**OXYGENE**

Oxylipins signature to monitor the cardiometabolic status and its response to dietary intervention

**WHAT**

There is an urgent need to find reliable early biomarkers of the cardiometabolic syndrome (CardMetS) allowing intervention before irreversible damages develop while assessing the efficacy of nutritional prevention.

Targeted lipidomic profiling of oxylipins could provide relevant and sensitive biomarkers. The main objective is to uncover and validate the oxylipin signatures reflecting the trajectory from healthy to CardMetS and its relationships with diet.

**WHO**

The OXYGENE project brings together partners from France, Germany, Canada, Denmark and Poland with complementary and multidisciplinary expertise in nutrition, analytical chemistry/Lipidomics, nutritional epidemiology and cardiometabolic health.

**HOW**

Using an optimized targeted lipidomic approach and leveraging 2 independent prospective cohorts (i.e. the Polish PURE and the French NutriHérité-Santé cohorts) and 2 whole-diet interventions (Shopoulos and iMAPS) the consortium will identify and validate novel cardiometabolic endpoints, and (ii) evolving consistently with CardMetS and with different dietary interventions, namely biosensors, metabolomic and -omic biomarker signatures of healthy dietary choices (adherence to a Mediterranean diet) with a positive long-term health outcome (protection against T2DM).

**FUNDING**

The OXYGENE project is cofunded by the European Union’s Horizon 2020 Framework Programme and receives approximately 2.3 million euros over 4 years (grant agreement n. 864295).

**SALAMANDER**

SALAvy bioMarkers of Mediterranean diet associated with long-TERM protection against type 2 diabetes mellitus

**WHAT**

Saliva offers the advantages of simple and non-invasive sampling and a rich source of biomarkers thanks to the high diversity of its microbiome, proteome and metabolome. Saliva composition is also dependent on diet.

The SALAMANDER project aims at identifying and validating salivary signatures indicative of healthy dietary choices (adherence to a Mediterranean diet) with a positive long-term health outcome (protection against T2DM).

**WHO**

SALAMANDER brings together partners from France, from the United Kingdom and Spain.

**HOW**

Using the UKBiobank resource, subjects will be categorised based on their health status (T2DM) and diet. The saliva microbiome, proteome and metabolome of selected interventions will be analysed, and analytical data integrated to define a salivary signature of a healthy Mediterranean diet associated with protection against T2DM and diet. The saliva microbiome, proteome and metabolome of selected interventions will be analysed, and analytical data integrated to define a salivary signature of a healthy Mediterranean diet associated with protection against T2DM.

The validation phase will also include elderly cohorts from the ENRICA and 3City-Bordeaux cohorts, to verify whether such signatures are conserved with ageing.

**FUNDING**

SALAMANDER receives approximately 0.62M.

**Contact**

Coordinator: Martine.Morzel@lipon.inra.fr

**VALID**

Valerolatechnones and healthy Ageing: Linking Dietary factors, nutrient biomarkers, metabolomic and proteomic approaches based on the integration of metabolomics and proteomics

**WHAT**

Recent findings convincingly demonstrate that Advanced Glycation End Products (AGEs) are modified protein structures that reflect changes in healthy state. SALIVAGES will investigate whether that diet-induced AGEs can act as reliable biomarkers of changes in health status and/or risk, focusing on the most highly accessible source of AGEs, the saliva.

**WHO**

The project is proposed by a highly qualified multidisciplinary research team with complementary experience in different fields, biochemistry, pathology, bioinformatics and analytical chemistry. The scientific network involves five European countries: Italy, Spain, Ireland, Romania and Germany.

**HOW**

SALIVAGES will provide innovative and original tools for assessing status and efficacy of interventions, namely biosensors, metabolomic and -omic biomarker signatures. It will also deepen understanding of the early events leading to the changes in health status, by multidisciplinary approaches based on the integration of preclinical biological and molecular studies, analytical and food chemistry, information technologies, and glycomic analyses.

**FUNDING**

SALIVAGES receives approximately 1.1M.

**Contact**

Coordinator contact: h.mcnulty@ulster.ac.uk

**BioFN**

Biomarkers for Infant Fat Mass Development and Nutrition

**WHAT**

Childhood obesity is a rapidly growing problem and high-profile research programmes have highlighted the need to prevent and reduce childhood obesity and dietary risk factors. The BioFN project will investigate the complex relationships between maternal diet in pregnancy and early postnatal periods and the child’s diet in early life stages and in adulthood. The Consortium will work together with research teams in the USA, Norway and Finland to explore the links between early life and long-term diet and the development of diet-related diseases and the role of the developing gut and immune system.

