Understanding and treating Obesity at the molecular Level

Research Group Leader Jan-Wilhelm Kornfeld

Our Research Interests

Healthy adipose (fat) tissue is essential for energy homeostasis. Aberrant adipose tissue adaptation and lipid deposition in ectopic organs favors metabolic decline. Our group has a longstanding interest in understanding altered gene-regulatory circuits in obese fat, and developing therapeutic approaches for mitigating these in humanized mouse models of cardiometabolic disease.

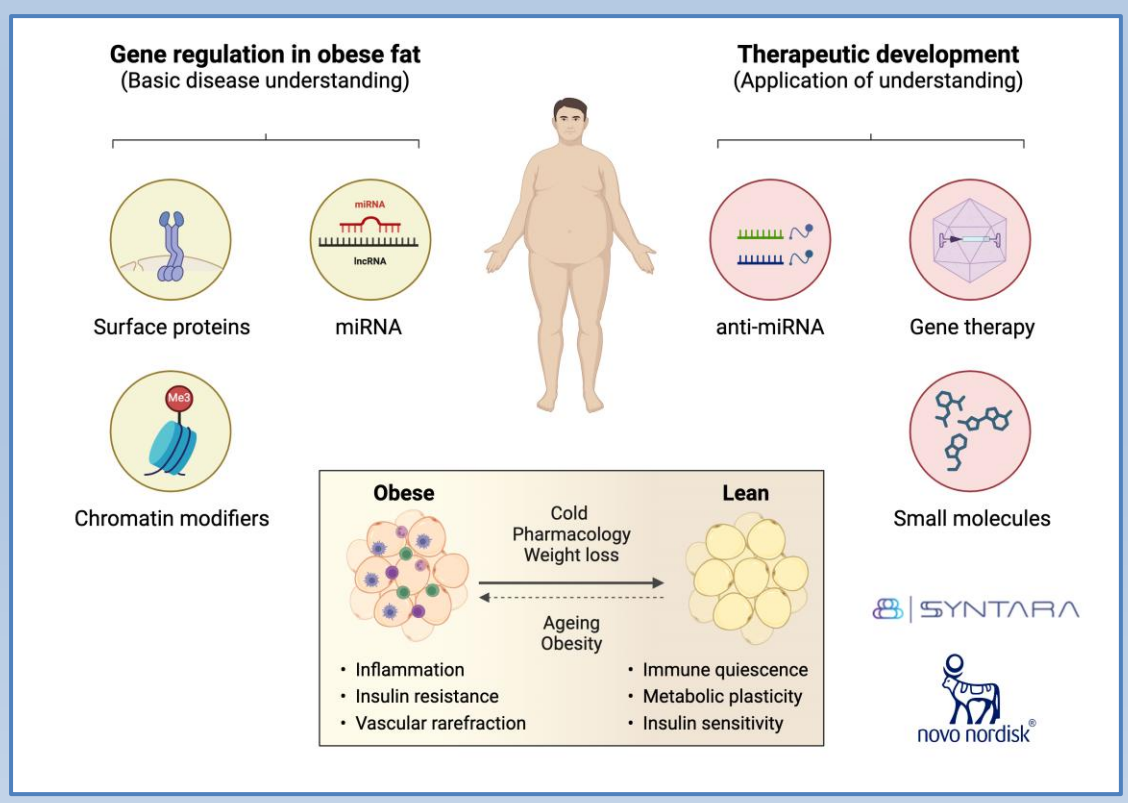
You will have the chance to study altered **gene-regulatory and patho-physiological processes that** affect **adipose function in obesity.** You can study if in-house developed small molecule drugs, and emerging approaches like ”mRNA therapy” can improve metabolic health and protect against obesity-associated metabolic decline in mice and human organoids.

We tackle these **fundamental, therapeutic** and **innovation** questions:

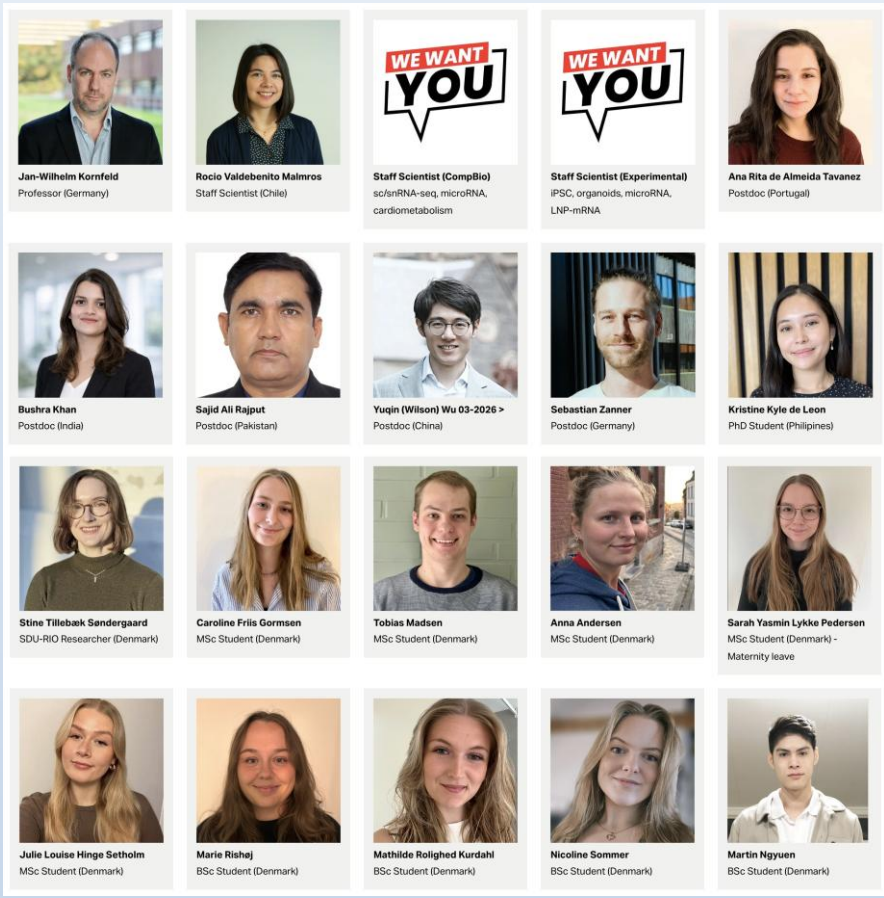
- ❑ How do **microRNAs change gene regulation** in obese adipocytes?
- ❑ Can we target **human obesity-associated microRNAs** ?
- ❑ Can we use **mRNA therapeutics** to correct metabolic dysfunction ?
- ❑ Do our **small molecule inhibitors** promote **weight loss**?
- ❑ Can we build human liver and organoids for drug testing ?

