



RGX-202: AFFINITY DUCHENNE®

Pivotal Trial and Interim Functional Data

November 2024

RGX-202 is an investigational product that has not been approved by the FDA. No conclusions regarding safety and efficacy can be made.

Forward-Looking Statements

This presentation includes “forward-looking statements,” within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. These statements express a belief, expectation or intention and are generally accompanied by words that convey projected future events or outcomes such as “believe,” “may,” “will,” “estimate,” “continue,” “anticipate,” “assume,” “design,” “intend,” “expect,” “could,” “plan,” “potential,” “predict,” “seek,” “should,” “would” or by variations of such words or by similar expressions. The forward-looking statements include statements relating to, among other things, REGENXBIO’s future operations, and clinical trials. REGENXBIO has based these forward-looking statements on its current expectations and assumptions and analyses made by REGENXBIO in light of its experience and its perception of historical trends, current conditions and expected future developments, as well as other factors REGENXBIO believes are appropriate under the circumstances. However, whether actual results and developments will conform with REGENXBIO’s expectations and predictions is subject to a number of risks and uncertainties, including the outcome of REGENXBIO’s collaboration with AbbVie and other factors, many of which are beyond the control of REGENXBIO. For a summary of certain of these risks and uncertainties, refer to the “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” sections of REGENXBIO’s Annual Report on Form 10-K for the year ended December 31, 2023 and comparable “risk factors” sections of REGENXBIO’s Quarterly Reports on Form 10-Q and other filings, which have been filed with the U.S. Securities and Exchange Commission (SEC) and are available on the SEC’s website at www.sec.gov. All of the forward-looking statements made in this presentation are expressly qualified by the cautionary statements contained or referred to herein. The actual results or developments anticipated may not be realized or, even if substantially realized, they may not have the expected consequences to or effects on REGENXBIO or its businesses or operations. Such statements are not guarantees of future performance and actual results or developments may differ materially from those projected in the forward-looking statements. Readers are cautioned not to rely too heavily on the forward-looking statements contained in this presentation. These forward-looking statements speak only as of the date of this presentation. Except as required by law, REGENXBIO does not undertake any obligation, and specifically declines any obligation, to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

Agenda

- Welcome
- RGX-202 overview
- AFFINITY DUCHENNE®
Pivotal Trial of RGX-202
- Phase I/II Data
 - New biomarker data
 - First functional data
 - Clinic and caregiver videos
 - KOL discussion
- Q&A



**Curran
Simpson**
President and CEO
REGENXBIO Inc.



**Steve
Pakola, M.D.**
Chief Medical Officer
REGENXBIO Inc.



**Jahannaz
Dastgir D.O.**
Clinical Development Lead
REGENXBIO Inc.



**Mike
Kelly, PhD.**
Chief Scientific Officer
CureDuchenne



**Aravindhan
Veerapandiyan, M.D.**
Arkansas
Children's Hospital



Seeking to improve lives through the curative potential of gene therapy

We pioneered the landscape of adeno-associated virus (AAV) gene therapies.

Thousands of patients have been treated with approved and investigational medicines built on our NAV[®] Technology platform.

We are advancing late-stage, potential first- and best-in-class gene therapies for patients with retinal and rare diseases.

Addressing multiple billion-dollar+ opportunities, with lead candidate in Duchenne muscular dystrophy.

With the expertise and end-to-end capabilities, REGENXBIO is leading the future of one-time treatments.

Fully-integrated manufacturing and fill-finish capabilities support multiple potential product launches.

RGX-202: A Next-Generation, Investigational Gene Therapy

Accelerated Approval Pathway: Four pillars for delivering RGX-202 as next to market for Duchenne

Regulatory and Patients

Robust Clinical Biomarkers

Differentiated Safety

Positive Functional Outcomes

Aligned with FDA on a path to **Accelerated Approval**; on track to file **BLA in 2026** and are committed to **data transparency with the patient community**

Consistent & robust levels of RGX-202 microdystrophin expression and transduction observed in target muscle providing the potential for **long-term, durable clinical outcomes**

