LIPOCINE®
ENHANCING HEALTH

LPCN 2401 for Obesity Management

Unprecedented Demand and Usage of GLP-1 Receptor Agonists[1-3]

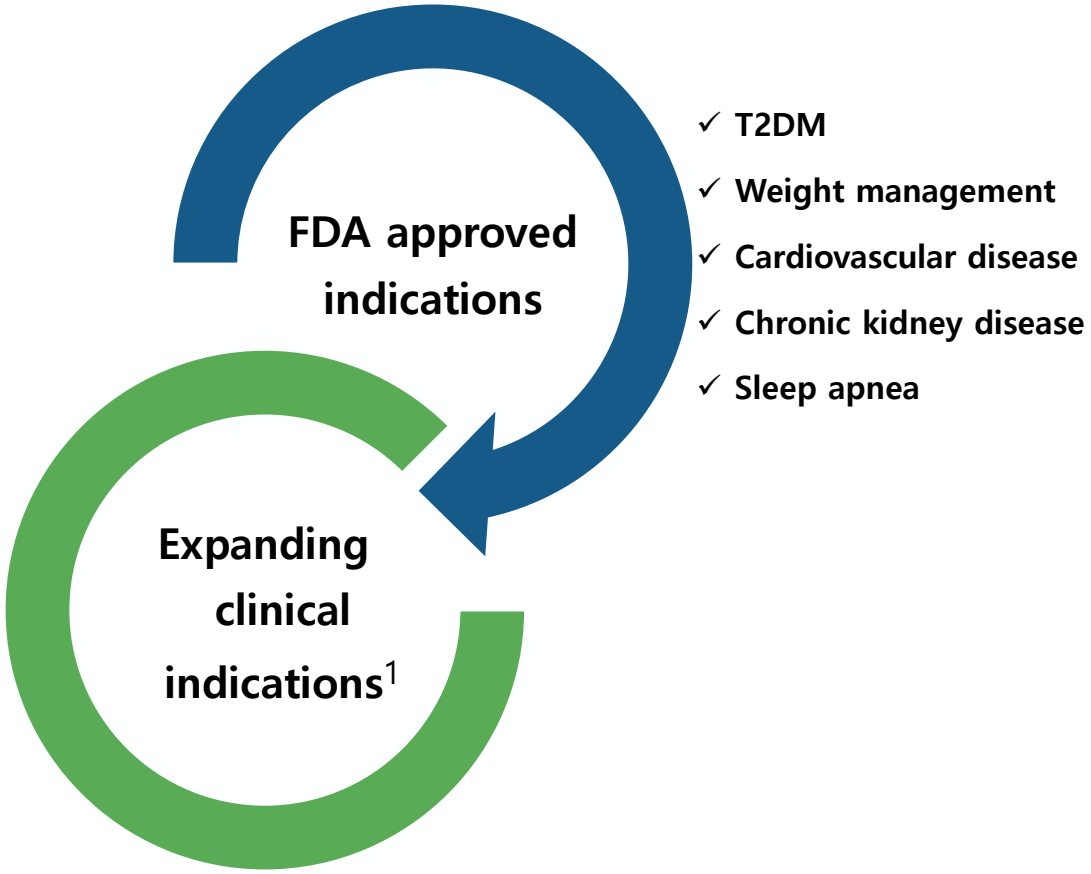
GLP-1 market trending toward oral once daily dosing

Semaglutide: $30 billion sales in the US in 2024[4]

Tirzepatide: $14 billion sales in the US in 2024[5]

As of 2024, around 12 percent of U.S. adults reported having used a GLP-1 medication at some point[6]

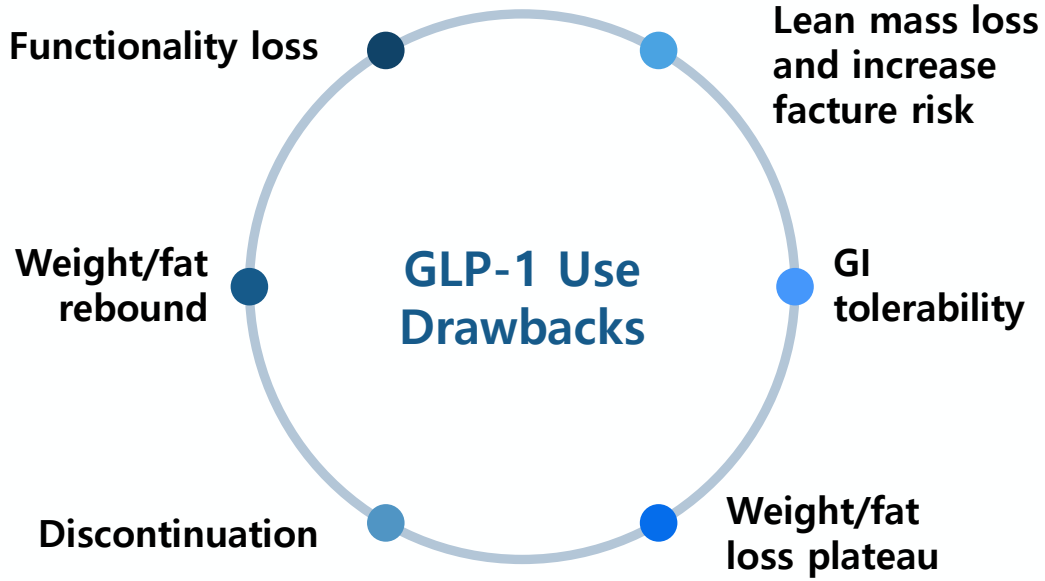
Over 150 GLP-1 drug candidates in development for multiple indications[7]



1. https://www.biospace.com/drug-development/7-indications-for-glp-1s-beyond-weight-loss
2. https://www.pwc.com/us/en/services/consulting/business-model-reinvention/glp-1-trends-and-impact-on-business-models.html
3. https://www.nature.com/articles/s41574-024-01066-9
4. Novo Nordisk SEC filing 2025
5. Eli Lilly SEC filing 2025
6. https://jamanetwork.com/journals/jama/article-abstract/2819949
7. https://www.globenewswire.com/news-release/2025/03/18/3044263/28124/en/

