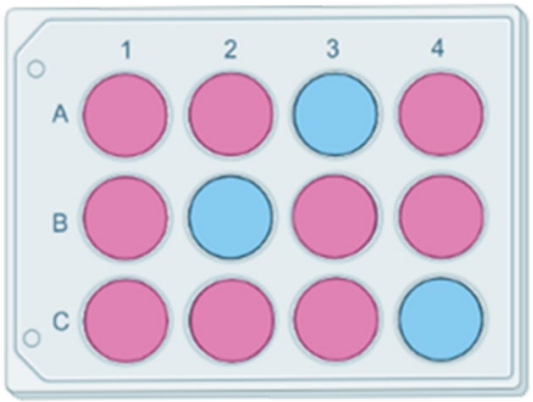
TTOP

TRUE TISSUE ON PLATFORM

REPLICATING THE COMPLEX
HUMAN BIOLOGY,
ENABLING SIMPLE PROCEDURES

The problem: Preclinical poor translational value

Conventional in vitro models



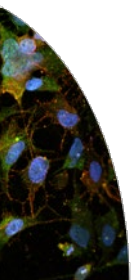
Sistemic

Human

Animal models

Sistemic

Human

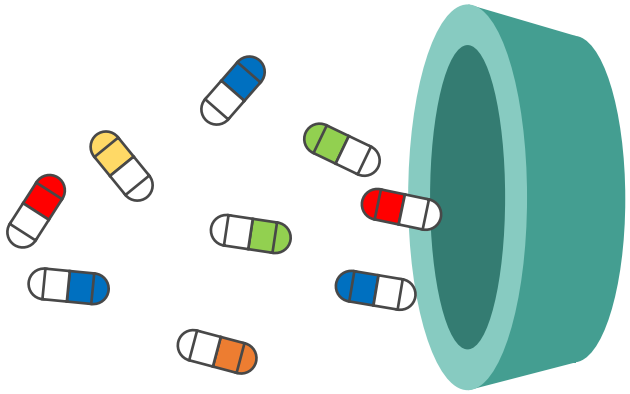


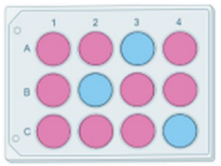
The problem: Preclinical poor translational value

Pre-clinical trials

Clinical trials

Market





In vitro models

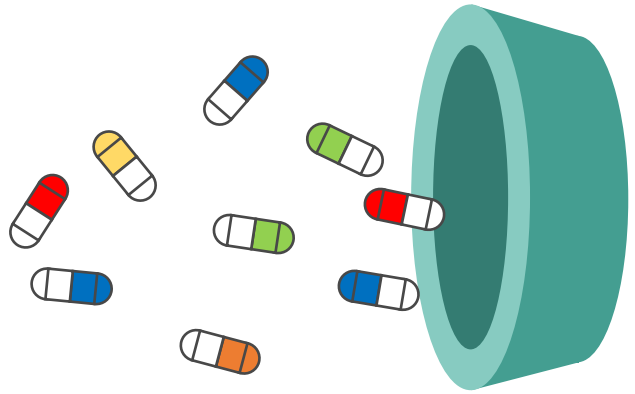
Animal models

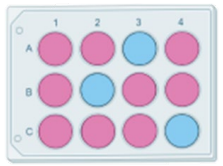
The problem: Preclinical poor translational value

Pre-clinical trials

Clinical trials

Market





In vitro models

Animal models

→

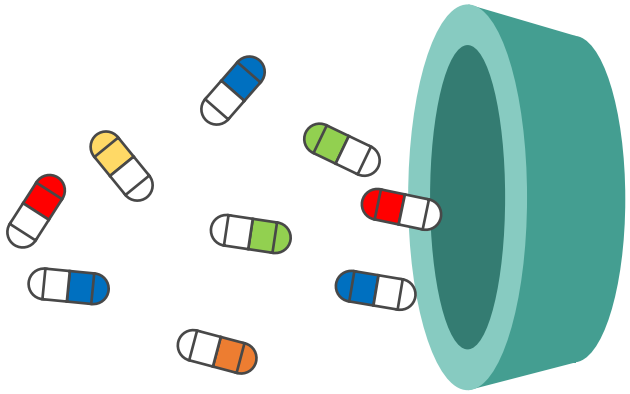
89% failures in clinical trials

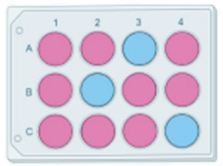
The problem: expensive drug development process

