# Innovent

**Innovent Biologics Clinical Data Update** 

Mazdutide @ 2024 ADA

June 25, 2024



01 Introduction Agenda **ADA Highlights** 02 Q&A 03



# **Opening remarks by invited guest**



# Prof. Linong Ji, MD

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- Director of Peking University Diabetes Center and Director of the Department of Endocrinology and Metabolism, Peking University People's Hospital, Beijing, China.
- President of Specialty Committee of Clinical Research on Diabetes and Metabolic Drugs of China Pharmaceutical Innovation and Research Development Association (PhIRDA), Former Vice President of International Diabetes Federation (IDF), Former Chair of International Diabetes Federation Western Pacific Region (IDF-WPR), Former President of the Chinese Diabetes Society (CDS), Vice President of the Chinese Endocrinologist Association (CEA), President of Chinese Geriatric Endocrine and Metabolism Society, Executive board member of Asia Association for the Study of Diabetes (AASD).
- Chief Editor of Chinese Diabetes Journal and an editorial board member of Journal of Diabetes, Diabetes Research and Clinical Practice, Diabetes Technology & Therapeutics, Metabolism, International Journal of Diabetes.
- Principal investigator of 60+ clinical studies. Published 500+ articles in peerreviewed journals.

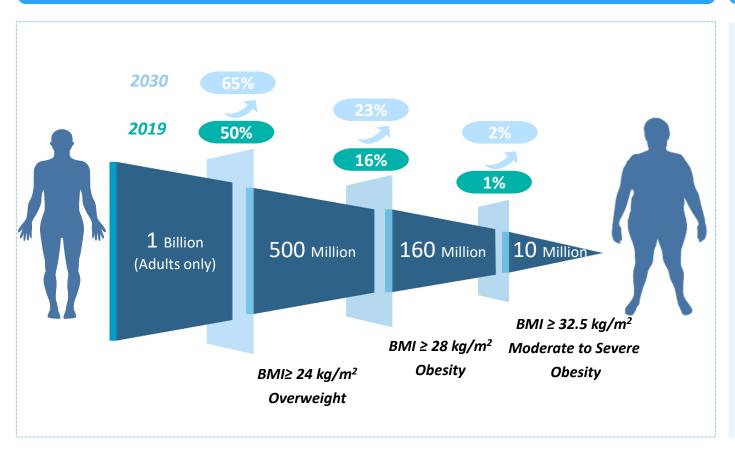


# **Key facts of obesity/overweight in China**

#### China has the largest obese and overweight population, with <1% on medication

#### 500m adults in China live with obesity or overweight

#### Weight management options are limited





Low compliance Non-ideal outcome



Very limited usage Various obstacles



Limited efficacy and serious adverse effects before GLP-1 class

<sup>2.</sup> Wang Y, Zhao L, Gao L, Pan A, Xue H. Health policy and public health implications of obesity in China. Lancet Diabetes Endocrinol. 2021 Jul;9(7):446-461. doi: 10.1016/S2213-8587(21)00118-2. Epub 2021 Jun 4. PMID: 34097869.

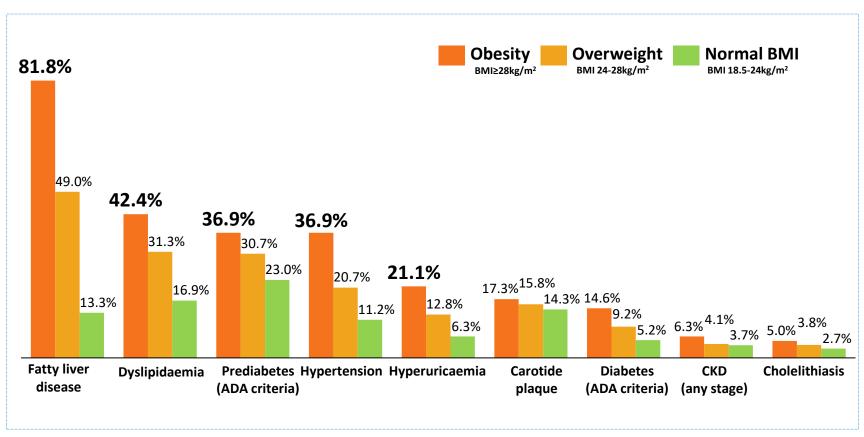


<sup>1.</sup> Pan XF, Wang L, Pan A. Epidemiology and determinants of obesity in China. Lancet Diabetes Endocrinol. 2021 Jun;9(6):373-392. doi: 10.1016/S2213-8587(21)00045-0. Erratum in: Lancet Diabetes Endocrinol. 2021 Jul;9(7):e2. PMID: 34022156.

