First Quarter 2019 Financial Results

May 9, 2019

Acceleron Forward-Looking Statements

THIS PRESENTATION CONTAINS FORWARD-LOOKING STATEMENTS ABOUT THE COMPANY'S STRATEGY, FUTURE PLANS and prospects, including statements regarding the development of the Company's compounds, the timeline for clinical development and regulatory approval of the Company's compounds and the expected timing for reporting of data from ongoing clinical trials. The words "anticipate," "believe," "could," "estimate," "expect," "goal," "intend," "may," "plan," "potential," "project," "should," "target," "will," "would," and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

ACTUAL RESULTS COULD DIFFER MATERIALLY FROM THOSE INCLUDED IN THE FORWARD-LOOKING STATEMENTS DUE to various factors, risks and uncertainties, including, but not limited to, that preclinical testing of the Company's compounds and data from clinical trials may not be predictive of the results or success of ongoing or later clinical trials, that the results of any clinical trial may not be predictive of the results or success of other clinical trials of the same product candidate, that the development of the Company's compounds will take longer and/or cost more than planned, that the Company will be unable to successfully complete the clinical development of the Company's compounds, that the Company may be delayed in initiating, enrolling or completing any clinical trials, and that the Company's compounds will not receive regulatory approval or become commercially successful products. These and other risks and uncertainties are identified under the heading "Risk Factors" included in the Company's most recent Annual Report on Form 10-K, and other filings that the Company has made and may make with the SEC in the future.

THE FORWARD-LOOKING STATEMENTS CONTAINED IN THIS PRESENTATION ARE BASED ON MANAGEMENT'S CURRENT views, plans, estimates, assumptions and projections with respect to future events, and the Company does not undertake and specifically disclaims any obligation to update any forward-looking statements.

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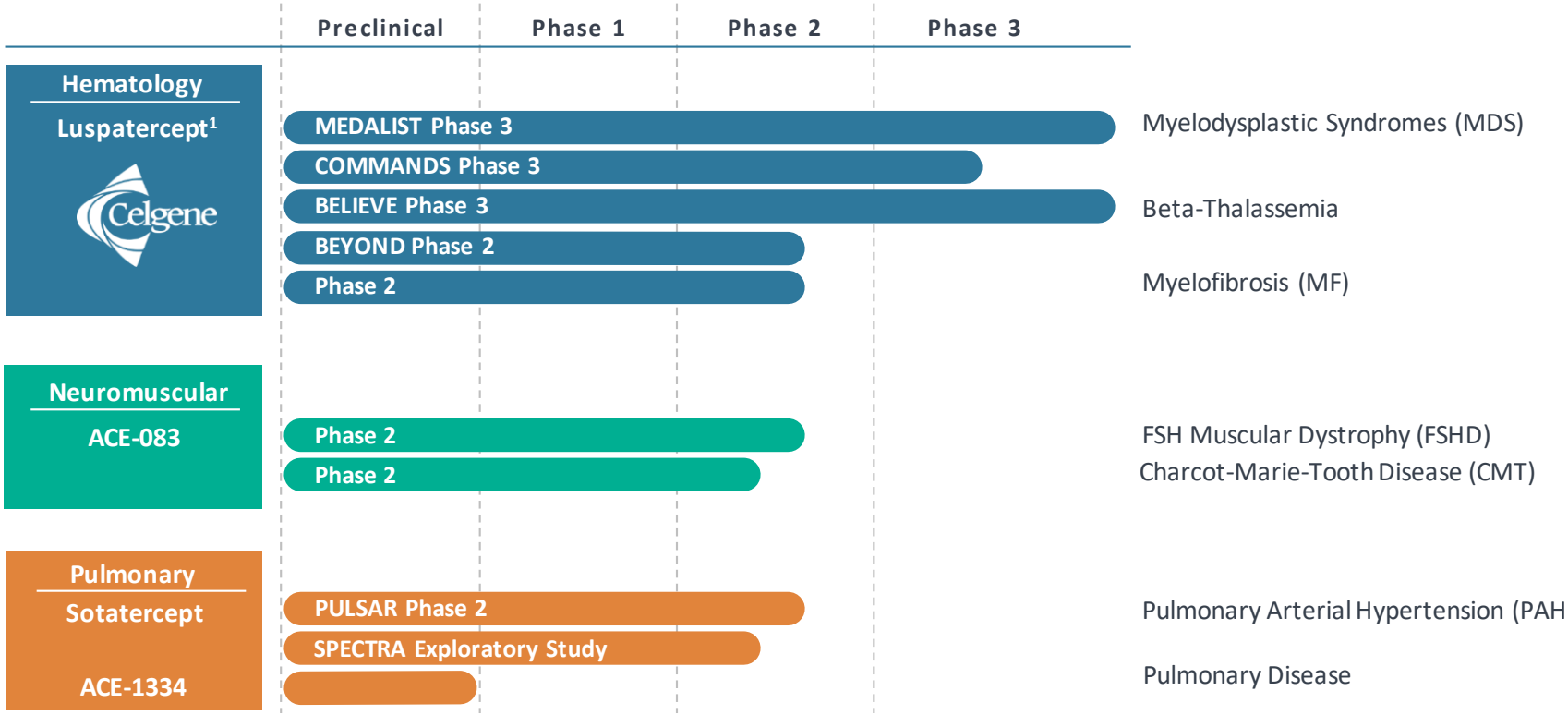
Habib Dable
Chief Executive Officer

