



INFO DAYS 2026
BROKERAGE
EVENT
CLUSTER | HEALTH

Engineered tissue Microenvironments for 3D Models

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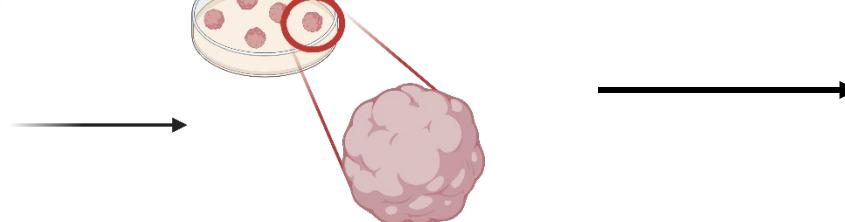
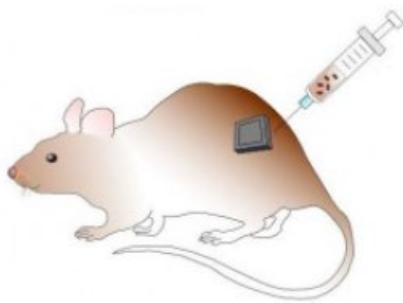
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THE EU RESEARCH & INNOVATION PROGRAMME 2021 - 2027

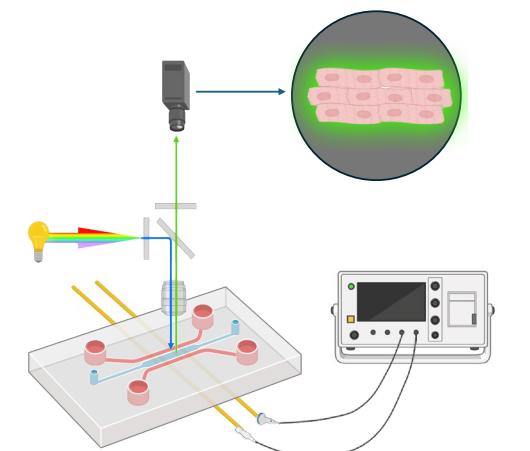
BIOENGINEERED PLATFORMS

CURRENT MODELS



HUMAN ORGANOIDS

Lack of Microenvironment
Limited/Random organization



BIOENGINEERED TISSUES

Target system cells
Cellular organization
High reproducibility
Decrease time & costs

Problem: There is no effective treatment

Reason: < 5% of preclinical findings from animal models moved into clinical trials,
AND then ALL FAILED

We offer comprehensive capabilities in advanced biomaterials and micro/nanoscale Biofabrication and BioEngineering technologies essential for developing next-generation of multiplexed organ-on-chip platforms and personalized tissue models.

Core skills

- **Biomaterials & Bioinks Synthesis and characterization**
- **Light-Based Micro and Nanoscale 3D (bio)Printing (SLA, DLP, 2PP)**
- **Biofabrication & Advanced 3D Tissue Humanized Models** mimicking the real environment.
- **Multimodal Organ-on-Chip Development** subordinated to the application
- **Applications:** Disease modeling, drug discovery and screening, toxicology testing, regenerative medicine, precision medicine with patient-derived iPSCs, bioelectronics integration, pediatric rare disease modeling, AI data training.
- **Equipment & Infrastructure:** Two-photon polymerization system with live-cell bioprinting capability. Stereolithography 3D printer. Confocal and super-resolution microscopy systems. Rheological and mechanical characterization equipment. Chemical synthesis laboratories. Microfluidic fabrication facilities. Cell culture and tissue engineering laboratories. Electrode deposition and electronic integration capabilities.
- **Team Expertise:** Expert researchers in biomaterials, tissue engineering, bioengineering, mechanics, and bioelectronics. (Bio)ink synthesis and functionalization. micro/nanoscale biofabrication expertise. Light-based 3D printing. Electronics and sensor integration. Computational modeling and finite element simulation expertise. Clinical and translational research experience.

Printing facilities for 3D tissue Engineering

Electrospinning

NanoNC

Extrusion (bio)printing

(0,1 – 2 μM)

Cellink Bio-X 3D Discovery



(100-200 μm)



Photo-based 3D (Bio)printing

DLP (Anycubic)

LCD (Anycubic, Phrozen)

SLA (Formlabs 3+)

2PP (Photonic Professional GT2)

2PP (Nanoscribe Quantum X Bio)

(30-50 μm)

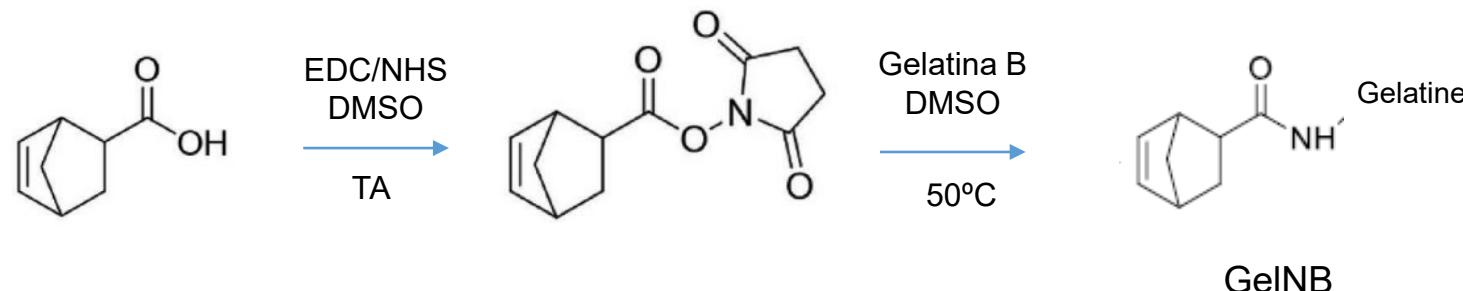


(0,2-5 μm)



