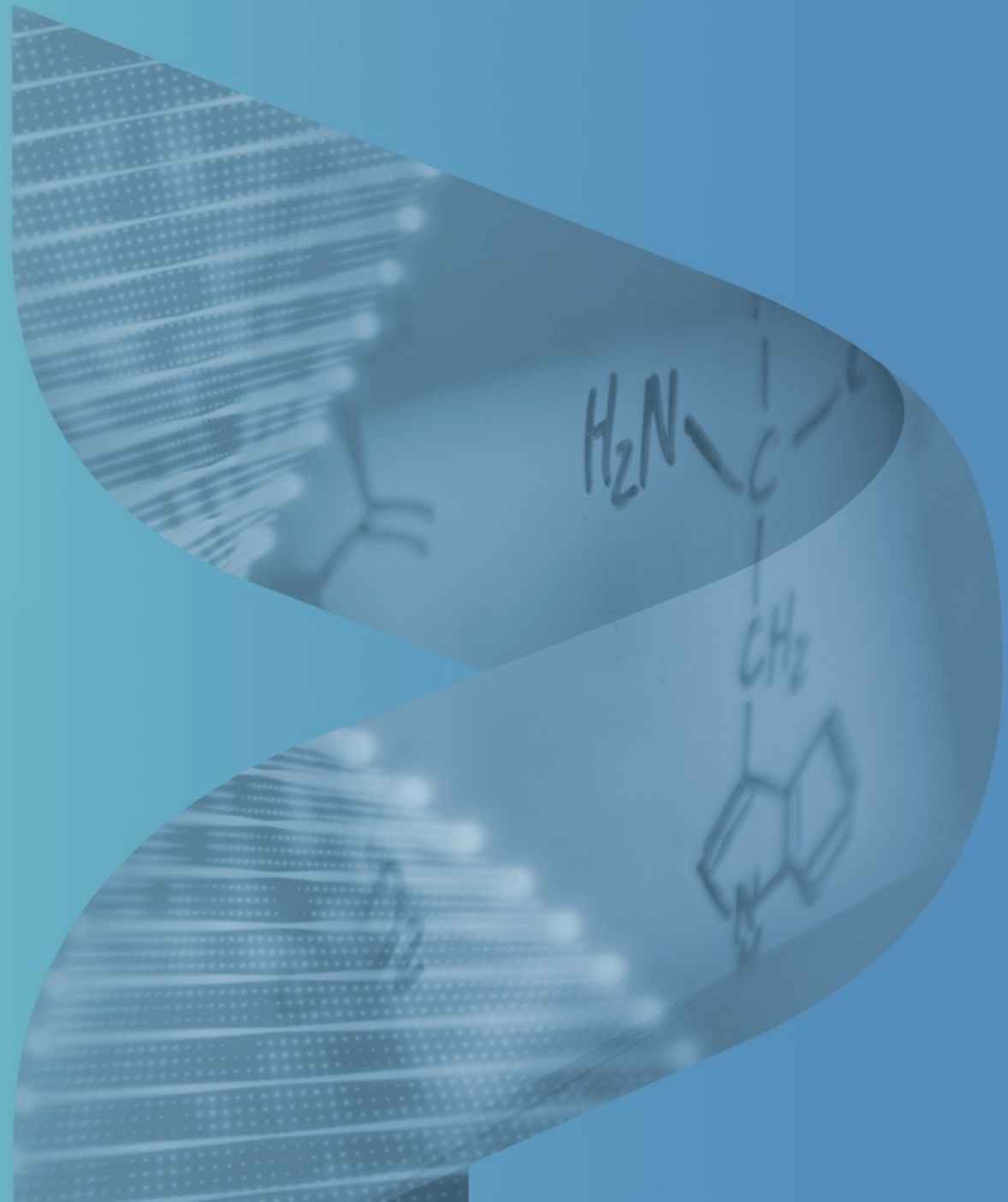




FREEDOM-DM1 15 mg/kg Cohort Data Update

September 2025



Forward-Looking Statements

This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, as amended. These statements may be identified by words such as “aims,” “anticipates,” “believes,” “could,” “estimates,” “expects,” “forecasts,” “goal,” “intends,” “may,” “plans,” “possible,” “potential,” “seeks,” “will,” and variations of these words or similar expressions that are intended to identify forward-looking statements. Any such statements in this presentation that are not statements of historical fact may be deemed to be forward-looking statements. These forward-looking statements include, without limitation, statements regarding the potential of our EDO platform to deliver higher levels of oligonucleotide to the nuclei, the therapeutic potential and safety profile of PGN-EDODM1 based on data from the 5, 10 and 15 mg/kg cohorts of the FREEDOM-DM1 study, our expectations regarding the potential for significant correction of mis-splicing with more doses of PGN-EDODM1 over a longer treatment period to potentially provide improved functional benefit for patients with DM1, the design, initiation and conduct of clinical trials, including expected timelines for our FREEDOM2-DM1 trial, and ongoing and planned regulatory interactions.

