



GOBIERNO
DE ESPAÑA

MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES

isⁱⁱⁱ
Instituto
de Salud
Carlos III

II JORNADA PEPRI

Oportunidades de la I+D en PR

Oportunidades de financiación de la I+i en el Programa Europeo Horizon 2020 en el ámbito de la protección radiológica

Madrid, 29.11.2018

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Punto Nacional de Contacto – Reto Social 1 H2020 & IMI2

Experto Nacional en el Comité de Programa Reto Social 1

Oficina de Proyectos Europeos

*Subdirección General de Programas Internacionales
de Investigación y Relaciones Institucionales*



Hablaremos de

1. Oportunidades en el Reto Social 1: convocatoria 2019
2. Oportunidades en el Reto Social 7: convocatoria 2019

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1. Oportunidades en el Reto Social 1: convocatoria 2019
 2. Oportunidades en el Reto Social 7: convocatoria 2019



H2020. Estructura

HORIZON 2020

€70.2 billion

(*budget is subject to change)

Excellent Science

- European Research Council (ERC)
- Marie Skłodowska-Curie Actions (MSCA)
- Future Emerging Technology (FET)
- European Research Infrastructure (ERI)

Industrial Leadership

- Leadership in enabling and industrial technologies
- Access to risk finance
- Innovation in SMEs

Societal Challenges

- Health, demographic change, and wellbeing
- Food security, sustainable agriculture & forestry, marine & maritime research & inland water research
- Secure, clean & efficient energy
- Smart, green & integrated transport
- Climate action, resource efficiency & raw materials
- Inclusive, innovative & reflective societies
- Secure Societies

Spreading excellence and widening participation

Science with and for society

European Institute of Innovation and Technology (EIT)

Non-nuclear direct actions of the Joint Research Centre (JRC)

*Oportunidades de financiación en Horizon 2020 de proyectos
De investigación e innovación en Salud*



Reto Social 1 “Salud, Cambio Demográfico y Bienestar”



Better Health for all

- Envejecimiento de la población
- Ciudadanos mejor informados y mayores exigencias a los proveedores de atención médica por parte de los pacientes
- Necesidad de sistemas sanitarios más personalizados y sostenibles

Retos específicos:

Entender mejor la salud y la enfermedad
- la **medicina personalizada**

La carga de las **enfermedades crónicas e infecciosas**

Mejoras en el desarrollo de fármacos

Premisas convocatoria SC1 2019

- Las '3 Os': Open science, open innovation and open to the world
- To deliver **solutions for a better health** for all by:
 - Moving towards the effective **integration of personalised medicine approaches into healthcare services** and systems to the benefit of patients and citizens;
 - Fighting **infectious diseases** and the growing threat of antimicrobial resistance;
 - Addressing the needs of the most vulnerable groups and the global increase of **chronic diseases**;
 - Decoding the **role of environment** – including climate change and air quality – on health and developing mitigating measures;
 - Exploring the **digital potential for health innovation and healthcare**, including the building of a 'European health research and innovation cloud';
 - **Stimulating innovation** in the European healthcare domain and industry by exploring the application of advanced technologies, improve the health of the workforce and promote regulatory science.

Convocatorias de SC1 2019-2020

7 prioridades repartidas en 3 áreas

Area 1. Better health and care, economic growth and sustainable health systems **(Topics BHC)**

1. Personalised medicine
2. Innovative health and care industry
3. Infectious diseases and improving global health
4. Innovative health and care systems – Integration of care
5. Decoding the role of the environment for health and well-being

Area 2. Digital transformation in health and care **(Topics DTH)**

Area 3. Trusted digital solutions and cybersecurity in health and care **(Topics TDS)**

Otras acciones: premios (en conv. 2020); Instrumento PYME y FTI aparte

Prioridad – Better Health and care, economic growth and sustainable health systems (II)

1.5 Decoding the role of the environment for health and well-being

- SC1-BHC-28-2019: The Human Exposome Project: a toolbox for assessing and addressing the impact of environment on health (8-12 M€; 4-6 proyectos – total 50 M€)

Fecha de cierre: 16.04.2019

SC1-BHC-28-2019: The Human Exposome Project: a toolbox for assessing and addressing the impact of environment on health

Specific Challenge: Despite the general acknowledgement by the scientific community that '*Genetics load the gun but environment pulls the trigger*'¹¹⁹ when it comes to the causation of major non-communicable diseases (NCDs)¹²⁰, there is persistent uncertainty as to the global burden of disease attributable to environmental (including life-style and climatic) factors, including healthcare costs and negative economic impact. Deciphering the human exposome¹²¹ is a novel way of addressing the challenge to improve health and reduce the overall burden of disease. This will require improved knowledge of health risks, including combinations of several risk factors, and the mechanisms by which they affect health at different stages throughout the life course, including exposures in foetal life. Effective preventive action will need to be designed, building on knowledge of various risk factors, including exposure to pollutants in daily life, individual behaviour and the social context, taking into account gender issues.