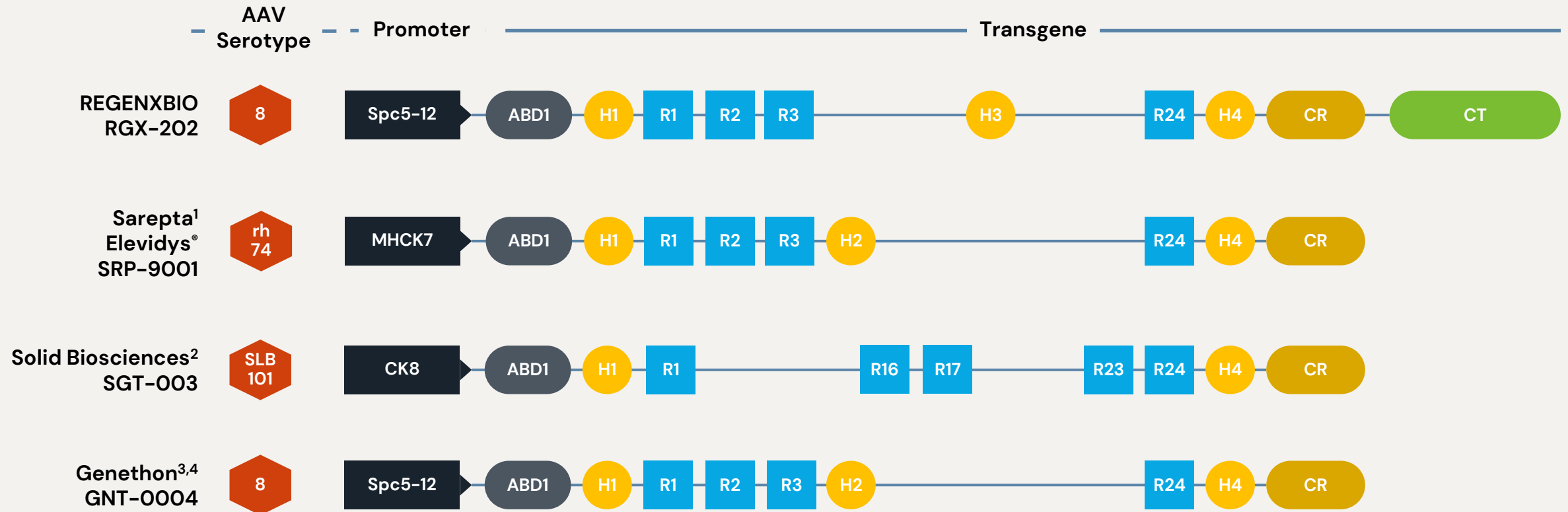
Combination of a differentiated construct, proactive immunosuppression regimen and high product purity have enabled a **preferred dose with encouraging safety profile**

RGX-202 demonstrates functional improvements exceeding natural history benchmarks

RGX-202 NAVXpress™ Process Platform: In-house Manufacturing, High Yield, High Purity, Commercial Ready

RGX-202 is Designed for Improved Function in Duchenne

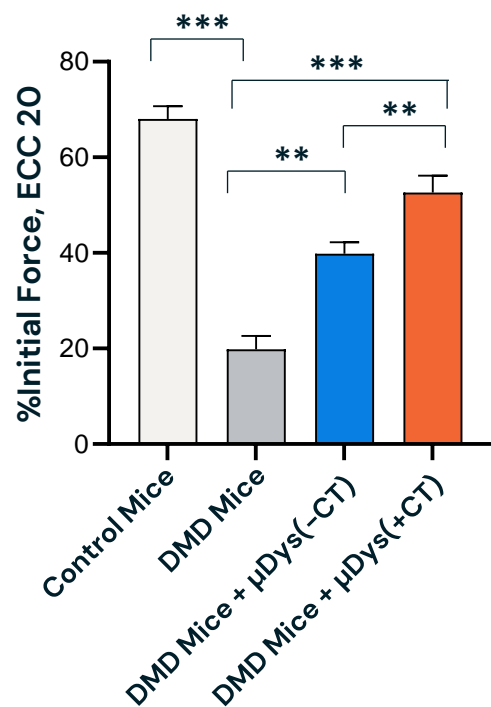
RGX-202 is the only microdystrophin gene therapy with the functional elements of the C-Terminal (CT) domain found in naturally occurring dystrophin



Role of the CT Domain in Preserving Muscle Health

Preclinical studies indicate the CT domain in RGX-202 microdystrophin enables muscle resilience

Microdystrophin+CT domain better protects the muscle against contraction-induced damage



How the CT Domain May Contribute to Improved Outcomes with RGX-202

Functional microdystrophin

- CT domain significantly enhanced restoration of the DAPC in *mdx* mice, more similar to natural dystrophin

Prolonged microdystrophin activity

- CT domain increased the half-life of RGX-202 which remains in muscle fibers longer to strengthen muscle

Muscle health

- CT domain in RGX-202 microdystrophin protected against contraction-induced damage enabling better muscle recovery

AFFINITY DUCHENNE® Trial Design

Pivotal Trial for Accelerated Approval Initiated

- Aligned with FDA on pivotal design and accelerated approval pathway
- **BLA expected 2026** using accelerated approval to include approximately 30 patients

Phase I/II

Pivotal



Dose Evaluation

(Ages 4-11)

Dose Level 1
1x10¹⁴ GC/kg
N=3

Dose Level 2
2x10¹⁴ GC/kg
N=2



Expansion Cohort

(Ages 4-11)

Dose Level 2
(N=5)

Younger Patient Cohort

(Ages 1-3)

Dose Level 2
(up to 5 patients)

Dose Level 2 Ambulatory

(patients aged 1+)

N ~ 30

Primary endpoint: Proportion of patients with $\geq 10\%$ microdystrophin levels

Secondary endpoints: Timed function tests, including time to stand velocity, SV95C ages 1-3

