

A close-up photograph of a 3D bioprinter. A white extrusion head is positioned over a glass petri dish, dispensing a bright pink bio-ink in a precise, controlled manner to form a small, square, multi-layered structure. The background is a soft, out-of-focus blue.

cti

BIOTECH
VISIONARY SCIENCE

**3DBioprinting
tissue engineering
for biomedical research**

ctibiotech.com



France
39%
Europe
21%

Asia
40%

Some recent clients:



WE ARE

**A team of world class experts, innovators in
bioengineering and regenerative medicine**

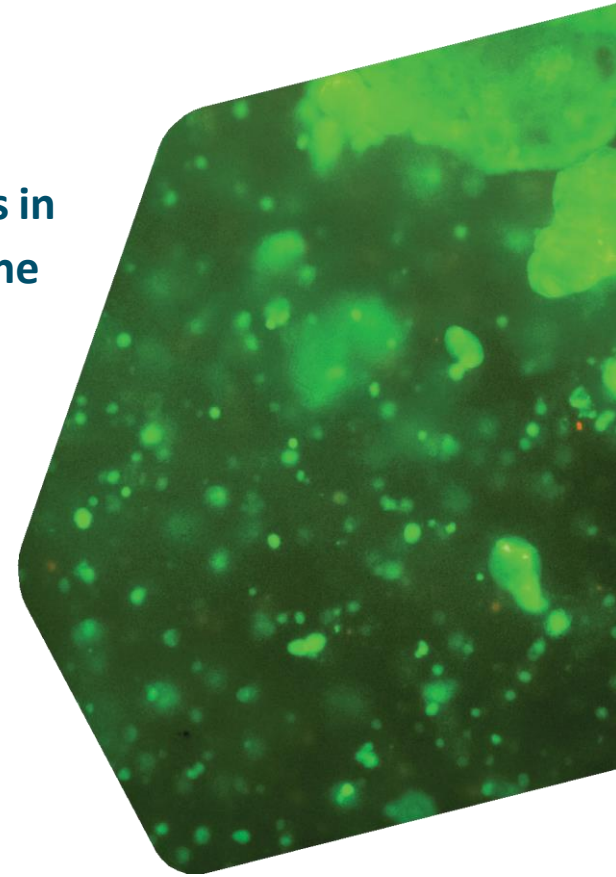


Professor Colin McGuckin
Chairman & CSO

World renowned cancer researcher &
pioneer in regenerative medicine

Expert in stem cells, government
advisor, medical journal reviewer

*“ We are driven by a
commitment to improving
human health. CTIBiotech were
the first to make 3D human
tissue models a reality”*



3 poles of excellence



cti BIOSOURCING



cti PHARMA



cti SKIN





Cellules et tissus humains pour la recherche scientifique

High quality human model, cell & tissue for scientific research

Pathological

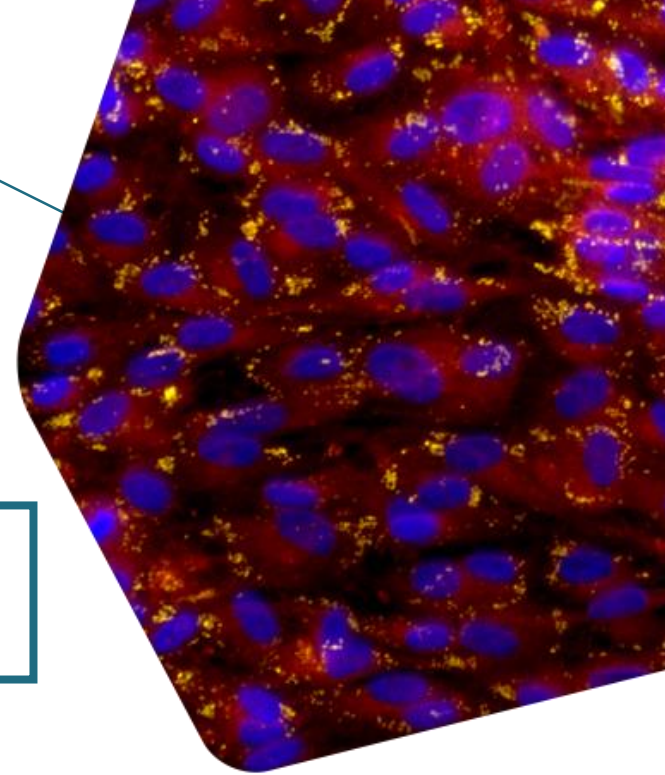
Breast cancer
Ovary cancer
Pancreas cancer
Lung cancer
Liver cancer
Prostate cancer
Lymphoma
Atopic dermatitis
Solar lentigo
Cancer associated



Healthy

Skin, full thickness
Skin cells
Dermal papilla
**Subcutaneous
adipose tissues**
Neonatal tissues
Peripheral blood
Blood cells
Bone marrow
Bone marrow cells
Cornea

CTISebocytes



L'innovation au service de la Dermato-Cosmétique

CTIMultiSkin



Services developed by CTISkin

CTIBiotech offers a wide range of services, including

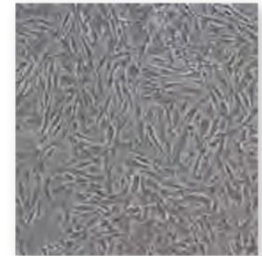
- Ex vivo biopsy models (skin, scalp, hair etc.).
- In vitro models with different human cell types (fibroblasts, melanocytes, sebocytes, keratinocytes, etc.) obtained from a biopsy followed by a cell separation and amplification phase by cell culture.

In addition, CTIBiotech develops and markets custom-made skin models reconstructed by 3D bio-printing or tissue engineering to evaluate the safety and efficacy of new ingredients for dermatocosmetic products.

1 / Ex-vivo models on skin biopsy

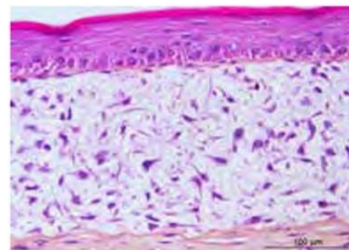


2 / Complex multicellular *in vitro* models

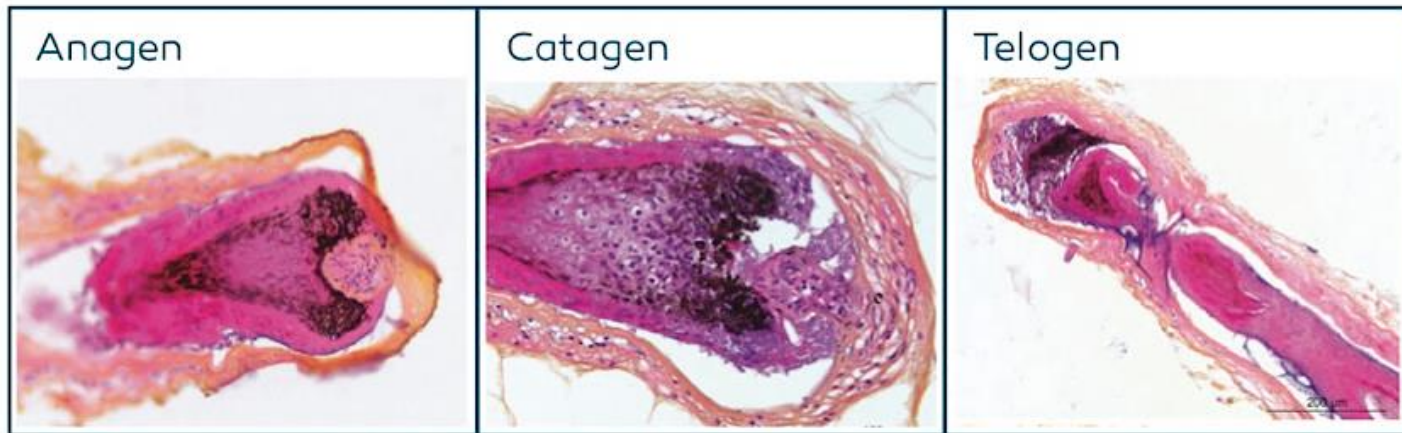
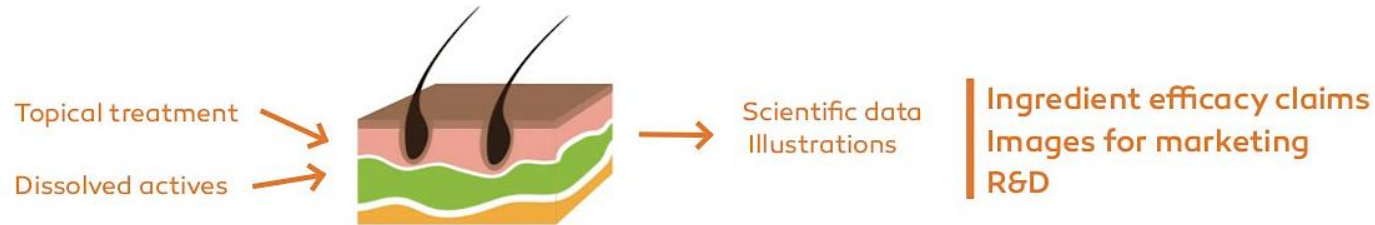


Fibroblasts (skin cells)

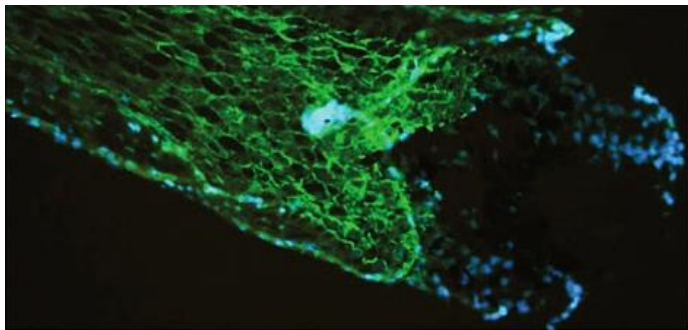
3 / Full skin model - skin reconstructed by 3D bioprinting or tissue engineering



