

EUREGIO

ENVIRONMENT, FOOD & HEALTH (EFH)

EUREGIO Environment, Food & Health (EFH) deals with the growing socioeconomic challenges of age- and obesity-related chronic disease. It addresses the interface of environment, genetics, metabolome, microbiome, food and health, linked to obesity and ageing. These are important research priorities identified within current European, national and regional research plans.

Our mission is to lay the scientific basis for practical approaches to fight obesity and age-related chronic disease, providing innovative solutions and new products, valorising regional food production chains while safeguarding the natural environment.



The EFH project is built around the “one health” concept, and will address how ENVIRONMENT, FOOD and HEALTH are all linked to obesity and healthy ageing.

By the year 2060 more than 20% of the EUREGIO population will be over 65 years of age placing considerable economic burden on social provision and health care costs. Similarly, more than 50% of our people are currently overweight and nearly 20% obese. This “perfect storm” of age and obesity related chronic disease threatens the economic viability of our region and the health and welfare of our people.

The EFH project proposes a multidisciplinary approach, drawing on scientific expertise in different disciplines (environmental science, public health, psychology of risk perception, dairy science, food science and technology, nutrition, metabolomics, genetics, bioinformatics, gut microbiota, gene ecology, cell biology, biomedicine, epidemiology, clinical nutrition, obesity and gerontology), to tackle the multifaceted challenges of obesity and healthy ageing.

Our mission will be implemented using a three-pronged approach

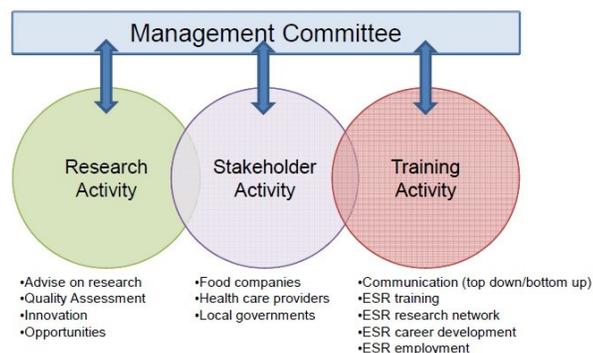
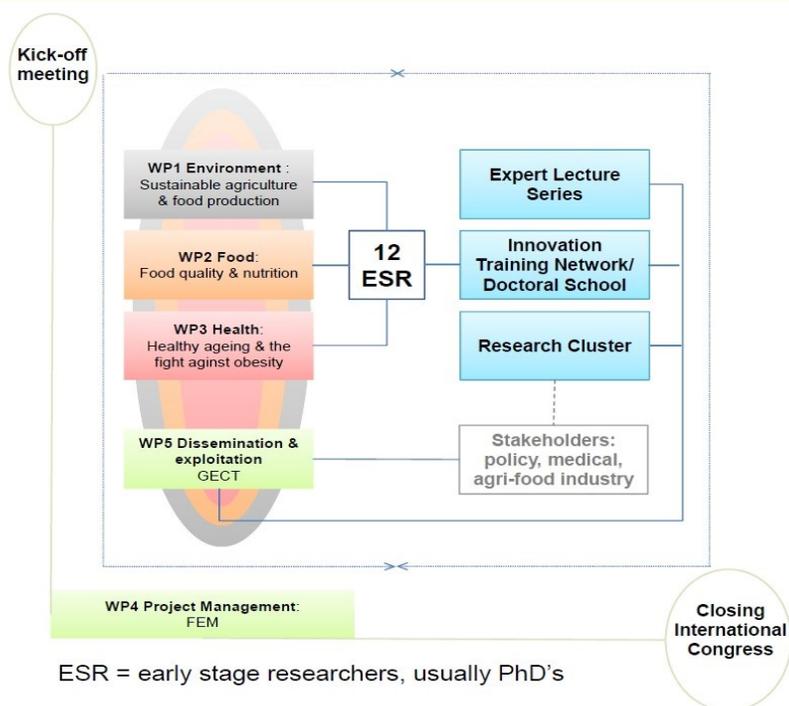


EFH Stakeholder Workshops. EFH will organize a series of high level training workshops for stakeholders and decision makers in EUREGIO presenting how environment, food, diet and life-style can be harnessed to reduce the societal challenges of obesity and age associated disease within the constraints of genetic predisposition. This represents a first step towards personalized nutrition/

and evaluate the nutritional profile of existing EUREGIO foods, adding value to existing EUREGIO food production chains. We will investigate the socioeconomic, dietary and genetic causes of obesity and provide new state of the art understanding of how modern diet and life-style contribute to obesity and the risk of chronic disease as we age. Moreover, we will explore the

dietary protocols. Finally, EFH will impact on these societal challenges well beyond the lifespan of this current project by training the next generation of postgraduate professionals working in this area.

