



PATHFINDER CHALLENGE

PRECISION NUTRITION CHALLENGE GUIDE

EIC Work Programme reference: HORIZON-EIC-2023-PATHFINDERCHALLENGES-01-03

Call deadline date: 18 October 2023, 17.00 CET

EIC Programme Manager: Ivan Stefanic

The EIC will hold an Info Session on this Pathfinder Challenge call on January 31st between 16:00 and 17:30 CET. Participants can access the meeting as guests [here](#). Participation in the meeting, although encouraged, is optional and is not required for the submission of an application. A recording of this Info Session will be made available on the same page. Notifications of additional dissemination events can be found at [Events \(europa.eu\)](#)

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1. About this document

The Challenge Guide serves as guidance and background for the common understanding, participation rules and obligations for the EIC beneficiaries that are involved in the Challenge Portfolio. Contractual Obligations are further detailed in the [EIC Work Programme 2023](#)

The Challenge Guide is a guidance document accompanying a Pathfinder Challenge call topic for proposals to provide further information about how portfolio considerations will be taken into account in the evaluation of proposals for that topic.

The Challenge Guide is prepared by and under the responsibility of the relevant EIC Programme Manager (information about the EIC Programme Managers is available on the EIC Website

(https://eic.ec.europa.eu/eic-communities/eic-programme-managers_en). It complements the Scope, Specific Objectives and/or Specific Conditions set out in the EIC Work Programme by a description of the portfolio considerations and how a portfolio will be selected. The presentation provided by the Programme Manager during the Info Day will give applicants a further opportunity to understand the background of the call, and to ask questions to the Programme Manager. In no case does the Challenge Guide contradict or supplant the Work Programme text.

Following the selection of a proposal to be funded under the Challenge, the Programme Manager will work together with the consortia of the selected projects to develop a common roadmap with a strategic plan for the Challenge. This roadmap/ strategy plan will integrate the activities and milestones of the individual projects into a shared set of objectives and activities across and beyond the projects. The roadmap serves as a common basis for the project portfolio and may affect the project implementation - including possible adjustments, reorientations or additional support to projects. The roadmap will be updated in light of emerging results or issues during the implementation.

2 Scope and objectives of the Challenge as defined in the Work programme

This section is a copy of the Challenge call in the EIC work programme text. Proposals to this Challenge are expected to explain how they relate to and intend to go beyond the state of the art, and how they interpret and contribute to the objectives of the Challenge.

EIC Pathfinder Challenge: Precision nutrition

Background and scope

Dietary guidelines provide recommendations on foods, food groups and dietary patterns to achieve reference intakes of nutrients, prevent chronic diseases and maintain overall health in the general population. However, dietary recommendations are not sufficiently stratified across different categories such as age, gender, ethnicity, genetic predisposition to certain Food-related Health Conditions (FrHCs) such as but not limited to obesity and malnutrition) and Noncommunicable Chronic Diseases (NCDs) such as but not limited to diabetes and hypertension.

The role of diet in human health is increasingly being researched as a factor that could contribute to human health. The human diet can have a pro-inflammatory effect and can influence the immune system by different mechanisms including altering the glycome in a way to produce more pro-inflammatory antibodies. In addition, depending on the genetic predisposition of an individual, diet can play a role in the development of various FrHCs and NCDs. Also, diet has been shown to be associated with the dense and complex population of

microorganisms that colonise the human gastrointestinal tract. Yet, despite current knowledge about the glycome, the susceptibility to different dietary regimes for FrHCs and NCDs requires additional interdisciplinary research, while nutrition, human gut microbiome and glycome research are still mostly compartmentalised.

Common dietary patterns, characterised by high sugar and red meat consumption, as well as overly processed food with a lot of additives, have been investigated as influential factors on human health, including through an increased risk of developing FrHCs and NCDs. The need to ensure the long-term sustainability of current food production amid concerns for global food security, reinforces the idea that additional food sources should be considered and human diet recommendations revised and adjusted to specific needs. A diet based on more plant-based food is certainly a very promising option which provides dietary fibres and a large array of phytochemicals.