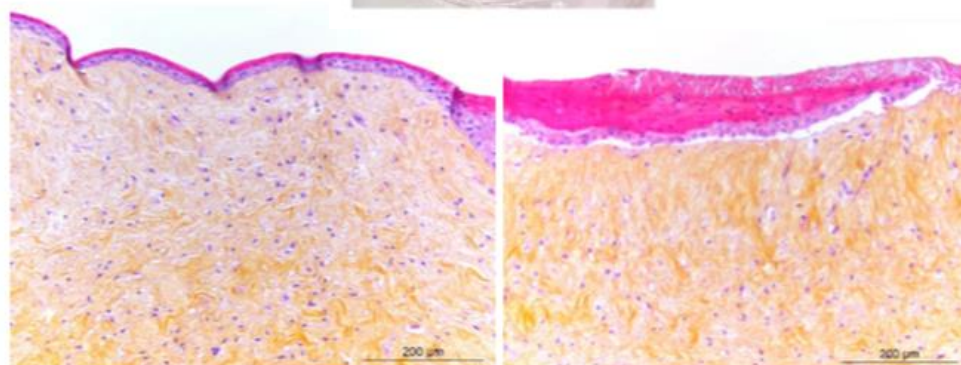
Evaluation of active ingredients for hair care



CTIBiotech's *in vitro* hair cycle through the 3 phases like in nature. HES staining.

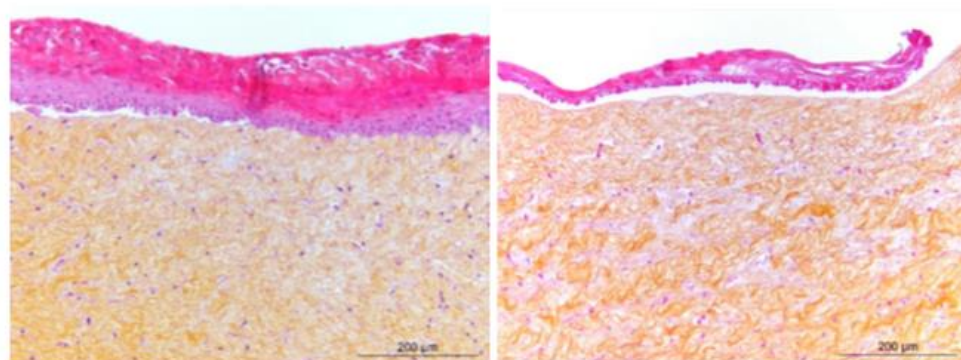


Pediatric skin model to evaluate safety and efficacy of active ingredients and formulated products



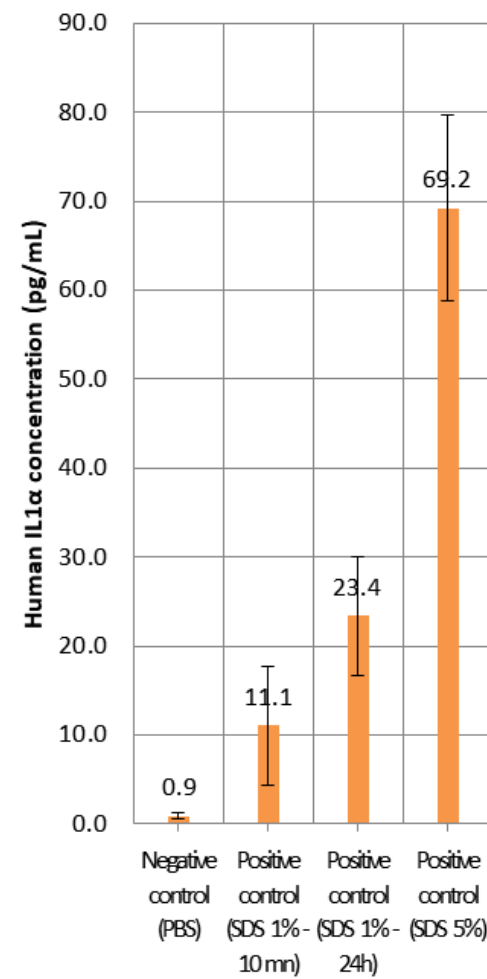
A - Negative control (PBS)

B - Positive control (SDS 1% - 10 min)



C - Positive control (SDS 5% - 15 min)

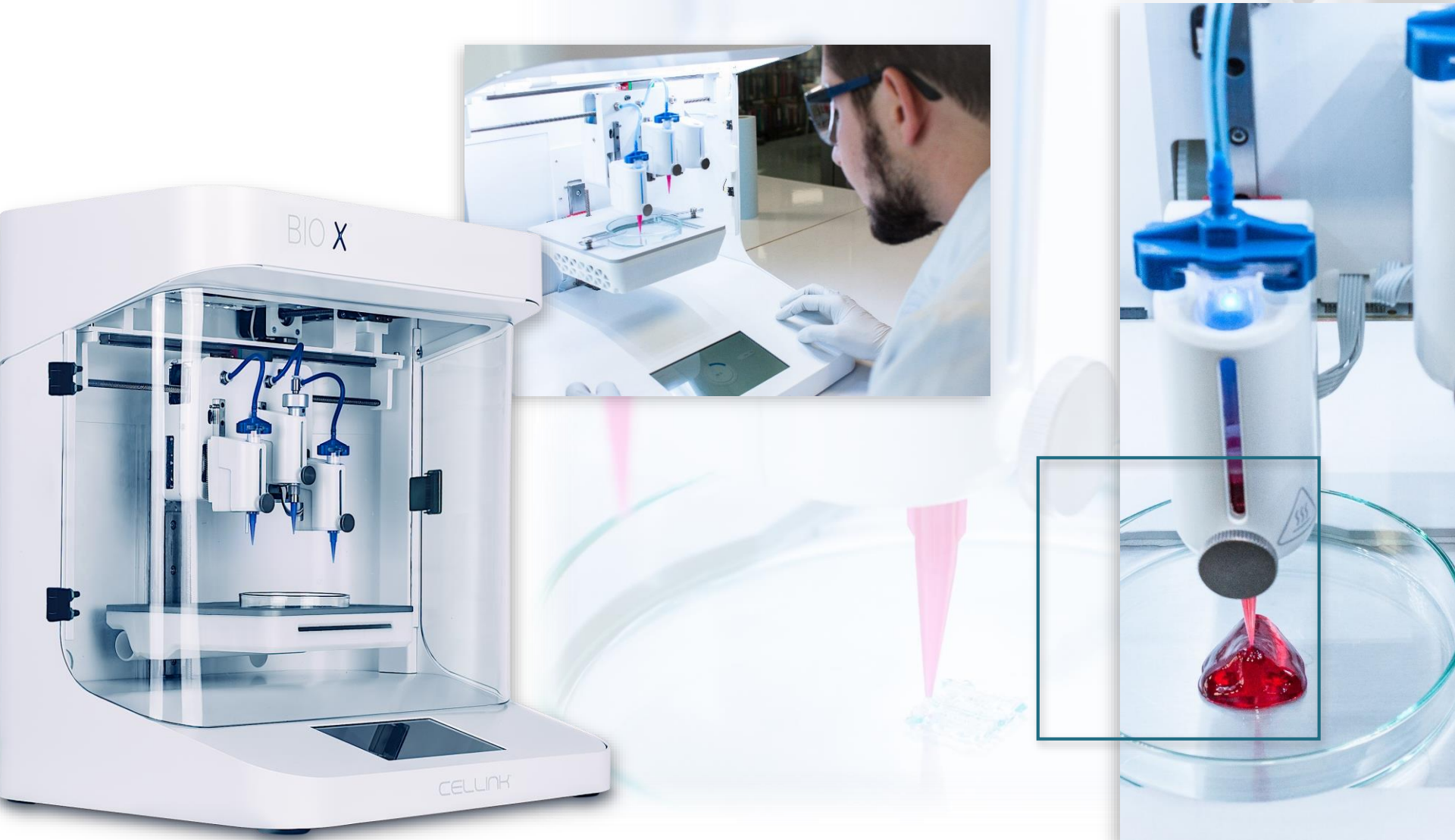
D - Positive control (SDS 1% - 24h)



