PROMETHEUS
LIFE TECHNOLOGIES

Premium Quality Human Tissue Organoids
Produced in Microgravity

Startup Universität Zürich[UZH]

AIRBUS
Licensing Partner

esa business incubation centre Switzerland

ORBITAL REEF
Winner, Innovation Challenge

Prometheus is a start-up coming out of the **University of Zurich**

We have **proven technology** to grow high quality human tissue organoids under microgravity conditions

Our organoids have clear use cases in substantial markets

- As models in preclinical drug testing and in general life sciences research, an approx. US$1 billion market set to expand
- In personalized medicine applications
- In regenerative medicine applications
- Regulatory tailwinds (e.g. U.S. FDA Modernization Act) will further drive demand

We are now raising up to **CHF 2 million** to set up our lab, hire commercial and R&D staff, and to produce first commercial product

PRE-CLINICAL DRUG DEVELOPMENT IS BROKEN

80%

*of drug candidates **fail** after entering clinical trials[1]*

US$ 1.4bn

average est. cost of developing a successful new drug[2]

100 million

estimated number of animals used in testing every year[3]

REGENERATIVE MEDICINE IS BROKEN

106,000

people in the U.S. waiting for a life-saving organ transplant[4]

17

average number of people who die per day while on the waiting list[4]

WHY?

Today's R&D - basic research, disease models, drug development - is still based on 2D cell cultures and animal testing.

*Animals **are not** humans*

Human cells and tissue are not flat in vivo

We lack regenerative medicine options with autologous tissues.

OUR SOLUTION:

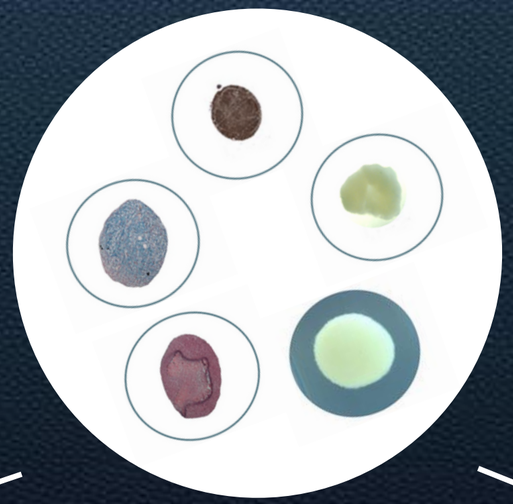
ORGANOIDS FROM SPACE

TAKING ADVANTAGE OF COLLAPSING COSTS OF ACCESSING AND USING SPACE

No scaffolds or matrices required - 100% natural human tissue

Uniform quality, allowing for reproducible results

Microgravity facilitates self-organization of organoids in 3D



Generated from autologous adult stem cells

Better differentiation in microgravity

NOT REPLICABLE ON EARTH

Cannot simulate sustained microgravity on Earth

Using scaffolds and matrices introduces foreign materials

Customers complain that current terrestrially available organoids have severe shortcomings

> We find a tremendous amount of batch variation [among our suppliers] making standardization challenging - our most resource intensive drains involve the production of organoids"
> ***(Merck R&D scientist)***

A PROVEN TECHNOLOGY & PROCESS

Stem cell harvest
(bone marrow from adult donors)

Proliferation and differentiation initiation

Tissue / Organoid production under microgravity
(self-assembly / incubation only)

Return to Earth for R&D and testing customers

Developed by University of Zurich and Airbus, exclusively licensed to Prometheus.

Universität Zürich[UZH]

Prevailed against 500 other ideas in an Airbus innovation competition.

CHF1.5MM internal investment over 3 years in R&D and space missions.

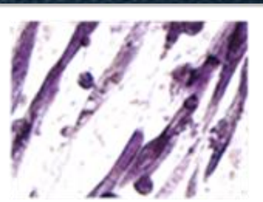
Simple, robust & scalable space production process (incubation only / “fly & forget”).

