# ALTIMMUNE CORPORATE PRESENTATION

January 2025

altimmune | NASDAQ: ALT

# Forward-looking statements

**Safe-Harbor Statement**

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# ALTIMMUNE HIGHLIGHTS

Developing next generation peptide therapeutics for obesity and liver diseases

Multiple value-driving catalysts: Phase 2b MASH readout and Phase 2 trial initiations in additional indications

$139.4M cash, cash equivalents and short-term investments at 9/30/2024

# SEASONED MANAGEMENT TEAM

**Vipin K. Garg, PhD**
President & CEO

**Greg Weaver, MBA**
Chief Financial Officer

**Scott Harris, MD**
Chief Medical Officer

**Scot Roberts, PhD**
Chief Scientific Officer

**Bertrand Georges, PhD**
Chief Technology Officer

**Raymond Jordt, MBA**
Chief Business Officer

Lilly
NEOS Therapeutics
tranzyme pharma
ImQuest BioSciences
Institut Pasteur
ocera
Lyric Pharmaceuticals
SEPRACOR
Wellstat Group of Companies
IMMUNE TARGETING SYSTEMS
atai LIFE SCIENCES
Cognito Therapeutics



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# EXPERIENCED SENIOR LEADERSHIP TEAM

**Tony Blandin, BS**

Vice President, Quality and Compliance

**Randy Brown, MS**

Vice President, Clinical Operations

**Sarah K. Brown, MD**

Vice President, Clinical Development

**Vyjayanthi Krishnan, PhD**

Vice President, Product Development

**Siavoche Siassi, MPH, MBA**

Vice President, Commercial Strategy and Portfolio Development

**Karen Smith, MBA**

Vice President, Finance

**Andrew Shutterly, MS**

Corporate Controller

**Jay Yang, PhD**

Vice President, Biostatistics and Data Management



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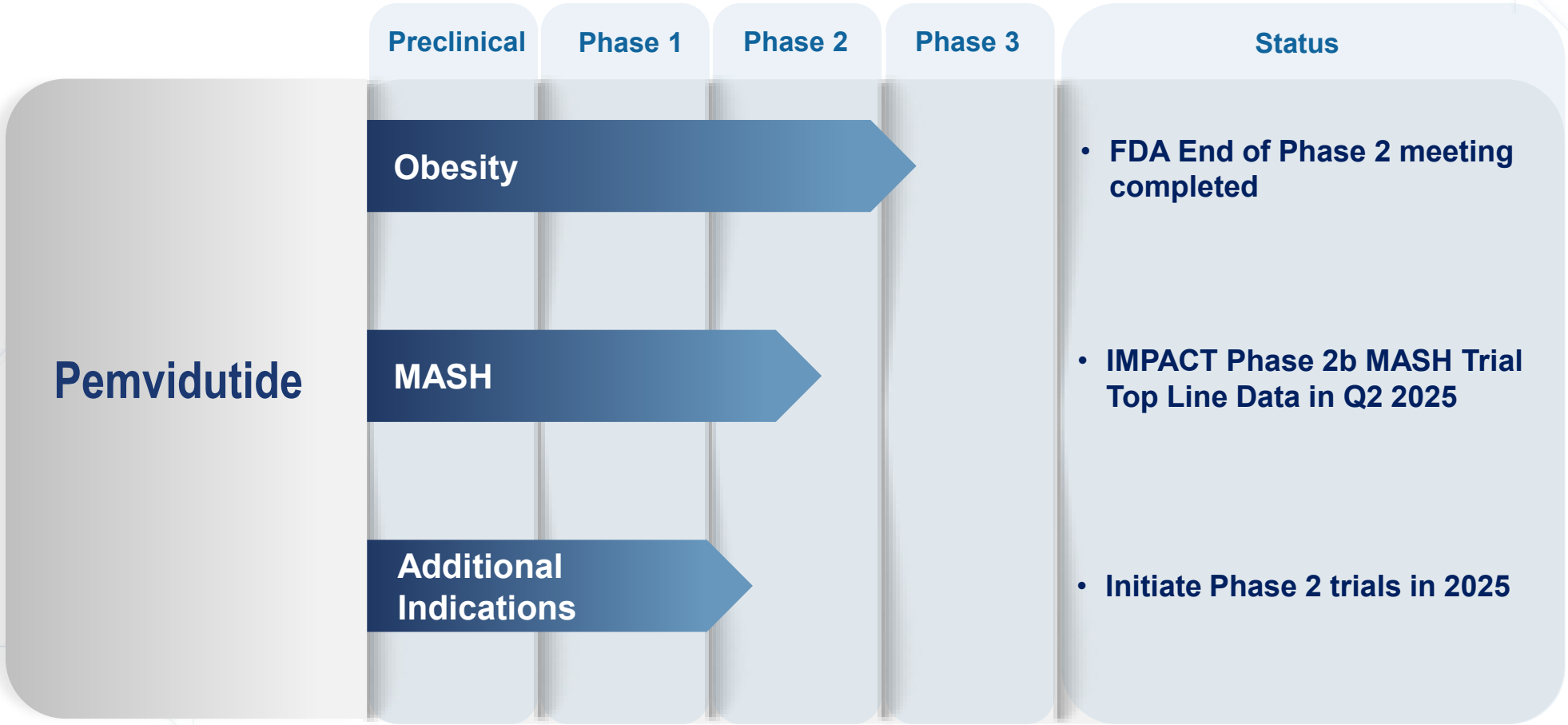
# DEVELOPMENT PIPELINE

## PEPTIDE-BASED THERAPEUTICS ADDRESSING UNMET NEEDS IN OBESITY AND LIVER DISEASES



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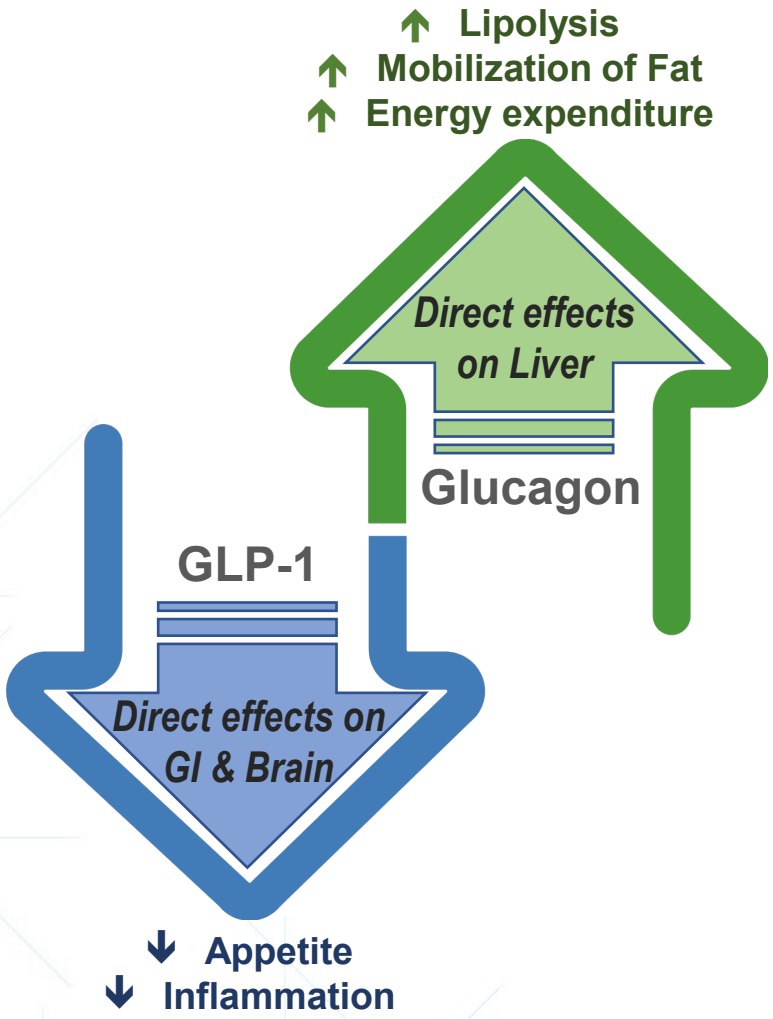
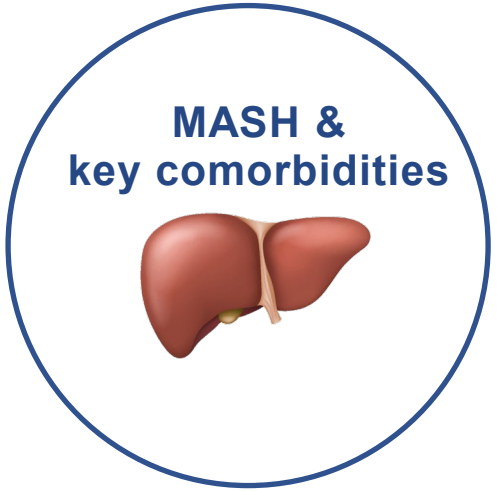
# PEMVIDUTIDE MOA – OPTIMIZED FOR OBESITY AND MASH





**108m people with obesity in U.S.**[1]




**>20m people with MASH in U.S.**[2]



[1]US Obesity Population: Hales CM et al. NCHS Data Brief. 2020 Feb;(360):1-8. PMID: 32487284.
[2]US MASH Population: Estes, C., et. al. Hepatology 2018; 67(1):123-133. doi: 10.1002/hep.29466

