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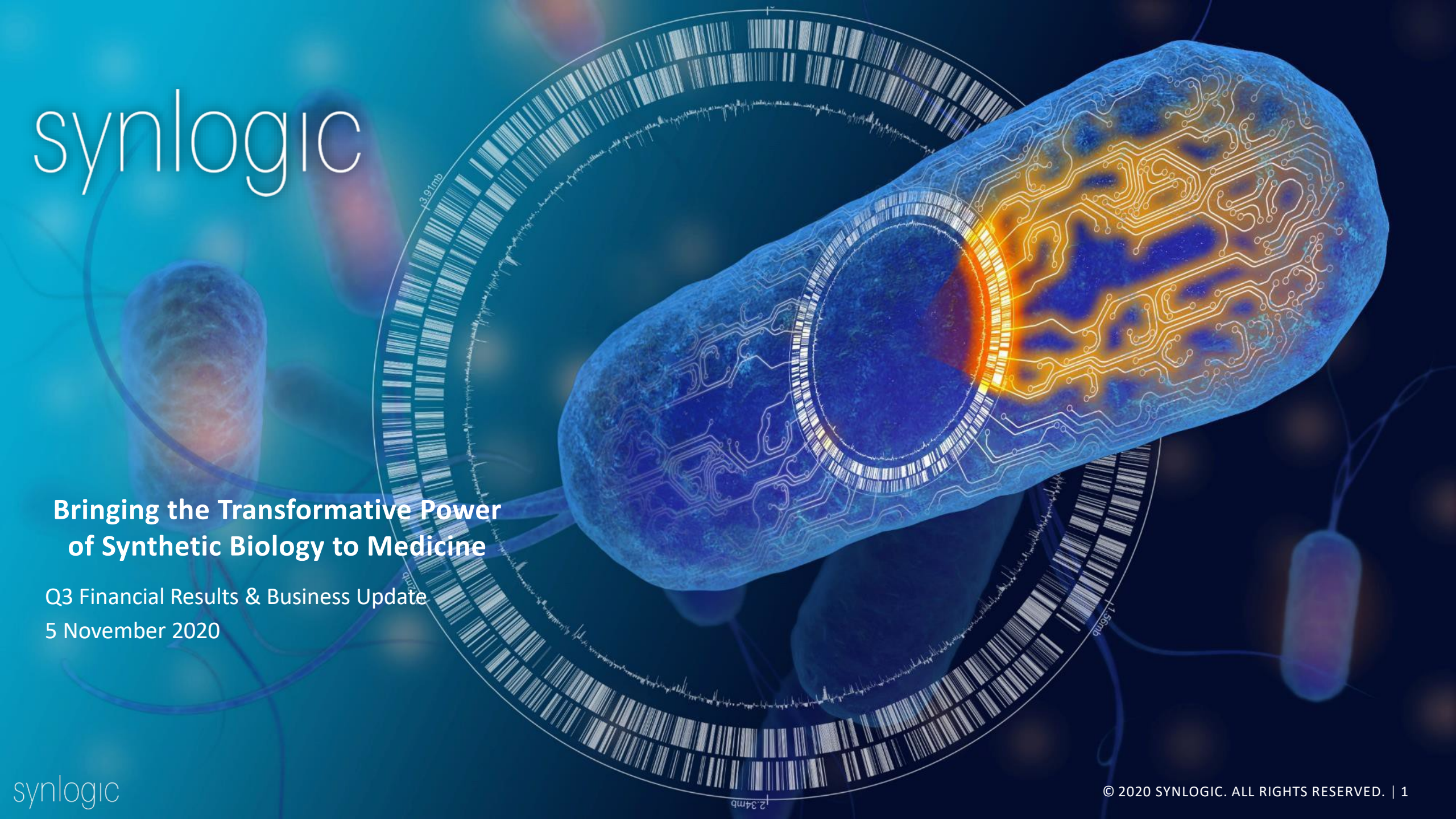

Bringing the Transformative Power of Synthetic Biology to Medicine

Q3 Financial Results & Business Update

5 November 2020

Forward Looking Statements

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

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3rd Quarter Highlights: Execution Across the Portfolio

