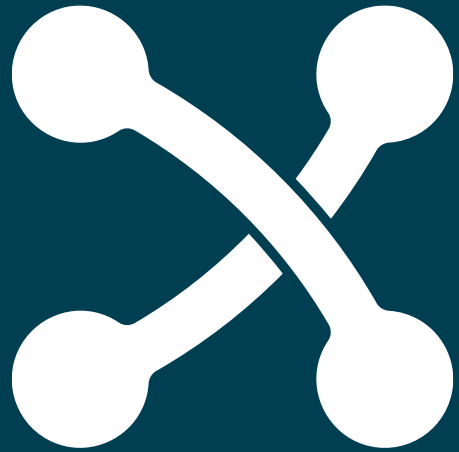




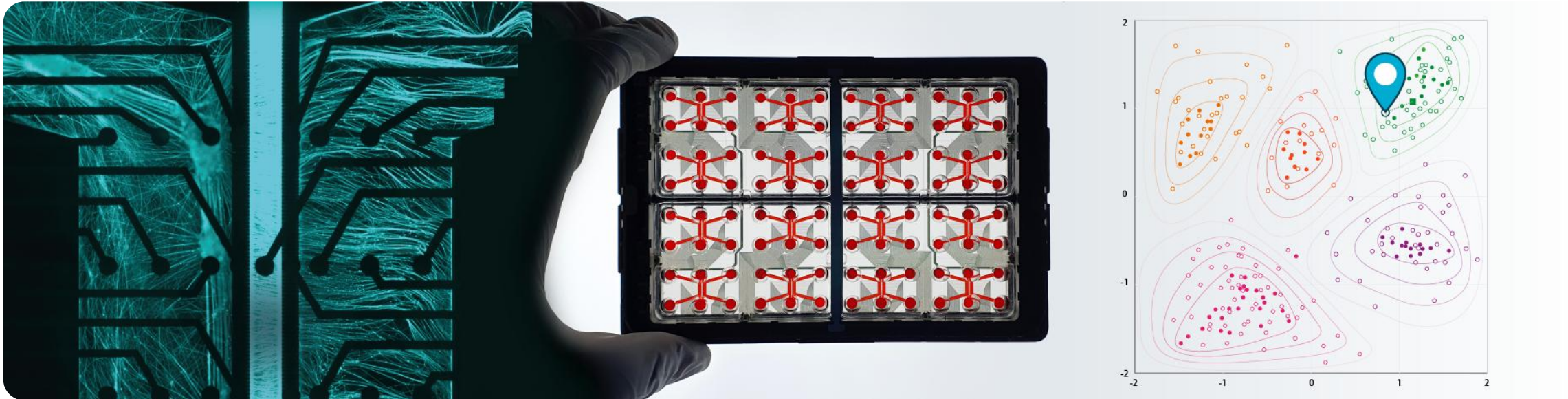
NETRI

INNERVATE.
SCREEN.
TRANSLATE.

DIGITIZING HUMAN BIOLOGY

WHO WE ARE

FOUNDED IN 2018
32 PEOPLE | MULTIDISCIPLINARY TEAM
16 PATENTS | 100+ CLIENTS



NETRI is an industrial TechBio
dedicated to enhancing human health
through the discriminating power of the nervous system.



THE CLINICAL PIPELINE PROBLEM

Advancing a drug **candidate to clinical trials** is rigorously validated at the preclinical stage...

DRUG DISCOVERY > PRECLINICAL > CLINICAL > APPROVAL

~15y OF DEVELOPMENT

~\$2B FOR EACH NEW DRUG
 ~5k\$ / patient 2000
 ~450k\$ / patient 2025 in oncology

90% CLINICAL DRUG DEV. FAILURE RATE...

50% ... OF WHICH DUE TO LACK OF CLINICAL EFFICACY

DRUG DEVELOPMENT IS A LONG, COSTLY AND RISKY PROCESS

Sun et al., Acta Pharm Sin B. 2022 Feb 11;12(7):3049–3062. doi: 10.1016/j.apsb.2022.02.002

....but current preclinical models suffer from **lack of clinical translation**



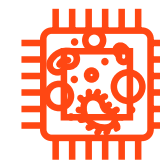
ANIMAL MODELS

- Do not accurately predict human response
- Face ethical concerns



TRADITIONAL 2D/3D CULTURES

- Fail to reproduce human morphology
- Lack the complexity of cell-cell interaction and cell environment



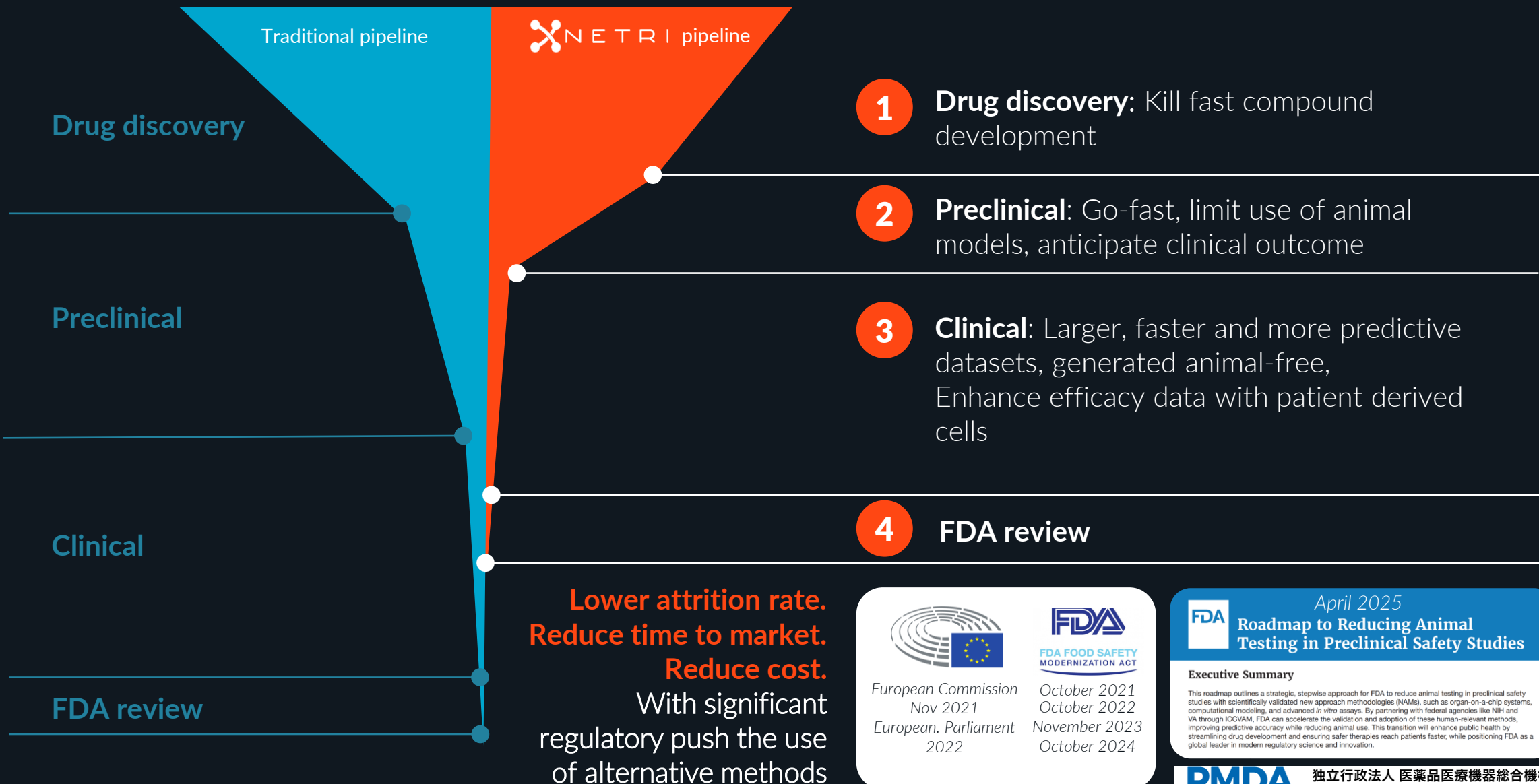
ORGANS ON CHIP (OoC)

- Classically lack reproducibility and scalability
- Fail to provide real-time data
- Face adoption hurdles

CURRENT APPROACHES STRUGGLE TO MITIGATE COSTS AND RISKS

DRUG DEVELOPMENT : HIGH RISK, COSTLY & LONG

Confidential document



European Commission
Nov 2021
European. Parliament
2022



October 2021
October 2022
November 2023
October 2024



April 2025
**Roadmap to Reducing Animal
Testing in Preclinical Safety Studies**

Executive Summary

This roadmap outlines a strategic, stepwise approach for FDA to reduce animal testing in preclinical safety studies with scientifically validated new approach methodologies (NAMs), such as organ-on-a-chip systems, computational modeling, and advanced in vitro assays. By partnering with federal agencies like NIH and VA through ICCVAM, FDA can accelerate the validation and adoption of these human-relevant methods, improving predictive accuracy while reducing animal use. This transition will enhance public health by streamlining drug development and ensuring safer therapies reach patients faster, while positioning FDA as a global leader in modern regulatory science and innovation.

