Pemvidutide (ALT-801): Phase 1 12-Week Results

September 2021

altimmune | NASDAQ: ALT

Forward-looking statements

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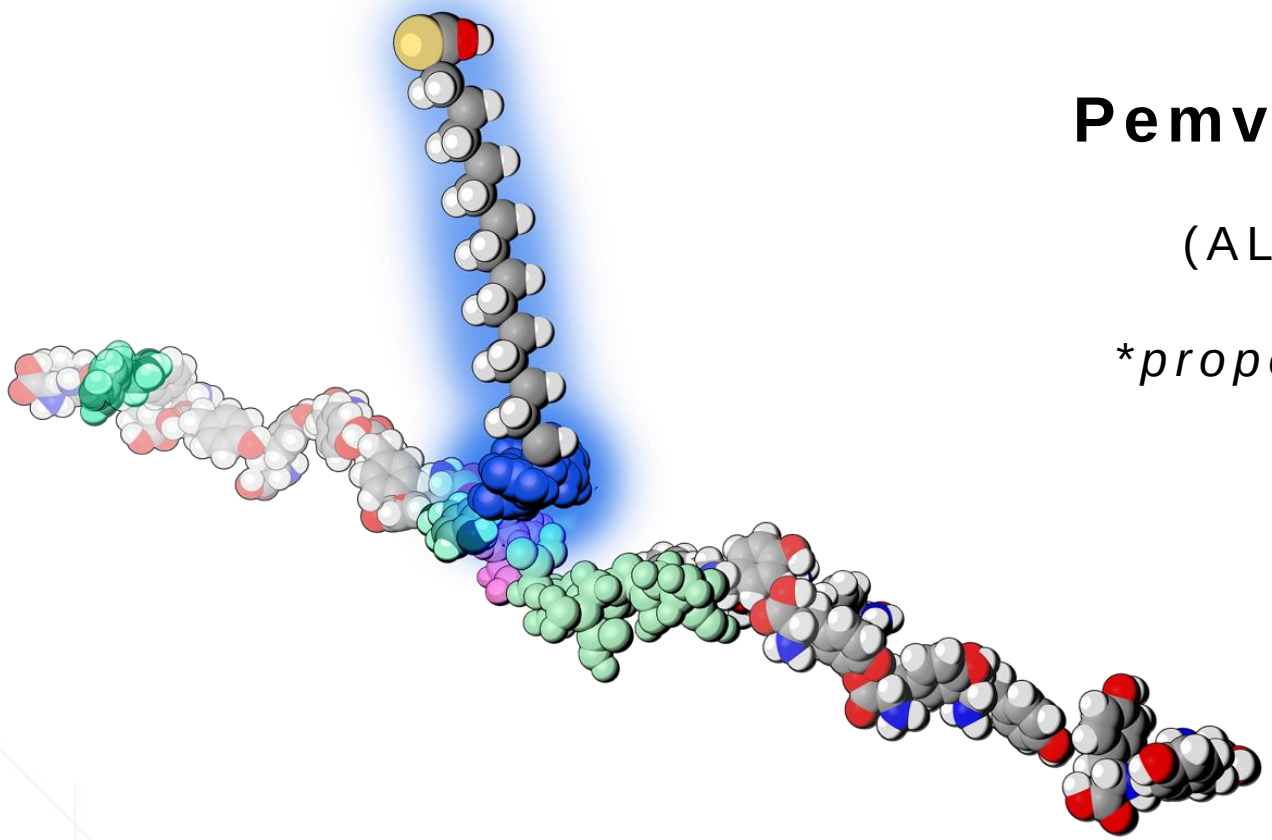
INTRODUCING PEMVIDUTIDE

GLP-1/glucagon dual agonist



Pemvidutide*

(ALT-801)

**proposed INN*

SUBSTANTIAL WEIGHT LOSS WITHOUT DOSE TITRATION

OVERVIEW OF 12-WEEK DATA

WEIGHT LOSS

- 10.3% mean weight loss achieved at 1.8 mg dose after only 12 weeks
- Linear rate of weight loss suggests these effects will be sustained

SAFETY & TOLERABILITY

- Dose titration not necessary for tolerability
- No AE-related study discontinuations and no serious or severe AEs
- No changes in heart rate

SECONDARY MEASURES

- Improvements observed in blood pressure and lipids
- Trend towards reduction in insulin resistance
- Glucose homeostasis maintained