ACCELERON

Building Therapeutic Area Leadership



1. Luspatercept trials in collaboration with Celgene

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US and EU Regulatory Applications Submitted in April

MEDALIST

Phase 3

Lower-Risk MDS, RS+

BELIEVE

Phase 3

Beta-Thalassemia, Transfusion-Dependent

FDA U.S. FOOD & DRUG ADMINISTRATION

Biologics License Application (BLA)

EUROPEAN MEDICINES AGENCY
SCIENCE MEDICINES HEALTH
An agency of the European Union

Marketing Authorization Application (MAA)

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Additional Luspatercept[1] Trials Underway

	Disease Area	Topline Results Expected
MYELOFIBROSIS Phase 2	Myelofibrosis	2H:19
BEYOND Phase 2	Beta-Thalassemia, Non-Transfusion-Dependent	2020
COMMANDS Phase 3	Lower-Risk MDS, First-line	TBD

1. Luspatercept trials in collaboration with Celgene

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ACE-083 Phase 2 FSHD and CMT Program Highlights

FSHD Part 1 Results Encore Presentation

CMT Part 1 Results Encore Presentation

AAN 2019 Annual Meeting
May 4–10 • Philadelphia

PART 2 OF EACH PHASE 2 TRIAL ONGOING

FSHD
N = 55

→

Treatment Duration:
6 months

←

CMT
N = 40

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Sotatercept PAH Program Highlights

PULSAR

Traditional Phase 2 Trial
Randomized, double-blind, placebo-controlled

SPECTRA

Exploratory Phase 2 Trial
Open-label, single arm

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Kevin McLaughlin
Chief Financial Officer

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Q1 2019 Financial Results

Cash	
Cash, cash equivalents and investments	$513.1M
Revenue	
Collaboration Revenue	$2.8M
Costs and Expenses	
Total Costs and Expenses	$43.6M
R&D Expenses	$32.8M
G&A Expenses	$10.8M
Net Loss	
Net Loss	$38.1M

Note: Numbers may not foot due to rounding

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Upcoming Corporate Priorities

HEMATOLOGY

- **Luspatercept**
  - MEDALIST and BELIEVE Phase 3 trial results planned to be submitted for publication in **2019**
  - Myelofibrosis Phase 2 trial preliminary topline results expected in **2H 2019**
  - BEYOND Phase 2 trial topline results expected in **2020**
  - COMMANDS Phase 3 trial patient enrollment
  - Potential expansion of clinical program into other indications in **2019**

NEUROMUSCULAR

- **ACE-083**
  - FSHD Part 2 of the Phase 2 trials topline results expected in **2H 2019**
  - CMT Part 2 of the Phase 2 trials topline results expected in **Q1 2020**

PULMONARY

- **Sotatercept**
  - PULSAR Phase 2 trial topline results expected in **1H 2020**
  - SPECTRA exploratory study preliminary results expected in **2020**

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Q1 2019: Financial Results Q&A Session

Habib Dable	Chief Executive Officer
Kevin McLaughlin	Chief Financial Officer
John Quisel, Ph.D., J.D.	Chief Business Officer
Sujay Kango	Chief Commercial Officer
Todd James, IRC	VP, Investor Relations and Corp. Comm.

THANK YOU

www.acceleronpharma.com
NASDAQ: XLRN