Human IL1α response

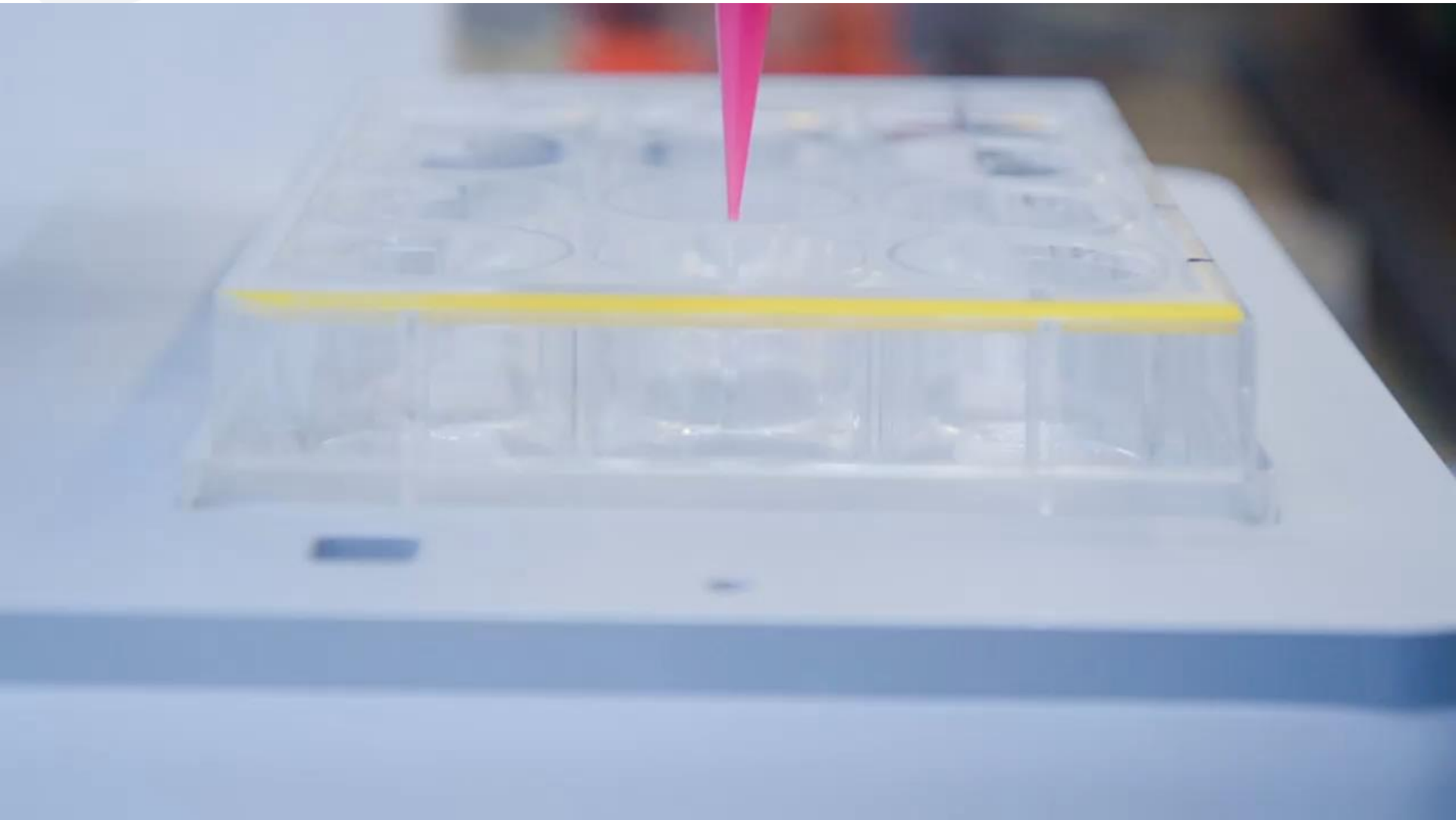
Tissue engineering models

3-Dimensional Bioprinting

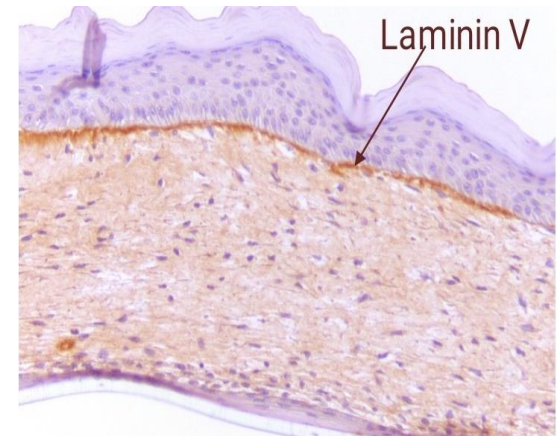
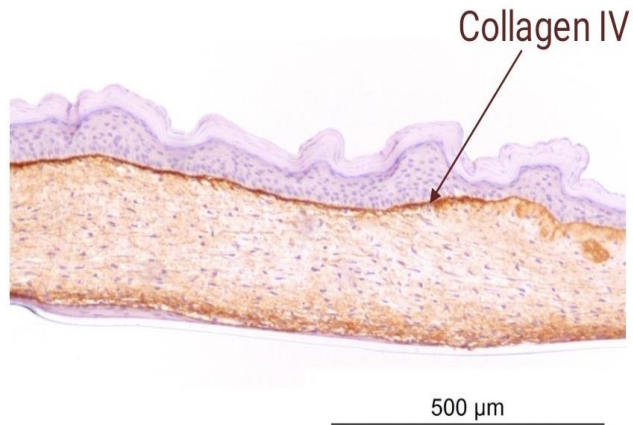
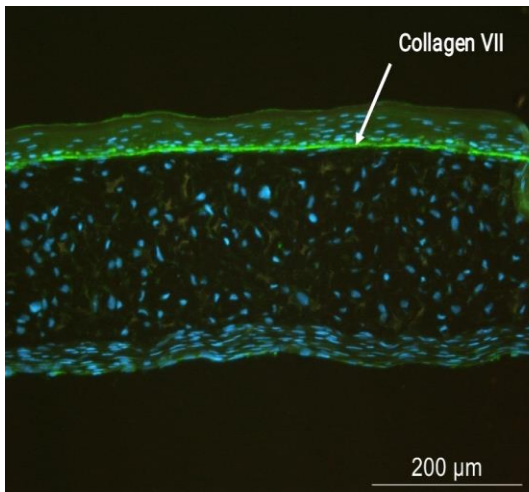
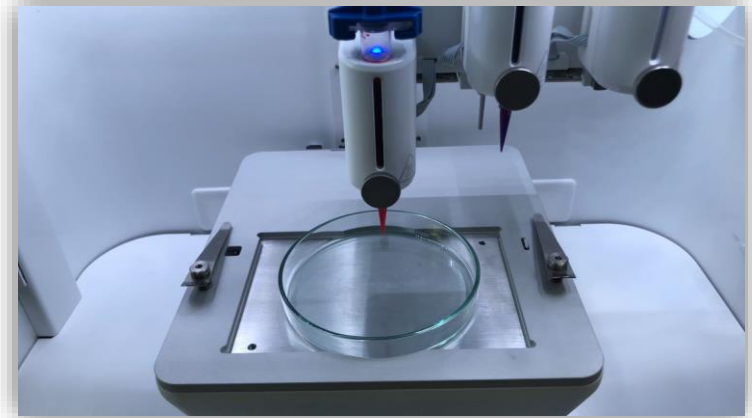