Exploratory endpoint: NSAA, SV95C for 4+

AFFINITY DUCHENNE

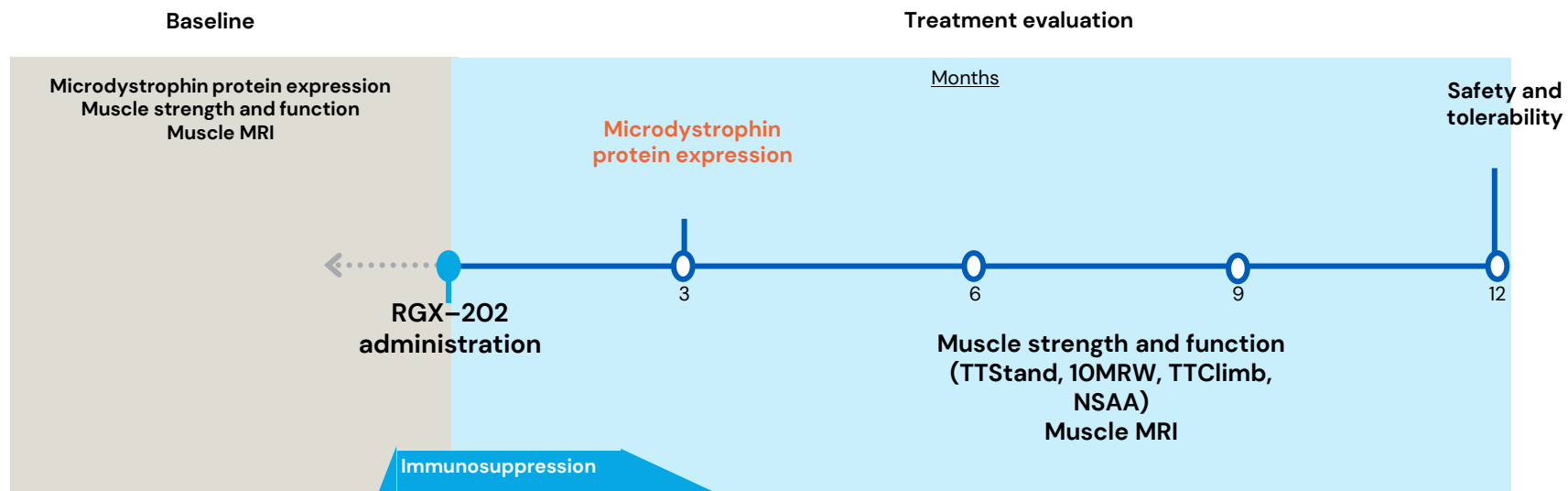
Phase I/II Data

Phase I/II AFFINITY DUCHENNE Study Overview

Key Eligibility Criteria

- **Boys aged 1 to 11 years** at screening
- **Genetically confirmed DMD** (mutations in exons 18 and above)
- **100-meter walk:** able to perform without assistive devices
- **No pre-existing antibodies** to the gene therapy (AAV8 capsid)

Administration and Assessments Timeline



Key Baseline Demographics

Variable Mean (range)	Dose Level 1 1x10 ¹⁴ GC/kg	Dose Level 2 2x10 ¹⁴ GC/kg	
Age range at screening (number dosed)	4-11 (n = 3)	1-3 (n = 1)	4-11 (n = 7)
Age at Dosing (yrs)	7.1 (4.4-10.5)	3.7	8.7 (5.8-12.1)
Weight (kg)	24.3 (17.8-28.3)	12.5	26.2 (17.3 – 35.5)
Time from Dosing (months)	17.0 (13.9-19.4)	1.6	7.0 (1.2-11.8)
Functional Outcomes			
NSAA	20.3 (14.0-26.0)	Not completed*	
Time to Stand (sec)	4.9 (2.9-6.8)	n/a†	4.4 (3.7-5.4)
10 Meter Walk Run (sec)	5.1 (3.9-6.2)	n/a†	4.9 (4.2-6.0)
Time to Climb (sec)	3.6 (2.1-5.2)	n/a†	3.1 (2.1-4.6)

Interim Safety

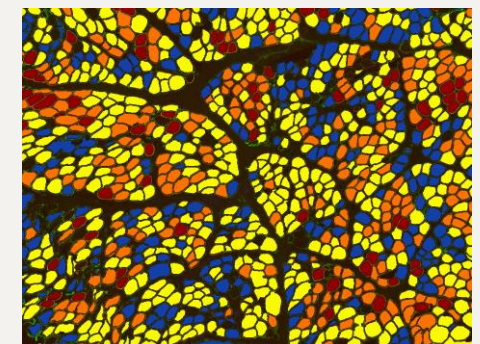
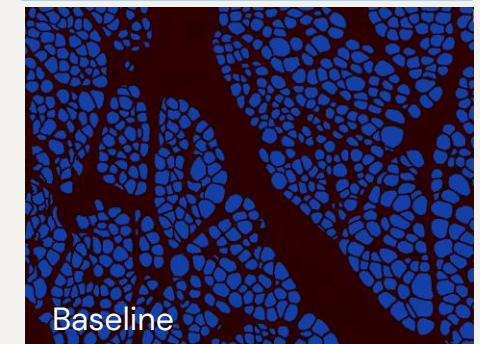
RGX-202 Treatment-Emergent Adverse Events		Dose Level 1 Dose Evaluation (1x10 ¹⁴ GC/kg)	Dose Level 2 Dose Evaluation / Expansion (2x10 ¹⁴ GC/kg)	Dose Level 2 Younger Boys (2x10 ¹⁴ GC/kg)	Total n = 11
Age Range (number dosed)		4-11 (n = 3)	4-11 (n = 7)	1-3 (n = 1)	All Age Ranges
SAE		0	0	0	0
AESI	Central Or Peripheral Neurotoxicity	0	0	0	0
	Drug-Induced Liver Injury	0	0	0	0
	Thrombocytopenia*	0	0	0	0
Myocarditis*		0	0	0	0
Myositis*		0	0	0	0
The most common drug-related AEs reported are anticipated with gene therapy: nausea (n=3), vomiting (n=6), and fatigue (n=5), all resolved					

