ERA4Health Partnership

Funded by the European Union

Call for proposals 2024

Nano and advanced technologies for disease prevention, diagnostic and therapy (NANOTECMEC)

Preliminary Announcement

ERA4Health partners will launch a fourth call on "Nano and advanced technologies for disease prevention, diagnostic and therapy" (NANOTECMEC) will be launched.

1. Aim of the call

The aims of the call are:

- to support **translational research projects** that combine innovative approaches in the field of nanomedicine and
- to encourage and enable **transnational collaboration** between academic research (public and private partners i.e. research teams from universities, higher education institutions, public research institutions) and clinical/public health research (research teams from hospital, healthcare settings and other healthcare organisations) or R&D activities from industrial enterprises (all size). **The participation of Medical Doctors and clinicians is strongly encouraged. SMEs (Small and Medium-size Enterprises) are also strongly encouraged to participate**.

Project proposals will address multidisciplinary and translational research. The applications must cover at least one of the following nanomedicine areas that are of equal relevance for this call:

a) **Regenerative medicine**
b) **Diagnostics**
c) **Nanotherapy**

Proposals may include, but are not limited to the identification, characterisation and validation of biomarkers, early diagnosis, convergence of nanotechnology and stem cell technology, cell biology applied to nanomedicine, multimodal imaging agents or techniques, point of care diagnostics (on site sensors), standardised procedures for preparation & characterisation of drug delivery systems, green production processes for nanomedical products, nanoparticles for hyperthermia, regenerative, gene or cell therapies using nanotechnology. **Pre-clinical and clinical studies are eligible subject to national/regional regulations**.

In order to use nanomedicines/nanodevices in clinical practice, additional advances and further understanding are, therefore, still needed and achievable. The aim of the call is to advance nanomedicine toward any translational focus with anticipated impact relative to the risk and investment. The call also invites applications that focus on improving outcomes e.g. improve the current drug development process, consistency and reproducibility studies, studies such as safety surveillance, studies to support use in special populations.

For a better understanding of the objectives and a more efficient evaluation, applicants are asked to specify in which of the two categories described below the project falls, according to its Technology Readiness Levels (TRL), i.e. its degree of innovation and expected time to market:

1) **Innovation applied research projects**: Proof of concept projects for innovative applications with analytical/experimental research and/or implementation and integration of components and test in laboratory and/or animal models. Safety and nanotoxicity should be taken into account when relevant. The viability of a path that may lead the experimental and/or analytical results (for TRL 3) and/or demonstrators (for TRL 4) to a future application at medium/long term shall also be demonstrated.

2) **Projects with high potential of applicability at short/medium term**: Projects closer to the market for the validation of demonstrators and prototypes in a realistic laboratory (for TRL 5) and/or relevant simulated operational field environment (for TRL-6). The viability of a path that may lead the validated systems and results to real products shall be demonstrated. Industrial engagement is crucial in this type of projects. Medical regulatory aspects have to be properly considered.

At the end, projects should fall within, but are not limited to, TRL 3-6, although for being realistic and coherent with the characteristics of the call, projects should propose advancements for a maximum of two TRL levels during their lifetime. TRL level must be understood as the level achieved by the end of the three-year-project. Industry engagement should be appropriate for the TRL range being investigated.

Beyond the research topics the following points should be taken into account, including approaches to responsible research and innovation:

- Proposals must clearly demonstrate the potential health and/or economic impact(s) as well as the added-value of transnational collaboration: sharing of expertise and resources (models, databases...), harmonization of data, access to innovative technologies, etc.
- Proposals should clearly promote translational research and demonstrate the benefit of working together and the unique contribution of each partner.
- Studies of other KET is possible only if they are used in complement or in combination with nanotechnologies.
- Where relevant, cellular, 3D and patients' models should be preferred to animal models. The use of animal models must be justified[1]. In the framework of this call small-scale clinical studies (up to phase 2), *in vitro* (e.g. human cells) and *in silico* (e.g. bioinformatics) are allowed.
- Applicants should make use of existing biobanks and existing cohorts, if applicable. Otherwise, it should be explained why existing biobanks/ cohorts are not used.

[1] https://www.eara.eu/animal-research-law

- Except for small-scale clinical studies up to phase 2. All other clinical studies are excluded in this call.
- The involvement of relevant stakeholders (e.g. patient organisations) in the project, application of (bedside to bench to bedside approach is strongly recommended from the conception stage to the implementation and the dissemination. End-users can participate as partners (if eligible for funding by a national/regional funding organisation), as collaborators (participation with own budget) or as part of an or as advisory board.
- Applicants should consider potential moderators of effects such as age, sex, gender and ethnic or other demographic features/differences in the respective research approaches.
- The use of approaches from precision medicine and personalized medicine are encouraged.
- The consortia are encouraged to consider the gender balance in the composition of the consortia and to balance the responsibilities between genders.
- Early Career Scientists (Master, PhD and post-docs) are encouraged to participate in the consortium.

Exclusion: proposals based on nanoscale naturally occurring processes or structures.

2. Time schedule

There will be a two-step submission and evaluation procedure for joint applications, i.e. pre-proposals and full proposals, and the full proposal review process will be complemented by a rebuttal stage. For both submission steps, one joint proposal document (in English) shall be prepared by the partners of a joint transnational proposal and must be submitted on the electronic submission system by the project coordinator. The two-step application process will have the following timetable:

14 November, 2023	**Publication of NANOMEDICINE call**
21 November, 2023	**Webinar Infoday** Opening of the submission system for pre-proposals
30 January, 2024	**Deadline for pre-proposal submission**
23 April, 2024	Communication of the results of the pre-proposal assessment (invitation for full proposal)
13 June, 2024	**Deadline for full proposal submission**
27 August – 3 September, 2024	**Rebuttal stage**
Mid of October	Communication of the funding decisions to the applicants
December 2024 – May 2025	**Expected project start** (subject to national procedures)

3. Participating countries/regions and respective funding organisations

Countries	**Funding organisations**	**Acronym**
Belgium	Fund for Scientific Research-FNRS	F.R.S.-FNRS
Belgium	The Research Foundation - Flanders	FWO
Estonia	Estonian Research Council	ETAG
France	French Research Funding Agency	ANR
Hungary	National Research, Development and Innovation Office[2]	NKFIH
Israel	Ministry of Health	CSO-MOH
Italy	Ministry of Health	IT MOH
Italy	Italian Ministry of Universities and Research	MUR
Latvia	Latvian Council of Science	LCS
Lithuania	Research Council of Lithuania	LMT
Norway	The Research Council of Norway	RCN
Poland	National Centre for Research and Development	NCBR
Portugal	Foundation for Science and Technology	FCT
Romania	Executive Agency for Higher Education, Research, Development and Innovation Funding	UEFISCDI
Slovakia	Slovak Academy of Sciences	SAS
Spain	State Research Agency	AEI
Spain	Regional Ministry of Health and Consumer Affairs of Andalusia	CSCJA
Spain	Institute of Health Carlos III	ISCIII
Taiwan	National Science and Technology Council	NSTC
The Netherlands	Dutch Research Council	NWO
Türkiye	The scientific and technological research council of Türkiye	TUBITAK

[2] Decision on joining this call is pending

More information will soon be available online:

https://era4health.eu/

Please note: *The content of the call described in this pre-announcement is indicative and may be subject to changes and is not legally binding. Interested applicants are encouraged to initiate scientific contacts with potential project consortium partners for applications.*