

## Scientific Talk

### ***“Resolving adipose biology one cell (type) at a time”***

Thursday, September 19, 9-10 AM  
BMB Seminar room



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**Host:** Prof. Susanne Mandrup

#### **Abstract:**

In this presentation, I will first discuss our lab's recent work on adipose tissue plasticity, specifically focusing on the role of anti-adipogenic stromal cells in this process. We have made significant progress in identifying the developmental origin and function of adipogenesis-regulatory cells (Aregs) in mouse subcutaneous adipose tissue and have gained new insights into IGFBP2+ cells, a functional anti-adipogenic homolog of Aregs, in human visceral adipose tissue. By understanding the function of these cells and how they modulate adipogenic capacity, we aim to elucidate how adipose tissue plasticity is regulated in various contexts such as early life, obesity, and responses to nutrient availability.

In the second part, I will shift to our efforts in unraveling the regulatory mechanisms of fat cell differentiation (among other cell fate trajectories). I will introduce our newly developed single-cell assay, scTF-seq, which quantifies transcriptomic changes in function of transcription factor (TF) dose in single cells. This method, using systematic TF overexpression, provides deep insights into TF dose-dependent cell fate determination and cellular reprogramming. I will

illustrate this by discussing our scTF-seq atlas for 384 murine TFs in mesenchymal stem cells, allowing us to highlight the relevance of scTF-seq data in providing new insights into gene regulation, cellular reprogramming, and developmental biology, while opening new research avenues in tissue engineering.