LIPOCINE®

ENHANCING HEALTH

Corporate Presentation

September 2022

Enabling Effective Oral Drug Delivery

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, our strategic plans for developing products to treat CNS disorders, our ability to monetize non-core product candidates, the application of our Lip'ral 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, 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, 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.

Investment Highlights

Validated Proprietary Lip'ral Technology Platform

Enabling Effective Oral Delivery

Curated Clinical Development Focus

LPCN 1154: Fast Acting Oral Antidepressant

LPCN 1148: Unique MOA for Management of Cirrhosis

LPCN 2101: Novel MOA for Treating Women with Active Epilepsy

Exploratory Preclinical CNS Candidates

Value Through Partnering of Non-CNS Assets

Testosterone Replacement Therapy: TLANDO® and LPCN 1111

Prevention of Preterm Birth: LPCN 1107

Chronic Liver Disease: LPCN 1144, LPCN 1148

Near-Term Value-Enhancing Events

4Q 2022

LPCN 1148 Phase 2 POC study enrollment completion

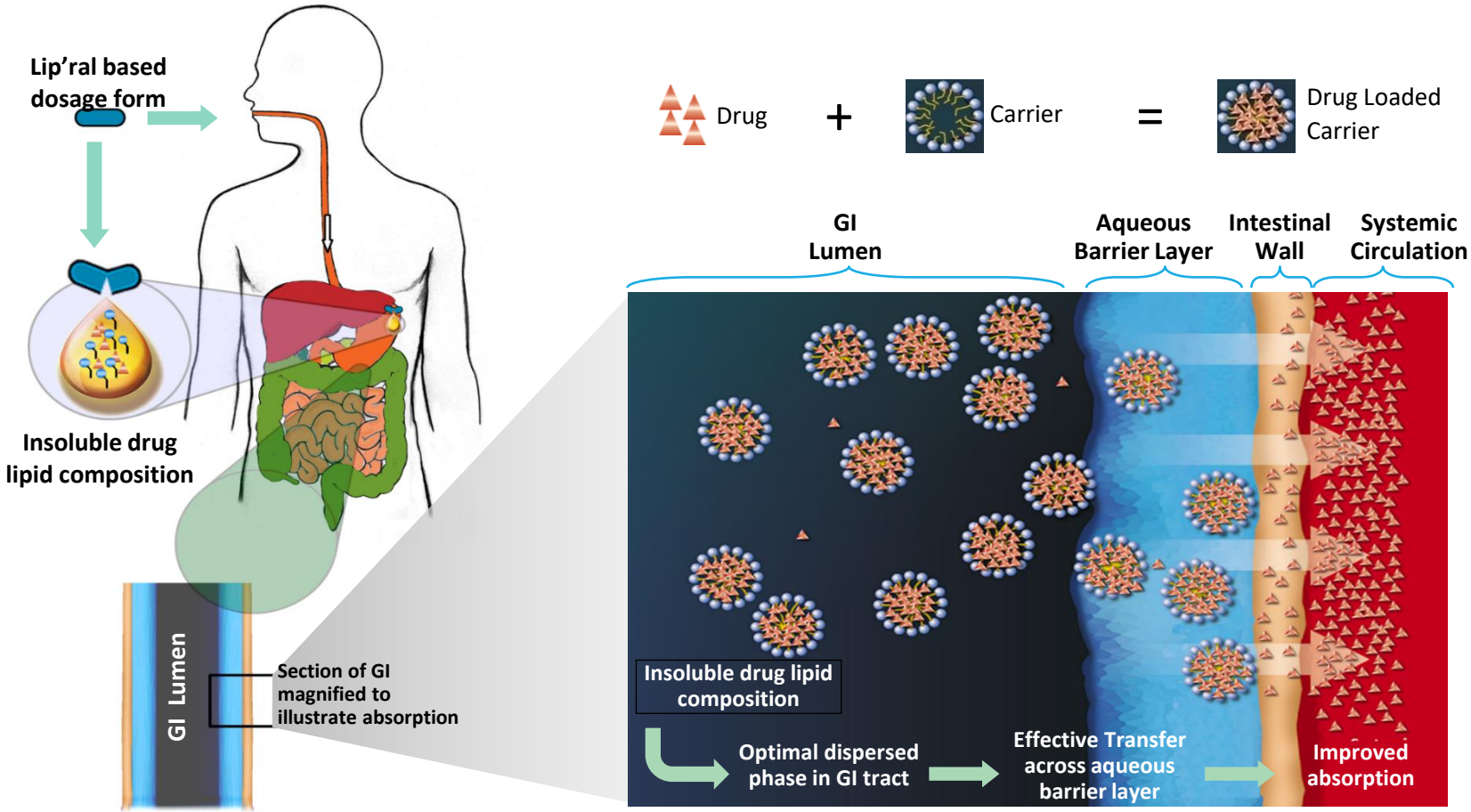
1Q 2023

LPCN 1154 Pilot PK bridge study topline results

1H 2023

LPCN 1148 Phase 2 POC cirrhosis study topline results

Validated Proprietary Lip'ral Technology Platform



Superior Oral Bioavailability
e.g., TLANDO®

Enable effective oral delivery
e.g., endogenous neuroactive steroids, 17-hydroxyprogesterone caproate