Limitations of GLP-1 Use and Unmet Medical Needs

2 out of 3 patients on drugs like Wegovy stop within a year[1]



Unmet Medical Needs

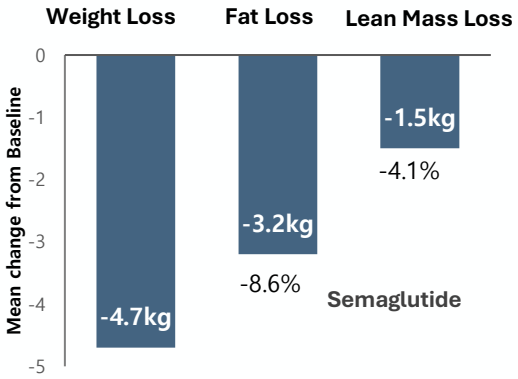
- Improve quality weight loss
- Preserve lean mass/functionality
- Improve tolerability & compliance
- Amplify weight/fat loss
- Prevent weight/fat rebound

1. https://www.reuters.com/business/healthcare-pharmaceuticals/most-patients-using-weight-loss-drugs-like-wegovy-stop-within-year-data-show-2023-07-11/

Drawbacks of Approved GLP-1 Receptor Agonists

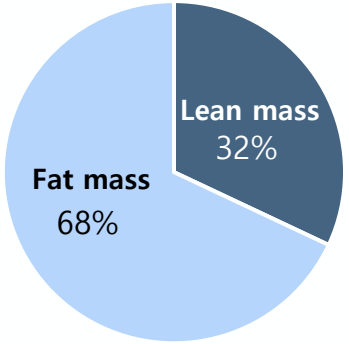
Rapid loss of lean mass and functionality in elderly GLP-1 users

Low Quality Weight Loss[1]



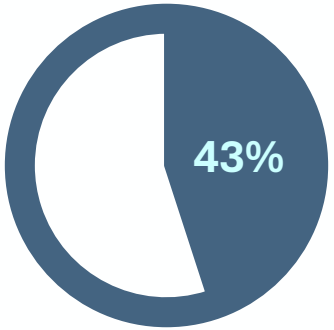
Significant weight loss is from lean mass loss in **16 weeks**[1]

Lean Mass Loss[1]



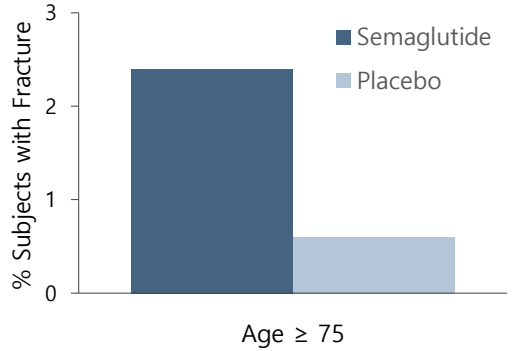
The median percentage of total body weight loss that is due to lean mass:
32% in **16 weeks**[1] (elderly 60+)
35% in 24 weeks[3] (adults 18-80)

Functionality Loss[1]



43% of elderly (60+) lost ≥10% Stair Climb Power from baseline in **16 weeks** of GLP-1 use[1]

Fracture Risk[2,3]



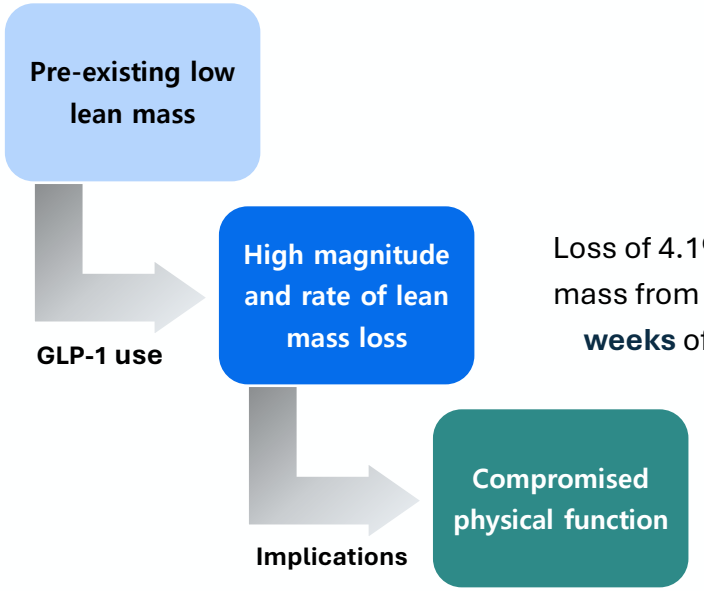
Patients on semaglutide had significantly more fractures of the hip and pelvis[2]

1. The data were adapted from Veru Corporate Presentation Jones Healthcare and Technology Innovation Conference, April 8-9, 2025
2. Wegovy label (Revised 03/2024)
3. https://investor.regeneron.com/news-releases/news-release-details/interim-results-ongoing-phase-2-courage-trial-confirm-potential

