Clinical Update:

Micro-dystrophin Gene Therapy

Study SRP-9001-103: 12-Week Expression and Safety Data Using Commercially Representative Material

DOUG INGRAM
President and CEO

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8:30 a.m. ET

SAREPTA THERAPEUTICS

Welcome and Introduction

Doug Ingram
President and CEO

Forward-Looking Statements

This presentation contains "forward-looking statements." Any statements contained in this presentation that are not statements of historical fact may be deemed to be forward-looking statements. Words such as "believes," "anticipates," "plans," "expects," "will," "intends," "potential," "possible" and similar expressions are intended to identify forward-looking statements. These forward-looking statements include statements regarding the potential benefits of SRP-9001 and its vector, promoter and transgene; market opportunities; the expected future manufacturing supply of SRP-9001; and plans and expected milestones, including meeting with the FDA in mid-2021, meeting with other regulatory agencies, commencing Study 301 following the FDA meeting, and expanding Study 103 to include older ambulant and non-ambulant patients.

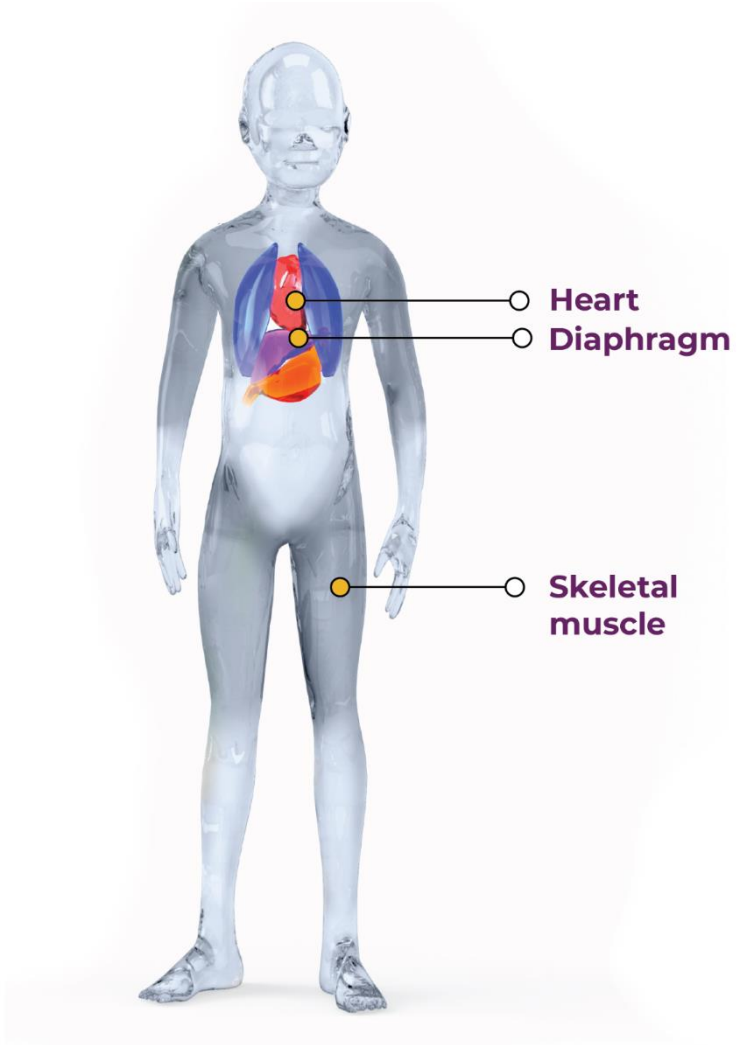
These forward-looking statements involve risks and uncertainties, many of which are beyond our control. Known risk factors include, among others: success in preclinical and clinical trials, especially if based on a small patient sample, does not ensure that later clinical trials will be successful; the data presented in this presentation may not be consistent with the final data set and analysis thereof or result in a safe or effective treatment benefit; different methodologies, assumptions and applications we utilize to assess particular safety or efficacy parameters may yield different statistical results, and even if we believe the data collected from clinical trials of our product candidates are positive, these data may not be sufficient to support approval by the FDA or foreign regulatory authorities; if the actual number of patients suffering from DMD is smaller than estimated, our revenue and ability to achieve profitability may be adversely affected; we may not be able to execute on our business plans and goals, including meeting our expected or planned regulatory milestones and timelines, clinical development plans, and bringing our product candidates to market, due to a variety of reasons, some of which may be outside of our control, including possible limitations of company financial and other resources, manufacturing limitations that may not be anticipated or resolved for in a timely manner, regulatory, court or agency decisions, such as decisions by the United States Patent and Trademark Office with respect to patents that cover our product candidates and the COVID-19 pandemic; and those risks identified under the heading “Risk Factors” in Sarepta’s most recent Annual Report on Form 10-K for the year ended December 31, 2020, and most recent Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission (SEC) as well as other SEC filings made by the Company which you are encouraged to review.

