

> DIPARTIMENTO DI SCIENZE BIOMEDICHE, Odontoiatriche e delle Immagini Morfologiche e Funzionali

BULLETIN Funds for Scientific Research N.7 on 30.06.2021

a cura della dott.ssa Lucrezia Auditore (Resp. U.Op. Ricerca BIOMORF)

HORIZON Europe Program

European Research Council (ERC) Advanced Grant 2021

Deadlines: 31 August 2021, 17:00 Brussels time

Budget: 2500000,00 EUR, max 5 years

ERC Advanced Grants are designed to support excellent Principal Investigators at the career stage at which they are already established research leaders with a recognised track record of research achievements. Principal Investigators must demonstrate the ground-breaking nature, ambition and feasibility of their scientific proposal.

Advanced Grants may be awarded up to a maximum of EUR 2 500 000 for a period of 5 years (the maximum award is reduced *pro rata temporis* for projects of a shorter duration).

ERC Advanced Grant Principal Investigators are expected to be active researchers and to have a track record of significant research achievements in the last 10 years which must be presented in the application.

A competitive Advanced Grant Principal Investigator must have already shown a record which identifies them as an exceptional leader in terms of originality and significance of their research contributions. Principal Investigators of Advanced Grant proposals will be expected to demonstrate a record of achievements appropriate to the field and at least matching one or more benchmarks: of the following publications as main author (or in those fields where alphabetic order of authorship is the norm, joint author) in major international peer-reviewed multidisciplinary scientific journals, and/or in the leading international peer-reviewed journals and peer-reviewed conferences proceedings of their respective field; 3 monographs. maior research This benchmark is relevant to research fields where publication of monographs is the norm.

Other alternative benchmarks that may be considered *(individuallv* or in combination) as indicative of an exceptional record and recognition in the last 10 years: 5 granted patents; 10 invited presentations in well-established internationally organised conferences and advanced schools; 3 research expeditions led by the applicant Principal Investigator; 3 well-established international conferences or congresses where the applicant was involved as a member of the steering and/or organising committee; International recognition through scientific or artistic prizes/awards or membership in well-regarded Academies or artefact with documented use (for example. architectural or engineering design, methods or tools); Major contributions to



launching the careers of outstanding researchers; Recognised leadership in industrial innovation. Link

Marie Skłodowska-Curie Actions (MSCA)

MSCA Doctoral Networks MSCA Doctoral Networks – Industrial Doctorates MSCA Doctoral Networks – Joint Doctorates

Planned Opening date: 22 June 2021 Planned Deadline: 16 November 2021

The MSCA Doctoral Networks aim to train creative, entrepreneurial, innovative and resilient doctoral candidates, able to face current and future challenges and to convert knowledge and ideas into products and services for economic and social benefit.

The MSCA Doctoral Networks will raise the attractiveness and excellence of doctoral training in Europe. They will equip researchers with the right combination of research-related and transferable competences and provide them with enhanced career perspectives in both the non-academic academic and sectors through international, interdisciplinary and inter-sectoral mobility combined with an innovation-oriented mind-set. The ERC Starting Grants are designed to support excellent Principal Investigators at the career stage at which they are starting their own independent research team or programme. Principal Investigators must demonstrate the ground-breaking nature, DIPARTIMENTO DI SCIENZE BIOMEDICHE, Odontoiatriche e delle Immagini Morfologiche e Funzionali

ambition and feasibility of their scientific proposal. Proposals under this Action should contribute to the following expected impacts:

- Strengthen Europe's human capital base in R&I by training highly-skilled doctoral candidates,
- Improve the attractiveness of researchers' careers notably through better working and employment conditions of doctoral candidates in Europe
- Enhance talent and knowledge circulation across the R&I landscape, through inter-sectoral, interdisciplinary and international mobility
- Increase Europe's attractiveness as a leading research destination
- Enhance the quality of R&I contributing to Europe's sustainable competitiveness
- Establish sustainable collaboration between academic and non-academic organisations
- Foster the culture of open science, innovation and entrepreneurship

<u>Link</u>

MSCA Postdoctoral Fellowships

Planned Opening date: 22 June 2021 Planned Deadline: 12 October 2021

Project results are expected to contribute to the following outcomes:

For supported postdoctoral fellows:

- Increased set of research and transferable skills and competences, leading to improved employability and career prospects of MSCA postdoctoral fellows within academia and beyond;



- New mind-sets and approaches to R&I work forged through interdisciplinary, inter-sectoral and international experience;

- Enhanced networking and communication capacities with scientific peers, as well as with the general public that will increase and broaden the research and innovation impact.

