

EU Joint Programme - Neurodegenerative Disease Research (JPND)

JPND Call for Proposals:

"Novel imaging and brain stimulation methods and technologies related to Neurodegenerative Diseases"

Submission deadline for pre-proposals:

March 3, 2020, 15:00h C.E.T.

For further information, please visit us on the web

<http://www.jpnd.eu/>

or contact the JPND Joint Call Secretariat:

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(+49) 228-3821 2111 or jpnd@dlr.de

1. INTRODUCTION

Neurodegenerative diseases are debilitating and largely untreatable conditions that are strongly linked with age. Worldwide, there are estimated to be 47 million people suffering from Alzheimer’s disease and related disorders, the most common class of neurodegenerative diseases. This figure is expected to double every 20 years as the population ages. The total direct and informal care costs of Alzheimer’s, Parkinson’s and related disorders are in the range of €105-160 billion per year across the European Union and about US\$ one trillion worldwide. Existing treatments for neurodegenerative diseases are limited in effect and mainly address the symptoms rather than the cause or the progressive course. In this context, the [EU Joint Programme - Neurodegenerative Disease Research \(JPND\)](#) was established in order to better coordinate research efforts across countries and disciplines to more rapidly find causes, develop cures and identify better ways to care for people with neurodegenerative diseases. To identify research priorities, the JPND Research and Innovation Strategy, published in 2019, provides a framework for future investment.

The last years have seen major increases in the range and power of technologies across the basic, clinical and patient-centred domains of JPND. The use of imaging and analysis technologies such as Magnetic Resonance Imaging (MRI), Position Emission Tomography (PET) or Molecular Imaging has become more sophisticated, both at the molecular level as well as at the level of whole-body imaging. In addition, the use of brain stimulation techniques such as Deep Brain Stimulation (DBS), Neuromodulation, Transcranial Magnetic Stimulation (TMS) or transcranial Direct Current Stimulation (tDCS) has increased. These techniques help to better understand, treat or diagnose neurodegenerative diseases, but there is still a need to assess the potential of these approaches to deliver new and better treatment options for these debilitating diseases.

JPND launches this joint transnational call with a view to promoting research aiming at the development of novel and the advanced use of existing cutting-edge imaging and brain stimulation technologies related to neurodegenerative diseases. The goal of the partners is to maximise the number of high quality transnational research projects that can be funded through this call. These projects must demonstrate clear scientific benefit from working across national borders.

The funding organisations that have agreed to fund this joint call for multinational research projects, with a view to adding value to their existing nationally funded activities, are listed below. The call will be conducted simultaneously by the funding organisations in their respective countries and coordinated centrally by the Joint Call Secretariat.

- **Australia, National Health and Medical Research Council (NHMRC)**
- **Austria, Austrian Research Promotion Agency on behalf of BMBWF (FFG)**
- **Belgium, The Research Foundation - Flanders (FWO)**
- **Belgium, The Fund for Scientific Research (F.R.S.-FNRS)**
- **Canada, Canadian Institutes of Health Research (CIHR)**
- **Czech Republic, Ministry of Education, Youth and Sports (MEYS)**
- **Denmark, Innovation Fund Denmark (IFD)**
- **France, French National Research Agency (ANR)**
- **Germany, Federal Ministry of Education and Research (BMBF)**
- **Hungary, National Research, Development and Innovation Office (NKFIH)**

- **Ireland, Health Research Board (HRB)**
- **Italy, Ministry of Health (IT-MOH)**
- **Latvia, State Education Development Agency (VIAA)**
- **Luxembourg, National Research Fund (FNR)**
- **Netherlands, The Netherlands Organisation for Health Research and Dev. (ZonMw)**
- **Norway, The Research Council of Norway (RCN)**
- **Poland, National Science Centre (NCN)**
- **Spain, National Institute of Health Carlos III (ISCIII)**
- **Sweden, Swedish Research Council (SRC)**
- **Switzerland, Swiss National Science Foundation (SNSF)**
- **Turkey, Scientific and Technological Research Council of Turkey (TUBITAK)**

2. AIM OF THE CALL

The aim of the call is to establish a number of ambitious, innovative, multi-disciplinary and multi-national collaborative research projects that will further advance the development and the use of imaging technologies and brain stimulation techniques in order to better understand, diagnose or treat neurodegenerative diseases. Technical progress on relevant techniques is eligible as long as the expected benefit for patients or for routine scientific and clinical applications is well defined. Thus, approaches must be translational and patient-centered. It is encouraged to integrate basic research and cost-effectiveness studies, where appropriate. They must be hypotheses-driven and combine cutting-edge technological developments with a clear, substantial research question.