Pre-clinical trials

Clinical trials

Market





In vitro models

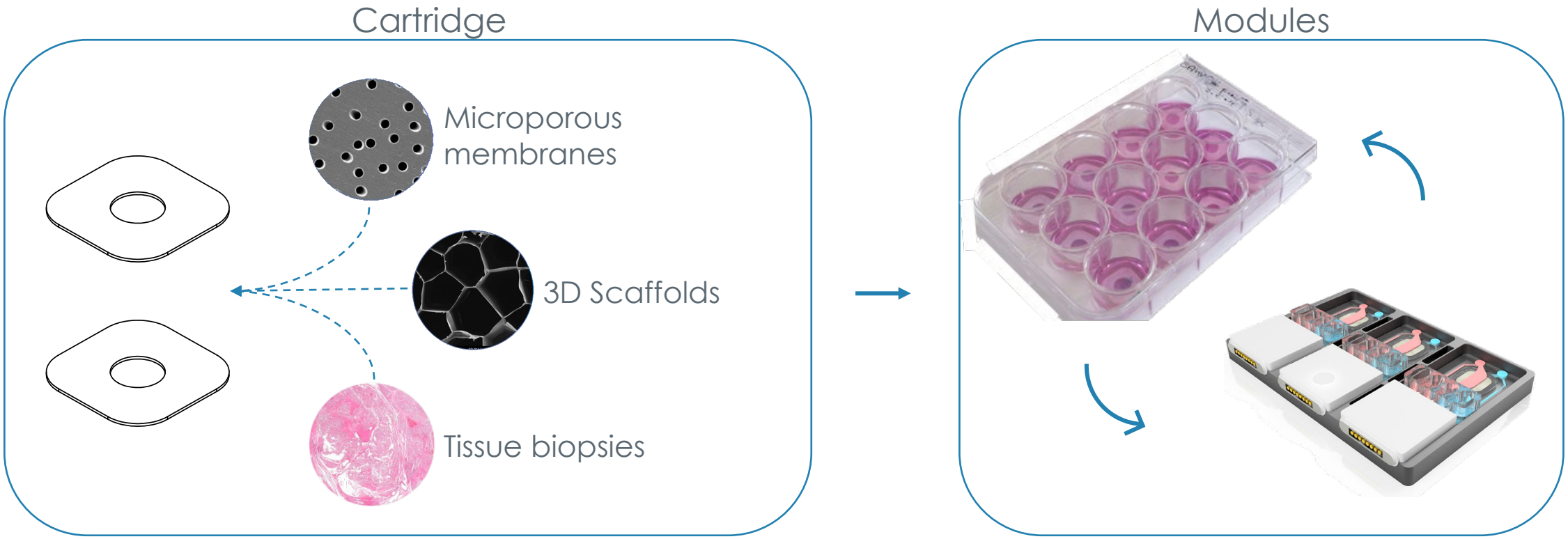
Animal models

→ **89%** failures in clinical trials →

12+ years
2,5+B$ costs
0,01% efficiency

TToP technology

TToP is **versatile, modular** and **plug and play.** TToP enables to recreate the human complex biological microenvironment to test drug safety/efficacy



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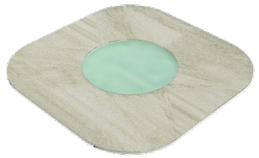
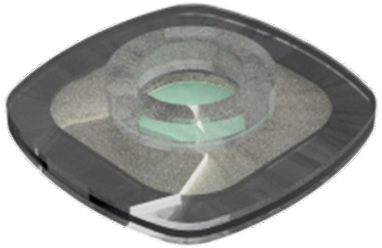
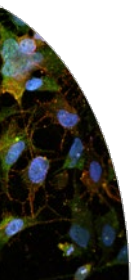
TToP technology: the modules

