J.P. Morgan 40th Annual Healthcare Conference

Bruce Goldsmith, Ph.D.
President and Chief Executive Officer

January 10, 2022

PassageBio
Life-transforming therapies

Forward-Looking Statement

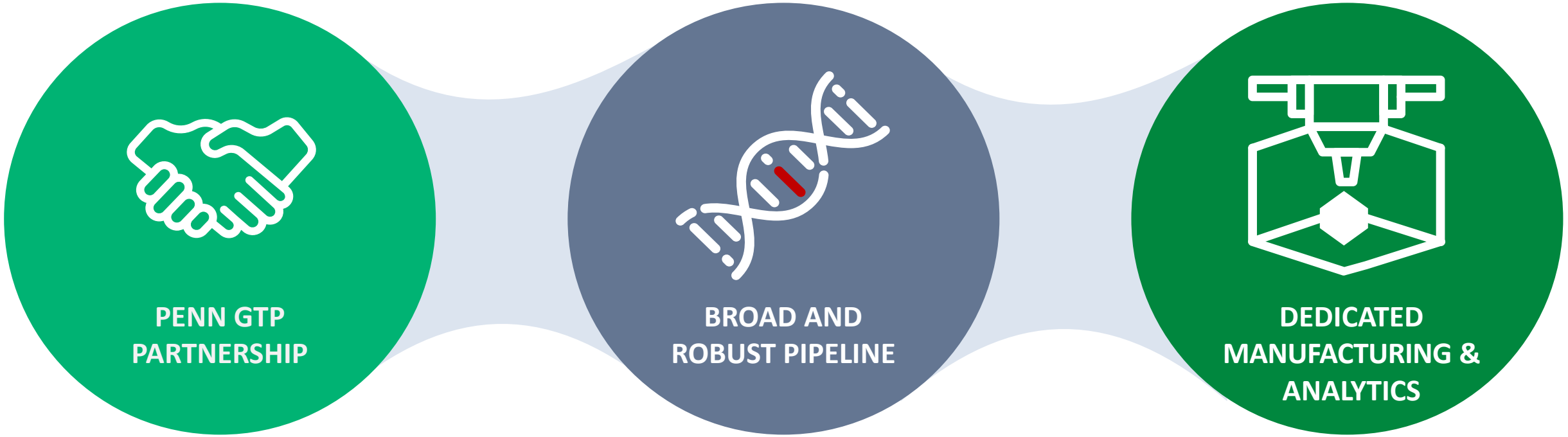
This presentation includes “forward-looking statements” within the meaning of, and made pursuant to the safe harbor provisions of, the Private Securities Litigation Reform Act of 1995, including, but not limited to: our expectation about timing and execution of anticipated milestones, including our planned initiation of clinical trials and the availability of clinical data from such trials; our expectations about our collaborators’ and partners’ ability to execute key initiatives; our expectations about our manufacturing plans and strategies; estimates regarding our cash forecasts; the expected impact of the COVID-19 pandemic on our operations; and the ability of our lead product candidates to treat their respective target CNS disorders. These forward-looking statements may be accompanied by such words as “aim,” “anticipate,” “believe,” “could,” “estimate,” “expect,” “forecast,” “goal,” “intend,” “may,” “might,” “plan,” “potential,” “possible,” “will,” “would,” and other words and terms of similar meaning. These statements involve risks and uncertainties that could cause actual results to differ materially from those reflected in such statements, including: our ability to develop, obtain regulatory approval for and commercialize PBGM01, PBFT02, PBKR03 and future product candidates; the timing and results of preclinical studies and clinical trials; the risk that positive results in a preclinical study or clinical trial may not be replicated in subsequent trials or success in early stage clinical trials may not be predictive of results in later stage clinical trials; risks associated with clinical trials, including our ability to adequately manage clinical activities, unexpected concerns that may arise from additional data or analysis obtained during clinical trials, regulatory authorities may require additional information or further studies, or may fail to approve or may delay approval of our drug candidates; the occurrence of adverse safety events; failure to protect and enforce our intellectual property, and other proprietary rights; failure to successfully execute or realize the anticipated benefits of our strategic and growth initiatives; risks relating to technology failures or breaches; our dependence on collaborators and other third parties for the development of product candidates and other aspects of our business, which are outside of our full control; risks associated with current and potential delays, work stoppages, or supply chain disruptions caused by the coronavirus pandemic; risks associated with current and potential future healthcare reforms; risks relating to attracting and retaining key personnel; failure to comply with legal and regulatory requirements; risks relating to access to capital and credit markets; and the other risks and uncertainties that are described in the Risk Factors section of our most recent filings with the U.S. Securities and Exchange Commission. These statements are based on our current beliefs and expectations and speak only as of the date of this presentation. We do not undertake any obligation to publicly update any forward-looking statements except as required by law. By attending or receiving this presentation you acknowledge that you are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date such statements are made; you will be solely responsible for your own assessment of the market and our market position; and that you will conduct your own analysis and be solely responsible for forming your own view of the potential future performance of Passage Bio.

The Passage Bio Advantage

A corporate model designed for success

Our Vision

To fulfill the promise of genetic medicines by developing groundbreaking therapies that transform the lives of patients with CNS diseases



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Penn GTP Partnership

Leaders in AAV gene therapy

Penn
University of Pennsylvania

GENE THERAPY PROGRAM

the orphan disease center

World-class Gene Therapy Program

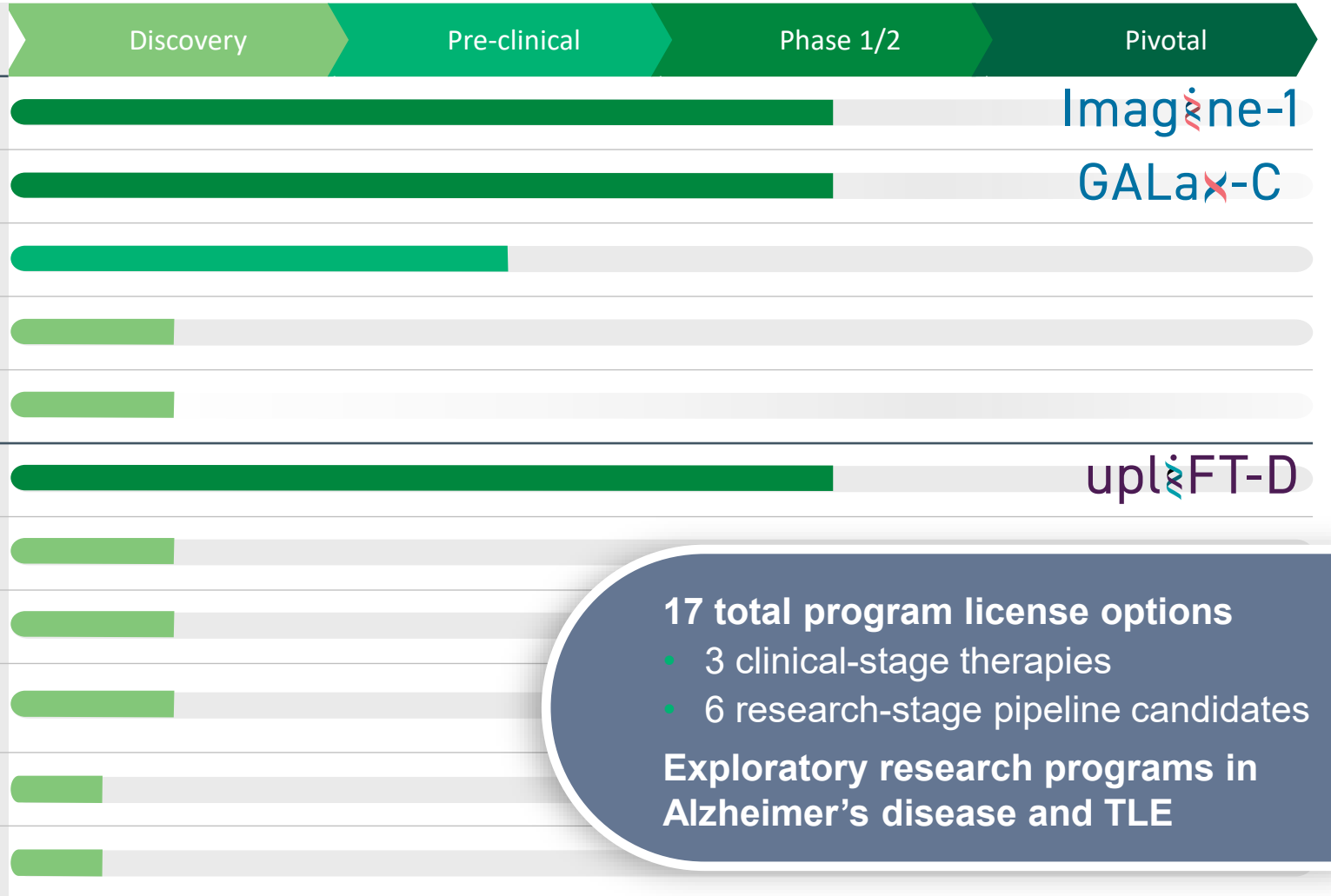
Founded by renowned innovator
James M. Wilson, M.D., Ph.D.
Chief Scientific Advisor, Passage Bio