Fabrication, characterization of Bioinks for tissue Engineering

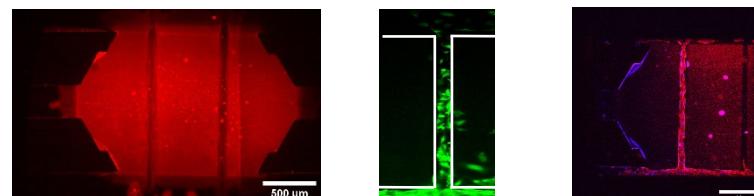
Synthesis



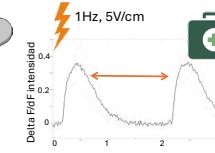
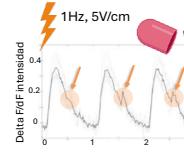
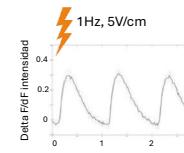
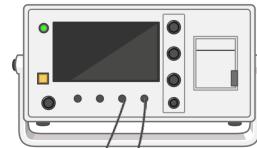
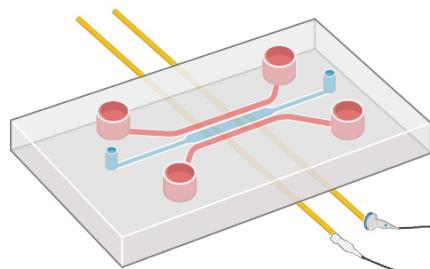
Characterization



Printing and Biological validation

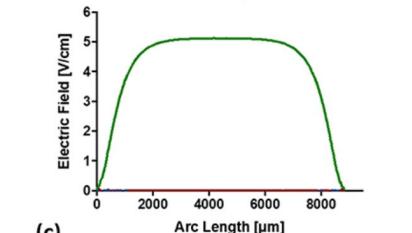
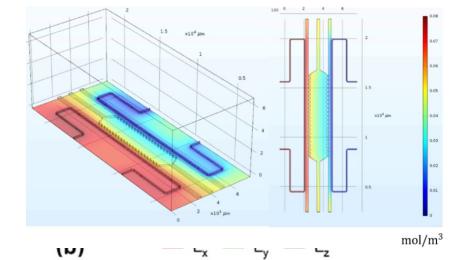


Microfluidic in silico simulation, design and multiplexing



Electrophysiology

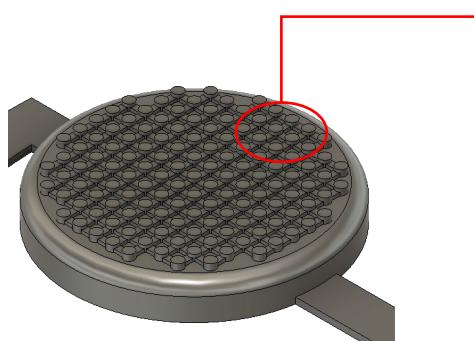
Finite Elements Simulation



(c)



Multiplexing



What we seek and provide

- **We Seek Partners For:**
 - Clinical researchers with patient cohorts and disease knowledge. Biologists specialized in iPSC differentiation and tissue physiology.
 - Pharmaceutical companies for drug screening validation.
 - Electrophysiology specialists for cardiac and neural applications.
 - AI and machine learning specialists for data analysis and modeling.
 - Clinical partners for patient sample collection and longitudinal validation.
 - Regulatory affairs and manufacturing scale-up specialists.
 - Partners targeting cardiovascular applications (cardiac, vascular, angiogenesis), neuronal, neurodevelopmental, metabolic disease, cancer, rare genetic disorders, and organ-specific applications.
- **What We provide:**
 - Technical excellence in advanced biomaterials and micro/nanoscale 3D printing.
 - Cutting-edge fabrication and multiplexing enabling physiologically relevant models and reliable close-to-human data.
 - Nanoscale control for unprecedented tissue mimicry and biomarker sensitivity.
 - Complex biofabrication problem-solving and optimization.
 - Regulatory-compliant workflows and quality assurance.
 - Strong interdisciplinary collaboration track record.
 - Publication and intellectual property support. Scalable, regulatory-standard platforms.

Thanks!

Biomaterials and Nanobioengineering (UB)

Dr. Oscar Castaño

Dr. Romen Rodríguez

Dr. Jaime López

Miriam Funes

Renato Eduardo Yanac

Adrià Noguera

Anna Vilche

Bárbara Borges

Carlos Gracia

Joan Máñez



Institute for Bioengineering of Catalonia



Barcelona Institute of
Science and Technology



EXCELENCIA
SEVERO
OCHOA