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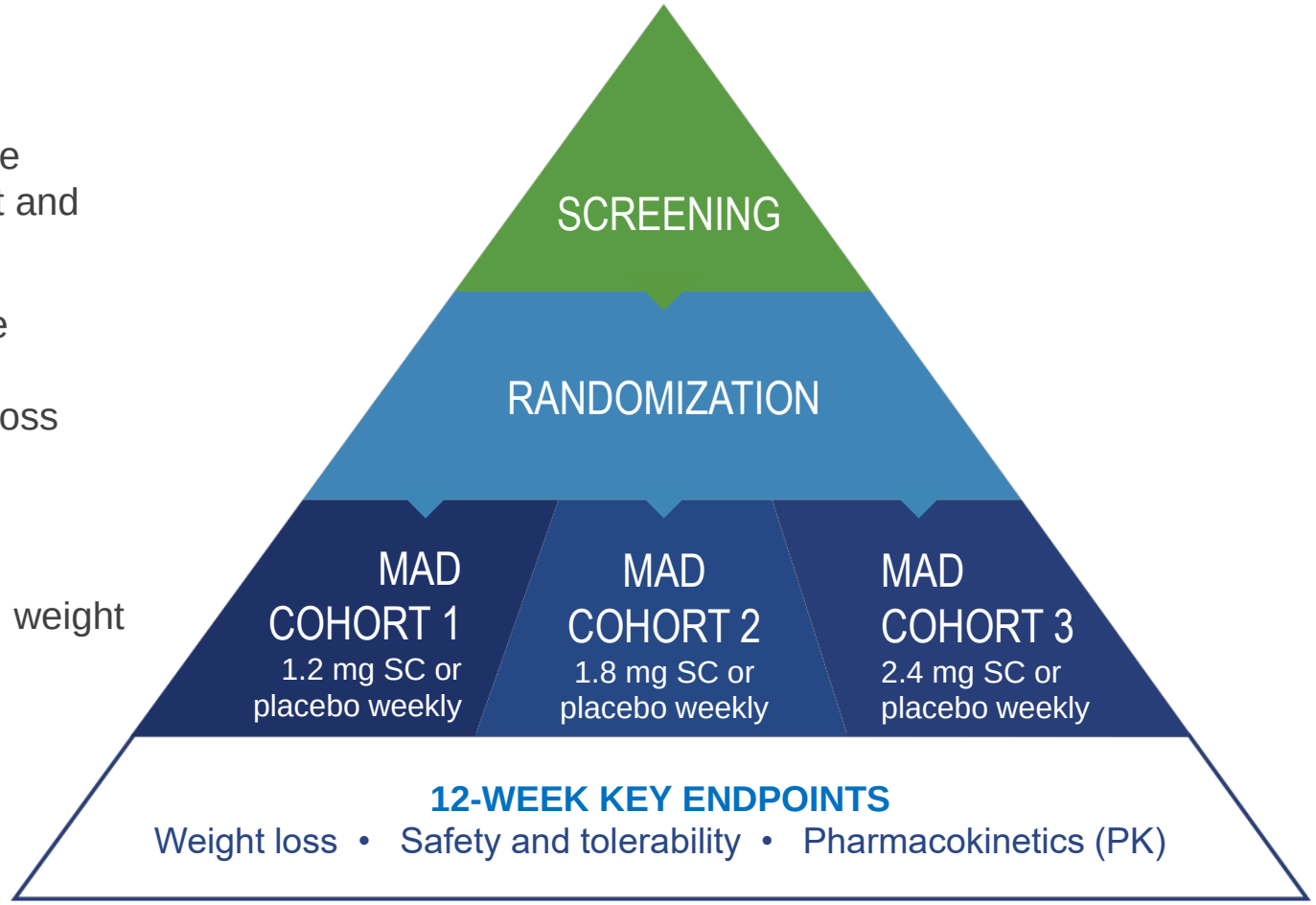
PEMVIDUTIDE (ALT-801) PHASE 1— MAD TRIAL DESIGN

- Phase 1, first-in-human, placebo-controlled, multiple ascending dose (MAD) study in healthy overweight and obese volunteers
- Within MAD cohorts, patients were randomized 4:1 to pemvidutide or placebo, with placebos pooled across cohorts
- No dose titration
- No calorie restriction or behavioral weight loss programs



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PEMVIDUTIDE PHASE 1 – BASELINE DEMOGRAPHICS

MAD COHORTS

Characteristic		Treatment			
		1.2 mg (n=7)	1.8 mg (n=9)	2.4 mg (n=11)	Pooled placebo (n=7)
Age, years	mean (SD)	27.7 (11)	32.0 (11)	31.4 (12)	35.3 (12)
Sex	female, n (%)	1 (14%)	4 (44%)	7 (64%)	4 (57%)
	male, n (%)	6 (86%)	5 (56%)	4 (36%)	3 (43%)
Race	Caucasian, n (%)	4 (57%)	5 (56%)	8 (67%)	5 (71%)
	Caucasian Hispanic, n (%)	0 (0%)	1 (11%)	0 (0%)	1 (14%)
	Asian, n (%)	2 (29%)	3 (33%)	3 (25%)	1 (14%)
	African, n (%)	1 (14%)	0 (0%)	0 (0%)	0 (0%)
Body Weight, kg	mean (SD)	90.5 (15)	86.4 (13)	91.9 (15)	87.6 (14)
BMI, kg/m^2	mean (SD)	30.0 (4)	30.1 (4)	31.8 (3)	31.0 (4)