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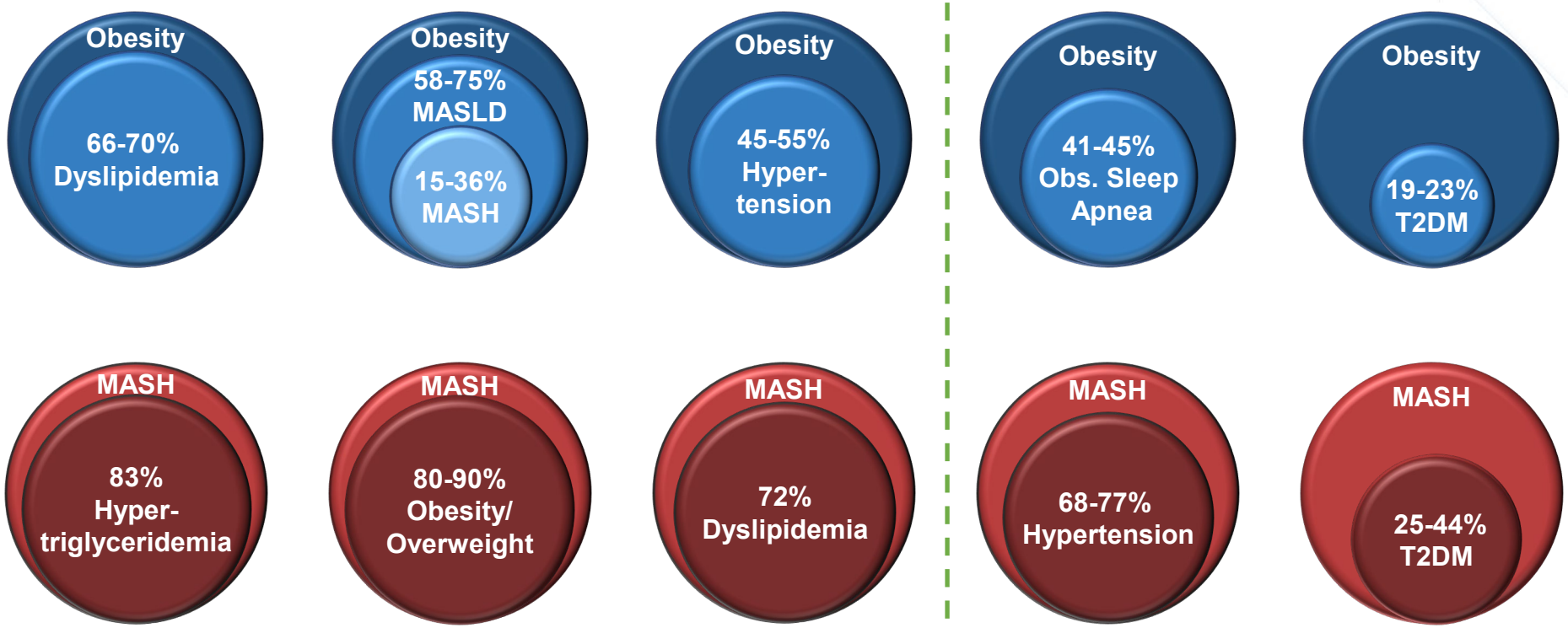
# PREVALENCE AND SIGNIFICANCE OF COMORBIDITIES

**Obesity Comorbidities**




**MASH Comorbidities**

***Most significant comorbidities relate to lipid and liver fat disorders***


1) Bays, Harold, et. al. (2013) Obesity, adiposity, and dyslipidemia: A consensus statement from the National Lipid Association. Journal of Clinical Lipidology 7(4):304–383.
2) Lim Y, Boster J. Obesity and Comorbid Conditions. [Updated 2023 Feb 8]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; https://www.ncbi.nlm.nih.gov/books/NBK574535/
3) Quek, Jingxuan, et. al. (2023) Global prevalence of non-alcoholic fatty liver disease and non-alcoholic steatohepatitis in the overweight and obese population:. The Lancet Gastroenterology & Hepatology 8(1):20-30.
4) Vernon, G, et. al. (2011) Systematic review: the epidemiology and natural history of non-alcoholic fatty liver disease and non-alcoholic steatohepatitis in adults. Aliment Pharmacol Ther 34:274–285.
5) Le, Michael, et. al. (2022) 2019 Global NAFLD Prevalence: A Systematic Review and Meta-analysis. Clinical Gastroenterology and Hepatology 2022;20:2809–2817
6) Dufour, Jean-François, et. al. (2021) The global epidemiology of nonalcoholic steatohepatitis (NASH) and associated risk factors–A targeted literature review. Endocrine and Metabolic Science 3.
7) Pantalone KM, et al. Prevalence and recognition of obesity and its associated comorbidities. BMJ Open 2017;7:e017583. doi:10.1136/ bmjopen-2017-017583
8) Romero-Corral, Abel, et. al. (2010) Interactions Between Obesity and Obstructive Sleep Apnea. Chest 137(3): 711-719.
9) Garvey JF, Pengo MF, Drakatos P, Kent BD. Epidemiological aspects of obstructive sleep apnea. J Thorac Dis 2015;7(5):920-929.
10) Diehl (2017) Cause, Pathogenesis, and Treatment of Nonalcoholic Steatohepatitis. N Engl J Med Nov 23;377(21):2063-2072. doi: 10.1056/NEJMra1503519.
11) Younossi et al. (2016) North America Prevalence. Hepatology 64(1):73 Supplement (onlinelibrary.wiley.com/doi/10.1002/hep.28431/suppinfo)

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# Pemvidutide:
# *Obesity*

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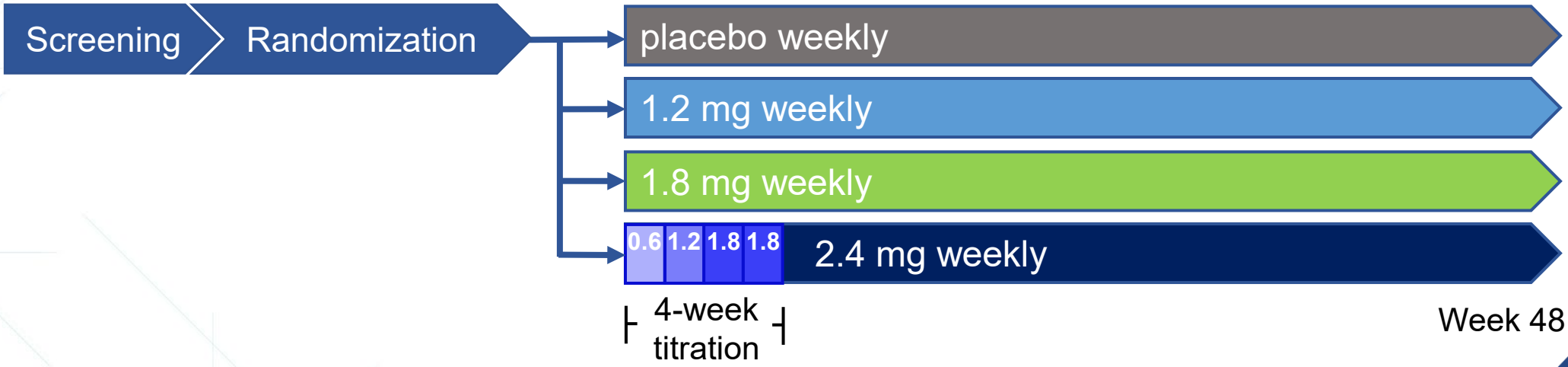
# MOMENTUM OBESITY TRIAL DESIGN

- **Phase 2, 48-week trial of pemvidutide in 391 subjects with overweight or obesity**
- **Randomized 1:1:1:1 to 4 treatment arms, stratified by gender and baseline BMI, with standard lifestyle interventions**
- **No or rapid (4 week) dose titration; dose reduction for intolerability was not allowed**



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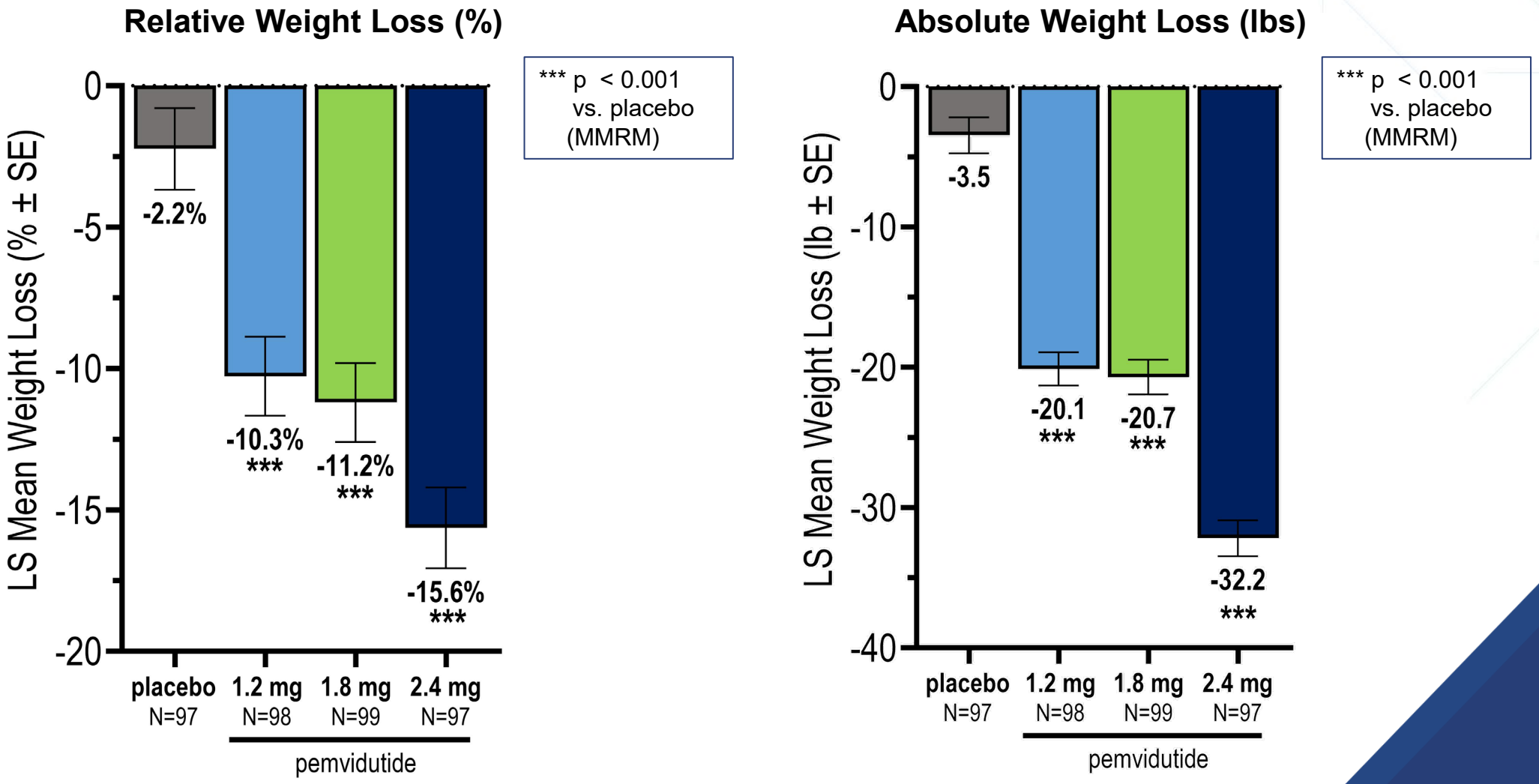
# WEIGHT LOSS OF 15.6% ACHIEVED AT WEEK 48 ON 2.4 MG