Static module

The cartridge





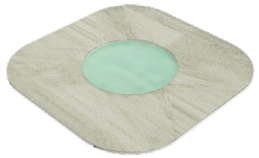


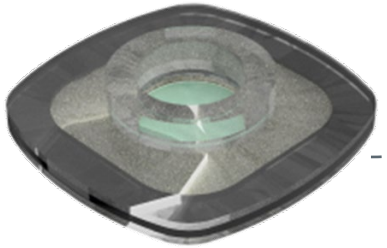
TToP technology: the modules

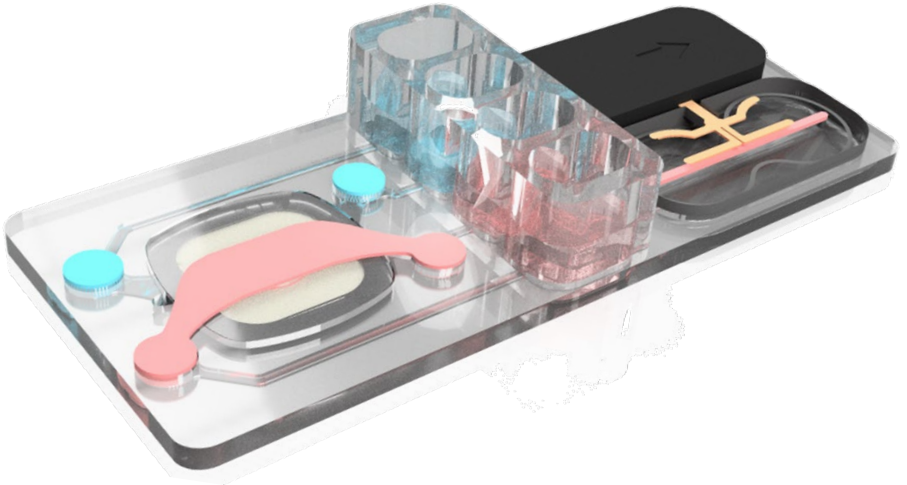
Perfusion module

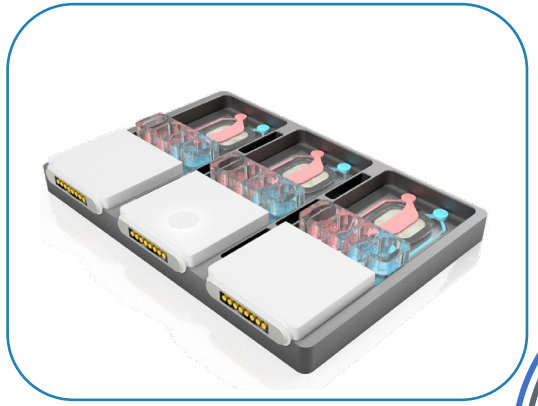
Static module

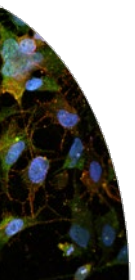
The cartridge





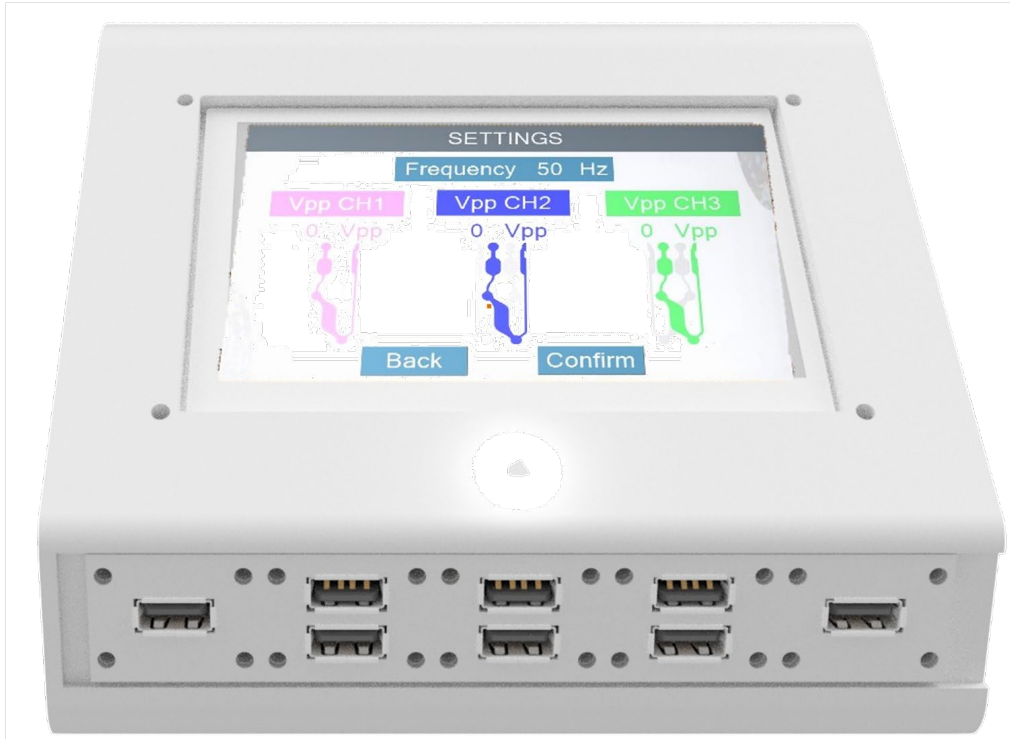


