Designed For Life

Q2 Financial Results & Business Update
6 August 2020
This presentation contains “forward-looking statements” that involve substantial risks and uncertainties for purposes of the safe harbor provided by the Private Securities Litigation Reform Act of 1995. All statements, other than statements of historical facts, included in this presentation regarding strategy, future operations, future financial position, future revenue, projected expenses, prospects, plans and objectives of management are forward-looking statements. In addition, when or if used in this presentation, the words “may,” “could,” “should,” “anticipate,” “believe,” “estimate,” “expect,” “intend,” “plan,” “predict” and similar expressions and their variants may identify forward-looking statements. Examples of forward-looking statements include, but are not limited to, the approach we are taking to discover and develop novel therapeutics using synthetic biology; statements regarding the potential of our platform to develop therapeutics to address a wide range of diseases, including: metabolic diseases, inflammatory and immune disorders, and cancer; the future clinical development of Synthetic Biotic medicines; the potential of our technology to treat phenylketonuria and cancer; the expected timing of our anticipated clinical trial initiations and availability of clinical data; the benefit of orphan drug and fast track status; the adequacy of our capital to support our future operations and our ability to successfully initiate and complete clinical trials; the results of our collaborations; and the difficulty in predicting the time and cost of development of our product candidates. Actual results could differ materially from those contained in any forward-looking statement as a result of various factors, including, without limitation: the uncertainties inherent in the preclinical development process; our ability to protect our intellectual property rights; and legislative, regulatory, political and economic developments, as well as those risks identified under the heading “Risk Factors” in our filings with the SEC. The foregoing review of important factors that could cause actual events to differ from expectations should not be construed as exhaustive and should be read in conjunction with statements that are included herein and elsewhere, including the risk factors included in our quarterly report on Form 10-Q filed with the SEC on May 8, 2020, and in any subsequent filings we make with the SEC. The forward-looking statements contained in this presentation reflect our current views with respect to future events. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements in the future, we specifically disclaim any obligation to do so. These forward-looking statements should not be relied upon as representing our view as of any date subsequent to the date hereof.
Opening Remarks

Dr. Aoife Brennan
MB CHB

President & CEO
2nd Quarter Highlights

- We are building the premier Synthetic Biology platform to engineer bacterial Synthetic Biotic medicines that benefit patients in new ways
- Team, technology and portfolio to succeed: appointed Antoine Awad as COO
- Rapidly progressed metabolic programs
  - SYNB1618 PKU Phase 2 synPHEny FPI expected late 2020
  - Advanced IND for SYNB8802 in Enteric Hyperoxaluria: FIH expected early 2021
- Immunomodulation in immunology and oncology
  - SYNB1891 monotherapy continues to enroll: data expected late 2020
- Regained rights to IBD
- Continued careful capital stewardship & strong cash position
Advancing The Pipeline

Emerging treatment options in PKU will continue to leave many patients behind.

SYNB1618 demonstrates potential to lower Phe in PKU patients.

Phase 2 Phe-lowering trial starting in 2H 2020.

Next generation strain in development.
Emerging treatment options in PKU will continue to leave many patients behind.

SYNB1618 demonstrates potential to lower Phe in PKU patients.

Phase 2 Phe-lowering trial starting in 2H 2020.

*Next generation strain in development*

SYNB1891 (Synthetic Biotic for intratumoral injection) continues to enroll monotherapy cohorts.

SYNB1891 will provide clinical data from monotherapy cohorts in 2020.

SYNB1891 has potential for improved efficacy relative to other STING approaches.
## Upcoming Milestones

**Synlogic Entering Data Rich Period In The Clinic**

<table>
<thead>
<tr>
<th>Expected Milestone</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>early</td>
<td>mid</td>
</tr>
<tr>
<td><strong>SYNB1618 PKU</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initiate Ph.2 study in PKU patients</td>
<td></td>
<td></td>
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<tr>
<td>Ph.2 Phe-lowering read-out</td>
<td></td>
<td></td>
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<tr>
<td><strong>SYNB8802 HOX</strong></td>
<td></td>
<td></td>
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<tr>
<td>Initiate IND-enabling studies</td>
<td>initiated</td>
<td></td>
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<tr>
<td>Initiate Ph.1 study in HV and Patients</td>
<td></td>
<td></td>
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<tr>
<td>Ph.1 Patient Read-out</td>
<td></td>
<td></td>
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<tr>
<td><strong>SYNB1891 I/O</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ph.1 Monotherapy read-out</td>
<td></td>
<td></td>
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<tr>
<td>Initiate Ph.1 combination study arm</td>
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<td></td>
</tr>
<tr>
<td>Ph.1 Combination therapy read-out</td>
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</tbody>
</table>

