PRECISION BIOSCIENCES

ARCUS-Mediated Excision of Exons 45-55 Leads to Functional Dystrophin and Restoration of Skeletal Muscle-Function for the Treatment of DMD

MDA 2025

Forward-Looking Statements

This presentation contains forward-looking statements, as may any related presentations, within the meaning of the Private Securities Litigation Reform Act of 1995. The Company intends such forward-looking statements to be covered by the safe harbor provisions for forward-looking statements contained in Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. All statements contained herein and in any related presentation that do not relate to matters of historical fact should be considered forward-looking statements, including, without limitation, statements regarding the clinical development and expected gene editing efficiency, safety, efficacy and benefit of our product candidates (including PBGENE-DMD as a potentially curative therapy for DMD); the design of PBGENE-HBV to target dystrophin gene correction to produce a functional dystrophin for durable functional muscle improvement; the differentiation of ARCUS from other gene editing approaches; the expected timing of regulatory processes (including filings such as IND's and CTA's and studies for PBGENE-DMD); the translation of preclinical safety and efficacy studies and models to safety and efficacy in humans, the suitability of PBGENE-DMD for the treatment of DMD and restoration of functional dystrophin protein at a therapeutic level, expectations about the commercial potential, market opportunity, operational initiatives, strategies, and further development of our programs and those of our collaboration partners; expectations about achievement of key milestones and receipt of any milestone, royalty or other payments; and anticipated timing of realized or presented clinical data. In some cases, you can identify forward-looking statements by terms such as "aim," "anticipate," "approach," "believe," "contemplate," "could," "designed to", "endeavor", "estimate," "expect," "goal," "intend," "look," "may," "mission," "plan," "possible," "potential," "predict," "project," "promise," "pursue," "should," "target," "will," "would," and other similar words or expressions, or the negative of these words or similar words or expressions, are intended to identify forward-looking statements, though not all forward-looking statements use these words or expressions.

Forward-looking statements are based on management's current expectations, beliefs and assumptions and on information currently available to us. These statements are neither promises nor guarantees, but involve number of known and unknown risks, uncertainties and assumptions, and actual results may differ materially from those expressed or implied in the forward-looking statements due to various important factors, including, but not limited to: our ability to become profitable; our ability to procure sufficient funding to advance our programs; risks associated with raising additional capital and requirements under our current debt instruments and effects of restrictions thereunder; our operating expenses and our ability to predict what those expenses will be; our limited operating history; the success of our programs and product candidates in which we expend our resources; our limited ability or inability to assess the safety and efficacy of our product candidates; our dependence on our ARCUS technology; the risk that other genome-editing technologies may provide significant advantages over our ARCUS technology; the initiation, cost, timing, progress, achievement of milestones and results of research and development activities, preclinical studies and clinical trials; public perception about genome editing technology and its applications; competition in the genome editing, biopharmaceutical, and biotechnology fields; our or our collaborators' ability to identify, develop and commercialize product candidates; potential product liability lawsuits and penalties against us or our collaborators related to our technology and our product candidates; the U.S. and foreign regulatory landscape applicable to our and our collaborators' development of product candidates; our or our collaborators' or other licensees' ability to advance product candidates into, and successfully design, implement and complete, clinical or field trials; our or our collaborators' other licensees' ability to advance product candidates into, and successfully design, implement and complete, clinical or field trials; potential manufacturing problems associated with the development or commercialization of any of our product candidates; delays or difficulties in our and our collaborators' ability to enroll patients; changes in interim "top-line" and initial data that we announce or publish; if our product candidates do not work as intended or cause undesirable side effects; risks associated with applicable healthcare, data protection, privacy and security regulations and our compliance therewith; the rate and degree of market acceptance of any of our product candidates; the success of our existing collaboration agreements, and our ability to enter into new collaboration arrangements; our current and future relationships with and reliance on third parties including suppliers and manufacturers; our ability to obtain and maintain intellectual property protection for our technology and any of our product candidates; potential litigation relating to infringement or misappropriation of intellectual property rights; our ability to effectively manage the growth of our operations; our ability to attract, retain, and motivate key executives and personnel; market and economic conditions; effects of system failures and security breaches; effects of natural and manmade disasters, public health emergencies and other natural catastrophic events; effects of sustained inflation, supply chain disruptions and major central bank policy actions; insurance expenses and exposure to uninsured liabilities; effects of tax rules; risks related to ownership of our common stock; our ability to meet the requirements of and maintain listing of our common stock on NASDAQ or other public stock exchanges and other important factors discussed under the caption "Risk Factors" in our Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2024, as any such factors may be updated from time to time in our other filings with the SEC, which are accessible on the SEC's website at www.sec.gov and the Investors page of our website under SEC Filings at investor.precisionbiosciences.com.

All forward-looking statements speak only as of the date of this presentation and, except as required by applicable law, we have no obligation to update or revise any forward-looking statements contained herein, whether as a result of any new information, future events, changed circumstances or otherwise. Precision consults with various presentation speakers and compensates them for their time and expertise.

Disclosures

Cassie Gorsuch is an employee of Precision BioSciences, Inc. (Nasdaq: DTIL)

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Founded in 2006 and **dedicated to developing novel therapeutics designed to overcome and potentially cure** difficult-to-treat diseases, including rare genetic diseases.

Precision's therapies are developed utilizing **ARCUS**, a proprietary next generation genome editing platform with a unique cut, smaller size, simpler structure compared to CRISPR, enabling more efficient and sophisticated edits.

Over **100 patients** have received ARCUS-based therapies safely for chronic Hepatitis B, OTC deficiency, and hematological malignancies.