Any forward-looking statements in this presentation are based on current expectations, estimates and projections only as of the date of this presentation and are subject to a number of risks and uncertainties that could cause actual results to differ materially and adversely from those set forth in or implied by such forward-looking statements. These risks and uncertainties include, but are not limited to: delays or failure to successfully initiate or complete our ongoing and planned development activities for our product candidates, including PGN-EDODM1; our ability to enroll patients in our clinical trials, including FREEDOM2, that our interpretation of clinical and preclinical study results may be incorrect, or that we may not observe the levels of therapeutic activity in clinical testing that we anticipate based on prior clinical or preclinical results, including for PGN-EDODM1; our product candidates, including PGN-EDODM1, may not be safe and effective or otherwise demonstrate safety and efficacy in our clinical trials; adverse outcomes from our regulatory interactions, including delays in regulatory review, clearance to proceed or approval by regulatory authorities with respect to our programs, including clearance to commence planned clinical studies of our product candidates, or other regulatory feedback requiring modifications to our development programs, including in each case with respect to our including FREEDOM2 clinical trial; changes in regulatory framework that are out of our control; our ability to obtain, maintain and protect our intellectual property; our ability to enforce our patents against infringers and defend our patent portfolio against challenges from third parties; competition from others developing therapies for the indications we are pursuing; unexpected increases in the expenses associated with our development activities or other events that adversely impact our financial resources and cash runway; and our dependence on third parties for some or all aspects of our product manufacturing, research and preclinical and clinical testing. Additional risks concerning PepGen's programs and operations are described in our most recent filings with the SEC. PepGen explicitly disclaims any obligation to update any forward-looking statements except to the extent required by law.

This presentation discusses PGN-EDODM1, an investigational therapy, that has not been approved for use in any country, and is not intended to convey conclusions about their efficacy or safety. There is no guarantee that PGN-EDODM1 or any other investigational therapy will successfully complete clinical development or gain regulatory authority approval.



Myotonic Dystrophy Type 1 Overview and EDO Platform

DM1 Pathology Due to Spliceopathy: PGN-EDODM1 Produces Unprecedented Splicing Correction in DM1 Patients

FREEDOM STUDY GOALS:

PRIMARY: SAFETY

- ✓ Favorable emerging safety profile

EXPLORATORY: PD (SPLICING)

- ✓ Unprecedented splicing correction achieved with single dose



Mis-Splicing is the Known Cause of DM1

Highest Splicing Correction Ever Reported in Patients

- **53.7% mean splicing correction** observed following single 15 mg/kg dose
- **100% of patients** in 15 mg/kg cohort demonstrated splicing correction
- Repeat doses of PGN-EDODM1 could deliver **greater splicing correction**

Myotonic Dystrophy Type 1 Overview and Unmet Medical Need

Jubal, retired professor living with DM1



Overview

- CUG expansion in the *DMPK* gene
- Onset of symptoms variable—childhood to adulthood
 - Myotonia
 - Muscle weakness
 - Cardiac arrhythmias
 - Loss of lung function
 - Fatigue
- Average life expectancy is 50-60 years for non-congenital forms of DM1