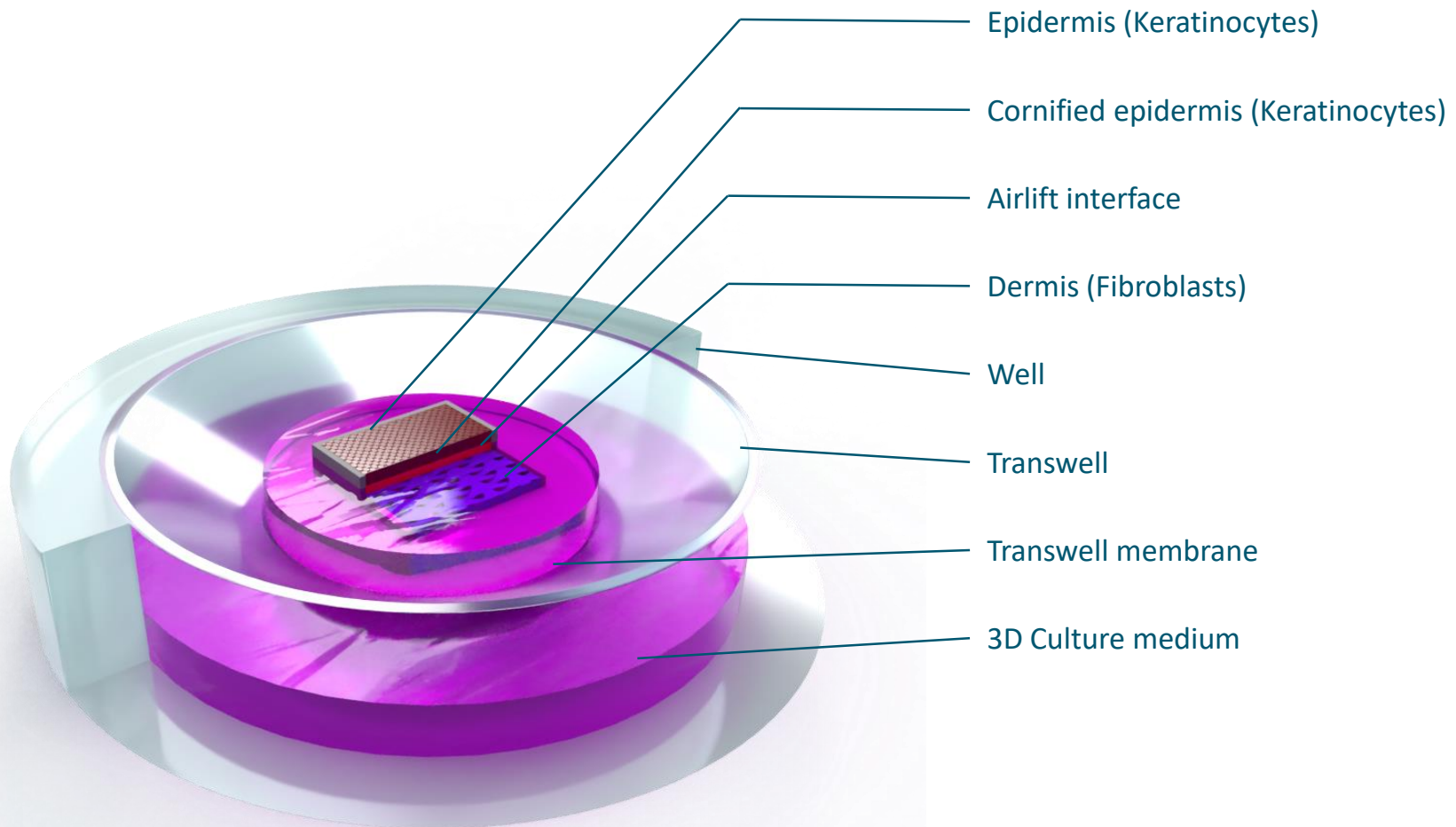


Skin surgery

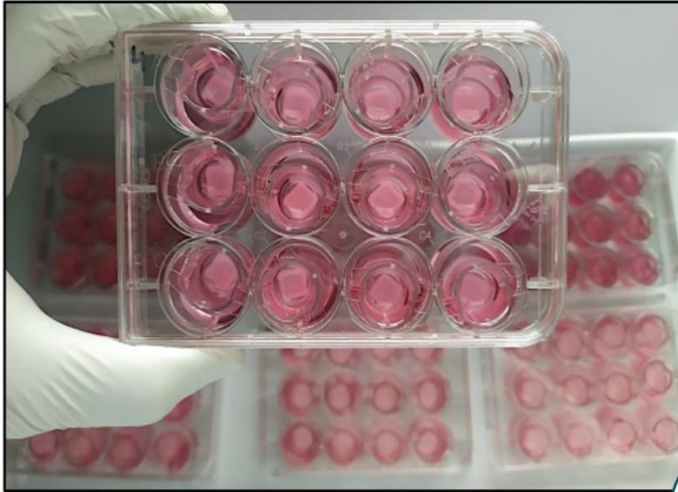


Human skin production by 3D-Bioprinting

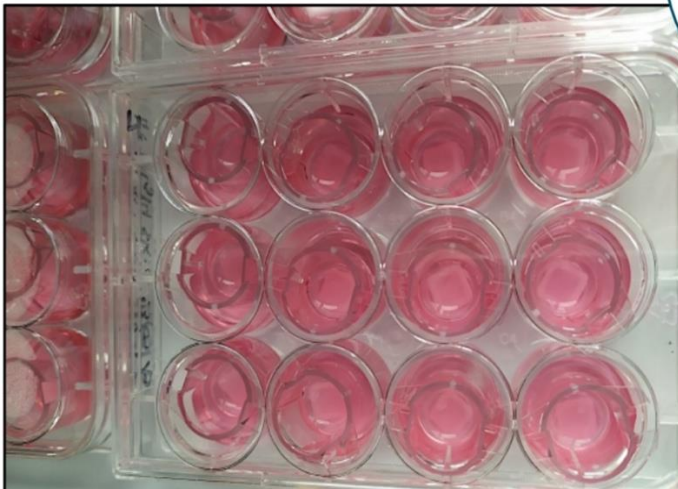




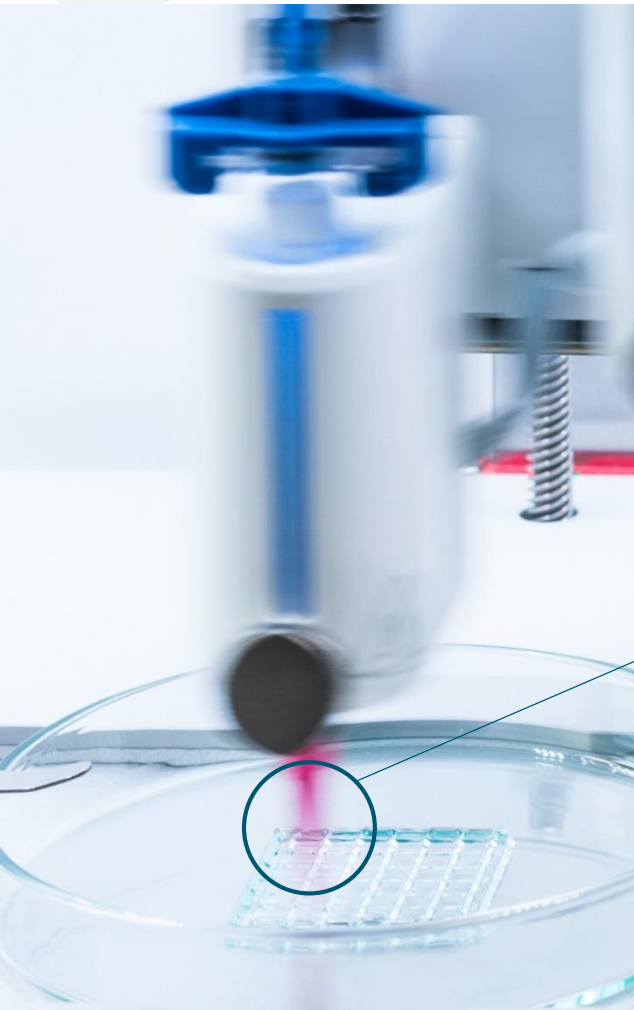
100 models of Reconstructed human skin production 3D-Bioprinting