Giliyar et al. Drug Delivery Technology, Jan 2006, Vol 6 No.1

Curated Clinical Development Focus

Oral Endogenous Neuroactive Steroids (NASs)

Significant unmet needs in CNS

Psychiatry

Depression Disorders: Rapid onset antidepressant

Neurology

Epilepsy: Novel MOA targeting women with active epilepsy (WWE)

Movement Disorders: No medications developed specifically for essential tremors (ET), only one approved >50 yrs. ago

Targeting Differentiating Value Propositions

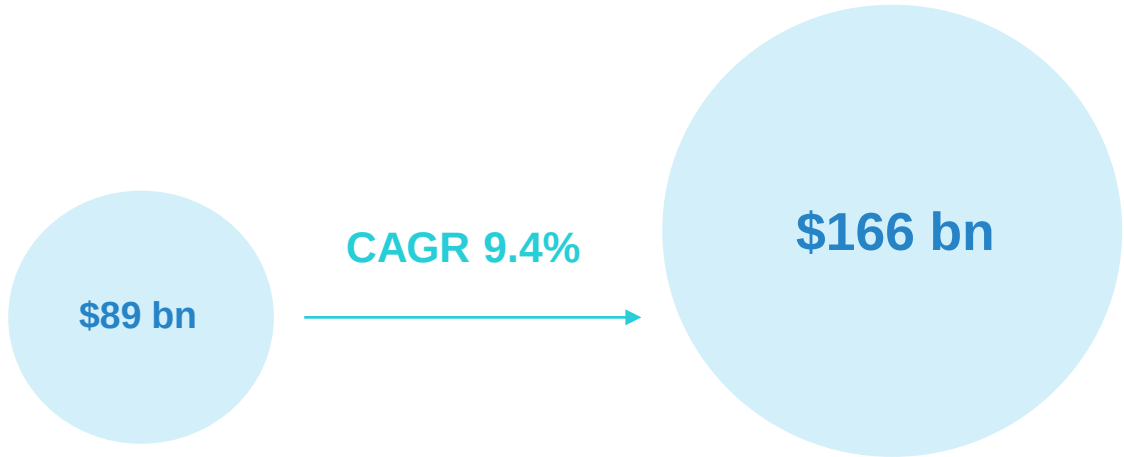
LPCN 1154

Oral fast acting antidepressant for PPD

LPCN 2101

New MOA for treating women with active epilepsy

Large and growing CNS market



https://www.verifiedmarketresearch.com/product/central-nervous-system-therapeutics-market/.

Lipocine Clinical Development Pipeline

Development Candidate (Indication)	Pre-Clinical	Phase 1	Phase2/POC	Pivotal	Approved	Status
LPCN 1154 *(Postpartum Depression)*						Pilot PK bridge study in progress
LPCN 1148 (*Decompensated Liver Cirrhosis - Secondary Sarcopenia/Hepatic Encephalopathy)*						Phase 2 POC study in progress
LPCN 2101 *(Women With Epilepsy)*						IND cleared for Phase 2
Neuroactive Steroid *(Neurology Indication)*						

LPCN 1154

Oral Brexanolone for
Postpartum Depression (PPD)

Postpartum Depression (PPD) – A Substantial Opportunity

Market in Need of a Convenient Fast-Acting Oral Antidepressant

Prevalence

~ 1 in 8 women in US suffer from PPD after giving birth[1]

U.S Women with Moderate-Severe PPD estimated: ~175K annually[2]

Standard of Care Limitations

Burdensome invasive infusion

Inpatient administration

Frequent monitoring

Access

Unmet Need

Convenient non-invasive

Fast-acting

Outpatient administration

No excessive sedation

1. CDC, "Depression Among Women"
2. CDC, "Symptoms of Depression Among Adults: United States, 2019" NCHS Data Brief, No.379, September 2020