Target Population - Elderly GLP-1 Users, Most Vulnerable Population

8 years of expected age-related stair climb power loss in 4 months of GLP-1 use

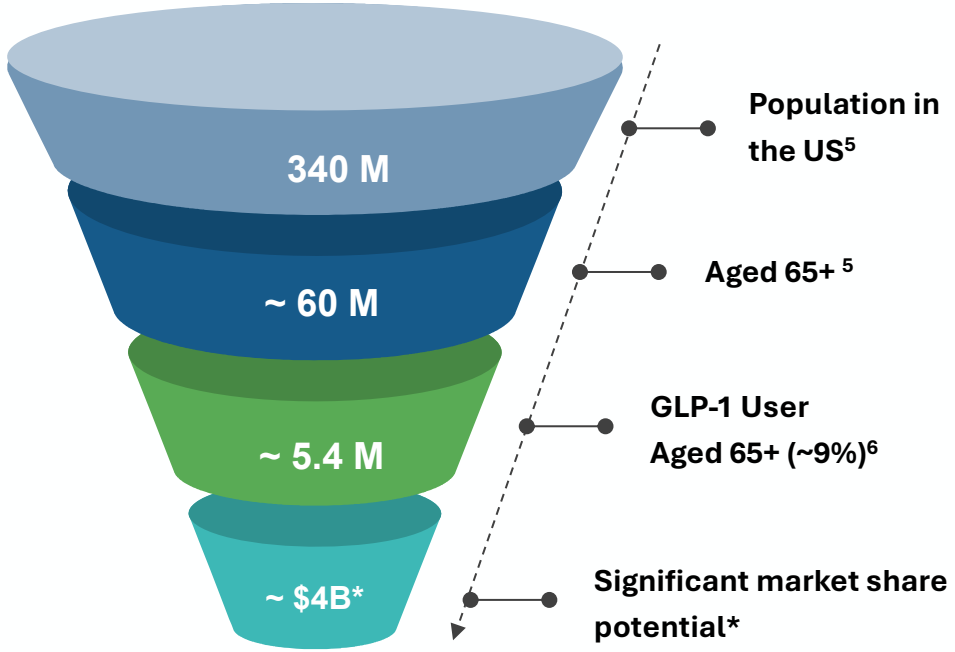
GLP-1 Use Related Decline in Elderly



Loss of 4.1% of total lean mass from baseline in **16 weeks** of GLP-1 use[4]

- Muscle mass decreases at an annual rate of 1% after about age 60[1]
- Muscle strength declines by 1.5% annually between ages 50 and 60 and by 3% thereafter[2]
- Older patients lose 1.38% stair climb power each year with aging[3]

Estimated Elderly GLP-1 Users



*10% market share with price assumption $7,500 per year

1. Mitchell et al., Front Physiol 2012 Jul 11; 3(260)
2. Haehling et al., J Cachexia Sarcopenia Muscle. 2010 Dec 17;1(2):129–133
3. Van Roie E PLOS ONE 14:e0210653, 2019
4. https://ir.verupharma.com/news-events/press-releases/detail/225/veru-announces-positive-topline-data-from-phase-2b-quality/
5. https://www.census.gov/quickfacts/fact/table/US#
6. https://www.kff.org/health-costs/poll-finding/kff-health-tracking-poll-may-2024-the-publics-use-and-views-of-glp-1-drugs/

LPCN 2401 Once Daily Oral Treatment for Obesity and Weight Management

Proven potential to improve body composition - quality weight loss with quality fat loss

Product Candidate Attributes

- Proprietary androgen receptor agonist, testosterone ester(s), targeted for once-a-day treatment - “LPCN 2401”
  - Androgen receptor agonist with α-tocopherol for once-a-day treatment – “LPCN 2401+E”

Targeted Mechanism of Actions

Androgen Receptor Agonist

Fat

- Induces lipolysis[1]
- Lowers lipogenesis[1]
- Inhibits expression of adipocytokines (e.g., leptin, TNF-α, IL-6, IL-1) [2]

Muscle

- Stimulates muscle satellite activator, FGF2[3]
- Modulates muscle growth suppressors MRF4 and myostatin (GDF8) expression in skeletal muscle[3]

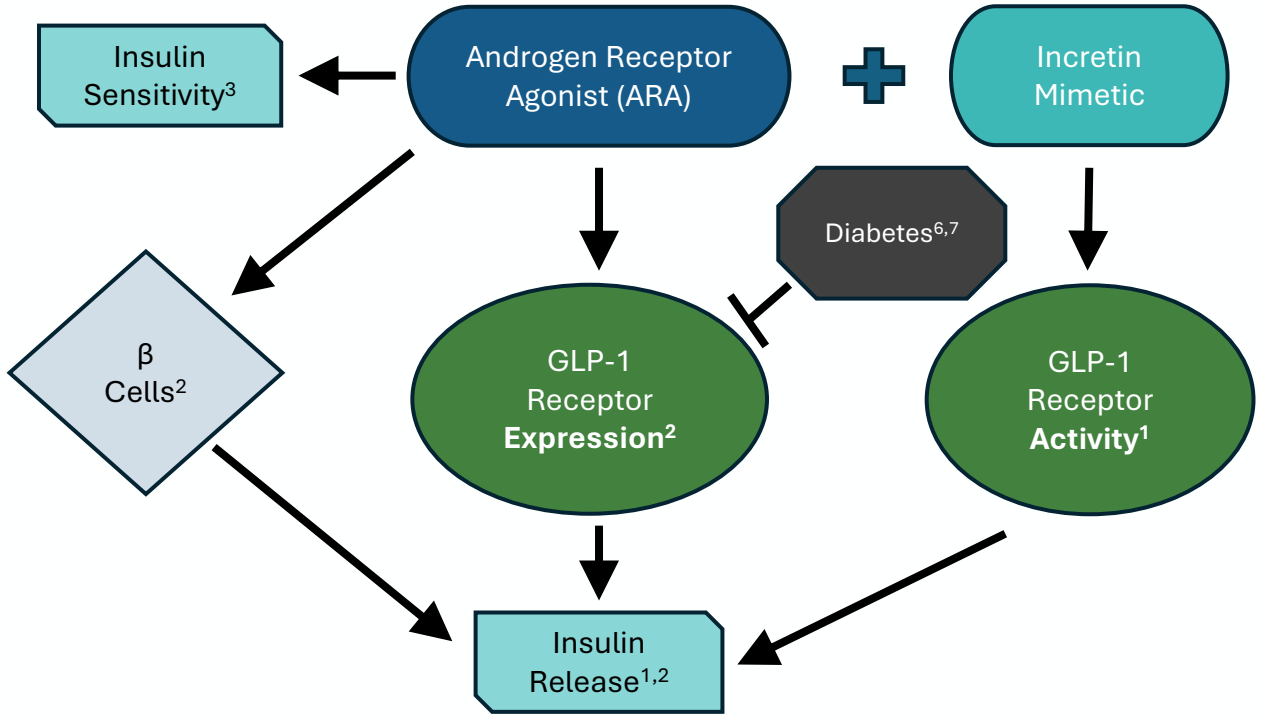
Bone

- Acts directly on osteoblasts and consequently promotes bone formation[4]
- Increases AR expression level in osteoblasts[4,5]