# Key facts of obesity/overweight in China High burden of comorbidities with overweight/obesity

#### Prevalence of comorbidities in normal BMI, overweight or obesity in China



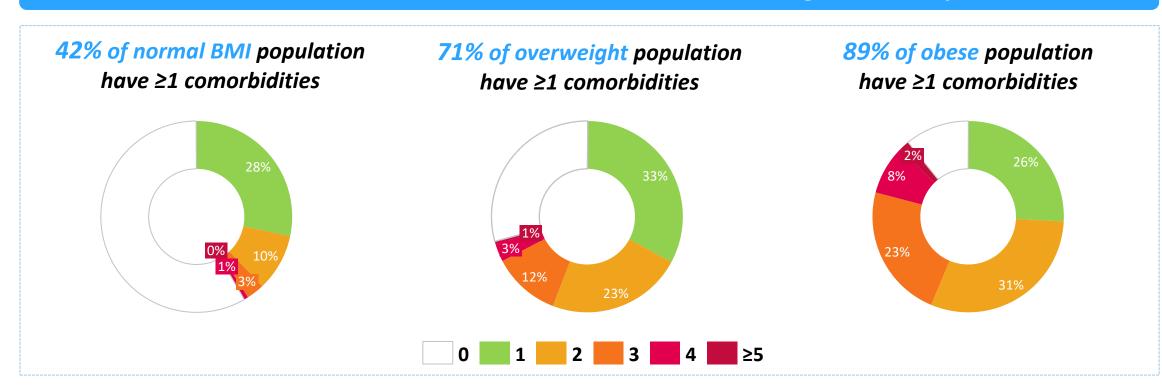


Chen K, Shen Z, Gu W, Lyu Z, Qi X, Mu Y, Ning Y; Meinian Investigator Group. Prevalence of obesity and associated complications in China: A cross-sectional, real-world study in 15.8 million adults. Diabetes Obes Metab. 2023 Nov;25(11):3390-3399. doi: 10.1111/dom.15238. Data were obtained from 519 Meinian health check-up centres across 243 cities. Eligible participants were aged  $\geq$ 18 years, with a routine check-up in 2019 (N = 21 771 683)



# Key facts of obesity/overweight in China Most people with overweight/obesity have one or more comorbidities

#### Number of comorbidities in adults with normal BMI, overweight or obesity in China



Overweight and obesity were associated with a high prevalence of cardiometabolic diseases, emphasizing the need for weight management efforts that address both excess body weight and associated comorbidities.

Chen K, Shen Z, Gu W, Lyu Z, Qi X, Mu Y, Ning Y; Meinian Investigator Group. Prevalence of obesity and associated complications in China: A cross-sectional, real-world study in 15.8 million adults. Diabetes Obes Metab. 2023 Nov;25(11):3390-3399. doi: 10.1111/dom.15238. Data were obtained from 519 Meinian health check-up centres across 243 cities. Eligible participants were aged  $\geq$ 18 years, with a routine check-up in 2019 (N = 21 771 683)



# Key advantages of mazdutide in weight management Aids obese/overweight population to achieve better weight management

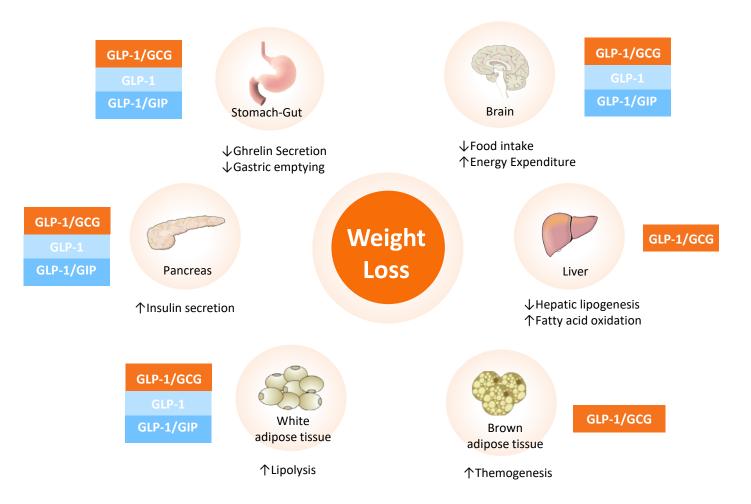
Mazdutide confers robust weight loss, special liver benefits and improvements on multiple cardiometabolic risk factors.





# Mazdutide key mechanisms of action in weight management Dual agonism of GLP-1R/GCGR induces robust weight loss and additional benefits

#### GLP-1/GCG's key mechanisms on weight loss (vs. GLP-1 and GLP-1/GIP)

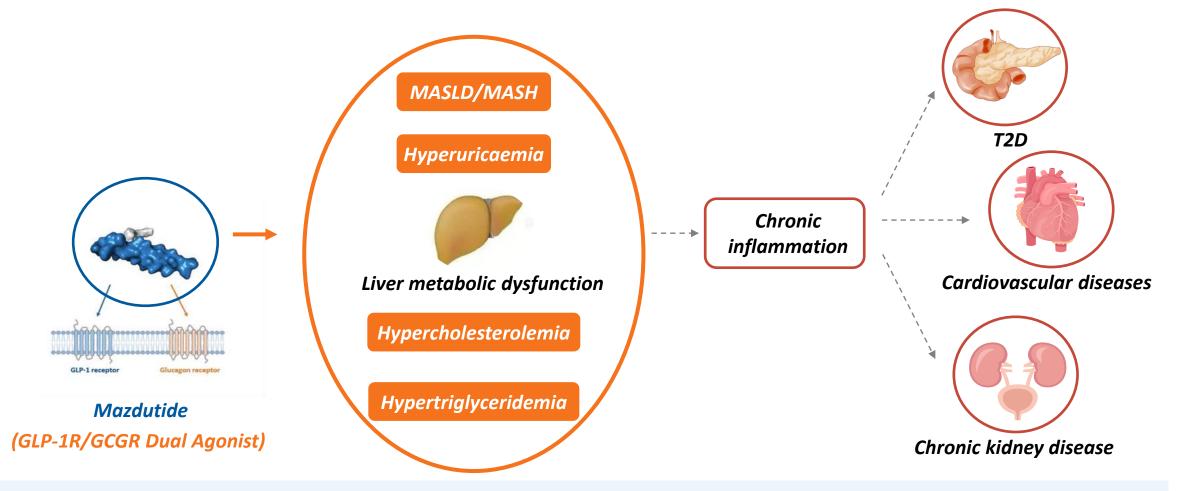


- Mazdutide is an analogue of oxyntomodulin (OXM), a natural peptide hormone existing in humans that activates both GLP-1R and GCGR.
- Mazdutide can promote weight loss through various regulatory mechanisms across multiple organs (shown left).
- By additionally targeting GCGR in the liver and brown adipose tissues, mazdutide may offer metabolic benefits by enhancing energy expenditure and promoting lipolysis.

