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Corporate Deck

October 2024

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 pre-clinical and clinical development, research advancement and expected safety, efficacy and benefit of our product candidates and gene editing approaches, including editing efficiency, defined outcomes, therapeutic edits, safety and differentiating aspects; the suitability of azer-cel for oncology indications and non-oncology indications including immunological diseases; the suitability of ARCUS nucleases for gene insertion, large gene deletion, mitochondrial gene editing, viral gene elimination and other complex gene editing approaches; the expected timing of regulatory processes and patient enrollment; expectations about our operational initiatives and business strategy; expectations about achievement of key milestones; expectations about market trends and opportunity; expectations regarding partnership opportunities; our expected cash runway and advancement of programs to clinical data; expectations about achievement of key milestones and receipt of any milestone, royalty, or other payments; expectations regarding our liquidity and capital resources; and anticipated timing of initial clinical data. In some cases, you can identify forward-looking statements by terms such as “aim,” “anticipate,” “approach,” “believe,” “contemplate,” “could,” “designed to”, “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; our ability to obtain orphan drug designation or fast track designation for our product candidates or to realize the expected benefits of these designations; our or our collaborators’ ability to obtain and maintain regulatory approval of our product candidates, and any related restrictions, limitations and/or warnings in the label of an approved product candidate; the rate and degree of market acceptance of any of our product candidates; our ability to effectively manage the growth of our operations; our ability to attract, retain, and motivate executives and personnel; effects of system failures and security breaches; insurance expenses and exposure to uninsured liabilities; effects of tax rules; effects of any pandemic, epidemic, or outbreak of an infectious disease; the success of our existing collaboration and other license 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; 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; market and economic conditions; risks related to ownership of our common stock, including fluctuations in our stock price; 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 June 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



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Corporate Overview

Focusing on Our Foundation—In Vivo Gene Editing

Through our gene editing platform ARCUS

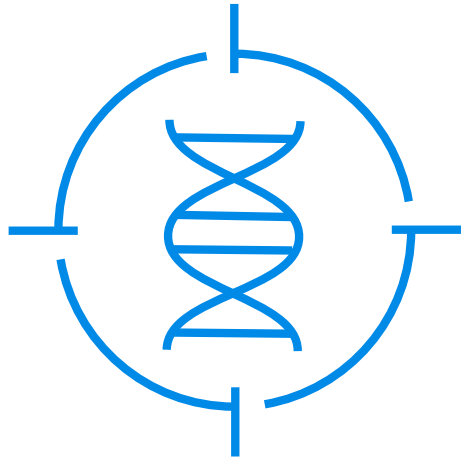
Go-Forward Singular Focus

In Vivo Gene Editing

Leveraging Our Foundational Strength

- ARCUS - wholly owned genome editing platform
- Optimized for gene insertion, excision, and elimination
- Over 25 years of gene editing expertise and protein engineering
- Cash, cash equivalents, and restricted cash (9/30/2024) = $121 million
- Expect existing cash, cash equivalents and restricted cash, expected operational receipts, operational efficiencies, availability of the ATM facility, and available credit to fund OpEx and CapEx into **second half of 2026**

Focused Execution 2024-2026



Expected cash runway now enables funding In Vivo programs through Phase 1 data

ARCUS Focused on Sophisticated Edits Leveraging Unique Advantages

PROGRAM	INDICATION	TISSUE	TARGET	US Patient Pool	RESEARCH	IND-ENABLING	CLINICAL	PARTNER
★ PBGENE-HBV	Chronic hepatitis B	Liver	HBV	**1-2 Million**				
★ PBGENE-PMM	m3243 mitochondrial disease	Muscle	PMM	**20 Thousand**				
PBGENE-DMD	Duchenne muscular dystrophy	Muscle	DMD	**8 Thousand**				
PBGENE-LIVER	Undisclosed	Liver	—	**—**				
PBGENE-CNS	Undisclosed	CNS	—	**—**				
iECURE-OTC*	Ornithine transcarbamylase deficiency	Liver	OTC	**5-6 Thousand**				ECURE
PBGENE-NVS	Sickle cell disease/ beta thalassemia	HSCs	—	**100 Thousand**				NOVARTIS

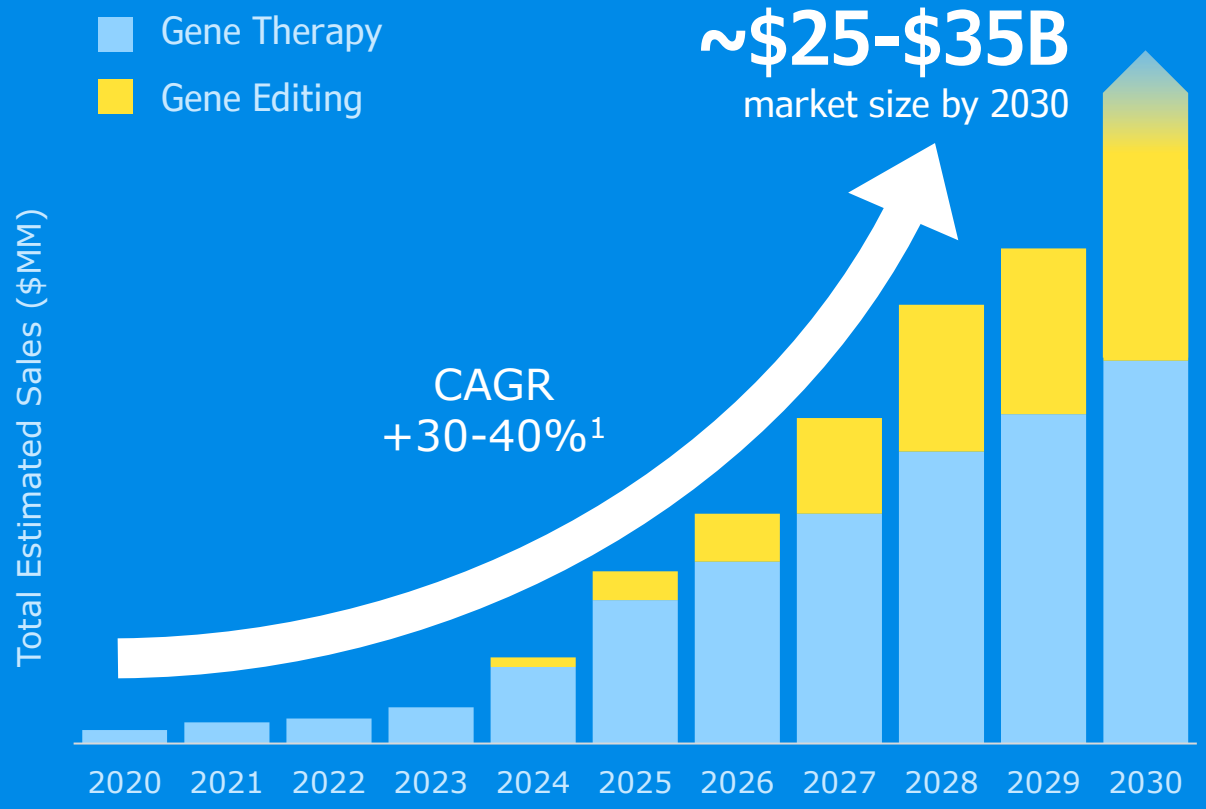
Regained By Precision Under Assessment

★ Precision wholly owned organic program

*iECURE-OTC also named ECUR-506 under investigation in the OTC-HOPE study

ARCUS Potential to Capture a Significant Portion of the Genetic Medicines Market Versus Other Liver-focused Editors

The Genetic Medicines Market Opportunity is Substantial



Gene Editing Expected to Disrupt and Continue to Grow the Genetic Medicines Market

Precision's first indications through organic and partnered programs represent a US market opportunity to potentially treat

400-500k patients*

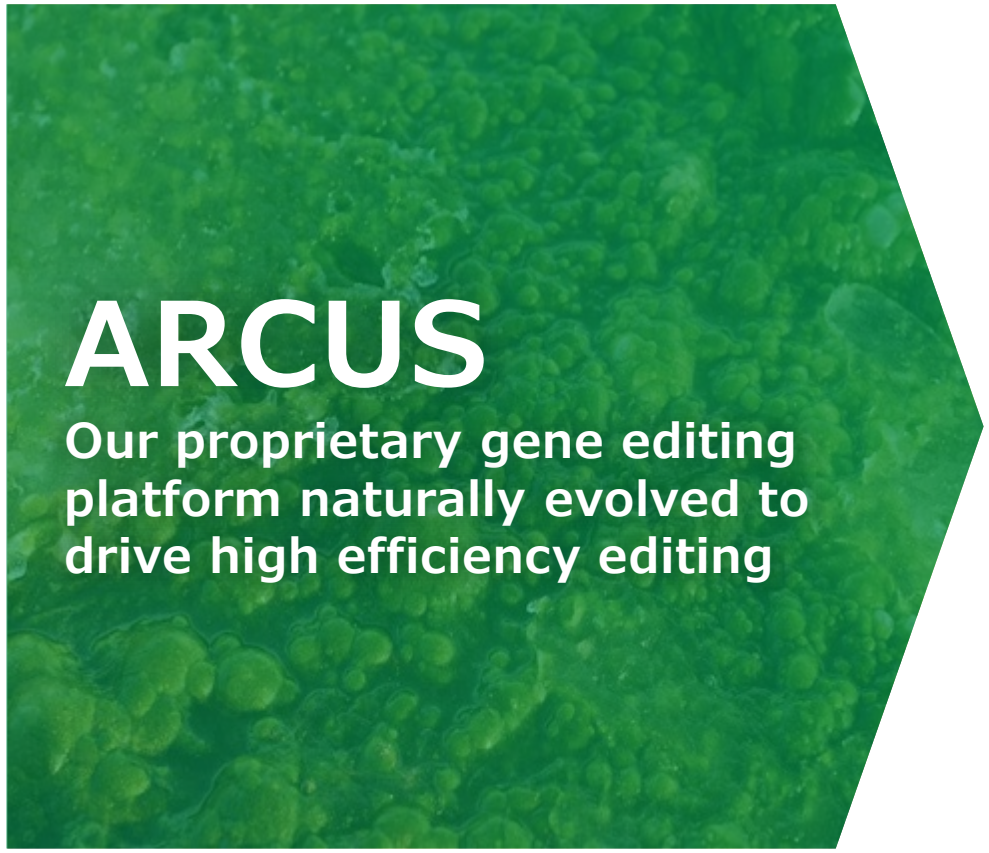
Note: 1. Based on analysis from Cowen 2023, Grandview 2023, Allied 2023 and BCC 2023 research reports; * Total addressable market (TAM) assumed at 100% share