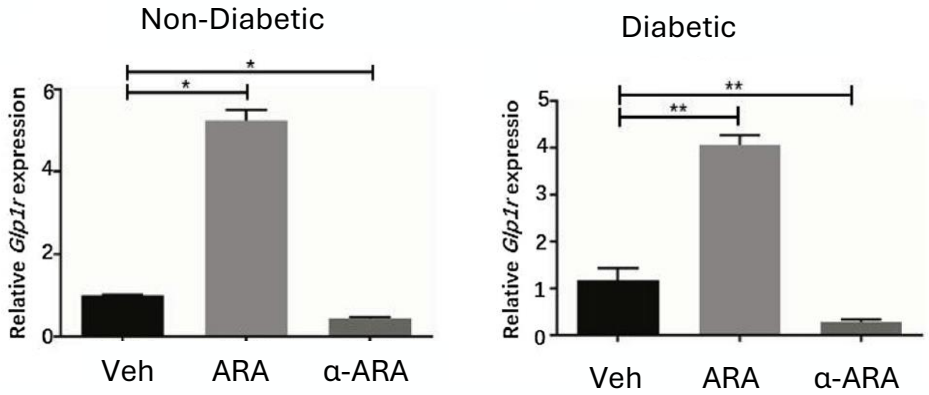
1. Biochimie,87(1):39-43, 2005
2. J Endocr Soc. 2019 Jan 1; 3(1): 91–107
3. J Clin Endocrinol Metab, 104(6): 2094–2102, 2019
4. Clin. Interv. Aging 2016, 11, 1317–1324
5. Horm. Metab. Res. 2004, 36, 674–678

LPCN 2401: Potential to Amplify Effects of Incretin Mimetics

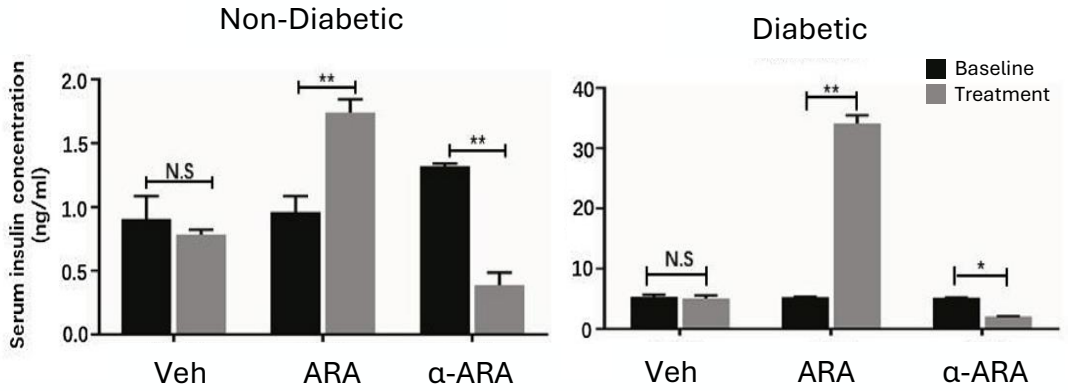
ARA may increase weight loss through increased expression and activity of GLP1R [4,5]



GLP-1 expression increase with ARA[2]



Insulin activity increase with ARA[2]



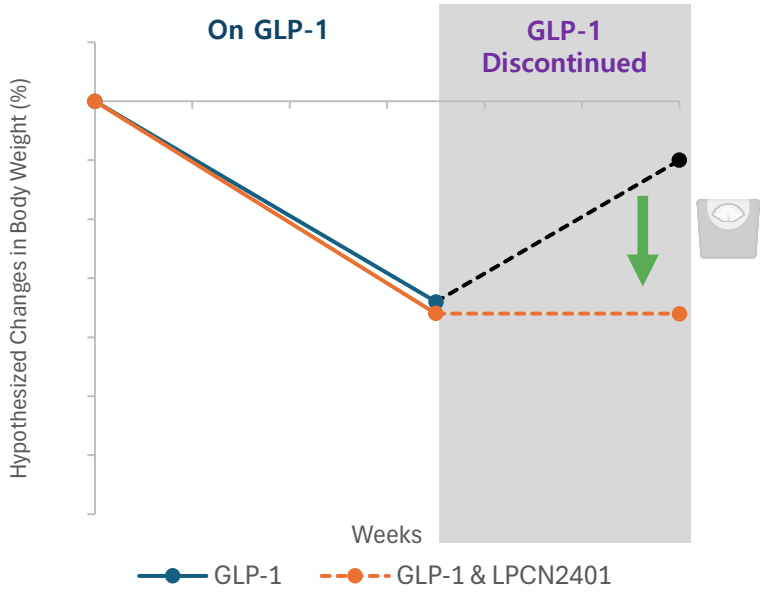
ARA: Androgen receptor agonist; α-ARA: Androgen receptor antagonist

1) Xu et al., Cell Reports 2023. 2) Zhu et al., Biomed Pharmacoth, 2019 (images modified). 3) Wittert et al., Lancet Diabetes and Endo, 2021 (appendix 2).
4) Xu et al., Diabetes, 2007. 5) Rajan et al., Molecular Metabolism. 2015. 6) Xu et al., Pathophysiology 2007. 7) Shu et al., Hum Mol Genet, 2009.

