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Foresight Symposium Report 2026 | European Partnership for Brain Health

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Introduction

The EP BrainHealth Foresight Symposium, hosted by Inserm at PariSanté Campus on 20 May 2026, brought together researchers, clinicians, journal editors, patient representatives and policy-facing stakeholders around a shared question: **how should Europe shape the next generation of translational brain health research?**
The meeting was not conceived as a conventional conference, but as a working foresight exercise. Its purpose was to identify scientific opportunities, implementation challenges and stakeholder priorities that may inform future strategic reflection and collaborative activities within the European Partnership for Brain Health.

Discussions focused on two closely connected questions: **how to design effective interventions for brain disorders,** and **how to better understand differences between patients so that diagnosis and care can become more precise.**
Across the day, participants stressed that brain health cannot be addressed through isolated approaches. Progress depends on combining mechanistic research, clinical validation, patient experience, implementation science and equitable access.
A clear message emerged: **future brain health research must move earlier in disease trajectories, become more mechanism-based, and remain closely connected to lived experience, care pathways and equitable implementation.**

PariSanté Campus, La Rotonde Room, 20 May 2026.

Content

Morning Session

Chaired by Ulrike Bußhoff, the morning session explored **how intervention research can become more ambitious without losing mechanistic and methodological rigor.** The session brought together discussions on Alzheimer's prevention, immune and cellular therapies, ultrasound neurotechnologies, social and behavioral interventions, digital modelling, editorial standards and patient perspectives. This progression illustrated how innovation in brain health research encompasses multiple and interconnected approaches. It was understood not as one technology, but as the coordinated development of therapies, devices, models, behavioral strategies and implementation pathways.

1.1 Introduction | Ulrike Bußhoff

DLR Project Management Agency; Head of the Department International Health Research; Coordinator of EP BrainHealth.

Ulrike Bußhoff opened the meeting by positioning the symposium within the governance and scientific mission of EP BrainHealth. Her introduction gave the day a practical orientation: the symposium was expected to feed a structured foresight process, not merely to showcase expertise. By linking the meeting to the broader strategic objectives of EP Brainhealth, she emphasized the need for a **common European framework able to connect scientific excellence, stakeholder input and operational decision-making.**

Her remarks also clarified the role of this foresight exercise as a bridge between consultation and action. The symposium was presented as part of a cycle in which expert insight, literature review, partner consultation and Scientific Advisory Board input are converted **into shared reflections, and recommendations for future activities.** This framing was important because it established accountability: every scientific contribution during the day during the day was considered in terms of feasibility, relevance and potential European added value.

1.2 Welcome and Opening Remarks | Denis Vivien and Philippe Marin

Denis Vivien: Director of Inserm's Thematic Institute of Neuroscience.
Philippe Marin: Inserm Research Director (DRCE), Deputy Scientific Director, CNRS.

Denis Vivien and Philippe Marin set the scientific tone of the symposium by emphasizing the scale and urgency of the brain health challenge. Brain disorders were presented not as isolated disease categories, but as a continuum of biological, clinical and societal problems requiring coordinated research across prevention, diagnosis, treatment, rehabilitation and quality of life. The opening remarks invited participants to think beyond disciplinary boundaries and to use the meeting as a collective exercise in priority setting.

A central point was that future progress will depend on bringing together researchers, clinicians, innovators, patient organizations, journal editors and funding bodies. This reflected a scientific conviction: translational research succeeds only when biological mechanisms, clinical needs, patient experience and implementation conditions are aligned from the beginning. The opening therefore prepared the ground for a day in which **scientific ambition and societal relevance were treated as inseparable.**

1.3 State of the Art | Giovanni B. Frisoni

Director of the Memory Clinic, Geneva University Hospital; Clinical Neurologist; Full Professor of Clinical Neuroscience.

Giovanni B. Frisoni framed cognitive impairment and dementia as **staged, heterogeneous and potentially modifiable processes.** His presentation moved away from a late symptomatic view of Alzheimer's disease and toward a prevention-oriented model in which risk, pathology, resilience and care pathways interact over time. A recurring analogy was vascular prevention: just as cardiovascular medicine learned to estimate risk and intervene before catastrophic events, dementia research must **develop earlier and more structured prevention strategies.**

The talk emphasized the importance of biomarkers for amyloid, tau and neurodegeneration, but also warned against reducing prevention to biomarkers alone. Clinical populations,

diagnostic criteria, brain reserve, patient journeys, multidomain risk-reduction protocols and implementation settings all matter. Anti-amyloid therapies were discussed within a broader framework that includes vascular and metabolic risk, longitudinal monitoring and the practical organization of care.