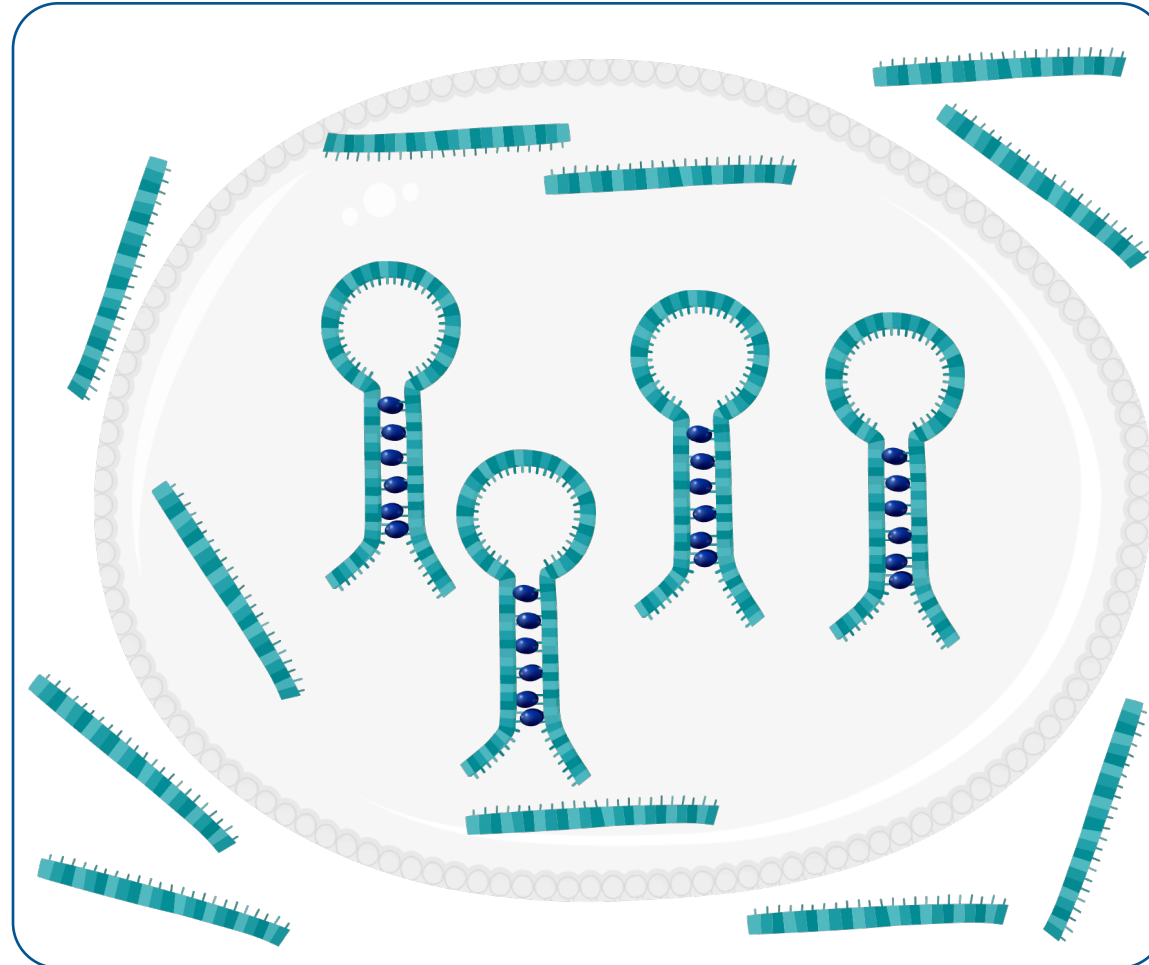
Market Opportunity

- U.S. and EU over 115,000 patients
- No approved therapies that address underlying cause of the disease

DM1 is Caused by Pathogenic CUG Repeats in *DMPK* RNA

DM1 is caused by pathogenic *DMPK* transcripts

- Approximately 50% of *DMPK* transcripts are pathogenic while the remaining *DMPK* transcripts are normal¹
- Pathogenic *DMPK* transcripts containing cytosine-uracil-guanine (CUG) repeat sequences form hairpin loops
- These hairpin loops trap MBNL1 proteins
- MBNL1 is a splicing factor required for processing multiple RNAs into proteins accurately

