

Pledge for Science: Brain Research and Innovation in the EU

Brain disorders – neurological and mental alike – are widespread, highly disabling and often difficult to treat. Approximately 60% of the European population lives with a neurological condition[1]. Prior to the onset of the COVID-19 pandemic, mental health problems already affected around 84 million people in the EU, amounting to one in every six citizens[2]. These conditions represent a high individual, social and economic burden and contribute to the global disease burden and disability.

The brain is the most complex organ of the human body. Understanding how the brain works, how brain diseases progress (basic research) and finding treatments and cures for these diseases (applied research) is a long-term endeavour. Brain research is highly interdisciplinary, requiring the use of a wide range of research techniques, based on different models – human, artificial, digital and, predominantly, animal – which remains essential for progress in this domain.

Brain research and innovation must therefore be recognised, more than ever, as a health and research priority in the EU. The scientific community calls upon national, EU and international policymakers to support the development of a European Brain Research and Innovation Plan, combining research and public health initiatives to address brain function and disorders in a comprehensive, collaborative and innovative way:

- **Enhance the collaboration between all stakeholders** to foster dialogue, exchange knowledge, facilitate business development and accelerate investment in basic neuroscience and brain disorders research and innovation.
- **Facilitate the creation of a global brain research agenda** towards understanding brain function and the prevention, diagnosis, treatment, and care of diseases, focusing on enhancing synergies and accelerating progress.
- **Recognise that animal research remains key for progress in brain research** given the absence of workable and validated alternative models[3], while also **fostering the use of advanced technologies** such as modern neuroscience tools, molecular, physiological and imaging approaches, artificial intelligence, machine learning, and data science that are all drivers of research into a comprehensive understanding of brain function and disease.
- **Facilitate concerted actions to build research infrastructure**, strengthen human resources in research and development, increase collaboration among the research community, health professionals, people living with brain disorders and the private sector to catalyse brain research and development.



- **Connect scientists and regulators to bridge the drug development deficit** for brain disorders, creating a collaborative atmosphere based on communication between stakeholders (regulatory authorities, financial contributors, researchers and clinicians) to enhance drug development and clinical trials procedures.
- **Move towards a patient-centric approach** rather than adopting a disease-specific organisation, with an integrated, person-centred framework for the prevention, diagnosis, treatment and care of people with brain disorders, also including the support of basic research and taking into account inter-individual variabilities related to diseases.
- **Raise awareness and address stigma and discrimination** that impacts well-being and act as barriers to seeking health care.
- **Promote brain health**, investigating health determinants, such as socio-economic conditions, social relationships and lifestyles, using a life-course approach to brain disorders.



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