LPCN 1154

First Oral Brexanolone

Product Candidate Attribute

Positive Allosteric Modulator (PAM) of the $GABA_A$ receptor

Oral dosage form comprising brexanolone

Product Candidate Differentiation

Non-invasive oral option with rapid onset

No IV infusion challenges

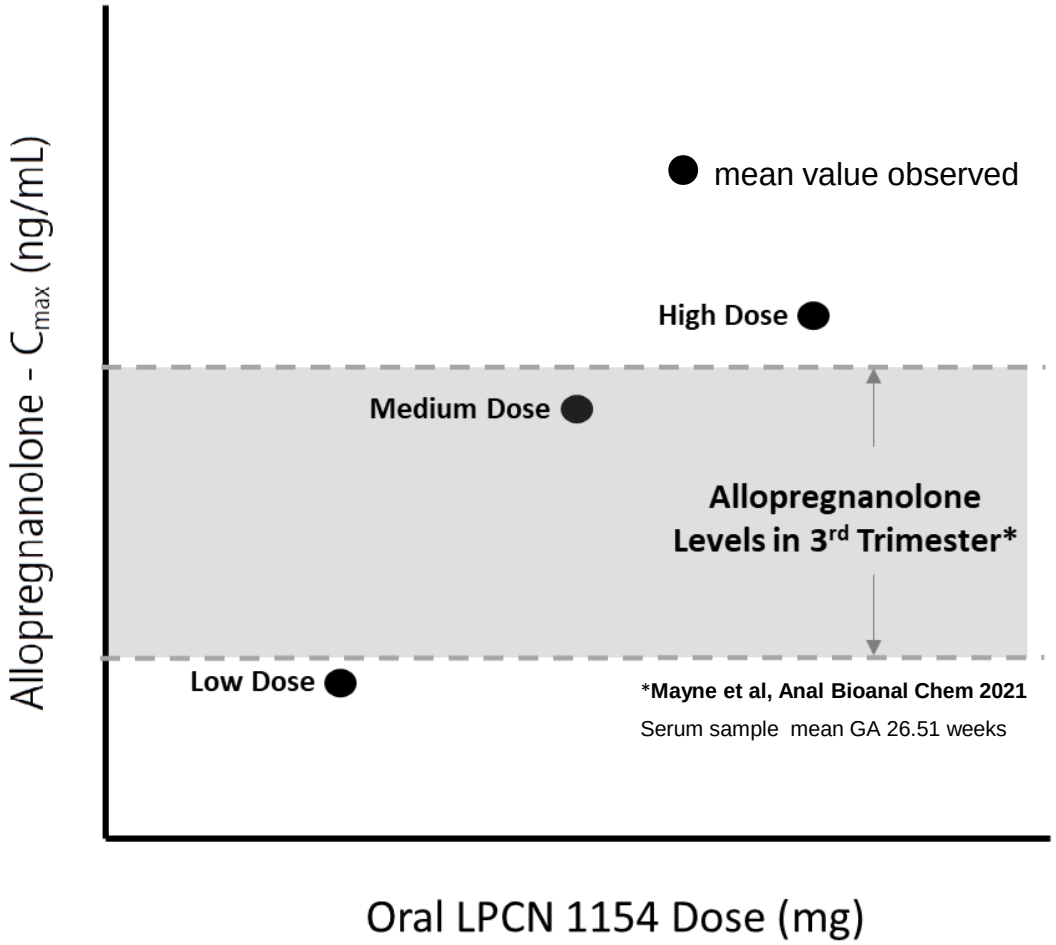
Potential for outpatient administration

LPCN 1154 - Achieved Levels Comparable to 3rd Trimester Pregnancy

Enablement of Oral Brexanolone (a.k.a. allopregnanolone)

Phase 1 Study of Results

- Sequential single dose escalation study in post menopausal women (n=8) with Lip'ral based oral capsules.
- LC-MS/MS assays of blood samples



LPCN 1154 - Development Status

Favorable Regulatory Outlook

Efficacy can be achieved thru PK bridge to IV infusion brexanolone

505 (b) (2) NDA

Validated regulatory pathway

I.V. Brexanolone approved for PPD

Successful single dose study completed – established feasibility of oral administration

Pilot PK Bridge Study in Progress
Topline results expected Q1 2023

Pivotal study required for filing

LPCN 1148

for the Management of Liver Cirrhosis

Liver Cirrhosis Management – Opportunity

Prevalence

Over 2 million cases[1]; 500k+ with decompensation[2]

62% on liver transplant waitlist are male[3]

40-70% of cirrhotic men have sarcopenia[4,5]

~30-40% of cirrhotics experience overt HE[6]

Standard of Care Limitations

No approved drug for Secondary Sarcopenia (**SS**)

Rifaximin for Hepatic Encephalopathy (**HE**)

- Limited efficacy
- Tolerability issues

Unmet Need

SS: Improve survival/ quality of life for patients on transplant list

Improvement of post-transplant outcomes /lowered cost of care

HE: Novel MOA

1. Moon, Clin Gas and Hep, 2019
2. GBD 2017 Cirrhosis Collaboration, Lancet, 2021
3. Sarkar et al. J Hepatol. 2015
4. Sinclair, Ailment Pharmacol Ther, 2016
5. Lai, Am J Transplant, 2014
6. Grønkjær et al., Gastroenterol Nurs. 2018 Nov/Dec;41(6):468-476.

