



## Preliminary Announcement

### Call for proposals for

# BIDIRECTIONAL BRAIN-BODY INTERACTIONS

Maintenance, improvement, and restoration of human brain health are of fundamental importance and a worldwide priority. It has become increasingly evident that bidirectional communication between the central nervous system and the body has significant implications for maintaining both homeostatic and brain function. Abnormalities in brain-body interaction linked to genetic, environmental or lifestyle factors encompass a wide range of conditions affecting millions worldwide. Dysregulation of the brain-body axis can potentially contribute to or exacerbate various neurological and psychiatric disorders. The estimated prevalence can vary significantly depending on factors such as geographic location, population demographics, and advancements in medical diagnosis.

The study of bidirectional interactions between the central nervous system and the body is an emerging field of research that holds the potential to enhance our understanding of often overlooked pathophysiological processes involved in common neurological and psychiatric disorders. Expanding our current knowledge in this area is crucial as it serves as the initial step towards the development of therapeutic and preventive approaches aimed at preserving and improving brain health on a global scale.

The 'Network of European Funding for Neuroscience Research' (NEURON) has been established under the ERA-NET scheme of the European Commission ([www.neuron-eranet.eu](http://www.neuron-eranet.eu)). The ERA-NET NEURON aims to coordinate and optimize research efforts and funding programmes of its partner countries/regions in the field of mental, neurological, and sensory disorders. Under the umbrella of NEURON, a joint transnational call (**JTC 2024**) in the field of **bidirectional brain-body interactions** is now launched. The current call will cover multiple areas in which brain-body interaction appears to be centrally implicated in the genesis or progression of common neurological and psychiatric disorders. The call will be conducted simultaneously by the respective national and regional funding organisations and coordinated centrally by the Joint Call Secretariat.

Fonds de la Recherche Scientifique-FNRS (F.R.S.-FNRS)	Belgium*
Ministry of Science and Education (MSE)	Croatia
French National Research Agency (ANR)	France
Federal ministry of Education and Research (BMBF)	Germany†
German Research Foundation (DFG)	Germany†
National Research, Development and Innovation Office (NKFIH)	Hungary†
Chief Scientist Office, Ministry of Health (CSO-MOH)	Israel*
Ministry of Health (IT MoH)	Italy
Latvian Council of Science (LZP)	Latvia
Research Council of Lithuania (LMT)	Lithuania
National Centre for Research and Development (NCBR)	Poland
Executive Agency for Higher Education, Research, Development & Innovation Funding (UEFISCDI)	Romania
Slovak Academy of Sciences (SAS)	Slovakia
Agencia Estatal de Investigación (AEI)	Spain
National Institute of Health Carlos III (ISCIII)	Spain
Swiss National Science Foundation (SNSF)	Switzerland*†
National Science and Technology Council (NSTC)	Taiwan
The Scientific and Technological Research Council of Turkey (TUBITAK)	Turkey*†

\*Funding organisations with parallel national application procedures or extra requirements for submission.

†Pending on decision.

## 1. Aim and scope of the call

The aim of the call is to facilitate multinational, collaborative research projects that will address critical translational and clinical questions to improve our knowledge concerning **the role of bidirectional central nervous system-body interactions on the genesis and progression of neurological and psychiatric diseases**. A better understanding of these interactions has the potential to uncover solutions to prevent and treat those disorders.

The central nervous system and other body compartments are highly interconnected. The central nervous system affects physiological functions through signals transmitted from the brain to the body and vice versa. Signals from peripheral organs to the brain could be derived from the immune system, metabolic processes, gut-brain axis and microbiome, among others. Dysregulation of the brain-body communication may cause severe brain disorders. The roles of the signals and their pathways for regulating brain functions are poorly understood. Consequently, the associated pathophysiological mechanisms leading to central nervous system disorders and their related co-morbidities are largely unknown.

The ERA-NET NEURON funding organisations particularly wish to promote multi-disciplinary work and translational research proposals that combine basic and clinical approaches. The consortia should submit novel, ambitious ideas that can only be achieved by the complementary collaboration between partners.