Any of the foregoing risks could materially and adversely affect the Company’s business, results of operations and the trading price of Sarepta’s common stock. For a detailed description of risks and uncertainties Sarepta faces, you are encouraged to review the SEC filings made by Sarepta. We caution investors not to place considerable reliance on the forward-looking statements contained in this presentation. Sarepta does not undertake any obligation to publicly update its forward-looking statements based on events or circumstances after the date hereof.

Duchenne Muscular Dystrophy (DMD)

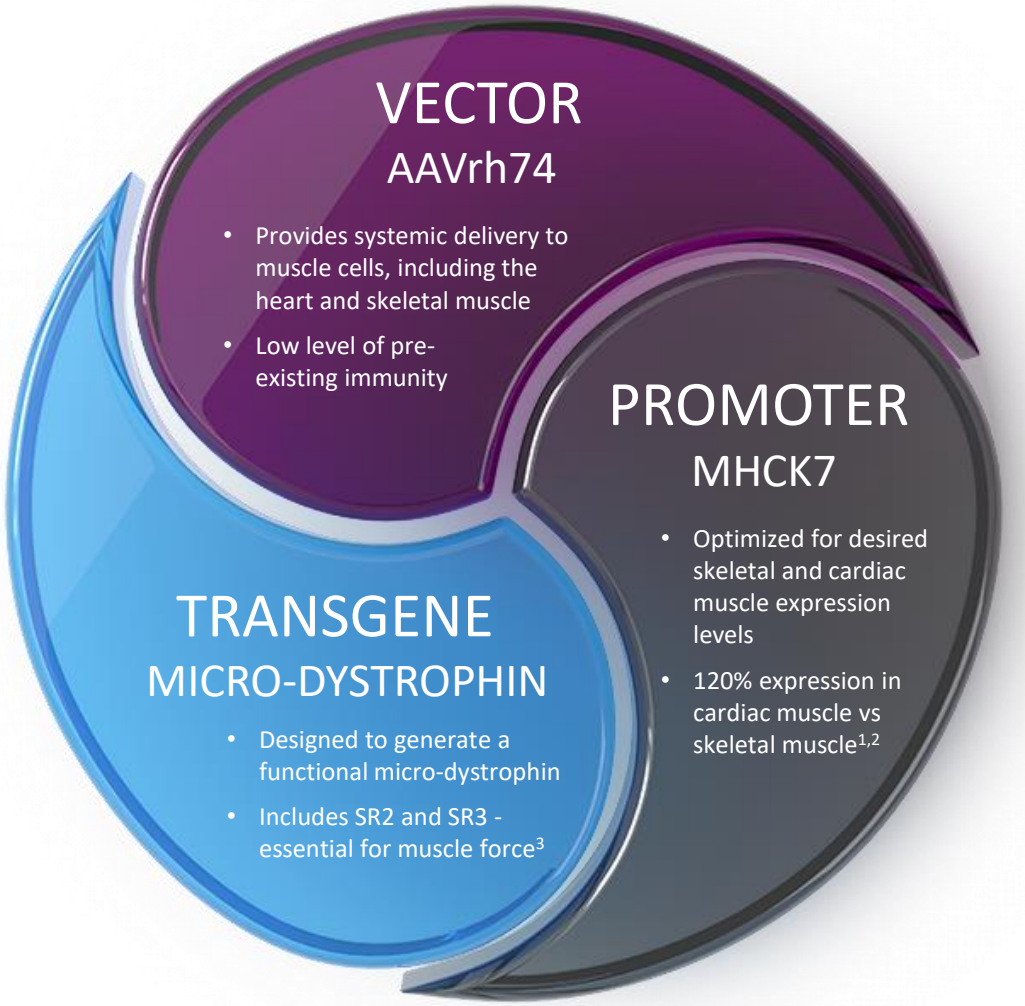
DMD affects approximately 1 in 3,500-5,000 males worldwide[1]