For participating organisations:

Increased alignment of working conditions for researchers in accordance with the principles set out in the European
Charter for Researchers and the Code of Conduct for the Recruitment of Researchers;

- Enhanced quality and sustainability of research training and supervision;

- Increased global attractiveness, visibility and reputation of the participating organisation(s);

- Stronger R&I capacity and output among participating organisations; better transfer of knowledge;

- Regular feedback of research results into teaching and education at participating organisations.

Fellowships will be provided to excellent researchers, undertaking international mobility either to or between EU Member States or Horizon Europe Associated Countries, as well as to non-associated Third Countries. Applications will be made jointly by the researcher and a beneficiary in the academic or non-academic sector.

Postdoctoral Fellowships either can take place in Europe (i.e. in an EU Member State or a Horizon Europe Associated Country) or in a Third Country not associated to Horizon Europe:

European Postdoctoral Fellowships are open to researchers of any nationality who wish to engage in R&I projects by either coming to Europe from any country in the DIPARTIMENTO DI SCIENZE BIOMEDICHE, Odontoiatriche e delle Immagini Morfologiche e Funzionali

world or moving within Europe. The standard duration of these fellowships must be between 12 and 24 months. Global Postdoctoral Fellowships are open European nationals or long-term to residentswho wish to engage in R&I projects with organisations outside EU Member States and Horizon Europe Associated Countries. These fellowships require an outgoing phase of minimum 12 and maximum 24 months in a nonassociated Third Country, and a mandatory 12-month return phase to a host organisation based in an EU Member State or a Horizon Europe Associated Country. Link

MSCA and Citizens

Planned Opening date: 22 June 2021 Planned Deadline: 7 October 2021

Project results are expected to contribute to the following outcomes:

For researchers:

- Enhanced opportunities to interact with citizens and local, regional and national authorities;

- Improved communication skills and competences to interact with a nonresearch audience, notably with pupils and students.

For organisations:

- Increased reputation and visibility of participating organisations in terms of hosting excellence research projects towards the general public and possible future students;

- Researchers' work made more tangible, concrete, accessible, and thus opening research and science to all;



- Improved outreach to all audiences, and notably those who do not have an easy access to science and research activities;

- Better communication of R&I results and activities to society, increased and strengthened opportunities for citizens' engagement.

Scope: The European Researchers' Night takes place every year, on the last Friday of September[1]. It supports events that can last up to two days: they can start on Friday and continue the following day. Preevents, prior to the main event, and related post-events, such as wrap-up meetings or small-scale follow-up events, can also be organised.

It is the occasion for a Europe-wide public and media event for the promotion of research careers, in particular focused on young people and their families.

The European Researchers' Night targets addressing the general public, and attracting people regardless of the level of their scientific background, with a special focus on families, pupils and students, and notably those who do not have easy access to, and thus are less inclined to engage in STEAM fields (science. technology. engineering, arts and mathematics) or research activities.

The European Researchers' Night will also bring researchers to schools to interact with pupils at any time during the project duration. The Researchers at Schools activities will allow researchers and pupils to interact on societal challenges and on the key role of research to address them. Pupils will thus also learn directly about research projects and initiatives related to EU main priorities.

Types of activities: Activities can combine education with entertainment, especially when addressing young audiences. They

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can take various forms, such as exhibitions, hands-on experiments, science shows, simulations, debates, games, competitions, Where appropriate, quizzes, etc. engagement with educational institutions should be sought in order to encourage formal and informal science education with the aim of improving the scientific knowledge base. This will be particularly relevant for Researchers at Schools activities, which will allow researchers to showcase their work and interact with pupils. Researchers will engage with teachers and pupils on challenges related climate change, to sustainable development, health and other issues related to the European Commission priorities and main orientations, such as the European Green Deal or the EU Research and Innovation Missions. The Researchers at Schools activities should take place throughout the year and should be subject to a dedicated promotion, particularly towards schools. Link

Research Infrastructure

FAIR and open data sharing in support of cancer research HORIZON-INFRA-2021-EOSC-01-06

Open: 22 June 2021 Deadline: 23 September 2021

Project results are expected to contribute to all the following expected outcomes: researchers, healthcare professionals, cancer patients and survivors contributing to cancer research regularly interact with EOSC to store, share, access, analyse and



process research data and other research digital objects from their own discipline, across disciplines and national borders;

open and FAIR data are the new norm for research conducted under this mission area;

