Pemvidutide Treatment Reduces Alcohol Intake in a Lean Golden Syrian Hamster Model

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Abstract 0173 | November 7, 2026; 8:15 am

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Disclosures

Dr. Suschak's Disclosures

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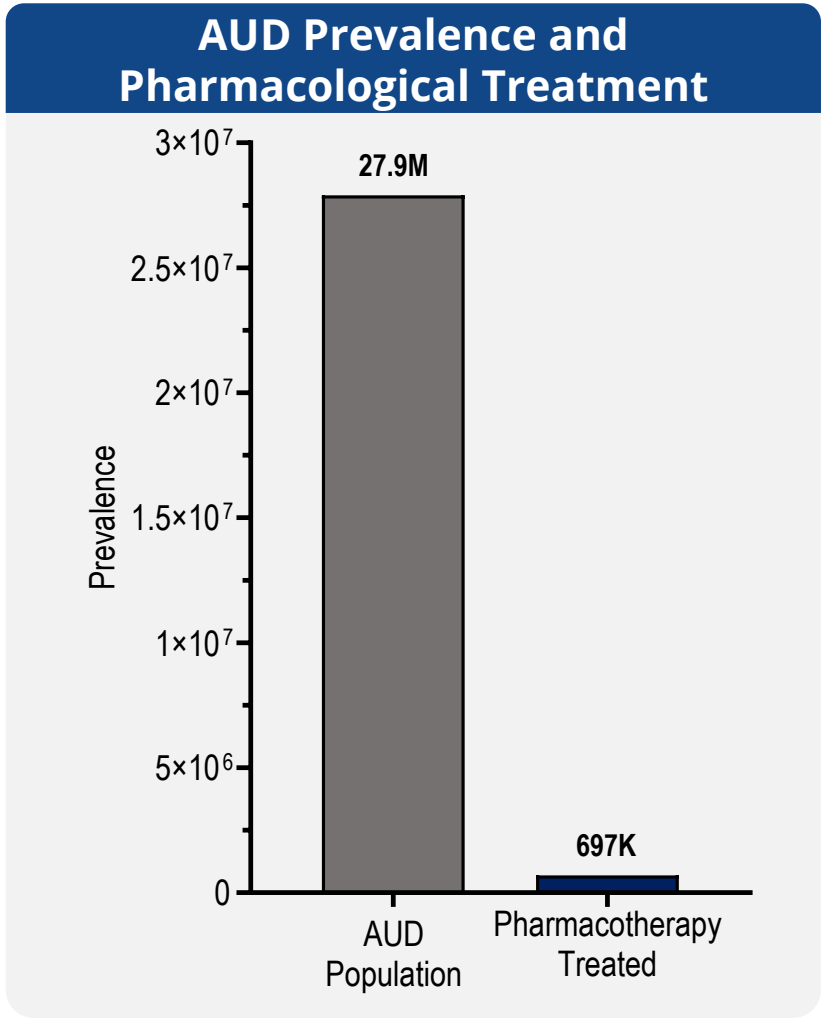
Disclaimer: This presentation discusses pemvidutide, an investigational product candidate that has not been approved by the FDA or any other regulatory authority. Its safety and efficacy have not been established. The statements about pemvidutide are based on current expectations and are subject to risks and uncertainties that could cause actual results to differ materially. For additional information regarding these risks and uncertainties, please refer to the Company's filings with the U.S. Securities and Exchange Commission, including the most recent Form 10-K and Form 10-Q. This study was sponsored by Altimmune, Inc.

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Alcohol Use Disorder (AUD)

- Affects approximately 28M people in the United States.[a]
- Up to 90% of patients with AUD develop liver steatosis[b]
- Many patients with AUD progress to more severe alcohol-associated liver disease (ALD), a leading indication for liver transplantation in the U.S.[c]
- Only 2.5% of patients utilize FDA-approved medications for treating AUD[a]
- There is a critical unmet need for therapies capable of addressing AUD



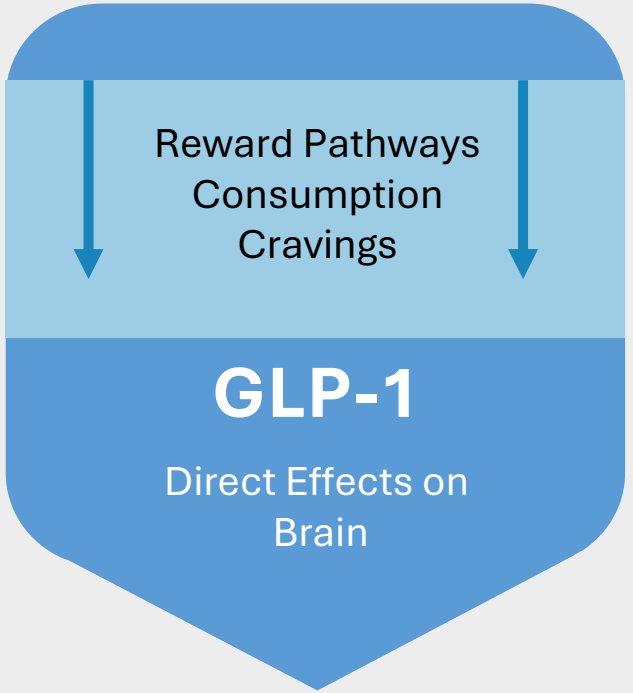
[a]SAMHSA, CBHSQ. 2024 National Survey on Drug Use and Health; [b]Osna et al. *Alcohol Research: Current Reviews;* 2017; 38(2):147-161; [c]Younossi et al. *Hepatol Commun*; 2024; 8(1)

