

## Annual Report 2022 – Highlights



CellPAT partners assembled at the annual meeting in Ry (left) and at the international conference in Multivalency in Biology held at the Royal Society of Science and Letters in June 2023.

### **Important events:**

- International conference organized by CellPAT: Multivalency in Biology, Copenhagen, Denmark
- 4 successful PhD defences from CellPAT PhDs: Marjan Omer, Alex Ferapontov, Sadegh Ghorbani, Blaise Louis
- Aleksandra Ekland handed in her PhD thesis in 2022 (defended in Feb 2023)
- Fiona Watt started as director of EMBO and started a new lab within the cell biology and biophysics unit at EMBL in Heidelberg
- Self-evaluation report and plan for CellPAT2.0 was submitted to the DNRF
- Julán Valero joined CellPAT as tenure track assistant professor

### **Research highlights:**

- A joint publication in ACS Nano between the Sutherland, Kjems, and Jungmann labs is the first reported example of DNA-PAINT visualisation of functional receptors at the surface of bacteria. The study uncovers the need for multivalent receptor interaction for *S. aureus* adhesion to the extracellular matrix (ECM)-protein fibronectin. This is important for our understanding of how bacterial biofilm can build up at surfaces in our body and cause disease.
- A joint publication in Nature Communication between the Thiel, Degn, Kjems, and Jungmann labs demonstrates a model for how B-cells are activated by multivalent epitope binding and how the size of the epitope influences the level of activation. With this information we are able to better understand why our immune system sometimes attacks our own body causing autoimmune diseases and how we can make better and more durable vaccines.