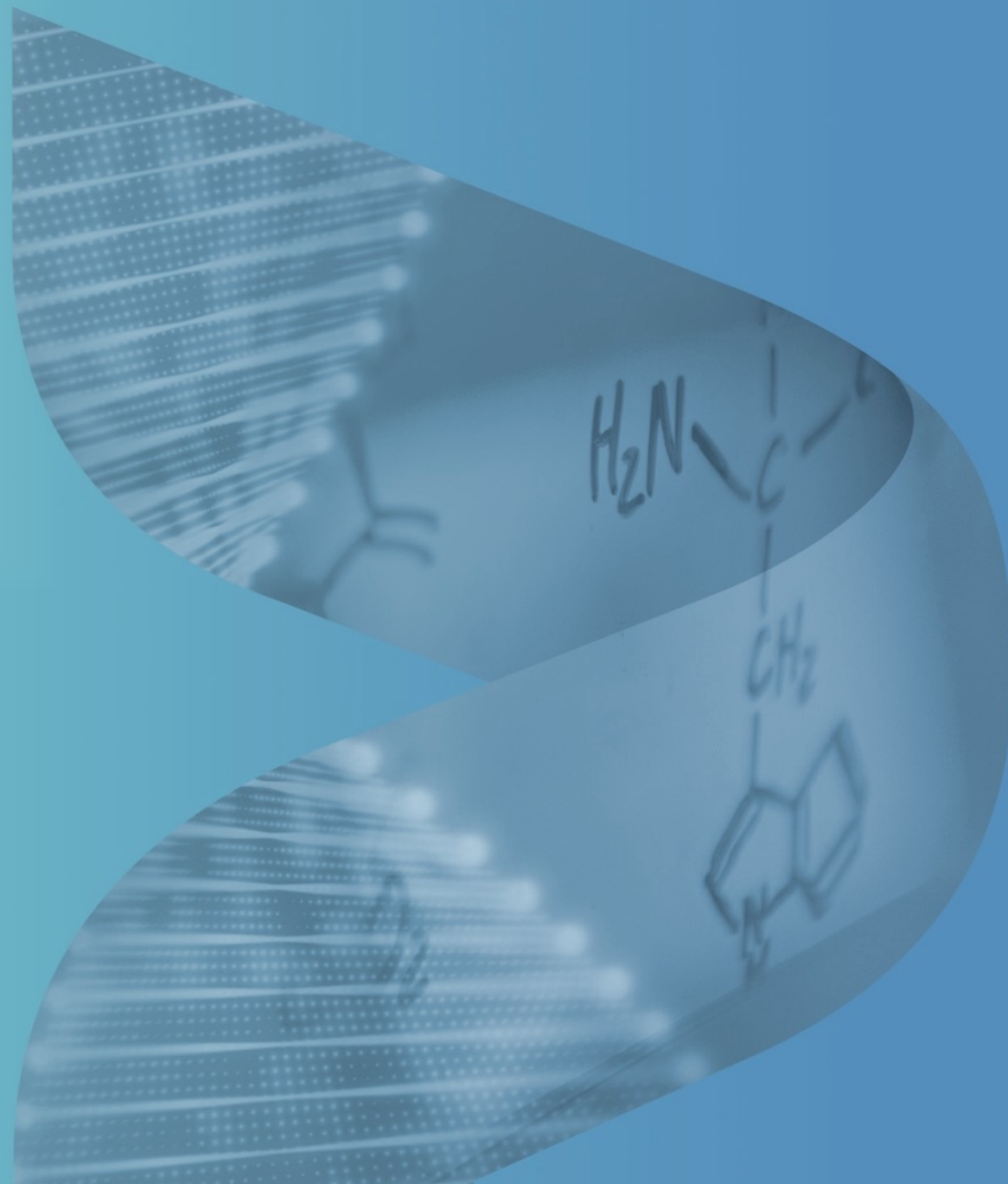




EMPOWERING OLIGONUCLEOTIDE THERAPEUTICS

COMPANY PRESENTATION
JUNE 2022



DISCLAIMERS

This presentation may contain forward looking statements. You should not place undue reliance on forward-looking statements because they are subject to numerous uncertainties and factors relating to our operations and business environment, all of which are difficult to predict and many of which are beyond our control. Words such as, but not limited to, "look forward to," "believe," "expect," "anticipate," "estimate," "intend," "plan," "would," "should", "continue", "might", "potential", "predict", "projection", "seek", "will" and "could," and similar expressions or words, identify forward looking statements. These forward-looking statements include statements about the initiation, timing, progress, results, and cost of our research and development programs and our current and future preclinical studies and clinical trials, including statements regarding the timing of initiation and completion of studies or trials and related preparatory work, the period during which the results of the trials will become available, and our research and development programs; our ability to successfully manufacture our product candidates for preclinical use, for clinical trials and on a larger scale for commercial use, if approved; the ability and willingness of our third-party strategic collaborators to continue research and development activities relating to our development candidates and product candidates; our ability to obtain funding for our operations necessary to complete further development and commercialization of our product candidates; our ability to obtain and maintain regulatory approval of our product candidates; the size and growth potential of the markets for our product candidates, and our ability to serve those markets; our financial performance; the effect of the COVID-19 pandemic, including mitigation efforts and economic effects, on any of the foregoing or other aspects of our business operations, including but not limited to our preclinical studies and clinical trials and any future studies or trials; our ability to commercialize our products, if approved; and the implementation of our business model, and strategic plans for our business and product candidates.

New risks and uncertainties may emerge from time to time, and it is not possible to predict all risks and uncertainties. Except as required by applicable law, we do not plan to publicly update or revise any forward looking statements contained herein, whether as a result of any new information, future events, changed circumstances or otherwise. Although we believe the expectations reflected in such forward looking statements are reasonable, we can give no assurance that such expectations will prove to be correct. As you view and consider this presentation, you should understand that these statements are not guarantees of performance or results and that our actual results of operations, financial condition and liquidity, and the development of the industry in which we operate, may differ materially from those made in or suggested by the forward-looking statements contained in this presentation. No representations or warranties (expressed or implied) are made about the accuracy of any such forward looking statements. We do not undertake to revise forward-looking statements to reflect future events or circumstances.

Certain information contained in this presentation relates to or is based on studies, publications, surveys and other data obtained from third party sources and the Company's own internal estimates and research. While we believe these third party sources to be reliable as of the date of this presentation, we have not independently verified, and make no representation as to the adequacy, fairness, accuracy or completeness of, any information obtained from third party sources. Finally, while we believe our own internal research is reliable, such research has not been verified by any independent source.

This presentation contains references to our trademarks and service marks and to those belonging to other entities. Solely for convenience, trademarks and trade names referred to in this Presentation may appear without the ® or TM symbols, but such references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensor to these trademarks and trade names. We do not intend our use or display of other companies' trade names, trademarks or service marks to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

This presentation discusses product candidates that are under preclinical or clinical evaluation and that have not yet been approved for marketing by the U.S. Food and Drug Administration or any other regulatory authority. No representation is made as to the safety or effectiveness of these product candidates for the use for which such product candidates are being studied.

A NEXT-GENERATION OLIGONUCLEOTIDE DELIVERY PLATFORM WITH THE POTENTIAL TO TRANSFORM PATIENT OUTCOMES

Our **Enhanced Delivery Oligonucleotide (EDO)** platform is engineered to offer enhanced therapeutic activity and improved tolerability

Rare disease, clinical-stage company with potentially significant value inflection points anticipated over next 24 months:

DMD Ph1 HNV data YE22
DMD & DM1 clinical POC 2024

Designed to achieve **greater skeletal & cardiac muscle penetrance**; extensive portfolio of product candidates for the treatment of **multiple neuromuscular diseases (NMD)**

Lead assets, PGN-EDO51 and PGN-EDODM1, target a potentially **large market opportunity**, with **~130k patients*** across **Duchenne muscular dystrophy (DMD) exon 51** and **myotonic dystrophy type 1 (DM1)** in US/EEA/JP

PEPGEN: EXPERIENCED TEAM OF COMPANY BUILDERS, SCIENTISTS, AND CLINICIANS

Management team



JAMES MCARTHUR, PhD
(CEO & President)



JAYA GOYAL, PhD
(EVP Research & Preclinical Development)



NIELS SVENSTRUP, PhD
(SVP Chemistry & Manufacturing)



NOEL DONNELLY
(CFO)



MICHELLE MELLION, MD
(SVP Clinical Development)



SONIA BRACEGIRDLE, DPhil
(SVP Strategy & Operations)



Board of Directors*



LAURIE KEATING, JD
(Chair)



JOSH RESNICK, MD
(Director)



CHRIS ASHTON, PhD
(Director)



HEIDI HENSON
(Director)



WE ARE BUILDING ON FDA-APPROVED EXON 51 SKIPPING MODALITIES TO DEVELOP THE NEXT GENERATION OF OLIGO TX

APPROVED EXON 51 PMO

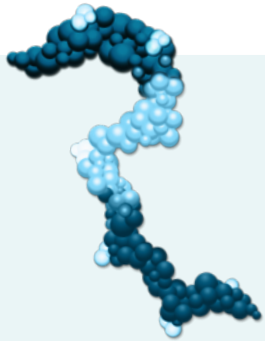
Drug	Sponsor	Exon	Dystrophin restoration*
EXONDYS 51® (eteplirsen)	Sarepta Therapeutics	Exon 51	0.44%
2021 sales: \$454M (US & Israel)**			

PEPGEN'S STEP CHANGE

- **Enhanced delivery** to skeletal muscle (inc. diaphragm), cardiac muscle and the CNS
- **Greatest exon skipping potency at tolerable target dose levels** compared to any approved exon 51 therapeutic or known development candidate***
- Potential for **greater dystrophin production**
- **Enhanced balance between activity and tolerability** compared to early delivery peptides
- **Robust & scalable manufacturing**

THE POWER OF EDOs

Enhanced Delivery Oligonucleotides are well-characterized therapeutic PMO oligonucleotides conjugated to proprietary delivery-enhancing peptides



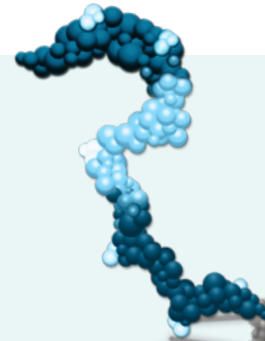
PEPGEN'S ENHANCED DELIVERY PEPTIDES

Next-generation delivery peptides; engineered with the goal of offering improved tolerability and activity