GLP-1= glucagon-like peptide-1, GIP= glucose-dependent insulin releasing peptide, GCG=glucagon, GLP-1R= glucagon-like peptide-1 receptor, GCGR=glucagon receptor

# **Mazdutide special liver benefits**

#### Directly targets liver, which plays a central role in metabolic diseases

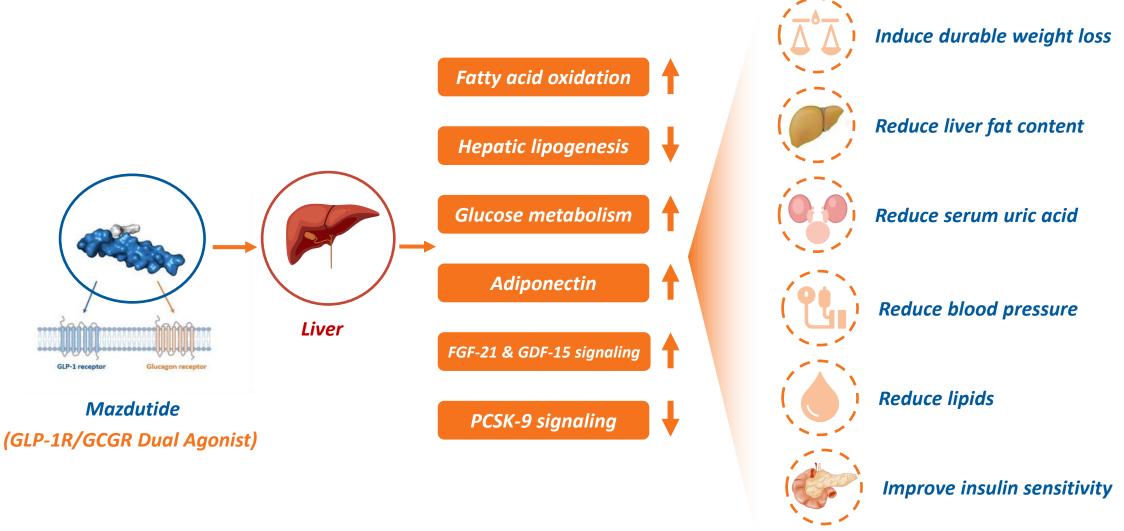


**Liver plays a central role in human metabolism**. Its dysfunction can lead to chronic inflammation, which underlies the pathogenesis of various metabolic diseases such as **T2D**, cardiovascular diseases, chronic kidney diseases.

MASLD=metabolic dysfunction-associated steatotic liver disease; MASH=metabolic dysfunction-associated steatohepatitis; T2D= type 2 diabet

# **Mazdutide special liver benefits**

#### Improves liver metabolism and reduces factors of liver metabolic dysfunction



FGF-21=Fibroblast growth factor 21; GDF-15=Growth differentiation factor 15; PCSK-9=Proprotein convertase subtilisin/kexin type 9 serine protease.





# **Mazdutide development programs**

#### GLORY-1: the first and successful Phase 3 study of GLP-1/GCG dual target in weight management

#### Mazdutide Development Programs and Publications

Indications	Trial	Ph3	NDA	Approval
Weight Management				
<b>Obesity/overweight</b> 4mg/6mg vs. placebo	GLORY-1 (Ph3)		<b>⊘</b> 2024.02	1H 2025
<b>Obesity</b> 9mg vs. placebo	GLORY-2 (Ph3)			
<b>Obesity</b> Adolescent	Ph1 in plan			
Type 2 Diabetes				
<b>T2D 4mg/6mg</b> vs. placebo	DREAMS-1 (Ph3)		2024	2025
<b>T2D 4mg/6mg</b> vs. dulaglutide	DREAMS-2 (Ph3)		2024	2025
<b>T2D 6mg</b> vs. semaglutide	DREAMS-3 (Ph3)			
Others				
MASH	IND approved			





# **GLORY-1: trial design and baseline characteristics Evaluating weight loss efficacy and safety in Chinese adults with obesity/overweight**

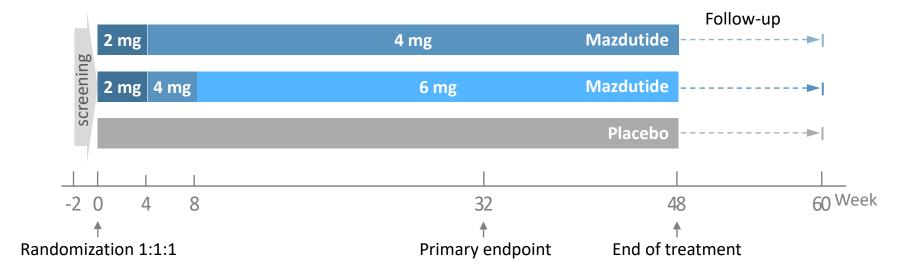
ClinicalTrials.gov ID

NCT05607680

Inclusion criteria

BMI  $\geq$ 28 kg/m<sup>2</sup> or BMI  $\geq$ 24 kg/m<sup>2</sup> plus  $\geq$ 1 weight-related comorbidity. Excluding diabetes.

