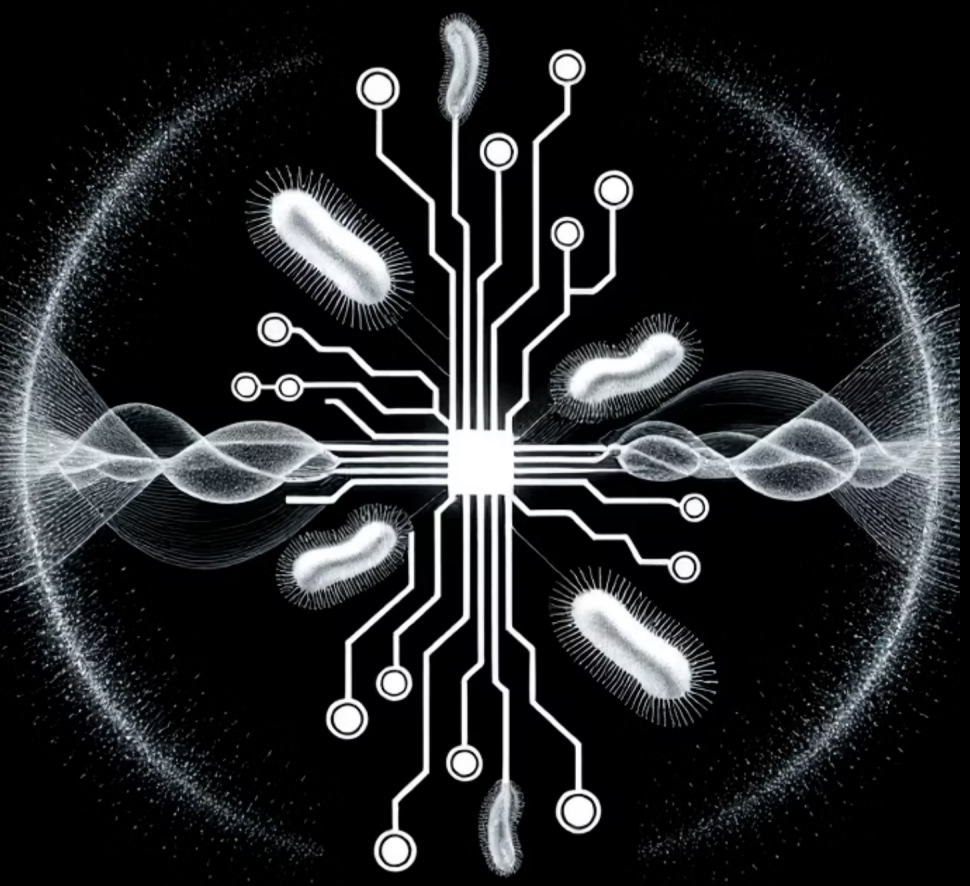


eXoZymes

Leading the biomanufacturing revolution

Breakthrough technology.

Unmatched scaling capability.

Accelerating time-to-market.

enzymes × AI = exozymes

The problem

We all hoped for synthetic biology to change the world...