MEAN WEIGHT LOSS OF 32.2 LBS AND MAXIMAL WEIGHT LOSS OF 87.1 LBS




MMRM, mixed model for repeated measures



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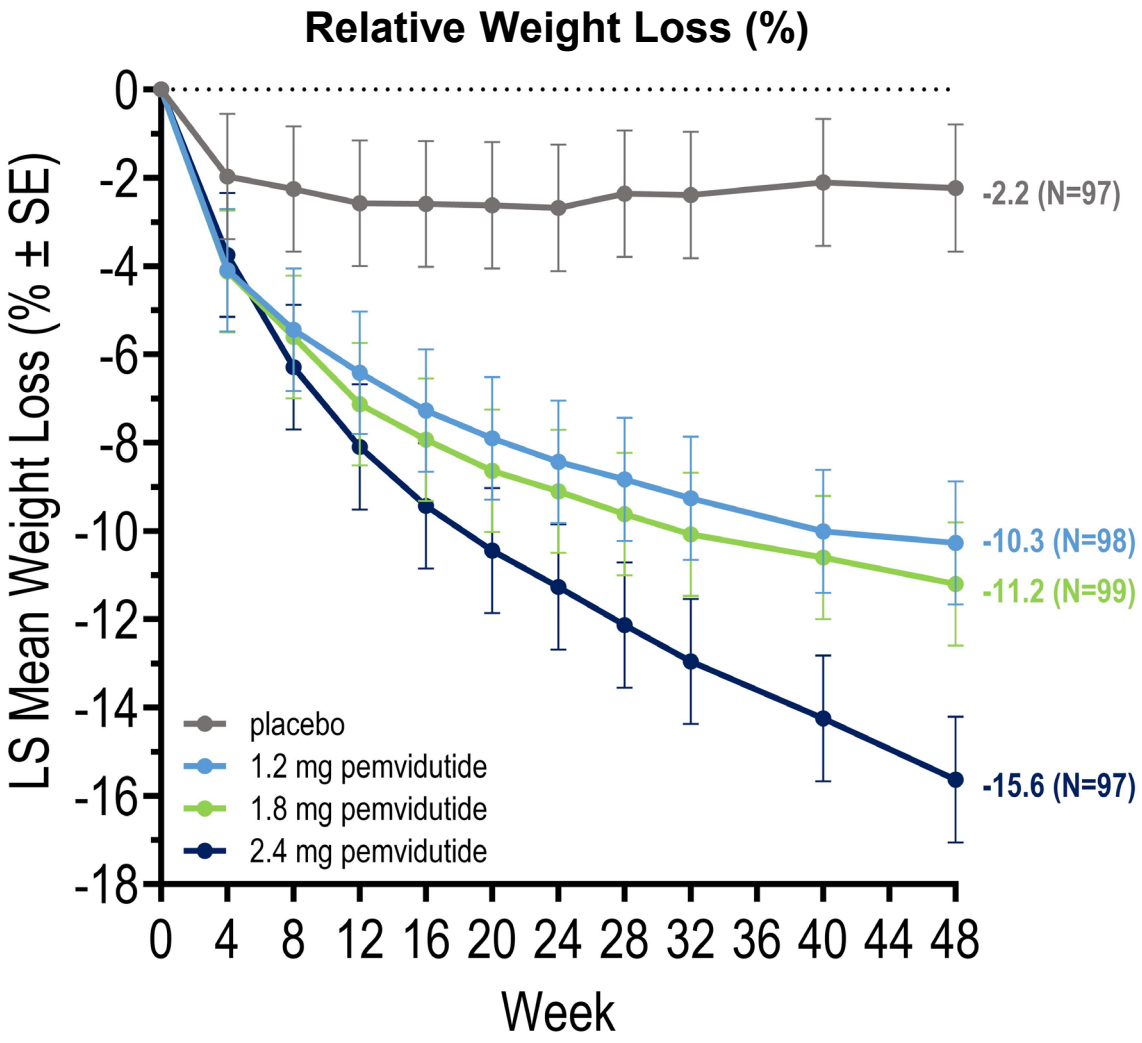
# WEIGHT LOSS CONTINUING AT WEEK 48




- Near linear trajectory of weight loss on 2.4 mg at 48 weeks
- Greater weight loss could potentially be realized with longer durations of treatment

MMRM, mixed model for repeated measures



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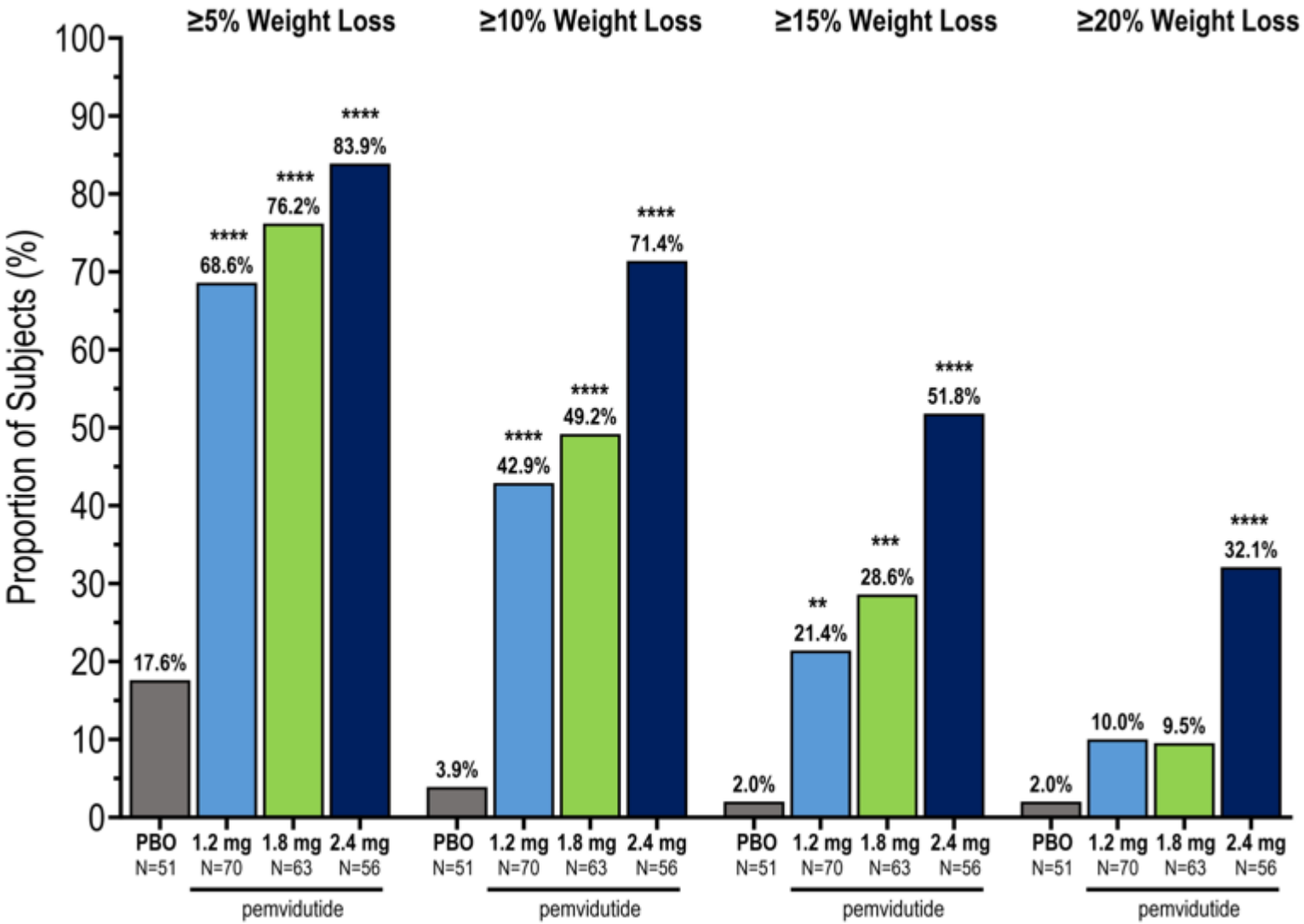
# MAJORITY OF SUBJECTS LOST ≥ 15% BODY WEIGHT ON 2.4 MG