The key message for EP BrainHealth was that Alzheimer's disease prevention requires integrated approaches: **early detection, mechanistic stratification, intervention timing and care delivery must be designed together**.

1.4 Pharmacological Interventions | Aiden Haghikia

Director of the Department of Neurology with Clinical Neurophysiology, Hannover Medical School.

Aiden Haghikia's contribution placed pharmacological innovation at the frontier of neuroimmunology and advanced therapeutics. Rather than presenting drug development as a linear search for new molecules, he described a field increasingly shaped by biologics, cellular therapies and immune mechanisms. Examples from severe autoimmune and infection-related neurological conditions illustrated how therapeutic opportunities are emerging in areas once considered highly refractory.

The wider lesson was that pharmacological innovation in brain disorders now depends on much more than **proof of biological activity.** Durability, safety, affordability, manufacturing capacity, access and the possibility of preventive deployment must all be considered. The discussion of CAR-cell concepts, autoimmune encephalitis, myasthenia gravis and infection-triggered neurological disease highlighted the need to connect immunology, neurology, cell therapy platforms and real-world health systems.

For this first priority area,, this argued strongly for intervention projects that include translational readiness and implementation constraints as part of the scientific design.

1.5 Neurotechnological Interventions | Thomas Deffieux

Research Director, Inserm; Deputy Director, Institute Physics for Medicine Paris, ESPCI Paris-PSL / CNRS.

Thomas Deffieux presented ultrasound neurotechnologies as a rapidly maturing interface between measurement and intervention. Functional ultrasound imaging was discussed as a way to read brain activity through neurovascular coupling, with the promise of high spatiotemporal resolution, sensitivity and clinical scalability. The presentation then broadened towards ultrasound localization microscopy, intraoperative imaging, trans-temporal approaches and the possibility of scaling these methods toward larger brain volumes.

The therapeutic dimension of ultrasound was equally important. Blood-brain barrier opening, thermal ablation, targeted delivery and the future possibility of ultrasound-based brain-computer interfaces were presented as examples of how a single technological family can link diagnosis, monitoring and treatment. The foresight implication is clear: future neurotechnological funding tracks should not fund devices in isolation. They should require **disease-relevant validation, mechanistic grounding, clinical endpoints and credible pathways toward use in real care settings**.

1.6 Social, Cognitive and Behavioral Interventions | Jorge López-Cástroman

Professor of Psychiatry, Head of the Addiction Behavior Center, Santiago de Compostela Univ. Hospital

Jorge López-Cástroman brought the discussion back to the daily outcomes that define brain health for patients and citizens: **relationships, autonomy, purpose, activity, safety and the ability to function in real contexts.** His presentation described social, cognitive and behavioral interventions not as supportive extras, but as central components of a comprehensive intervention strategy. This was a significant shift in emphasis, because many brain health outcomes cannot be fully captured by biomarkers or symptom scales alone.

The presentation also identified the main scientific obstacles in the field. Mechanisms of action often remain opaque, studies are methodologically heterogeneous, and **trial efficacy does not automatically translate into real-world benefit**.

These challenges should not weaken the place of non-pharmacological interventions in future research programs; rather, they should **make them more rigorous.** The session pointed toward co-designed outcomes, harmonized methods, implementation science and stronger links between behavioral mechanisms and biological or clinical endpoints.

1.7 Digital Interventions | Michele Migliore

Research Director, Institute of Biophysics, CNR Palermo; Visiting Professor of Computational Neuroscience, Sapienza University of Rome.

Michele Migliore addressed the digital and modelling dimension of translational brain health. His presentation emphasized that computational models become useful when they are **realistic, validated and connected to decisions**. Digital approaches should help **link** molecular mechanisms, cellular physiology, networks, imaging, behavior and clinical trajectories, rather than remain as detached simulations or descriptive analytics.

A major issue is **the translational gap between model sophistication and clinical usefulness**. For digital interventions and computational tools to shape future brain health research, one must clarify assumptions, integrate interoperable data, support hypothesis testing and identify decision points that matter for diagnosis or treatment. Strategic frameworks should thus consider digital modelling as **a scientific infrastructure for prediction and stratification**, not as a generic technological label.