Resources via conventional methods

Plant-derived chemicals

Petroleum-based chemicals

Cell-based synthetic biology

Problems with conventional methods

Plant-derived chemicals

Depleting natural resources

Petroleum-based chemicals

Polluting and toxic

~~Cell-based synthetic biology~~

Rarely makes it to commercial scale

We all hoped for SynBio to change the world…

Cell-free finally unlocks the potential

Traditional SynBio

Limited by cellular constraints

Complex optimization required

Cell-Free Technology

No cellular limitations

Direct enzyme utilization

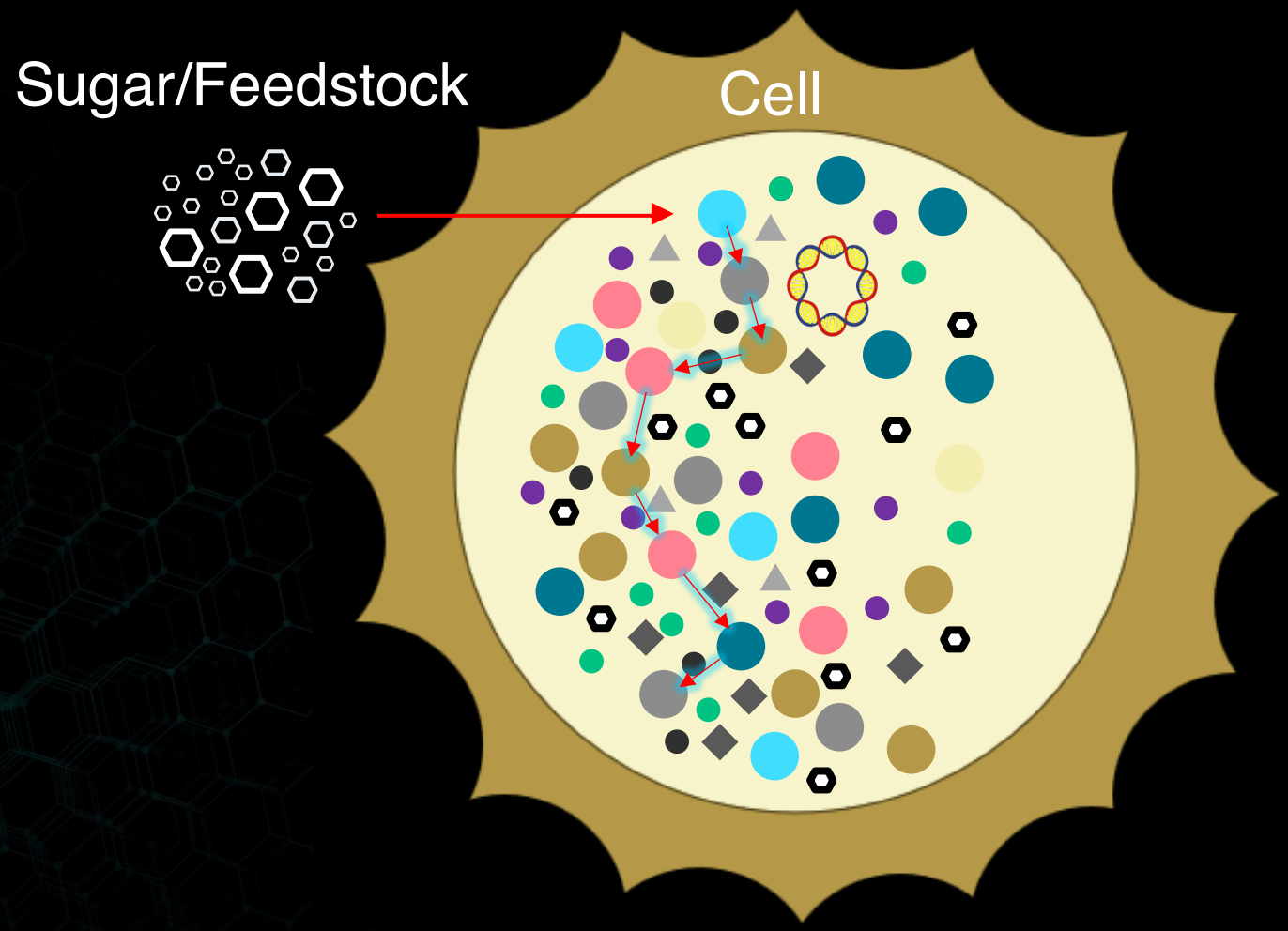
Market Potential

Unlimited scalability

Broader applications

Our cell-free approach eliminates traditional bottlenecks, enabling true commercial scale.

Old SynBio paradigm: How cells makes chemicals



Top reasons why SynBio / cells / fermentation is not ideal

1

Cells are, by evolution, designed to only do things that help the cell survive, grow, and replicate. They do not want to produce chemicals they do not need.

2

The cells often get sick or die from the toxic chemicals or the intermediates. Resulting in scaling problems and low titer results.

3

Most SynBio projects commercially die as the isolation cost to get the pure chemical, out of the cell slurry, is higher than the value of the chemical itself.

Our Solution

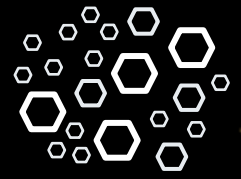
The ingenuity of biology + the power of AI-driven enzyme engineering + the scalability of chemical production