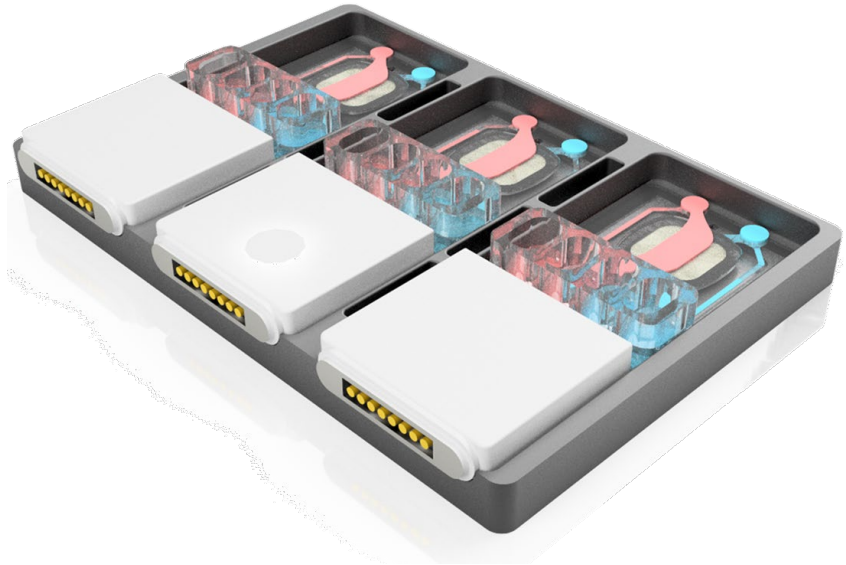


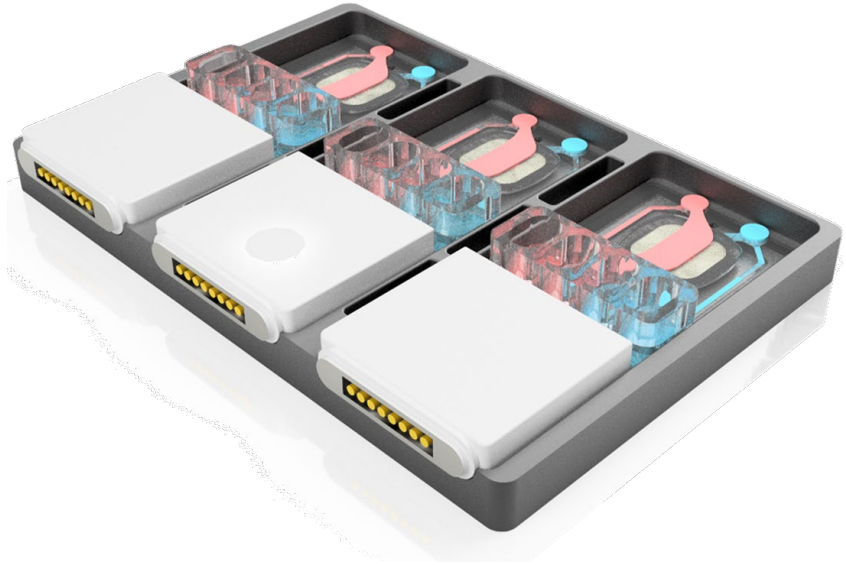


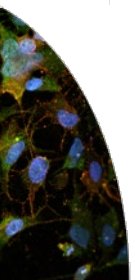
TToP technology: the control unit

The control unit





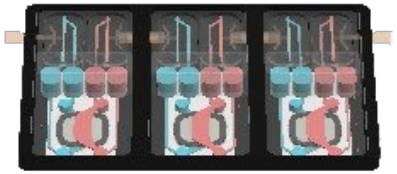




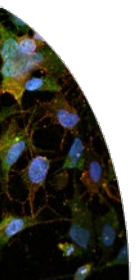
La tecnologia TToP: concept

Static module

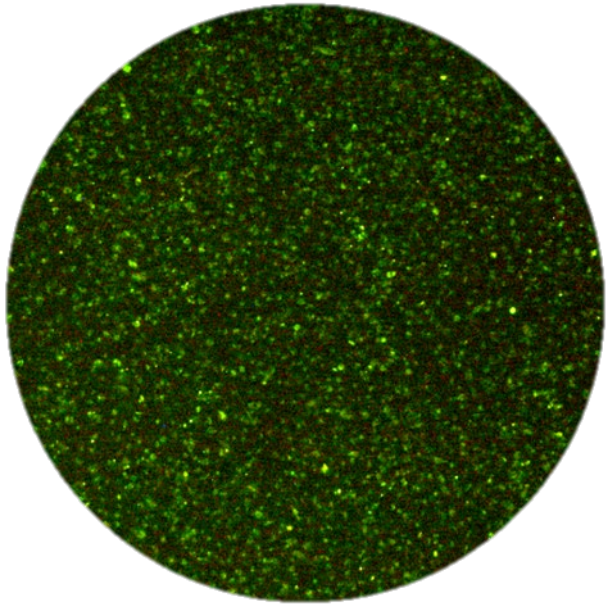
Perfusion module