** p < 0.005
*** p < 0.001
**** p < 0.0001
vs. placebo (CMH)

CMH, Cochran–Mantel–Haenszel



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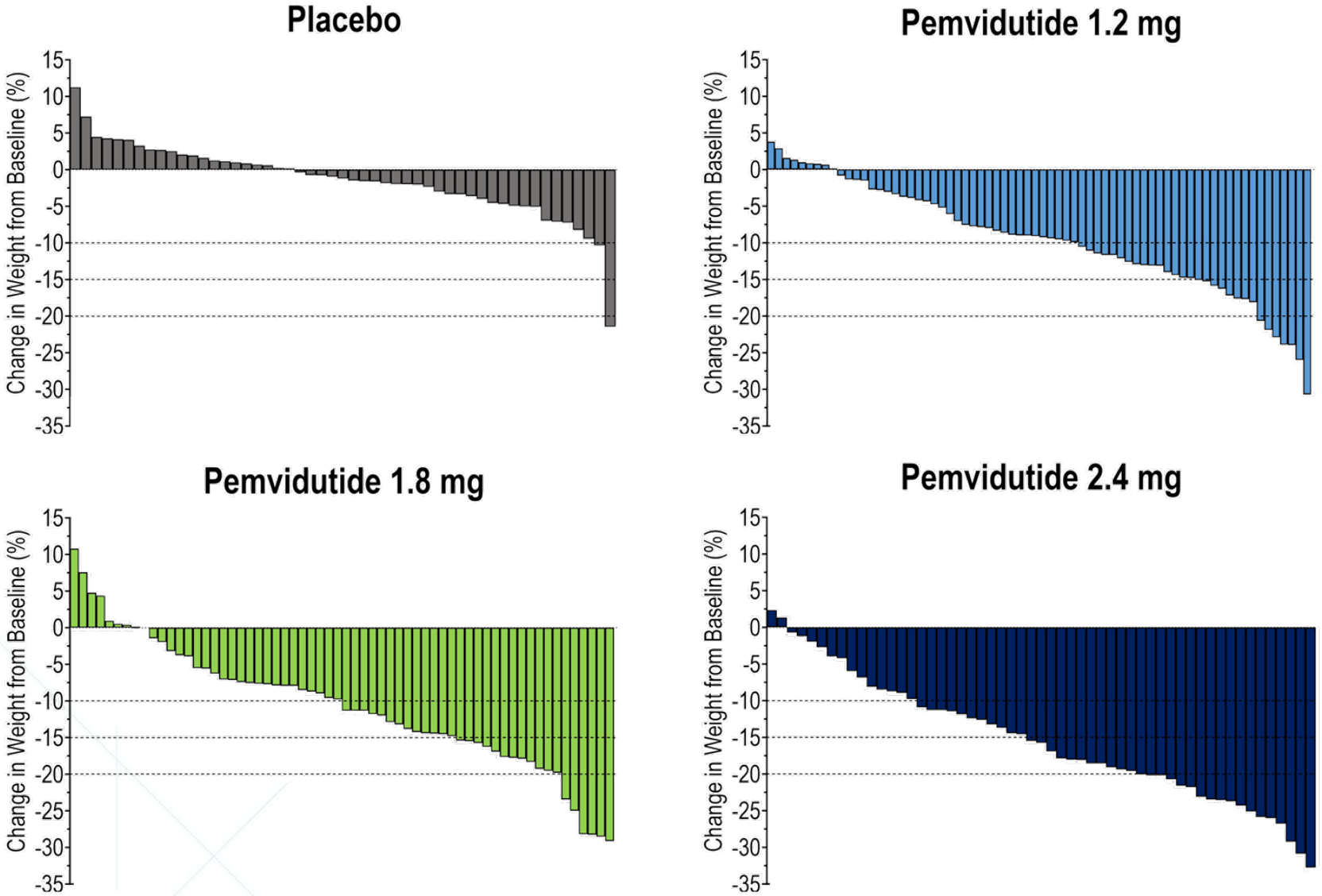
# ROBUST WEIGHT LOSS AT ALL PEMVIDUTIDE DOSES

## OVER 30% OF SUBJECTS LOST 20% OR MORE BODY WEIGHT ON 2.4 MG



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# PEMVIDUTIDE – CLASS LEADING LEAN MASS PRESERVATION

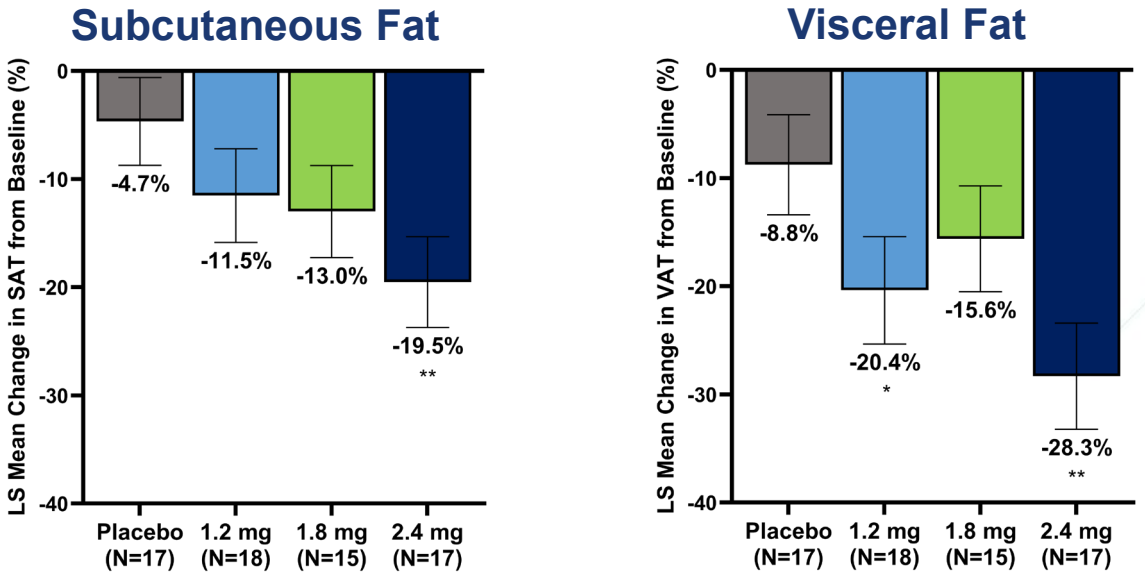
LEAN MASS PRESERVATION AND PREFERENTIAL REDUCTION OF VISCERAL FAT COULD LEAD TO IMPROVED QUALITY OF WEIGHT LOSS

## Only 21.9% of Weight Loss From Lean Mass

| Drug | Study | Study duration | Lean Loss Ratio* |
|---|---|---|---|
| Pemvidutide | MOMENTUM Phase 2 | 48 weeks | 21.9%[1] |
| Tirzepatide | SURMOUNT 1 Phase 3 | 72 weeks | 26.0%[2] |
| Retatrutide | Phase 2 obesity study | 36 weeks | 37.7%[2] |
| Semaglutide | STEP-1 Phase 3 | 68 weeks | 39.9%[3] |

*Lean Loss Ratio = Lean Loss (kg)/Total Loss (kg)

## Preferential Loss of Visceral Fat




***Visceral fat is a risk factor for cardiovascular disease***


1. Pemvidutide data from MRI MOMENTUM sub-study
2. Harris C, Obesity Week 2023
3. Wilding JPH. N Engl J Med. 2021 Mar 18;384(11):989-1002

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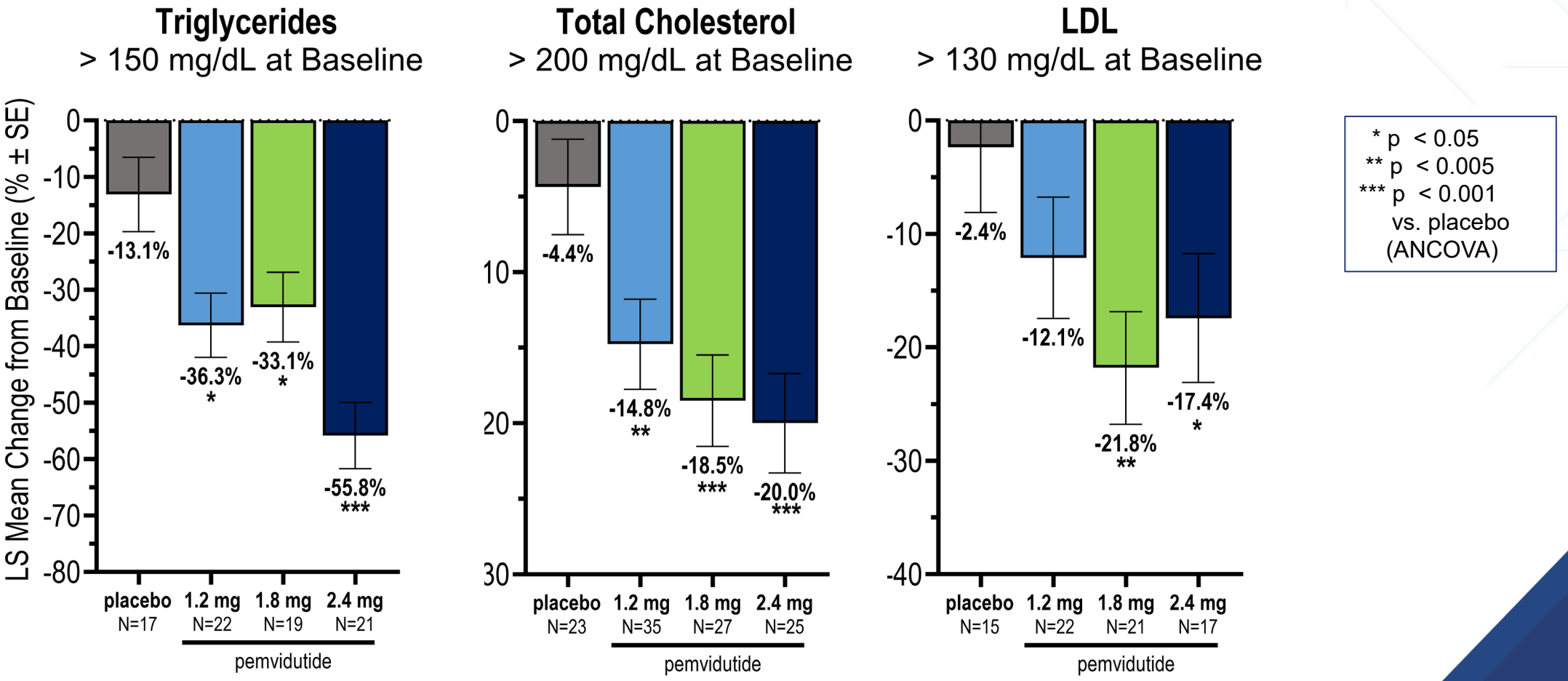
# GREATER LIPID REDUCTIONS IN SUBJECTS WITH ELEVATED BASELINE LEVELS