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Effects of GLP-1 Receptor Agonists on AUD

Significant reductions in consumption, reward-processing, and relapse-like behavior

- There is growing real world evidence that GLP-1 receptor agonists reduce alcohol consumption
- There are relatively few randomized, placebo-controlled clinical trials testing the effect of GLP-1 receptor agonists on alcohol consumption
- Recently, increased alcohol abstinence and decreased numbers of heavy drinking days and serum markers of alcohol consumption were reported in a clinical trial[a]



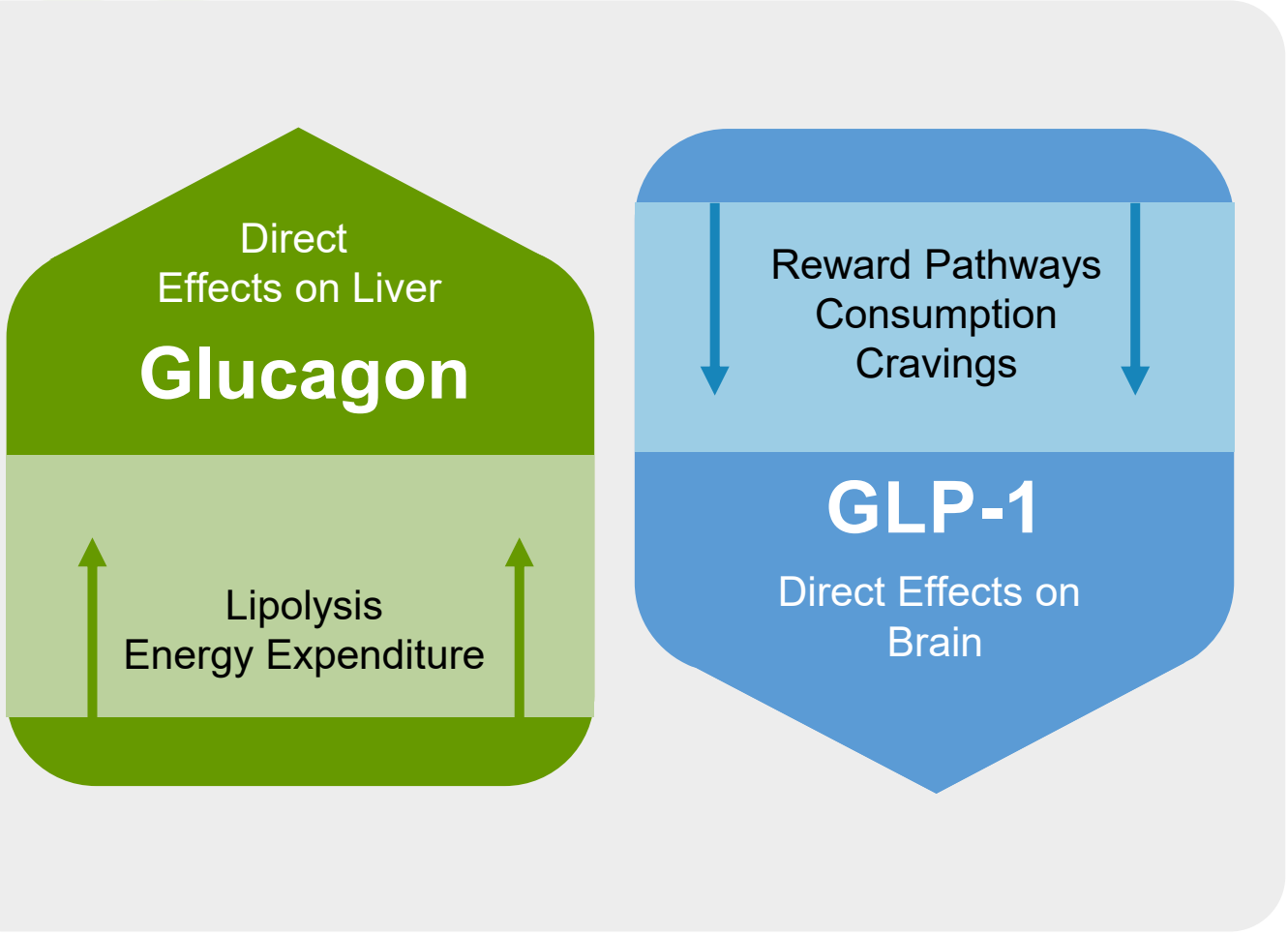
[a]Klausen et al. *The Lancet;* 2026; 407:1687-1698

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Pemvidutide, a Glucagon/GLP-1 Dual Receptor Agonist, May Treat Both AUD and ALD

May Address Both the Behavioral and Hepatic Drivers of Disease



Potential Outcomes

- **Significant reductions in alcohol consumption**
- **Improvements in liver health and function**
- **Reductions in body weight may improve adherence**
- **Well tolerated treatment**