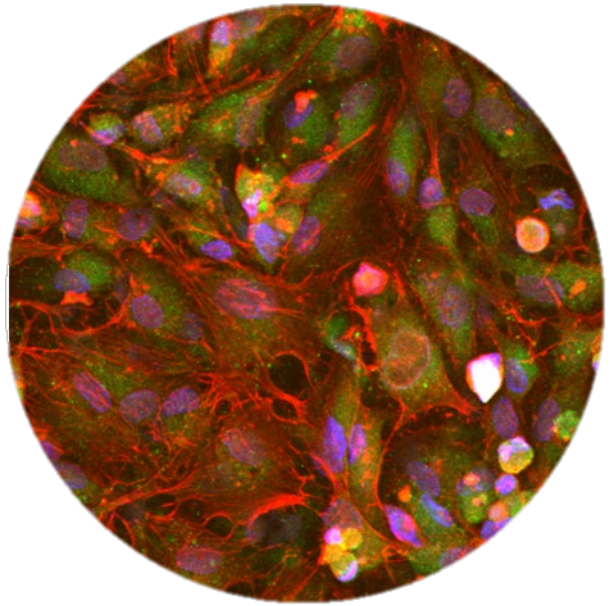
Control Unit



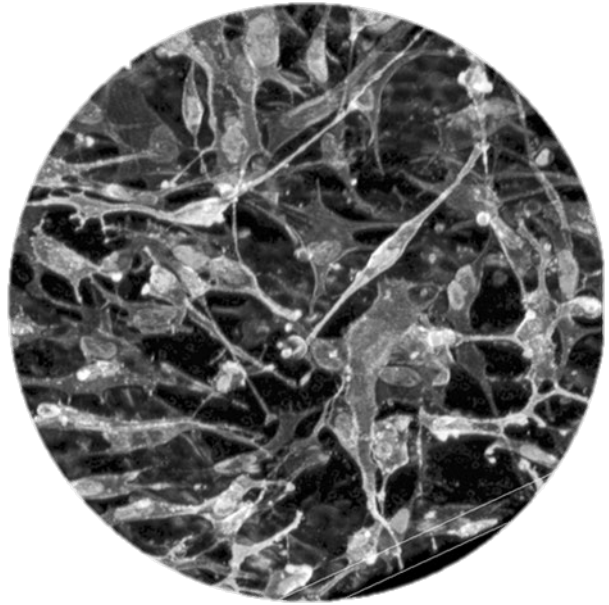
The technology: biologically & technically validated



Live imaging



Fluorescence microscopy



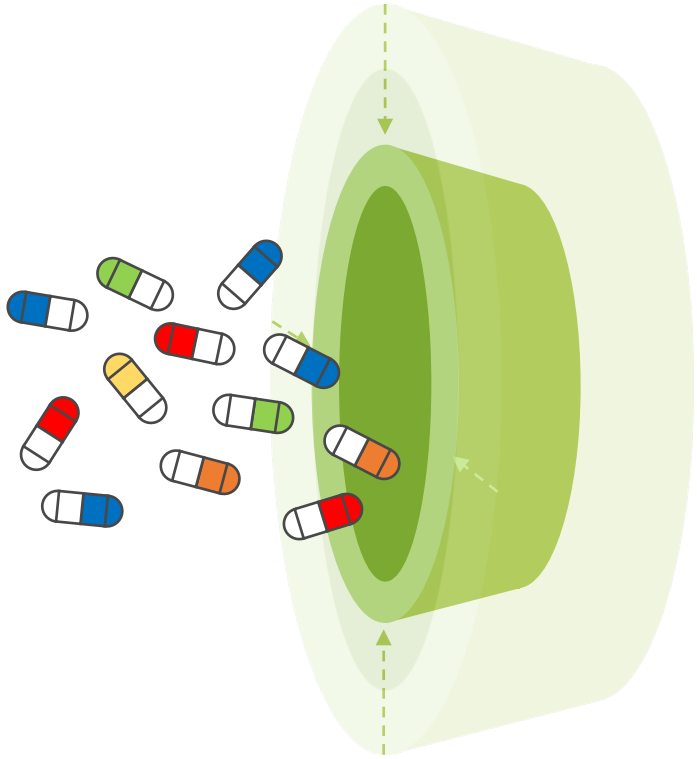
Confocal microscopy

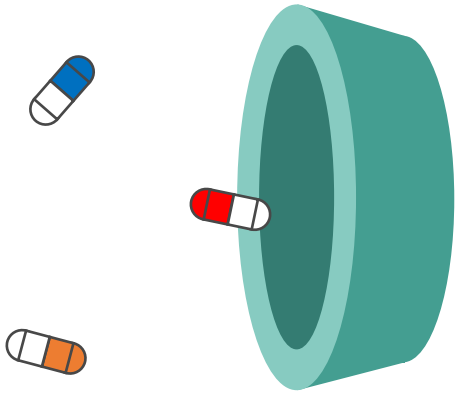
The promise: MicroPhysiological Sistems (MPSs) adoption