Metabolic Programs

Rapidly progressed **metabolic programs**

- **SYNB1618 in PKU** Phase 2 *SynPheny-1* study initiated
- IND for **SYNB8802 in Enteric Hyperoxaluria** opened and Phase 1 study initiated

Immunomodulation

Immunomodulation in immunology and oncology

- **SYNB1891** monotherapy continues to enroll: study update expected late 2020

Advanced exploratory work in IBD

We are the premier Synthetic Biology platform engineering bacterial Synthetic Biotic medicines

Synlogic Entering Data Rich Period In The Clinic

	Expected Milestone	2020 early	2020 mid	2020 late	2021 early	2021 mid	2021 late
SYNB1618 PKU	Initiate Ph.2 study in PKU patients			initiated			
	Ph.2 Phe-lowering read-out					■	
SYNB8802 HOX	Initiate IND-enabling studies	completed					
	Initiate Ph.1 study in HV and Patients			initiated			
	Ph.1 Patient Read-out					■	
SYNB1891 I/O	Ph.1 Monotherapy interim update			■			
	Initiate Ph.1 Combination study arm				■		
	Ph.1 Combination therapy read-out						■

Significant Clinical Readouts Within Our Current Cash Window

3rd Quarter 2020 Summary Results

Balance Sheet (unaudited)	30 Sept 2020	30 June 2020
Cash, Cash Equivalents, and Short & Long Term Marketable Securities	$102.0 M	$109.1M

	Three Months Ended	
Statement of Operations (unaudited)	**30 Sept 2020**	**30 Sept 2019**
R&D Expenses	$10.5 M	$10.6 M
G&A Expenses	$3.0 M	$3.9 M
Net Loss	$(13.2 M)	$(13.3M)
Net loss per share – basic and diluted*	$(0.36)	$(0.39)
Weighted Average Shares Outstanding *	*36.3 M*	*34.2 M*

Strong Cash Position With Runway Into 2022

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

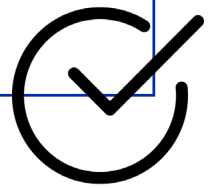
Progress in Metabolic Programs

Dr. Richard Riese, MD, PhD
Chief Medical Officer

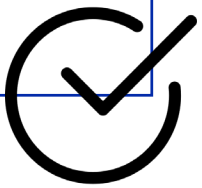
Phenylketonuria (PKU)

Emerging treatment options will continue to leave many patients behind

SYNB1618 demonstrates potential to lower Phe in PKU patients



Phase 2 Phe-lowering trial initiated



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Synlogic's Approach to Phenylketonuria (PKU)