LPCN 1148

Management of Liver Cirrhosis: Secondary Sarcopenia; Hepatic Encephalopathy

Product Candidate Attribute

Androgen receptor agonist

Oral dosage form comprising testosterone laurate, a unique prodrug of endogenous testosterone

Potential for Orphan Drug Designation

Product Candidate Differentiation

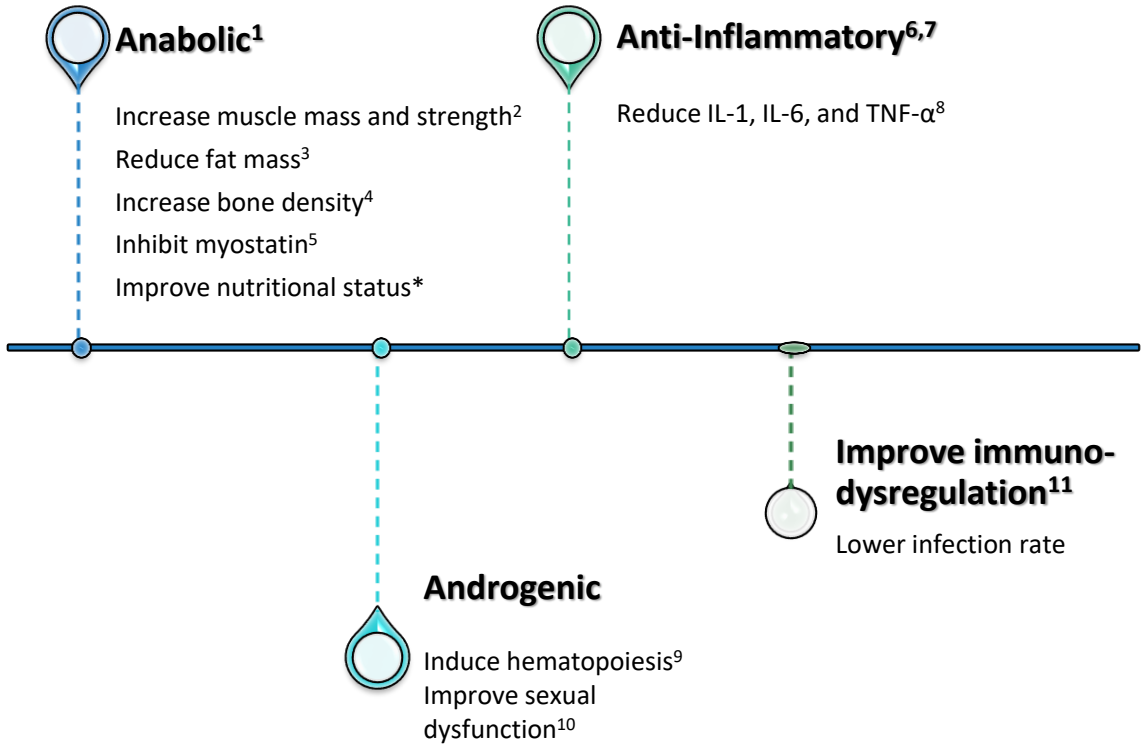
Only candidate in development for secondary sarcopenia in cirrhosis: no approved SOC