Proposals must focus on one or several of the following neurodegenerative diseases:

- **Alzheimer's disease and other dementias**
- **Parkinson's disease and PD-related disorders**
- **Prion diseases**
- **Motor neuron diseases**
- **Huntington's disease**
- **Spinocerebellar ataxia (SCA)**
- **Spinal muscular atrophy (SMA)**

In addition, proposals must focus on one or several of the research areas listed below:

- **Imaging technologies**, such as MRI, PET or super-resolution microscopy and molecular imaging techniques have brought about a dramatic improvement in the understanding of the onset, development and progression of neurodegenerative diseases. Advances have been made regarding access to state-of-the-art and cutting-edge imaging technology, but also regarding the access to platforms for image analysis and the advanced application of Artificial Intelligence (AI) and Machine Learning approaches. The benefit of using modern imaging techniques is undoubtedly accepted across the field. Thus, the aim is to accelerate this progress and to fund **research projects that focus on the development of novel imaging technologies or on improvements to the application of existing cutting-edge**

- imaging technologies.** This may result in advancements regarding, amongst others, the assessment of the personal risk of disease, providing early and more reliable diagnosis and monitoring of disease progression. At a basic research level, the recent advancements in imaging technologies offer promising ways to examine the role of mechanistic pathways. The potential of these technologies should be further explored to better understand these pathways. Moreover, novel methods can be applied or developed to interrogate complex biological data. The development of novel techniques and enhanced protocols of application as well as an accompanying advanced application of Big Data approaches will be central to these aims.
- **Brain stimulation techniques**, such as DBS, have proven to directly affect the quality of life of patients and have become established methods in modern medicine. Other techniques, such as TMS, tDCS or Focused Ultrasound, could have potential to offer new non-invasive treatments. Although data on effectiveness derived from large-scale clinical trials are still lacking in many cases, there is considerable knowledge available regarding the positive effects of these techniques on e.g. cognitive and motor function for several neurodegenerative diseases. **Thus, the aim is to fund research that will lead to new or improved applications of both invasive and non-invasive brain stimulation techniques for the diagnosis and the treatment of neurodegenerative diseases.** The technological developments should target increasing patient well-being by reducing harmful side effects and by demonstrating positive long-term benefits of the treatment. The development of novel techniques and enhanced protocols of application, as well as an advanced understanding of the underlying mechanisms of stimulation techniques in the brain, (e.g. neurophysiological techniques), will be central to these aims.

Proposals should have novel, ambitious aims and ideas combined with well-structured work plans and clearly defined objectives deliverable within three years. If the proposals are complementary to research already funded or submitted to other funding initiatives, it should be clearly stated how JPND funding can supplement the ongoing research or applications. Each consortium should have the critical mass to achieve the identified scientific goals and the proposals should specify the benefit of working together. Applicants should demonstrate that they have the expertise and range of skills required to conduct the research project or that appropriate collaborations are in place. The value that will be added to ongoing national activities and the expected impact on future scientific use, medical application and well-being of people suffering from neurodegenerative diseases should be explicitly stated.

Proposals should address socio-economic factors, gender-related research questions, cross-cultural issues and diversity as well as comorbidities, where appropriate. Consortia should incorporate these factors when formulating their research hypotheses, aims and work plans.

Most patient related research would be impossible without the active involvement of patients. Thus, JPND has determined that Patient and Public Involvement should be an integrated part of the implementation of its Research and Innovation Strategy. Proposals to be funded under this call will therefore need to adequately involve patients, carers and the public. Consortia are expected to make every effort to include approaches that involve these groups, where appropriate, at each stage of the research process including the preparation of the application (see the [JPND website](#) for further information). In the application it must be described in which step of the research

process patients, their relatives or carers will be involved, from where they will be recruited and which roles they would play. Reasons must be given if such an approach is not taken.