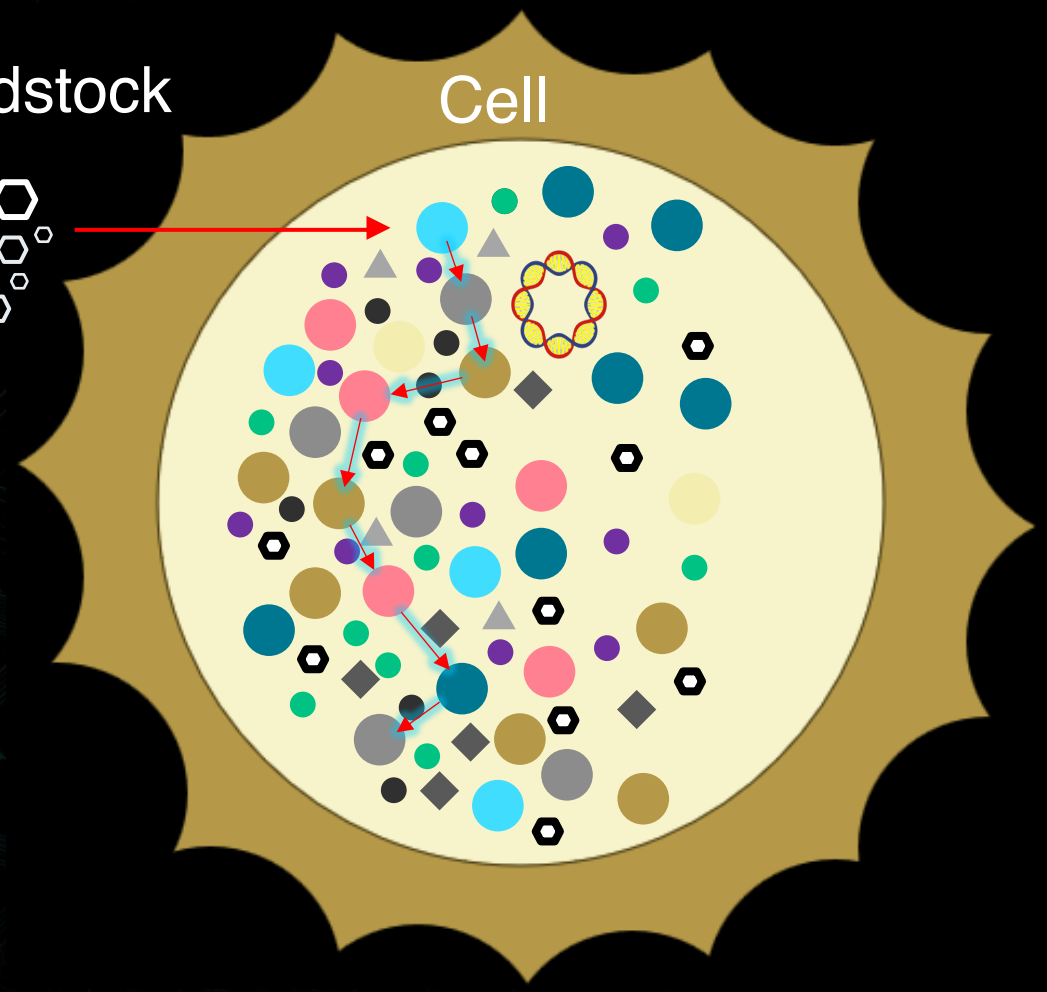
How are **exozymes** different to **synthetic biology**?

Old SynBio paradigm: How cells makes chemicals

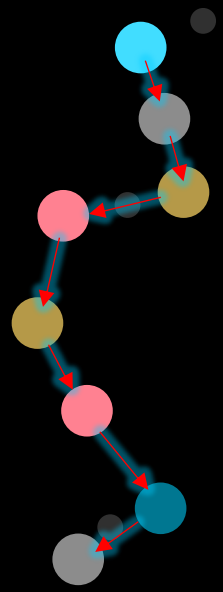
eXoZymes

Sugar/Feedstock





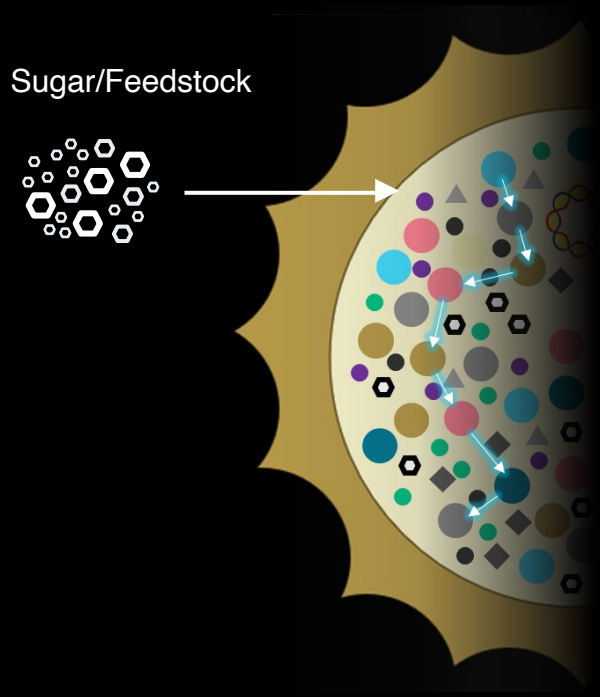
Why not just liberate the Enzymatic Pathway from the cell?



Former belief system:
Enzyme Pathways does not function outside of cells…

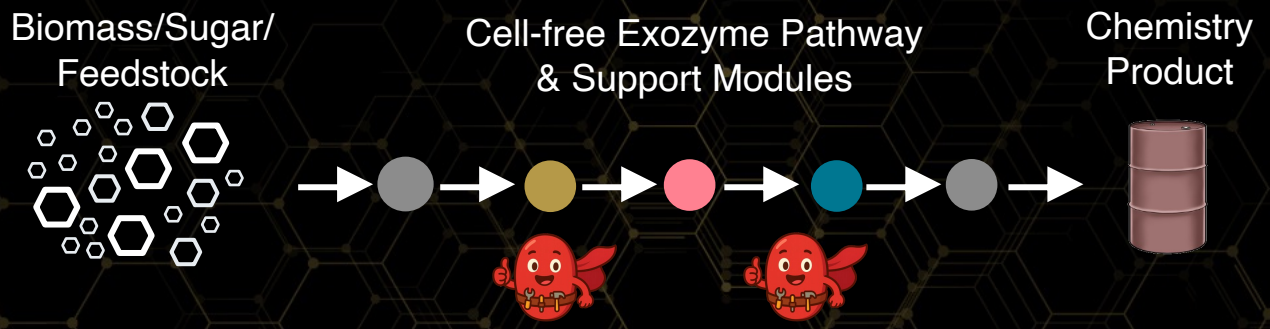
Cell-based enzymes - vs - exozyme biosolutions