EU-wide sharing of research data relevant to this area is shown to be a critical mechanism to facilitate cancer research across Member States and Associated Countries;

contribute to guaranteeing safety of patients' data while at the same time contributing to research advancement. Engaging with patients/survivors in the sharing, access and use of data;

EOSC grows into a trusted research and innovation data space and service platform in Europe that supports the interdisciplinary community involved in this mission area;

contribute to the Horizon Europe EOSC Partnership and other relevant partnerships related to cancer research.

of Scope: Reuse research. clinical. epidemiological and socio-economic data within and across disciplines and borders require openness, infrastructure capacity, better handling, careful management, machine actionability and seamless access to services all along the data life cycle. The Horizon Europe mission areas recognise upfront that providing access to data, knowledge and digital services through federated infrastructures is a key enabling condition for success. In addition. European Partnerships tackling complex societal challenges through multidisciplinary approaches are facing important challenges in the European R&I including data systems, poor interoperability. In recent years, different communities scientific have started

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developing 'thematic clouds' or 'data spaces' within their domain of research and innovation. The EOSC provides the enabling framework to share, connect and upscale best practices and services by the communities to implement FAIR principles for (open, when possible) data sharing and management. The development of this framework is advancing rapidly as EOSC enters its second phase of implementation. Access to an initial EOSC federation of research infrastructures and their services is being consolidated and concepts such as FAIR data management and FAIR-bydesign digital research outputs (data, publications, software, code, protocols, etc.) become more prominent.

The overall objective of this topic is to accelerate research and innovation under this mission area through better access, management, interoperability and reuse of digital information, to be achieved by using and integrating EOSC resources ranging federated infrastructures. from EOSC services and data to guidelines, best practices, tools and metrics for the management of FAIR and open data. This should be achieved through cross-domain. strategic use cases of direct relevance to the mission areas and the European Partnerships supporting this mission area on cancer.

The use cases should demonstrate the value of sharing FAIR and open research data, help to establish data sharing and management practices within the involved communities and across the Member States and Associated Countries, leveraging European research infrastructures and e-infrastructures. The use cases should provide feedback to the EOSC Partnership on the desired future evolution of EOSC. Special attention shall be put on aspects of



data harmonisation, integration of data collection, data quality assurance, data privacy and security, big-data analysis and machine learning methods, as well as on the socio-economic dimension of the use case. Proposals should also foster the creation of user environments that researchers in this field can then use in order to seamlessly interact with digital information in the framework of the EOSC ecosystem.

Proposals should provide for activities to collaborate with relevant European Partnerships. Synergies with Horizon Europe Cluster 1 activities and other relevant initiatives. including actions from Cohesion stemming policy programmes are welcome. The activities should contribute to the consolidation of a European Health Data Space which is well articulated with the EOSC. They should build on results of relevant Horizon 2020 including those providing projects, pilots/models for linking clinical data and samples to cancer research, on initiatives for cancer such as the European Cancer Information System with the European Network Cancer Registries. of the European Reference Networks, the Innovative Partnership for Action Against Cancer (iPAAC) Joint Action and on the lessons learned from the on-going European COVID-19 Data Platform, the EU Platform for Rare Diseases' Registration and other initiatives in other disease areas. Proposers should consider already established ESFRI research infrastructures and efforts by relevant ESFRI cluster projects.

To ensure complementarity of outcomes, proposals are expected to cooperate and align with activities of the EOSC Partnership and to coordinate with

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relevant initiatives and projects contributing to the development of EOSC. In particular, in areas such as data interoperability, metadata and vocabularies, the use of persistent identifiers or Authentication and Authorisation Infrastructure (AAI). proposals should coordinate and establish a feedback mechanism with the awarded proposal/s from the topic HORIZON-INFRA-2021-EOSC-01-05 in order to ensure alignment with EOSC policies and to common useful tools identifv and resources as well as relevant data repositories that comply with EOSC guidelines. Proposals are also expected to engage and/or align where appropriate with projects funded under the Other action "FAIR and open data sharing in support of European preparedness for COVID-19 and other infectious diseases" in this Work Programme, for a synergetic development of the area of Health within EOSC.

Grants awarded under this topic should also cooperate with the actions awarded under topic HORIZON-INFRA-2021-SERV-01-01 to identify and better exploit related synergies, share results and to avoid overlaps. To this extent, proposals should provide for dedicated activities and earmark appropriate resources.