PEMVIDUTIDE PHASE 1 – STUDY DISPOSITION

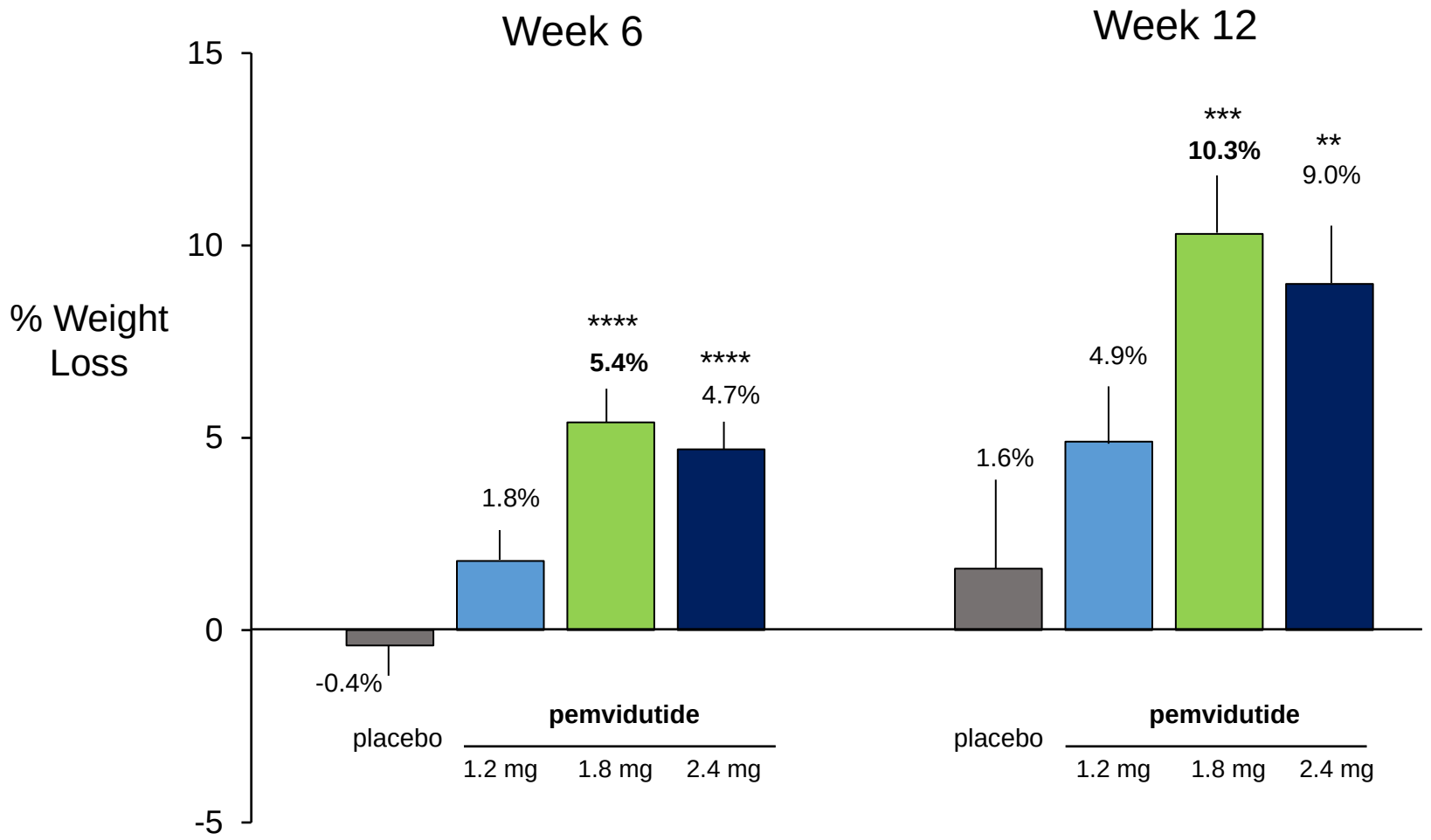
NO WITHDRAWALS FOR ADVERSE EVENTS

Characteristic		Treatment			
		1.2 mg	1.8 mg	2.4 mg	Pooled placebo
Safety population[1]	n (%)	7 (100%)	9 (100%)	11 (91.7%)	7 (100%)
Completed study	n (%)	6 (86%)	9 (100%)	9 (82%)	5 (71%)
Early withdrawal	n (%)	1 (14%)	0 (0%)	2 (18%)	2 (29%)
Lost to follow-up	n (%)	0 (0%)	0 (0%)	0 (0%)	1 (14%)
Withdrawal of consent	n (%)	1 (14%)	0 (0%)	2 (18%)	1 (14%)
Due to adverse event	n (%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)