**CONTACT**

Catherine.phillips@ucd.ie

**FUNDING**

BioFN receives approximately 1.2M. Coordinator contact: catherine.phillips@ucd.ie

**ALPHABET**

Early life programming of childhood health: a nutritional and epigenetic perspective

**WHAT**

The ALPHABET project aims to improve understanding of nutritional and epigenetic biomarkers of offspring health with a view to refining exposure measures and to aid development of more effective evidence-based public health strategies with an emphasis on advocating healthy lifestyles from pregnancy, pre-pregnancy and early postnatal life, to reduce obesity, improve health and attainment of a range of adverse health outcomes in future generations.

**WHO**

The consortium includes 7 partners from 6 countries (Ireland, France, The Netherlands, Poland and the US).

**HOW**

Using biological samples and data from existing European large-scale birth cohorts at the international forefront of lifecourse epidemiology the consortium will investigate the complex relationships between maternal diet (including dietary quality and infant feeding) and the child’s diet in early life stages and in adulthood and in later life. Infant fat mass development and diet-related diseases will be studied based on long-term developmental effects on later body fat mass and thus metabolic health. Lipid profiles may be used as biomarkers for fat mass development and
chromatography, mass spectrometry
The consortium combines two groups with
WHO indicator for nutrition and health.
the human organism might be a promising
ted. Since the gut microbiome is known to be
eukaryontic cells and all the microbes living in
precise body composition data. This will
to allow developing predictive biomarkers for fat
distribution. By quantifying the dietary effect on
lipid metabolism, gut microbiome meta-
bolism and fat distribution BioNUGUT will provide
tools to prevent childhood obesity.
FUNDING
BioNUGUT receives approximately 1.1M.
Coordinator contact: ak675@cam.ac.uk

**Nutrition and Health**

**Gut Metabotypes as Biomarkers for**

**BioNUGUT**

**WHAT**
Health reflects a balanced condition of all
economic components and all the microbes living in
and on human body. In contrast, for many
different disease entities it has been shown that the host-gut microbiome interaction is disor-
ted. Since the gut microbiome is known to be
be heavily influenced by diet and is a highly
symbiotic interplay between gut bacteria and
the human organism might be a promising
indicator for nutrition and health.

**WHO**
The consortium combines two groups with
access to large and well-characterized human
cohorts and two well-established groups in
Metabolismomics experienced in liquid
chromatography, mass spectrometry (LC-MS) and matrix assisted laser desorption
ionization-time of flight (MALDI-TOF) based
approaches. Those groups are from
Germany, Canada and Austria.

**HOW**
Identification of bacterial metabolites in
the human serum as markers for nutrition and health
using a three step program: 1. Identification of biomarkers of gut bacte-
rial metabolites in the human serum, 2. Validation of the identified
biomarkers in two independent international cohorts and in
the same cohort at different time points, and 3. Verification of the
biomarkers as indicators for nutrition and health in
two human intervention studies.

**FUNDING**
BioNUGUT receives approximately 1.1M.
Coordinator contact: matthias.laudes@uksh.de

**CABALA_Diet&Health**
Circulating Bile Acids as Biomarkers of metabolic health - Linking microbiota, Diet and Health

**WHAT**
Bile acids (BA) through TGR5 and FXR regulate mammalian inflammation, lipid, glucose, and energy metabolism, and are in turn influenced by diet-microbiota
interactions in the gut.

**WHO**
CABALA_Diet&Health aims to establish circulating BA profiles as biomarkers of
health, modulated by diet which reflect a
change in BA metabolism.

**HOW**
In this project researchers from Italy, Ireland, the
UK and Israel work together.

**Using existing data and new mechanistic studies the consortium will contribute evidence in human that diet-gut microbiota interactions
modulate plasma BA profiles and modulate host health. The aim is to
identify plasma BA profiles as biomarkers of health markers and establish microbiota modulation of BA production as a basis for
feasibles probiotics, prebiotic, probiotic and functional food products.

**FUNDING**
CABALA_Diet&Health receives approximately 1.1M.
Coordinator contact: kieran.tuohy@fmach.ie

**DERIVE**
Development of Rifibifavin biomarkers to reveal dietary source/subject status, gene-nu-
trient Interactions and Validated Health Effects in adults cohorts

**WHAT**
Sub-optimal rifibifavin status may be more widespread than generally recognized across
the developed world, because of the reliance on
data only in nutrition surveys, without biomarker evidence.

**WHO**
DERIVE will address this gap by developing accessible rifibifavin biomarkers for use in
population surveys globally, and by demonstra-
ting important functional, gene-nutrient and health effects of optimised rifibifavin status
in Canadian, Irish and UK cohorts.