RGX-202 has been well-tolerated in all patients at both dose levels with no SAEs or AESIs

Biomarkers Support Consistent Robust Expression, Transduction, and Sarcolemmal Localization of RGX-202 Microdystrophin

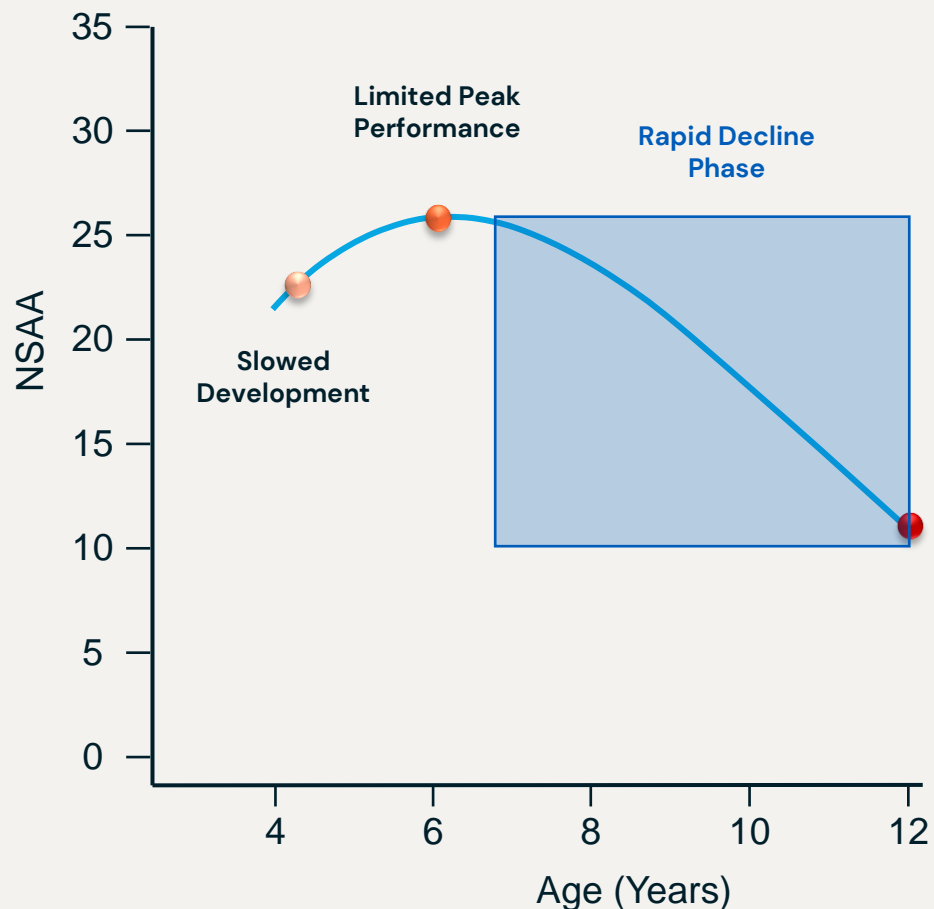
Mean at 12 Weeks (min, max)	Dose Level 1 1x10 ¹⁴ GC/kg		Dose Level 2 2x10 ¹⁴ GC/kg	
Age range at screening (number with data)	4-7 (2)	8-11 (1)	4-7 (1)	8-11 (5)
RGX-202 Microdystrophin* % (Western Blot)	60.6 (37.8, 83.4)	10.4 (n/a)	77.2 (n/a)	39.7 (20.8, 75.7)
VCN copies/nucleus (qPCR)	9.8 (7.4, 12.1)	5.4 (n/a)	55.4 (n/a)	17.8 (12.0, 30.7)
Positive Fibers** % (Immunofluorescence)	79.3 *** (n/a)	34.6 (n/a)	71.1 (n/a)	45.7 (21.3, 70.6)

Fiber Intensity †



RGX-202 Functional Data: Natural History Control Methodology

Mean NSAA Trajectory in Duchenne



Functional Data at Clinically Meaningful Timepoints

- Dose level 1
 - N=3 at 12 months post-RGX-202 administration
- Dose level 2
 - N=2 at 9 months post-RGX-202 administration

Method for External Controls

Heterogeneity is present in baseline disease stage, rate of disease progression, and anticipated efficacy response

Matched controls from Natural History Dataset* enable comparison to RGX-202 for rate of disease progression and anticipated efficacy response.