cell-based synbio



exozyme biosolutions

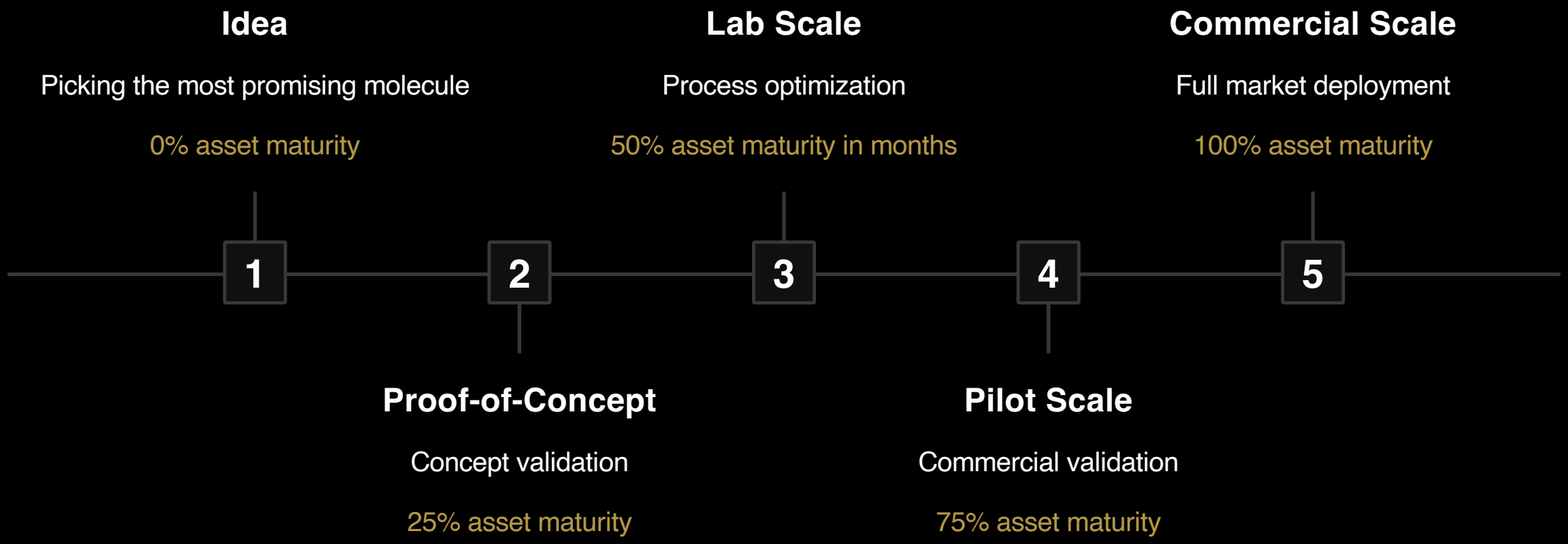
= exozymes (AI-optimized enzymes)
+ production pathways helper modules



- Engineering-level control
- Efficient use of feedstock
- High titer/yield
- Works and Scales like Chemistry

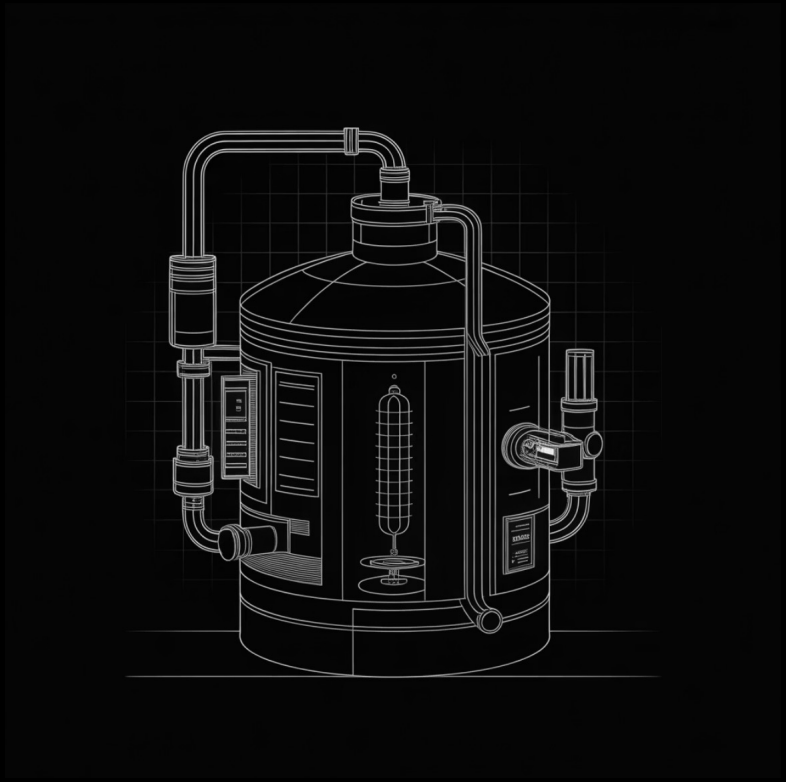
Enabling chemical and drug companies to turn natural resources into valuable chemicals **sustainably and affordably, including new kinds of chemistry**

From prototype idea to commercial feasibility in weeks or months



Our technology shrinks timelines from years to months dramatically accelerating the time-to-market.