- Cutting-edge research and bioengineering
- Rigorous preclinical characterization to support product candidate selection
- Next-generation vector technologies and novel capsids
- Decades of proven gene therapy expertise
- Strong connections with orphan disease community
- 350+ full-time employees

A Broad and Robust Pipeline with Global Rights

Transformative therapies for CNS disorders across rare and large patient populations

	Program*	Indication	Gene
PEDIATRIC	**PBGM01**†	GM1 gangliosidosis	*GLB1*
	PBKR03	Krabbe disease	*GALC*
	PBML04	Metachromatic leukodystrophy	*ARSA*
	PBCM06	Charcot-Marie-Tooth Type 2A	*MFN2*
	Unnamed	Canavan disease	*ASPA*
ADULT	**PBFT02**	Frontotemporal dementia	*GRN*
	PBAL05	Amyotrophic lateral sclerosis	*C9orf72*
	Unnamed	Parkinson's disease	*PRKN*
	Unnamed	Huntington's disease	*HTT & Undisclosed*
	Unnamed	Alzheimer's disease	*Undisclosed*
	Unnamed	Temporal lobe epilepsy	*Undisclosed*



17 total program license options

- 3 clinical-stage therapies
- 6 research-stage pipeline candidates

Exploratory research programs in Alzheimer's disease and TLE

*8 additional CNS pipeline license options. † Program includes ongoing natural history study of infantile and juvenile GM1 gangliosidosis patients

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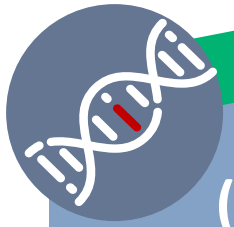
A Diversified Portfolio Strategy

Creating sustainable value across rare and large, monogenic and non-monogenic CNS indications

Cutting-edge R&D

ESTIMATED PATIENT POPULATION (US & EU)



PEDIATRIC (RARE, MONOGENIC)

5 programs

- GM1 Gangliosidosis
- Krabbe Disease
- Metachromatic Leukodystrophy
- Charcot-Marie-Tooth Type 2A
- Canavan Disease

<5K patients

ADULT (RARE, MONOGENIC)

4 programs

- Frontotemporal Dementia
- Amyotrophic Lateral Sclerosis
- Parkinson's Disease
- Huntington's Disease

5–200K patients

ADULT (NON-MONOGENIC)

2 target ID research programs

- Temporal Lobe Epilepsy
- Alzheimer's Disease

>200K patients

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Passage Bio Manufacturing and CMC Capabilities

Ensuring product supply from clinical development through commercialization

UPenn GTP

Research Analytics and Vector Engineering

FOUNDATION >>>>

Catalent Suite and Global Supply Chain

Dedicated cGMP Manufacturing Capacity and End-to-End Clinical Supply Chain

PARTNERSHIP>>>>>>

Passage Bio CMC R&D Lab

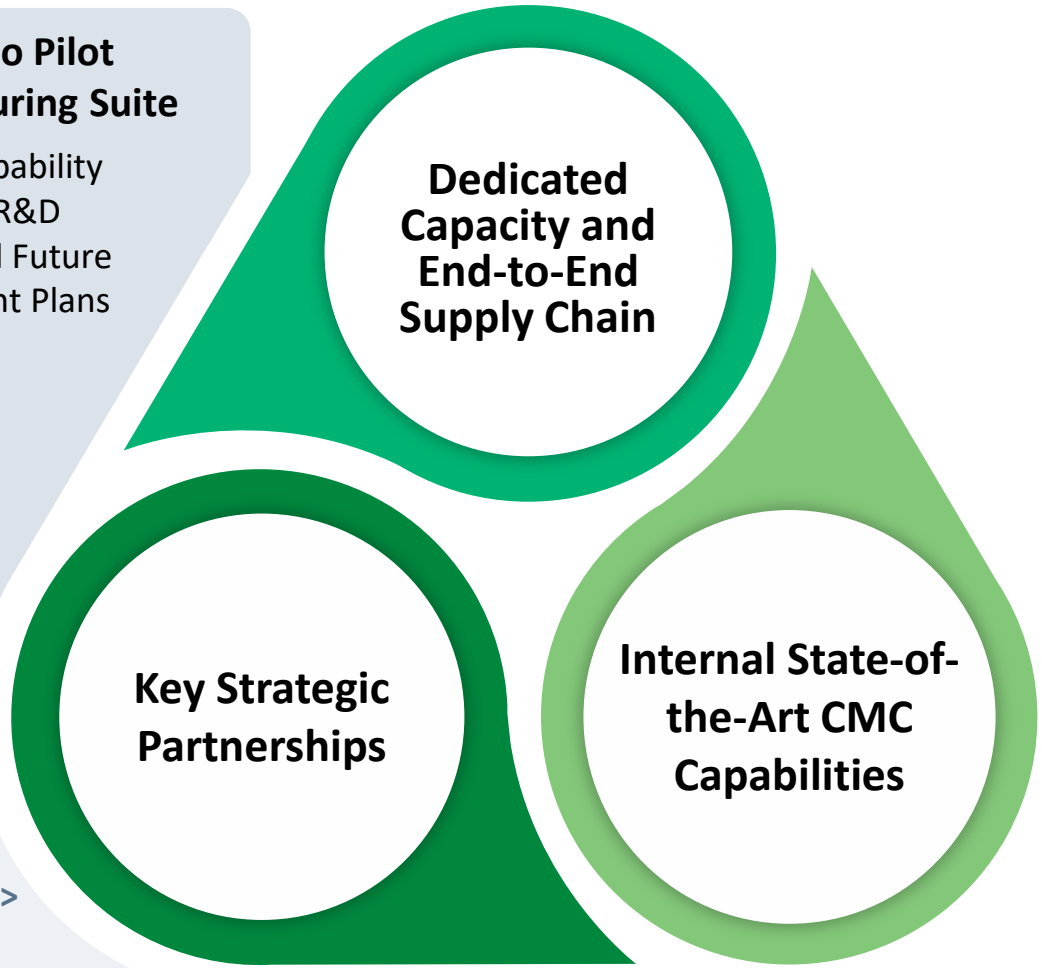
Analytical and Process Development and Clinical Product Testing

