

# Research and innovation network on Food and Nutrition Sustainability, Safety and Security

# Daniele Del Rio

Coordinatore Scientifico e Presidente del CDA della Fondazione ONFOODS,  
Professore Ordinario di Nutrizione Umana, Università degli Studi di Parma

ENTI VIGILATI

Logos of monitored entities (ENTI VIGILATI):

- UNIVERSITÀ DI PARMA
- ALMA MATER STUDIORUM UNIVERSITÀ DI BOLOGNA
- Consiglio Nazionale delle Ricerche
- POLITECNICO MILANO 1863
- SAPIENZA UNIVERSITÀ DI ROMA
- UNIVERSITÀ DEGLI STUDI DI BARI ALDO MORO
- Università di Catania
- UNIVERSITÀ DEGLI STUDI DI MILANO
- UNIVERSITÀ DEGLI STUDI DI MILANO BICOCCA
- UNIVERSITÀ DI PAVIA
- UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II
- UNIVERSITÀ DI PISA

Affiliated entities



Total funding: 114M€

Cascade calls: 20M€

ENTI NON VIGILATI

Logos of non-monitored entities (ENTI NON VIGILATI):

- UNIVERSITÀ CATTOLICA del Sacro Cuore
- unibz
- Freie Universität Bozen
- LIBERA UNIVERSITÀ DI BOLZANO
- Università Liedia de Bulsan
- NEURIMED I.R.C.C.S. ISTITUTO NEUROLOGICO MEDITERRANEO
- crea
- ENEA
- Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile
- FONDAZIONE EDMUND MACH
- ISTITUTO DI RICERCHE FARMACOLOGICHE MARIO NEGRI - IRCCS

AZIENDE

Logos of companies (AZIENDE):

- Barilla
- BOLTON FOOD
- RIO
- CIRFOOD
- DeLonghi Group
- SACCO system
- CONFCOOPERATIVE
- TECNOALIMENTI

PEOPLE INVOLVED

**+600\***

\*Among which 129 newly recruited researchers  
and 200 new PhD students and post-docs

ORGANISATIONS

**26**

WORK PACKAGES

**26**

RESEARCH PROJECTS

**+200**

TASKS

**28**

→ SPOKE 1

## Global sustainability

Fair food market for healthy citizens

Spoke leader Filippo Arfini

Lead organization Università degli studi di Parma

→ SPOKE 2

## Smart and circular food system and distribution

To valorize food waste and smart and virtuous logistics

Spoke leader Antonio Logrieco

Lead organization Consiglio Nazionale delle Ricerca (CNR)

→ SPOKE 3

## **Food safety of traditional and novel foods**

Promoting a safe food innovation

Spoke leader Maria De Angelis

Lead organization Università degli studi di Bari

→ SPOKE 4

## **Food quality and nutrition**

To push towards sustainable and tailored food and nutrition

Spoke leader Patrizia Riso

Lead organization Università di Milano

→ SPOKE 5

## Lifeling nutrition

### A healthy diet for all

Spoke leader Annamaria Colao

Lead organization Università degli studi di Napoli Federico II

→ SPOKE 6

## Tackling malnutrition

### To restore resilience and defeat malnutrition

Spoke leader Hellas Cena

Lead organization Università degli studi di Pavia

→ SPOKE 7

## Policy, behaviour and education Smarter Behaviors for Healthier Diets

Spoke leader Matteo Vittuari

Lead organization Università degli studi di Bologna



## PUBLIC AND PRIVATE FOOD PROCUREMENT AND SHORT FOOD VALUES CHAINS IN URBAN AREAS (PPP\_URB)

Public and private food procurement as policy tools to enhance the quality and variety, affordability and sustainability of the local food systems: from food production to distribution, consumption, and waste management.

### PARTNERS

P. I. Prof. Federico Caniato and Prof. Anna Meroni (Politecnico di Milano)  
 Università degli Studi di Parma, Università degli Studi di Milano, Università degli Studi di Bari Aldo Moro, Università di Napoli Federico II, Sapienza Università di Roma, Università degli Studi di Catania

