

SUMMER SEMESTER 2025

RTG 2756 CYTAC SEMINAR SERIES

TUESDAY, MAY 27
17:00 IN HS5

CYTAC

RTG 2756

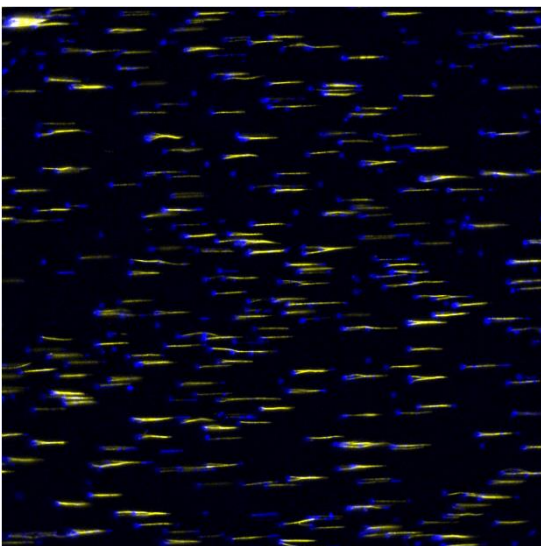
DR. ANTOINE JÉGOU

Cytoskeleton Dynamics Lab

Institut Jacques Monod, Paris

BRANCHED ACTIN FILAMENT TURNOVER AND MECHANOSENSITIVITY

Arp2/3 complex generates branched actin networks essential for numerous functions of the cell. The architecture and mechanical property of actin networks are highly dependent on the rate of actin filament turnover, including the disassembly and nucleation of Arp2/3 branch junctions. We examine the dissociation of individual Arp2/3 branches under various controlled biochemical and



mechanical conditions in vitro using microfluidics. We observe that branch resistance to mechanical pulling forces and ability to regenerate branches strongly depends on the ATP nucleotide state of the Arp2/3 complex. I will discuss the mechanical stability of the binding interfaces of Arp2/3 complex with the mother and daughter filaments, how essential regulatory proteins target Arp2/3 branch junctions, and how these results open up new perspectives for understanding the mechanical dependence of actin network turnover in the cell.