**FUNDING**
DERIVE receives approximately 0.6M.
Coordinator contact: mwward@ulster.ac.uk

**FAME**
Fatty Acid Metabolism – Interlinking Diet with Cardiometabolic Health

**WHAT**
FAME aims to: 1) identify novel lipids
markers as biomarkers for the effect of ω3 and
ω6 polyunsaturated fatty acids (PUFA) on cardiometabolic health, 2) investigate
gene and dietary fatty acids interactions
relationships with cardiometabolic health, and 3) to investigate genetic determinants of ω6
fatty acids and status and relation with metabolic health.

**WHO**
This consortium brings together 5 experts from
Germany, Spain and the UK.

**HOW**
A unique partnership of scientists from three
journals (Diabetologia, Canadian, Irish
and UK population cohorts to study novel
nutritional biomarkers, and related gene-nutrient
interactions, by functional effects that influence
health, including hypertension, a cause of mortality. The project will lead to
enhancements in health and disease
prevention that can be marketed as a global standard
that is superior to one that is population
specific.

**FUNDING**
FAME receives approximately 0.13M.
Contact of the coordinator: nathalie.delzenne@uclouvain.be

**FiberTAG**
TAGging dietary Fiber intake and their interest for health by measuring biomarkers related to the gut microbiota

**WHAT**
FiberTAG project will establish a set of biomarkers linking dietary fiber (DF) intake and gut-microbiota related health effects. We aim to refine the concept of DF based on novel biological effects that can occur upon gut microbiota-nutrients interaction by using an innovative approaches to evaluate the nutritional interest of novel DF.

**WHO**
The FiberTAG consortium gathers 4 academ-
ic principal investigators from Belgium, France, Germany and Canada, respectively. They do complementary expertise on the following niches: 1) host physiology
with emphasis on mechanisms of cardio-meta-
bolic disorders, 2) intervention studies based
on diet and prebiotic DF, 3) microbial
ecology, 4) data integration and modelling.
Two industrial partners will develop and provide selected insoluble fiber for the
intervention studies.

**FUNDING**
FiberTAG receives approximately 1.35M.
Contact of the coordinator: u.noethlings@uni-bonn.de

**HEALTHMARK**
Metabolic Health through nutrition, microbiota and tryptophan biomarkers

**WHAT**
HEALTHMARK will investigate the complex interactions between the gut microbiota, tryptophan availability and bioactive microbial metabolites of tryptophan, and diet-gut microbiota related health.
Phenotypes of obesity with low visceral adipose tissue as well as metabolically healthy obesity are
fundamental to understanding the role of microbiota in cardiometabolic health. The gut microbiome will
be explored to define novel biomarkers of health-related biomarkers, both in terms of composition and function (microbial metabolites) open to modulation by diet.

**WHO**
HEALTHMARK is an interdisciplinary and
transnational project. The project comprises
investigators coming from EU countries (Germ-
yland, Ireland, France and Italy) with complemen-
tary expertise and exemplars of scientific excellence in this research area.

**HOW**
HEALTHMARK will identify, replicate and
validate biomarkers in existing human population
studies - the DONALD, the Rhineland, the Obesity, and the MUCOL Study - which have dietary information, information on body composition, and biological samples.
Gut microbiota compo-
nation, dietary data only in nutrition surveys, without biomarker evidence. Specific FAs and
lipid metabolites open to modulation by diet. The project will use targeted and untargeted metabolic approaches to determine levels of relevant
precursors, metabolites and bioactive in blood and urine samples.

**FUNDING**
HEALTHMARK receives approximately 1.31M.
Contact of the coordinator: u.noethlings@uni-bonn.de
provide predictive biomarkers for later childhood obesity.

**WHO**

BioNUGIT brings together experts on lipidsomics, proteomics, metabolomics, systems biology, and lipid metabolism from United Kingdom, The Netherlands and Denmark.

**HOW**

BioNUGIT will use lipid profiling in samples from two cohort studies; Sopho-Pluto (Rotterdam, NL) and Cambridge Baby Health Study (UK) for the discovery of the precise body composition data. This will allow to develop predictive biomarkers for fat distribution. By quantifying the dietary effect on lipid metabolism, gut microbiome metabolism and fat distribution BioNUGIT will provide tools to prevent childhood obesity.