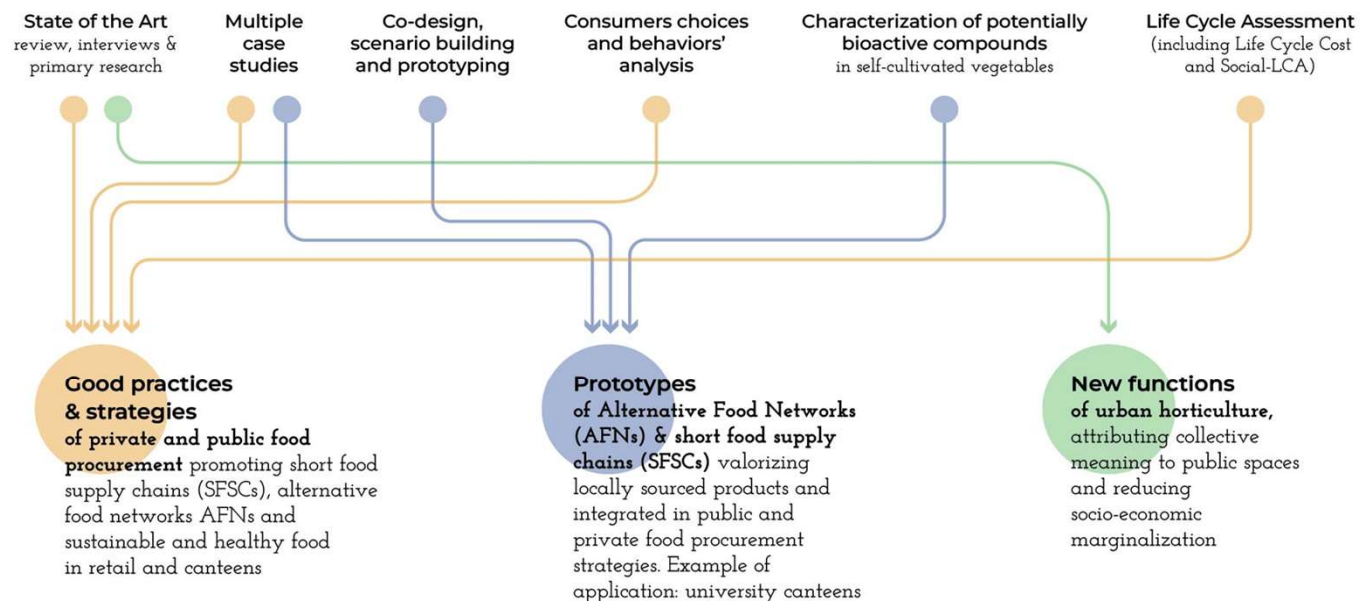
### RESEARCH GOALS

- Quality & variety**  
 Stimulate production of "Km0" and locally sourced products, regional varieties and traditional agrifood products, highly nutritional and climate-resistant crops
- Accessible distributional channels**  
 Promote short food supply chains and alternative food networks enabling small farmers to compete in the global market and improve urban-rural linkages
- Affordability**  
 Overcome the trade-off between the increasing consumer demand for organic, local, healthy, ethnic food and the need to contain procurement costs
- Sustainability**  
 Ensure the environmental, social and economic sustainability throughout products' life-cycle

### ACTORS INVOLVED



### METHODOLOGIES & EXPECTED RESULTS



**DIFOSTER** - DEVELOPMENT OF INNOVATIVE FOODS THROUGH ENCAPSULATION AND FERMENTATION TECHNOLOGIES

*Emma Chiavaro, Ottavia Parenti, Neamtallah Assaf, Marcello Alinovi, Maria Paciulli*



Large request for **functional cereal-based products** (baked products, pasta, etc.)

Request of **new strategies** for meeting market needs

**Innovative Treatments - Formulations - Processing Conditions** of cereals/pseudo-cereals/pulses will be tested

Application of novel technologies

Encapsulated bioactives from plant by-products

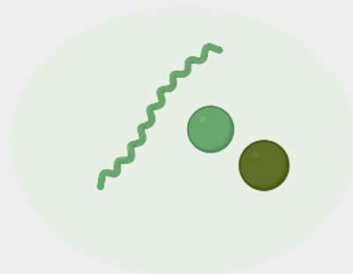
Lactic Acid Bacteria (LAB) Fermentation

**Optimization trials** will be performed to

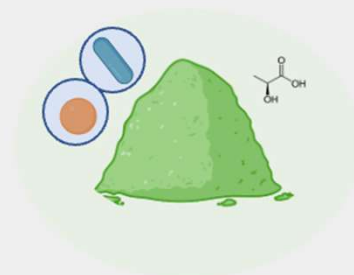
- Improve the **nutritional quality**
- Ensure **acceptable technological** and **sensory quality** of innovative food prototypes

## **FAUST**- FERMENTED MICROALGAE AS FUNCTIONAL SUPPLEMENTS

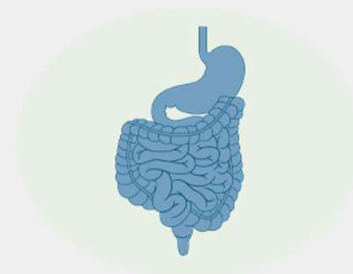
*Francesco Martelli, Valentina Bernini, Benedetta Bottari, Elena Bancalari, Monica Gatti*



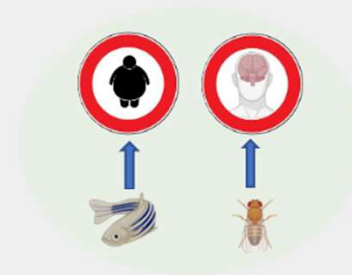
**Microalgae and Cyanobacteria**



Semi-solid- state **fermentation** of biomasses with Lactic Acid Bacteria (**LAB**)



Study on the modulation of the **intestinal microbiota** by using **SHIME®** (Simulator of Human Intestinal Microbial Ecosystem)