This Challenge will only fund multi-disciplinary research proposals that include at least nutritional, microbiome and glycan research aspects. The research focus can be on one or more of the Challenge specific objectives. Proposals are expected to investigate the interactions among nutrition, human gut microbiome and glycans beyond the state-of-the-art, to better clarify the role of diet into human health, including for example the interactions of whole plant foods, highly processed food and fermented foods with the human gut microbiome and glycans.

Since the response of the human gut microbiota to diet is highly individual, we encourage the integration of observational studies, randomised controlled trials, and mechanistic studies in animal models with a machine learning approach that can be applied to a large number of participants and large data sets from already available studies.

Proposals are expected to consider regulatory aspects and to build on the work carried out so far by the European Food and Safety Authority (EFSA)

Overall goal and specific objectives

The goal of this Challenge is to investigate and provide scientific evidence of the role of diet in FrHCs and NCDs. The specific objectives of this Challenge are:

- Investigate causal relationships among diet, microbiome and glycans, with potential impact on personalising human diet.
- Identify food ingredients, food technology processes, additives and dietary patterns that have negative effects on human health and, aging.
- Identify food ingredients, food technology processes and additives that have a beneficial effect on human health, and aging.
- Develop recommendations for the reformulation of new food products and processes with no- or fewer additives

Expected outcomes and impacts

Understanding and establishing relationships between diet and the pathology of Food related Health Conditions and Noncommunicable Chronic Diseases would enable the prevention and alleviation of the consequences of FrHCs and NCDs on health and wellbeing through changes in diet. This is foreseen through the evidence-based upgrade of the current dietary guidelines. In the long run, it is expected that project results will be the basis for the development of novel foods and processes which might decrease the incidence of FrHCs and NCDs among the general population, and a better quality of life for the individuals affected by these conditions

3 Portfolio considerations for the evaluation of applications to the Challenge

This section describes how portfolio considerations will be taken into account in the second evaluation step. For more details of the full evaluation process please refer to the EIC Work Programme pages 29-32.

Portfolio considerations

For this Challenge, the portfolio-building process will be based on the preliminary mapping by the committee of the proposals to one (or both) of the following categories:

- i) Food-related Health conditions such as but not limited to obesity and malnutrition;
- ii) Noncommunicable Chronic diseases such as but not limited to diabetes and hypertension.

The evaluation committee will aim to compose a balanced portfolio covering a wide range of Food-related Health conditions and Noncommunicable Chronic diseases.

Within and among these categories, the evaluation committee will look at shared components or potential complementarities among the projects to identify a clear added value for the development of synergies and collaborations among the projects in the portfolio in order to maximise the overall impact on the expected outcomes and impacts of the Challenge. Shared components or potential complementarities could be related to course of action (food ingredients, food technology processes or additives) and/or technological approach and -omics analysis (such as but not limited to glycome, and microbiome) with the assumption that results of the portfolio activities would benefit from the convergence of different research disciplines.

Starting from the highest ranked proposal, a portfolio of proposals will be selected based on shared components/complementarities, while ensuring diversity among the selected proposals and coverage of the two categories. This implies that if the evaluation committee considers that a highly ranked proposal does not have a shared component/complementarity with other proposals, it will not be selected for the portfolio. To ensure diversification, proposals which the evaluation committee considers to be very similar to a proposal already included in the

portfolio will not be selected. Consequently, this means that the projects selected for funding after the second step is expected to differ from the ranking list established from the first step (score based ranking after assessment of each proposal separately).

The following table summarises the portfolio building approach.

Category	Shared component/complementarity	
	Course of action	Technological approach
<ul style="list-style-type: none"> • Food-related Health Conditions • Noncommunicable Diseases-NCDs 	<ul style="list-style-type: none"> • Food ingredients • Food technology processes • Food additives 	<ul style="list-style-type: none"> • Methodology applied • Omics analysis.

4 Implementation of the Challenge portfolio

Once selected, projects will be expected and are obliged to work collectively during the implementation of their projects under the guidance of an EIC Programme Manager. This section summarises some of the key aspects of this pro-active management which applicants should take into account in preparing their proposals.

Proposal preparation and Grant negotiations

Applicants may be requested to make amendments to their proposed project in order to enhance the portfolio. Such changes may for instance include additional tasks to undertake common/ joint activities (workshops, data exchanges, joint research, etc) with other projects in the portfolio.