- DMD is a rare, fatal neuromuscular genetic disease inherited in an X-linked recessive pattern[2]
- Muscle weakness becomes increasingly noticeable by 3 to 5 years of age, and most patients use a wheelchair by the time they are 11 years old[2]
- During adolescence, cardiac and respiratory muscle deterioration lead to serious, life-threatening complications[3]



1. National Institutes of Health. Genetics Home Reference. Duchenne and Becker muscular dystrophy. https://ghr.nlm.nih.gov/condition/duchenne-and-becker-muscular-dystrophy. Accessed Jan 2020.
2. Hoffman EP, Brown RH, et al. Dystrophin: the protein product of the Duchenne muscular dystrophy locus. Cell. 1987;51:919-928.
3. Passamano L, Taglia A, et al. Improvement of survival in Duchenne Muscular Dystrophy: retrospective analysis of 835 patients. Acta Myologica. 2012;31(1): 121-125.

SRP-9001 Gene Therapy Construct

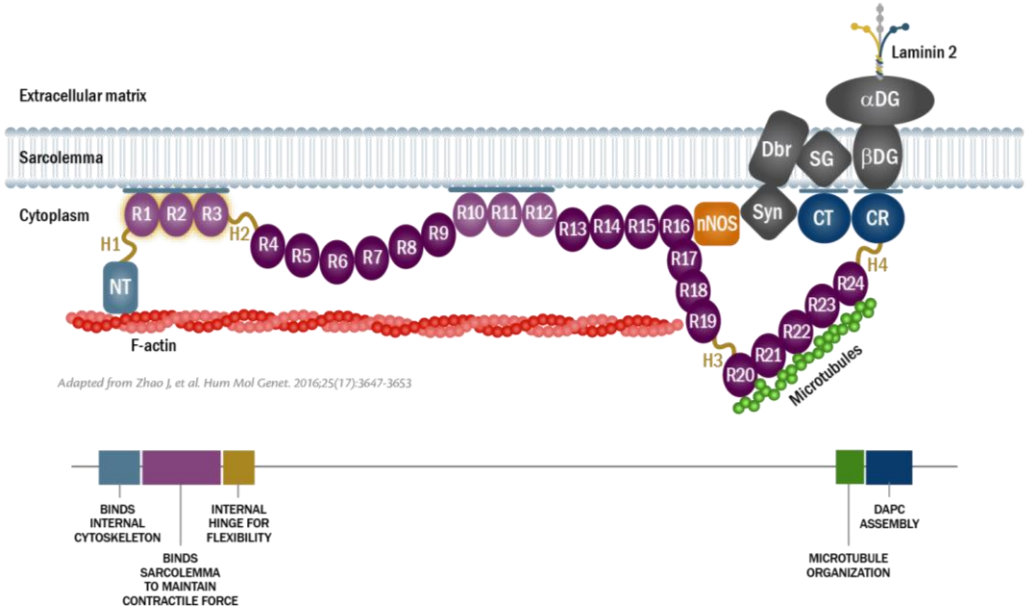


1. Potter et al. Functional and Histological Improvements Comparing 4 Micro-dystrophin Constructs in the mdx Mouse Model of DMD. ASGCT 2019.
2. Potter et al. Functional and Histological Improvements Comparing 4 Micro-dystrophin Constructs in the mdx Mouse Model of DMD. AIM 2019.
3. Nelson DM, Ervasti JM, et al. Variable rescue of microtubule and physiological phenotypes in mdx muscle expressing different miniaturized dystrophins. Human Molecular Genetics, 2018, Vol. 27, No. 12: 2090-2100.