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LIVING IN HARMONY WITH PKU

Synthetic Biotic Mechanism of Action

Consume Phe in the GI Tract → **Reduce Phe in the blood**

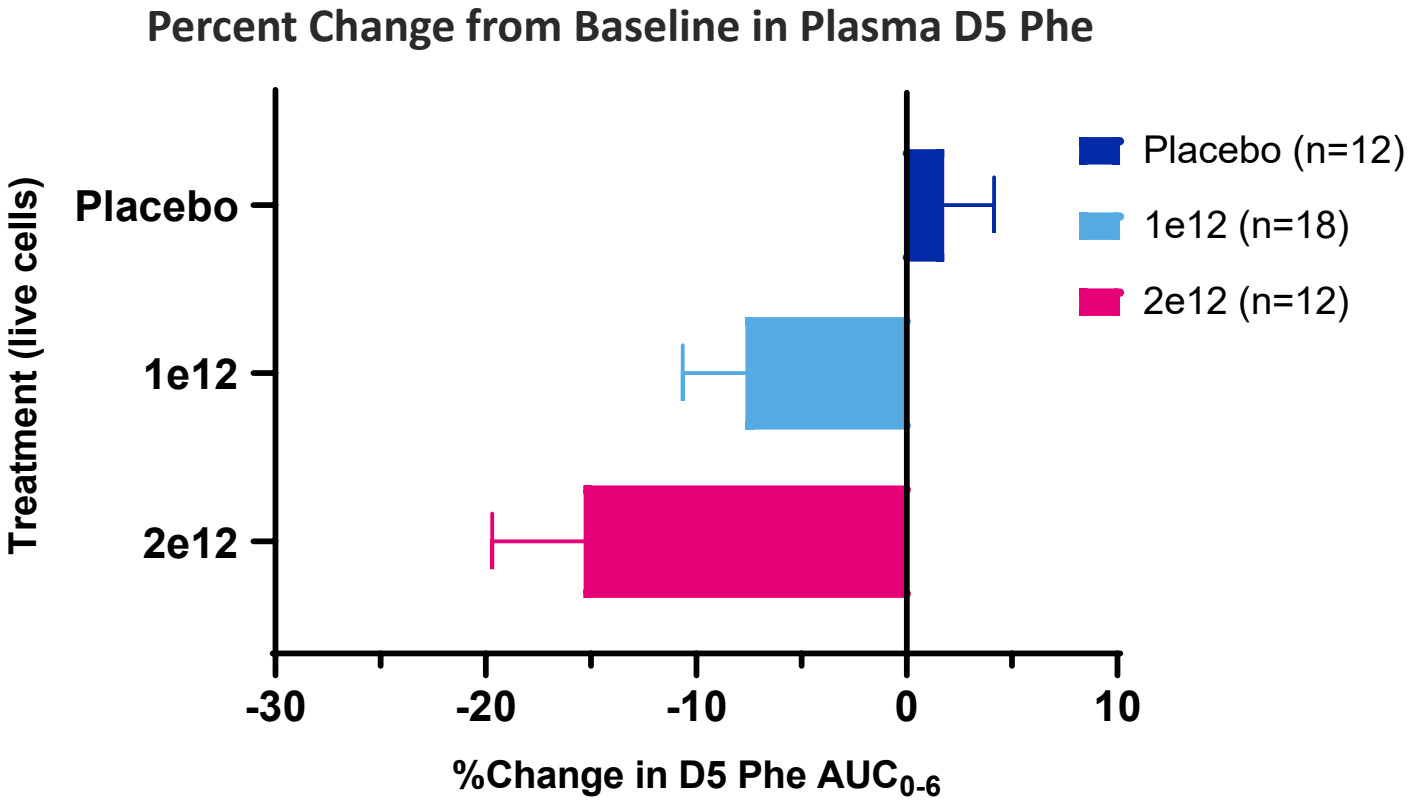
PKU Program Status

SYNB1618 was able to consume Phe in healthy volunteers

Synlogic has initiated a Phase 2 Study in PKU patients (SynPheny-1)

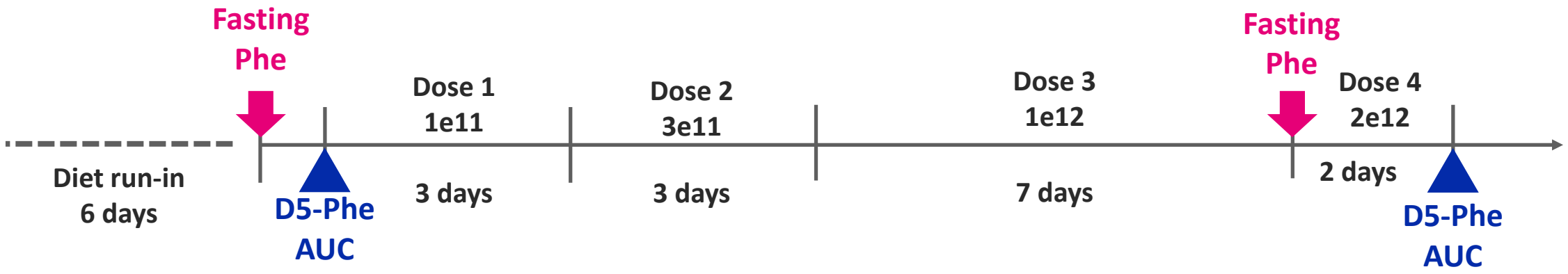
SYNB1618 in the Clinic: Solid Oral HV Data Demonstrates Phe Lowering

- D5-labeled Phe and biomarkers of strain activity measured at baseline and after treatment
- Finding: SYNB1618 consumes Phe in the GI tract based on biomarkers in a dose dependent manner



