive solutions to multiple drug abuse issues that often lead to health and humanitarian crises.

Ensysce's TAAP™ is designed to be highly resistant to tampering and abuse as compared to traditional Abuse-Deterrent Formulations (ADFs) of oxycodone

The Trypsin Activated Abuse Protection (TAAP™) is an abuse-resistant prodrug technology seeking to improve patient care while impeding prescription opioid drug abuse at the molecular level. The technology ensures that the drug consumed is released only when exposed to certain physiological conditions when taken orally (that is, when the drug is ingested and exposed to the digestive enzyme trypsin). The TAAP™ pro-drug delivery system follows a two-step mechanism of action (MoA) to deliver the API in a manner that restricts both oral and non-oral modes of abuse. The first step involves the separation and release of the amino acid chain from the drug formulation when exposed to trypsin, a proteolytic enzyme found in the lumen of the small intestine. The release is followed by a cyclization-release reaction separating the linker from the active drug to achieve ideal pharmacokinetic release and absorption of API.

The enzyme-mediated metabolic activation occurs only when the drug formulation is swallowed. The activating enzyme, in this case, Trypsin, are not present in the blood, saliva, or nasal passages; thus, there is no opportunity for activation if injected, chewed, or snorted. Further, a chemically designed release timing mechanism restricts the release of active drugs to achieve rapid, spiking blood levels and a euphoric rush.

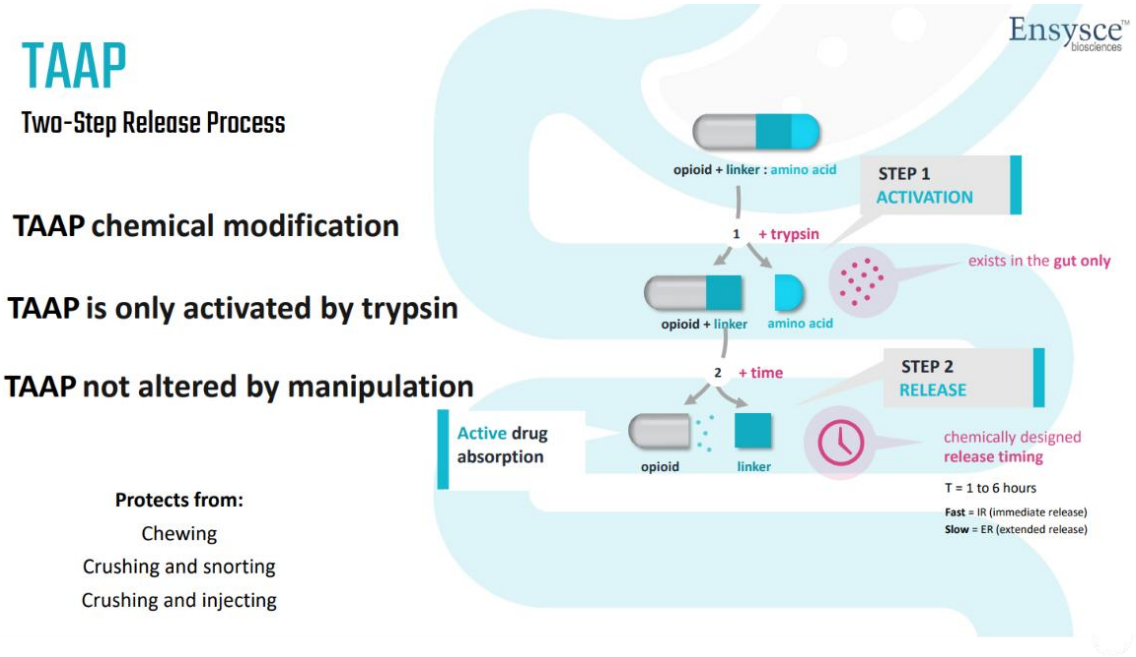

Exhibit 2: TAAP™ Mechanism of Action (MoA). Source: Company Filings

The Multi-Pill Abuse Resistant (MPAR™) platform, when combined with TAAP™ products, not only inhibits drug abuse but also protects against drug overdose. The technology leverages trypsin inhibitor, nafamostat, which is co-formulated with a TAAP™-enabled drug to provide protection against drug overdose. Nafamostat is a small molecule, highly potent protease inhibitor (trypsin inhibitor) with a steep dose-response curve. The combination drug formulation, when administered at prescribed dosage levels, would not be affected by the drug's mechanism of action or release and absorption of API. If the TAAP™ prodrug nafamostat combination (MPAR™) is administered in larger quantities than prescribed levels, the trypsin inhibitor, Nafamostat, blocks the activation process (refer to exhibit 3) and prevents the release and absorption of the API itself, thus protecting against the drug overdose.