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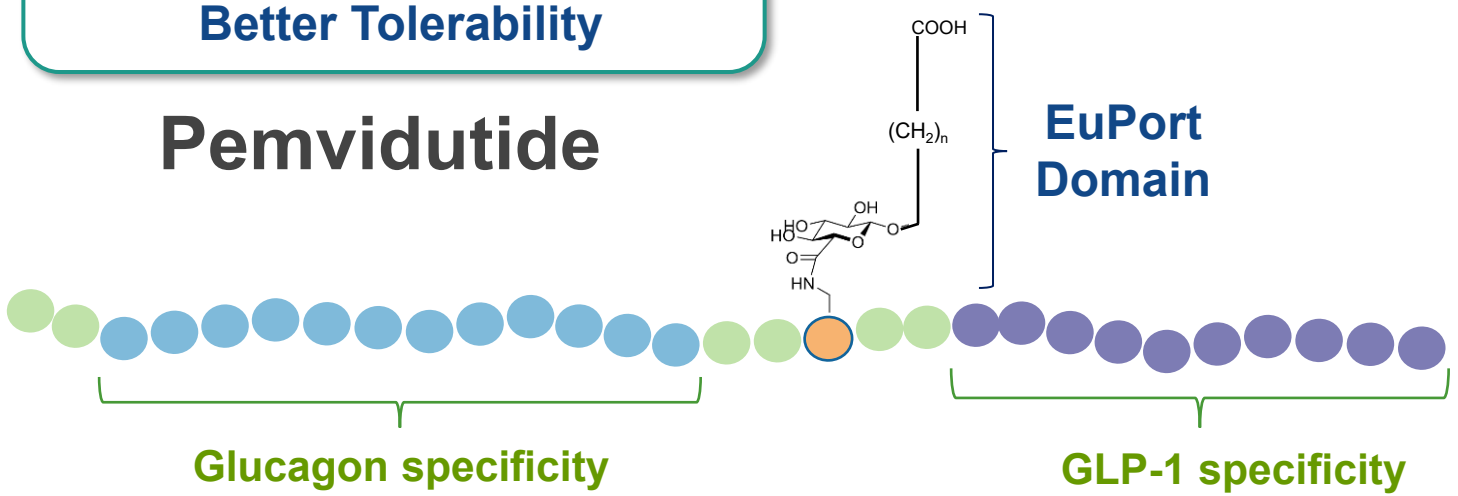
Balanced 1:1 Glucagon/GLP-1 Dual Receptor Agonist

Delayed T_{max} with lower C_{max}

↓

Better Tolerability

Pemvidutide



Ligand	EC_{50} (picomolar)[a]	
	Human GLP-1R	Human GCGR
Glucagon	--	68
GLP-1	15	--
Pemvidutide	39	42
Semaglutide	15	--

Glucagon

Provides direct liver effects, including reductions in liver fat, inflammation, and fibrosis

GLP-1 receptors

Mediate metabolic effects such as appetite suppression, help decrease alcohol cravings and consumption, and drive weight loss

Tolerability

EuPort domain likely contributes to favorable tolerability profile observed to date

[a]Nestor et al. *Peptide Science;* 2021; 113:e24221

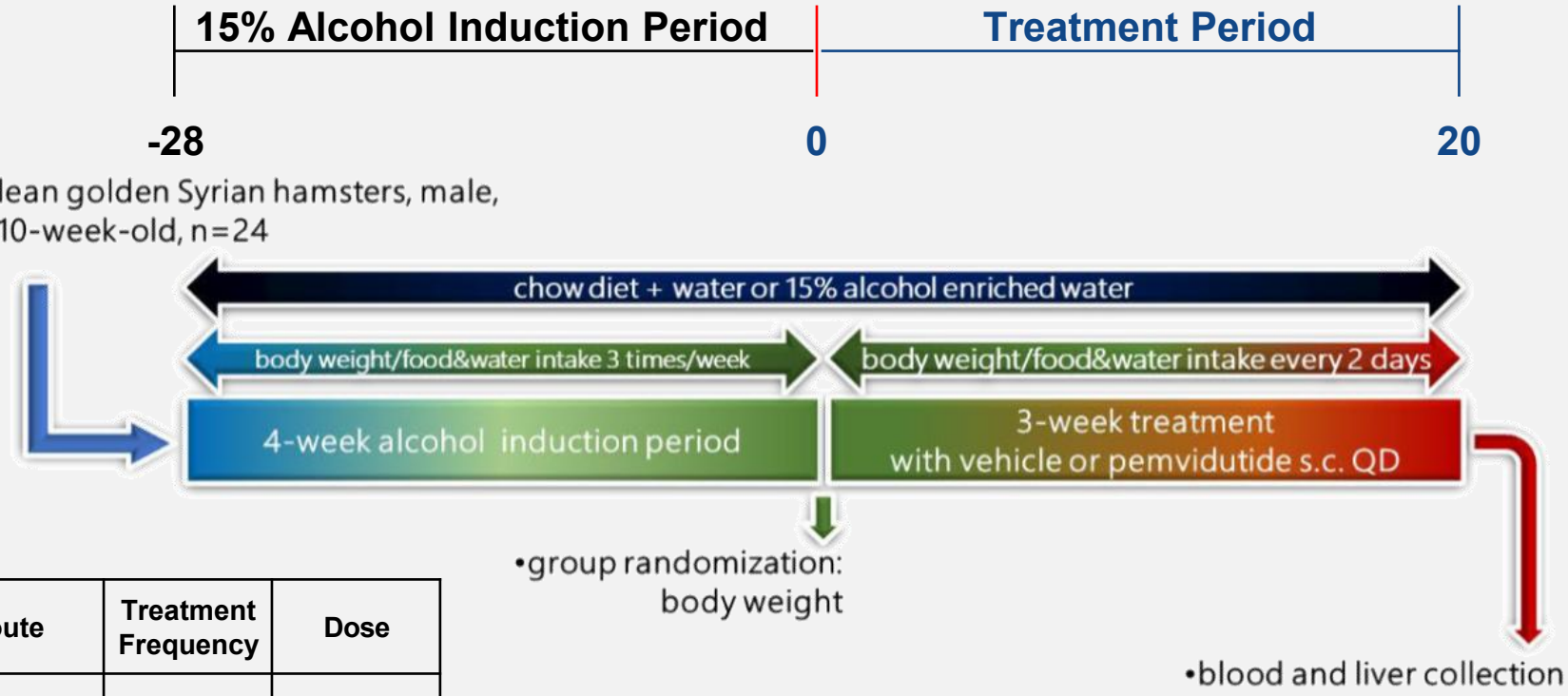
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Study Design

