

Modulating Weight Gain and Loss

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Overview

Prof. Elinav and his team have developed a novel approach to prevent weight gain by better understanding smoking cessation-associated weight gain (SCWG). Their research reveals that the gut microbiome and certain metabolites, such as dimethylglycine (DMG) and acetylglycine (ACG), play a critical role in SCWG and also influence weight regulation in non-smokers. This discovery opens pathways for new weight management strategies.

Applications

- Modalities for Weight Management: Development of treatments targeting these metabolites to aid in weight loss.
- Weight Modulation: Potential use of identified metabolites to control weight gain in populations that have difficulty in maintaining a healthy weight (e.g., cancer patients).
- Prevention of Weight Gain in Smoking Cessation: Metabolite-based interventions that prevent SCWG, helping smokers quit without the concern of weight gain.

Advantages

- Microbiome-Targeted Approach: Leverages the gut microbiome's role in weight regulation, offering a unique pathway..
- Evidence-Based: Supported by robust animal model data and preliminary human data, providing a strong foundation for further research and development.

Stage of Development

Prof. Elinav's team has identified key microbiome-modulated metabolites linked to weight gain and demonstrated their effects in mouse models. Preliminary human data in a small cohort further supports these findings. Results have been published in Nature. Clinical follow up trials are already underway.

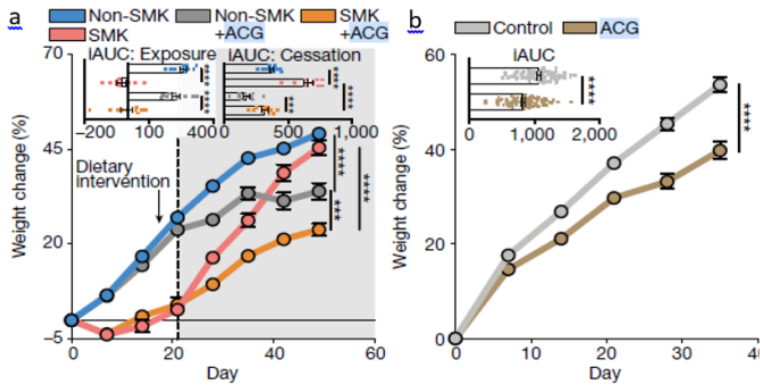


Figure 1 – (a) In the SCWG model, ACG supplementation to HFD-fed mice exposed to smoke ameliorated SCWG. (b) HFD-fed mice supplemented with ACG for 35 days (and not exposed to smoke) had a significantly lower weight gain rate compared with HFD-fed control mice.

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Patent Status

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