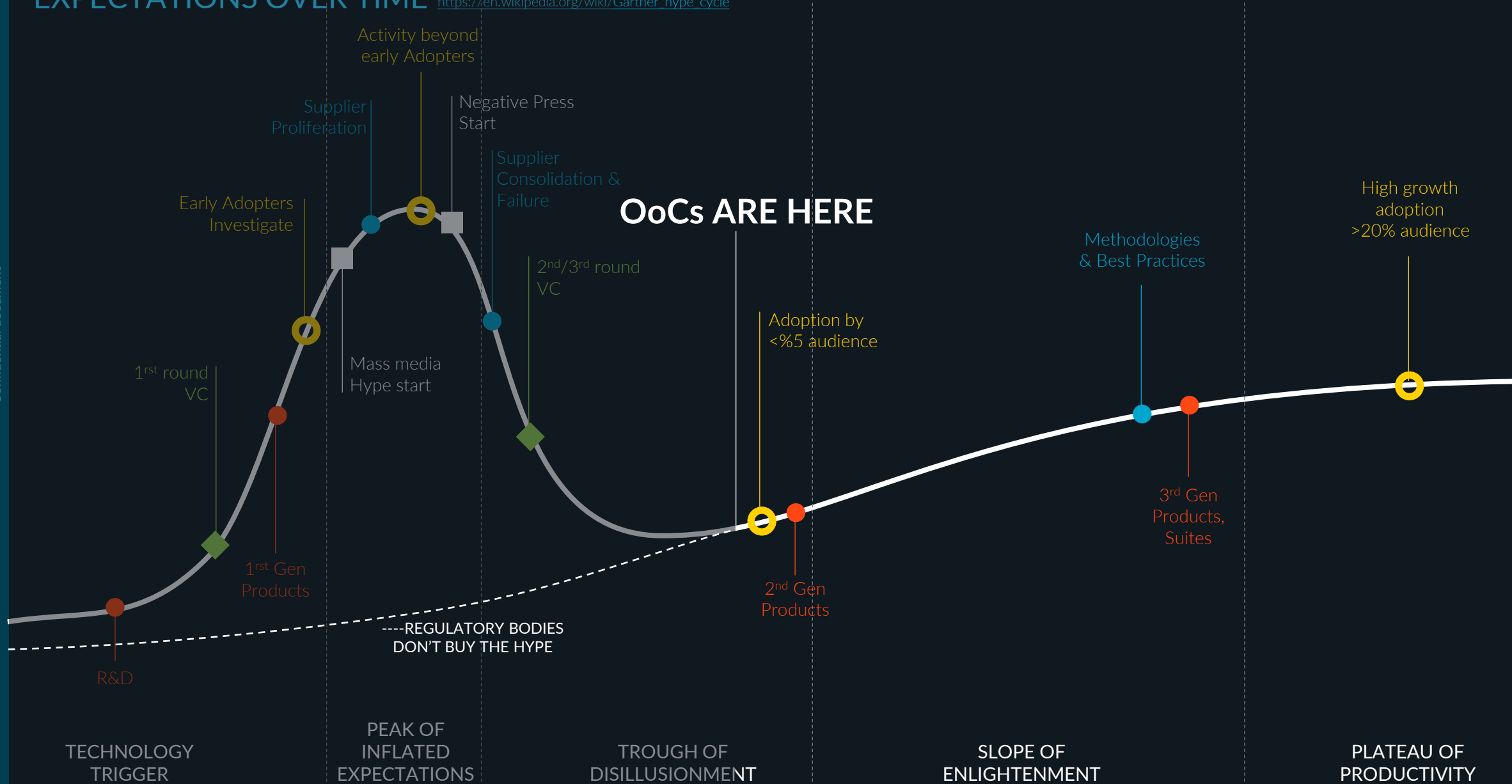


独立行政法人 医薬品医療機器総合機構
Pharmaceuticals and Medical Devices Agency

THE HYPE CYCLE: ORGANS-ON-CHIP ARE RIPE

EXPECTATIONS OVER TIME https://en.wikipedia.org/wiki/Gartner_hype_cycle

Confidential document



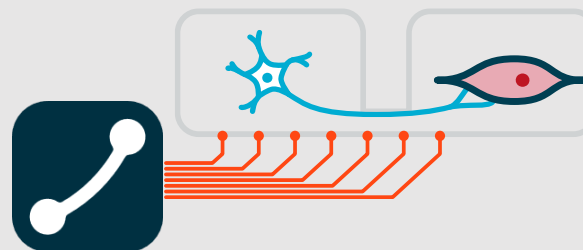


OUR OFFERS

TWO OFFERS FOR TWO TYPES OF CUSTOMERS

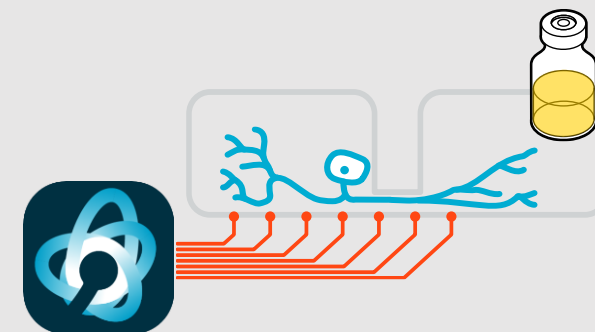
STANDARDIZED MICROPHYSIOLOGICAL SYSTEMS

Compartmentalized to further research



NEURON-AS-A-SENSOR

A methodology for a new class of Assays



STANDARDIZED MICROPHYSIOLOGICAL SYSTEMS

3D ECM embedded organoids to further research

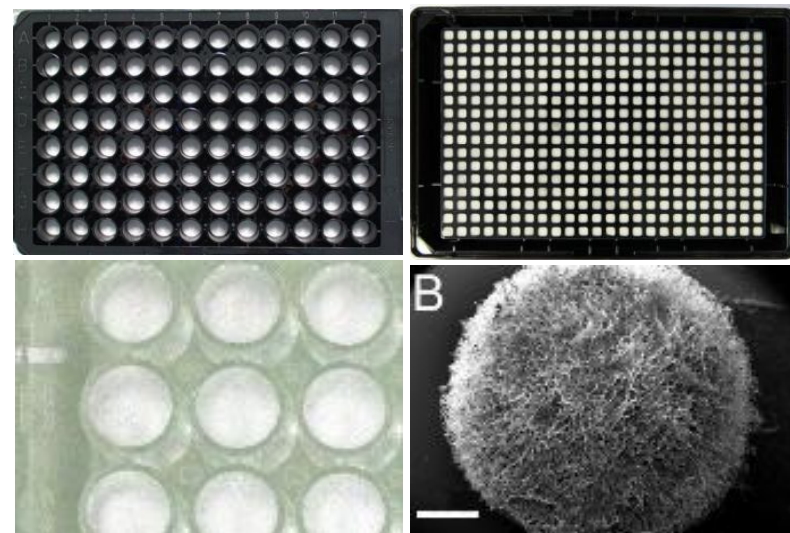
BIOMIMESYS®

AVAILABLE IN MULTI-WELL PLATE FORMAT

3D liver organoids
3D pancreatic organoids
3D adipose tissues
3D brain organoids
3D tumoroids



- BioMIMESYS®**
Adipose Tissue
- BioMIMESYS®**
Liver
- BioMIMESYS®**
Brain
- BioMIMESYS®**
Oncology



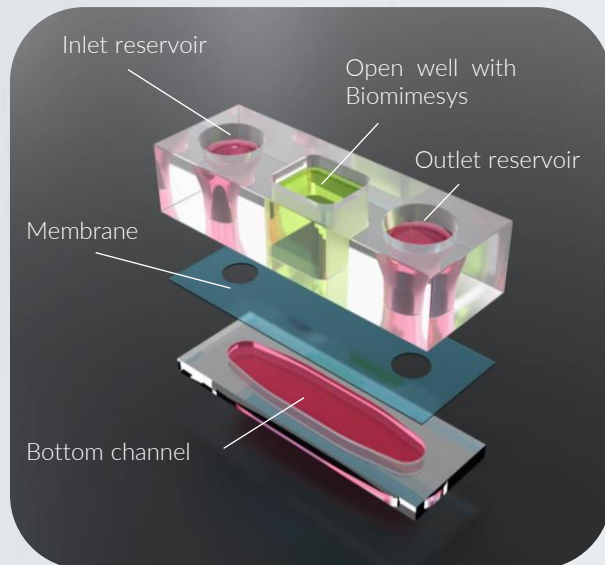
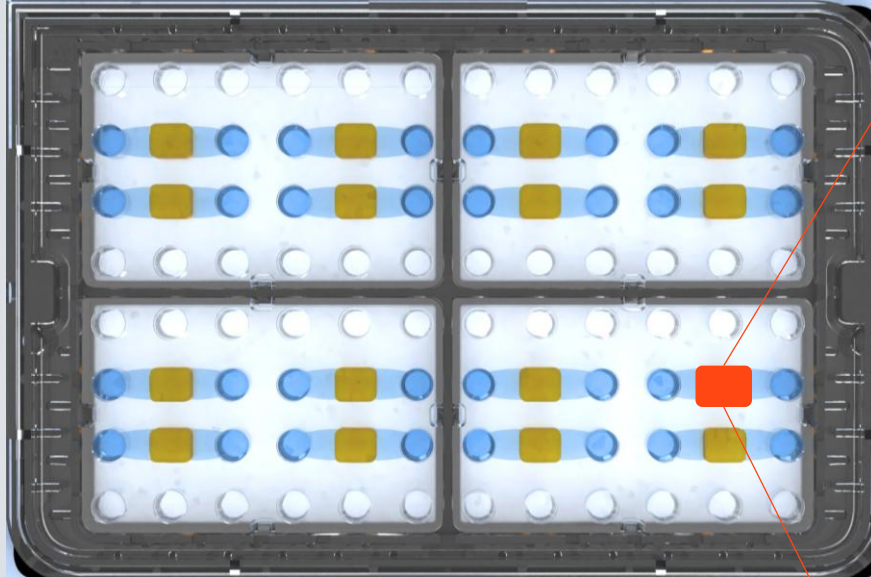
A UNIQUE HYDROSCAFFOLD TO REPRODUCE ECM OF ANY TYPE OF ORGAN WITH ALL BIOLOGICAL & PHYSICOCHEMICAL PROPERTIES

STANDARDIZED MICROPHYSIOLOGICAL SYSTEMS

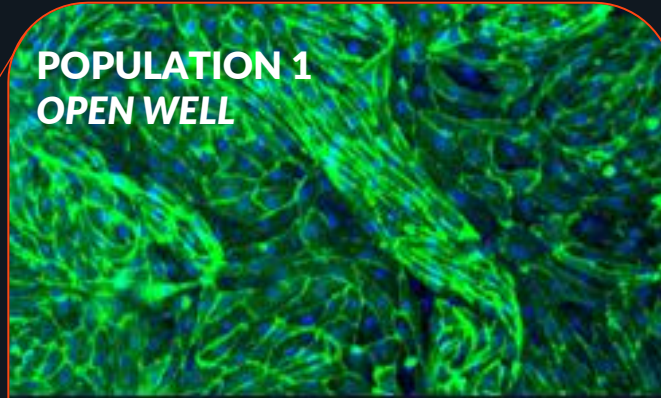
Compartmentalized barriers to further research

VASCULARIZATION & 3D CULTURE

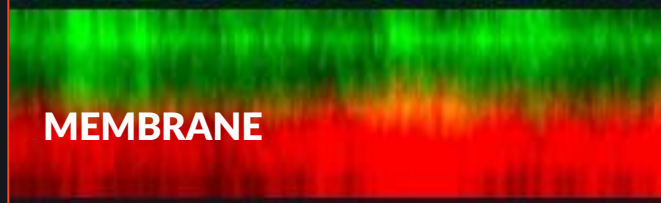
MULTIFLUIDICS LINE : DUPLEX™



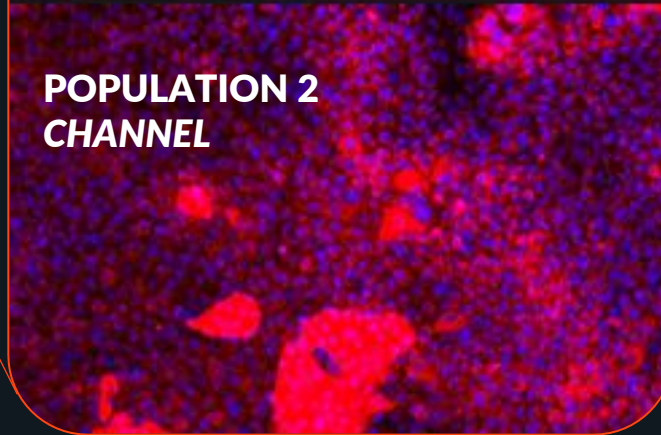
POPULATION 1
OPEN WELL



MEMBRANE

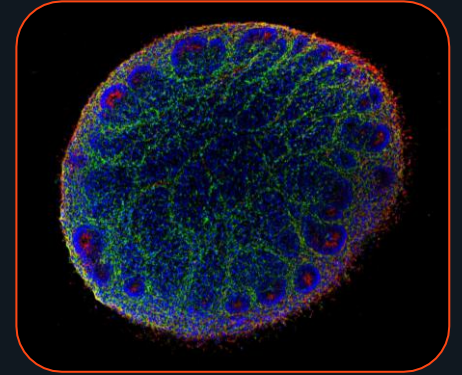


POPULATION 2
CHANNEL



Vascularization of
2D or 3D cultures.

Brain Organoid
For neurotoxicity applications

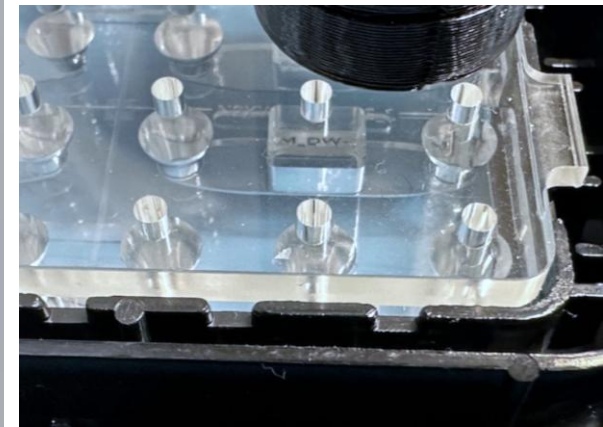


- Open well:
 - Volume & Surface ~ P96 well
 - Various epithelial types
 - Air-liquid interface
 - Insert explant, organoids...
- Membrane:
 - Polyethylene terephthalate (PET)
 - Transparent
 - Nanoporous
 - Allows the passage of secreted factors like cytokines
- Channel:
 - Suitable for endothelial cells (to mimic vessel)
 - Possibility to apply shear stress

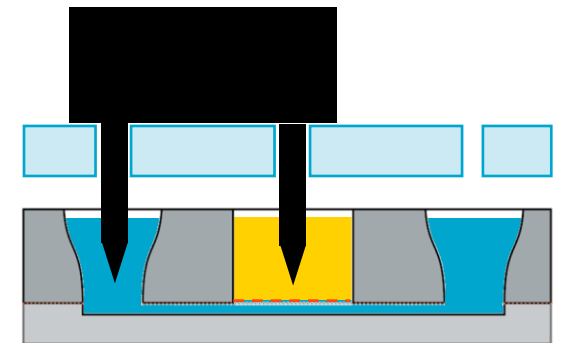
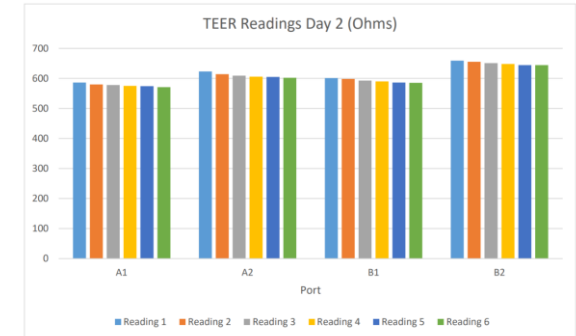
TEER COMPATIBILITY

From WPI, the world reference in TEER measurement :

- Custom STX electrode with standard 9mm pitch, matching our Duplex setup.
- Custom interface with Neobento™ for repeatable placement.
- Full compatibility with EVOM 3
- TEER readouts consistent with standard Transwell-type TEER measurements



Day 2 Readings :