Precision is currently exploring two muscle gene editing programs:

- **PBGENE-DMD: excising the hot-spot region of DMD to permanently and safely restore muscle function**
- PBGENE-3243: eliminating mutant mitochondrial DNA to improve muscle function

Current Therapeutics Have Limitations and Do Not Provide Significant Functional Improvements For Patients with DMD

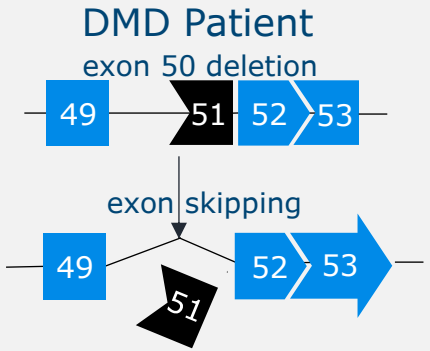
Microdystrophin Gene Therapies

- Produce a synthetic protein that is missing a majority of functional domains
- Recently approved synthetic microdystrophin did not result in significant functional improvement in clinical studies[1]
- Lack of durable effect as the synthetic microdystrophin can be diluted or silenced as myofibers turn over or grow over time[2]
- Safety concerns with heart/liver toxicities and risk of immune mediated myositis[3]

Synthetic Microdystrophin

Exon Skipping Therapies

- Limited patient applicability with only a few exons being targeted
- Lifetime therapy requiring frequent infusions
- Provides low dystrophin protein expression, limiting efficacy[4]
- Safety concerns including hypersensitivity reactions and renal toxicity[5]



Adapted from Roshmi RR, et al. Clin. Pharmacol 2021

1. Mendell et al. *Nat Med*, 2024 Oct 09;31:332-341. 2. Hart et al. *JCI Insight*, 2024 May 7;9(11):e165869. 3. Potter et al. *Sci Rep*, 2025 Jan 2;15(1):4. 4. Takeda et al. *J Neuromuscul Dis*, 2021 Nov 30;8(Suppl 2):S343-358. 5. Shumizu-Motohashi et al. *Orphanet J Rare Dis*, 2018 Jun 15;13(1):93.

PBGENE-DMD Targets Dystrophin Gene Correction, a New Class of DMD-directed Therapy Designed for Durable Functional Improvement

Permanently Correcting the Root Cause

By permanently editing a patient's DNA sequence, PBGENE-DMD efficacy not impacted by the loss of AAV over time

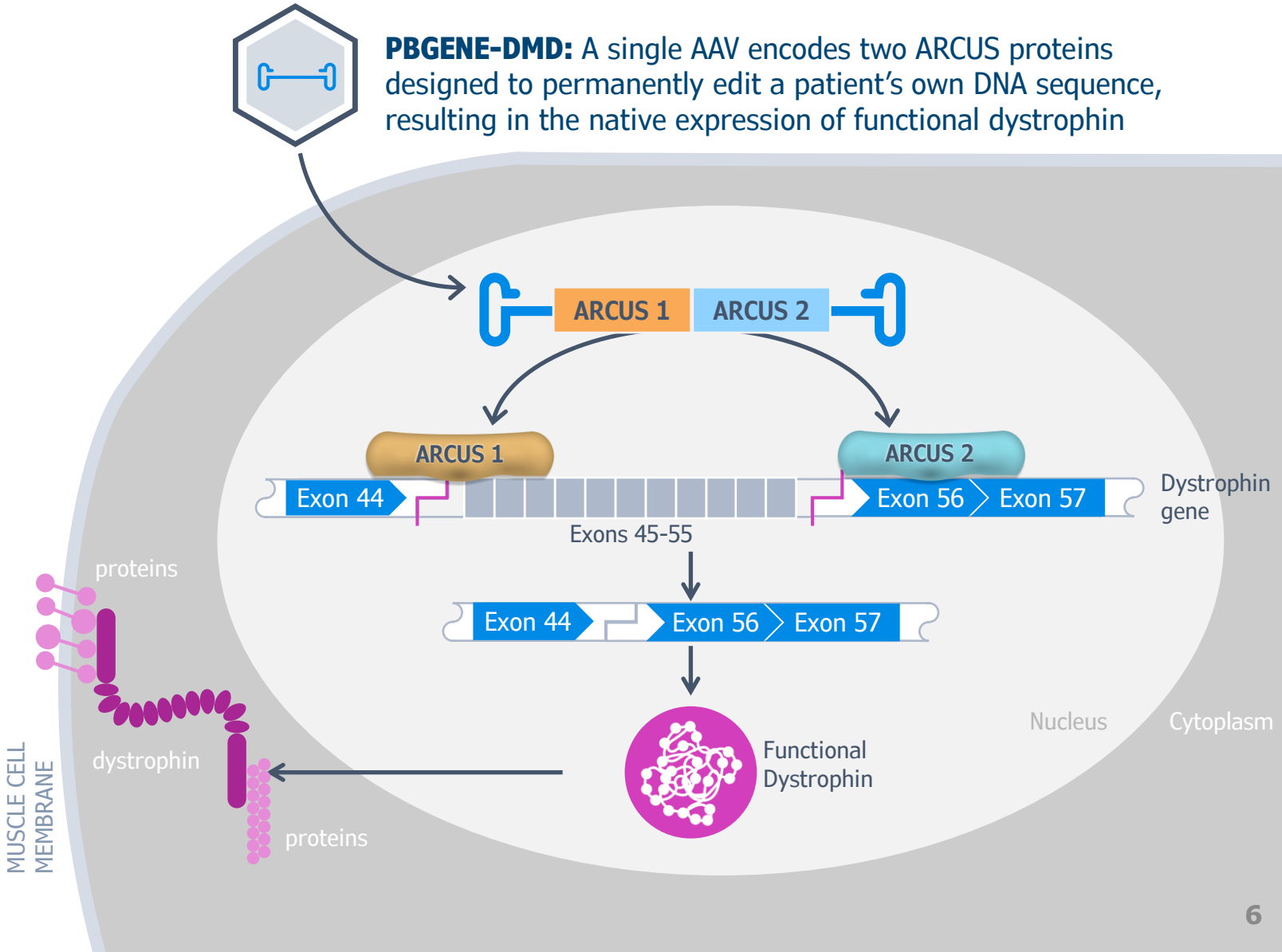
Natively-Produced, Near-Full Length Dystrophin Protein