INVESTMENT >>>>>>>>>

Passage Bio Pilot Manufacturing Suite

Scale-up Capability Supporting R&D Pipeline and Future Development Plans

GROWTH >>>



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PBGM01

GM1 Gangliosidosis

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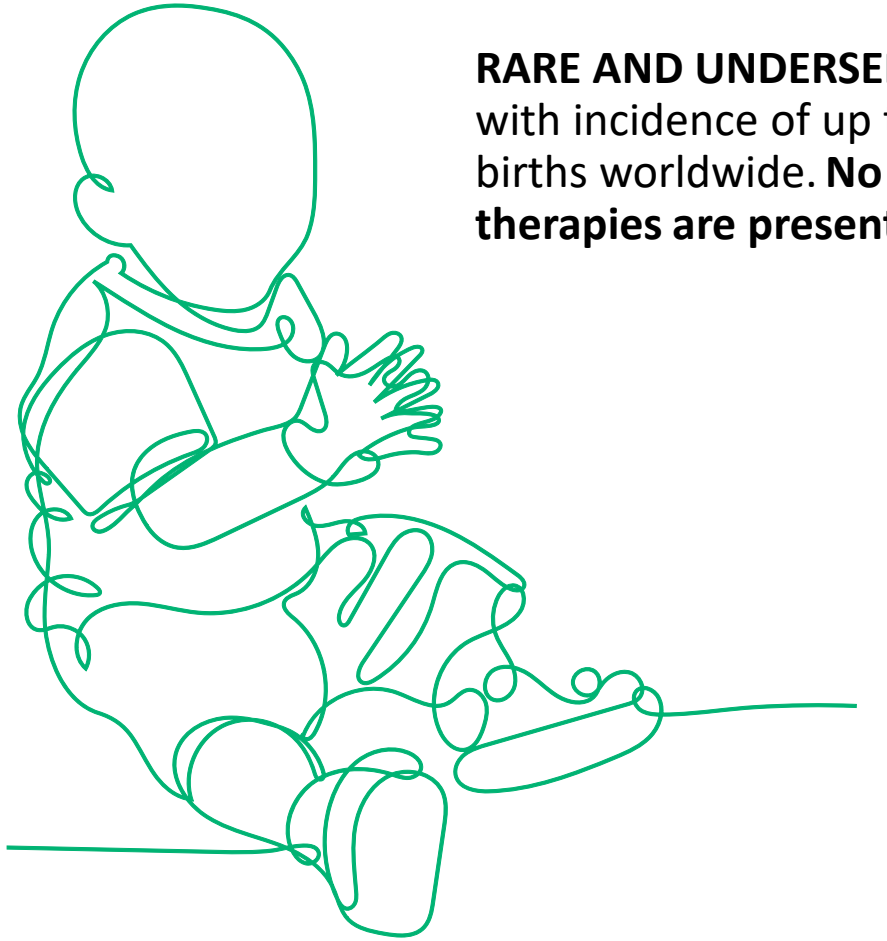
GM1 Gangliosidosis: A Devastating Pediatric Disease

FATAL, PEDIATRIC NEUROLOGICAL LYSOSOMAL STORAGE DISORDER caused by *GLB1* gene mutations characterized by destruction of neurons in the brain and spinal cord.

Characterized by rapidly progressive neurological decline resulting in **reduced muscle tone, progressive CNS dysfunction, deafness, blindness, rigidity and skeletal dysplasia.**



RARE AND UNDERSERVED populations with incidence of up to **~1 per 100,000** live births worldwide. **No disease-modifying therapies are presently approved.**

Source: NIH, CHOP, *American Journal of Neuroradiology*

PBGM01

Potential transformative therapy for rare, underserved disorder

OUR APPROACH

Next-generation, proprietary capsid delivers functional *GLB1* gene encoding β-gal to the brain and peripheral tissues

PRECLINICAL EVIDENCE

Compelling preclinical data in knock-out mouse model

- Dose-related histological correction, improvements in neurological function, and survival
- Meaningful transduction of both CNS and critical peripheral organs