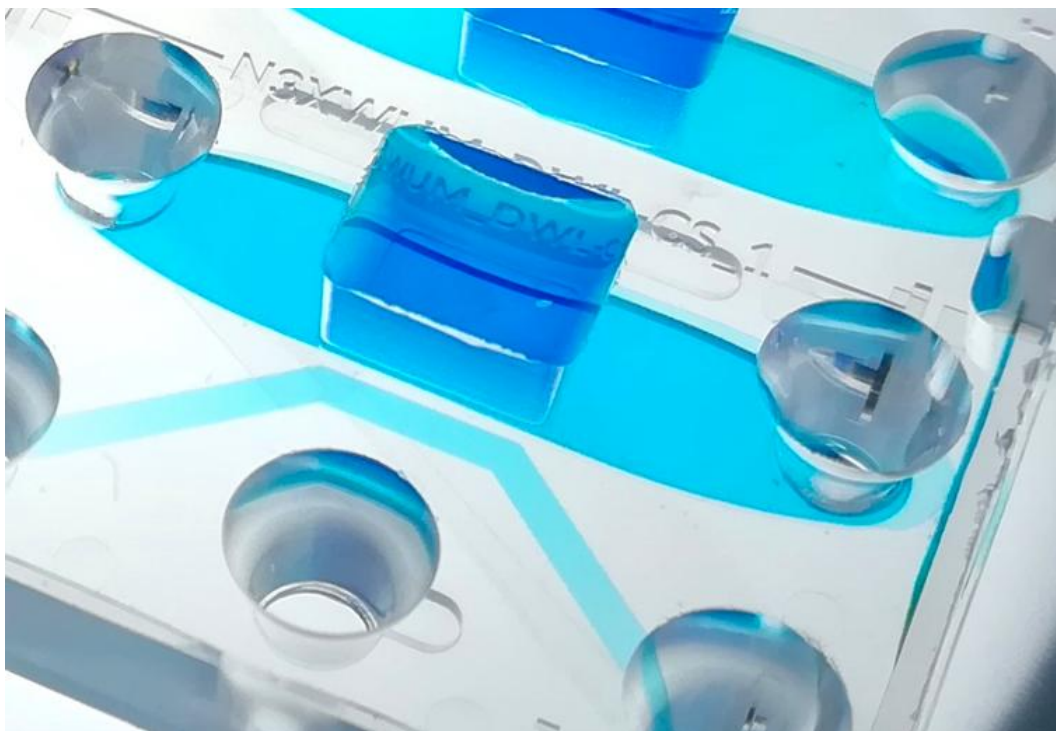
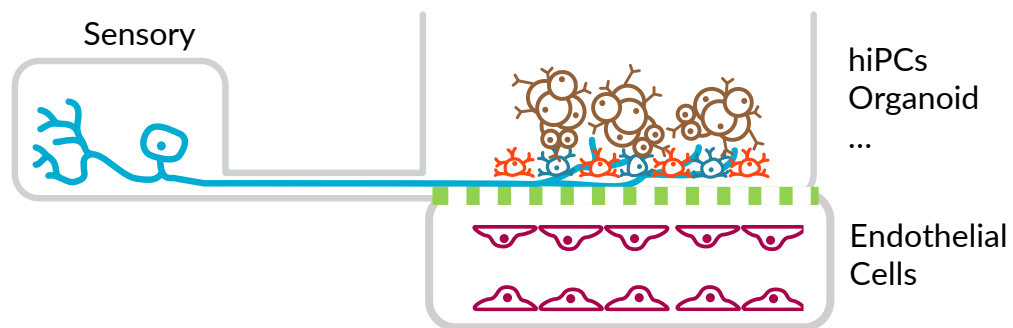


**WORLD
PRECISION
INSTRUMENTS**
Instrumenting scientific ideas

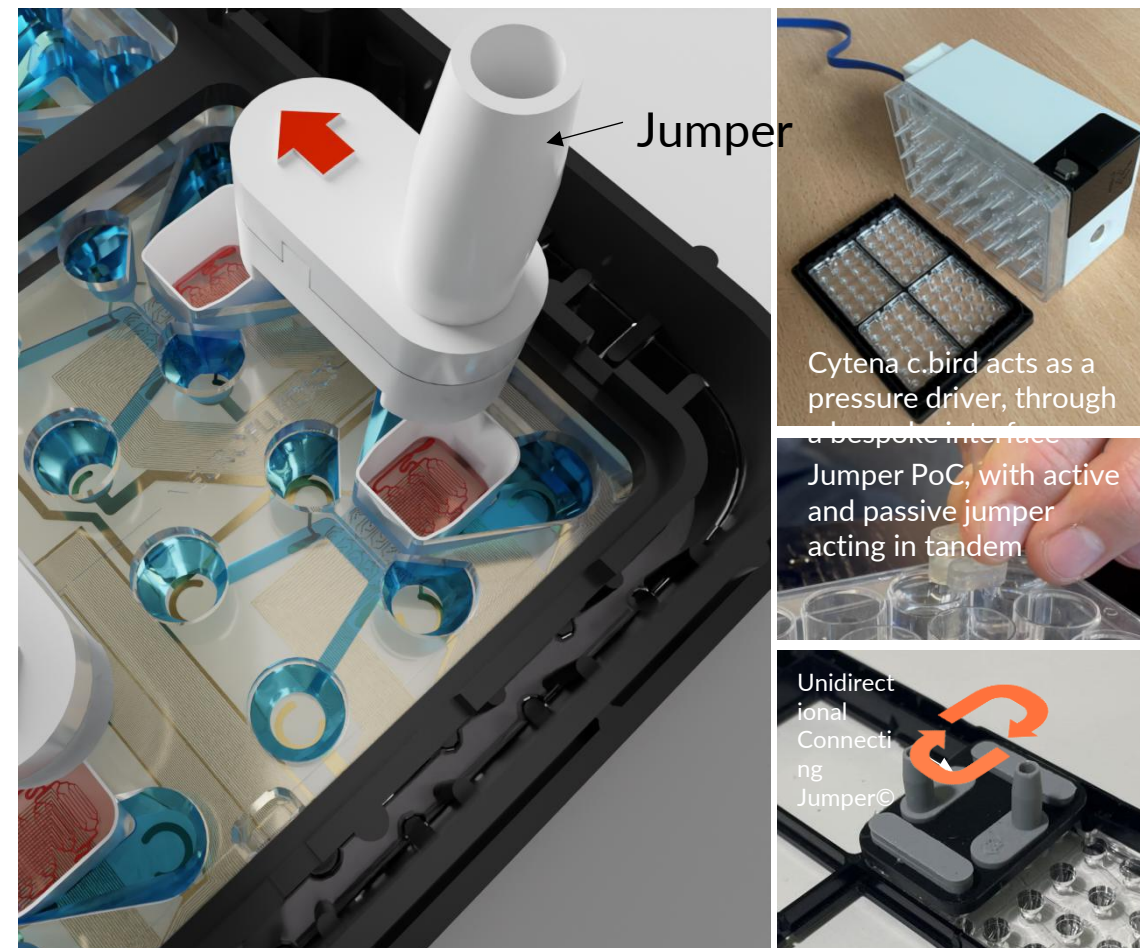
COMPARTMENTALIZED BARRIERS

POTENTIAL APPLICATIONS

Innervation & Vascularization



Multi-organ-on-chip



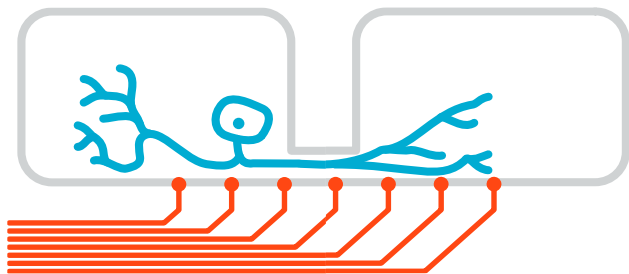
Our patented Jumpers Technology will enable multiple chips to be connected together - at will - to create multi-organ open or closed loops, by connecting perfusion channels.

STANDARDIZED MICROPHYSIOLOGICAL SYSTEMS

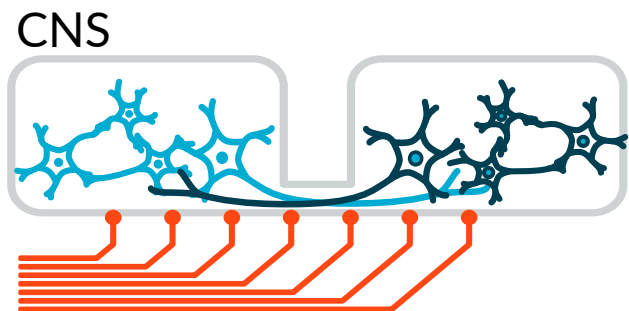
Compartmentalized electrophysiology to further research

ENDLESS POSSIBILITIES

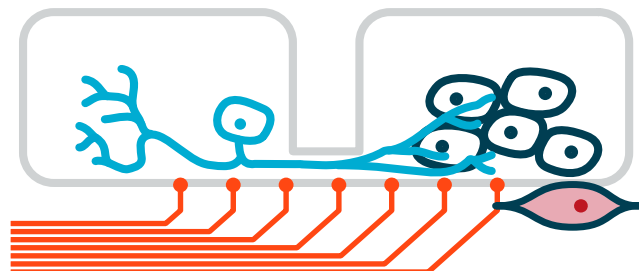
2D ORGAN MODELS



SIMPLE PNS

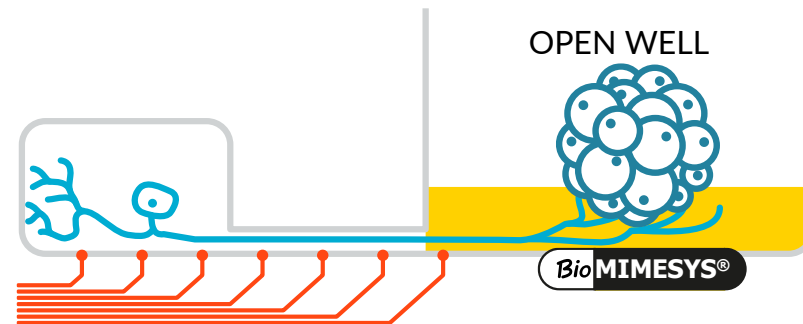


CNS

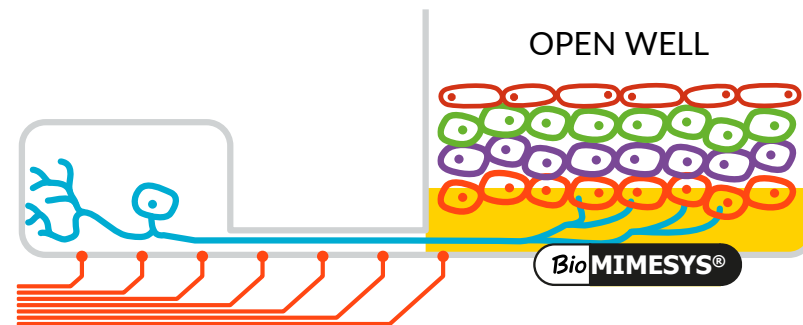


MUSCLE
SKIN
GUT
...

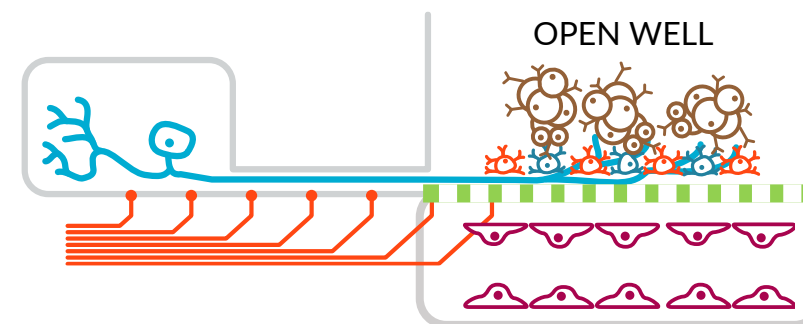
3D ORGAN MODELS



SPHEROIDS
ORGANOIDS



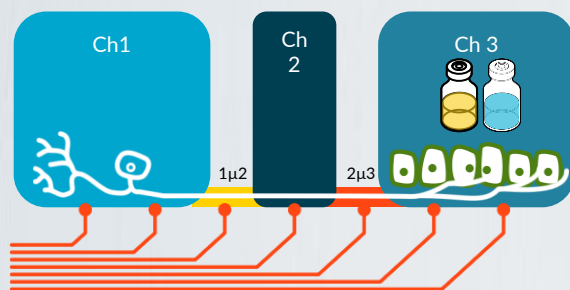
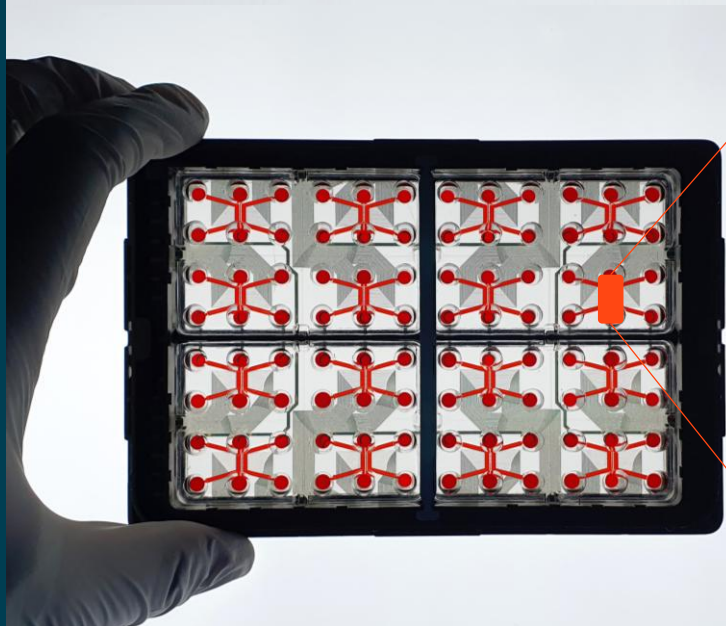
2D/BIOPSIE
AIR/LIQUID
INTERFACE



