Theme: The human microbiome / The plant microbiome

1. **'Gut microbiome effects on cardiometabolic disease through metabolism-modifying metabolites (Gut-MMM)', DKK 60 million**

   Main applicant: Fredrik Bäckhed, Professor, Novo Nordisk Foundation Center for Basic Metabolic Research, University of Copenhagen, Denmark and Wallenberg Laboratory for Cardiovascular and Metabolic Research, Sahlgrenska Academy, University of Gothenburg, Sweden

   Co-applicants:
   Thue Schwartz, NNF CBMR, KU, DK

   Jens Nielsen, Chalmers, Göteborg, SE and NNF CFB, DTU

   Max Nieuwdorp, AMC, U Amsterdam, NL

   Brief description:
   Evidence indicates that the bacterial flora in the human gastrointestinal tract substantially influences metabolism and development of cardiometabolic diseases. Nevertheless, the extent to which these factors are linked and whether pharmaceuticals can be developed on this basis are currently unclear. The underlying hypothesis of the project is that microbially synthesized molecules do not simply play a role as the body's energy metabolizers and building blocks; they also play an important role as signal molecules that interact with receptors in endocrine organs.

2. ‘MicrobLiver’, DKK 60 million

Main applicant: Torben Hansen, Professor, Novo Nordisk Foundation Center for Basic Metabolic Research, University of Copenhagen, Denmark

Co-applicants:
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Peer Bork, EMBL, Heidelberg, GE

Jelle Matthijnssens, Clin Epid Virology, KU Leauven, BE

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Brief description:
The portal vein transports metabolites produced by the human gut microbiota directly to the liver, and these may play a role in developing several liver diseases. The project will have access to many patients and will comprehensively screen their microbiota, liver and blood. The goal is to build models that describe the gut microbiome–portal vein–liver axis and to identify biomarkers for predicting, preventing and treating metabolic liver diseases.