Second Quarter 2020 Financial Results and Corporate Update

August 13, 2020

Lumos Pharma Q2 2020 Conference Call

Agenda

- **Welcome**
  - Lisa Miller, *Director of Investor Relations*
- **Introduction & Corporate Update**
  - Rick Hawkins, *CEO*
- **Review of LUM-201 and PGHD**
  - John McKew, PhD, *COO & CSO*
- **Clinical Development Plan**
  - Eugene Kennedy, MD, *CMO*
- **Second Quarter 2020 Financial Results**
  - Carl Langren, *CFO*

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Forward Looking Statements

This presentation contains forward-looking statements of Lumos Pharma, Inc. that involve substantial risks and uncertainties. All statements, other than statements of historical facts, contained in this presentation are forward-looking statements, within the meaning of The Private Securities Litigation Reform Act of 1995. The words "anticipate," "believe," "estimate," "expect," "intend," "may," "plan," "target," "potential," "will," "could," "should," "seek" or the negative of these terms or other similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

These forward-looking statements include, among others, statements regarding the expected initiation of a Phase 2b clinical trial, the sufficiency of funding for such trial, the potential of an orally administered treatment regimen for PGHD and other indications, projected cash position and its sufficiency to fund the company's operations through data read-out for the Phase 2b trial of LUM-201 in PGHD; the expected initiation of a Pharmacokinetic/Pharmacodynamic trial of LUM-201 in PGHD by Q1 2021; impact of regulatory feedback to clinical timelines and costs, results of its clinical trials for product candidates; its timing of release of data from ongoing clinical studies; its plans related to execution of clinical trials; plans related to moving additional indications into clinical development; milestones or other economic interests, Lumos Pharma's financial guidance for 2020 and beyond; and any other statements other than statements of historical fact.

Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements that Lumos Pharma makes due to a number of important factors, including the effects of pandemics or other widespread health problems such as the ongoing COVID-19 pandemic and those risks discussed in "Risk Factors" and elsewhere in Lumos Pharma's Annual Report on Form 10-K for the year ended December 31, 2019, Form 10-Q for the quarter ended March 31, 2020, and other reports filed with the U.S. Securities and Exchange Commission (SEC). The forward-looking statements in this presentation represent Lumos Pharma's views as of the date of this presentation. Lumos Pharma anticipates that subsequent events and developments will cause its views to change. However, while it may elect to update these forward-looking statements at some point in the future, it specifically disclaims any obligation to do so. You should, therefore, not rely on these forward-looking statements as representing Lumos Pharma's views as of any date subsequent to the date of this presentation. 8.12.20

Corporate Update – Sale of Priority Review Voucher (PRV)

- July 27, 2020 – Merck and Lumos Pharma sign agreement for the sale of the PRV issued in conjunction with approval of Ebola vaccine
- Agreed upon value of PRV set at $100 million
- Lumos Pharma to be paid $60 million for its 60% interest in PRV
- PRV proceeds represent non-dilutive funds available for Lumos Pharma to expand portfolio of rare disease assets

Clinical and Business Development Activities

- Clinical-stage company focused on therapeutics for rare diseases
- Lead asset, LUM-201, with potential to disrupt established pediatric growth hormone deficiency (PGHD) market of over $1 Billion*
  - LUM-201 oral therapeutic with potential to supplant significant segment of standard-of-care injectable PGHD market
- Phase 2b trial of LUM-201 in PGHD expected to begin before end of 2020
- Pharmacokinetic/Pharmacodynamic study of LUM-201 in PGHD
  - Concurrent study to begin by Q1 2021
- Pursuit of additional rare disease assets to expand pipeline

* USA, Germany, France, Italy, Spain, UK, Japan (Global Data Opportunity Analyzer: Growth Hormone Deficiency Opportunity Analysis and Forecasts to GDHC069POA, May 2017)

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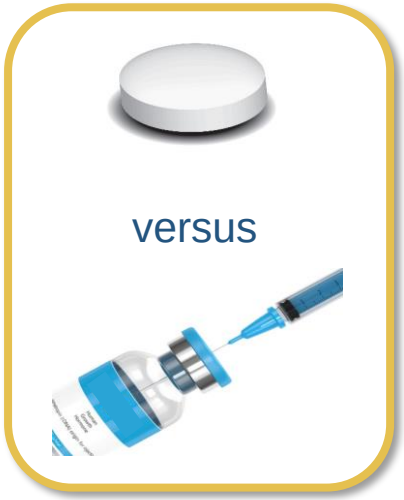
PGHD and Standard of Care