Developing a Human Exposome Project would present a fundamental shift in looking at health, by moving research away from 'one exposure, one disease' understanding to a more complex picture upon which to build solid, cost-effective preventive actions and policies in the future. It would respond to the need for more complete and accurate individual-level exposure data in order to estimate the largely unknown environmental component of NCDs.

Scope: Applicants should take advantage of the last decade's rapid technological advances which have opened up new opportunities to collect, combine and analyse large data sets offering new possibilities to understand the contribution of environmental factors to the global health burden of common chronic diseases. **Proposals should use innovative approaches to the systematic and agnostic identification of the most important environmental risk factors** for the development of major NCDs across the life course (including *in utero*), leading to preventive

¹¹⁹ Dr. Francis Collins, Director of the U.S. National Institutes of Health (NIH) www.ncbi.nlm.nih.gov/pmc/articles/PMC2675383

¹²⁰ <http://www.who.int/mediacentre/news/releases/2016/deaths-attributable-to-unhealthy-environments/en/>

¹²¹ The concept of the exposome refers to the totality of environmental exposures (diet, lifestyle, occupational and environmental factors) from conception onwards, including its external and internal components.

Topic SC1-BHC-28-2019 (cont.)

interventions at the individual, group or population level and contribute to sustainable healthcare. Well-designed retrospective epidemiological studies may be included and proposals may envisage the creation of a prospective Europe-wide exposomics cohort and biobank, integrating behavioural, socio-economic factors and clinical records.

The following components should be considered: agnostic evaluation of the role of multiple and unknown exposures; assessment of individual exposure to multiple stressors; sensors that combine external exposure and health data measurements; integration of external exposome data with cross-omics responses and (epi)genetic data; systematic evaluation and simulations of the health impacts; socio-economic modelling and econometric analysis including ethical and sex/gender aspects where relevant; better data mining tools, including advanced statistical analysis of complex data and high-performance/high throughput computing and storage; a long-term host and a single shared data infrastructure, taking into account existing structures and ensuring open access to data generated.

Innovation and connections with industry are expected in the areas of sensor development (external exposome), omics technology and novel biomarker development (internal exposome), bioinformatics, and data processing and management. Proposals are expected to respond to a persistent or long-standing policy/regulatory need where the exposome approach would be useful to solve a scientific issue to underpin better regulation now or in the future (examples: indoor and outdoor air quality, waste, occupational health, noise).

In order to establish an overarching Human Exposome Project, an overall coordination mechanism between the projects funded will be required and will be added at the grant preparation stage to all selected proposals as a common work package. Grants awarded under this topic will be complementary. The respective options of Article 2, Article 31.6 and Article 41.4 of the [Model Grant Agreement](#) will be applied.

The Commission considers that a proposal requesting an EU contribution between EUR 8 to 12 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact:

- Innovation in environmental health sciences, in particular for external and internal exposure assessments and data management.
- Enabling researchers and policy makers to continuously include new knowledge in the policy making processes by using the toolbox to generate data and information.
- Better prediction of disease risk by acquisition of new knowledge on the influence of external exposures on biological pathways at different life-stages and identification of early signs of health damage caused by environmental factors.

Type of Action: Research and Innovation action

Prioridad – Digital transformation in Health and Care

- SC1-DTH-01-2019: Big data and Artificial Intelligence for monitoring health status and quality of life after the cancer treatment (3-5 M€; 5-7 projects – total 35 M€)

Fecha de cierre: 24.04.2019

SC1-DTH-01-2019: Big data and Artificial Intelligence for monitoring health status and quality of life after the cancer treatment

Specific Challenge: Currently available methods and strategies for diagnosis and treatment of cancer help clinicians continuously improve quality of care and prevent cancer deaths in the population. Accurate risk assessment, availability of genetic tests, timely diagnosis and effective treatment has created the impression of cancer being a chronic disease that can be cured. However, often rather aggressive treatment, psychological stress (anxiety and depression) can cause physical and psychological problems that may cause long-term after-cure consequences such as similar or other types of cancer, other types of (chronic) diseases and affect the quality of life of a patient. Therefore, the importance of addressing and, if possible, preventing long-term effects of cancer treatment is growing. In addition to patient-reported outcomes such as functional status, symptoms intensity and frequency, multiple domains of well-being and overall satisfaction with life, the use of big data can bring valuable information for monitoring health status and quality of life after the cancer treatment. Big Data can provide new opportunities to define statistical and clinical significance, but present also challenges as it requires specific analytical approaches.

Scope: Proposals should focus and deliver on how to better acquire, manage, share, model, process and exploit big data using, if appropriate, high performance computing to effectively monitor health status of individual patients, provide overall actionable insights at the point of care and improve quality of life after the cancer treatment. Relevant solutions include for example systems for determining and monitoring (taking also in account gender differences) the combined effects of cancer treatment, environment, lifestyle and genetics on the quality of life, enabling early identification of effects that can cause development of new medical

Topic SC1-DTH-01-2019 (cont.)

conditions and/or impair the quality of life. Proposals preferably address relevant health economic issues, use patient reported outcome and experience measures (PROMs and PREMs) and take into account the relevant social aspects of health status and quality of life after cancer treatment. Integrated solutions should include suitable approaches towards security and privacy issues.