[1] *Subjects who were randomized, dosed and had one or more post-dose assessments*

SUBSTANTIAL WEIGHT LOSS AT WEEK 12

10.3% MEAN WEIGHT LOSS ACHIEVED AT 1.8 MG DOSE



*** p < .01, ***p < .005, ****p < .001; compared to placebo*

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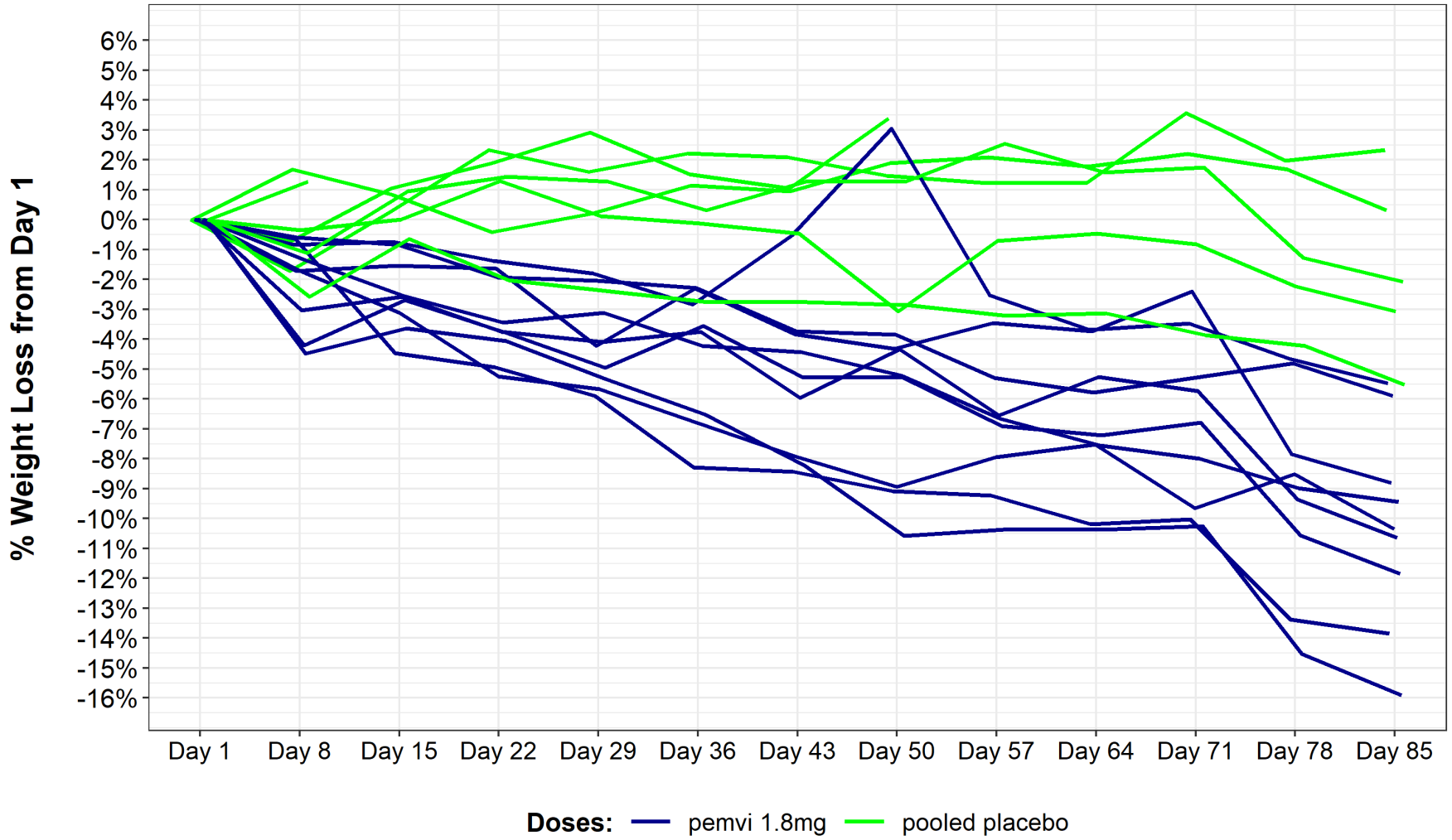
MAJORITY OF SUBJECTS AT 1.8 MG DOSE ACHIEVED 10% OR MORE WEIGHT LOSS AT WEEK 12