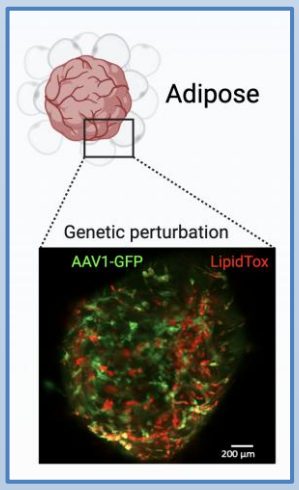
In our work, we apply NGS-based approaches (microRNA, mRNA-Seq), adipocyte cultures, cellular bioenergetics, obese mice and are building up human adipose “mini organs” to test our therapeutic approaches.

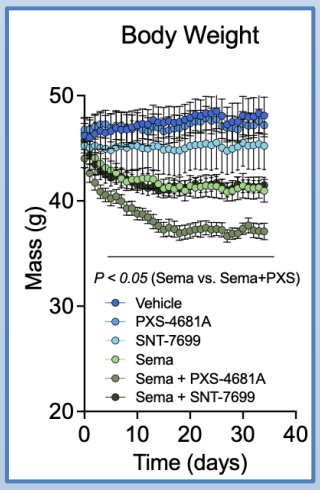
Projects	Description
Project Area I	Gene regulation by microRNAs in cardiometabolism
Project Area II	Small molecules drugs for weight loss
Project Area III	mRNA therapeutics in cells and obese mice

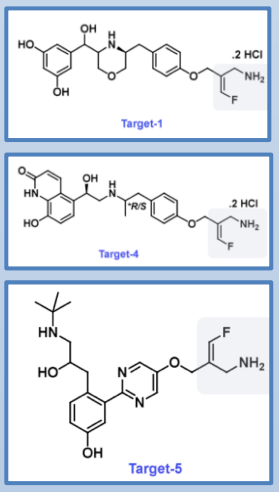


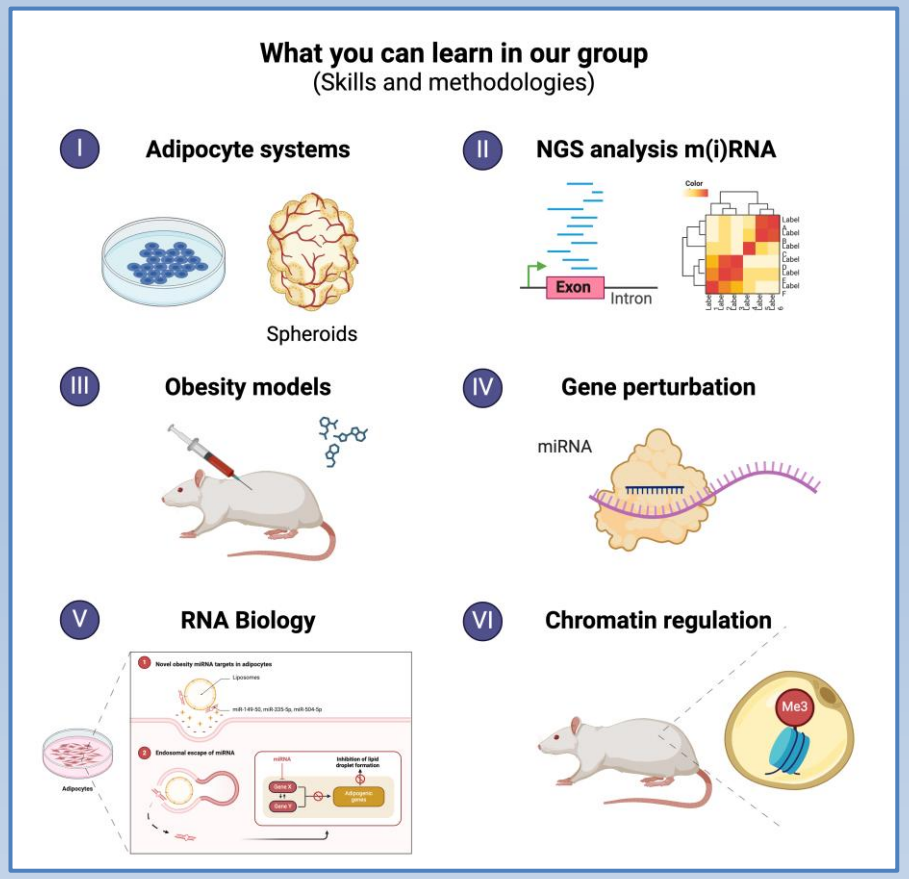
Our Group











www.kornfeldlab.com

SDU Syddansk Universitet

janwilhelmkornfeld@bmb.sdu.dk