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ARCUS Technology Overview



Bringing the Dream to Reality with Creation of ARCUS



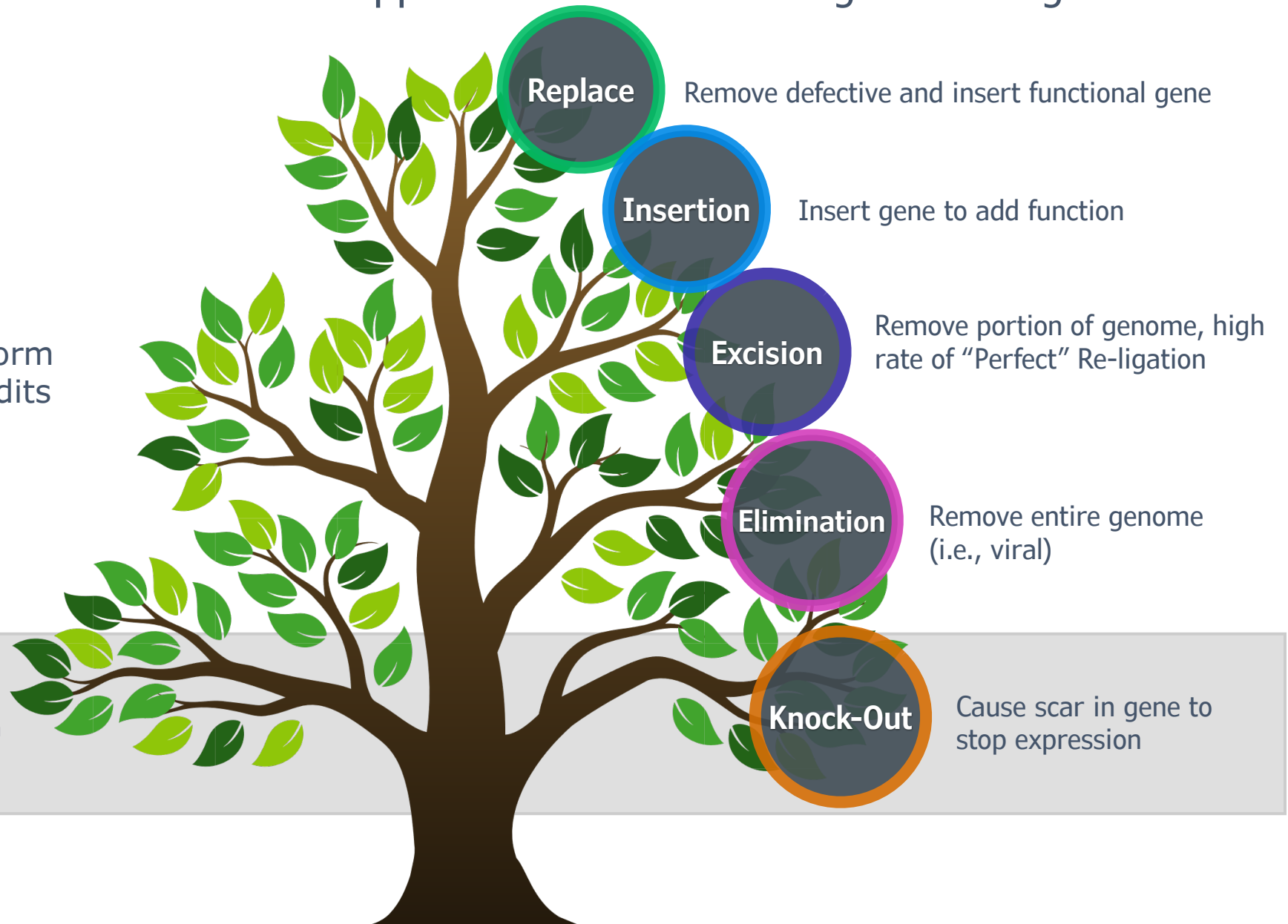
- ARCUS is derived from the **homing endonuclease I-CreI** found in green algae
- **Evolved to safely edit by inserting in genome, adding function**
  - CRISPR-based editing tools engineered from enzymes evolved to knockout DNA only
- Extremely efficient at generating **Defined Outcomes* due** to predominant repair using **Homology Directed Repair (HDR)** or **"Perfect Religation"** versus Non-Homologous End Joining (NHEJ)
- DNA recognition and cutting **fully integrated** into a single protein component for high specificity and efficiency – no guide RNA
- **Iterative protein engineering** to optimize for safety
- **> 65 patents issued** covering ARCUS and in vivo gene editing

***Defined Outcome** = desired therapeutic edit and effect

ARCUS for the More Sophisticated Gene Edit

Designed by nature for a multitude of applications versus other gene editing modalities

ARCUS
Capability To Perform
"Sophisticated" Edits



Remove defective and insert functional gene

Insert gene to add function

Remove portion of genome, high rate of "Perfect" Re-ligation

Remove entire genome (i.e., viral)

Cause scar in gene to stop expression

"Low Hanging Fruit"
Commoditized application for all gene editors

Degree of Difficulty

Defined Outcomes
Accomplished Through
ARCUS Advantages



The Cut



The Size



The Simplicity

The ARCUS Cut is Uniquely Designed to Drive Defined Outcomes

ARCUS cut leads to HDR or “Perfect” Re-ligation

Generates a 3′ overhang required for Defined Outcomes by HDR or Perfect Re-ligation

The ARCUS Cut



Cas9

CCGTATGCAATTA | GCTAGGTCG
GGCATACGTTAAT | CGATCCAGC

Blunt cut induces NHEJ

TALEN/ZFN

CCGTATGCA | ATTAGCTAGGTCG
GGCATACGTTAAT | CGATCCAGC

Cas12a

CCGTATGCAATTAGCTA | GGCAT
GGCATACGTTAATCGATCCGT | A

Staggered cut in wrong 5′ direction for HDR, therefore NHEJ repair

Base Editors

CCGTAGCAATTAGCTA | GGATG
GGCATCGTTAATCGATCCGTAC

Prime Editors

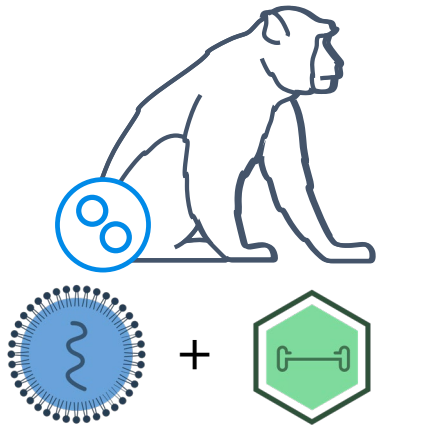
CCGTATGCAATTAGCTA | GGCAT
GGCA | TACGTTAATCGATCCGTA

Single, double, or unintended DNA breaks results in interrupted repair state*, HDR not attainable

**Genotoxic effects of base and prime editing in human hematopoietic stem cells*; Nature Biotechnology, 2023, Fiumara, M.

ARCUS Inserts with High Efficiency in Adult Nonhuman Primates, Example Previously Thought to be Unachievable