Information can be collected from traditional sources of health data (cohorts, comprehensive electronic health records or clinical registries, incl. genetic data, validated biomarkers for remission), from new sources of health data (mobile health apps and wearables) and from sources that are usually created for other purposes such as environmental data.

It is important to assure ethical aspects of data, confidentiality, and anonymity of data transfer and engagement of those who collect / code such data in its analysis and interpretation, in order to avoid misinterpretation and inappropriate conclusions by using proper annotation methodologies of the data. Involvement of those who work within healthcare systems, patients, family and relatives, and the general public is needed.

The Commission considers that proposals requesting a contribution from the EU of between EUR 3 and 5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. Participation of SMEs is encouraged.

Expected Impact: The proposal should provide appropriate indicators to measure its progress and specific impact in the following areas:

- Mapped comprehensive big data in a reachable and manageable way by applying principles for sharing and reusability, creating a network of knowledge by linking translation tools, heterogeneous data sources and biomedical texts for monitoring health status and quality of life after the cancer treatment;
- Emerging data driven analytics and advanced simulation methods to study causal mechanisms and improve forecasts of ill-health, identification of disease trajectories and relapse;
- Better and faster means of high quality response to prevent or timely address development of new medical conditions and/or improve the quality of life;
- Better knowledge for improved patient counselling as well as to improve follow-up of patients;
- Novel information on health maintenance, onset and course of medical conditions with a view to optimise prevention and treatment;
- Evidence base for the development of policy strategies for prevention, early diagnosis, therapies as well as addressing health inequalities, support to patient registries at national level;
- Improved quality of life after cancer treatment, strengthening personal confidence and enhancing employability;
- Preventative strategies are established which have a real effect of reducing the occurrence of health disorders and co-morbidities associated with cancer treatment.

Type of Action: Research and Innovation action



Reglas básicas de elegibilidad y participación

- El consorcio debe estar formado formado como mínimo 3 entidades independientes entre sí de 3 países EU o Estados Asociados.
- Inclusión de aspectos SSH (Social Sciences and Humanities): culturales, sociales, etc.
- Aspectos de género:
 - En la gestión del proyecto
 - En el objeto de la I+i
- Aspectos éticos.
- Ciencia abierta, acceso abierto:
 - Difusión y comunicación
- Participación de los EEUU y terceros países. Países BRICS+M no pueden recibir financiación excepto si se menciona específicamente en el texto del topic o son necesarios para los objetivos del proyecto.
- Solicitudes en una o dos fases.
- El presupuesto del proyecto debe ser el adecuado para poder realizar las actividades previstas y alcanzar los objetivos fijados.
- El presupuesto en el texto de la convocatoria es normalmente indicativo.
- La duración del proyecto debe ser la adecuada para alcanzar sus objetivos (habitualmente entre 3 -5 años).

Presupuesto total para las convocatorias 2019 y 2020 del SC1

- Call SC1 2018: 650,99 M€
- **Call SC1 2019: 787,18 M€***
- Call SC1 2020: 697,72 M€

*: Convocatoria abierta en 2018

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1. Oportunidades en el Reto Social 1: convocatoria 2019
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EN

Horizon 2020

Work Programme 2018-2020

*14. Secure societies - Protecting freedom and security of
Europe and its citizens*

Important notice on the Horizon 2020 Work Programme

This Work Programme covers 2018, 2019 and 2020. The parts that relate to 2019 and 2020 are provided at this stage on an indicative basis. Such Work Programme parts will be decided during 2018 and/or 2019.

(European Commission Decision C(2017)7124 of 27 October 2017)

Programa de Trabajo 2018-2020

http://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-security_en.pdf

Punto Nacional de Contacto para SC7 de H2020:

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El Reto Social 7 - Sociedades seguras. Protegiendo la libertad y seguridad de Europa y sus ciudadanos

1. Garantizar la protección de los ciudadanos, la sociedad y la economía, así como los activos, las infraestructuras y los servicios críticos de Europa, mejorando su prosperidad, su estabilidad política y su bienestar
 - Cualquier mal funcionamiento o interrupción de un servicio, intencional o accidental, puede tener un impacto perjudicial con altos costes económicos o sociales asociados
 - Representantes de los sectores público y privado deben trabajar en cooperación.

SU-DRS04-2019-2020: Chemical, biological, radiological and nuclear (CBRN) cluster

- Projects aiming at research and development of novel CBRN technologies and innovations identified in the ENCIRCLE catalogue.
- Each of these actions will be led by an SME.
- Consortium Agreement within the members and the ENCIRCLE consortium, to enhance cooperation.
- RIAs results will be exploited and integrated into platforms managed by the ENCIRCLE consortium. **RIAs 3,5 M€ / proyecto (TRL 4-6)**

Fecha de cierre conv. 2019:
22.08.2019

<http://encircle-cbrn.eu/>

Lista de TRLs (Technology Readiness Levels)

TRL 1 – basic principles observed

TRL 2 – technology concept formulated

TRL 3 – experimental proof of concept

TRL 4 – technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies; or in space)

(Fuente: Anexo G de la CE)

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Información sobre convocatorias en: <http://eu-isciii.es>