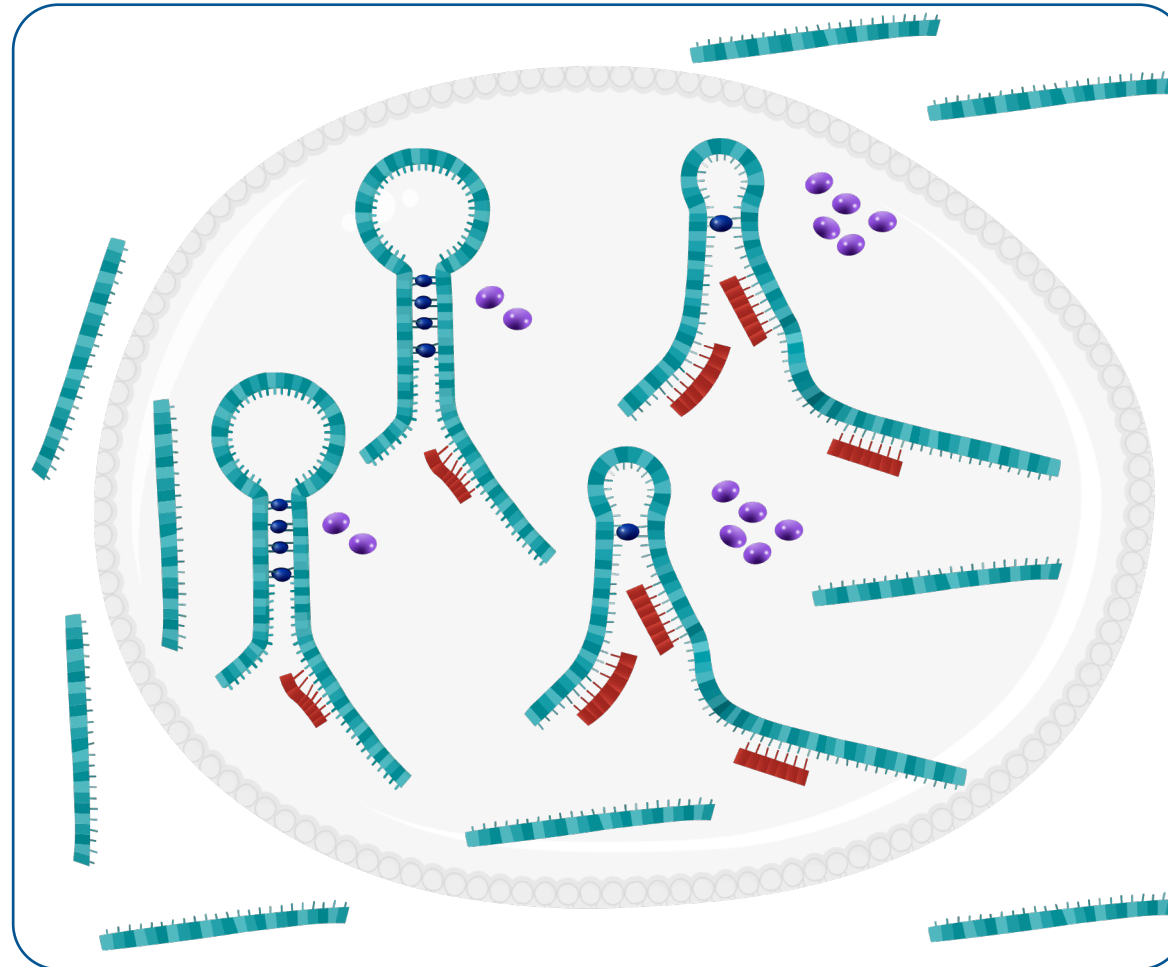


● Trapped MBNL1 is inactive and results in mis-splicing

PGN-EDODM1 Blocking Approach Targets Only the Pathogenic *DMPK* RNA

PGN-EDODM1 binds selectively to the pathogenic *DMPK* transcript

- PGN-EDODM1 is engineered to bind selectively to the pathogenic CUG repeat expansion present in *DMPK* transcript
- This reduces the ability of these CUG repeats to form hairpin loops and sequester RNA splicing proteins, including MBNL1, in the nucleus




Liberated
MBNL1
restores
correct
splicing



FREEDOM-DM1 Overview and Results

FREEDOM: Phase 1 PGN-EDODM1 Single-Ascending Dose Study Design



Freedom

DM1

FREEDOM Phase 1

Study Overview

Multinational, randomized, double-blind, placebo-controlled SAD study in patients