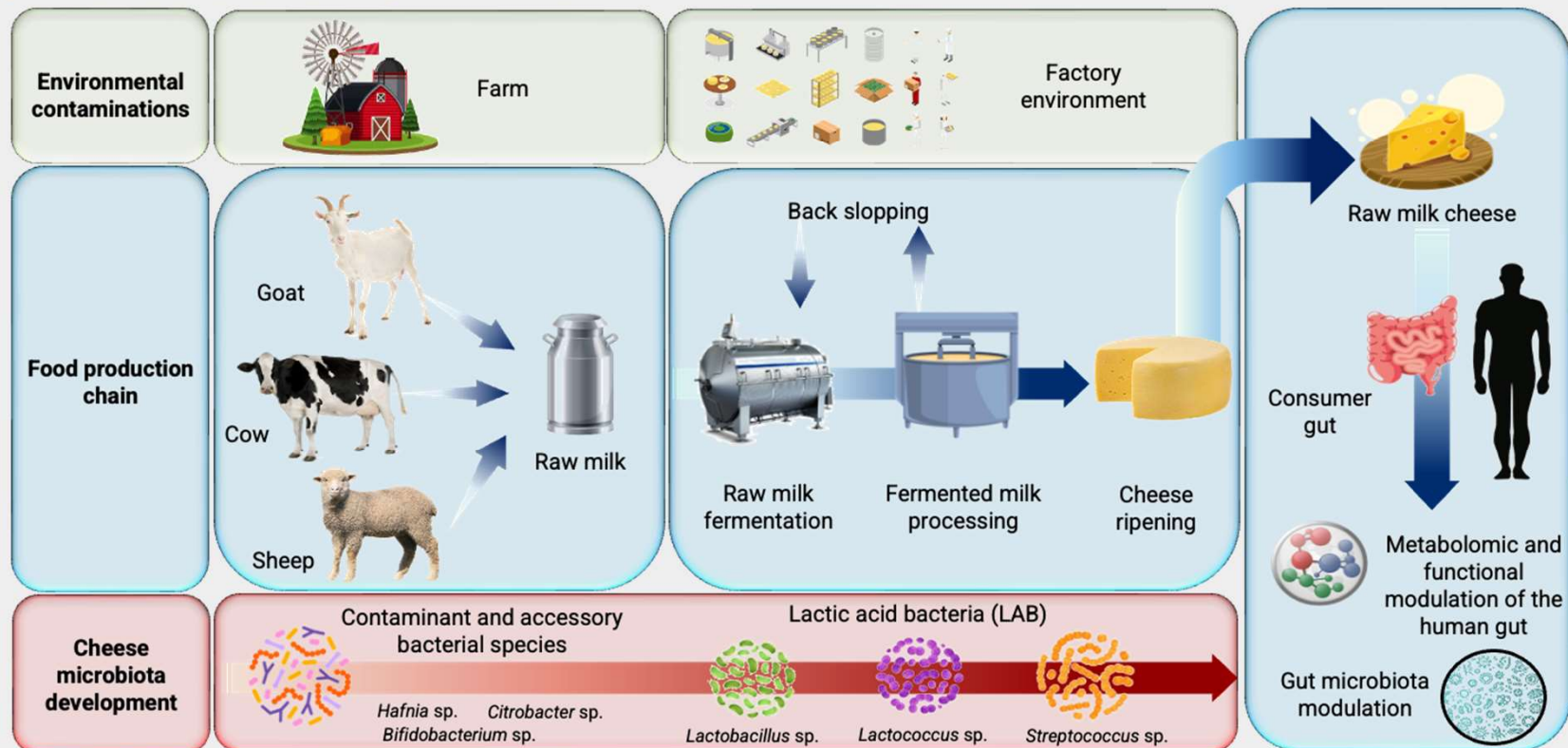
**Bioactivity** assessment (**Cognitive decline, obesity** and comorbidities prevention) using model organisms (*Danio rerio* and *Drosophila melanogaster*)



**Functional supplement** based on **fermented microalgae**

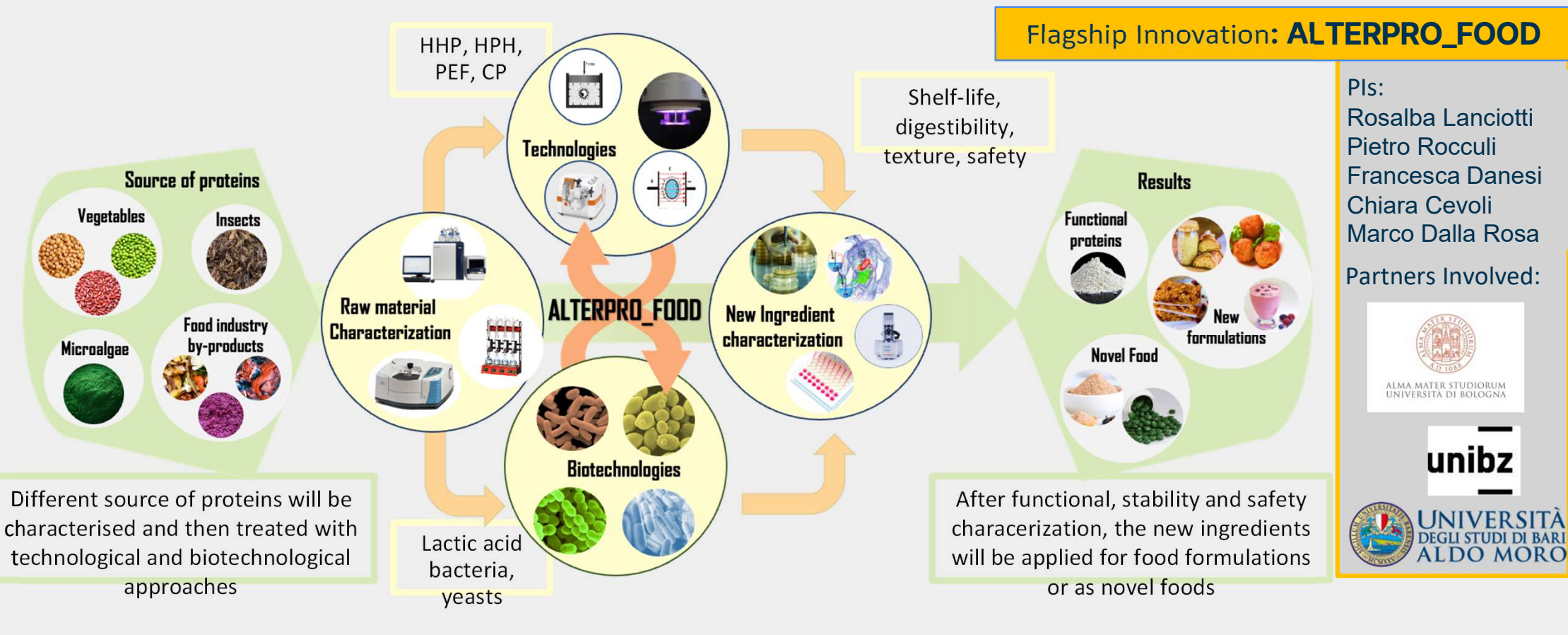
# FOOD-MICROBIOME – DISENTANGLING THE FUNCTIONAL CONTRIBUTION OF FOOD MICROBES ON THE HUMAN GUT MICROBIOME