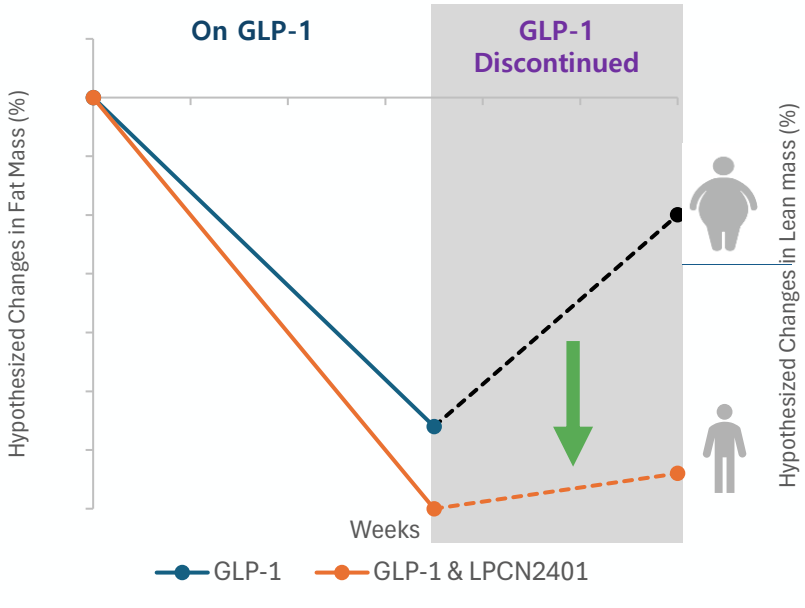
LPCN 2401 Novel Oral Treatment for Obesity Management

Hypothesized benefits - improve body composition and functionality in weight management

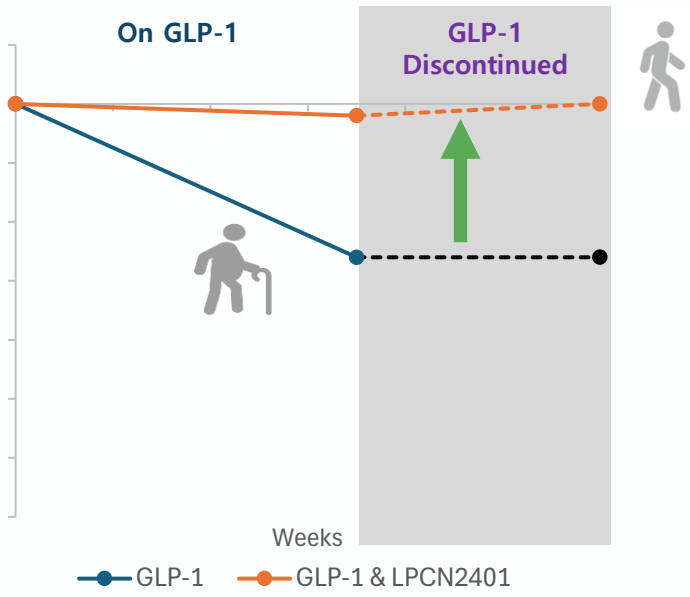
Quality weight loss
Minimize weight rebound



Amplify fat loss
Minimize fat regain



Improve lean mass
Preserve functionality



LPCN 2401 Novel Oral Adjunct Treatment with GLP-1

Targeted to aid in chronic weight/diabetes management

Quality Weight Loss

Preserve lean mass | **Primarily fat loss**

- Amplify fat loss
- More abdominal fat loss
- Attenuate functionality loss
- Improve bone health

LPCN 2401 + GLP-1 agonist treatment

Maintain Weight Loss

Minimize fat regain | **Minimize weight regain**

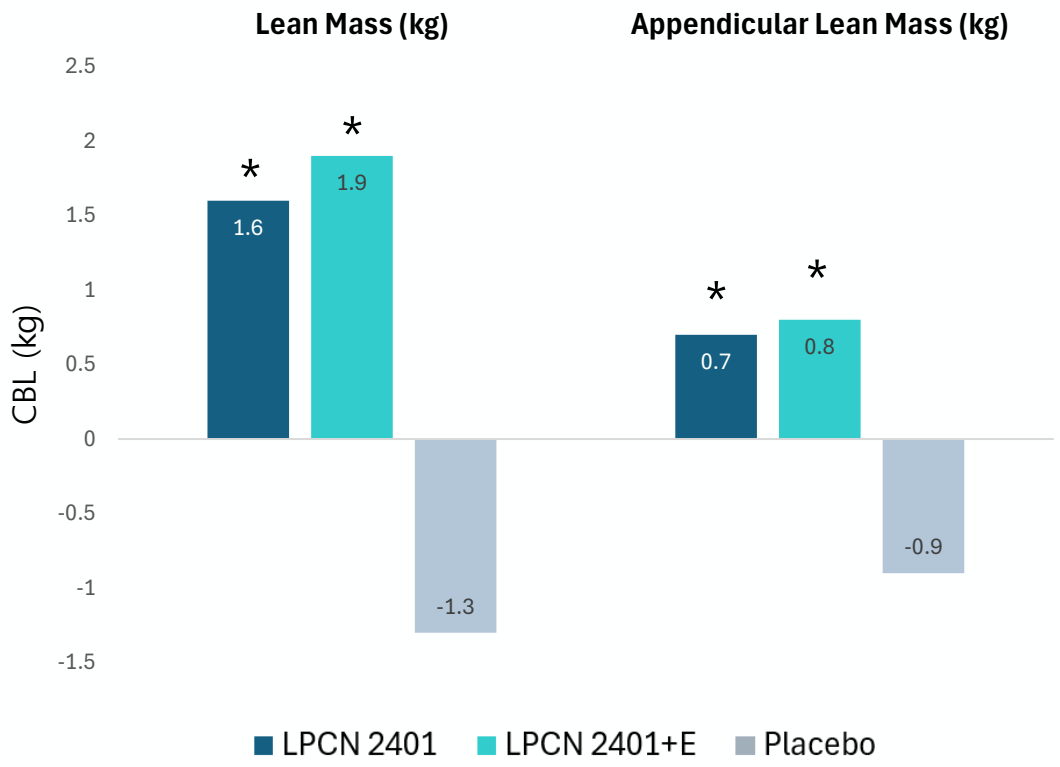
- Maintain/improve functionality
- Improve lean mass
- Sustain HbA1c improvement

