



ALL BIOMARKERS HAVE A FINGERPRINT

Cloud-based intelligent platform to accelerate drug discovery

**Efficient. Flexible. Patient-centric.**



EIT Health is supported by the EIT,  
a body of the European Union



Mayfield



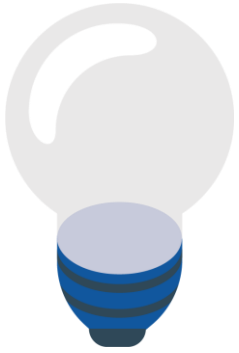


14 years

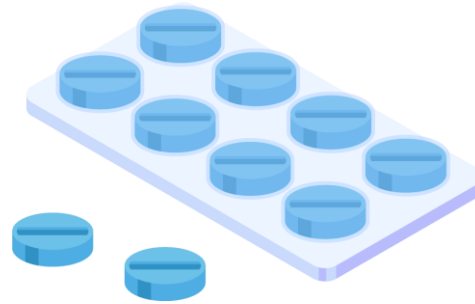
400 failed trials

0 treatments

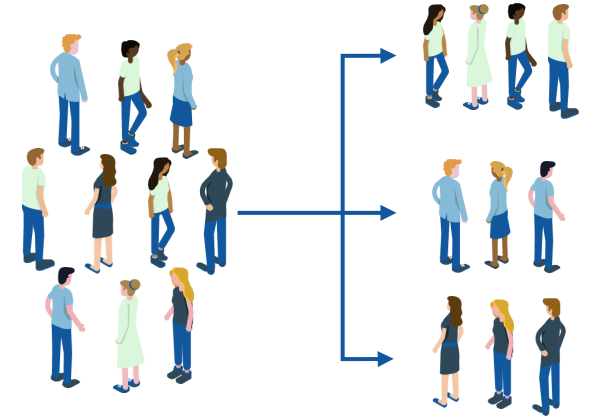
# Alzheimer's: A heterogenous disease



Poor biological  
knowledge

