



Danish National Research Foundation
Center for Functional Genomics and Tissue Plasticity
ATLAS

Highlights Summary 2017

The overarching aim of the Center for Functional Genomics and Tissue Plasticity (ATLAS) (www.sdu.dk/en/atlas) is to obtain systems-level, mechanistic and cell type-resolved understanding of adipose and hepatic tissue plasticity in response to diet-induced obesity and regression in mouse models; and to translate this for in-depth understanding of the functional changes in human adipose and hepatic tissues in response to severe obesity and reversal following bariatric surgery. Highlights from 2017 include:

The official opening symposium took place November 6, 2017. During the official part in the morning, several representatives of the SDU administration, including the Vice Chancellor, Henrik Dam, as well as the Chair of the Danish National Research Foundation, Professor Liselotte Højgaard, congratulated the center director as well as members of ATLAS. Professor Susanne Mandrup spoke about her excitement about the funding and the expectations for what can be achieved by ATLAS. She emphasized the importance of collaborative work



and said that a vision for ATLAS is to provide opportunities for young researchers to join forces to go beyond state-of-the-art. To symbolize productive and creative teamwork, the band *See You Soon Racoon* entertained with their own funky and jazzy compositions. During the lunch buffet hosted by the Natural Science Faculty, the band played more traditional jazz. In the afternoon symposium, three members of the Scientific Advisory Board of ATLAS as well as other ATLAS collaborators gave talks about their work.

Two state-of-the-art instruments have been purchased as part of the co-funding from SDU, and both arrived late December 2017. The *Illumina NovaSeq 6000* sequencer is the newest and most advanced high throughput DNA sequencer from Illumina, and the one at SDU is the second of its kind in Denmark. The high capacity of the new NovaSeq allows the researchers in ATLAS to study e.g. cellular gene expression thoroughly by sequencing RNA from hundreds of mouse or human samples in each run much faster and at lower costs than before. The data output is up to 20 billion sequencing reads per run. This is at least a 10-fold upgrade compared to the Illumina HiSeq 1500 sequencing platform which was already an integrated part of the Functional Genomics Research Unit.



The Moestrup/Graversen group acquired the *PALL Octet RED96e Biolayer Interferometry* instrument, which can be used to measure very small interactions. It will be used to characterize the potential receptor-ligand interactions identified from the genomic characterization on a protein level. Furthermore, it will serve as a tool for screening of the binding of antibodies to identified targets and other proteins of potential interest in modulation of liver cells.