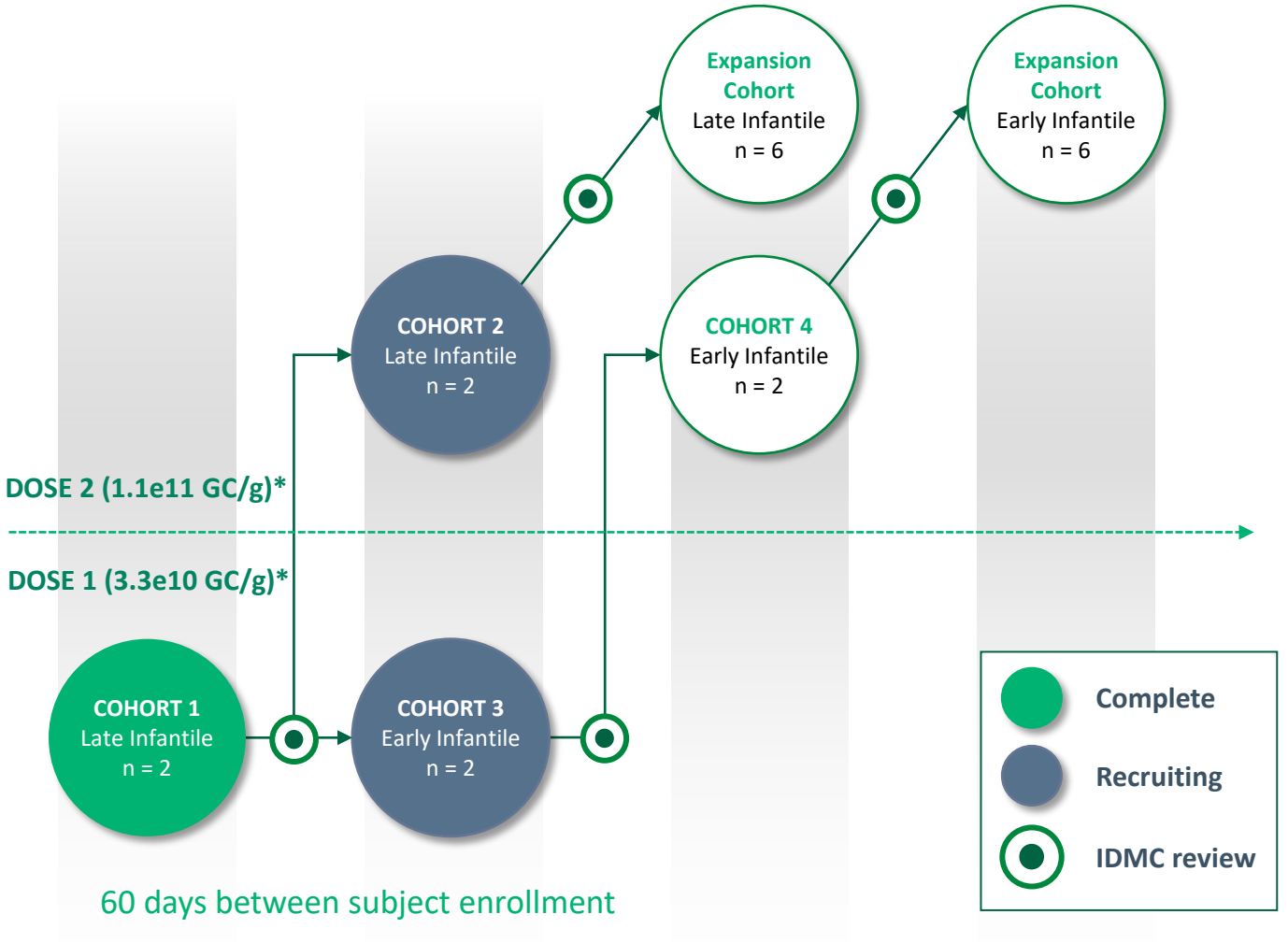
CLINICAL DEVELOPMENT

- Ongoing global Phase 1/2 Imagine-1 trial focused on early and late infantile GM1
- Well-tolerated, positive safety profile, and demonstration of functional transgene expression based on interim results

Imagine-1: Global Phase 1/2 Trial with PBGM01

Currently enrolling Cohort 2 and Cohort 3

Trial Design	Phase 1/2, multi-center, open-label, dose escalation and confirmatory study
Route of Administration	Intra-cisterna magna (ICM)
Vector	AAVhu68
Duration	Two years, with rollover into a separate long-term follow-up study
Primary Endpoints	• Safety and tolerability • Efficacy (confirmatory cohort)
Regulatory Clearances and Designations	• Received multiple global regulatory clearances • Received Orphan Drug, Rare Pediatric Disease and Fast Track designations by FDA and Orphan designation by EC



11 * Genome copies per gram of estimated brain weight

Key Takeaways from Interim Cohort 1 Data

Well tolerated with demonstration of functional transgene expression at lowest dose

SAFETY

PBGM01 was well tolerated and had a positive safety profile

- No serious adverse events (SAEs)
- No complications related to ICM injection
- No evidence of DRG toxicity

BIOMARKERS

Post treatment CSF and serum β-gal activity for both patients above natural history study (NHS) patient values

- Increases in CSF and serum β-gal activity for Patient 1 were sustained at 6 months*

CLINICAL STATUS

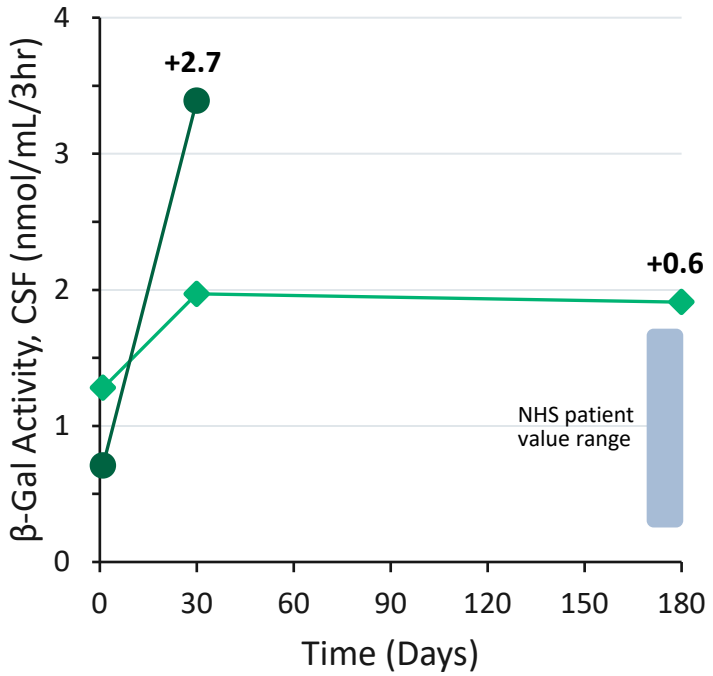
Gains in developmental milestones reported in both patients

Following IDMC recommendation, now recruiting Cohorts 2 and 3

* 6-month data from Patient 2 not yet available.

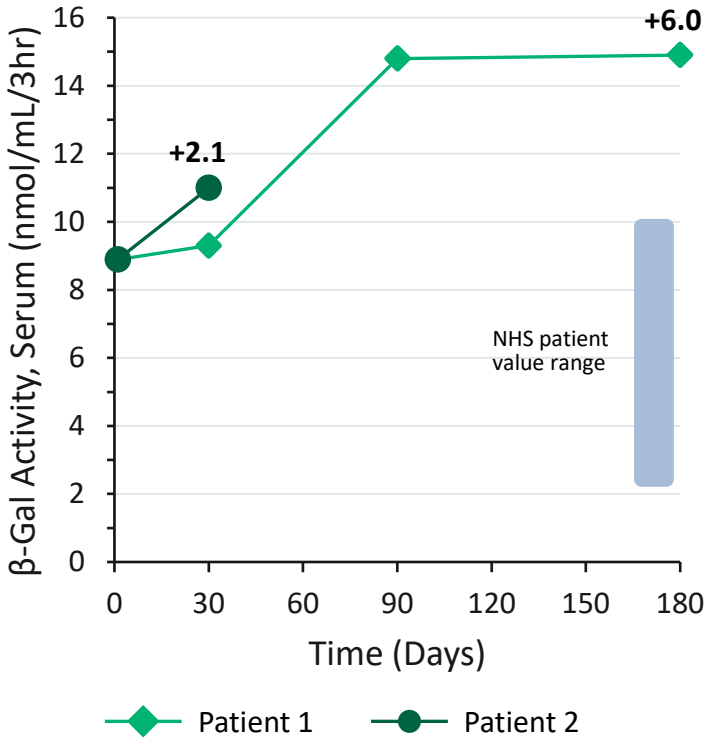
Cohort 1 Interim Biomarker Data

CSF β-gal



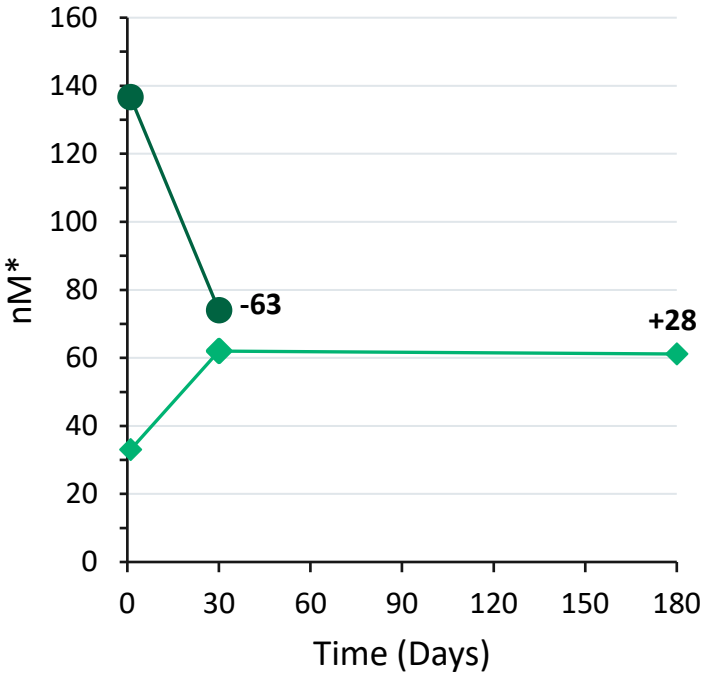
- CSF β-gal Activity increased in both patients
- Post treatment β-gal activity above NHS patient values (Range 0.30–1.81 nmol/mL/3hr)[2]