2 SUCCESSFUL ISS MISSIONS

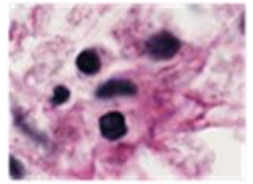
SPACE X CRS-20, MARCH 2020 & SPACE X CRS-23, AUGUST 2021

- 472 organoids total
- Highly homogeneous/identical products
- 100% yield *(every cell culture resulted in an organoid)*
- Male & female donors - age 44-72 years
- Organoids viable for up to 2 months
- Tested in medically-certified hardware

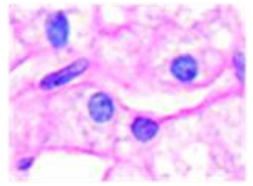
Liver Tissue - 2D on Ground



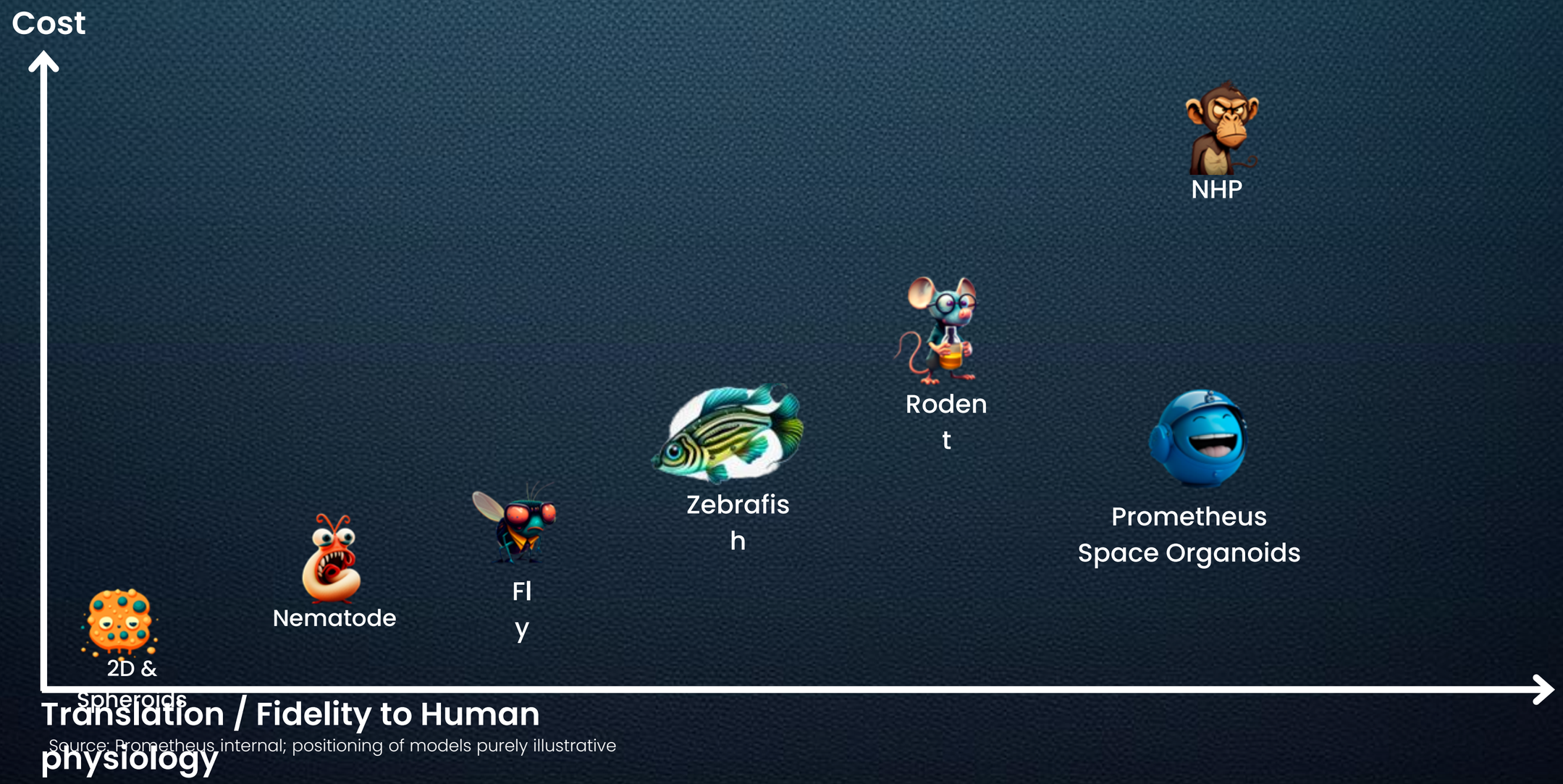
Prometheus Space Organoid



Textbook Reference



WE CAN DO BETTER THAN JUST ANIMAL MODELS



Source: Prometheus internal; positioning of models purely illustrative

WHY IS NOW THE RIGHT TIME?