Ethically appropriate access to and synergistic usage of resources, e.g. biomaterial, population and disease-specific cohorts as well as cutting-edge technical infrastructure is expected. To increase benefit, data, tools and resources being generated within the research projects should be made widely available to the public domain, taking into account national and international legal and ethical requirements. Access must be provided to other bona fide research groups. Consortia are strongly advised to define arrangements to deal with this issue across countries, while preserving integrity of study subjects.

Training of young researchers and mobility (e.g., exchanges of research assistants, students and postdoctoral researchers) within the consortia are encouraged if justified in terms of the training opportunities provided to the individual and the needs of the field. Please note that there may be restrictions according to the specific regulations of each funder.

To have an impact at European and partner country levels, it is expected that all proposals will link activities across laboratories and clinics within JPND member countries. Proposals are encouraged to import expertise from areas outside of neurodegeneration research, which can bring innovation to the approach to be pursued. The benefits of the multidisciplinary collaboration should be stated.

In preparation of your proposal we encourage you to use European Research Infrastructure Networks such as [BBMRI \(Biobanking and Biomolecular Resources Research Infrastructure\)](#), [EATRIS \(European infrastructure for translational medicine\)](#) or [ECRIN \(European Clinical Research Infrastructure Network\)](#) as valuable resources and platforms for knowledge exchange. Different platforms can be found via the [European Strategy Forum for Research Infrastructures in Europe - ESFRI](#).

3. MANAGEMENT OF THE CALL

Below we outline the role of the three bodies that are responsible for the management of the call and the evaluation of proposals. Anyone who is a member of one of these bodies is not allowed to submit or participate in proposals within this call.

- The Call Steering Committee takes all decisions regarding the call procedures and operations. It is composed of representatives from each participating funding organisation. Based on the recommendations from the Peer Review Panel and budget considerations it will confirm the consortia being invited to submit full proposals and final funding decisions.
- The Joint Call Secretariat is led by DLR-PT, Health Division, Germany. It is responsible for the management of the call and it is a contact point for applicants and partner organisations. However, it is not the decision-making body of the call.
- The Peer Review Panel is composed of internationally recognised scientists related to the topics of the call as well as experts regarding the assessment of Public and Patient involvement. It is responsible for the scientific evaluation of proposals at both the pre- and full proposal stage. The Peer Review Panel will rank the proposals according to the evaluation criteria and make funding recommendations to the Call Steering Committee.

4. ELIGIBILITY

Under this scheme, joint transnational research proposals can be funded for a period of up to three years. Proposals may be submitted by research groups working in universities (or other higher education institutions), non-university public or private research institutes, hospitals and other health and social care settings, as well as commercial companies, in particular small and medium-size enterprises (SMEs). Collaborations with companies from outside the traditional medical sector (e.g. computing, artificial intelligence) are welcome. With regard to the research setting and collaborations with companies, specific regulations of individual funding organisations as well as the EU State aid regulations must be taken into account when creating the consortium.

Consortia may consist of partners who receive funding for research by funding organisations participating in this joint call (“regular funded partners”) as well as non-funded external collaborators. Regular partners are represented by the leaders of individual research groups (typically a principal investigator or a young academic group leader) within individual institutions. Each regular partner must verify their eligibility to request funding from one of the funding organisation(s) of their respective country participating in the call (see section one). If different research groups from the same institution request funding, these groups will be treated as separate regular partners under this call.

Each proposal must involve a minimum of three and a maximum of six regular partners, including the coordinator, from at least three different countries participating in this call (see section one). However, if the proposal involves at least one regular partner from an EU-13 country (e.g. Czech Republic, Hungary, Latvia, Poland, Turkey), the maximum number of regular partners is extended to seven. For reasons of transnational balance, no more than two regular partners from the same country are allowed to join a proposal.

In addition, external collaborators (e.g., research groups from countries not participating in this call or research groups that are from countries participating in this call but do not apply for funding) may participate in proposals. External collaborators must secure their own funding. They must state in the proposal if these funds are already secured or how they plan to obtain funding in advance of the project start.

Whilst proposals are to be submitted jointly by partners from different countries, individual regular partners will be funded by the corresponding funding organisation of their country participating in this call. In consequence, eligibility for funding is decided by the respective funding organisations and details of what may or may not be funded are subject to the specific regulations of these funding organisations and thus may vary. Please be aware that individual budget restrictions might apply for each country and/or funding organisation (see section 8).