Research proposals should cover at least one of the following areas:

- a) Fundamental research on the role of the bidirectional brain-body interaction on the pathogenesis and/or aetiology of neurological and psychiatric diseases. This may include the development of innovative or shared resources and technologies considered of relevance in the context of this call.
- b) Pre-clinical and clinical research to develop new strategies for prevention, diagnosis, therapy, and rehabilitation procedures for diseases in which alterations in brain-body communication constitutes a relevant process of the pathology.

The following research areas are excluded from this call:

- Neurodegenerative disorders that are addressed by the EU Joint Programme – Neurodegenerative Disease Research (JPND) <sup>1</sup>.
- Proposals focusing on neuro-oncology.
- Proposals dealing primarily with periphery organ functions (e.g. lung, sensory organs, liver, cardiovascular, etc.) without specifically focusing on the brain-body interaction aspect.
- Proposals focusing solely on technological developments in disregard of neurobiological mechanisms.

Applicants should demonstrate that they have the expertise and skills required to conduct the study, including already established external collaborations.

The translational value for human disease must be addressed explicitly in the proposals. If used, the choice of the animal model must be justified in the context of human pathology. The development of new transgenic animal models is outside the scope of the current call. The use of existing transgenic models and the usage of infrastructures offering access to existing models is encouraged. The consideration of sex differences in the studies is mandatory.

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<sup>1</sup> Alzheimer's disease and other neurodegenerative dementias, Parkinson's disease (PD) and PD-related disorders, Prion disease, Motor neuron diseases, Huntington's disease, Spinocerebellar ataxia, Spinal muscular atrophy

Clinical studies are eligible up to the point of proof of concept<sup>2</sup>. Multimodal and multicenter clinical studies are highly encouraged. The proposals should consider the cultural, societal background and general individual diversity of patients if relevant. ERA-NET NEURON will not fund the establishment of large cohorts, but the use of existing cohorts, biobanks/brain banks and exploitation of existing datasets is encouraged. Appropriate access to relevant, well-characterized patient populations or suitable biomaterial collections must be demonstrated. The proposal should describe plans to make data available for the research and clinical communities. It is recommended that the appropriate European infrastructures are contacted early in the planning of the projects; the following are potentially of interest for the applicants to this call: EBRAINS (focused on data and tools for brain-related research), INFRAFRONTIER (focused on modelling of human diseases) with the European Mouse Mutant Archive (EMMA), ECRIN (focused in clinical research), EATRIS-ERIC (focused on translational medicine), BBMRI-ERIC (focused on biobanking), and ELIXIR (focused on data sharing).

The ERA-NET NEURON seeks to strengthen patient engagement in research. All applications should include a description of expected outcomes with potential relevance for patients. Applicants are expected to engage patients, their care givers or patient organisations as appropriate in the research. Meaningful patient engagement can occur at the level of research planning, conducting research or disseminating research results. Patient representatives will assess patient engagement aspects, the feasibility, and the relevance of the full proposals from a patient perspective.

## 2. General conditions for application

Joint transnational research proposals may be submitted by research teams working in universities (or other higher education institutions), non-university public or private research organisations, hospitals or foundations, and commercial companies, particularly small and medium-size enterprises. The eligibility of the afore-mentioned institutions, together with details of eligible costs (e.g. personnel, material, consumables, travel money, investments), are subject to the administrative requirements of individual funding organisations and will therefore differ. Please note that, for some funding organisations, commercial companies are not eligible or are only eligible under certain conditions (e.g. only in partnership with academic institutions in the consortium). Clarification should be obtained from the individual funding organisations (see contact details below). It is strongly recommended to carefully read the funder-specific regulations regarding eligibility and funding and to contact the respective funding organisations, since additional national/regional procedures might be mandatory.

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<sup>2</sup> Eligibility and funding requirements for clinical trials vary between the partner countries. Clarification may be obtained from the individual funding organisations.