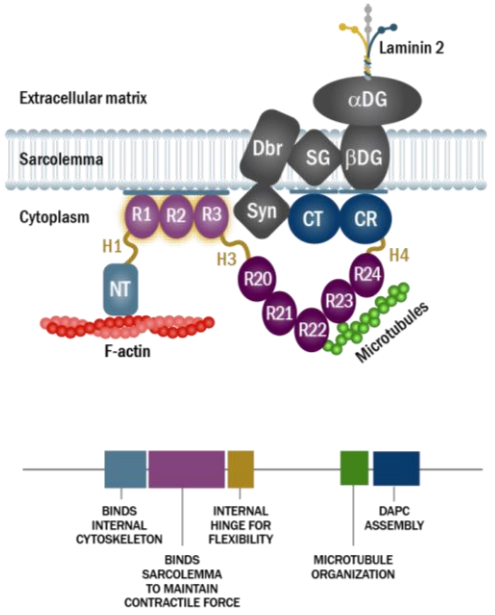
Micro-dystrophin is a Shortened, Functional Form of Dystrophin

Transgene – Produces a functioning version of the protein of interest[1,2]

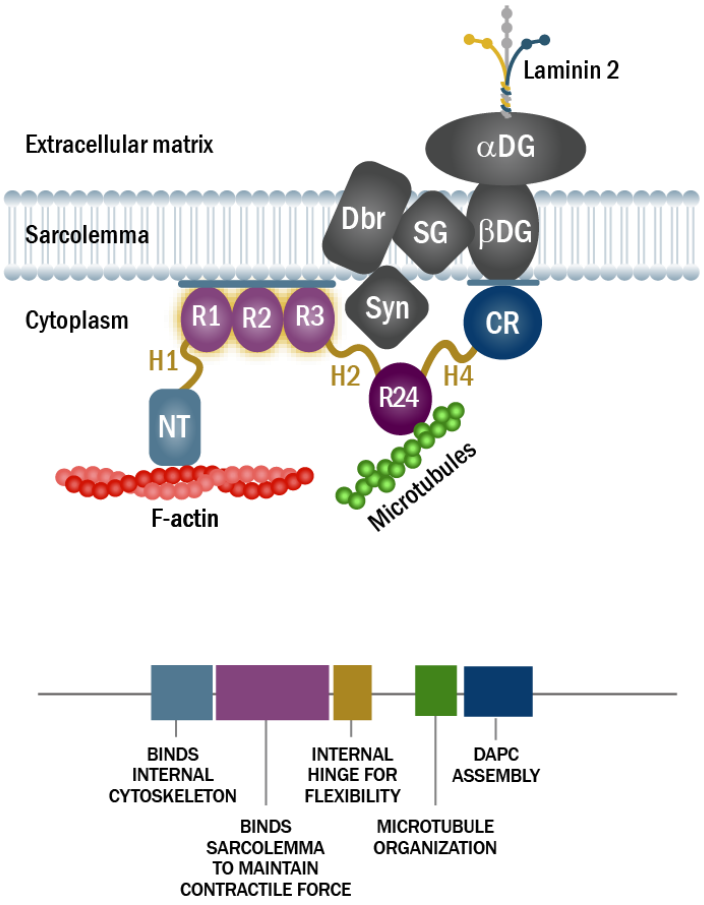
Normal Muscle[3-8]



61 YO Ambulatory Patient[9-11]



Sarepta Micro-dystrophin[4-11]



Micro-dystrophin gene therapy is investigational and has not been reviewed or approved by any regulatory authority.