* p < 0.05
** p < 0.005
*** p < 0.001
vs. placebo
(ANCOVA)

*Reductions in LDL were observed irrespective of any statin treatment*

ANCOVA, analysis of covariance



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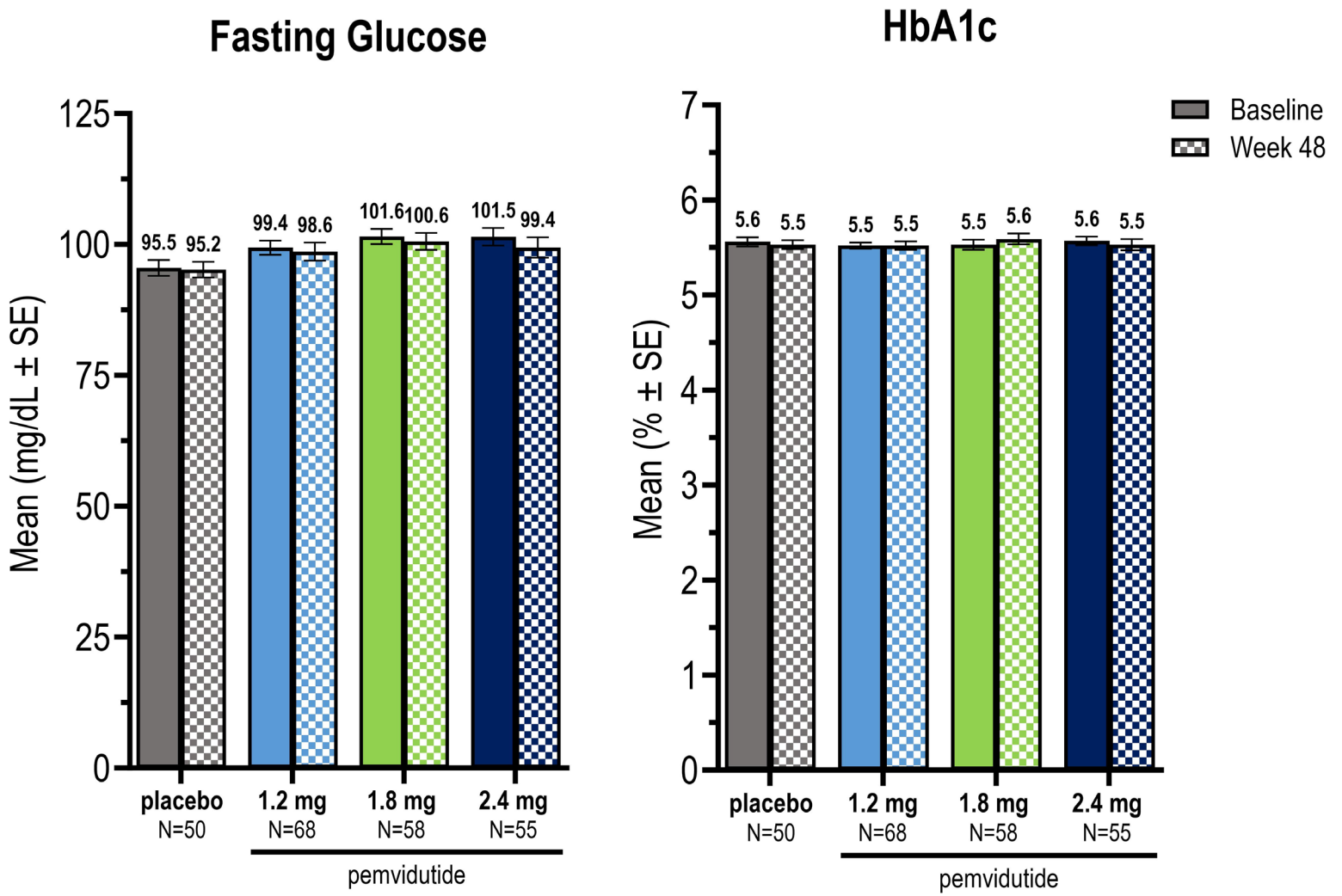
# GLUCOSE HOMEOSTASIS MAINTAINED

NO MEAN CHANGES IN FASTING GLUCOSE OR HbA1c



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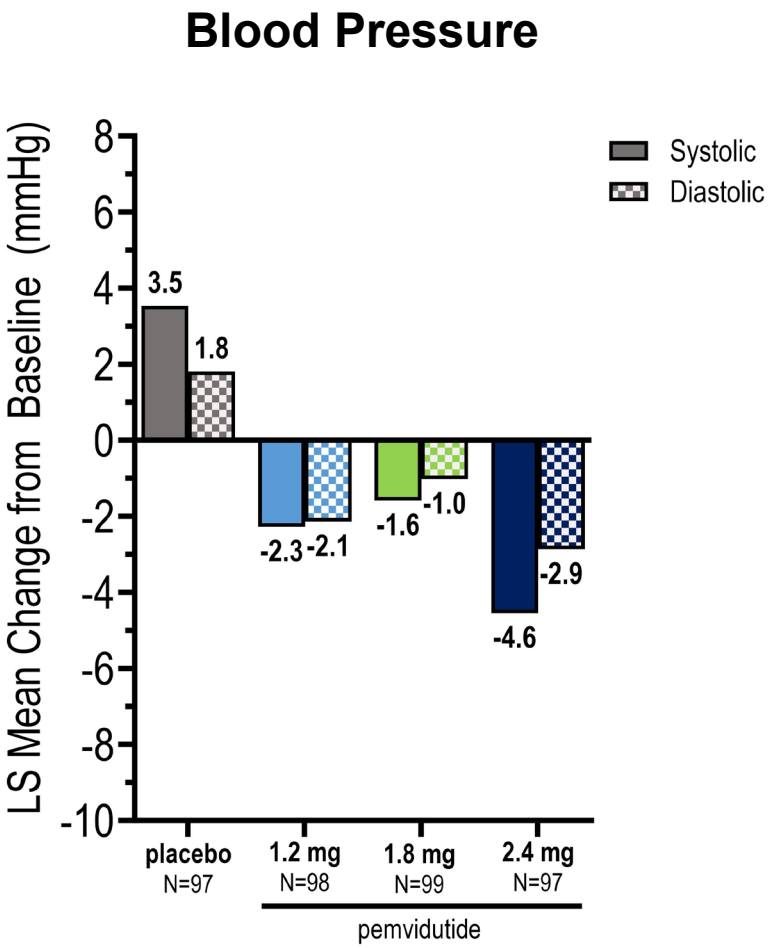
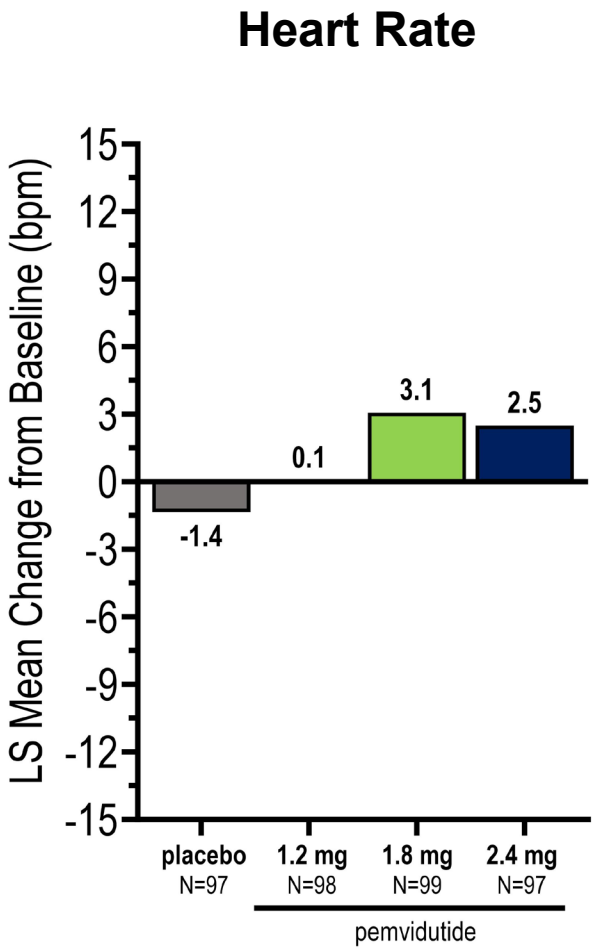
# IMPROVEMENTS IN BLOOD PRESSURE WITHOUT CLINICALLY MEANINGFUL INCREASES IN HEART RATE AT WEEK 48




MMRM, mixed model for repeated measures



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# OVERVIEW OF ADVERSE EVENTS

| Characteristic | | Treatment | | | |
|---|---|---|---|---|---|
| | | Placebo (N=97) | 1.2 mg (N=98) | 1.8 mg (N=99) | 2.4 mg (N=97) |
| **SAEs related to study drug** | N (%) | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | 1 (1.0%) |
| **Drug-related AEs leading to discontinuation** | N (%) | 2 (2.1%) | 4 (4.1%) | 16 (16.2%) | 15 (15.5%) |
| **Gastrointestinal (GI) AEs—mainly mild to moderate** | | | | | |
| Nausea | N (%) | 11 (11.3%) | 25 (25.5%) | 59 (59.6%) | 50 (51.5%) |
| Vomiting | N (%) | 3 (3.1%) | 6 (6.1%) | 27 (27.3%) | 27 (27.8%) |
| Diarrhea | N (%) | 5 (5.2%) | 8 (8.2%) | 10 (10.1%) | 18 (18.6%) |
| Constipation | N (%) | 8 (8.2%) | 17 (17.3%) | 13 (13.1%) | 22 (22.7%) |
| **Major Adverse Cardiac Events (MACE)** | N (%) | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) |
| **Cardiac AEs, including arrhythmias** | N (%) | 4 (4.1%) | 3 (3.1%) | 4 (4.0%) | 3 (3.1%) |