FDA MODERNIZATION ACT ALLOWS SUBSTITUTION OF ANIMAL MODELS

A BILL

To allow for alternatives to animal testing for purposes of drug and biological product applications.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "FDA Modernization Act 2.0".

SEC. 2. ALTERNATIVES TO ANIMAL TESTING.

(a) IN GENERAL.—Section 505 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 355) is amended—

(1) in subsection (i)—

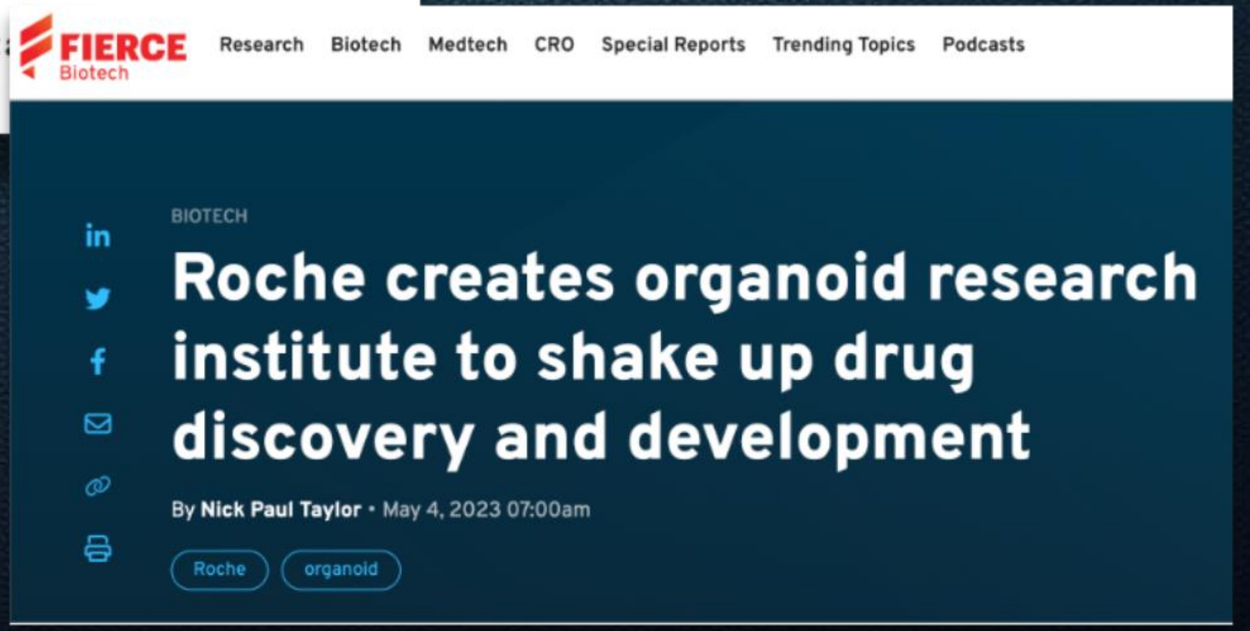
(A) in paragraph (1)(A), by striking "preclinical tests (including tests on animals)" and inserting "nonclinical tests"; and

(B) in paragraph (2)(B), by striking "animal" and inserting "nonclinical tests"; and

(2) after subsection (y), by inserting the following:

"(z) NONCLINICAL TEST DEFINED.—For purposes of this section, the term 'nonclinical test' means a test conducted in vitro, in silico, or in chemico, or a non-human in vivo test that occurs before or during the clinical trial phase of the investigation of the safety and effectiveness of a drug, and may include animal tests, or non-animal or human biology-based test methods, such as cell-based assays, microphysiological systems, or bioprinted or computer models.".