Three-Week Treatment Phase





Group	# Animals	Treatment	Route	Treatment Frequency	Dose
1	12	vehicle	subcutaneous	1 x Daily	--
2	12	pemvidutide	subcutaneous	1 x Daily	10nmol/kg

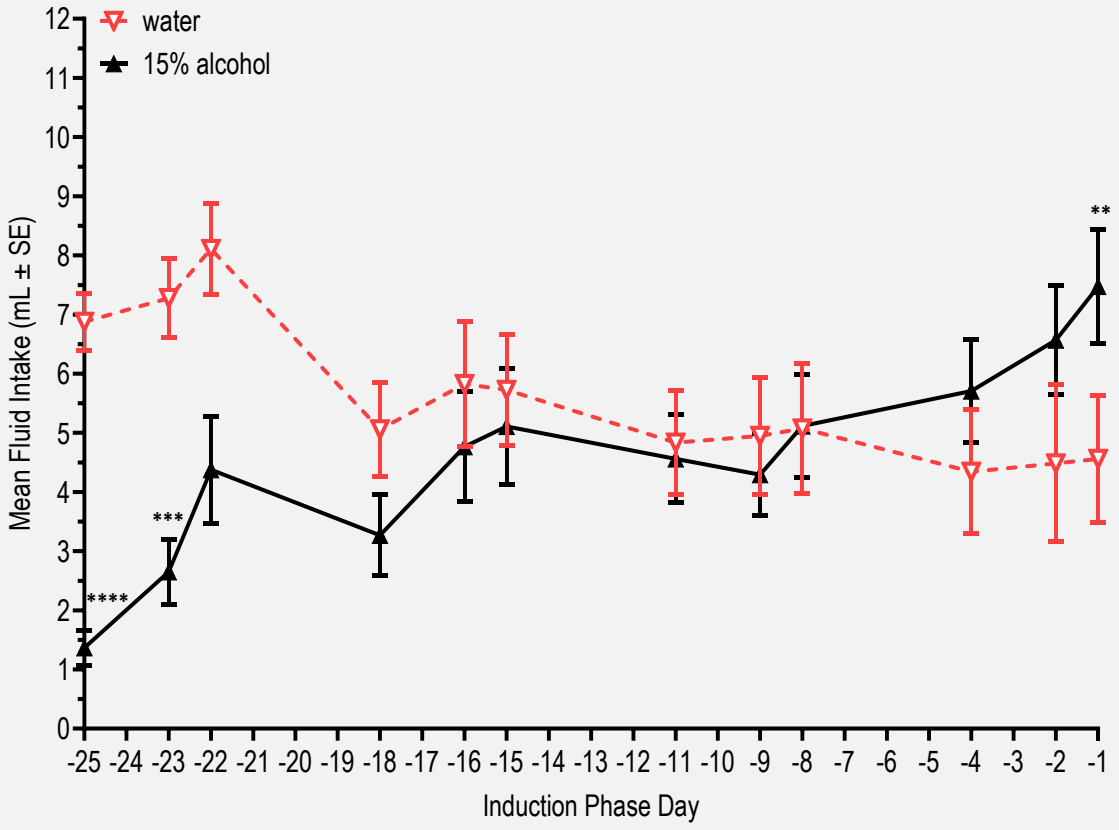
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Alcohol Intake Increased During the Induction Phase