**FUNDING**

BioNUGIT receives approximately 1.1M€

Coordinator contact: ak675@cam.ac.uk

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**Gut Metabolites as Biomarkers for Nutrition and Health**

**WHAT**

Health reflects a balanced condition of all the ecosystems of all the cells living in and on human body. In contrast, for many different disease entities it has been shown that the host health is compromised and altered. Since the gut microbiome is known to be heavily influenced by diet, diet-microbiota interactions in the gut are of particular interest in health research.

**WHO**

The consortium comprises two groups with access to large and well characterized human cohorts and two well established groups in Metabolomics experienced in liquid chromatography, mass spectrometry (LC-MS) and matrix assisted laser desorption ionization-time of flight (MALDI-TOF) based approaches. Those groups are from Germany, Canada and Austria.

**HOW**

Identification of bacterial metabolites in the human serum as markers for nutrition and health using a three step program:

1. Identification of biomarkers of gut bacterial metabolites in the human serum, 2. Validation of the identified biopatterns in two independent international cohorts and in the same cohort at different time points, and 3. Verification of these biomarkers as indicators for nutrition and health in two human intervention studies.

**FUNDING**

BioNUGIT receives approximately 1.1M€

Coordinator contact: matthias.laude@uksh.de

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**Development of Riboflavin biomarkers to reflect dietary source, status, gene-nutri-ent Interactions and Validated Health Effects in adults cohorts**

**WHAT**

Sub-optimal riboflavin status may be more widespread than generally recognised across the developed world, because of the reliance on dietary intake only in nutrition surveys, without biomarker evidence.

**DERIVE**

will address this gap by developing accessible riboflavin biomarkers for use in population surveys globally, and by demonstrating important functional, gene-nutrient and health effects of optimised riboflavin status in Canadian, Irish and UK cohorts.

**WHO**

This unique partnership from three jurisdictions brings together Canadian, Irish and UK population cohorts to study novel nutrient factors, and related gene-nutrient interactions, by functional effects on riboflavin status and the physiological effects of dietary intake.

**HOW**

The consortium brings together 5 experts from Germany, Spain and the UK.

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**Fatty Acid Metabolism – Interlinking Diet with Cardiometabolic Health**

**WHAT**

FAME aims to: a) identify novel lipidsomics biomarkers as biomarkers of fatty acid status and of future cardometabolic clinical events, b) investigate gene-nutrient-behavioral interactions and specific foods with tissue status of fatty acids and fatty acid derivatives influencing eating behaviors, c) investigate specific FAs and other novel compounds as biomarkers for functional as well as regulatory functions in cardiometabolic health, and d) to identify plasma BA profiles as health biomarkers and establish microbiota modulation of BA levels using probiotics as well as in vitro co-cultivation and data from the BG Generations Project (www.bggenerationsproject.com) as a platform for the Multidisciplinary Partnership for Tomorrow Project, a major research platform for the study of disease coeustion.

**FUNDING**

DERIVE receives approximately 0.64M€

Coordinator contact: mwward@ulster.ac.uk

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**FiberT AG**

**FUNDING**

The FiberT AG project gathers 4 academic principal investigators from Belgium, France, Germany and Canada, respectively. They gather complementary expertise on the following topics: 1) host physiology with emphasis on management of cardio-metabolic disorders, 2) intervention studies based on diet and prebiotic DF, 3) microbial ecology, 4) data integration and modelling. Two industrial partners will develop and provide selected insoluble fiber for the intervention studies.

**WHO**

This consortium brings together 5 experts from Germany, Spain and the UK.

**HOW**

Specific metabolites selected as biomarkers of microbiota-driven fermentation and gut-related functional effects in gut and in 5 existing cohorts of healthy or overweight participants. The composition and a wheat bran fraction).

**FUTURE RESEARCH QUESTIONS**

Specific FAs and other novel compounds as biomarkers for functional as well as regulatory functions in cardiometabolic health.

**FUNDING**

FiberT AG receives approximately 1.36M€

Contact of the coordinator: nathalie.deslzenie@uclouvain.be

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**HEALTHMARK**

**FUNDING**

HEALTHMARK receives approximately 1.31M€

Contact of the coordinator: u.noethlings@uni-bonn.de
provide predictive biomarkers for later childhood obesity.

B6Fm WHO BioFm brings together experts on lipids, proteomics, genomics, technology, systems biology and metabolism from United Kingdom, The Netherlands and Denmark.

B6Fm HOW BioFm will use lipid profiling in samples from two birth cohort studies, Sapho-Pluto (Rotterdam, NL) and Cambridge Baby Health Study (UK) to find circulating body composition data. This will allow to develop predictive biomarkers for fat distribution. By quantifying the dietary effect on lipid metabolism, gut microbiome metabolism and fat distribution BioFm will provide tools to prevent childhood obesity.