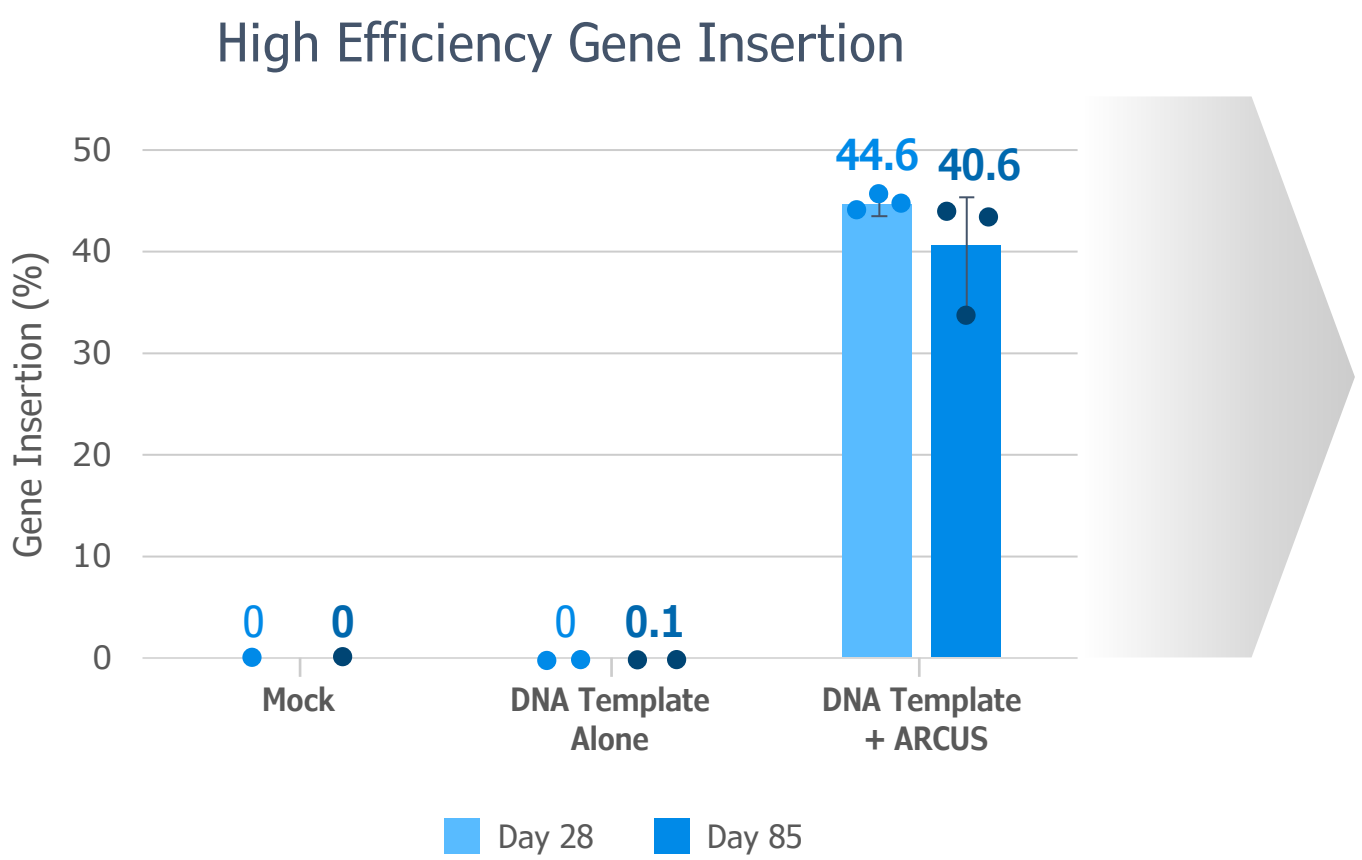
Nondividing cells in vivo



ARCUS LNP
1.75 mg/kg

+

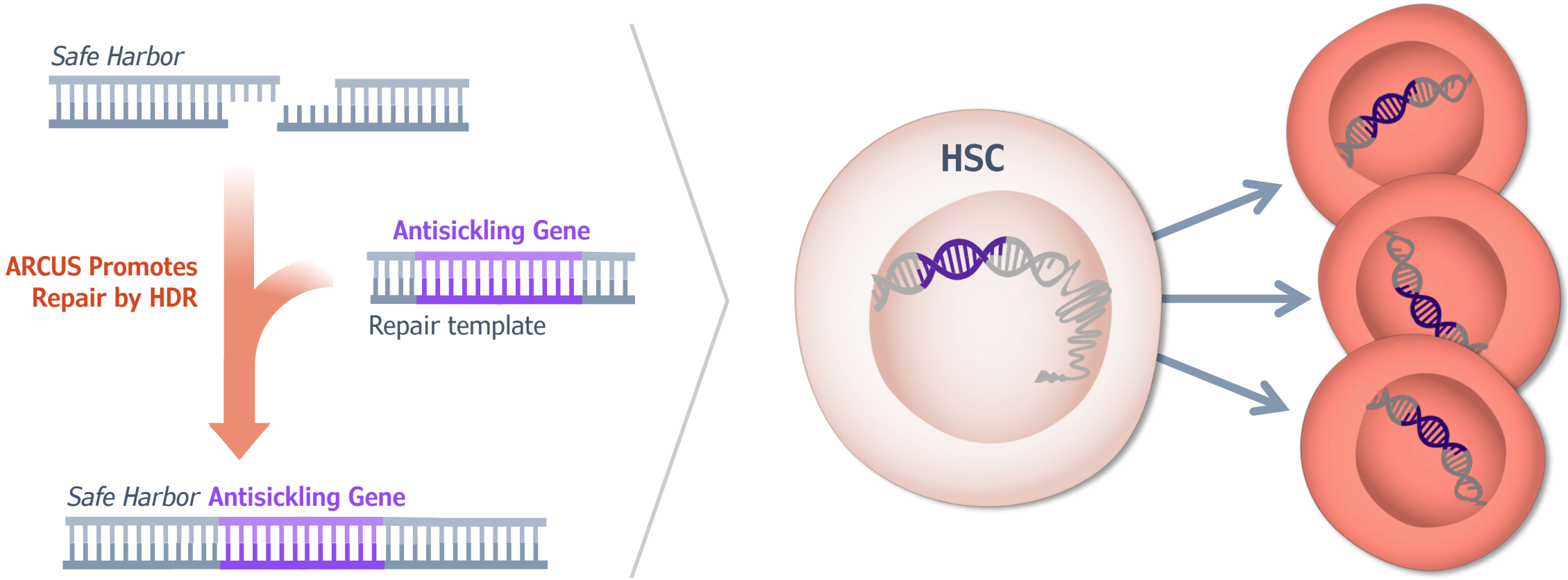
DNA Template AAV
3e13 vg/kg



>3x
insertion efficiency of CRISPR-based approach*

*45% gene insertion calculated for total liver tissue, much higher if only calculating insertion into hepatocytes
*ASGCT 2023, poster 926, Regeneron/Intellia, "Targeted Gene Insertion of *Factor 9* as a Potential Durable Treatment for Hemophilia B"

Gene Insertion to a “Safe Harbor” Locus in Hematopoietic Stem Cells



ARCUS will be used to add an antisickling gene to hematopoietic stem cells (HSCs)

Permanent integration of an antisickling gene into a “safe harbor” locus in HSCs is expected to prevent the sickle cell phenotype in mature erythrocytes.

