INDUSTRIAL INTEGRATOR

Extracellular Vesicle and Nanovectors Production, Engineering, and Characterization for Therapy and Diagnosis

IVETH is the first expertise and technological innovation HUB for bioproduction, engineering, and characterization of extracellular vesicles (EVs) and nanovectors for early diagnosis and personalized therapy development.

Our ambition is to promote the industrialization of disruptive processes in healthcare.

IVETh has 15 years of experience in the field of EVs

14 equipments unique in Europe

A multidisciplinary team of 17 experts
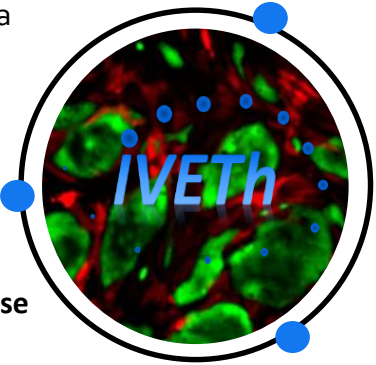
A multimodal approach powered by AI

IVETH INNOVATION HUB / INDUSTRIAL INTEGRATOR

- **Our main mission**

Connect scientific and clinical project leaders with innovators within a large ecosystem of research labs, hospitals and companies.

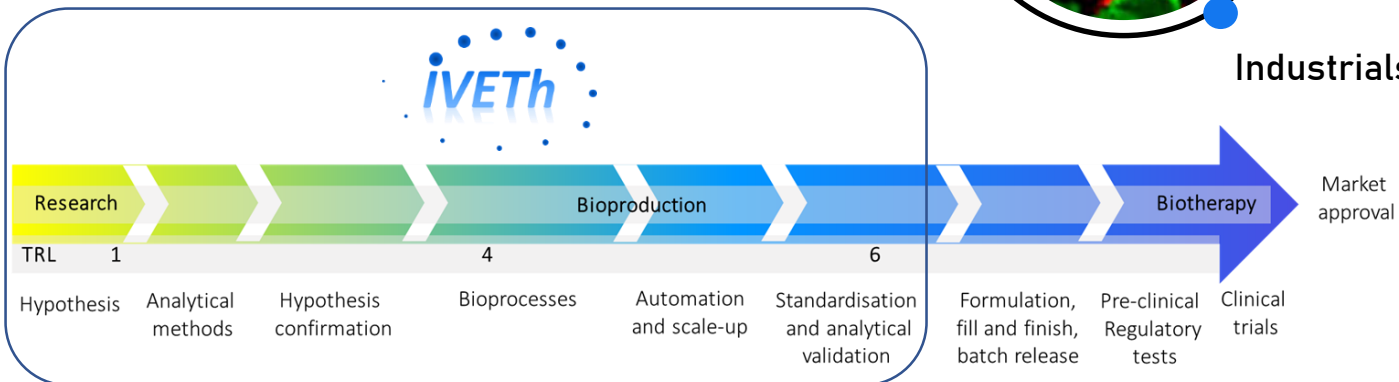Accelerate and de-risking technology maturity, market access and Impact for patients.

Academics

Clinicians

IVETh

Industrials

An offer including all the steps prior to clinical batch production/release

Research			Bioproduction				Biotherapy	Market approval
TRL 1			4		6			
Hypothesis	Analytical methods	Hypothesis confirmation	Bioprocesses	Automation and scale-up	Standardisation and analytical validation	Formulation, fill and finish, batch release	Pre-clinical Regulatory tests	Clinical trials

STATE-OF-THE-ART EQUIPMENT

- Production
- Engineering
- Characterization

MULTIDISCIPLINARY TEAM

- Physicists, Chemists & Biologists
- Data scientists
- Pharmacists & Clinicians

ARTIFICIAL INTELLIGENCE

- Multimodal & Multiscale analyses
- Automated classification
- Data clustering

- **Field of expertise**

Bio-production, Bio-engineering, and Purification / Isolation

Multimodale, Multiscale Characterization

Testing, Visualization
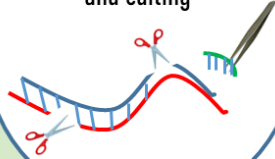
Multimodale Machine Learning Analyses

2

In Process Quality Control

ENGINEERING

Biophysical approaches for BIOPRODUCTION (spinner)

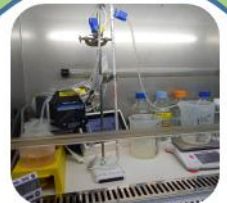- Gene screening and editing

Gene screening and editing

Ultrafiltration, Millipore

Ultracentri Optima XE et Max, Beckman

EVs PURIFICATION from cell secretome, bioproduction or engineered EVs :

- Tangential Flow Filtration (TFF)
- Ultracentrifugation
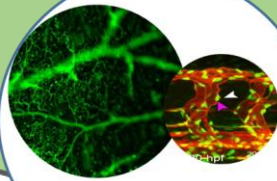- Ultrafiltration

Tangential Flow Filtration (TFF)

Cell insight CX7LZR (Thermofisher)

POTENCY TESTS

- High content screening microscopy Cell insight cx 7
- 4D organoid, *in ovo* models
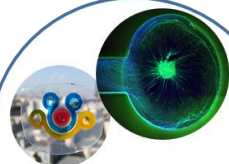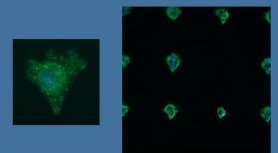
Animal model / behavior

4D organoid / embryoid

Thermoplastic microfluidic platform for fast prototyping

MICROFABRICATION / MICROFLUIDIC FACILITY

Micro paterning model

EV PHENOTYPING & BIOLOGICAL IDENTITY :

- Nanoparticle flow cytometry NanoFCM
- Exoview R100
- Single vesicle by Nanoscopy

ExoView R100 (Nanoview)

Flow Nanoanalyzer (NanoFCM)

SINGLE VESICLE IMAGING TECHNIQUES : interaction with cells, cargo delivery, EV morphology

- Nanoscopy of single vesicles
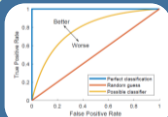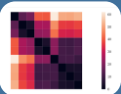- Atomic Force Microscope (AFM)

MFP 3D-Asylum

SAFe 360 (Abbelight)

3

IVETH Expertise

MACHINE LEARNING METHODS for quality control and biomarker discovery

- Supervised classification
- Automated clustering
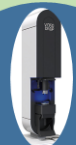
NanoSight NS300 (Malvern)

PHYSICAL CHARACTERIZATION by Nanoparticle Tracking Analysis from cell secretome, biofluids, bioproduction or engineered EVs :

- Nanosight NS300
- Videodrop
- ZetaView

ZetaView (Particle Metrix)

Videodrop (Myriade)

DXR3xi (Thermofisher)

EV FRACTIONNATION
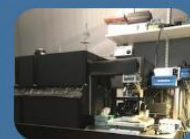from cell secretome, biofluids, bioproduction or engineered EVs :

- Asymetric flow-field flow fractionation (AF4 Wyatt) coupled with MALS, DLS, UV-Vis RI, Fluo detection

Eclipse + Dawn + Optilab + Neon (Wyatt)

RAMAN SPECTROSCOPY for vesicle and biofluids biomolecular characterization :

- Confocal Raman microspectroscopy for bulk characterization
- Raman Tweezers Microspectroscopy (RTM) of single extracellular vesicles (EVs)

Raman Tweezers Microscopy

OFFERS

PARTNERSHIP
Shared intellectual property

CONSULTING & SERVICE CONTRACT

TRAINING & EDUCATION

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