*Results observed with no or minimal dose titration, and no dose reduction*

- No MACE events
- No imbalances in cardiac arrythmias across treatment groups

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# Pemvidutide:
# *MASH*

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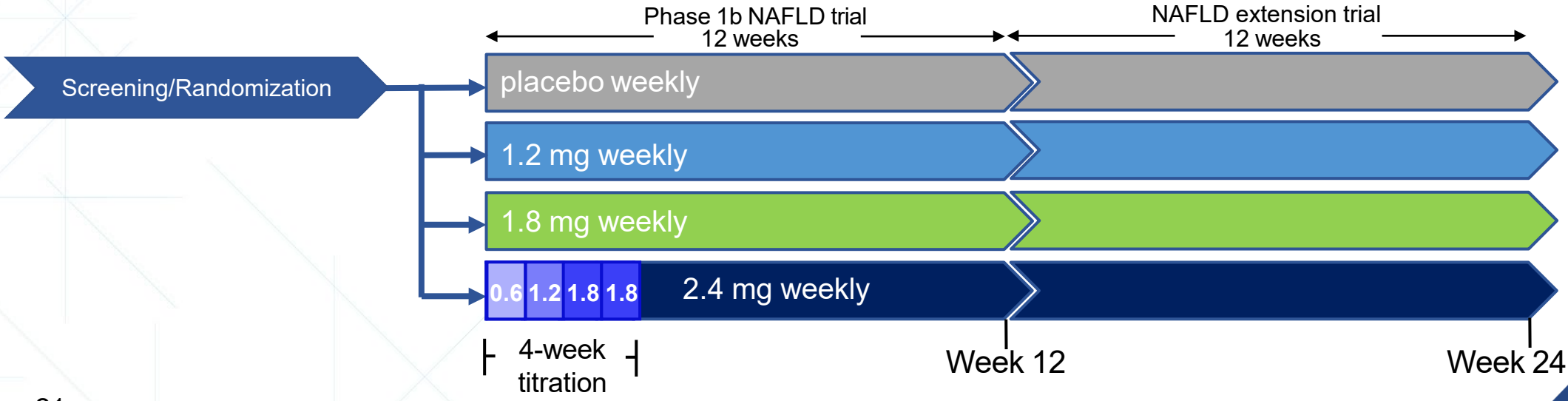
# PEMVIDUTIDE PHASE 1b MASLD TRIAL

- Randomized, placebo-controlled study of pemvidutide in subjects with overweight/obesity and metabolic dysfunction-associated steatotic liver disease (MASLD)
  - 12-week base study of 94 subjects randomized 1:1:1:1 to pemvidutide or placebo
  - 12-week extension study offered to subjects that completed 12 weeks of dosing (64 subjects participated in extension study for 24-weeks of total dosing)
  - No caloric restriction or lifestyle intervention
- Key endpoints
  - Reduction in liver fat content, ALT and corrected T1 (cT1)



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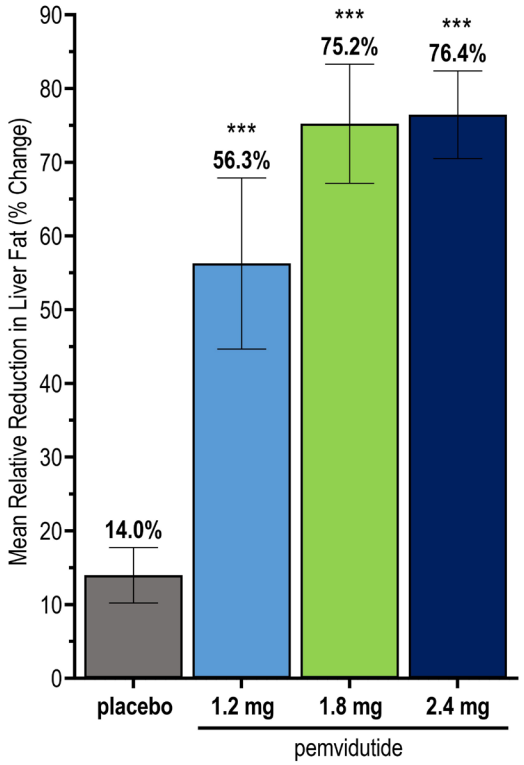
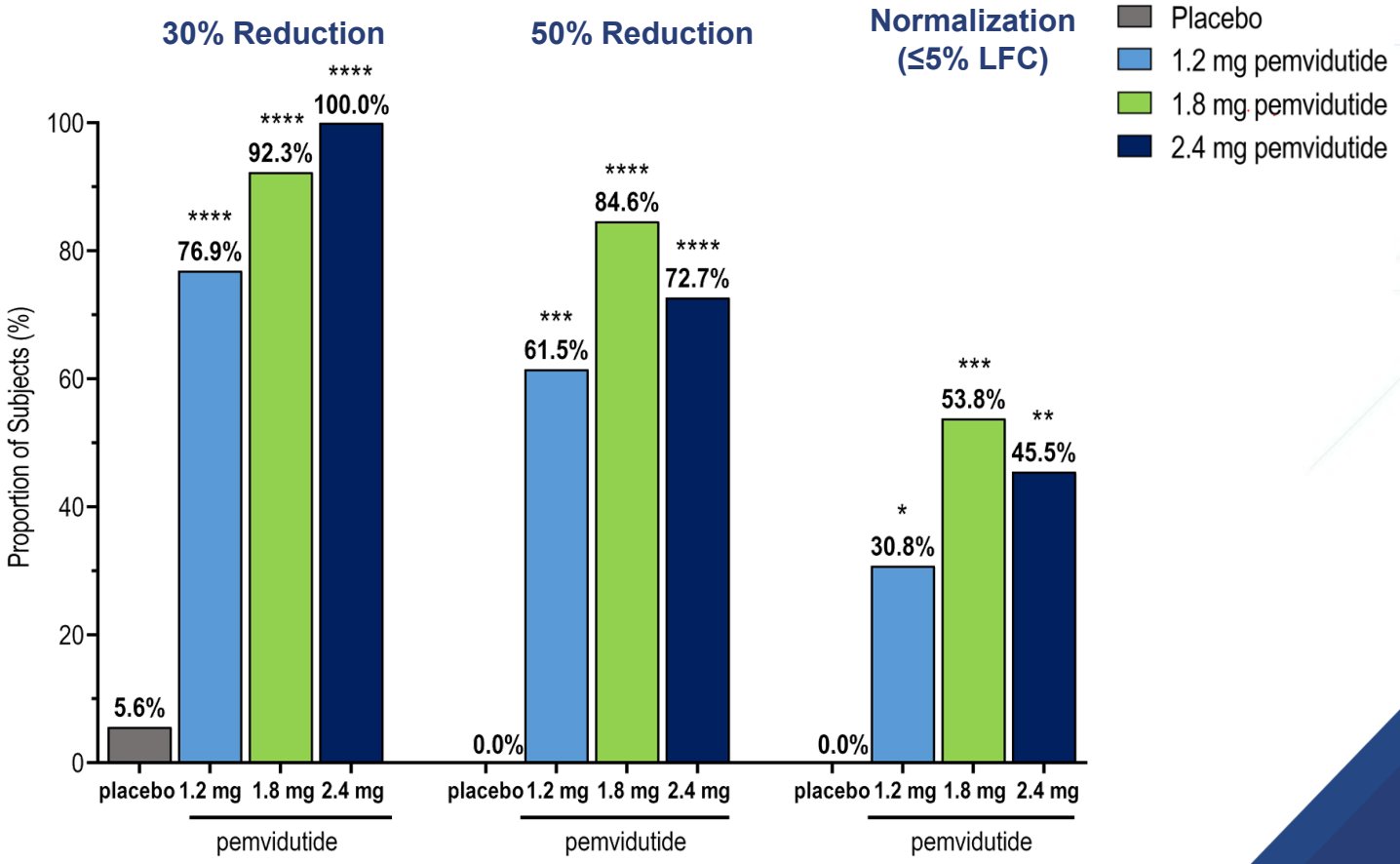
# ROBUST REDUCTIONS IN LIVER FAT CONTENT

## Relative Reduction at Week 24




*** p < 0.001 vs. placebo (ANCOVA)

## Responder Analyses at Week 24




* p < 0.05, ** p < 0.005, *** p < 0.001, **** p < 0.0001 vs. placebo (CMH[1])