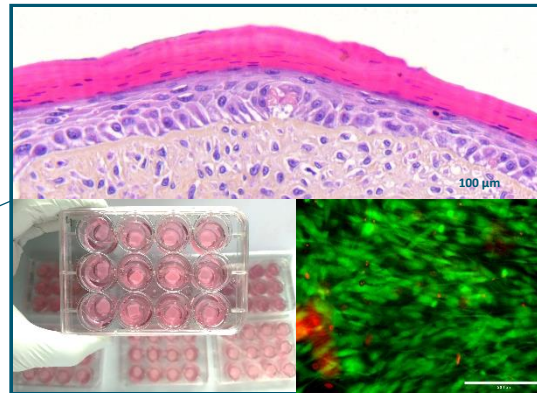
Full
thickness
skin
models



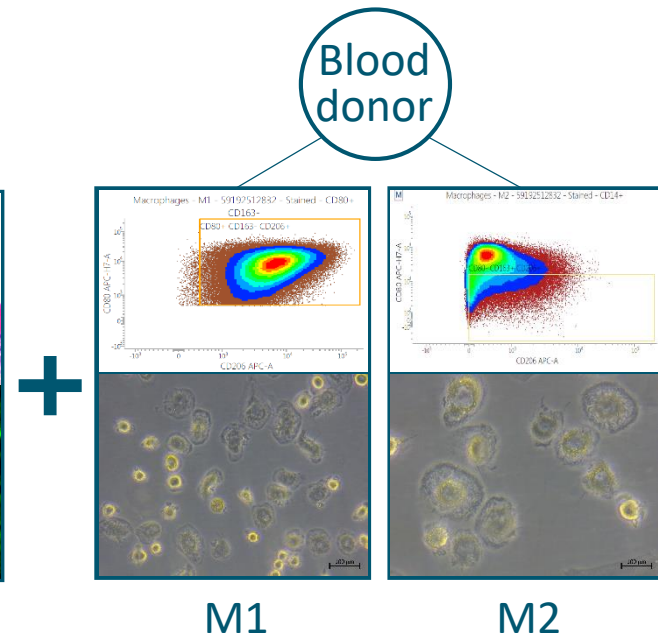
3D immunised skin models



3D bioprinting



3D skin models



M1

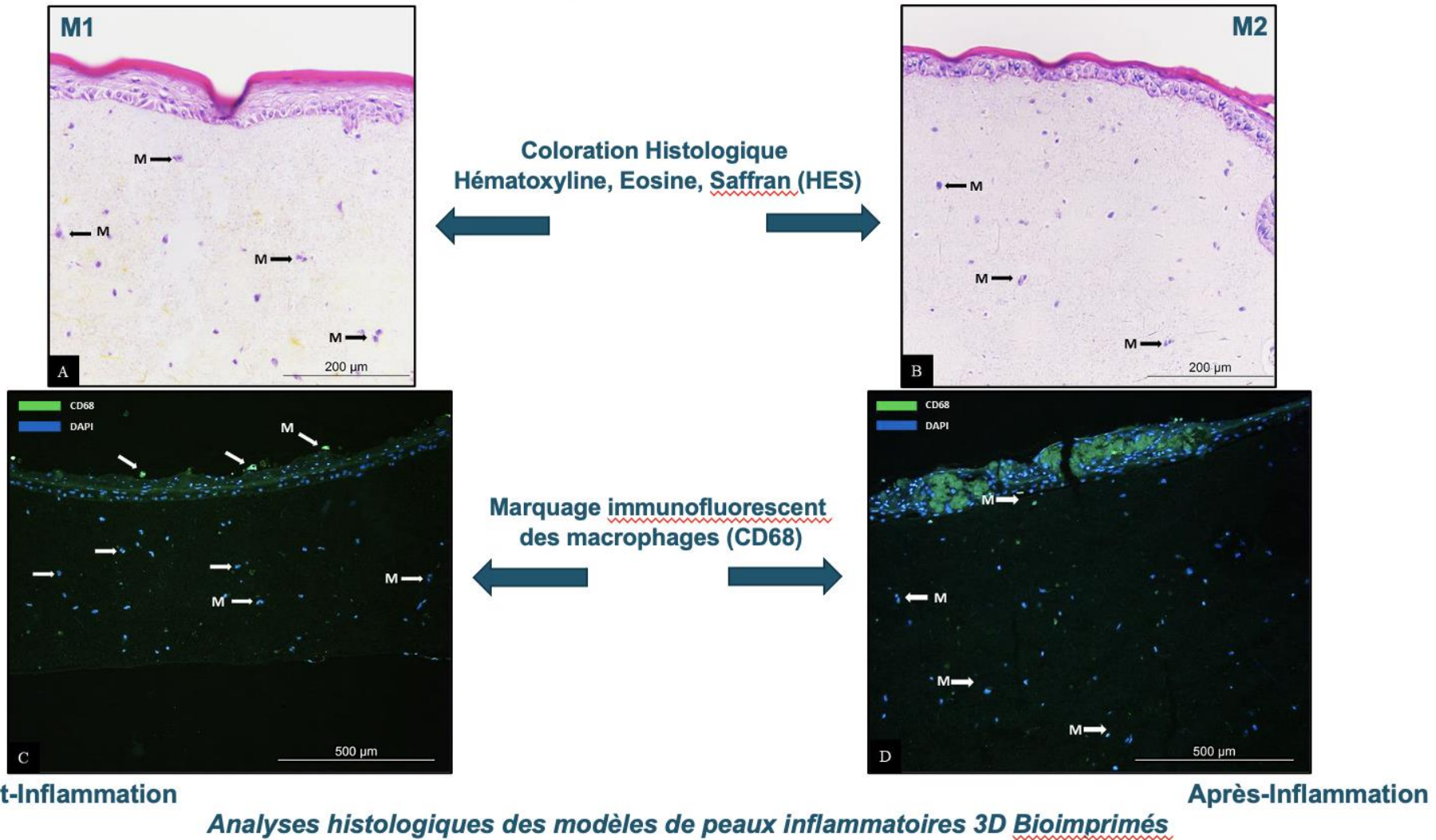
M2

Immunised cells

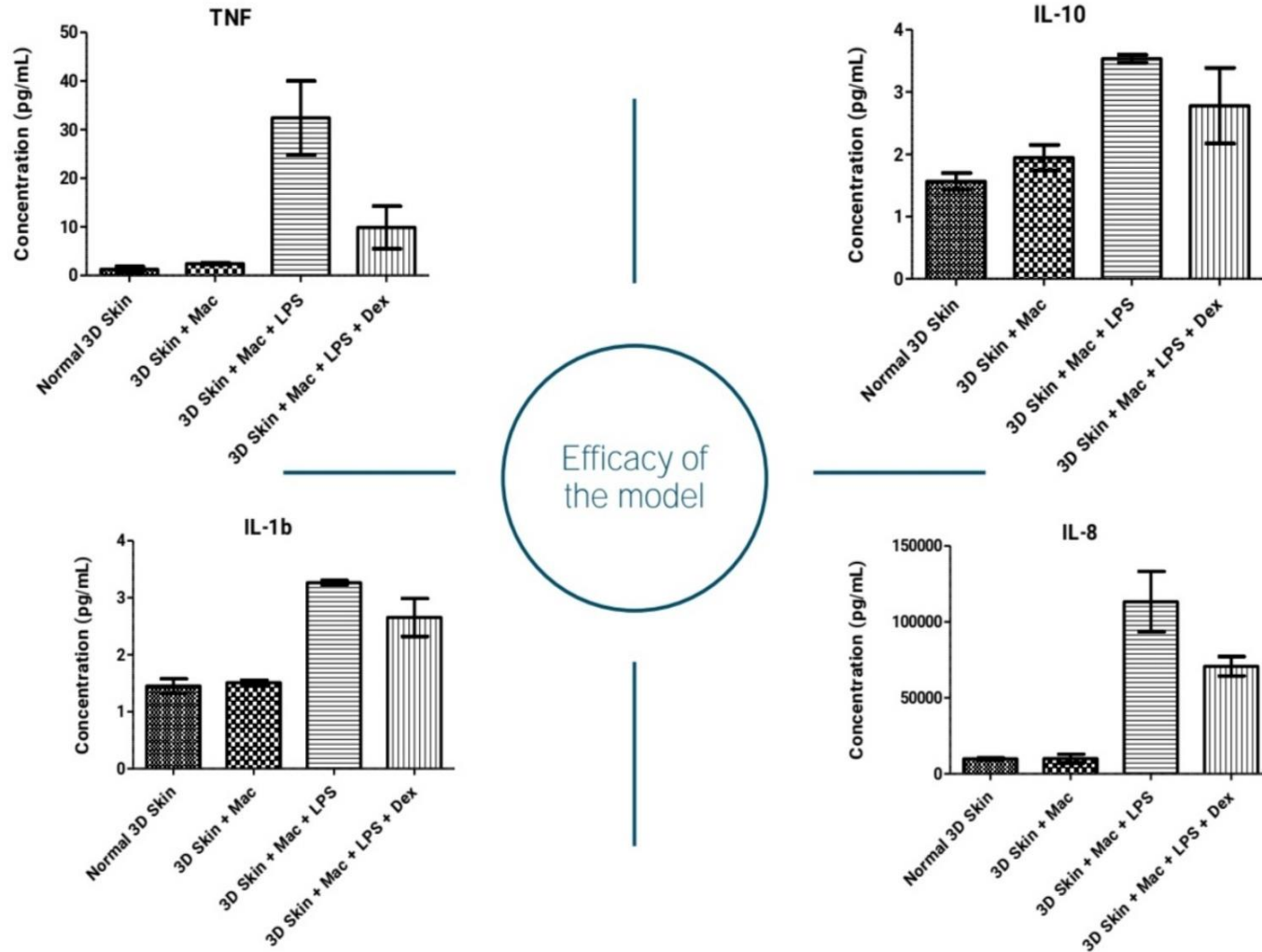
3D Immunised Skin models – Histology

Développement et validation des modèles d'efficacité

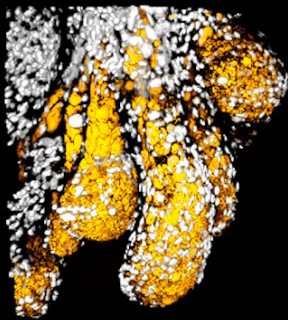
Soin de la peau / Peaux sensibles



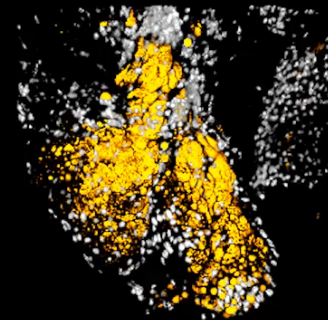
3D bio-printed skin models including Macrophages



Induction and treatment of inflammation by measuring inflammatory cytokines produced by models