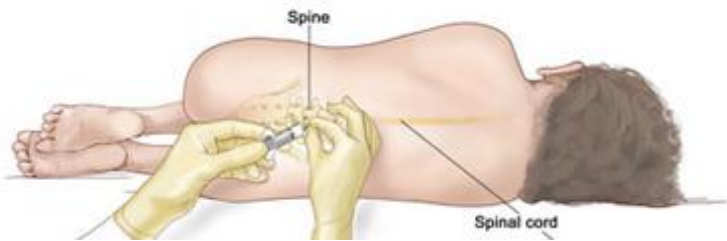


Failure of  
one-drug-fits-all



Stratification

# Alzheimer's: Clinical trials have big challenges



Invasive



Difficult to access

\$0.7B cancer

**\$5.5B**

Alzheimer's trials  
really expensive

**90% of patients leave clinical trials**



**How many promising drugs will be abandoned or their evaluation seriously delayed?”**

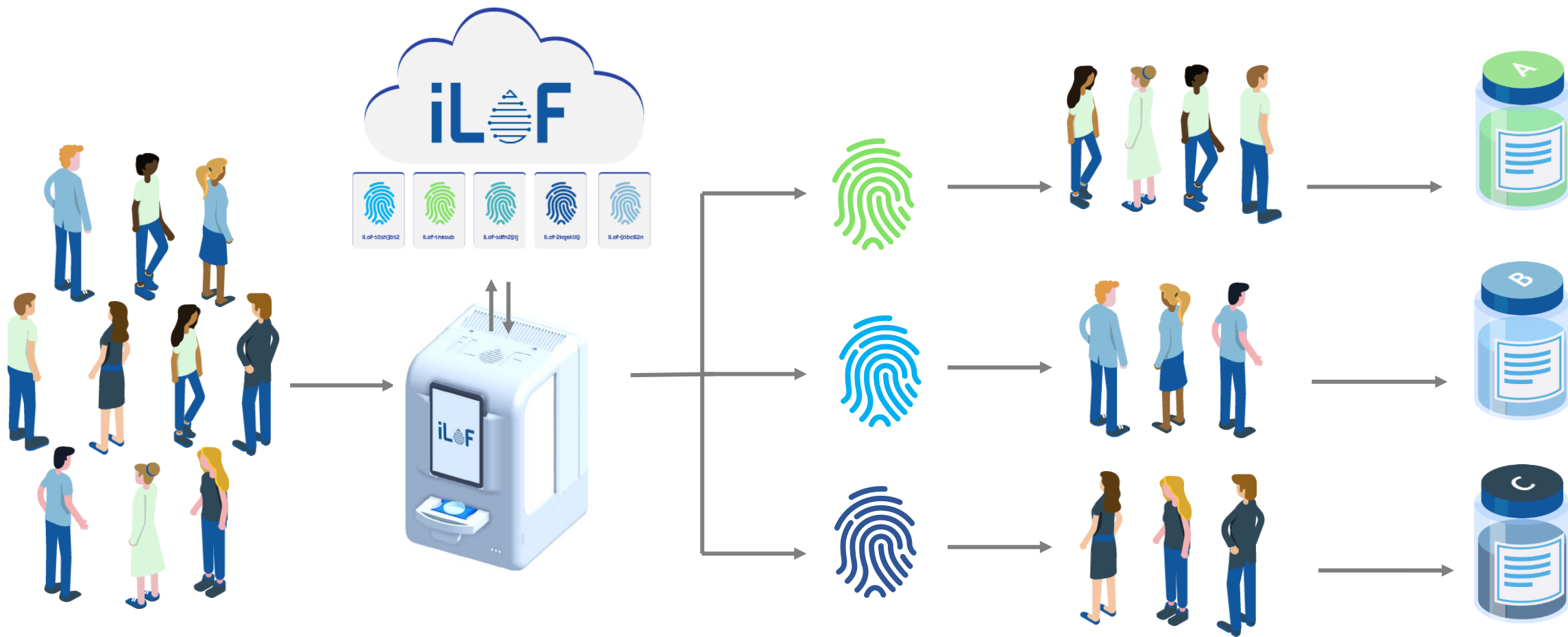
**- President, Global Alzheimer's Platform Foundation**