Serum β-gal[1]



- Serum β-gal activity increased in both patients
- Post treatment β-gal activity above NHS patient values (Range: 2.25–10 nmol/mL/3hr)[2]

CSF GM1 Gangliosides



- CSF GM1 gangliosides decreased in patient with high β-gal expression
- NHS data is needed to provide further context
- Longer follow up is needed

* Apparent estimated concentration

1. Baseline reflects the average of two samples collected within 48-hours of dosing. 2. Based on preliminary data from University of Pennsylvania's ODC NHS study (NCT04041102)

PBKR03

Krabbe Disease

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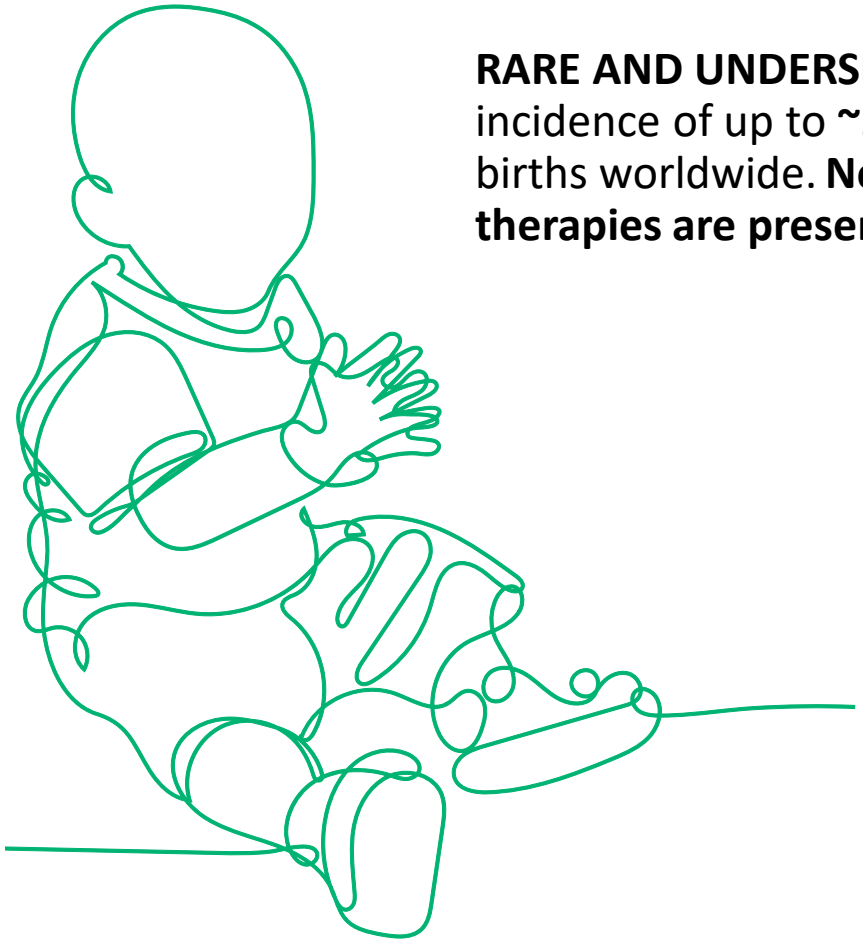
Krabbe Disease: A Devastating Pediatric Disease

FATAL, PEDIATRIC NEUROLOGICAL LYSOSOMAL STORAGE DISORDER caused by *GALC* gene mutations characterized by demyelination of neurons in the brain and periphery.

Disease progression is rapid and highly predictable including **loss of acquired milestones, staring episodes, peripheral neuropathy, seizures, blindness and deafness.**



RARE AND UNDERSERVED populations with incidence of up to **~2.6 per 100,000** live births worldwide. **No disease-modifying therapies are presently approved.**

Source: NIH, CHOP, *American Journal of Neuroradiology*, Third Party Research

PBKR03

Potential transformative therapy for rare, underserved disorder

OUR APPROACH

Next-generation, proprietary capsid delivers functional *GALC* gene encoding galactosylceramidase (GALC) to the brain and peripheral tissues

PRECLINICAL EVIDENCE

PBKR03-treated Krabbe dogs had improved central and peripheral myelination, reduced neuroinflammation and increased survival rates with full phenotypic recovery