Marco Ventura, Francesca Turroni and Christian Milani



PRODUCTION OF ALTERNATIVE SOURCE OF PROTEINS, THROUGH TECHNOLOGICAL AND BIOTECHNOLOGICAL PROCESSES, TO BE USED AS INNOVATIVE AND SAFE FOOD INGREDIENTS

Flagship Innovation: **ALTERPRO\_FOOD**



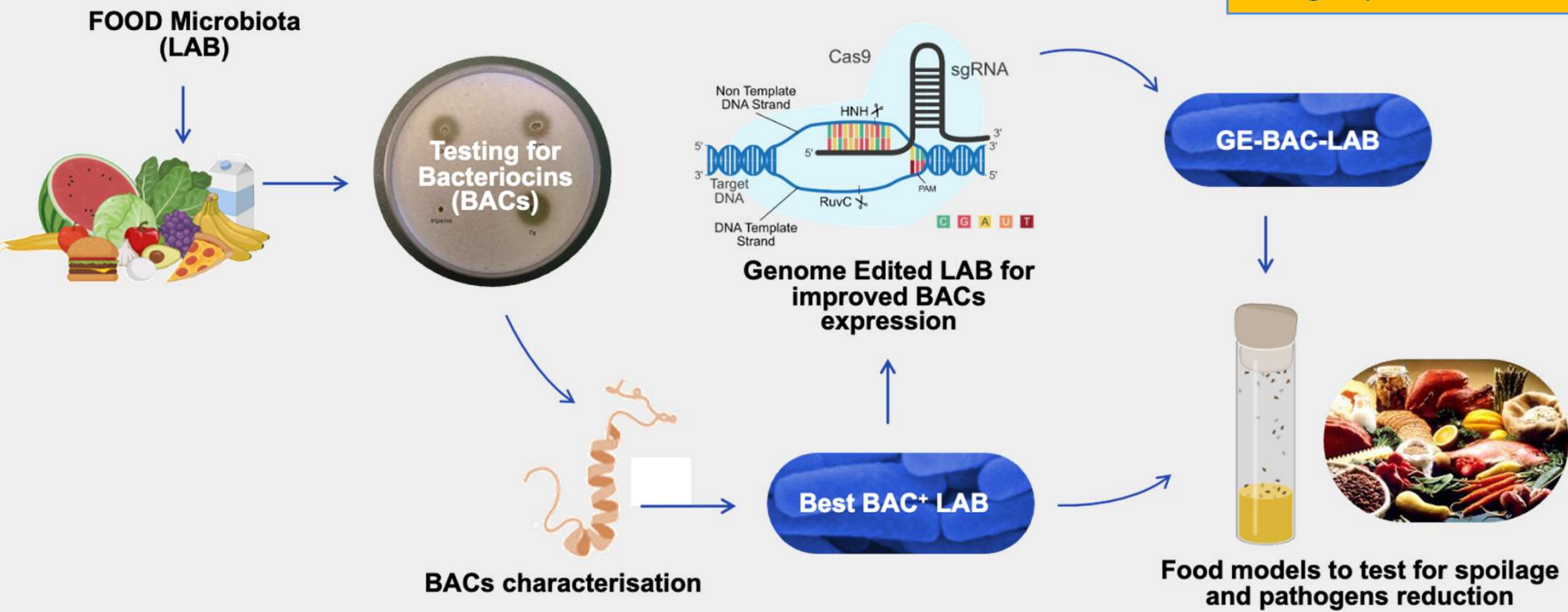
PIs:  
 Rosalba Lanciotti  
 Pietro Rocculi  
 Francesca Danesi  
 Chiara Cevoli  
 Marco Dalla Rosa

Partners Involved:



USE OF AUTOCHTHONOUS OR GE LACTIC ACID BACTERIA FOOD CULTURES TO REDUCE SPOILAGE AND INCREASE THE SHELF LIFE OF TRADITIONAL PRODUCTS