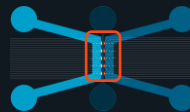
MEMBRANE

INNERVATION

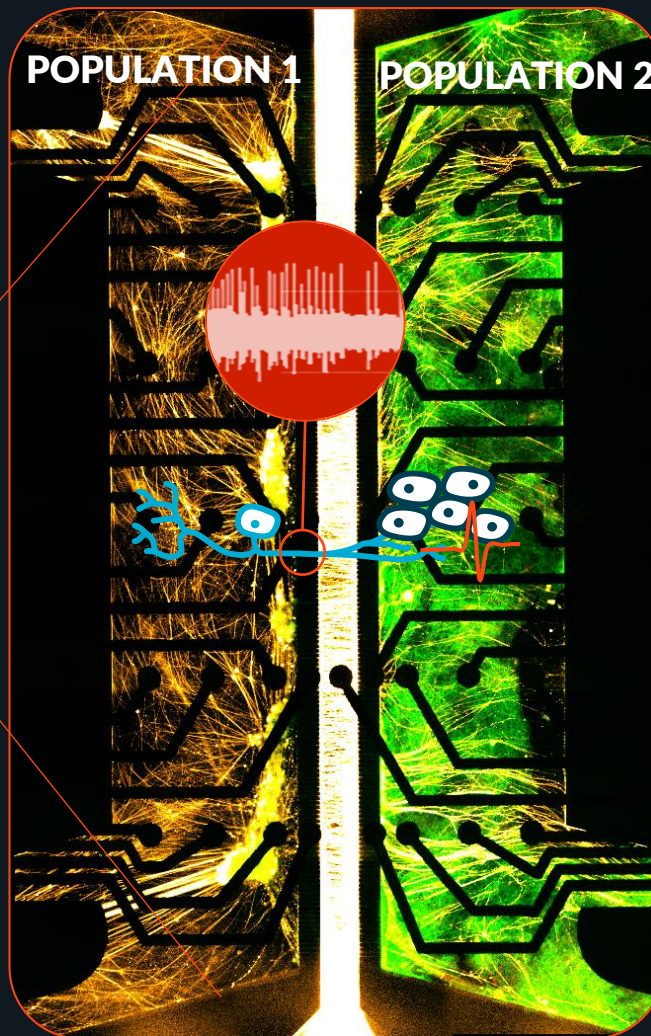
THE ONLY COMPARTMENTALIZED
ELECTROPHYSIOLOGY PLATFORM
FOR INNERVATED MODELS



WORLD'S FIRST COMMERCIALY AVAILABLE
COMPARTMENTALIZED ELECTROPHYSIOLOGY PLATFORM



DuaLink™
For 2 co-cultures

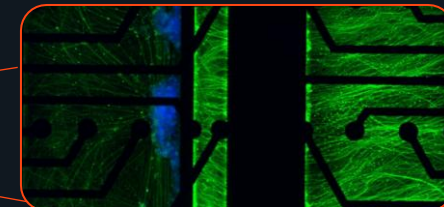


Extracting 500+ Variables
from electrophysiological signal

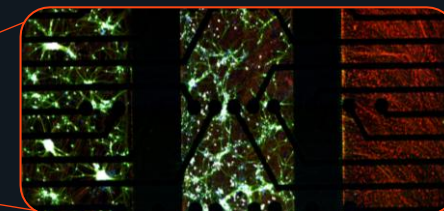
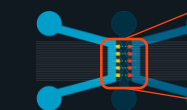
WO23187279,
WO23187280

2D ORGAN MODELS

DuaLink™ Shift
For synaptic isolation

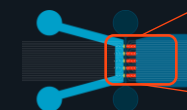


TriaLink™
For 3 co-cultures



3D ORGAN MODELS

DuaLink™ Well
For 3D co-cultures
Innervation



Duplex™ Link MEA
For 3D co-cultures
Innervation &
Vascularization





INNERVATION

UNIQUE DEVICE ARCHITECTURES...
...FOR UNIQUE DIGITIZATION



NETRI.CLOUD



Hosts our SaaS Services

- NaaS Services
- UpLink (Cloud version)
- Future other services

Hosts client instances
Enables Revenue



NaaSHub

Allows users to
compute
NFMEA metrics



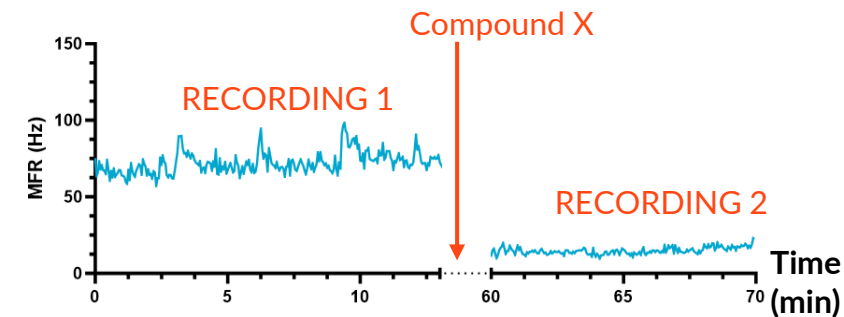
UpLink Pro

Future
Software
Possibilities

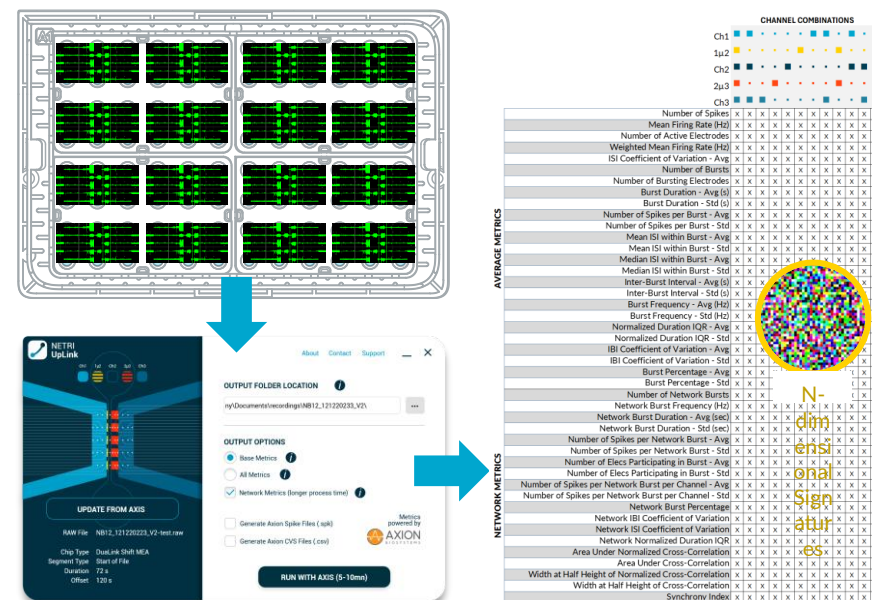


Other SW

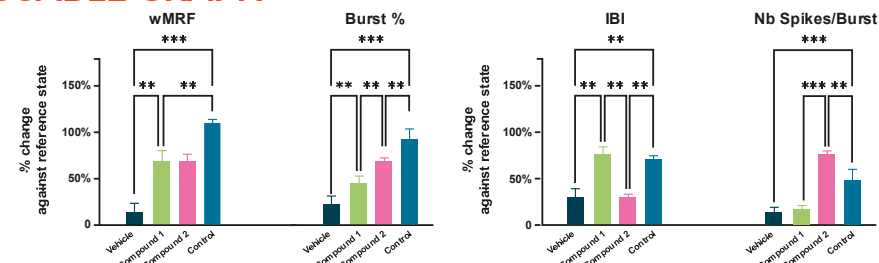
TIME RESPONSE METHOD : for enduring effect compounds



EXTRACTION: Mining biology for data



USABLE GRAPH



STANDARDIZED MICROPHYSIOLOGICAL SYSTEMS

3D ECM EMBEDDED ORGANOIDs

3D liver organoids

DISCOVERY PACK

DEVELOPMENT PACK

ROUTINE OPTION

3D pancreatic organoids

DISCOVERY PACK

3D adipose tissues

DISCOVERY PACK

3D brain organoids

DISCOVERY PACK

DEVELOPMENT PACK

ROUTINE OPTION

3D tumoroids

DISCOVERY PACK

DEVELOPMENT PACK

ROUTINE OPTION

COMPARTMENTALIZED BARRIERS

Vascularized Skin

DISCOVERY PACK

DEVELOPMENT PACK

ROUTINE OPTION

Perfused Brain Organoid

DISCOVERY PACK

DEVELOPMENT PACK

ROUTINE OPTION

Innervation and Vascularization

DISCOVERY PACK

Multi-organs on chip

DISCOVERY PACK

COMPARTMENTALIZED ELECTROPHYSIOLOGY

CNS: Gluta-Gaba

DISCOVERY PACK

DEVELOPMENT PACK

ROUTINE OPTION

CNS: Gluta-Dopa

DISCOVERY PACK

CNS: Gaba-striatal

DISCOVERY PACK

PNS: Innervated skin model

DISCOVERY PACK

DEVELOPMENT PACK

ROUTINE OPTION

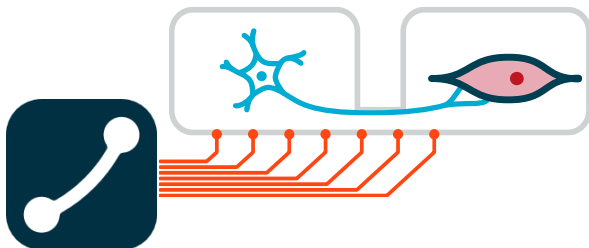
PNS: Neuro-muscular Junction Unit

DISCOVERY PACK

OUR BUSINESS MODEL

STANDARDIZED MICROPHYSIOLOGICAL SYSTEMS

- Because it takes time to establish a biological model, we help you by providing :
 - Devices
 - Metrics extraction and analytics on-line software
 - Full Tech Transfer:
 - Training on-line & on-site
 - Protocols and support
 - Advice and counseling with our scientific team (token based)
- Discovery pack to establish the first proof of concept
- In you lab development pack with up to 40% discount for device sales
- Routine option to use your own assay routinely in your lab



	MPS PACKS		
	DISCOVERY PACK	DEVELOPMENT PACK (@CLIENT)	ROUTINE OPTION (@CLIENT)
	Familiarize yourself with NeoBentos	Develop your own assay	Use your own assay routinely
Commitment	One-time	6 months min.	1 Year
Testable Conditions	N/A	N/A	N/A
Replicate	N/A	N/A	N/A
NeoBento included	5 (MEA or non MEA)	3 per month	on demand (up to 35% volume discount)
Extra NeoBento	N/A	on demand (up to 35% volume discount)	N/A
Sensory Cell vials (1M)	N/A	N/A	N/A
optional co-culture cells	N/A	N/A	N/A
Uplink+ access	2 users included	up to 5 users	up to 5 users
NaaSHub Access	N/A	N/A	N/A
User Training	Online + 1 non MEA NB	On-site + 1 non MEA NB	
Demo Maestro for 1 month	possible at extra cost	1 month demo Maestro	N/A
Technological transfer & protocols	mono culture only SOP	all co-cultures SOP	N/A
Troubleshooting service	10 token	50 token	
NaaS Setup Consulting	N/A	N/A	N/A
NaasS Model Upscale	N/A	N/A	N/A
Bespoke model service	N/A	N/A	N/A
Access to Biological Foundation Model & asset generation	N/A	N/A	N/A
Exclusivity of Naas Model in specific context of use	N/A	N/A	N/A
Regulatory Data Access	N/A	N/A	N/A
Freedom to publish	Yes	Yes	
Delivery custom fees	No	Yes	Yes