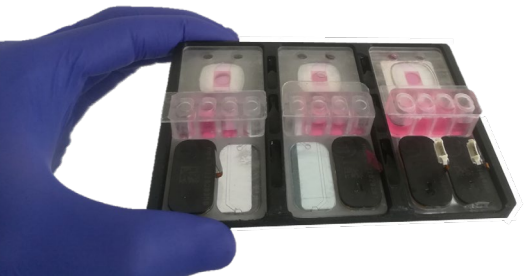
Pre-clinical trials

Clinical trials

Market







Human material

Realistic conditions

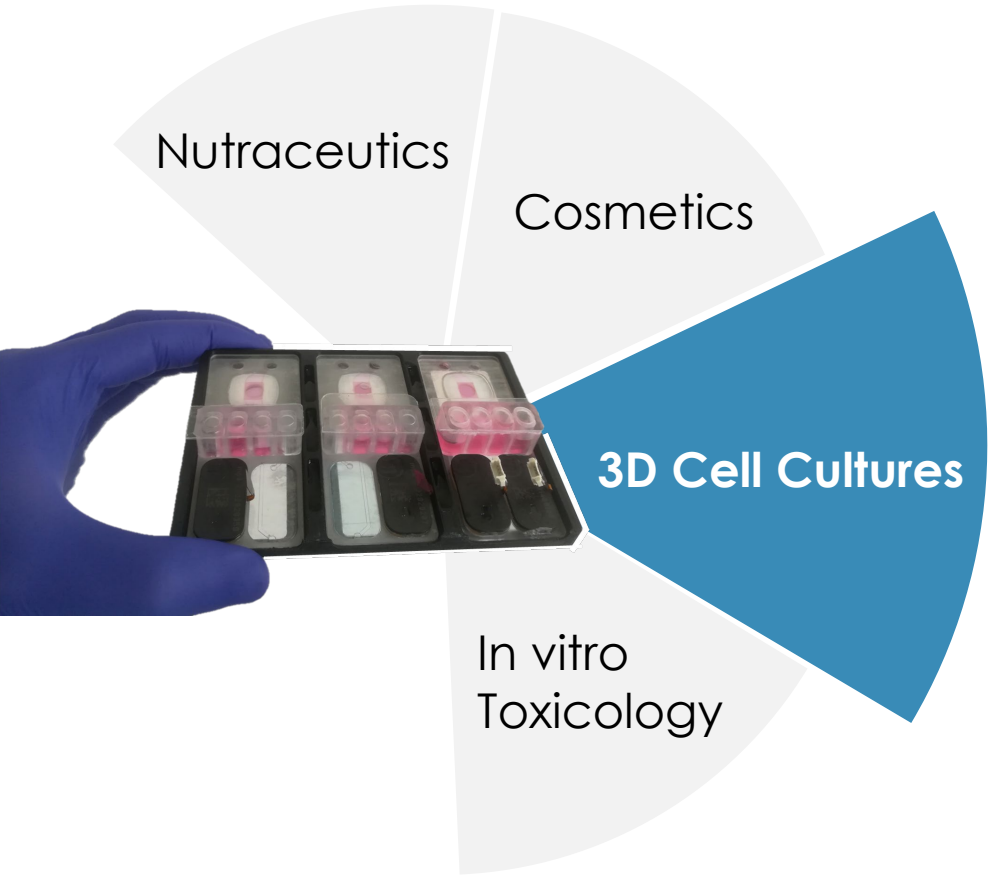
→

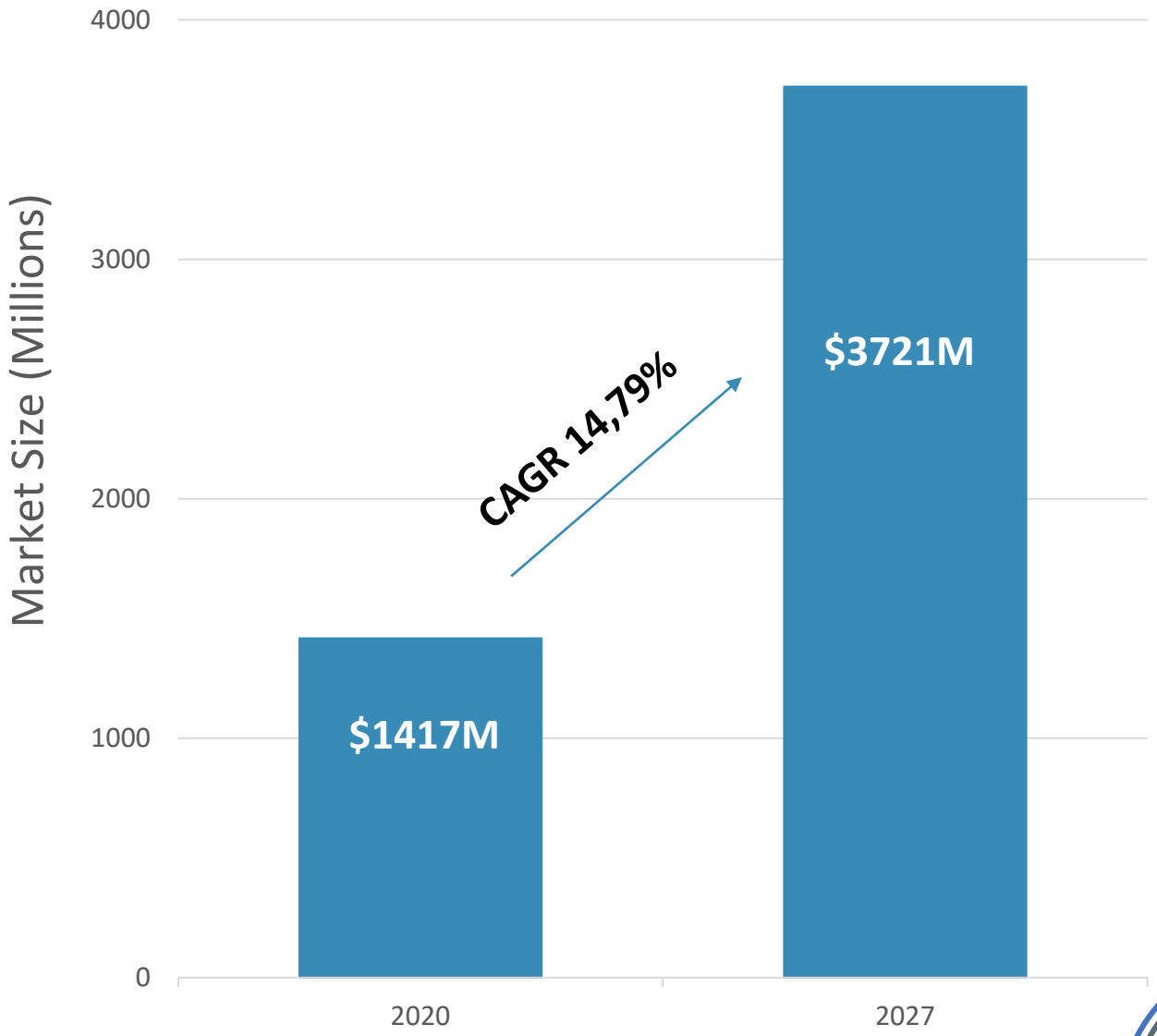
-26% costs (700M)