Flagship Innovation: **LAB\_RED SOIL**



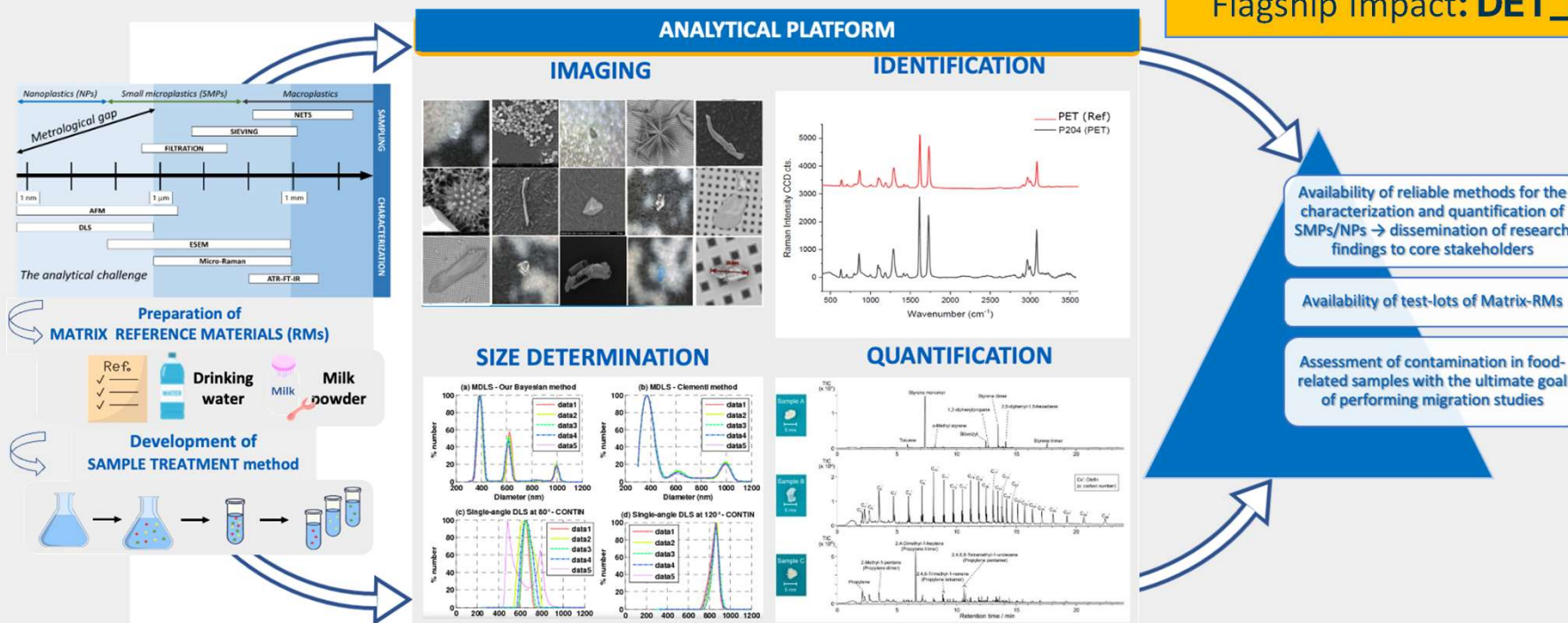
PIs:  
Daniela Bassi

Partners Involved:



# DEVELOPMENT AND VALIDATION OF INNOVATIVE ANALYTICAL METHODS FOR THE RELIABLE DETECTION AND DETERMINATION OF SMALL MICRO/NANOPLASTICS IN FOOD-RELATED SAMPLES

Flagship Impact: **DET\_MINANOPLATIC**



PIs:  
 Maria Careri  
 Claudia Zoani

Partners Involved:

UNIVERSITÀ DI PARMA

ENEA

Barilla  
 The Italian Food Company. Since 1877.