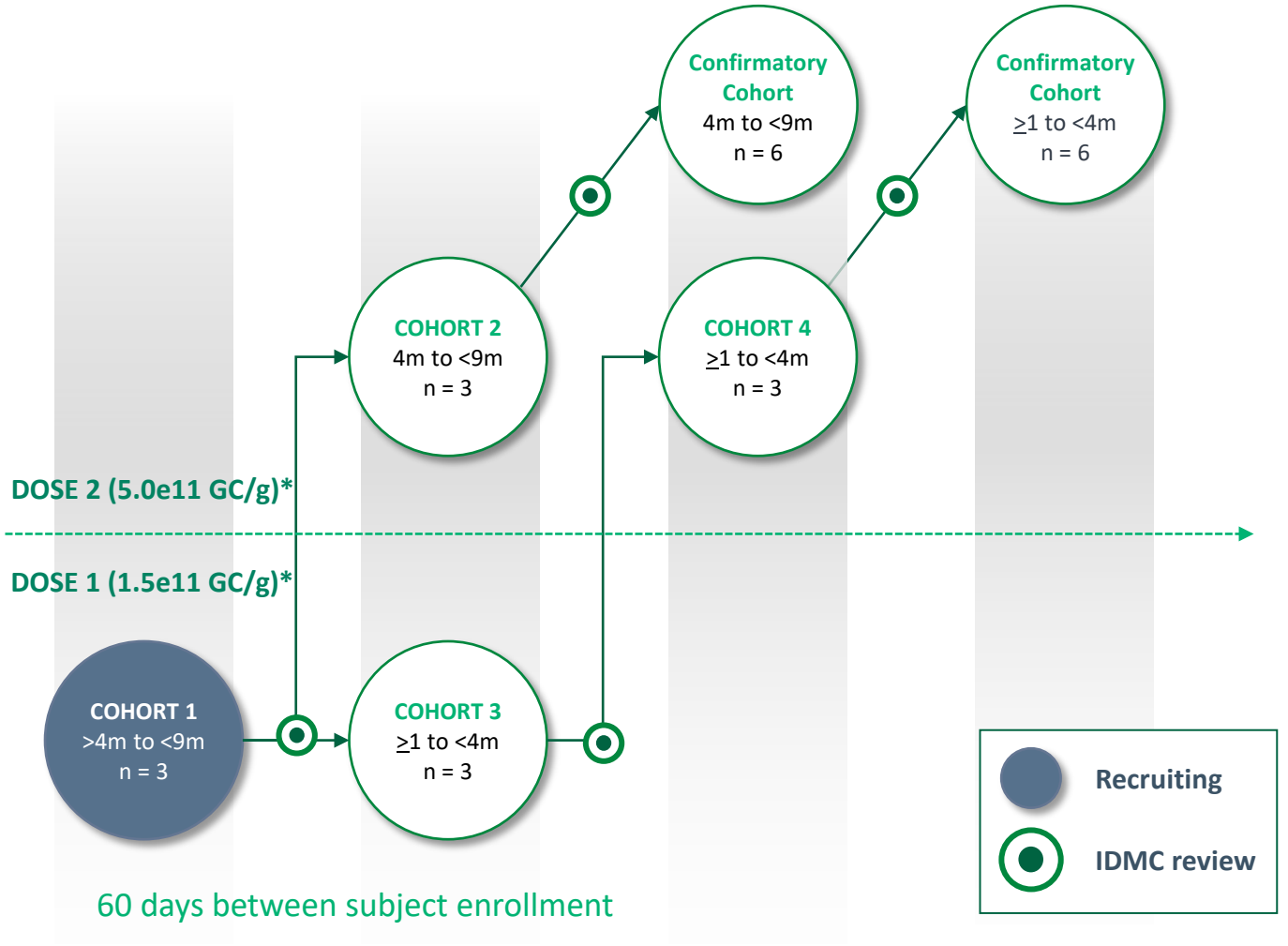
CLINICAL DEVELOPMENT

Ongoing global Phase 1/2 GALax-C trial focused on early infantile Krabbe

GALax-C Global Phase 1/2 Trial with PBKR03

First patient dosing expected in early 2022

Trial Design	Phase 1/2, multi-center, open-label, dose escalation and confirmatory study
Route of Administration	Intra-cisterna magna (ICM)
Vector	AAVhu68
Duration	2 years; with additional 3 years of follow-up for safety and durability of effect
Primary Endpoints	• Safety and tolerability • Efficacy (confirmatory cohort)
Regulatory Clearances and Designations	• Received multiple global regulatory clearances • Received Orphan Drug, Rare Pediatric Disease and Fast Track designations by FDA and Orphan designation by EC



* Genome copies per gram of estimated brain weight

PBFT02

Frontotemporal Dementia — GRN

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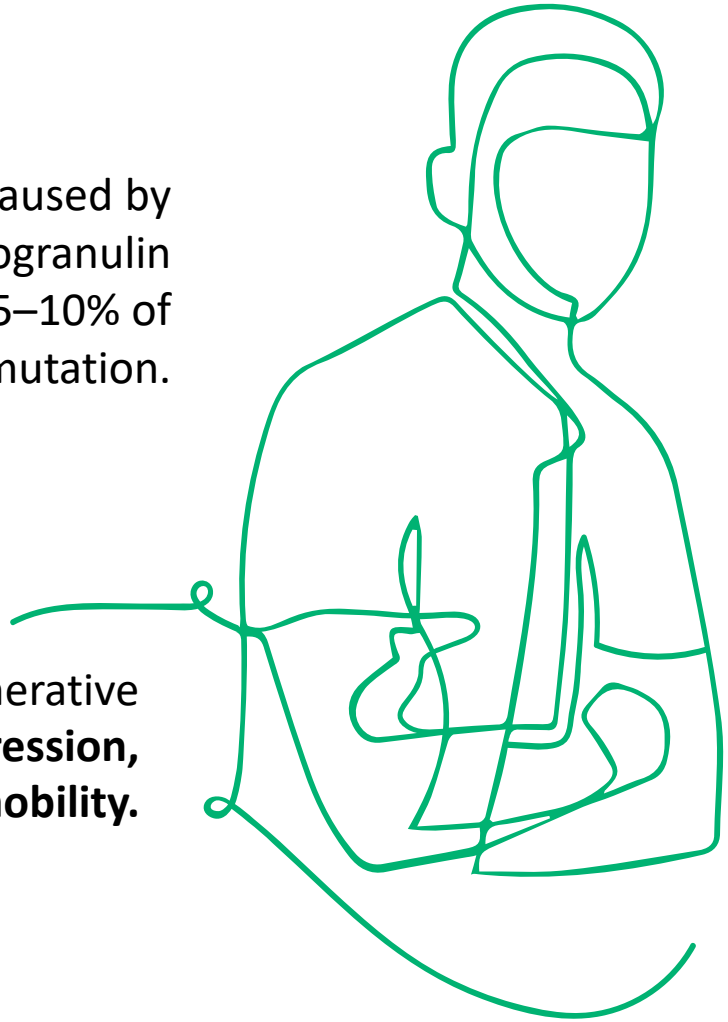
FTD-GRN: A Devastating Adult Disease

DEVASTATING FORM OF DEMENTIA caused by a *GRN* gene mutation resulting in progranulin (PGRN) deficiency. Approximately 5–10% of FTD is caused by a *GRN* mutation.

Disease progression is rapid and degenerative including **loss of speech, loss of expression, severe behavioral changes and immobility.**



RARE AND UNDERSERVED populations with estimated U.S. prevalence of **~3,000 to 6,000** patients. **No disease-modifying therapies are presently approved.**

PBFT02

Potential transformative therapy for rare, underserved disorder

OUR APPROACH

Proprietary construct delivers functional *GRN* gene encoding progranulin (PGRN) with potential therapeutic benefit of a one-time gene therapy approach

PRECLINICAL EVIDENCE

Compelling preclinical evidence from NHP studies

- Broad transduction across the brain, including high transduction of ependymal cells
- Demonstrated increases in CSF PGRN concentrations to >50-fold normal human CSF PGRN concentrations