1.8 Viewpoint from an Editor-in-Chief | Étienne Hirsch

Editor-in-Chief, Journal of Neural Transmission, retired Research Director, CNRS; previously Parkinson's disease specialist, ICM Paris

Étienne Hirsch brought the perspective of editorial standards and **scientific vigilance**. His intervention stressed that innovative intervention research will only influence the field if it is **robust enough to withstand critical review.** Mechanistic clarity, reproducibility, appropriate controls, transparent reporting and clinically meaningful endpoints are central to this perspective.

The value of this editorial viewpoint was to connect **future funding design with future scientific credibility.**

Programs that encourage ambitious interventions must also create the conditions for results that can be published, interpreted and implemented. This means avoiding vague mechanistic claims, designing studies with adequate methodological discipline and ensuring that proposed outcomes are relevant to both the scientific community and the people affected by brain disorders.

1.9 Patient Perspectives | Laura Castro-Aldrete and Raluca Nica

Laura Castro-Aldrete: Research Partnerships Lead at Alzheimer's Disease International (ADI). Raluca Nica: Vice-President, GAMIAN-Europe; Executive Director, Romanian League for Mental Health.

The patient-perspective segment made the morning discussion more concrete. Laura Castro-Aldrete emphasized the global burden of dementia, the importance of rehabilitation and the danger of **innovation that fails to reach the people who need it**. Her contribution placed research within the **realities of access**, **care pathways** and **international inequality**. Scientific progress in dementia cannot be separated from implementation, because delayed access or fragmented systems can turn innovation into a new source of disparity.

Raluca Nica complemented this perspective from the field of mental health advocacy. She emphasized that patients often experience care as a **sequence of trial and error**, and that interventions must be judged by their ability to **relieve suffering without creating new burdens**. Personalization, affordability, scalability and acceptability were therefore presented as scientific design criteria, not only ethical aspirations. Together, these contributions argued for patient partnership from the earliest stages of scientific programming, protocol development and outcome selection.

1.10 Discussion on the morning sessions

The discussion on the first session revolved around how to formulate a funding framework that remains broad enough to include pharmacological, neurotechnological, digital, social and behavioral interventions, while still being precise enough to require known mechanisms and robust validation.

Participants returned several times to the **balance between innovation and feasibility**. A scientific focus that is too narrow risks excluding promising combinations of interventions; a framework that is too broad risks producing fragmented project initiatives without a common scientific logic.

Discussion with the audience, PariSanté Campus, La Rotonde Room, 20 May 2026.

The discussion converged on the **need for mechanism-based, patient-relevant and implementation-aware intervention research**.

The morning session therefore ended with a strong sense that future initiatives should actively encourage combinations: drugs with biomarkers, neurotechnologies with disease models, behavioral interventions with mechanistic endpoints, and digital tools with clinical decision pathways.

Speakers of the Foresight Symposium, PariSanté Campus, La Rotonde Room, 20 May 2026.

2 Afternoon Session

The afternoon session shifted from intervention design to stratification. The underlying question was how brain disorders can be classified more accurately so that prevention, diagnosis and treatment become more targeted. The session brought together fluid biomarkers, genetics, molecular pathology, neuroimmunology, vascular mechanisms, editorial standards and patient priorities. The result was a **broad but coherent view of stratification as a multi-layered process linking biology, clinical trajectories and lived experience**.

Concluding discussion chaired by Catherine Marquer, International Scientific Coordinator fort he Neurosciences, ANR

2.1 State of the Art | Charlotte Teunissen

Full Professor; Head of the Neurochemistry Laboratory, Amsterdam UMC; leader of international networks including the CSF Society.

Charlotte Teunissen opened the afternoon with a state-of-the-art overview of fluid biomarkers in chronic brain diseases. Her presentation showed how blood and CSF biomarkers are transforming the timing and precision of diagnosis. Plasma p-tau markers, eMTBR, Lewy body biomarkers and emerging TDP-43 measures were discussed as part of a broader movement from late clinical classification toward earlier biological characterization.

The central message was that **biomarkers are needed across the entire disease pathway**. They can support early detection, differential diagnosis, monitoring of progression and evaluation of treatment response. However, the presentation also emphasized that biomarker discovery is not the ultimate goal. Intended use, clinical utility, care-pathway integration and equitable implementation must be addressed if biomarkers are to improve real-world diagnosis and treatment. For this stratification priority, this established a rigorous standard: **stratification tools must be validated not only analytically, but also clinically and operationally.**

2.2 Genetics and Molecular Stratification | Patrícia Maciel

Associate Professor, University of Minho School of Medicine; Director of the MSc Program in Health Sciences; Director of ICVS.