<u>Link</u>



Global Challenges & European Industrial Competitiveness Cluster Health

L'obiettivo del cluster Health è migliorare e proteggere la salute e il benessere dei cittadini di ogni età generando nuove sviluppando conoscenze, soluzioni tecnologie sanitarie, innovative e l'integrazione garantendo di una prospettiva di genere nella prevenzione, nel monitoraggio e nel trattamento di disturbi e patologie, e contribuendo alla mitigazione dei rischi sanitari e al miglioramento della salute e del benessere sul luogo di lavoro.

Gli investimenti in ricerca e innovazione si propongono di garantire ai cittadini europei un'assistenza sanitaria inclusiva, di qualità ed economicamente accessibile, e contribuire all'ottenimento di una maggiore autonomia dell'Unione nelle forniture mediche essenziali e nelle tecnologie digitali.

Di fondamentale importanza sarà sfruttare pienamente il potenziale delle attività di R&I costruire sistemi per sanitari digitalizzati un'economia е dei dati competitiva е sicura. mirando all'istituzione dello spazio europeo dei dati sanitari e della cartella clinica elettronica comunitaria.

Quattro sono le aree di impatto delineate nel piano strategico 2021-24 a cui questo cluster contribuisce: buona salute e assistenza sanitaria accessibile di alta qualità; un'Unione europea resiliente preparata contro le minacce emergenti; servizi digitali di alta qualità per tutti; un'economia dei dati competitiva e sicura.

Bandi aperti:

DIPARTIMENTO DI SCIENZE BIOMEDICHE. **O**DONTOIATRICHE E DELLE IMMAGINI MORFOLOGICHE E FUNZIONALI

Towards molecular and а neurobiological understanding of mental health and mental illness for the benefit of citizens and patients HORIZON-HLTH-2021-STAYHLTH-01-02

Mobilising a network of National Contact Points (NCPs) for the Health Cluster HORIZON-HLTH-2021-STAYHLTH-01-05

Healthy Citizens 2.0 - Supporting digital empowerment and health literacy of citizens HORIZON-HLTH-2021-STAYHLTH-01-03

A roadmap for personalised prevention HORIZON-HLTH-2021-STAYHLTH-01-04

Indoor air quality and health HORIZON-HLTH-2021-ENVHLTH-02-02

Health impacts of climate change, costs and benefits of action and inaction HORIZON-HLTH-2021-ENVHLTH-02-03

Exposure to electromagnetic fields (EMF) and health HORIZON-HLTH-2021-ENVHLTH-02-01

European partnership for the assessment of risks from chemicals (PARC) HORIZON-HLTH-2021-ENVHLTH-03-01

Building a European partnership for pandemic preparedness HORIZON-HLTH-2021-DISEASE-04-06

Building a European innovation platform repurposing for the of medicinal products

HORIZON-HLTH-2021-DISEASE-04-02



A roadmap towards the creation of the European partnership on One Health antimicrobial resistance (OH AMR) HORIZON-HLTH-2021-DISEASE-04-05

Improved supportive, palliative, survivorship and end-of-life care of cancer patients HORIZON-HLTH-2021-DISEASE-04-01

Clinical validation of artificial intelligence (AI) solutions for treatment and care HORIZON-HLTH-2021-DISEASE-04-04

Personalised medicine and infectious diseases: understanding the individual host response to viruses (e.g. SARS-CoV-2) HORIZON-HLTH-2021-DISEASE-04-07

Innovative approaches to enhance poverty-related diseases research in sub-Saharan Africa HORIZON-HLTH-2021-DISEASE-04-03

Enhancing quality of care and patient safety HORIZON-HLTH-2021-CARE-05-01

Health care innovation procurement network HORIZON-HLTH-2021-CARE-05-04

Data-driven decision-support tools for better health care delivery and policymaking with a focus on cancer HORIZON-HLTH-2021-CARE-05-02

Smart medical devices and their surgical implantation for use in resource-constrained settings HORIZON-HLTH-2021-TOOL-06-01 DIPARTIMENTO DI SCIENZE BIOMEDICHE, Odontoiatriche e delle Immagini Morfologiche e Funzionali

Innovative tools for use and re-use of health data (in particular of electronic health records and/or patient registries) HORIZON-HLTH-2021-TOOL-06-03

Next generation advanced therapies to treat highly prevalent and high burden diseases with unmet medical needs HORIZON-HLTH-2021-TOOL-06-02

Promoting a trusted mHealth label in Europe: uptake of technical specifications for quality and reliability of health and wellness apps HORIZON-HLTH-2021-IND-07-03