Dose regimen



Baseline (N=610)

#### Baseline characteristics were essentially balanced across treatment groups





34 yrs



Mean Weight

87.2 kg



31.1 kg/m<sup>2</sup>







Mean Height 167 cm

Sex, Male 49%

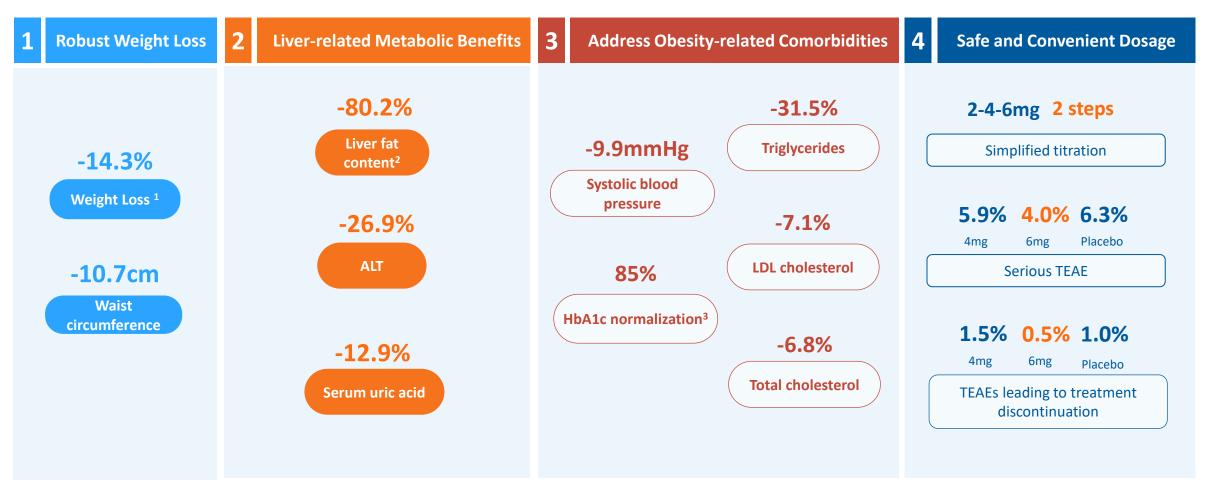
63.6% participants have  $\geq$ 2 weight-related comorbidities, and 35.6% participants have  $\geq$  3 weight-related comorbidities.

Weight-related comorbidities include dyslipidemia, fatty liver, hyperuricemia, hypertension, abnormal liver function, prediabetes, kidney disease, and weight-bearing joint pain.



# **GLORY-1: 48-week treatment results summary**

#### A safe medication that brings robust weight loss and reduces cardiometabolic risk factors

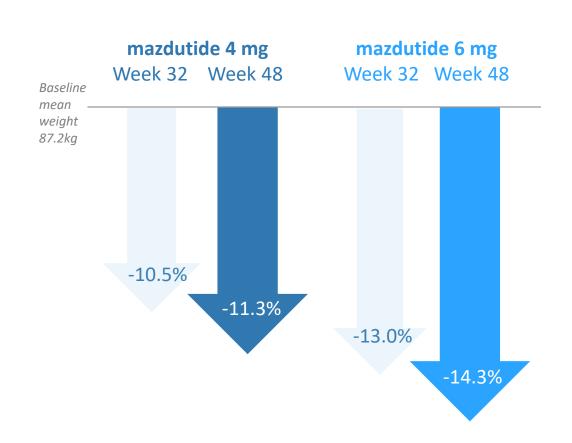


All above efficacy endpoints are 48-week results of mazdutide 6mg group (treatment-policy estimand), more data presented at 2024 ADA (1856-LB) and will be published at peer-reviewed academic journals 1. Placebo-adjusted mean body weigh percentage change from baseline; 2.Evaluated in participants with baseline LFC ≥ 10%; 3. Evaluated in participants with baseline A1c ≥5.7%



# Robust weight-loss efficacy achieved in mazdutide treatment groups

#### Placebo-adjusted mean body weight percentage change from baseline at week 48



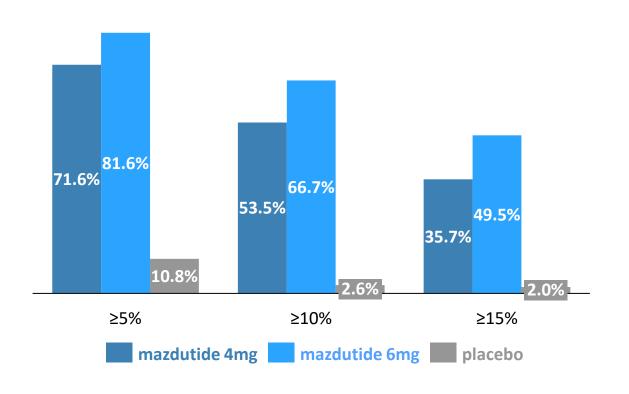
#### Robust and durable weight reduction with simple regimen

- Placebo-adjusted mean body weight reduction of -14.3% in mazdutide 6mg after 48-week treatment.
- Mazdutide has induced robust and durable weight-loss effect with its simple and tolerable two-step titration regimen.