LPCN 2401 treatment post GLP-1 cessation

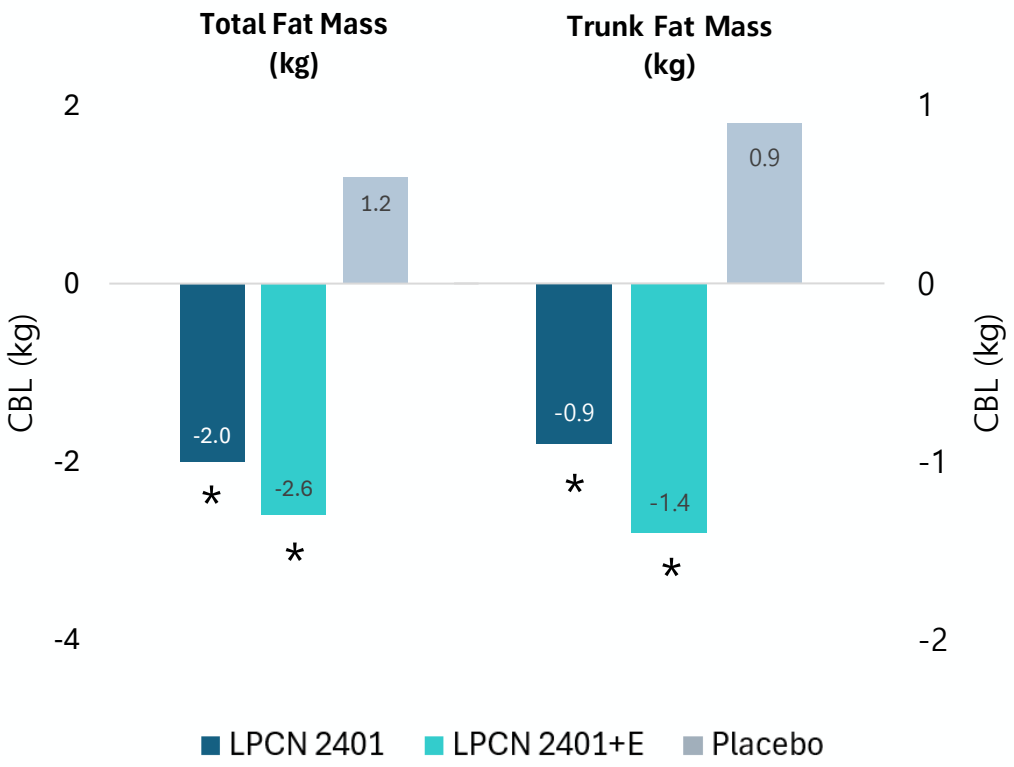
LPCN 2401 – Clinical Data Show Significant Improvement in Body Composition

Phase 2 results demonstrate increased lean mass and decreased fat mass at Week 20

Lean Mass



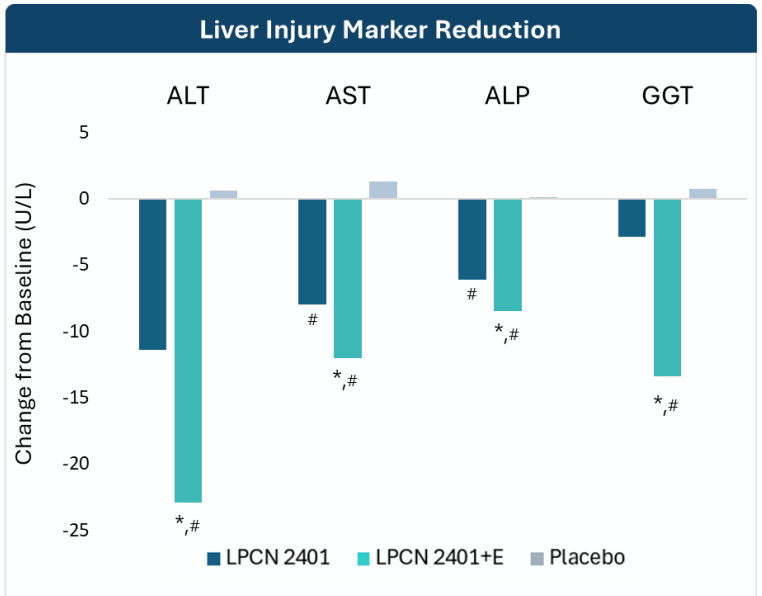
Fat Mass

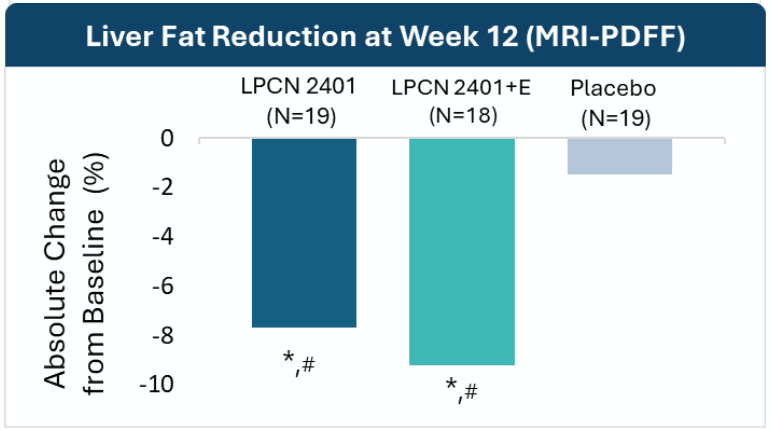


*p<0.05 vs placebo
Phase 2 clinical trial - NCT04134091
n=12 for LPCN 2401; n=13 for LPCN 2401+E; n=13 for placebo

LPCN 2401 Safety Data Support Differentiated Product Profile

Well-tolerated with liver benefits and no safety signals upon 72-week exposure





- POC study in relevant obese and overweight population
- Frequency and severity of TEAEs with LPCN 2401 were comparable to placebo
- Frequency of SAEs with LPCN 2401 were comparable to placebo
- No reported cases of hepatocellular carcinoma or Drug Induced Liver Injury (“DILI”)