FUNDING BioFm receives approximately 1.1M €. Coordinator contact: ak675@cam.ac.uk

BioNUGUT Gut Metabotypes as Biomarkers for Nutrition and Health

WHAT Health reflects a balanced condition of all the proteinic cells and all the microbes living in and on human body. In contrast, for many different diseases it has been shown that the host-microbiome axis is dysregulated.

B6Fm HOW Identification of bacterial metabolites in the human serum as markers for nutrition and health using one step program: 1) Identification of biosignatures of gut bacterial metabolites in the human serum, 2) Validation of the identified biosignatures in two independent international cohorts and in the same cohort at different time points, and 3) Verification of the identified biosigna- terminals as indicators for nutrition and health in two human intervention studies.

FUNDING BioNUGUT receives approximately 1.1M Euros. Coordinator contact: matthias.laudes@uksh.de

CABALA_Diet&Health Circulating Bile Acids as Biomarkers of Metabolic Health - Linking Microbiota, Diet and Health

WHAT Bile acids (BA) through TGR5 and FXR regulate mammalian inflammation, lipid, glucose, and energy metabolism, and are in turn regulated by diet-microbiome interactions in the gut.

B6Fm HOW CABALA-Diet&Health aims to establish circulating BA profiles as biomarkers of health, modulated by diet which reflect a microbial environment in metabolic health.

WHO In this project researchers from Italy, Ireland, the UK and Israel work together.

HOW Using existing data and new mechanistic studies the consortium will provide evidence in humans that diet-gut microbiota interactions modulate plasma BA profiles and modulate host health. The aim is to identify plasma BA profiles as health biomarkers and establish microbiota modulation of BA profiles and BA-based biomarkers for efficacious probiotic, prebiotic, probiotic and functional foods.

FUNDING CABALA_Diet&Health receives approximately 1.1M €. Coordinator contact: kieran.tuohy@fmach.net

DERIVE Development of Riboflavin biomarkers to reflect dietary sources, dietary status, gene-nutri- tion Interactions and Validated Health Effects in adults cohorts

WHAT Sub-optimal riboflavin status may be more widespread than generally recognised across the developed world, because of the reliance on dietary data only in nutrition surveys, without biomarkers evidence.

B6Fm HOW DERIVE will address this gap by developing accessible riboflavin biomarkers for use in population surveys globally, and by demonstrating important functional, gene-nutrient and health effects of optimal riboflavin status in Canada, Irish and UK cohorts.

WHO This unique partnership of experts from three jurisdictions - Canada, Irish and UK population cohorts to study novel nutrient factors, and related gene-nutrient interactions, by functional effects influence health, including hypertension, a leading cause of mortality. The project will also enrichments in heart and disease prevention that can be marketed as a global lifestyle product over and above that is one upon that is specific.

B6Fm HOW This consortium brings together 5 experts from Germany, Spain and the UK.

FUNDING WHO What this project is to a) identify novel lipids biomarkers as biomarkers of fatty acid status and of future cardiometabolic clinical events, b) to perform mechanistic, metabolic and specific foods with tissue status of fatty acids, and fat metabolites, in diet-microbiome interactions with cardiometabolic health, and c) to investigate genetic determinants of fatty acid status and metabolism which modify the physiological effects of dietary intake.

WHO This consortium brings together 5 experts from Germany, Spain and the UK.


FUNDING WHO This project is to a) identify novel lipids biomarkers as biomarkers of fatty acid status and of future cardiometabolic clinical events, b) to perform mechanistic, metabolic and specific foods with tissue status of fatty acids, and fat metabolites, in diet-microbiome interactions with cardiometabolic health, and c) to investigate genetic determinants of fatty acid status and metabolism which modify the physiological effects of dietary intake.

WHAT Specific metabolites selected as biomarkers of diet and metabolic health. Phenotypes of diet and metabolic health. Phenotypes of diet and metabolic health.


WHAT Specific metabolites selected as biomarkers of diet and metabolic health. Phenotypes of diet and metabolic health. Phenotypes of diet and metabolic health.


**WHAT**

There is an urgent need to find reliable early biomarkers of the cardiometabolic syndrome (CardMetS) allowing intervention before irreversible damage develops while assessing the efficacy of nutritional prevention.

**Targeted lipidomic profiling of oxylipins could provide relevant candidate biomarkers.** The main objective is to uncover and validate the oxylipin signatures reflecting the trajectory from health to CardMetS and its relationships with diet.

**WHO**

The OXYGENA TE project brings together partners from France, Germany, Canada, Denmark and Poland with complementary and multidisciplinary expertise in nutrition, analytical chemistry/lipidomics, nutritional epidemiology and cardiometabolic health.