Hamsters Favored Alcohol Over Water by End of Induction Phase

Fluid Intake During Induction Phase



*** p < 0.01 | *** p < 0.001 | **** p < 0.0001 vs. water (ANOVA 2-way + Bonferonni's post-test)*

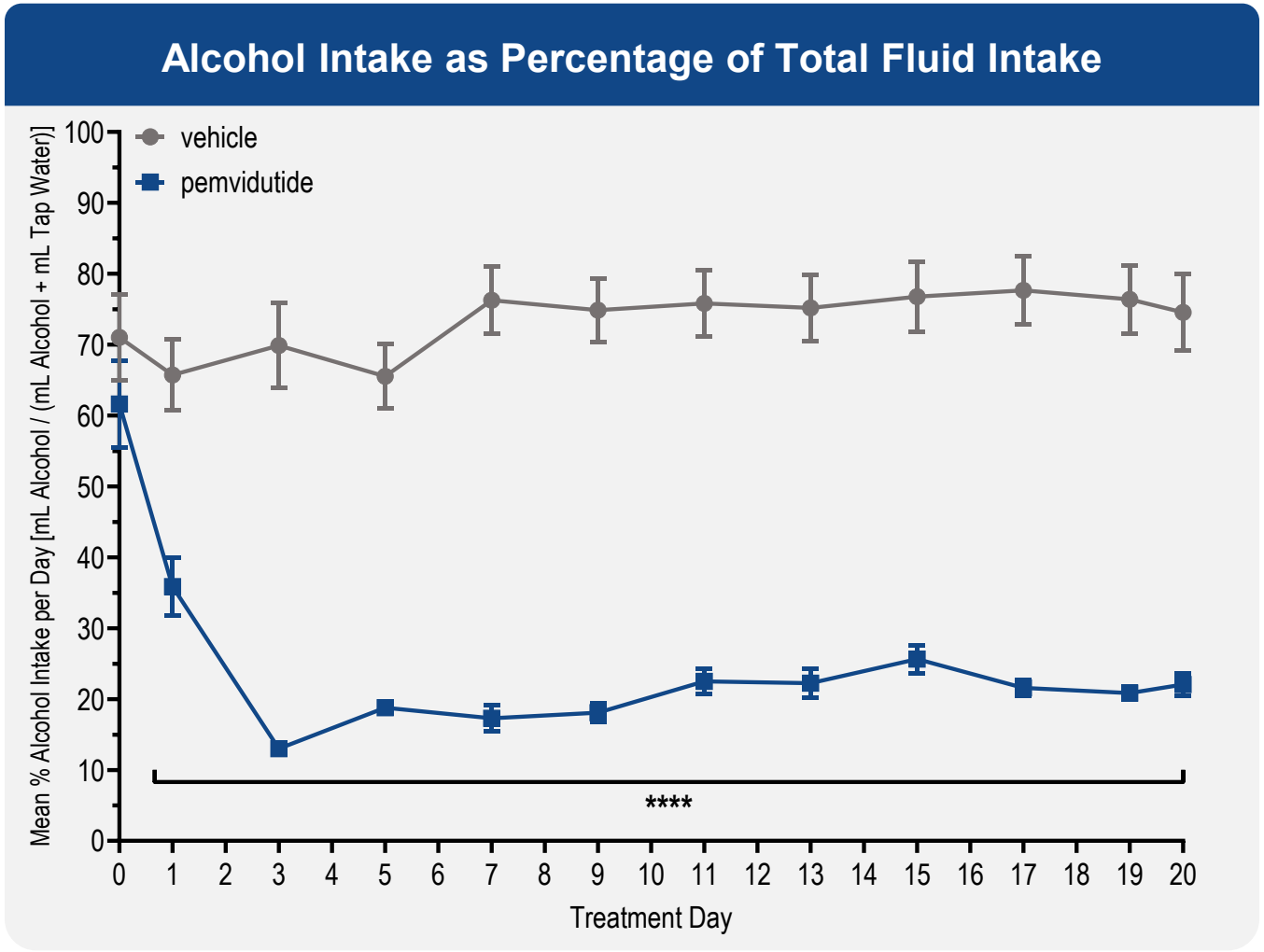
- **Hamsters developed a significant preference for alcohol**
- **Alcohol intake steadily increased throughout the induction phase**
- **Water intake decreased in parallel**

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Pemvidutide Treatment Resulted in Significantly Decreased Alcohol Intake

Maximal reduction in alcohol intake of ~80% from treatment initiation



**** $p < 0.0001$ vs. placebo (ANOVA 2-Way + Sidak's Multiple Comparison Test)

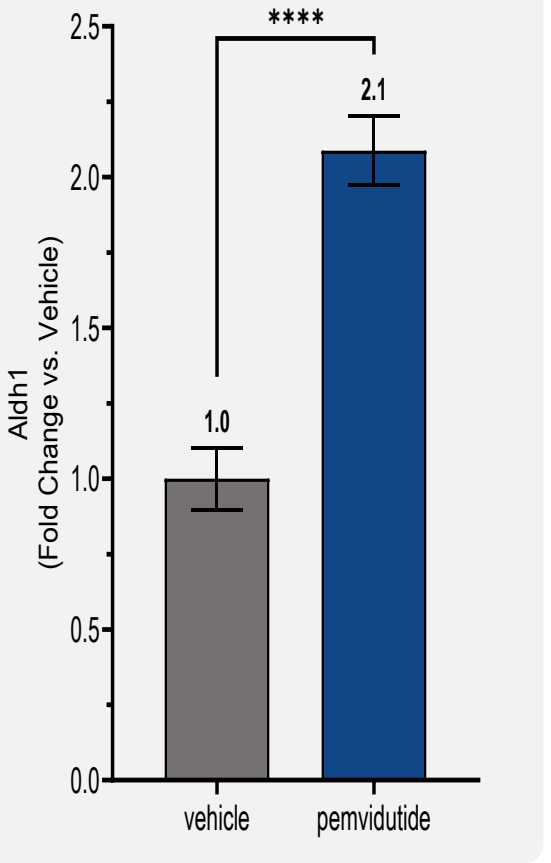
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Pemvidutide Treatment Alters the Expression of Genes Involved in Alcohol Metabolism and Hepatocyte Survival