- 55% of subjects achieved 10% or more weight loss by Week 12
- 100% of subjects achieved 5% or more weight loss by Week 12

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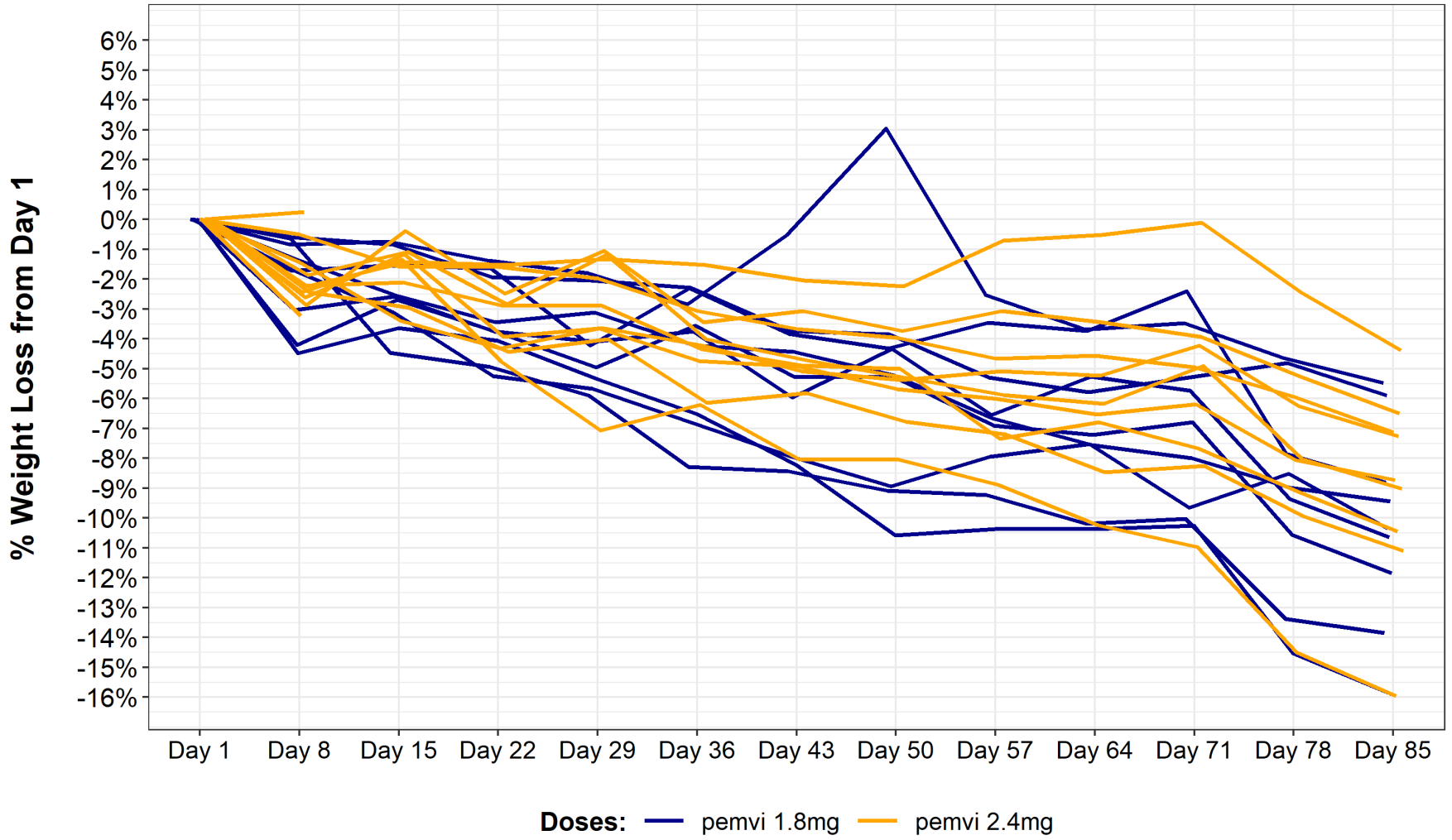
COMPARABLE WEIGHT LOSS AT PEMVIDUTIDE 1.8 MG AND 2.4 MG