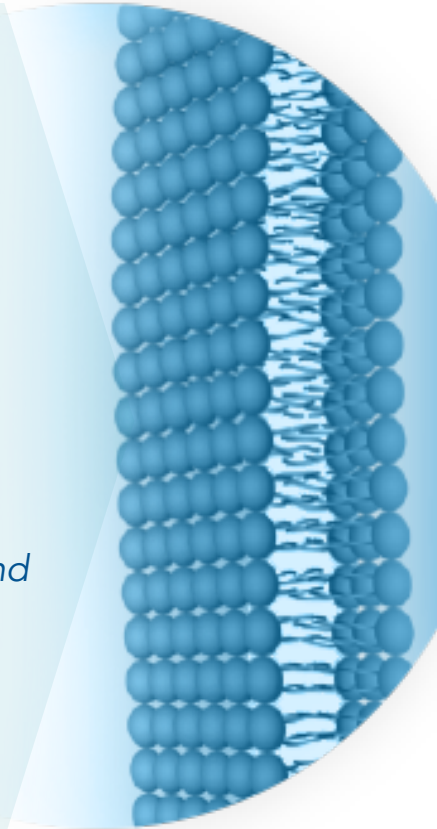
THERAPEUTIC OLIGONUCLEOTIDE

Genetic medicines that target the root cause of disease, but are limited by delivery challenges



ENHANCED DELIVERY OLIGOS

Efficient cellular uptake of oligos including in cardiac and skeletal tissue



SCALABLE EDO TECHNOLOGY DESIGNED TO ENABLE BROAD PORTFOLIO

PROGRAM	INDICATION TARGET	DISCOVERY	PRECLINICAL	PHASE 1	PHASE 2	PHASE 3	NEXT ANTICIPATED MILESTONE
PGN-EDO51	Duchenne muscular dystrophy Exon 51						YE22 Ph1 HNV topline clinical data
PGN-EDODM1	Myotonic dystrophy type 1 DMPK						1H23 IND submission
PGN-EDO53	Duchenne muscular dystrophy Exon 53						2H22 NHP exon skipping data
PGN-EDO45	Duchenne muscular dystrophy Exon 45						2H22 Candidate nomination
PGN-EDO44	Duchenne muscular dystrophy Exon 44						2H22 Candidate nomination

FUTURE PIPELINE OPPORTUNITIES

Additional neuromuscular indications

Neurologic indications



PGN-EDO51 FOR DUCHENNE MUSCULAR DYSTROPHY

DUCHENNE MUSCULAR DYSTROPHY IS A DEBILITATING, PROGRESSIVE MUSCLE-WASTING DISEASE



ROOT CAUSE OF DISEASE

- Caused by mutations in the dystrophin gene
- Absence of dystrophin leads to muscle degeneration



SYMPTOMATOLOGY & NATURAL HISTORY

- Progressive loss of function, including ambulation
- Cardiac & respiratory conditions
- Lifespan ~25 years



EXON 51 PATIENT POPULATION*


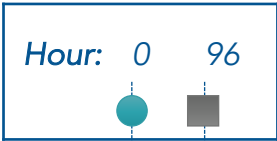

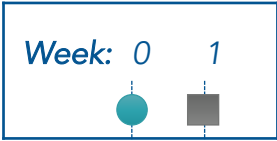

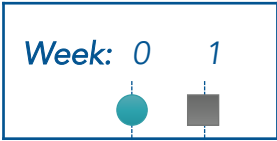

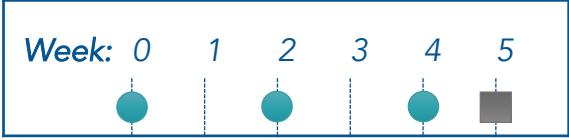
~2,000
(US)
~3,200
(EEA)
~700
(JP)



EXON 51 THERAPEUTIC LANDSCAPE

- Exondys51® approved in US on the basis of <1% dystrophin restoration
- Not approved in EEA or JP

THE ACTIVITY OF OUR EDO PLATFORM IN DMD HAS BEEN EVALUATED IN MULTIPLE PRECLINICAL MODELS

		Species	Study design	Key readouts observed
Non-GLP pharmacology studies	Patient cells <i>PGN-EDO51</i> vs <i>R₆G-PMO51</i> *	 <i>DMD patient</i>	Hour: 0 96 	<ul style="list-style-type: none"> High levels of exon 51 skipping
	Single dose <i>PGN-EDO23</i> vs <i>R₆G-PMO23</i> *	 <i>mdx</i>	Week: 0 1 	<ul style="list-style-type: none"> Normalization of serum creatine kinase High levels of exon 23 skipping and dystrophin restoration
	Single dose <i>PGN-EDO51</i>	 <i>WT</i>	Week: 0 1 	<ul style="list-style-type: none"> High levels of exon 51 skipping
	Repeat dose <i>PGN-EDO51</i> vs <i>R₆G-PMO51</i> *	 <i>WT</i>	Week: 0 1 2 3 4 5 	<ul style="list-style-type: none"> High levels of exon 51 skipping Accumulation of exon skipping levels with repeat dosing

MDX MICE: A SINGLE DOSE OF PGN-EDO23 WAS OBSERVED TO NORMALIZE CREATINE KINASE, A MARKER OF MUSCLE DAMAGE

PGN-EDO23
(murine analogue
of PGN-EDO51)