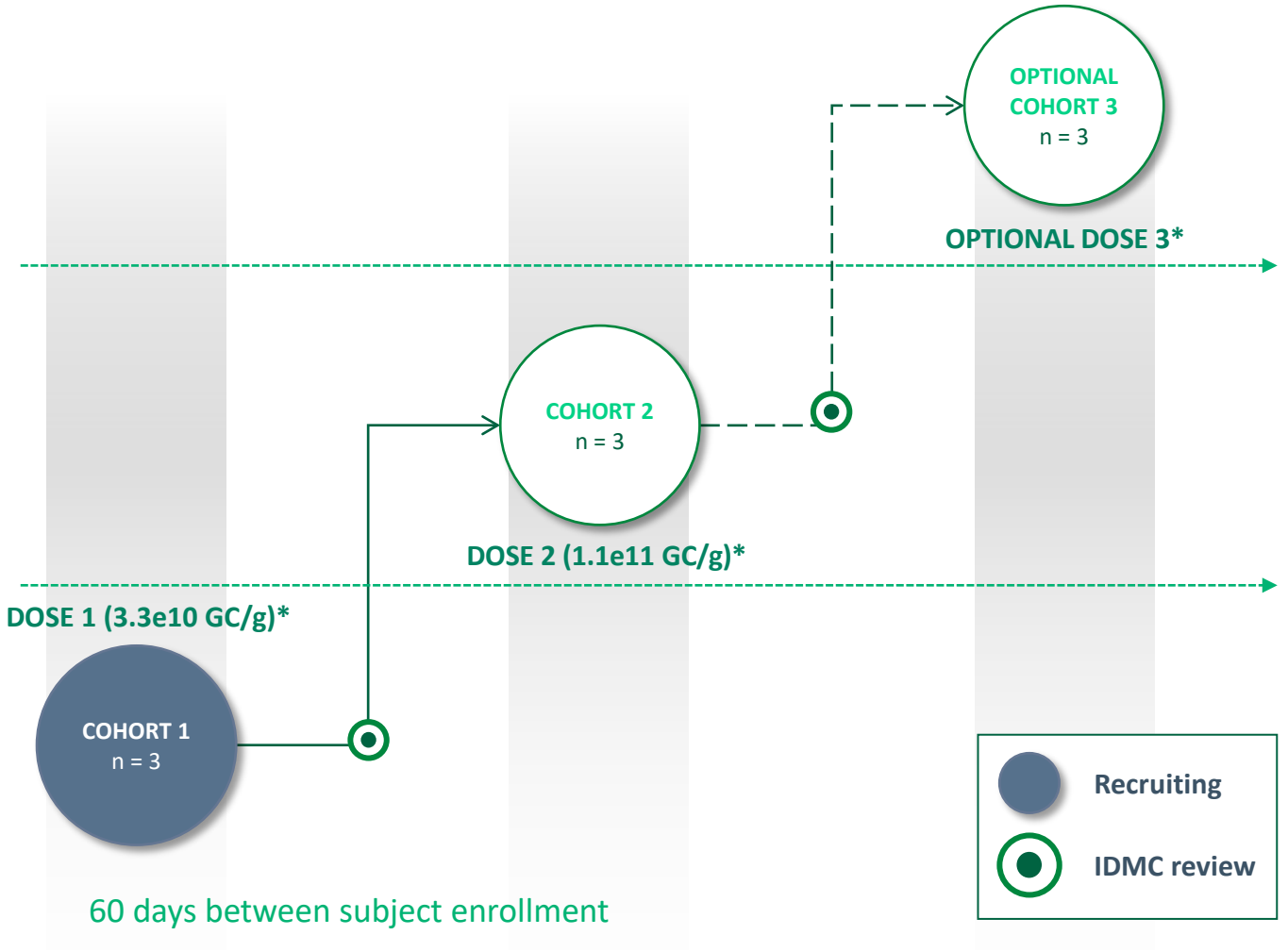
CLINICAL DEVELOPMENT

Ongoing global Phase 1/2 upliFT-D trial focused on early symptomatic FTD-GRN

upliFT-D: Global Phase 1/2 Trial with PBFT02

First patient dosing expected in early 2022

Trial Design	Phase 1/2, multicenter, open-label, dose escalation study
Route of Administration	Intra-cisterna magna (ICM)
Vector	AAV1
Duration	2 years; with additional 3 years of follow-up for safety and durability of effect
Primary Endpoints	• Safety and tolerability
Secondary Endpoints	• Biomarkers, functional and clinical signs of disease progression
Regulatory Clearances and Designations	• Received regulatory clearances from FDA, Health Canada and ANVISA (Brazil) • Received Orphan Drug and Fast Track designations by FDA and Orphan designation by EC



* Genome copies per gram of estimated brain weight

Preclinical Pipeline

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PBML04 – Metachromatic Leukodystrophy

DISEASE OVERVIEW

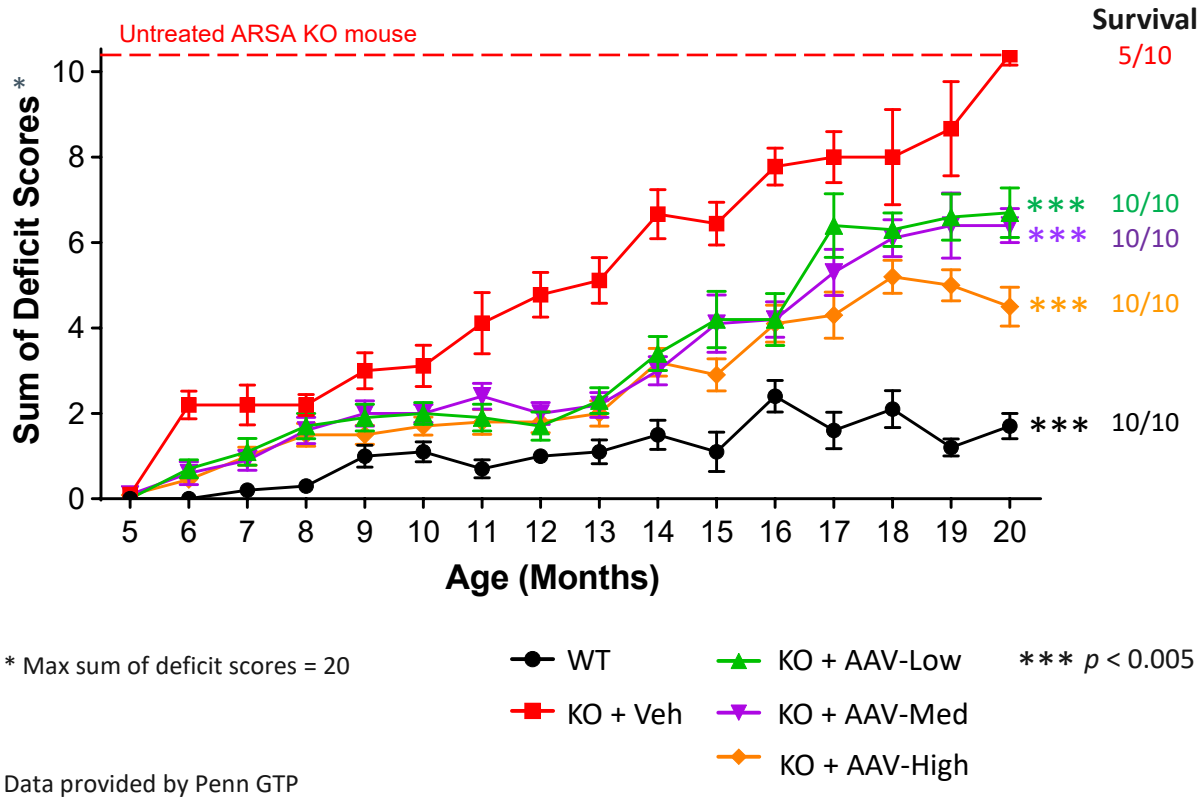
- Fatal inherited disease. Mutations in the *ARSA* (arylsulfatase A) gene reduce enzyme activity
- Infantile onset MLD is characterized by muscle weakness, rigidity, gait disorder, developmental delays, and is typically fatal by 5 years of age
- Worldwide prevalence ~1 in 100,000[1]

OUR APPROACH

- PBML04: AAVhu68 delivering functional *ARSA* gene
- ICM delivery

PBML04 (ICV) dose-dependently reduced functional decline and increased survival in a novel MLD mouse model

Composite clinical scale in a novel ARSA-knockout line



Data provided by Penn GTP

1. Kehrer et al. The natural course of gross motor deterioration in metachromatic leukodystrophy. *Dev Med Child Neurol.* 2011.