Defined Outcomes
Accomplished Through
ARCUS Advantages



The Cut



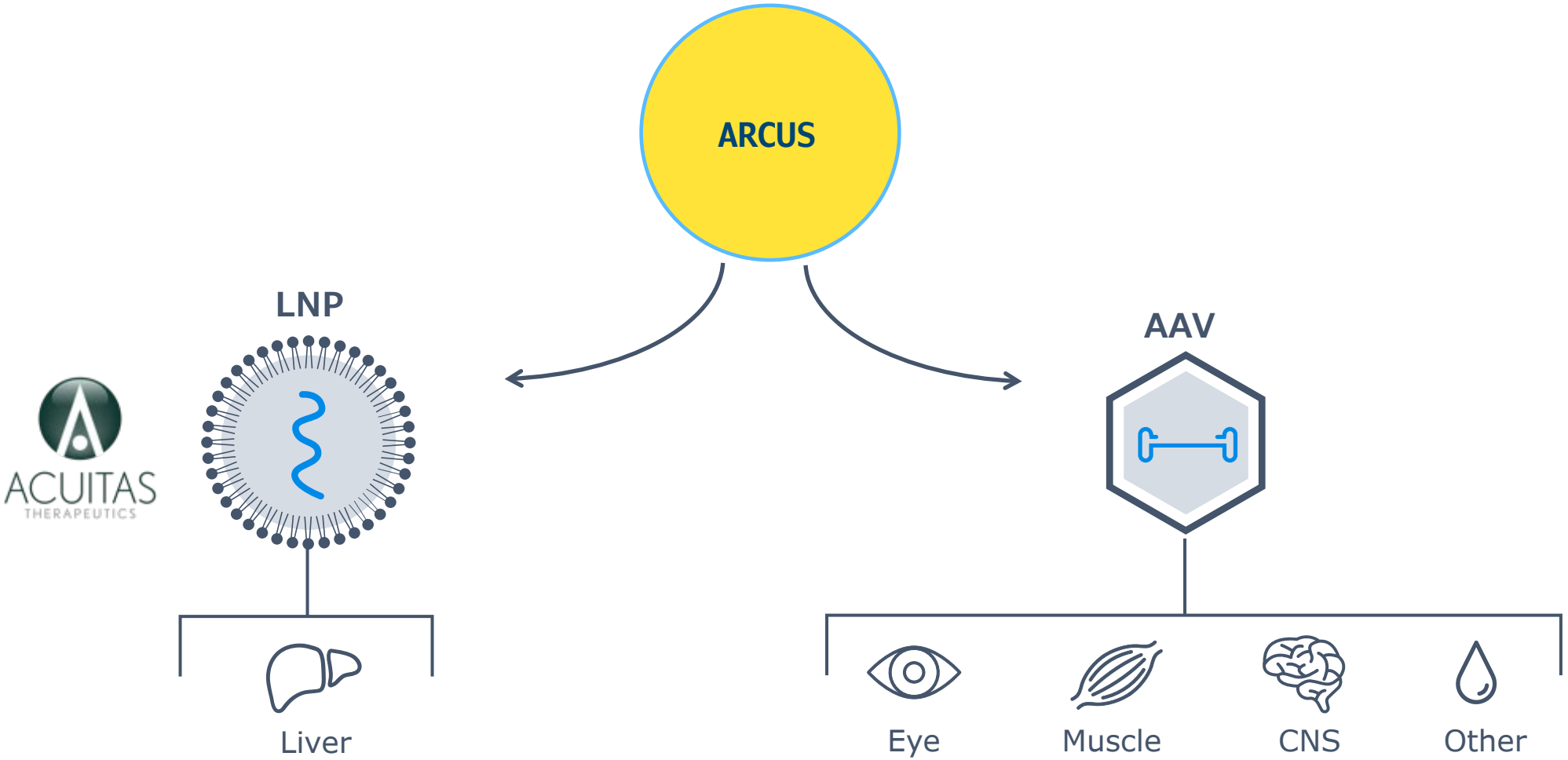
The Size



The Simplicity

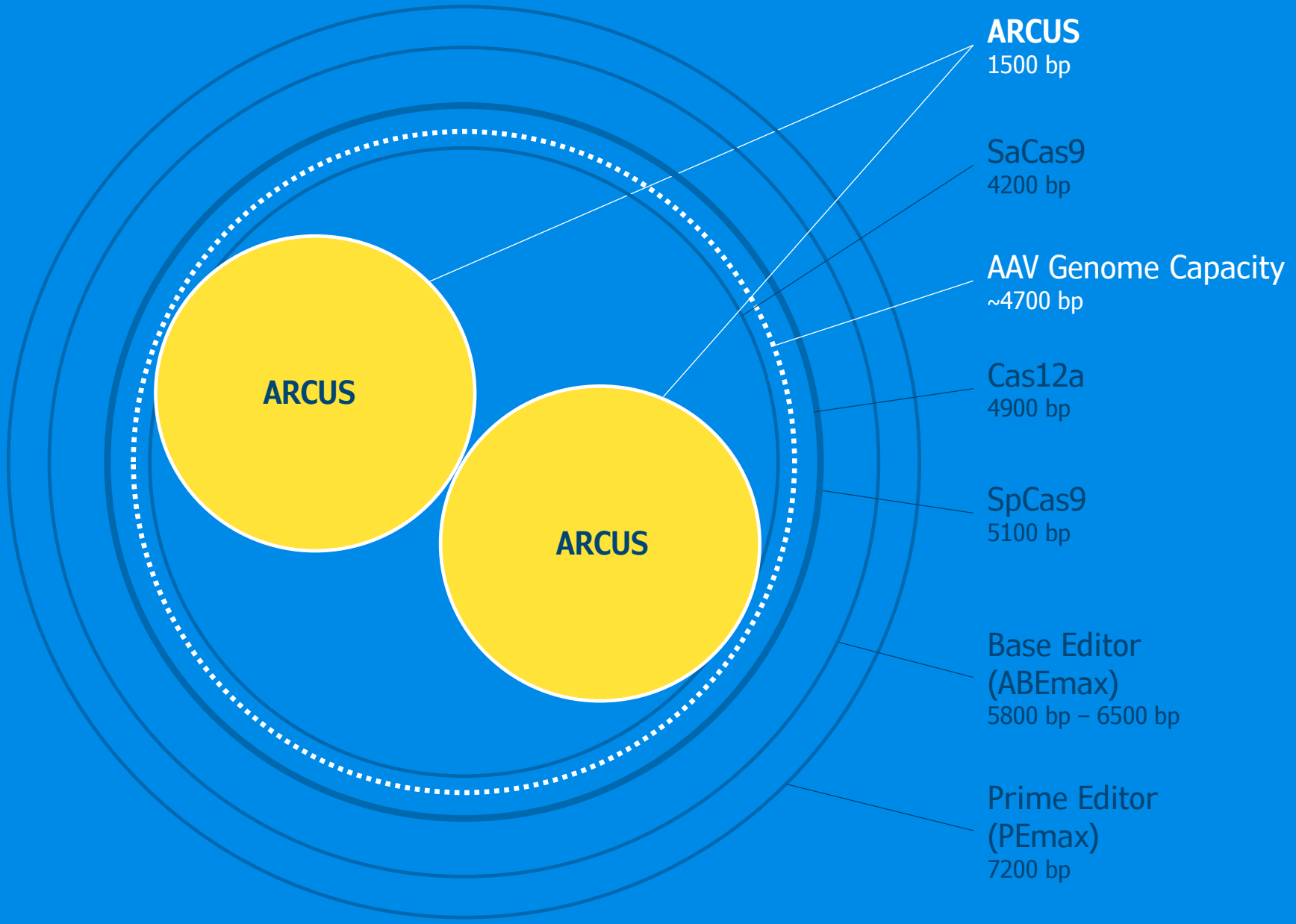
Size Matters for Where You Can Deliver

ARCUS can use different delivery vehicles to target diverse tissue types



Size Matters for **What** You Can Deliver:

Small ARCUS Size Allows Two Nucleases in One AAV for **Gene Excision** in DMD

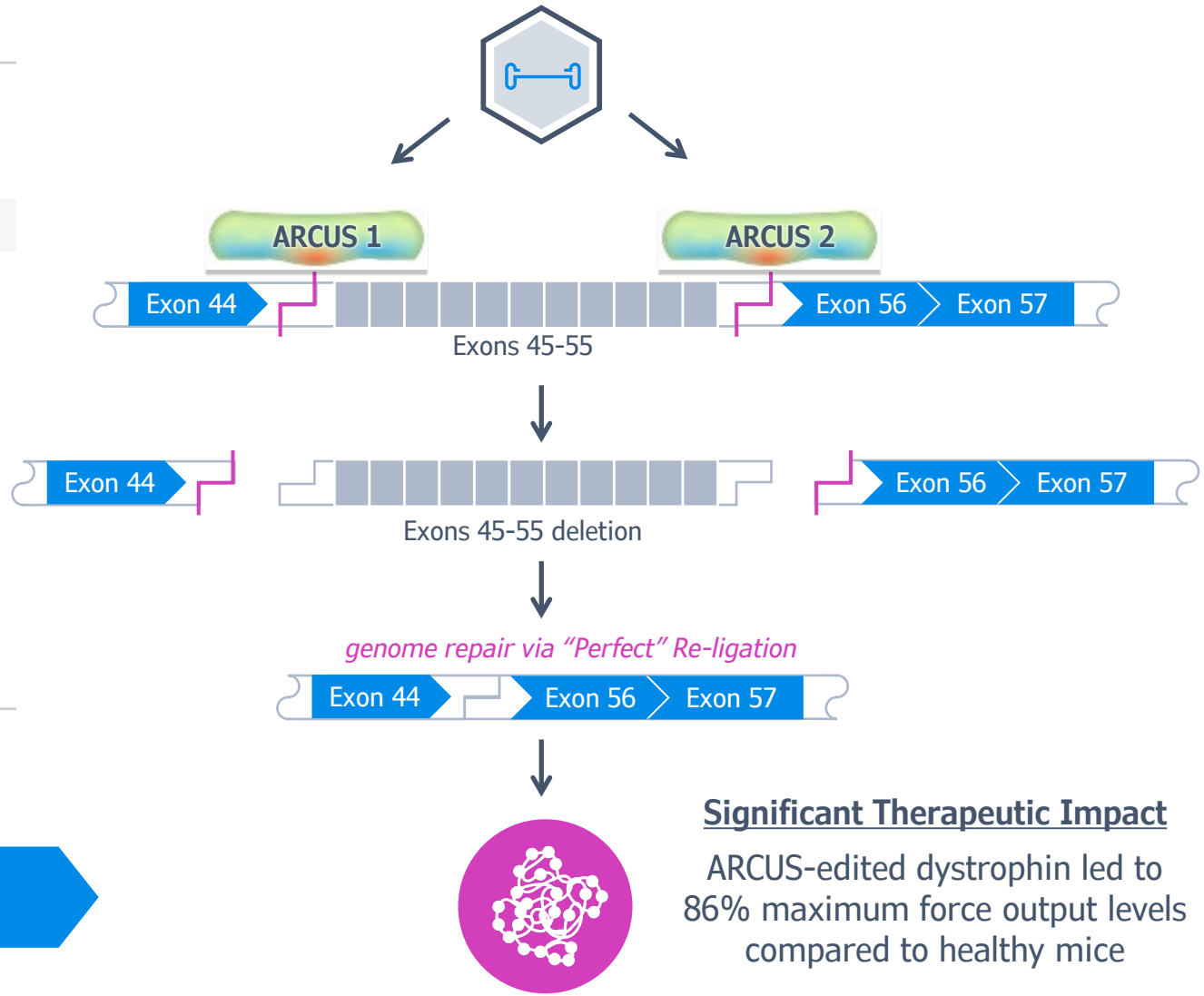


Sizes include editor and expression machinery; ARCUS nuclease is 1062 bp

ARCUS Nucleases Excise Mutations and Restore Function in DMD

PBGENE-DMD Program

Two complementary ARCUS nucleases delivered in a single AAV are used to excise a mutation **"hot spot"** in Exons 45-55 responsible for ~50% of DMD cases



GOAL: Restore dystrophin expression

Significant Therapeutic Impact

ARCUS-edited dystrophin led to 86% maximum force output levels compared to healthy mice

The Size: ARCUS-Edited Dystrophin Preserves Majority of Protein Domains With the Goal of Improving Function

Normal Dystrophin



ELEVIDYS (Sarepta)

Received accelerated approval in US



ARCUS Edited Dystrophin





ABD: actin binding domain, R: rod domain, CR: cysteine-rich domain, CT: carboxyl-terminus domain

Defined Outcomes
Accomplished Through
ARCUS Advantages



The Cut



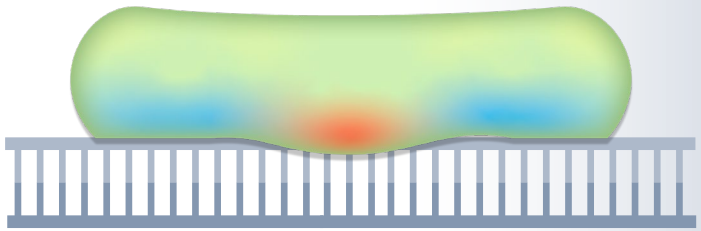
The Size



The Simplicity

Simplicity: ARCUS is the Only Single Protein Component Editor

1 ARCUS



Single protein with a DNA recognition motif and catalytic activity all in one; **no guide RNA required**

Editing outcome not dependent on simultaneous delivery of multiple components leading to **higher efficiency**

Single component **requires less** AAV and potentially less LNP

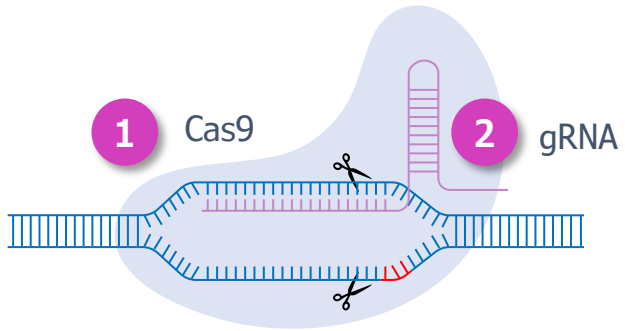
〉 **Easy to deliver**

〉 **High efficiency**

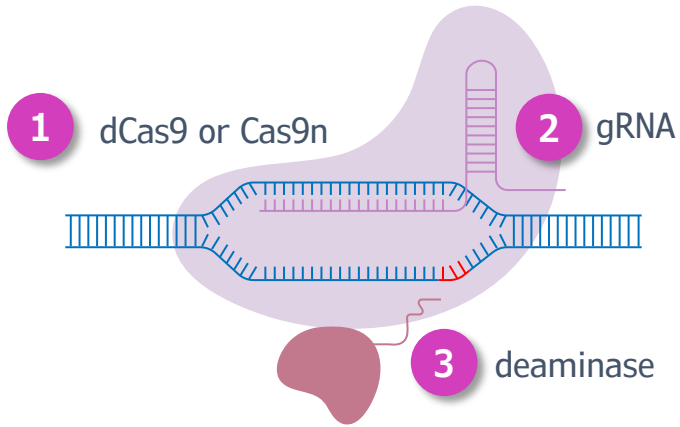
〉 **Low dose improves safety**

Simplicity: Simultaneous Delivery of Multiple Components in Separate Delivery Vehicles Results in Lower Efficiency

