

## Poster 3

## Metabolite profiles of intestinal and lactic acid bacteria growing on different sugars

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People suffering from non-alcoholic fatty liver disease (NAFLD) show - without any consumption of alcohol - all signs of a typical alcohol-induced fatty liver. So far the elicitor of NAFLD remains unclear. However, alcohol produced by the intestinal microbiota has been discussed to be involved in the development of the disease. In order to take a closer look at this problem, a simple fermentation model was established for evaluating strains intestinal and lactic acid bacteria. So far, we analysed *Anaerostipes caccae*, *Bacteroides thetaiotamicron*, *Bifidobacterium longum*, *Escherichia coli*, *Lactobacillus acidophilus*, *Lactobacillus fermentum*, *Lactobacillus plantarum* and *Lactobacillus reuteri* with respect to their metabolic activities. Medium for colonic bacteria (MCB), supplemented with different sugars like glucose, fructose, lactulose, arabinose, ribose and inulin was used under anaerobic conditions. The results obtained generally reflected the anticipated metabolic activities. Lactate was the major metabolite for all lactobacilli strains. High amounts of ethanol were observed in *L. fermentum* and *L. reuteri*, grown in MCB supplemented with either glucose or fructose. Lactate and acetate were the major metabolites of *B. longum*, however succinate and acetate were the major metabolic substances of *B. thetaiotamicron*. On the other hand, butyrate was only the major metabolite of *A. caccae* in all tested sugars except inulin. *E. coli* showed mixed acid fermentation with different amount of ethanol from all tested sugars except inulin. Fermentation of lactulose and inulin, two potential prebiotics, could reduce the production of ethanol by the intestinal bacteria. We now plan to conduct co-fermentation experiments to see, whether combinations of different bacteria will change the overall metabolic profiles in general and the production of ethanol in particular.

Key words: lactobacilli, *Bacteroides thetaiotamicron*, fructose, prebiotic, probiotic, intestinal microbiota