Natural history control matching criteria:**

- Age
- Baseline function

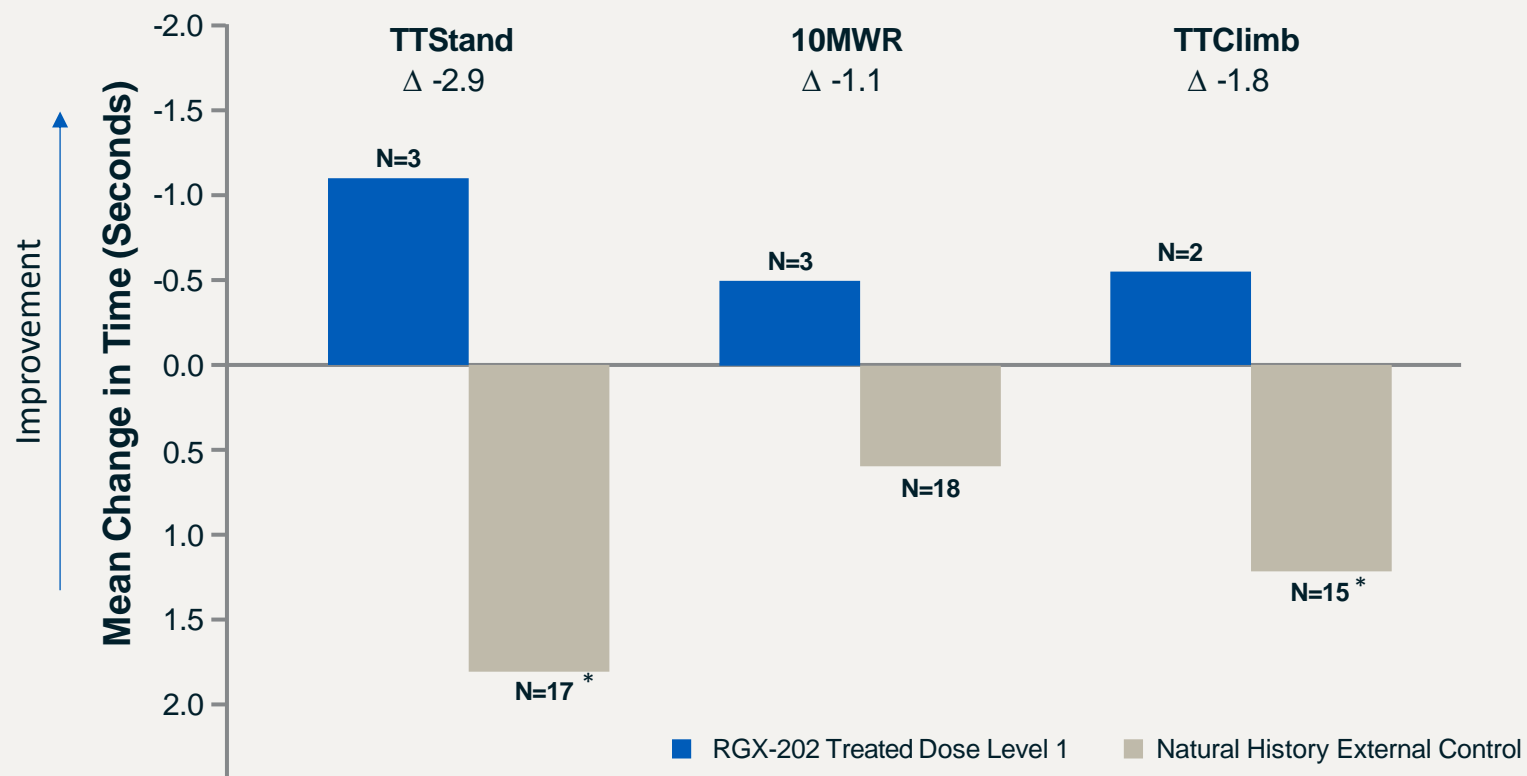
Graph adapted from Muntoni 2019

* Natural history datasets included 420 patients with steroid exposure from CINRG and the D-RSC Data Platform. The D-RSC Data Platform initiative is a public/private partnership funded by the Parent Project Muscular Dystrophy (PPMD) and launched in August of 2015 by Critical Path Institute (CPi).