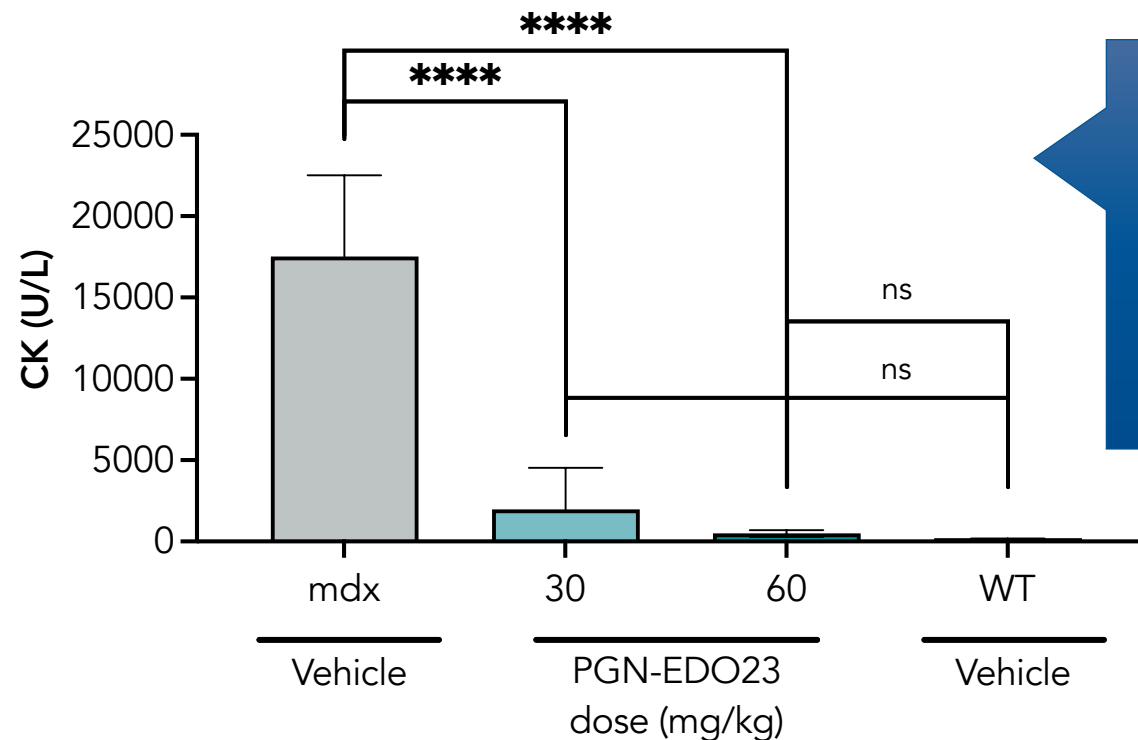
mdx



● PGN-EDO dose

■ Serum analysis

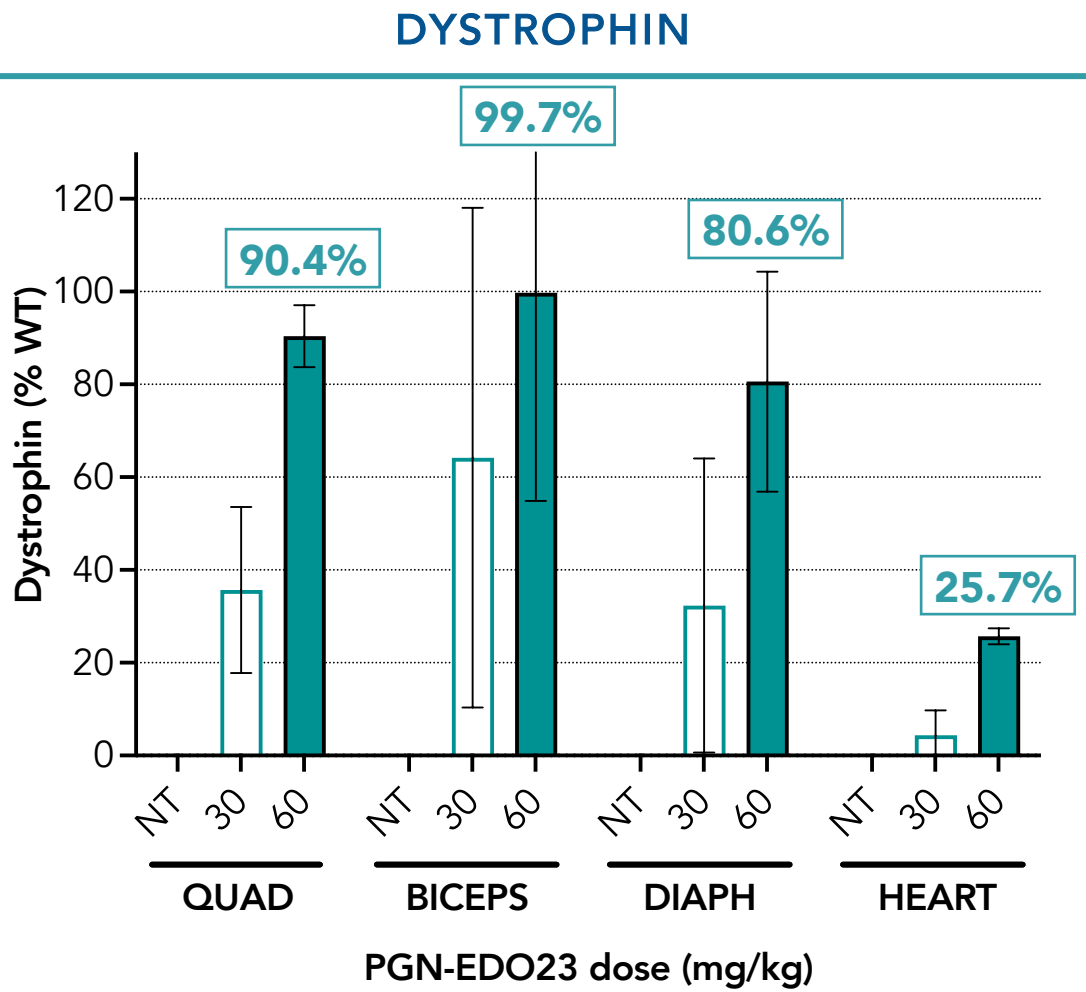
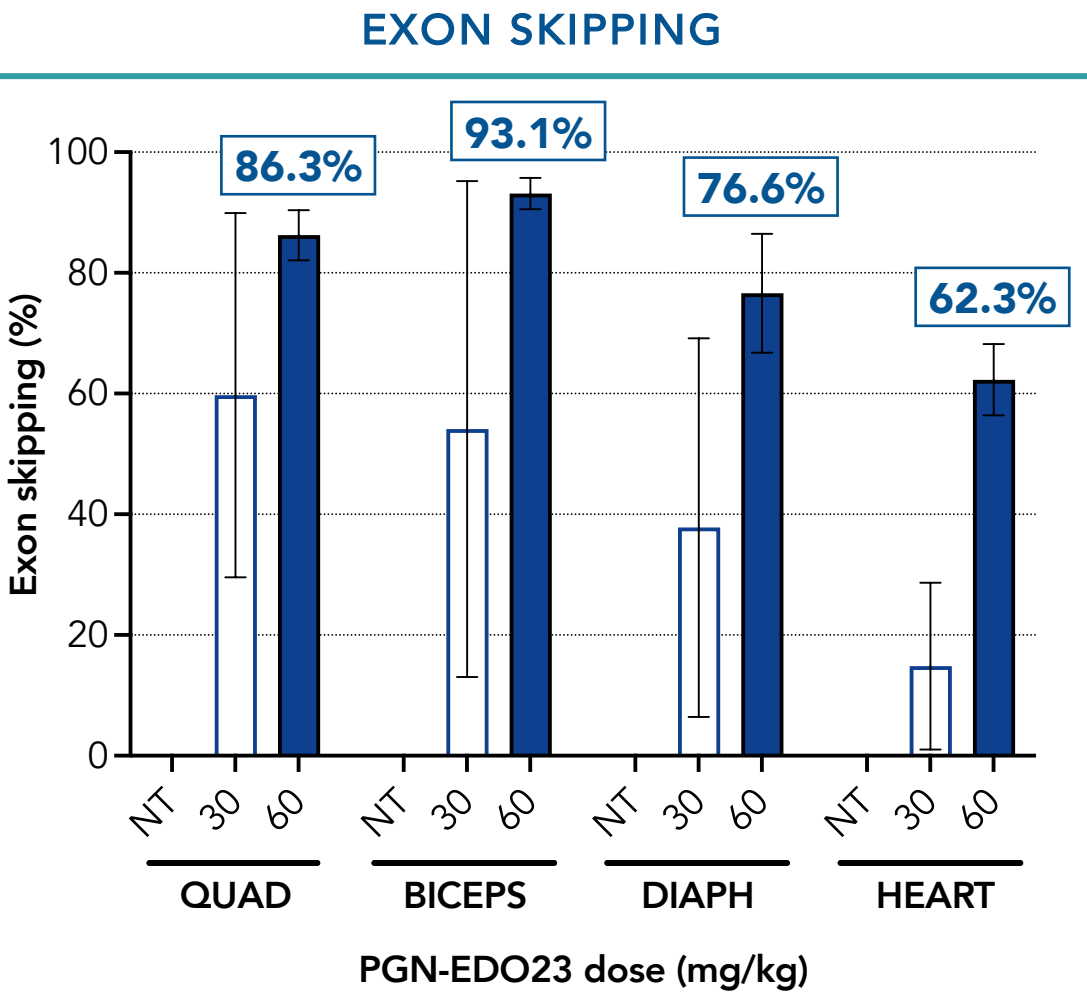
SERUM CREATINE KINASE



This result suggests that PGN-EDO23 potentially **restored muscle cell integrity** following a single dose at tolerable levels

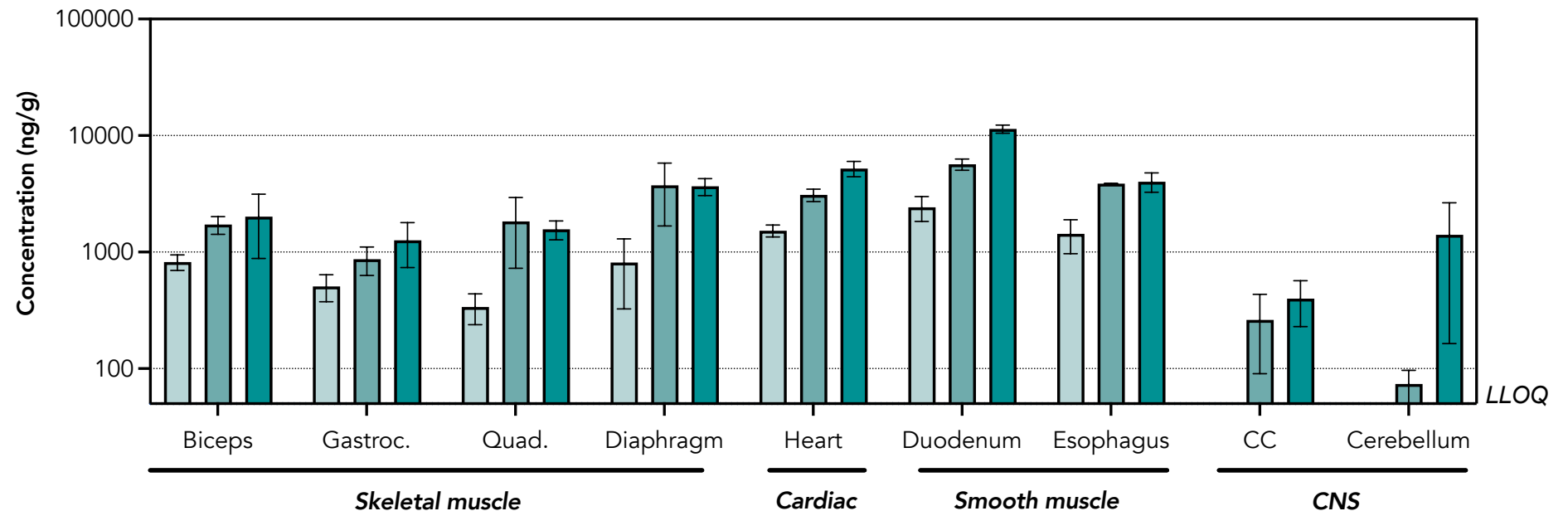
PGN-EDO23 utilizes the **same EDO delivery peptide** as our clinical candidate