MPAR™ provides another layer of protection and safety to Ensysce's TAAP prodrugs and holds the promise of eliminating accidental or deliberate overdose

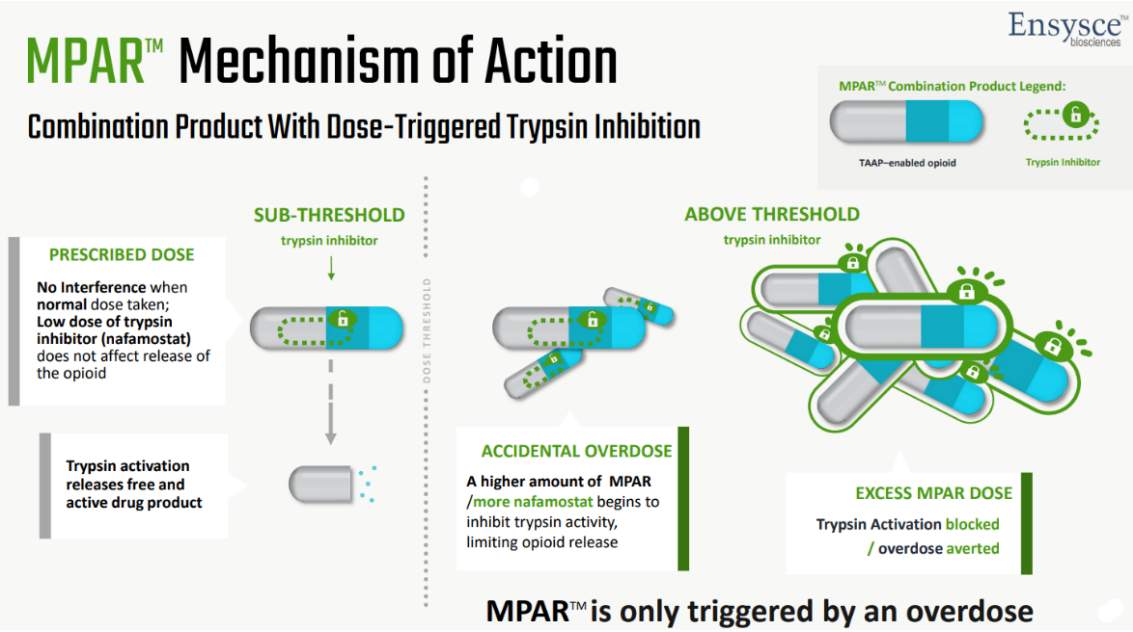

Exhibit 3: MPAR™ Mechanism of Action (MoA). Source: Company Filings

TAAP™ and MPAR™ technology platforms, when applied to numerous drug cases, hold the potential to enhance bioavailability, controlled duration of action, improved safety, and eliminate accidental or deliberate overdose. The company's diversified product pipeline targeting severe pain and CNS disorders is backed by these two technology platforms.

PF614: 'TAAP™' Oxycodone

The company's lead drug candidate, PF614, is a novel abuse-resistant TAAP™ prodrug of oxycodone currently being studied as an acute or chronic pain analgesic in phase 2 clinical trials. This innovative therapy remains the need of the hour, considering the extent of opioid abuse and opioid use disorder, particularly in North American countries. PF614 is developed on the back of the company's proprietary TAAP™ technology and uses an advantageous prodrug approach instead of the conventional active form. The drug is an extended-release prodrug of oxycodone utilizing a unique bioactivation mechanism. PF614 is pharmacologically and chemically inert until activation by pancreatic trypsin, which is followed by a second non-enzymatic cyclization producing

free oxycodone with extended-release characteristics. It has been found to resist ex vivo extraction with household chemicals and is pharmacologically inactive when administered by non-oral routes (nasal and parenteral), thereby substantially reducing its intravenous and intranasal abuse potential.

