CEITEC BIC

Tech Watch

OPTICAL TWEEZERS AND SINGLE MOLECULES:

How to control, manipulate and visualize biomolecular complexes in real-time

INTRODUCTION:

Imagine you could directly see the location and dynamics of individual proteins binding to a single piece of DNA or RNA in real time. What if you could hold a single protein or nucleic acid and manipulate its structure to interrogate its conformational landscape? What if you could assemble your biological complex step by step and expose it to different buffer conditions to test your experimental hypotheses?

With the **LUMICKS C-Trap**, the world's first dynamic **single-molecule microscope** combining high-resolution **optical tweezers**, **fluorescence microscopy**, and **advanced microfluidics** in a truly integrated system, you can do all of this! We will illustrate how the dynamic single-molecule approach can shed light on a **multitude of biological processes**: from the **mechanism of action of nucleic acid binding enzymes** to **protein folding and conformational changes**, from **chromatin remodelling** to properties of **molecular condensates.**

These experiments show that technological advances in hybrid single-molecule methods can be turned into an **easy-to-use** and stable instrument enabling control, visualization and manipulation of single molecules in real time. This gives researchers the power to directly prove molecular mechanisms, in ways not previously possible, allowing you to answer mechanistic questions faster.

After the session there will be a possibility to discuss user's sample. Please contact us (bic@ceitec.cz) to reserve a slot.

Speaker: Daphne Jurriens
Field Application Scientista at LUMICKS

Previous webinar:

Please register here:

In collaboration with

LUMICKS

CIISB
Czech Infrastructure for Integrative Structural Biology

For program updates and additional information, check our webpage: bic.ceitec.cz/events

18/2/2025
11:00

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