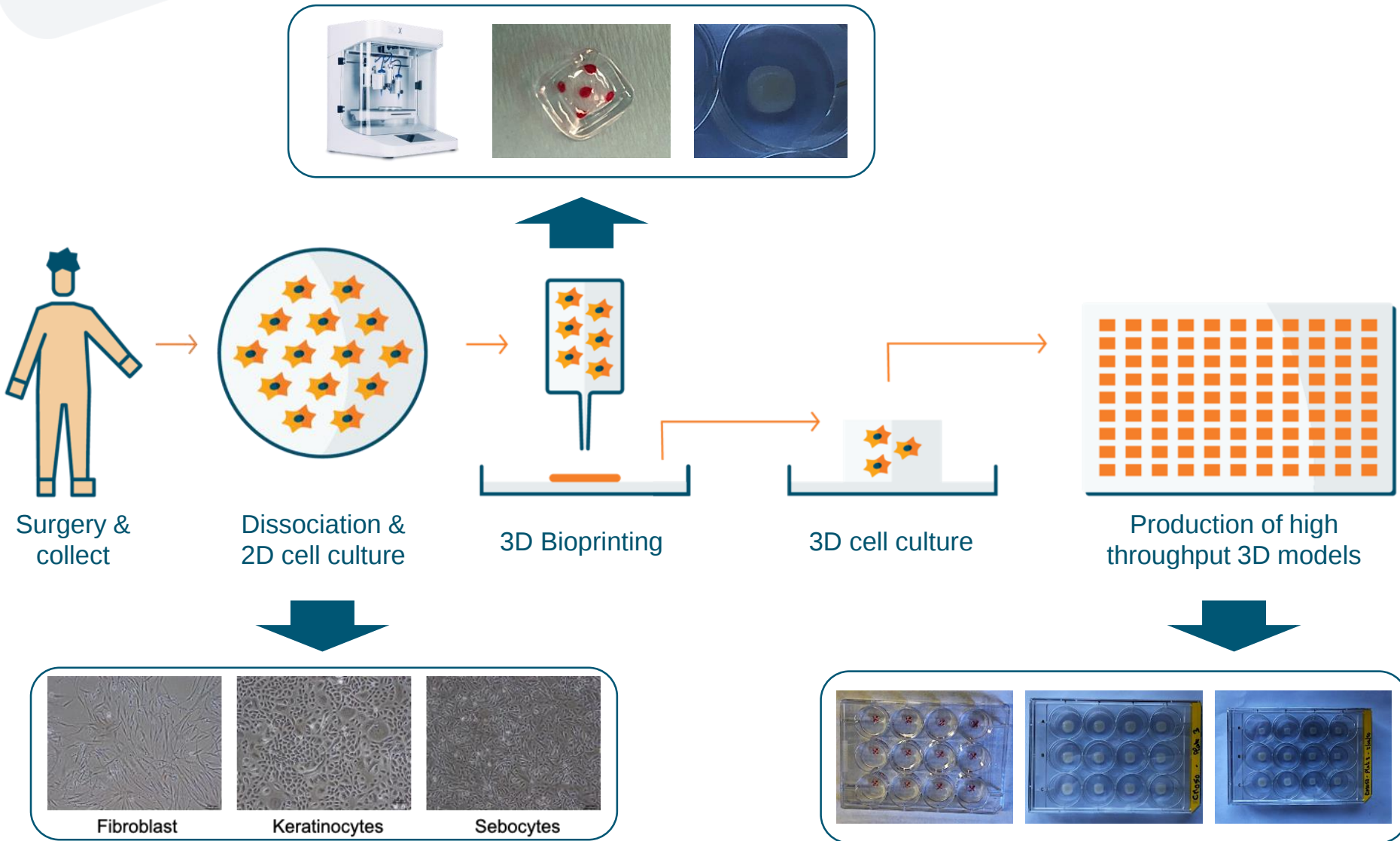


Untreated



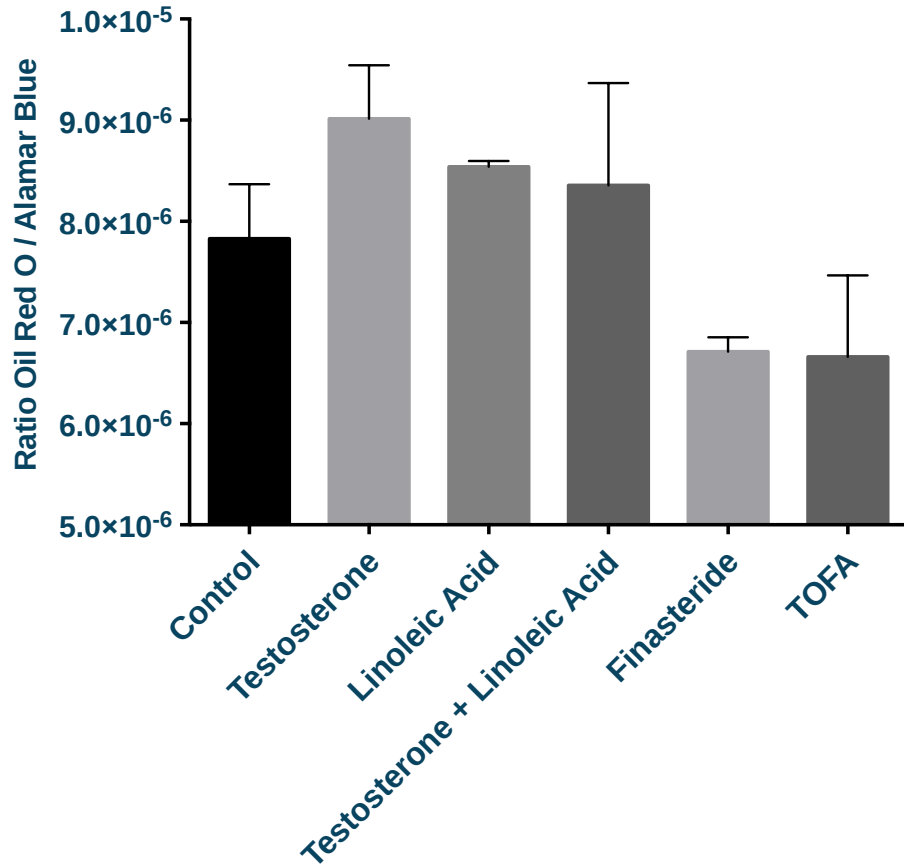
Bix'Activ®

© BASF BCS / © CTIBiotech

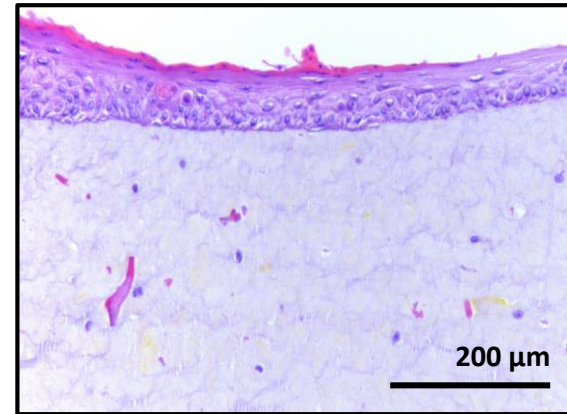


CTISeboskin model → Functional

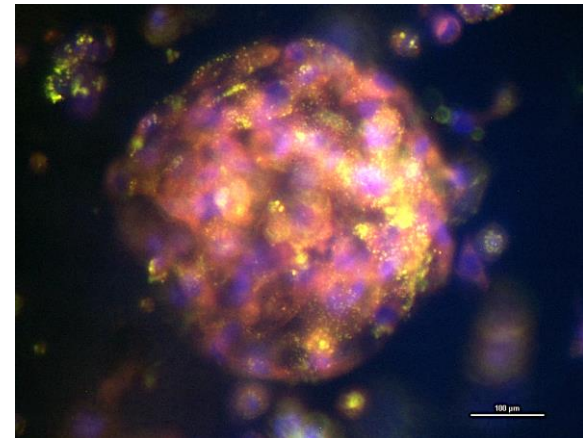
Oil Red



HES Coloration



Nile Red



Développement et validation des modèles d'efficacité

- ✓ Amélioration des paramètres d'impression:
 - Encre
 - Densité
 - Vitesse
 - Pression

- ✓ Optimisation de maturation des modèles:
 - Délais
 - Volumes
 - Milieux

- ✓ Optimisation des méthodes d'analyses:
 - Congélation
 - Fixation
 - Marquages



CLARINS

ISIPCA
From senses to expertise
- P A R I S -



Atelier Fluides SuperCritiques

LIPO=C=OSM

Extraits naturels écoresponsables pour
des cosmétiques innovants



bpi**france**

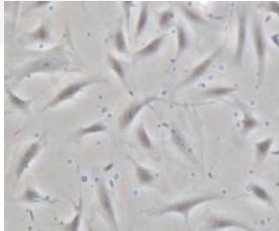


COSMETIC VALLEY
FRANCE

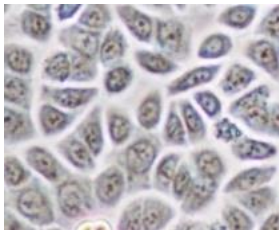
Région
île de France

LYON**BIO**POLE
Auvergne - Rhône - Alpes

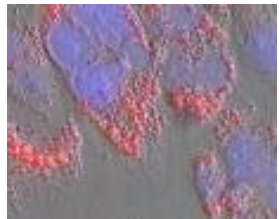
3-Dimensional Bioprinting



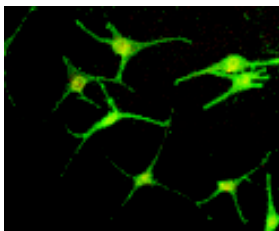
Fibroblasts



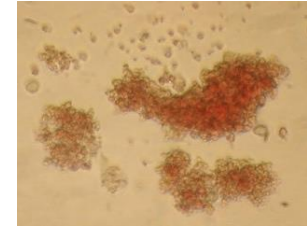
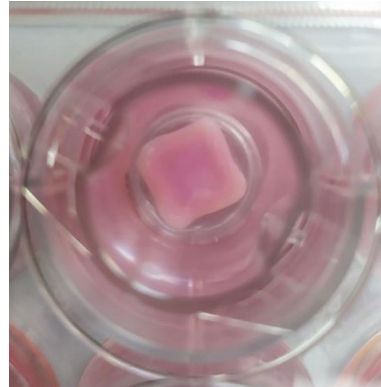
Keratinocytes



Sebocytes

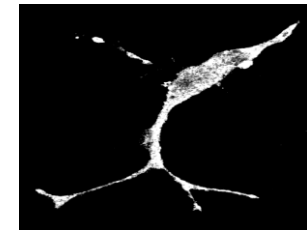


Melanocytes

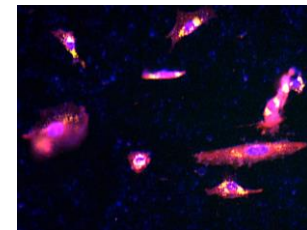


Immune

M1
M2
Tcell
Bcell
Dend.

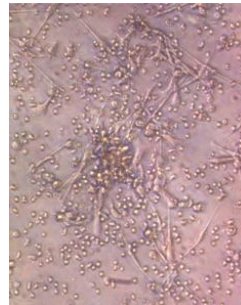


Neuronal



Microbiome Models

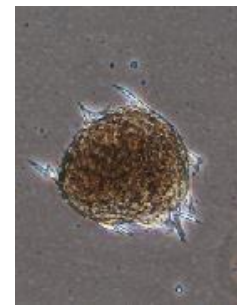
P.Acnes
S.Epid.



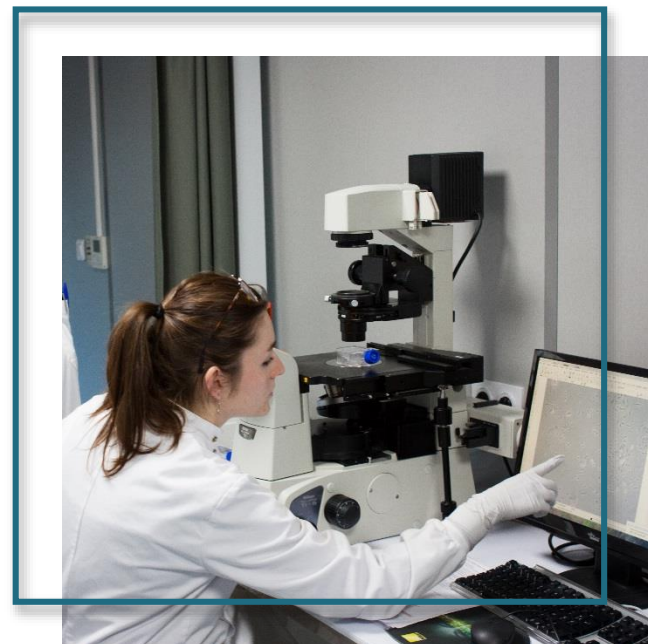
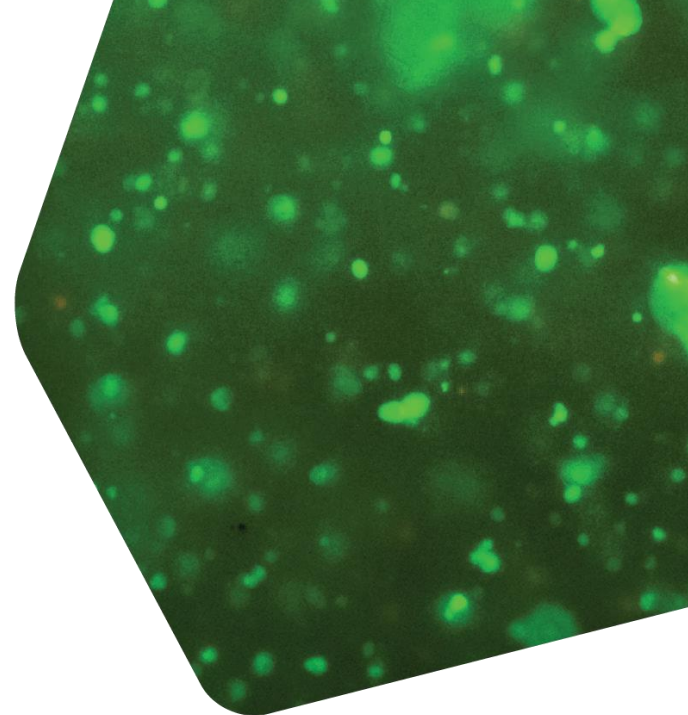
Endothelial