1. Naso MF, et al. *BioDrugs*. 2017;31(4):317-334. 2. Chamberlain K, et al. *Hum Gene Ther Methods*. 2016;27(1):1-12. 3. Zhao J, et al. *Hum Mol Genet*. 2016;25(17):3647-3653. 4. Gao Q, et al. *Compr Physiol.* 2015;5(3):1223. 5. Harper SQ, et al. *Nature Med.* 2002;8(3):253. 6. Nelson DM, et al. *Human Mol Genet.* 2018 27(12):2090. 7. Fairclough RJ, et al. *Nat Rev Genet.* 2013;14:373-378. 8. Aartsma-Rus A, et al. *Muscle Nerve*. 2006;34(2):134-144. 9. England SB, et al. Nature. 1990;343(6254):180-182. 10. Wells DJ, et al. Hum Mol Genet. 1995;4(8):1245-1250. 11. Cooper-Olson G, Rodino-Klapac LR, Potter RA. Evaluation of the Lipid-binding Properties of Recombinant Dystrophin Spectrin-like Repeat Domains R1-3. J Neuromuscul Dis. 2021 Mar 23. doi: 10.3233/JND-200622. Online ahead of print. PMID: 33780374.

Clinical Results:

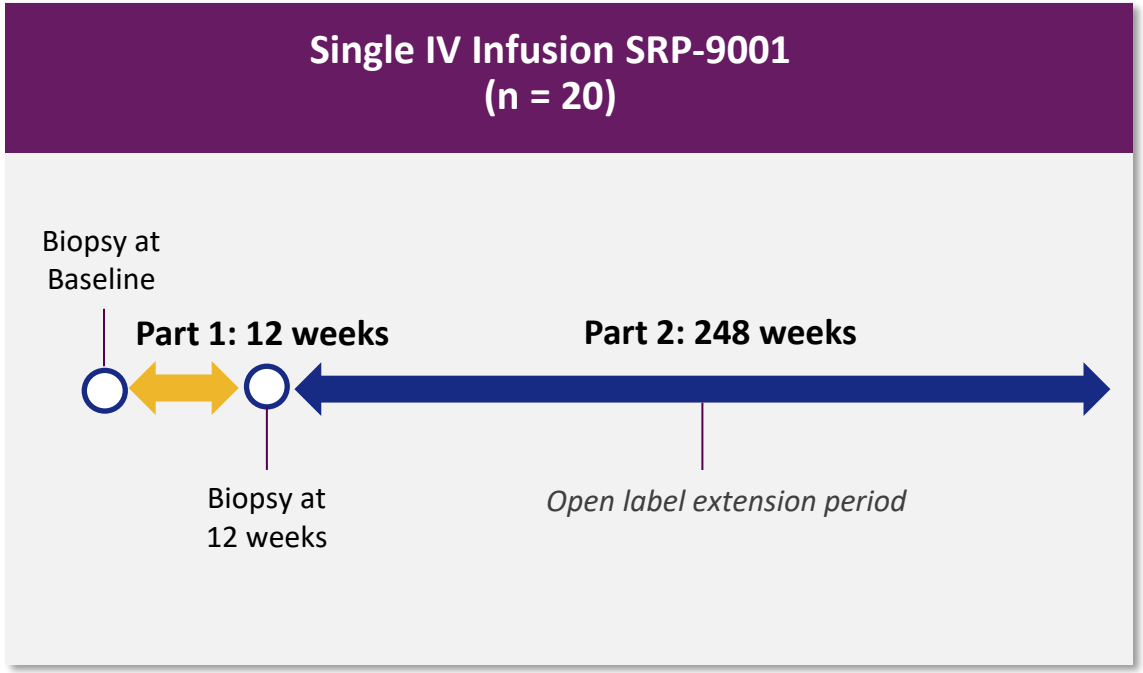
Micro-dystrophin Study SRP-9001-103
Expression and Safety Data at 12 Weeks
in Patients with Duchenne

Louise Rodino-Klapac, Ph.D.
Executive Vice President and Chief Scientific Officer