MDX MICE: ROBUST DYSTROPHIN RESTORATION OBSERVED 7 DAYS AFTER A SINGLE, GENERALLY WELL-TOLERATED DOSE OF PGN-EDO23



NHP: BIODISTRIBUTION DATA EXHIBITED ROBUST EDO DELIVERY ACROSS KEY NEUROMUSCULAR TISSUE TYPES

TISSUE PMO QUANTIFICATION



Delivery to hard-to-reach cardiac tissue

Delivery across the blood-brain barrier

NHP: EXON SKIPPING LEVELS OF >70% OBSERVED IN SKELETAL MUSCLE AT 30 MG/KG

PGN-EDO51
R₆G-PMO51

PGN-EDO51

WT

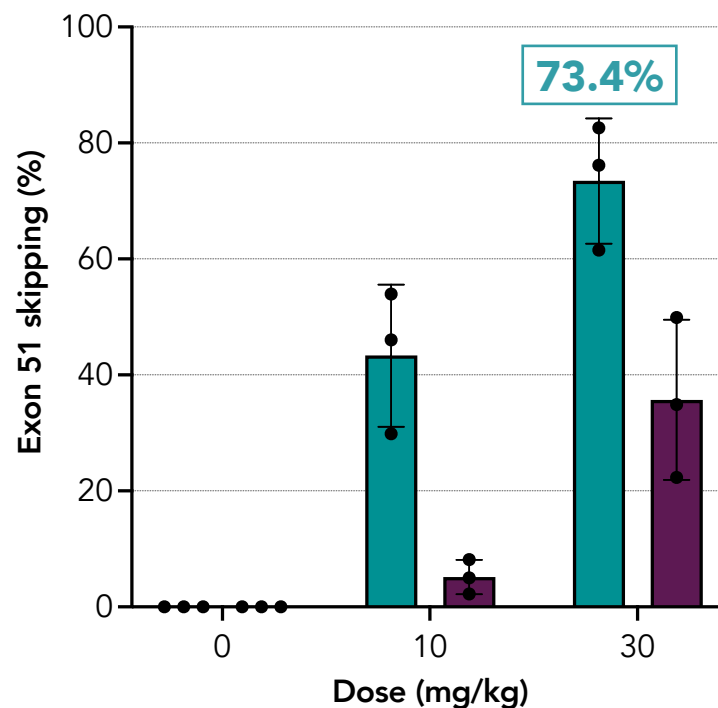


Week: 0 1 2 3 4 5

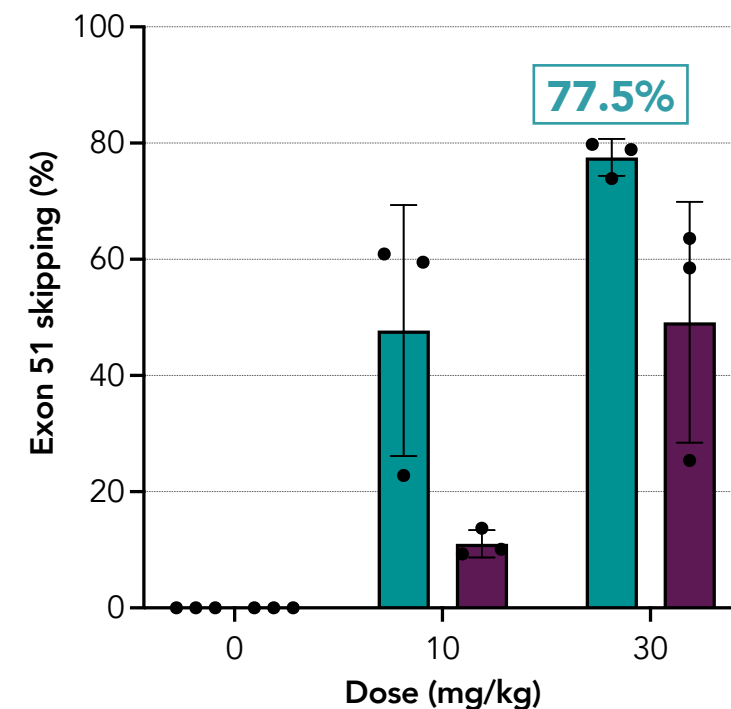


PPMO dose
Tissue analysis

QUADRICEPS



BICEPS



10 mg/kg of PGN-EDO51 was approximately as potent as 30 mg/kg of R₆G-PMO*

NHP: PGN-EDO51 EXHIBITED GREATER ACTIVITY IN HEART AND DIAPHRAGM OVER R₆G-PMO

PGN-EDO51
R₆G-PMO51

PGN-EDO51

WT

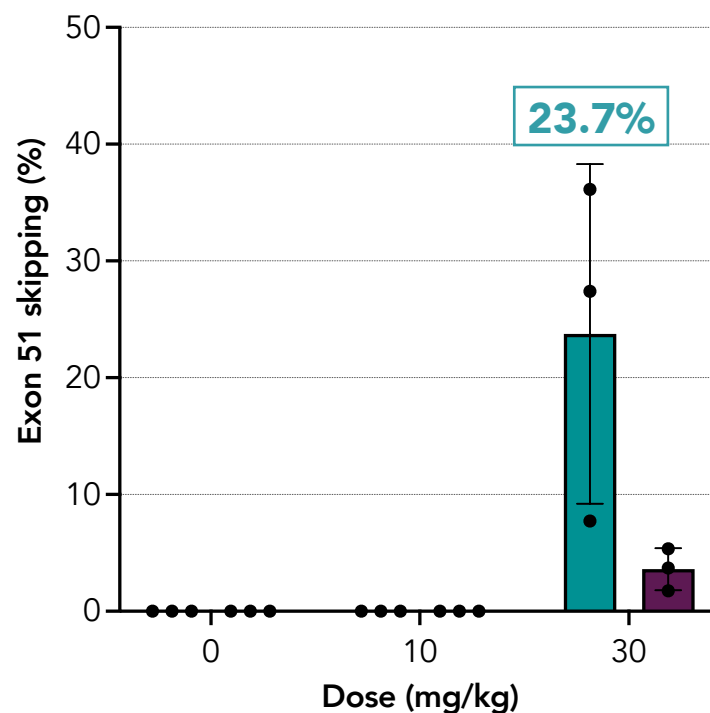


Week: 0 1 2 3 4 5

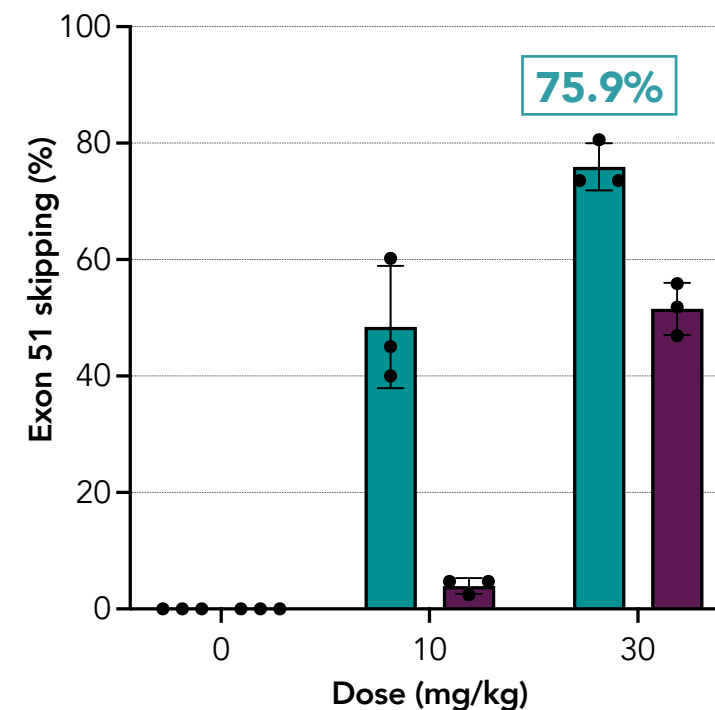


● PPMO dose
■ Tissue analysis

CARDIAC LEFT VENTRICLE



DIAPHRAGM



A single dose of 20 mg/kg of PGN-EDO51 afforded 19% exon 51 skipping in whole heart