PHARMA HAS TAKEN NOTICE



MARKET RESEARCH

“[Potential to charge] at least 2x the [current market] price, with potential to name your own price”
(Conclusion of market research)

“The lack of a [human] model with multicellular interaction is a major point of concern in the industry”
(Merck)

“For regenerative medicines, there’s a huge gap between animals & humans. Organoids close this gap – they’re cheaper than non-human primates costing ~$0.5M. Organoids accelerate pre-clinical research by ~6 months”
(Moderna)

GO-TO-MARKET

PILOTS 2024

- Deliver product to early adopters who test it and provide us with feedback
- Produce further, crisp data on our USPs, incl. to include in joint publications
- In discussions with several pilot customers

SCALE 2025 –

- Systematically approach and penetrate pharma and regenerative medicine customer groups
- Sequenced roll-out, in line with production capability and identified priorities

TAKING ADVANTAGE OF UPCOMING CAPACITY

≈20

Upcoming commercial microgravity platforms

4

Microgravity platforms in which Prometheus affiliates are shareholders

$30K

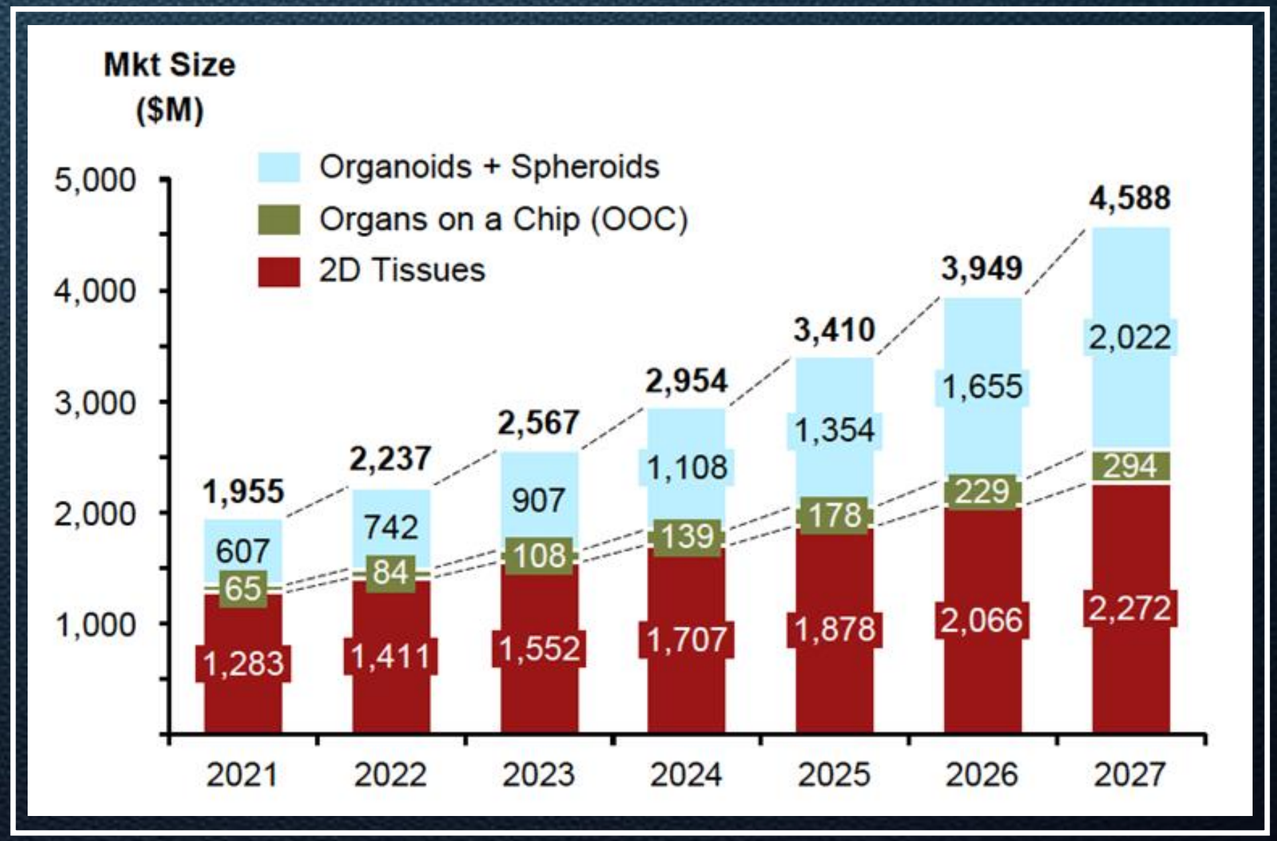
Commercial target price for launch & return of 1kg of mass

