

IHI Call Days | Call 12

OneBrain :

Redefine boundaries of brain diseases and accelerate therapeutic breakthroughs through large precision brain health cohorts

Contact person name: Géraldine Farjot

Organisation : Institut du Cerveau / Paris Brain Institute

E-mail: partnership@icm-institute.org

Link to the IHI brokerage platform:

- [OneBrain](#)
- [Geraldine Farjot](#), [Barbara Cagniard](#), [Marie Micolon](#), Sylvie Bothorel, Salma Kotti

Challenges

- o 1 in 3 people will experience a brain disorder during their lifetime.
- o Brain diseases are the leading cause of disability and the second cause of death worldwide.
- o Current available data cohorts remain fragmented and rarely multimodal.

Objectives

- o Build large-scale cohort of patients with brain disorders or at risk of developing them integrating multimodal data.
- o Develop multimodal and multiscale foundation models for brain diseases.
- o Accelerate biomarker and drug discovery powered by AI and data science to be a game changer for brain medicine.

SO1

SO2

SO4

SO5

NEURODEGENERATIVE DISEASES

MENTAL HEALTH

RARE DISEASES

DIAGNOSIS

TREATMENT

PREDICTION

PREVENTION

DISEASE MANAGEMENT

Our approach to solve the problem

OneBrain : Redefine boundaries of brain diseases and accelerate therapeutic breakthroughs through large precision brain health cohorts.

- Novel, **patient-centered research-based initiative** at unprecedented scale, grounded on the creation of **a large real-world, trial-ready cohort** with associated **multimodal bioresource** covering the full spectrum of **brain disorders**.
- This will serve as the basis for ambitious research programs aiming to **redefining brain disease endotypes based on underlying biological mechanism**, deriving validated **biomarkers**, and developing efficient mechanism-based **targets and drugs**.
- Unprecedented resources for novel **deep learning AI** and **foundation models** dedicated to **brain diseases**.
- Accelerate the transfer of research outcomes **into clinical practice** and real-world applications that directly improve **patient care**.

Fit for IHI

- Addressing a **major health challenge of the 21st century, aligned with the European Health Data Space program.**
- **Cross-sectoral and innovation driven by nature:** clinical research, pharmaceuticals, medtech, digital health, diagnostics and data science.
- **Public–private collaboration is essential** to translate multimodal data into clinical and societal impact, transformative for neurology and psychiatry
 - Industry contributions: imaging devices, digital monitoring, AI pipelines, biomarkers, data analytics.
 - Academic & hospital contributions: patient recruitment, clinical data, biological samples, regulatory and ethical oversight
- This collaboration will generate **immediate economic benefits and enhance Europe's long-term competitiveness** in this strategical field of healthcare.

Outcomes and Impact

- A first-of-its-kind, large longitudinal, recallable and interoperable **cohort and associated bioresource dedicated to brain diseases** leveraging genetics, multiomics, neuroimaging and neurophysiological profiling.
- Acceleration of **biomarker and drug discovery** powered by integrated AI and data science
- A platform for **swift implementation of innovative clinical trial designs**, and pioneering novel precision brain health strategies
- Advances in **ethics and sustainability in precision brain health research and care**

Impacts:

- Earlier diagnosis and improved patient stratification.
- Enhanced treatment development and reduced burden of brain disorders.
- Strengthened competitiveness of the EU health industry and leadership in brain innovation

Expertise and resources

- We have:
 - Leading public-private research institute affiliated with Sorbonne University, AP-HP, Inserm, and CNRS. Home to 29 multidisciplinary research teams spanning fields from genomics and molecular biology to systems neuroscience, neuroimaging, and behavior.
 - Capabilities to implement large cohorts and international partnerships. Our organizational model brings together patients, clinicians, researchers, and industry partners
 - AI and data science center
- We are looking for:
 - Technologies for multiomics, advanced genetics, brain imaging...
 - Reinforcement in AI models for biomarker and therapeutic target identification
 - Pharma and biotech companies for drug discovery and development
 - Healthtech companies for fluid, imaging and digital biomarkers.