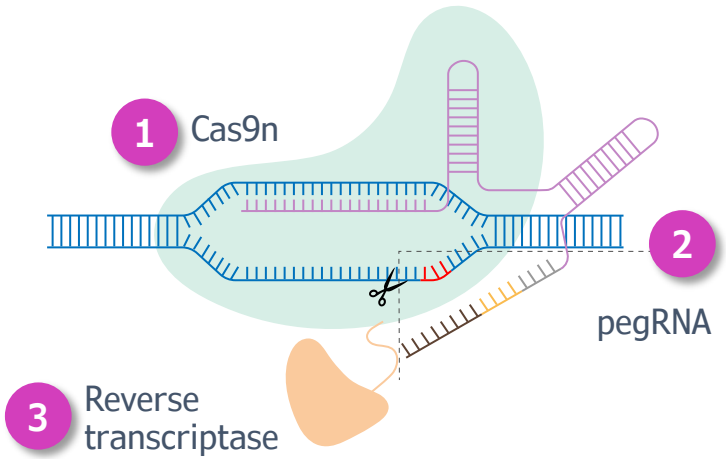
CRISPR



Base Editor



Prime Editor



CTA Approved

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PBGENE-HBV

Viral Elimination



PBGENE-HBV Designed For Broad Patient Applicability

> 300 million
cHBV infections globally

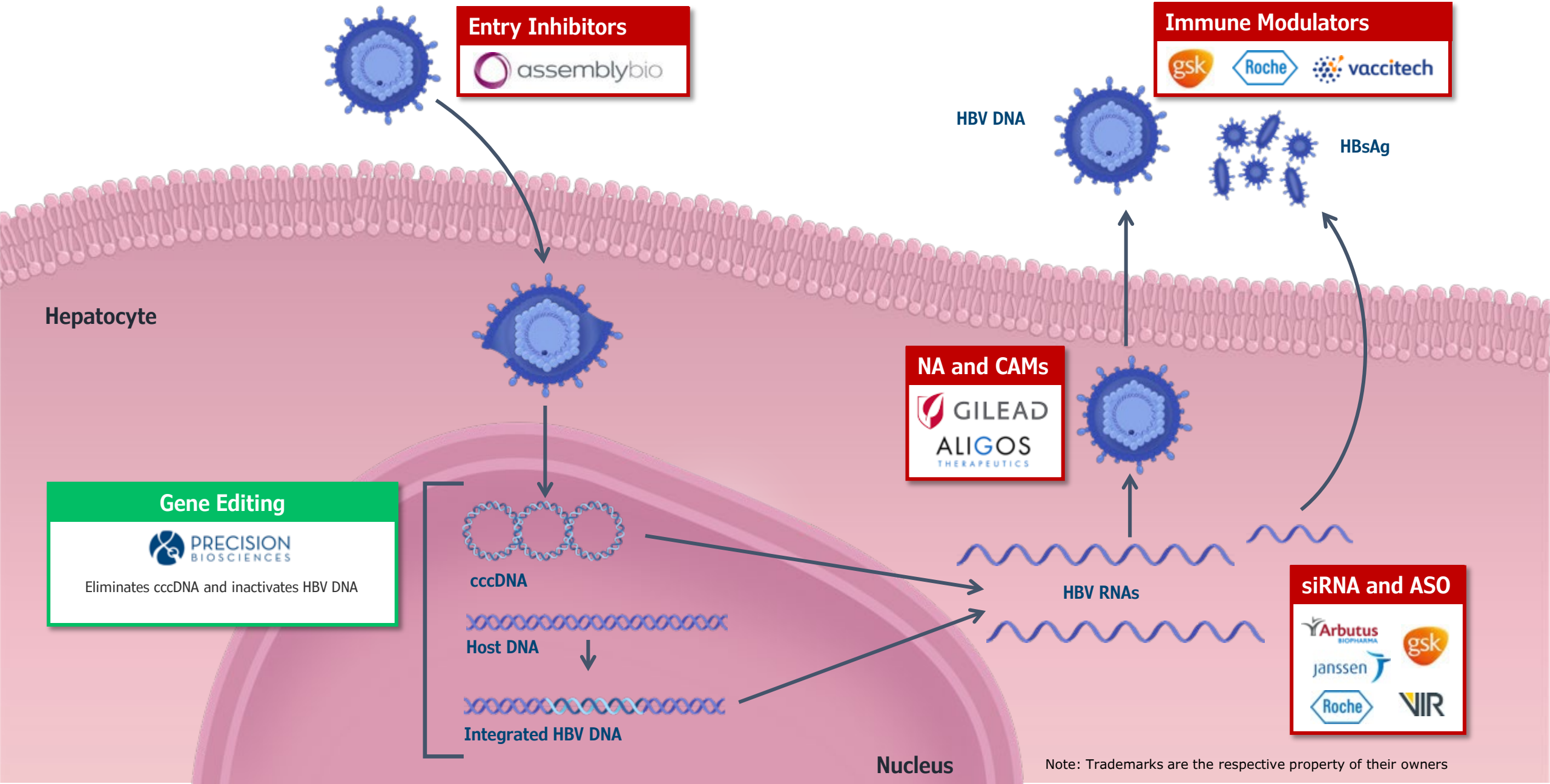


> 1,000,000
cHBV infections in the US



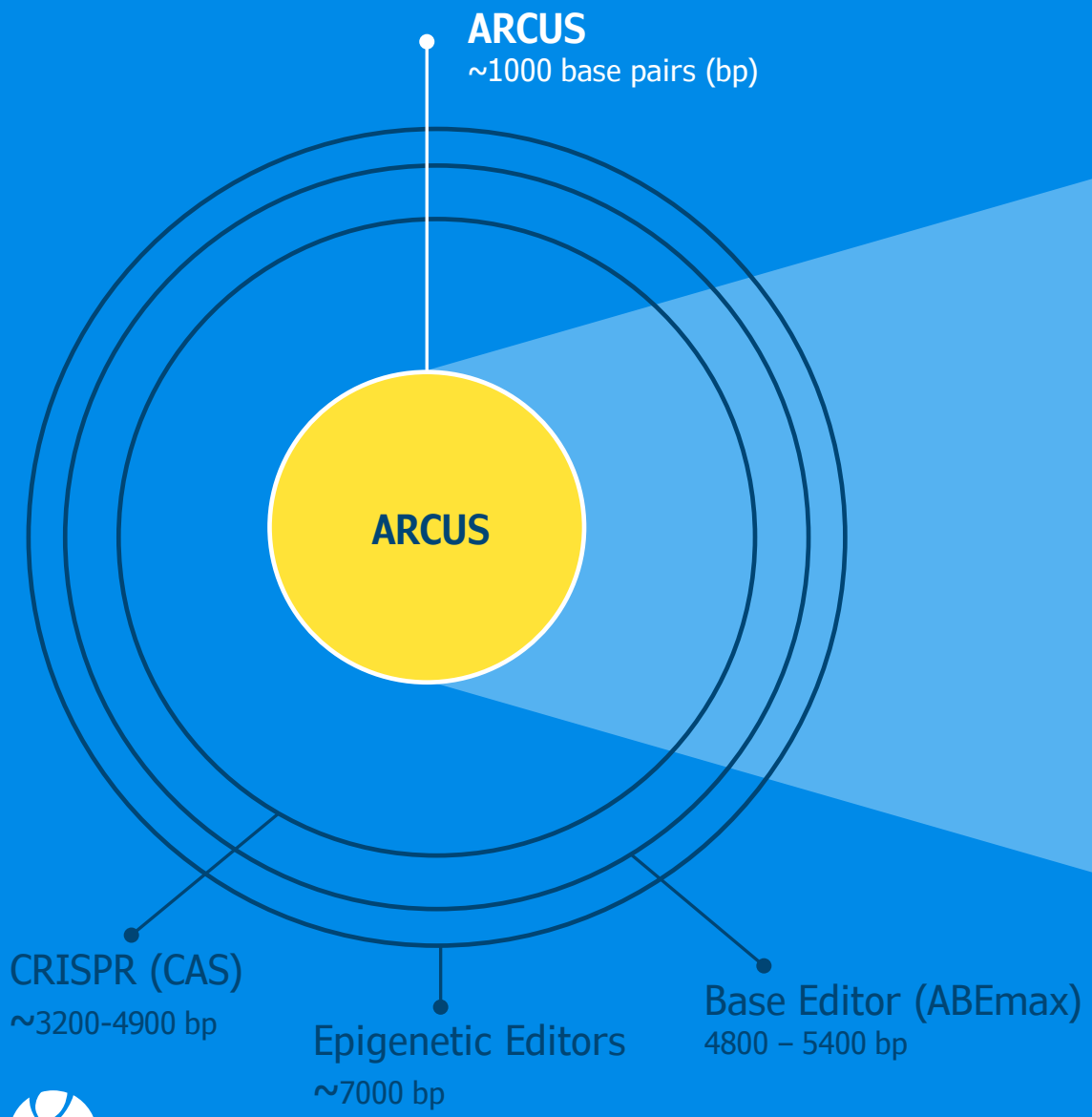
- Only modality in development designed to eliminate cccDNA and inactivate integrated HBV DNA -> essential for functional cure (undetectable HBV DNA and HBsAg)
- **Precision Advancing Next Steps:**
  - **CTA approved in Moldova with additional regulatory applications in progress**
  - **Phase I clinical study moving towards dosing patients**

Only ARCUS designed to eliminate cccDNA and inactivate HBV DNA



Note: Trademarks are the respective property of their owners

Size & Simplicity Optimal to Target cccDNA and Integrated HBV DNA



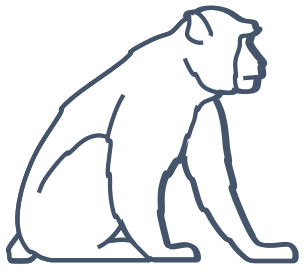
Small size and single component may allow easier access to DNA for target site editing

—impact of DNA methylation and chromatin structure is less relevant for ARCUS due to small protein size