SYNB1618 Mechanism Confirmed: Accessed D5-Phe Tracer in Gut & Lowered Plasma D5-Phe

SynPheny-1 Phase 2 Proof of Concept Study in PKU



- **Demonstrate Phe Lowering in PKU Patients**
  - Plasma Phe lowering in fasted state at 1 x 10^{12} live cells over 7 days
  - Post meal D5-Phe AUC lowering at 2 x 10^{12} live cells (**not impacted** by diet)
- **Validate PD Model**
  - Understand relationship of strain specific biomarkers with plasma Phe lowering
- **Safety and Tolerability**

Patient-Centered Clinical Trial Design & Execution

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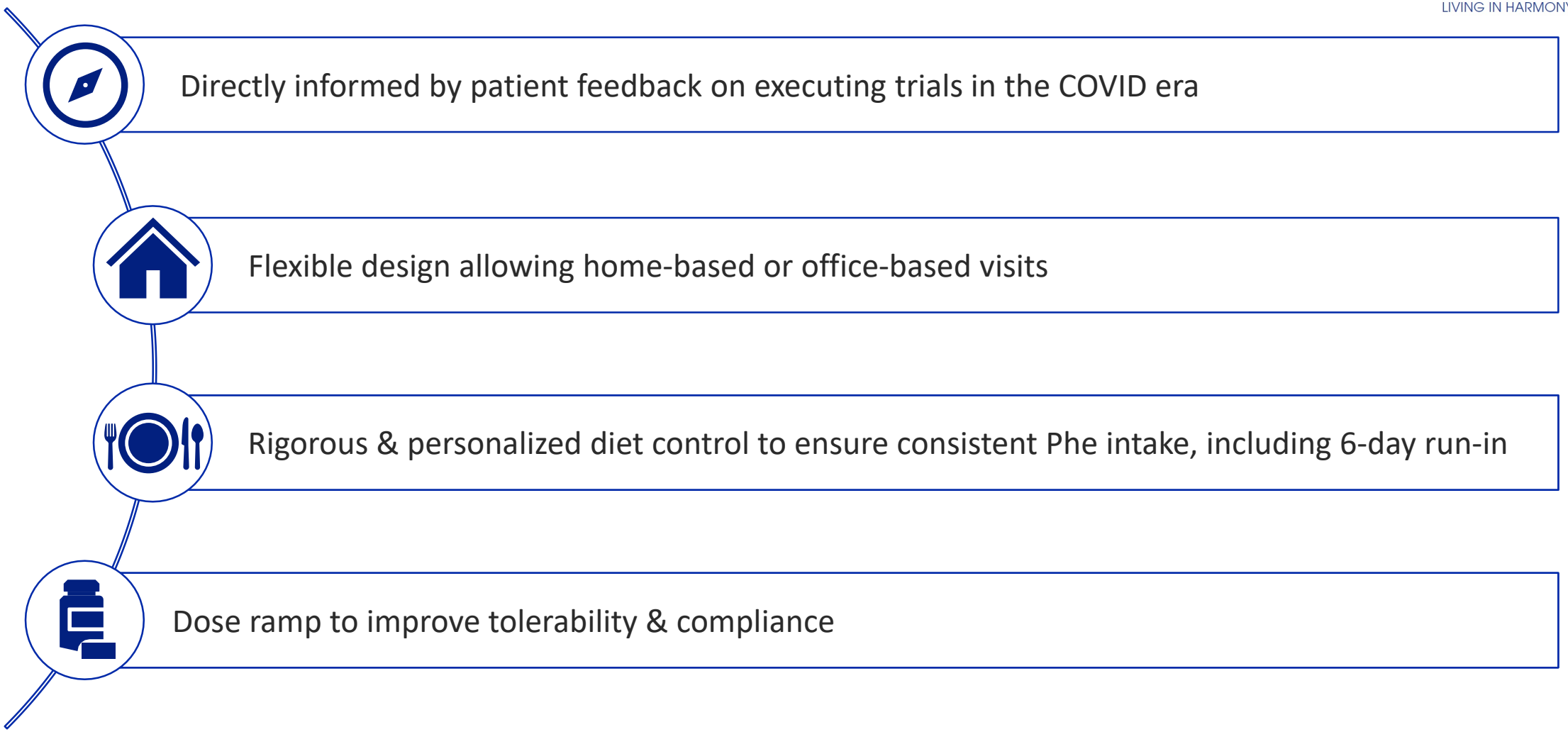
LIVING IN HARMONY WITH PKU