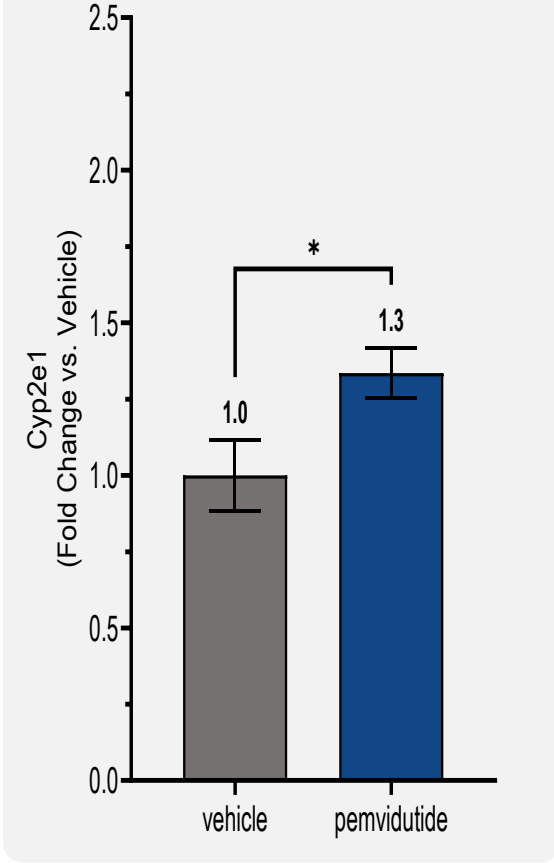
RT-qPCR

Aldehyde Dehydrogenase 1 (Aldh1)



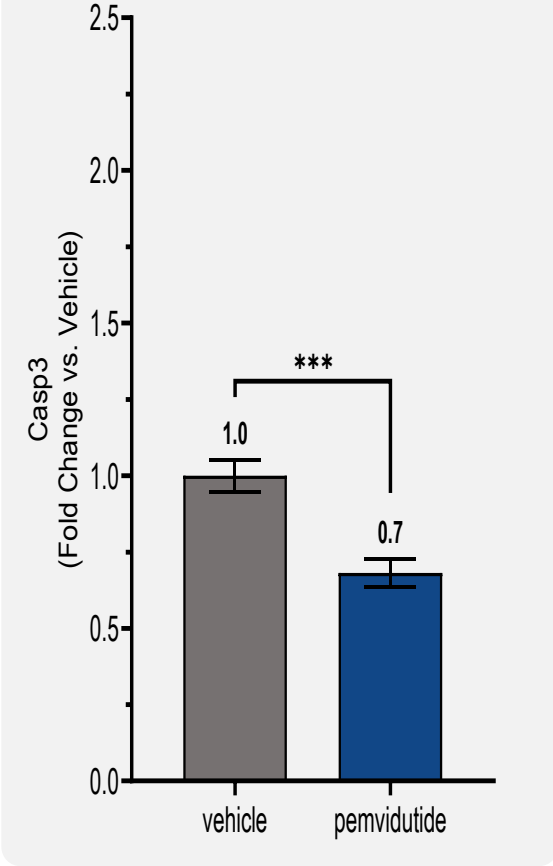
**** p < 0.0001 vs. placebo (Mann-Whitney)

Cytochrome P450 2E1 (Cyp2E1)



* p < 0.05 vs. placebo (t-test)

Caspase-3 (Casp3)



*** p < 0.001 vs. placebo (t-test)

- Aldh1 metabolizes toxic alcohol byproducts
- Cyp2e1 metabolizes alcohol during heavy or chronic consumption
- Casp3 is the primary gene involved in programmed cell death

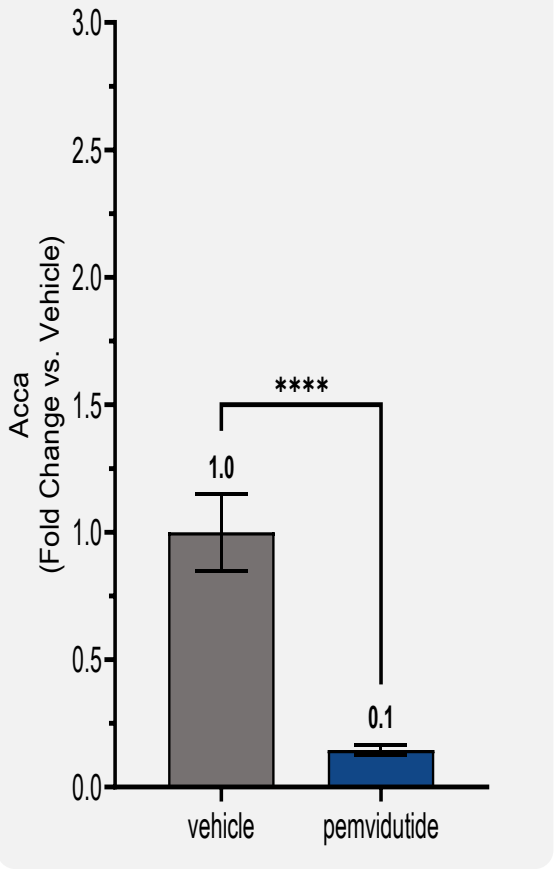
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Pemvidutide Treatment Alters the Expression of Genes Regulating Hepatic Lipid Metabolism