Proven scale-up:
Kilo scale already mastered



POC & Lab Scale

Milligrams to grams

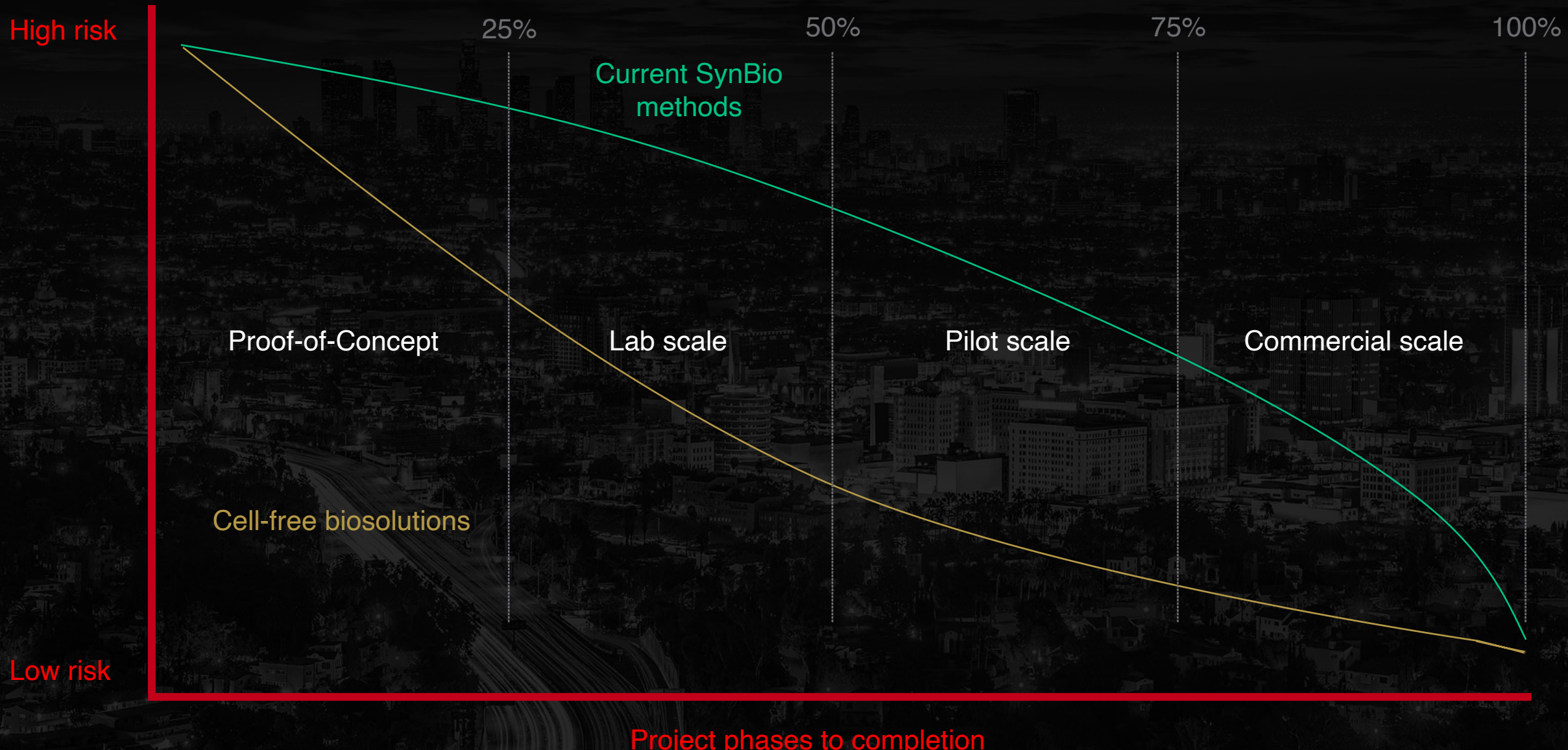
Pilot Scale

Kilos

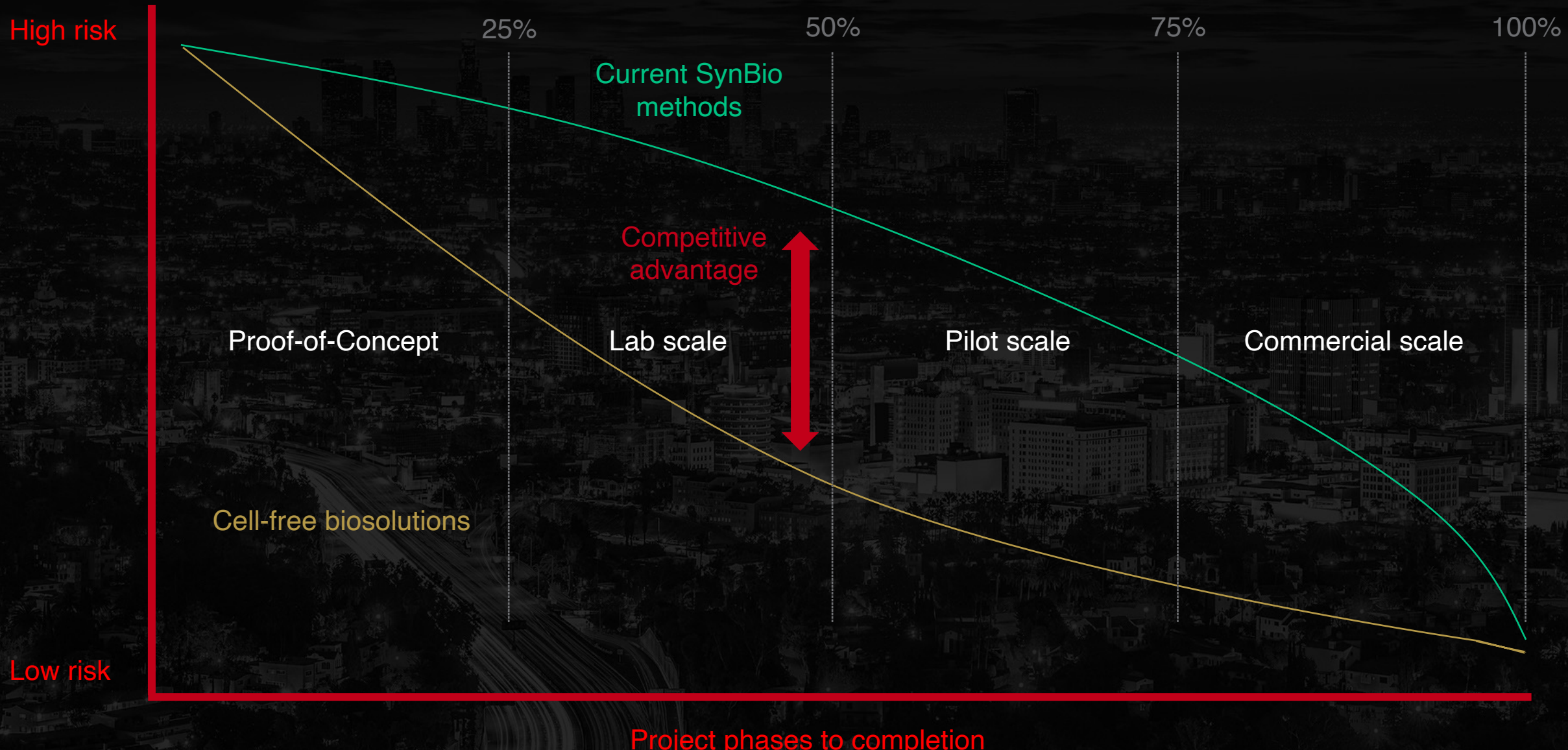
Production Scale

Ton scale

De-risking: **SynBio** versus **cell-free**



De-risking: SynBio versus cell-free



What's the business model?

Business model overview

A capital-light platform-of-platforms approach

Core Technology Platform

Enzyme engineering and cell-free production tech form the foundation

Multiple Revenue Streams

Grants, contracts, equity stakes, licensing fees, royalties, and enzyme sales

Target Identification

Select high-value natural products with clear market need and product advantage

Spinout Formation

Develop and package technology into dedicated companies with exclusive rights for specific applications

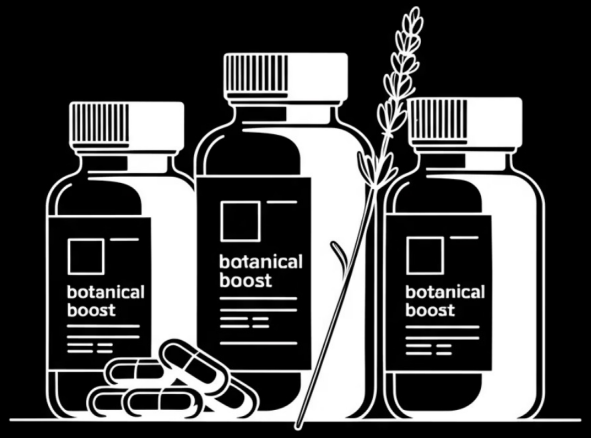
External Financing

Attract specialized investors, strategic partners, and non-dilutive funding

This model maximizes financial leverage while maintaining significant upside potential through multiple commercialization pathways.