NHP: EXON SKIPPING LEVELS ACCUMULATED WITH REPEAT DOSE ADMINISTRATION OF PGN-EDO51

PGN-EDO51
R₆G-PMO51

PGN-EDO51

WT



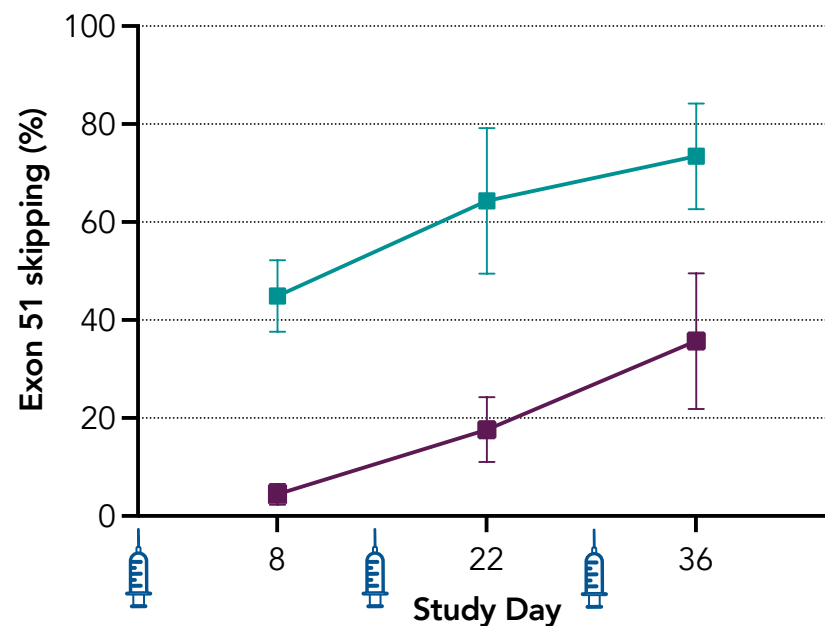
Week: 0 1 2 3 4 5



PPMO dose
Tissue analysis

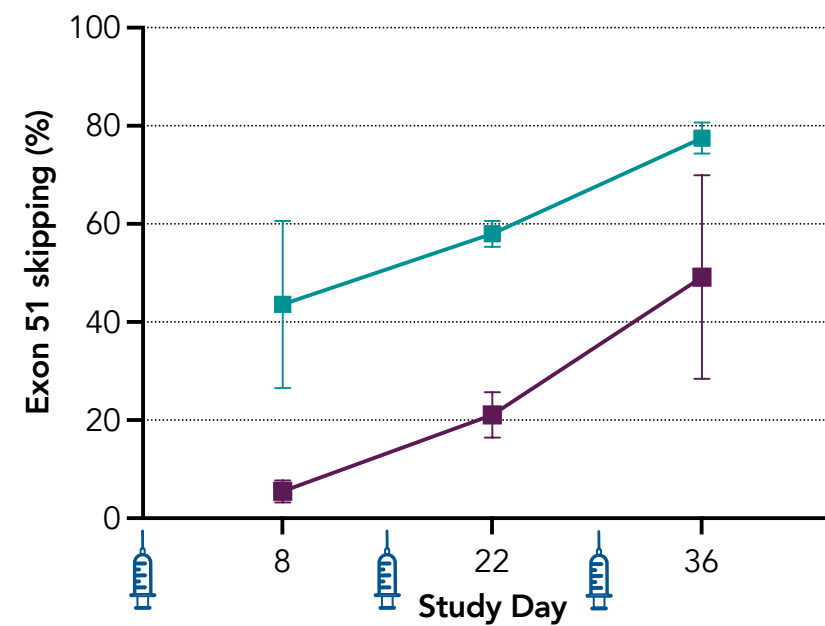
QUADRICEPS

30 mg/kg

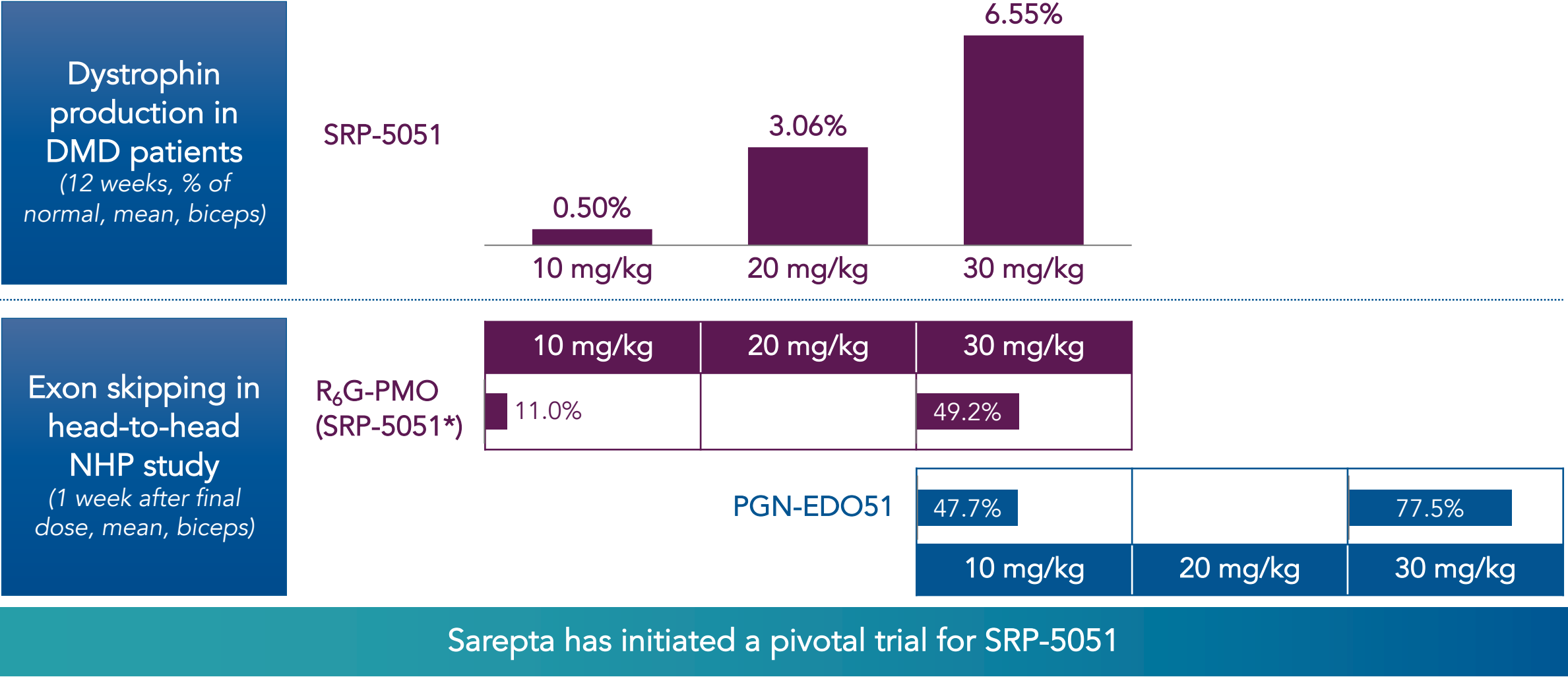


BICEPS

30 mg/kg






WE BELIEVE PGN-EDO51 HAS ROBUST POTENTIAL TO PRODUCE DYSTROPHIN IN PATIENTS



PGN-EDO51 WAS GENERALLY WELL-TOLERATED AT CLINICALLY-RELEVANT DOSE LEVELS

TOLERABILITY PROFILE AT TARGET DOSE LEVEL

GLP	Single dose 28D		<ul style="list-style-type: none">• No mortality and no SAEs• No adverse microscopic observations• No adverse impacts on clinical chemistry markers
	Single dose 28D		<ul style="list-style-type: none">• No mortality and no SAEs• No adverse microscopic observations• No adverse impacts on clinical chemistry markers
Non-GLP	Immunogenicity screen		<ul style="list-style-type: none">• No significant immunotoxicity flag in human peripheral blood mononuclear cells

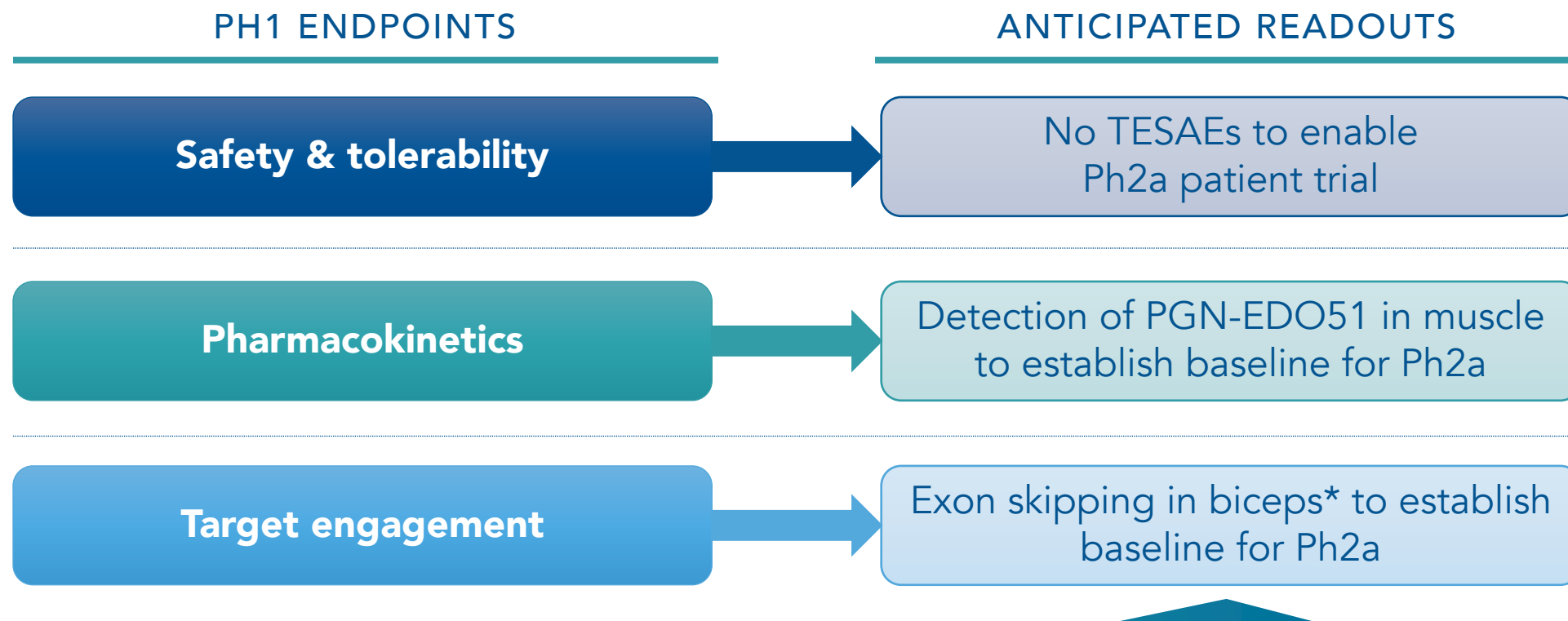
CTA accepted: Health Canada has reviewed our preclinical safety dataset and authorized Ph1 initiation

HEALTH CANADA HAS AUTHORIZED THE INITIATION OF OUR ONGOING PH1 TRIAL IN HEALTHY NORMAL VOLUNTEERS FOR PGN-EDO51

PH1 HEALTHY NORMAL VOLUNTEER (HNV) TRIAL DESIGN

Overview	<ul style="list-style-type: none">• Study population: Healthy adult males• Dosing: Single dose, i.v. administration• Placebo control
Trial design	<pre>graph LR; SRC1[SRC] --> Dose1[1 mg/kg]; Dose1 --> SRC2[SRC]; SRC2 --> Dose2[5 mg/kg]; Dose2 --> SRC3[SRC]; SRC3 --> Dose3[10 mg/kg]; Dose3 --> SRC4[SRC]; SRC4 --> Dose4[15 mg/kg]; Dose4 --> SRC5[SRC]; SRC5 --> Dose5[20 mg/kg];</pre>

ONGOING PH1 HNV TRIAL POTENTIALLY ENABLES 2023 PH2A TRIAL IN DMD PATIENTS AND COULD ESTABLISH BASELINE FOR KEY ENDPOINTS



Sarepta reported median exon skipping levels of **<0.2% for SRP-5051 in HNV**; exon skipping in DMD patients was **>10x higher** at the same dose level**

PEPGEN HAS RECEIVED REGULATORY AUTHORIZATION TO INITIATE A PH1 HEALTHY NORMAL VOLUNTEER (HNV) TRIAL FOR PGN-EDO51

	2022	2023	2024
Anticipated milestones	<ul style="list-style-type: none"> • 2Q: First HNV dosed in Ph1 trial • YE: Ph1 clinical safety, oligo delivery & exon skipping topline data 	<ul style="list-style-type: none"> • 1H: IND filing • 1H: Initiation of Ph2a DMD patient clinical trial 	<ul style="list-style-type: none"> • Safety and dystrophin data in DMD patients (Ph2a)
Overview	<ul style="list-style-type: none"> • HNV study will assess safety and tolerability, oligo delivery & exon skipping • Study is being conducted in Canada 	<ul style="list-style-type: none"> • Study will assess safety and tolerability, exon skipping and dystrophin in DMD patients • Safety readouts from HNV study anticipated to support MAD initiation at higher dose levels • Precedents suggest that exon skipping readouts will be higher in patients than in HNVs at the same dose level • Anticipate that study will be conducted in multiple geographies, including U.S. 	



PGN-EDODM1 FOR MYOTONIC DYSTROPHY TYPE 1 (DM1)

MYOTONIC DYSTROPHY TYPE 1 IS A PROGRESSIVE, DEBILITATING NEUROMUSCULAR DISORDER WITH GREAT UNMET NEED



ROOT CAUSE OF DISEASE

- Due to a CTG repeat expansion mutation in the *DMPK* gene
- Leads to downstream dysregulation of a broad set of proteins



SYMPTOMATOLOGY & NATURAL HISTORY

- Myotonia, muscle weakness, GI issues
- CNS symptoms*, cardiac & respiratory abnormalities
- Wide range in age of onset, life expectancy 45 – 60 years



PATIENT POPULATION**

~40,000
(US)

~75,000
(EEA)

~15,000
(JP)



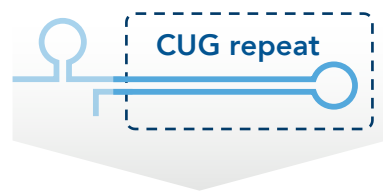
THERAPEUTIC LANDSCAPE

- No approved disease-modifying therapeutics
- Standards of care focused on symptom management

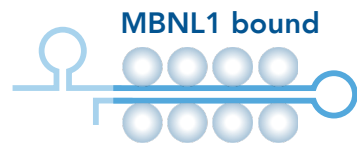
PEPGEN'S PLATFORM DELIVERS STERIC BLOCKING ASOs TO RESTORE CELLULAR FUNCTION IN DM1