Based on first experience, it is advised to foresee in your proposal a dedicated work package for portfolio activities and to allocate at least 10 person-months (see below for the purpose and examples of such activities. You may propose concrete activities or remain generic in your description).

If you fail to do this during proposal time, you will not be scored lower during the evaluation, but in case your proposal is selected for grant agreement preparation, you will be requested to add the portfolio work package to your grant agreement. Please be aware that in that case the maximum grant you receive will not change, and you will need to find the resources for portfolio activities within the project budget.

Challenge portfolio roadmap/ strategy plan

The portfolio aims at:

1. Enhancing the opportunities for individual projects in the portfolio to understand and establish relationships between diet and the pathology of Food related Health Conditions and Noncommunicable Chronic Diseases and translate that into comprehensive dietary recommendations that would enable the prevention and alleviation of the consequences of FrHCs and NCDs by giving them access to a much higher number of relevant experiences to explore key partnerships.
2. Enhancing the commercialisation potential of the individual projects in the portfolio by ensuring that portfolio members, can access the right partners to explore key partnerships .

In order to accomplish the above the Programme Manager needs to develop and agree on a strategy plan for the precision nutrition portfolio with the portfolio projects.

Portfolio Strategy Plan

Following the selection of a proposals to be funded under the Challenge, the Programme Manager will work together with the consortia of the selected projects to develop a common strategy plan/roadmap for the Challenge. This plan will integrate the activities and milestones of the individual projects into a shared set of specific objectives and activities across and beyond the projects. The roadmap serves as a common basis for the project portfolio and may affect the project implementation - including possible adjustments, reorientations, or additional support to projects. The roadmap will be updated in light of emerging results or difficulties during the implementation. The objectives can be revised, for instance based on projects' unexpected achievements, new technology trends, external inputs (other projects, new calls...).

In particular, the Challenge roadmap/ strategy plan will include activities on the transition to innovation and commercialisation, and to stimulate business opportunities. These activities may be reinforced during the implementation with additional funding and expertise through pro-active management.

Non-exhaustive examples of activities towards the above-mentioned aims are:

- Contributing to understand better/improve the current regulatory framework
- Effectively communicate of any key outcome of the research work of the portfolio members collectively and/or an individual project, to early stage private and corporate investors focused on the same field. Such communication might also be addressed to

the general public to increase social acceptance for proposed solutions, or to other researchers and stakeholders through common dissemination activities at scientific conferences or trade-fairs.

- Market analysis: Map the targeted players in a market and exchange the market research analysis results with other the portfolio projects to identify specific players with which the entire portfolio can establish partnership(s) of much higher impact as opposed to that of the individual project.
- Discussions on IP, licensing and business models and commercialisation strategy
- Providing access to Open Innovation Test Beds and other research infrastructure or clinical trials
- Standardisation activities
- Providing access to new markets through multipliers like Enterprise Europe Network

These tasks require the active participation of portfolio members to a series of meetings called for and steered by the Programme Manager. Portfolio projects will be expected to exchange information on the proposed research methodologies, experimental tests, techno-economic input data and relevant results achieved, in order to collectively use the available resources. This exchange of data between portfolio members can enhance the potential of individual projects, use of results originating from the analysis of common databases, as well as their chances to establish key partnerships. The exchange of information for the purpose of EIC portfolio activities will fall under the conditions and non-disclosure obligations as specified in the EIC Work Programme 2023 (Annex 6, section 2).

Tools through which projects can receive additional support

Projects in the portfolio may be offered additional support, either individually or collectively, in order to reinforce portfolio activities or explore the transition to innovation. Such additional support includes:

- Booster grants of up to €50k (see Annex 5 of the EIC Work Programme)
- Access to additional EIC Business Acceleration Services (see https://eic.ec.europa.eu/eic-funding-opportunities/business-acceleration-services_en)
- Access to the Fast Track to the EIC Accelerator, which would follow a project review (see Annex 3 of the EIC Work Programme)
- The possibility to apply for EIC Transition if your Pathfinder project resulted in an experimental proof of concept (TRL 3), or a technology validated in the lab (TRL 4)
- Access to the EIC Market Place, once operational, to connect with innovators, investors and other selected partners
- Interactions with relevant projects and initiatives outside the portfolio, including other EU funding initiatives as well as those supported by national, regional or other international bodies.