Hair follicle



Dermal Papilla



Des Bioassays diversifiés pour la recherche médicale et pharmaceutique



INNOVATIVE MODELS INITIATIVE AGAINST CANCER



Developing animal models and cell-based assays



Humanizing the tumor microenvironment in mice



Studying the microbiota in cancer patients



- Development of new cancer models
- Production of primary cells, PDX tumors and cell lines
- Towards a personalized medicine
- Data :
 - *Clinical notes of patients*
 - *Histology*
 - *Tumor genomics*
 - *Identification of biomarkers*

3DOncoCHIP project

Partners



Financers

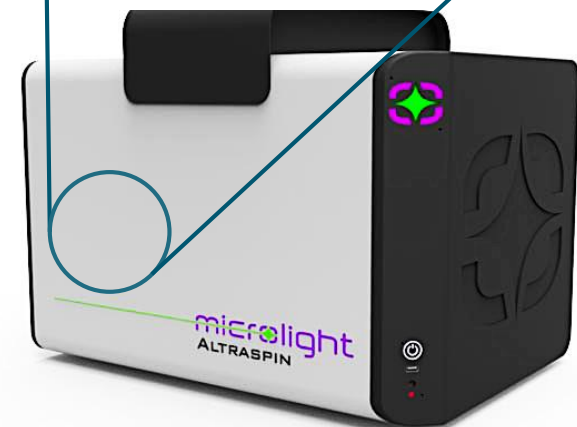
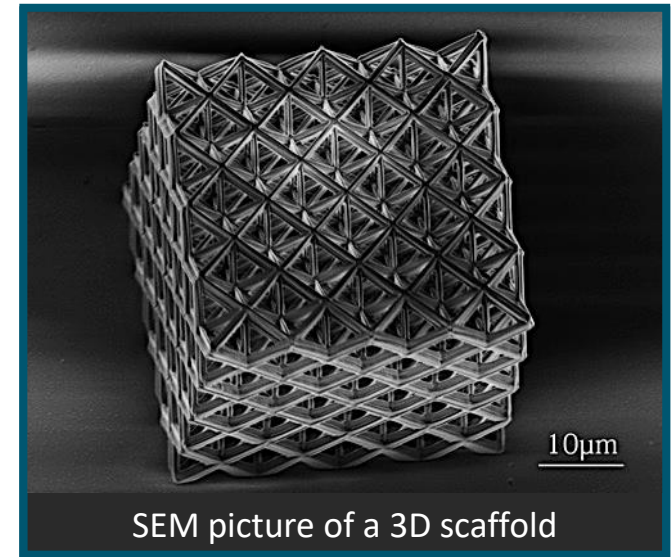


Labels

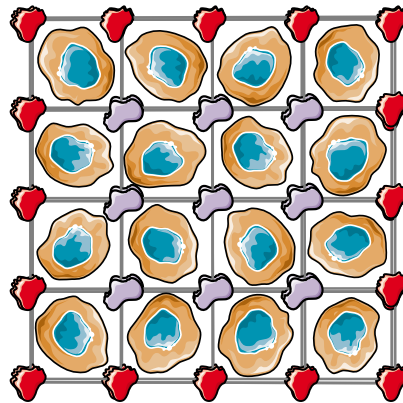


3DOncoCHIP project

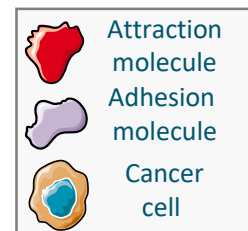
- A 3D microprinting system for the creation of scaffolds to support future fabrics
- Key specifications :
 - High resolution: 0.2 μm
 - Any 3D shape
 - Compatible with biocompatible materials