Novel Multi-Modal MOA

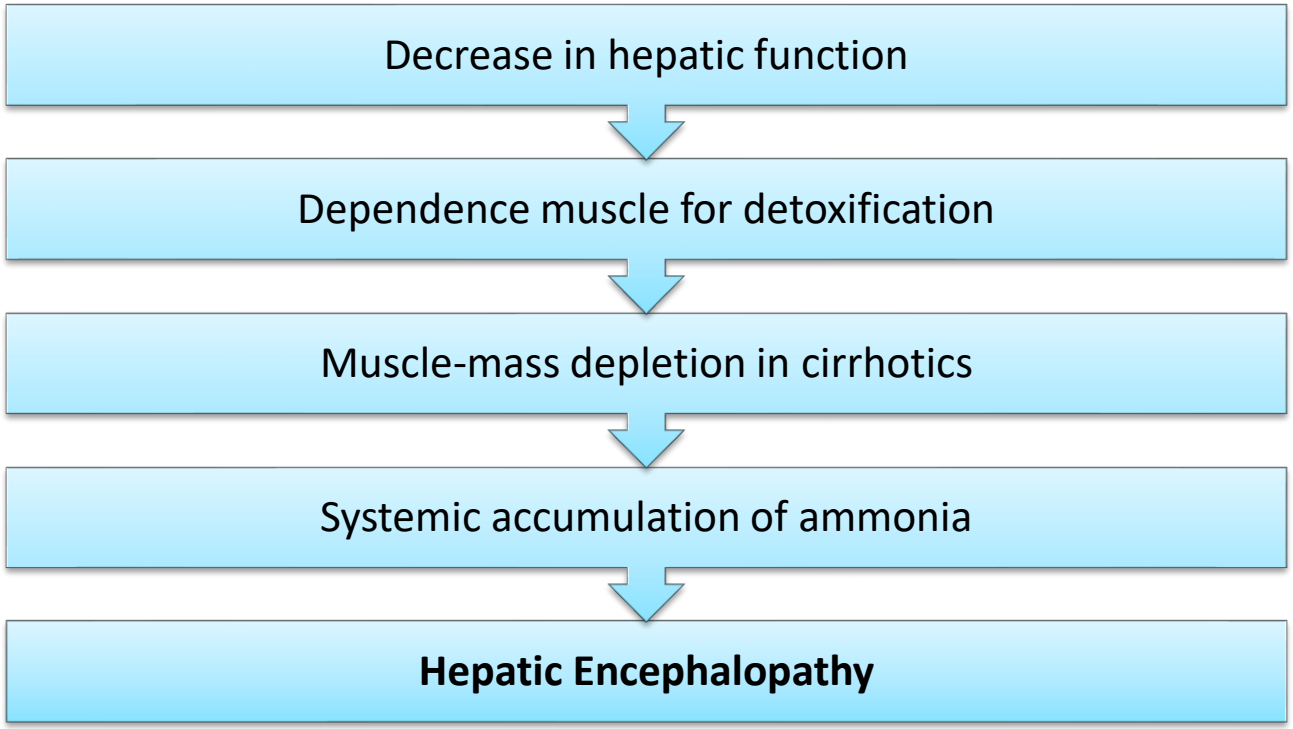
- Reduction of ammonia accumulation for treatment of HE

LPCN 1148 - Novel Multi-Modal MOA for Liver Cirrhosis

Hepatic Encephalopathy is Associated with Sarcopenia



Precipitation of HE



1. Gentile MA et al., J Mol Endocrine, 2010
2. Sinclair et al., J Gastroenterol Hepatol 2016
3. Shalender Bhasin, Clin Infect Dis. 2003;37 Suppl 2:S142-9
4. Snyder et al. JAMA Intern Med. 2017 Apr 1;177(4):471-479
5. Dasarathy and Merli, J Hepatol. 2016
6. Kelly and Jones, J Endocrinol, 2013
7. Zhang et al., J Cardiovasc Pharmacol Ther. 2021 Nov;26(6):638-647
8. Mohamad et al. Aging Male. 2019 Jun;22(2):129-140.
9. Basaria, S., Dobs, A.S. (2003). Androgens and the Hematopoietic System. In: Bagatell, C.J., Bremner, W.J. (eds) Androgens in Health and Disease.
10. Rizk et al., Curr Opin Urol 2017
11. Nakashima et al., Kidney Int Rep. 2017 Nov; 2(6): 1160–1168

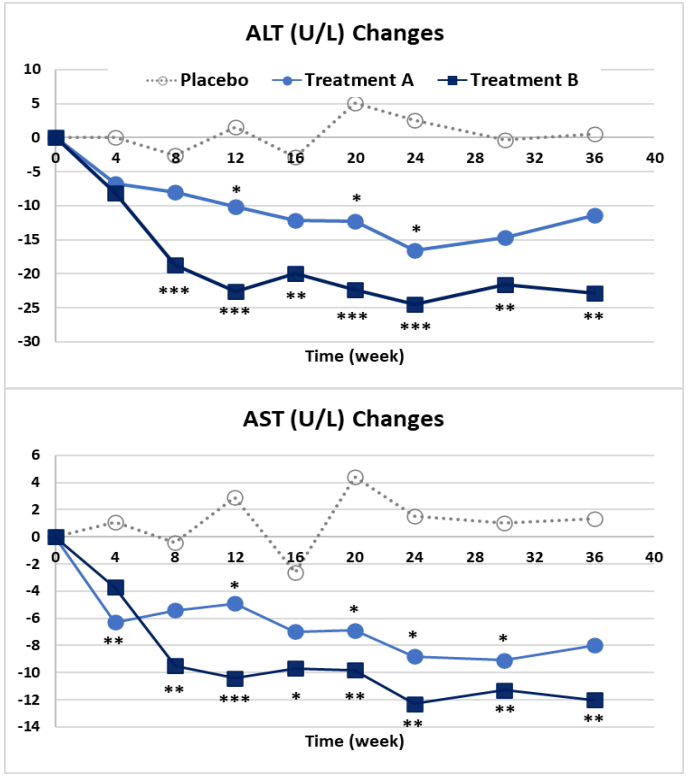
*individual's health condition as it is influenced by the intake and utilization of nutrients