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PBCM06 – Charcot-Marie-Tooth Type 2A

AAV delivery of miRNA and functional gene

DISEASE OVERVIEW

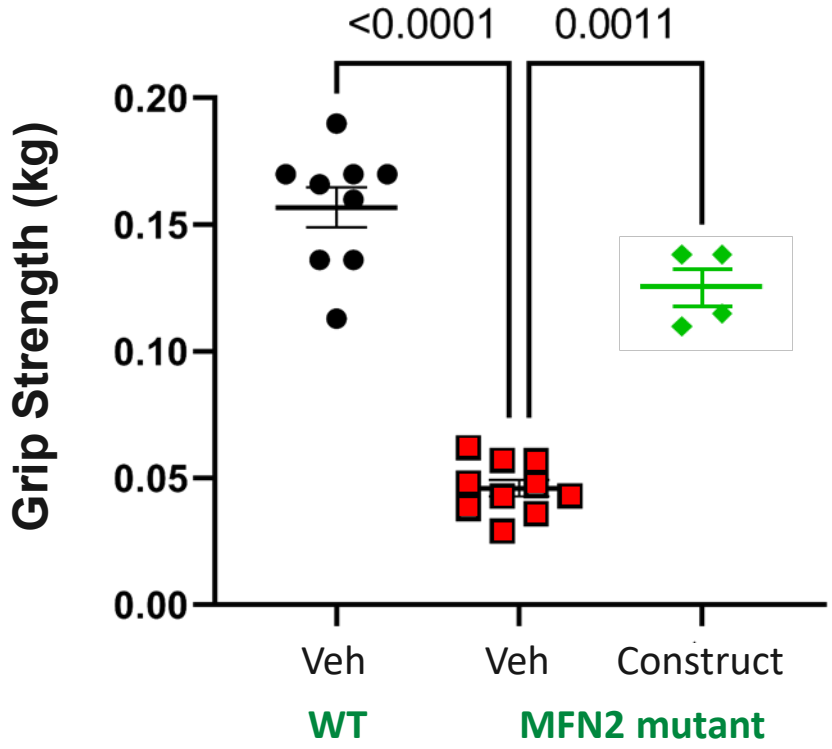
- Sensory and motor neuropathy caused by mutations in the gene for mitofusin-2 (*MFN2*)
- Progressive distal limb weakness, muscle atrophy, and loss of sensation[1,2]
- Worldwide prevalence ~1 in 100,000[3]

OUR APPROACH

- PBCM06: AAV delivery of miRNA and gene combination to knockdown mutant and replace with functional MFN2
- ICM delivery

Pilot data: Optimum vector candidate selection

Identified lead construct that ameliorates distal limb weakness (grip strength) after ICV delivery in MFN2 mutant mice



Data provided by Penn GTP

1. Feely et al., *Neurology* 76:1690-6, 2011; 2. Pipis et al., *Brain*: 143: 3589–3602, 2020; 3. Fridman et al., *J Neurol Neurosurg Psychiatry* 86: 873–8, 2015

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PBAL05 – *C9orf72* Amyotrophic Lateral Sclerosis

AAV delivery of miRNA and functional gene

DISEASE OVERVIEW

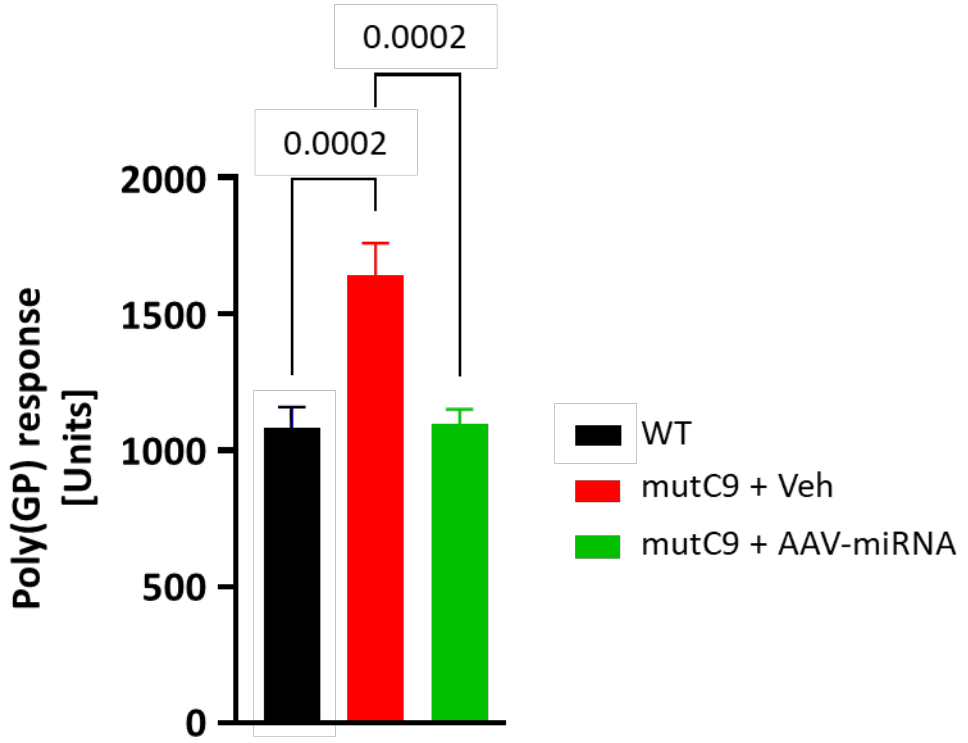
- Fatal neurodegenerative disease characterized by progressive loss of motor function
- A hexanucleotide repeat expansion in the *C9orf72* gene is found in 40% of familial and 8% of sporadic ALS cases (11% of all ALS)[1]
- Estimated ~5,000 cases worldwide in 2020[2]

OUR APPROACH

- PBAL05: AAV delivery of miRNA and gene combination to knockdown mutant and replace with functional C9orf72
- ICM delivery

Pilot data: AAV.miRNA activity in vivo

AAV-C9miRNA normalized elevated toxic poly(GP) dipeptide repeat protein levels in mutant C9-ALS mouse brain



Data provided by Penn GTP

1. Majounie et al *Lancet* 11:323-33, 2012; 2. Brown et al., *Neuroepidemiology* 55: 342-353, 2021

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Looking Ahead

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Anticipated Upcoming Milestones

	TIMING	MILESTONE
GM1	Early 2022	First patient dosed for Cohorts 2 and 3
	Feb 2022	Late breaker presentation at WORLD*Symposium*
FTD-GRN	Early 2022	First patient dosed in Phase 1/2 trial for PBFT02
Krabbe	Early 2022	First patient dosed in Phase 1/2 trial for PBKR03
MLD	Mid-2022	File IND for PBML04
Manufacturing	YE 2022	Pilot plant operational

Additional clinical data milestone timing to be provided following dosing of first patients

RESEARCH PIPELINE

- Advance programs for ALS, CMT2A, Parkinson's, Canavan and Huntington's
- Advance target ID research programs for Alzheimer's Disease and TLE
- Evaluate and expand pipeline by pursuing new licenses in partnership with Penn's GTP

BALANCE SHEET

- Cash balance of ~$316 million as of 12/31/21*
- Cash on hand to fund operations to year end 2023

* Cash, cash equivalents and marketable securities

PassageBio

Genetic Medicines Company on a Mission to Transform the Lives of Patients with CNS Diseases

Robust collaboration with GTP, an unmatched leader in cutting-edge AAV gene therapy research

A diversified rare and large portfolio strategy to ensure sustained value

Dedicated manufacturing and analytics to ensure capacity, flexibility and control

BY YEAR-END 2024, TARGETING:

- 3 programs in registrational studies
- 2-3 additional clinical stage programs
- 2-3 pre-IND preclinical programs
- 4+ additional pipeline options exercised

Thank You

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Life-transforming therapies

Demonstrated Leadership

Deep experience in rare disease, CNS disorders and genetic medicines

LEADERSHIP TEAM

Chip Cale
General Counsel

Robin DeRogatis
SVP Human Resources

Mark Forman, M.D., Ph.D.
Chief Medical Officer

Alex Fotopoulos
Chief Technology Officer

Bruce Goldsmith, Ph.D.
Chief Executive Officer

Simona King
Chief Financial Officer

Eliseo Salinas, M.D.
Chief R&D Officer

Maria Törnsén
Chief Commercial Officer

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Access Industries

Tom Woiwode, Ph.D.
Versant

In memoriam Tachi Yamada, M.D.
(Chair and Co-Founder)