**NATION & WORLD >**

Posted **June 5** | Updated **June 5**

**Pfizer had clues its blockbuster drug could prevent Alzheimer's. Why didn't it tell the world?**

# Enabling development of personalized treatments



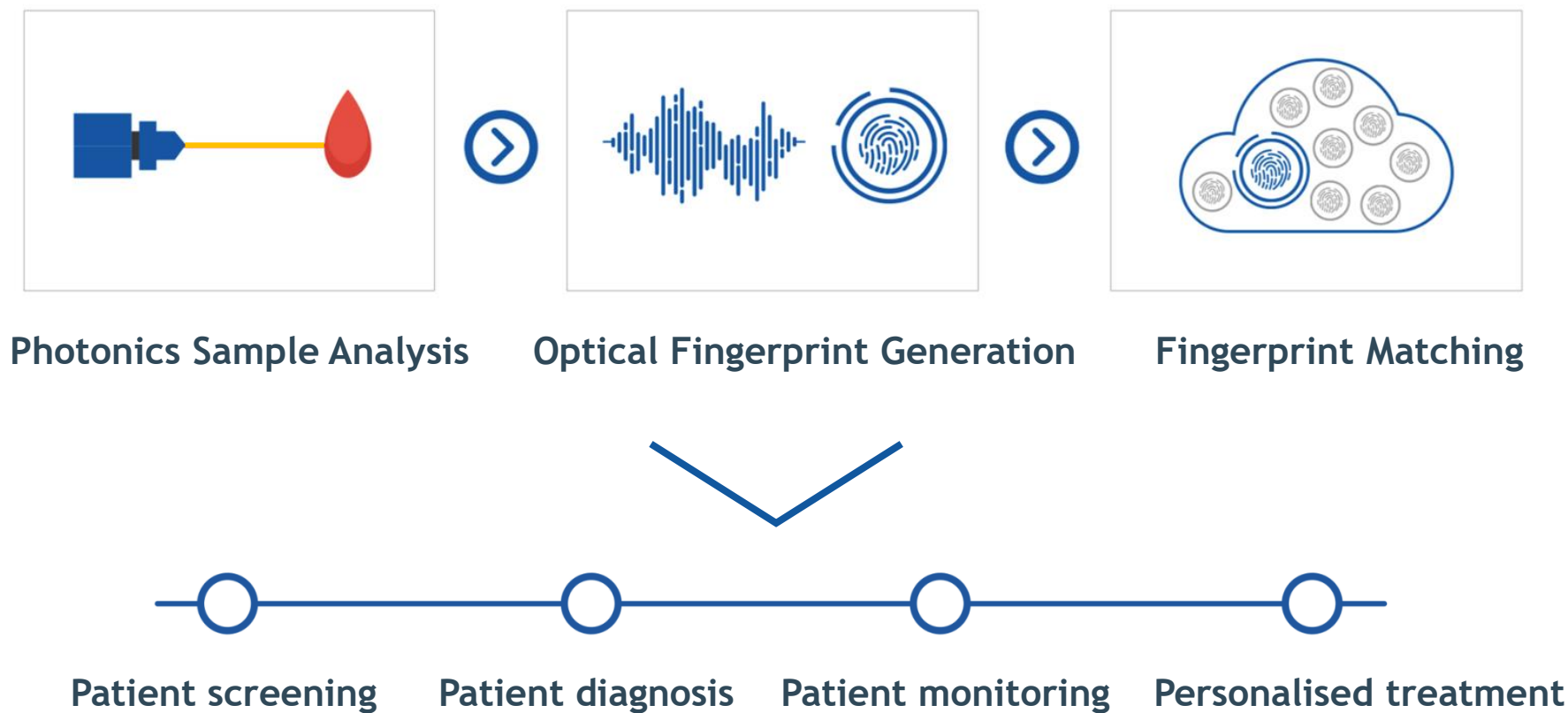
40% Cheaper

70% Faster



Convenient  
Non-invasive

# iLoF Platform: Building a cloud-based library of personalised biomarkers and biological profiles



**Non-invasive**  
Microliters of blood



**Adaptable**  
Multiple biomarkers



**Fast**  
2 seconds



**Low cost**  
Using Light and AI

# One platform, multiple applications

2 patents  
>10 publications

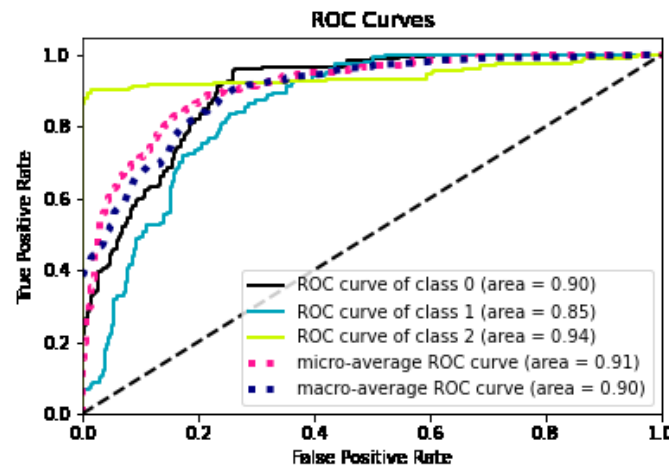
## 1. Biomarker Detection

- ✓ Peptide detection
- ✓ Multi-class identification
- ✓ Quantification

Peptide	Accuracy*	LOD (serum)
A $\beta$ 1-42	100%	0.05 pg/ml
A $\beta$ 1-28	84%	16.3 pg/ml
Tau 441	96%	4.6 pg/ml
P-Tau 441	86%	4.6 pg/ml