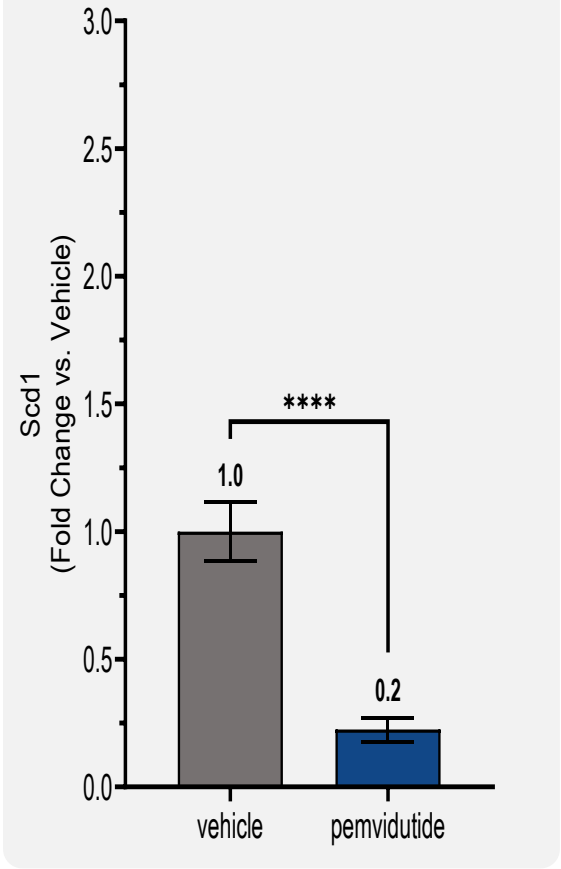
RT-qPCR

Acetyl-CoA Carboxylase 1 (Acca)



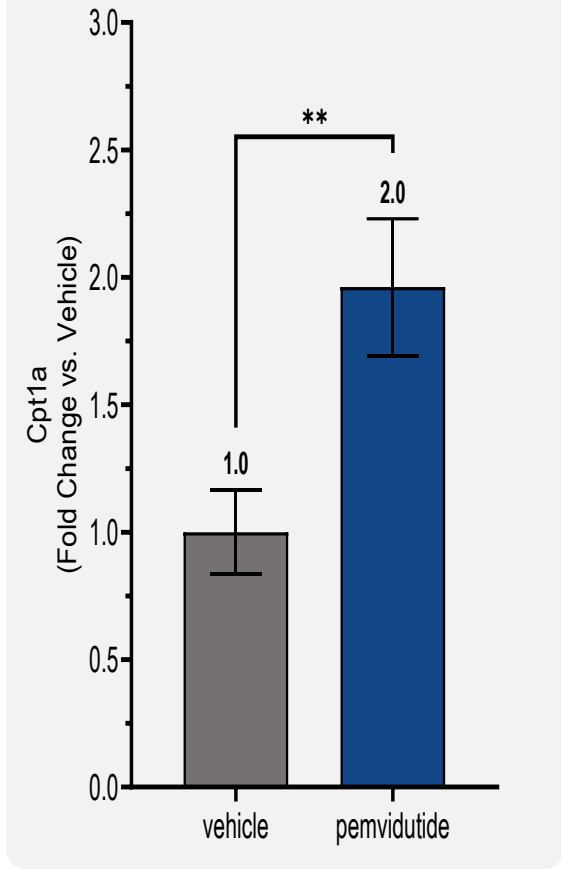
**** p < 0.0001 vs. placebo (Mann-Whitney)

Stearoyl-CoA Desaturase (Scd1)



**** p < 0.0001 vs. placebo (t-test)

Carnitine Palmitoyltransferase 1A (Cpt1a)