SRP-9001-103*

- **Study 103**
  - Ongoing phase 1b open-label study using commercially representative material of SRP-9001
  - Four U.S. sites
  - Boys with Duchenne, ages 4 to <8
  - 20 patients, today's data from first 11 patients

NUMBER OF PATIENTS	AGE
2	4-5
9	6-7

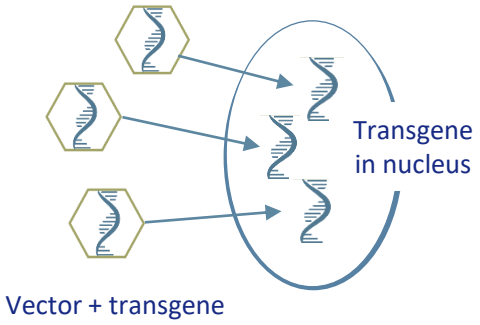


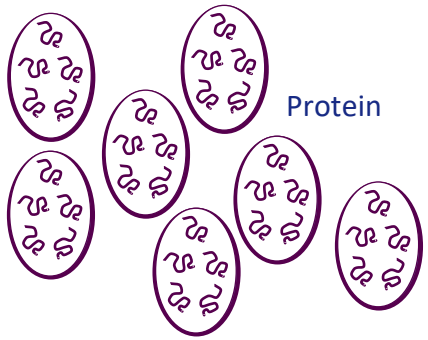
- **Dose**
  - Weight based dosing: 1.33×10^{14} vg/kg

*ClinicalTrials.gov Identifier: NCT04626674

Questions to Consider When Evaluating Gene Transfer Therapies

	1	2	3	4
QUESTION	Is the transgene DNA inside muscle cells?	Is the desired protein made?	Is the protein at the cell membrane? How much is there?	What was the safety and tolerability experience?
EXPERIMENT	Vector Genome Copies/Nucleus	Western Blot	Immunofluorescence	Safety





% Positive Fibers (PDPF):
% cells with protein

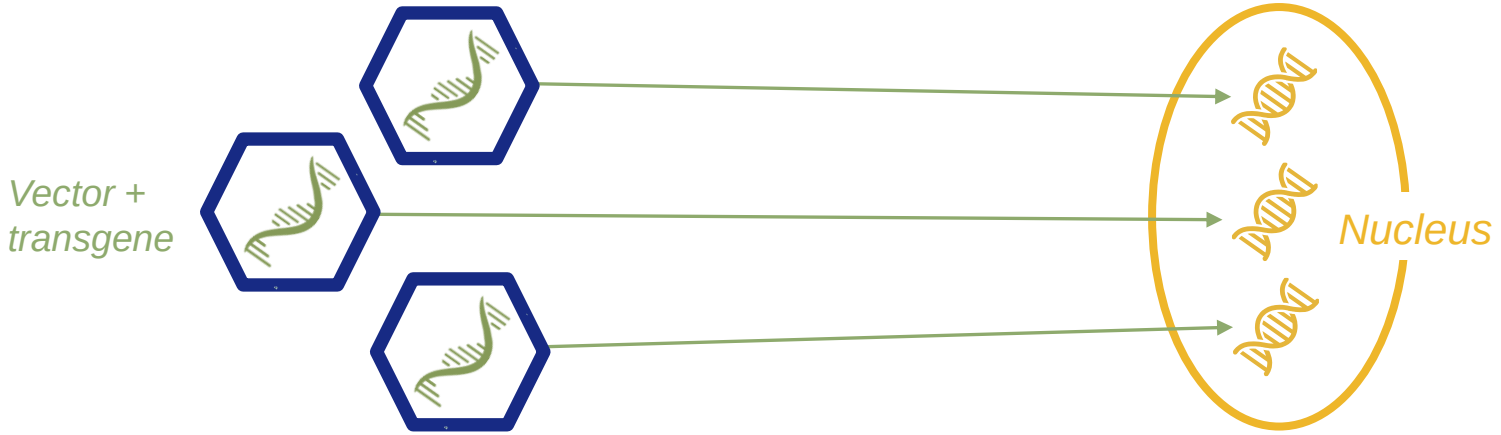
Intensity of Fluorescent Signal (IF):
How strong is expression in cells with protein?