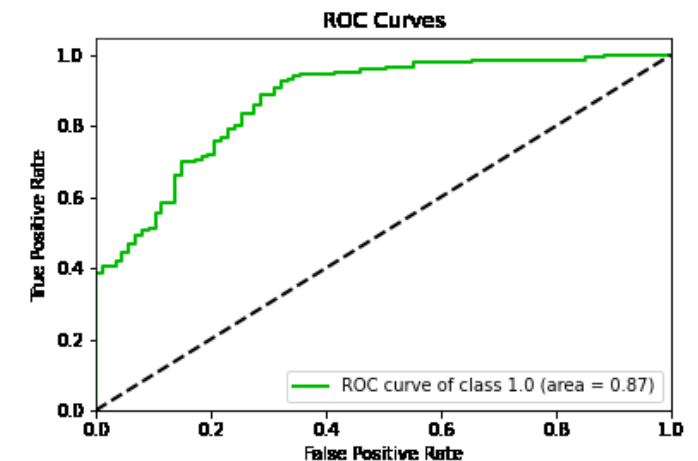
## 2. Disease Profiling

- Stratification b/w 3 classes
- ✓ Class 0: Healthy subjects
  - ✓ Class 1: Alzheimer's
  - ✓ Class 2: MCI



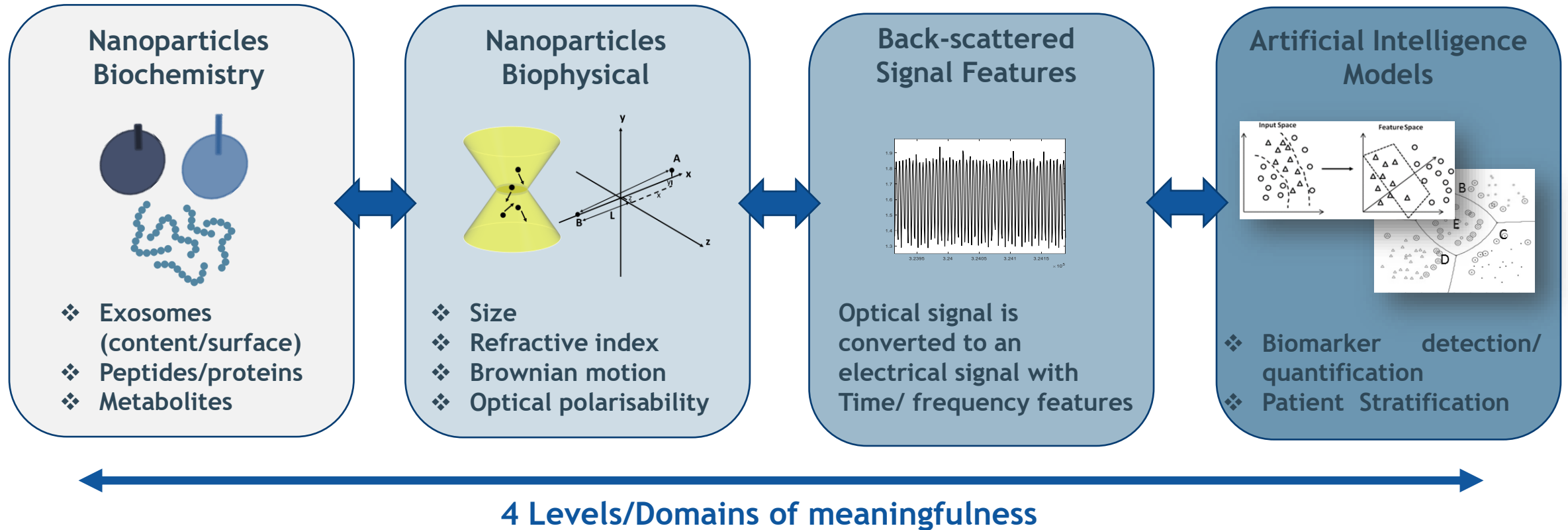
## 3. Disease Prognosis

- Stratification b/w 2 COVID-19 infected classes
- ✓ Severe symptoms - ICU admittance
  - ✓ Mild symptoms



\* At physiological range

# Optical fingerprints for biomolecule characterisation – a new biomarker paradigm



iLoF approaches are capable of exerting a force on nanoparticles (whose magnitude is in the range of fN) that causes disturbances in their Brownian motion. Nanoparticles' Brownian motion will change according to their intrinsic optical/morphological properties, “codified” in the radiation patterns of the light that they scatter.