Safety set. * p < 0.05; vs placebo; # p < 0.05 vs baseline.
All Subjects: ITT Dataset, n = 56, missing data imputed using multiple imputation. * p < 0.05; vs placebo; † p < 0.05 vs baseline.
TEAEs = Treatment Emergent Adverse Events; SAEs = Serious Adverse Events; PSA = Prostate-Specific Antigen

LPCN 2401 POC Phase 2 Study Objectives

Quality Weight Loss Phase

- **Objective 1**
  - Assess the **co-administration of LPCN 2401** and incretin mimetic for weight loss and prevention of functional loss associated with incretin mimetic monotherapy

Weight Maintenance Phase

- **Objective 2:**
  - Evaluate the use of LPCN 2401 **upon stopping incretin mimetic** to prevent fat/weight rebound (LPCN 2401 naive)

- **Objective 3:**
  - Assess the **continued use of LPCN 2401** after discontinuing incretin mimetic to prevent fat/weight rebound

LPCN 2401 - Potential for Differentiated Benefit to Risk Profile

A liver beneficial approach[6] with no increased risk of adverse cardiovascular outcomes[7]

LPCN 2401 Target Attributes

- Oral, QD, prodrug of bioidentical hormone
- Fat loss amplification
  - Lower fat mass (preferentially VAT and android fat)
- Improve/preserve lean mass
  - Muscle mass, quality, and functionality
  - Bone health
- GLP amplification: through genomic and non-genomic pathways
- GI side effects: minimal
- Muscle spasm AE: none observed
- Liver Health: beneficial effects (MASH resolution, injury markers improvement)
- Impact on sex hormone (FSH, LH, and Estradiol): minimal

Competitive Landscape*

- **Myostatin /activin receptor modulators** (e.g. bimagrumab, taldefgrobep, KER-065, garetosmab, and trevogrumab)[1,2]
  - Invasive - IV/SC
  - Moderate to high GI side effects [2,3]
  - Reports of muscle spasms [2,3]
  - Increased serum alkaline phosphatase [3]
  - Sex hormone changes (FSH/LH) [4]
  - Unclear muscle functionality improvement
  - High discontinuation & long term exposure risks unknown
- **SARM** (e.g. Enobosarm) [5]
  - Oral
  - Bone health concerns (estradiol suppression?)
  - Liver toxicity concerns

*select list with reported body composition improvement P2 results

1. J Bone Metab. 2020 Aug; 27(3): 151–165
2. J Cachexia Sarcopenia Muscle. 2020 Dec; 11(6): 1525–1534
3. JAMA Netw Open. 2021;4(1):e2033457.
4. Clin Endocrinol (Oxf) 2018 Jun;88(6):908-919
5. Sex Med Rev. 2019 Jan;7(1):84-94
6. Hepatol Commun. 2020 Aug 2;4(10):1430-1440
7. https://www.fda.gov/drugs/drug-safety-and-availability/fda-issues-class-wide-labeling-changes-testosterone-products

LPCN 2401 – Regulatory Outlook on Efficacy

Appropriate population and endpoints selection

Per FDA Guidance (2025)[1,2], for efficacy claim related to changes in body composition, trial design should include **appropriate choice of population** and **selection of endpoints** that measure how a **patient feels, functions, or survives**, to potentially support such a claim

Appropriate Population

Obese and overweight GLP-1 eligible

- Elderly
- Sarcopenic

Appropriate Functional Endpoint

Stair climb performance measure

- Previously accepted by FDA[3,4]

✓ **Pre-IND meeting completed**
✓ **Plan to meet with FDA to discuss appropriate population and endpoints for pivotal study**

1. FDA Guidance to Industry (2025), https://www.fda.gov/media/71252/download
2. LPCN 2401 Pre-IND Meeting Minutes
3. Duvyzat Package Insert, https://www.accessdata.fda.gov/drugsatfda_docs/label/2024/217865Orig1s000lbl.pdf
4. ELEVIDYS Package Insert, https://www.fda.gov/media/169679/download

Stair Climb Test: A Relevant Clinical Functional Measurement

Clinically relevant with patient-centric outcomes

Regulatory Perspectives

- High reliability and validity[1]
- Well-defined, standardized, supporting multicenter trials[1,2]
- Regulatory precedents: DUVYZAT®, ELEVIDYS®

Patient & Physician Perspectives

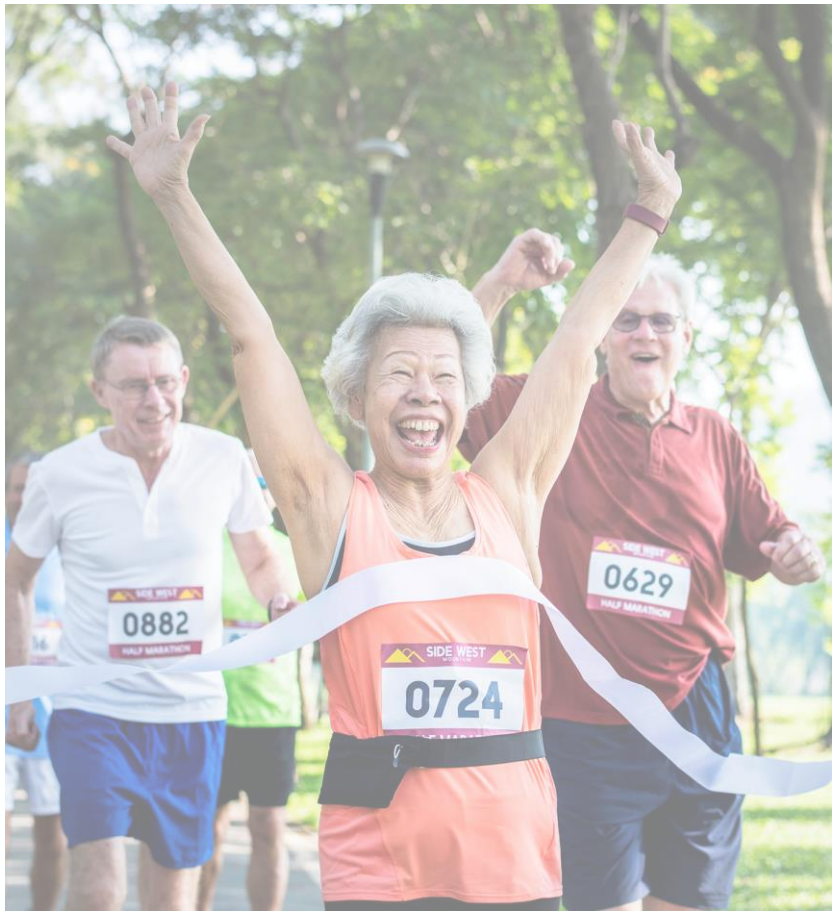
- Key physical function reflecting lower extremity strength & power[1]
- Physical mobility & function measurements[1-3]
- Predictor of physical decline & fall risk[1]
- Important function to activities of daily living[1,4]