Patrícia Maciel extended the stratification discussion into genetics, multi-omics and molecular classification. Her presentation emphasized that traditional diagnostic labels often group together biologically diverse conditions. High-throughput genomics, polygenic risk scores, blood-based biomarkers, single-cell approaches, epigenomic clocks and AI-driven reclassification may reveal subgroups that are more meaningful for prognosis and treatment selection.

At the same time, the talk highlighted the discipline required to avoid overinterpretation. **Molecular stratification must be reproducible, clinically interpretable and validated in diverse populations.** It should not simply create more categories; it should **clarify decisions**. The foresight implication was that future strategic initiatives should support multi-layer stratification frameworks combining genetic risk, molecular signatures, biomarkers, imaging and clinical trajectories, with explicit plans for validation and clinical translation.

2.3 Tau Propagation and Molecular Pathology | Luc Buée

Head of the Inserm laboratory "Lille Neuroscience & Cognition", University of Lille, France.

Luc Buée presented the prion-like paradigm as a major conceptual shift in neurodegeneration. His talk showed how tau propagation, alpha-synuclein aggregation, extracellular vesicles, tunnelling nanotubes, non-neuronal cells and neuroimmune interactions have changed the way the field understands disease progression. N**eurodegenerative disorders are no longer defined only by clinical syndromes; they are increasingly interpreted through molecular spreading, selective vulnerability and co-pathology.**

This perspective has **direct consequences for stratification and therapy.** Molecular imaging, PET ligands and longitudinal follow-up can help identify when a pathological process is active and where a patient may sit along a trajectory. Therapeutic strategies such as immunotherapy, antisense oligonucleotides, degradation approaches, autophagy and lysosomal targeting, gene therapy and seeding inhibition **depend critically on timing and biological context**. The session made clear that failed trials may reflect poorly selected populations or late intervention windows as much as weak therapeutic concepts.

2.4 Microglia and Immune Stratification | Ádám Dénes

Head of the Laboratory of Neuroimmunology and Cell Biology, HUN-REN Institute of Experimental Medicine.

Ádám Dénes placed microglia and brain-immune interactions at the centre of stratification. His presentation described the neurovascular unit as a dynamic interface between the brain, immune system and vasculature. Microglia, perivascular macrophages, meningeal macrophages, blood-brain barrier properties and systemic inflammatory signals were presented as **active determinants of disease trajectories rather than background features.**

The scientific importance of this perspective is that immune status may define clinically relevant subgroups across neurological diseases. Purinergic signalling, P2Y12R, microglial modulation of neuronal activity, phagocytosis of injured or infected neurons and leukocyte recruitment after systemic inflammation all point to mechanisms that could shape diagnosis and treatment response. For this specific focus area, this supported the need **for integrated neuroimmunology approaches combining peripheral immune measures, CNS biomarkers, imaging and disease-relevant models**.

2.5 Vascular Mechanisms of Neurological Disorders | Britta Engelhardt (cancelled)

Professor for Immunobiology; Director of the Theodor Kocher Institute, University of Bern, Switzerland.

Britta Engelhardt was unfortunately unable to attend the meeting. As a result, her scheduled presentation was cancelled, and Adam's session was extended to allow for a broader discussion of topics related to vascular barrier biology and its implications for neurological disorders.

The discussion emphasized the continued importance of vascular mechanisms, including blood-brain barrier integrity, immune-cell trafficking, and neuroinflammatory processes, in understanding disease heterogeneity and informing future diagnostic and therapeutic strategies. It also reinforced the relevance of integrating vascular perspectives into ongoing and future foresight activities, particularly where vascular factors intersect with immune, degenerative, and systemic contributors to disease.

2.6 Viewpoint from an Editor-in-Chief | Elena Becker-Barroso

Editor-in-Chief, The Lancet Neurology.

Elena Becker-Barroso brought an editorial perspective from *The Lancet Neurology* to the afternoon session. Her contribution was particularly relevant because stratification research is vulnerable to overclaiming. Biomarkers, AI-derived clusters and molecular signatures can appear persuasive, but their value depends on reproducibility, clinical interpretability and clear added benefit over existing practice.

From this viewpoint, future funding opportunities should require validation strategies that are strong enough to support publication and policy influence. Stratification should not end with subgroup discovery. It should show how subgroup knowledge changes diagnosis, prognosis, treatment selection, trial design or patient outcomes. The editorial perspective therefore reinforced the need for **transparent reporting standards, independent validation cohorts and clinically meaningful endpoints.**

2.7 Patient Perspectives | Susanna van Tonder and Orla Galvin

Susanna van Tonder: Counselling Psychologist; Vice-President of the MS Society of Luxembourg.
Orla Galvin: Executive Director, European Federation of Neurological Associations (EFNA).