**HOW**

Using an optimized targeted lipidomic approach and leveraging 2 independent prospective cohorts (i.e. the Polish PURE and the French NutriNer Santé cohorts) and 2 whole-diet interventions (Shopus and iMAPS) the consortium will identify oxylipin signatures (i) differentiating individuals at different stages of cardiometabolic status, and (ii) evolving consistently with and validating salivary signatures indicative of healthy dietary choices (adherence to a Mediterranean diet) with a positive long-term health outcome (protection against T2DM).

**WHO**

OXYGENA receives approximately 0.72M €.

**Contact:** cecile.gladine@clermont.inra.fr

**FUNDING**

ERA-NET Cofund ERA-HDHL: FUNDING=

**VALID**

Valerolactones and healthy Ageing: Linking Dietary factors, nutrient biomarkers, metabolism and cognition in older adults.

**WHAT**

Recent findings convincingly demonstrate that Advanced Glycation End Products (AGEs) are modified by diet and reflect changes in healthy state. VALID will investigate whether that diet-induced AGES can act as reliable biomarkers of changes in health status and/or risk, focusing on the most highly accessible source of AGES, the saliva.

**WHO**

The project is proposed by a highly qualified multidisciplinary research team with complementary expertise in biochemistry, pharmacy, analytical chemistry and analytical chemistry. The scientific network involves five European countries: Italy, Spain, Ireland, Romania and Germany.

**HOW**

Using the UK Biobank resource, subjects will be categorized based on their health status (T2DM) and diet. The saliva microbiome, proteome and metabolome of selected individuals will be analyzed, and analytical data integrated to define a biomarker signature of a healthy Mediterranean diet associated with protection against T2DM.

**WHO**

VALID sponsors together with partners from France, the United Kingdom and Spain.

**HOW**

Using the UK Biobank’s resource, subjects will be categorized based on their health status (T2DM and diet). The saliva microbiome, proteome and metabolome of selected individuals will be analyzed, and analytical data integrated to define a biomarker signature of a healthy Mediterranean diet associated with protection against T2DM.

**WHO**

VALID brings together partners from the UK, Ireland and Italy with multidisciplinary expertise in nutrition, biochemistry, microbiology, clinical medicine, epidemiology and clinical gerontology, with the aim of conducting impactful research linking dietary polyphenols with cognitive outcomes in older adults. VALID builds on the joint Irish Nutrigenomics Organisation (iNGO) project and specifically its component Trinity, Ulster, Department of Agriculture (TUDA) cohort study.

**HOW**

VALID draws on the TUDA cohort, a unique resource on 5200 adults aged 60-102 years recruited from the UK and Ireland, providing a range of biomarkers and health measures. Apart from performing new analysis on bio-banked TUDA samples, VALID will access TUDA 5’s, a follow-up 1000 participants from the original cohort 5 years after entry, to determine whether that diet-induced AGEs can act as reliable biomarkers of changes in health status and/or risk.

**WHO**

The consortium includes 7 partners from 6 countries (Ireland, UK, France, the Netherlands, Poland and the US).

**HOW**

Utilising biological samples and data from existing European longitudinal birth cohorts at the international forefront of lifespan epidemiology the consortium will investigate the complex relationships between maternal diet, birth weight, and epigenetic risk factors, offspring health outcomes (including adiposity, bone, cardiometabolic, respiratory and neurodevelopmental health) and epigenetic patterns (DNA methylation) from birth throughout childhood.

**FUNDING**

ALPHABET receives approximately 1.2M €.

**Contact:** catherine.phillips@ulster.ac.uk

**BioFN**

Biomarkers for Infant Fat Mass Development and Nutrition

**WHAT**

Infant fat mass development is modulated by diet-induced effects on later body fat mass and thus metabolic health. Lipid profiles may be used as biomarkers for fat mass development and
OXYGENE
Oxylysins signature to monitor the cardiometabolic status and its response to dietary intervention

WHAT
There is an urgent need to find reliable early biomarkers of the cardiometabolic syndrome (CardMetS) allowing intervention before irreversible damages develop while assessing the efficacy of nutritional prevention. Targeted lipidomic profiling of oxylysins could provide relevant cardiometabolic biomarkers. The main objective is to uncover and validate the oxylysins signatures reflecting the trajectory from health to CardMetS and its relationships with diet.

WHO
The OXYGENE project brings together partners from France, Germany, Canada, Denmark and Poland with complementary and multidisciplinary expertise in nutrition, analytical chemistry/lipidomics, nutritional epidemiology and cardiometabolic health.

