

Method for modifying gut microbiota

Scientists at Norwegian University of Life Sciences and University of Copenhagen have developed a unique soil bacterium and demonstrated in animal studies that inclusion of the bacterium in feed has beneficial effects on gut microbiota composition and diversity, energy metabolism, intestinal barrier function and both local and systemic inflammation. The effects have been validated in mouse models of inflammatory bowel disease and diet-induced obesity.

Business Opportunity

A preparation of a soil bacterium in the diet of experimental animals has profound impact on inflammation and conditions associated with metabolic syndrome, reduced barrier function and intestinal microbiota composition. The product is a homogenized and freeze-dried bacteria that will be used as an animal feed additive to prevent inflammation and improve gut health. There is also a huge potential for exploiting the product as a dietary substitute in humans to normalize intestinal microbiota dysbiosis in different conditions. Inven2 AS is seeking licensors to bring the product to market.

Technology Description

- Intervention studies in diet-induced obese mice demonstrate potent effects on microbiota composition. Obese animals fed the bacterial meal changed their microbiota towards a composition typical of animals on a low-fat diet.
- Body scanning by MRI reveals selective loss of adipose tissue, and analyses of liver tissue demonstrate gross changes in lipid composition in animals on bacteria-enriched diets, revealing major effects on energy metabolism.
- Potent anti-inflammatory properties of the product have been confirmed in different animal models. Beneficial effects on intestinal epithelium and mucus production in the colon demonstrate improved barrier function.
- In silico studies have identified genes from the bacterium relevant for understanding these effects, and ongoing studies are focusing on in vitro experiments with recombinant proteins and proteins expressed in established probiotic bacteria.

Intellectual Property

There are granted patents in EPO (EP3661532B1) and US (US11331349B2, US11911418B2).

References

1. Jensen BAH, Holm JB, Larsen IS, et al. (2021 Feb 17) , <https://www.nature.com/articles/s41467-021-21408-9>, <https://www.nature.com/ncomms/>

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