LPCN 1148 – Potential Beneficial Effects

Effects Observed in Subjects with Chronic Liver Disease[#]

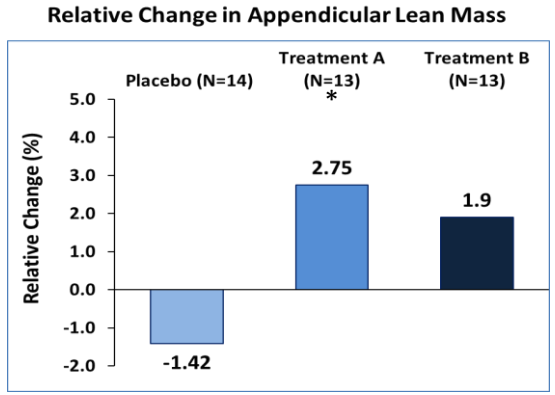
Liver (primary organ)

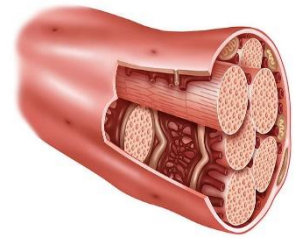
Injury Marker Reduction

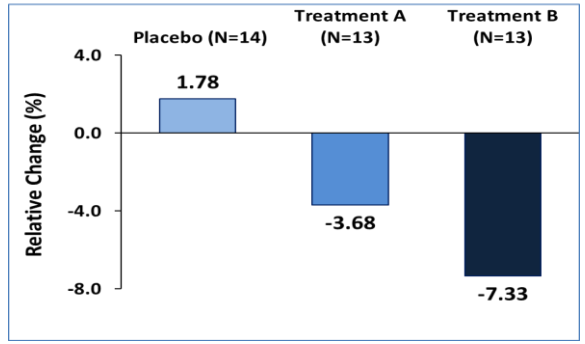


Muscle (secondary organ)

Positive Effects on Body Composition[†]







[#]LiFT Study in Biopsy Confirmed NASH Subjects (NCT04134091)

[†] All available data at Week 36 (Last Observation Carry Forward ("LOCF"))
* p < 0.05 vs placebo

LPCN 1148 - Development Status

POC Topline Results Expected in 1H 2023

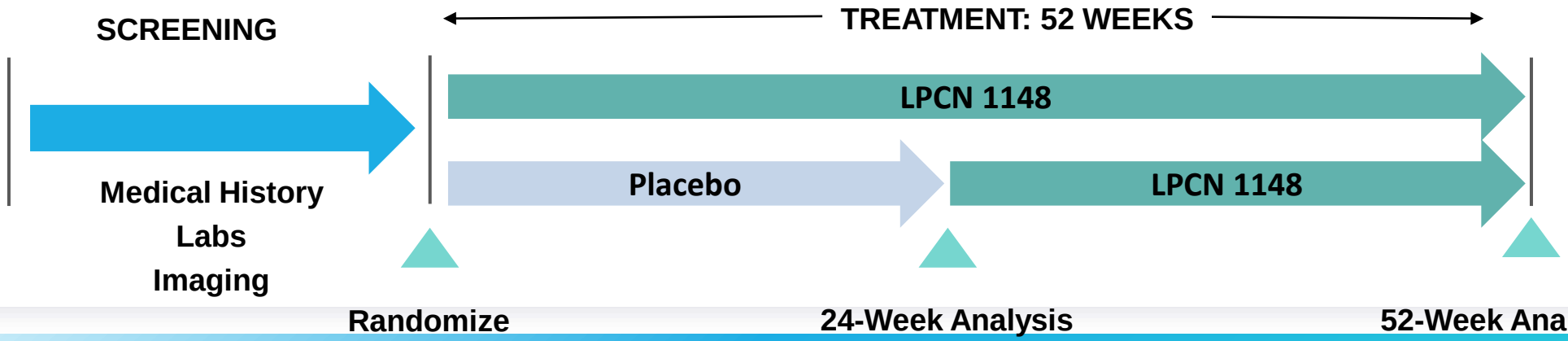
Phase 2 POC study (NCT04874350) in male cirrhotic subjects – in progress Multi-center, randomized, placebo-controlled study in male sarcopenic cirrhotic patients

Endpoints:

Primary: Change in Skeletal Muscle Index at Week 24

Key Secondary:

Overall survival, hospitalization rates
Change in number of waitlist events
Rates of breakthrough hepatic encephalopathy/ascites
Change from baseline in Liver Frailty Index, Myosteotosis
Patient Reported Outcomes (PRO's)