HOW
Using an optimized targeted lipidomic approach and leveraging 2 independent prospective cohorts (i.e. the Polish PURE and iMAPS) the consortium will identify and validate novel biomarkers in early cardiovascular disease (CardMetS) allowing intervention before irreversible damage develops while assessing the efficacy of nutritional prevention.

SALAMANDER
SALiArv bioMarkers of MediterraneanAN Diet associated with long-tErn protection against type 2 diabetes mellitus

WHAT
Saliva offers the advantages of simple and non-invasive sampling and is a rich source of biomarkers thanks to the high diversity of its microbiome, proteome and metabolome. Saliva composition is also dependent on diet. The SALAMANDER project aims at identifying and validating salivary signatures indicative of healthy dietary choices (adherence to a Mediterranean diet) with a positive long-term health outcome (protection against T2DM).

WHO
SALAMANDER brings together partners from France, the United Kingdom and Spain.

HOW
Using the UKBiobank resource, subjects will be categorized based on their health status (T2DM) and diet. The saliva microbiome, proteome and metabolome of selected subjects from the original cohort will be analyzed, and analytical data integrated to define a biomarker signature of a healthy Mediterranean diet associated with protection against T2DM and diet. The saliva microbiome, proteome and metabolome of selected subjects from the original cohort will be analyzed, and analytical data integrated to define a biomarker signature of a healthy Mediterranean diet associated with protection against T2DM and diet. The saliva microbiome, proteome and metabolome of selected subjects from the original cohort will be analyzed, and analytical data integrated to define a biomarker signature of a healthy Mediterranean diet associated with protection against T2DM and diet.

FUNDING
SALAMANDER receives approximately €2.7M. Coordinator contact: Martine.Morzel@dijon.inra.fr

SALIVAGES
Innovative Technological Approaches for validation of Salivary AGEs as novel biomarkers in evaluation of risk factors in diet-related diseases

WHAT
Recent findings convincingly demonstrate that Advanced Glycation End Products (AGEs) are mediators of diabetic retinopathy and reflect changes in healthy state. SALIVAGES will investigate whether diet-induced AGEs can act as reliable biomarkers of changes in health status and/or risk, focusing on the most highly accessible source of AGEs, the saliva.

WHO
The project is proposed by a highly qualified multidisciplinary research team with complementary experience in different fields: biochemistry, pathology, nutrition and analytical chemistry. The scientific network involves five European countries: Italy, Spain, Ireland, Romania and Germany.

HOW
SALIVAGES will provide innovative and original tools for assessing status and efficacy of interventions, namely biosensors, metabolomics and biomimic approaches. It will also deepen understanding of the early events leading to changes in health status, by multidisciplinary approaches based on the integration of proteomics, metabolomics and health data studies. Biomarkers will be evaluated, and evidence-based public health strategies with a focus on Mediterranean diet and healthy lifestyle will be developed.

FUNDING
SALIVAGES receives approximately €1.03M. Coordinator contact: massimo.collino@unito.it

VALID
Volatileoctanes and healthy Ageing: Linking Dietary factors, nutrient biomarkers, metabolites and cognitive assessment with cognition in older adults.

WHAT
Polyphenols, particularly procyanidins (abun-
dant in foods such as tea, cocoa, grapes, nuts and berries), may be beneficial in maintaining a better cognitive function in ageing, but inves-
tigating their role in relation to health is hampered by the lack of robust markers for dietary intake. The consortium will validate novel plant-based biomarkers of protective food and link them with inflammation, metabolic health and cognition in an ageing European population.

WHO
VALID brings together partners from the UK, Ireland and Italy with interdisciplinary expertise in nutrition and epigenetics, epidemiology and clinical gerontology, with the aim of conducting impactful research linking dietary polyphenols with cognitive health in older adults. VALID builds on the joint Irish Nutrigenomics Organisation (INGO) project and specifically its component Trinity, Ulster, Department of Agriculture (TUDA) cohort study.

HOW
VALID draws on the TUDA cohort, a unique resource on 5200 adults aged 60-102 years recruited from the UK and Ireland, providing a range of biomarkers and health measures. Apart from performing new analysis on bio-banked TUDA samples, VALID will access TUDA 5+, a follow-up of 1000 participants from the original cohort 5 years after initial investigation, to determine the role of procyanidin-rich foods in preventing cognitive decline over a 5-year follow-up period.

FUNDING
VALID receives approximately €0.6M. Coordinator contact: h.mcrudden@ulster.ac.uk

OXYGENE
 serde of €.