## Half of participants receiving mazdutide 6mg achieved ≥15% weight loss

#### Proportion of participants achieved ≥ 5%/10%/15% weight loss from baseline at 48 weeks

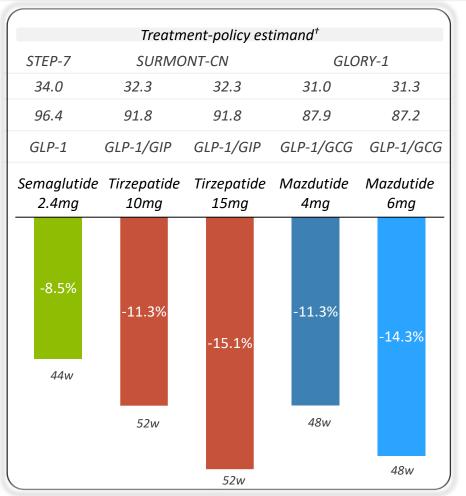


- At week 48, 81.6% and 71.6% of the participants in the mazdutide 4 mg and 6 mg group achieved 5% or more weight loss from baseline;
- 49.5% participants achieved ≥15% weight loss in mazdutide 6 mg group after 48 weeks of treatment.

# Mazdutide demonstrated robust weight reduction across dose levels

#### Summary of placebo-adjusted mean body weight reduction (%)

	Efficacy estimand*							
Clinical trial	STEP-7	SURMO	ONT-CN	Phase 2	GLO	ORY-1	Phase 2	
Mean BMI (kg/m²)	34.0	32.3	32.3	37.6	31.0	31.3	34.3	
Mean Weight (kg)	96.4	91.8	91.8	105.9	87.9	87.2	96.9	
Target	GLP-1	GLP-1/GIP	GLP-1/GIP	GLP-1/GCG	GLP-1/GCG	GLP-1/GC	G GLP-1/GCG	
	Semaglutide 2.4mg	Tirzepatide 10mg	Tirzepatide 15mg	Survodutide 4.8mg	Mazdutide 4mg	Mazdutide 6mg	Mazdutide 9mg	
	-9.9%	-11.5%	-17.4%	-12.1%	-11.6%	-14.4%	-18.6%	
		52w	52w	46w	48w	48w		
			J2 VV				48w	



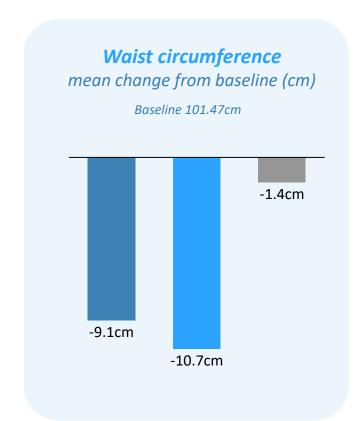
<sup>\*</sup> The efficacy estimand represents the average treatment effect of mazdutide relative to placebo had participants remained on their randomized treatment for the entire planned 48 weeks treatment duration. Missing data were implicitly handled by using a mixed model for repeated measures (MMRM) under the assumption of missing at random.

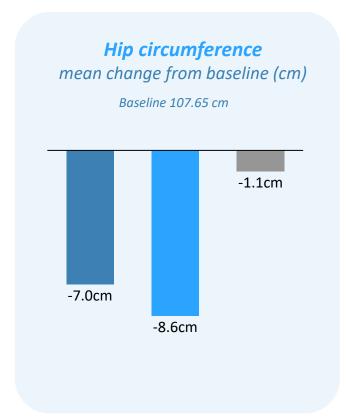
† The treatment policy estimand represents the average treatment effect of mazdutide relative to placebo repardless of the adherence to treatment. For analyses related to the treatment-regimen estimand, analysis of covariance (ANCOVA) was used for continuous endopints and logistic regression was used for hinary endopints.