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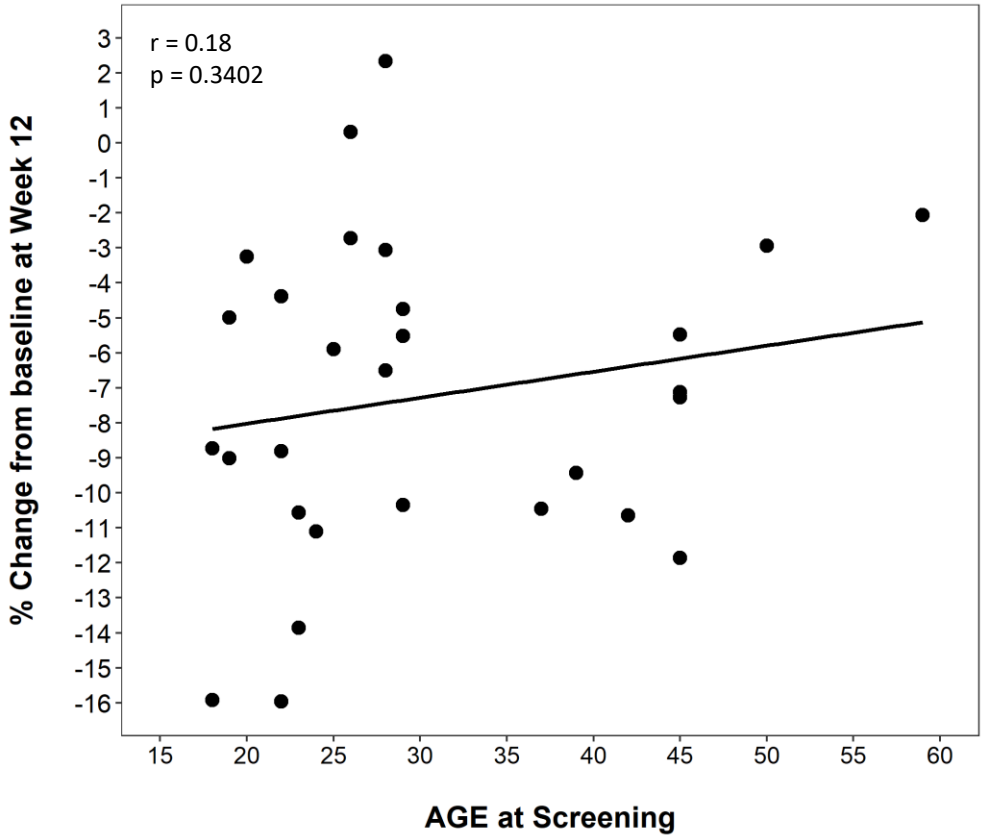
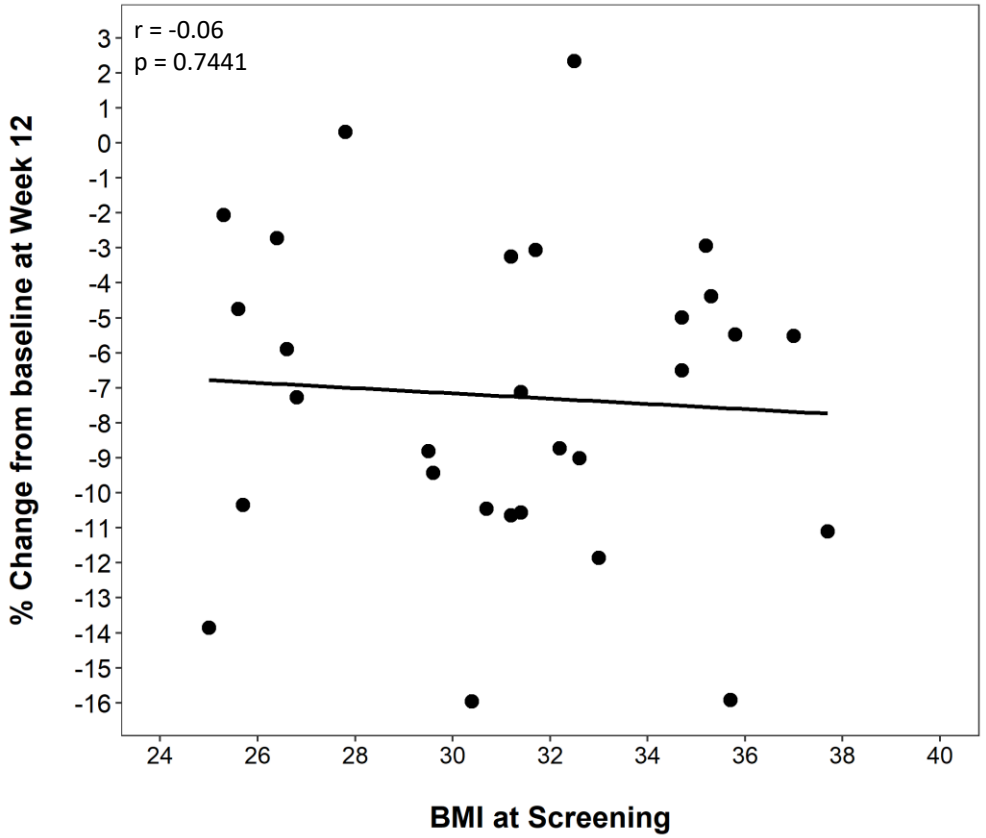
NO CORRELATION BETWEEN WEIGHT LOSS AND EITHER AGE OR BMI