NEURON AS A SENSOR

NaaS, a methodology for new class of Assays

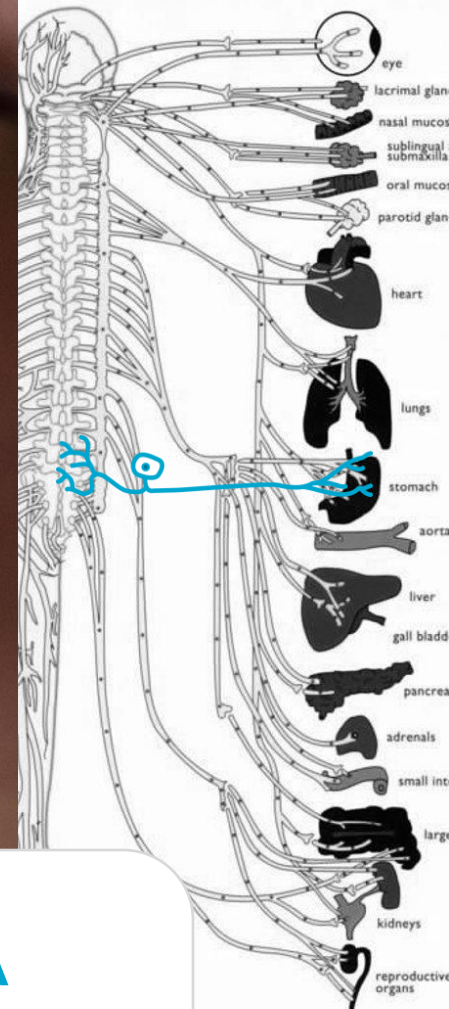
EVERYTHING YOU FEEL IS NEURONS

Confidential document



**THIS IS NOT A
NEURON**

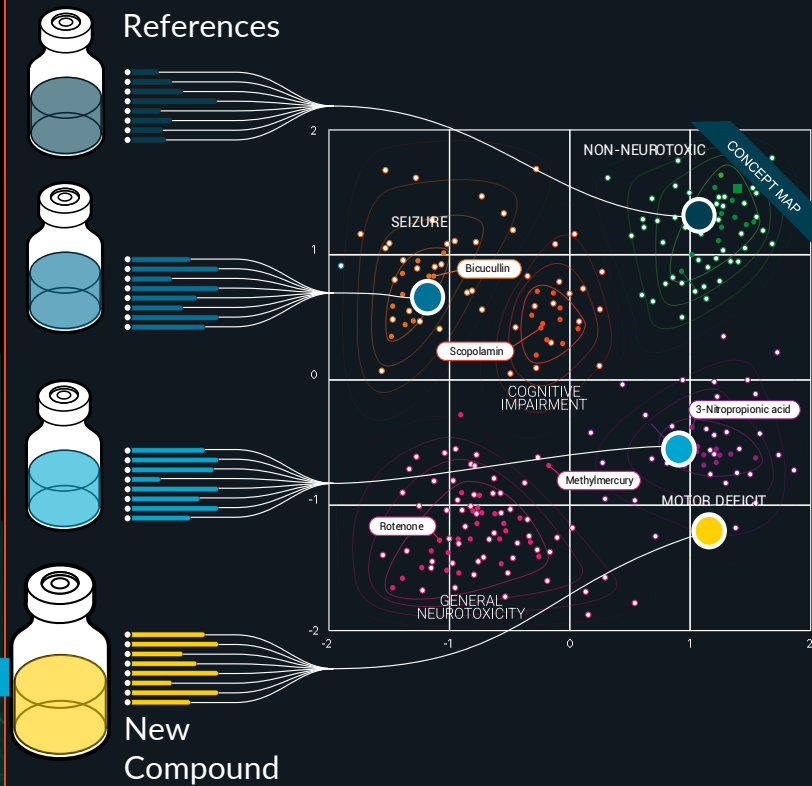
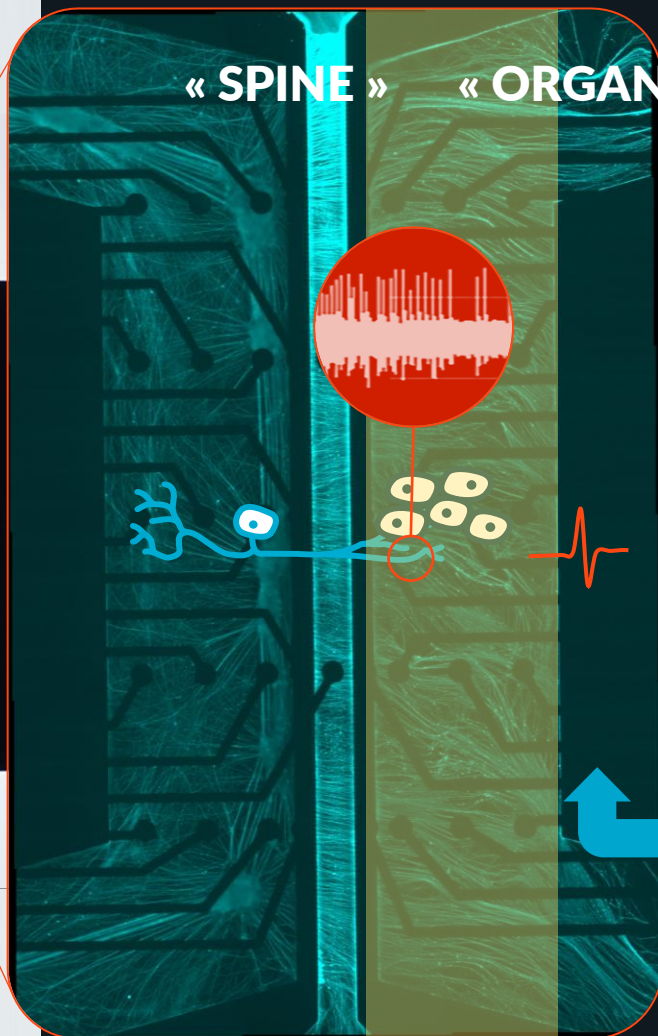
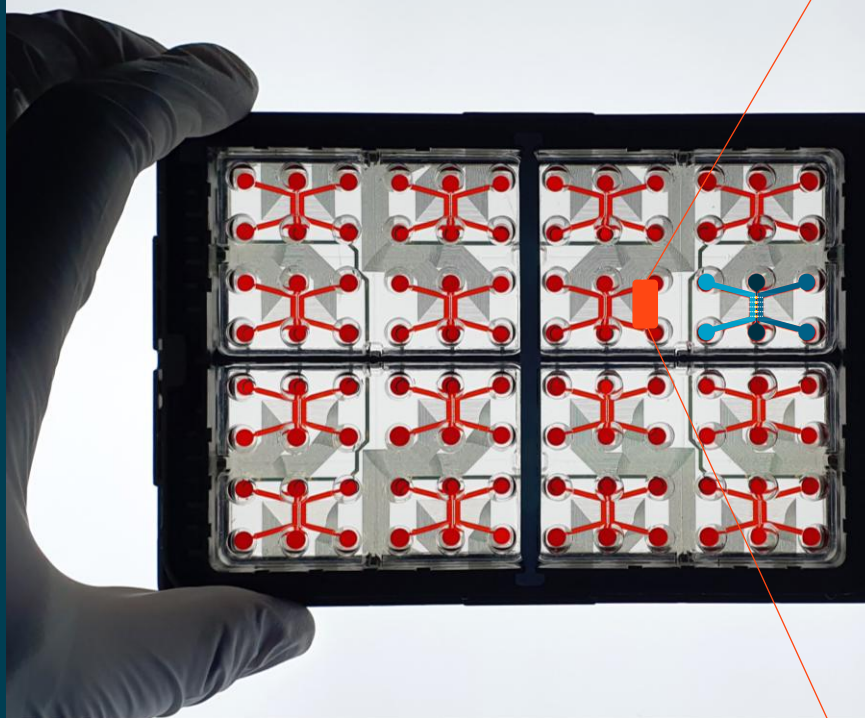
IT'S A SENSOR TO DIGITIZE
HUMAN BIOLOGY



NEURON AS A SENSOR

A SUITE OF TOOLS FOR A UNIQUE SELLING PROPOSITION

Confidential document



Neurons in our chips host a variety of dedicated receptors encoding a complex stimulus-response which can be deciphered to be specific

Extracting 500+ Variables from electrophysiological signal into a digital signature...

... which is compared to a library of compounds and conditions to predict safety & efficacy, reduce attrition rates, development costs and animal use

ESTABLISHING A NAAS PLATFORM

1. Initialization

Creation of NaaS biology platform and NaaS Model for a target application

2. Upscaling

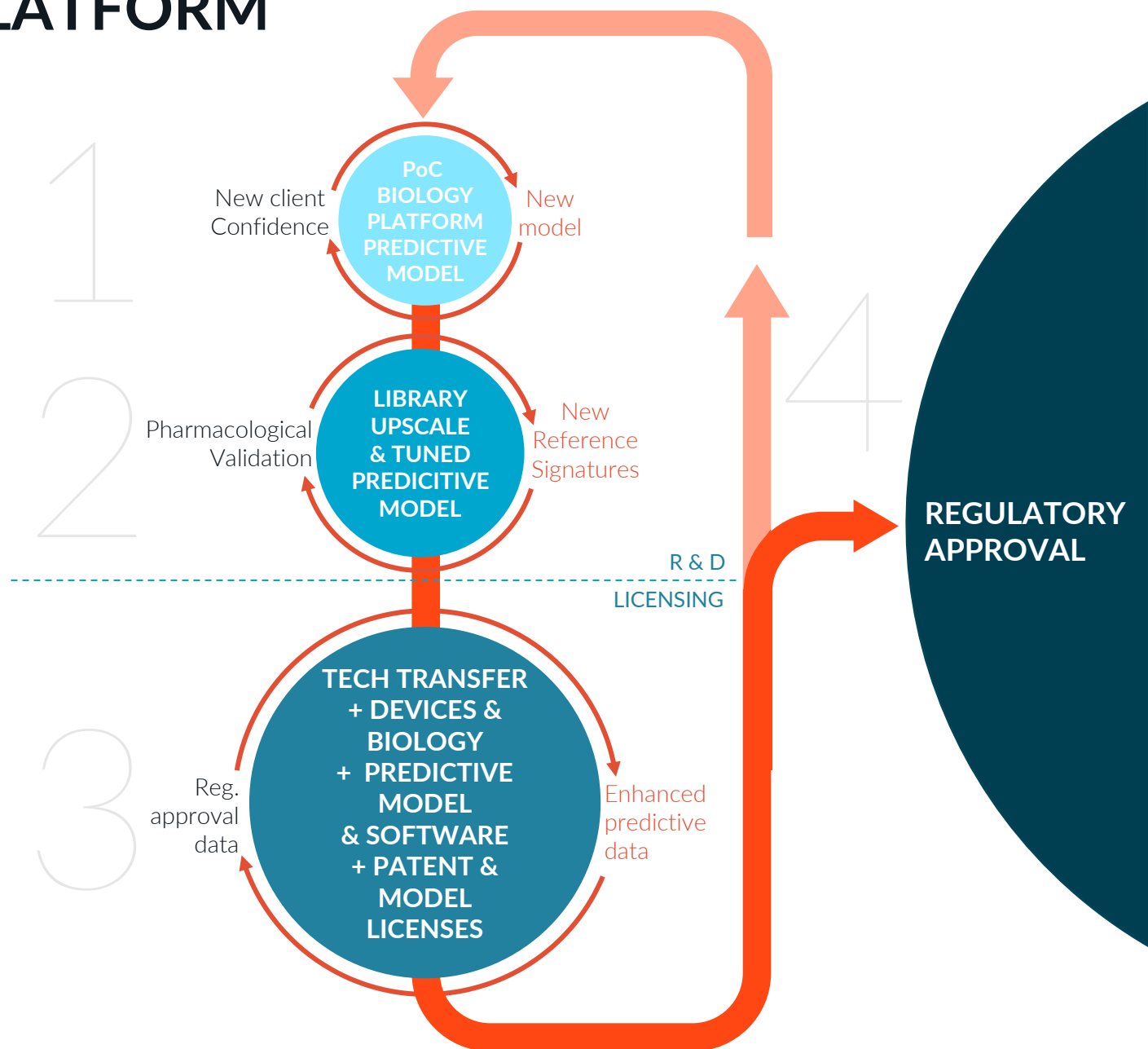
Build up of Digital NaaS model through Training Library of 100s of reference compounds

3. Screening & Drug design

Transfer of methodology, devices and predictive model capabilities to client.

4. Regulatory Approval

Extension of approved NaaS Model to multiple clients. Larger deals with CROs to handle volumes.



1. INITIALIZATION

UNIQUE DEVICE ARCHITECTURES...
...FOR UNIQUE DIGITIZATION



NETRI.CLOUD



Hosts our SaaS Services

- NaaS Services
- UpLink (Cloud version)
- Future other services

Hosts client instances
Enables Revenue



Allows users to
use a NaaS
Model

NaaS Hub



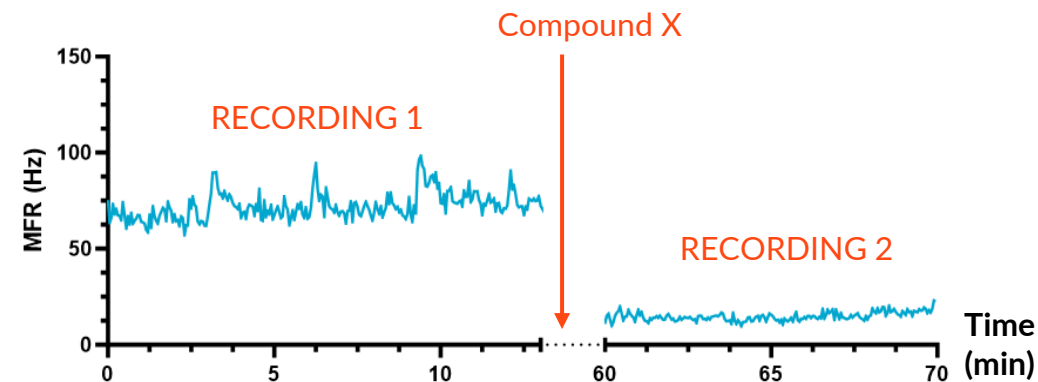
UpLink Pro

Future
Software
Possibilities

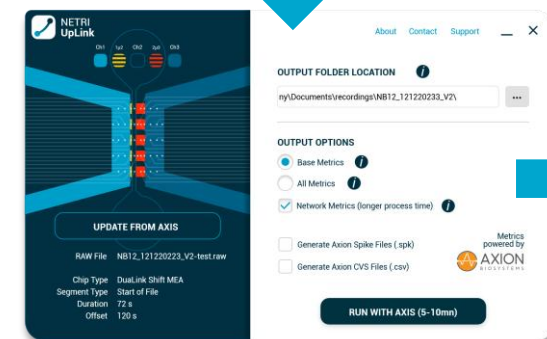
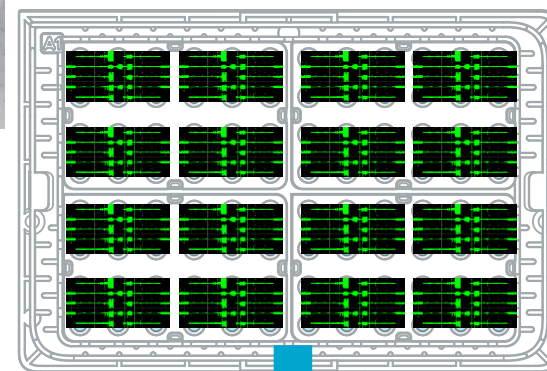