PBGENE-DMD gene correction designed to enable expression of a natively-produced functional dystrophin closely resembling normal dystrophin

Durable Functional Muscle Improvement

PBGENE-DMD has been shown to significantly improve muscle function over time in mice while also editing muscle satellite cells for durable effect

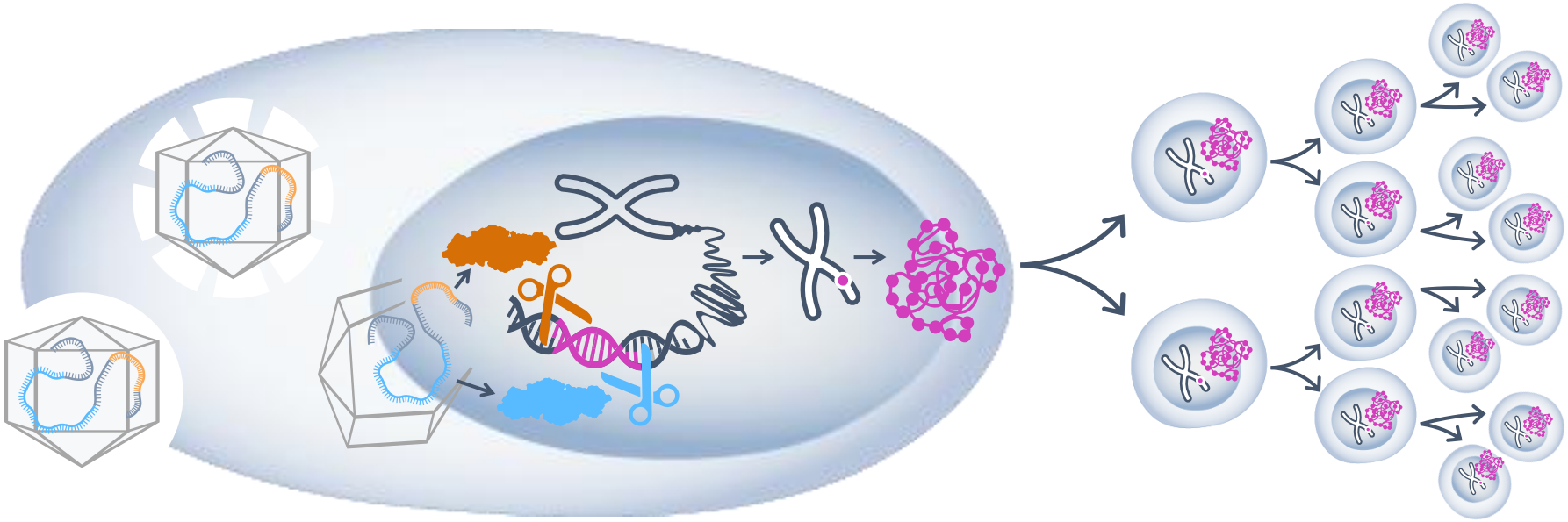
PBGENE-DMD: A single AAV encodes two ARCUS proteins designed to permanently edit a patient's own DNA sequence, resulting in the native expression of functional dystrophin



PBGENE-DMD Targets Permanent Dystrophin Gene Correction For Durable Effect Independent of the Persistence of AAV

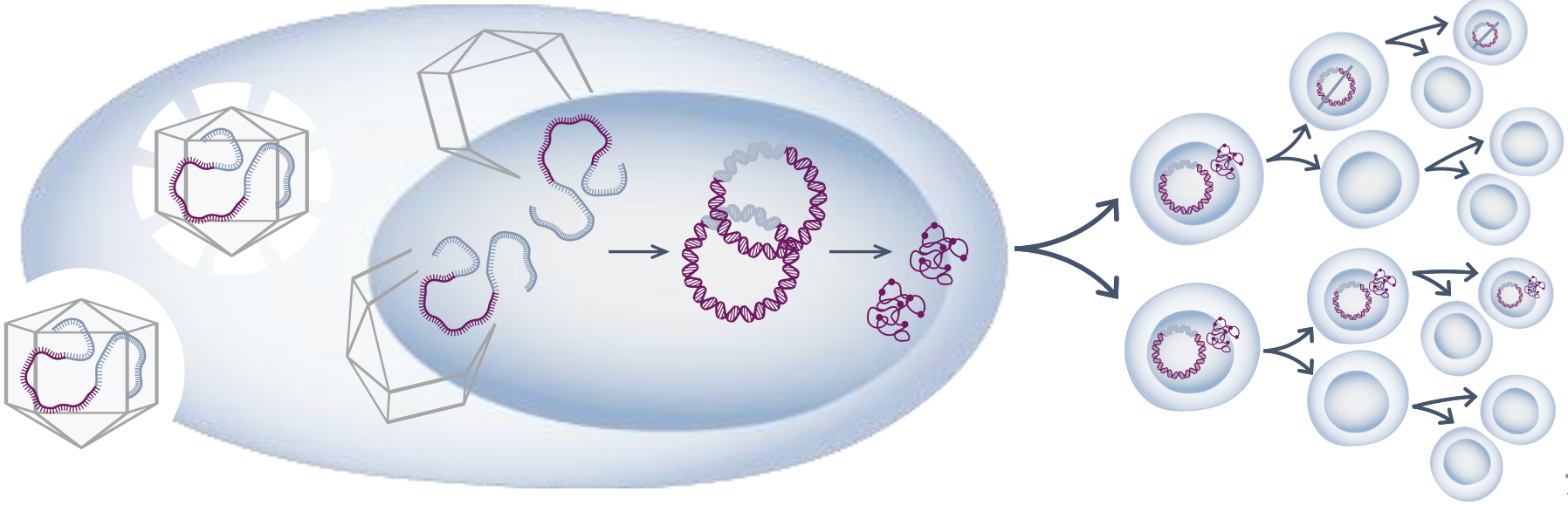
PBGENE-DMD: Functional dystrophin protein expression is not impacted by AAV loss/silencing

