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European Union
GA 101080219



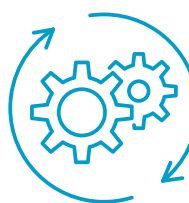
A GLOBAL CONCERN



Obesity is a **major threat for public health**, of escalating prevalence worldwide. While in 2005, around 300 million people in the world had a BMI ≥ 30 kg/m², by 2016, >650 million adults were obese, whereas 1.900 million adults (39% world population) had overweight, i.e., BMI>25. In 2020, 39 million children under the age of 5 years suffered overweight/ obesity.



Obesity is connected with, and major determinant of **metabolic syndrome (MetS) and type-2 diabetes (T2D)**. These conditions have acquired **pandemic dimensions** and are one of the main health and social challenges worldwide, with a devastating impact not only in terms of population health but also due to its major socio-economic burden.



Indeed, obesity and its **comorbidities** are linked also to **severe indirect costs**, due to loss of productivity because of disability, sick leaves, early retirement and premature death, and have a substantial impact on quality of life.



Due to the **escalating prevalence** of obesity, and the **inter-individual variability in susceptibility** to excessive body weight gain and its comorbidities, extensive efforts have been made for deciphering the genetic landscape of obesity and metabolic disease, reporting that specific gene variants and mutations influence their generation and progression, and highlighting its complex pathogenicity , with a **multifactorial interaction among many genes and different environmental factors**.