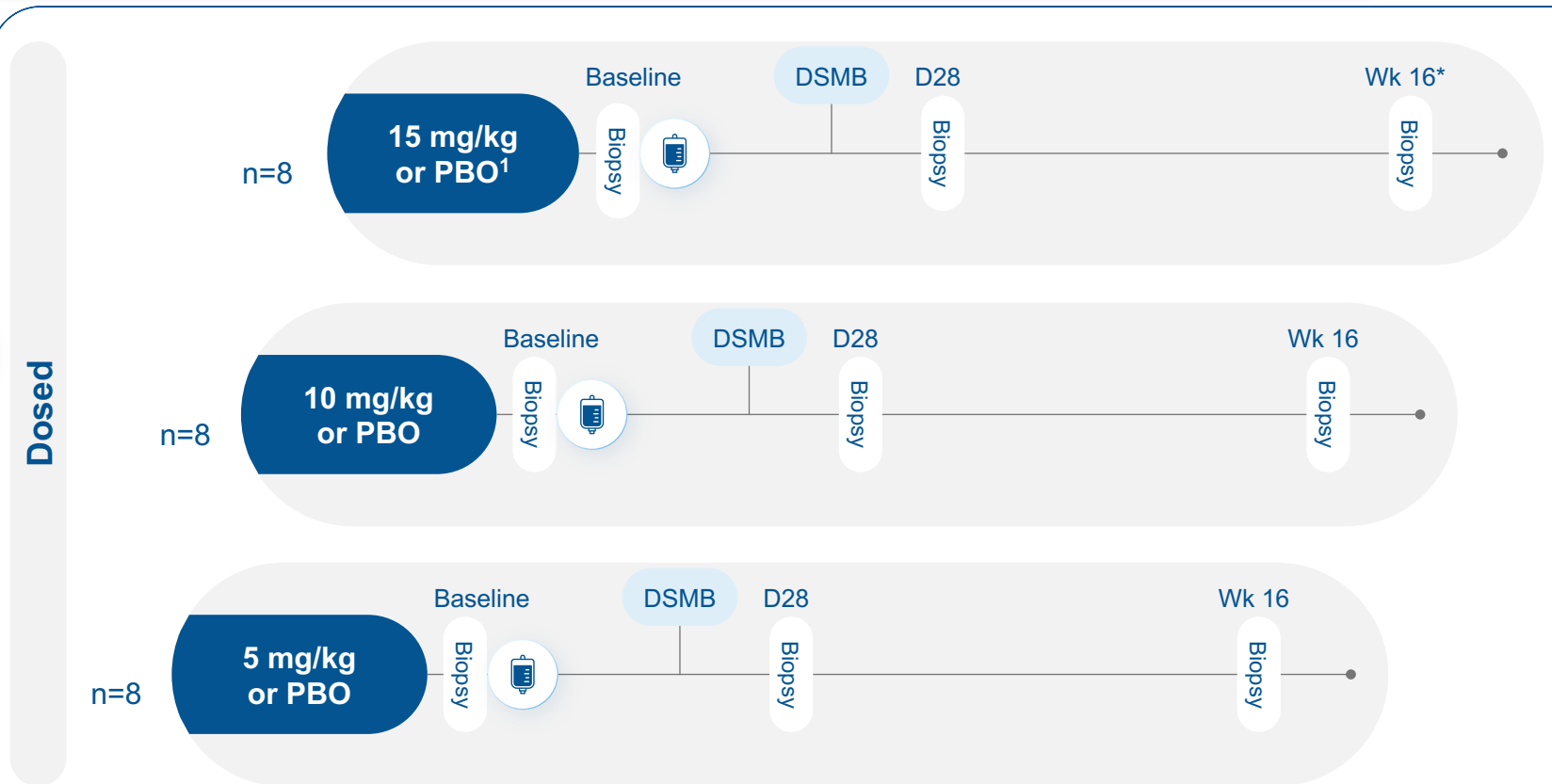
Single IV administration of PGN-EDODM1

Muscle biopsies in tibialis anterior at Baseline, Day 28, Week 16

Safety, PK, correction of mis-splicing, initial functional assessments

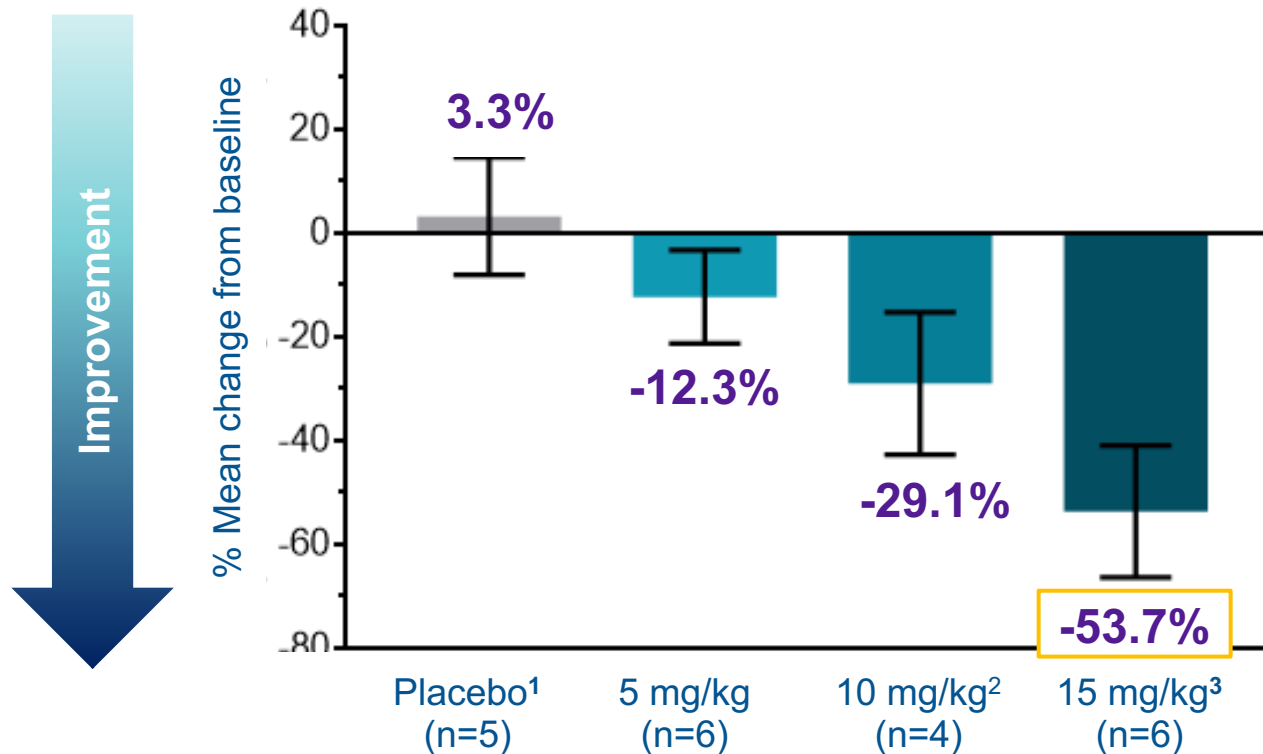


Single Dose PGN-EDODM1 or Placebo (randomized 3:1)



PGN-EDODM1 Produced Mean 53.7% Splicing Correction Following Single 15 mg/kg Dose

