Tuesday, February 22
11:30 AM – 1:00 PM
Esplanade, Room 157
LUMICKS

Unlocking Higher Impact Science With the New C-Trap: A Dedicated Dynamic Single-Molecule Tool For Cytoskeletal Surface Assays

In order to obtain a full understanding of the fundamental biological processes in the cell, scientists need to have insights into the molecular mechanisms involved. Studying cytoskeletal structure and transport, therefore, requires information on the mechanical properties and dynamics of molecular motors and filaments at the single-molecule level. Not having this information often leads to an incomplete understanding of the molecular processes involved and less impactful science.

The new LUMICKS C-Trap product line enables scientists to obtain a thorough understanding of cytoskeletal structure and transport – and do this much faster and more reliably than before. Here, we present our latest developments on the LUMICKS C-Trap that have unlocked dynamic single-molecule analysis in this scientific field and are enabling higher impact studies.

The optical tweezers have now been fully optimized for near-surface experiments. The highest force resolution (3D) and stability enable measuring the smallest motor steps, most precise loads of cytoskeletal motors, and filament bending. This is achieved by adding functionalities such as active surface stabilization, accurate near-surface force calibration, axial force detection, and surface assay force feedback. Connecting the mechanical properties to intramolecular dynamics is now also possible by correlating the optical tweezers measurements with single-molecule TIRF and label-free IRM imaging. All come together in a dedicated surface assay workflow that ensures the fastest time to results.

Finally, the imaging module of the new LUMICKS C-Trap can be extended with an integrated widefield imaging mode with single fluorophore sensitivity. This makes the new LUMICKS C-Trap the most versatile multi-user tool and enables applications in the study of not just cytoskeletal structure and transport, but also DNA-binding proteins, protein folding, phase separation, and mechanobiology.

Join our presentation to learn about the latest developments in dynamic single-molecule technology and what it can do for your next scientific breakthrough.

Speaker
Evan Gates, Application Scientist, LUMICKS