Danish National Research Foundation

Center for Functional Genomics and Tissue Plasticity
ATLAS
Highlights Summary 2018

The overarching aim of the Center for Functional Genomics and Tissue Plasticity (ATLAS) is to obtain detailed mechanistic understanding of how the different cell types in the liver and adipose tissue change their functions during diet-induced obesity and regression in mouse models; and to translate this for in-depth understanding of human liver and adipose tissue plasticity in response to severe obesity and reversal following bariatric surgery. Highlights from 2018 include:

Recruitment of Center Administrator, Postdocs and PhD students to the ATLAS project. Hiring dedicated staff with the proper scientific and personal skills is key to the success of any project. We put major efforts into identifying the best individuals for the positions as Center Administrator, Postdocs and PhD students in ATLAS and to get them rapidly integrated in the project. By summer 2018, we had a very well-functioning team with complementary expertise and personalities.

The first ATLAS Annual Meeting held at Svanninge Bjerge Research Station, June 18-19, 2018 was a big success. The Research Station and the beautiful surroundings near Faaborg provided the optimal framework for the scientific as well as the social part of the meeting. All ATLAS groups presented their aims, strategies and progress, and these presentations were followed by excellent discussions in the ATLAS Team as well as inspiring feedback and suggestions from the four participating members of the Scientific Advisory Board. The meeting was also an important team-building event where, science was mixed with other social activities, such as walk'n'talk and a set of team-building activities that forced the center members to use collaborative skills.

 The Illumina NovaSeq 6000, which is part of the co-funding from SDU, was purchased ultimo 2017 and installed in January 2018. This new instrument is essential for the work in ATLAS and has greatly improved our sequencing capacity and quality as well as significantly reduced the cost of sequencing. The NovaSeq 6000' data output is at least a 10-fold upgrade compared with the previous Illumina HiSeq 1500 instrument.

Recruitment of the first patient took place in July 2018. In an episode of "Our Hospital" aired on TVSYD in late 2018, we follow Postdoc and Medical Doctor Mette Munk Lauridsen as she is meeting with and taking a biopsy from the first patient. In the short video clip, we see Mette remove small adipose and liver biopsies from the patient under local anesthesia, and hand it over to ATLAS researchers Anitta Kinga Sárvári and Ronni Nielsen, who prepare the samples for transport to Odense and subsequent analyses. Since then 40 patients has been enrolled and many adipose and liver biopsies have been sampled prior to surgery. Moving forward, biopsies will be sampled prior to, during and post-surgery. These biopsies will be used for transcriptomic (including single cell transcriptomics) and proteomics analyses to provide insight into human adipose and liver tissue plasticity during regression of obesity in response to bariatric surgery.

Funding of ADIPOSIGN. In December 2018, Center Director Susanne Mandrup obtained 60 mill DKK through the Challenge Program of the Novo Nordisk Foundation to established **Center for Adipocyte Signaling (ADIPOSIGN).** The Center will be launched in May 2019 and will provide lots of synergy with ATLAS in terms of human resources and technologies.