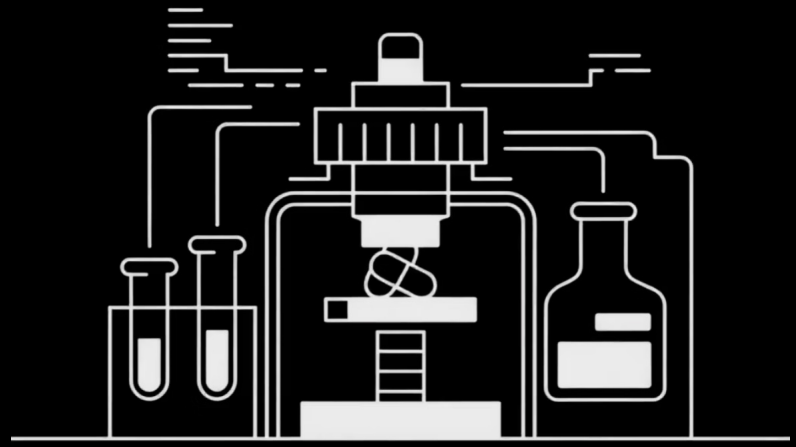
Focusing on high-value natural products with pharmaceutical potential, and extraordinary business cases

Natural Health Products



- $500-$5,000/kg compounds
- Rapidly growing market

Pharmaceutical Analogs



- $5,000-$500,000+/kg compounds
- Higher barriers to entry

Pipeline of high-value business opportunities

eXoZymes is strategically building a portfolio of high-value business opportunities, creating ownership stakes in companies, JVs and partnerships that leverage our breakthrough technology for massive competitive advantages in billion-dollar markets.

NCT (Over-the-Counter)

- OTC benefit: Burns visceral fat, boosts metabolic health
- Healthy living + longevity markets represent a $99B TAM opportunity
- Initial product market entry planned for Q4 2026

NCT (Pharma)

- More potent than natural versions; strong pharma exit candidate
- Billion-dollar exit potential (3-5 years)
- Addresses obesity, fatty liver (MASLD), and IBD

Santalene Natural Product

- High-value aromatic molecule; current production limited and costly
- $163M market (2023), 7% CAGR
- Biosolution financed by $3M NSF grant

Cannabinoid-like pharmaceuticals

- Novel, non-psychoactive molecules for anti-obesity & pain
- Supported by US federal grants and DEA approval
- Exclusive EXOZ capability for optimized new-to-nature analogs

Total Addressable Markets (TAM)

Asset	Application	TAM	Stage	Spinout, JV or Partering Status
NCT (OTC)	Health Supplements	$99B	Finishing lab scale	NCTx Spinout launched
NCT (pharma)	Metabolic health + obesity + NAFLD + IBS	$65B	Preclinical	Partner conversations
Cannabinoid-like molecules	Medical & consumer	$5.3B	Scale-up	Launching
Santalene	Flavors & fragrances	$163M + opens new markets	Lab scaling	Gov grant

Selection of valuable molecules

Traditional chemistry

- Complex synthesis steps
- Highly polluting
- High energy requirements
- $$$ Cost

Natural extraction

- Limited natural sources
- Environmental impact
- Supply chain vulnerabilities
- $$$$ Cost

Exozymes platform

- Single-step conversions
- Engineering level control
- Sustainable process
- $ Cost

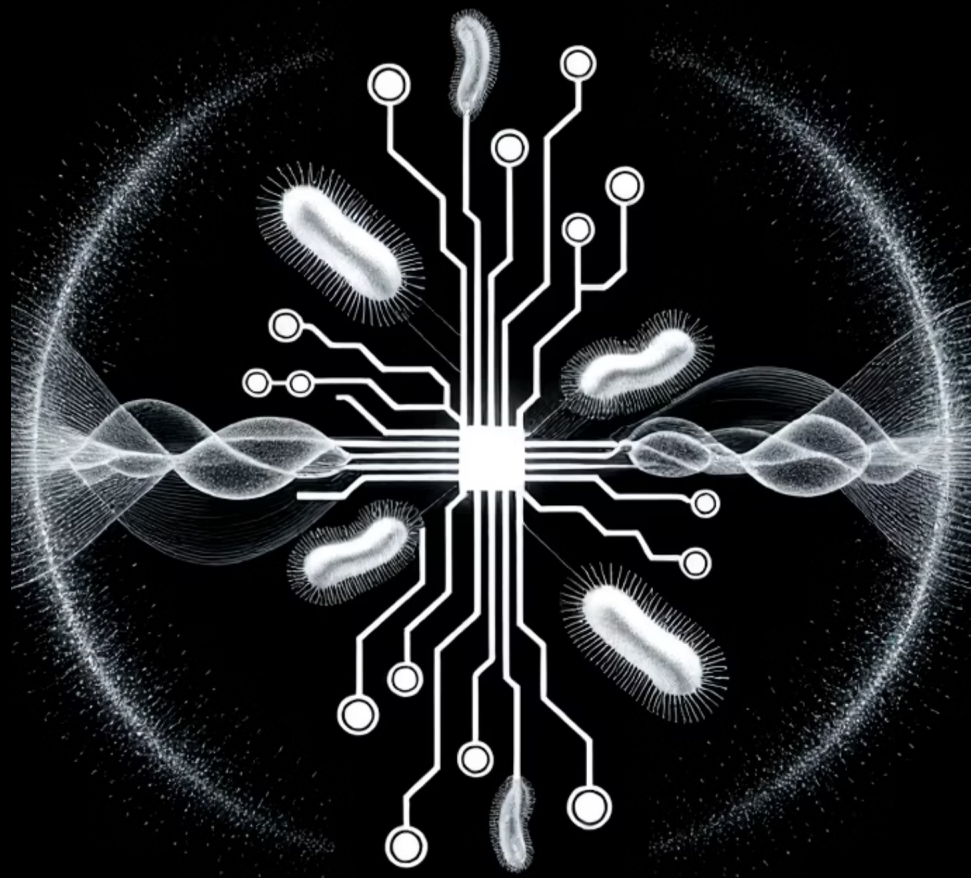
AI-driven enzyme engineering meets cell-free biomanufacturing