LPCN 2101

for Women With Active Epilepsy (WWE)

Women with Epilepsy (WWE) of Childbearing Age - Opportunity

Prevalence

~ 900,000 of women of childbearing (CB) suffer from active epilepsy in US[1,2]

~ 80% of WWE reported at least one unintended pregnancy[3]

Depression is the most frequent psychiatric comorbidity in epilepsy[4]

Standard of Care Limitations

No drug approved specifically for WWE

Most approved ASMs have fetal toxicity risk

~ One third of adult patients are non-responsive[5]

Limited options to address mood disorder comorbidities

Drug-drug interaction risk

Unmet Need

Seizure control with low/no teratogenic risk

Address special considerations for WWE

Novel MOA

Address associated mood disorders

1. https://www.statista.com/statistics/241488/population-of-the-us-by-sex-and-age/
2. https://www.cdc.gov/mmwr/volumes/66/wr/mm6631a1.htm
3. Herzog et al. Neurology. 2017 Feb 21;88(8):728-733
4. Kanner AD, Epilepsy Curr. 2006 Sep; 6(5): 141–146
5. https://www.epilepsy.com/treatment/medicines/drug-resistant-epilepsy

LPCN 2101

Novel Potential Alternative for WWE

Product Candidate Attribute

Positive Allosteric Modulator (PAM) of the $GABA_A$ receptor

Oral dosage form comprising a neuroactive steroid

Product Candidate Differentiation

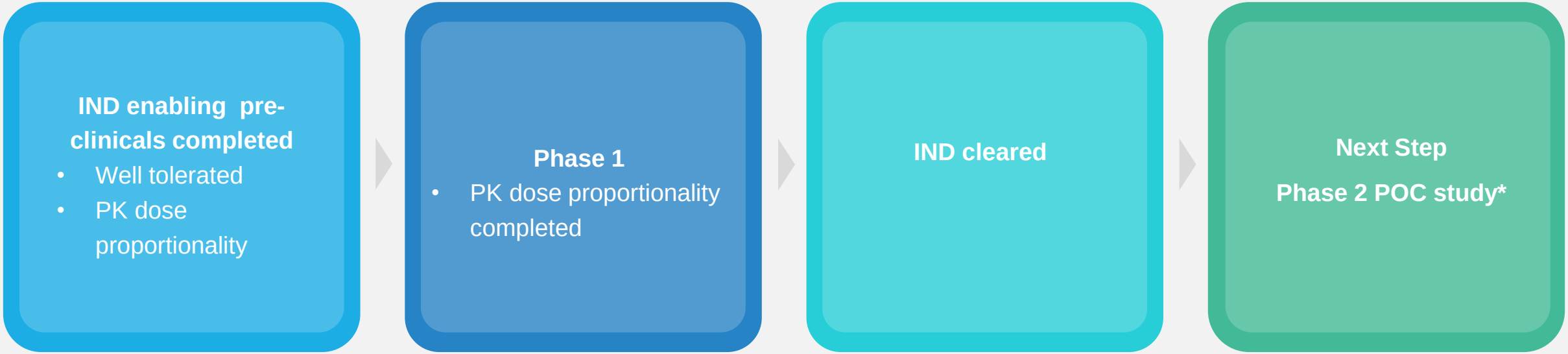
Novel MOA specifically addressing WWE unmet needs

Active is endogenous to women

Potential to address psychiatric comorbidities (depression, anxiety, sleep disorders)

Potential for favorable drug-drug interactions

LPCN 2101 Development Status



*Pending resource availability

Value Through Partnering of Non-CNS Assets

Unlocking Value Through Partnering

Why Partnering?