Other SW

TIME RESPONSE METHOD : for enduring effect compounds



EXTRACTION: Mining biology for data



CHANNEL COMBINATIONS	
Ch1	
1u2	
Ch2	
2u3	
Ch3	
AVERAGE METRICS	
Number of Spikes	x x x x x x x x x x x x x x x x
Mean Firing Rate (Hz)	x x x x x x x x x x x x x x x x
Number of Active Electrodes	x x x x x x x x x x x x x x x x
Weighted Mean Firing Rate (Hz)	x x x x x x x x x x x x x x x x
ISI Coefficient of Variation - Avg	x x x x x x x x x x x x x x x x
Number of Bursts	x x x x x x x x x x x x x x x x
Number of Bursting Electrodes	x x x x x x x x x x x x x x x x
Burst Duration - Avg (s)	x x x x x x x x x x x x x x x x
Burst Duration - Std (s)	x x x x x x x x x x x x x x x x
Number of Spikes per Burst - Avg	x x x x x x x x x x x x x x x x
Number of Spikes per Burst - Std	x x x x x x x x x x x x x x x x
Mean ISI within Burst - Avg	x x x x x x x x x x x x x x x x
Mean ISI within Burst - Std	x x x x x x x x x x x x x x x x
Median ISI within Burst - Avg	x x x x x x x x x x x x x x x x
Median ISI within Burst - Std	x x x x x x x x x x x x x x x x
Inter-Burst Interval - Avg (s)	x x x x x x x x x x x x x x x x
Inter-Burst Interval - Std (s)	x x x x x x x x x x x x x x x x
Burst Frequency - Avg (Hz)	x x x x x x x x x x x x x x x x
Burst Frequency - Std (Hz)	x x x x x x x x x x x x x x x x
Normalized Duration IQR - Avg	x x x x x x x x x x x x x x x x
Normalized Duration IQR - Std	x x x x x x x x x x x x x x x x
IBI Coefficient of Variation - Avg	x x x x x x x x x x x x x x x x
IBI Coefficient of Variation - Std	x x x x x x x x x x x x x x x x
Burst Percentage - Avg	x x x x x x x x x x x x x x x x
Burst Percentage - Std	x x x x x x x x x x x x x x x x
Number of Network Bursts	x x x x x x x x x x x x x x x x
Network Burst Frequency (Hz)	x x x x x x x x x x x x x x x x
Network Burst Duration - Avg (sec)	x x x x x x x x x x x x x x x x
Network Burst Duration - Std (sec)	x x x x x x x x x x x x x x x x
Number of Spikes per Network Burst - Avg	x x x x x x x x x x x x x x x x
Number of Spikes per Network Burst - Std	x x x x x x x x x x x x x x x x
Number of Elecs Participating in Burst - Avg	x x x x x x x x x x x x x x x x
Number of Elecs Participating in Burst - Std	x x x x x x x x x x x x x x x x
Number of Spikes per Network Burst per Channel - Avg	x x x x x x x x x x x x x x x x
Number of Spikes per Network Burst per Channel - Std	x x x x x x x x x x x x x x x x
Network Burst Percentage	x x x x x x x x x x x x x x x x
Network IBI Coefficient of Variation	x x x x x x x x x x x x x x x x
Network ISI Coefficient of Variation	x x x x x x x x x x x x x x x x
Network Normalized Duration IQR	x x x x x x x x x x x x x x x x
Area Under Normalized Cross-Correlation	x x x x x x x x x x x x x x x x
Area Under Cross-Correlation	x x x x x x x x x x x x x x x x
Width at Half Height of Normalized Cross-Correlation	x x x x x x x x x x x x x x x x
Width at Half Height of Cross-Correlation	x x x x x x x x x x x x x x x x
Synchrony Index	x x x x x x x x x x x x x x x x



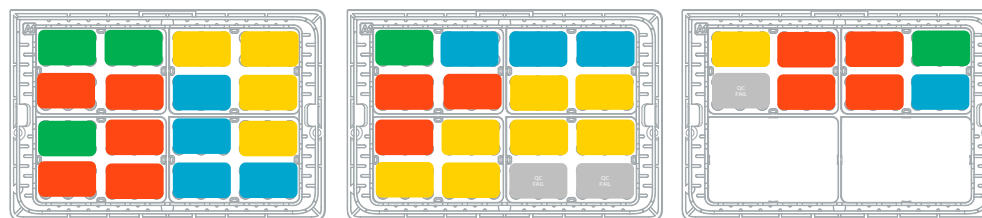
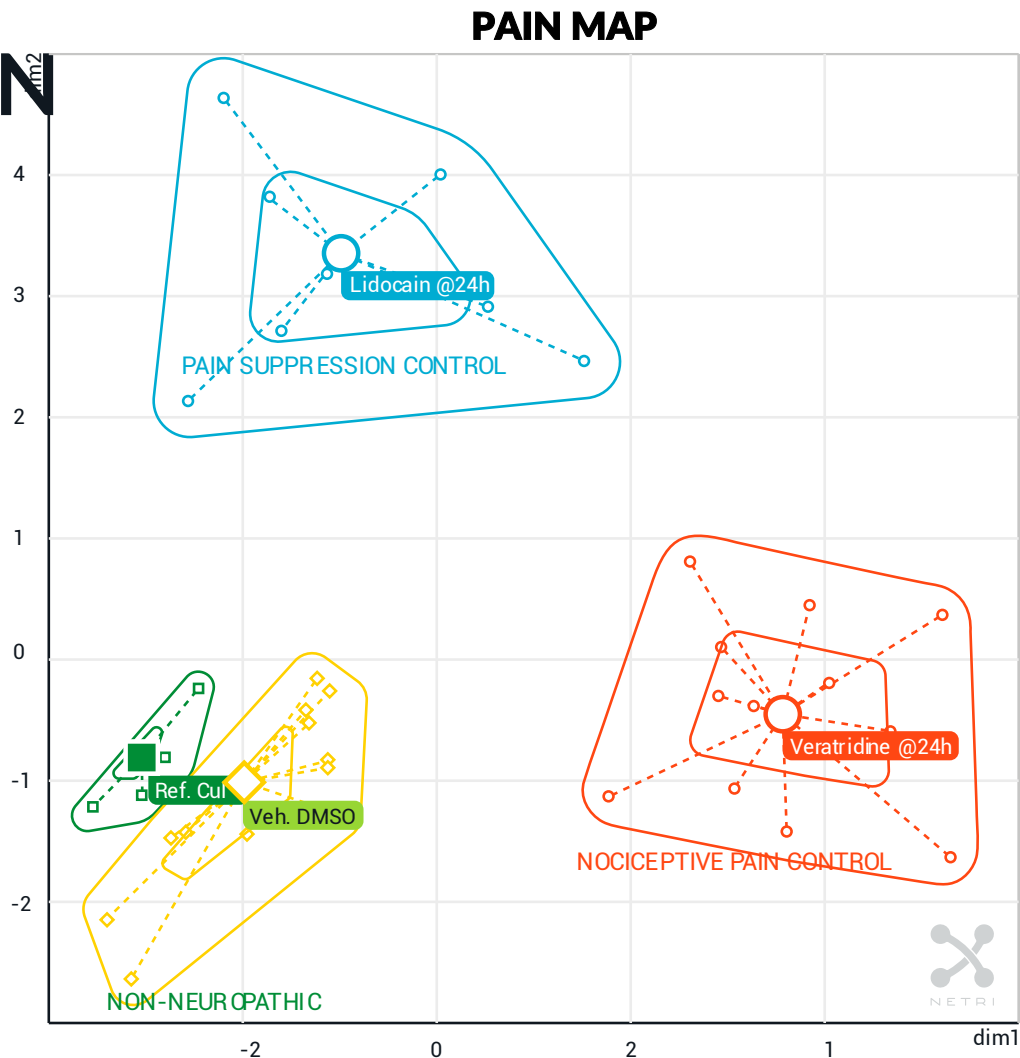
1. INITIALIZATION

MAPPING AI CLUSTERING

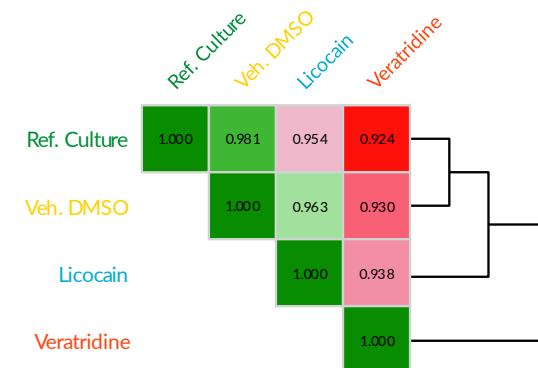
Machine learning algorithms are used to structure the resulting multi-dimensional space, leading towards compound classification by attributing weights to the different discriminating metrics and placing the Test Signatures inside the n-dimensional reference map.

This clustering allows for the identification of unexpected similarities between compounds and reference, improving the ability to assess off-target effects, neurotoxic risks, and therapeutic potential.

The n-dimensional vectors constitute the elements of the **Digital Signature Library**



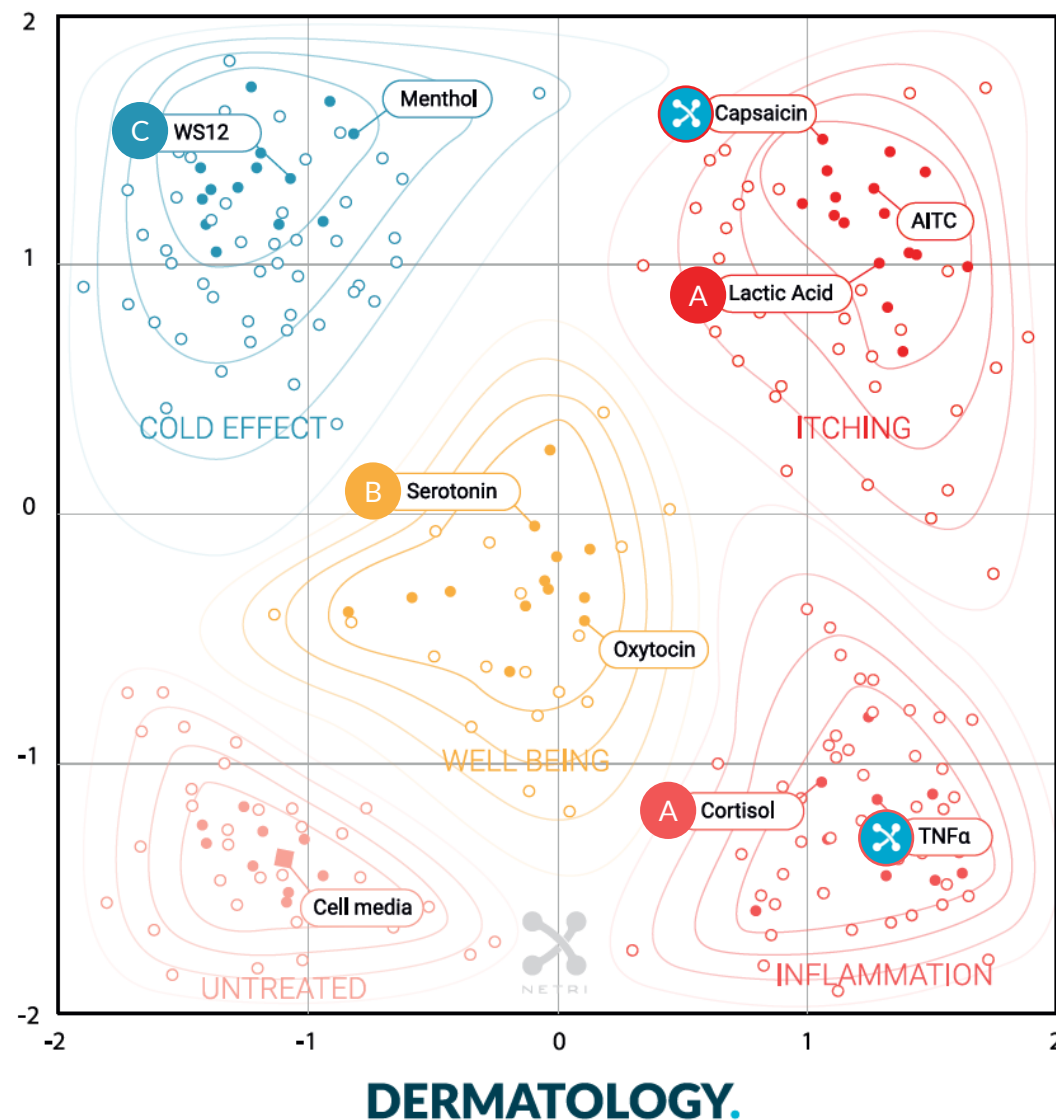
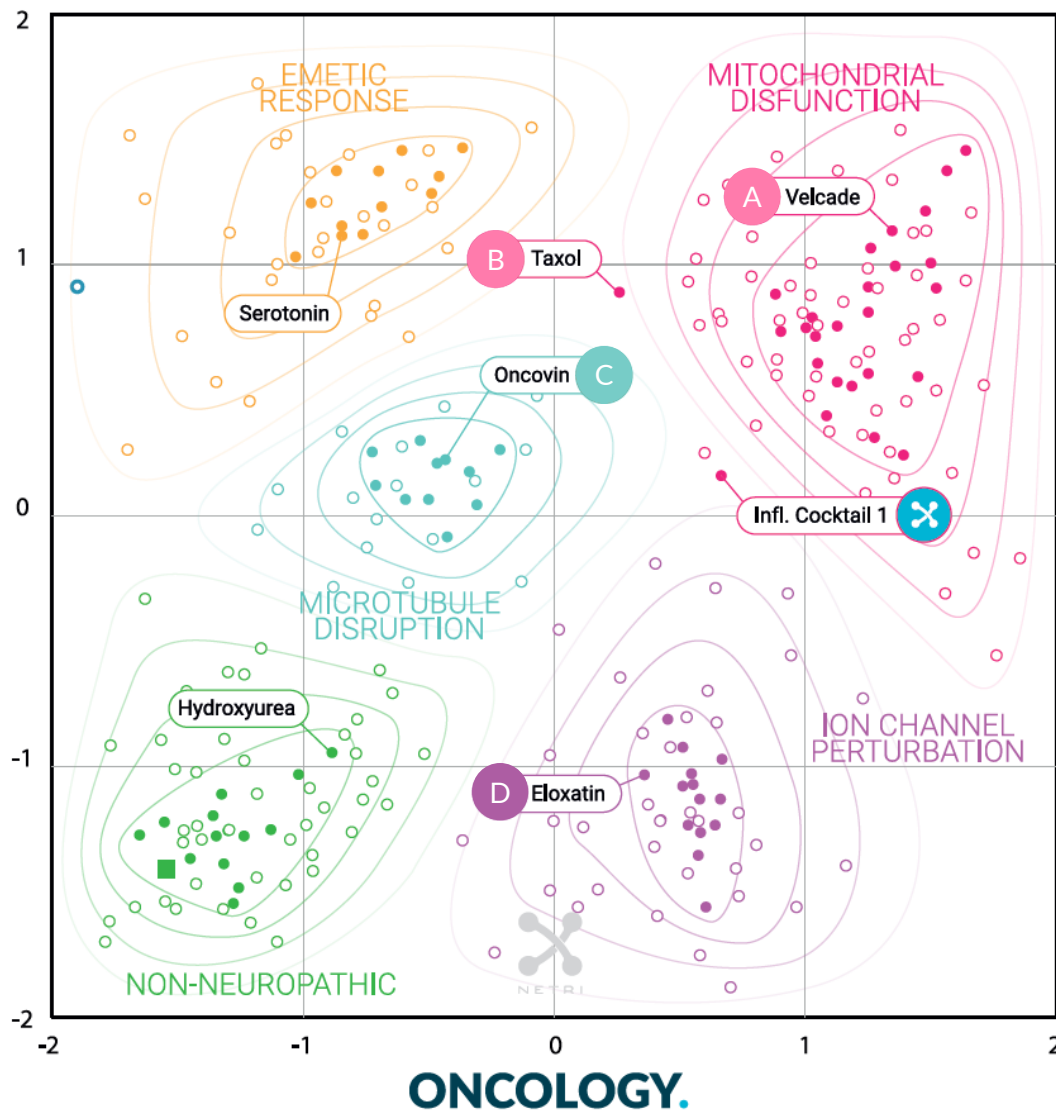
SIMILARITY MATRIX