Micro-dystrophin Transduction by Vector Genome Count in First 11 Patients

QUESTION

1. Is the transgene DNA inside muscle cells?
2. Is the desired protein made?
3. Is the protein at the cell membrane? How much is there?
4. What was the safety and tolerability experience?

BASED ON MUSCLE BIOPSIES FROM THE GASTROCNEMIUS MUSCLE AT WEEK 12



	MEAN VECTOR GENOME COPIES PER NUCLEUS (SD, standard deviation)
N=11	**3.87** (2.44)

Micro-dystrophin Expression by Western Blot at Week 12 Post-treatment in the First 11 Patients

QUESTION

1. Is the transgene DNA inside muscle cells?
2. Is the desired protein made?
3. Is the protein at the cell membrane? How much is there?
4. What was the safety and tolerability experience?

BASED ON MUSCLE BIOPSIES FROM THE GASTROCNEMIUS MUSCLE AT WEEK 12

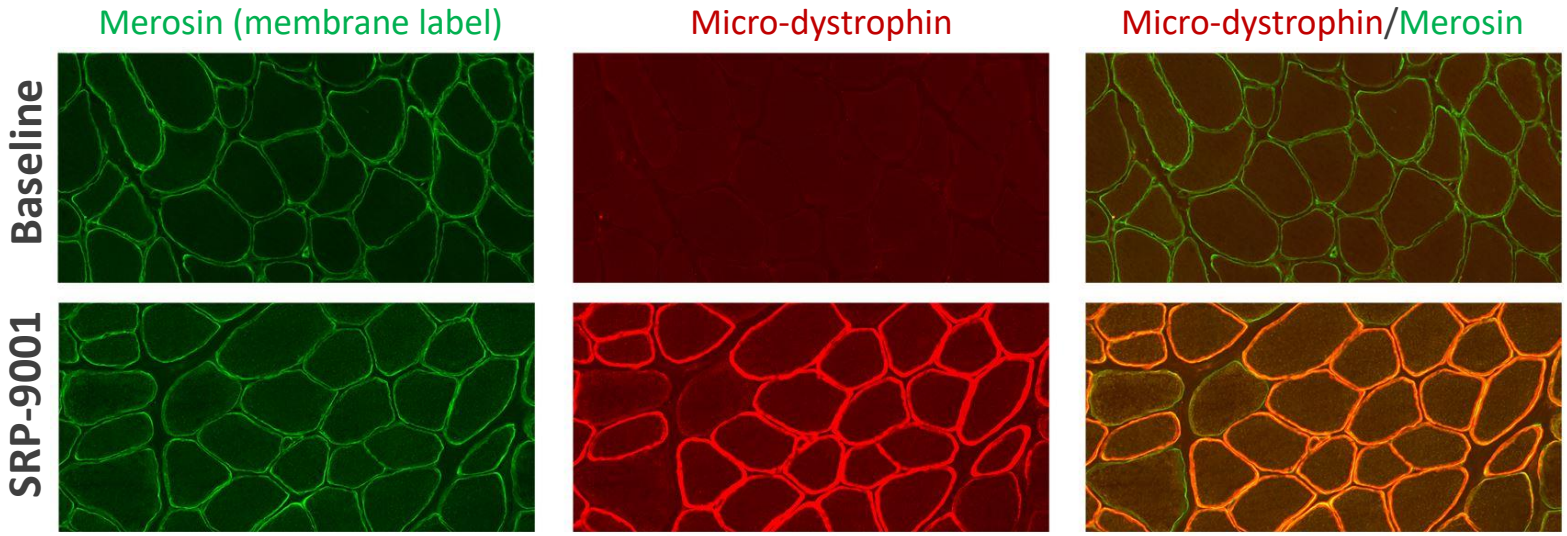
	MEAN PERCENT NORMAL MICRO-DYSTROPHIN EXPRESSION (SD)
N=11	**55.4%** (43.4%)

Micro-dystrophin Percentage of Dystrophin Positive Fibers and Intensity at Week 12 Post-treatment in the First 11 Patients

QUESTION

1. Is the transgene DNA inside muscle cells?
2. Is the desired protein made?
3. Is the protein at the cell membrane? How much is there?
4. What was the safety and tolerability experience?