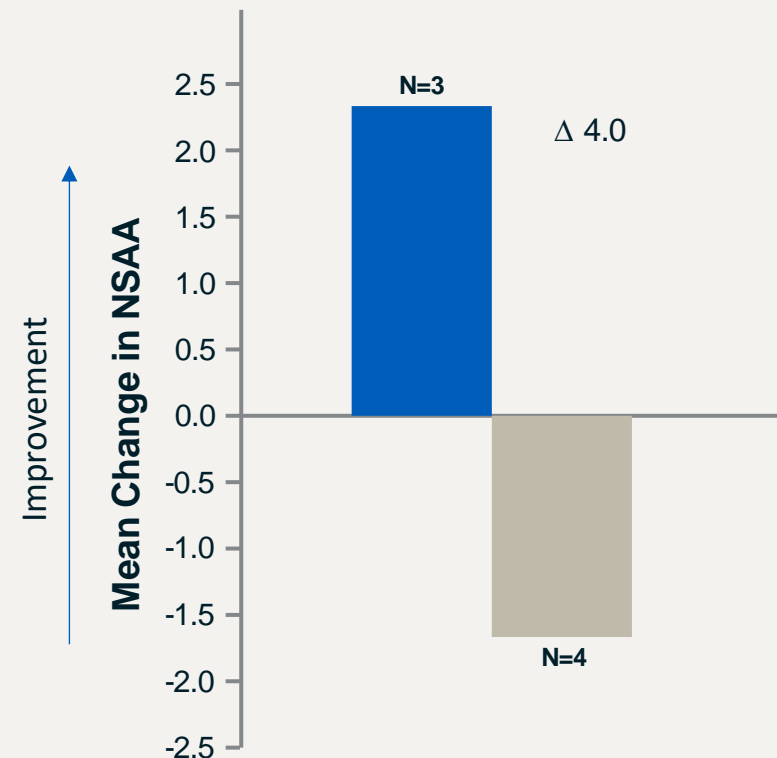
** Criteria for matching: TTSTAND, TTRW, and TTCLIMB. Group mean for external controls were weighted by the number of matched NH patient per each RGX-202 treated participants.

Dose Level 1 Participants Demonstrate Improvement in Function and Exceed External Controls at 12 months

Timed Function Tests

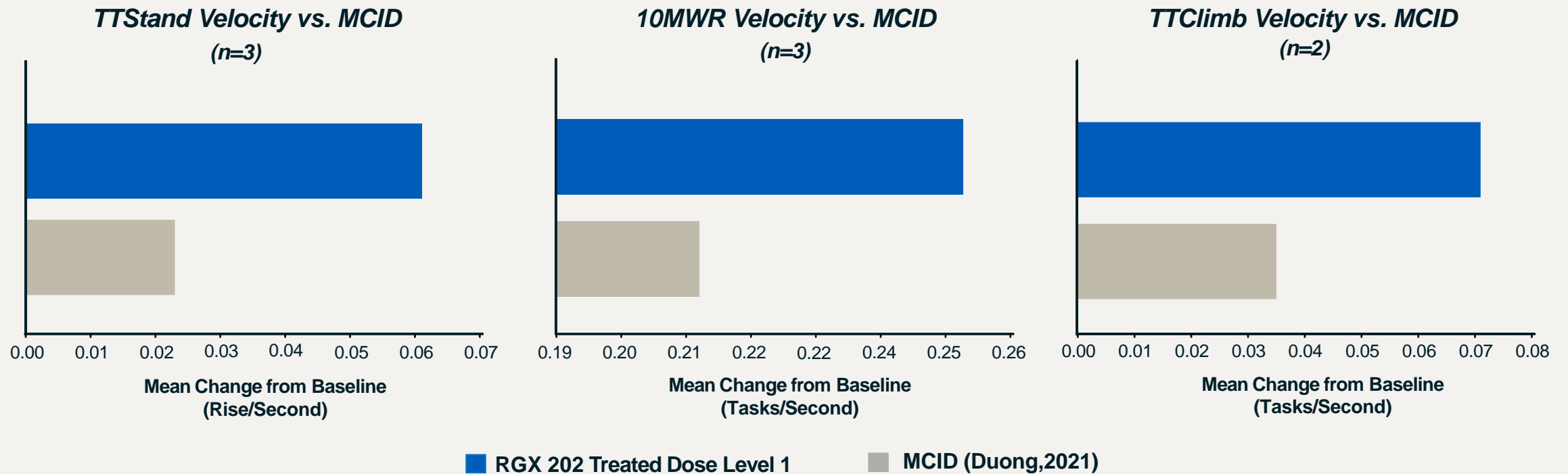


NSAA



Dose Level 1 Timed Task Velocity Changes Exceed MCID Benchmarks at 12 months

*RGX-202 exceeds minimal clinically important difference (MCID) referenced by FDA in the approval of an available gene therapy in ambulatory boys**