# Our roadmap

● Pharmaceutical Companies

● Healthcare Market

⊙ Dependent on breakthrough



iL F<sub>1</sub>

Stratification/Clustering  
based off biomarkers

iL F<sub>2</sub>

Neuro-Drug  
tracking

iL F<sub>3</sub>

Risk Assessment  
tool

iL F<sub>x1</sub>

Companion  
diagnostic

iL F<sub>∞</sub>

# Optical fingerprints as novel classification markers



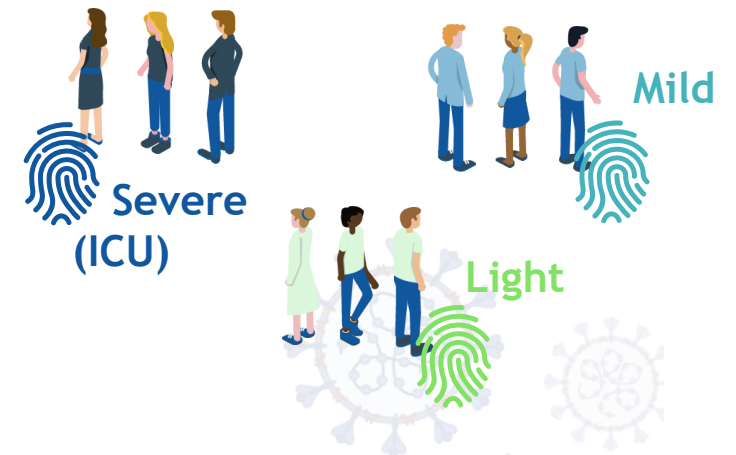
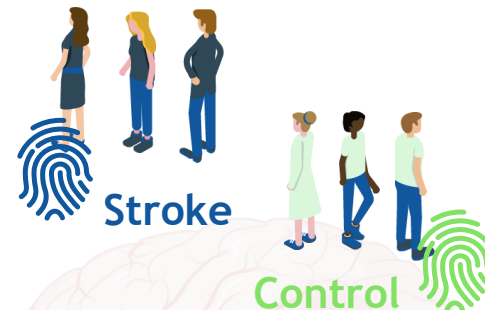
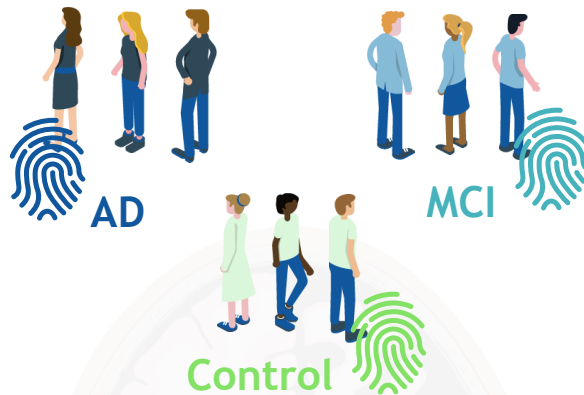
Aid for diagnosis