DM1 CAUSED BY CUG TRIPLET EXPANSION HAIRPIN LOOP IN *DMPK* RNA SEQUESTERING MBNL1 PROTEIN

WITHOUT TREATMENT



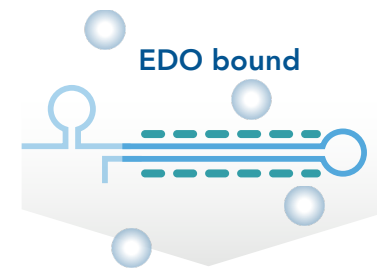
CUG repeats form 'hairpin loops' in the *DMPK* RNA, which sequester a key RNA processing protein (MBNL1)



Downstream mis-splicing events and aberrant protein expression gives rise to disease phenotypes



WITH PGN-EDODM1 TREATMENT



PGN-EDODM1 binds toxic CUG repeats in *DMPK* RNA and blocks MBNL1 binding


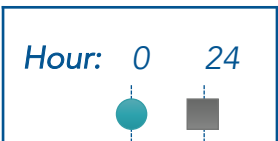

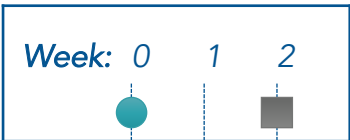

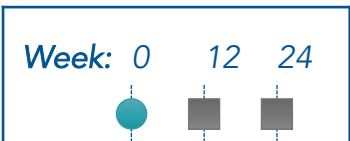




MBNL1 free



Downstream splicing patterns are restored

PGN-EDODM1 is designed to restore MBNL1 functions and correct downstream mis-splicing events

THE PHARMACOLOGY OF PGN-EDODM1 HAS BEEN EVALUATED IN MULTIPLE PRECLINICAL MODELS

		Species	Study design	Key readouts observed
Non-GLP pharmacology studies	Patient cells <i>PGN-EDODM1</i>	 <i>DM1 patient</i>	Hour: 0 24 	<ul style="list-style-type: none"> Reduction in nuclear foci Correction of downstream transcript mis-splicing
	Single dose <i>PGN-EDODM1</i>	 <i>HSA^{LR}</i>	Week: 0 1 2 	<ul style="list-style-type: none"> Correction of downstream transcript mis-splicing Normalization of myotonia
	Duration of effect <i>PGN-EDODM1</i>	 <i>HSA^{LR}</i>	Week: 0 12 24 	<ul style="list-style-type: none"> Correction of downstream transcript mis-splicing for at least 24 weeks post-dose
Non-GLP dose-range finding (DRF) studies	Single dose <i>PGN-EDODM1</i>	 <i>WT</i>	Week: 0 1 	<ul style="list-style-type: none"> <i>In progress</i>
	Repeat dose <i>PGN-EDODM1</i>	 <i>WT</i>	Week: 0 1 2 3 4 5 	<ul style="list-style-type: none"> <i>In progress</i>

PGN-EDODM1 REDUCED PATHOGENIC NUCLEAR FOCI AND CORRECTED DOWNSTREAM TRANSCRIPT MIS-SPLICING

FOCI REDUCTION

PGN-EDODM1

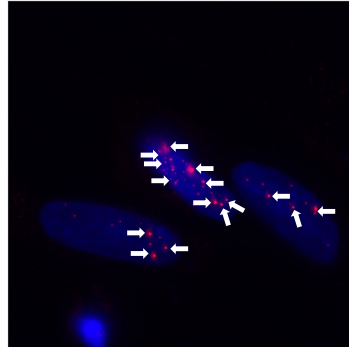
DM1 patient cells
(2,600 CTG repeats)



Hour: 0 24

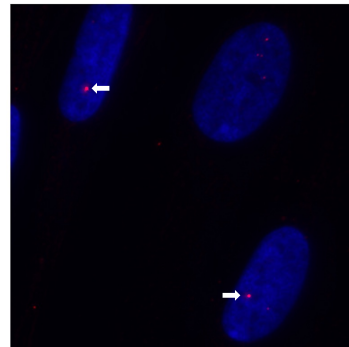
- PGN-EDODM1 dose
- Analysis

Not treated (NT)



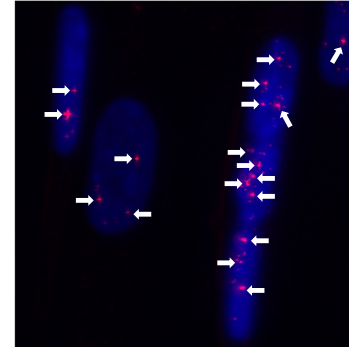
Foci observable
in patient cells

PGN-EDODM1



**Robust
reduction** in
number of foci
following PGN-
EDODM1
treatment

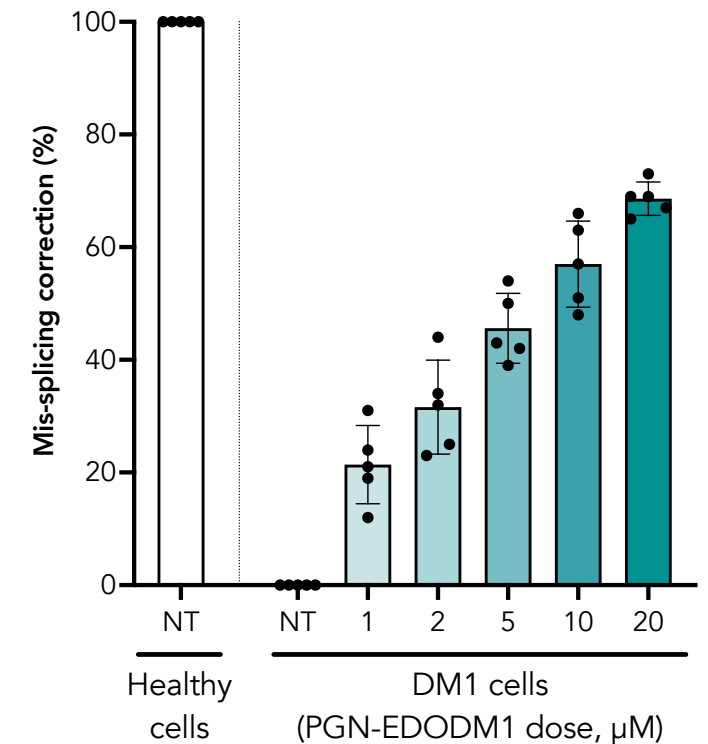
PMO



No foci
reduction with
unconjugated
PMO

MIS-SPLICING CORRECTION

Across multiple transcripts



HSA^{LR} MOUSE DISPLAYS MOLECULAR AND FUNCTIONAL DM1 PHENOTYPE

REPEAT EXPANSION IN HSA GENE UTR

(CTG)_n

220-250

HSA gene

3' UTR

DM1 ASSOCIATED ABNORMALITIES

- Skeletal muscle specific CUGexp
- MBNL1 sequestration in the nucleus
- Downstream mis-splicing events
- Myotonia

HSA^{LR} mouse



Resting

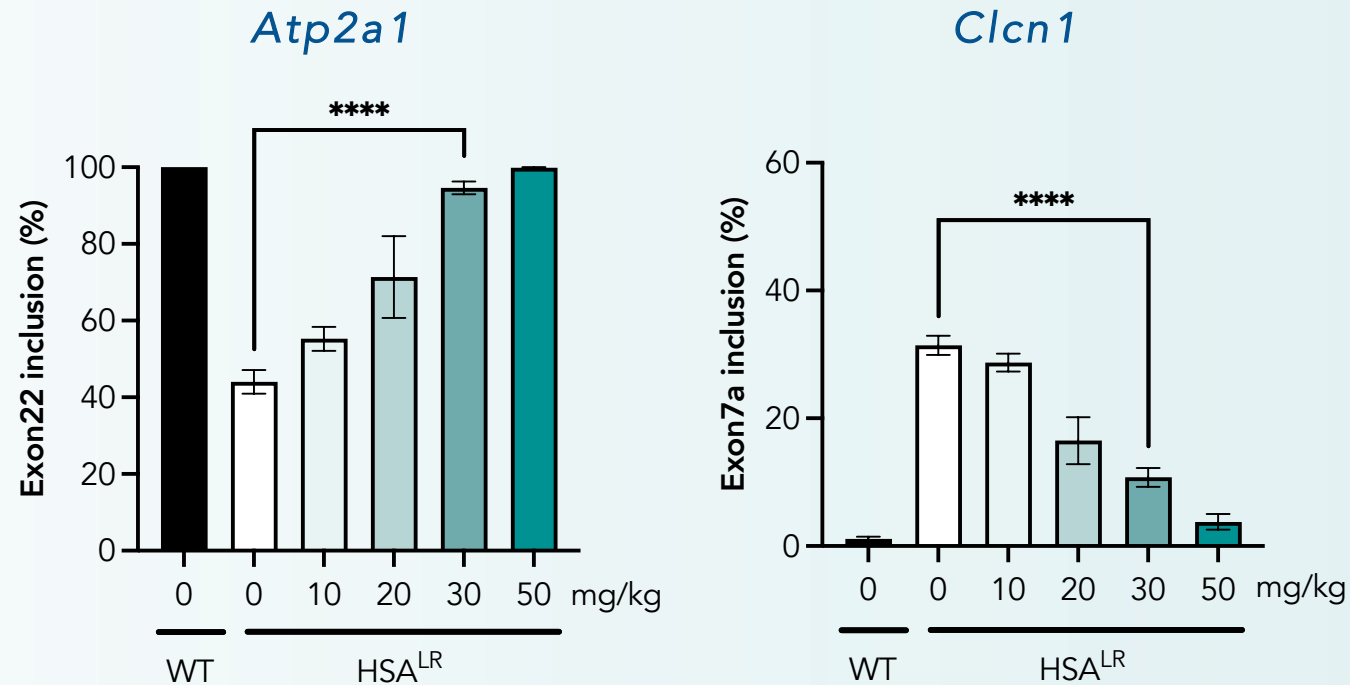
HSA^{LR} mouse



Myotonia in
hind legs

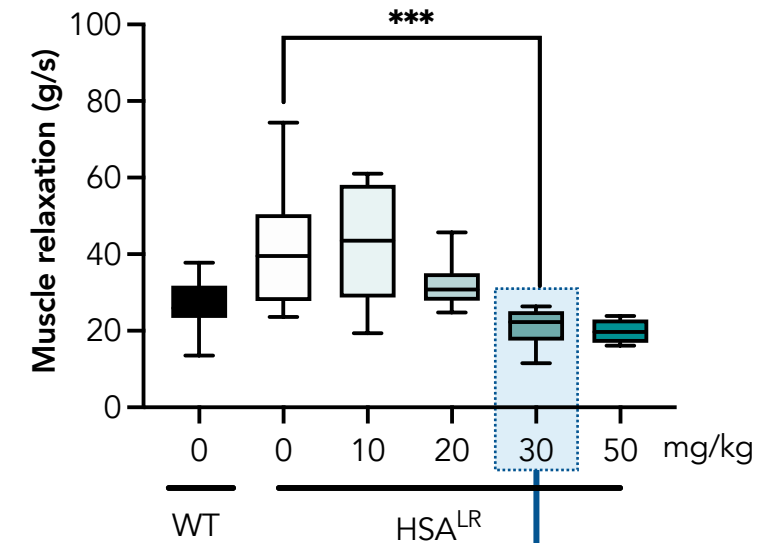
HSA^{LR}: PGN-EDODM1 CORRECTED MOLECULAR AND FUNCTIONAL DM1 PHENOTYPE AT GENERALLY WELL-TOLERATED DOSES

