

MAST4HEALTH e-newsletter, 18 Feb 2020

MAST4HEALTH is a Marie Skłodowska-Curie Actions (MSCA) Research and Innovation Staff Exchange (RISE) program under the EU Horizon 2020 framework. The Consortium consists of 13 partners (7 academic and 6 non-academic) from eight European countries (Bosnia Herzegovina, France, Germany, Greece, Italy, Serbia, Spain, United Kingdom) under the coordination of Harokopio University Department of Nutrition and Dietetics (Athens, Greece), with a total funding of 2.124m EUR.

MAST4HEALTH was conceived as a multidisciplinary approach to assess a non-pharmacological intervention for managing Non-Alcoholic Fatty Liver Disease (NAFLD). NAFLD is affecting more than one fourth of the general population worldwide and whose prevalence increases to more than 50% in diabetics and 76% in obese patients. Fatty liver is an increasingly common cause of advanced liver disease (Non Alcoholic Steatohepatitis, NASH and cirrhosis), the most common cause for hepatocellular carcinoma (HCC) and Liver Transplant (LT) and a major risk factor for diabetes and cardiovascular diseases (CVD). The epidemiological data indicate that NAFLD/NASH is an urgent problem for the global public health.

The most common risk factors affecting the NAFLD/NASH development include central obesity, Insulin Resistant Type-2 diabetes mellitus, dyslipidaemia, hyperuricaemia and hypertension. Although the pathophysiology has not yet been completely elucidated, the role of the gut microbiome and epigenetic modifications is evident in the onset and progression of NAFLD/NASH. Studies suggest that the intestinal microbiota may stimulate liver steatosis through the induction of obesity by harvesting energy from otherwise indigestible dietary polysaccharides, regulation of gut permeability and stimulation of low-grade inflammation, modulation of dietary choline metabolism, regulation of bile acid metabolism and stimulation of endogenous ethanol production by enteric bacteria.

Due to the limitations in current NAFLD treatment therapies, new efforts have focussed on exploring non-pharmacologic interventions for managing disease e.g. dietary substances or bioactive phytochemicals in fruits, vegetables, and plants or their products. MAST4HEALTH explored the effects of Mastiha, a natural secreted resin from the Mastikha trees found in Greece which was recently shown to possess antioxidant/anti-inflammatory and lipid lowering properties. European Medicines Agency has classified Mastiha as a herbal substance. A multicenter randomized double-blind placebo-controlled clinical trial was designed to test the effectiveness of Mastiha as a novel non-pharmacologic supplement as a

treatment for NAFLD/NASH. MAST4HEALTH explored gene-diet interactions, specifically the potential activity of the Mastiha, and correlated genetic and epigenetic markers with metabolomic and intestinal microbiota profiles pre- and post-intervention. We are in the process of finalizing our analyses assessing the effectiveness of this intervention and results of the effectiveness will be published in 2020.

Furthermore, one of the MAST4HEALTH project's goals was to train the participating researchers, technicians and PhD students (referred as *secondees*) in new analytical multidisciplinary approaches to address the study and enhance cooperation among partners meanwhile strengthening the interaction between academic and non-academic sectors. As a testament to the success of MAST4HEALTH, over 100 secondees have participated in this exchange programme among academic and non-academic institutions.

The experience of working abroad presented a unique opportunity for the secondees to directly contribute to the project, but more importantly to experience different working sectors and to acquire new knowledge and skills. Evaluation questionnaires were completed by all the participants: results have shown a high level of satisfaction in professional development, skills and knowledge. The most recurrent themes were: building professional relationships, improving communication skills across different languages, acquiring knowledge on clinical trials and gaining experience in the production of Mastiha. The secondees' experience demonstrates the value of the exchange programme.