The **EFH Scientific Research Network** has already brought together internationally recognized experts in the fields of environment, food and health stretching from Trento to North Tyrol under a single working initiative. We aim to build on existing relationships and through the EFH project construct a strong working partnership to attract inward investment from both public (EU) and private sources into EUREGIO environment, food and health research.



medicine. Participants will include stakeholders from the food industry and agriculture, health care systems, academic institutes and political leaders.

The **EFH Post-Graduate School** will bring together EUREGIO academic strengths in environment, food and health to tackle obesity and healthy ageing. 12 individual training projects will implement the EFH research strategy spread across 9 research active institutions in Trento, South Tyrol and North Tyrol. The aim is to harness the natural resources of the EUREGIO agricultural systems while protecting the environment upon which they depend. To identify, test and commercialize new food products

molecular basis of diets and foods thought to protect against chronic disease and design a new, EUREGIO alpine diet, based on the nutritional properties of the Mediterranean style diet but using local EUREGIO foods. We will provide new cause and effect evidence in support of how diet, through interactions with the gut microbiome may be exploited to reduce the burden of chronic disease and promote healthy ageing. We will provide new technologies, including prediction from genetic profiles, to assist clinical nutritionists diagnose and better understand idiopathic digestive disorders and underlying metabolic rates, allowing more personalized design of therapeutic

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EFH in numbers

What is the cost of EFH?
The entire EFH project requires support of 1.2 million Euro.

How many partners in EFH?
There will be 9 partners involved in the project, 12 PhD/postgraduate researchers will be financed and we will recruit broadly from EUREGIO stakeholders to partner at every level of activity.

EFH PARTNERS



AUTONOME
PROVINZ
BOZEN
SÜDTIROL



PROVINCIA
AUTONOMA
DI BOLZANO
ALTO ADIGE



PROVINCIA AUTONOMA DI TRENTO



Scientific member

Department/Division/Lab

Fondazione Edmund Mach

Department of Food Quality and Nutrition (DQAN)-
Nutrition & Nutrigenomics Unit (NN), Metabolomics Unit
(M)
Department of Biodiversity and Molecular Ecology
(DBME) - Applied Ecology (AE),
Computational Biology (CB) technology platform

**Servizio di dietetica e Nutrizione Clinica –
Bolzano**

Servizio di Nutrizione Clinica, Ospedale di Bolzano

**Azienda Provinciale per i Servizi Sanitari -
Provincia Autonoma di Trento**

Servizio di Dietetica e Nutrizione Clinica, Ospedale di
Santa Chiara

Free University of Bozen-Bolzano

Animal Science, Livestock management - Faculty of
Science and Technology

University of Trento

Dept. of Physics, NMR Unit
CAFÉ, Center for Agriculture Food and Environment
CiBio

European Academy of Bolzano

Center for Biomedicine (CBM)
Institute of Alpine Environment (IAE)

Leopold Franzens University Innsbruck

Institute for Biomedical Aging Research (IBA), Division of
Cell Metabolism and Differentiation Research and
Immunology Group
Department of Ecology

Laimburg Research Centre

Laboratory for Flavours and Metabolites

**UMIT—University for Health Sciences,
Medical Sciences and Technology**

Department of Psychology and Medical Sciences, RiskLab
(PMS)
Department of Public Health, Health Services Research
and Health Technology Assessment

EXPECTED RESULTS

The overall aim is to translate both the actual and recommended dietary patterns in EUREGIO into quantitative measures of environmental and health impact, providing key decision makers within the three EUREGIO provinces accurate cost-benefit analysis of ameliorating the environmental impact of food production and improving the nutritional quality of the foods consumed. We will develop a regional specific life cycle inventory database for food and agriculture, expanding the scope of assessment beyond existing measures of environmental impact (e.g. green house gas emissions) to include ecological biodiversity, microbial biodiversity, nutritional and health related measures by estimating the local economic burden of failing to take on healthy eating guidelines and the health related value of access to locally produced, sustainable food products of high nutritional quality.

EFH will deliver **considerable savings** at the local level in terms of **health care costs of obesity and age related disease**. EFH will soften the market for EUREGIO high quality nutritious foods supporting real economic return for both agriculture and the food industry in Trento, South Tyrol and Tyrol.

EFH will drive economic development of a regional “functional foods” sector using nutritional quality to add value to existing autochthonous foods and diversifying the local agricultural economy.

EFH will study **regional dairy products**, measure the impact of different **production intensity farming systems** on dairy product nutritional quality, and isolate, characterise and test lactic acid bacteria with real commercial potential as efficacious probiotics, a valuable resource for development of EUREGIO functional foods and ingredients.

The bespoke dietary intervention study (FASTMOB) for improving metabolic health in obese people will evaluate the effects of a weight lowering dietary regime with high nutritional quality local foods in improving metabolic health, lowering the risk of CVD and helping obese people in maintaining their weight loss in the long-term.

Further, we will promote the EUREGIO food chain by characterizing local foods for their nutritional quality

EFH will define the economic cost of failing to take on healthy eating guidelines and explore the **psychology of consumer behaviour and risk perception** concerning diet and lifestyle choices.