Green pharmaceuticals HORIZON-HLTH-2021-IND-07-01

Development, procurement and responsible management of new antimicrobials HORIZON-HLTH-2021-IND-07-02

Open: 22 June 2021 Deadline: 21 September 2021

<u>Link</u>

European Innovation Council

EIC Transition Open 2021 HORIZON-EIC-2021-TRANSITIONOPEN-01

Open: 19 May 2021 Deadline: 22 September 2021

Budget: up to 2500000,00 EUR

The EIC Transition Open aims at funding innovation activities that go beyond the



experimental proof of principle in laboratory. The EIC Transition Open is twofold, supporting both the maturation and validation of a novel technology, and the development of a business case and business model towards the innovation's future commercialisation.

EIC Transition projects should address both technology and market/business where iterative dimensions learning processes based on early customer feedback is possible. These activities should include a suitable mix of research, technology development and validation activities to increase the maturity of the technology beyond proof of principle to viable demonstrators of the technology in the intended field of application (i.e. up to Technology Readiness Level 5 to 6) in the attempt to address market readiness towards commercialisation and deployment, as well as other aspects of regulation. certification and standardisation, aimed at getting both the technology and the business idea investment-readv.

The objectives of the EIC Transition are to mature both the technology and business idea to increase the project's technology and its market readiness. By doing this, the EIC Transition offers its applicants a solid support to deliver on the market a technology that is effective for its intended application, as well as a successful business model and business for plan its development to the market. Link

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EIC Transition Challenges 2021

Medical Technology and Devices: from Lab to Patient

HORIZON-EIC-2021-TRANSITIONCHALLENGES-01-01

Open: 19 May 2021 Deadline: 22 September 2021

Budget: up to 2500000,00 EUR, 3 years

EU-funded early-stage Research on novel Medical Technologies and Devices is uncovering unique opportunities to benefits patients and support clinicians.

Medical Technology and Devices businesses are facing long and capitalintensive product development cycles, complex regulatory procedures, slow market uptake requiring the support of key opinion leaders and intensive follow-up with early adopters. In addition to a mature technology, a well thought-out and realistic exploitation path with emphasis on achieving market traction as proof of both clinical and market potential of the idea is needed.

Proposal submitted to this transition challenge call should aim to:

- Perform the necessary R&D to advance from an existing proof-of-principle technology to a mature version to initiate clinical evaluation.

- Develop an exploitation strategy, qualitatively and quantitatively outlining the proposed path to patient and describing an investable proposition.

Proposal submitted to this call can target any technology addressing important health needs in the direct clinical treatment and care of patients.

<u>Link</u>



EIC Pathfinder Challenges 2021

Awareness Inside HORIZON-EIC-2021-PATHFINDERCHALLENGES-01-01

Proposals are expected to address each of the following three expected outcomes:

1. New concepts of awareness that are applicable to systems other than human, including technological ones. with implications of how it can be recognised or measured. It will require to elucidate the relationship between, among others. complexity and awareness, information structure and representation, the perception. environment and its distributed versus centralized awareness. and time awareness. This will lead to better approaches for defining aspects of awareness over different temporal, spatial, biological, technological and social scales.

2. Demonstrate and validate the role and added-value of such an awareness in an aware technology, class of artefacts or services for which the awareness features lead to a truly different quality in terms of, e.g., performance, flexibility, reliability or user-experience. The specific expected outcome is a proof of principle of technologies far beyond the current state of the art or a laboratory-validated prototype enabling evaluation of the proposed technology's awareness features, relying where relevant on neuroscientific and psychological methods, and possibly in a range of application areas. As examples, projects could investigate the implications of 'awareness inside' for safer robots or self-driving cars, for better resilience of critical infrastructure, in artefacts that compensate for consciousness disorders, in decision support (e.g. for surgery, economics or epidemiology), for or

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chatbot-based conversation, language learning or translation.

3. Define an integrative approach for awareness engineering, its technological toolbox, the needs and implications and its limits, including ethical and regulatory requirements. On this aspect specifically, the projects that will be funded under this challenge are expected to collaborate and contribute to the wider ethical, societal and regulatory debate since, ultimately, new awareness concepts may lead to a redefinition of how we look at the relation between humans, other species and smart technologies. The gender dimension in research content should be taken into account, where relevant, to maximise user experience.