PF614-MPAR™: TAAP™ Oxycodone with Overdose Protection

PF614-MPAR™ is a novel opioid combination product in phase 1 clinical trials for a potentially safer treatment for acute or chronic pain. The drug is a combination product of PF614 and nafamostat (a trypsin inhibitor). This combination adds another layer of protection of overdose inhibition in addition to TAAP™'s abuse deterrence. The MPAR™ platform is designed in a way that prevents overdose by inhibiting the TAAP™ activation, the first in the release mechanism of PF614. The combination product is expected to prevent all major methods of drug abuse, including oral abuse, chewing, intravenous, and intranasal.

Initial pharmacokinetic data for PF614-MPAR™ demonstrates that MPAR™ can provide overdose protection by blocking the activation of PF614 and oxycodone release if overdosed

The company was awarded a grant to develop its MPAR™ platform by NIH through NIDA in September 2018. The total funding from this grant amounted to $10.8 million and has been awarded in different phases supporting the clinical development of PF614-MPAR™.

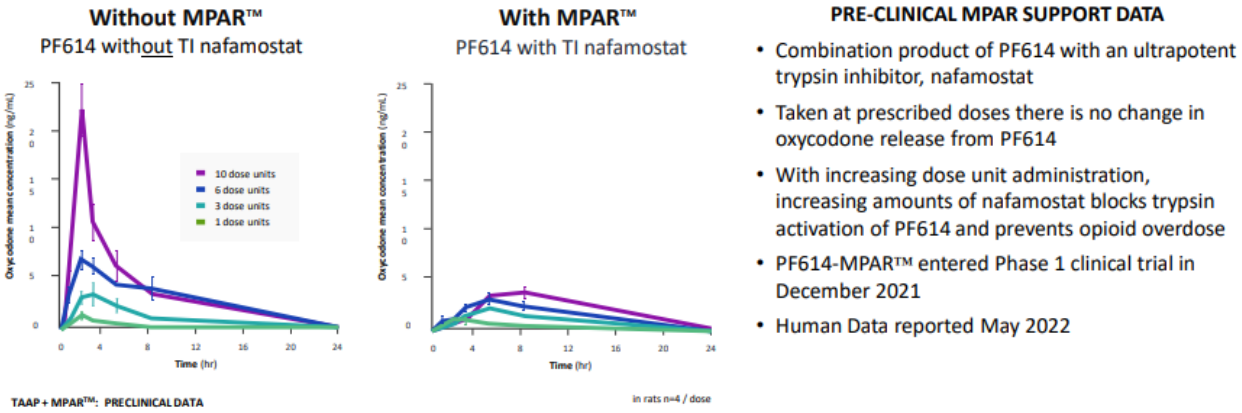

Exhibit 4: PF614-MPAR™ Pre-Clinical Data. Source: ENSC Investor Presentation

The preclinical data indicated the novel combination product limited oxycodone exposure and prevented overdose. Without MPAR™, oxycodone exposure increases substantially as the dosage level is increased, while the variability and exposure in oxycodone absorption at multiple dosage levels is significantly reduced, with MPAR™ indicating abuse inhibition properties. The Cmax at higher dosage levels in treatment without MPAR™ was significantly larger when compared to PF614 treatment with MPAR™.

Opioid Analgesics Market and Abuse-Deterrent Opioid Analgesics

Opioids are natural, synthetic, or semi-synthetic chemical substances that act on opioid receptors in the cells to provide pain-relieving effects. Major prescription opioids include Codeine, Fentanyl, Hydrocodone, Oxycodone, and Morphine, to name a few. Opioids function by mimicking natural endorphins that dampen the perception of pain and also cause euphoria. Repeated use of the drug affects brain processes and

chemistry that often leads to drug liking, tolerance, dependence, and addiction. An estimated 50.2 million U.S. adults are affected by chronic pain, while 24.4 million suffer high-impact chronic pain with work limitations.[1] Furthermore, the total estimated value of lost productivity at approximately $300 billion.[2]