MARKET
TEAM
EXECUTION PLAN
FINANCIALS

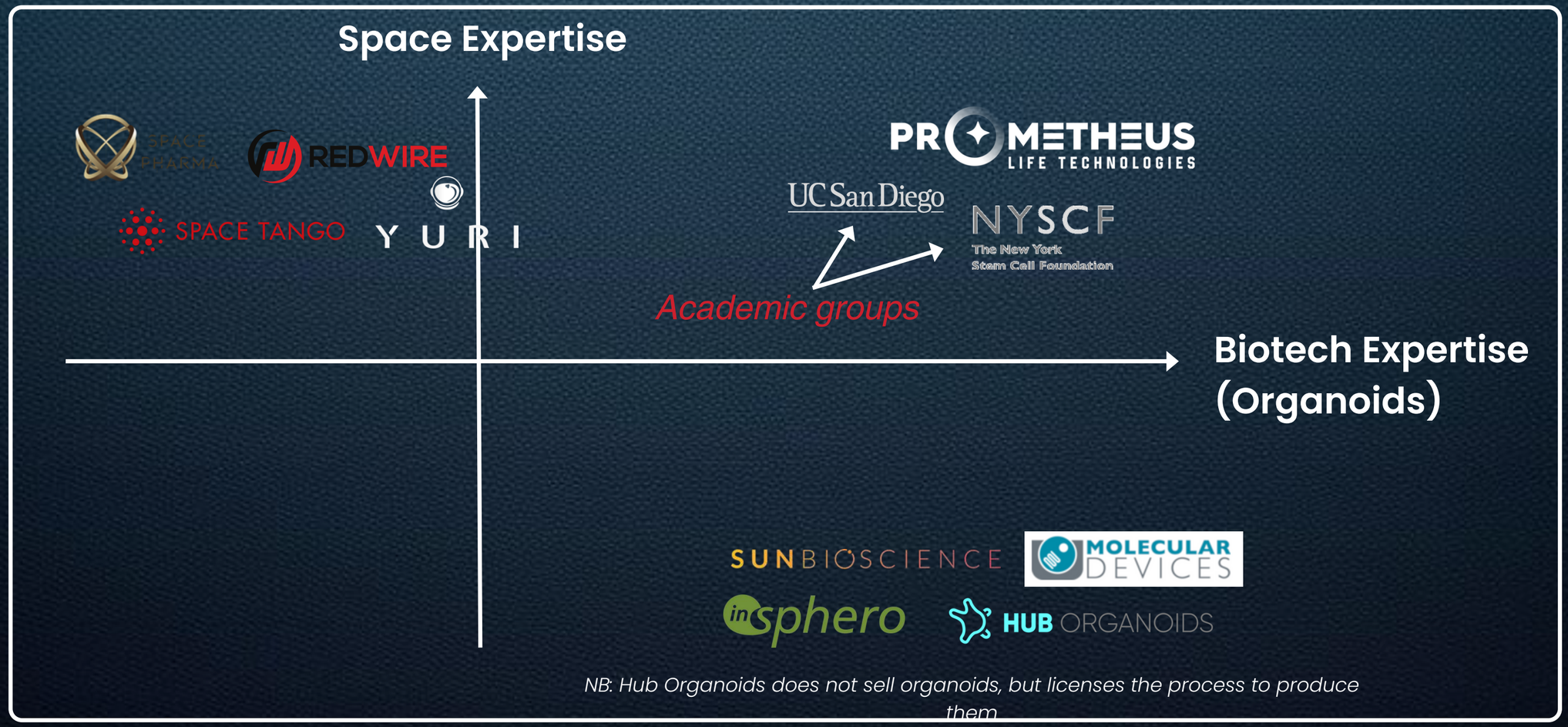
WE ADDRESS AN EXISTING MARKET AND AIM TO EXPAND IT

Multiple market research predictions of double-digit growth to a multi-billion market

- Source 1: 22.2% CAGR 2021-2027 (chart beside)[5]
- Source 2: 17.5% CAGR 2020-2027, from US$723MM in 2019[6]
- Source 3: 22.1% CAGR 2020-2027, from US$690MM in 2019[7]