2. UPSCALING

BUILD UP OF DIGITAL NAAS MODEL THROUGH TRAINING LIBRARY OF 100S OF REFERENCE COMPOUNDS

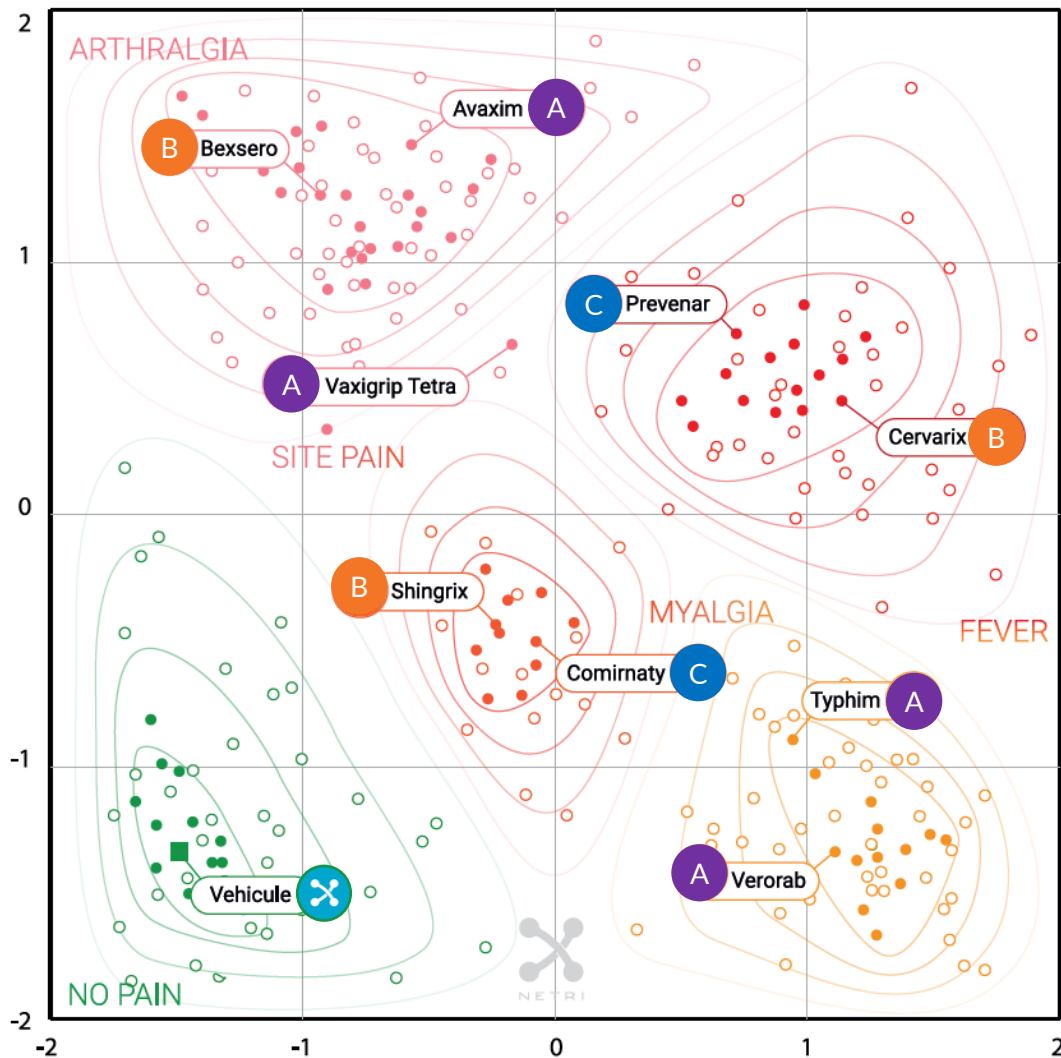
Confidential document



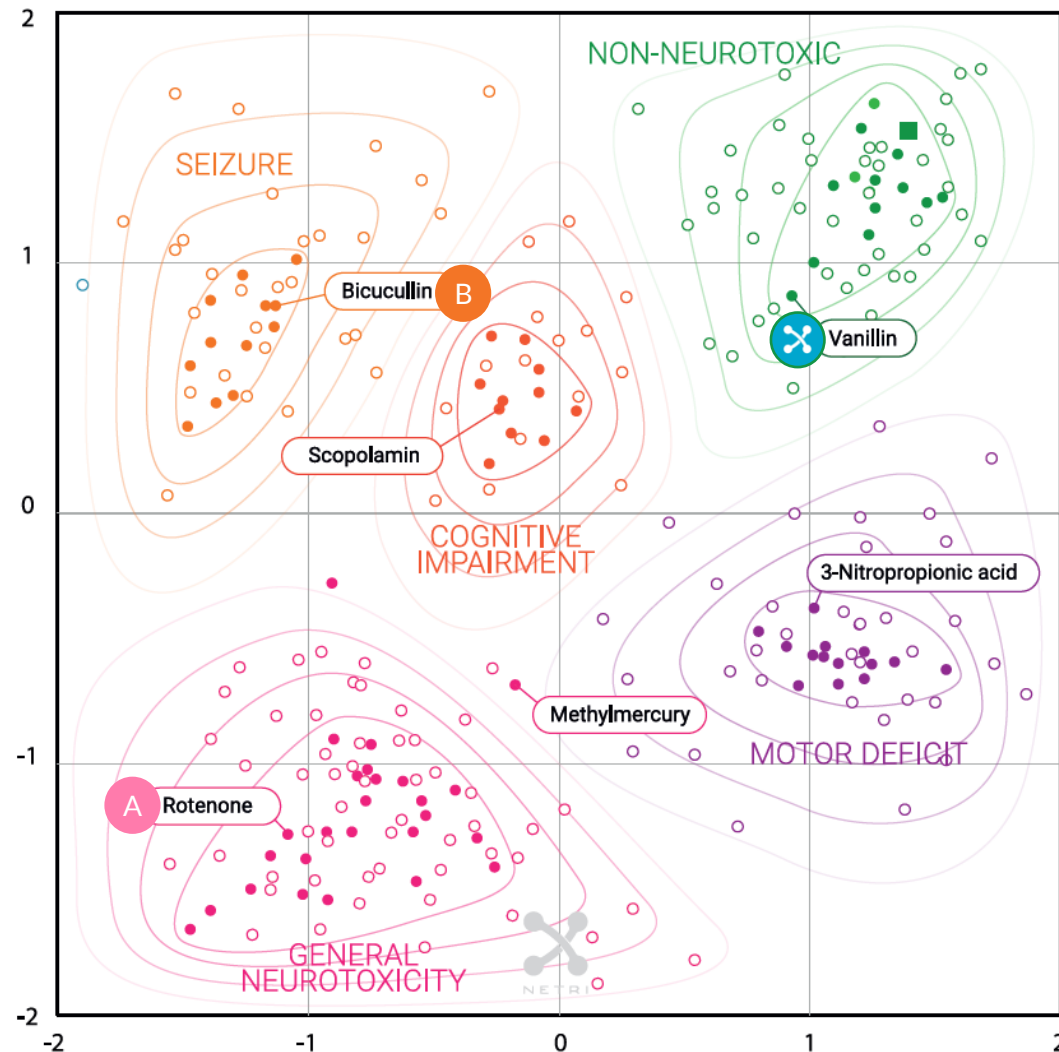
2. UPSCALING

BUILD UP OF DIGITAL NAAS MODEL THROUGH TRAINING LIBRARY OF 100S OF REFERENCE COMPOUNDS

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IMMUNOLOGY.

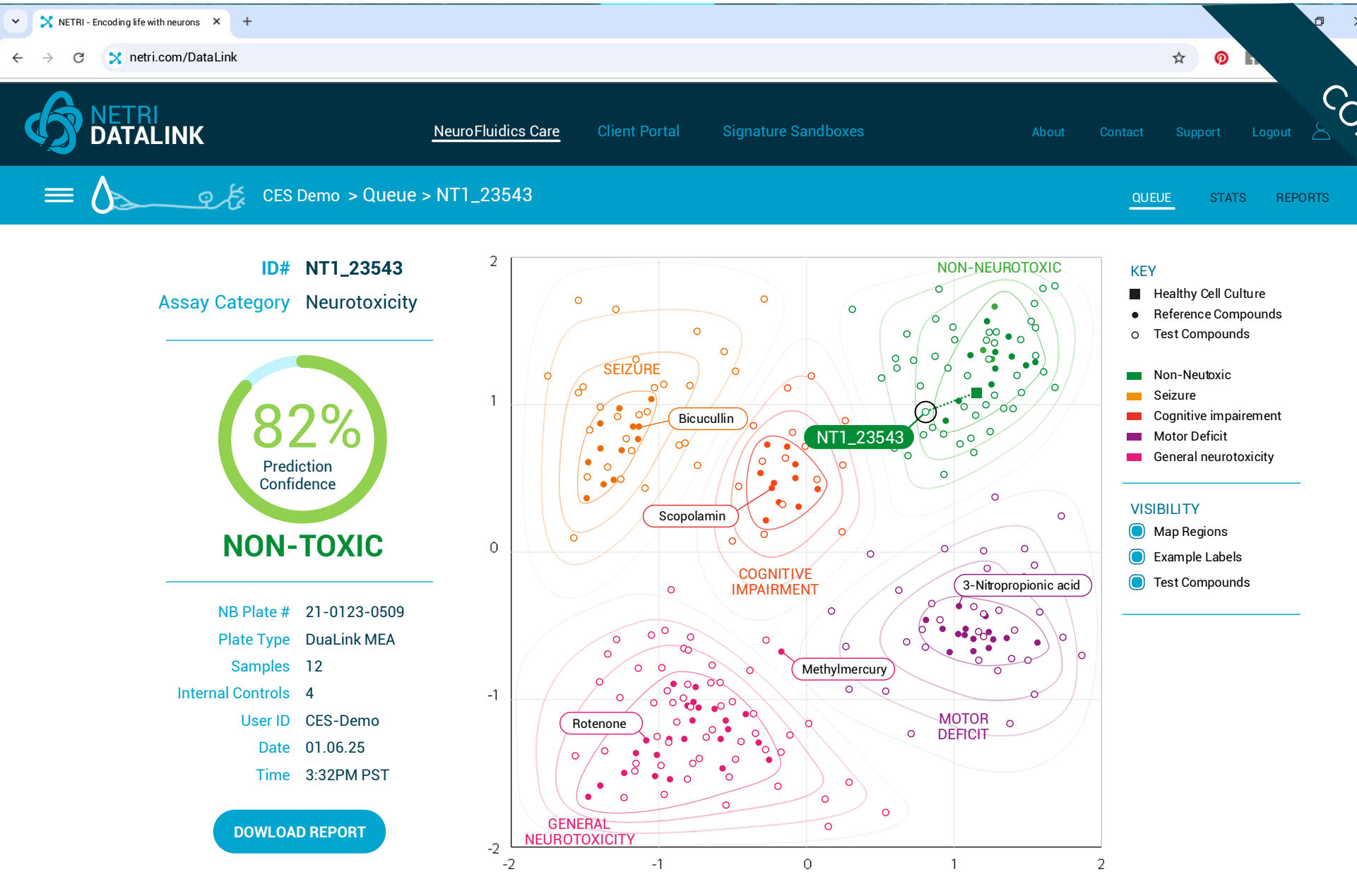


NEUROTOXICITY.