Information on specific regulations (e.g., additional forms to be submitted before the submission deadline or details on eligible costs) is provided in the [specific information sheets](#). Nevertheless, applicants are strongly advised to contact their corresponding funding organisation to enquire about their eligibility and to gain latest information. The inclusion of a regular partner that is not eligible for funding may result in the rejection of the entire proposal without further review.

5. APPLICATION

There will be a two-stage procedure for applications: pre-proposals and full proposals. The revision of the proposals between these stages will be accepted in the circumstances indicated below. At

both stages, one joint proposal document shall be prepared by the consortium and submitted by the coordinator. In addition, some funding organisations are requesting additional information to be submitted before the proposal submission (see [specific information sheets](#)). In case of any questions concerning the proposal submission, please contact the Joint Call Secretariat.

5.1 Pre-proposal submission

Pre-proposals must be submitted by the coordinator in electronic format no later than 15:00h C.E.T. on March 3, 2020, via the JPND [electronic submission system](#). No other means of submission will be accepted. A [pre-proposal template](#) is available at the JPND website. Adhering to this template is mandatory.

5.2 Revision of proposals

A revision of pre-proposal plans is allowed after the pre-proposal evaluation but only under certain conditions. Submission of a revised proposal is restricted to those consortia explicitly selected for the full proposal stage. The following modifications to pre-proposal plans are permitted in the preparation of a full proposal:

- Adding or replacing regular partners. This should normally be restricted to one regular partner and the following cases:
 - Where a regular partner from the pre-proposal has been declared non-eligible.
 - Where the modification is derived and justified from the pre-proposal evaluation.
 - Where the aim is to include a regular partner from an EU-13 country (e.g. Czech Republic, Hungary, Latvia, Poland, Turkey) or an underrepresented country (i.e. a country that will most likely not spend its entire budget), and where such inclusion can be scientifically justified. Further information on which countries are underrepresented will be provided prior to the full proposal stage.
- Including or excluding external collaborators (no further restrictions).
- Changing the work plan and/or the budget of regular partners where it is either derived from the pre-proposal evaluation or the modification of the consortium (as outlined above). Any changes need to be well justified in the full proposal. Changes to the budget of individual regular partners require approval by the respective funding organisation.

Applicants are responsible for ensuring that any changes applied during the revision are in line with the eligibility criteria of the call (see section 4). Full proposals that exceed the above conditions for revision or do not meet the eligibility criteria of the call may be rejected without further review. Therefore, applicants are strongly advised to consult the Joint Call Secretariat and/or the funding organisations involved in the full proposal in advance of submission.

5.3 Full proposal submission

Full proposals will be accepted only from those consortia explicitly invited to submit them by the Joint Call Secretariat. Proposals must be submitted by the coordinator in electronic format no later than 15:00h C.E.S.T. on June 30, 2020, via the [electronic submission system](#). No other means of submission will be accepted. The Joint Call Secretariat will provide a full proposal template and further information to the coordinator. Adhering to this template is mandatory. Any changes applied during the revision should be described and justified in the full proposal.

6. EVALUATION AND DECISION

Detailed information on the evaluation and decision making process can be obtained from the accompanying [call procedures document](#).

6.1 Evaluation criteria and scoring

The Peer Review Panel will carry out the evaluation of pre-proposals and full proposals. The following evaluation criteria will be applied:

- **Relevance** to the aim of the call.
- **Scientific quality** including level of innovation, originality and feasibility.
- **Transnational added value** from working together as a research consortium, including planned scientific interaction, knowledge exchange and training.
- **International competitiveness** of participating research groups, including the demonstrated scientific expertise, and their appropriate combination.
- **Deliverable outcomes** in the short, medium and long-term, including risk assessment and management.

6.2 Evaluation and decision on pre-proposals

The Joint Call Secretariat will check the pre-proposals to ensure that these meet the call’s formal conditions. In parallel, the involved funding organisations will perform eligibility assessments according to their specific criteria. Pre-proposals that do not meet the formal or specific eligibility criteria may be rejected.

Pre-proposals passing the formal and specific eligibility check will be evaluated by the Peer Review Panel. At least three panel members will be asked to assess each pre-proposal on a written basis. Based on these recommendations, the Call Steering Committee will make a final decision on full proposal invitations.

