

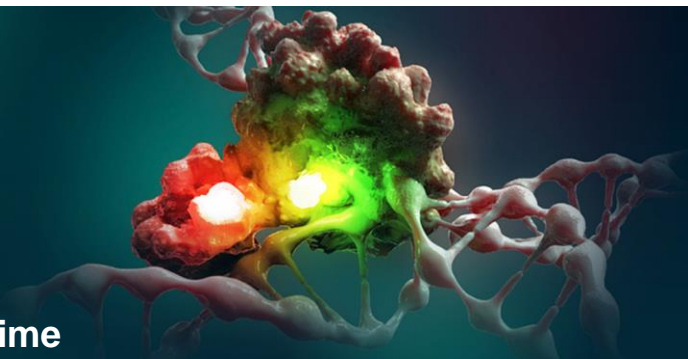
Rosalie Driessen, PhD

Friday March 2nd 10AM-11AM

UC Merced

SSM 230

11AM-3PM Individual Consulting Time



Versatile tools towards real-time single-molecule biology

Biological processes performed by proteins interacting with and processing DNA and RNA are key to cell metabolism and life. Detailed insights into these processes provide essential information for understanding the molecular basis of life and the pathological conditions that develop when such processes go awry.

The next scientific breakthrough consists in the actual, direct, real-time observations and measurements of the individual mechanisms involved, in order to validate and complete the current biological models. Single-molecule technologies offer an exciting opportunity to meet these challenges and to study protein function and activity in real-time and at the single-molecule level.

Here we present our efforts for further enabling discoveries in the field of biology and biophysics using both the combination of optical tweezers with single-molecule fluorescence microscopy (C-TrapTM).

During this seminar we will discuss the latest applications of this technology that can enhance our understanding in the fields of DNA repair, molecular motors, protein folding/unfolding, cell membranes and genome structure and organization.

These experiments show that the technological advances in hybrid single-molecule methods can be turned into an easy-to-use and stable instrument that has the ability to open up new venues in many research areas.