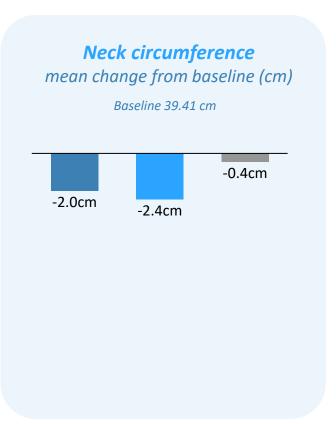


# Significantly reduced waist, hip and neck circumferences, indicating body fat reduction

#### Significant reductions in waist/hip/neck circumferences at week 48

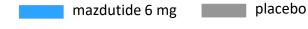






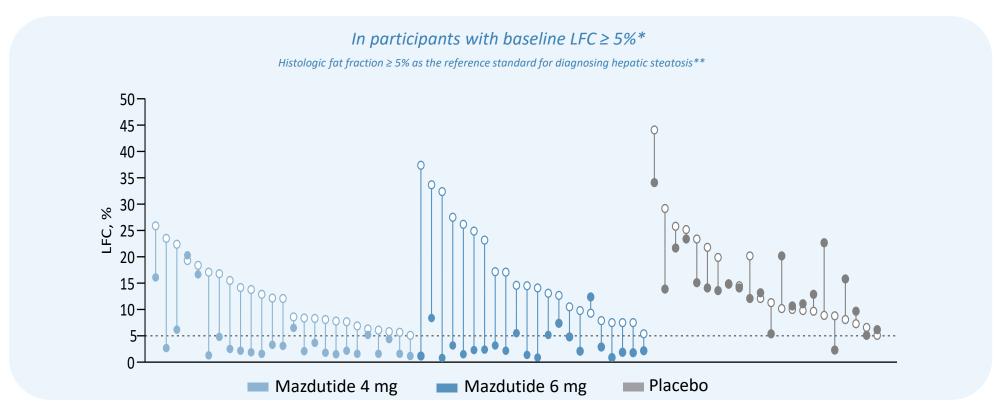


mazdutide 4 mg



# Substantially reduced liver fat content in participants with hepatic steatosis

#### Liver fat content (LFC) at baseline and week 48 by MRI-PDFF

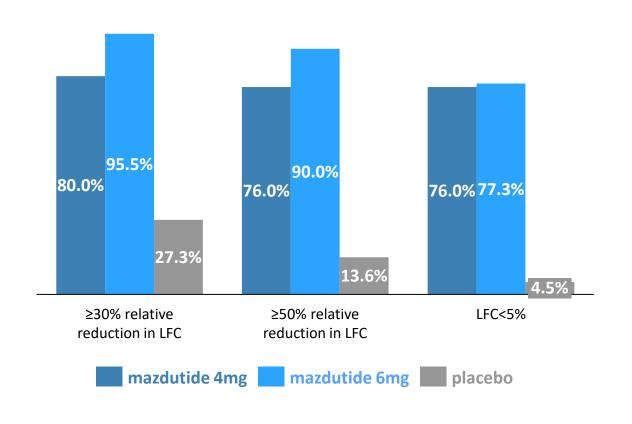


<sup>\*</sup>A total of 69 participants (25 with mazdutide 4 mg, 22 with mazdutide 6 mg and 22 with placebo) had LFC ≥5% at baseline and week 48 LFC assessment, and were included in this exploratory analysis of GLORY-1.



#### 77.3% participants with mazdutide achieved normalization of LFC ( < 5%)

#### Proportion of participants achieved ≥ 30%/50% LFC relative reduction or LFC <5% at week 48



- In participants with baseline LFC ≥5%, compared to placebo, substantially more participants with mazdutide 4 mg or 6 mg treatment for 48 weeks achieved clinically meaningful LFC reduction.
- At week 48, normalization of LFC was achieved by 76.0% and 77.3% with mazdutide 4mg and 6mg while only 4.5% with placebo.

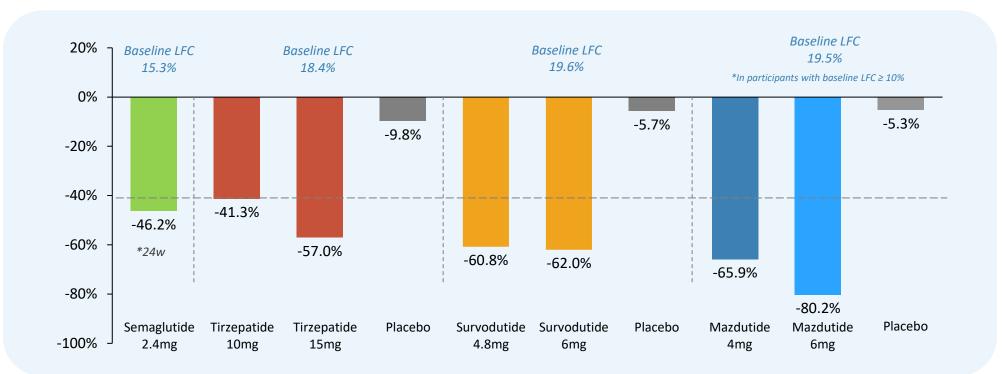


## Substantially reduced liver fat content in participants with hepatic steatosis

#### Up to 80.2% liver fat content reduction observed in mazdutide groups at week 48

#### **Liver Fat Content**

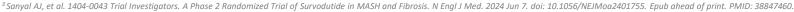
mean change (%) from baseline by MRI-PDFF



Semglutide 2.4mg were published results of a Phase 2 trial<sup>1</sup>; Tirzepatide 10mg & 15mg were published results of a Phase 2 trial<sup>2</sup>; survodutide 4.8mg were published results of a Phase 2 trial<sup>3</sup>

<sup>&</sup>lt;sup>1</sup> Alkhouri N,et al. Safety and efficacy of combination therapy with semaglutide, cilofexor and firsocostat in patients with non-alcoholic steatohepatitis: A randomised, open-label phase II trial. J Hepatol. 2022 Sep;77(3):607-618. doi: 10.1016/j.jhep.2022.04.003. Epub 2022 Apr 16. PMID: 35439567.

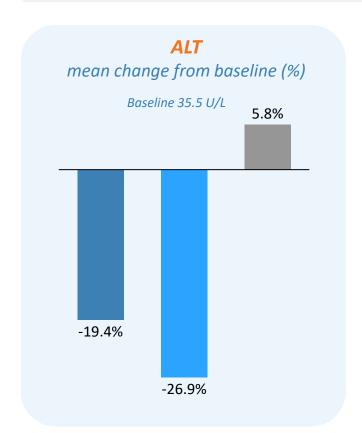
<sup>2</sup> Loomba R, et al. SYNERGY-NASH Investigators. Tirzepatide for Metabolic Dysfunction-Associated Steatohepatitis with Liver Fibrosis. N Engl J Med. 2024 Jun 8. doi: 10.1056/NEJMoa2401943. Epub ahead of print. PMID: 38856224.

