



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

Highlights Summary 2024

The aim of ATLAS 2.0 is to gain systems-level, mechanistic understanding of the plasticity of human adipose and hepatic tissues at single cell spatial resolution in response to severe obesity and regression. This insight will be used to uncover disease mechanisms and map disease trajectories of human obesity comorbidities, specifically metabolic associated steatotic liver disease.

Kick-off of ATLAS 2.0. A major milestone in 2024 was that we per January 1 started the new funding period. In ATLAS 2.0, we have further strengthened the collaboration between basic science and the clinic and now focus primarily on human tissue plasticity using mouse models mainly for follow-up mechanistic studies. We have also introduced a new organization structure with work package (WP) leaders and a managing group consisting of the director, WP leaders and the center administrator. We celebrated ATLAS 2.0 with a kick-off mini-symposium on April 2.

Villum Kann Rasmussen Annual Award in Natural Science and Technology. Center director Susanne Mandrup received the Villum Kann Rasmussen Annual Award in Natural Science and Technology, and this was celebrated at the Royal Danish Library in Copenhagen. Part of the entertainment was a dance performance where the dancers were dressed up as fat cells.



4th Danish Single Cell Symposium in Odense. Susanne Mandrup and Jonathan Brewer were main organizers of the 4th Danish Single Cell Symposium which had more than 200 participants from Denmark and abroad, including 17 sponsoring companies. The symposium was for the first time jointly organized by the Danish Single Cell Examination Platform (CellX) and the Danish Single Cell Network, which have previously been organizing their separate meetings. The joint meeting was so successful that the networks decided to merge their meetings and efforts also in the future. To extend and expand CellX (to CellX 2.0), we applied in October to the Danish Agency for Higher Education and Science on behalf of the single cell community in Denmark.

we held a workshop on creativity in research, and we organized external talks, poster session, and “park session” workshops on selected research topics. The overlap with the Annual Meeting of ADIPOSIGN offered the opportunity to exchange ideas and progress between the centers. The surprise entertainment this year was delivered by Center Administrator Louise Elmelund-Præstekær and her colleague, who spoiled us with their beautiful songs in Danish, English, German, and Swedish.

Our 7th Annual ATLAS Meeting at Gl. Avernæs. In September 2024 ATLAS once again convened at the beautiful Hotel Sinatur, Gl. Avernæs for our Annual Meeting held conjunct with the Annual Meeting of Center for Adipocyte Signaling (ADIPOSIGN). In addition to the thorough review of project status,



The Danish Science Festival (Forskningens Døgn). The Danish Science Festival continues to be a great opportunity for dissemination of our basic research and for showcasing how it contributes to solving problems in society. The festival was celebrated April 20 at the University of Southern Denmark and together with ADIPOSIGN we organized a very popular minilab where guests could purify DNA from fruit, and a station where people could look at liver biopsies and tissue sections in the microscope. This year we also included a computational biology activity, which was well received. It was six intense hours with loads of interactions.

Publication of ATLAS-funded liver study. The Ravnkjær group published their single cell studies of mouse liver during metabolic dysfunction-associated steatohepatitis (MASH). Their work indicates that stellate cells play an important role in maintaining hepatic homeostasis and that changes in stellate cell programming during MASH not only drives fibrogenesis but also desensitize the hepatic sinusoid to liver homeostatic signals.