-9% time

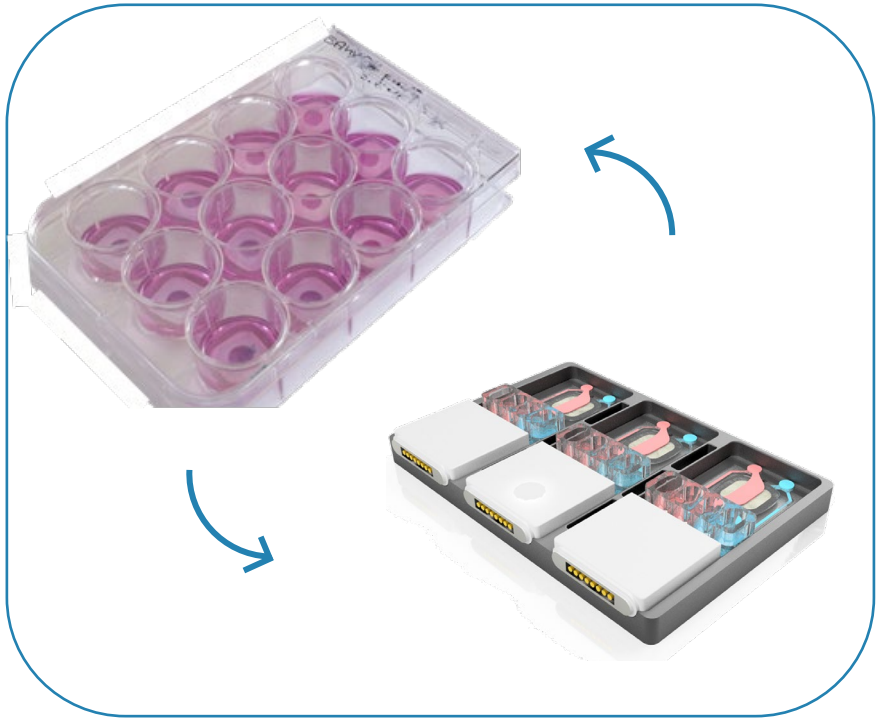
+38% efficiency

The market


Nutraceutics
Cosmetics
3D Cell Cultures
In vitro
Toxicology


Market Size (Millions)
4000
3000
2000
1000
0
$1417M
$3721M
CAGR 14,79%
2020
2027

Business model



Validated platform

Pharmaceutical companies

Biotech

CRO

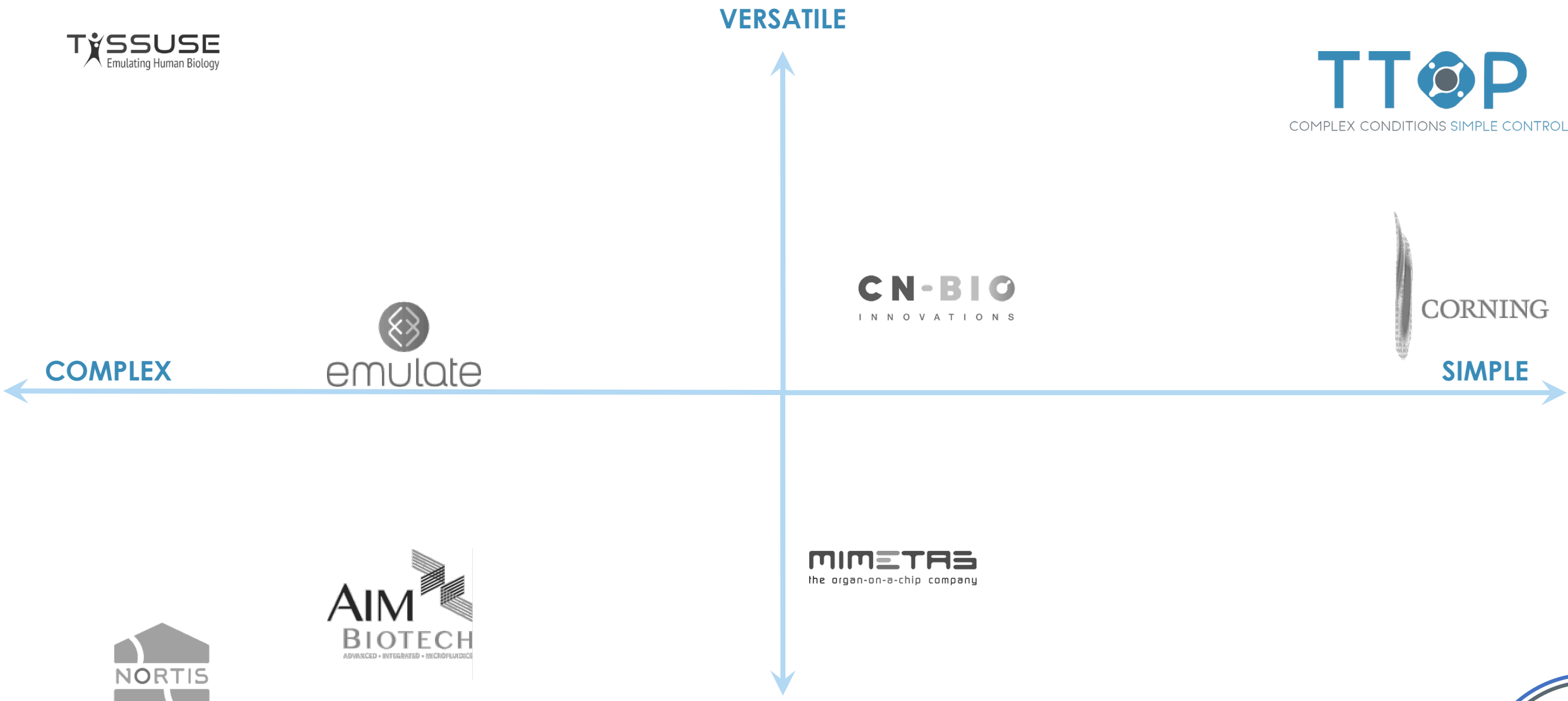
Medical devices companies

Product and Services

Academia

Private research istitutions

Competition



Team

Dedicated members:

Lorenzo P. Coppadoro
CEO & PhD student
Platform design and development

CEO, Co-founder

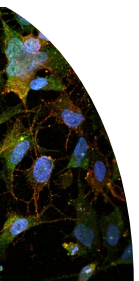
Maria Lombardi
CTO & Research Fellow
Cell biology, molecular biology (DNA-RNA), microscopy

CTO, Co-founder

Operative members:

Alessandra Rando
PhD student -
Platform testing and optimization

Sabrina Nicolò
Biotech (PhD) -
Cell biology, molecular biology (DNA-RNA), microscopy



Team

Board di consiglieri:

Gianfranco B. Fiore
Biomechanics and biofluid dynamics

POLITECNICO MILANO 1863

Monica Soncini
Cell and tissue bioengineering

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Chiara Foglieni