The Joint Call Secretariat will inform each coordinator about the outcome of the pre-proposal evaluation and provide the written evaluations (with the evaluators remaining anonymous), the recommendation of the Peer Review Panel and the decision of the Call Steering Committee.

6.3 Evaluation and decision on full-proposals

Full-proposals will be checked regarding formal and eligibility criteria and evaluated by the Peer Review Panel as described in section 6.2. The Peer Review Panel will make funding recommendations for each full-proposal and agree on a ranking order based on the scientific assessment according to the evaluation criteria. Based on these recommendations, and on the funds available, the Call Steering Committee will select a list of proposals for funding consideration by the respective funding organisations.

The Joint Call Secretariat will inform each coordinator about the outcome of the full-proposal evaluation, thereby providing the written evaluations (with the evaluators remaining anonymous), a summary of the panel discussion, the recommendation of the Peer Review Panel and the final decision of the funding organisations.

7. FUNDING REGULATIONS, RESPONSIBILITIES AND REPORTING REQUIREMENTS

Funding decisions will be made by the relevant funding organisations and administered according to their terms and conditions, taking into account all other applicable regulations and legal frameworks.

A consortium agreement signed by all regular partners of the proposal is required. It will specify as a minimum: decision-making authority, monitoring, reporting, intellectual property rights management and sharing, and handling of data and resources, as appropriate. Administrative and funding arrangements will be stated in the consortium agreement to be a bilateral responsibility between each regular partner and the relevant funding organisation.

Each consortium must nominate a coordinator, who represents the consortium externally, acts as first point of contact and is responsible for its internal management in terms of formal responsibilities towards JPND (such as monitoring, reporting, intellectual property rights issues and sharing of data and resources). The coordinator will be required to submit a brief annual scientific progress report in January of each year and a final scientific progress report within three months from the end of the project to the Joint Call Secretariat. Those reports may internally be used for monitoring and evaluation purposes to assess the progress of the implementation of JPNDs' Research and Innovation Strategy. Each partner will also be the contact person for the relevant funding organisations. It may be necessary for individual partners to submit additional reports to their funding organisation, if required.

Funding recipients must ensure that all outcomes (publications, etc.) of transnational JPND projects and all other communications include a proper acknowledgement both of JPND and the respective funding organisations. For this purpose, a [JPND dissemination strategy](#) has been agreed to by all JPND member states. Adhering to the JPND dissemination guidelines is mandatory for researchers funded under the umbrella of JPND. From time to time consortia will be asked to work with the JPND Communications Manager and the funders on related communications (e.g., project summaries for the JPND website, blogs, tweets).

8. BUDGET RESTRICTIONS

| Country | Funding organisation | Budget limit * |
|-----------------------|--|--|
| Australia | National Health and Medical Research Council | \$AUD 500.000 |
| Austria | Austrian Research Promotion Agency | 325.000 € |
| Belgium | Research Foundation Flanders | 350.000 € |
| | The Fund for Scientific Research | 200.000 € |
| Canada | Canadian Institutes of Health Research | 450.000 € or \$666.000 CAD |
| Czech Republic | Ministry of Education, Youth and Sports | None |
| Denmark | Innovation Fund Denmark | 300.000 € (1 partner) |
| | | 500.000 € (2 partners) |
| France | French National Research Agency | 200 000 € per partner 250 000 € per coordinator |
| Germany | Federal Ministry of Education and Research | 400.000 € (1 partner) |
| | | 650.000 € (2 partners) |
| Hungary | National Research, Development and Innovation Office | None |
| Ireland | Health Research Board | 370.000 € |
| Italy | Ministry of Health | 250.000 € |
| Latvia | State Education Development Agency | 210.000 € |
| Luxembourg | National Research Fund | 500.000 € |
| Netherlands | Netherlands Organisation for Health Research and Development | 250.000 € |
| Norway | Research Council of Norway | 700.000 € |
| Poland | National Science Centre | None |
| Spain | National Institute of Health Carlos III | 175.000 € (per partner) |
| | | 250.000 € (coordinator) |
| Sweden | Swedish Research Council | 2,5 MSEK (1 partner) |
| | | extra 0,5 MSEK for coordinator |
| | | 3,25 MSEK (2 partners) |
| Switzerland | Swiss National Science Foundation | CHF 1.000.000 (approx. 900.000€) |
| Turkey | Scientific and Technological Research Council of Turkey | 1.000.000 TL (+ overhead) |

*If not specified otherwise: The indicated budget limit relates to the whole proposal. If more than one group requests budget from the same funding organisation, the total amount of budget requested by these groups must not exceed the indicated limit. For further national requirements please see the [country specific information sheets](#).