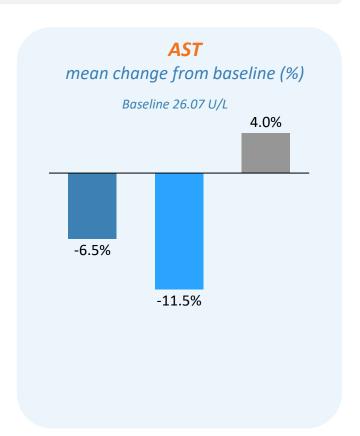




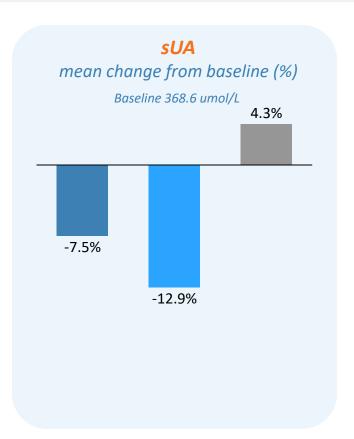
#### Robust reductions in transaminase and serum uric acid

#### Robust reduction in ALT and AST at week 48





#### Unique reduction in sUA at week 48





mazdutide 4 mg

mazdutide 6 mg

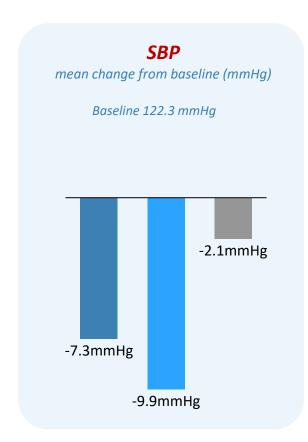
placebo

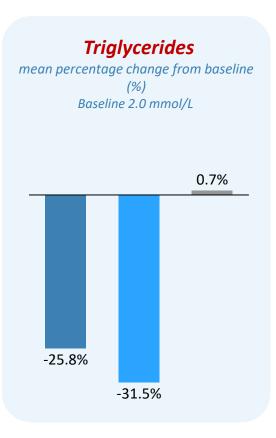
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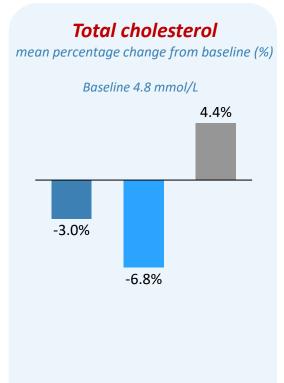
#### **GLORY-1: cardio-metabolic benefits**

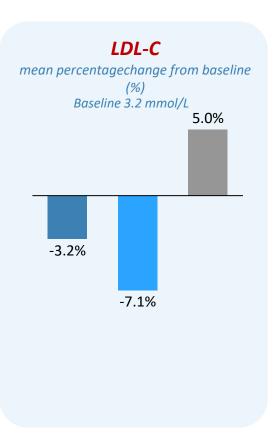
# Significantly reduced cardiometabolic risk factors, alleviating comorbidity burden

#### Significant reductions in blood pressure and lipids at week 48



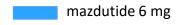








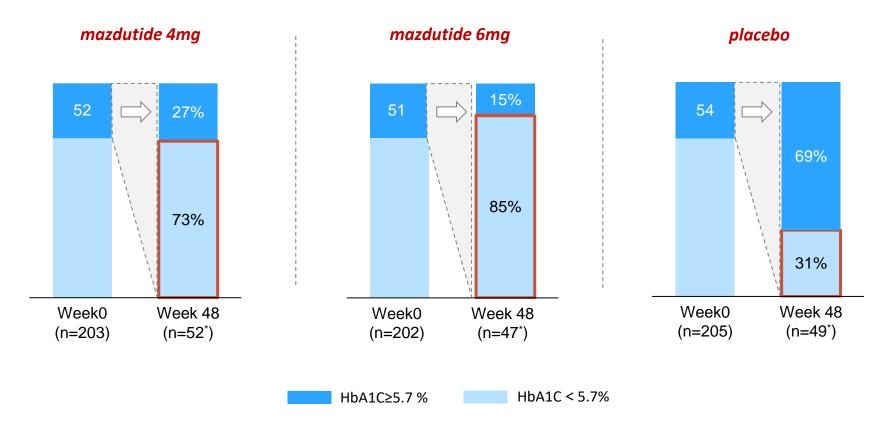
mazdutide 4 mg



## **GLORY-1:** glycemic benefit

# Significantly normalized blood sugar level for participants with HbA1C ≥5.7 %

#### Proportion of participants with baseline HbA1c ≥5.7% achieved A1c normalization at week 48

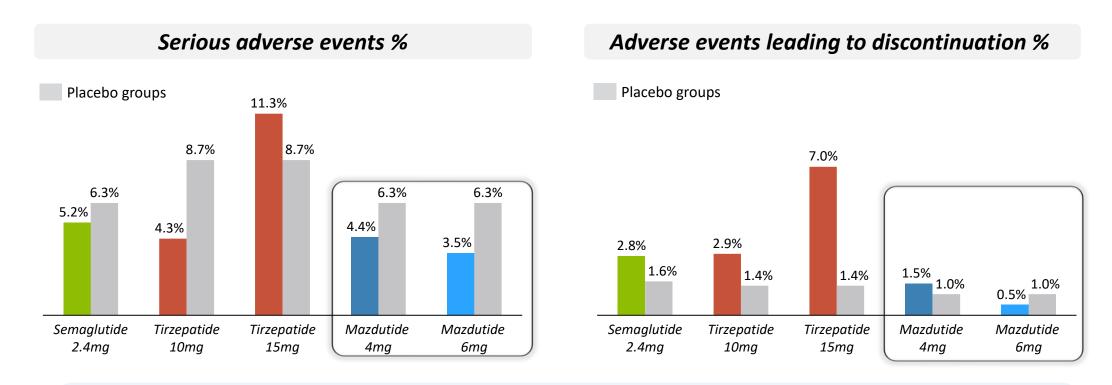


\*Number of participants with baseline A1c ≥5.7% and evaluable data at week 48.