**FUTURE DIRECTIONS: Method standardization, traceable methods for NPs/SMPs**



UNIVERSITÀ DEGLI STUDI DI MILANO

PRINCIPAL INVESTIGATORS

Daniela Martini, Patrizia Riso

PARTNERS



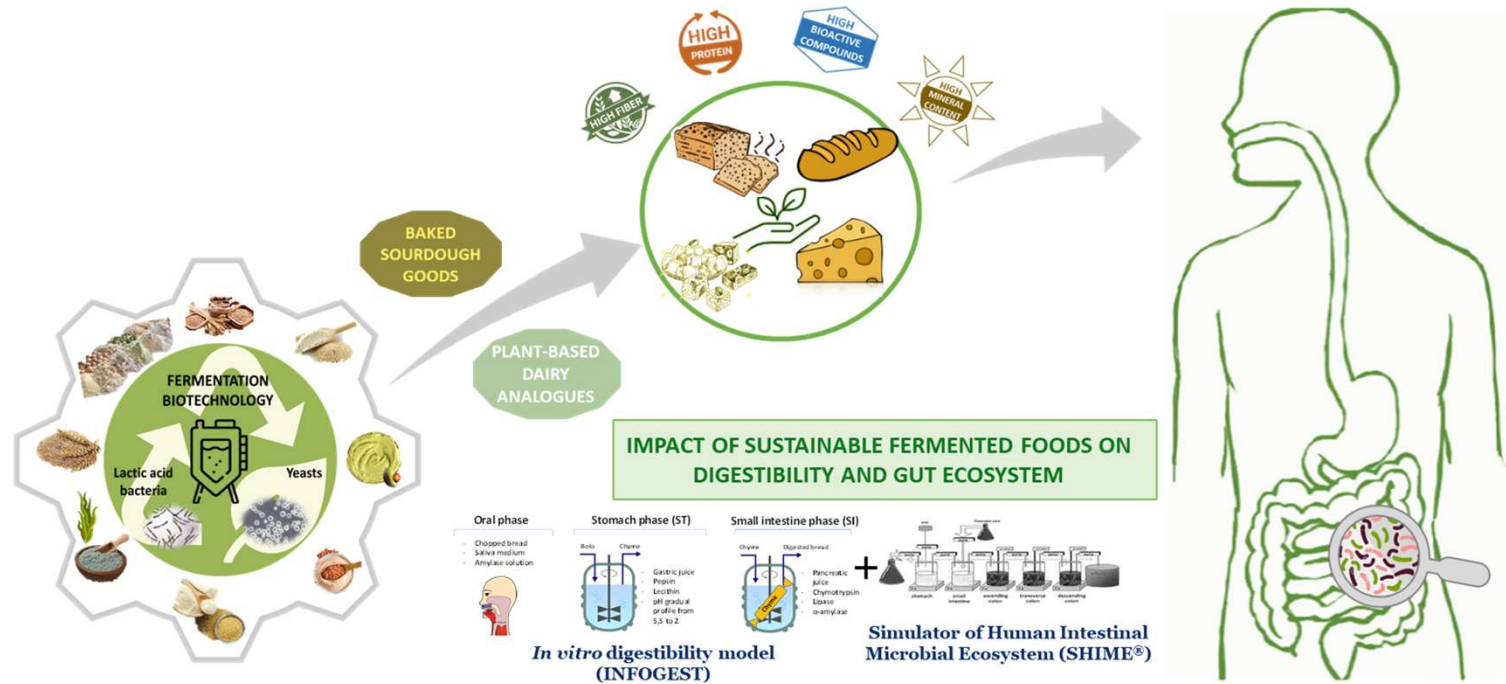


unibz

PRINCIPAL INVESTIGATOR

Marco Gobbetti

SUSTAINABLE FERMENTATION PROCESSES FOR IMPROVING FOOD QUALITY AND NUTRITION, SAFETY AND SHELF LIFE (SUSFOOD)