Only transnational projects will be funded. Each consortium submitting a proposal must comprise a minimum of three research partners eligible for funding by organisations listed in this call text (see above). Involvement of promising early career researchers (ECRs)<sup>3</sup> as consortium partners is highly encouraged and will be part of the evaluation criteria (see section D). The eligible research partners must be from at least three different participating countries. The total number of research partners in a consortium is limited to five, including partners participating with their own expenses. No more than two consortium partners can be from the same country. Attention should be paid to respect gender balance among the partners of a consortium.

The ERA-NET NEURON strives to strengthen a global Brain Research Area by including as many partner countries as possible in its funding scheme. Therefore, consortia including at least one partner from countries that are to date underrepresented in this funding scheme (Croatia, Hungary Latvia, Lithuania, Romania, Slovakia, Taiwan, and Turkey) may increase the total number of partners to six.

Applicant partners who are not eligible for funding from their national/regional funding organisations or from countries that are not involved in this call, may participate in consortia only if a) their participation clearly provides an added value to the consortium, and b) they have secured budget for their part in the project. Such potential partners are not considered in the minimum number of three research partners mentioned above. In any case, the total number of research partners in one consortium must not exceed five, or six, if partners from the underrepresented countries (listed above) are included.

Each consortium should have the critical mass to achieve ambitious scientific goals and **should clearly demonstrate added value** from working together. Each consortium must nominate a coordinator who represents the consortium externally and is responsible for its internal management (e.g. the application procedure, coordination of consortium agreement drafting, Data Management Plan, reporting). The consortium coordinator must be eligible for funding by one of the organisations listed in this call text.

A single proposal must be submitted by the consortium coordinator to the NEURON Joint Call Secretariat. The individual research partners in a consortium will be funded by the respective national/regional NEURON funding organisation(s). Eligibility criteria are the matter of individual partner funding organisations and additional national/regional regulations and requirements may apply.

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<sup>3</sup> 2-7 years of experience since completion of PhD or medical specialization diploma at the date of the launch of this call and a scientific track record showing great promise. Allowed extensions 18 months maternity leave for each child born, duration of paternity leave for each child born, duration of long-term illness or national service, duration of clinical training with a maximum of 4 years). Please check the country specific regulations for the national eligibility criteria that apply.

**The inclusion of a research partner that is not eligible for funding according to the specific regulations of its respective funding organisation may result in the rejection of the entire proposal without further review.** Therefore, applicants are strongly advised to follow the instructions in the funder-specific eligibility section, published on the NEURON website and to contact their national/regional funding organisation to confirm eligibility rules before submitting a proposal.

Only projects that fulfil the legal and ethical international/EU regulations (including ethical standards and guidelines in Horizon EUROPE) as well as national and institutional standards will be funded. All proposed activities including those undertaken in countries outside the EU must comply with EU regulations (see Annex I of the full proposal template). Ethical approval and/or a positive vote must be obtained from the relevant national or local ethics committee(s) prior to the start of respective studies<sup>4</sup>. The obtainment of ethical clearance will be queried by ERA-NET NEURON. All procedures involving human beings must conform to the Helsinki Declaration.

### 3. Submission of joint transnational proposals

There will be a **two-stage procedure** for the submission of joint applications: **pre-proposals** and **full proposals**. In both cases, one joint **proposal document** (in English) shall be prepared by the partners of a joint transnational proposal and must be submitted to the Joint Call Secretariat by the coordinator.

### 4. Timetable

The launch of the call is scheduled in the beginning of **2024**.

The deadline for submitting the **pre-proposals** is scheduled in **March 2024**.

By mid-May 2024 the coordinators of selected pre-proposals will be invited by the Joint Call Secretariat to submit a **full proposal** by **June 2024**.

Funding is expected to start in **early 2025**.

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<sup>4</sup> Requirements for ethical approvals may vary between the partner countries. Please refer to the funder-specific information or contact the individual funding organisations.