# GLORY-1: safety profile

# Favorable tolerability and safety profile of mazdutide



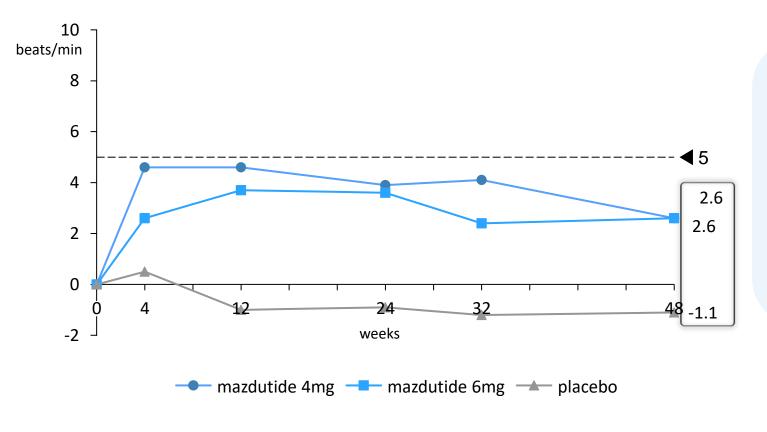
- Gastrointestinal symptoms (nausea, vomiting and diarrhea) were the most common adverse events, **mostly mild or moderate severity**.
- Most gastrointestinal adverse events occurred during the dose escalation period.



# **GLORY-1:** safety profile

#### No signal of increased cardiovascular risk was observed throughout the 48-week treatment

#### Mean heart rate change from baseline over 48-week treatment (beats/min)



- The increase in heart rate in the mazdutide groups was mild and mainly in dose-escalation stage. Mean changes from baseline were no more than 5 beats/min throughout the 48-week treatment period for both mazdutide groups.
- No safety signal of increased cardiovascular risk was observed throughout the treatment period.



# **Summary and takeaway 1:**

#### GLORY-1 reinforces mazdutide's advantage as a potent medication for weight management



#### Robust and rapid weight-loss efficacy

- Mean weight loss from baseline of -14.3%
- Half patients achieved ≥15% weight loss



#### 80% LFC reduction and liver benefits

Differentiated benefits in significantly reducing LFC,
 ALT and serum uric acid levels



#### Improvements in related comorbidities indicators

 Significant reduction in waist circumference, SBP, TG, TC, LDL-C levels etc.



#### Favorable and superior safety and tolerability

- Most GI AEs are of mild or moderate severity
- Relatively low SAEs and drop-out rate
- Heart rate increase was mild and stable, no increased cardiovascular risk observed

Competitive weight loss effect and strong clinical evidence in Chinese population

Implication of the additional benefit of GCGR agonism through direct activation on liver

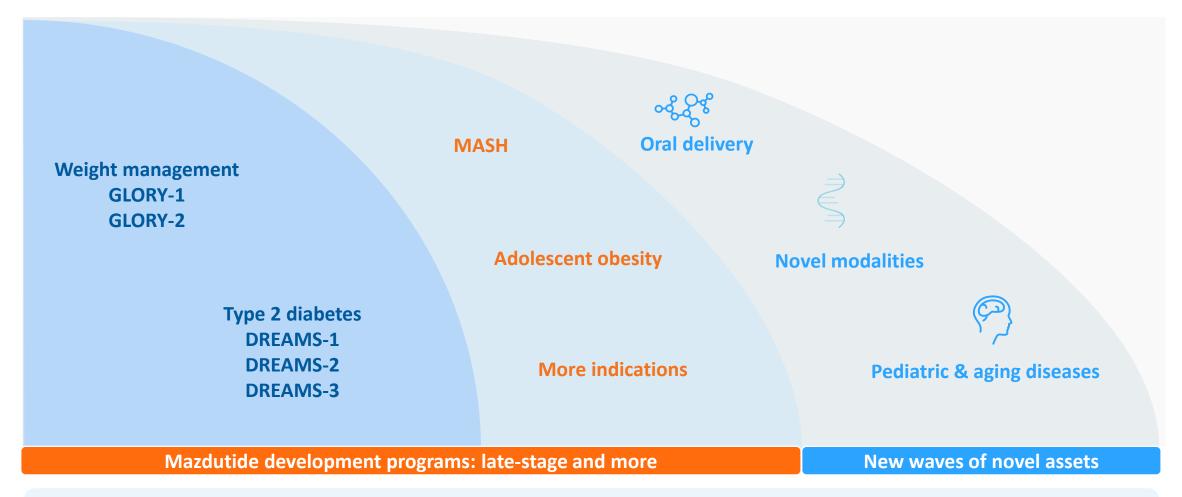
Potential to improve healthy outcomes for people living with obesity and associated comorbidities

Facilitate treatment compliance and quality of life under convenient, safe and tolerable two-step dose regimen



# **Summary and takeaway 2:**

# Expand indication exploration of mazdutide and innovate in early-stage pipeline



- Evaluate and advance mazdutide to address significant unmet medical needs in other key metabolic diseases
- Continue to innovate in more early-stage metabolic pipeline





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