

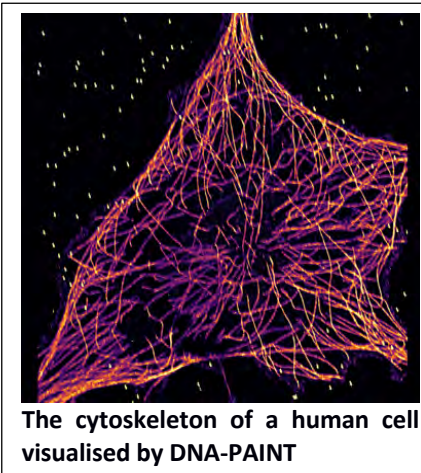
Annual Report 2019 - Highlights

Top events:

- > CellPAT held its second annual retreat at Hotel Ry. Participants from all six partner labs enjoyed two days of scientific presentations, networking and walks along the lake.
- > 3 new PhD students were hired and 2 graduated.
- > CellPAT partner Søren Degn received a Sapere Aude-grant from the Independent Research Fund.
- > Steffen Thiel and Søren Degn moved their research groups to the recently completed Skou building at Aarhus University



Research highlights:



-> The Jungmann lab improved image acquisition for DNA-PAINT, which is a crucial step towards high-throughput imaging. In one study (Schueder et al. 2019, Nature Methods), the group achieved a ten-fold increase in image acquisition speed. Another paper (Stehr et al 2019, Nature Communications) showed that altering the TIRF-angle improves signal quantity and quality for DNA-PAINT. These improvements bring DNA-based super-resolution imaging to a regime, where the door is open to high-throughput cellular studies, applicable to a wide range of CellPAT activities.

-> The Degn lab (and the Department of Biomedicine at Aarhus University) set up a new two-photon microscope that will be applied in a range of CellPAT-related projects. In addition, the group established a transgenic T-cell receptor mouse model that will be used

to study T-cell receptor activation dynamics and function as a readout in efforts to develop new vaccines

-> The Kjems lab constructed a synthetic DNA nanopore capable of selectively translocating protein-size macromolecules across lipid bilayers (Thomsen et al 2019, Nature Communications). In addition, a functional gating system inside the pore enables biosensing of very few molecules in solutions.