[1] Cochran Mantel Haenszel



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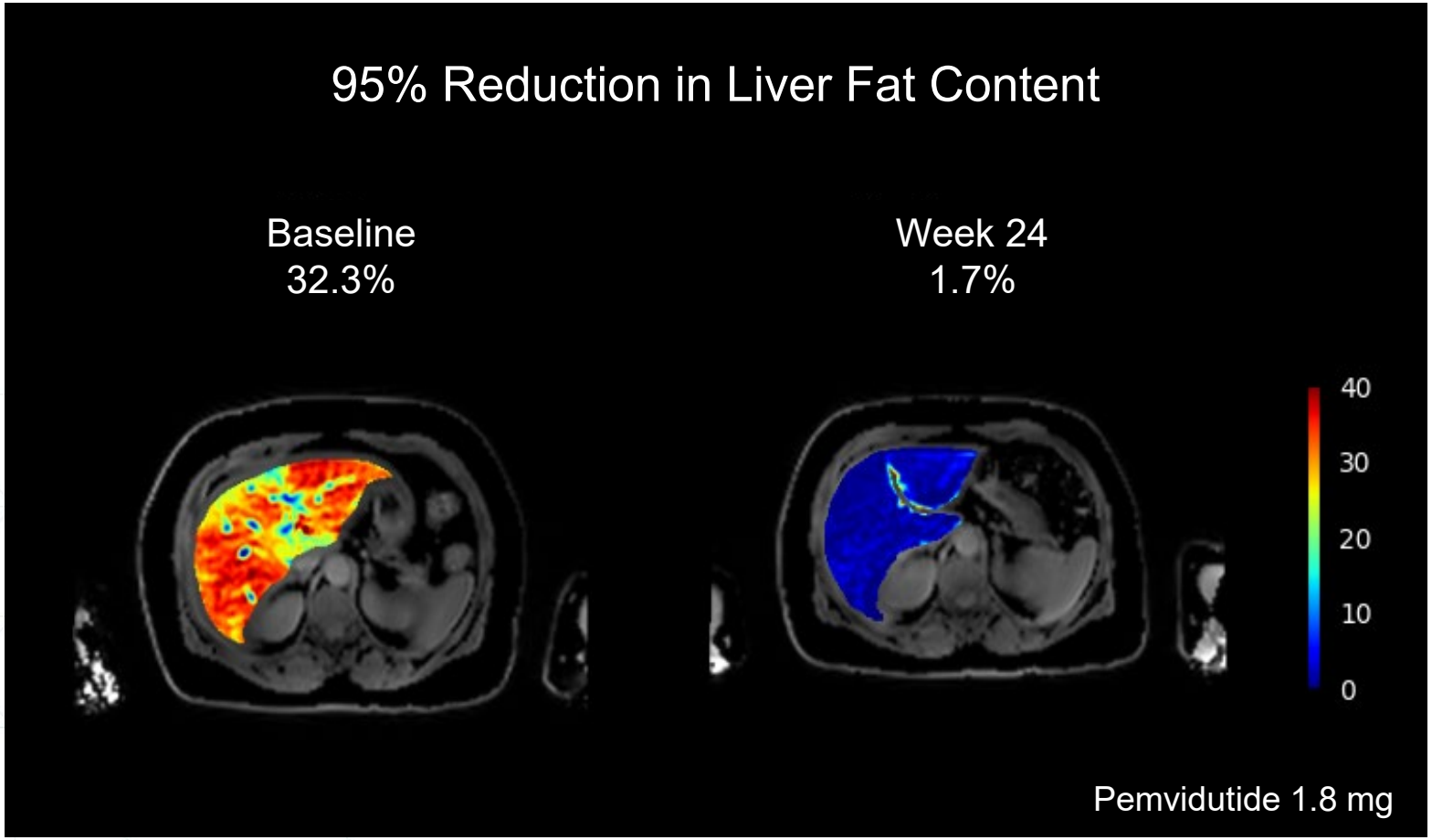
# PEMVIDUTIDE: CASE EXAMPLE OF NEAR COMPLETE LIVER DE-FATTING




- 95% relative reduction in LFC in a patient with high liver fat to normalization within 24 weeks
- This reduction was accompanied by a 38.1% decrease in liver volume, a risk factor for MALO (major adverse liver outcomes)



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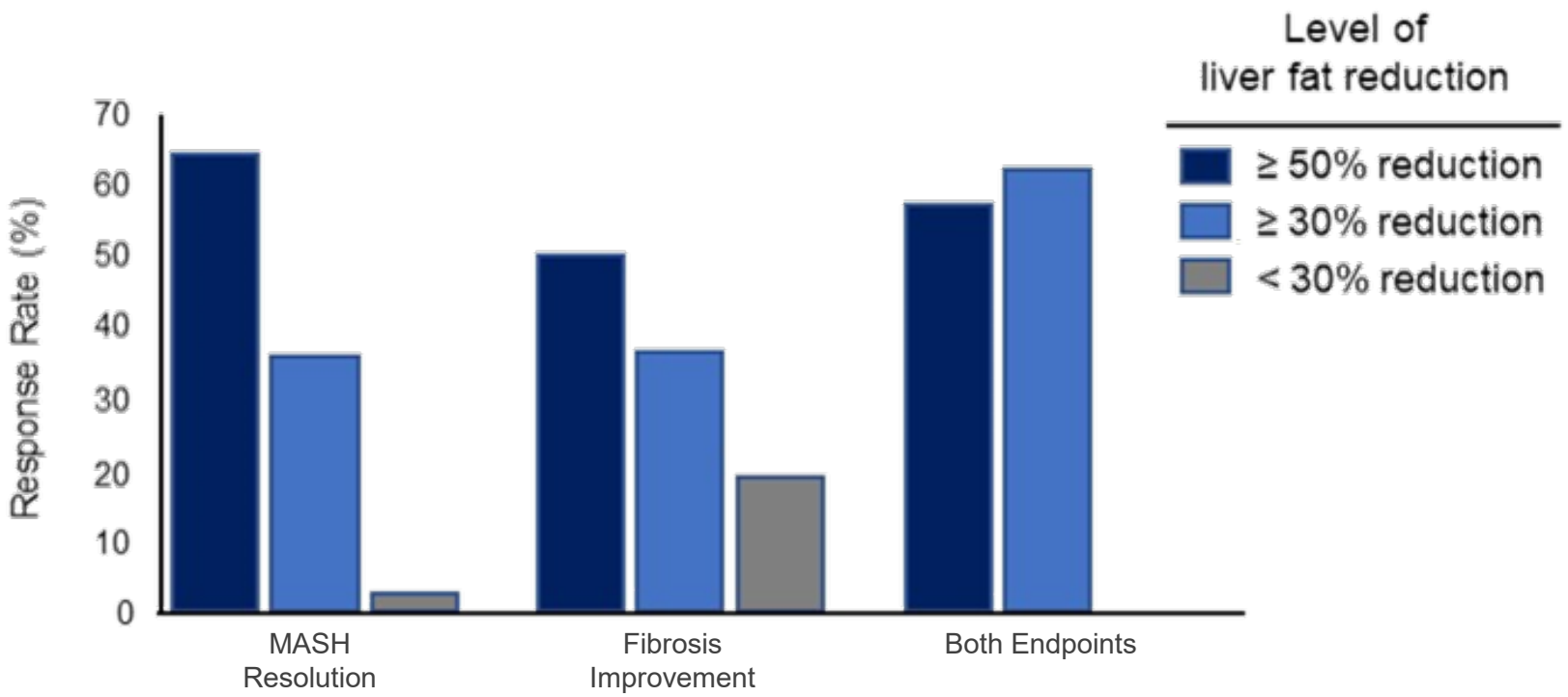
# MAGNITUDE OF LIVER FAT REDUCTION CORRELATES WITH MASH RESOLUTION AND FIBROSIS IMPROVEMENT




- **Greater reductions in liver fat content were associated with higher rates of MASH resolution and fibrosis improvement**
- **Pemvidutide achieved 75% liver fat reduction at week 24**



Adapted from Loomba, European Association for the Study of the Liver, International Liver Conference, 2020, analysis of Phase 2 resmetirom study (Harrison SA, Lancet 2019)

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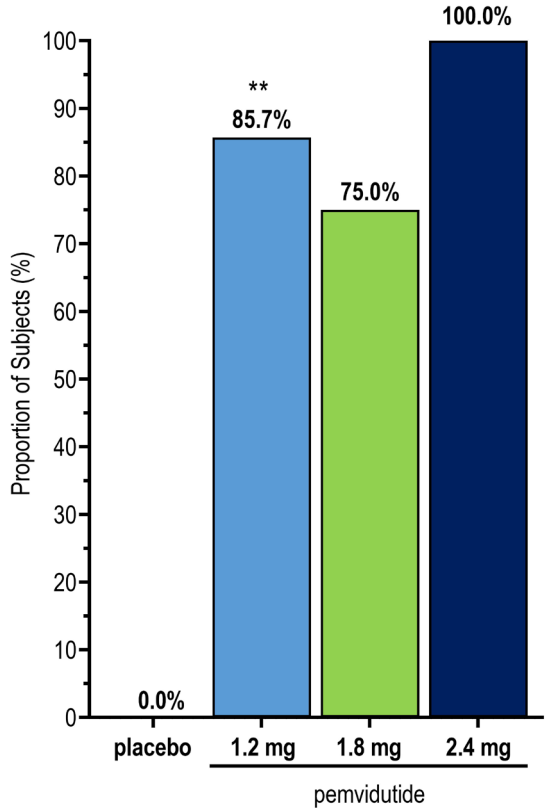
# SIGNIFICANT cT1 RESPONSE RATES AND ALT REDUCTIONS