CORRECTION OF MIS-SPLICING



REVERSAL OF MYOTONIA

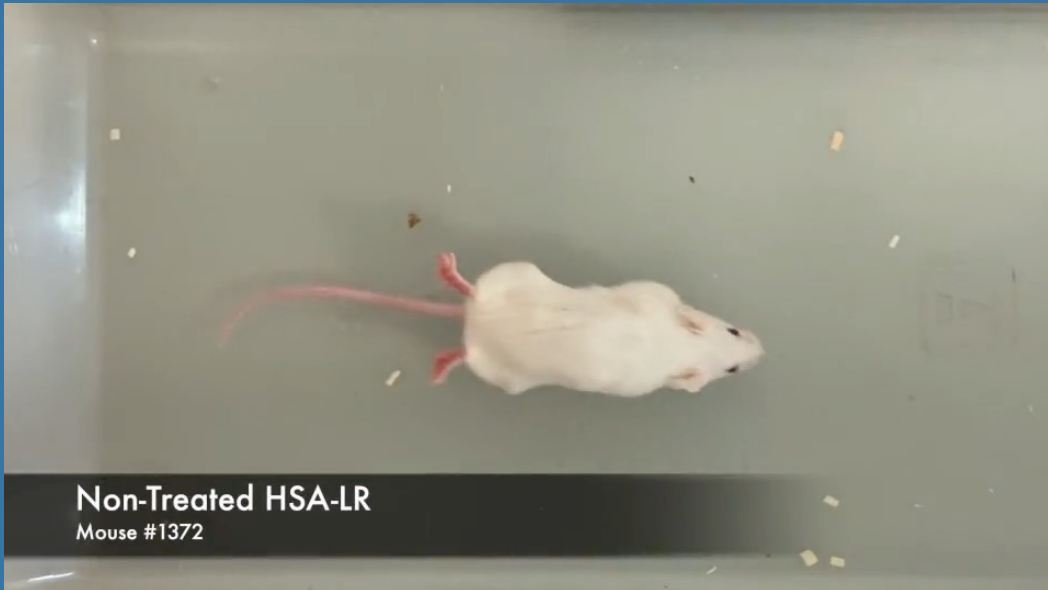
Rate of muscle relaxation



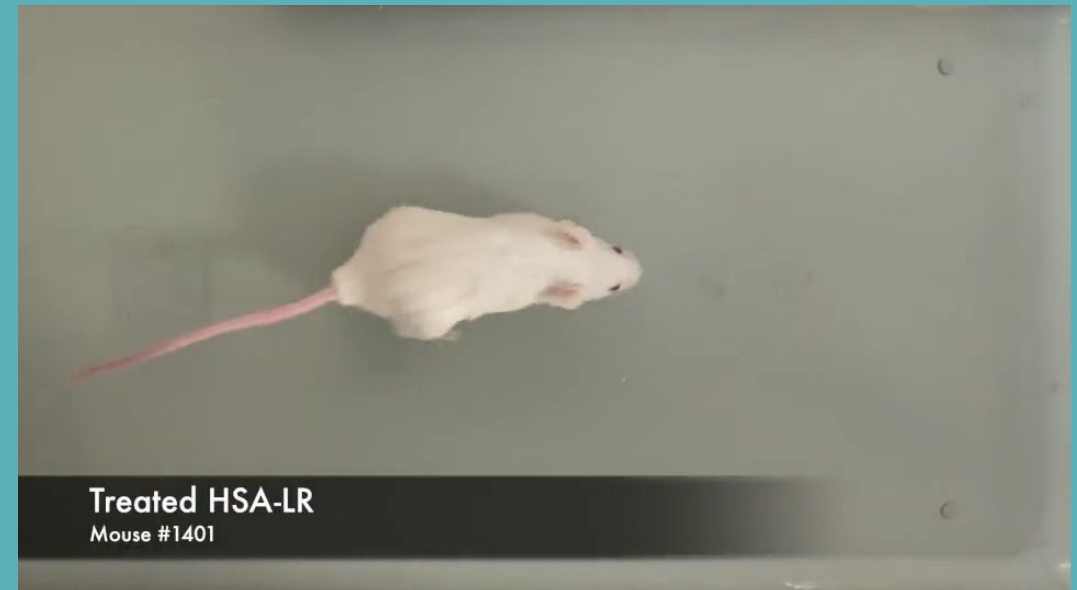
Correction of myotonia observed after a **single dose of 30 mg/kg**

HSA^{LR}: SPLICING CORRECTION TRANSLATED TO PHENOTYPIC IMPROVEMENT OF DM1 MICE TREATED WITH PGN-EDODM1

UNTREATED HSA^{LR}

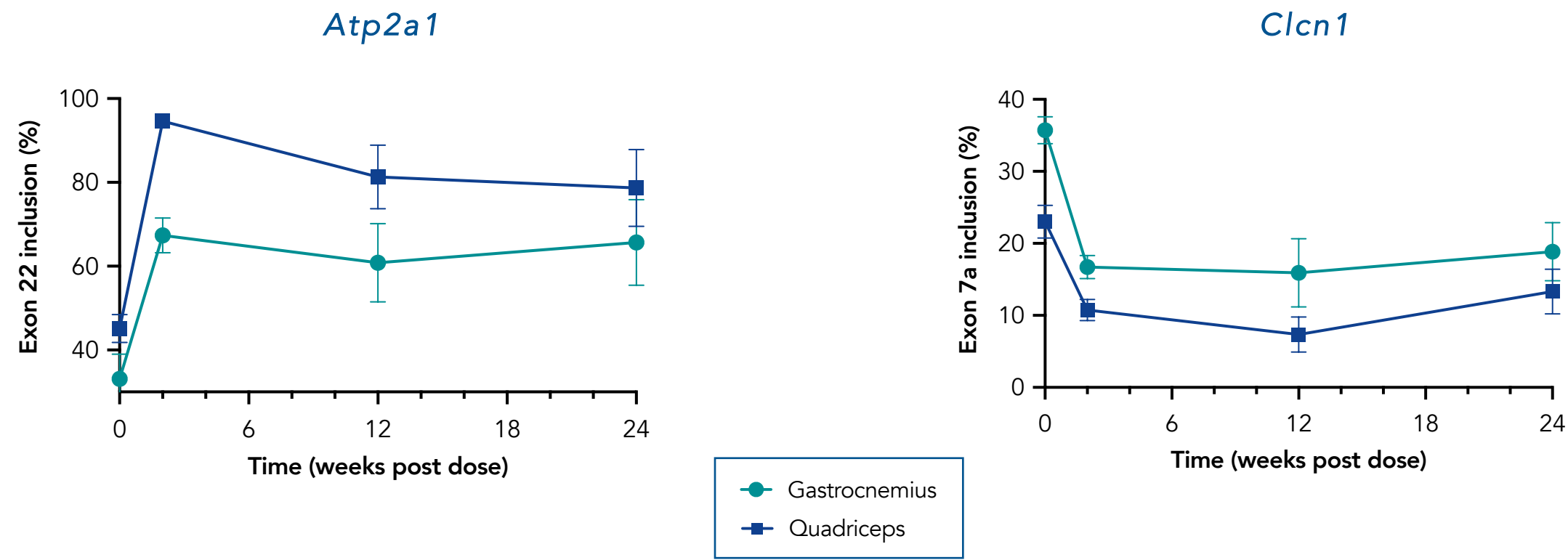


TREATED HSA^{LR}



HSA^{LR}: SINGLE DOSE TREATMENT OF PGN-EDODM1 LED TO DURABLE IMPROVEMENTS IN SPLICING THROUGH 24 WEEKS

CORRECTION OF MIS-SPLICING



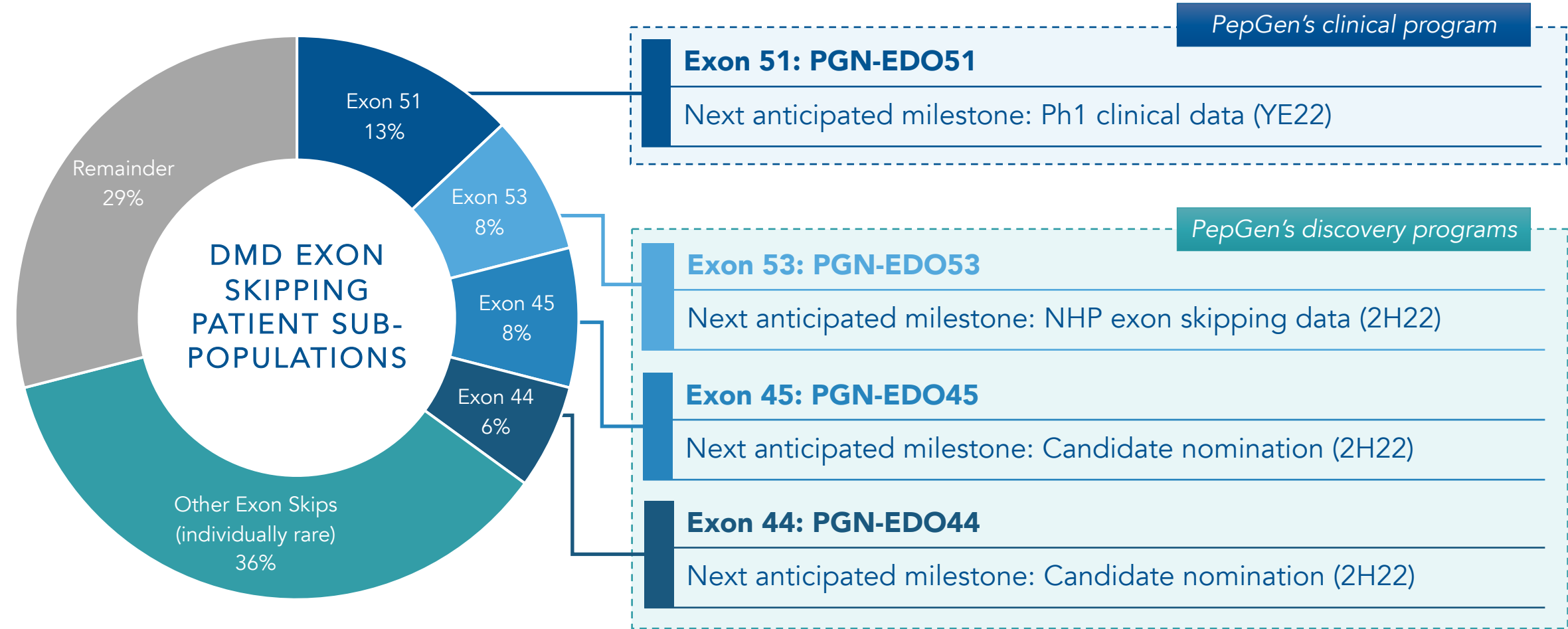
PEPGEN IS ON TRACK TO FILE AN IND FOR PGN-EDODM1 IN 1H23