Emerging Technologies in Cell and Gene therapy

HORIZON-EIC-2021-PATHFINDERCHALLENGES-01-03

With this Pathfinder Challenge. EIC strategically aims at reinforcing critical components of the European cell and gene therapy community, such as focused research consortia, start-ups and spinoffs, in their ability to compete and sustain in this fiercely competitive field, full of challenges and obstacles all along the way from discovery to the manufacturing step. Proposals submitted to this call should effectively address exactly that. bv proposing convincing technological and/or breakthrough solutions new concepts that go far beyond the current state-of-the-art.

Proposers are invited to submit diseasespecific or non-disease-specific proposals,



focused on emerging technologies or technological solutions aimed to overcome the current cell and gene therapy challenges in one or several the areas listed below, but without being restricted only to these areas.

Advancing cell therapy manufacturing and products to a clinical stage:

Improving adoptive cell therapies (CAR-T, TCR, TIL).

Identifying next generation cell therapies for cancer.

Applying cell therapy to treat cancer patients in a personalised manner.

Improving the effectiveness and lowering the risks of gene delivery systems (vectors).

Improving gene therapy manufacturing processes and production.

Tools to measure and stimulate activity in Brain Tissue

HORIZON-EIC-2021-PATHFINDERCHALLENGES-01-02

Medical devices to measure and stimulate brain activity are emerging as tremendously powerful therapeutic tools that could revolutionise the treatment of brain diseases. Anomalous neuronal electrical signals are present in a wide range of disorders including memory impairment (Alzheimer's), epilepsy, chronic pain, mood disorders, movement disorders (Parkinson's), ischemic cognitive decline (post-heart attack), sensory disorders (hearing loss. tinnitus). cerebrovascular events, related aging neurodegeneration, traumatic brain injury amongst many others. Unfortunately, existing devices to restore normal patterns

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of brain activity by stimulation have serious limitations. Invasiveness, limited miniaturisation, poor resolution (with only measurement and stimulation coarse available), limited spatial coverage (not able to monitor or stimulate a sufficient number of neurons) hamper the therapeutic effect or render these solutions unattractive for clinicians and patients. Yet today's state-of-the art microelectronics microfabrication are potentially and conducive to novel neuro-devices with high levels of miniaturisation, ultra-low power consumption, multi-site sensor/stimulator arrays (linear, planar or 3D with a wealth of geometries) and wireless architectures. leading to lower risk, shorter recovery times and better patient acceptance.

Further, progress can also be achieved by the discovery of new physical principles for activity monitoring (invasive or noninvasive) and activity modulation. These could explore ultrasound, light (optogenetics or otherwise), mechanical stimulation, local release of neuroactive compounds, ionising radiation, etc.

It is the right time to explore these opportunities and develop novel neurodevices that can be rapidly accepted by clinicians and patients.

Proposals submitted to this call should tackle at least one of the following two challenges:

- A full device with unique features, e.g. targeting a currently untreated disorder, offering unprecedented miniaturisation, low latency closed-loop monitoringstimulation feedback (if necessary), ultralow power consumption, low/moderate invasiveness (e.g. compatible with implantation with endoscopic techniques), high-resolution, sustainable, etc.



- New or nascent physical principles or methodologies that could be the basis for future brain sensing and/or stimulation technologies, with clear and quantifiable advantages. Focus is on techniques that can offer unprecedented data on brain function or that allow unprecedented modulation of brain activity for therapeutic purposes or brain-computer interfacing.

Engineered Living Materials

HORIZON-EIC-2021-PATHFINDERCHALLENGES-01-05

Engineered living materials (ELMs) are composed, either entirely or partly, of living cells. ELMs entirely composed of living cells are called biological ELMs and they self-assemble via a bottom-up process synthetic morphogenesis e.g. for organoids' production. ELMs only partly composed of living cells are called hybrid living materials (HLMs) and are built with a top-down process with integrated polymers or scaffolds. In both cases, the cellular components extract energy from the environment to form or assemble the material itself, and to adapt its morphology and function to environmental stimuli. This endows these materials with a combination of properties not present in any non-living material: self-regeneration, adaptation to environmental longevity clues, and environmental sustainability. By being alive, ELMs represent a fundamental change in materials' production and performance, enabling new, better or functionalities, similar compared to traditional materials but with decreased costs and environmental impact. ELMs have the potential to transform virtually

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every modern endeavour from healthcare to infrastructures to transportation.