Splicing Index Changes: 22-Gene Panel* at D28

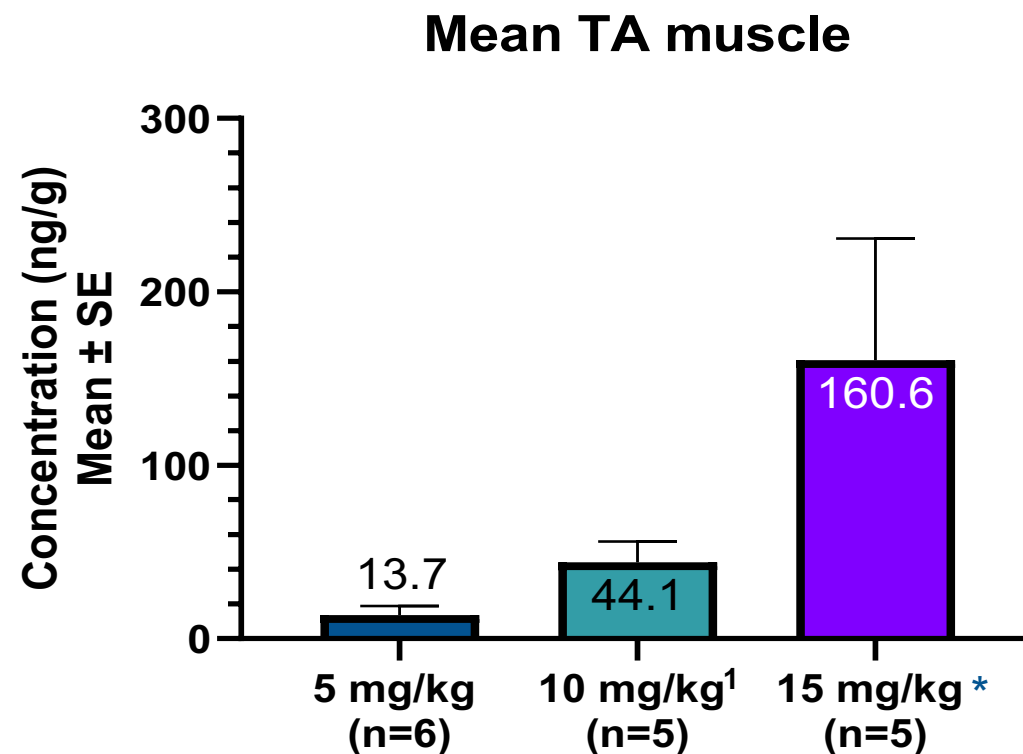


100%
of patients in
the 15 mg/kg
cohort responded
to treatment with
PGN-EDODM1

* Provenzano et al., The Splice Index as a prognostic biomarker of strength and function in myotonic dystrophy type 1, J Clin. Invest. 2025

Robust, Greater Than Dose-Proportional Increase in Muscle Tissue Concentration Following Single Dose

Muscle Tissue Concentration at D28



Favorable Emerging Safety Profile of PGN-EDODM1

PGN-EDODM1 Generally Well-Tolerated at 15 mg/kg: *

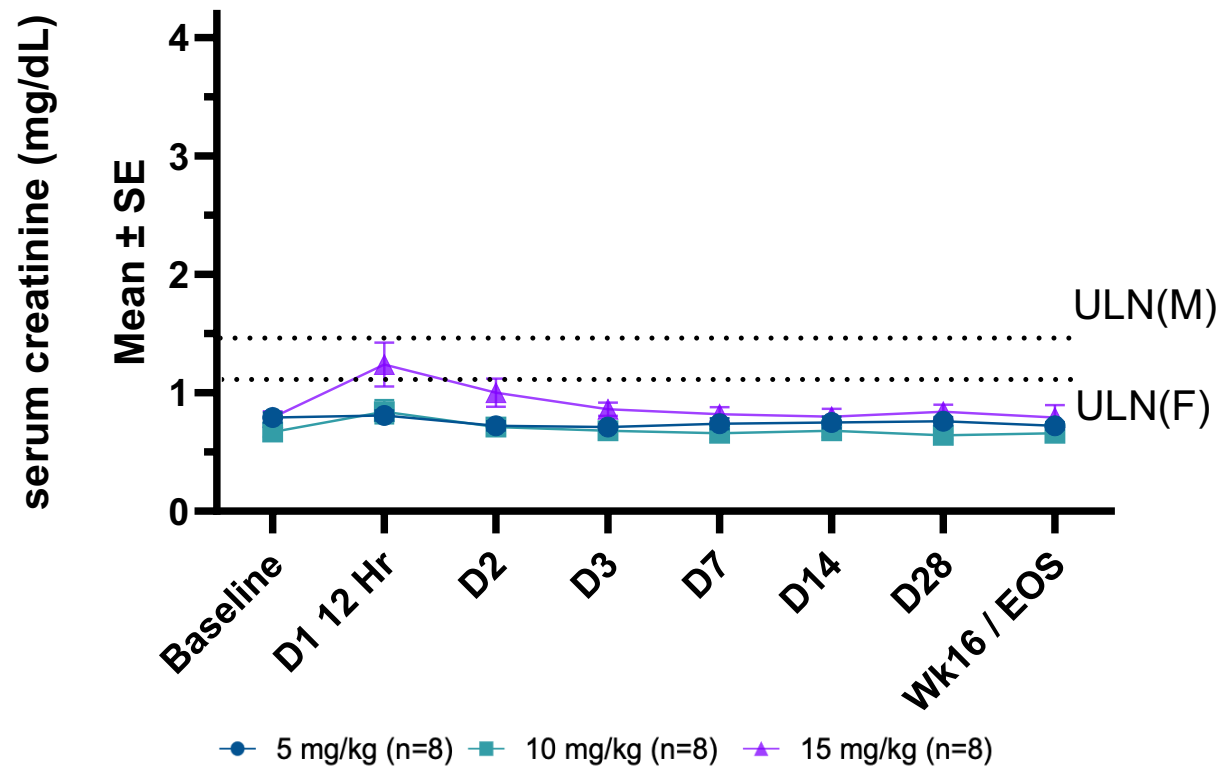
- All treatment related TEAEs were mild or moderate in severity
 - All renal biomarker-related AEs were asymptomatic, transient (~48hrs) and resolved without intervention
- No electrolyte-related adverse events
- No treatment-related SAE
- No interventions required¹
- No discontinuations
- Transient and reversible kidney biomarker movement in 1 patient qualified as a DLT as defined by the protocol and resolved without intervention; classified as a mild AE
- 1 moderate injection site reaction led to partial dose²
- 1 SAE related to biopsy procedure – unrelated to PGN-EDODM1
 - Tibial arterial pseudoaneurysm – alternative biopsy needle now employed in study