Prognosis

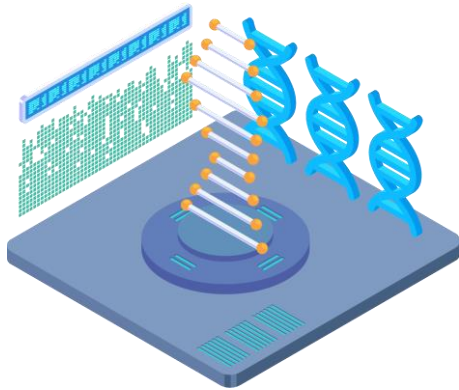
Alzheimer's Disease

Stroke

COVID-19



# Case Study 1: Commercial collaboration with a biotech company developing an Alzheimer's therapeutic



**Biotech X**

**Client** Biotech developing a drug for Alzheimer's Disease

**Target** 10-20 aa peptide Y expressed in the brain

**Goal** Demonstrate iLoF's sensitivity to detect and quantify peptide of interest in blood samples

**Future applications**

- 1) Patient screening for clinical trials
- 2) Companion diagnostic

## Case Study 2: Prognosis in infections diseases with a healthcare provider



**Client** Large public Hospital

**Problem** Difficulty managing influx of COVID-19 patients, and optimizing resources

**Goal** Demonstrate iLoF's ability to stratify COVID-19 patients based on likelihood of ICU admission

**Future applications**

- 1) Managing ICU occupancy
- 2) Personalizing treatment

# Alzheimer's: Beachhead market size

Top 4  
Pharma Groups

**400M €**

40k  
patients

With PET/CSF

**1.15B €**

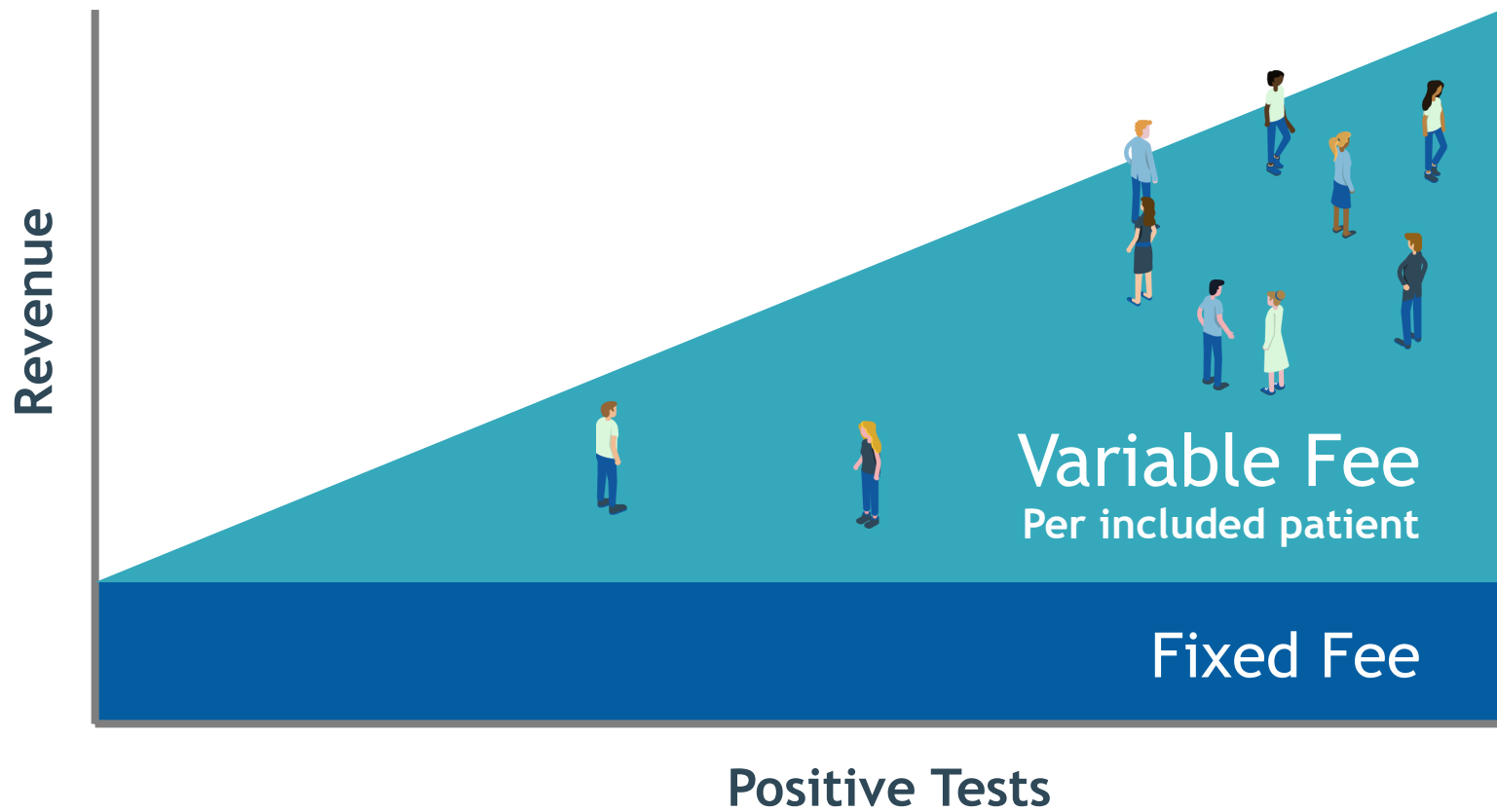
115k  
patients

Trials open for  
recruiting TODAY

**1.6B €**

160k  
patients

# A risk-free business model for Pharma



Fee Dependent on # of patients in the trial

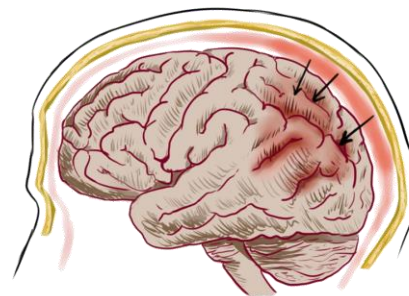
Risk-free win-win for iLoF and our partners

# Future vision

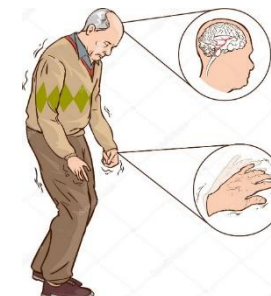


Using AI to accelerate  
personalized treatments for  