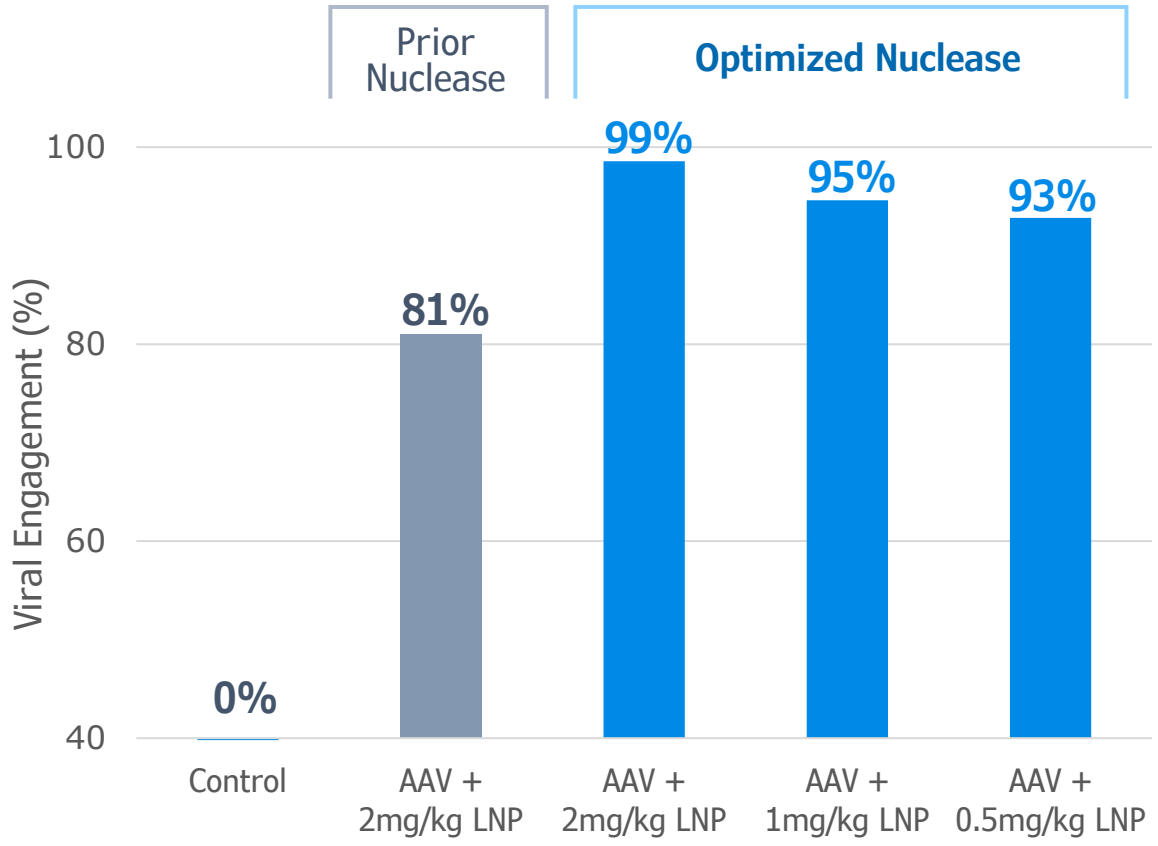
ARCUS is efficient at targeting **cccDNA + integrated HBV DNA**[1]

1. Data on file, Precision R&D Day Presentation

Efficacy: Non-Human Primate (NHP) Study Demonstrates Up to 99% Viral Engagement, Suggestive of Strong Potential Efficacy Profile of PBGENE-HBV



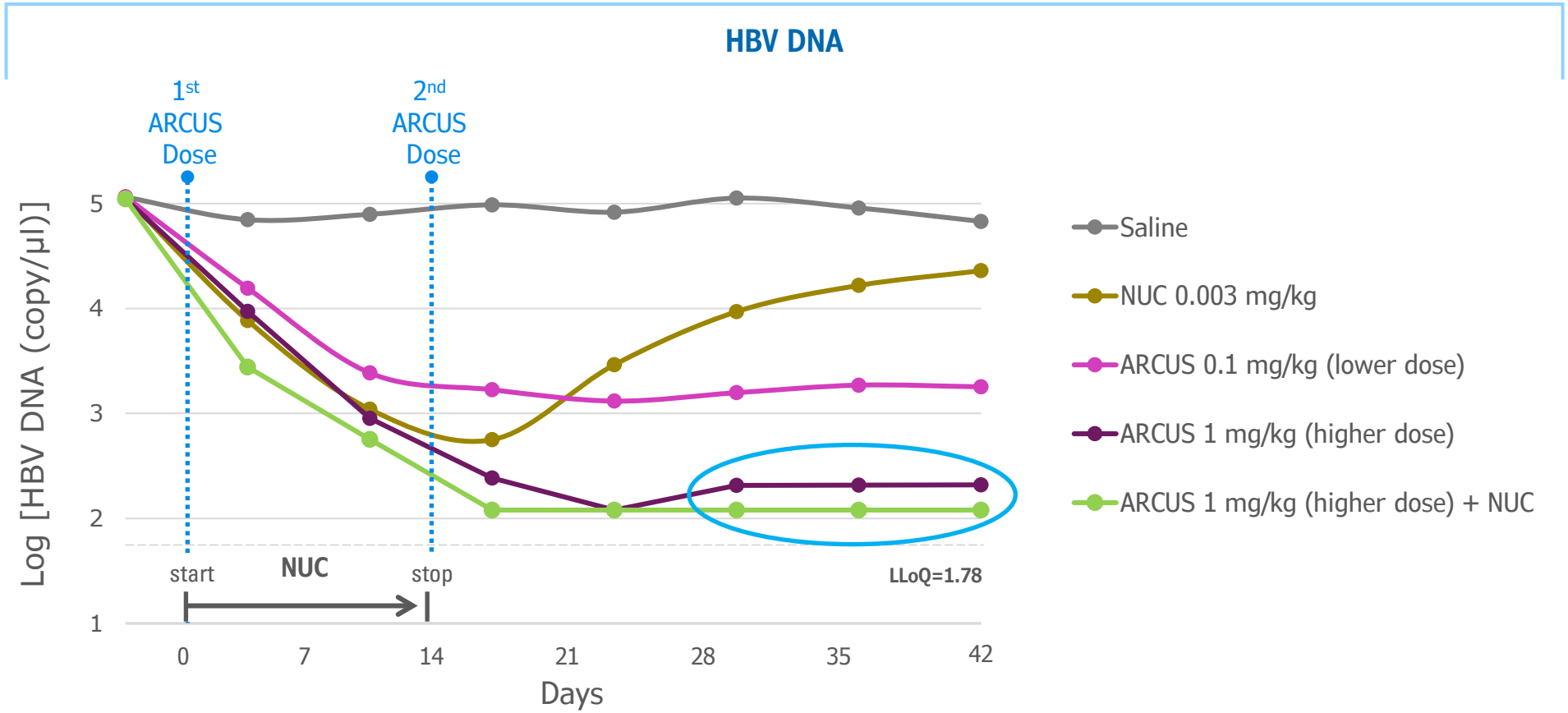
ARCUS LNP



Final clinical candidate expected to eliminate majority of cccDNA, this unique mechanism of action is critical to drive durable functional cures

Notes:
1.Final optimized candidate nuclease derived from prior optimized nuclease - only one amino acid difference with similar efficacy
2.NHP study- 2 doses of PBGENE-HBV 42 days apart; viral engagement (elimination + inactivation through indels) measured at D90
3.Prior nuclease data presented at R&D Day in Sep '23 - substantial improvement from prior NHP study showing 66% elimination and 15% indels

Efficacy–New Model: PBGENE-HBV Significantly and Sustainably Reduces HBV DNA as a Monotherapy in New Transgenic Mouse Model



Even after stopping NUC, PBGENE-HBV durably reduces HBV DNA as seen in combination cohort. Supports potential for stopping NUC and functional cures in future FIH study

Notes:
1. NUC = nucleos(t)ide analog, entecavir used in this study
2. HBV DNA levels measured in plasma

Safety: PBGENE-HBV Final Clinical Candidate Demonstrates Robust Safety Package Supporting Advancement Towards Clinical Trials

- PBGENE-HBV specifically cuts HBV DNA leading to **elimination of cccDNA and inactivation of integrated HBV DNA without impacting any genes in the human genome**
  - No increased risk of translocations or integrations
- PBGENE-HBV was **well tolerated** in non-human primates **over multiple administrations**
  - Rapidly cleared after each dose administration
  - Transient transaminase elevations and non-adverse changes in blood parameters
- Preclinical safety **data supports the advancement of PBGENE-HBV to clinical trials** as a potentially curative, finite treatment for HBV

PBGENE-HBV Phase 1 Clinical Considerations

Phase 1 Clinical Study Design Considerations

- **Global clinical trial across genotypes**
- **Adult patients currently treated with SoC**
  - Nucleos(t)ide analogs
- **Exclude patients with decompensated liver disease**
  - Measured by Fibroscan scores
- **Finite treatment duration with option for repeat dosing**
- **Dose escalation followed by dose expansion trial design endorsed by multiple global regulatory bodies**

Phase 1 Clinical Parameters To Be Considered

- **Safety Considerations:**
  - Tolerability (DLTs, AEs and ALT flares)
  - PK
  - Pharmacodynamics
- **Efficacy Considerations:**
  - HBsAg reduction and negativity
  - HBV DNA monitoring
  - HBV RNA (surrogate marker for cccDNA)
  - HBcrAg (surrogate marker for cccDNA)
  - cccDNA target engagement
  - Functional Cure rate

1 *Proposed clinical trial considerations; final protocol will establish specific inclusion/exclusion criteria along with primary, secondary and exploratory endpoints*
2 *HBcrAg is emerging surrogate biomarker for core related antigen which is a proxy for cccDNA*

PBGENE-HBV Program Accomplishments

- [x] FDA INTERACT Meeting in July 2023
- [x] Final Clinical Candidate Nominated
- [x] FDA Pre-IND Meeting in January 2024
- [x] Clinical Trial Material Manufactured
- [x] Clinical Trial Sites Identified
- [x] Submit IND/CTA in 2024 — *Multiple CTAs Submitted*
- [ ] Initiate First-in-Human (FIH) Clinical Studies — *In-Progress*

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Target CTA/IND
2025

PBGENE-PMM

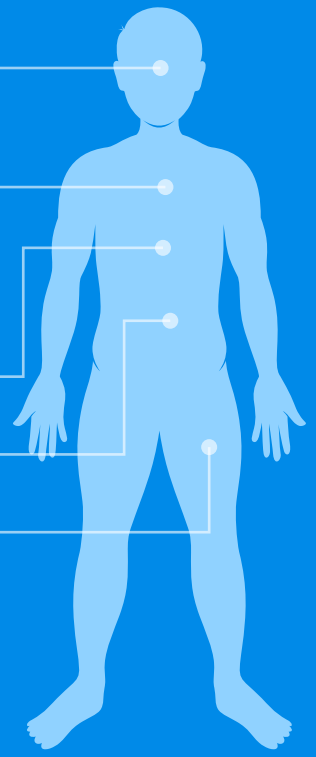
Mutant Mitochondrial DNA Elimination

m.3243 Mitochondrial Disease Currently Lacks a Curative Treatment

~20K m.3243 PMM patients in the US alone

m.3243-associated mitochondrial diseases often lead to defects in energy production affecting high energy-demand tissues (e.g. skeletal muscle)

- Chronic progressive external ophthalmoplegia
- Respiratory failure
- Exercise Intolerance
- Multi organ dysfunction
- Impaired Mobility
- Generalized weakness



Patients today lack curative treatments and receive supportive care only through "mito cocktails"[1]