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SAFETY OVERVIEW

NO STUDY DISCONTINUATIONS DUE TO ADVERSE EVENTS

Characteristic		Treatment			
		1.2 mg	1.8 mg	2.4 mg	Pooled placebo
AEs leading to discontinuation	**n (%)**	**0 (%)**	**0 (%)**	**0 (%)**	**0 (%)**
Serious or severe AEs	**n (%)**	**0 (%)**	**0 (%)**	**0 (%)**	**0 (%)**
Nausea					
Mild	n (%)	1 (14.3%)	5 (55.6%)	5 (45.5%)	1 (14.3%)
Moderate	n (%)	1 (14.3%)	1 (11.1%)	5 (45.5%)	0 (0.0%)
Vomiting					
Mild	n (%)	1 (14.3%)	1 (11.1%)	5 (45.5%)	1 (14.3%)
Moderate	n (%)	0 (0.0%)	1 (11.1%)	3 (27.3%)	0 (0.0%)
Diarrhea					
Mild	n (%)	0 (0.0%)	0 (0.0%)	2 (18.2%)	0 (0.0%)
Moderate	n (%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Constipation					
Mild	n (%)	0 (0.0%)	1 (11.1%)	2 (18.2%)	0 (0.0%)
Moderate	n (%)	0 (0.0%)	1 (11.1%)	1 (9.1%)	0 (0.0%)
Hyperglycemia	n (%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

A single subject receiving 1.8 mg dose experienced an alanine aminotransferase (ALT) elevation that resolved rapidly after a pause in dosing

Gastrointestinal Adverse Events

- Most frequently mild at 1.8 mg dose with on-drug resolution and not requiring treatment
- No study discontinuations due to AEs

No significant effects on

- Blood glucose control by fasting serum glucose and HbA1c
- Mean heart rate at Week 6 and Week 12

ALANINE AMINOTRANSFERASE (ALT) LEVELS BY WEEK

Study Week		Treatment			
		1.2 mg	1.8 mg	2.4 mg	Pooled placebo
Baseline	mean (SD)	26.1 (6.5)	18.0 (7.4)	29.6 (14.9)	22.3 (18.3)
Week 1	mean (SD)	29.0 (7.9)	25.1 (8.0)	30.0 (11.0)	38.1 (58.3)
Week 2	mean (SD)	28.2 (7.5)	23.5 (7.9)	29.0 (12.0)	31.8 (39.1)
Week 3	mean (SD)	28.7 (13.8)	24.5 (8.6)	31.2 (11.9)	36.2 (47.6)
Week 4	mean (SD)	25.3 (8.8)	32.0 (10.2)	33.2 (14.4)	32.3 (31.7)
Week 5	mean (SD)	26.7 (9.7)	25.9 (8.8)	43.2 (21.4)	22.2 (12.5)
Week 7	mean (SD)	35.3 (21.9)	26.6 (10.2)	37.3 (18.3)	27.8 (26.2)
Week 9	mean (SD)	34.3 (18.5)	27.8 (12.2)	38.9 (20.2)	25.4 (19.6)
Week 10	mean (SD)	30.5 (13.5)	27.1 (10.7)	38.6 (15.3)	27.0 (17.9)
Week 12	mean (SD)	32.0 (10.4)	32.0 (21.2)	35.89 (15.5)	21.4 (17.2)

Notes:

- Excludes the one subject in 1.8 mg group with elevated ALT levels (to allow assessment of the remaining subjects)
- Measurements not taken per protocol at weeks 6, 8, and 11

PEMVIDUTIDE PK PROFILE CONFIRMS WEEKLY DOSING

PK PARAMETER	ALT-801 1.8 mg SC
Peak concentration (C_{max})	27.1 nmol/L
Area under curve (AUC) $_{0\text{-}168}$	3400 nmol•hr
Half-life ($t_{1/2}$)	110 hrs
Time to peak concentration (T_{max})	70 hrs