- Native expression of corrected dystrophin gene leads to a functional dystrophin

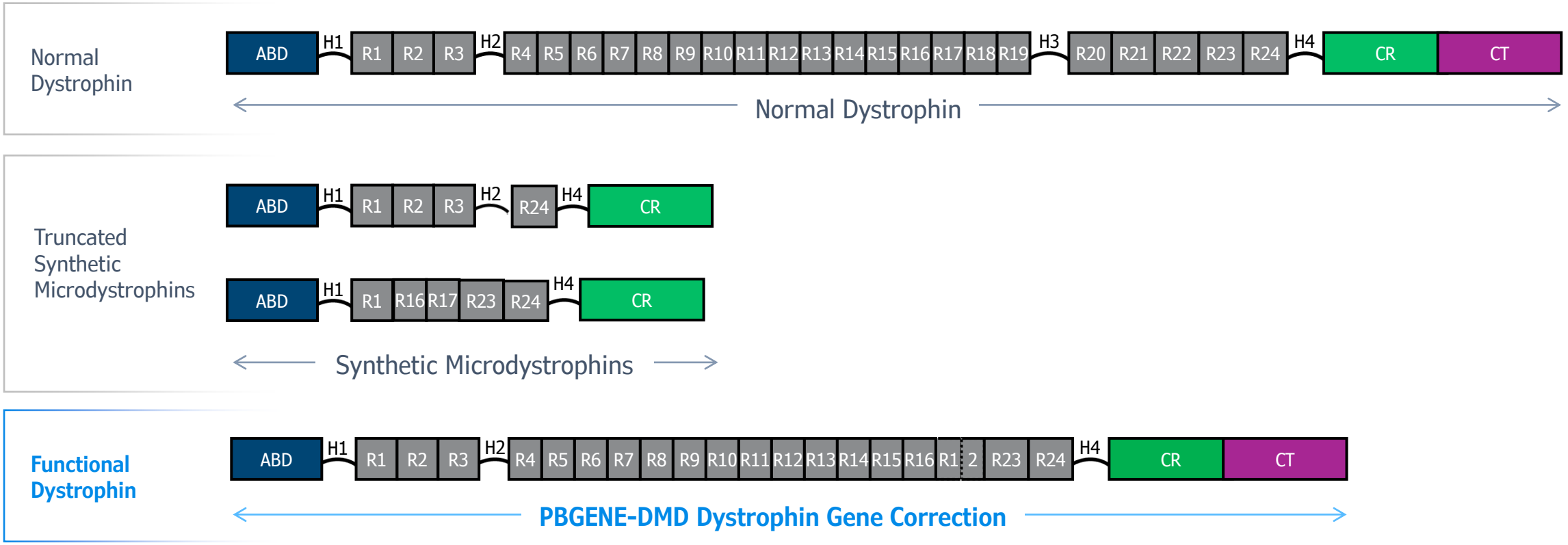


Microdystrophin gene therapies deliver a synthetic dystrophin protein requiring presence and expression of AAV vector

- Muscle degeneration happens at a higher rate in patients with DMD
- Microdystrophin protein expression is lost by AAV dilution/silencing



PBGENE-DMD Dystrophin Gene Correction Designed to Produce a Functional Dystrophin Retaining the Vast Majority of Normal Dystrophin Protein Domains



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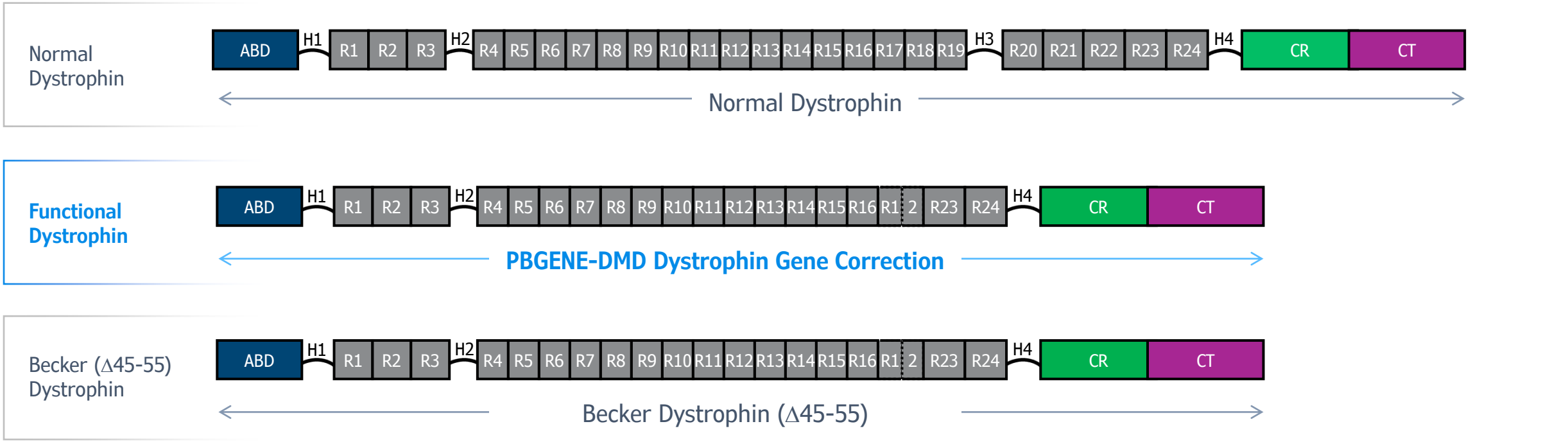