** p < 0.01 vs. placebo (t-test)

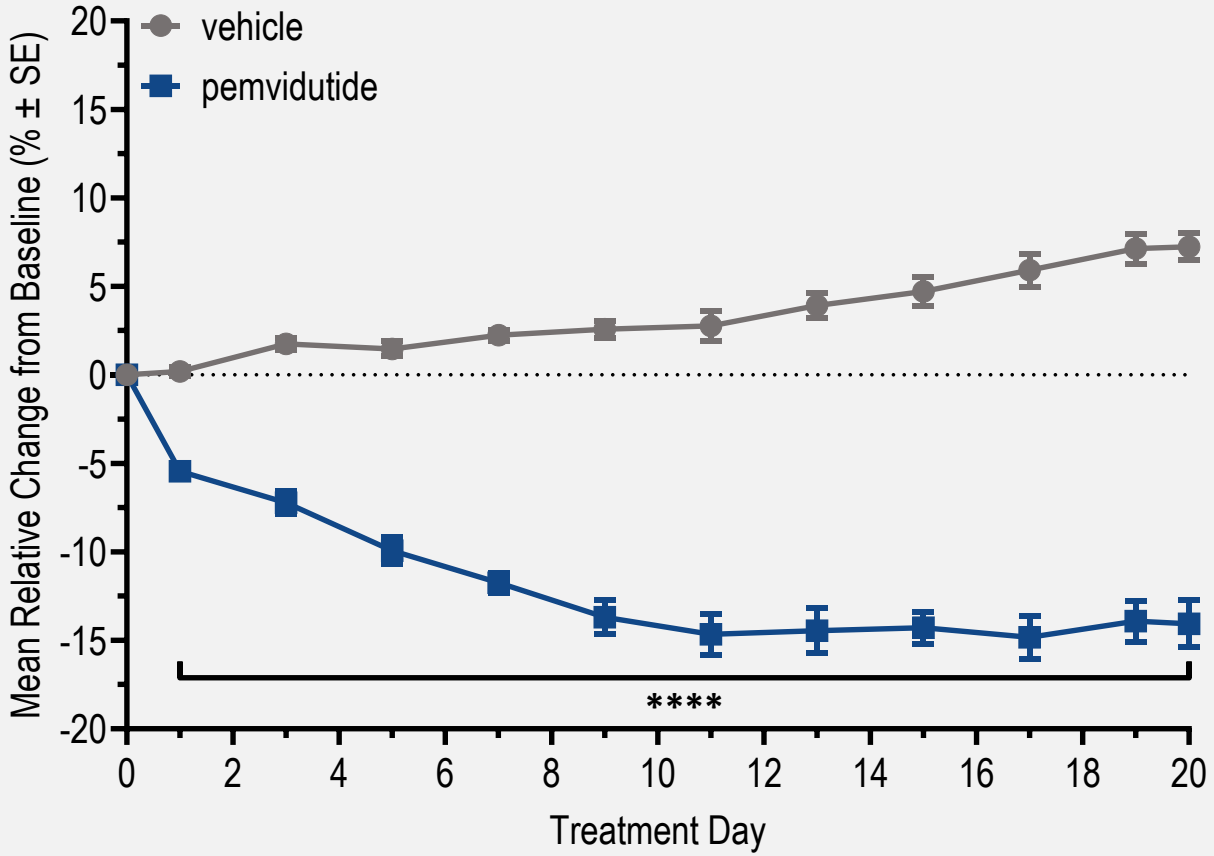
- Acca drives fatty acid synthesis
- Scd1 produces monounsaturated fatty acids, increasing triglyceride levels
- Cpt1a is essential for fatty acid oxidation

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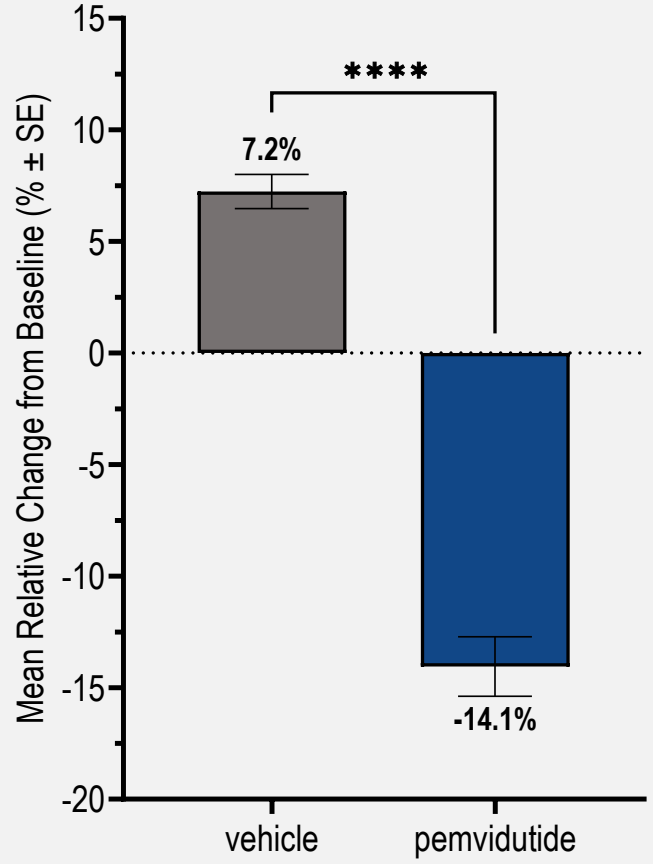
Pemvidutide Treatment Resulted in Significant Weight Loss

Weight Change



**** p < 0.0001 vs. vehicle (ANOVA 2-Way + Sidak's Multiple Comparison Test)

Weight Change at Day 20



**** p < 0.0001 vs. vehicle (t-test)

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Summary

- Pemvidutide treatment significantly reduced alcohol intake in a preclinical hamster model of AUD
- Pemvidutide treatment significantly increased the expression of genes involved in hepatic alcohol metabolism and decreased the expression of the pro-apoptotic gene caspase-3 in the liver
- Pemvidutide treatment significantly reduced the expression of hepatic lipogenesis genes
- Pemvidutide treated hamsters lost significantly more weight than vehicle controls

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RECLAIM Phase 2 Clinical Trial in AUD Topline Results

Efficacy and Safety of Pemvidutide in the Treatment of Adults with Alcohol Use Disorder: Results from RECLAIM, a 24-Week Phase 2 Randomized Double-Blind Placebo-Controlled Trial

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Late Breaker Session: Monday November 9, 2026 at 10:30 am

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