With this Pathfinder ELMs Challenge the EIC seeks to seize the opportunity to position strategically Europe at the forefront of the ELMs field, which is still in its infancy. This Pathfinder Challenge aims to overcome the technological challenges to harness the engineering potential of nature for materials' production. The specific objectives of this call are to support the development of new technologies and platforms enabling the controlled production of made-on-demand living materials with multiple predictable dynamic functionalities, shapes and scales: and to build a community of researchers and innovators in ELMs. Reaching these objectives requires a research team that strongly integrates, among others and not exclusively, expertise in synthetic biology, materials engineering, control engineering, intelligence. artificial synthetic or engineered morphogenesis as well as ethical, legal and social aspects (ELSA).

Projects under this call are expected to develop technologies for the production of a minimum of two different living materials (i.e. with different applications, scale - 10 x difference- and cellular composition). The specific expected outcomes depending on the choice of the ELM production process (top-down or bottom-up) are:

- a proof of principle of technologies far beyond the current state-of-the-art enabling the production of a minimum of two novel biological ELMs bigger than 1 cm in all dimensions by programmable and controlled synthetic or engineered morphogenesis (whether with eukaryotic or prokaryotic cells);

- a laboratory validated, automated and computer-aided design-build-test-learn



(DBTL) platform far beyond the current state-of-the-art able to produce a minimum of two novel HLMs in multiple scales with enhanced or unprecedented properties.

Projects are strongly encouraged to consider multi-cellular ELMs. They are also encouraged to develop technologies that can be easily generalizable and adapted for the production of a broad range of ELMs from different cells.

Open: 15 June 2021 Deadline: 27 October 2021

<u>Link</u>

Permanently Open Calls

Fondazione Pfizer

Con l'obiettivo di essere un modello di responsabilità sociale e aziendale, Fondazione Pfizer sostiene progetti che coinvolgono cittadini, istituzioni e altri partner scientifici e contribuisce allo sviluppo di approcci innovativi per migliorare gli aspetti organizzativi e socioeconomici del nostro Servizio sanitario La Fondazione promuove la salute e il benessere dei cittadini e in particolare,

delle persone fragile; agisce come un partner e/o sostiene iniziative/progetti connessi con le maggiori istituzioni (Ministero Salute, Regioni, Università...); contribuisce a progetti sul territorio italiano con Istituzioni, enti di assistenza sanitaria e Società scientifiche e sostiene iniziative specifiche in qualità di monosponsor

Linee Guida e Criteri. Fondazione Pfizer:

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- sostiene progetti che riflettono i suoi Scopi e la sua Missione;

- instaura partnership e/o avalla solo progetti che non sono relativi a specifiche aree terapeutiche o prodotti

- si riserva la facoltà di valutare e scegliere discrezionalmente quali progetti finanziare e sostenere.

Le proposte sono accettate esclusivamente online.

Solo le richieste che rispecchieranno i criteri sopra indicati saranno valutate dal Comitato Tecnico-Scientifico interno alla Fondazione.

<u>Link</u>

Banca d'Italia

In uno scenario nazionale e internazionale caratterizzato da una crescente attenzione verso le problematiche ambientali, le Istituzioni sono chiamate a dare il proprio contributo per uno sviluppo sostenibile che non comprometta la capacità delle generazioni future di soddisfare le proprie esigenze.

La Banca d'Italia, in linea con le migliori pratiche adottate nel contesto del SEBC (Sistema Europeo delle Banche Centrali), già da diversi anni ha avviato un percorso sistematico volto a ridurre la propria "impronta ecologica", soprattutto nei settori di attività che possono avere impatti non trascurabili sull'ambiente.

Nel 2015 la Politica ambientale è stata aggiornata alla luce delle evoluzioni del contesto esterno e dei risultati ottenuti; gli obiettivi ambientali della Banca sono: uso sostenibile delle risorse energetiche e naturali, gestione ottimale dei rifiuti,



mobilità sostenibile, acquisti "verdi", promozione di una cultura ambientale.

Per il raggiungimento di questi obiettivi è stato messo a punto un programma di azioni concrete finalizzato a migliorare progressivamente la prestazione ambientale dell'Istituto.

La Banca, nel rispetto delle norme statutarie e delle delibere assunte in materia dai competenti organi decisionali, concede contributi per iniziative d'interesse pubblico e somme a scopo di beneficenza.

Sono sostenute solo le iniziative presentate da una richiesta; le istanze, corredate di specifici elementi informativi (quali importo richiesto, piano illustrativo del progetto da realizzare, preventivi di spesa, documenti attestanti la presenza di fonti di finanziamento ulteriori rispetto a quanto richiesto alla Banca), vanno presentate entro ben definiti periodi dell'anno.