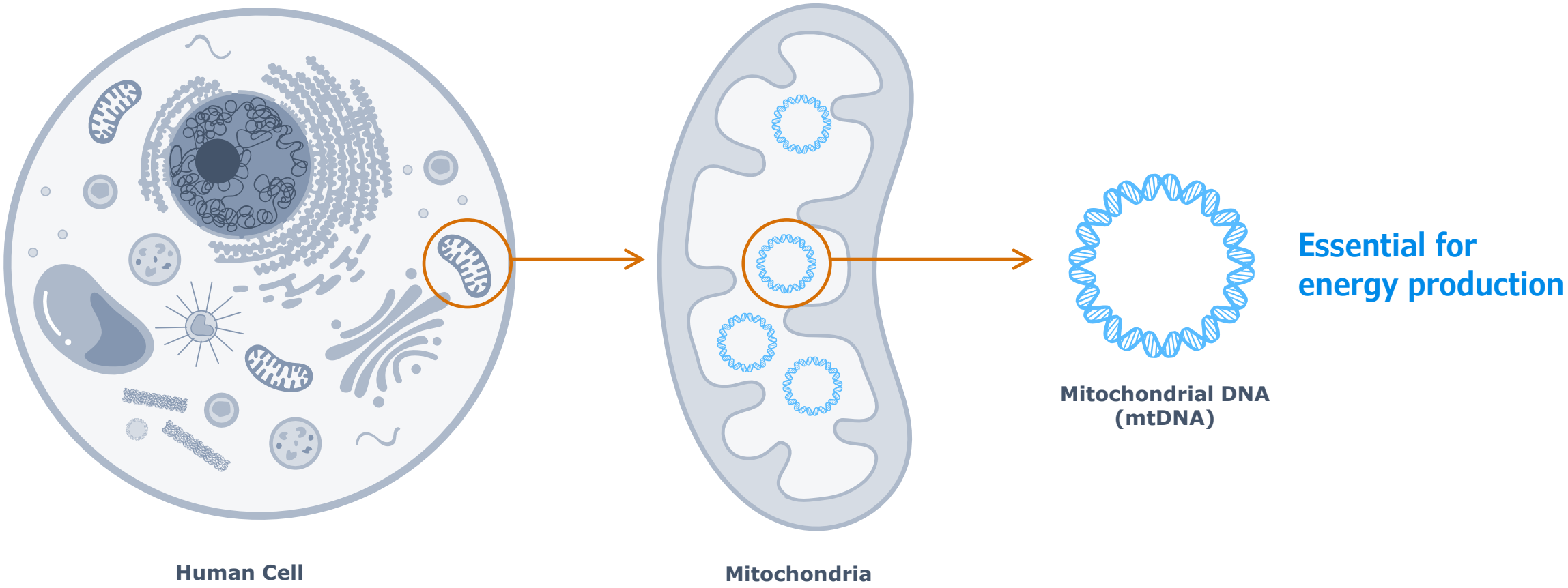
m.3243A>G

m.3243-associated mitochondrial disease estimated at



Sources:
1. https://www.ninds.nih.gov/health-information/disorders/mitochondrial-myopathies; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6938233/
2. Calculated based disease epidemiology studies and secondary literature

Multi-Copy Mitochondrial DNA (mtDNA) is Critical for Mitochondrial Function



PBGENE-PMM Distinguishes a Single Base Difference at m.3243

m.3243A>G

- **Mutation Prevalence of 1/500**[1]
- **~36% of Mitochondrial Diseases are driven by m.3243A>G**[2]

m.3243 associated mitochondrial disease estimated at **~20k patients in the US alone**

Mutant mtDNA sequence

5′-C A G **G** G C C C G G T A A T C G C A T A A A-3′

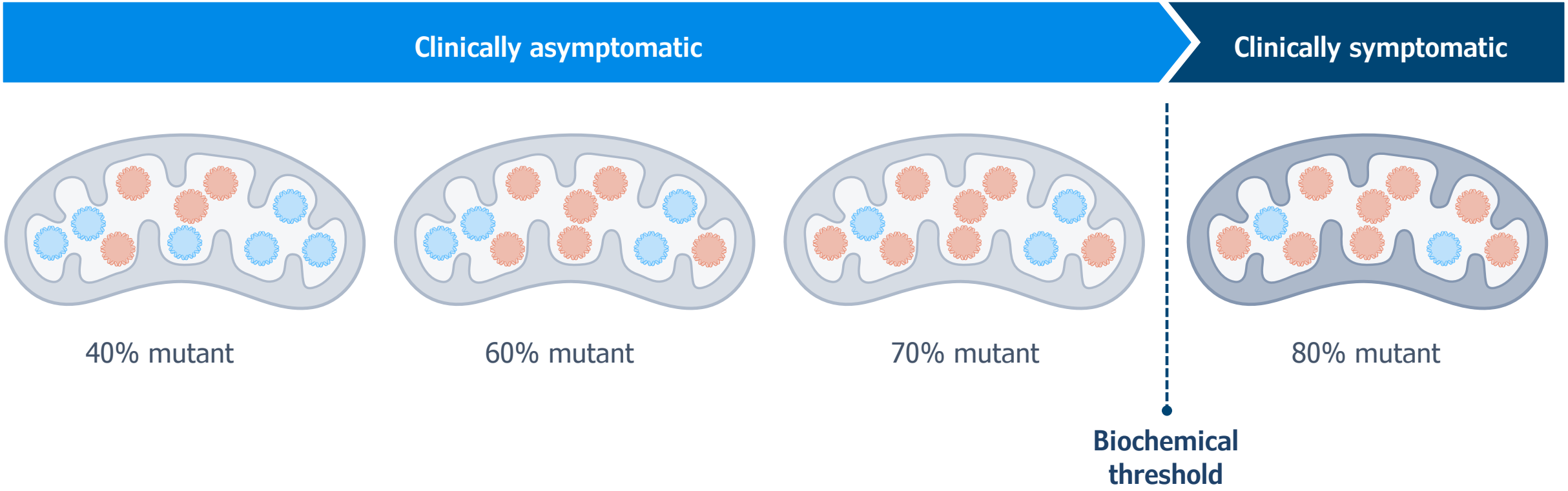
5′-C A G **A** G C C C G G T A A T C G C A T A A A-3′

Wild-type (healthy) mtDNA sequence

1.Manwaring et al 2006 Population prevalence of the MELAS A3243G mutation. Mitochondrion
2.Schon et al., 2023, National Mitochondrial Disease Registry in England... Euromit2023 Conference, Bologna, Italy, June 13, 2023;

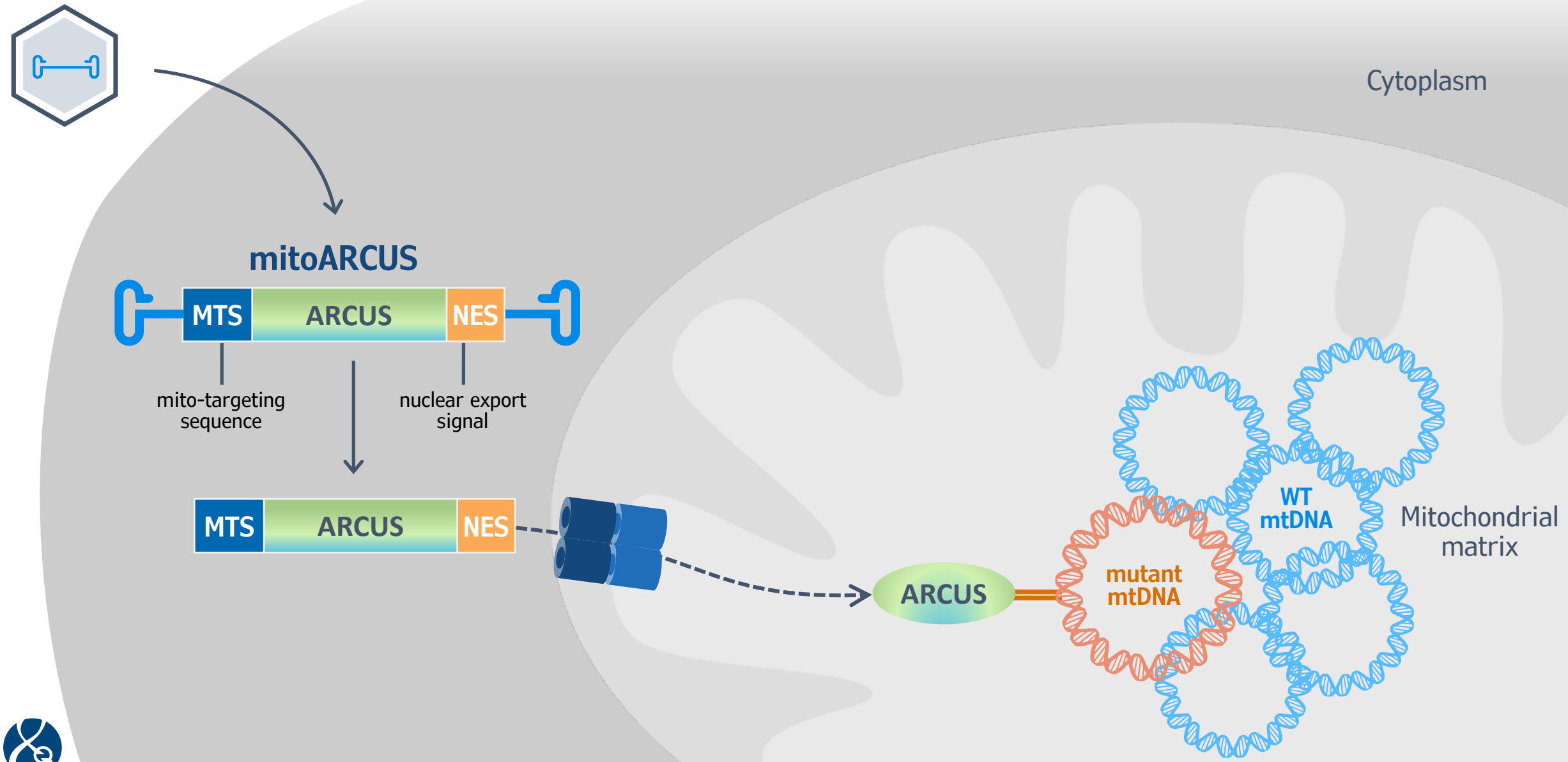
mtDNA Mutations Are Commonly Heteroplasmic