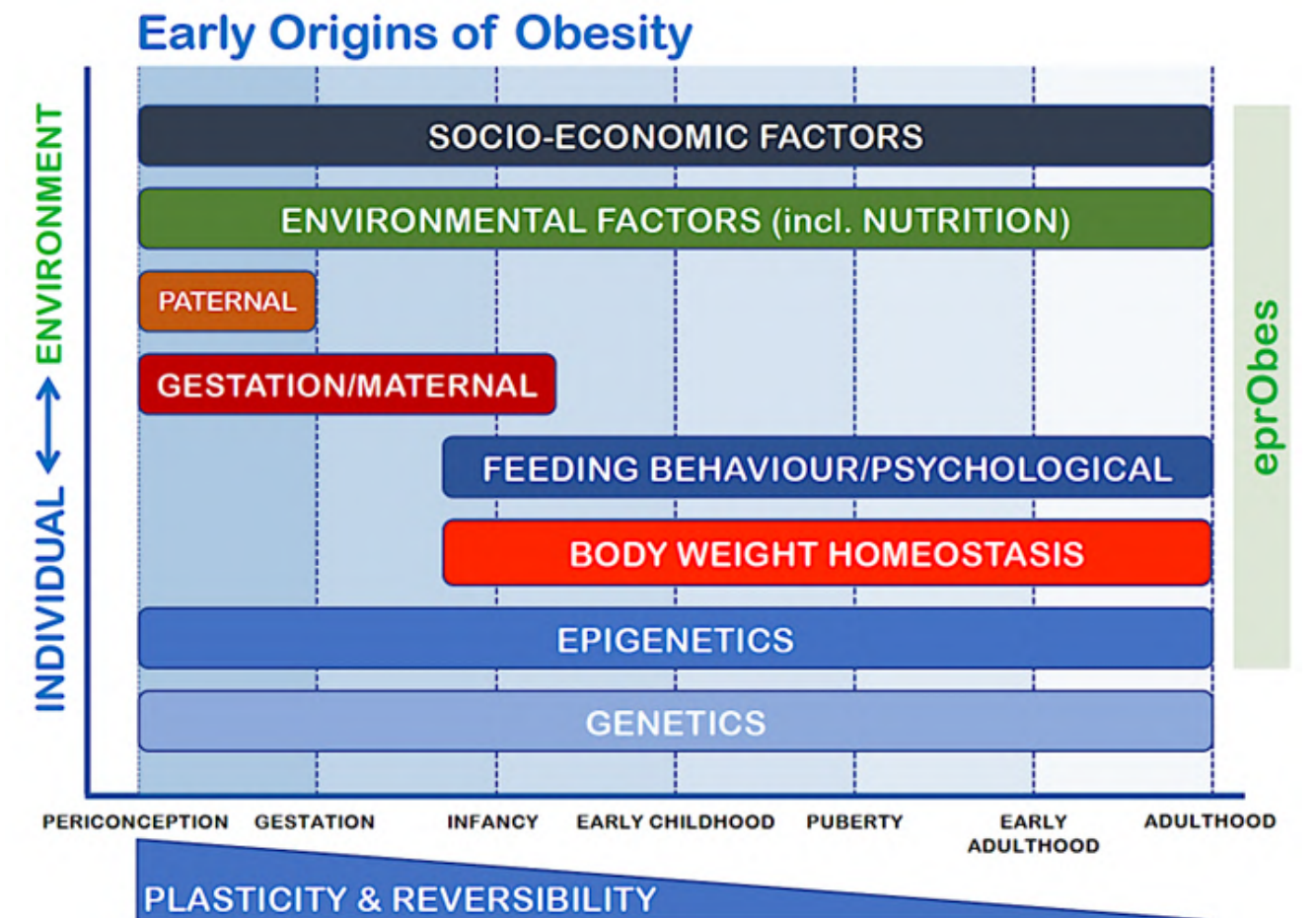


OUR GOAL

To identify early factors (risk and protective) and mechanisms thereof, related with excessive weight gain, in critical maturational periods, including peri-conceptual/gestational, early child development and puberty/adolescence, for setting tailored preventive measures to avoid obesity and its co-morbidities in both sexes.

eprObes is a European project funded by the European Union and promoted by a consortium of 18 organisations from 9 European countries.

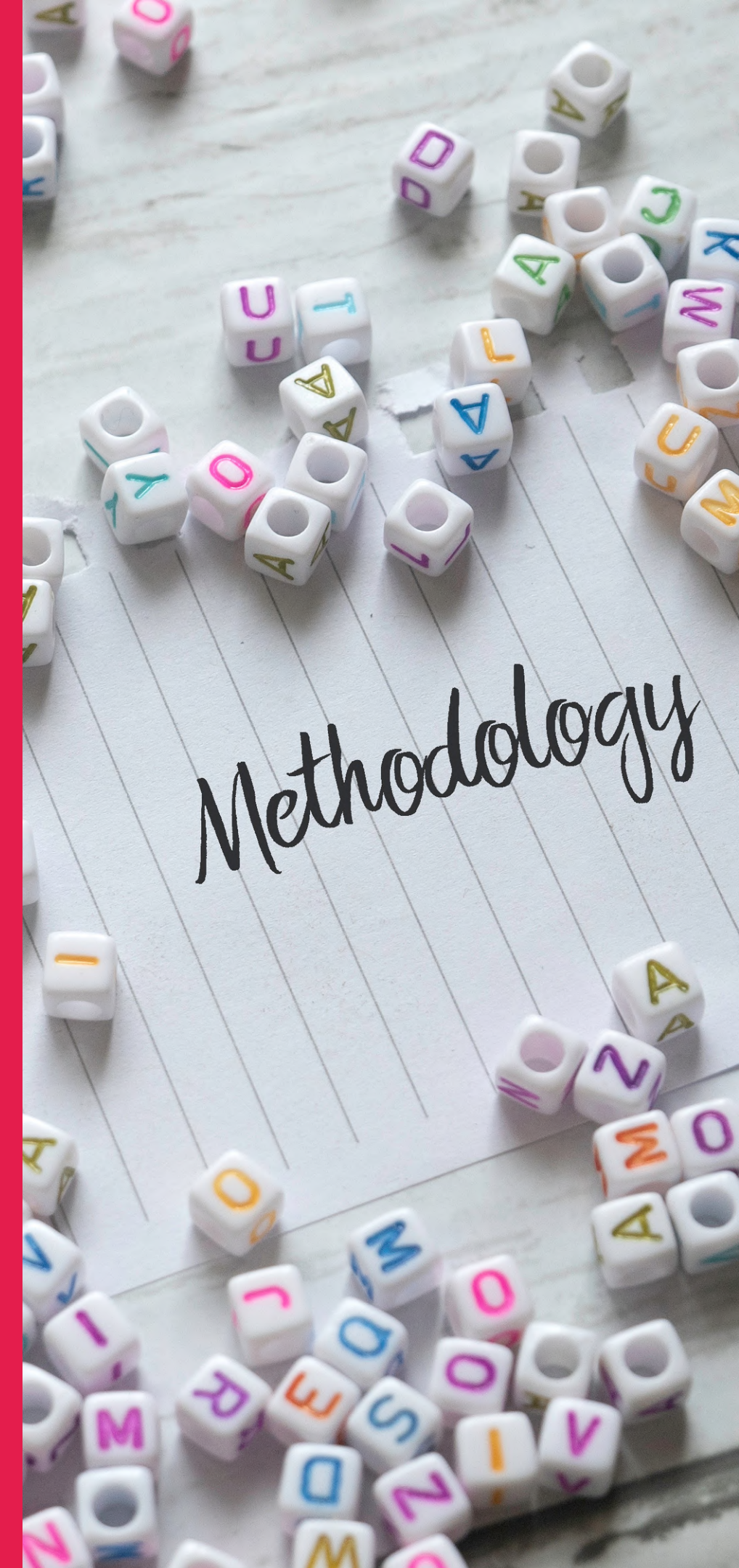
eprObes searches for biomarkers of predisposition to obesity and metabolic disease, as a means to identify subsets of susceptible individuals who might specially benefit from early preventive or intervention strategies.