3. LICENSING & DRUG DESIGN



CONCEPT MAP



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Patents delivered and pending

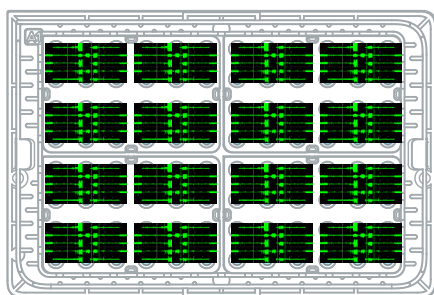
3. LICENSING & DRUG DESIGN

AI-BASED COMBINATORY DRUG MODIFICATION WITH NAAS IN THE LOOP

1. hiPSC derived neurons receptors digital signature (known pathways)



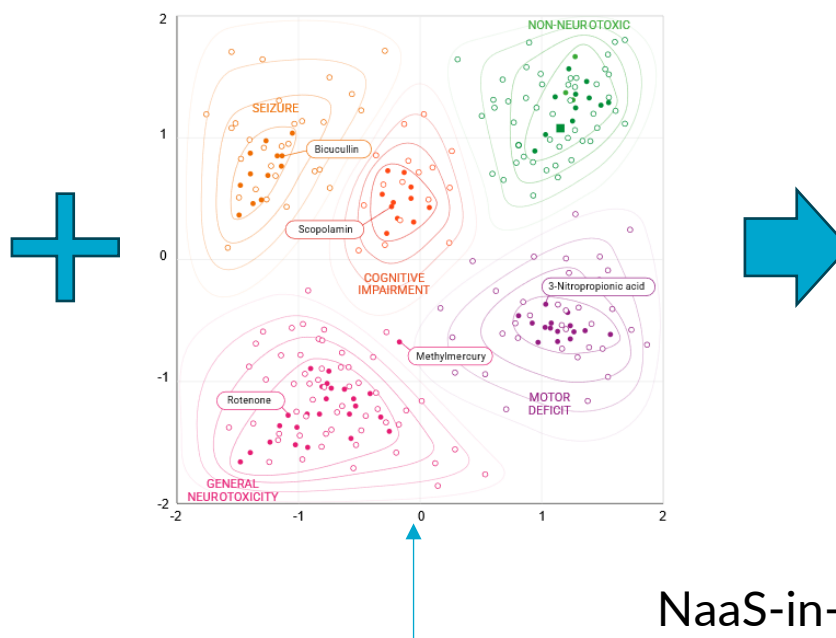
TRPV1, TRPA1, TRPM8, Nav 1.7...



Specific digital signature of each receptor

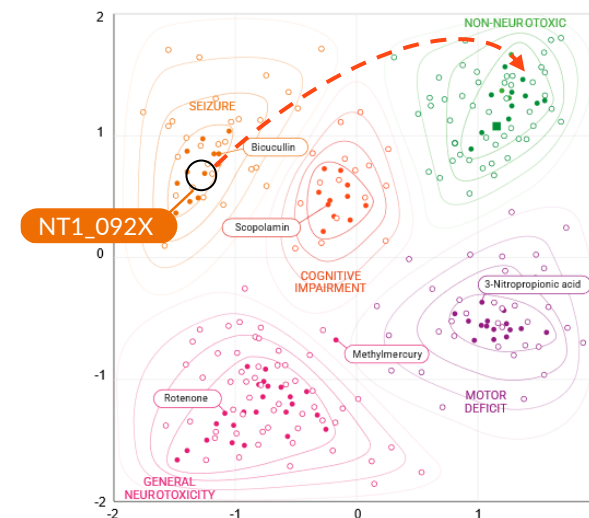
Need to maximize number of expressed receptors

2. Trained Biological foundation model on digital signatures of compounds (com. avail. /failed)



Need to maximize the number of digital signatures / compounds with known clinical effects

3. Generation of combinatory possibilities to create new digital signatures to suppres/activate pathways



Need to train the Biological Foundation model to generate digital signature predictions

OUR ON-GOING PROGRAMS

ONCOLOGY

DIPN



Emetic & nausea response



IMMUNOLOGY

Inflammatory pain



Diabetic Peripheral Neuropathy



DERMATOLOGY

Skin model



NEUROLOGICAL DISORDERS

Amyotrophic Lateral Sclerosis



Neurotoxicity safety



Drug Induced Seizures



NEUROTOXICOLOGY

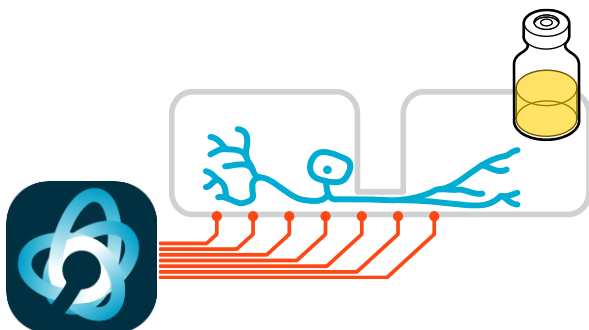
Neurotoxicity chemical safety



OUR BUSINESS MODEL

NEURON-AS-A-SENSOR

- Because it takes time to establish a biological model, we help you by providing :
 - Devices & neuronal cells
 - Sourcing of co-cultured cells
 - Metrics extraction and analytics on-line software & NaaS training
 - Full Tech Transfer:
 - Training on-line & on-site
 - Protocols and support
 - Advice and counseling with our scientific team
 - Regulatory approval of the NaaS model
- In you lab development pack flat rate
- In our lab development pack flat rate
- Once the NaaS model established, screening assays



	NaaS PLATFORM			
	DIGITAL LIBRARY INITIALIZATION (@CLIENT)	DIGITAL LIBRARY INITIALIZATION (@NETRI)	PRE-LICENSING (@CLIENT)	LICENSING (@CLIENT)
	Develop your NaaS Model on your own terms	Let NETRI Develop your NaaS Model	Test your molecules using your NaaS Model	Screen your molecules using an existing NaaS Model
Recurrence	Monthly	Monthly	One time (12 mo max)	Yearly
Testable Conditions	10	10	up to 150	Unlimited for 1 Maestro
Replicate	8	8	8	8
NeoBento	5	5	up to 300	Unlimited for 1 Maestro
Sensory Cell vials (1M)	2	2	up to 120	Unlimited for 1 Maestro
optional co-culture cells	on demand	on demand	on demand	Unlimited for 1 Maestro
Volume sales	N/A	N/A	N/A	N/A
Uplink Software	Included	N/A	Included	Included
DataLink Access	Included	N/A	Included	Included
Training	On-site	N/A	On-site (5 users)	On-site (5 users)
Demo Maestro for 1 month	No	N/A	No	Discounted Maestro Pro
Technological transfer & protocols	Included	N/A	Included	Included
Troubleshooting service	Included	N/A	Included	Included
NaaS Setup Consulting	Included	N/A	N/A	N/A (done in Development)
NaaS Model training by NETRI	Included	Included	N/A	N/A (done in Development)
Bespoke model service	N/A	N/A	N/A	Included
Access to Biological Foundation Model & asset generation	N/A	N/A	N/A	included with milestones/royalties
Exclusivity of Naas Model in specific context of use	to be discussed	to be discussed	to be discussed	To be discussed
Regulatory Data Access	N/A	N/A	N/A	Included
Freedom to publish	to be agreed with NETRI	to be agreed with NETRI	to be agreed with NETRI	Yes
Delivery custom fees	No	No	Yes	Yes



ABOUT US

TEAMS & FACILITIES

ABOUT US

LEADERSHIP: IN-DEPTH EXPERTISE ACROSS THE VALUE CHAIN



Thibault HONEGGER, PhD
CEO & Co-Founder



Florian LARRAMENDY, PhD
CTO & Co-Founder



Benoit Maisonneuve, PhD
Director of strategic
Partnerships & Reg. Affairs



Serge ROUX
Director of Product
Strategy & Design



Najate Faïth
Head of Biology



Romain Sauvageon
Head of Production



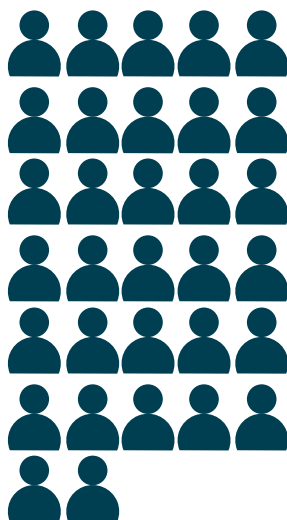
Stephanie Langhoff
Head of Project Management



Myriam Cornet
CHRO



Joan Vincon
Head of Finance



36 staff :
12 PhD.
11 Eng.
9 Tech.

**18 patents
NETRI
2 licences
(CNRS)**

STRATEGIC ADVISORY BOARD



Stephane HUE
Ganesh
Participations



Anne-Sophie GINON
PSA



Christophe Kica
Cléry



Jessica MILLER
RocketBio

SCIENTIFIC ADVISORY BOARD (ON GOING)



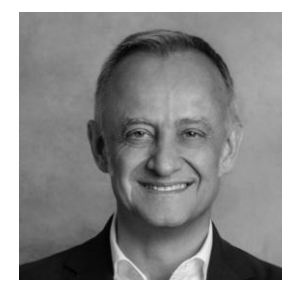
Samantha Atkins
Ex-Director Vaccin
Moderna



Philippe Archinard
BioMerieux



James TARTAGLIA, PhD
Former Dev. Head
of Sanofi Vaccins



Pierre MORGON, PharmD
Chairman Biotechs /
Techbios Investor

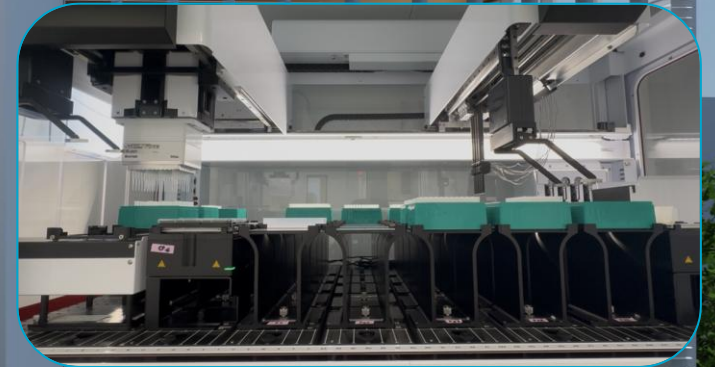


Philippe NANTERMET
Ex-Director Oncology
MSD

ABOUT US

BIOSERRA3 INFRASTRUCTURES IN GERLAND, LYON FRANCE

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NETRI

- 1100 m² production, P2 environmental control, ISO 5 Class
- 500 m² offices
- 600 devices / month -2025
- 1200 devices / month – 2026
- up to 6000 devices / month

ABOUT US

ACADEMIA

"First time microfluidic user, we are impressed with the overall performance of the plate and very pleased with how the experiment progressed."

"Robust design. Cells grow very well with good hydration. Very simple to use."

"NeuroFluidics MEA offer tremendous research flexibility."

THEY TRUST US

DERMO-COSMETICS

"I have chosen NETRI for the scientific equipment compatibility and compartmentalized co-culture."

"An impressive interaction with all team, Biology and Support is exceptional."

"An easy to use/user friendly design with impressive design with MEA capability."

PHARMA

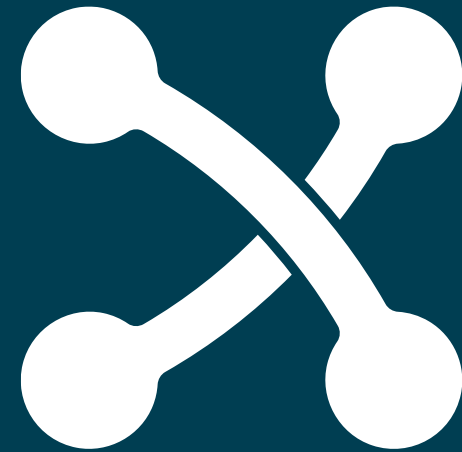
"MEA recording on DRG neurons done easily. Has observed robust activity. Quite satisfied with overall usage."

"Love the product and the new UI."

"For a first generation the NeuroFluidics MEA Devices are very advanced, in our 10+ year of MEA research."

THANK YOU

netri.com
contact@netri.com



NETRI