9. CONTACT DETAILS

Please note that country specific requirements might apply to this call. For further information please contact your national representative:

| Country | Funding organisation, contact details |
|-----------------------|--|
| Australia | National Health and Medical Research Council (NHMRC) Adam Chapman +61 2 6217 9320 dementia.research@nhmrc.gov.au |
| Austria | Austrian Research Promotion Agency (FFG) Susanne Meissner-Dragosits +43 57755 4406 Susanne.Dragosits@ffg.at |
| Belgium | <u>Research Foundation - Flanders (FWO)</u> Alain Deleener +32 25 50 15 95 or eranet@fwo.be Toon Monbaliu +32 25 50 15 70 or eranet@fwo.be <u>The Fund for Scientific Research (F.R.S.–FNRS)</u> Florence Quist +32 25 04 93 51 or florence.quist@frs-fnrs.be |
| Canada | Canadian Institutes of Health Research (CIHR) David Coffey +1 (613) 957-8799 or david.coffey@cihr-irsc.gc.ca Flamine Alary +1 (514) 3602434 or flamine.alary@criugm.qc.ca |
| Czech Republic | Ministry of Education, Youth and Sports (MSMT) Daniel Hanšpach +420 23 48 11 360 or Daniel.Hanspach@msmt.cz |
| Denmark | Innovation Fund Denmark (IFD) Martin Kyvsgaard +45 61905081 or martin.kyvsgaard@innofond.dk |
| France | French National Research Agency (ANR) Sheyla Mejia-Gervacio +33 178 09 80 14 or sheyla.mejia@agencerecherche.fr |
| Germany | Federal Ministry of Education and Research, supported by DLR-PT Sabrina Voß Vera Mönter-Telgen +49 228 38 21 2111 or jpnd@dlr.de |
| Hungary | National Research, Development and Innovation Office (NKFIH) Klara Horvath +36 18 96 37 48 or klara.horvath@nkfi.gov.hu |

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|--------------------|---|
| Ireland | Health Research Board Louise Drudy ldrudy@hrb.ie +353 12345 162 |
| Italy | <u>Ministry of Health (MOH-IT)</u> Giselda Scalera research.EU.dgric@sanita.it Maria Josefina Ruiz Alvarez +39 06 59 94 32 14 Maria Grazia Mancini +39 06 59 94 32 15 |
| Latvia | State Education Development Agency (VIAA) Maija Bundule +371 67 78 54 23 or Maija.Bundule@viaa.gov.lv Uldis Berkis +371 29 47 23 49 or Uldis.Berkis@viaa.gov.lv |
| Luxembourg | National Research Fund (FNR) Sean Sapcariu +352 26 19 25 33 or sean.sapcariu@fnr.lu |
| Netherlands | Netherlands Organisation for Health Research and Development (ZonMw) Marjolein Scholten +31 70 34 95 335 or Scholten@zonmw.nl |
| Norway | Research Council of Norway (RCN) Alexandra Bjørk- Skaflestad +47 22 03 72 24 or alb@forskningsradet.no |
| Poland | National Science Centre (NCN) Anna Kotarba +48 12 34 19 091 or anna.kotarba@ncn.gov.pl Malgorzata Hasiec +48 12 34 19 153 or malgorzata.hasiec@ncn.gov.pl |
| Spain | National Institute of Health Carlos III (ISCIII) Marina Morena Llanos +34 9182 22626 or marina.moreno@isciii.es |
| Sweden | Swedish Research Council (SRC) Richard Andersson +46 546 44010 or Richard.Andersson@vr.se |
| Switzerland | Swiss National Science Foundation (SNSF) Claudia Ellenrieder +41 31 308 22 73 or claudia.ellenrieder@snf.ch |
| Turkey | Scientific and Technological Research Council of Turkey (TÜBİTAK) Gaye Cetinkaya Campari +90 31 22 98 17 91 or gaye.cetinkaya@tubitak.gov.tr or jpnd@tubitak.gov.tr |