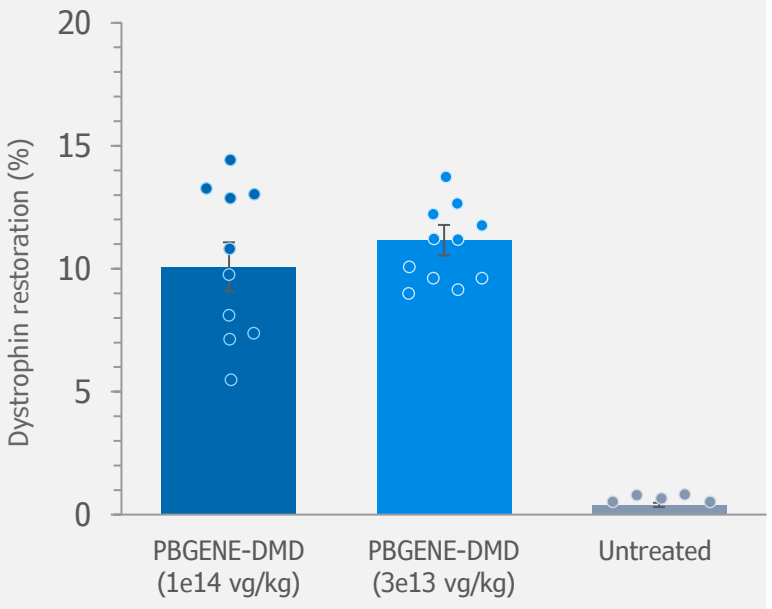
PBGENE-DMD functional dystrophin is present in a subset of Becker patients, who often have mild to asymptomatic phenotypes[1]

It is expected that as little as 10% expression of functional dystrophin protein is needed to provide therapeutic benefit in DMD patients[2,3]

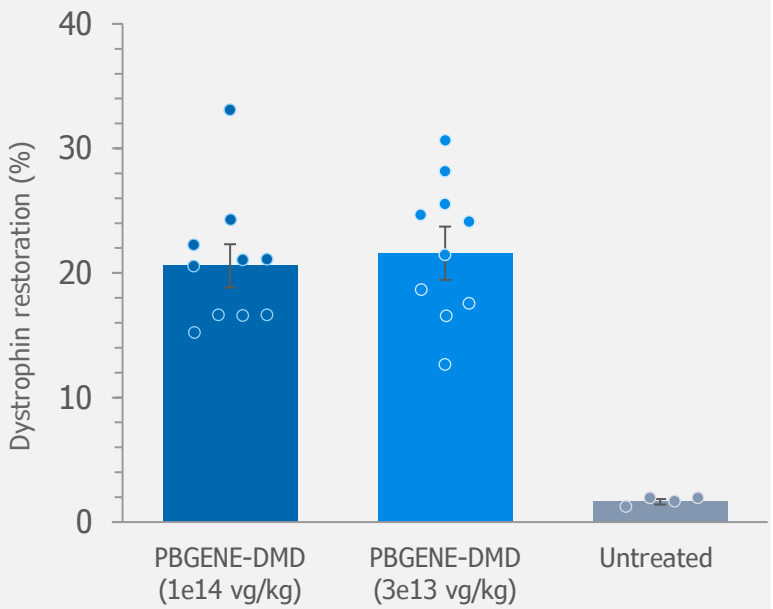
1. Taglia et al. *Acta Myol*, 2015 May;34(1):9-13. 2. Koeks et al. *Sci Rep*, 2021 Mar 15; 11:5952. 3. Chamberlain et al. *Hum Gene Ther*. 2023 May;34(9-10):4004-415.