OUR EXPERTISE
POSITIONS US TO LEAD THE MARKET



NB: Hub Organoids does not sell organoids, but licenses the process to produce them

A FINANCIALLY SOUND BUSINESS MODEL EVEN PRIOR TO SCALING

Key Revenue Drivers

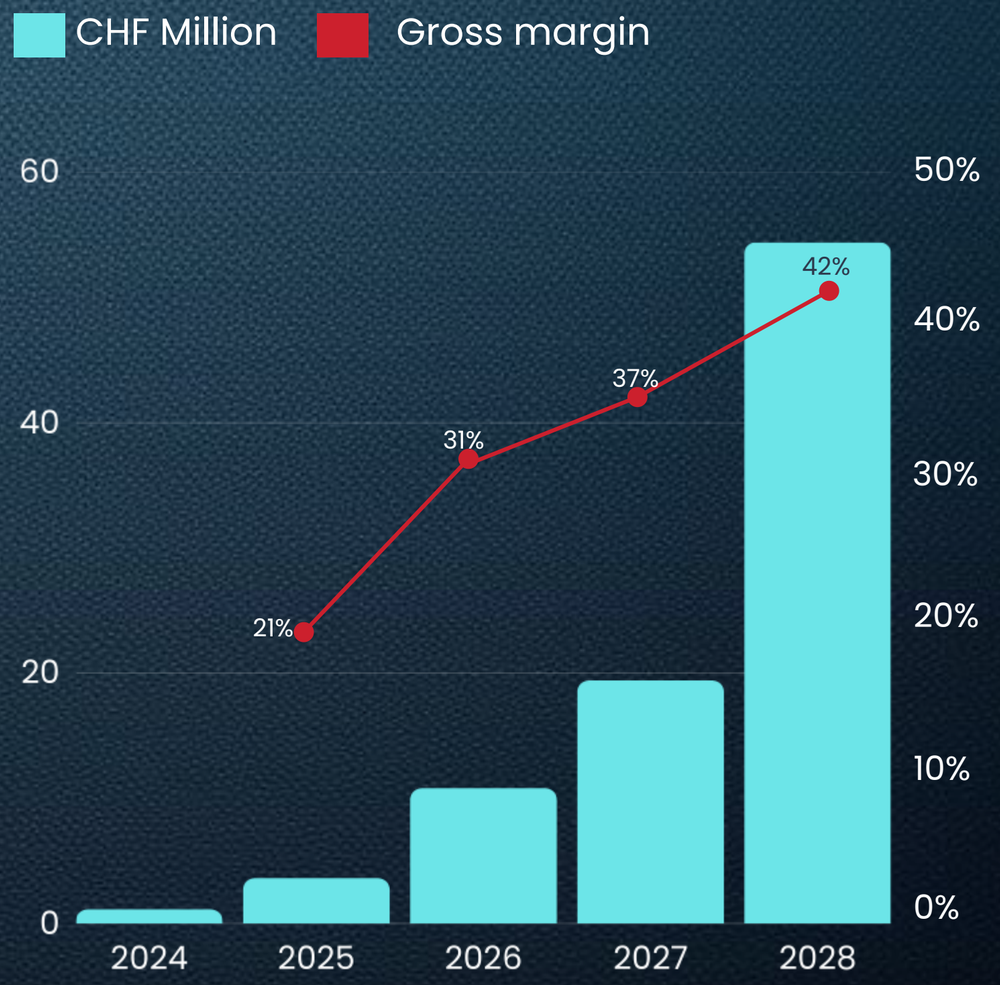
- Number of and price paid per organoid

Key Cost drivers

- Raw materials, labor, logistics
- Marketing
- R&D
- Typical opex items

Economies of scale and increasing automation will allow us to reduce every major cost-of-sales item when scaling up

Capital-light business model, due to use of third-party assets (labs, spacecraft / stations)



***Notes:**

- Reflects space organoid business line only.
- Does not include ancillary products and services, terrestrial organoids, personalized and regenerative medicine products.
- 2024 revenue: our priority is to fly with beta-testing commercial customers, not to maximize revenue at this point.