Cohorts Include Placebo & Active

Summary of Treatment Emergent Adverse Events (TEAEs)	5 mg/kg (n=8)* n(%)	10 mg/kg (n=8)* n(%)	15 mg/kg (n=8)* n(%)
Any related TEAE	1 (13)	3 (38)	4 (50)
<ul style="list-style-type: none"> • Mild/Moderate • Severe 	1 (13) 0	2 (25) 1 (13)	4 (50) 0 (0)
Any Serious Adverse Event (SAE)	1 (13)	2 (25)	1 (13)
Any related SAE	0	1 (13)	0 (0)
Any TEAE leading to study withdrawal, dose modification or dose interruption	0	0	1
Any TEAE leading to death	0	0	0

PGN-EDODM1 Continues to Demonstrate Favorable Safety Profile

PGN-EDODM1 Serum Creatinine in FREEDOM*

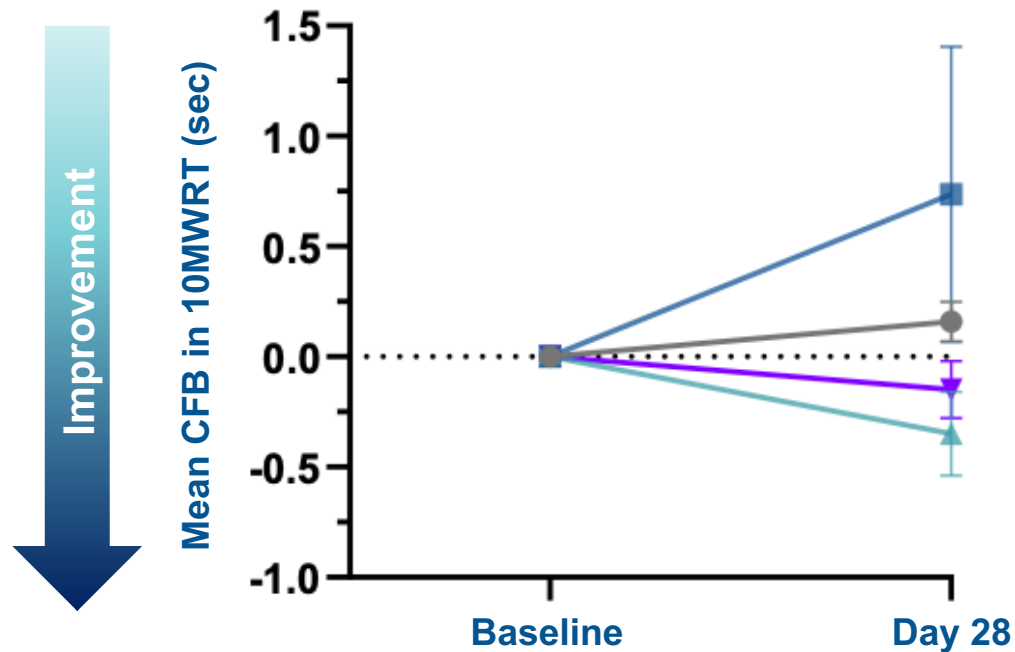


KEY TAKEAWAYS:

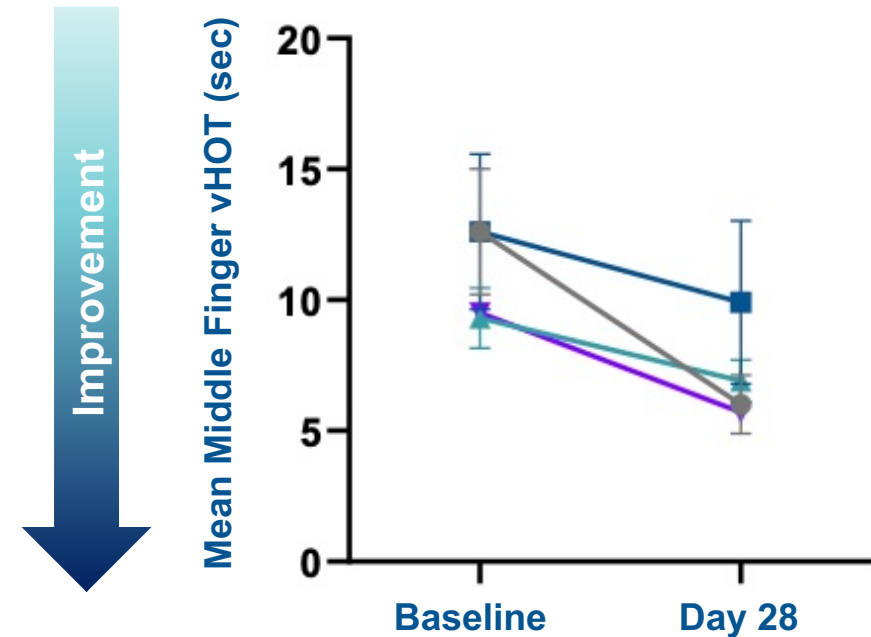
- All kidney AEs were transient and mild or moderate
- No interventions required for kidney AEs
- No patients withdrew from study
- No hypomagnesemia observed at any PGN-EDODM1 dose

Functional Outcomes After Single Dose

10-Meter Walk Run Test (10MWRT) at D28



Myotonia (vHOT) at D28



● Placebo (n=6) ■ 5 mg/kg (n=6) ▲ 10 mg/kg (n=6) ▼ 15 mg/kg (n=6)