FUNDING
FUNDING
OXYGENE receives approximately €0.72M. Coordinator contact: cccad.gladene@clermont.inre.fr

SALAMANDER
SALiArv bioMarkers of MediterraneanAN Diet associated with long-tErn protection against type 2 diabetes mellitus

WHAT
Saliva offers the advantages of simple and non-invasive sampling and is a rich source of biomarkers thanks to the high diversity of its microbiome, proteome and metabolome. Saliva composition is also dependent on diet. The SALAMANDER project aims at identifying and validating salivary signatures indicative of healthy dietary choices (adherence to a Mediterranean diet) with a positive long-term health outcome (protection against T2DM).

WHO
SALAMANDER brings together partners from France, the United Kingdom and Spain.

HOW
Using the UKBiobank resource, subjects will be categorized based on their health status (T2DM) and diet. The saliva microbiome, proteome and metabolome of selected subjects from the original cohort will be analyzed, and analytical data integrated to define a biomarker signature of a healthy Mediterranean diet associated with protection against T2DM and diet. The saliva microbiome, proteome and metabolome of selected subjects from the original cohort will be analyzed, and analytical data integrated to define a biomarker signature of a healthy Mediterranean diet associated with protection against T2DM and diet. The saliva microbiome, proteome and metabolome of selected subjects from the original cohort will be analyzed, and analytical data integrated to define a biomarker signature of a healthy Mediterranean diet associated with protection against T2DM and diet.

FUNDING
SALAMANDER receives approximately €0.6M. Coordinator contact: Martine.Morzel@dijon.inra.fr

SALIVAGES
Innovative Technological Approaches for validation of Salivary AGEs as novel biomarkers in evaluation of risk factors in diet-related diseases

WHAT
Recent findings convincingly demonstrate that Advanced Glycation End Products (AGEs) are mediators of diabetic retinopathy and reflect changes in healthy state. SALIVAGES will investigate whether diet-induced AGEs can act as reliable biomarkers of changes in health status and/or risk, focusing on the most highly accessible source of AGEs, the saliva.

WHO
The project is proposed by a highly qualified multidisciplinary research team with complementary experience in different fields: biochemistry, pathology, nutrition and analytical chemistry. The scientific network involves five European countries: Italy, Spain, Ireland, Romania and Germany.

HOW
SALIVAGES will provide innovative and original tools for assessing status and efficacy of interventions, namely biosensors, metabolomics and biomimic approaches. It will also deepen understanding of the early events leading to changes in health status, by multidisciplinary approaches based on the integration of proteomics, metabolomics and health data studies. Biomarkers will be evaluated, and evidence-based public health strategies with a focus on Mediterranean diet and healthy lifestyle will be developed.

FUNDING
SALIVAGES receives approximately €1.03M. Coordinator contact: massimo.collino@unito.it

VALID
Volatileoctanes and healthy Ageing: Linking Dietary factors, nutrient biomarkers, metabolites and cognitive assessment with cognition in older adults.

WHAT
Polyphenols, particularly procyanidins (abun-
dant in foods such as tea, cocoa, grapes, nuts and berries), may be beneficial in maintaining a better cognitive function in ageing, but inves-
tigating their role in relation to health is hampered by the lack of robust markers for dietary intake. The consortium will validate novel plant-based biomarkers of protective food and link them with inflammation, metabolic health and cognition in an ageing European population.

WHO
VALID brings together partners from the UK, Ireland and Italy with interdisciplinary expertise in nutrition and epigenetics, epidemiology and clinical gerontology, with the aim of conducting impactful research linking dietary polyphenols with cognitive health in older adults. VALID builds on the joint Irish Nutrigenomics Organisation (INGO) project and specifically its component Trinity, Ulster, Department of Agriculture (TUDA) cohort study.

HOW
VALID draws on the TUDA cohort, a unique resource on 5200 adults aged 60-102 years recruited from the UK and Ireland, providing a range of biomarkers and health measures. Apart from performing new analysis on bio-banked TUDA samples, VALID will access TUDA 5+, a follow-up of 1000 participants from the original cohort 5 years after initial investigation, to determine the role of procyanidin-rich foods in preventing cognitive decline over a 5-year follow-up period.

FUNDING
VALID receives approximately €0.6M. Coordinator contact: h.mcrudden@ulster.ac.uk

EPADE-ERA-Net
BioFN Biomarkers for Infant Fat Mass Development and Nutrition

WHAT
Childhood obesity is a rapidly growing problem, with programs that have limited effects and prevention is our only hope to stem this new epidemic. Infant fat mass development is modulated by long-term effects on later body fat mass and thus metabolic health. Lipid profiles may be used as biomarkers for fat mass development and