The chronic pain market is currently served by pharmaceutical agents that can be potentially abused. There is an urgent need for much safer alternatives with similar efficacy profile for the underlying growing market

Opioid medications remain one of the common treatment modalities for chronic or acute pain sufferers, with 20% of patients with pain-related diagnoses receiving an opioid prescription. The U.S opioid market is currently valued at $16.28 billion and is expected to grow at 5.5% for the next eight years, reaching a value of $24.94 billion.[3] A total of 142.81 million prescriptions of opioids were dispensed in the United States in 2020.[4] The past two decades saw a considerable rise in opioid prescriptions for pain management in the United States. Given the addictive nature of the drug, there has been a significant increase in drug abuse cases and drug overdose mortality driven by illicit and prescription opioids. The prevalence of opioid misuse within chronic pain populations is estimated to be as high as 29%.[5] Additionally, 187 people die every day from opioid overdose (Rx and illicit).[4] Even though the total opioid prescriptions have declined substantially in the past 5-7 years, opioid overdose mortality remained high, aided by the increasing manufacturing of illicit opioids such as fentanyl.

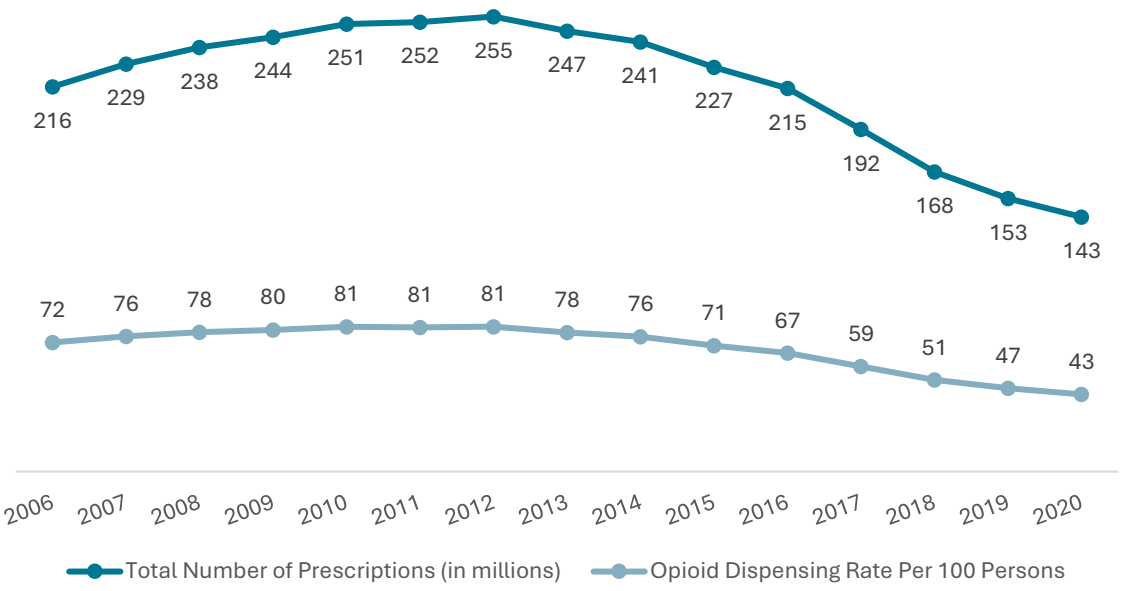

Exhibit 5: Total Opioid Prescriptions Dispensed and Opioid Dispensing Rate per 100 People. Source: CDC

1 Yong, R. Jason et al., PAIN: February 2022 - Volume 163 - Issue 2 - p e328-e332
2 Brigham and Women's Hospital. (2021, April 20).
3 Coherent Market Insights
4 The Centers for Disease Control and Prevention (CDC)
5 Vowles KE et al., Pain. 2015 Apr;156(4):569-576.