Closing Remarks

PGN-EDODM1 Designed to Address the Underlying Cause of DM1

Safety & Tolerability:

- PGN-EDODM1 was generally well-tolerated across all doses
- All drug related TEAEs at 15 mg/kg were mild or moderate in severity and resolved without intervention¹

Highest Ever Reported Mean Splicing Correction in DM1

- 100% of patients responded to PGN-EDODM1 in 15 mg/kg cohort
- More than dose-proportionate increases in splicing correction observed across doses at Day 28
- Unprecedented splicing creates potential optionality for clinical dosing

53.7% at 15 mg/kg

29.1% at 10 mg/kg

12.3% at 5 mg/kg



Robust Single-Dose Splicing Correction Supports Evaluation of Optimized Dose Regimens in MAD Study

FREEDOM2 Phase 2 MAD Study Underway



FREEDOM2 Study Overview

Multinational, randomized, double-blind, placebo-controlled, MAD study open in UK and Canada

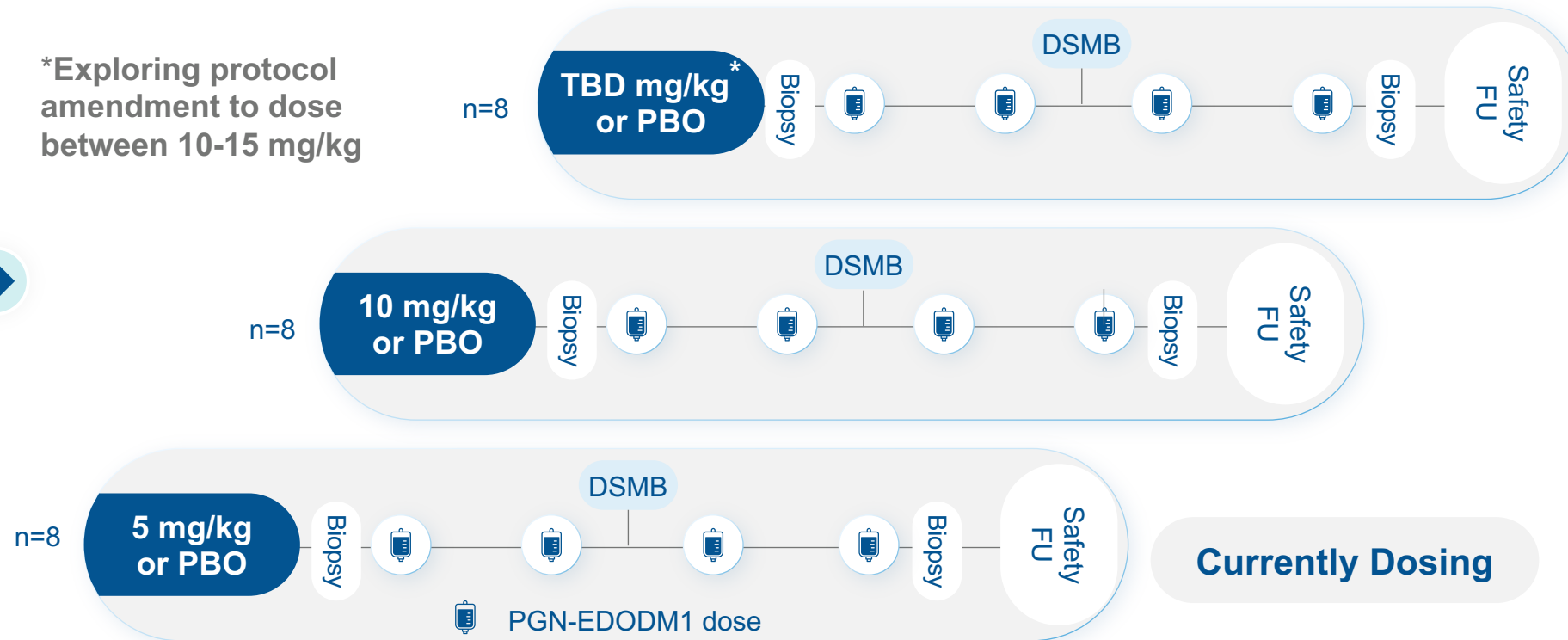
IV administration of PGN-EDODM1 or placebo every 4 weeks for a period of 12 weeks

Key endpoints: Safety, PK, correction of splicing, functional assessments: vHOT, hand grip, 10-meter walk run test

OLE open in CA and UK

4 Doses of PGN-EDODM1 or Placebo (randomized 3:1)

*Exploring protocol amendment to dose between 10-15 mg/kg



FREEDOM Study Exceeded Splicing Correction Objectives, Positioning FREEDOM2 for Important Readouts in 2026

FREEDOM STUDY GOALS:

PRIMARY: SAFETY

- ✓ Favorable emerging safety profile

EXPLORATORY: PD (SPLICING)

- ✓ Unprecedented splicing correction achieved with single dose



PHASE 2 FREEDOM2 (MAD)

- **Currently dosing** 5 mg/kg cohort
- 10 mg/kg cohort expected to **begin dosing** in Q1 2026

UPCOMING PLANNED READOUTS:

Q1 2026: FREEDOM2 5 mg/kg clinical results

H2 2026: FREEDOM2 10 mg/kg clinical results