# AMG 133 PROGRAM UPDATE

WCIRDC IR CALL DECEMBER 5, 2022



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#### **AGENDA**

Торіс	Presenter
Introduction	David Reese, MD Executive Vice President, Research and Development, Amgen
AMG 133 Program Update	Narimon Honarpour MD, PhD Vice President, Clinical Development, Amgen
Q&A	All



#### **OBESITY: A COMPLEX AND HETEROGENEOUS DISEASE WITH STRONG GENETIC UNDERPINNINGS THAT CAUSES A WIDE VARIETY OF GRIEVOUS ILLNESSES**



NASH = nonalcoholic steatohepatitis; Afib = atrial fibrillation.

Provided December 5, 2022, as part of an oral presentation and qualified by such, contains forward-looking statements, actual results may vary materially; Amgen disclaims any duty to update

## AMGEN IS TACKLING OBESITY USING DIVERSE AND INNOVATIVE APPROACHES



**HUMAN GENETIC** 

- Target discovery
- Unraveling patient heterogeneity

#### BIOLOGY DRIVES MODALITY CHOICE



- Large molecule
- Small molecule
- siRNA
- Others



- Incretin based
- Non-incretins
- Novel genetics

#### MULTI-SPECIFIC MOLECULES



• e.g., AMG 133



siRNA = small interfering ribonucleic acid.

# A PHASE 1, RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED SINGLE AND MULTIPLE ASCENDING DOSE STUDY OF AMG 133 IN SUBJECTS WITH OBESITY

NARIMON HONARPOUR VICE PRESIDENT CLINICAL DEVELOPMENT



## AMG 133, A FIRST-IN-CLASS ANTIBODY-PEPTIDE CONJUGATE TARGETING OBESITY

#### **GIPR INHIBITORY ANTIBODY**





Japanese Genome-wide association study<sup>1</sup>

**European** Genome-wide association study<sup>2,3</sup>

Whole exome sequencing in UK-Biobank and N. America<sup>4</sup>



**AMGEN** 

GIPR= Gastric Inhibitory Polypeptide Receptor; GLP-1= Glucagon-like peptide-1; GLP-1R= Glucagon-like peptide-1 receptor.

GIPR= Gastric Inhibitory Polypeptide Receptor; BMI= body mass index

- 1. Nature Genetics 2012; 44 (3):302-6
- 2. Nature Genetics 2010; 42 (11):937-48 (deCODE is collaborator)
- 3. Nature Genetics 2013; 45 (5):501-12 (deCODE is collaborator)
- 4. Science 2021; 373 (6550)

#### AMG 133 PHASE 1 STUDY DESIGN AND OBJECTIVE

- A Phase 1 randomized, double-blind, placebo-controlled study with single and multiple ascending dose cohorts.
- Enrolled obese subjects (BMI ≥30.0 kg/m2 to ≤40.0 kg/m2) without other medical conditions to receive either subcutaneous AMG 133 or placebo.
- Evaluated safety, tolerability, pharmacokinetics, and pharmacodynamics of AMG 133 in subjects with obesity and without other medical conditions.
- Reporting on safety, pharmacokinetic parameters, and pharmacodynamics (body weight change).

BMI, body mass index; kg = kilogram.



#### **STUDY SCHEMA**

#### Single Ascending Dose Cohorts\* AMG 133:Placebo (6:2) SC x 1



#### Multiple Ascending Dose Cohorts\*\* AMG 133:Placebo (6:2) SC Q4W × 3



\*\*3 cohorts not included due to ongoing trial/analysis; 1 with digital tools and 2 with 2- or 4-week dose escalation strategies

SC, subcutaneous; IV, intravenous; mg = milligram; Q4W, every 4 weeks.



#### **BASELINE CHARACTERISTICS AND SUBJECT DISPOSITION**

	Single Ascending Dose (N = 49)		Multiple Ascending Dose (N = 26)	
Characteristic	Placebo (N = 12)	<b>AMG 133</b> (N = 37)	Placebo (N = 6)	<b>AMG 133</b> (N = 20)
Age, mean ± SD, y	45.7±13.4	48.5±10.9	45.7±14.0	46.1±4.4
Males, n (%)	8 (66.7)	24 (64.9)	2 (33.3)	10 (50.0)
Weight, mean ± SD, kg	97.2±12.4	100.3±14.0	98.9±15.8	96.3±12.4
BMI, mean ± SD, kg/m²	32.8±2.1	33.6±3.0	34.2±3.7	33.3±2.9
Hemoglobin A1C, mean ± SD, %	5.38±0.35	5.52±0.41	5.50±0.20	5.58±0.34

N, total number of subjects treated in each cohort. n, number of patients with observed data. BMI, body mass index; SD, standard deviation.

## A SINGLE DOSE OF AMG 133 PROMOTES SUSTAINED WEIGHT LOSS



AMG 133 SC administration

A total of 12 subjects were randomized to the placebo group across cohorts 6 subjects were randomized to the AMG 133 group at each dose level 1 subject was replaced in the 140 mg dose group

SC = subcutaneous;  $t_{1/2}$  = half-life; mg = milligram.



#### RAPID AND SUBSTANTIAL WEIGHT LOSS WITH DURABILITY OF EFFECT AFTER LAST DOSE ADMINISTERED



SC = subcutaneous; mg = milligram.

- A total of six subjects were randomized to the placebo group across cohorts
- 6 subjects were randomized to the AMG 133 group at each dose level
- 2 subjects were replaced in the 420 mg dose group



## SAFETY AND TOLERABILITY FROM SINGLE AND MULTIPLE ASCENDING DOSE COHORTS

- No safety concerns were identified that would preclude further development
- The majority of TEAEs were mild and resolved within 48 hours
- Most TEAEs were GI-related with the most common being nausea and vomiting
- Among subjects with > 1 dose of AMG 133 (N=22):
  - $_{\odot}~$  > 90% of GI-related AEs were after the first dose
  - $\circ~$  All GI-related AEs in this group were mild

\*Per protocol, no education or dietary guidance was given to subjects

TEAE – treatment-emergent adverse event; GI = gastrointestinal; N = number of subjects treated; AE = adverse event.



### **SUMMARY AND CONCLUSION**



AMG 133 is a GIPR antagonist + GLP1 agonist antibody-peptide conjugate taken into human testing based on human genetic insights and preclinical evidence.



The pharmacokinetics and pharmacodynamics of AMG 133 support dosing intervals of every 4 weeks or longer



Reductions in body weight were dose proportional with up to 14.5% body weight loss at d85 following three monthly subcutaneous doses of 420 mg, each 4 weeks apart.



Durable weight loss with reductions observed for up to 150 days after the final (third) AMG 133 administration at higher doses



Most TEAEs were mild, transient and associated with the first dose administered. TEAEs were most commonly GI-related.



The safety, tolerability and PK profile as well as the magnitude, rapidity, and durability of weight loss support further clinical development of AMG 133



GIPR, glucose-dependent insulinotropic polypeptide receptor; GLP-1, glucagon-like peptide-1; d85 = day 85; mg = milligram; TEAE, treatment-emergent adverse event; GI = gastrointestinal; PK = pharmacokinetics. Provided December 5, 2022, as part of an oral presentation and qualified by such, contains forward-looking statements, actual results may vary materially; Amgen disclaims any duty to update

# **QUESTIONS?**



