Project proposal: Restoring gut health in Inflammatory Bowel Disease (IBD); Diet and microbiome in an animal IBD model

We are looking for two master thesis/research year students

Background.

The incidence of IBD and many other diseases are sharply rising. During generations populations in the Western world have lost microbial diversity due to changing lifestyle characterized by a diet with more fat, sugar, meat and less fibres and vegetable. During this process key microbial functions needed for processing or producing essential molecules such as short chain fatty acids or tryptophan metabolites seems to have been lost. This have led to some people being susceptible to diseases such as IBD. Fibre intake may help prevent IBD, but it is not known which microbes is actually needed to utilize them. The focus of this project is to investigate fibre-microbiome combinations restoring gut health.

Aim.

Investigate the effect of microbiome and fibre intake using a mouse model of IBD.

Methods.

Mice will be fed diets with different fibre contents and a model of IBD will be induced (DSS) and characterized by pathology, gene expressions and immune reactions. Gut microbiota will be characterized by sequencing.

Mentors.

Axel Kornerup Hansen, Institut for Veterinær- og Husdyrvidenskab, Sektion for Eksperimentelle Dyremodeller, Ridebanevej 9, 2. sal., 1871 Frederiksberg C, TLF 35 33 27 26, MOB 30 66 34 86, akh@sund.ku.dk

Vibeke Andersen, professor, Research Leader, Research Unit for Molecular Diagnostics and Clinical Research, University Hospital of Southern Denmark, Åbenrå, +45 21157790, va@rsyd.dk

Practical Information.

The study can be performed as a candidate/ research year study at KU or SDU and students can be registered at one of both universities. Students with interest for nutrition, microbiomics and animal studies are preferred (such as veterinary medicine, human medicine, biomedicine, pharmacy, experimental biology, biochemistry, animal science and the like). Two students working on their own project, but collaborating on methods, interpretation, etc., are preferred. You will be involved in describing the study, applying for relevant permissions and expenses/economy. The animal experiments take place at KU.