BASED ON MUSCLE BIOPSIES FROM THE GASTROCNEMIUS MUSCLE AT WEEK 12



	MEAN PERCENTAGE OF DYSTROPHIN-POSITIVE FIBERS (SD)	MEAN INTENSITY (SD)
N=11	**70.5 %** (23.4%)	**116.9 %** (44.6%)

Mean baseline values were 12.8% and 41% for dystrophin positive fibers and intensity, respectively

Study 102 Part 2 Placebo Crossover Patients (Clinical Process Material) and Study 103 Patients (Commercially Representative Process Material) Show Consistent Results

Micro-dystrophin Clinical Process Material

Study 102 Part 2 Placebo Crossover Patients, Mean (n=11)

Vector Genome Copies per Nucleus	% of Normal Expression	% Dystrophin Positive Fibers	% Intensity
2.62	51.7%	79.2%	100.6%

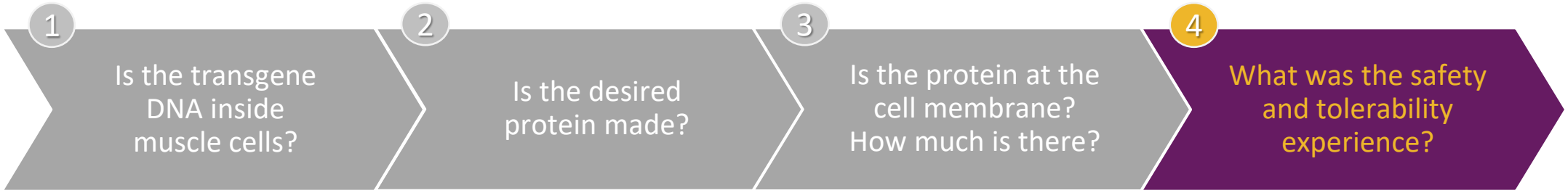
Micro-dystrophin Commercially Representative Process Material

Study 103 Patients, Mean (n=11)

Vector Genome Copies per Nucleus	% of Normal Expression	% Dystrophin Positive Fibers	% Intensity
3.87	55.4%	70.5%	116.9%

SRP-9001-103 Safety Experience

QUESTION



- Safety was consistent with previous experience with SRP-9001
- 79 treatment-emergent adverse events in 11 patients
  - Most common adverse event was vomiting
    - Typical onset within first week, mild, and treated with standard antiemetics
  - Increase in liver enzymes were transient and responsive to steroids
    - No signs of impaired liver function in any patient
- SAEs in 2 patients that fully resolved
  - 1 patient with increased transaminases who was treated with intravenous steroids
  - 1 patient with nausea and vomiting
- No clinically relevant complement activation observed

Key Takeaways

SRP-9001 Provides a Differentiated Profile for Duchenne

- Confirmed characteristics of commercially representative SRP-9001
  - Robust transduction – 3.87 mean vector genome copies per nucleus
  - Mean robust expression with proper localization to the sarcolemma membrane
    - Western blot – 55.4%
    - Positive Fibers – 70.5%
    - Intensity – 116.9%
  - Consistent safety profile
    - Safe, well tolerated and consistent safety profile with clinical manufacturing process material
      - No clinical complement manifestations
- Study 103 results provide confirmation of manufacturing process and analytics; sufficient capacity to supply the Duchenne population

Next Steps

1. *Meet with the FDA, mid-year 2021; and other regulatory agencies*
2. *Commence Study 301 following FDA meeting*
3. *Expand Study 103 to include older ambulant and non-ambulant patients*

Question and Answer

Dragging tomorrow into today

#DraggingTomorrowIntoToday