complex diseases

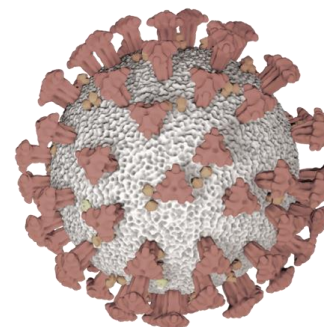
MULTIPLE SCLEROSIS



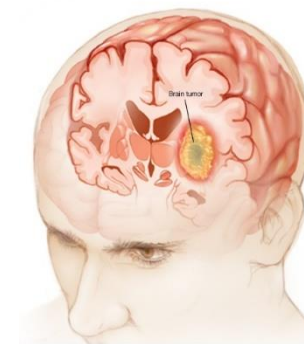
PARKINSON



COVID-19



BRAIN TUMORS



# Current traction



>1000

Biological profiles stored



Maastricht University



12

Academic and Research partners



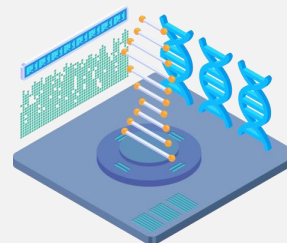
2

Pharma engagements



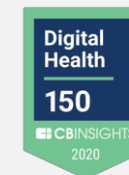
3.1M

Seed Funding (€)



1

Paying biotech client



>10

Awards

# Management experience, technical skills, passion for healthcare



**Luis Valente (Msc)**  
CEO

- Award-winning business manager
- Management & Engineering skills
- Founded first company at 18



**Mehak Mumtaz (PhD)**  
COO

- Strategy consultant
- Fellow at Oxford University
- Personalised medicine expert



**Joana S. Paiva (PhD)**  
CTO

- Inventor: 3 patents requests
- Scientist: > 30 publications
- Professor and Bio-AI engineer



**Paula Sampaio (PhD)**  
CSO

- Research center coordinator
- Light technologies expert
- Senior scientist: >50 publications

## Advisors



**Derek Hill, PhD**



**Marcus East**



**Chris Chamberlain, MD-PhD**



**Priya Saiprasad**



**Priyanka Mitra**



## Team

> 15 FTE

(inc. 5 PhD /MBA)

“A good life is a collection of  
happy memories”

-Denis Waitley



Cloud-based intelligent  
platform to transform  
drug discovery

Luis Valente, Co-Founder & CEO

[lvalente@ilof.tech](mailto:lvalente@ilof.tech)