IMPROVEMENTS IN BLOOD PRESSURE ACROSS ALL DOSE GROUPS

BIOMARKER OF CARDIOVASCULAR RISK

Characteristic		Treatment			
		1.2 mg	1.8 mg	2.4 mg	Pooled placebo
Change from Baseline, Weeks 1-12 [1]					
Systolic Blood Pressure	mm Hg (%)	-10.2 (-8.2%)	-9.2 (-7.8%)	-12.7 (-10.4%)	-5.4 (-4.5%)
Diastolic Blood Pressure	mm Hg (%)	-5.2 (-6.7%)	-3.9 (-5.3%)	-7.2 (-9.4%)	-1.7 (-2.3%)

[1] *means of weekly measurements, Weeks 1-12, compared to Baseline*

IMPROVEMENTS IN SERUM LIPIDS ACROSS ALL DOSE GROUPS

BIOMARKERS OF CARDIOVASCULAR RISK

Characteristic		Treatment			
		1.2 mg	1.8 mg	2.4 mg	Pooled placebo
Change from Baseline [1]					
Total cholesterol	mg/dL (%)	-41.4 (-20.0%)	-60.6 (-28.0%)	-52.7 (-28.0%)	-17.1 (-9.1%)
HDL cholesterol	mg/dL (%)	-7.1 (-16.7%)	-14.2 (-30.3%)	-15.9 (-36.0%)	-10.3 (-19.2%)
LDL cholesterol	mg/dL (%)	-24.7 (-16.9%)	-37.4 (-30.4%)	-29.4 (-26.7%)	-4.8 (-4.3%)
Triglycerides	mg/dL (%)	-59.0 (-37.0%)	-43.3 (-38.0%)	-33.0 (-29.3%)	-9.8 (-8.2%)

[1] *mean of Week 12 measurements compared to Baseline*

GLUCOSE HOMEOSTASIS MAINTAINED

Characteristic		Treatment			
		1.2 mg	1.8 mg	2.4 mg	Pooled placebo
Fasting Serum Glucose [1]					
Change from Baseline	mg/dL (%)	3.0 (3.5%)	-0.4 (-0.5%)	-0.8 (-0.9%)	-0.2 (-0.2%)
HbA1c (%)					
Baseline	mean (SD)	5.3 (0.1)	5.5 (0.2)	5.3 (0.2)	5.3 (0.2)
Week 12	mean (SD)	5.4 (0.2)	5.4 (0.3)	5.3 (0.3)	5.3 (0.3)
HOMA-IR (insulin resistance)					
Baseline	mean (SD)	2.5 (1.2)	2.4 (2.5)	3.1 (1.8)	2.4 (1.7)
Week 12	mean (SD)	2.0 (1.4)	2.2 (2.5)	2.4 (1.2)	2.4 (1.2)

[1] *mean of weekly measurements, Weeks 1-12, compared to Baseline*

KETONE BODY PRODUCTION

INDICATES INCREASED FAT BURN—AN EXPECTED GLUCAGON EFFECT

Characteristic		Treatment			
		1.2 mg	1.8 mg	2.4 mg	Pooled placebo
Ketone bodies					
Baseline (mmol/L)	mean (SD)	0.12 (0.05)	0.07 (0.04)	0.10 (0.04)	0.07 (0.02)
Week 12 (mmol/L)	mean (SD)	0.34 (0.57)	0.52 (0.62)	0.42 (0.21)	0.20 (0.20)

PEMVIDUTIDE CLINICAL DEVELOPMENT PLAN

RAPID DEVELOPMENT TO INITIATE PHASE 2 TRIALS IN 2022

Australian Phase 1a Trial

- Completed 12-week trial in overweight and obese subjects
  - **DATA READOUT – September 2021**

USA Phase 1b Trial

- Obtained NASH IND clearance Q3 2021
- Initiate 12-week NAFLD trial in Q3 or early Q4 2021
  - **DATA READOUT – H1 2022**

Other Development

- Initiated drug-drug interaction trial September 2021
  - **DATA READOUT – H1 2022**
- Initiate type 2 diabetes trial Q4 2021
  - **DATA READOUT – H1 2022**

USA Phase 2 Trials

- File Obesity IND in USA in Q4 2021
- Initiate 48-week Phase 2 Obesity Trial in H1 2022
  - **DATA READOUT – 24 wk interim data Q4 2022**
- Initiate 52-week Phase 2 NASH Trial in H1 2022
  - **DATA READOUT – 2023**

PEMVIDUTIDE: PHASE 1 12-WEEK RESULTS

KEY TAKE-AWAYS

- 10.3% mean weight loss achieved at 1.8 mg dose after only 12 weeks
- Lack of dose titration simplifies dosing and accelerates weight loss
- Linear rate of weight loss suggests these effects will be sustained
- No AE-related study discontinuations and no serious or severe AEs
- Robust development plan with multiple upcoming catalysts in 2022

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