nutrishield

Welcome to the 6th NUTRISHIELD e-Bulletin!

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Key Facts

Grant Agreement:
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H2020-SFS-2018-1
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01 November 2018
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48 months
Coordinator:
Alpes Lasers SA

Project Overview

NUTRISHIELD is an innovative solution, providing personalised nutrition advice and support that will assist people in achieving their optimal health and well-being and adopting long-term healthy and sustainable diets.

NUTRISHIELD aims to integrate laboratory techniques, methodologies, ICT devices & applications, algorithms and other components into one platform and validate it in clinical conditions.

The Challenge

To create a platform that

- promotes safe food for the population,
- enables consumers to make informed choices and
- ensures that the proposed choices will have good chances of being adopted

Assist consumers understand:

- why each food is being suggested,
- what implications each choice may have

Expected Impact

- Empowered consumers able to make healthy and sustainable dietary choices
- Personalised diets upon scientific-based dietary assessment and advice
- Increased consumer trust in personalised nutrition advice and/or support
- Prevention of diet-related and non-communicable diseases
- Quality-Of-Life, Health and Safety of the citizens

Latest Articles in Our Blog

Towards Fatty Acid Profiling In Human Milk By Mid-Infrared Spectroscopy

Within the NUTRISHIELD project, the first step towards mid-infrared (IR) based determination of the human milk fatty acid composition was performed. Compared to conventional methods, this approach enables significantly faster and less laborious analysis. This major success was enabled by combining the technical expertise of different partner institutions. Technische Universität Wien (TUW) contributed know-how in terms of method development of advanced process analytical tools, whereas the Health and Research Institute La Fe, Hospital La Fe (HULAFE) provided human milk samples and experience regarding their analysis.

Read the full post

Digital Health Interventions For Weight Management In Children And Adolescents

What we know

Recent meta-analyses suggest the use of technology-based interventions as a treatment option for obesity in adulthood. However, what's the case when it comes to children and adolescents?

Investigators' research hypothesis

In the context of the NUTRISHIELD project, a scientific team from the Nutrition and Dietetics Department of the Harokopio Univesrity of Athens in Greece implemented a meta-analysis with the aim to examine the effect of technology-based interventions on overweight/obesity treatment in children and adolescents. After a systematic literature and an extensive data extraction, investigators selected in total 9 manu-scripts from 8 clinical trials of 582 children/ adolescents where technology-based vs. conventional interventions were applied to overweight/obese children or adolescents to manage their weight. Body mass index (BMI), BMI z-score and other BMI-related baseline metrics, during and post-intervention were considered as primary outcomes.

Read the full post

Nutrishield's Electrochemical Urine Analyser

As you have already read from the previous blogs, within the Nutrieshield project has been developed a stunning laser-based urine analyser which allows to perform urine analysis without using reagents and bulky instruments. What you may don't know is that in parallel with this device at CSEM facilities it has been developed a miniaturised electrochemical sensor for measuring pH in urine. At this point you may wonder: why another device to analyse urine?
The answer is quite simple, the laser urine analyser needs a special treatment of the samples before being analysed which changes the samples pH (read more in the previous blog : Method Development for NUTRISHIELD Human Milk and Urine Analyser).

Read the full post

Diet → Gut → Brain Axis: Role Of Short Chain Fatty Acids (SCFAs)

Short-Chain Fatty Acids result from bacterial fer-mentation of dietary fibers and resistant starch in our gut. They constitute the main source of nutrition for the cells in the colon and play an important role in our health. It was found that SCFAs can help reduce the risk of inflammatory diseases, digestive disorders, type 2 diabetes, and colon cancer as well as play an important role in the microbiota-gut-brain crosstalk.

Acetic acid, propionic acid, and butyric acid constitute the three most common SCFAs. Acetic acid, the shortest of the fatty acids, operates as an energy source for our muscles and also helps to keep the pH of the gut environment stable.

Read the full post

Personalized Microbiota-Targeted Diet For Treatment Of Type 1 Diabetes And Obesity In Children

Both obesity and Type 1 diabetes (T1D) are multi-factorial chronic diseases characterized by inflammation at intestinal and systemic level. Studies in preclinical models and humans demonstrated that T1D and obesity are influenced by commensal gut microbiota composition. Moreover, recent evidence indicates that some dietary components are fundamental to regulate micro-biota composition and promote a beneficial metabolic intestinal environment that reduces sys-temic inflammation.

Diet interacts with the human 'holobiont', i.e., commensal microbiota, in a person-specific way. From previous studies, several enterotypes have been strongly associated with long-term diets. In particular, the Prevotella enterotype has been associated with a high-carbohydrate diet, while the Bacteroides enterotype has been associated with a diet rich in animal proteins and fats.

