Projekt 1.1 New strategies for probiotic supplementation in the prevention and treatment of asthma

Promotor: Dr inż. Tomasz Wypych
Pracownia: Laboratory of Host-Microbe Interactions
www: https://nencki.edu.pl/laboratories/laboratory-of-host-microbiome-interactions/

Opis:

The collection of microbes living inside us, known as the microbiota, is central to our health. Over the last decades, we have started to reveal the multi-faceted ways these microorganisms use to influence immunity. To disentangle these interactions, asthma often served as a disease model due to strong epidemiological data supporting the role of microbes in dictating its severity.

The microbiota composition is shaped by environmental and endogenous factors. Of the latter, secretory immunoglobulin A (sIgA) has long been recognized for the "immune exclusion" of bacteria. However, recent evidence indicates that the role of sIgA may be more complex as in certain instances, antibody binding may in fact increase the fitness of coated bacteria. The mechanisms that discriminate between these two fates remain largely unknown, but one element that is likely to be of key importance is the specificity of the antibody.

In our previous studies, we have discovered one such specificity – the identified antibody clone coated certain bacterial taxa, promoted their colonization in the gut, and protected mice against asthma. Here, we plan to take advantage of this model to isolate and culture bacterial strains protective against experimental asthma.

Wymagania:

- MSc degree in microbiology, biology, biotechnology, or similar;
- excellent technical skills in microbiology;
- fluency in English (written and spoken);
- experience in 16S rRNA gene sequencing is a plus;
- experience in handling laboratory mice is a plus.