OUR TEAM HAS THE BIOTECH, SPACE AND GENERAL BUSINESS EXPERTISE TO EXECUTE ON OUR BUSINESS PLAN

Raphael Roettgen, CFA
Co-founder & CEO

Space business, investment and entrepreneurial expertise

EZMC EPFL ISU Wharton

Cora Thiel, PhD
Co-founder & Acting CSO

Distinguished bio academic - developed our technology

University of Zurich[UZH] UZH Space Hub NASA SKY LAB MDC MAX DELBRÜCK CENTER FOR MOLECULAR MEDICINE IN THE HELMHOLTZ ASSOCIATION MAX-PLANCK-INSTITUT FÜR MOLEKULARE GENETIK Max Planck Institute for Biophysical Chemistry

TBA
Head of Sales - in recruitment

Experience in commercial role at pharma/biotech company

Swantje Christoffel, PhD
Research Scientist

University of Zurich[UZH] UZH Space Hub

Experienced scientist known to our founders

Célia Metry
Research Scientist

University of Zurich[UZH] UZH Space Hub

Experienced scientist known to our founders

Ecem Badruk
Business analyst

Jay Modi
Business analyst

Further in recruitment:

+ junior staff (business / commercial)

+ scientists / lab staff

OUR TEAM HAS THE BIOTECH, SPACE AND GENERAL BUSINESS EXPERTISE TO EXECUTE ON OUR BUSINESS PLAN

Prof. Oliver Ullrich, PhD MD
Co-founder, Senior Scientific Advisor & Shareholder

Distinguished bio academic - developed our technology

Liliana Layer, PhD
Co-founder, Scientifc Advisor & Shareholder

Bio academic - worked with Prof. Dr. Ullrich & Dr. Thiel on our space missions

Aaron Kemmer
Entrepreneur-in-Residence

Pioneered in-space manufacturing as founder of Made In Space (acquired by Redwire)

Justin Karl, PhD
Chief Space Advisor

Decades of microgravity experimentation and payload experience

Catarina Santos, PhD MBA
Commercial Advisor

Senior commercial executive in the pharma sector with 15 years' experience

WINS SINCE FOUNDING IN DECEMBER 2022

#1 prize of Orbital Reef Innovation Challenge (US$100k non-dilutive)

ORBITAL REEF
Winner, Innovation Challenge

Accepted as incubatee at ESA Business Incubation Center (BIC) Switzerland (EUR200k non-dilutive)

esa business incubation centre Switzerland

Selected as a TOP 3 project for ESA Business Space Growth Network (BSGN) life sciences accelerator (amount TBD)

esa

Global exclusive license for technology

Universität Zürich[UZH]

AIRBUS

EU office at ISU in Strasbourg, with local support (amount TBD)

Strasbourg.eu
eurométropole

INTERNATIONAL SPACE UNIVERSITY
ISU

Innosuisse InnoCheque grant, in cooperation with CSEM (CHF30k)

csem

FUTURE PRODUCTS

ANCILLARY PRODUCTS TO CORE ORGANOID PRODUCT

- Terrestrial organoids
- Cryopreserved space organoids, for availability on demand

PERSONALIZED THERAPIES

- Personalized organoids for drug testing

REGENERATIVE MEDICINE

- Autologous replacement tissues
- New transplantation methods based on organoids

"IN-SILICO MODEL CROSS-OVER"

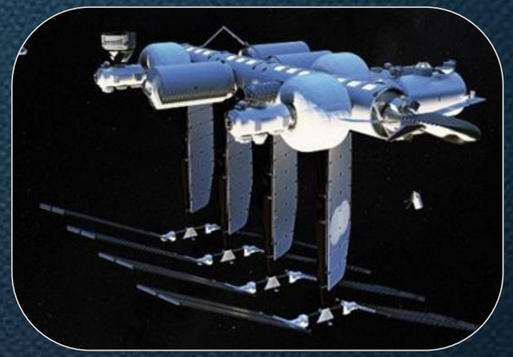
- Use our organoids to build up datasets to train *in silico* models
- "Disrupt ourselves"

ROADMAP TO LARGE-SCALE HUMAN TISSUE PRODUCTION IN ORBIT

2023 | **2024** | **2025** | **2026** | **2027**

Demo missions for early adopters

Scale up initial organoid product →



Commence R&D projects* →

Regenerative medicine products
Personalized medicine products
In silico cross-over models →