Read the full post

The NUTRISHIELD Events

NUTRISHIELD organized a workshop on "How do environmental factors such as diet and lifestyle impact on the pathogenesis of type 1 diabetes and obesity in children".

The objective of this workshop was to disseminate the most recent scientific knowledge on the role of environmental factors, i.e., diet and lifestyle, on the pathogenesis of type 1 diabetes and obesity.

Recent evidence indicates that the gut microbiota plays a key role in controlling metabolism but also in regulating innate and adaptive immunity and preventing systemic inflammation. Both obesity and Type 1 diabetes are characterized by systemic inflammation and immune dysregulation and can be regulated by the gut microbiota composition. Dr Falcone gave an introduction on the NUTRISHIELD project and explained the rationale and importance of building an informatic platform to integrate different clinical and research data regarding dietary habits, lifestyle but also systemic inflammation and gut barrier integrity and microbiota composition in children with type 1 diabetes and obesity. Prof Malin Flodstrom-Tullberg (The Karolinska Institute, Stockholm, Sweden) and Dr Petrelli (San Raffaele Scientific Institute) provided an overview on the pathogenetic mechanisms related to, respectively, type 1 diabetes and obesity and shared the most recent insights on how the diet and gut microbiota can influence those diseases.

NUTRISHIELD at the SPIE PHOTONICS WEST 2022

The SPIE Photonics West 2022 took place from 23rd to 25th of January, 2021 in San Francisco. This event annually brings together top researchers and scientists, as well as leading companies in the field of photonics. The presented topics included biomedical optics, biophotonics, lasers, optoelectronics and many more.

NUTRISHIELD has been represented in this event by our partner TUW with a poster presentation entitled: "Laser-based mid-infrared spectroscopy enables in-line detection of protein secondary structure from preparative liquid chromatography". This poster investigates the potential of quantum cascade laser (QCL) based mid-infrared spectroscopy for flow-through measurements of proteins, representing a key technology for the NUTRISHIELD human milk analyzer.

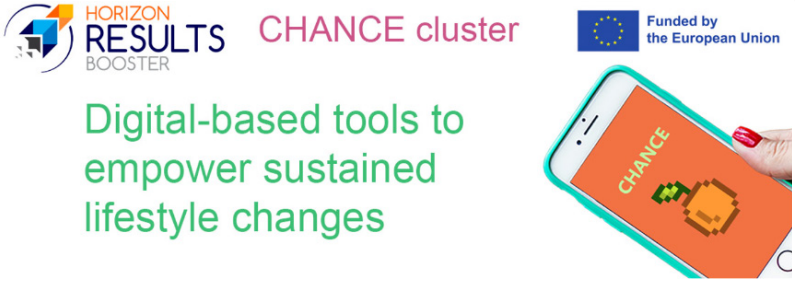
On Saturday May 7th, the HULAFE team from the Nutrishield project organized a face-to-face workshop with the aim of promoting the benefits of breastfeeding from a scientific point of view. The event was held at the Health Research Institute La Fe (Valencia, Spain) and was open for the general public, although families participating in the Nutrishield project received a personal invitation to join. The workshop started with lectures of members of the Nutrishield project team including Maria Gormaz (neonatologist, expert in newborn nutrition) and Julia Kuligowski (analytical scientist, in charge of metabolomics studies in Nutrishield), who showcased the clinical benefits of breastfeeding and the current status of the Nutrishield project. The session continued with different open-air stands, where around 50 people could dive into several knowledge areas associated with Nutrishield case study II including newborn nutrition with human milk, human milk donation and lactation support, neurodevelopment assessment of breastfed infants, recruitment and follow-up of participants, and handling and analysis of human milk in a research laboratory. The common effort of neonatologists, psychiatrists, psychologists, nurses, researchers, and volunteers contributed to the great success of the event, where the importance of research studies focusing on human milk and lactation was reinforced.

NUTRISHIELD, FNS-Cloud, PREVENTOMICS, PROTEIN and Stance4Health have jointly organised a webinar on "Digital-based tools to empower sustained lifestyle changes"

NUTRISHIELD, FNS-Cloud, PREVENTOMICS, PROTEIN and Stance4Health have jointly organised a webinar aiming to explore the advancements made in the development of innovative solutions for delivering personalised nutrition advice to help consumers to adopt long-term healthy and sustainable diets, as well as how big data analysis and predictive modelling in the agri-food, nutrition, and health domains can benefit European citizens.

The webinar presented the fundamentals of personalised nutrition together with food & health data, tools and cloud methodologies and then delved into different approaches and technical solutions being developed by the different EU-funded projects to bring solutions to citizens and industry.

Click here to access the full webinar recording



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