In particolare:

quelle pervenute dal 1° gennaio al 28 febbraio sono istruite e decise entro il mese di giugno

quelle pervenute dal 1° luglio al 31 agosto sono istruite e decise entro il mese di dicembre.

L'esame istruttorio è svolto da una commissione interna alla Banca, le cui funzioni segretariali fanno capo al Servizio Segreteria particolare del Direttorio e comunicazione, Divisione Rapporti istituzionali. I risultati dell'istruttoria sono rassegnati all'organo decisionale competente, che è il Direttorio per interventi sino a \in 25.000, il Consiglio superiore per interventi oltre tale importo. Link DIPARTIMENTO DI SCIENZE BIOMEDICHE, Odontoiatriche e delle Immagini Morfologiche e Funzionali

Fondazione Johnson & Johnson

La Fondazione J&J contribuisce al benessere della comunità attraverso lo sviluppo di progetti filantropici nelle seguenti 5 aree di intervento:

- Assistenza sanitaria alla comunità;

- Salute dei bambini e della donna;

- Responsabilità verso la comunità;

- Formazione nel campo della gestione sanitaria;

- Hiv/Aids.

I progetti che rientrano all'interno di queste 5 aree, devono rispondere ai seguenti criteri guida:

1. Affidabilità: le Organizzazioni proponenti devono essere inserite nel tessuto sociale nazionale e devono possedere strumenti giuridici (Statuto, riconoscimenti legali) che ne garantiscano una gestione sicura e professionale;

2. Obiettivi concreti: i contributi vengono erogati in relazione al raggiungimento degli obiettivi materiali dei progetti;

3. Misurabilità dei risultati: i risultati dei progetti e lo stato di avanzamento degli stessi devono essere misurabili nell'arco di tutta la loro durata. I contributi sono infatti erogati in base all'allineamento dei tempi con gli obiettivi dei progetti;

4. Durata annuale del progetto: in modo da avere un riscontro a breve termine dell'efficacia del proprio intervento e permettere ai progetti di essere indipendenti dal supporto della Fondazione J&J, sviluppando una propria sostenibilità.

In base ai criteri di sostenibilità dei progetti, la Fondazione J&J NON supporta:

 iniziative il cui raggio d'azione sia rivolto a realtà non italiane;

– convegni, congressi o attività similari;

- progetti di ricerca medico - scientifica;



Cause Related Marketing;marketing sociale.

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Fondazione AbbVie

AbbVie helps further education around current, new and emerging sciences and standards of care. In particular:

- Supports independent continuing education for healthcare providers with the most up-to-date information on current, new and emerging therapies;

- Supports fellowships that allow healthcare providers, to continue their training and increase their capacity in any given field of study;

- Meets the needs of patients, through grants and charitable donations to patient organizations;

- Supports telemedicine and tele-health education to foster effective patient engagement and care;

- Contributes to improving health equity and the elimination of health care disparities in underserved patient populations;

- Helps bridge the gap between academia and community and rural settings.

AbbVie's therapeutic areas of focus include immunology, oncology, virology, neuroscience, women's health, aesthetics, eye care and other areas of scientific research with the greatest potential impact for patients.

Immunology. <u>Rheumatology</u>: Ankylosing Spondylitis, Juvenile Idiopathic Arthritis, Psoriatic Arthritis, Rheumatoid Arthritis, Spondyloarthritis, Uveitis; <u>Dermatology</u>: Atopic Dermatitis: Hidradenitis Suppurativa, Nail Psoriasis, Psoriasis, DIPARTIMENTO DI SCIENZE BIOMEDICHE, Odontoiatriche e delle Immagini Morfologiche e Funzionali

Psoriatic Arthritis; <u>Gastroenterology:</u> Crohn's Disease – adult and pediatric, Inflammatory Bowel Disease, Ulcerative Colitis.

Oncology: <u>Solid Tumors</u>: Breast Cancer, Non-Small Cell Lung Cancer, Ovarian Cancer; <u>Hematologic Malignancies</u>: Acute Myeloid Leukemia, Chronic Lymphocytic Leukemia, Multiple Myeloma, Other Hematologic Malignancies.

Virology: HCV, HCV/HIV co-infection, HCV elimination.

Neuroscience: Acute Treatment of Migraine, Adult and Pediatric Neurogenic Detrusor Overactivity, Bipolar Depression, Overactive Bladder, Parkinson's Disease, Prevention of Episodic and Chronic Migraine, Spasticity/Movement Disorders. Eyecare: Glaucoma, Refractive (presbyopia), Retina (diabetic macular edema).

<u>Link</u>