HOW



The combination of unique clinical cohorts, transversally applied to different WP, preclinical models and multi-omic analyses, together with bioinformatics & AI tools, makes eprObes ideally suited for an outstanding impact, fostering medical sciences & patient care-management, and loosening the economical/societal burden of obesity & co-morbidities.



SPECIFIC OBJECTIVES

Over the course of 60 months, eprObes will cover different objectives of maximum clinical and scientific interest:



- To set programs of early detection of causal factors related with excessive weight gain during the life-course, with a major focus on early developmental stages and puberty.
- To identify the mechanisms underlying causative associations between developmental factors and the generation of life-time obesity, including environmental exposures, epigenetics, and parental and child determinants.
- To characterize mental health determinants and feeding behavior alterations, occurring mainly in adolescents and young adults, underlying the propensity to excessive body weight gain.

- To identify biomarkers for early detection and prognosis of obesity and associated metabolic complications.
- To design and propose tailored preventive strategies and lifestyle interventions for an active prevention of excessive weight gain, overweight or obesity, as well as cardiometabolic complications during the life-course.
- To design decision support systems, based on artificial intelligence, to prevent and treat overweight/obesity, under the concept “make it easy to do the right thing”, and oriented to patient/family and citizens, for self-management of health and wellbeing, as well as for providing assistance to physicians.

WORK PACKAGES

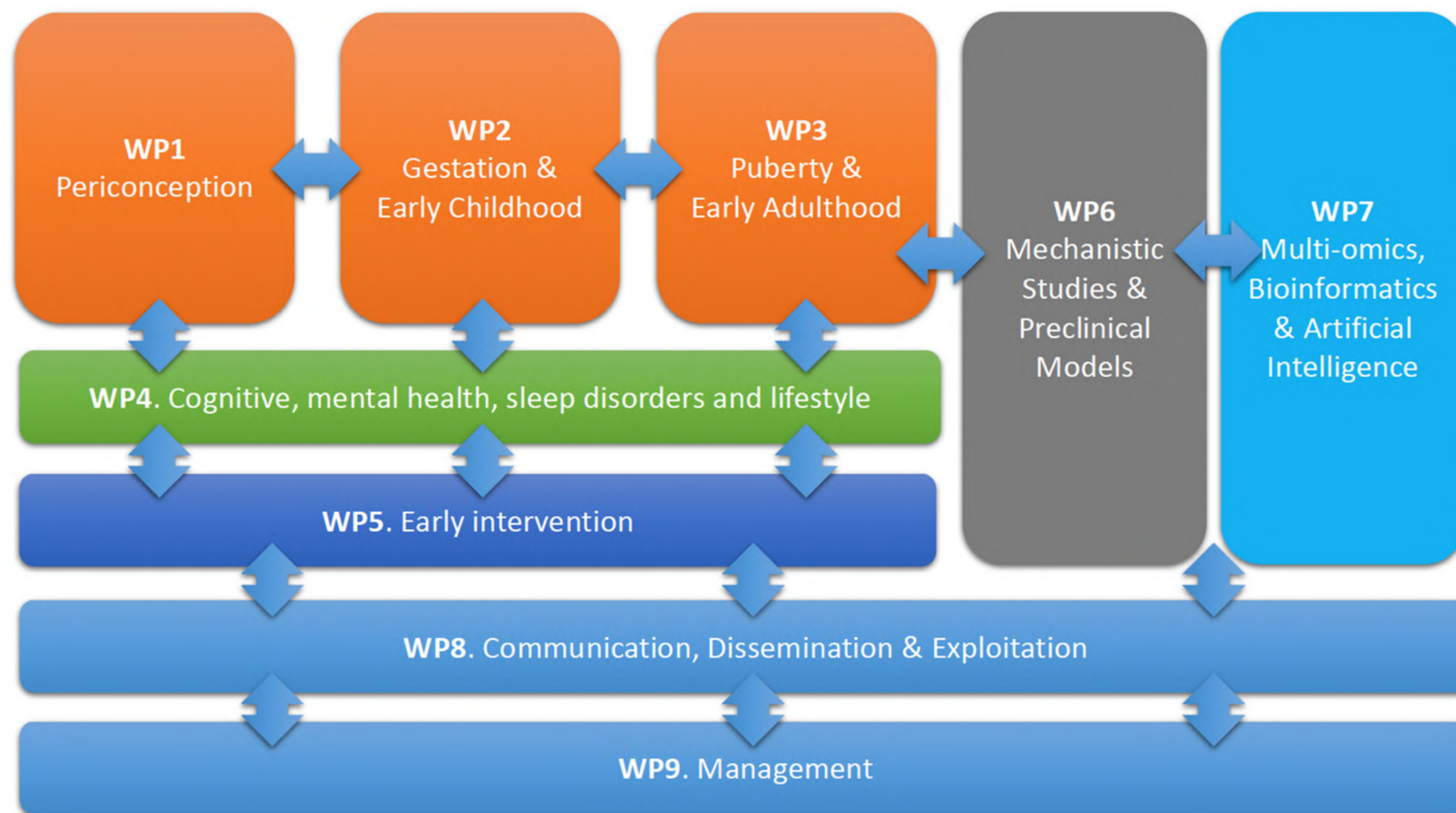
eprObes consists of 9 interconnected work-packages (WP) with clinical & preclinical studies, mechanistic and molecular analyses, multi-omics, bioinformatics and AI.