PBGENE-DMD Restored Functional Dystrophin Protein Across Key Target Muscles

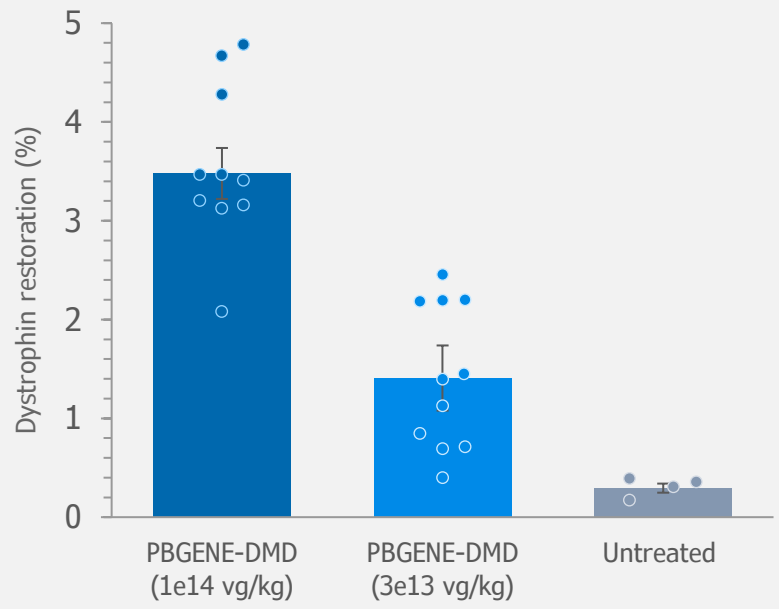
Heart



Calf

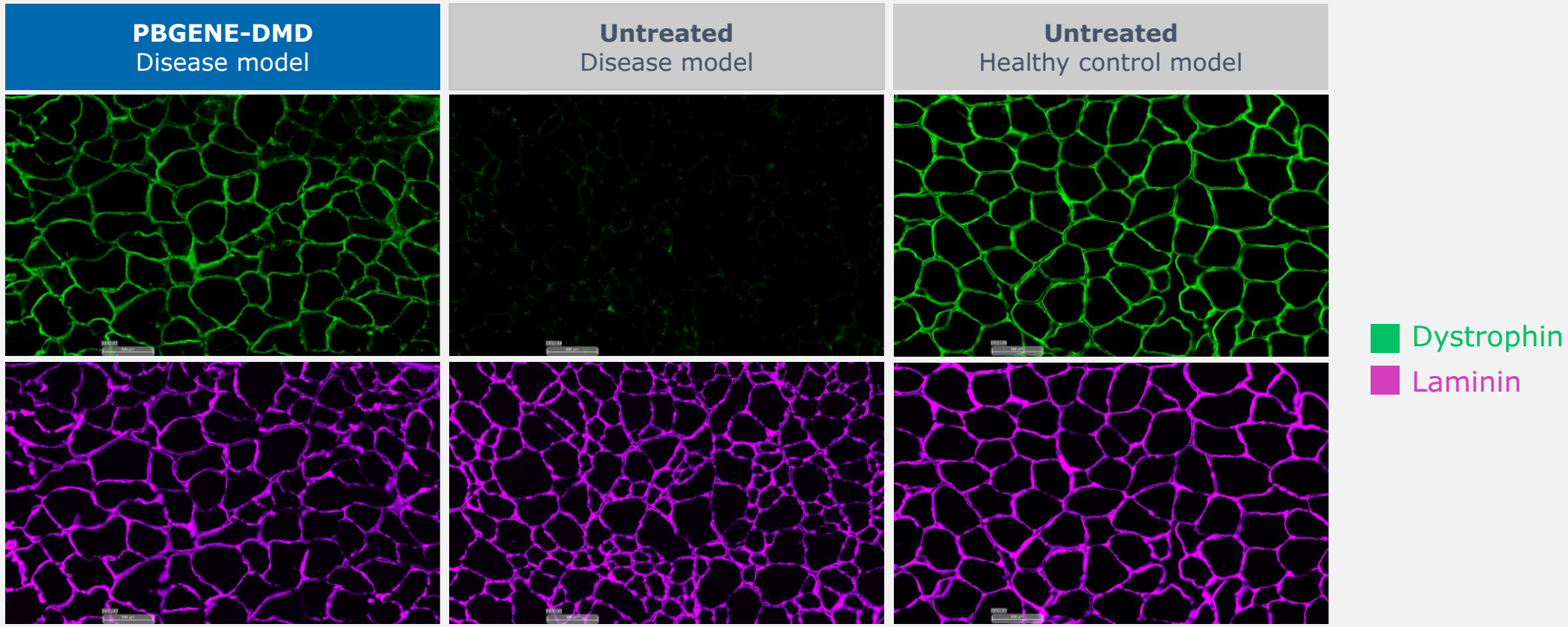


Diaphragm



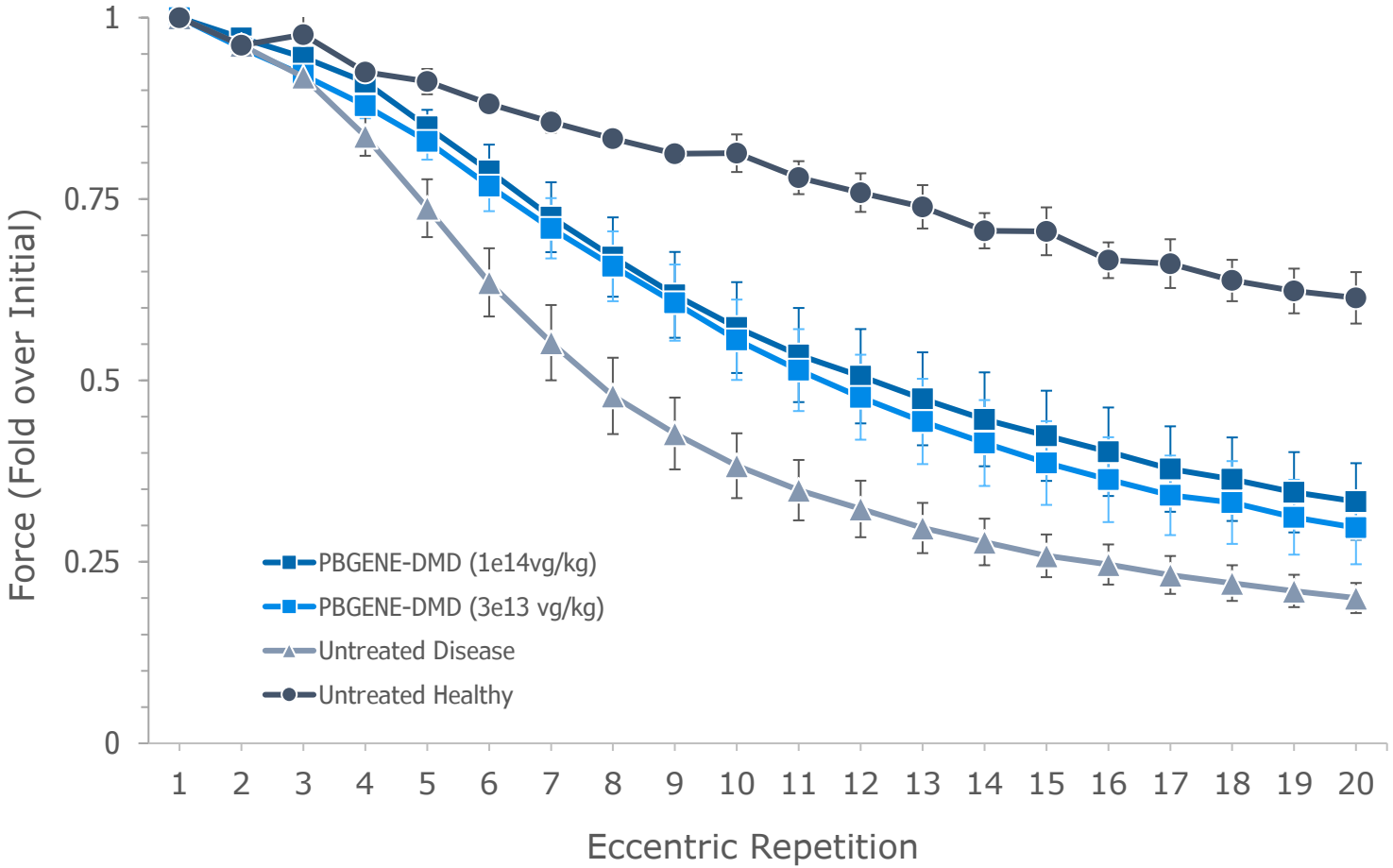
Achieved levels of natively-produced functional dystrophin protein expected to be therapeutic