- Directly informed by patient feedback on executing trials in the COVID era
- Flexible design allowing home-based or office-based visits
- Rigorous & personalized diet control to ensure consistent Phe intake, including 6-day run-in
- Dose ramp to improve tolerability & compliance

Enteric Hyperoxaluria

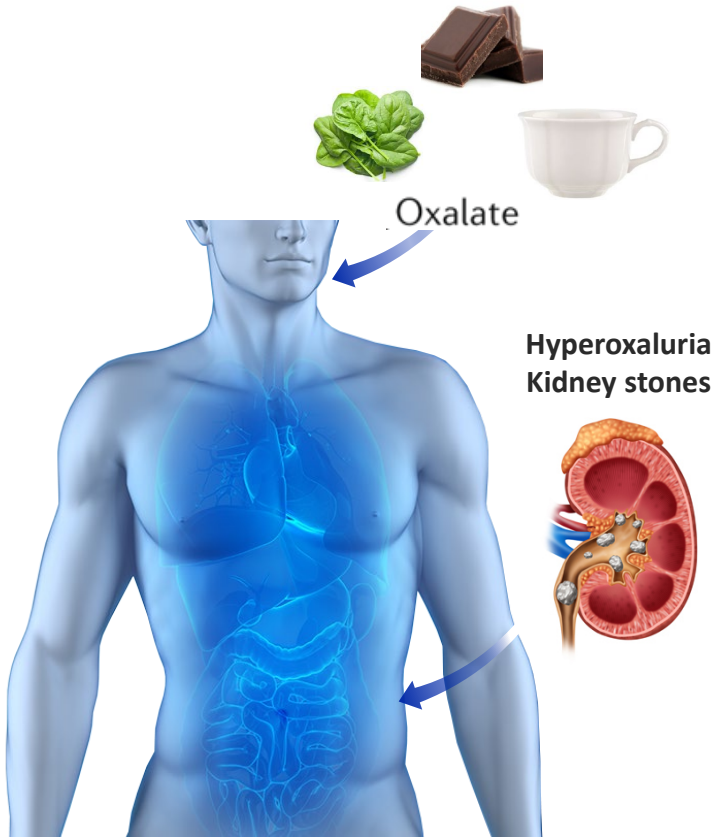
Enteric Hyperoxaluria results in significant kidney damage with no available treatment options

SYNB8802 has the potential to meaningfully lower urinary oxalate levels

SYNB8802 Phase 1 clinical study initiated ahead of schedule

Synlogic's Approach to Enteric Hyperoxaluria

Dietary Sources of Oxalate



Synthetic Biotic Mechanism of Action

Consume Oxalate in the GI Tract ▶ **Reduce Oxalate in the urine**

Enteric Hyperoxaluria Program Status

SYNB8802 was able to consume oxalate in multiple animal models

Synlogic has initiated a Phase 1 Study in healthy volunteers

Enteric Hyperoxaluria: Phase 1 Design Provides PoC Opportunity

Phase 1a
Healthy Volunteers

Multiple Ascending Dose

- High oxalate & low calcium diet run-in
- *Primary:* Safety & tolerability
- *Secondary:* Microbial kinetics of strain
- *Exploratory:* Change in plasma and urine biomarkers

Phase 1b
Enteric Hyperoxaluria Patients

Cross-over

- TID dosing
- N = 20 patients (Roux-en Y gastric bypass)
- UOx >70 mg/day

Roux-en-y gastric bypass population provides opportunity to demonstrate urinary oxalate lowering in disease state

Concluding Remarks

Dr. Aoife Brennan
MD CHB

President & CEO

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Available For Questions

Aoife Brennan, MD CHB
President & CEO

David Hava, PhD CSO

Antoine Awad,
COO

Richard Riese, MD PhD
CMO

Gregg Beloff, JD MBA
Interim CFO

synlogic

