

Growing research interest in interactions between gut microbiota and host organism has been observed recently. At first, it was proposed that gut microbiota is involved mostly in synthesis of vitamins, including vitamin K and B12. Right now, scientists are more focused on correlations between activity of gut microbiota and cardiovascular system in mammals. Impact of specific gut microbiota-derived metabolites on blood pressure and pathophysiology of cardiovascular disease was investigated.

The main purpose of this research project is to investigate if increased concentration of indole-3-propionic acid, a microbiota-derived metabolite of tryptophan, affects blood pressure and takes part in pathophysiology of hypertension. We will assess changes in cardiovascular system caused by supplementation with indole-3-propionic acid and mechanism of action of this metabolite.

Hypertension is a common disease affecting over one third of Polish citizens. It is also considered as a risk factor for other cardiovascular diseases, classified as main cause of death in our country. Findings of the project may reveal new mechanism taking part in regulation of blood pressure and development of hypertension. The study will help determine if changes in concentration of indole-3-propionic acid in body fluids have beneficial effect on blood pressure. Additionally, results from this project might be later on investigated in clinical trials leading to development of new approach in treatment of hypertension by manipulating gut microbiota.