### Significant Clinical Catalysts Over The Next 6-12 Months

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# 2<sup>nd</sup> Quarter 2020 Summary Results

## Balance Sheet (unaudited)

<table>
<thead>
<tr>
<th></th>
<th>30 June 2020</th>
<th>31 Mar 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash, Cash Equivalents, and Short &amp; Long Term Marketable Securities</td>
<td>$109.1M</td>
<td>$114.3 M</td>
</tr>
</tbody>
</table>

## Statement of Operations (unaudited)

<table>
<thead>
<tr>
<th></th>
<th>30 June 2020</th>
<th>30 June 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D Expenses</td>
<td>$12.9 M</td>
<td>$9.7 M</td>
</tr>
<tr>
<td>G&amp;A Expenses</td>
<td>$3.5 M</td>
<td>$3.7 M</td>
</tr>
<tr>
<td>Net Loss</td>
<td>$(15.5) M</td>
<td>$(12.3) M</td>
</tr>
<tr>
<td>Net Loss Per Share *</td>
<td>$(0.44)</td>
<td>$(0.45)</td>
</tr>
</tbody>
</table>

*weighted average shares used in computing net loss per share - basic and diluted

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**Strong Cash Position With Runway Into 2022**
Focus On
Enteric Hyperoxaluria

Dr. Richard Riese, MD, PhD
Chief Medical Officer
Enteric Hyperoxaluria: Overview

Dietary Sources of Oxalate

- Spinach
- Strawberry
- Chocolate
- Almonds

Risk Factors

- IBD
- Roux-en-Y Gastric Bypass
- Short Bowel Syndrome
- Chronic Pancreatitis

Clinical Manifestations

Nephrocalcinosis, Stones, and Risk of Chronic Kidney Disease

Dietary Sources of Oxalate Are Difficult To Avoid, Putting Patients at Risk for Poor Kidney Outcomes
# Hyperoxaluria: Primary vs. Enteric

<table>
<thead>
<tr>
<th>Pathology</th>
<th>Primary Hyperoxaluria</th>
<th>Enteric Hyperoxaluria</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Family of autosomal recessive monogenic disorders in which liver enzyme deficiency results in endogenous oxalate overproduction</td>
<td>Pathogenic hyperabsorption of dietary oxalate, often accompanies bowel disease or bariatric surgery</td>
</tr>
<tr>
<td>Urinary Oxalate Levels</td>
<td>90 – 500 mg / 24 hrs (up to 10x normal)</td>
<td>45 – 130 mg / 24 hrs (up to 3x normal)</td>
</tr>
<tr>
<td>Onset</td>
<td>Pediatric</td>
<td>Adult</td>
</tr>
<tr>
<td>Clinical Mgmt</td>
<td>Limited nutrition options; nephrocalcinosis; dialysis; transplant; pyridoxine</td>
<td>Limited nutrition options; treatment of kidney stones as they occur; nephrocalcinosis; dialysis</td>
</tr>
<tr>
<td>U.S. Epidemiology</td>
<td>~5,000 – 8,000</td>
<td>200,000 – 250,000</td>
</tr>
<tr>
<td>Key Players</td>
<td>Dicerna Pharmaceuticals, Alnylam Pharmaceuticals, Allena Pharmaceuticals, Synlogic</td>
<td></td>
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</tbody>
</table>
SYNB8802 Poised To Enter The Clinic

Enteric Hyperoxaluria manifests in dangerously high urinary oxalate levels, putting patients with pre-existing bowel disease at 3-4x higher risk of CKD *

Differentiated profile - engineered to absorb oxalate from throughout the GI tract

Two preclinical models, mouse and NHP, provide evidence of urinary oxalate lowering

Precedented clinical development and regulatory path with urinary oxalate as a critical endpoint

Proof of concept achievable in Phase 1B Roux-n-Y gastric bypass population

* Tavian GE, Poster SA-PO276; Kidney Week 2019
Enteric Hyperoxaluria
Our Next Step To Synthetic Biotic Medicines

High unmet medical need with no available therapeutic options

Efficient clinical development: PoC achievable in Phase 1b

SYNB8802 has potential to meaningfully reduce urinary oxalate levels
Concluding Remarks

Dr. Aoife Brennan
MD CHB

President & CEO
Available For Questions

Aoife Brennan, MD CHB
President & CEO

Richard Riese, MD PhD
CMO

Antoine Awad
COO

Gregg Beloff, JD MBA
Interim CFO