- PGHD occurs due to inadequate secretion of growth hormone by the pituitary gland during childhood
- PGHD can be either hereditary or acquired, although the majority of cases have unknown causes (idiopathic)
  - Lack of physical growth is the most obvious manifestation; but numerous metabolic processes are also affected
- PGHD incidence in U.S. approximately 1 in 3500 children[1]
- Standard of care consists of daily, subcutaneous injections of recombinant human growth hormone (rhGH)
  - Can be painful, potentially leading to missed doses and sub-optimal growth[2,3]
  - ~2500 injections over years of treatment



Robust, established market primed for an oral alternative

1 GlobalData EpiCast Report for Growth Hormone Deficiency Epidemiology forecast to 2026
2 Rosenfeld 2008 Endocrine Practice
3 Cutfield 2011 PLOS ONE

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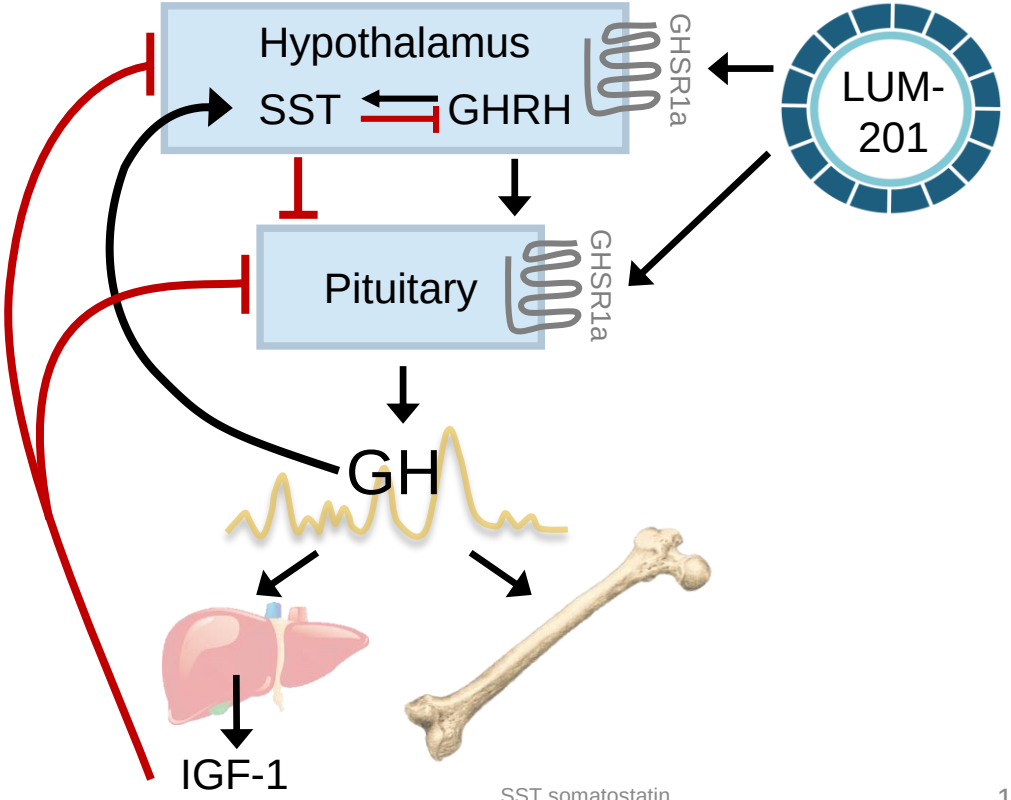
LUM-201 Mechanism of Action



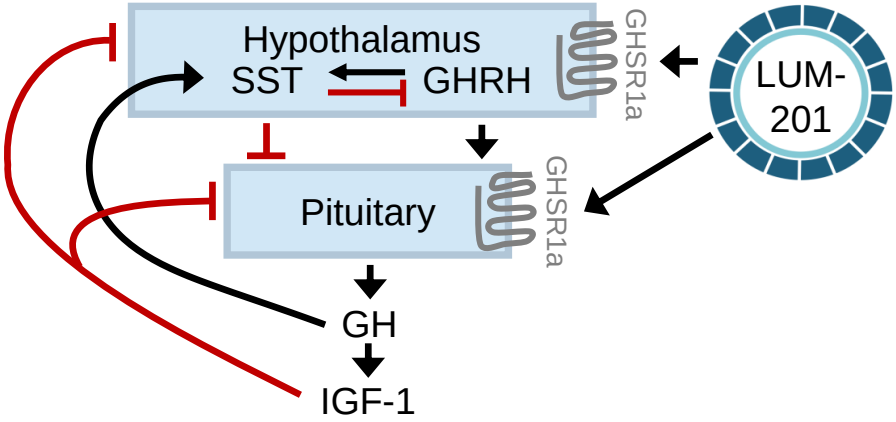
- Oral LUM-201 is a growth hormone (GH) secretagogue
- Acts as an agonist of GH Secretagogue Receptor (GHSR1a) to stimulate GH release[1]
- LUM-201 has been observed to increase the amplitude of endogenous pulsatile GH secretion[2,3]
- LUM-201's stimulatory effect is regulated by GH/IGF-1 feedback

