Outcomes of the cofunded projects of ERA-HDHL: ERA-NET Biomarkers for Nutrition and Health implementing the JPI HDHL objectives

In 2016, ERA-HDHL with the European Commission (EC) funded 12 multilateral research projects to identify and validate biomarkers for nutrition and health with an overarching objective of better understanding the relationships between nutrition, food, and health. Numerous national and international authorities have presented general concepts for the identification of biomarkers of disease, however, clear recommendations on biomarkers of nutrition and health were lacking. This initiative focuses on biomarkers which are expected to be modulated by diet and that indicate a change in health status and/or the risk of developing diet-related diseases.

The aim of the launched call was to establish an international network of researchers which through effective collaboration would leverage a critical mass of expertise necessary in this multidisciplinary research area, while facilitating excellent science, the sharing of standardised and innovative measures, as well as the training of young scientists.

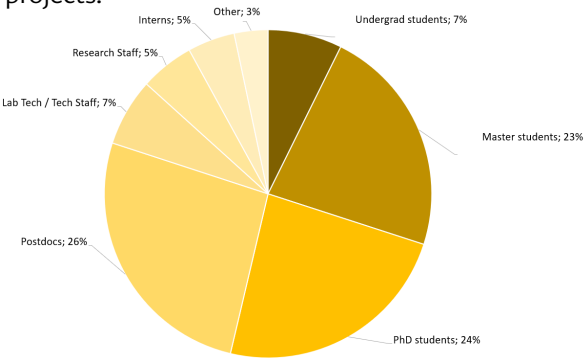
Thirteen countries (Austria, Belgium, Canada, Denmark, France, Germany, Ireland, Italy, Poland, Romania, Spain, The Netherlands and United Kingdom) and the EC allocated 12,48€ M to fund research in the field of biomarkers for nutrition and health. This budget was allocated between 53 research teams.

Multidisciplinary research

The 12 cofunded projects combined between 3 to 11 disciplines to execute their research. The different disciplines involved are integrated in the word cloud below.

Capacity building

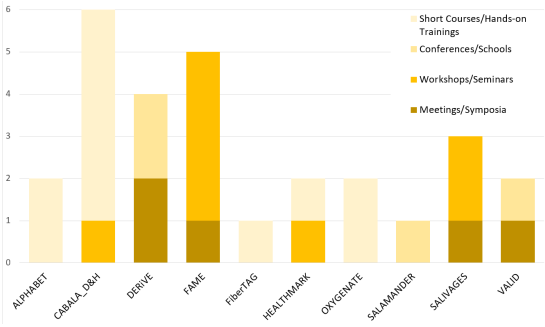
The 12 consortia created a total of 150 jobs, of which 85% were filled by students or early career researchers and clinicians. The last 15% were accounted for laboratory staff (experienced researchers, technicians). The chart below details the job distribution through the 12 cofunded projects.



The ERA-HDHL has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement n. 696295

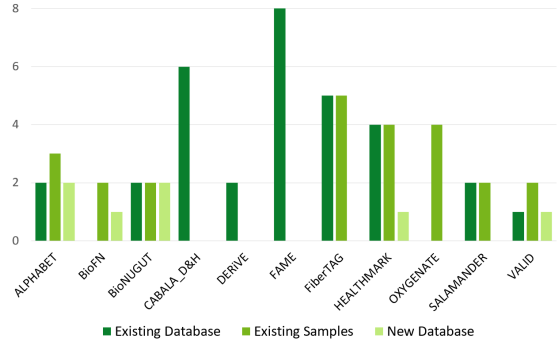
Training

Throughout the 12 consortia, 28 training activities were carried out by the partners, which ranged in scope from those addressed to a single person to those with an audience up to 100 people. The distribution of the types and number of training activities among the different projects are represented in the histogram below. Moreover, 75% of the projects reported cross-institutional exchanges of personnel, with the duration of the exchange ranging between three days and six months. Most of those activities included early career researchers.



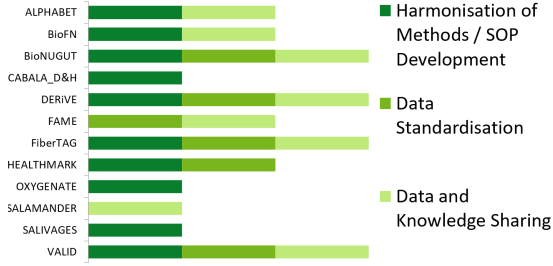
Generation of new databases, exploitation of existing databases and use of existing samples

The consortia were encouraged to make use of existing biobanks and/or cohorts. Five consortia generated new databases, while seven consortia used existing cohorts and/or biobanks (see histogram below).



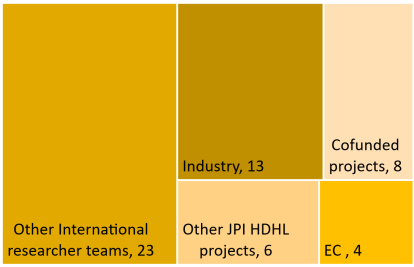
Coordination or harmonisiation of data

Within the cofunded projects, 83%, 50% and 67% worked towards (i) harmonisation of methods/SOP development, (ii) data standardisation and (iii) data and knowledge sharing, respectively (see histogram below).



Fair Principles

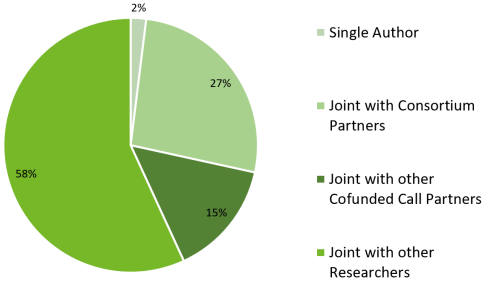
All cofunded projects followed the FAIR principles on data management and data sharing, according to the data transfer agreements within the consortia. The data management plans includes mainly repositories on Open Access at national and European (ENPADASI-DaSH-In, The European Nutritional Phenotype Assessment and Data Sharing Initiative; Dara Sharing Initiative or Open AIRE, Open Access Infrastructure for Research in Europe; MetaboLights, at the European Bioinformatics Institute) levels.



A biomarker network

The funded consortia were well integrated into the research network of biomarkers for nutrition and health. The graph on the left illustrates the collaborations that the 12 consortia had with each other, with other projects funded under the JPI HDHL or the EC Framework Programme, with other international projects, and with some industries.

This intense collaboration is also reflected in 115 scientific publications (by the declared coordinators at the end of the projects) produced by the twelve consortia, of which 65% were published with at least one researcher outside the ERA-HDHL consortia (see sector graph on the right).



Scientific and Public health Impact

All consortia contributed to improve methodologies and/or to elaborate new methods, protocols or tools (see table below). Moreover, four consortia declared that their project will lead to the creation of a start-up or the development of a product. In addition to the 115 publications to the scientific community, seven coordinators reported that their results were communicated to consumers, patients and/or policy makers.

	Improved methodologies	New methods, protocols, tools	New prevention treatment strategies
ALPHABET	✓	✓	✓
BioFN		✓	✓
BioNUGUT			✓
CABALA_D&H	✓	✓	✓
DERIVE		✓	✓
FAME	✓	✓	✓
FiberTAG	✓	✓	✓
HEALTHMARK	✓	✓	✓
OXYGENATE	✓	✓	✓
SALAMANDER		✓	
SALIVAGES	✓	✓	✓
VALID	✓	✓	✓

More information: Coordinator of ERA-HDHL, French National Research Agency (ANR), **Martine.BATOUX@agencerecherche.fr**

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