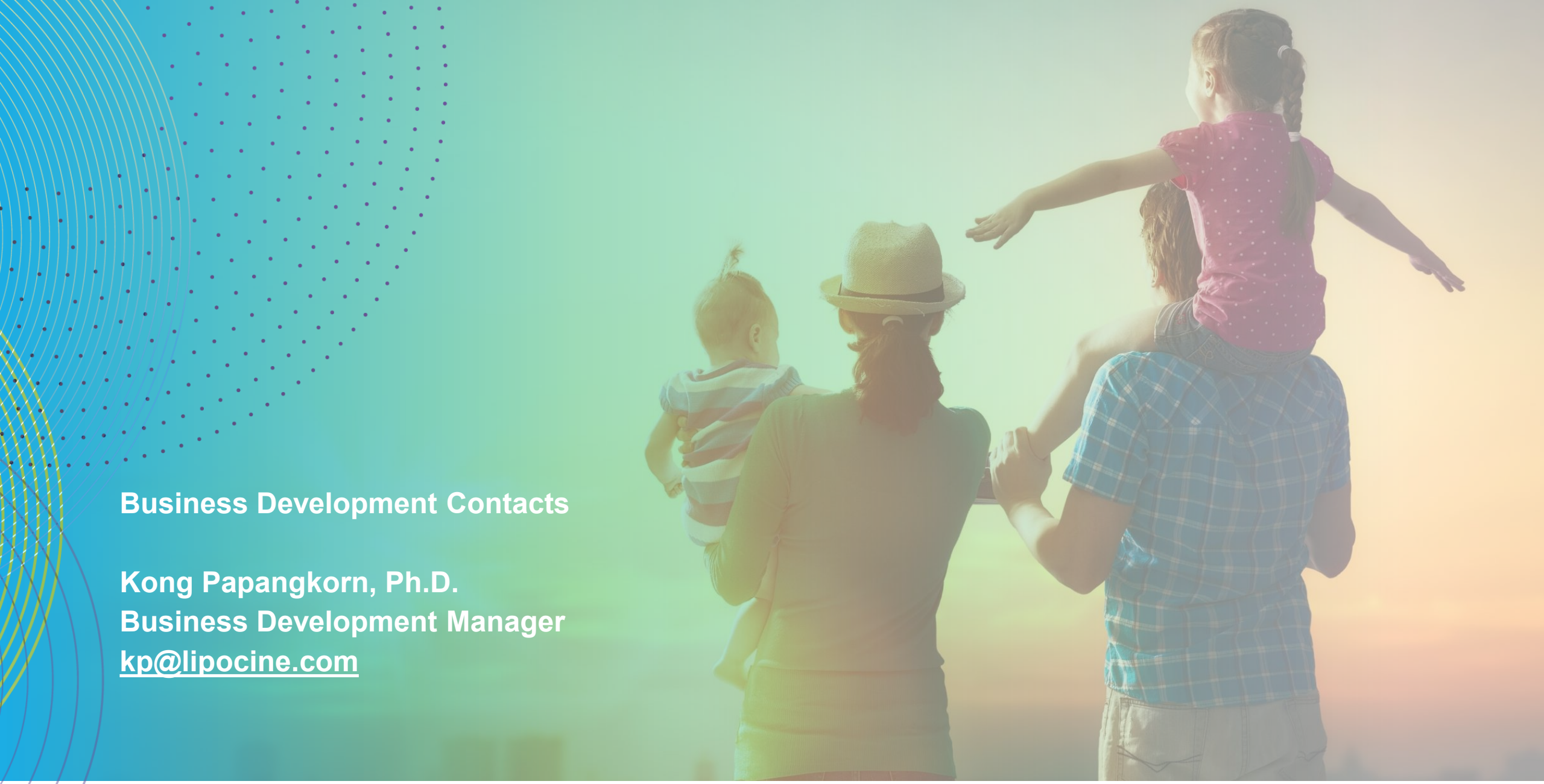
1. Ni el al. Phys Ther 2017 Jul 1;97(7):767-773
2. Sørensen et al. Musculoskelet Sci Pract. 2025 Apr 25:78:103339
3. Gagliano-Jucá et al. J Gerontol A Biol Sci Med Sci. 2019 Jul 6;75(6):1167–1175
4. Unver et al. Hip Int. 2015 Mar-Apr;25(2):160-3

LPCN 2401: Key Takeaways

Compelling Opportunity with favorable benefit to risk profile

- **Addressing huge GLP-1 user market with unmet needs**
- **Differentiated oral product for use in combination with GLP-1 or as a monotherapy**
- **Positive Phase 2 results in relevant subjects**
- **Planned Clinical study with GLP-1 in appropriate population and endpoints**
- **Issued IP coverage through 2041 and pending applications**
- **Potential for line extensions**





Business Development Contacts

Kong Papangkorn, Ph.D.
Business Development Manager
kp@lipocine.com

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