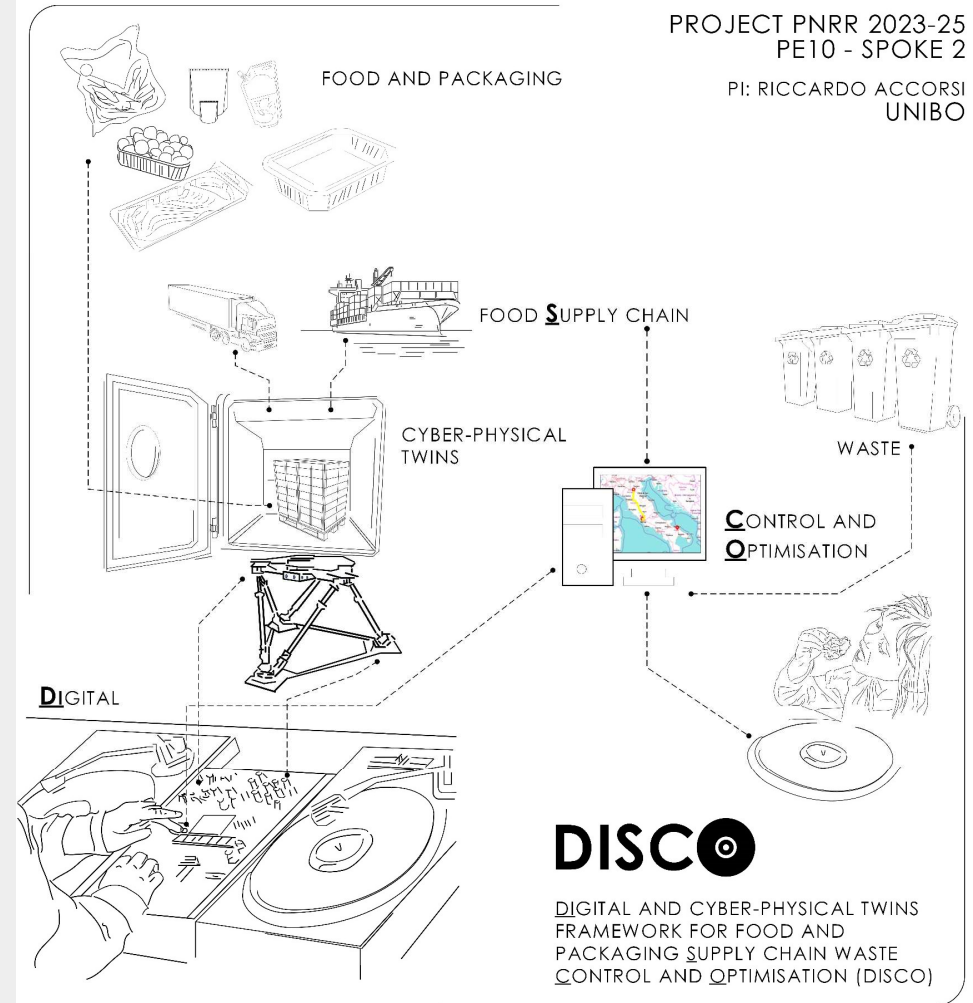


**DISCO**

DIGITAL AND CYBER-PHYSICAL TWINS FRAMEWORK FOR FOOD AND PACKAGING SUPPLY CHAIN WASTE CONTROL AND OPTIMISATION

*UNIBO-Riccardo Accorsi*

onfoods  
Flagship project

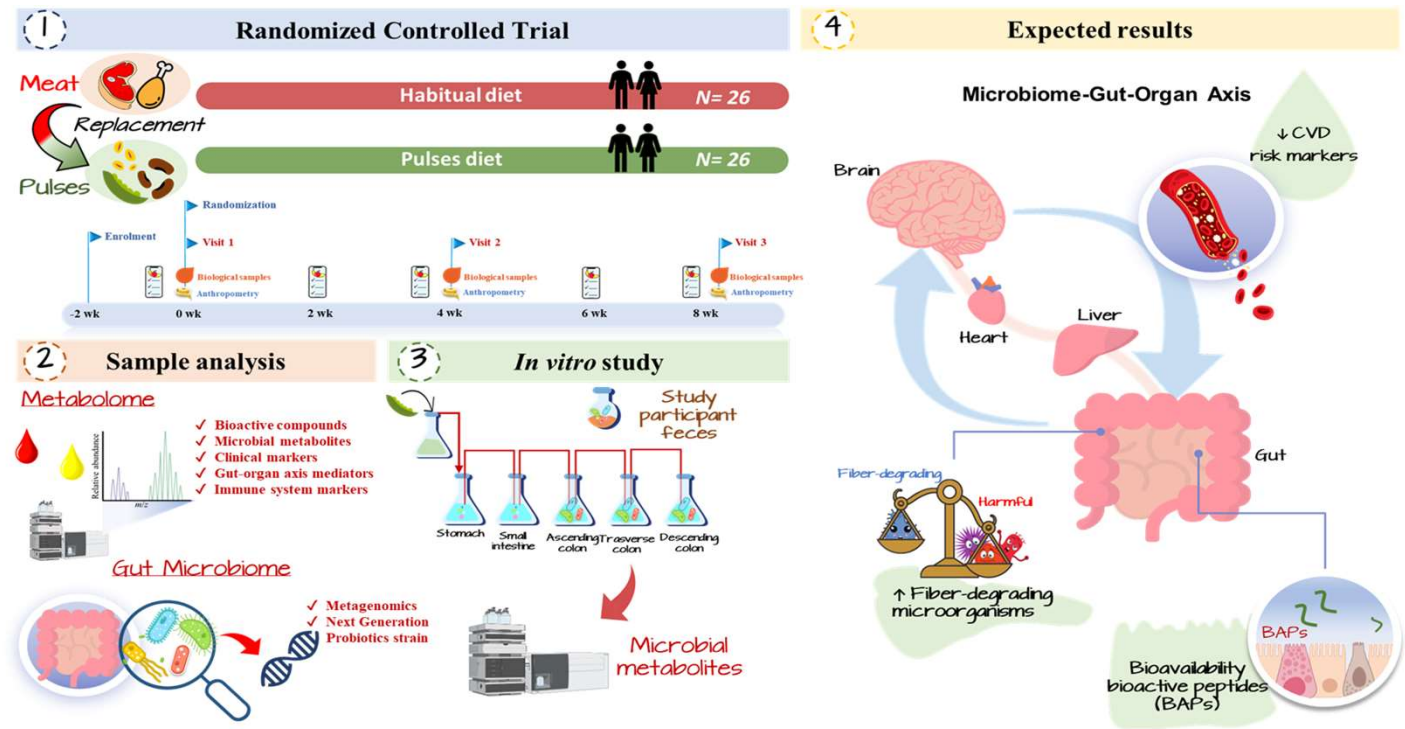




UNIVERSITÀ DEGLI STUDI DI NAPOLI  
FEDERICO II

Paola Vitaglione  
Danilo Ercolini  
Luisa Cigliano

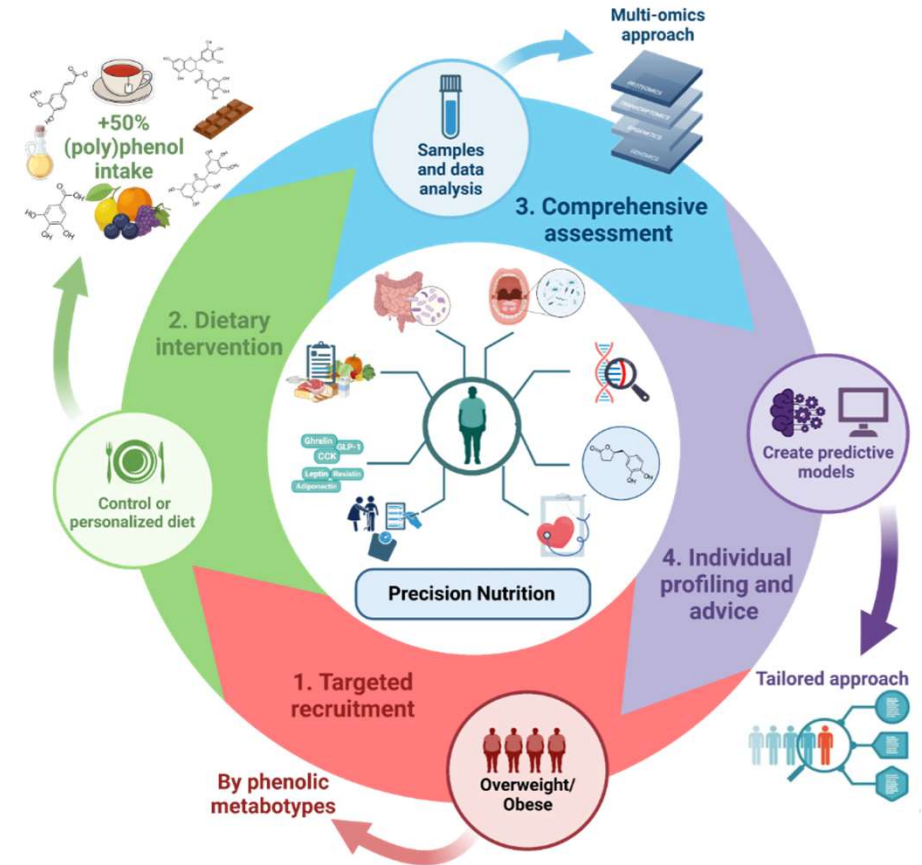
## Discovering the effects of pulses through the gut microbiome and bioavailability of bioactive compounds (DE LEGUMINIBUS)