PBGENE-DMD Restored Functional Dystrophin Protein in Majority of Myofibers in Calf



Broad and substantial functional dystrophin restoration across skeletal and cardiac muscles

PBGENE-DMD Significantly Improved Resistance to Injury Showing Strong Potential for Durable Functional Benefit



PBGENE-DMD treated mice achieved

66% **Improvement in resistance to eccentric injury**

compared to diseased, control mice in the calf after 3-months

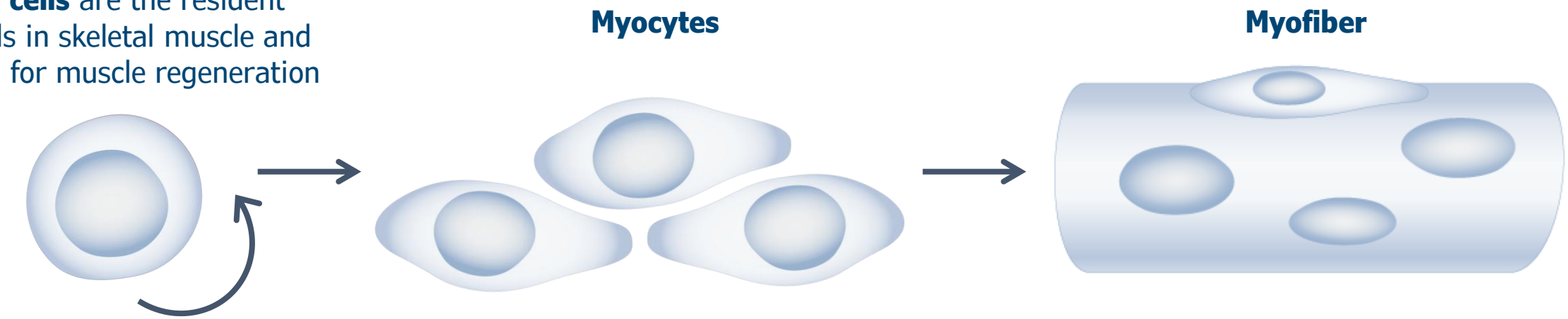
Eccentric injury tested in vivo by Myologica

Natively-produced functional dystrophin protein produced significant therapeutic effects*

* $p<0.0001$ Treated vs Untreated by Two-Way RM ANOVA

Editing Satellite Cells is Essential for Permanent Effect

Satellite cells are the resident stem cells in skeletal muscle and essential for muscle regeneration

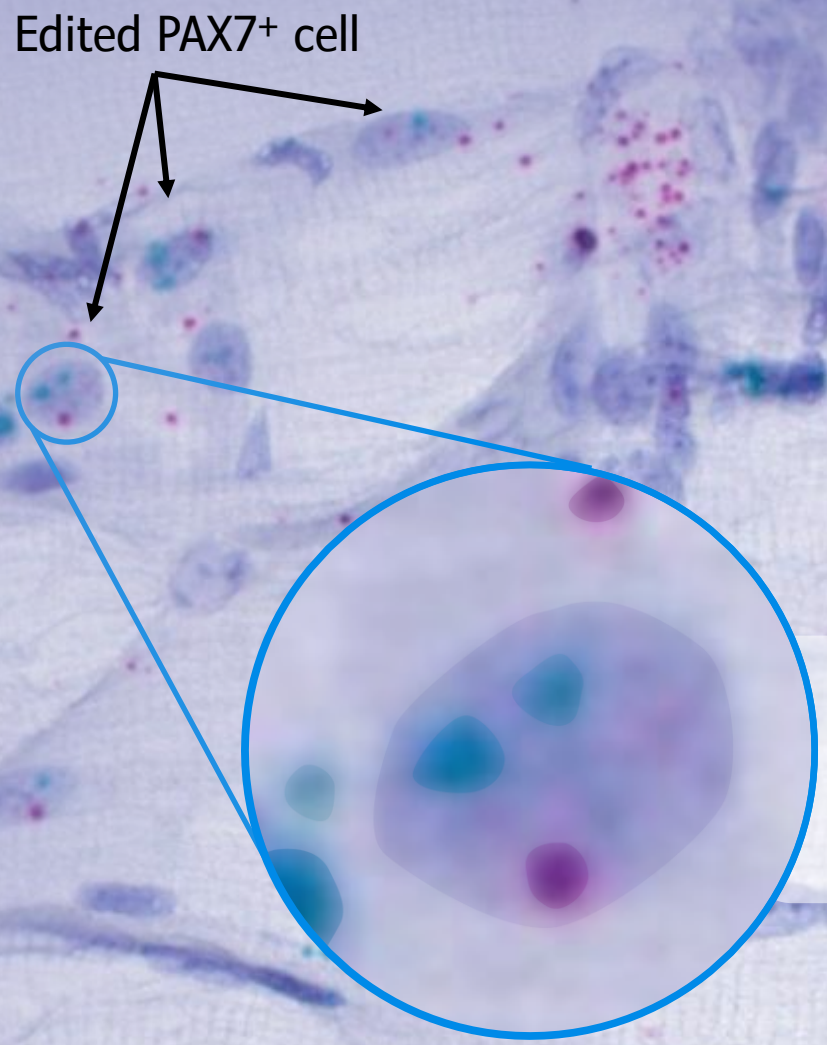


In DMD where myofiber degeneration is continuous,
editing satellite cells is essential for permanent therapeutic effect