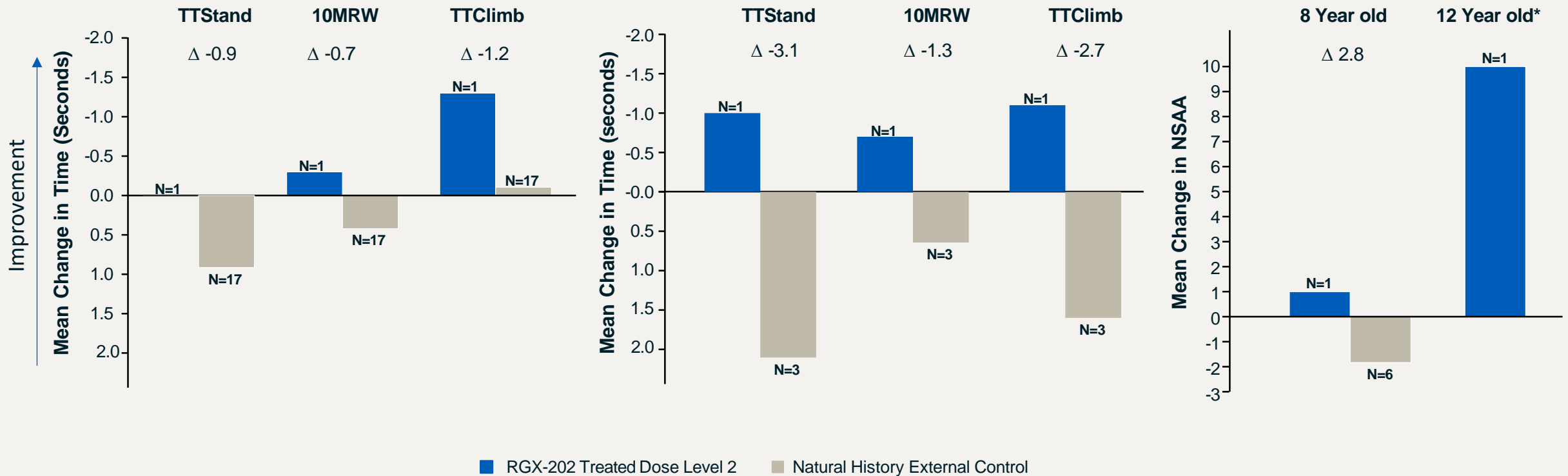


Pivotal Dose Participants Demonstrate Improvement in Function at 9 months

8 Year Old

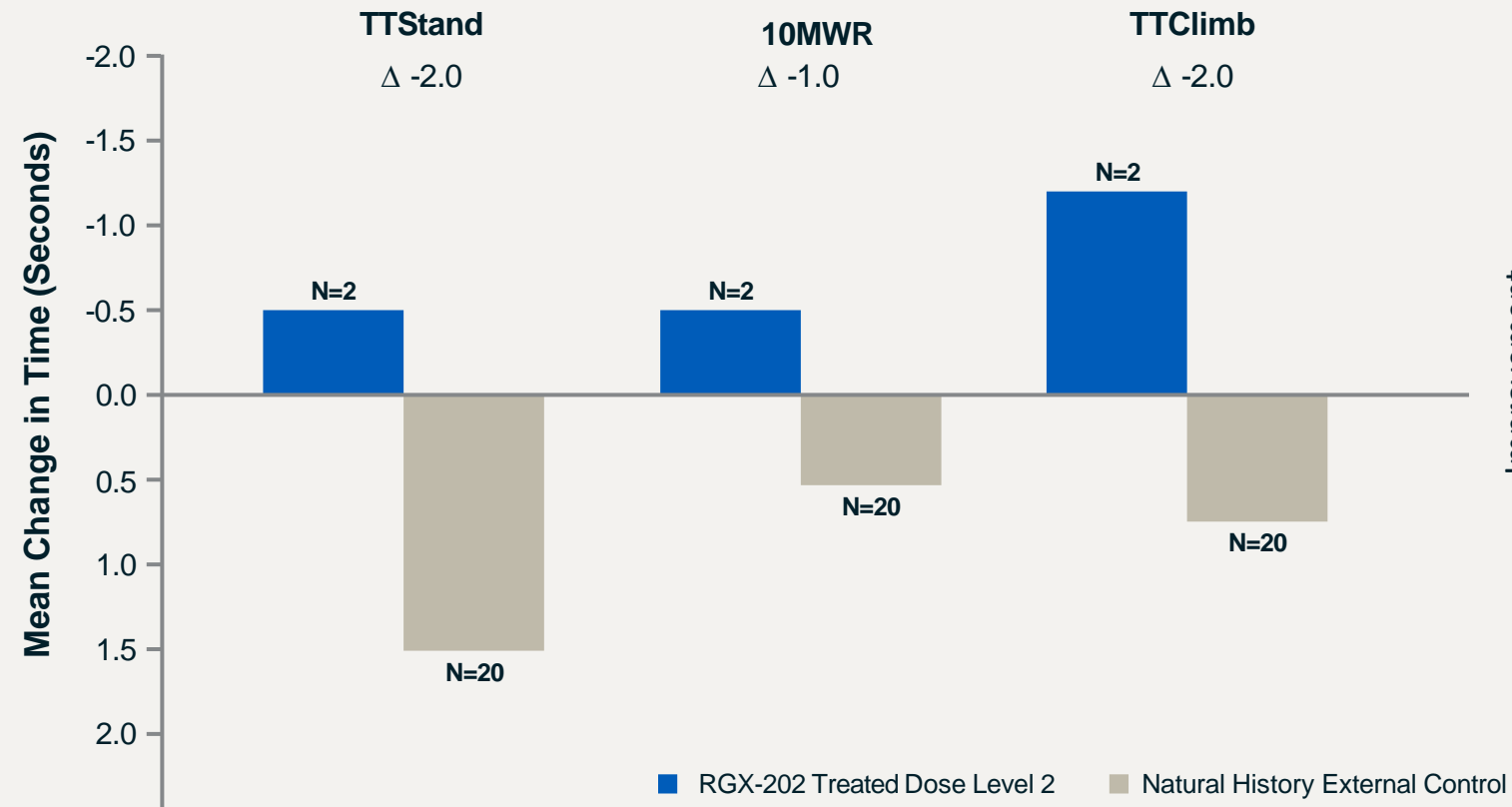
12 Year Old

Individual NSAA

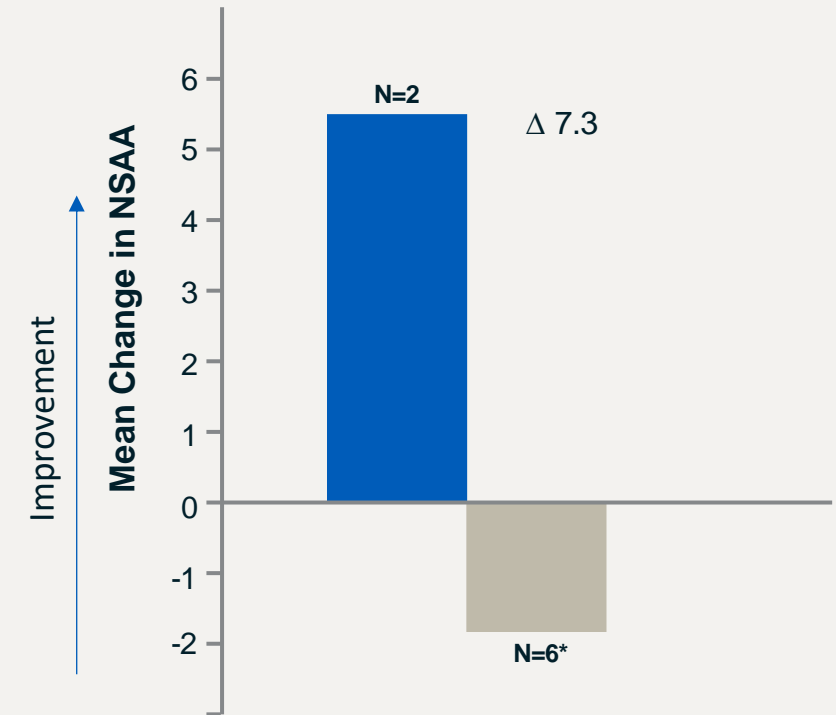


Pivotal Dose Participants Demonstrate Improvement in Function at 9 Months

Timed Function Tests



NSAA



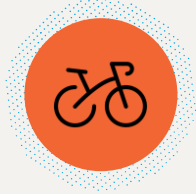
Caregivers Reported Improved Function

Caregivers reported improvements in the home and community environments as measured by PODCI

Improved skills included:



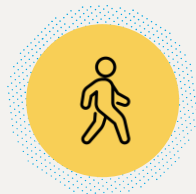
Running



Riding a
bicycle/tricycle



Climbing stairs



Walking in the
community



Participating in
recreational activities
and sports with peers



Phase I/II AFFINITY DUCHENNE: Interim Summary

Positive safety, biomarker and functional data demonstrate the potential of RGX-202 to be a differentiated, best-in-class gene therapy

RGX-202 has been well-tolerated in 11 patients across both dose levels with no SAEs or AESIs

Biomarkers support consistent robust expression, transduction, and sarcolemmal localization of RGX-202 microdystrophin

Participants treated with RGX-202:

- **Demonstrated clinically meaningful improvement in functional outcomes at both dose levels**