Situation where two or more mtDNA variants exist in same mitochondria

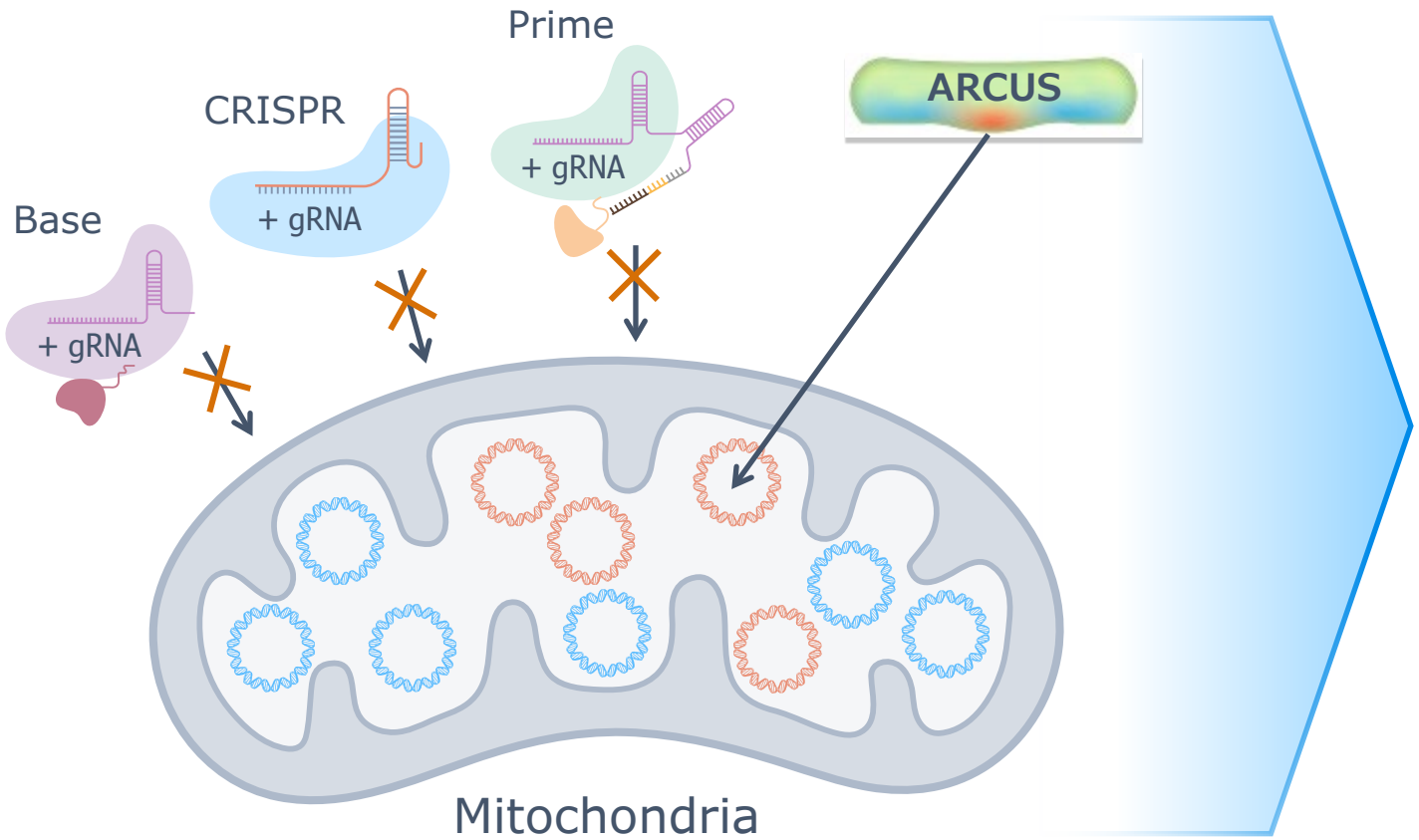


mtDNA, mitochondrial DNA.

mitoARCUS Therapeutic Approach to Shift Heteroplasmy



Simplicity: ARCUS Can Go Where Few Other Gene Editors Can Follow



nature metabolism

Article

https://doi.org/10.1038/s42255-023-00932-6

Efficient elimination of MELAS-associated m.3243G mutant mitochondrial DNA by an engineered mitoARCUS nuclease

Received: 18 May 2023

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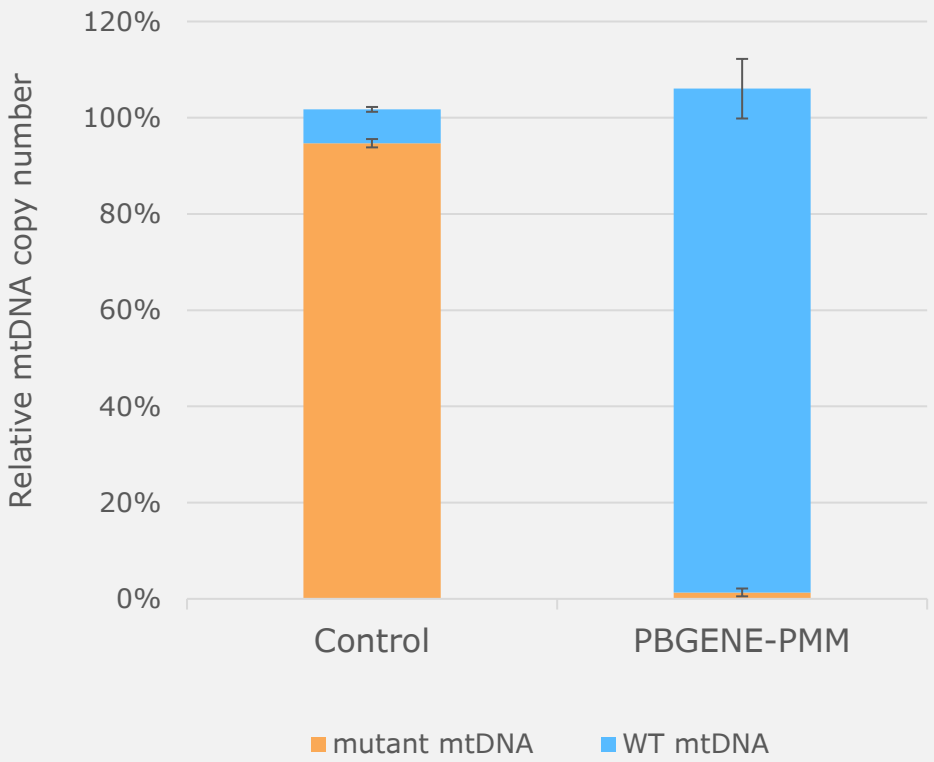
Wendy K. Shoop[1,2], Janel Lape[1], Megan Trum[1], Alea Powell[1], Emma Sevigny[1], Adam Mischler[1], Sandra R. Bacman[3], Flavia Fontanesi[3], Jeff Smith[1], Derek Jantz[1], Cassandra L. Gorsuch[1] & Carlos T. Moraes[3]

PBGENE-PMM Program Highlights

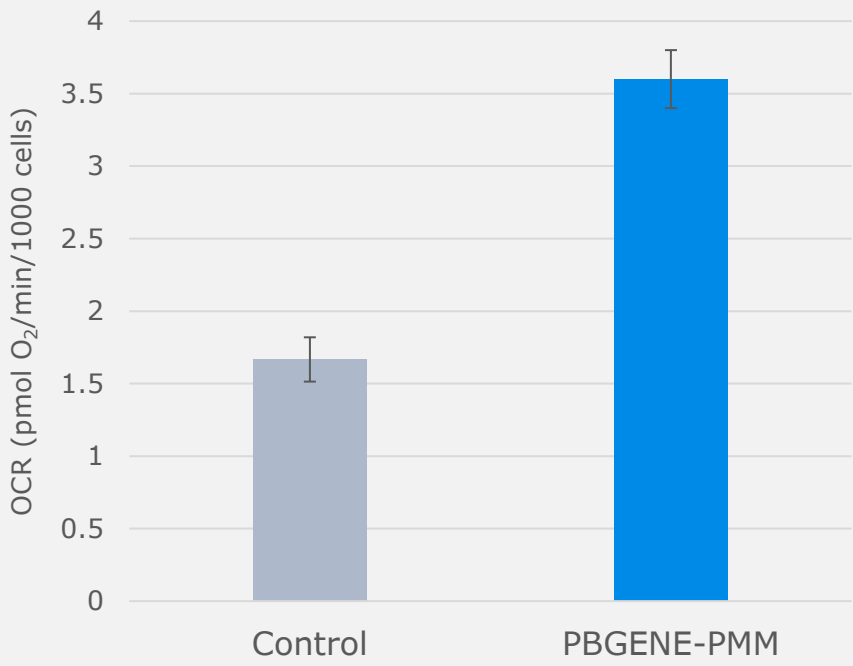
- Single component nature of ARCUS allows specific editing of mutant mtDNA with no off-target editing
- ARCUS-induced heteroplasmy shift resulting in improved mitochondrial and respiratory function in edited cells
- No evidence of mitoARCUS editing nuclear DNA

PBGENE-PMM Improved Mitochondrial Function

On target efficacy



Impact on energy production



mtDNA, mitochondrial DNA; WT, wild-type; experiments in cybrid cells.

PBGENE-PMM Program Accomplishments

- [x] Final Clinical Candidate
- [x] PoC and Dose Finding Studies underway
- [x] FDA INTERACT Meeting in December 2023
- [ ] Initiate GLP Tox — *on-track*
- [ ] Identify First-in-Human Study Sites — *In-process*
- [ ] Submit CTA/IND in 2025 — *on-track*

Precision BioSciences Offering Meaningful Catalysts in Next 6-18 Months

Ample cash runway to fund multiple potential regulatory submissions and clinical data readouts



CASH RUNWAY INTO 2H 2026

Potential to Advance 3 Programs to Phase I Clinical Data

Bolstered by

~$50M[2]
in business development (last 12 months)

+

$40M
in equity raise @ $16/share (March '24)

Expected Inflection Points

2023/2024	ECUR-506 for OTCD — CTA/INDs approved; Data expected in 2025
2024	PBGENE-HBV — CTA approved in Moldova with additional regulatory applications in-progress; Data expected in 2025
2025	PBGENE-PMM — CTA and/or IND Filings; Data expected in 2026

[1]Source: Form 8-K filed 10/24/24. Cash balance includes cash, cash equivalents, and restricted cash.
[2]Includes upfront payments and expected near-term milestones.