# OBI-WAN-DIET

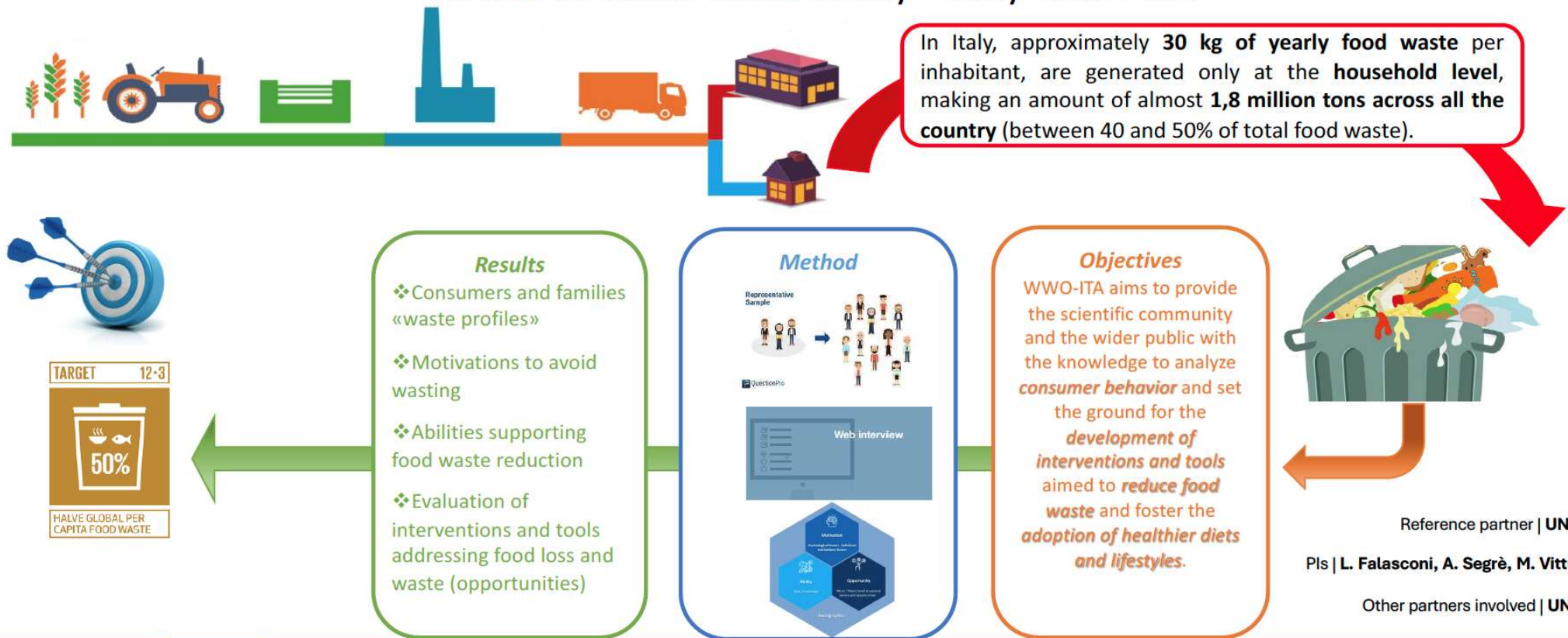
A multi-omics approach to tackle **obesity** at individual level **with plant-based diets**

PIs:  
*Pedro Mena*  
*Daniele Del Rio*



## Waste Watcher Observatory – Italy WWO-ITA

In Italy, approximately **30 kg of yearly food waste** per inhabitant, are generated only at the **household level**, making an amount of almost **1,8 million tons across all the country** (between 40 and 50% of total food waste).



# Coinvolgimento delle aziende?



**In kind**



**Cascade funding**

[www.onfoods.it](http://www.onfoods.it)



Ready by the end of APRIL!

# Ringraziamenti



Ente finanziatore: Progetto finanziato dall'Unione Europea - NextGenerationEU - Piano Nazionale Resistenza e Resilienza (PNRR) - Missione 4 Componente 2 Investimento 1.3 - Avviso N. 341 del 15 marzo 2022 del Ministero dell'Università e della Ricerca. Award Number: Codice progetto PE00000003, Decreto Direttoriale MUR n. 1550 dell'11 ottobre 2022 di concessione del finanziamento, CUP D93C22000890001, titolo progetto "ON Foods - Research and innovation network on food and nutrition Sustainability, Safety and Security - Working ON Foods".