Cell and tissue culture and model analysis

I.R.C.C.S. Ospedale San Raffaele

Marco Piola
Biomechanics and tissue engineering

QURA

Roadmap

PRE-INDUSTRIAL PHASE

INDUSTRIAL PHASE

COMMERCIAL PHASE

2021

TRL 4

2022

2023

TRL 6

2024

TRL 8

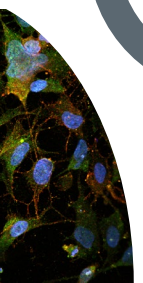
2025

startcup LOMBARDIA

POC
200k

Seed
500k

Round A
2M

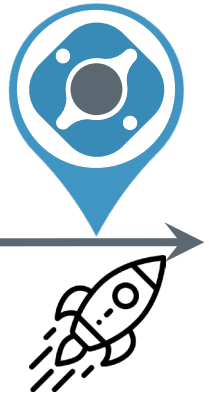


POLITECNICO MILANO 1863

360 CAPITAL PARTNERS

POLI360 TECHNOLOGY TRANSFER FUND

Roadmap



2018

Start of the project

POLITECNICO MILANO 1863

Master thesis and PhD focused on TTOP

2020

GRANT **30k**

SWITCH 2 PRODUCT
INNOVATION CHALLENGE

EBP creation
Mentoring

2021

GRANT **25k**

startcup LOMBARDIA

PNI CUBE
Associazione Italiana degli Incubatori Universitari e delle Business Plan Competition

EBP refinement
Exposition

2022

POC **200k**

POLITECNICO MILANO 1863
360 CAPITAL PARTNERS
POLI360 TECHNOLOGY TRANSFER FUND

Technology validation and startup creation

spin off® POLITECNICO DI MILANO

TTOP

TRUE TISSUE ON PLATFORM

Replicate complex physiological conditions

Enabling simple procedures

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