## TWO INDEPENDENT INDICATORS OF REDUCED LIVER INFLAMMATION

### cT1 Responder Rates[1] at Week 24

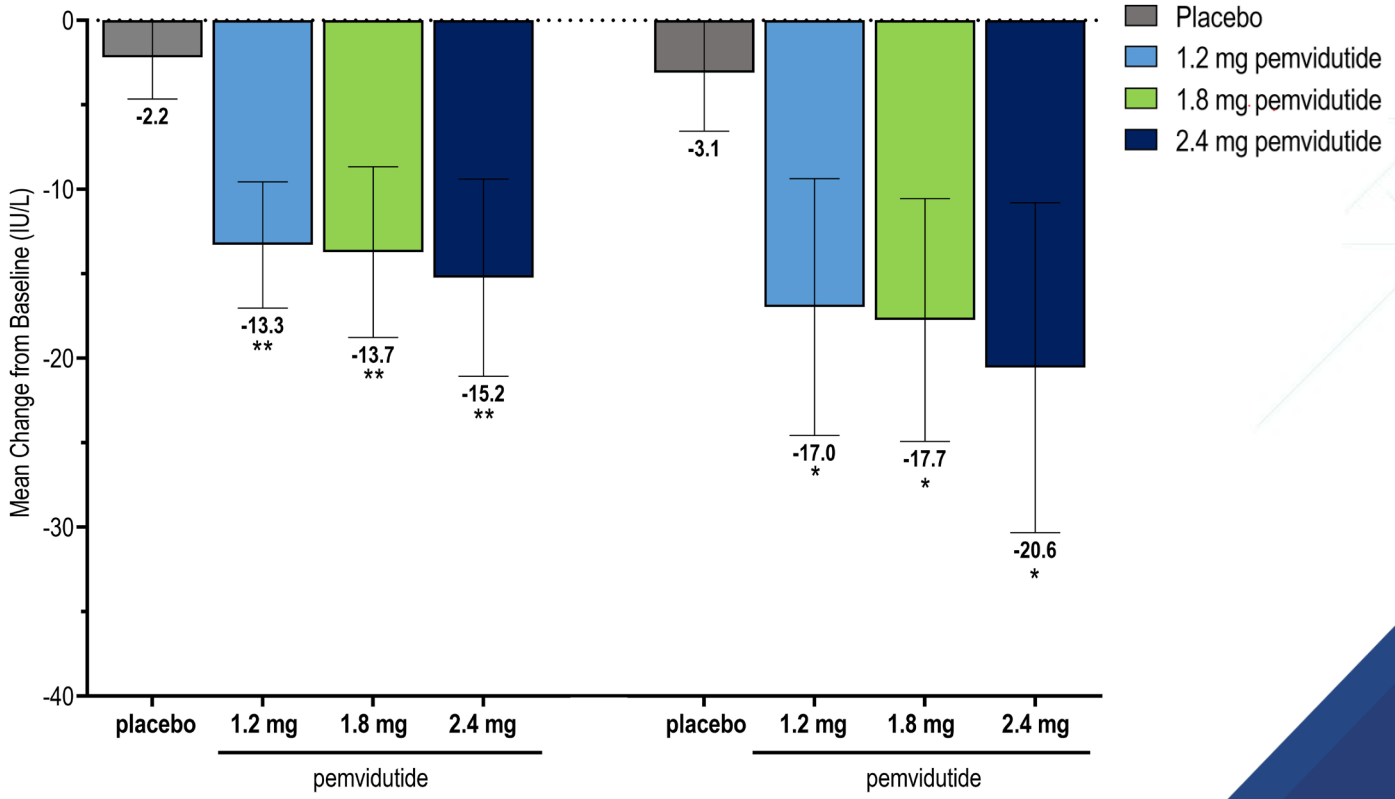



* p < 0.05, ** p < 0.005 vs. placebo (Fisher's Exact Test)

80ms reduction in cT1 has been associated with a 2-point reduction of MASH Activity Score (MAS)[2]

### All Subjects

### Subjects w/ Baseline ALT ≥ 30IU/L




* p < 0.05, ** p < 0.005 vs. placebo

[1]80ms reduction from baseline; [2]Dennis A, Front Endocrinol 2021



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# IMPACT PHASE 2b MASH TRIAL DESIGN

- Biopsy-driven, randomized placebo-controlled trial at approximately 60 U.S. sites
- Approximately 190 subjects with F2 and F3 fibrosis, with and without diabetes
- Subjects randomized 1:2:2 to 1.2 mg pemvidutide, 1.8 mg pemvidutide, or placebo
- Dual primary endpoints of either MASH resolution or fibrosis improvement at 24 weeks
- Subjects followed for additional 24 weeks to a total of 48 weeks for further assessment of safety and additional biomarker responses
- Enrollment completed in Q3 2024
- **Top-line data expected in Q2 2025**

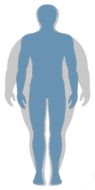
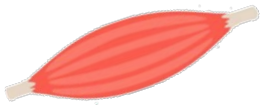
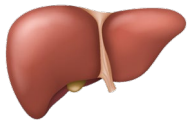
# PEMVIDUTIDE – POTENTIAL BEST IN CLASS THERAPEUTIC FOR MASH WITH OBESITY

| | Weight Loss | MASH Resolution & Fibrosis Improvement |
|---|---|---|
| GLPs/GIPs | Clinically significant weight loss | Modest efficacy at 1 yr |
| THR-β | No significant weight loss | Efficacy at 1 yr |
| FGF21 | No significant weight loss | Efficacy at 24 weeks |
| **Pemvidutide** | **Clinically significant weight loss** | **Efficacy expected at 24 weeks** |

- **80-90%[1] of MASH patients have obesity**
- **Pemvidutide clinical trials to date have shown significant weight loss and potent liver effects**
- **Pemvidutide may be uniquely positioned to treat patients across the entire spectrum of F1 – F4 MASH**

1) Younossi et al, Hepatology v64 2016, Global epidemiology of nonalcoholic fatty liver disease-Meta-analytic assessment of prevalence, incidence, and outcomes

# PEMVIDUTIDE: DIFFERENTIATED TARGET PRODUCT PROFILE

| >15% Weight Loss | Superior Preservation of Lean Mass | Significant Reductions in LDL, TG, and Total-Cholesterol | Rapid and Robust Liver Fat Reduction (>75%) | No Material HR Elevations; No Imbalances of Arrhythmias | Potential for Superior Tolerability Profile |
|---|---|---|---|---|---|
| ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| **OBESITY** | **MUSCLE PRESERVATION** | **DYSLIPIDEMIA** | **MASH** | **CV SAFETY** | **TOLERABLE** |
|  |  |   |  |  |  |

**Pemvidutide is targeting the <u>largest segments</u> of the obesity and MASH populations**



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# ALTIMMUNE: MULTIPLE ATTRACTIVE LATE-STAGE OPPORTUNITIES

**Phase 3-ready** obesity program with FDA alignment, supported by compelling Phase 2 data

Clean safety profile of pemvidutide established

Registrational studies designed to leverage the unique profile of pemvidutide

Class-leading lean mass preservation, robust lipid lowering effects and liver fat reduction

**Completed End of Phase 2 Meeting Q4 2024**

Significant opportunity in MASH; **near-term data inflection point**

Chronic, progressive liver disease, leading cause of transplant

High mortality often associated with cardiovascular comorbidities

Differentiated mechanism combines meaningful weight loss with direct, potent liver effect

**Phase 2b efficacy data expected 2Q 2025**

Initiating Phase 2 trials in **additional high-value indications**

Indications can benefit from balanced GLP-1 / glucagon dual agonism of pemvidutide

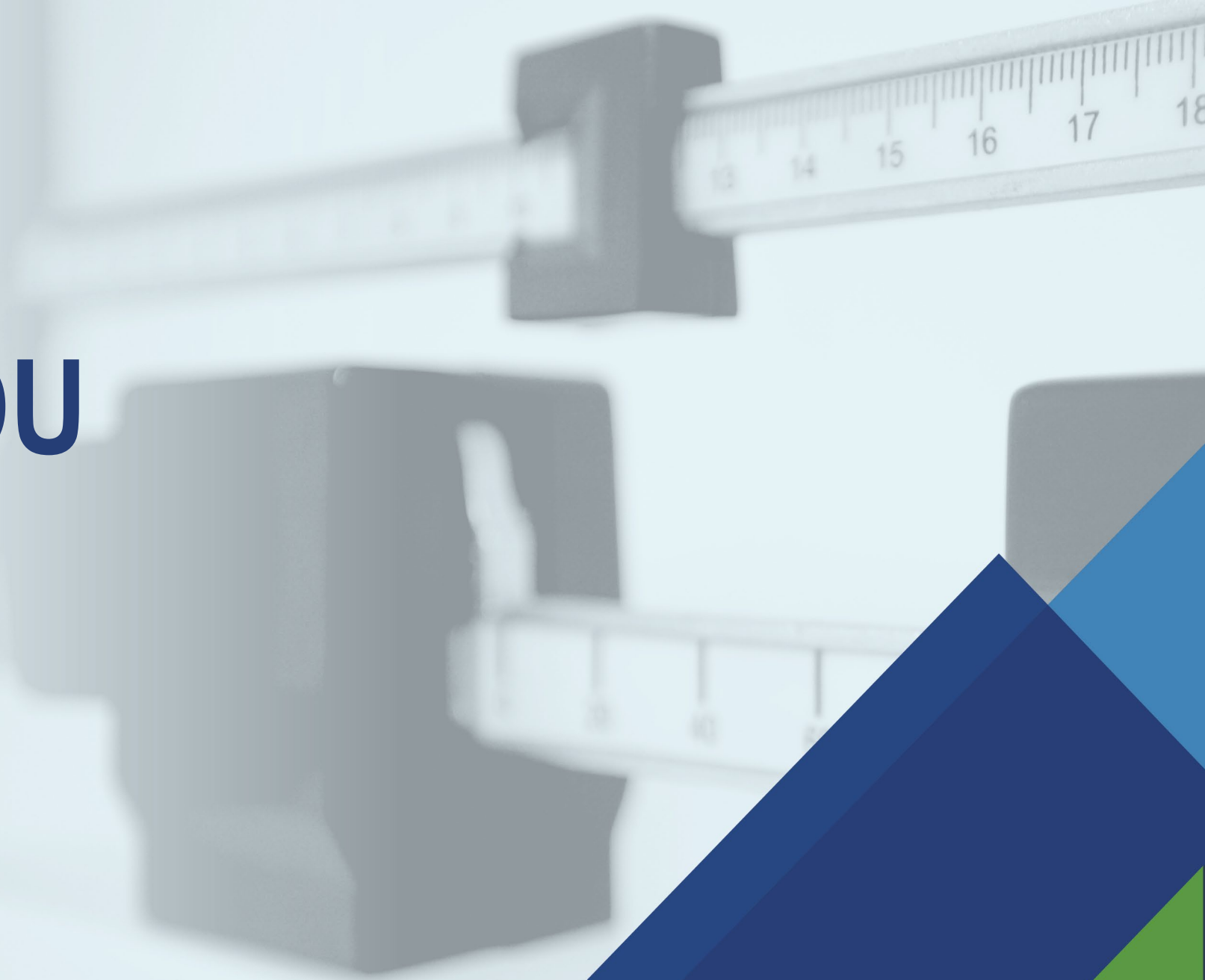
Proof-of-concept data support further study in these areas

Potential to address major unmet medical needs with few / no approved therapies

**First Phase 2 trial to be initiated in 1H 2025**

**Pemvidutide –** a pipeline in a drug for metabolic and liver diseases

# THANK YOU



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