SST somatostatin
GHRH growth hormone-releasing hormone
IGF-1 insulin-like growth factor-1
GHSR1a GH secretagogue receptor 1a

1 Howard 1996 Science
2 Nass 2008 Ann Intern Med
3 Chapman 1997 J Clin Endocrinol Metab

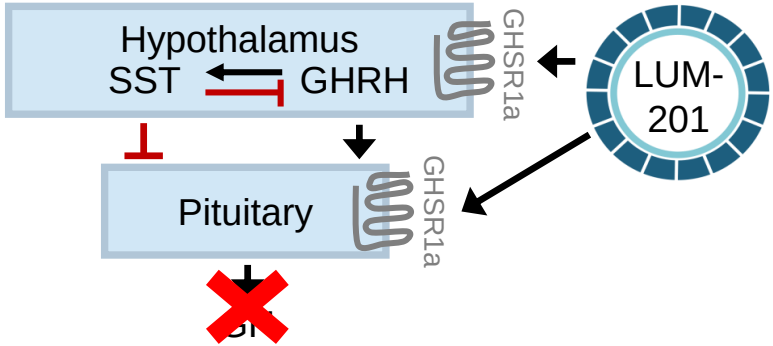
Targeted PGHD Population

PEM-Positive: Included



- Functional but reduced HP-GH axis
  - Able to secrete some, but insufficient, GH
  - Expected to respond to LUM-201
  - Represents 50-60% of PGHD patients[1]

PEM-Negative: Excluded



- Non-functional HP-GH axis
  - Unable to secrete GH
  - Not expected to respond to LUM-201
  - Represents 40-50% of PGHD patients

Predictive Enrichment Markers (PEMs): GH response to single LUM-201 dose and baseline IGF-1 have potential to distinguish these populations

HP-GH hypothalamic-pituitary-growth hormone

1 Lumos Pharma data on file

Phase 2b Trial of LUM-201 in PGHD

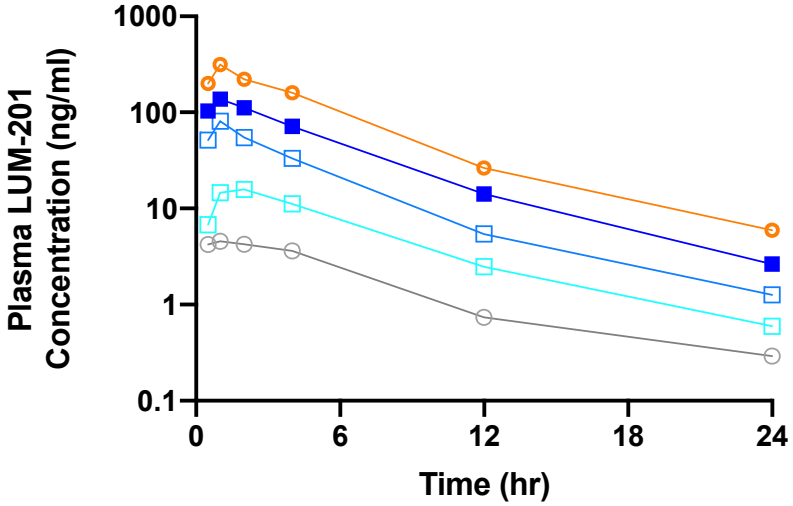
- Two main goals set for Phase 2b
  - Prospectively confirm the utility of PEM strategy
  - Determine the optimal dose for Phase 3 registration trial
- Phase 2b PGHD clinical trial design
  - Three dose levels of LUM-201 (0.8, 1.6, 3.2 mg/kg)
  - Positive control arm of daily rhGH injections
  - Treatment-naïve, age-matched cohorts; 6-month dosing
  - Primary outcome measure: annualized growth height velocity
- Anticipate initiation of Phase 2b trial prior to the end of 2020