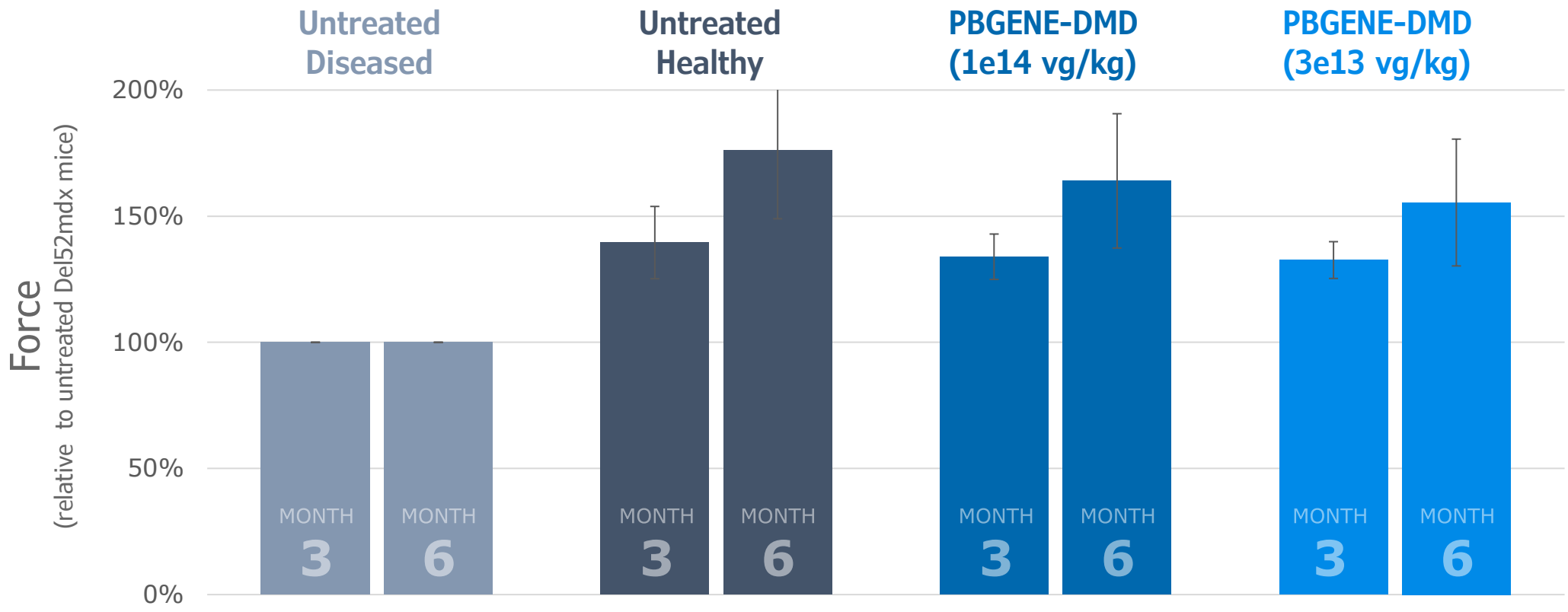
PBGENE-DMD Dystrophin Gene Correction Edited Muscle Satellite Stem Cells, Providing Potential for Durable Functional Improvement

PBGENE-DMD has demonstrated permanent editing of satellite cells, beyond transient transduction

Observed edited dystrophin mRNA in PAX7+ cells, **a marker for muscle satellite stem cells**



PBGENE-DMD Significantly Improved Muscle Function and Demonstrates Long-Term Durability



6-month durability timepoint shows an improvement in functional outcome vs. 3-month timepoint; May be attributed to editing of satellite cells and/or accumulation of functional dystrophin protein

Force was measured in the calf across multiple stimulation frequencies. Averaged force normalized to bodyweight is shown. Statistically significant ($p<0.001$) increases in force were observed in both doses of PBGENE-DMD compared untreated diseased animals at both time points.

PBGENE-DMD with Dystrophin Gene Correction, Offers a New Class of Therapy with Potentially Permanent Gene Correction and Functional Benefit

PERMANENT GENE CORRECTON

PBGENE-DMD Dystrophin Gene Correction designed to provide permanent editing of a patient's own DNA

ONE TIME, BROADLY APPLICABLE THERAPY

PBGENE-DMD applicable to up to 60% of patients with DMD with one time therapy

NATIVELY-EXPRESSED DYSTROPHIN PROTEIN

PBGENE-DMD designed to provide a native source of dystrophin with known functionality in humans

EVIDENCE SUPPORTING INCREASING FUNCTIONAL IMPROVEMENT

PBGENE-DMD preclinical data shows increased functional improvement over time in skeletal muscle

SATELLITE CELL EDITING FOR DURABLE BENEFIT

PBGENE-DMD Dystrophin Gene Correction has demonstrated satellite cell editing, providing a potential for improved functional capacity over time

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Dedicated to Improving Life

THANK YOU!