Appendix

Income Statement	FY2023 A	FY2024 A	FY2025 E	FY2026 E	FY2027 E
Net sales	2,230,520.0	5,210,031.0	3,184,314.0	-	35,069,996.8
Cost of sales	-	-	-	-	(10,520,999.0)
Gross profit	**2,230,520.0**	**5,210,031.0**	**3,184,314.0**	**-**	**24,548,997.8**
Operating expenses					
General and Administrative Expenses	(5,361,234.0)	(4,720,728.0)	(5,287,215.4)	(5,815,936.9)	(12,274,498.9)
Marketing Expense	-	-	-	-	(4,208,399.6)
Research and Development	(7,587,473.0)	(7,219,437.0)	(9,385,268.1)	(11,262,321.7)	(8,767,499.2)
EBITDA	**(10,718,187.0)**	**(6,730,134.0)**	**(11,488,169.5)**	**(17,078,258.6)**	**(701,399.9)**
Depreciation and amortization expenses	-	-	(7,975.9)	(15,936.7)	(68,541.7)
Other income/ (expense)					
License Agreement Payments	-	-	-	-	-
EBIT	**(10,718,187.0)**	**(6,730,134.0)**	**(11,496,145.3)**	**(17,094,195.3)**	**(769,941.6)**
Interest Income	-	-	-	-	-
Interest Expense	(353,945.0)	(1,290,444.0)	(36,199.2)	(36,199.2)	(36,199.2)
Profit before exceptional items, extraordinary items and tax	**(11,072,132.0)**	**(8,020,578.0)**	**(11,532,344.5)**	**(17,130,394.5)**	**(806,140.8)**
Change in fair value of derivative liabilities	-	-	10,061.0	-	-
Loss on issuance of convertible notes	-	-	-		
Change in fair value of convertible notes	146,479.0	-	-	-	-
Issuance of liability classified warrants	-	16,292.0	-	-	-
Change in fair value of liability classified warrants	283,958.0	-	-	-	-
Other income and expense, net	15,420.0	17,277.0	54,227.0	-	-
Profit before tax from continuing operations	**(10,626,275.0)**	**(7,987,009.0)**	**(11,468,056.5)**	**(17,130,394.5)**	**(806,140.8)**
Income tax (expense) benefit	-	-	-	-	-
Net earnings including noncontrolling interests	**(10,626,275.0)**	**(7,987,009.0)**	**(11,468,056.5)**	**(17,130,394.5)**	**(806,140.8)**

Exhibit 6: Income Statement Snapshot. Source: Diamond Equity Research

Risks

- **Clinical Development Risk -** ENSC is a pharmaceutical company in a clinical stage. The emergence of any undesirable side effects in test subjects could hinder approvals. Their success hinges on PF614 and PF614 product candidates, both of which are in the trial stages.

- **Regulatory Risk -** As a pharmaceutical company, ENSC has to obtain approvals from multiple authorities under various legislations and compliance. The regulatory processes are also lengthy, and approval is uncertain. There is also a risk of regulatory bodies disagreeing with their product regulatory plans. The FDA fast-track designation might not provide the intended ease if products fall short in compliance. They are also subject to lawsuits from future collaborators and any infringements on intellectual property.

- **Finance and Dilution Risk -** ENSC has a limited operating history and incurred significant losses. This risk is exacerbated by the possibility of encountering unforeseen losses in their trials. Furthermore, there is the risk involved in the listing and volatility of their common stock. With their requirement for substantial funding, raising capital by issue of common stock under market value would adversely affect dilution, their market price, their operations, and their control over their technologies and product candidates. There is also a risk of their stocks being delisted from NASDAQ or their warrants' trading being discontinued in the OTC Pink Open Market.

- **Strategic/Competitive Risk -** Growth depends on the product candidates' success in commercialization, discovery, and development. Failure to do so would significantly hinder growth. Furthermore, competitive products could diminish or eliminate commercialization potential. Reliance on third parties for trials, manufacturing, and development also poses a significant risk. Lastly, even if product candidates receive regulatory approval, the possibility of failing in market acceptance poses a risk to successful commercialization.

- **Intellectual Property Risk -** It is important to note risks related to securing, protecting, and updating of intellectual property since any failures would deter operational success and could have major competitive implications. There are also Litigation risks related to the infringement of intellectual parties' intellectual property rights when they challenge the validity of ENSC patents or other intellectual property. ENSC could also be involved in litigation to protect their own intellectual property and other risks related to protection, like the lack of protection under the Hatch-Waxman Amendments through the extension of the patent term.

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