Clinical studies include cohorts on different developmental windows (WP1-3).

WP covering mental health, behavioral & lifestyle factors (WP4), intervention and prevention studies, focusing on diet, exercise and environment (WP5).

WP1-5 will feed pre-clinical mechanistic analyses in WP6.

Multi-omics & bioinformatic analyses of clinical and preclinical data will (WP7), setting the basis of initiatives for prevention of obesity.



A GLOBAL NETWORK



18 partners from
9 different European

Including research organisations,
leading companies and highly
qualified members from the academia

Promoting equitable gender balance
and encouraging the participation of
Early Stage Researchers

Multidisciplinary, transnational and
person-centered project

CONSORTIUM

1. Consorcio Centro de Investigación Biomédica en Red. SPAIN
 - 1.1 Affiliated entity: Fundación Investigación Hospital General Universitario de Valencia. SPAIN
 - 1.2 Affiliated entity: Fundació Institut d'investigació Biomèdica de Bellvitge. SPAIN
 - 1.3 Affiliated entity: Universidad de Córdoba. SPAIN
 - 1.4 Affiliated entity: Fundación para la Investigación Biomédica de Córdoba. SPAIN
2. Eberhard Karls Universitaet Tuebingen. GERMANY
3. Region Hovedstaden. DENMARK
4. Amaris Research Unit. FRANCE
 - 4.1 Affiliated entity: Amaris España Estrategia e Innovación Tecnológica, S.L. SPAIN
5. Agencia Estatal Consejo Superior de Investigaciones Científicas. SPAIN
6. Uniwersytet Jagiellonski. POLAND
7. Turkish Society of Hypertension and Atherosclerosis. TURKEY
8. Institut National de la Sante Et de la Recherche Medicale. FRANCE
9. Universitat de Valencia. SPAIN
10. Universite de Liege. BELGIUM
11. Viesoji Istaiga Vilniaus Universiteto Ligonine Santaros Klinikos. LITHUANIA
12. Premium Research SL. SPAIN
13. Tallinn Children's Hospital. ESTONIA



JOINING FORCES

OPEN TO COLLABORATE

The consortium will carry out also networking & joint activities with other EU-projects funded under this Topic (STAYHLTH-01-05) to exploit synergies and complementarities.



MORE INFORMATION

Project Coordinator

Consorcio Centro de Investigación Biomédica en Red. CIBER (Spain)

Funded by

European Union, Horizon Europe framework programme

Granting authority

European Health and Digital Executive Agency

Topic

STAYHLTH-01-05

Duration

5 years starting from May 2023

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