2022		2023	2024
Anticipated milestones	<ul style="list-style-type: none">• 2Q: NHP dose range-finding study• 2H: IND-enabling studies	<ul style="list-style-type: none">• 1H: IND filing• 1H: Initiation of Ph1/2 DM1 patient clinical trial	<ul style="list-style-type: none">• Safety and splicing data in DM1 patients (Ph1/2)
Overview	<ul style="list-style-type: none">• Aim of clinical studies is to assess safety, tolerability and efficacy of PGN-EDODM1 in DM1 patients		

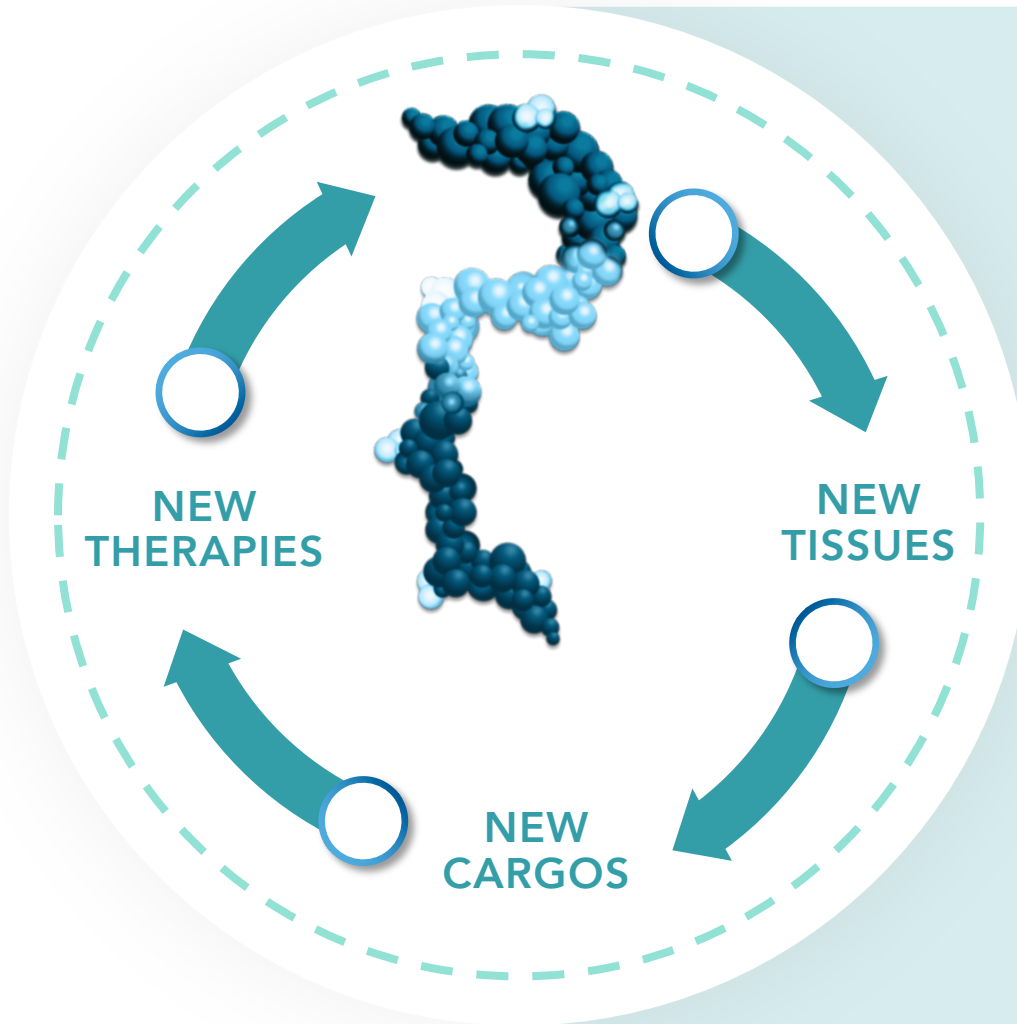


EDO PIPELINE

PEPGEN'S LEAD PROGRAM TARGETS LARGEST EXON SKIPPING PATIENT POPULATION IN DMD



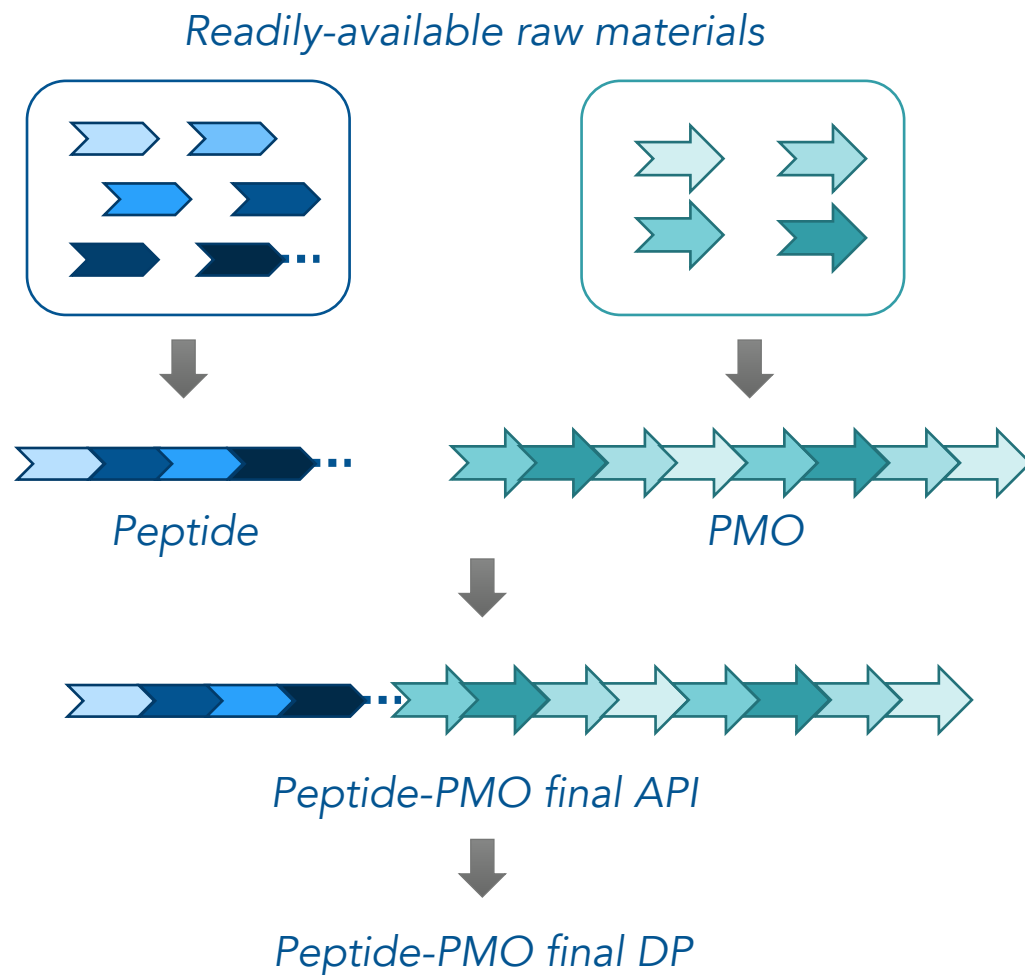
WE ARE HARNESSING THE POWER OF OUR EDO PLATFORM TO REACH NEW TISSUES, DELIVER NEW CARGOS, & DEVELOP NEW THERAPIES



WE WILL LEVERAGE OUR EDO PEPTIDE PLATFORM TO:

- *REACH NEW TISSUES*
 - Explore full potential of EDO platform across **multiple tissue types**, including:
 - Deep brain structures via IT administration
 - Peripheral nerves via IV administration
 - Other tissue and cell types
- *DELIVER NEW CARGOS*
 - Utilize **modular nature** of EDO platform to evaluate new cargo technologies
 - Explore potential for **non-PMO oligo** and small molecule delivery
- *DEVELOP NEW THERAPIES*
 - Identify opportunities for novel EDO therapeutics
 - Maximize EDO platform and pipeline value through **strategic collaborations**

CURRENT MANUFACTURING CAPABILITIES DESIGNED TO SUPPORT ALL PLANNED CLINICAL TRIALS AND COMMERCIALIZATION



HIGHLIGHTS:

- **Fully synthetic** manufacturing process; **no cell-based steps**
- Product and intermediates are **readily characterized**
- Research to date suggests product has **robust stability**
- **Multiple cGMP** DP batches have been **manufactured and released; material shipped to Ph1 site**

CONCLUSION

THE FUTURE OF PEPGEN

2022

Ph1 tolerability, oligo delivery & exon skipping data in HNV anticipated

2023

Anticipate initiation of patient clinical trials for DMD & DM1

2024

Anticipate clinical POC in two indications:

- Patient dystrophin data (DMD)
- Splicing data (DM1)

- 5 NMD therapies in pipeline
- Work underway to **leverage EDO platform** to expand to new tissues and new indications
- An experienced team with a **deep commitment to the patient community**



THANK YOU