- **Exceeded comparisons using NH external controls and MCID***

Evidence of altering the trajectory of disease

Discussion



Steve Pakola, M.D.
Chief Medical Officer
REGENXBIO Inc.



Jahannaz Dastgir D.O.
Clinical Development Lead
REGENXBIO Inc.



**Aravindhan
Veerapandiyan, M.D.**
Arkansas Children's Hospital



Mike Kelly, PhD.
Chief Scientific Officer
CureDuchenne

RGX-202: A Next-Generation, Investigational Gene Therapy

Accelerated Approval Pathway: Four pillars for delivering RGX-202 as next to market for Duchenne

Regulatory and Patients

Robust Clinical Biomarkers

Differentiated Safety

Positive Functional Outcomes

Aligned with FDA on a path to **Accelerated Approval**; on track to file **BLA in 2026** and are committed to **data transparency with the patient community**

Consistent & robust levels of RGX-202 microdystrophin expression and transduction observed in target muscle providing the potential for **long-term, durable clinical outcomes**

Combination of a differentiated construct, proactive immunosuppression regimen and high product purity have enabled a **preferred dose with encouraging safety profile**

RGX-202 demonstrates functional improvements exceeding natural history benchmarks

RGX-202 NAVXpress™ Process Platform: In-house Manufacturing, High Yield, High Purity, Commercial Ready



Q&A