Initial Grants | **Seed** | **Series A** | **Series B**

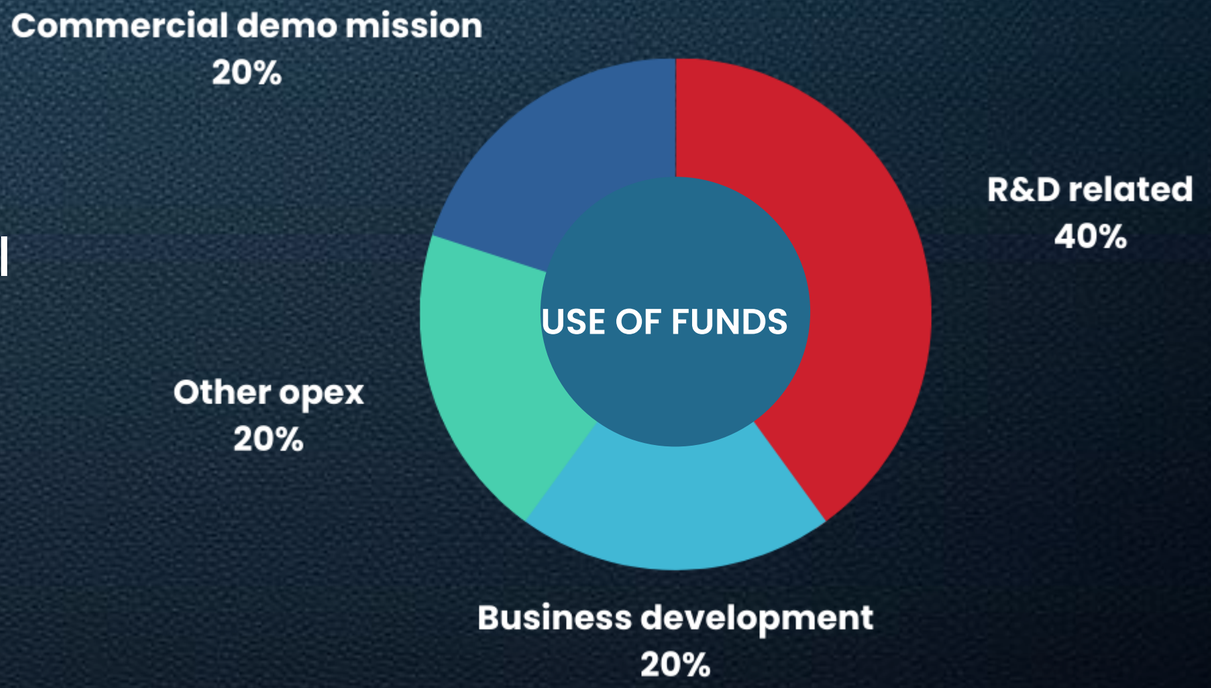
→

→

* Incl. e.g. upscaling of production hardware, terrestrial organoid production, cryopreservation of organoids

FUNDING ROUND

- Up to CHF2MM (approx. 50% left)
- From value-added VCs and/or family offices and angels
- Significant non-dilutive funding potential
  - >US$300k won
  - Will apply for $1MM+ in 2024
- Use of funds
  - Hiring business development, R&D staff
  - Set up R&D lab
  - Commercial pathfinder mission
  - Approx. 20 months' runway



Thank you!

TAKING BIOTECH TO NEW HEIGHTS

https://www.youtube.com/watch?v=VjNvEN-QgVM

https://plt.bio investors@plt.bio

REFERENCES

- *U.S. Department of Health & Human Services*
- *Verea Group LLC*
- *https://www.congressweb.com/animaldefendersinternational/5/* -
- https://www.washingtonpost.com/health/2022/05/24/organ-transplant-waiting-list-numbers/
- Source 1: Grandview Research
- Source 2: https://www.marketwatch.com/press-release/human-organoids-market-2022-comprehensive-growth-future-demand-top-leading-players-emerging-trends-and-forecast-to-2030-2022-11-04
- Source 3: https://www.prnewswire.com/news-releases/organoids-market-size-worth-3-420-40-million-globally-by-2027-at-22-1-cagr---exclusive-report-by-the-insight-partners-301464535.html