Enables focus on CNS opportunities

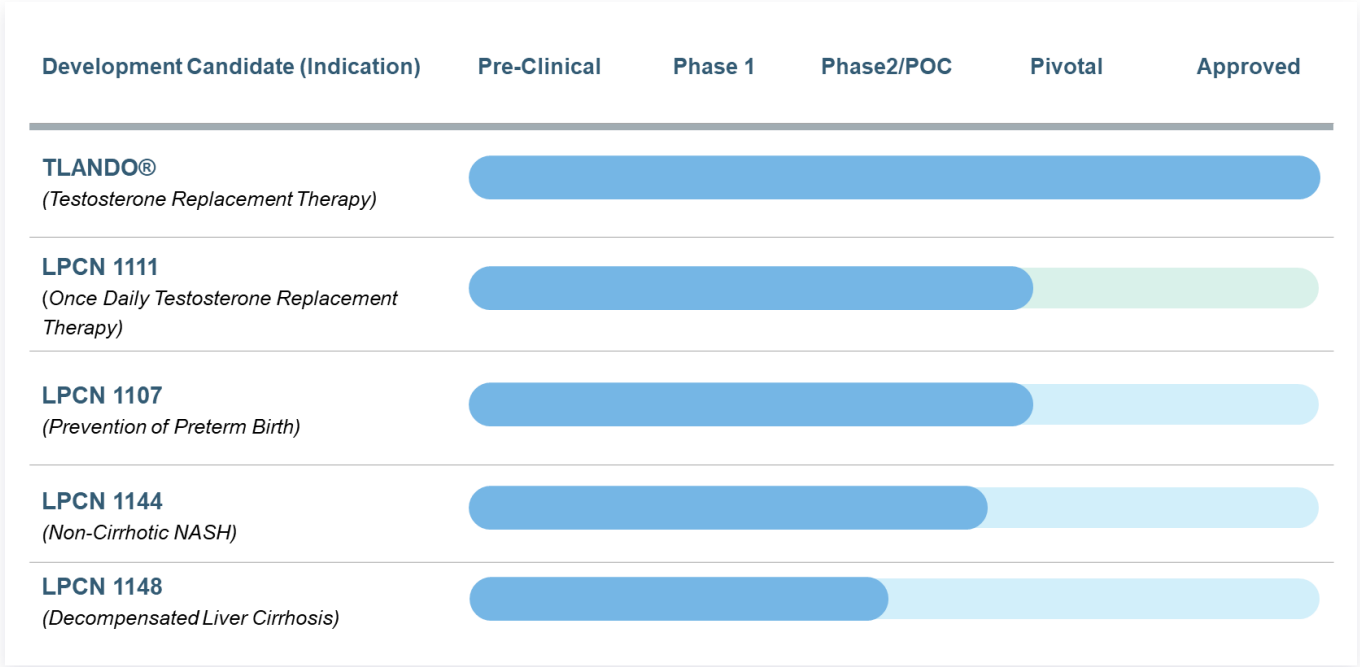
Candidate advancement

Risk diversification

Potential for non-dilutive financing

Improved resource management

Assets Available for Partnering



TLANDO® Attributes

Convenient Oral Route

- No inadvertent transference or pulmonary oil micro embolism risks
- Single strength and dose

TRT without titration requirement

- Enables selection of an effective dose at the start of therapy without delay
- No “efficacy gap” upon switching from other TRTs
- No additional pharmacy and clinic copays to reach efficacious dose
- No dose adjustment clinic and pharmacy visits
- No dose adjustment invasive samplings
- No titration decision errors

Bioequivalent exposure in low/med/high fat food

Not known to produce hepatic adverse events associated with 17-methylated testosterone

Physician Research: Physicians View No Titration Product as Positive

Cited “easy/less titration” as an important advantage of TLANDO™

Finding the adequate TRT dose through titration is burdensome for physicians and patients

TLANDO®: Launched 2Q22 in U.S.
Commercialization Partner - Antares Pharma

LPCN 1021 (TLANDO®): Available for Licensing for ex-US Markets

LIPOCINE ENHANCING HEALTH

TLANDO® is a registered trademark assigned to Antares

LPCN 1111

Once-A-Day Oral Testosterone Replacement Therapy

Product Candidate Highlights

Oral dosage form comprising testosterone tridecanoate

Convenient option for large and growing market

Patients and physicians preferred once a day oral testosterone

Positive phase 2 study results

“Phase 3 ready”

LPCN 1107

Potential to be SOC in Prevention of Preterm Birth

Product Candidate Highlights

Oral dosage form comprising 17-hydroxyprogesterone caproate

>$2B Market potential

Strong pharmaco-economic justification

Oral, a Major Contribution to Patient Care (MC to PC), including no injection site reaction

Compelling efficacy rationale

Accelerated approval pathway; Orphan Drug Designation

LPCN 1144

Novel MOA in Non-Cirrhotic NASH

Product Candidate Highlights

Oral dosage form comprising testosterone ester

No approved drug

Fast Track Designation

Compelling P2 Biopsy Results in the FDA approvable endpoint

✓ Safety support with 72 weeks exposure

Mono- or adjunct therapy

Differentiated profile

✓ Oral with unique benefit to risk profile

✓ Potential for additional benefits including sexual/mental and musculoskeletal domain

✓ Weight neutral approach

Accelerated approval pathway

Financial Summary

Market Capitalization	$43.8M[1]
Debt	No outstanding debt
Cash	$37.4M[2]
Additional funding	Potential for non-dilutive funding through partnerships

Research Coverage includes:

Cantor Fitzgerald	Jennifer Kim
Ladenburg Thalmann	Matt Kaplan
Zacks	John Vandermosten

LIPOCINE® ENHANCING HEALTH

1. As of 9/21/2022
2. At 6/30/2022

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