

Recruitment call for PhD students in the OPUS 23 project entitled „**Effect of intestinal microbiota modulation induced by the chicory inulin-type β -fructans on metabolic parameters and biomarkers of the gut-skin axis in chronic skin inflammation**” led by dr hab. Urszula Krupa-Kozak at the Institute of Animal Reproduction and Food Research of the Polish Academy of Sciences in Olsztyn, Poland.

PhD running title: **Modulation of the intestinal microbiota and its activity induced by the chicory inulin-type β -fructans in chronic skin inflammation**

PhD student will be involved in tasks related to the analysis of intestinal microbiota profile using 16S rRNA and advanced statistical methods, and analysis of metabolites related to microbiota activity (SCFA) using HPLC. In addition, PhD student will be involved in all other research tasks, starting from the biological material collection (blood, urine, feces, skin), data collection, interpretation, and statistical analysis, and manuscript writing.

Project description:

There is increasing evidence of a strong, bidirectional correlation between the gut and the skin, that associates gastrointestinal health with skin homeostasis and allostasis. The dysregulation in the intestinal microbiome-host interplay is connected with the development of many chronic skin inflammations. Plaque psoriasis (PS) is an example of chronic skin inflammation whose etiology, apart from the genetic predisposition, is strongly associated with the “gut-skin axis”. The rise of the local and systemic immune response in PS is a consequence of systemic inflammation due to intestinal dysbiosis associated with increased intestinal permeability. Thus, gut microbiota modulation should become a research target due to its potential beneficial impact on inflammation, including skin dermatitis, and its consequences. It was hypothesized that the restoration of the gut microbiome homeostasis and proper functioning of the intestinal barrier of PS subjects will alleviate the inflammatory symptoms and severity of the skin lesions observed in this chronic skin inflammation.

Many dietary components support skin health. Among them, prebiotics has gained the special interest as ingredients with confirmed ability to improve host health through gut microbiota modulation. Chicory-derived inulin-type fructans (ITFs) are prebiotics that beneficially alters the composition and activity of intestine microbes and reduce intestinal inflammation.

The project aims to determine if a diet supplementation with chicory-derived inulin-type β -fructans vs. placebo will induce health-related benefits in chronic skin inflammation, namely in a mild PS, and determine if the identified benefits are evoked by compositional and/or functional shifts of the intestinal bacterial communities. To achieve this aim, the original, advanced, and complex studies conducted with the participation of mild PS subjects were proposed. This study is designed as a single-center, randomized, double-blind, placebo-controlled, parallel-arm, 8-week nutritional intervention to investigate the effect of consumption of ITFs vs. placebo on gut microbiota characteristics, metabolic parameters, and biomarkers of the gut-skin axis in mild PS.