AI design

- Large Language Models used to upgrade enzymes to become exozymes
- Continuous loop of generating data to increase LLM prediction quality

Rapid testing

- Thousands of variants tested weekly
- Millions of data points generated per experiment - fed back to the LLM model



Asymmetric upside

Non-Dilutive Grants

$17M+ secured

Partly funds core R&D without dilution

Strategic Partnerships

Product co-development

Shared commercialization journey

Proprietary Assets

12+ patent families

Exclusive molecule rights

Leveraging external funding, partnerships and IP to build significant shareholder value

About us

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VP of Research

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CEO

Fouad Nawaz
VP of Finance

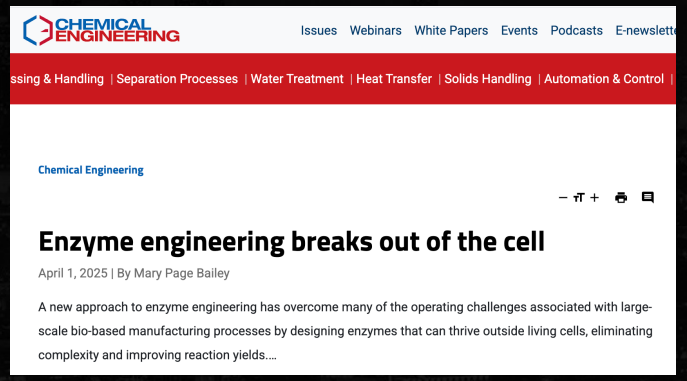
Zachary Karl, PhD
VP of Business Development

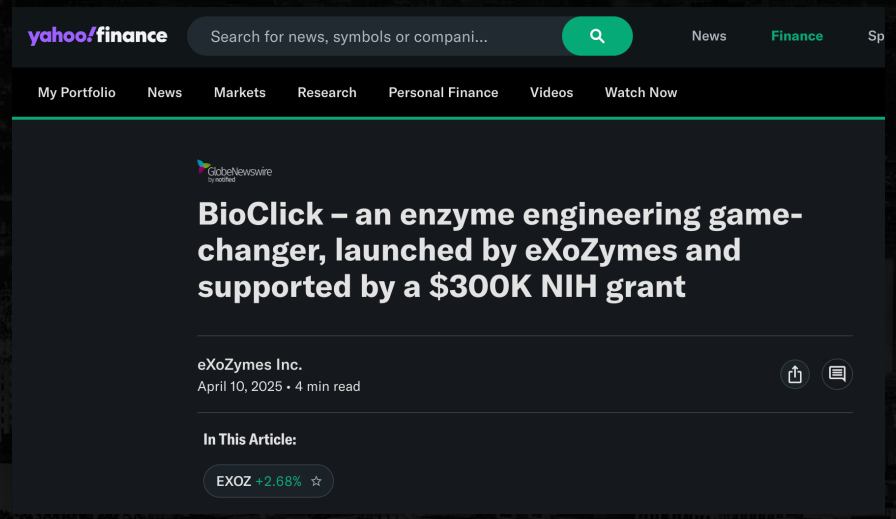
Lasse H. Görlitz
VP of Comms

Background

- **Location**: Los Angeles, CA.
- **Size**: 30 FTEs and a very large support system.
- **2019**: UCLA spin-out - **Big Idea** status = MDB Capital backed.
- **2020**: POC projects and technology platform development.
- **2023**: AI/ML and state-of-the-art enzyme engineering capabilities.
- **2024**: Commercial CEO, focus strategy, rebranding, and Nasdaq IPO
- **2025**: Applications and traction with **powered by exozymes** (NCTx, etc.)

The market leader of cell-free biomanufacturing





eXoZymes
The **future** of **biomanufacturing** is **cell-free**.
And the **future** is **bright**!

Michael Heltzen, CEO
ir@exozymes.com