Generate safety and efficacy data to move on to Phase 3 study

PK/PD Response Supports Proposed Doses in PGHD

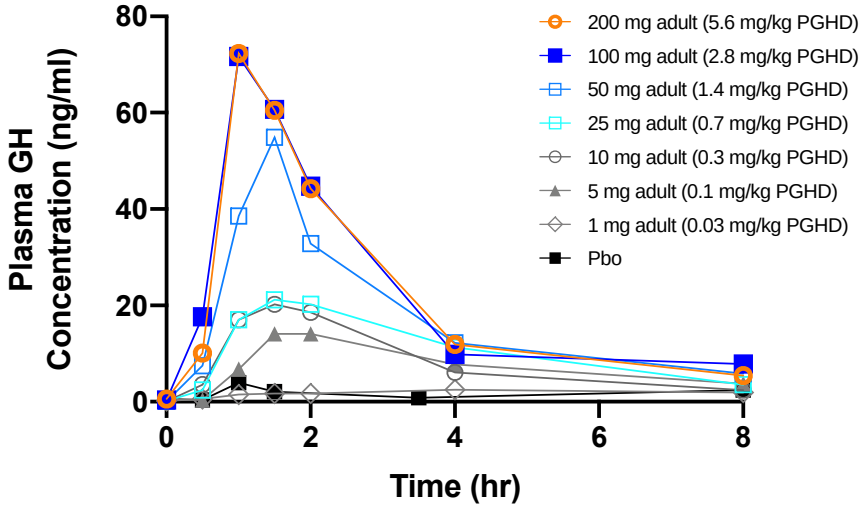
Pharmacokinetics

- Dose response to 5.6 mg/kg PGHD dose equivalent*



Pharmacodynamics

- PD plateau possible ≥ 2.8 mg/kg PGHD dose equivalent*



Merck Study 001 in healthy adult subjects

*Dose equivalence is based on AUC

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Pharmacokinetic / Pharmacodynamic Trial of LUM-201 in PGHD

- Purpose of Pharmacokinetic/Pharmacodynamic (PK/PD) trial
  - Further explore LUM-201's mechanism of amplification of natural pulsatile secretion of growth hormone
  - To expand data package in support of future regulatory filings
- PK/PD clinical trial design
  - Two dose levels of LUM-201
  - Single-site, 6-month, open-label study in treatment naïve PGHD patients
  - Concurrent with Phase 2b trial of LUM-201 in PGHD
- Anticipate initiation of PK/PD trial by Q1 2021

Generate additional data to support future regulatory filings

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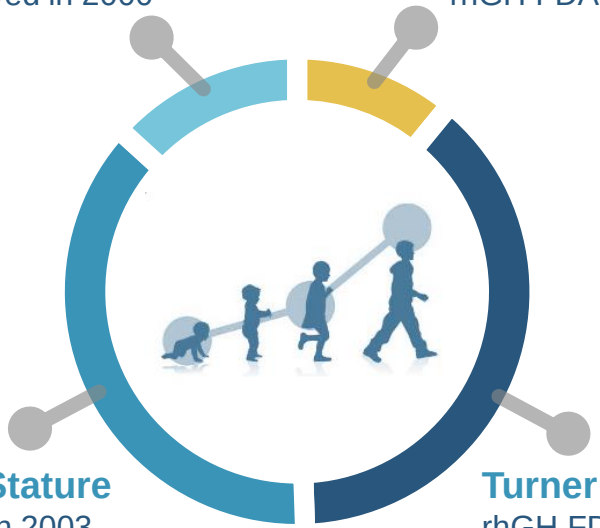
LUM-201: Other Potential Rare Endocrine Disorders

- Beyond PGHD, Lumos Pharma also plans to investigate LUM-201 for other rare endocrine disorders, for which rhGH has been approved

Prader-Willi Syndrome
rhGH FDA approved in 2000

Small for Gestational Age
rhGH FDA approved in 2001



Idiopathic Short Stature
rhGH FDA approved in 2003

Turner Syndrome
rhGH FDA approved in 1996

Significant opportunities with established regulatory pathways

GARD: Genetic and Rare Diseases Information Center

Secure Cash Position

Metric	Position
Cash balance on June 30, 2020	$72.7 million
Additional non-dilutive resources anticipated	$60 million for 60% interest in PRV valued at $100 million July 2020[1]
Projected cash use per quarter through 2020	~ $6.5 to $7.5 million
Shares outstanding as of June 30, 2020	~ 8.3 million

June 30, 2020 cash balance expected to be sufficient to fund current operations through Phase 2b trial data read-out

[1] Agreement to monetize PRV announced July 27, 2020

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Lumos Pharma: Summary of Investment Thesis

- Lead program, LUM-201, with potential to be the first oral growth hormone secretagogue therapy for PGHD
- Opportunity to disrupt established and sizable market
- Management team with extensive experience in the clinical advancement of rare disease therapeutics
- Cash on hand expected to support current operations through planned Phase 2b read-out, with additional non-dilutive PRV funding available to expand portfolio

Potential to significantly increase shareholder value

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