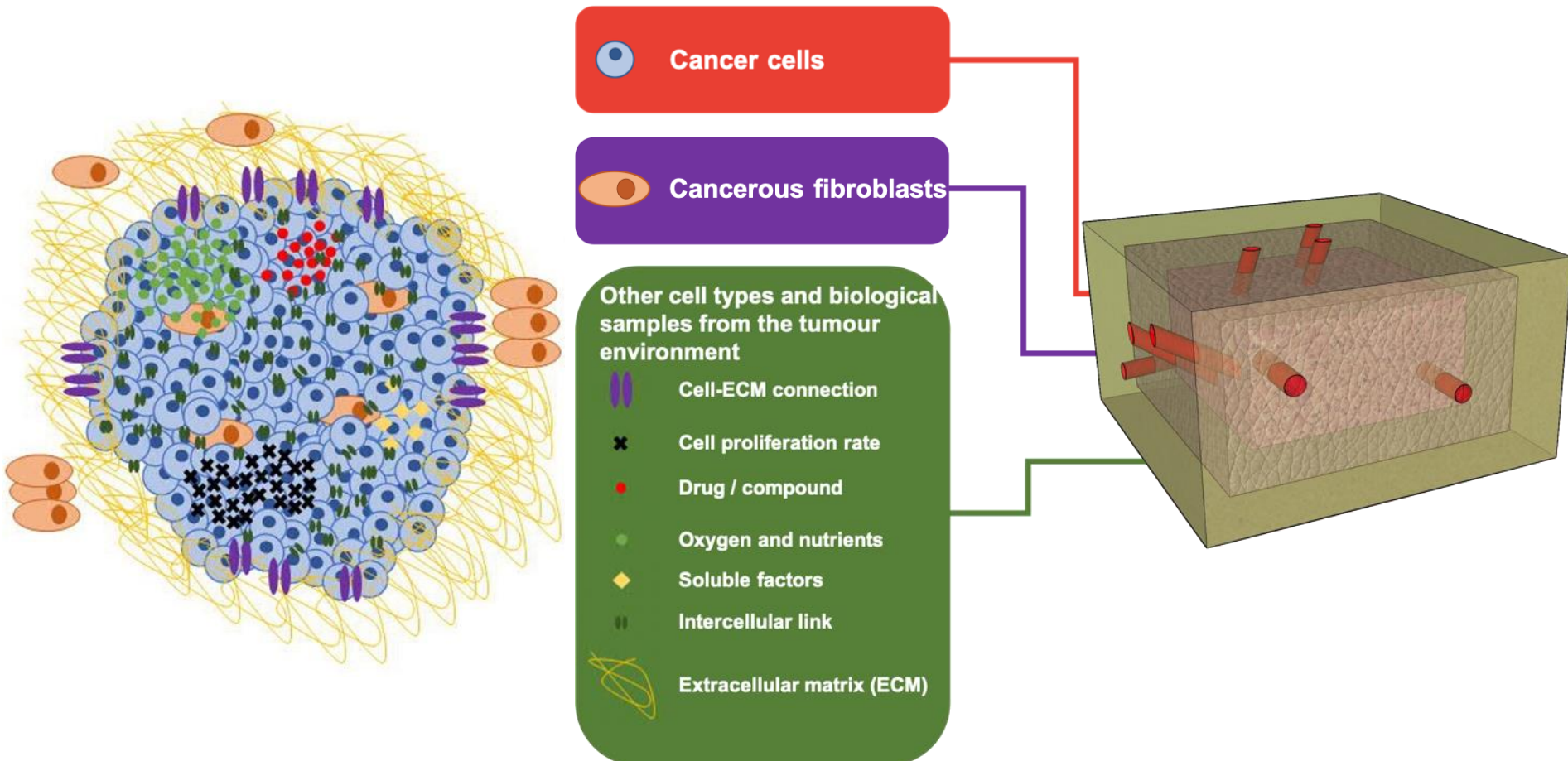


3DOncoCHIP project

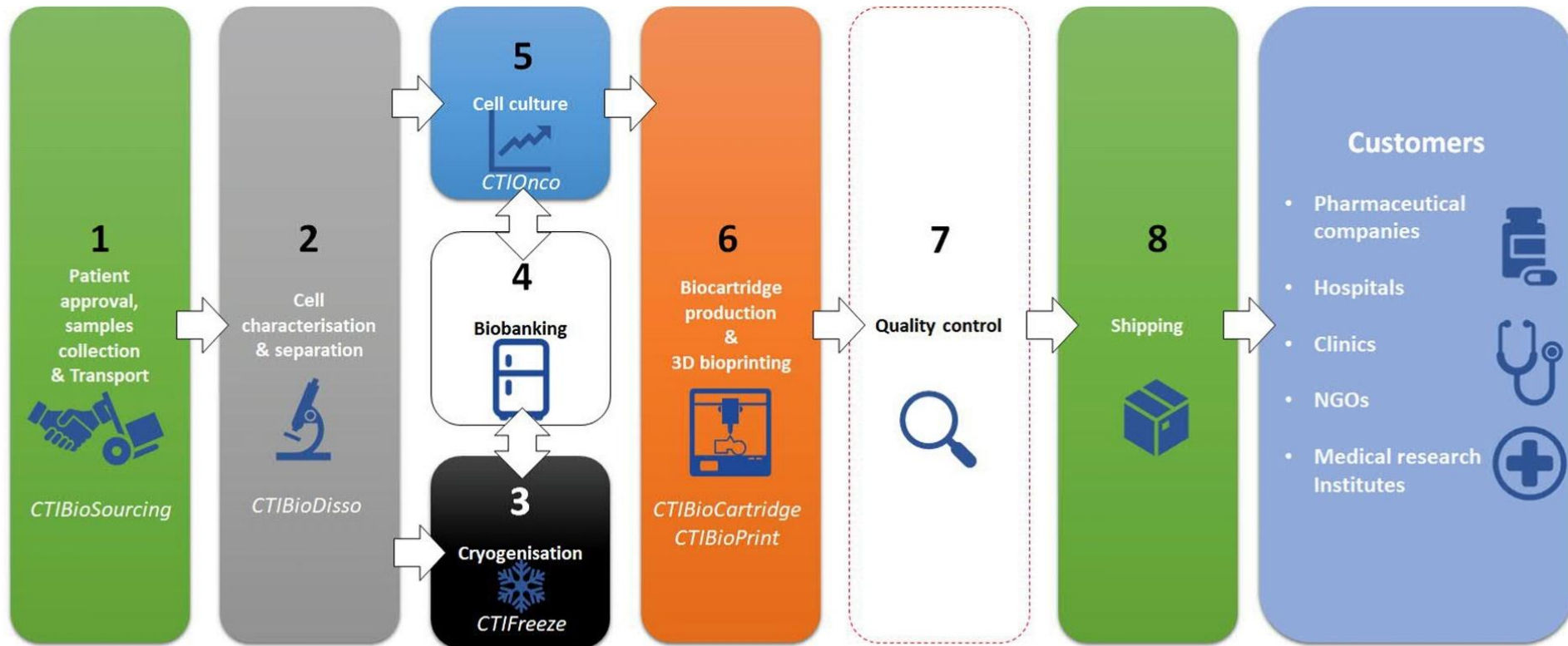


Micro manufacturing
of the scaffold



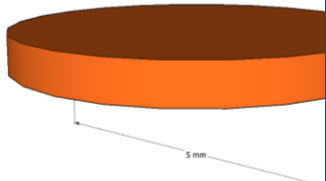


3D bioprinting – towards industrialization

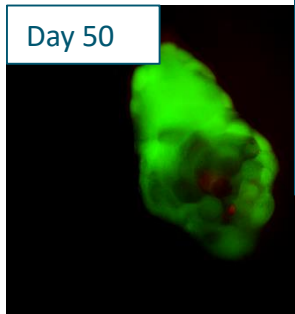


3D models of b

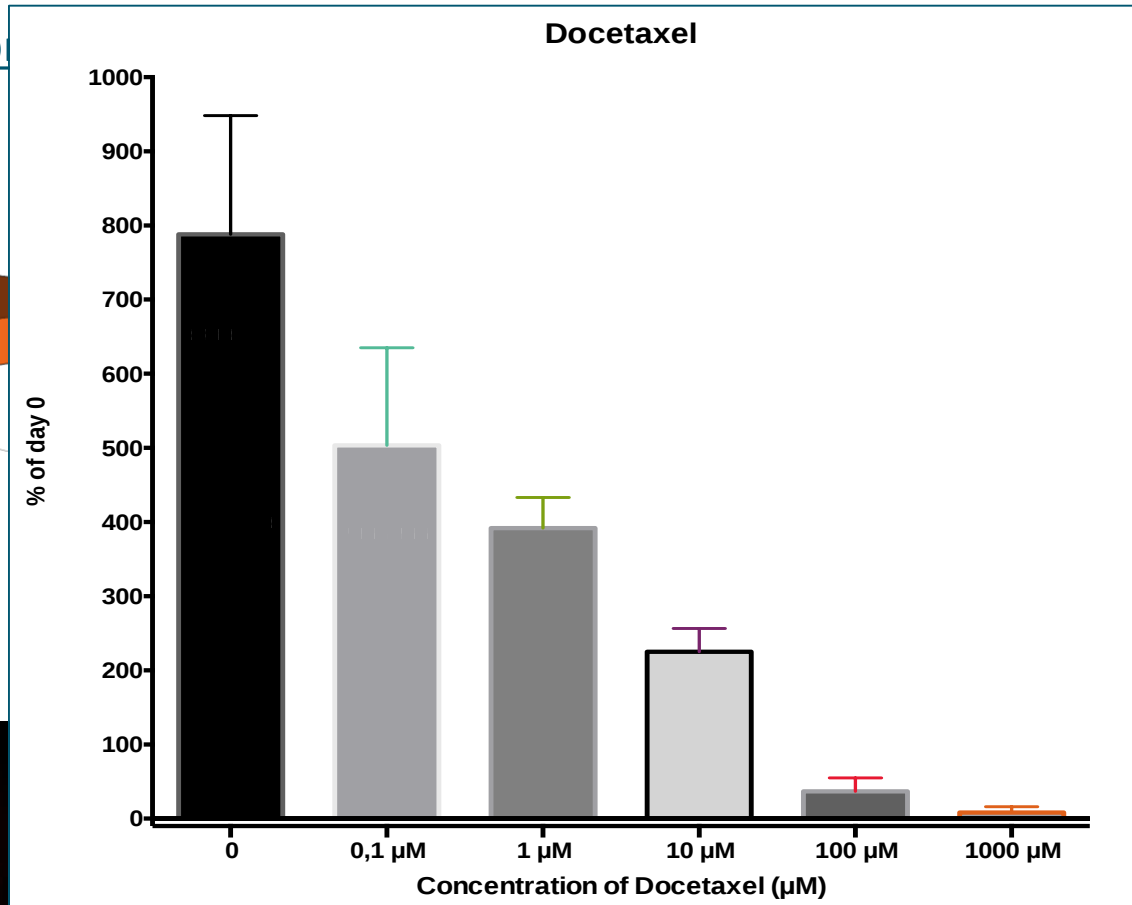
3D model



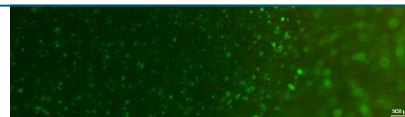
Day 50



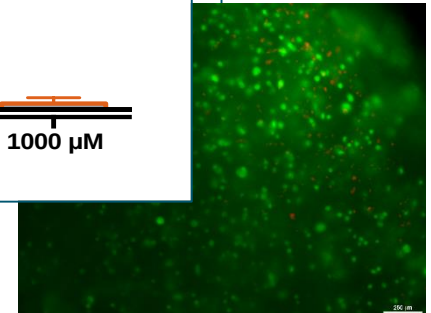
Live/dead



f printing

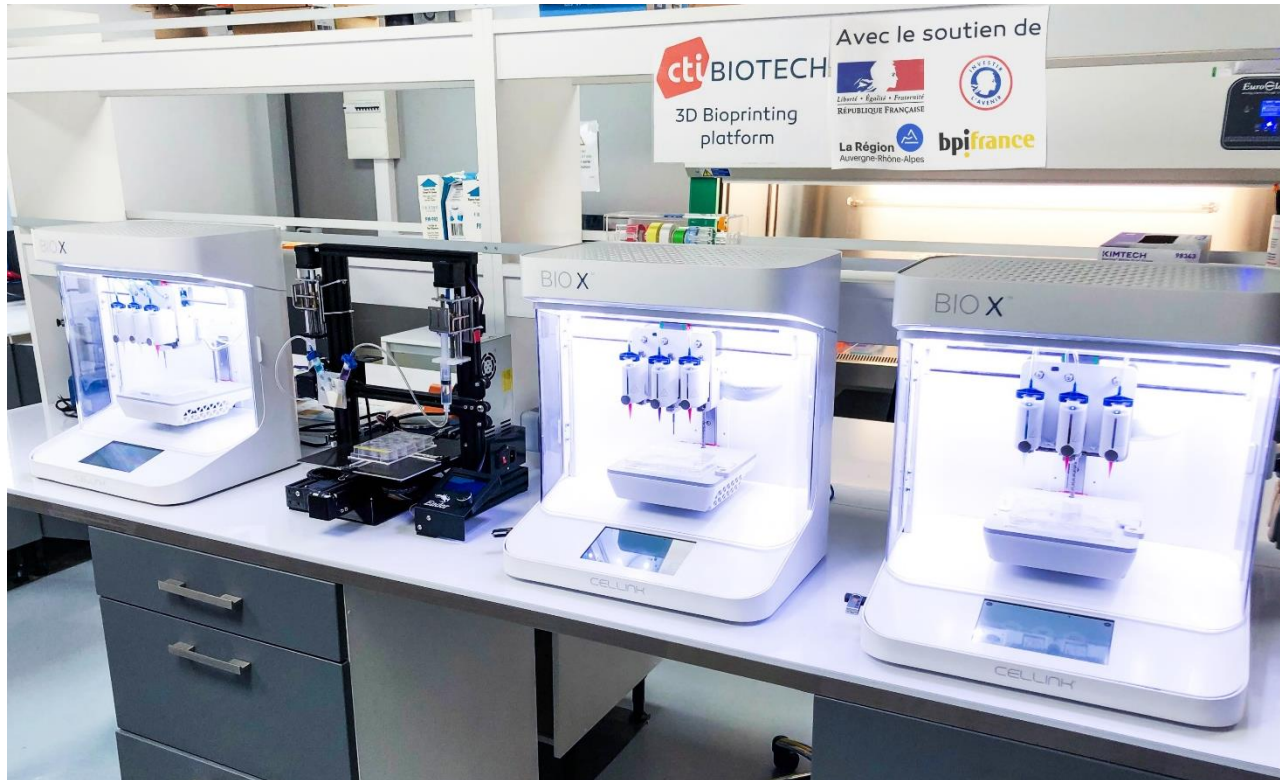


Live/dead



Live/dead

3D Bioprinting Platform



With the
support of





T +33 9 67 10 74 55
office@ctibiotech.com

Bat A16, 5 avenue Lionel Terray
69330 Meyzieu
Lyon, France

ctibiotech.com