Susanna van Tonder and Orla Galvin brought the afternoon session back to the lived meaning of stratification. Susanna van Tonder emphasized body-brain interconnectedness and the need to take seriously symptoms such as fatigue, pain, sleep disturbance, sensory processing difficulties, cognitive problems and autonomic manifestations. Her contribution was a reminder that patient **experience can generate scientific hypotheses,** especially in **multiple sclerosis and rare-disease contexts where standard categories may miss important mechanisms.**

Orla Galvin articulated EFNA's broader patient-community priorities: targeted

research for unmet needs, earlier diagnosis and intervention, person-centred approaches, prevention across the lifespan, integrated multidisciplinary care, patient partnership, real-world evidence, digital infrastructure and equity of access across Europe.

Together, these perspectives raised a crucial point: stratification is valuable only if it **improves care, quality of life and access.** More precise categories should lead to **more relevant interventions**, not simply more complex classification systems.

2.8 Discussion on the after-noon sessions and Closing Remarks

The final discussion connected biomarkers, genetics, molecular pathology, immune biology, vascular mechanisms and patient perspectives to the practical design of future research agendas. Participants considered how to define gaps, how to ensure that stratification leads to better diagnosis and targeted interventions, and how to build patient relevance, data sharing and equity into collaborative projects from the start.

The discussion also underlined **that stratification and intervention should not be treated as separate agendas.** Better stratification enables better intervention, while intervention response can refine disease classification.

The closing remarks brought the day back to the purpose of the symposium: to convert scientific and stakeholder insight into usable foresight for EP BrainHealth. The meeting ended with a clear expectation that future collaborative programs should be ambitious but disciplined, interdisciplinary but coherent, and explicitly designed to move from mechanism to patient benefit.

Conclusion

The EP BrainHealth Foresight Symposium successfully mobilized a multidisciplinary ecosystem of stakeholders, spanning neuroscience, neurology, psychiatry, neurotechnology, digital modelling, patient advocacy, and scientific publishing. The exercise was anchored around a dual imperative: accelerating the design of mechanistically driven interventions and refining patient stratification to achieve precision diagnostics and care.

Across all sessions, a definitive consensus emerged: driving meaningful progress requires a synchronized alignment of mechanistic insights, clinical validation, patient experience, and implementation science. Europe already possesses world-class expertise across this full spectrum. The strategic priority is now to **integrate these fragmented capabilities into a cohesive framework that is scientifically rigorous, clinically actionable, and deeply attentive to the lived experience of individuals affected by neurological and mental health conditions.**

Ultimately, these priorities establish a robust blueprint for future strategic programming. By marrying **scientific excellence with translational realism**, this vision connects biological pathways to real-world outcomes, positioning European brain health research to be exceptionally impactful, equitable, and responsive to societal needs.

A Forward-Looking Roadmap

Looking ahead, the insights captured during this symposium will serve as the strategic bedrock for the next phases of EP BrainHealth's programming. By transitioning these high-level consensus points into operational priorities over the coming months, the partnership ensures that Europe's research agenda remains actively pioneering, paving the way for a new decade of breakthroughs that seamlessly link laboratory discoveries to real-world clinical practice.

Key Messages

- **Holistic Disease Continuum**: Brain disorders must be addressed across their entire lifecycle, prioritizing prevention and early detection alongside treatment, rehabilitation, and long-term support, rather than at isolated points in the disease course.
- **Value-Driven Stratification:** Advanced diagnostic tools, including fluid biomarkers, genetics, imaging, and molecular profiles, achieve their true potential only when validated for clinical utility and translated into decision-making workflows that are both meaningful for patients and actionable for care teams.
- **Methodological Equivalence across Modalities:** Pharmacological, neurotechnological, digital, and behavioral approaches are equally vital to the future of brain health. Consequently, all intervention modalities must be grounded in a clear mechanistic rationale and subjected to the same rigorous methodological standards.
- **Structural Patient Partnership:** Patient engagement cannot be a consultative afterthought; it is a core structural requirement. Lived experience must actively shape research questions, outcome selection, and implementation planning from the absolute earliest stages.
- **Translational Realism & Rigor:** High scientific ambition must be systematically matched by reproducibility, data transparency, and a clear-eyed assessment of real-world feasibility and equitable implementation across diverse European healthcare systems.